



HM TREASURY

Smoothing investment cycles in the water sector

July 2012



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Preface

The Government committed, as part of the Infrastructure Cost Review programme, to work with Ofwat and the water industry to understand the impacts and causes of highly cyclical investment profiles in the water sector.

The objective of this study has been to identify best practice and to make recommendations to enable key stakeholders to help smooth out investment cycles. This will in turn result in reduced costs to consumers and promote growth and sustainability in a vital sector of infrastructure delivery.

The study team, comprising of Infrastructure UK (part of HM Treasury), and Ofwat, has sought to investigate the causes of cyclical investment and how regulatory incentives and mechanisms translate through to the water companies and the supply chain into the decisions and actions that perpetuate the issue.

This study would not have been possible without the support of Ofwat and the three water companies, representative of the industry, which formed the basis of the detailed study interviews (Anglian Water, Southern Water and United Utilities). The Government therefore extends its gratitude to the management and independent non-executive directors of the water companies, members of their supply chains and their investors, all of whom contributed to the findings and recommendations of this report.

We also wish to thank the many other organisations made valuable contributions to this study – a full list of which is included in Annex A.

The Government, through Infrastructure UK's Cost Review programme, will continue to work collaboratively with Ofwat, the water companies and other key stakeholders in developing and implementing the recommendations set out in this report.

Further details and other Infrastructure Cost Review publications can be found at www.hm-treasury.gov.uk/iuk_cost_review_index.htm

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Executive summary

The Government's Infrastructure Cost Review programme has identified the effects of cyclical investment in reducing the productivity of infrastructure delivery. These effects are most acutely felt in the water sector but are also observed in rail, electricity, gas and roads investment. The Government is seeking to understand the causes of cyclical investment in the delivery of the UK's infrastructure and to take action to mitigate its impact – reducing cost to the taxpayer or consumers and promoting growth and sustainability in the supply chain.¹

Cyclical investment in the water sector has been evident since privatisation. Its effects have led to a stop-start cycle within the water sector supply chain with schemes typically being delivered within the middle three years of a five year cycle. The start and end of the cycle can lead to lean periods of great uncertainty, loss of productivity across the five year cycle, redundancies and an environment of uncertainty in which small and medium enterprises are particularly badly affected.

Box ES.1: The impacts of cyclical investment are a recognised issue in the water sector

“The extraordinary degree of cyclical investment in business flows from the water companies to the sector supply chain, which appears to be largely a response to the price review process, is obviously undesirable. It is hoped that the proposals to make regulation less intrusive and give companies more ownership of their business plans will improve the position, but it may also be necessary to consider some more proactive approaches in the shorter-term.”

Quote from David Gray's review of Ofwat in 2011 ²

British Water has estimated the impact of the cycle leads to between three and five per cent lower productivity based upon the costs of redundancy and rehiring staff alone. This results in the loss of between 20,000 and 40,000 jobs across the sector within each five year period, with associated impacts on skills, training, health and safety performance, productivity and morale. Ofwat has assessed that this lost productivity in the investment programme results in water customers paying an additional £5 to £6.50 on their bills.³

A number of water companies have changed their business processes and are already reducing the impacts of cyclical investment. Others, for a variety of reasons, have been slower to react. This report identifies clearly that the degree of variability in the cycle is a key proxy for the effectiveness of the companies' planning processes and levels of outperformance.

Ofwat has also taken steps to address the issue. The *Future Price Limits - Statement of Principles* document published by Ofwat in May 2012 commits to: the application of the use of outcomes to deliver long term benefits to consumers and the environment; making water companies more accountable to their customers; planning for the delivery of these services over longer timeframes; and to becoming more innovative and to consider the sustainability of resources.⁴ These changes, alongside those made at the last price review (such as the Capital expenditure Incentive Scheme (CIS) and the overlap programme) should contribute to reducing the impact of cyclical investment over the coming years.⁵

¹ www.hm-treasury.gov.uk/iuk_cost_review_index.htm

² Review of Ofwat and consumer representation in the water sector – DEFRA 2011 - <http://www.defra.gov.uk/publications/files/ofwat-review-2011.pdf>

³ Using the PR09 financing framework the average water and sewerage bill across England and Wales would be around £5-6.50 lower at the end of the current price limit period compared with the final determination projected bill. The figures are calculated at an industry level based upon a reduction of 3-5% in the investment programme and therefore the bill impacts would vary between companies.

⁴ www.ofwat.gov.uk/future/monopolies/fpl/pap_pos201205fplprincip.pdf

⁵ Regulatory mechanisms detailed in Chapter 1.

Notwithstanding these measures, many stakeholders in the water sector believe that more has to be done to address the processes and behaviours that drive this cyclical investment. It is even more vital in the current economic climate that the Government works with key stakeholders to find ways of tackling the issue.

The Government, through Infrastructure UK, has worked with Ofwat in developing this report to expose the causes and nature of cyclical investment. No single party has sought to create this cyclical pattern of investment and no party has a vested interest in this cycle continuing. The report identifies the following key contributing factors:

- an embedded culture of cyclical investment;
- effective and timely decisions not being taken;
- the need to improve planning approaches to investment programmes;
- poor transition planning across price review periods; and
- a lack of visible pipeline clearly communicated to the supply chain.

There is no single 'silver bullet', which can solve the issue. Resolution will require co-operation, coordination and greater trust across the many parties involved (Box ES.2).

Box ES.2: Key drivers for changing behaviours

In order to address the causes of cyclical investment regulators will need to consider:

- measures to improve transparency and predictability within the price review process by raising confidence and certainty at the time of the draft determination;
- developing effective incentives that drive choices for investment across the transition, including where appropriate bringing projects forward, recognising the balance of costs and risks between company and customer; and
- improving clarity around existing incentive measures including the overlap programme.

In return water companies will be expected to:

- commit to early development of projects in advance of the next pricing control period;
- implement measures to provide greater visibility of their work programmes; and
- initiate early engagement and improved integration with their supply chains to improve productivity, efficiency and promote innovative solutions.

Consistent with the underlying drivers for change (Box ES.2 above) the Government, working with Ofwat and the industry, has identified **six key recommendations** which the primary stakeholders will need to implement collaboratively, as a package of measures, to reduce further the impacts of cyclical investment for future investment programmes. Other recommendations and examples of best practice are set out in the body of this report.

Key recommendations

Changing the behaviours and culture behind cyclical investment

The sector generally has an embedded culture of delivering a stop-start cyclical investment programme, which is not challenged through the business planning and price review process.

Key recommendation A.1: The following parties should challenge formally the profile of investment during the price review process in 2014 and should directly consider the impact of cyclical and steady state delivery on the water company, the supply chain and the wider water sector:

- Water company boards, including non-executive members; and
- Ofwat (the Water Services Regulation Authority).

Effective and timely decisions

The price review process has a well established two stage determination process, which allows water companies to make representations on the draft determination before the final determination is made by Ofwat. The study team consider that a key cause of the late start within each price review period is the lack of effective and timely decisions within the water companies, with decisions around contracts and forward programme delivery not generally being made until after the final determination. Water companies have said that is because they do not have certainty until this time on either investment or on scheme specific inclusion (particularly with regard to the quality investment programmes).

Analysis by Ofwat has shown that the investment programmes at industry level have risen on average by six to seven per cent between draft and final determinations. At the 2009 price review, scheme specific determinations occurred within the quality programme which represented £5bn of the £22bn investment programme, of these, less than two per cent of schemes changed between draft and final determinations. With this high level of confidence in both funding and quality scheme inclusion, there is a perception across the sector that some water companies are being risk-averse and are not taking effective and timely decisions with regards to year one of their investment programmes.

For future price reviews, Ofwat expects that investment programmes will be based around commitments on outcomes. Scheme specific approvals are only expected to occur in exceptional circumstances.

Key recommendation B.1: Water companies should recognise the programme certainty provided at the time of the draft determination, or earlier, by virtue of the given approvals from quality regulators, clear and robust commitments set out by Ofwat and clarity on the process for resolving outstanding reserved matters.⁶ Efficient water companies will typically instigate contract awards and appropriate activity for year one in a timely manner after the draft determination (summer of 2014) in order to start delivering their investment programme for the 2015-20 period.

An effective transition

An effective transition between regulatory periods is important, to ensure continuity and reduce the cyclical effects. The delivery of an effective transition will require effective engagement between water companies and regulators (economic and quality regulators), followed by effective planning and instigation of feasibility and design activity in advance of the start of the next price review period. The accountability and decision making for such activity clearly sits with the water companies but will involve engagement with the regulators and supply chain for delivery.

⁶ The quality regulators are the Drinking Water Inspectorate, the Environment Agency and Natural England.

Key recommendation C.1: Water companies should undertake feasibility and design studies in 2014 to enable early commencement of programme delivery at the start of 2015. Such planning, should take account of the delivery of long-term outcomes and agreed milestone programmes and outcomes.

Key recommendation C.2: Ofwat will consider the appropriate treatment of investment across the transition, review incentives and the balance of risk between company and customer. This consideration should examine company choice, appropriate recognition of investment, benefits for customers, returns for companies, interactions with the existing CIS mechanism and the incentives for the 2015-20 regulatory period. This consideration will be expected to be part of the development of Ofwat's detailed methodology, which will be published for consultation in autumn 2012.

Effective planning of investment and effective communication and visibility of pipelines

The scale of cyclicity of investment within any one water company is directly related to the effectiveness of their business planning and contractual arrangements with their supply chain. Water companies need to deliver rolling programmes of investment where they have aligned clarity in the form and nature of investment for their assets, with the clarity of outcomes to be delivered. This process will be expected to be embedded into the day-to-day activities of the water company providing a rolling forward pipeline of investment at a minimum of 12 to 18 months.

This rolling forward pipeline of investment will be expected to be clearly communicated with the supply chain; an effective line of communication will be expected to be in place between water companies and tier one suppliers, as well as tier one and the remainder of the supply chain.

Key recommendation D.1: Water companies should consider adopting best practice through effective planning as part of the delivery of their day-to-day investment programme and clearly communicate to the supply chain a detailed investment pipeline with a minimum of 12 to 18 months forward visibility – recognising that this may not be fully achievable across all elements of the programme.

Key recommendation E.1: Water companies and supply chain bodies should adopt best practice tools for the collaborative development and publication of standard pipeline information and sector skills and capability statements. Water companies should use these best practice tools when publishing their investment pipelines. Water companies should aim to implement all of these measures as soon as possible but no later than March 2015.

Delivering for the future

This study has reconfirmed the negative impacts of cyclicity and sets out recommendations which if implemented, can have a material impact on improving cost efficiency, retaining much needed skills and jobs within the water sector and providing customers with better value for money.

As part of the joint study Ofwat will now consider the application of these recommendations as part of its Future Price Limits methodology consultation in autumn 2012. Infrastructure UK and Ofwat will continue to work with the water sector over the coming months to consider how these recommendations are implemented by the key stakeholders across the sector in advance of the start of the next price review period in April 2015.

The negative effect of cyclicity is not restricted to the water sector and Infrastructure UK will continue to work with other regulated sectors and public spending areas, applying the learning from this study where appropriate to benefit those investment programmes.

The Government would welcome thoughts and comments on the analysis and recommendations made in this report, which should be sent to InfrastructureCost@hm-treasury.gov.uk

1

The case for change

Background and study objectives

1.1 Since economic regulation of the water sector began in the late 1980s, the regulatory process has facilitated over £98bn of private investment and delivered safe drinking water, a much improved environment and improved customer service. This five-yearly regulatory process however appears to have stimulated a culture whereby the industry slows during the price reviews, then ramps up to a peak two to three years later, only to ramp down again as the following price review approaches.

1.2 The evidence of this occurring is clear but the causes and effects are less so. In recent years this body of evidence has grown and various measures have been attempted, with varying degrees of success, to mitigate the effects of cyclicalities. Yet the issues remain a significant problem for the industry, adding to the strains of the wider economic conditions faced by the supply chain.

1.3 In 2010 the Infrastructure Cost Review reported that £2-3bn per annum could be saved on the cost of investing across all of economic infrastructure. The reasons for excess cost were varied, some were universal across sectors yet others were sector-specific. Infrastructure UK identified the issue of cyclicalities as one of those drivers of additional cost and a barrier to innovation and supply chain sustainability, particularly in the water sector.¹

1.4 Building on the approach taken for the original Cost Review Report this joint study with Ofwat sought to set out an evidential base to establish the nature and substance of these claims and to identify best practice and further recommendations for consideration and implementation by the key stakeholders.

Process and implementation

1.5 The next price review is scheduled for 2014 and Ofwat are due to consult on the methodology for this in autumn 2012.

Table 1.A: Timeline for the study

Activity	Dates
Terms of reference for study agreed	Sep 2011
Planning and literature review	Oct 2011
Initiation workshops with water companies	Nov 2011 to Jan 2012
Interviews with CFOs, NEDs, supply chains and other stakeholders	Feb 2012 to Apr 2012
Analysis and completion (Future Price Limits Consultation)	May 2012 to Jun 2012 (autumn 2012)

Source: Infrastructure UK

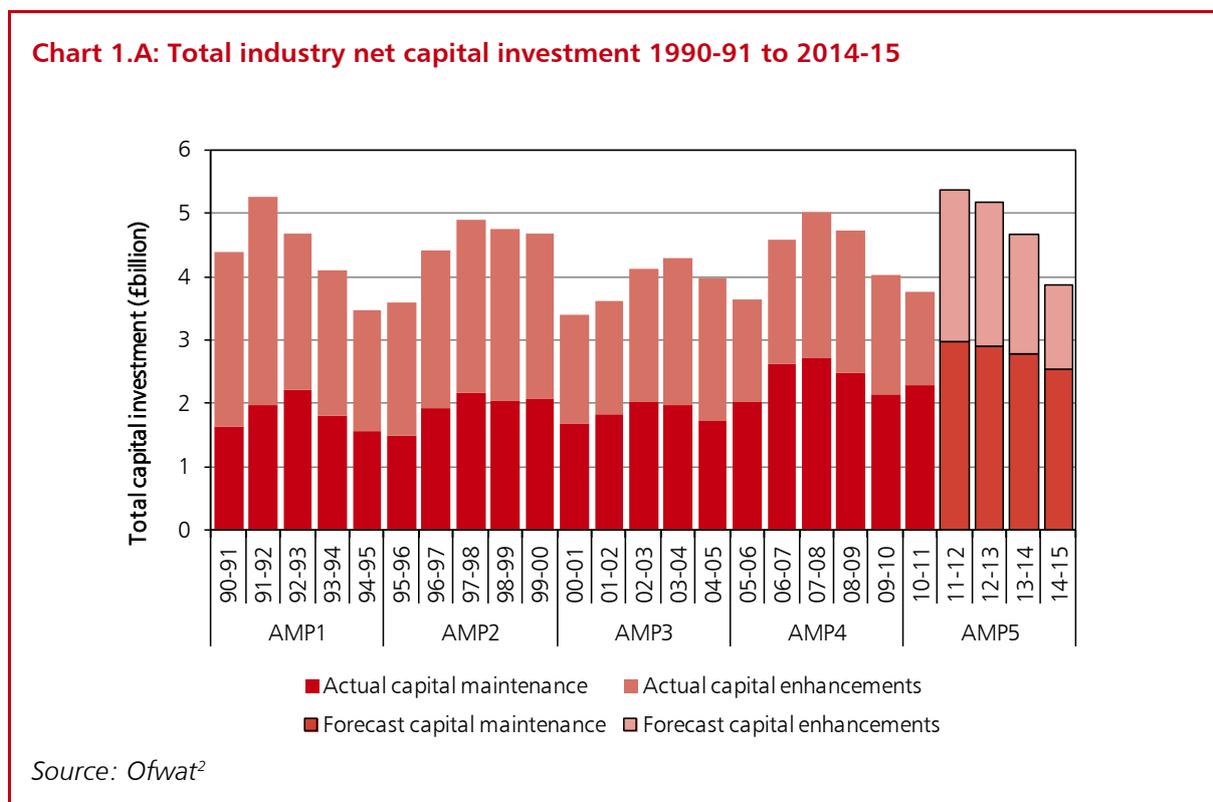
¹ www.hm-treasury.gov.uk/iuk_cost_review_index.htm

1.6 Infrastructure UK and Ofwat initiated this joint study with a view to incorporating its key findings and recommendations into Ofwat’s forthcoming Future Price Limits (FPL) methodology. Table 1.A: above shows, in summary, the timeline for the study.

1.7 The Government recognises that the framework for future price reviews is already changing and that this work also seeks to reduce the impact of cyclical investment. Ofwat published its *Future Price Limits - Framework of Principles* in May 2012 following a detailed consultation. These and other changes that are already underway are discussed further in the following sections and further referenced in Chapter 2.

Scale of the water investment programme

1.8 Since privatisation, the water sector has spent over £98 billion in maintaining and improving water and sewerage assets. This equates to around £4.5 billion per year. Chart 1.A: below shows at an industry level actual and projected net capital investment since 1990-91, split between the investment categories of capital maintenance and capital enhancements.



1.9 At the last price review in 2009 (PR09),³ Ofwat’s price determinations included £22bn of capital investment over the 5 years 2010-11 to 2014-15 (AMP5).⁴ Around 60 per cent of this total is to maintain the current asset base (capital maintenance), while the remainder is to meet enhancement obligations (capital enhancements).

