

## Staff Paper 8

### Capital enhancement

**This staff paper has been produced by our office to assist stakeholders in responding to the Draft Determination. The material reflected in this staff paper has informed the preparation of the Commission's proposed conclusions. However, this staff paper does not form part of the Draft Determination. Accordingly, this staff paper should not be relied upon as expanding upon or replacing anything contained in the Draft Determination.**

#### 8.1 Introduction

This paper sets out the assessment of the capital enhancement investment that was allowed for in the Draft Determination. 'Capital enhancement' is the term used to describe the investment required to achieve higher environmental and water quality standards, meet new network demand and to improve customer service. It typically represents just over half of Scottish Water's total investment. Capital enhancement delivers a wide range of improvements for customers such as better quality drinking water, cleaner rivers and beaches and improvements in water pressure and flooding control.

However, there can be opportunities for cost savings through the overlap that can exist between capital maintenance and capital enhancement investment<sup>1</sup>. These are taken into account in assessing Scottish Water's investment requirements.

The extent and nature of improvements to be achieved by Scottish Water through its overall capital investment programme are set out by Ministers in their objectives for the 2010-14 period<sup>2</sup>. These objectives set out the standards Scottish Water must achieve for:

- levels of service to customers,
- provision for new development,
- improvements to drinking water quality,
- ensuring adequate water resources,
- environmental performance,

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<sup>1</sup> See Staff Paper 7 on capital maintenance.

<sup>2</sup> The draft objectives were published by the Scottish Government on February 27th 2009 and are available on the Scottish Government's website at <http://www.scotland.gov.uk/Topics/Business-Industry/waterindustryscot/DSMO>

- alleviation of sewer flooding,
- climate change mitigation and adaption, and
- odour reduction.

The Scottish Government categorised its objectives as Priority 1 ('essential') and Priority 2 ('desirable'). Priority 1 objectives must be delivered during the 2010-14 period. Priority 2, while remaining important priorities for Ministers, may require to be delivered in the next investment period.

The Commission's role is to establish the lowest reasonable overall cost of delivering Priority 1 objectives and to determine the extent to which Priority 2 objectives can be delivered efficiently and without projected charges to customers in the period to 2014 rising by more than the level of inflation.

It is not possible, given that this is an overview of issues considered by the Commission, to provide full details of the careful consideration carried out by the Commission of Scottish Water's capital enhancement proposals. What follows is, therefore, a necessarily abbreviated summary.

## **8.2 Establishing the capital programme**

Delivery of the objectives requires Scottish Water to establish a programme of work for the four-year period consisting of several thousand individual projects. These projects deliver specific outputs such as improvements in drinking water quality at a specified treatment works, reductions in pollution in a designated water course or reductions in flooding at a given geographic location.

This programme of work is agreed with the Scottish Environment Protection Agency (SEPA), the Drinking Water Quality Regulator (DWQR) and with the Scottish Government. As part of the Draft Determination process, confirmation<sup>3</sup> was obtained from both SEPA and the DWQR that the investment programme set out in Scottish Water's second draft business plan will meet the objectives set by the Scottish Government.

## **8.3 Meeting the environmental improvement objectives**

Scottish Water's proposed investment on environmental improvements to meet the Scottish Government's 'Priority 1' objectives is shown in Table 8.1<sup>4</sup>.

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<sup>3</sup> These letters are published on our web-site at [www.watercommission.co.uk](http://www.watercommission.co.uk)

<sup>4</sup> This table, and Tables 8.3, 8.5 and 8.7 use 'pre-efficiency' values. These represent the investment Scottish Water proposes before it applies its own assessment of the efficiencies possible in delivering the programme. The assessment of the scope for efficiency is discussed later in this paper.

**Table 8.1: Scottish Water’s proposed investment in environmental improvements (base programme, pre-efficiency, 2007-08 prices)**

<b>Environmental programme category</b>	<b>£m (pre-efficiency)</b>
Investment at wastewater treatment works	£117.4m
Unsatisfactory intermittent discharge improvements	£258.7m
Addressing dual manholes	£5.4m
Improvements to surface water systems	£7.2m
Improvements to sludge management	£6.7m
Compliance with Controlled Activity Regulations (CAR)	£36.2m
Strategic studies for future investment periods	£20.6m
Work required for the Commonwealth games	£7.9m
Risk allowance	£12.6m
<b>Total environmental improvements</b>	<b>£472.9m</b>

The proposals include £258.7 million to address unsatisfactory intermittent discharges (UIDs) of which around £250 million relates to the delivery of drainage schemes in Glasgow that feed into the River Clyde estuary. These schemes are subject to a high degree of uncertainty associated with ongoing and planned study work to determine the optimum solution to address flooding and environmental issues in Glasgow.

Scottish Water proposed that around half of the UID investment is delivered after the end of the regulatory control period, in recognition of the time that it will take to establish these optimum solutions. Scottish Water also proposed that the Glasgow UID programme is subject to the ‘Seven Stage Process’, which was introduced by the Commission to deal with similar uncertainties in the 2006-10 regulatory control period. This process involves detailed development of options by Scottish Water followed by securing agreement from SEPA to the proposed solutions and the Commission’s acceptance that the costs have been properly established.

The Commission discussed Scottish Water’s proposed environmental improvement programme with SEPA. SEPA emphasised the importance it places on improvements to the drainage systems in Glasgow, feeding into the River Clyde. It also identified as a priority the completion of study work to determine future investment requirements both in Glasgow and other identified areas and also arising out of new European legislation such as the new Bathing Water Directive.

