

Volume 1 : Financing and governance of Scottish Water

Introduction

Every four years, we set limits on the prices that Scottish Water can charge customers for water and sewerage services. The next price review covers the period from 1 April 2010 to 31 March 2014.

Our methodology consultation outlines the factors that we must take into account in order to set prices. They are grouped into four volumes, as follows :

| Methodology volume | Date volume is published |
|--|---------------------------------|
| Volume 1: Financing Scottish Water | 10 May 2007 |
| Volume 2: Customer revenue and levels of service | 31 May 2007 |
| Volume 3: Operating costs | 28 June 2007 |
| Volume 4: Capital expenditure | 26 July 2007 |

We have also published 9 information papers, providing more detailed information on some of the major issues arising from Volume 1. These papers may be quite technical in nature, although we have tried to keep them as readable as possible. We trust that you may find these useful.

Taking part in the review

We want this review to be as open as possible, so that stakeholders are well informed and can take part in ways that suit them. The four methodology consultation volumes are intended to provide information, explain our thinking and elicit stakeholders' views. Each will be supported by supplementary information.

How to respond to this consultation

We welcome your views on the issues outlined in this volume and the supporting information papers.

You can write, fax or email your representation to:

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Please submit your response no later than **Friday 19 October 2007** (12 weeks after we publish Volume 4 of the methodology consultation).

We will publish all responses to this consultation unless respondents request otherwise. Once we have considered the responses, we will publish a decision document on **Thursday 20 December 2007**.

Throughout the review process, we are holding stakeholder information days, which provide an open forum for stakeholders to ask questions and express their views about particular aspects of the review. Please see our website for further information about the stakeholder information days: www.watercommission.co.uk

Methodology Information Paper 1: Governance initiatives at the Strategic Review of Charges 2006-10

Introduction

For regulation to work there must be an effective governance and incentive framework, fully aligned with the regulatory contract and clearly understood by Scottish Water's employees, customers and other stakeholders.

This information paper outlines the governance improvements that were made at the 2006-10 Strategic Review of Charges. The changes helped ensure that customers received the required level of service for the lowest reasonable overall cost. At the 2010-14 review, we propose to build on the framework that was established at the last review.

This information paper explains the importance of a hard budgetary constraint as a key element of an incentive-based regime. The paper outlines how changes in level of cost that are beyond Scottish Water's management control are taken into account between reviews. It then discusses the mechanisms that were put in place to incentivise Scottish Water and its employees to improve performance. Finally, the paper explains the work of the Output Monitoring Group, which monitors Scottish Water's delivery of ministerial objectives.

The importance of the hard budgetary constraint

By establishing a hard budgetary constraint on a regulated body, regulators ensure that management attention is focussed on delivering ongoing improvements in value for money to customers. In the absence of such a constraint, there may not be sufficient pressure on managers to perform.

Most regulated companies are subject to pressure from shareholders to outperform the regulatory settlement. When we, the Commission, set price limits at the 2006-10 review, this was on the basis that the regulatory contract was the minimum level of acceptable performance. We also assumed that the level of borrowing allowed for would only increase in exceptional circumstances (and if we agreed that more borrowing was an appropriate response to the circumstances).

At the 2006-10 review we explained that price cap regulation would only be effective if Scottish Water believed there could be no advantage from spending or borrowing more than is absolutely necessary. We therefore set limits on Scottish Water's borrowing. The price limits we set were also consistent with our statutory duty to ensure that objectives were delivered at the lowest reasonable overall cost.

Underlying our approach was the principle that, if Scottish Water spent the financial resources available to it but did not achieve the required outputs, it would be the Scottish Executive (as Scottish Water's owners) who would meet the costs of remedying this – not customers.

Interim determinations and logging up/down

It is essential that the financing arrangements that apply during a regulatory control period are clear, and that they can only be changed according to a predetermined process. As part of this, management should only be held to account for those events and factors that it can control.

At the 2006-10 review, we established the mechanisms that would be used to respond to events beyond management control, such as a new quality obligation. These mechanisms are called 'interim determinations' and 'logging up and down'.