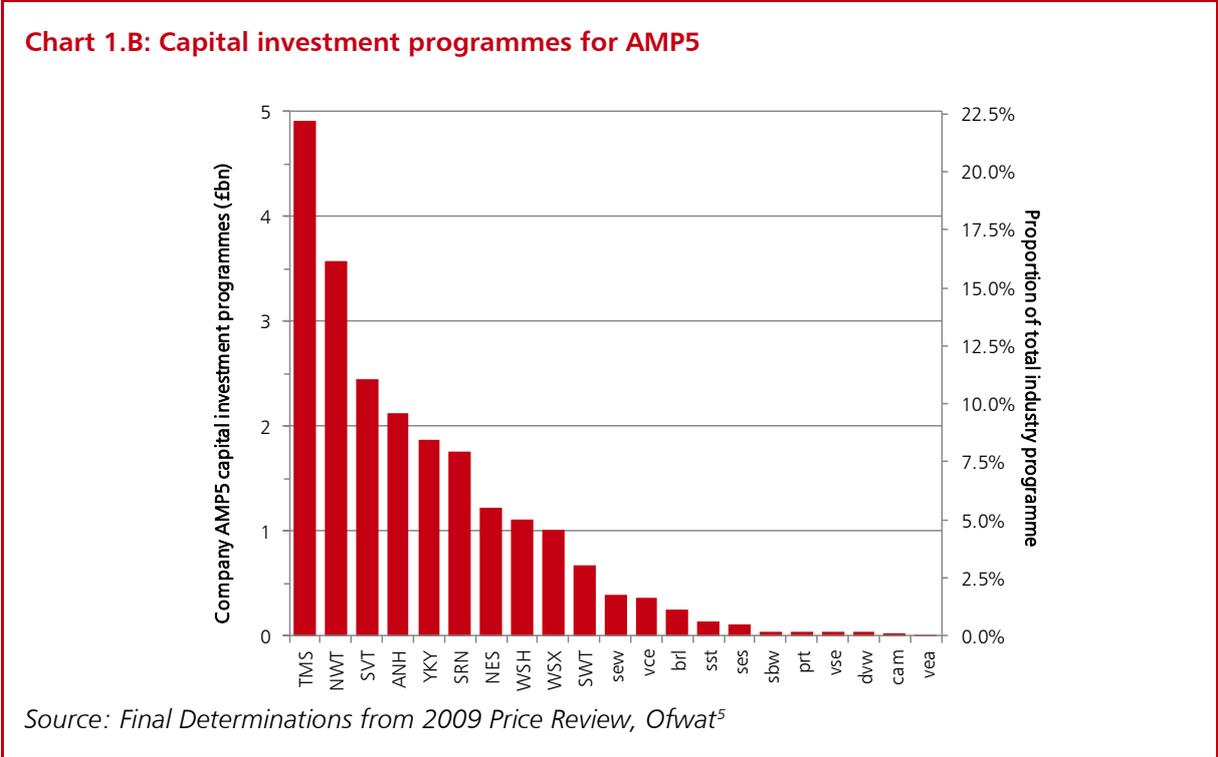
1.10 Chart 1.B: below shows the relative scale of water companies’ price determinations for capital investment in AMP5. This shows that delivery of almost 60 per cent of the £22bn of capital works planned in the current AMP5 period is the responsibility of just four large water and sewerage companies (Thames, United Utilities, Severn Trent and Anglian). By contrast, eight

² Forecasts refer to the capital investment agreed in the Final Determinations from the 2009 Price Preview.

³ PR refers to Price Reviews, specified by a suffix that denotes the year in which it occurred. PR09, the most recent Price Review, occurred (mostly) in 2009.

⁴ AMP refers to an Asset Management Plan period following privatisation in 1989. AMP1 covers the period 1990-91 to 1994-95, AMP2 1995-96 to 1999-00, AMP3 2000-01 to 2004-05, AMP4 2005-06 to 2009-10 and AMP5 2010-11 to 2014-15.

small companies (South Staffs, Sutton and East Surrey, Sembcorp Bournemouth, Portsmouth, Veolia South East, Dee Valley, Cambridge and Veolia East) have capital programmes that represent less than one per cent of the total. Clearly encouraging improvements in capital planning and delivery in those companies with the greatest share of the programme are likely to yield the most benefits in terms of reducing the impact of cyclical investment.



The five-year cycle – is it getting better?

1.11 Chart 1.A: shows, at least at an industry level, that the cyclical nature of capital investment is not improving and appears to be set to continue in the current price control period where the peak level of investment occurs again in years two or three and tails off in years four and five.

1.12 Ofwat’s profile of capital investment allowed for in the 2009 price review was based on the companies’ submitted business plan profiles. The profile of investment is calculated and developed by the water companies based upon a detailed analysis of their investment plans. Ofwat gave companies the opportunity to review the investment profiles in light of the draft determinations and to propose re-profiled investment levels that would allow companies to deliver their capital programmes efficiently and effectively while smoothing the demand for delivery resources within the period.⁶ However, typically companies have not offered any re-profiling in their representations on the draft determinations.⁷

1.13 From the interviews conducted for this joint study, the study team learned that there were specifically two factors at the end of AMP4 that had impacted on the profile of actual investment. One was the difficult economic times which was reflected by a fall in the Construction Output Price Index (COPI) due to the reduction in house building. The other was the regulatory capping of investment during the period. These two issues are discussed further

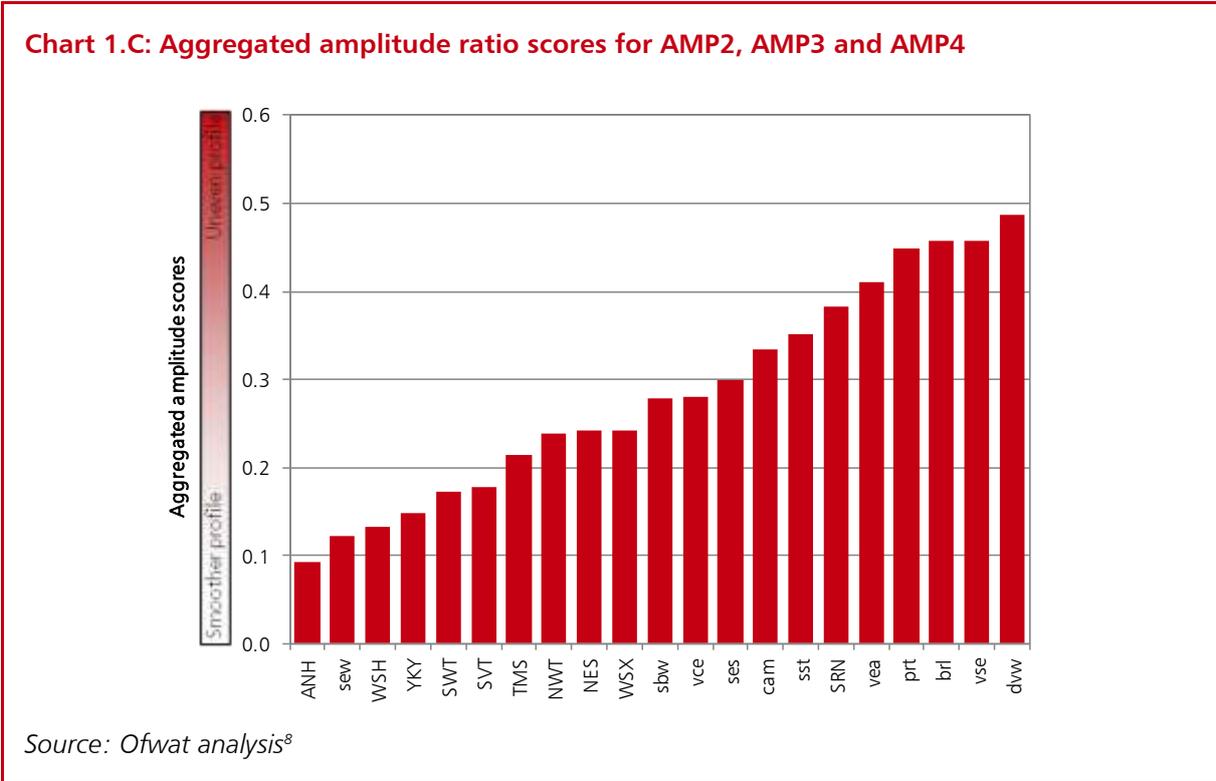
⁵ Upper case acronyms denote water and sewerage companies; lower case acronyms denote water-only companies. A list containing the acronym and full company names can be found in Annex B. This convention is also used in later graphs.
⁶ Future water and sewerage charges 2015: draft determinations page 57 of the Draft Determination: http://www.ofwat.gov.uk/pricereview/pr09phase3/det_pr09_draftfull_v2.pdf
⁷ Future water and sewerage charges 2015: draft determinations page 73 of the Final Determination: http://www.ofwat.gov.uk/pricereview/pr09phase3/det_pr09_finalfull.pdf

in Chapter 2. The alignment of Scottish Water’s price control with England and Wales companies also had an influence.

1.14 The study considered whether the cyclical nature of capital investment was getting better at a company specific level. To try and understand this, some simple analysis was undertaken to measure the amplitude or peak deviation of each company’s actual capital investment from a centralised position (a flat profile). The profile of companies’ actual spend was analysed over each of the five-year price control periods AMP2, AMP3 and AMP4, with a particular focus on the last price control period of AMP4.

Amplitude of cyclicity across the sector

1.15 The analysis was collated companies’ actual capital investment figures (from the annual June Return) for the components of capital maintenance and capital enhancements. These figures were then indexed forward to a common price base (2010-11 prices) using the Retail Price Average Index (RPI).



1.16 Clearly it would be unrealistic and perhaps unreasonable to expect exactly 20 per cent of a company’s capital programme to be delivered in each year, but for the purposes of this simple analysis Ofwat felt it was a suitable metric on which to inform the analysis.

1.17 Chart 1.C: above summarises the scores for each company at a total capital investment level, aggregated for AMP2, AMP3 and AMP4, the years for which Ofwat has set price limits.

1.18 With the exception of South East Water (sew), all the water-only companies are positioned at the higher end of the range implying a more uneven profile of investment. It is believed that the key reason for this being that the scale and scope of their capital programmes are

⁸ For each year, it was calculated what proportion of the five-year total the specific year represented. This was compared to a profile of investment where 20 per cent of the total is reported in each of the five years, which would represent a completely flat profile. A points scoring system was derived where a ratio of one earned the highest points of 20 and a ratio of 0.5 or 1.5 earned the lowest points of three. The number of points earned are expressed as a proportion of the total number of points available in each 5 year period (100) and subtracted this from one to derive an amplitude ratio score. A score close to zero indicated a smoother profile of investment delivered over the period but a score closer to one indicated a more volatile profile of investment.

significantly lower than those of the larger water and sewerage companies. For many of the smaller companies, their capital programme may only consist of one or two large projects, which by definition will cause their programme to be less even.

1.19 Looking at the trend in the scores over AMP2, AMP3 and AMP4, the industry is evenly split. For seven companies the scores were getting better, for six companies the scores were getting worse and for the remaining eight companies, the scores were roughly the same.

1.20 Based on this simple analysis, one might form the view that although the cyclical nature of investment is not getting any better, it at least it is not getting any worse. The real impact of this however will be largely determined by the relative scale of each company’s capital programme.

1.21 Table 1.B: plots the amplitude scores along with each company’s proportion of the overall industry total of £22bn shown in Chart 1.A.: Although the water-only companies appear to have a more uneven profile of spend they account for only a very small element of the overall programme, with the eight smallest company programmes each accounting for less than one per cent of the industry total.

1.22 Clearly those companies who have the greatest share of the capital programme have the greatest scope for reducing the impact of cyclical investment in the future.

Table 1.B: Aggregated amplitude ratio scores with projected AMP5 FD investment

Amplitude Ratio Score	<i>More uneven profile</i> >0.4	dvw, prt, vea, vse	brl			
	0.3-0.4	cam, sst		SRN		
	0.2-0.3	sbw, ses	WSX, vce	NES		TMS, NWT
	0.1-0.2		SWT, sew	WSH, YKY	SVT	
	<i>Smoother profile</i> <0.1			ANH		
		<1%	1-5%	5-10%	10-15%	>15%
Proportion of AMP5 Final Determination Programme						

Source: Ofwat analysis

Efficiency and amplitude

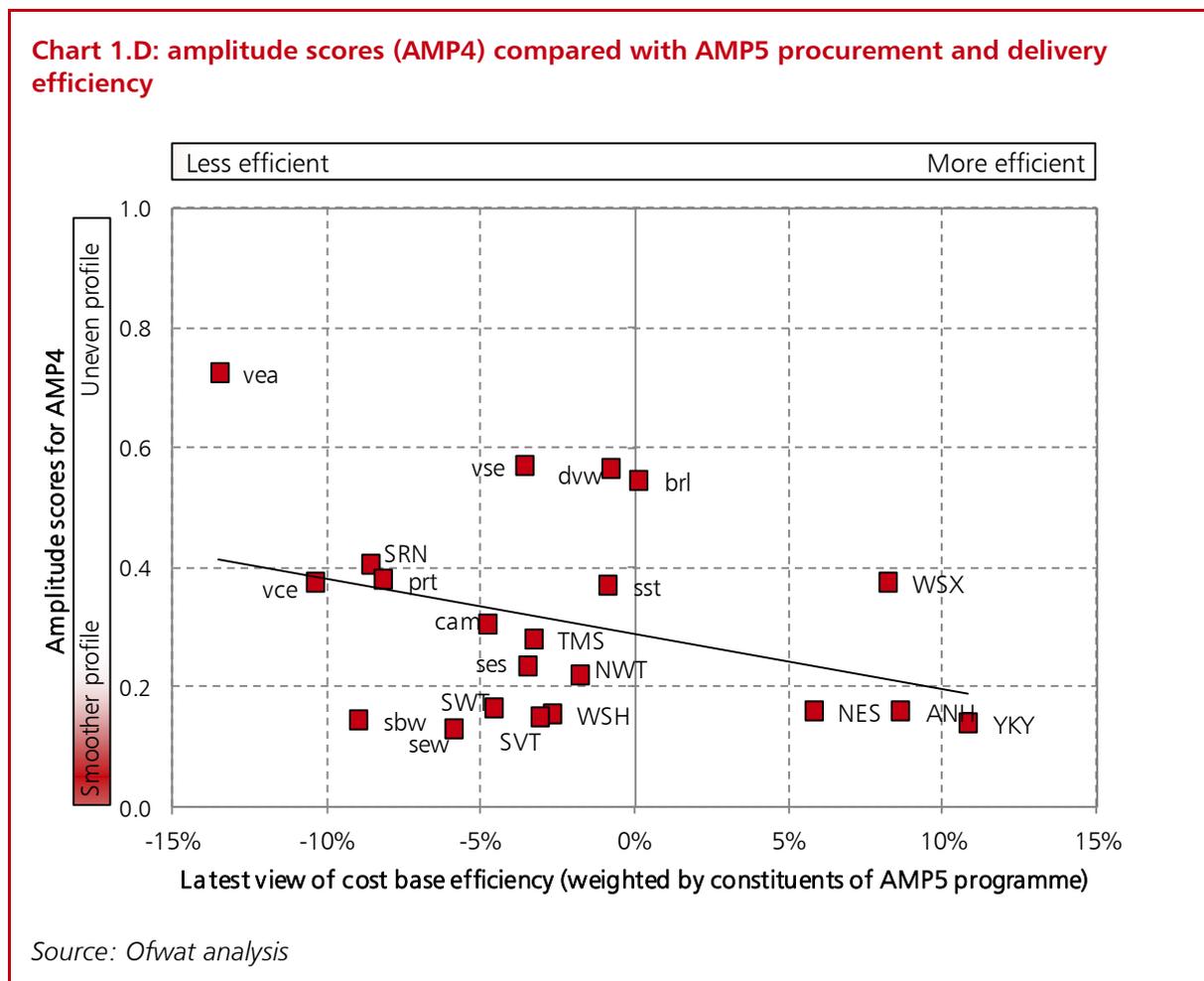
1.23 For the 1994 price review, Ofwat developed a tool for assessing companies’ efficiency in the delivery and procurement of capital works through comparisons of standardised capital unit costs. The tool now known as the “cost base”, has been developed and tailored for use in each price review since that time. At the last price review in 2009, Ofwat assessed the capital efficiency of companies in order to adjust its view of the baseline investment for inclusion in the new Capital expenditure Incentive Scheme (CIS).

1.24 The results of the 2009 analysis are Ofwat’s most recent view of companies’ capital efficiency. The efficiency assessments were based on comparisons of companies’ standard costs which for the most part, had been informed by the actual unit costs of work incurred up to early 2009. *Ofwat report PR09/40: Final determination cost base feedback report*, published in December 2009 provides further details.⁹

⁹ http://www.ofwat.gov.uk/pricereview/pr09phase3/pr09phase3letters/ltr_pr0940costbase

1.25 Using this information, the study considered whether there was any correlation between a company having a smoother profile of investment (as indicated by a low amplitude score) and a company performing well in the cost base analysis (could be considered, on aggregate, to be an efficient company by virtue of its lower standardised costs relative to the median).

1.26 Chart 1.D: below summarises these comparisons. It indicates that those companies assessed as being efficient in the procurement and delivery of capital works, also tended to have a smoother profile of investment.



Analysis of investment categories

1.27 It is stated above that the profile of total investment, both capital maintenance and capital enhancements included in Ofwat's price limits for the current AMP5 period mirrored that of the individual companies. The subsequent analysis yielded further questions such as:

- did the majority of companies plan their investment to peak in years two or three and then tail off towards the end of the period;
- was there a difference between the profiles for maintenance and enhancements, water and sewerage; and
- specifically for the water service, was there a difference between the larger water and sewerage companies and smaller water-only companies?

1.28 The detailed analysis is set out in Annex C. In summary however it appears that the investment profiles of many of the companies in both capital maintenance and enhancements followed the typical cyclical profile of investment of a slow start, peaking in years two and three followed by a tailing off towards the end of the period.

1.29 The detailed analysis in Annex D assesses the influence of the quality programme deliverables on cyclicality. It shows that, at a whole-industry level, the water quality deliverables were not a significant factor. However, the timing of the waste quality deliverables were a more significant factor and influenced the cyclicality.

Impact on the supply chain

1.30 The supply chain has become increasingly vocal in recent years about the effect of this cyclicality. Representative bodies have commissioned their own reports and investigations and Government has also recognised this.