The independent industry Reporter’s assessment of Scottish Water’s proposals were examined in detail. The Reporter broadly supported Scottish Water’s proposals in this area but highlighted the large uncertainties that exist over the outcome of the studies into the drainage solutions in Glasgow.

## **Wastewater treatment works programme**

The Commission recognise that there is a legal obligation on Government to meet the shellfish water standard at Loch Ryan. However, it challenged Scottish Water's proposals. It was not convinced that there is sufficient evidence either that this project will deliver the required environmental benefits or that it is consistent with Scottish Water's duty to have regard to sustainable development. It believes that further study work is required on the solution at Loch Ryan before customers' money is committed. The Commission therefore added £1 million for additional study work to confirm that the proposals are consistent with Scottish Water's duties on sustainable development, including taking account of the likely price of carbon, the risk that the required shellfish water standard may still not be met even if the investment is made, and the level of disruption (both to the environment and to the local community) caused by the proposed works.

The Commission allowed for the likely cost of the proposed improvement, but this allowed for investment at Loch Ryan is ring-fenced until such time as this study work is complete and has been published; at which time final agreement can be reached with stakeholders on the proposed solution. This additional £1 million allowance results in no overall change to the allowance claimed by Scottish Water as the Commission reduced the allowance for the waste water treatment works programme by £1 million to account for some minor over-scoping identified by the Reporter.

## **UID programme**

The assessment of Scottish Water's UID programme indicated that the allowance in this area should be reduced to reflect average unit costs which are broadly consistent with those achieved in the current regulatory control period. The Commission also believes that a scoping reduction is justified to take account of the opportunities available to Scottish Water to reduce the scale of UID requirements through a proactive approach to tackling infiltration. A pre-efficiency reduction of £50 million in Scottish Water's proposals was considered to be appropriate.

In the analysis it was assumed that the number and type of UIDs to be addressed is consistent with Scottish Water's proposals. The Commission accepts that the Glasgow UID programme should be subject to a 'Seven Stage Process', the outcome of which will identify the true extent of investment requirements. Any agreed variation from the allowance can then be handled through normal regulatory processes.

The Commission's proposal to extend the 2010-14 regulatory control period by an additional year, such that it would end in 2015, would also avoid any undue delay in making progress towards resolving the drainage issues facing Glasgow. With an additional year, Scottish Water should be able to respond effectively and efficiently to the results of the on-going studies of Glasgow's drainage and other areas where environmental improvements are essential.

## **Other environmental areas**

The assessment of Scottish Water's environment proposals also highlighted some over-scoping of requirements in other areas and associated reductions were made.

These were as follows:

- The investment proposed for compliance with Controlled Activity Regulations (CAR) included some £5.8 million for flow monitoring and recording. It was clear that there was uncertainty in the outputs required in this area. In consequence, the proposed expenditure in this area was reduced by £1.5 million.
- Scottish Water proposed, in addition to the UID studies, a further £20.6 million for strategic studies required in Glasgow, the Clyde estuary, the River Almond and for Bathing Waters improvements. The Commission supports the requirement for these studies, provided the outcomes are clearly defined by SEPA. However, it considers that the proposed costs are excessive and these were reduced by £2.1 million.

A scope challenge has not been applied to Scottish Water's proposed costs for improvements to dual manholes, surface water systems and sludge management or for the work required for the Commonwealth games.

It was noted that Scottish Water made separate 'risk allowance' provisions throughout the programme and particularly on items in the environmental programme. Based on an assessment of the Reporter's comments on Scottish Water's costing systems the Commission believes that the level of on-costs applied to projects already includes a significant element of risk provision and no further allowance should be required. The provisions for programme risk were therefore removed.

The review of Scottish Water's environment proposals reduced Scottish Water's planned spending (pre-efficiency) by £66.2 million. As a result, £406.7 million (pre-efficiency) has been allowed for in the draft charge caps to meet the Scottish Government's 'Priority 1' objectives for improving the quality of the environment. Table 8.2 summarises the allowance and the change from Scottish Water's proposals.

**Table 8.2: Allowed for environmental investment and the change from Scottish Water’s proposals (pre-efficiency)**

<b>Environmental programme category</b>	<b>Scottish Water’s proposal</b>	<b>Allowed for investment</b>	<b>Change from Scottish Water’s proposals</b>
Investment at wastewater treatment works	£117.4m	£117.4m	-
Unsatisfactory intermittent discharge improvements	£258.7m	£208.7m	‑£50.0m
Addressing dual manholes	£5.4m	£5.4m	-
Improvements to surface water systems	£7.2m	£7.2m	-
Improvements to sludge management	£6.7m	£6.7m	-
Compliance with Controlled Activity Regulations (CAR)	£36.2m	£34.7m	‑£1.5m
Strategic studies for future investment periods	£20.6m	£18.6m	‑£2.1m
Work required for the Commonwealth games	£7.9m	£7.9m	-
Risk allowance	£12.6m	£0m	‑£12.6m
<b>Total environmental improvements</b>	<b>£472.9m</b>	<b>£406.7m</b>	<b>‑£66.2m</b>

## 8.4 Improvements in drinking water quality and water resources

Scottish Water identified pre-efficiency investment totalling £475 million for improvements to drinking water quality and the management of water resources. The outputs to be provided include measures to protect drinking water against the occurrence of cryptosporidium, reductions in the levels of iron, manganese, lead and pesticides in drinking water and improvements to the taste and odour of drinking water. There are also proposed improvements to the security of water supplies to customers.

The breakdown of the proposed investment by category is shown in Table 8.3.