An interim determination is a reconsideration of a firm's price limits that is undertaken within a regulatory control period. Either the firm or the regulator may initiate an interim determination if there are material changes to the cost and revenue assumptions on which a determination has been based. Logging up and down are adjustments that take place at the end of the regulatory control period to reflect differences in levels of cost and/or performance from the original determination. Such differences have an impact on prices only in the next regulatory control period.

Being able to respond to changes in this way helps maintain financial discipline since it reduces the regulatory and financing risks facing Scottish Water.

The borrowing reserve

As an innovation in the 2006-10 review, the Commission and the Scottish Executive also agreed to hold a £50 million borrowing reserve to allow for events outside management control that may not be large enough to qualify for an interim determination. These events would be logged up or down and taken into account at the next price review. It was established

that this dedicated public expenditure would only be accessed with the agreement of both the Commission and Ministers. This reserve allowed us to fix borrowing and has meant that we do not have to reassess prices every time there is variation from the assumptions that underpinned our final determination.

At the 2006-10 review, we set the size of the reserve at £50 million, following representations from Scottish Water (we had originally proposed that it should be £40 million).

The 'gilts buffer'

A further innovation was to create the potential for a fund, to be invested in index linked gilt-edged securities, in which excess cash arising from outperformance of the regulatory settlement could be held.

The reserve acts as an important shock-absorber in the event that there is an operational shock. This is in customers' interests, as the effects of such a shock will not have to be passed on to their bills in the short term.

We explained that the size of the gilts buffer at the end of a regulatory control period is a transparent way to measure how management has performed during that period, and was therefore likely to have a significant incentive effect.

Rolling incentives

The success of the regulatory framework depends on appropriate incentives for Scottish Water's employees and for the organisation as a whole. At the 2006-10 review, we stated that we planned to introduce rolling incentives. Such incentives allow the benefit of any outperformance that an organisation achieves to be retained for four years. The benefit is then passed to customers.

Aligning incentives

At the 2006-10 review, Ministers recognised the importance of aligning managerial and organisational incentives, whereby those who create the wealth and improve customer service are able to share in the benefits.

Ministers therefore agreed that bonuses for Scottish Water's employees should be linked to the outputs financed in the final determination and paid only if Scottish Water outperformed its targets. In other words, a direct link was established between rewards for employees and benefits to customers and the environment.

The Output Monitoring Group

The last price review was designed to ensure that Scottish Water delivered ministerial objectives on quality and better service to customers economically. It was therefore important that formal arrangements were in place to monitor Scottish Water's delivery of the ministerial objectives. As part of the process of the review, the Commission secured the agreement of Scottish Ministers to establish and chair an Output Monitoring Group (OMG).

We view the creation of the OMG as an important step forward as it focuses attention on the delivery of the benefits of the investment programme. It increases transparency for customers and stakeholders and ensures Scottish Water is accountable for the delivery of the required outputs.

The OMG has now been established and comprises representatives of the quality regulators (the Drinking Water Quality Regulator and the Scottish Environment Protection Agency), the customer representative (Waterwatch Scotland), the economic regulator (the Commission), the company (Scottish Water) and the owners (the Scottish Executive on behalf of the Scottish Ministers) who chair the meeting.

At quarterly meetings, the Output Monitoring Group reviews progress against ministerial objectives and against interim milestones for output delivery set out in Scottish Water's agreed delivery plan. The list of outputs required to secure Ministers' objectives are set out in an agreed programme of works. Along with monitoring programme progress, the Output Monitoring Group oversees the process of making agreed changes to this programme resulting from better information or revised priorities. Quarterly and annual reports on progress are produced by the group, and will be published.

Related Documents

'The Strategic Review of Charges 2006-10: The final determination', Water Industry Commission for Scotland, November 2005.

'Efficiency incentives for public sector monopolies – the case of Scottish Water', Beesley Lecture, Alan D A Sutherland, London, 16 November 2006.