British Water data

1.31 In 2010 British Water, one of the water industry's trade associations in Great Britain, carried out a survey to assess the numbers of employees in its member organisations throughout a regulatory period. The average reduction in number of employees was found to be 40 per cent and when extrapolated to the whole water sector, this represented between 20,000 and 40,000 employees being lost and rehired every five years. Further analysis carried out by British Water, using Chartered Institute of Personnel and Development data, estimated the cost of this process to be over £600m at every price review, or £2.6bn over the past four price reviews.

Survey data

1.32 A 2012 survey carried out by IMS Consulting, for British Water, explored water industry attitudes to the current regulatory process. 147 responses were received and some of the most striking responses are shown in Box 1.A: below. The results indicate the significant challenges to the supply chain of sustaining their participation in this sector.

Box 1.A: Extract of results from the IMS Consulting / British Water survey

*"Which areas of your business have been affected [by the AMP cycle] and how?"
(percentages represent "very negatively" plus "negatively" responses)*

Morale (91%), resources (95%), staff turnover (96%), profitability (92%), efficiency (92%), innovation (81%)

"What do you think will be the impact of the AMP cycle on the wellbeing of the industry supply chain?"

93% thought "continuing the AMP cycle ... will have a negative (or very negative) impact on the industry".

"If the AMP cycle continues to be repeated, how is that likely to affect your business?"

16% of suppliers "expect to leave the water industry altogether"

3% of suppliers "expect to go out of business"

UK Water Industry Research (UKWIR)

1.33 In 2007 UK Water Industry Research (UKWIR) published a report entitled *The Regulatory cycle and its impact on the efficiency of supply chain delivery* (07/RG/10/4).¹⁰ This collaborative project sought to examine and quantify the effects of cyclical investment on suppliers and to develop proposals to achieve more efficient programme delivery.

¹⁰ <http://www.ukwir.org/ukwirlibrary/91840>

1.34 The report makes over 30 detailed recommendations for action that affect all stakeholder groups. Many actions are interdependent and to be effective, required reciprocal actions by various stakeholders.

Box 1.B: Extract from 'The Regulatory cycle and its impact on the efficiency of supply chain delivery'

"The estimated cost to the industry is around three per cent of turnover, which based on the scale of the AMP4 programme, would amount to around £570m over five years. If the industry acted to minimise the impacts of the expenditure cycle, minimum savings of around 2.1% would be possible. For the water and sewerage companies this would amount to between £3.9m and £16.0m annual savings per company, based on AMP4 expenditure levels."

David Gray' Review of Ofwat

1.35 The David Gray review of 2011 *Review of Ofwat and consumer representation in the water sector* looked at how this issue affected the supply chain too.¹¹ During the Call for Evidence, the study team received a number of representations with different articulations of the effects and ideas for reform. This study engaged many of those same parties. Gray noted that the effect is tied to the regulatory process, but that the decisions to restrict the volume of work awarded to the supply chains lie entirely with the water companies, who consider investment around the times of price reviews too risky. Gray made a number of recommendations relating to all aspects of Ofwat's operations, and noted that if these were acted upon it would "...move the regulator away from its current hands-on approach and will help to encourage companies to flatten their investment profiles."

Impact on innovation and efficiency

1.36 The cyclical nature of the investment programme has been cited by many of those interviewed within the study as impacting on innovation and efficiency.

1.37 The supply chain has stated that as the period of focused delivery is around a three year period in the centre of the review period that unless innovation can pay-back within this shortened time period then they do not feel able to instigate innovative technologies or business practices. Similar discussions occurred with regard to both five year contract durations and the purchasing or hiring of plant and equipment. These perceived constraints lead to inefficient delivery and act as a barrier to the implementation of innovative techniques.

1.38 Water companies also expressed concern at the impact of the five year cycle on innovation and a reluctance to invest in innovation unless payback can be achieved within a five year period.

1.39 Both of these issues reflect a lack of confidence to invest in innovation beyond a certain time horizon whereby the returns are unclear. These concerns are well understood and are recognised by Ofwat's Future Price Limits framework, addressed in part by the development of long term outcomes, but reinforced within this study by the need for forward planning and communication of a forward pipeline to the supply chain. Such actions will support greater confidence in the outcomes to be delivered and support confidence to allow innovative ideas to be successfully implemented.

¹¹ Review of Ofwat and consumer representation in the water sector – DEFRA 2011 - <http://www.defra.gov.uk/publications/files/ofwat-review-2011.pdf>

Past attempts to address cyclicity

The 2004 Early Start Programme (ESP) initiative

1.40 Following the 1994 and 1999 price reviews, the level of capital investment reported by the companies was initially much lower than Ofwat had assumed in price limits, peaking later on in the five-year period. Companies attributed this slow start to the need to review and plan their programmes after prices were set in the Final Determination.

Box 1.C: 2004 Early Start Programme

Ofwat sought to mitigate the effect of the slow start after final determination by introducing the Early Start Programme (ESP) initiative for the 2004 price review. Ofwat asked companies to identify a number of candidate schemes in the draft business plans (DBPs) that they submitted in August 2003. Any capital investment project with a measurable activity or output was eligible and this included capital maintenance as well as capital enhancement projects. Working with companies and where appropriate Government and quality regulators, Ofwat would then confirm a programme of schemes to be carried out in 2005-06 for completion no later than early 2006-07 reviewed against a predefined set of criteria.

The ESP initiative did contain an element of risk. By committing to some elements of the programme early, some work could have been delivered that was later shown not to be needed. Although Ofwat said that it would challenge the costs of the agreed schemes, the costs might have changed or been incurred anyway by the time companies submitted their final business plans in April 2004. The risk was that Ofwat might set financial assumptions that were either too generous or too harsh. Ofwat considered that the early confirmation of 2005-06 work should help to smooth the profile of investment and bring about a number of benefits:

- for companies, since they will have more time to plan the work to be done in the first year of the price review period;
- for customers, through eventual lower bills. Peaks of work undertaken at the end of the five years tended to be delivered at increased average unit costs. Delivering outputs earlier and smoothing investment allows company efficiencies to be passed through to customers;
- for the supply chain, by having a steadier stream of work, so using capacity within the industry more smoothly and efficiently; and
- for the environment, through outputs simply being delivered sooner.

The overall assumed cost of the early start schemes totalled £549million (2002-03 prices) in the water service across 236 schemes and £430million (2002-03 prices) in the sewerage service across 794 schemes. Eighteen companies had an early start programme.

1.41 Unfortunately, the initiative failed to have a measurable effect. The agreed schemes were generally no quicker to start. Companies stated that the main reason for the variance was delays in setting up their delivery teams, changes in agreed outputs and reprioritising their plans following publication of the final determination.

1.42 It was clear that there were underlying issues in the transmission of this programme through the water companies and into the supply chain. In developing its framework and approach for the 2009 price review, Ofwat considered alternative options seeking to address: (1) companies' reluctance to commit to capital schemes until price limits had been set; and (2) the

fact that improvement programmes involve projects that must start and finish within the five-year regulatory control period.

1.43 Where the ESP initiative had failed to address (1) above, Ofwat considered the introduction of the Capital expenditure Incentive Scheme (CIS) and the requirement of companies to demonstrate robust Cost Benefit Analysis (CBA) for the 2009 price review would improve each company's confidence that their business plans would be reflected in final determinations, allowing companies to commit to capital spending. To address (2) above Ofwat allowed each company to set out an 'overlap' or late finish programme for enhancement projects that would start in the AMP5 period but would finish in the next price control period of AMP6 (see below).

The 2009 overlap (late finish) programme

1.44 Ofwat's 2009 business plan information requirements encouraged companies to take a long term approach to planning both their strategies and their investment programmes in the context of their 25 year Strategic Direction Statements (SDSs).¹²

Box 1.D: The 2009 overlap programme

To promote the management of their investment programmes more efficiently, Ofwat would allow some projects that started in AMP5 but did not finish until the next price control period of AMP6, provided those projects satisfied a set of strict criteria. For example, the projects needed to have a primary objective of delivering an enhancement, have measurable outputs, milestones, specified delivery dates and be part of an 'evenflow'¹³ programme of work. The criteria also stipulated that certain thresholds had to be met; projects where 25 per cent or less of the capital investment was included in AMP5 would not be accepted unless this related to the early stage costs such as feasibility and options appraisal and land purchase.

Once an overlap programme was accepted by Ofwat, the capital investment was allowed for in the 2009 price limits and the overlap investment would be carried forward to the next price review, provided the required outputs remained broadly the same. The return on capital would reflect the extant rate of return at the time. Ofwat considered the overlap facility enabled companies to identify their optimal pattern of investment over the periods. Extending the time horizons beyond the immediate five year period, should have given companies and supply chains greater certainty about future activity and workload. Ofwat's change protocol would still administer changes to companies' current enhancement programmes where there was no provision in current price limits and where the need for the investment before 2010 arose. However, Ofwat still expected each company to manage the profile and timing of capital investment so that all companies avoid inefficient disruptions to the flow of work to suppliers.

Only nine companies took advantage of the overlap facility. The total value of the 34 schemes proposed totalled £877 million (2007-08 prices) or four per cent of the total AMP5 capital investment programme, with £425million in the water service and £452million in the sewerage service. Ofwat included around 70 per cent of the value of the overlap programmes in the 2009 price limits.

1.45 It remains to be seen whether this facility will allow these companies to maintain a steady flow of work to their suppliers and realise the benefits of so doing.

¹² The SDSs can be found at <http://www.ofwat.gov.uk/pricereview/sds/>.

¹³ In other words, Ofwat did not expect to see a peak of starts at the end of AMP5.

2

The price setting process

Introduction

2.1 The price review process has a well established two-stage determination process whereby the water companies can make representations on a draft determination before the final determination is agreed with Ofwat. The clarity and timing of decisions, the behaviours of key stakeholders and the resulting levels of confidence around the draft determination are key factors that drive cyclicity. The study therefore examined the nature of the process and the behaviours of key stakeholders with a view to identifying best practice and areas where greater clarity of the process or behavioural changes are required.

The 2009 Price Review timeline

2.2 The process of developing the framework and approach for the 2009 price review and determining new price limits that take effect in April 2010 spanned a period of three years, for a price review that lasts five years. Annex F sets out a detailed timeline of the activities undertaken in each phase of the process for PR09. It also highlights some key equivalent activities proposed by Ofwat in developing the framework and methodology for the next price review.

Key signposts in the process – the draft determinations

2.3 Chapter 1 described how Ofwat's review of the 2004 early start programme had identified that the water companies were reluctant to commit to capital schemes until the final determinations had been made. The same reason was consistently cited during this study.

2.4 In a price review year, Ofwat has traditionally issued draft determinations in July and final determinations four months later in November. The interim period provides an opportunity for water companies and other stakeholders to make representations on those draft determinations.

2.5 The deadline for Ofwat to set new price limits is 31st December in the year prior to new price limits coming into effect.¹ Although Ofwat has no obligation to deliver a two stage process, the preparation and publication of draft determinations is an established part of Ofwat's price determination process.

2.6 The draft determination provides key information on the approach Ofwat has taken and the financial aspects of its decision making. It helps companies, stakeholders and investors understand how Ofwat has arrived at its decisions and to comment and make representations where they have concerns. It is a two-way process that also allows Ofwat time to gather any new information where this may be needed and to consider any representations the companies provide before setting final determinations.

2.7 Historically some of the water companies have not regarded Ofwat's draft determinations as a sufficient certainty point or a 'Statement of Intent' within the price review process, at which they would be prepared to enter into commercial agreements with their supply chains. A

¹ Set out in Condition B of the water companies licences

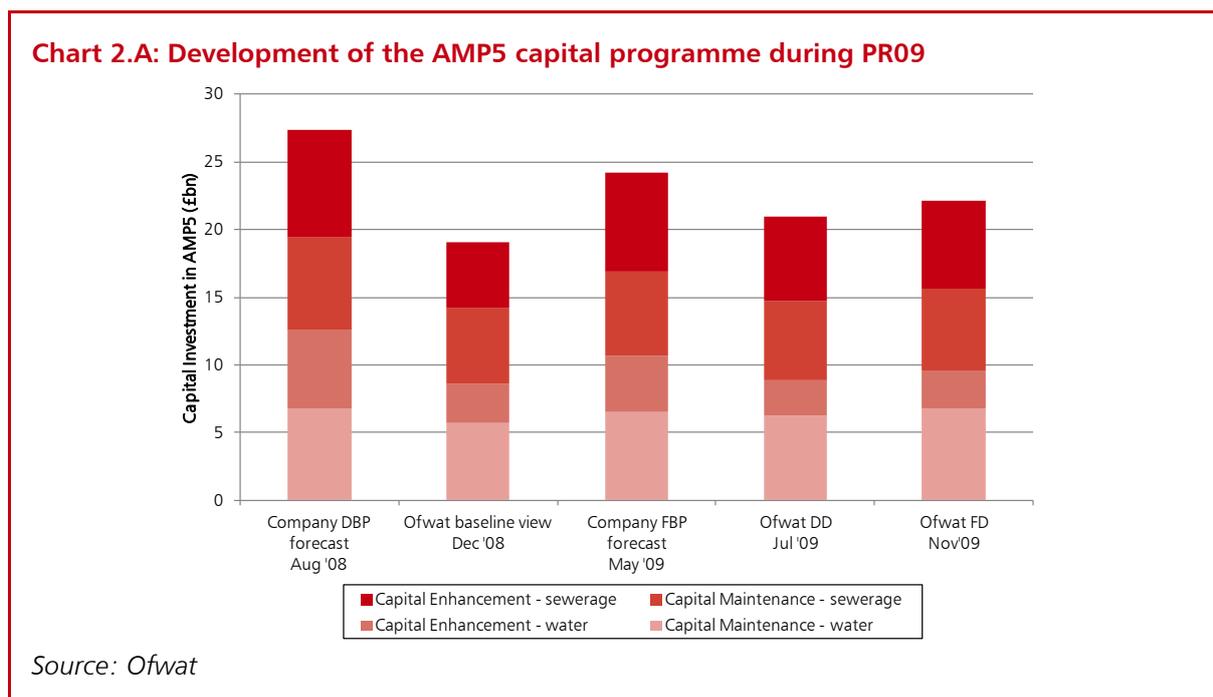
number of companies consider the risks and uncertainty of commencing any investment at the draft determination stage too great and therefore don't allow their supply chains to incur costs.

2.8 Whilst it is accepted that there is likely to be uncertainty for some individual schemes, it is questionable whether such an approach is warranted at programme level. The extent to which the draft determinations be considered a firm signal of the investment programme that is likely to be included in price limits is also an issue of debate. The study team considered this in more detail below.

Draft determination investment – a firm signal of intent?

2.9 Chart 2.A: below shows the development of the whole-industry AMP5 programme during the 2009 price review (more detail on the process can be found in Annexes F and G). Companies' initial business plans sought to establish an investment programme of over £27bn, which Ofwat scaled down to £19bn in its 'baseline' view.² The final business plans were then issued (totalling £24bn), to which Ofwat responded with the draft determinations (totalling £21bn). Following the draft determinations Ofwat received representations from the water companies, then a larger investment programme (£22bn) was confirmed in the final determinations.

2.10 Ofwat records show that the stakeholder representation process, which takes place following issue of the draft determinations, has only ever moved the draft determination investment allowances in one direction: to increase the level of investment included for the final determination.



2.11 To substantiate this, the study team compared the movement in capital investment allowances between draft and final determinations for the last three price reviews, by company. The detailed results are contained in Annex G and show that at a total investment level, there have been no instances of the final determination ever being lower than the draft determination.

2.12 Indeed, at an industry level in each price review, the draft determination has confirmed no less than 93 per cent of the value of the final capital programme. Overall, the majority of

² Ofwat's baseline views are not directly comparable to the draft business plans as they do not include for the effects of efficiencies nor CIS.

company-specific increases for the final determination have been within ten per cent of the draft determination.³ This implies that the bulk (on average over 90 per cent) of companies' eventual investment programmes have been confirmed at the draft determination stage. For most companies this should provide enough certainty and visibility of their investment programmes on which to start work on those schemes planned for the first year.

2.13 Companies had informed the team however, that despite this they felt investment following the draft determination was subject to risk; that specific schemes may still be omitted from the final determination. With this in mind, the study team considered to what extent quality enhancement schemes for the AMP5 period were included for the draft determination but had then been excluded from the final determination.

2.14 The results are shown in Table 2.A: below and illustrate that there were very few incidences of this at PR09. At a whole-industry level, only 28 quality enhancement schemes (less than 2 per cent) were excluded between draft and final determinations and a further 34 schemes were added into the investment programme for the final determination.

Table 2.A: Quality enhancement programme for AMP5

Quality enhancement programme for AMP5				
	Number of quality schemes in the DD	Number of quality schemes in the FD	Number of schemes in the DD but not in the FD	Number of schemes in the FD but not in the DD
Water service	470	465	17	12
Sewerage service	1,175	1,185	11	22
Overall	1,645	1,650	28	34

Source: Ofwat analysis

2.15 Based on this evidence, the draft determination must be considered a sufficient certainty point at which companies can commence the design and feasibility work on a significant number of schemes. Companies should recognise the draft determination provides a high level of confidence and in doing so should ensure a timely commencement of investment in the first year of a new price control period.

Business planning changes for the next price review

2.16 For PR09, Ofwat gave early sight of the potential scale of the capital investment programme in *Capital expenditure for 2010-15: Ofwat's view on companies' draft business plans* in December 2008. Ofwat state that this document gave water companies a regulatory view on most of their capital programmes at an earlier stage in the process than had been provided before. But even with the benefit of this additional stage in the price review process, the clear message from the interviews conducted for this study was that the starting point for capital investment planning was still the final determination.

2.17 There is a risk that without early feedback from Ofwat on the scale, scope and extent of investment programmes, cyclical effects on investment could be extenuated due to a lack of forward visibility prior to the draft determination.