**Table 8.3: Scottish Water’s proposed investment in drinking water (base programme, pre-efficiency, 2007-08 prices)**

<b>Drinking water programme category</b>	<b>£m (pre-efficiency)</b>
Protection of risk from cryptosporidium	148.3
Reducing lead in drinking water	29.4
Improving water quality	28.5
Increased disinfection control	8.1
Install appropriate treatment to raw water supplies	11.0
Reduction in iron and manganese levels in distribution systems, including associated investigations	125.6
Water byelaws compliance	5.8
Develop WHO Drinking Water Safety Plans (DWSP)	7.9
Emergency tanker fill points	4.9
Security and Emergency Measures Directive requirements	27.5
Securing supplies of wholesome water	72.5
Programme Risk Allowance	5.3
<b>Total drinking water quality</b>	<b>£474.9m</b>

Scottish Water’s proposals were discussed with the Drinking Water Quality Regulator. He highlighted the importance of adopting comprehensive risk management approaches as a means of ensuring the appropriate level of treatment and that this could involve a mix of new investment and improved operational practices.

The Reporter’s assessment of Scottish Water’s proposals was also examined. The Reporter highlighted some areas where projects appear over-scoped and costs appear high.

### **Protection of risk from cryptosporidium**

The Reporter expressed particular concerns with regard to the scoping of the work proposed by Scottish Water to achieve the required level of protection from cryptosporidium. He notes the use of a high-specification, standardised solution at all sites and identifies the possibility of lower cost options at a number of sites; for example through the use of alternative water sources and alternative treatment options. The Reporter also notes that reductions in scope may be possible; for example he questions the need for standby generators at all sites. Finally, he notes that the on-costs added to these schemes appear very high.

The Commission concluded that there is scope for a reduction in costs in this area without impairing Scottish Water’s ability to achieve the standards defined by the

DWQR at the water treatment works identified. There is also a need for further study work to identify the extent of measures required to meet the DWQR standards at other sites. Costs in this area have therefore been reduced by 25% (pre-efficiency) but an additional £2 million of investment has been included for studies to examine the true extent of cryptosporidium risk across Scotland. The aim of this study is to identify sustainable and cost-effective solutions. An additional £1 million each year has been included in the operating cost allowance for the operation of five further projects to work with stakeholders at lower risk sites to eliminate the risk of cryptosporidium. These catchments should be agreed with the DWQR.

### **Reducing lead in drinking water**

The Commission believes that Scottish Water's estimate of the level of customer requests for lead communication pipe replacement is too high and this was reduced by 50% to make it consistent with historic levels. The proposed £7 million costs for carrying out a study to determine the extent and location of lead communication pipes were reduced. These costs are based on a 'bottom up' estimate and also appear very high. It is important that Scottish Water ensures that studies carried out by external consultants represent value for money and have clearly defined outputs. In total, the pre-efficiency costs for the lead reduction programme were reduced by £5.7 million.

### **Improving water quality**

The investment to improve water quality includes £10.4 million for an upgrade to the treatment works at Forehill. This work is impacted by a voluntary arrangement between Scottish Water and land owners and users in the catchment supplying the treatment work. Scottish Water should be encouraged to pursue vigorously the continuation of this type of voluntary arrangement as the least cost and most sustainable way of achieving the required outputs. Should Scottish Water be unable to secure continuation of this voluntary arrangement then Scottish Water could turn to the Output Monitoring Group for the release of some of the resources allocated to unspecified investment.

The proposed investment at Forehill was therefore removed, but an additional £2 million of operating costs was included for developing sustainable solutions of this type in this and four other, as yet unspecified, catchments. These catchments should be agreed with SEPA and/or DWQR as appropriate. This approach is consistent with some of the more innovative solutions to catchment management being implemented elsewhere in the UK.

### **Reduction in iron and manganese levels in the water distribution system**

Scottish Water proposed a significant programme of refurbishment of its water pipe network. This programme is supported by the DWQR and will bring benefits to customers through reductions in interruptions, lower leakage and better water quality. The programme comprises replacement and 'relining' of water mains along with maintenance activities to clean the network.

Scottish Water's proposals in this area were examined in detail, taking account of the overlap of this work with activities in the capital maintenance programme. Analysis was also undertaken to determine whether Scottish Water had taken account of the

requirement to remove iron and manganese at the source treatment works before tackling network issues. The DWQR confirmed that removal at source must be carried out before the 'downstream' network is addressed. Scottish Water confirmed that the proposed investment targets networks where any source issues have been addressed.

It was concluded that the investment to reline and replace water mains to reduce the presence of iron and manganese is justified but that the proposed investment for cleaning (termed 'flushing and swabbing') of the network should form part of the capital maintenance programme. Similarly, the investment requested in this category for carrying out further network investigations was disallowed on the basis that this should form part of the capital maintenance programme or be funded through operational expenditure. Both of these items have been included in the assessment of capital maintenance requirements set out in Staff Paper 7. This reduced costs in the enhancement programme by £27.4 million.

### **Securing supplies of wholesome water**

The provision of a wholesome water supply is a fundamental requirement for customers. Scottish Water identified 15 water resource zones where it believes there is insufficient security of supply to cover for periods of drought. Scottish Water proposed investment of £73 million (pre-efficiency) to address these perceived shortfalls, including over £33 million in Fife.

The Reporter highlighted a number of concerns with Scottish Water's proposals in this area. He notes the uncertainties around the proposed solutions and the opportunities for more strategic solutions to be considered along with further assessment of the potential impact of leakage reduction. Scottish Water also recently notified the Commission that the proposals in Fife are subject to review following the identification of alternative options.