'Changing the taps : Regulating water in Scotland. Sir Ian Byatt, Edinburgh, March 2006

Methodology Volume 1: Information paper 1

Methodology Information Paper 2: Setting prices

Introduction

This information paper provides an overview of the Commission's proposed approach to setting prices. It begins by discussing financial sustainability and the importance of protecting customers from the effects of unexpected events. It explains that Ministers have undertaken that customers will not pay twice for the required level of service. The paper then outlines how these safeguards for customers are reflected in the Commission's approach to financing Scottish Water. The paper concludes with a description of our use of the regulatory capital value.

Financial sustainability

In November 2001, in the Strategic Review of Charges, the then Water Industry Commissioner provided advice to Ministers on the charges and revenue necessary to fund the water industry in Scotland for the period from 1 April 2002 to 31 March 2006. In his Strategic Review the Commissioner commented that:

*"This Review seeks to address the customer's need for a sustainable Scottish water industry. It recommends a revenue cap that should place the industry on a sound financial foundation, where there will be a balance between the financing demand placed on this, and future, generations."*¹

In November 2006 we, the Commission, reiterated this view:

*"We consider that it is important to emphasise that we have not achieved this price stability at the expense of future customers. Scottish Water will end the regulatory control period in a strong financial position – if it meets the terms of its regulatory contract."*²

Our obligations in respect of financing

We have a duty to ensure that Scottish Water has sufficient resources to enable it to deliver Ministerial objectives at the lowest reasonable overall cost. Our allowance for financing costs should take account of the risks that need, to be managed by the owner and/or management of Scottish Water. We consider the operational risks that the owner of the Scottish water industry must ensure are managed, to be broadly similar to those

¹ Strategic Review of Charges, November 2001, Foreword.

² The Strategic Review of Charges, November 2006, Executive Summary, p7.

that exist south of the border. As such, we believe that it is appropriate to set a comparable cost of capital to that allowed for in England and Wales. In coming to this conclusion we have noted that Ministers have undertaken that customers will not pay twice for the required level of service. This guarantee replicates the protection provided to customers by the regulatory framework south of the border.

The price setting formula

A standard approach to price setting uses ‘building blocks’, with the regulator making allowances for operating costs; depreciation (both capital maintenance and the amortisation of enhancement capital expenditure); tax; changes in working capital; and the cost of capital.

At the last review we moved towards an RCV method of price setting. We introduced an RCV for Scottish Water. Scottish Water receives an appropriate rate of return on this RCV. We set these such that Scottish Water was financially sustainable. We used the same financial ratios that Ofwat had applied in its 2004 Price Determination for the companies in England and Wales to measure the financial strength of Scottish Water.

Efficient investment in new assets is added to the RCV. Depreciation (reflecting the costs of using existing assets) reduces the RCV.

The RCV is a proxy for the current value in use of Scottish Water’s above-ground asset base. This value will change over time to reflect the ageing of assets (the cost of which is recognised by the depreciation charge) and investment in new assets.

The rate of return is the cost associated with managing and financing the above-ground asset base. The cash cost of replacement is covered by the depreciation charge.

Revenue is calculated as follows:

**Return allowed on the regulatory capital value +
allowable operating costs +
depreciation on non-infrastructure assets +
the infrastructure renewals charge (IRC) +
the costs of Public Private Partnership (PPP) contracts.**

The product of the RCV and the allowed rate of return gives the total return allowed on the RCV. This ensures that customers only contribute

towards those assets that have been created and which are providing a benefit to customers³.

The move towards the RCV method of setting prices affects only our approach to meeting the costs of new and existing assets. We do not believe that it has any immediate material impact on the prices faced by customers, on the resources available to Scottish Water, or on the implications for public expenditure. The changes were designed principally to allow greater transparency. They bring the approach to price setting for Scottish Water into line with that for the English and Welsh water and UK energy sectors. As such, we are able to make more direct comparisons in financial ratios than were previously possible.