³ There have been some more notable increases for the final determination; the water-only companies have experienced a greater level of uncertainty in confirming their capital programmes. But as illustrated in Chapter 1, their programmes are typically much smaller than those of the water and sewerage companies.

The approach to setting price limits

2.18 The process for setting pricing limits historically and for future price reviews are the subject of ongoing discussions, some of the key issues relevant to this study are set out in the following sections.

Capex capping

2.19 During the AMP4 period, if companies decided to invest more in the delivery of their outputs than those assumptions included in price limits (known as supplementary expenditure), this would not be automatically included in the RCV. Ofwat's decisions on whether to include these items of investment in the RCV depended on set criteria which sought to establish whether the supplementary expenditure was justified.

2.20 Where companies financed supplementary investment out of capital efficiencies they had achieved during the period, Ofwat would generally not remove this investment from the RCV. Instead of these efficiency savings being passed back to customers in the form of lower bills after five years, customers will benefit from the improvements associated with that supplementary investment.

The Construction Output Price Index (COPI)

2.21 COPI is the index used by Ofwat to compare comparing actual outturn capital investment with price limit assumptions and when forming a view on the relative capital cost inflation to be included in price limits. It uses sample data from industries including the water sector, so late in AMP4 when construction slumped a sharp drop was seen in the index. When combined with the effect of the cap, this meant water companies prematurely faced the risk of breaching their caps. A detailed analysis of the issue, with detail on how the situation will be avoided in future, is included in Annex E.

Incentives during AMP5

2.22 The 2009 incentive framework in relation to capital investment is much simplified compared with that in place for the 2004 price review but the commitment to reward and encourage outperformance of price limit assumptions remain; as do the penalties for failing to deliver the required outputs.

2.23 One fundamental change to Ofwat's approach in the current period is the introduction of the Capital Expenditure Incentive Scheme (CIS) (see Box 2.A below).

The approach to setting price limits at the next price review

2.24 As discussed above, Ofwat is currently developing its framework and methodology for setting price limits at the next price review. Two key aspects of the methodology being considered that have the potential to improve the cyclical investment, is the move to focus on the delivery of outcomes rather than outputs and the adoption of an approach to cost assessment, cost recovery and menu incentives that consider total investment rather than capital investment and operating investment separately.

Outcomes

2.25 For the next price review, Ofwat has stated that it is keen to focus on incentivising outcomes, rather than outputs or inputs and there appears considerable support for this move from stakeholders in the industry.

Box 2.A: Capital expenditure Incentive Scheme (CIS)

The CIS improves the incentives for companies to submit realistic and challenging business plans in an area where the greatest level of information asymmetry exists. The scheme gives companies greater accountability for its decisions and retains strong incentives for each company to contain their costs and outperform the regulatory settlement once price limits have been set, with the greatest rewards available for the leading companies.

Under the CIS, each company recovers its actual capital investment plus or minus rewards or penalties due under CIS that depend on the investment forecast it chooses in its business plan and how its actual investment compares to that forecast.

If a company chooses to spend more than Ofwat's price limit assumptions, Ofwat will reflect the actual investment incurred in the future RCV. Clearly, this is a significant change to the approach during the previous price limit period when a cap on capital investment was in place. The CIS allows for the symmetrical treatment of capital investment over-and under-spends against Ofwat assumptions. Ofwat are of the view that this symmetrical approach decreases risk and so their judgements on the cost of capital were made with this in mind.

The CIS baseline ratio represents the relationship between the company's business plan projections and Ofwat's view of the capital investment requirement (the 'baseline'). Baselines are derived for both the water and sewerage service by aggregating the individual components for capital maintenance and capital enhancements.

The baseline represents both a reasonable 'central estimate' of the investment needed to deliver a best value set of outputs for each company and a balanced view of risk. Taking a central view means that for an efficient company, Ofwat's baseline could actually be higher than the company's business plan projection. This does not mean that Ofwat is encouraging the company to spend more than needed. It implies that this is a leading company with a challenging business plan and as a result enhanced incentives are available.

Ofwat based its central estimates on a balanced view of efficiency and risk and applied challenges to the costs of delivery along four key principles of the need for the investment, the solution choice, cost accuracy and the evidence of cost efficiency.

At the next price review, Ofwat will reconcile the rewards or penalties due under the CIS, taking account of actual capital investment along with the investment assumptions and additional income allowed in price limits. Each company's RCV will also be adjusted to reflect actual capital investment over the AMP5 period.

2.26 Since privatisation, the approach to ensure the water companies provide their customers with good quality service at a fair price, has involved setting an extensive range of detailed outputs that companies must deliver with Ofwat closely monitoring the progress of their delivery. But Ofwat believes this approach may no longer deliver the outcomes that customers want, need or are willing to pay for in the best and most proportionate way, given the challenges now facing the water and sewerage sectors. Companies have said that this approach has constrained them from choosing different, better, solutions.

2.27 An outcome is defined as a high level objective that company actions, activities and achievements are intended to deliver. An example of an outcome would be 'to maintain the flow of services to customers and the environment'.

2.28 Outputs on the other hand are observable, measurable activities, actions or achievements that the company needs to deliver to bring about the outcomes. So, to deliver the outcome of

'maintaining the flow of services', one output would be keep a stable burst frequency across the water network.

2.29 Inputs relate to the resources a company uses to carry out its activities or to deliver particular outputs. Examples here would be the amount of investment or number of people employed renewing specific length of main.

2.30 An outcomes-based approach should incentivise companies to find the best way to deliver outcomes by affording them the freedom to choose between different outputs in order to achieve the outcome. It should encourage more innovative, flexible, sustainable and longer term solutions. Enabling companies to choose longer-term solutions, could facilitate smoother work programmes since outcomes are generally long-term requirements that do not necessarily fit into one price control period.

2.31 Ofwat's discussion paper *Inputs, outputs and outcomes – what should price limits deliver?* provides more detail on this specific aspect of price setting.⁴

Total expenditure approach

2.32 Ofwat is proposing to treat capital investment and operating investment together in a total expenditure approach at the next price review. Such an approach impacts on three key elements of Ofwat's methodology: cost assessment, cost recovery and incentives.

2.33 At PR09 the approach to cost assessment involved making use of comparative techniques in order to assess relative efficiency. For capital investment, comparisons of standardised capital unit costs (cost base) were made. For operating investment, econometric modelling was undertaken. Cost recovery involves ensuring that the water companies can finance their functions and recover operating investment and capital investment through the price limits set. The incentive element concerns the rewards and penalties inherent in the way Ofwat assesses and recovers costs. Companies have said that the different incentive rates are one of the drivers of capex bias. Ofwat framework consultation suggests that a combined total investment approach could deliver the following benefits:⁵

- reduce any capex bias that exists;⁶
- remove constraints when companies are considering solution type;
- incentivise sustainable operations and outperformance;
- allow flexibility to deliver and innovate; and
- complement an outcomes focused approach.

2.34 There is currently a UKWIR project underway considering how cost assessment could be applied to total expenditure with the project team due to report their recommendation in September 2012.⁷ This will inform the approach Ofwat will consult on in its draft methodology paper due for publication in the autumn of 2012.

2.35 *Appendix 7: Cost assessment, cost recovery and the RCV* of Ofwat's draft framework paper *Future price limits – a consultation on the framework* provides further discussion on this specific aspect of price setting.⁸

⁴ http://www.ofwat.gov.uk/future/monopolies/fpl/prs_inf1103fploutcomes.pdf

⁵ Ofwat Future Price Limits – a consultation on the framework www.ofwat.gov.uk/consultations/prs_web201111fpl

⁶ For discussion of the 'capex bias' see the Ofwat discussion paper: www.ofwat.gov.uk/future/monopolies/fpl/pap_tec1105capex.pdf

⁷ http://www.ukwir.org/publishor/system/component_view.asp?LogDocId=94811

⁸ http://www.ofwat.gov.uk/consultations/pap_con201111fpl_app07.pdf

3

Analysis and observations

Introduction

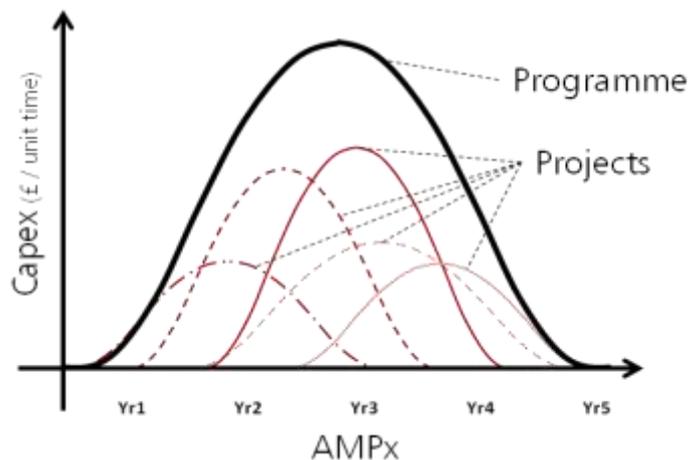
3.1 During the study there was found to be significant agreement on the existence of a stop-start cycle of investment, some agreement on whose responsibility it is to remedy the problem and little agreement on how to remedy the problem. The water companies (and their supply chains) studied were chosen precisely to give that variation in viewpoint. Despite this variation there were clearly emergent themes as the study progressed, which helped to focus the later stages of the study. These themes are discussed below and developed into findings and recommendations in Chapter 4.

Culture – we expect it, so we plan for it

3.2 The clear message from all stakeholders was that the cyclical effect has become cultural and is now an embedded feature of the water industry. Initially, all pointed towards the regulatory periods as the primary reason for this. Upon further examination of the issues though, the nature and roots of this culture are more complex.

3.3 The water companies expect to need to ramp up their projects gradually in year one (allowing themselves time to re-evaluate following the FD) then ramp down in year five (providing programme float and freeing water company resource to plan for the next AMP).

Chart 3.A: Illustration of bell-curve projects accumulating to a bell-curve programme



Source: Infrastructure UK

3.4 It is a fair assumption that if a programme is composed of many projects, which all follow classical bell-curve investment profiles, the entire programme will have a cyclical profile. If no project investment can be made before 1 April of year one and all project investment must be made by 31 March of year five, then most peaks will fall in years two to four.

3.5 As currently submitted, the water companies' business plans conform to this practice of staging project investment (as illustrated by Chart 3.A:). This is reflected in the actual numbers shown in Chart 1.A: and in the evidence submitted during the study.

Focus during the price review

3.6 A compounding issue uncovered during the study was that some water companies operate under the assumption that Ofwat will require them to deliver the annual investment profiles agreed in the FD, which is not the case.¹ Ofwat, however, is not the only stakeholder and the interviews made it clear that water companies perceive 'missing' annual financial targets to be displeasing to investors.

No simple, single cause

3.7 The causes for these programme profiles are multiple and not the result of one party's actions. Many interviewees felt that Ofwat was responsible, especially so for the withdrawal of the ESP, which many thought was the answer for 'bridging the gap'. Such opinions overlook the reasons for withdrawal of the ESP such as: the low uptake, incomplete delivery by companies, marginal benefits to the programme, and poor definition of- and justification for- schemes proposed by water companies.

3.8 The sector culture leads water companies to submit business plans that conform to a cyclical profile. If Ofwat or other stakeholders do not challenge this, then water companies feel pressured to conform to the profile agreed in the FD.

3.9 The dates imposed on the quality programme by the quality regulators further serve to affect the temporal distribution of projects, an issue described to the study team by interviewees and corroborated by the analysis in Annex D.

Water company reorganisations

3.10 One cultural issue identified has been the restructuring of water companies. Poor performance, sometimes compounded by unanticipated FDs, has resulted in water companies instigating restructuring: whether solely at the top, middle, or bottom of an organisation; or throughout. Such restructures do appear to have resulted in more integrated water companies that are more efficient and effective. However, implementation of the change has distracted from business-as-usual, especially at senior management levels where focus has to be diverted to implement change, but also at lower levels as morale dips.

Planning

3.11 Without better planning and development, it is hard to see how water companies can submit business plans (or use complementary mechanisms) that enable the bell-curve profile to be minimised. One key reason for the withdrawal of the ESP was the lack of definition of schemes put forwards. Such lack of definition (and justification) is also a key reason Ofwat omits schemes from business.

Good asset management

3.12 A good programme should be informed by good asset management. Thorough knowledge of the asset is required, followed by rigorous modelling and a risk-based approach to interventions (resulting in projects). Maintaining detailed records on assets is an area that has suffered from the outsourcing drives. Such knowledge must form the core 'intelligence' of the water companies.

¹ Note that under CIS (see Box 2.A:) Ofwat does not require water companies to even make the full-AMP-cycle expenditure as forecast in the business plan.

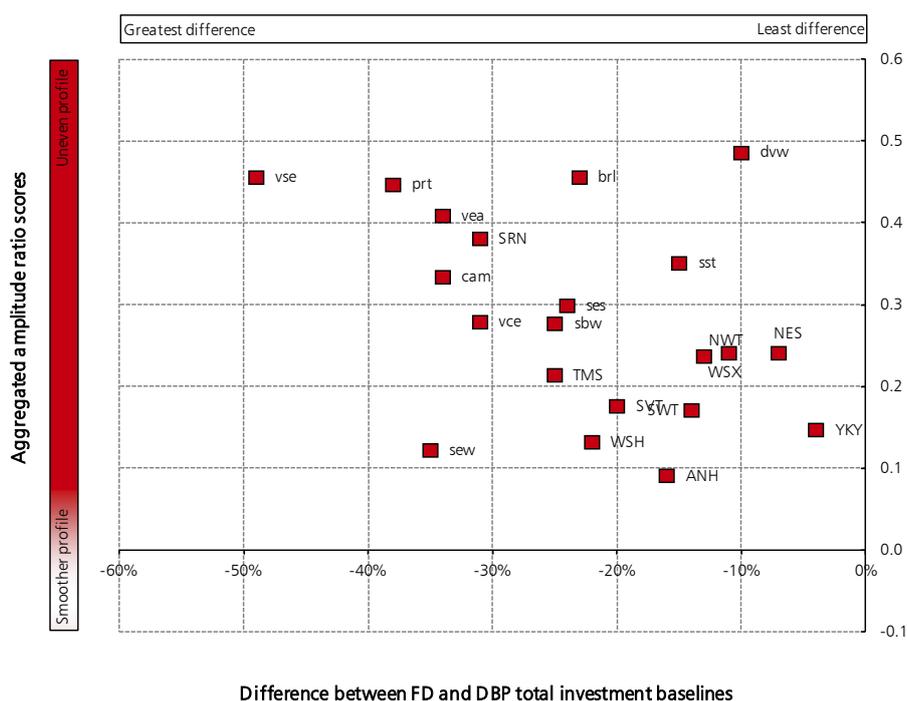
Effective capital maintenance

3.13 By value per annum, capital maintenance currently exceeds capital enhancements. The capital maintenance programmes will always have a reactive component, but the remainder needs definition if it is to be considered in the price review process.

Realistic aspirations

3.14 PR09 uncovered some surprising degrees of optimism in the draft business plans. Some water companies had their programmes significantly reduced in the price review, a situation for which they were unprepared.

Chart 3.B: Aggregated amplitude ratio scores compared with difference between FD and DBP total capital investment



Source: Ofwat analysis

3.15 Chart 3.B: above plots the aggregated amplitude ratio scores against the variance between Ofwat’s final determination capital investment assumptions and companies’ draft business plan forecasts as submitted. The analysis shows that Ofwat’s assumptions were closer to the DBP for those companies who had delivered a smoother profile of investment in the past (as indicated by a score of below 0.3). In future Ofwat could have greater confidence in the evidence presented in these companies’ business plans and therefore could apply less scrutiny and challenge. The ability of these companies to plan, manage and deliver their capital programmes more effectively and smoothly, is a contributing factor in developing a challenging plan based on realistic forecasts of investment.

Translation of the FD into a programme

3.16 The high-performing water companies are those that have an asset management system informing a robust programme of defined schemes. Such rigour in planning not only means the FD is likely to be closer to the DBP, but also means the water company will be more able to redefine the programme.

3.17 A particular example of poor practice uncovered was where regulatory teams were producing the DBP in isolation from the rest of the organisation. It is expected that creation of a business plan would be a process involving the whole organisation, ensuring that the programme meets the requirements of the stakeholders that will be responsible for delivery and operation of the business plan.

3.18 Business planning for the price review should be the same as that used for normal day-to-day programme planning and asset management. The components within each company business plan should align with those the company would use to deliver its investment programme. There should be sufficient granularity of information within the programme to allow it to be reshaped and re-prioritised dependent upon the outcomes of regulatory determinations or in choices and decisions made by each water company.

3.19 Where companies do not have business plans which reflect this granularity of information, there is usually a significant delay between regulatory decisions, board decisions and the provision of pipelines of information to the supply chain. These delays can range from a few months up to a year whereby a lack of forward visibility and workload results in inefficient delivery. Such delays are further extended should the water company also be undertaking change of key staff or is delivering organisational change at the same time as the programme is being redeveloped.

3.20 Interviews with company representatives alluded to the situation whereby elements of the business plan which a company submits to Ofwat for the purposes of setting price limits, is superseded by a delivery plan that the company then re-constructs based on its FD. One might perceive this as effectively treating the business plan as a mere 'bid'; Ofwat are aware of the situation and are keen to eliminate such behaviours in future price reviews.

3.21 It was in the area of capital maintenance where there was an opinion that the pattern of this type of investment should be much more steady state as it is driven by the requirement to achieve stable serviceability, but that this was not the case. The slow start and lack of forward visibility of planned work could be caused by companies' inability to plan their capital maintenance programmes and companies holding back planned work in favour of a more reactive approach. Where profiles of work had been communicated to the supply chain during perhaps in arranging contractual agreements, they failed to materialise once the FD was issued.

3.22 The study team consider that the creation of the business plan must involve and be supported by all representatives of the company and they must have confidence in it. It is to be accepted that some areas of the plan will need to be re-appraised in light of for example more up-to-date information becoming available or other outputs taking priority, but any delivery plan should align strongly with the business plan.