### **Other drinking water quality programme areas**

It is considered that Scottish Water's proposed scope of works in some other areas of the drinking water quality programme are too high and appropriate reductions have therefore been made. These include:

- Providing appropriate treatment of raw water supplies. Scottish Water's costs in this area appear very high for the provision of micro-filtration and treatment systems. It is noted that the level of customer uptake in this area is uncertain. Costs have been reduced by 50%.
- Providing emergency tanker filler points. The requirements in this area appear to be over-scoped and costs were reduced by 20%.
- Fitting devices to prevent 'backflow' into the drinking water network. The Reporter noted high on-costs in this area and costs were reduced by 20%.
- Improvements to disinfection control. The Reporter questioned the need for the level of sophistication proposed. Costs were reduced by 10%.

It should be emphasised that the outputs to be delivered in all of the areas where costs have been reduced remain the same.

It was also concluded that no additional programme risk allowance is justified and this item has been removed.

The review of Scottish Water's drinking water quality proposals reduced Scottish Water's planned spending (pre-efficiency) by £114 million. As a result, the Commission has allowed for £361 million (pre-efficiency) in the draft charge caps to meet the Scottish Government's 'Priority 1' objectives for improving drinking water quality and water resources.

Table 8.4 summarises the allowance and the change from Scottish Water's proposals.

**Table 8.4: Allowed for drinking water quality investment and the change from Scottish Water's proposals (pre-efficiency)**

Drinking water programme category	Scottish Water's proposal	Allowed for investment	Change from Scottish Water's proposals
Protection of risk from cryptosporidium	£148.3m	£113.2m	−£35.1m
Reducing lead in drinking water	£29.4m	£23.7m	−£5.7m
Improving water quality	£28.5m	£18.1m	−£10.4m
Increased disinfection control	£8.1m	£7.3m	−£0.8m
Install appropriate treatment to raw water supplies	£11.0m	£5.5m	−£5.5m
Reduction in iron and manganese levels in distribution systems, including associated investigations	£125.6m	£98.3m	−£27.4m
Water byelaws compliance	£5.8m	£4.6m	−£1.2m
Develop WHO Drinking Water Safety Plans (DWSP)	£7.9m	£7.9m	-
Emergency tanker fill points	£4.9m	£3.9m	−£1.0m
Security and Emergency Measures requirements	£27.5m	£27.5m	-
Securing supplies of wholesome water	£72.5m	£51.0m	−£21.5m
Programme risk allowance	£5.3m	£0.0m	−£5.3m
<b>Total drinking water quality</b>	<b>£474.9m</b>	<b>£361.0m</b>	<b>−£113.9m</b>

## 8.5 Allowing for new development

Projections of the likely extent of new housing and business development over the 2010-14 period are very uncertain at this time. Against this background, Scottish Water identified investment of £190 million (pre-efficiency) to meet the demands of new development on the water and wastewater networks. This includes £105 million for new strategic network capacity, an estimated £62 million for 'reasonable cost'

contributions<sup>5</sup> to those providing new connections and £23 million to cover the impact of new connections on the existing sewer network.

**Table 8.5: Scottish Water’s proposed investment in new development (base programme, pre-efficiency, 2007-08 prices)**

<b>New Development Programme</b>	<b>£m (pre-efficiency)</b>
New network strategic capacity	104.8
Reasonable cost contributions	61.5
Additional sewer network capacity to maintain the flooding register	22.8
First time provision - wastewater	0.2
Programme risk allowance	1.0
<b>Total growth</b>	<b>£190.4m</b>

To take account of the current uncertainty around growth projections, Scottish Water proposed that this area of investment should be ‘ring fenced’ to allow increases or decreases in investment requirements above or below forecast to be accommodated. The Commission believes that adequate regulatory mechanisms exist, through the allocation of the unspecified investment, the ‘logging’ process or the potential for an interim determination, to accommodate changes in the required level of strategic capacity. It is therefore not minded to ‘ring fence’ investment in this area.

Scottish Water’s estimate of the likely extent of new strategic capacity required and the associated estimate of reasonable cost contributions was accepted. Also accepted was Scottish Water’s proposed investment in a first time provision wastewater ‘zero carbon’ pilot scheme.

The Commission was not, however, persuaded by Scottish Water’s claim for specific investment to increase sewer capacity to prevent increases in sewer flooding due to growth. The removal of internal sewer flooding is addressed elsewhere in the programme and the Commission is concerned that there are no clear outputs for this proposed investment. It believes that concerns over the impact of new development could be addressed through the use of ‘Section 29E’ opportunities, which allow for the sharing of reduced costs through innovative solutions. This allowance was therefore removed from the allowed for investment but an additional £10 million (pre-efficiency) was provided for facilitating ‘Section 29E’ opportunities in this and other areas.

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<sup>5</sup> These contributions are required under statute and represent a reimbursement of a ‘reasonable’ element of the costs incurred by developers in providing a connection between the existing water/wastewater network and the boundary of the customer’s property.

Consistent with other areas of the programme, the proposed £1 million allowance for programme risk to reflect the level of on-costs already included in Scottish Water's proposal was removed.

The allowance for new development and the change from Scottish Water's proposals is summarised in Table 8.6.

**Table 8.6: Allowed for investment in new development**

<b>New development programme category</b>	<b>Scottish Water's proposal</b>	<b>Allowed for investment</b>	<b>Change from Scottish Water's proposals</b>
New network strategic capacity	£104.8m	£104.8m	-
Reasonable cost contributions	£61.5m	£61.5m	-
Additional sewer network capacity to maintain the flooding register	£22.8m	£10.0m	£-12.8m
First time provision - wastewater	£0.2m	£0.2m	-
Programme risk allowance	£1.0m	£0.0m	£-1.0m
<b>Total new development</b>	<b>£190.4m</b>	<b>£176.6m</b>	<b>£-13.8m</b>

## 8.6 Other investment priorities

Scottish Water proposed further investment totalling £40 million (pre-efficiency) to address other priorities that it identified for the 2010-14 period. This includes investment of £16 million to improve the level of odour control at Seafeld wastewater treatment works, along with a further £16 million to address the likely implications of the Flood Risk Management Bill and £7 million to reduce the incidence of low water pressure.