3.23 The supply chain interviews revealed a peculiar difference of general business planning between the water companies and suppliers. As part of their business planning, some suppliers model various business scenarios to predict (and plan) how the business will respond to different circumstances. However, some of the water companies appear to fail to do this, evidenced by the hiatus following FD when water companies have paused to re-plan the programme. Past price reviews have shown that the FD is almost always different to the DBP and FBP, so it might be prudent for water companies to plan for a variety of FDs.

Effective engagement on quality programme

3.24 A number of water company representatives felt that investment in their overall programmes was largely fixed, due to requirements dates issued by the quality regulators. The existing "change mechanism" was discussed, whereby water companies can review with the quality regulators on compliance dates. One water company was particularly proactive in engagement of the quality regulators, agreeing dates which included pragmatic allowances of

programme float. This minimised the need to re-evaluate dates with the quality regulators. For those water companies which did not engage well with the quality regulators, there is a perception that the quality regulators are micro-managing water company programmes.

3.25 The perceived binary pass/fail nature of quality compliance was criticised for its lack of flexibility by those interviewed. It was noted however, that as the regulators move toward an outcome-based compliance regime this may address these issues.

Contingency management

3.26 The holding of contingency at a programme or portfolio level was discussed in the study. With efficiencies being pursued in the water sector, risk and contingency allowances are being squeezed. Different approaches to risk and contingency were found during the study, the common theme being that contingencies may be held at both project and programme levels. Some water companies claimed not to budget for contingency, but to create contingency (time wise and money-wise) through outperformance. Another water company claimed that projects only ever overrun, not speed up, so monthly or annual investment actually only ever goes down, negating the need for contingency.

Tracking and understanding unit costs

3.27 Effective business planning requires detailed knowledge of costs. This is another area where water companies have suffered through poorly implemented outsourcing. Water companies need a thorough understanding of costs to plan and budget effectively then subsequently procure and manage work performed by the supply chain. Water companies with such databases have also found the cost base process far simpler, since there is an auditable library of costs in which both the company and Ofwat can have confidence.

Profile management

3.28 A problem observed at the end of AMP4 was the effect of the cap on investment. For those water companies which were outperforming at the time, their outperformance coupled with the movement in COPI (see analysis in Annex E) meant that the cap was approached rapidly, leading to a particularly sharp and early drop in investment.

3.29 For the suppliers to these water companies, this was a particularly painful and frustrating time: the reward for outperformance was a dearth of work necessitating redundancies. It is envisaged that the CIS mechanism (Box 2.A:) will go some way to reducing the likelihood of this happening again, as will the new measures proposed in Chapter 4. It will not however mitigate against the effect, feared by suppliers, of bringing work forwards in an AMP cycle, potentially starving years four and five of meaningful investment.

3.30 An example of this was seen during AMP4 where companies were set serviceability outputs to maintain (or achieve and maintain) stable serviceability by a specific year during the period. Mid-way through the period, Ofwat set out developments to the serviceability approach which communicated the potential and cost implications, for non-delivery of stable serviceability. This drove some companies to advance investment from the latter two years of the period in order to avoid a shortfall.

3.31 Another factor that was considered a challenge for the companies and contributed to some quickly achieving the investment cap during the period, was a perception that the virement of funds was not possible. Ofwat state that this decision rests with the companies and cited an example where companies have moved funds between the water service and sewerage service in order to meet their regulatory outputs. It is therefore for companies to consider the overall balance of risk and incentives presented by the price setting package as a whole. If virement of funds is

deemed necessary, then companies need to balance this with their ability to achieve out/under performance, deliver the required regulatory outputs and maintain services to customers.

3.32 For some water companies, third party influence over planning has proved a significant risk to capital programmes, with large schemes or even small schemes being delayed for many years as planning permission or consents are sought. Some water companies have sought innovative ways to avoid requiring such permissions and consents, such as the use of technology solutions or designing plant to fall within permitted development regimes. As part of the National Infrastructure Plan and the Plan for Growth, the Government has recently committed to a range of measures to simplify and streamline planning and non-planning consents, and has published the new National Planning Policy Framework with a powerful presumption in favour of sustainable development.

Effective supply chain relationships

3.33 The most significant consequences of the cyclical investment process are felt in the supply chain, manifested as redundancies every five years when as a water company put it themselves, “the tap is turned off”. With annual capital investment in 2014-15 due to be around 70 per cent of that in 2011-12, supply chains already fear the upcoming squeeze which they believe will inevitably lead to job losses.

3.34 Many organisations in the supply chain feel that they were the victims of the AMP cyclical investment process and not protected by their clients. A number of suppliers interviewed have considered exiting the market and cited examples of companies that had already made this decision.

Impacts on the supply chain

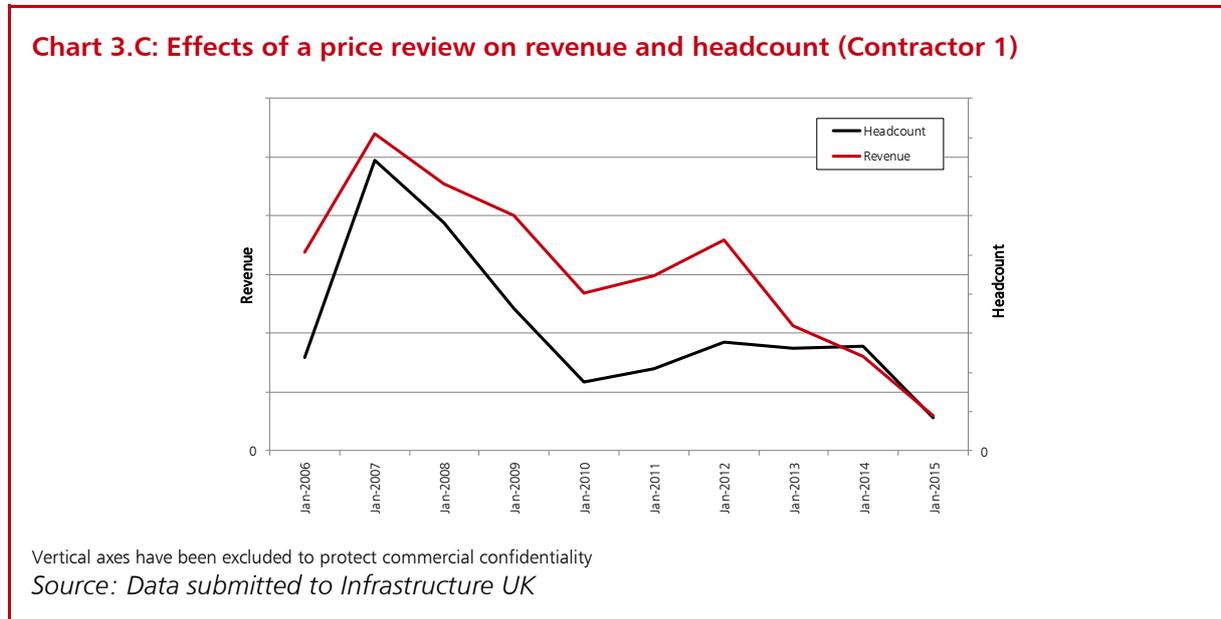
3.35 The loss of staff around price reviews is a phenomenon which had affected all suppliers that were interviewed during the study. Tier one suppliers provided evidence of redundancies around PR09 of between 13 per cent and 50 per cent, even when contracts with water companies were renewed. The magnitude of the effect in suppliers differed, dependent on:

- size of the business;
- how diverse its markets were;
- the water company / companies for which it worked;
- the degree of subcontracting or use of agency staff; and
- internal business decisions on whether to make idle staff redundant or to carry them on overhead (sometimes at reduced pay).

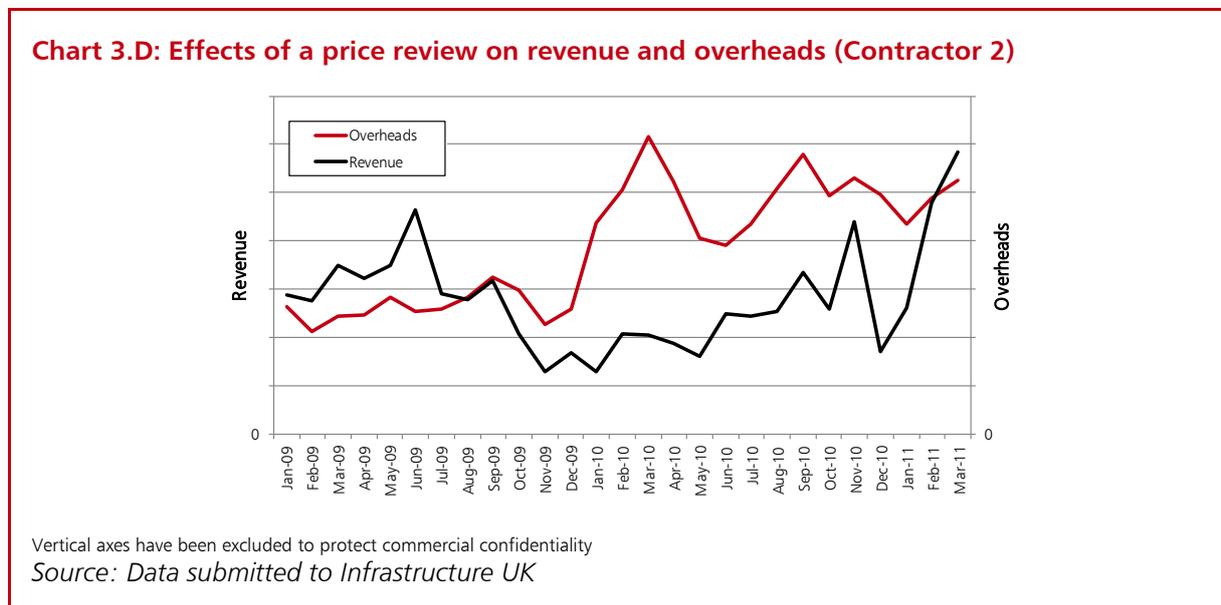
3.36 The very large tier one contractors are better equipped to survive the downturns during price reviews. Several noted that such volatility has a far greater effect on tier two suppliers, giving specific examples of companies exiting the water sector. Contractors that carried greater proportions of employed staff felt more strongly. Three tier one contractors provided evidence of incurring costs of some £2m each during PR09. Such costs manifested themselves as combination of:

- redundancies at the end of AMP4 followed by recruitment costs at the start of AMP5; and
- keeping idle staff employed, paid for as an overhead (see below).

3.37 Chart 3.C: and Chart 3.D: below demonstrate the effects of a price review on contracting organisations in the water sector, which contract directly with water companies. Chart 3.C: shows how Contractor 1 saw its revenue decline to a minimum in 2010 followed by a gradual recovery. Accompanying that decline was a fall in headcount, but not to the same degree: Contractor 1 chose to make some of its workforce redundant in the face of reduced revenue, but chose to retain some staff on overhead.



3.38 Chart 3.D: plots a similar trend for Contractor 2. At the end of 2009 and in 2010 it faced reduced revenue so its overheads increased as it needed to retain staff for the inevitable increase in work and to participate in bidding for AMP5.



3.39 The study team was told of decreasing supply chain providers confidence in the sector. One SME who submitted evidence told us that (especially given the economic landscape) banks were unwilling to provide capital during PR09, which very nearly cost the business its existence. In such an environment the study team was told that morale drops and there is a flight of the best people toward less volatile sectors, especially the power sector (for which there are transferable technical skills). One contractor even had a project manager leave to become a car parts salesman for these reasons.

3.40 This environment has also led to supply-constrained labour markets during the following upturn. Certain semi-skilled operatives have been able to negotiate salary rises of up to £10k with one supplier, as a result of the fierce competition for skills as water companies' programmes ramp up simultaneously.

3.41 A specific concern of contractors was the inefficient use of plant. For water companies that gave them long-term visibility of upcoming work, they were able to invest in purchasing plant as opposed to hiring it. Even where the investment case for a contractor was marginal, for water companies which engendered collaboration in the supply chain, contractors were able to pool plant, gaining maximum utilisation of that plant.

3.42 The health and safety of staff and the public will always be a top priority in the sector. Suppliers informed the study team that the erosion of skills, inevitable in above scenarios, has a negative effect on health and safety. Data submitted by the Civil Engineering Contractors Association indicated a rise in incidents around the time of year 2 of the cycle as new staff are brought on board and are trained, but HSE data did not correlate with this. Increased industry investment in health and safety training may be offsetting the negative effects.

Benefits of collaborative working and partnerships

3.43 Those supply chain organisations interviewed which had experience of partnership models all highlighted this as a means of maximising efficiency.

3.44 The water companies themselves stated that a 'firm' contract was extremely important in creating the 'soft' relationships, creating mechanisms whereby suppliers share intelligence, overheads and profits or losses. In one particular example of collaboration, early in an AMP period one party accumulated a significant gain, while others (for independent reasons) accumulated a significant loss – however, for the sake of the ongoing relationship within the partnership, the party in profit opted to pool the gains and losses which enhanced collaborative behaviours in future delivery.

3.45 Contracting across two AMP cycles was favoured by the supply chains and water companies. The evidence submitted showed that inefficiencies are likely to be incurred where arrangements were not rolled over between cycles. Where arrangements are not rolled over, job losses tended to be even greater. One contractor stated that when the new suppliers come in, the best staff of the incumbent either left the water sector altogether or were taken onto new projects by the departing incumbent.

3.46 This did not stop water companies inviting tenders from external parties at the break point, to force competitive tenders from the incumbents. Water companies have also retained competition within AMP cycles by ensuring some work is awarded outside of the frameworks, typically 20 to 30 per cent of the programme by value.

3.47 Both suppliers and water companies highlighted the benefits of collaborative working and partnerships over traditional arms-length contracting or framework engagements. The benefits described were both financial and otherwise. The financial benefits were conferred to the water companies by suppliers providing their lowest rates in these arrangements. Suppliers were able to do so because in these partnerships, the flexibility with programming and specification allowed long-term planning to optimise utilisation of labour, plant and materials. This minimises the overhead for any particular supplier, and the overheads were reduced further because in such a partnership, the trust between organisations allowed overhead functions to be spread across suppliers.

3.48 The non-financial benefits described to us were less tangible, but centred on positive collaborative working relationships resulting in less fractious and stressful work. The trust which

was built up also allowed the water companies to reduce the burden on management staff of man-marking their suppliers.

3.49 The risk and reward allocation in a partnership is different to that in traditional arrangements. The partnership, being responsible for such a large proportion of the programme, is able to take bigger risks and invest in innovative solutions. Such risks drive outperformance of the efficiency targets, improving water company performance, and where incentives are aligned, resulting in financial gain for the supply chain. Many examples were cited in the interviews, including novel approaches to purchasing of plant.

3.50 Suppliers especially thought that innovation was better stimulated in the partnership arrangements. The long contract terms allow for recouping investment costs, and suppliers have the confidence to make these investments because of the clarity over upcoming work in the programme. Suppliers, however, did still criticise some water companies for merely being followers, not adopters; they are reluctant to adopt new innovations unless they've been proven in use by another water company.

Communication and engagement with the supply chain

3.51 The supply chain interviews revealed a disparity between water companies in the quality of their communication. Certain water companies clearly communicated their programme of upcoming work to the supply chain, but others did not. Suppliers generally felt that notice of upcoming work should be 12 to 18 months. For some water companies this was even greater, for others, less so, especially in water companies where the FD was significantly different to that which was expected.

3.52 An important quality of the information however, was the confidence that the supply chain had in the information. Some water companies had withdrawn certain work which had eroded the trust. It was appreciated by the supply chain that definition of projects within AMP cycles was a journey, upon which they accompanied the water company.

3.53 The visibility of the pipeline of work was not consistent down the supply chain. Some suppliers felt that communication was between water companies and tier one suppliers only; in some areas tiers two and three felt they had no advance warning of upcoming work, depriving them of opportunities to effectively plan and innovate.

Contractual mechanisms

3.54 The contractual mechanisms employed varied greatly across the water companies. As discussed above, some used partnering, others not, but all appeared to use NEC3-derived contracts. The precise form of contract though did vary. Water companies and some suppliers agreed that back-to-back contracts where most risk is pushed to the supply chain, are appropriate but some risks are incredibly expensive to transfer. For example one water company asked suppliers to take on the risk of regulatory change. Another water company ran an exercise with its supply chain examining its basic contract, finding out that certain clauses were causing disproportionately high costs. Such a simple exercise was deemed to save some 20 to 25 per cent on some rates.

3.55 The level of prescription in specifications was often deemed too high, stifling innovation. Certain suppliers had to produce the same basic items to three different specifications for three different water companies. Such behaviour is seen in many infrastructure markets and there is a movement away from over-specification and increasing standardizations to save costs. This is being adopted by the regulators slowly, yet has not passed to the supply chain.

3.56 Some water companies were criticised for treating their programme and subsequent procurement as very discrete projects which must be competitively tendered. Whilst this did

result in low rates, it did not translate into low outturn costs. Suppliers felt that work let as programmes, or at least larger packages, released them to deliver in more efficient ways and in a less confrontational manner.

Financing and board governance

Non-executive challenge

3.57 The Non-executive Directors' (NEDs') interviews were particularly revealing. The NEDs have a regulatory duty to approve the business plans of the water companies, so should be particularly appropriate parties to challenge the inefficient profiles of investment. The NEDs however felt their power to do this was minimal, as the business plans are presented at board meetings as a finished article to be only reviewed at a high level and signed off. They felt that the executive committees below board level (on which NEDs do not sit) are where the investment profiles can be challenged most effectively.

Finance

3.58 The finance directors, as in many organisations, have a concern as to how performance is reported to investors. As discussed previously, the finance directors felt pressure to meet (but not exceed) the annual investment targets submitted in the business plans to Ofwat. In some cases however, the directors felt that even if Ofwat would not hold the water companies to those targets, the investor community would, so levelling the programme profile after the FD was not possible, regardless of the benefits to the company.