**Table 8.7: Scottish Water's proposed investment in other priorities (base programme, pre-efficiency, 2007-08 prices)**

<b>Programme category</b>	<b>£m (pre-efficiency)</b>
Seafeld wastewater treatment works – odour control	16.0
Reducing inadequate water pressure	7.0
Likely impact of the Flood Risk Management Bill	15.9
Programme risk allowance	0.9
<b>Total investment in other priorities</b>	<b>£39.8m</b>

Seafield wastewater treatment works is a PPP financed facility which has a long history of odour related customer complaints. Scottish Water’s proposals for financing measures to reduce odour problems at the site were examined carefully. In the previous regulatory control period resources were allowed for in the PPP allowance to address the odour control issues at Seafield. This amount was therefore removed from the allowance for PPP but the proposed direct investment for odour improvement at Seafield was allowed for. In so doing, we have assumed that Scottish Water has taken account of and addressed the risks associated with the resulting complication of asset ownership and management responsibilities on a PPP site.

Scottish Water’s proposed investment in reducing inadequate water pressure does not form part of the ‘Priority 1’ objectives set by the Scottish Government for the 2010-14 period. Scottish Water indicated that the proposed investment is in response to priorities identified by customers in recent ‘willingness to pay’ research and to assist with the achievement of upper quartile OPA performance. Scottish Water provided a specific target for this investment in relation to a reduction in the number of properties affected by inadequate pressure. The proposals would appear to provide value for money for customers. This investment was therefore allowed for.

Also accepted were Scottish Water’s proposals for investment to address the likely implications of the Flood Risk Management Bill. However, there is significant uncertainty around the outputs to be delivered in this area. The Commission will therefore require the use of a ‘Seven Stage Process’ to define outputs fully and to ensure value for money.

The programme risk allowance element was removed again, for the reasons outlined above.

The allowance for other priorities and the change from Scottish Water’s proposals are summarised in Table 8.8.

**Table 8.8: Allowed for investment in other priorities**

<b>Programme category</b>	<b>Scottish Water’s proposal</b>	<b>Allowed for investment</b>	<b>Change from Scottish Water’s proposals</b>
Seafield wastewater treatment works – odour control	£16.0m	£16.0m	-
Reducing inadequate water pressure	£7.0m	£7.0m	-
Likely impact of the Flood Risk Management Bill	£15.9m	£15.9m	-
Programme risk allowance	£0.9m	£0.0m	-£0.9m
<b>Total investment in other priorities</b>	<b>£39.8m</b>	<b>£38.9m</b>	<b>-£0.9m</b>

## 8.7 The scope for funding additional objectives

The Commission was requested by Ministers to determine the extent to which 'Priority 2' objectives can be delivered efficiently and without projected charges to customers in the period to 2014 rising by more than the level of inflation.

The Priority 2 objectives include further reductions in sewer flooding, improved environmental performance, drinking water quality improvements and odour control. They also include a number of environmental studies to inform future investment periods in areas such as climate change and abstraction management. Scottish Water identified investment of £331 million to deliver all of these objectives but did not include this investment in its proposals for the 2010-14 regulatory control period.

A review of the Priority 2 objectives suggested that they are subject to a much greater degree of uncertainty than the main Priority 1 objectives. In the Commission's view these objectives would need much greater definition before it could consider financing them. However, this does exclude some of the proposed studies included in the Priority 2 objectives which the Commission believes could be important to ensuring the efficient and effective delivery of investment in the next regulatory control period.

The Commission is also persuaded by the views expressed by SEPA that addressing Glasgow's drainage should be a priority and that progress could be hampered if Scottish Water could not access the financing required to deliver the improvements that studies show it will have to make. It could also include studies of how Scottish Water could best adapt to and mitigate the impact of climate change.

An element of as yet undefined investment was therefore included, which can be allocated if and when these needs or, indeed, other priorities are better understood. In the scenario for a four-year regulatory control period, £25 million of as yet undefined investment was allowed for. In the five-year scenario, £245 million of undefined enhancement investment was allowed for.

Careful consideration was given to how the resources allocated to unspecified investment should be managed in order that the interests of the customer are appropriately protected. It was concluded that, in the four-year scenario, all of the additional unspecified investment should have been defined (and agreed by OMG<sup>6</sup>) by 30 June 2011. In the event that it is not specified fully or is not required the Commission will seek to implement an interim determination. In the absence of any additional relevant factors, this would further reduce the level of bills faced by customers. It could also reduce the industry's need for public expenditure.

In the five-year scenario, the Commission would require that £125 million had been defined and agreed by 30 June 2011 and that the remainder of £120 million be specified and agreed no later than 30 June 2012. In the event that these resources

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<sup>6</sup> OMG: The Output Monitoring Group, chaired by officials from the Scottish Government and including representatives from Scottish Water, SEPA, DWQR, Waterwatch Scotland and the Water Industry Commission for Scotland.

were not considered necessary or could not be spent efficiently, the Commission would seek to complete an interim determination.

## **8.8 Profile of investment between regulatory control periods**

Scottish Water proposed that 'early start' investment of £88 million is required to be spent prior to 1 April 2010 to allow efficient delivery of the Scottish Government's objectives for 2010-14. This investment would allow planning and design work on projects to commence therefore allowing a smooth transition into the new regulatory control period and avoiding a down-turn in investment in the first year of the new period. Scottish Water also identified a further £74 million of 'early start' investment for the following regulatory control period to be spent prior to 1 April 2014.