3.59 The degree to which investors are active in water company decision-making was also questioned by many of those interviewed. All water companies suggested their investors were mature, investing for long-term sustainable returns and placed few constraints on the water company activities. This suggests that the choices around risk and reward are generally decided by the water company executive.

3.60 A ratings agency was interviewed as part of the study. It held similar views that a water company meeting its annual targets for investment was one that was performing well. The delivery of the capital programme formed only a small portion of the assessment anyway; of primary importance were the headline financial performance indicators.

4

Conclusions and recommendations

Changing a culture of cyclical investment

Challenging the profile of investment during the price review

4.1 The process by which water company business plans are scrutinised and challenged during the price review involves considerable review and discussion between Ofwat, water companies and other stakeholders before Ofwat reaches a final determination.

4.2 As water companies develop their business plan submissions, they develop investment profiles based upon a bottom-up analysis of projects to deliver the outputs and outcomes within their business plan. These programmes are optimised based upon start and end dates as well as investment and benefits profiles. One key assumption is that schemes should start and finish within the price control period. As a result of this assumption, the majority of business plan submissions already contain a cyclical stop-start investment profile (see Chapter 1).

4.3 The regulatory challenge within the price review process is based upon benefits to customers and the costs associated with the delivery of outputs and outcomes; limited challenge and dialogue is undertaken on the profile of investment by which these are delivered. The delivery profile of investment although reviewed, is relatively unchallenged.

4.4 Given the scale of this investment profile and the potential savings that could be delivered, it is recommended that there should be formal challenge of the investment profile before business plans are submitted and before determinations are completed.

Key recommendation A.1: The following parties should challenge formally the profile of investment during the price review process in 2014 and should directly consider the impact of cyclical and steady state delivery on the water company, the supply chain and the wider water sector:

- Water company boards, including non-executive members; and
- Ofwat (the Water Services Regulation Authority).

An embedded culture of cyclical delivery

4.5 It is clear from the interviews and discussions throughout this study that the cyclical effect is not purposefully generated by any single party or process and no single party stands to gain by its continuation.

4.6 The cyclical effect is generated by the planning undertaken by water companies and regulators, then ultimately into delivery plans within the supply chain. All parties expect the cyclical pattern to occur, water companies develop a business plan whereby they plan for it to occur, then unsurprisingly, it happens.

4.7 There are clear views expressed by many parties as to who they believe the owner of the issue to be (whether that be Ofwat, the water companies, company ownership structures or procurement teams). In the study, it was apparent that many within the water companies and

supply chain are unaware of the process of the price review or even where decisions that affect the investment programme are taken. Many individuals are unsighted on the reasoning for decisions and hence when change occurs it is unexpected and alarming.

4.8 Many within the supply chain see themselves as a victim of the cyclical effect, whereby they are responding to short-term decision making which is viewed as inappropriate and unsustainable.

4.9 Across the sector this learnt behaviour should be challenged in order to develop business plans that are more sustainable. This will require a conscious effort by all parties to challenge cyclical patterns of delivery and take balanced risk-based decisions in the anticipation of achieving greater cost savings through more efficient delivery.

Recommendation A.2: All parties concerned with the delivery of investment programmes in the water sector should challenge the embedded culture associated with the cyclical nature of delivery and should actively seek to challenge the profile of delivery by the rebalancing of risk.

The impacts of the quality programme on cyclical investment

4.10 A significant part of water company investment programmes are the enhancement programmes required in order to meet drinking water quality and environmental improvements. Traditionally such programmes have been scheme-specific with defined outputs and delivery compliance dates. Guidance and policy for these programmes is provided by DEFRA through its Statement of Obligations (SOO) to water companies and through its Social and Environmental Guidance (SEG) to Ofwat. Such guidance from DEFRA should consider and reflect upon the impacts of delivery within the wider supply chain while balancing the needs of compliance with statutory requirements.

4.11 As can be seen in Annex D, the compliance timing impacts a proportion of the cyclical investment. All quality regulators (DWI, Environment Agency and Natural England) should directly consider the impact of compliance dates and obligations on the cyclical nature of these programmes of work with each water company in advance of the next price review in 2014.

Recommendation A.3: The quality regulators (DWI, Environment Agency and Natural England) should keep under review the impact of their compliance dates and obligations on the cyclicity of water companies' investment. Where these dates are not driven by EU legislation, consideration should be given to the profile of delivery such that the quality programme does not increase the level of cyclicity. This should be done as the programmes of work are developed with each water company in preparation for the next price review.

Changes to the structure of the price control

4.12 Throughout the study, members of the supply chain have presented tentative solutions to the cyclical nature of investment which involve a change to the structure of the price control itself. These have included:

- 1 a five year price control but also agreeing year one of the investment programme for the following price control;
- 2 a five year price control but also agreeing year one of the maintenance investment programme for the following price control;
- 3 staggered price controls across the water sector by geographic regions;

- 4 undertaking separate price controls for the water and sewerage services, offset by two years; and
- 5 a longer price control period (between six and eight years).

4.13 Each of these proposed solutions appear at first sight to have merit for smoothing the investment cycle. However, each of them has the potential to alter the allocation of risk between customers and companies (and hence their investors) at the price control. For instance:

- staggered price controls across companies will reduce the opportunities for comparative regulation and potentially increase the complexity of the price review process. The risk profile of the sector and/or capital market conditions might change over time. However, the ability to reflect any such change in Ofwat's assumption of an individual company's cost of capital will be dependent on the timing of when that water company is due to have its prices set. Consequently, some water companies might be either at a disadvantage, causing concerns over their ability to finance their functions or at an advantage causing customers to pay more than would have otherwise been the case; and
- splitting price controls between water and sewerage will support supply chain companies that undertake work in both these services, but not necessarily for those who deliver works in only one service. It is also unlikely to address cyclical investment within either service. Such an action would also increase the complexity of price determinations for stakeholders and customers who could lose the clarity of price setting for both services at the same time.

4.14 As part of the Future Price Limits work, Ofwat consulted on the incentive properties of different price control durations. There were different views posed by respondents. Some respondents thought that having reasonable certainty over companies' revenues and cash flows over a longer period might be beneficial. Others argued that price determinations with longer durations meant that companies might have to bear unfunded costs for an unacceptably long time, with implications for investor appetite for the sector and therefore the cost of capital.

4.15 Most respondents to the consultation were in favour of retaining a five year control period at the next price review. But some considered that a change to duration (of up to eight years), could be revisited again in the future. Ofwat has stated in its recent *Future Price Limits – statement of principles* document (May 2012) that it will continue to set price controls for five years in 2014 but will consult on this issue again before it sets price limits in 2019.

4.16 Any future changes to the duration and timing of price controls should be considered in such a way as to balance risks on the sector and ensure that both costs to customers and risks to the water companies' ability to finance their functions are considered, alongside the sustainability of the supply chain.

Effective and timely decisions

Certainty of the Draft Determination

4.17 One key observation within the study has been that water companies await visibility of the final determination before committing to contract awards and forward programmes. This position is perceived by many within the supply chain as risk-averse and contributes greatly to the cyclical nature of investment.

4.18 Ofwat considers that the water companies have a great deal of certainty with regard to their forward programmes at the time of the draft determination and that this should give

companies the certainty to commit to contract awards and forward programmes (at least for the early part of the five year period).

4.19 Historic data that shows the investment programmes at industry level have risen on average by six to seven per cent between draft and final determination (see Table G.1 Annex G). With this high level of confidence in both funding and quality scheme inclusion, there is a perception across the sector that some water companies are being risk-averse and are not taking effective and timely decisions with regards to year one of their investment programmes

Key recommendation B.1: Water companies should recognise the programme certainty provided at the time of the draft determination, or earlier, by virtue of the given approvals from quality regulators, clear and robust commitments set out by Ofwat and clarity on the process for resolving outstanding reserved matters.¹ Efficient water companies will typically instigate contract awards and appropriate activity for year one in a timely manner after the draft determination (summer of 2014) in order to start delivering their investment programme for the 2015-20 period.

Certainty of the quality programme

4.20 As part of previous price reviews, water companies have perceived two risks with regard to the quality enhancement programmes:

- 1 that individual enhancement schemes may be removed from the enhancement programme; and
- 2 that Ofwat may assume a different view of economic and efficient costs to that proposed by the water company.

4.21 Water companies are reluctant to instigate feasibility and detailed design activity on these schemes until they have the surety of their inclusion and preferably a greater understanding of included costs. Recognising these risks, each company has developed a different approach to manage these programme risks, some engage closely with the quality regulators to understand priorities and understand which particular schemes are more certain than others. These companies then use this knowledge to prioritise schemes and target feasibility and detailed design activities. Other companies take a more risk-averse line and will only instigate activity once they have received the final determination.

4.22 All regulators have provided feedback to the water companies throughout the price review about schemes where there may be a difference in opinion on the need for the scheme or on the economic and efficient costs of delivery. These areas of concern are made visible to the company through company meetings, letters of support (or the lack thereof) and draft determinations.

4.23 Water companies therefore have a significant amount of information available to them about many of the schemes within their programmes well in advance of final determinations, both on likelihood of inclusion and on potential cost assumptions. This knowledge is sufficiently detailed to enable effective planning for the first year of the investment programme delivery.

4.24 Water companies, quality regulators and Ofwat should continue to work together to obtain effective certainty for year one inclusion of the quality programme and improve certainty for the latter four years. The benefits of this however can only be realised if water companies actively apply this information within their forward planning and instigate feasibility and detailed design schemes.

¹ The quality regulators are the Drinking Water Inspectorate, the Environment Agency and Natural England.

Recommendation B.2: Water companies, quality regulators and Ofwat will be expected to continue to work together to obtain effective scheme or outcome certainty for year one of the quality programme by January 2014. This certainty would be with regard to inclusion within the programme (the specific outcome or output will be required) and should provide clarity to companies about the need for feasibility and design for these outcomes and outputs.

An effective transition

Planning and development

4.25 In order to reduce the impact of the cyclical investment profile it is important to plan effectively across the transition between the two regulatory periods. Generally water companies manage their investment programmes with a staged gateway approach, whereby business cases are written to justify a scheme moving to the next level of progression. These gateways reflect the lifecycle of a scheme from business need through feasibility, detailed design, construction and commissioning, finishing with scheme close down and benefits appraisal.

4.26 Effective business planning is required by the water companies to plan the resource levels across these activities. The resources associated with each of these tasks are generally different and require careful consideration and planning. In order to prepare for the transition between price review periods it is necessary to undertake feasibility and detailed design work on schemes earlier than the start of the period in order that construction activity can effectively start on site at the beginning of the price review period. Only the water companies can instigate such activities.

4.27 The early programming of feasibility and design resources is well understood by all parties within the price review process. The challenges have always been: which party should bear the risk of these activities; how should investment be recognised; and assuming this leads to more efficient delivery, who should retain the outperformance.

4.28 Ofwat has in the past recognised initiatives such as early start and overlap programmes in an attempt to compensate for these issues, however all such mechanisms to date have been unsuccessful in countering this issue with limited benefit being visible on cyclical investment profiles.

4.29 Company planning and risk appetite in this area varies from company to company, some are prepared to fund this activity early, others are only prepared to undertake these activities if it is explicitly recognised in price limits and funded by customers. In a small number of cases the supply chain has taken risks and supported feasibility and design work by undertaking the delivery early and billing clients once the new regulatory period has begun. The study team believe that this approach should only be considered as an option of last resort as this places all the risk on the supply chain – the least appropriate vehicle to bear such risk.

4.30 As part of Ofwat's Future Price Limits framework the water companies define their own delivery targets (in association with the companies' customer challenge groups) and are accountable for the delivery of these outcomes to their customers. Each company develops both the long term outcomes, then also a series of milestones and defined outcomes (or outputs) to demonstrate to its customers that it is on course to deliver the long term outcomes. Water companies are therefore more able to forward-plan and define their own programme of delivery as part of future price limits.

4.31 The study team believe that two specific issues need to be addressed in order to allow more effective planning and delivery around this transition:

- 1 clarification on the need for outcomes in the business plan (addressed through the Future Price Limits framework); and
- 2 a fair and amicable balance of risk and investment between the customer and the water companies. Balancing delivery risk with an appropriate return where improved efficiency delivers outperformance.

Key recommendation C.1: Water companies should undertake feasibility and design studies in 2014 to enable early commencement of programme delivery at the start of 2015. Such planning, should take account of the delivery of long-term outcomes and agreed milestone programmes and outcomes.

The treatment of transition funding

4.32 Many of the discussions within the study have concentrated on whether the investment to undertake feasibility and detailed design should be treated differently in order to incentivise the early planning and delivery at the start of each regulatory period. Many parties wished to see the early start programmes of the past being re-instigated. Ofwat is reluctant to undertake an early start programme again as previous applications failed to sufficiently affect the cyclical nature of investment.

4.33 The debate on this issue has centred on the risks and rewards for any transition funding through the application of incentives. The rewards for such a transition programme would be additional efficiencies that are estimated to be between three to five per cent. How such rewards are balanced between water companies and customers is a key factor in any incentives applied.

4.34 Risk and reward are intrinsically linked, if the transition investment is funded by the water companies then the incentive is on the companies to drive the efficiencies and hence release the outperformance. In this scenario, any efficiency could be retained by the water company as they had taken the risk and realised the benefits. Should the transition investment be funded through the price setting mechanism with the early investment being funded by customers, then this reduces the incentive on the water companies to deliver the efficiencies and release the outperformance.

4.35 Ultimately, these choices relate to an individual water company's ability to release the efficiency. Frontier companies are more likely to achieve this outcome and Ofwat would have greater confidence in these circumstances, but this is not universal across the sector and there is a risk that any globally applied transition investment would not be efficiently applied across the sector.

4.36 There still remain many choices for how appropriate transition investment could be assessed as part of the price setting process. The balance of incentives should be linked to company choice and each company's risk appetite rather than being applied uniformly across the sector. Two examples are described below:

- 1 a frontier company may believe it can release all the potential outperformance and as such may wish to fund fully the transition investment. The company is rewarded by the outperformance and retains this.
- 2 a company may wish the transition investment to be recognised but is willing to accept an additional efficiency target in recognition for the funding. The investment is funded but the company accepts an additional efficiency target, say two per cent.

4.37 These are just a few examples of the many different mechanisms by which transition investment could be assessed and it is important that such incentives are considered alongside

both the existing CIS incentives and any new measures Ofwat is considering for the next price review.

Key recommendation C.2: Ofwat will consider the appropriate treatment of investment across the transition, review incentives and the balance of risk between company and customer. This consideration should examine company choice, appropriate recognition of investment, benefits for customers, returns for companies, interactions with the existing CIS mechanism and the incentives for the 2015-20 regulatory period. This consideration will be expected to be part of the development of Ofwat's detailed methodology, which will be published for consultation in autumn 2012.

Ensuring effective planning of investment

Effective business planning by the water companies

4.38 The effectiveness of business planning across the water companies varies considerably. In order to be economic and efficient companies need to have integrated end to end business processes through the asset management cycle. Where these processes are not efficient this leads to delays in the delivery cycle and poor forward visibility leading to inefficient delivery. These effects manifest themselves in highly cyclical investment programmes (both on an annual and five-yearly basis) and inefficient delivery (as measured through Ofwat's cost base dataset).

4.39 Such effects within the water companies are highly visible to both regulatory bodies and the supply chain. Both are aware of the capabilities of individual companies to manage their assets, define and procure effective capital programmes and work with the supply chain in the delivery of these programmes. The regulators are looking for intelligent water companies who are highly effective, efficient and deliver the right outcomes for customers and the environment. The supply chain is looking for an intelligent client who knows what it needs to deliver the right outcomes and is prepared to work with the supply chain in partnership, effectively balancing project risk with innovation and cost. These regulatory and supply chain outcomes are complementary and mutually supportive.

4.40 Therefore an economic and efficient water company would:

- know the assets and how they perform;
- know when to invest and in what form - effective planning;
- communicate its forward programme and commit to its delivery (typically 12 to 18 months visibility);
- work in partnership with the supply chain to manage delivery risk; and
- deliver efficiently.

Key recommendation D.1: Water companies should consider adopting best practice through effective planning as part of the delivery of their day-to-day investment programme and clearly communicate to the supply chain a detailed investment pipeline with a minimum of 12 to 18 months forward visibility – recognising that this may not be fully achievable across all elements of the programme.

Yearly cyclical investment

4.41 A number of the supply chain interviewed as part of the study also raised the issue of yearly cyclical investment and how this leads to inefficient delivery. It is the view of the study team that yearly cyclical delivery patterns are as a direct result of short term planning goals whereby water companies are not planning sufficiently far ahead. The study team considers that water companies who are suffering from yearly cyclical delivery patterns are not sufficiently planning ahead and are not providing a sufficient pipeline of information to the supply chain. A water company with these yearly patterns of cyclical investment would not be considered as economic and efficient and could expect to see efficiency challenges at future price reviews.

Recommendation D.2: Water companies should plan sufficiently ahead in order to eliminate the effects of yearly cyclical investment.

Effective business scenario planning within the Price Review

4.42 One observation through the study has been the stop start nature of decisions by water companies at the time of the final determination. Some water companies are perceived by many in the supply chain to be risk-averse resulting in no forward visibility of contract awards nor of the investment programme.

4.43 According to those interviewed, few contract awards were made by water companies prior to the final determinations with many investment programmes not being made visible to the supply chain until months later. Many in the sector are frustrated by this perceived risk-averse nature and lack of timely decisions. At PR09, Ofwat believe that regulatory signals to the companies were strong with both draft baselines and draft determinations being made visible to water companies up to a year ahead of the final determination. This defined between £19bn (84 per cent) and £21bn (93 per cent) respectively, of an eventual industry £22bn capital programme. It must also be noted that of the schemes identified in the draft determinations, just two per cent of them were subject to change in the final determination (and a larger number were added to the programme).