Along with this 'early start' investment, Scottish Water proposed that the delivery of some of the Scottish Government's Priority 1 objectives should be completed beyond the end of the 2010-14 regulatory control period. This 'late finish' investment amounts to £140 million and primarily relates to completion of the uncertain UID programme in Glasgow and completion of the mains renewal programme.

The Commission favours stability in the level of investment undertaken year on year by the industry. This should help Scottish Water to deliver the Scottish Government's objectives efficiently and it should also be good for contractors who should see a more predictable flow of work and resulting reductions in their costs of maintaining capacity. This, in turn, should benefit customers in lower prices from contractors.

As such, it broadly supports the proposals to 'early start' enhancement projects as it ensures continuity of investment between regulatory control periods and ensures that customers are receiving the benefits of investment earlier. It is, however, important to establish that 'early start' investment is being spent effectively and that there are clear delivery milestones that must be achieved. Also, there is a risk that commencing work on future investment programmes early will distract management attention from the delivery of projects in the current regulatory control period. The Commission will ensure, working with the Output Monitoring Group, that clear outputs are established for early start investment and that delivery of projects in the current period remains a priority for Scottish Water.

Just under half of Scottish Water's early start claim for both the 2010-14 and post 2014 regulatory control period appears to comprise early investment in 'capital maintenance' projects which are associated with maintaining the existing level of service to customers. The scoping of capital maintenance requirements is normally carried out on a 'rolling' basis where many projects can be planned well in advance, based on a sound understanding of the condition and performance of the assets.

The Commission is therefore not persuaded that the element of the proposed early start expenditure that relates to capital maintenance is appropriate and this element was removed. For the post 2014 period Scottish Water's proposed expenditure of £74 million was reduced to £38.6 million to reflect this removal of the capital

maintenance component. The allowance for capital maintenance in the 2010-14 period is set out in Staff Paper 7.

The Commission was concerned by Scottish Water's proposal that the delivery of some of the Scottish Government's' Priority 1 objectives should be completed beyond the end of the 2010-14 regulatory control period. Although Scottish Water did not seek the financing of this work beyond 2014, the customer would de facto have underwritten the costs of this work. This would not be in the interests of customers. As a result, this expenditure has been included in the assessment of Scottish Water's allowed for investment for the four-year regulatory control period. This ensures that customers are not at risk from later cost escalation in delivery of these outputs.

The Commission believes that its proposal to extend the current regulatory control period to five years can resolve this issue more effectively.

## **8.9 Investment to develop the regulatory framework**

The Commission is currently discussing with Scottish Water proposals to develop the regulatory framework in Scotland. This would include the accounting separation of the water network and water treatment functions and the same separation on the wastewater side. Costs should be allocated such that Scottish Water is not vulnerable to allegations of 'margin squeeze'<sup>7</sup>. Ensuring that Scottish Water complies fully with the UK and European competition framework will substantially reduce the risks faced by Scottish Water. These measures may involve one-off costs to Scottish Water's wholesale business, for example to develop IT infrastructure and systems. Investment of £15 million (pre-efficiency) was allowed for to strengthen the regulatory framework.

## **8.10 Treatment of uncompleted projects from previous investment periods**

In its draft business plan, Scottish Water identified investment of £169 million for the delivery of outputs from previous investment periods which will not be completed by the start of the next regulatory control period on 1 April 2010. This includes unfinished projects from both the 2002-06 and 2006-10 regulatory control periods. This means that expected benefits for customers from the previous investment programmes, for which they have already paid, will be delayed.

Scottish Water's estimate of the cost of completing the remaining projects was assessed. It was noted that Scottish Water's estimate of these costs has risen consistently during the current regulatory control period. Scottish Water may have under-estimated these costs which arise both from delays in completing projects and also from increases in the cost of individual projects. In particular, a small number of

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<sup>7</sup> Margin squeeze exists where a company pays itself more for a service than it is prepared to pay a potential alternative provider of the same service.

the projects from the 2002-06 investment period have shown significant cost increases and it is not clear if further increases have been avoided.

It is important that Scottish Water continue to focus on delivering these remaining outputs as quickly and efficiently as possible. In the Draft Determination the Commission has allowed the full amount proposed by Scottish Water for completion of these projects. It will review this allowance in the Final Determination to take account of delivery progress at that time.

Customers should be assured that they will not pay any more as a result of these delays. Any additional increase in costs resulting from capital expenditure inflation beyond the end of the period in which these outputs should have been delivered will have to be absorbed by Scottish Water through greater efficiency elsewhere in the programme.

The allowance also includes for Scottish Water's claim that it had to invest more than was assumed when the Commission last set prices in 2005. These 'logging'<sup>8</sup> claims are related primarily to greater than allowed for increases in the cost of procuring capital projects in 2004-05 and 2005-06, along with higher than expected contributions to developers. Scottish Water also claimed for the costs of new obligations agreed by the OMB and for changes in charging arrangements. A reduction in costs related to a lower than expected uptake by customers of lead supply pipe changes is also taken into account in Scottish Water's submission. The net claim amounts to some £84 million in out-turn prices.

Scottish Water's logging claims were examined in detail and it was concluded that, while aspects of the additional costs that it cited appear to be valid, there are offsetting claims to be taken into account. For example, Scottish Water's claim does not set out the full impact of investment that has not been carried out, nor the benefits that it gained from low interest rates and other favourable factors. The Commission concluded that the allowance for completion of the undelivered outputs from previous investment periods takes account of the net effect of these changes. The Commission will seek further information from Scottish Water in advance of the Final Determination with regard to the overall impact of changes during the 2010-14 period.