4.44 This risk-averse nature of decision-making within the water companies at the time of the final determination is considered by the study team to be a key contributing factor to the cyclical nature of investment in the water sector.

One direct challenge during the interviews was on the extent to which the various water companies have undertaken detailed scenario planning of the potential outcomes associated with the final determination. Without the visibility of these and what these would mean to the various contract awards and shape of the investment programme it is difficult for the supply chain to plan. The study team believe it is important for the water companies to assess the range of potential final determination outcomes and communicate the forward programme to the supply chain.

Recommendation D.3: Water companies should undertake effective scenario planning as part of their preparation for the final determinations. This should take into account feedback from draft determinations. These scenarios should consider all potential outcomes and should reflect realistic outcomes for the final determination. These scenarios should enable earlier commencement of programme delivery.

4.45 It is not uncommon to find that many contract tenders have been based on volumes of activity and outcomes, which are unrealistically high, compared with final determinations. Water companies have developed contract awards based upon estimated upper ranges and volumes in order to obtain competitive, lower unit rates. However, as these were unrealistic expectations they then call into question the validity of contracts following the final determination leading to further delays, re-negotiations and delays in delivery.

Recommendation D.4: Water company contract awards (to the supply chain) should be realistic, based upon the most likely scenarios for final determination outcomes, reflecting likely activity and outcomes. Water companies should consider the early release of contract awards, particularly where a contract will be required regardless of the final determination.

Acceleration of benefits in period

4.46 The water companies have a number of incentives upon them to accelerate investment and deliver outputs and outcomes early. There are numerous financial or reputational incentives to deliver operational cost savings, benefits to customers or the environment, the achievement of efficiencies or outperformance. The downside to the early delivery of these benefits is that the final year of the capital programme is reduced to fund these activities. This in turn raises the risks of inefficient delivery within the capital programme in year five.

Recommendation D.5: Where water companies consider the acceleration of benefits (and therefore investment) within a price review period, they should consider the impact of such decisions on efficient delivery of their programme and on their supply chain. Such decisions should then be balanced between the early delivery of benefits and the risks posed by the inefficiency of accelerated working and the resulting inefficiency of reduced productivity in year five.

Establishing effective partnerships and communication

A standard pipeline of visibility

4.47 Effective planning is not just required within the water companies. The supply chain at all levels requires forward visibility in order to plan effectively and deliver goods and services at an economic and efficient level. This requires water companies to make visible their forward programme not just to tier one contractors and the extended supply chain. There has been a reluctance to make this information available due to the level of granularity of information and the perceived commercial confidentiality of such information.

4.48 Infrastructure UK and the Department for Business, Innovation and Skills (BIS) have recently undertaken studies to examine the benefits of available pipelines of information and the form these should take to provide beneficial information to the supply chain. Their report *Strengthening UK supply chains: public procurement Tunnelling: A capability analysis* provides further details.²

4.49 There would be benefit in both the water companies and supply chain bodies such as British Water and SBWWI exploring this best practice on pipeline information, forward visibility and capability analysis. Such activity could lead to joint statements, charters and memorandum of understanding between the parties around collaborative development of standards for the publication of pipeline information and capability understanding.

² <http://www.bis.gov.uk/assets/biscore/enterprise/docs/s/12-756-strengthening-supply-chains-public-procurement-tunnelling>

Key recommendation E.1: Water companies and supply chain bodies should adopt best practice tools for the collaborative development and publication of standard pipeline information and sector skills and capability statements. Water companies should use these best practice tools when publishing their investment pipelines. Water companies should aim to implement all of these measures as soon as possible but no later than March 2015.

Contract strategies and partnerships

4.50 It has been clear with the work of the study team that there are many diverse contract strategies and partnerships within the water sector. Each has different benefits and risks associated and are applicable in different circumstances. While it is not appropriate for the study team to comment on the applicability of the different contract styles (as these remain commercial decisions for both water companies and their contract partners) it is noted that there are effects and implications of particular contract styles on the cyclical nature of investment.

4.51 Of particular note are the contract style and the timing of contract renewals many of which are tied directly to price control periods. When contracts are tied directly to price control periods this extenuates the uncertainty of delivery and reinforces the cyclical pattern of investment.

4.52 Two basic styles of contract exist across the water sector: competitively tendered and partnership frameworks.

4.53 The first of these generally perform as a cost driven contract where elements of defined work are competitively tendered. These are quite traditional contract styles driven by the need to deliver specific activities and deliver productive efficiency (doing things in the most cost effective way). These contracts can tend to be confrontational in nature with high levels of overheads associated with the management of claims and cost recovery on both sides of the contract. It is debatable whether such contracts deliver long term savings as substantial overheads are incurred in the management and resolution of such contracts. The contractor has limited focus on the outcome that is being delivered for the customer and the environment and has limited opportunity to innovate and deliver savings other than productive efficiency.

4.54 These competitively tendered contracts are typically quite short in duration, up to five years, at which the water company then returns to the market for further tendering. Such contracts rarely offer any continuity for the supply chain across regulatory periods with limited visibility of a forward programme. Contract rates are very much driven on input activities (for example, length of main or sewer renewed) rather than addressing the fundamentals of output or outcomes to consumers and the environment.

4.55 It is the view of the study team that competitively tendered contracts extenuate the impact of cyclical investment and increase the impact on the supply chain, due to the stop-start nature of the contracts and overheads associated with management and re-tendering.

4.56 The second contract style is the partnership framework. Here the client and contractor are typically partners (and this may include multiple contractors) who look closely at the outcomes to be delivered, examine the risks associated with the programme and then look at alternative mechanisms by which such risks can be mitigated. Once an appropriate solution has been identified the partnership work together to deliver the scheme in the most economic and efficient manner. This partnership framework is more aligned with the future needs of delivering outcomes for consumers and the environment. Typically such contracts have lower overhead levels as they are less claim-focused. However, some in the sector remain unconvinced of the benefits of such contract types as they perceive these contracts are not as open to competitive tender.

4.57 Partnership framework contracts are typically longer in duration, typically in a '5+5' arrangement (fixed five years with a negotiated extension for five years). Such contracts offer continuity for the supply chain across regulatory periods with greater visibility of forward programme, although they are subject to commercial negotiations at the five year break point.

4.58 The partnership framework contract style is much more based upon target costs and pain-gain mechanisms which seek to deliver outputs and outcomes for customers and the environment. Such contract styles better allow for innovation that deliver both dynamic and allocative efficiency.³

4.59 It is the view of the study team that partnership frameworks reduce the impact of cyclical investment and reduces the impact on the supply chain, due to the extended '5+5' nature of the contracts and low overheads associated with management and re-negotiation.

Recommendation E.2: Water companies should consider their application of contract styles and the impact of these on the cyclical investment profile and their supply chain. Where they are capable to do so and they consider it appropriate, companies should consider the use of partnership frameworks and contract extensions in future contract awards.

Recommendation E.3: Water companies should consider decoupling and offsetting contract awards and tendering from the price control periods as part of future contract awards (this would mean awarding contracts during years in which there is not a regulatory price review).

³ Dynamic efficiency is finding different ways of doing things to reduce the cost. Allocative efficiency is concerned with allocating scarce resources where they are valued most.

A

Consultation

Study team

Infrastructure UK

Ofwat

Water companies

Table A.1: Details of water companies and affiliated parties interviewed

Water Company	Supply Chain interviewed?	Non-executive Director(s) interviewed?
Anglian Water	Yes	Yes
Southern Water	Yes	Yes
United Utilities	Yes	No

Note that supply chain members also advised the study team on matters beyond those concerning just the water companies listed in this table.

Source: Infrastructure UK

Other parties

British Water

Civil Engineering Contractors' Association

DEFRA

Environmental Industries Association

Institution of Civil Engineers

Moody's Investors Service

SBWWI

UKWIR

Water Industry forum

Water UK

B List of water companies in England and Wales

Table B.1: Water companies in England and Wales

Water Company	Acronym	Water and Sewerage Company (WASC)	Water-only Company (WOC)
Anglian Water	ANH	✓	
Bristol Water	BRL		✓
Cambridge Water	CAM		✓
Dee Valley Water	DVV		✓
Dŵr Cymru	WSH	✓	
Northumbrian Water	NES	✓	
Portsmouth Water	PRT		✓
Sembcorp Bournemouth Water	SBW		✓
Severn Trent Water	SVT	✓	
South East Water	SEW		✓
South Staffs Water	SST		✓
South West Water	SWT	✓	
Southern Water	SRN	✓	
Sutton and East Surrey Water	SES		✓
Thames Water	TMS	✓	
United Utilities	NWT	✓	
Veolia Water Central	VCE		✓
Veolia Water East	VEA		✓
Veolia Water South East	VSE		✓
Wessex Water	WSX	✓	
Yorkshire Water	YKY	✓	

Source: Ofwat



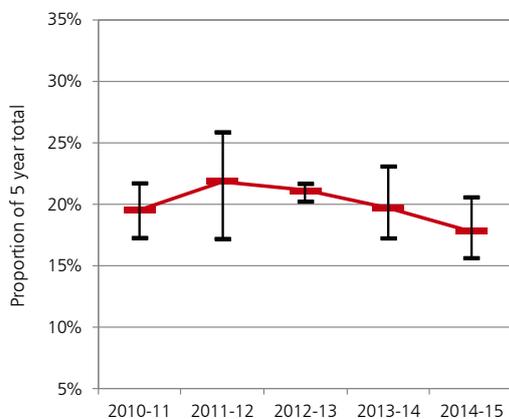
Detailed analysis of investment categories

Water services

C.1 Ofwat looked at the capital investment profiles put forward by each company in their final business plans (FBPs). For water capital maintenance, which represents 31 per cent of the £22billion included in price limits, at a total industry level the programme was apportioned 20 per cent, 22 per cent, 21 per cent, 20 per cent and 18 per cent in each of the five years for AMP5. A typical pattern of investment when compared with those reported historically.

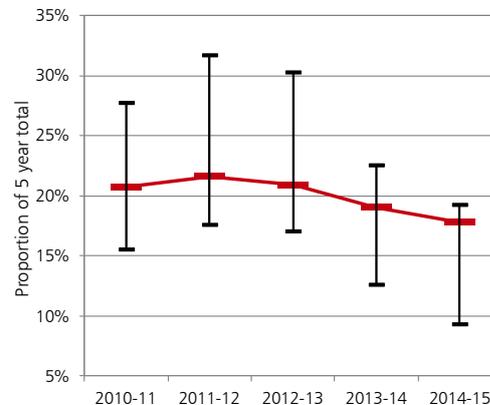
C.2 At a company level, 14 out of the 21 companies projected their highest level of investment in the period occurring in years two and three. 13 companies projected the lowest level of investment occurring in year five. Although there was no difference in the overall profile of investment reported by the larger and smaller companies, the ranges between the highest and lowest in each year was much wider for the water-only companies.

Chart C.1: Highest and lowest apportionments of water and sewerage companies' final business plan water capital maintenance projections for AMP5



Source: Ofwat analysis

Chart C.2: Highest and lowest apportionments of water-only companies' final business plan water capital maintenance projections for AMP5

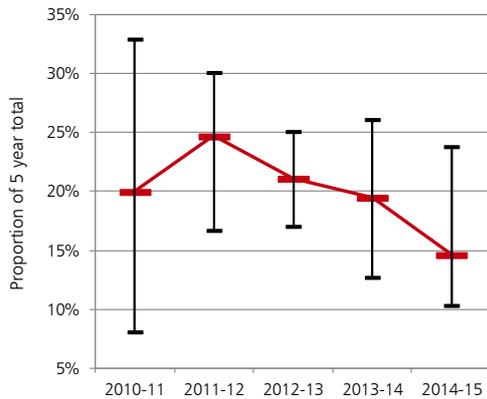


Source: Ofwat analysis

C.3 For water capital enhancements which represents 13 per cent of the £22billion total, at an industry level the programme was apportioned 20 per cent, 24 per cent, 21 per cent, 20 per cent and 15 per cent for each of the five years. Again this reflects the typical pattern of cyclical investment seen in previous AMP periods.

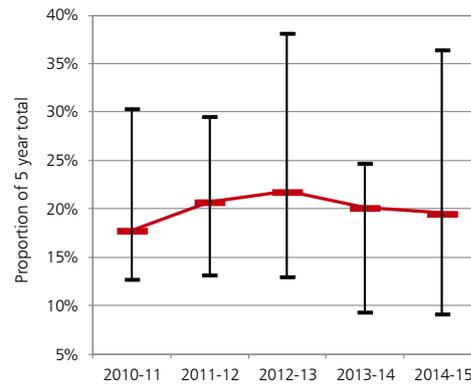
C.4 At a company level, the picture was similar to the water capital maintenance programme in that 12 companies projected the highest level of capital enhancement investment occurring in years two and three and the same number of companies projected the lowest investment level occurring in year five. But, the ranges between the highest and lowest were wider in this particular investment area.

Chart C.3: Highest and lowest apportionments of water and sewerage companies' final business plan water capital enhancement projections for AMP5



Source: Ofwat analysis

Chart C.4: Highest and lowest apportionments of water-only companies' final business plan water capital enhancement projections for AMP5

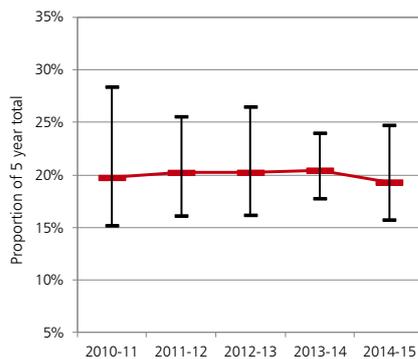


Source: Ofwat analysis

Sewerage services

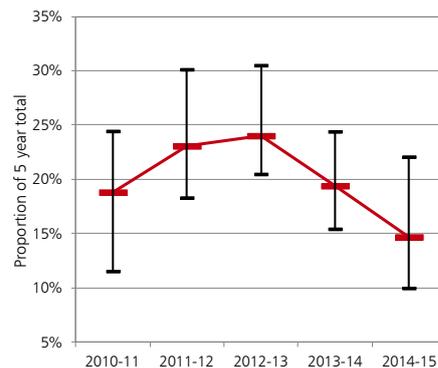
C.5 In sewerage capital maintenance which represents 28 per cent of the £22billion total, the picture was markedly different with 20 per cent of the programme apportioned equally in each year. At a high level this looks fine, but each company's investment profile was completely different. Consequently, the ranges between highest and lowest were significantly wider than those reported under water capital maintenance. Six out of 10 companies projected their highest investment occurring in years one and two but only three companies projected their lowest investment occurring in year five.

Chart C.5: Highest and lowest apportionments of companies' final business plan sewerage capital maintenance projections for AMP5



Source: Ofwat analysis

Chart C.6: Highest and lowest apportionments of companies' final business plan sewerage enhancement projections for AMP5



Source: Ofwat analysis

C.6 In sewerage capital enhancements, which also represents 28 per cent of the total, the industry apportioned the programme 19 per cent, 23 per cent, 24 per cent, 19 per cent and 15 per cent for each of the five years of AMP5 clearly illustrating the typical pattern of cyclical investment. Seven companies projected their highest investment in years two and three and all but one company projected their lowest investment occurring in year five. As in the water capital enhancement programme, there were wide ranges between the highest and lowest projected investment in each year.

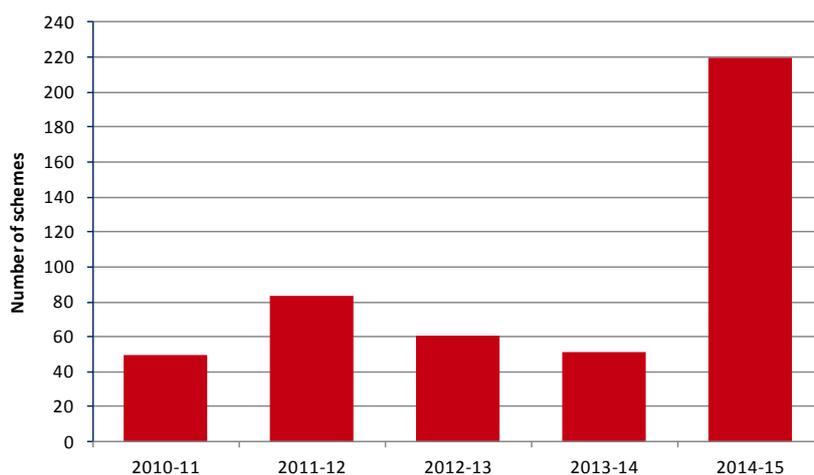
D AMP5 quality enhancement deliverables

The quality enhancement profile of deliverables for the current AMP5 period

D.1 To better understand the possible drivers for companies seemingly planning the cyclical nature of investment in a five year period, Ofwat examined the shape and timings of the quality enhancements programme of deliverables put forward in companies' final business plans (and recognised in the final determinations) following companies' consultation with the quality regulators.

D.2 Chart D.1: below summarises the water quality enhancement programme for the current AMP5 period reflected in the final determination. The programme reflects those project records with a quality driver and a planned completion date during the current AMP5 period.

Chart D.1: Water quality enhancement scheme programme for AMP5



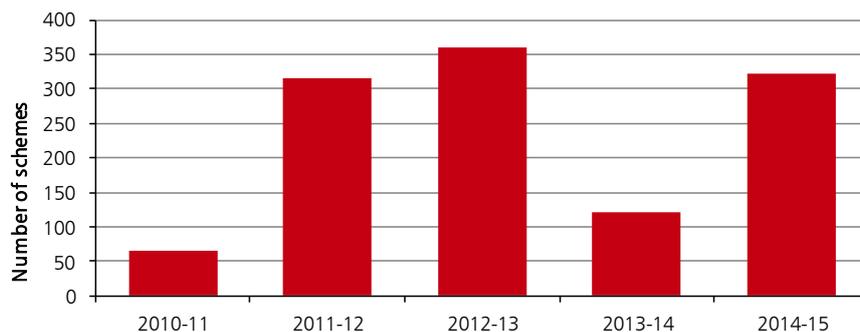
Source: Ofwat

D.3 The programme over for the first 4 years mirrors the cyclical nature of programme delivery seen in the past but shows a substantial spike in scheme delivery in the final year of the period. This profile is driven by the completion dates for three significant obligations. In summary:

- 1 **lead communication pipe replacement**, 85 per cent of schemes are to be completed by 31 March 2015 (end of year five);
- 2 **Security and Emergency Measures Direction 1998**, 50 per cent of all schemes are to be completed by 31 March 2015 (end of year five); and
- 3 **Habitats and Birds Directive**, over 80 per cent of schemes are to be completed by 31 March 2015 (end of year five).