## 8.11 The scope for efficiency

The scope for capital efficiency was assessed for both the capital maintenance and the capital enhancement programmes. In its proposals, Scottish Water sought to identify the likely level of efficiency for individual elements of the programme. It is important to emphasise that the capital efficiency assessment is carried out at a programme level: the Commission does not seek to review the relative efficiency of

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<sup>8</sup> The 'logging up' and 'logging down' of unexpected costs or of planned outputs that are not required is a regulatory mechanism which adjusts the available financing to take account of unforeseen changes to the extent that they are beyond management control.

individual projects or programme elements. The one exception is 'reasonable cost contributions' where the level of payments by Scottish Water is fixed and therefore not subject to any efficiency challenge.

Ofwat's 'cost base' approach was used to benchmark Scottish Water's efficiency in delivering capital projects. This approach uses a series of 'standard costs' supplied by water companies to compare relative procurement efficiency. The level of dispersion of each unit cost from the benchmark cost determines the magnitude of the efficiency challenge. In this assessment account was taken of special factors relating to the industry in Scotland.

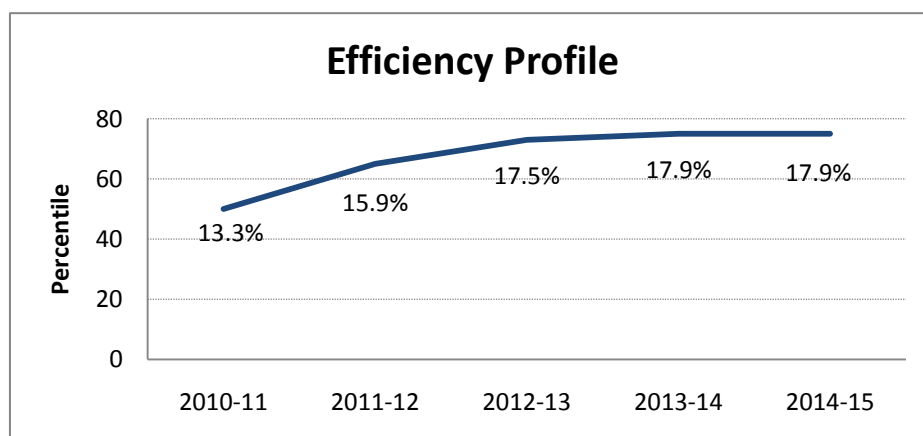
To ensure that the standard costs submitted by Scottish Water were directly comparable with the England and Wales companies, a review of Scottish Water's cost base submission was carried out by Jacobs plc who carried out equivalent work for Ofwat in the PR09 process. Along with the Reporter, Jacobs confirmed the validity of Scottish Water's costs for use in the cost base approach.

For the Draft Determination Scottish Water's unit costs were compared with those submitted by the England and Wales companies in their PR09 draft business plans. For the Final Determination in November 2009 the analysis will be updated to take account of the companies' final business plan submissions.

To be consistent with Scottish Water's expected performance in other areas, upper quartile capital efficiency by the end of the regulatory control period has been assumed. The Commission expects Scottish Water to improve its performance, year on year, in line with the expected annual improvement by the benchmark companies. The efficiency challenge is therefore phased over the regulatory control period. The median unit costs were used to determine the initial efficiency challenge in 2010-11 rising to upper quartile by the end of the period. The year-on-year increase in efficiency is illustrated in Figure 8.1 below. This approach results in an average efficiency of 16.2% over a four-year period and 16.5% over a five-year period.

More information on the Cost Base Assessment is provided in Staff Paper 13.

**Figure 8.1: Capital efficiency profile for Scottish Water**



## 8.12: Summary of the allowed for investment

Table 8.9 sets out the components of the overall assessment of the allowed for investment for the four-year and five-year regulatory control periods.

The Commission previously commissioned research into the size of investment programme that can be delivered efficiently<sup>9</sup>. It considered issues such as the capacity of the construction industry and the likely disruption to customers from large investment programmes. The report concluded that a mid-sized programme, averaging around £450 million per year is to be preferred over a larger programme.

The Commission therefore believes that the allowed for investment is the highest that can be delivered effectively and efficiently in the regulatory control period. The proposal for a five-year regulatory control period, with a marginally lower investment per annum, will allow Scottish Water greater flexibility in delivery and will increase the opportunities for efficiencies.

<sup>9</sup> LECG Report 'Factors to be considered when determining the appropriate size of the capital programme for Scottish Water', December 2007, available on the Commission's website at [www.watercommission.co.uk](http://www.watercommission.co.uk)