D.4 Chart D.2: below summarises the sewerage quality enhancement programme for AMP5. The profile of programme delivery shows a low number of schemes to be completed in the first and fourth years, with the greatest number of schemes falling in years two, three and five.

Chart D.2: Sewerage quality enhancement scheme programme for AMP5



Source: Ofwat

D.5 The profiles were heavily influenced by guidance issued by the Environment Agency (EA) in Water Quality Planning: Identifying Schemes for the PR09 National Environment Programme – Supporting information on profiling of the National Environment Programme for Final Business Plans (February 2009),¹ to help water companies in the profiling of schemes in their final business plans. Among other things, the guidance stipulated that:

- all statutory deadlines and other timescales set by ministers or otherwise indicated by DEFRA or WAG were to be met; and
- investigations should be completed early in the programme (so that any improvements that the investigations identify as being necessary can be incorporated into the PR14 business planning process).

D.6 The greatest number of schemes in years two, three and five can largely be explained by the guidance given for the seven most significant obligations. Each of these obligations drives 70 or more schemes and they account for almost 60 per cent of the total number of schemes included in the AMP5 sewerage quality programme. In summary:

- 1 **Bathing Water Directives**, almost 80 per cent of improvement schemes were to be completed by 31 March 2012 (end of year two);
- 2 **Water Framework Directive**, around 70 per cent of chemicals investigations were to be completed by October 2011 (middle of year two);
- 3 **Groundwater Directive**, around 75 per cent of improvement schemes are to be completed by 31 December 2012 (middle of year three);
- 4 **Shellfish Directive**, just over 70 per cent of improvement schemes are to be completed by 31 March 2013 (end of year three);
- 5 **flow schemes**, almost 80 per cent of schemes are to be completed by 31 March 2015 (end of year five);
- 6 **unsatisfactory intermittent discharges**, schemes are spread across the period, ensuring that work is completed as soon as is reasonably practical and allowing time for modelling requirements. Just over 30 per cent are to be completed by 31 March 2015 (end of year five); and
- 7 **Urban Waste Water Directive**, over 70 per cent of schemes are to be completed by 30 September 2014 or 31 March 2015 (middle or end of year five, respectively)

¹ http://www.environment-agency.gov.uk/static/documents/Business/35_09.pdf

E

The Construction Output Price Index (COPI)

E.1 The Construction Output Price Index (COPI) represents the movement in the cost to clients of work carried out on new construction in the period. It covers costs represented by public and private housing, infrastructure, public other (non-housing) and both private industrial and private commercial sectors.

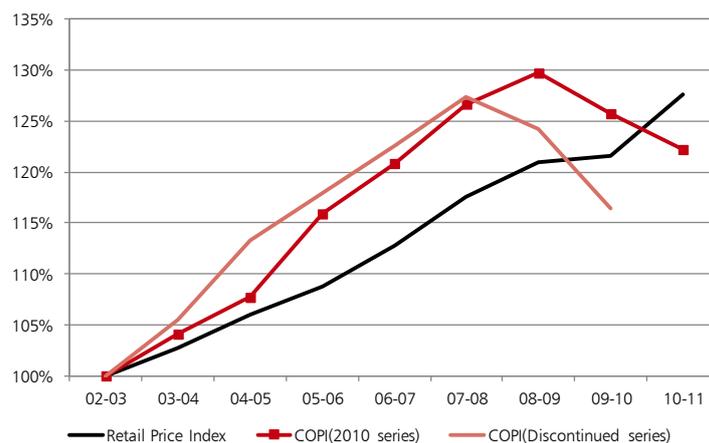
E.2 The Office for National Statistics changed the method of estimating the construction output statistics and their revisions created a new series of COPI. Figures for the new series were published for the first time in July 2010. The previous series, which Ofwat used during the period 2005 to 2010, was discontinued and so for the period 2010 to 2015 Ofwat confirmed to companies in September 2010 that they were adopting the new series for its regulatory purposes.

E.3 Ofwat uses COPI when comparing price limit assumptions with actual outturn capital investment with and when forming a view on the capital cost inflation to be included in price limits.

E.4 Capital cost inflation is the difference between COPI inflation and general RPI inflation. This forms the Relative Price Effect (RPE) or the Notified Index, as it is also known. Ofwat builds into its models forward-looking year-on-year percentage changes for the movement of COPI relative to RPI. At a price review Ofwat use the same COPI assumptions are included for all companies for the base year to the final year of the current AMP period. For the years in the review period, Ofwat adopt a zero RPE for companies with RCC4 in their licences.¹

COPI in AMP4

Chart E.1: Cumulative inflation 2002-03 to 2010-11 (baselined at 2002-03)



Source: Ofwat

¹ RCCs (Relative Change in Circumstance) are defined in Condition B of the water companies' licences and list particular criteria that can trigger a review of price limits between price reviews. RCC4 relates specifically to a change in the Notified Index from what was assumed when Ofwat set price limits. Only four companies have RCC4 in their licences namely Anglian Water, Cholderton, United Utilities Water and Yorkshire Water.

E.5 During AMP4 the industry witnessed a significant fall in COPI towards the end of the period caused by the difficult economic times and global financial crisis of 2008 as illustrated in Chart E.1 above.

E.6 This was significant in that it greatly influenced the final determination assumptions against which Ofwat would compare their actual investment. The fall in COPI effectively revised downward the overall final determination for the period and meant that companies were more likely to overspend against their allowances. With the capital investment 'cap' in place during this period, there was the risk that a greater proportion of their actual spend would therefore not be remunerated through the RCV. Inevitably, this will have contributed to companies constraining the level of capital spending in the last two years of the period.

COPI in AMP5

E.7 The first year of the current period 2010-11 saw the continuing fall in COPI resulting in a negative RPE of 7.7 per cent. This is in contrast to Ofwat's RPE assumptions for the current price limit period of +0.5 per cent for 2010-11, peaking at +1.5 per cent above RPI in 2011-12 before returning to a long-term trend of +0.5 per cent above RPI in 2013-14. However, the introduction of the Capital expenditure Incentive Scheme (CIS) for the 2009 price review, which removed the 'cap' on actual investment during the period, will mean that if COPI falls sharply again then the impact will be lower because the hard upper cap on companies' capital investment is removed.

E.8 But, differences between outturn COPI and that assumed by Ofwat when price limits were set will have an impact on the CIS rewards and penalties that will be calculated at the end of the price control period. This is because in calculating the 'true-up' at the end of the period, Ofwat will adjust its CIS baseline to reflect these differences.

E.9 In relation to the RCV, any differences between outturn COPI and assumptions in price limits will have no direct impact on any reconciliation of a company's RCV at the end of the price control period. This is because a company's outturn capital investment is included in its RCV, replacing that which Ofwat assumed when setting price limits.

COPI in AMP6

E.10 The continuing use of COPI for regulatory purposes has attracted criticism by some stakeholders who argue the index does not adequately reflect water and sewerage capital costs. UKWIR's recent study into alternative measures of inflation in the regulatory framework (report ref no. 12/RG/07/24, January 2012) states that "The current capital cost inflation index did not score well on grounds of appropriateness to water and sewerage costs. This was partly because COPI, as a measure of the cost of all new construction, is not designed to track the cost of mechanical and electrical engineering apparatus, IT and other assets like meters that make up around half of the industry's capital investment. But it was also partly because COPI was not considered to be a robust index in its own right, as demonstrated by the UK Statistics Authority's 2010 decision to withdraw its designation as a national statistic."

E.11 The Building Cost Information Service (BCIS) are currently researching ways of improving the Infrastructure Output Price Index input into COPI by including price data for typical treatment, pipeline and building schemes.

E.12 A recommendation from UKWIR's study was that "Ofwat should consult during the next periodic review on the option of dispensing with a specific capital cost indexation mechanism in favour of indexing capex allowances in line with RPI, as is currently the practice with all of the other building blocks in Ofwat's price control calculation."

Ofwat are considering the findings and recommendations of the study as part of its work on Future Price Limits in the 2014 price review.

F

Timeline for the 2009 Price Review

Table F.1: Detailed PR09 timeline

Phase	Dates	Activity	Next Price Review
1	Mar '07	MD letter published setting out expectations for long-term SDS (Apr '07)	
	Jun-Dec '07	Companies develop and publish SDS following consultation with stakeholders	
	Sep '07	WAG publish Water Policy Statement	WAG water strategy expected – mid 2012
	Oct '07	Ofwat consult on approach to PR09	Framework - Nov '11 Methodology – Autumn '12
	Nov '07	Ofwat consult on PR09 information requirements	
	14 Dec '07	Companies submit SDS	
	Late '07-Mar '08	CC Water led joint stakeholder research concerning customer priorities for PR09 (Jun '08)	
	Autumn '07	DEFRA and WAG issue Statement of Obligations (Dec '07)	
	Early '08	DEFRA publish new Water Strategy outlining Government's priorities for water (Feb '08)	
	Jan '08	Consultation on PR09 approach ends	
	Mar '08	Ofwat publish Framework and approach /methodology for PR09 DEFRA & WAG publish social and environmental guidance	Framework - Spring '12 Methodology - Spring '13
	Apr '08	Ofwat publish draft reporting requirements	
	2	Jun '08	Companies submit annual June Returns
Aug '08		Companies submit DBPs and publish summaries	
Sep-Jan '09		Joint stakeholder research into consumers' views on issues arising from the DBPs	
Sep '08		Ofwat publish industry-level summaries of key issues arising from the DBPs (Oct '08)	
Oct-Nov '08		Ofwat feedback on DBPs WAG publish further guidance on water policy priorities (Nov '08)	
Dec '08		Ofwat publish draft capital investment proposals (baselines)	
Jan '09		Ofwat issue FBP reporting requirements	
Apr '09		Companies submit FBPs and publish summaries	Q1 2014?
3	Jun '09	Companies submit annual June Returns	

	Jul '09	Ofwat publishes Draft Determinations	Q2 2014?
	Aug '09	Companies submit representations on their Draft Determinations	
	Sep-Oct '09	Ofwat meets with companies and CC Water to consider representations on Draft Determinations	
	Nov '09	Ofwat published Final Determinations	Q4 2014?
	Jan '10	Companies decide whether to accept their price limits or seek a referral to the Competition Commission	
4	Jan-Feb '10	Ofwat approves companies' charges schemes	
	Apr '10	New price limits take effect	April 2015
	Apr-Sep '10	Evaluation of price review process	
<i>Source: Ofwat</i>			



Analysis of movement between determinations

Table G.1: Movement between Ofwat's draft and final determination capital investment assumptions

Company	1999 Price Review	2004 Price Review	2009 Price Review
Anglian (ANH)	5%	6%	4%
Dŵr Cymru (WSH)	6%	8%	2%
Northumbrian (NES)	4%	5%	6%
Severn Trent (SVT)	6%	5%	9%
South West (SWT)	7%	4%	5%
Southern (SRN)	11%	8%	11%
Thames (TMS)	2%	15%	3%
United Utilities (NWT)	10%	4%	6%
Wessex (WSX)	6%	4%	6%
Yorkshire (YKY)	7%	8%	7%
Bristol (brl)	4%	1%	26% ¹
Cambridge (cam)	0%	6%	11%
Dee Valley (dvw)	0%	4%	6%
Portsmouth (prt)	0%	7%	11%
Sembcorp Bournemouth (sbw)	11%	0%	2%
South East (sew)	4%	10%	21%
South Staffs (sst)	5%	5%	6%
Sutton and East Surrey (ses)	0%	7%	31%
Veolia Central (vce)	0%	5%	10%
Veolia East (vea)	0%	7%	8%
Veolia South East (vse)	0%	9%	3%
Industry total	6%	7%	6%
<i>Source: Ofwat analysis</i>			

¹ Bristol referred their price limits set by Ofwat to the Competition Commission, whose redetermination of capital investment was 35% more than Ofwat's draft determination.



Summary of recommendations

Changing a culture of cyclical investment

Table H.1:

Key recommendations
<p>A1) The following parties should challenge formally the profile of investment during the price review process in 2014 and should directly consider the impact of cyclical and steady state delivery on the water company, the supply chain and the wider water sector:</p> <ul style="list-style-type: none">• Water company boards, including non-executive members; and• Ofwat (the Water Services Regulation Authority).
<p>A2) All parties concerned with the delivery of investment programmes in the water sector should challenge the embedded culture associated with the cyclical nature of delivery and should actively seek to challenge the profile of delivery by the rebalancing of risk.</p>
<p>A3) The quality regulators (DWI, Environment Agency and Natural England) should keep under review the impact of their compliance dates and obligations on the cyclicity of water companies' investment. Where these dates are not driven by EU legislation, consideration should be given to the profile of delivery such that the quality programme does not increase the level of cyclicity. This should be done as the programmes of work are developed with each water company in preparation for the next price review.</p>

Effective and timely decisions

Table H.2:

Key recommendations
<p>B1) Water companies should recognise the programme certainty provided at the time of the draft determination, or earlier, by virtue of the given approvals from quality regulators, clear and robust commitments set out by Ofwat and clarity on the process for resolving outstanding reserved matters. Efficient water companies will typically instigate contract awards and appropriate activity for year one in a timely manner after the draft determination (summer of 2014) in order to start delivering their investment programme for the 2015-20 period.</p>
<p>B2) Water companies, quality regulators and Ofwat will be expected to continue to work together to obtain effective scheme or outcome certainty for year one of the quality programme by January 2014. This certainty would be with regard to inclusion within the programme (the specific outcome or output will be required) and should provide clarity to companies about the need for feasibility and design for these outcomes and outputs.</p>

An effective transition

Table H.3:

Key recommendations
<p>C1) Water companies should to undertake feasibility and design studies in 2014 to enable early commencement of programme delivery at the start of 2015. Such planning, should take account of the delivery of long-term outcomes and agreed milestone programmes and outcomes.</p>

C2) Ofwat will consider the appropriate treatment of investment across the transition, review incentives and the balance of risk between company and customer. This consideration should examine company choice, appropriate recognition of investment, benefits for customers, returns for companies, interactions with the existing CIS mechanism and the incentives for the 2015-20 regulatory period. This consideration will be expected to be part of the development of Ofwat's detailed methodology, which will be published for consultation in autumn 2012.

Ensuring effective planning of investment

Table H.4:

Key recommendations
D1) Water companies should consider adopting best practice through effective planning as part of the delivery of their day-to-day investment programme and clearly communicate to the supply chain a detailed investment pipeline with a minimum of 12 to 18 months forward visibility – recognising that this may not be fully achievable across all elements of the programme.
D2) Water companies should plan sufficiently ahead in order to eliminate the effects of yearly cyclical investment.
D3) Water companies should undertake effective scenario planning as part of their preparation for the final determinations. This should take into account feedback from draft determinations. These scenarios should consider all potential outcomes and should reflect realistic outcomes for the final determination. These scenarios should enable earlier commencement of programme delivery.
D4) Water company contract awards (to the supply chain) should be realistic, based upon the most likely scenarios for final determination outcomes, reflecting likely activity and outcomes. Water companies should consider the early release of contract awards, particularly where a contract will be required regardless of the final determination.
Recommendation
D5) Where water companies consider the acceleration of benefits (and therefore investment) within a price review period, they should consider the impact of such decisions on efficient delivery of their programme and on their supply chain. Such decisions should then be balanced between the early delivery of benefits and the risks posed by the inefficiency of accelerated working and the resulting inefficiency of reduced productivity in year five.

Establishing effective partnerships and communication

Table H.5:

Key recommendation
E1) Water companies and supply chain bodies should adopt best practice tools for the collaborative development and publication of standard pipeline information and sector skills and capability statements. Water companies should use these best practice tools when publishing their investment pipelines. Water companies should aim to implement all of these measures as soon as possible but no later than March 2015.
Recommendations
E2) Water companies should consider their application of contract styles and the impact of these on the cyclical investment profile and their supply chain. Where they are capable to do so and they consider it appropriate, companies should consider the use of partnership frameworks and contract extensions in future contract awards.
E3) Water companies should consider decoupling and offsetting contract awards and tendering from the price control periods as part of future contract awards (this would mean awarding contracts during years in which there is not a regulatory price review).

List of abbreviations and acronyms

Abbreviation / Acronym	Definition
AMP	Asset Management Plan
BCIS	Building Cost Information Service
BP	Business Plan
BW	British Water
Capex	Capital Expenditure
CBA	Cost-Benefit Analysis
CC Water	Consumer Council for Water
CCG	Customer Challenge Group
CFO	Chief Financial Officer
CIS	Capital expenditure Incentive Scheme
COPI	Construction Output Price Index
DBP	Draft Business Plan
DD	Draft Determination
DWI	Drinking Water Institute
EA	Environment Agency
ESP	Early Start Programme
FBP	Final Business Plan
FD	Final Determination
FPL	Future Price Limits
MD	Managing Director
NED	Non-executive Director
Opex	Operating Expenditure
PR	Price Review
RCV	Regulatory Capital Value
RPE	Relative Price Effect
SBWWI	Society of British Water and Wastewater Industries
SDS	Strategic Direction Statements
SEG	Social and Environmental Guidance
SOO	Statement of Obligations
UKWIR	United Kingdom Water Industry Research
WAG	Welsh Assembly Government

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