**Table 8.9: Summary of allowed for investment<sup>10</sup>**

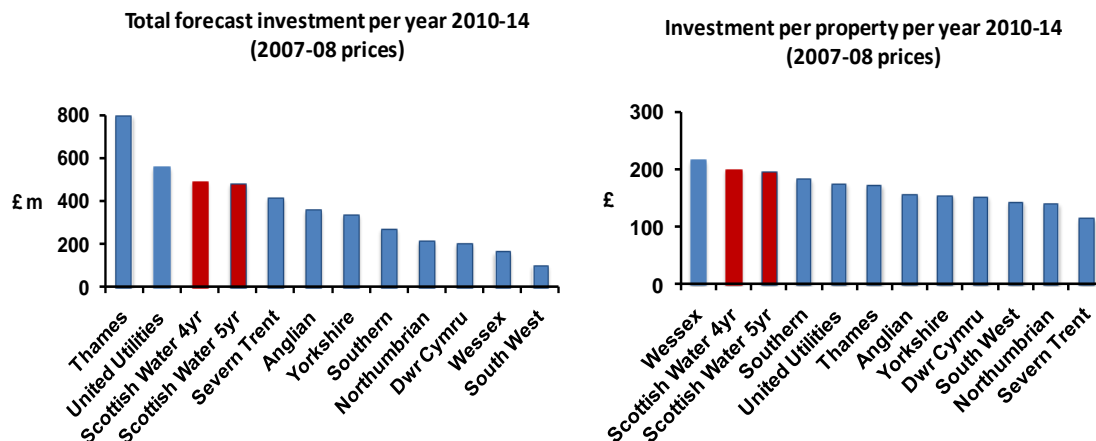
	Scottish Water's claim for 4 years	Commission's adjustment. 4 year review	Commission's adjustment. 5 year review	Our allowed for investment 2010-14	Our allowed for investment 2010-15
Drinking Water Quality	£474.9m	-£113.9m	-£113.9m	£361.0m	£361.0m
Environmental Improvement	£472.9m	-£66.2m	-£66.2m	£406.7m	£406.7m
Growth	£190.4m	-£13.8m	-£13.8m	£176.6m	£176.6m
Other Investment Priorities	£39.9m	-£0.9m	-£0.9m	£38.9m	£38.9m
Strengthening the regulatory framework	£0.0m	+£15.0m	+£15.0m	£15.0m	£15.0m
Total pre-efficiency enhancement investment	£1,178.0m	-£179.8m	-£179.8m	£998.2m	£998.2m
Efficiency challenge on enhancement	-£130.4m	-£20.9m	-£24.2m	-£151.3m	-£154.6m
<b>Total post-efficiency enhancement investment</b>	<b>£1,047.6m</b>	<b>-£200.7m</b>	<b>-£203.9m</b>	<b>£846.9m</b>	<b>£843.7m</b>
Capital Maintenance	£927.8m	-£47.8m	+£172.2m	£880.0m	£1,100.0m
<b>Total post-efficiency base investment</b>	<b>£1,975.4m</b>	<b>-£248.5m</b>	<b>-£31.7m</b>	<b>£1,726.9m</b>	<b>£1,943.7m</b>
Completion of previous investment programmes	£169.0m	£0.0m	£0.0m	£169.0m	£169.0m
'Early Start' investment for next regulatory period	£74.0m	-£35.4m	-£35.4m	£38.6m	£38.6m
Additional outputs to be specified by OMG	£0.0m	+£25.0m	+£245.0m	£25.0m	£245.0m
<b>Total new investment</b>	<b>£2,218.4m</b>	<b>-£258.9m</b>	<b>+£177.9m</b>	<b>£1,959.5m</b>	<b>£2,396.3m</b>
Total Investment per annum	£554.6m	-£64.7m	<b>-£75.3m</b>	£489.9m	£479.3m

Figure 8.2 compares Scottish Water's allowed for investment with the indicative level of investment of the companies in England and Wales during the next regulatory control period. The analysis is based on Ofwat's 'Capital Incentive Scheme' baseline

<sup>10</sup> Numbers may not add up due to rounding.

investment proposals for the companies and Scottish Water's four and five year investment allowances. It indicates that Scottish Water's programme is likely to remain one of the largest in the UK on both an absolute and a per property basis.

**Figure 8.2: Comparison of indicative levels of investment based on Scottish Water's allowed for investment and Ofwat's assessment of the England and Wales companies' CIS baseline**



The allowed for investment is just below £200 for every connected property in Scotland. In out-turn prices it will average in excess of £500 million each year – a significant contribution to the economy of Scotland. It also provides certainty to the construction industry in Scotland during difficult times.

### 8.13 Monitoring delivery progress

The Commission closely monitors Scottish Water's delivery of the outputs of investment, ie the benefits to customers and the environment. Specifically, the focus is on outputs rather than inputs – the money may have been spent and the project delivered but customers want to be assured that it achieved the expected improvements.

The Scottish Executive agreed to the Commission's recommendation in the last price review to set up the OMG. The OMG monitors progress in delivering the Scottish Government's objectives for the industry and publishes a quarterly report. The group meets every three months. The Commission will continue to work within this group in the forthcoming regulatory control period to ensure that Scottish Water delivers all of the benefits promised to – and financed by – customers.

The OMG has a critical role in monitoring delivery of the investment programme. In particular, the Commission looks to SEPA, DWQR and the Scottish Government to sign-off that the required outputs have been delivered. Only once this sign-off is given does the Commission consider that the required benefits have been properly delivered.

The Commission has developed a single measure for output delivery, similar to the overall performance assessment (OPA). The Commission will use it to measure and report on customer service performance. This new measure is termed the Overall Measure of Delivery, or OMD.

## 8.14 Summary

The Commission is confident that sufficient investment has been allowed for to meet the 'Priority 1' objectives set by the Scottish Government for the 2010-14 period. For a four-year regulatory control period, there is also limited additional investment available to meet some as yet undefined high priority outputs. The size of investment programme proposed is the highest that can be delivered effectively and efficiently in the regulatory control period.

The option of delivering the Government's objectives over a five-year period has also been examined. The Commission believes that there are a number of advantages in such an approach, including allowing greater flexibility in delivering the required environmental and public health benefits and allowing Scottish Water to improve further the efficiency with which it delivers the Government's objectives.

The Commission will continue to closely monitor Scottish Water's output delivery progress and ensure that customers receive the benefits for which they have paid.

The Commission believes that there is scope for Scottish Water to innovate in delivering the required outputs and, in particular, will look to Scottish Water to develop and implement sustainable approaches to meeting the Government's objectives.