In a private company the difference between the total return on the RCV and the net interest costs belongs to the owner of the company. This can either be re-invested or returned to the owner by way of a dividend. In a wholly debt financed company, the choice is between reinvestment, improving financial strength or perhaps returning a dividend to customers. In the case of Scottish Water, this whole difference is re-invested. The unleveraged portion of the RCV (ie the RCV less total debt) has many of the same properties as would equity owned by the customer. But this 'equity' does not currently pay a dividend.

Issues arising

If the Scottish Executive continues to make debt finance available at lower rates (while accepting responsibility for a failure of Scottish Water to achieve the required outputs), we propose that the difference between the commercial cost of debt and the public sector cost of debt should be allocated to the "gilts buffer" at the end of each financial year.

It has become common for regulators to adjust the level of prices so that the regulated company complies with the financial ratios that the credit rating agencies recommend. In its 2004 Final Determination, Ofwat set a cost of capital but then made some upward adjustments to prices to improve the compliance of certain companies with the financial ratios advised by the credit rating agencies. Some commentators have criticised what they consider to have been little explanation of how Ofwat made the adjustments. In effect the need for an adjustment implies that the cost of capital that has been allowed for is insufficient for a particular company. This raises the question as to how that company is different from the sector average and whether this difference is within the control of the

³ Information paper 4 – describes our proposed approach to setting a cost of capital. Information paper 5 describes the technical aspects of the RCV.

board of the company. There is also a question as to whether there should be similar downward adjustment in the “building blocks” answer if the financial strength of a company exceeds that required by the rating agencies and that this is not the result of prudent management action (for example, foregoing dividends).

Related Documents

‘The Strategic Review of Charges 2002-06’, Water Industry Commissioner for Scotland, November 2001.

‘The Strategic Review of Charges 2006-10: The draft determination’, Volume 5, Water Industry Commissioner for Scotland, June 2005.

‘The Strategic Review of Charges 2006-10: The final determination’, Water Industry Commission for Scotland, November 2005.

‘Efficiency incentives for public sector monopolies – the case of Scottish Water’, Beesley Lecture, Alan D A Sutherland, London, November 2006.

Methodology Information Paper 3: Financing and managing risk

Introduction

This information paper reviews the question of risk and considers how investors who provide finance for the water industry south of the border view the risks run by that industry. We, the Commission, believe that there are important lessons to be learned from this when we consider how to set a cost of capital for Scottish Water.

This information paper begins by defining investment risk. It outlines the potential sources of finance and considers how risk affects the cost of finance. The role of the market in assessing the risks run by the water industry in England and Wales is discussed in detail, in particular the role of credit rating agencies and the use of financial ratios. We go on to discuss market trends in the assessment of water and sewerage companies' exposure to debt, and conclude by discussing the implications of market information for our approach.

Defining investment risk

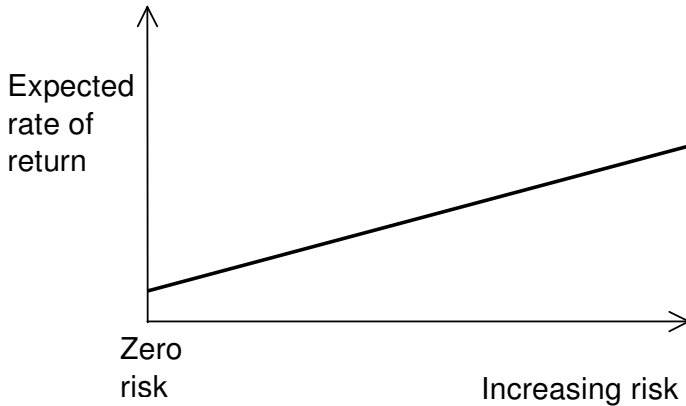
Financial theory identifies two components of investment risk – a 'unique' risk that is peculiar to a particular investment (ABC water company, for example) and a 'market' risk that is associated with marketwide variations (such as the variations measured by the FTSE all shares index).

Financial analysts are able to assess both types of risk by using market information. For example, index-linked UK government bonds offer fixed returns to investors, including protection from the level of inflation in the market. In effect, the rates offered on such bonds represent the 'risk free return on capital', as they are generally considered to have no default risk and no inflation risk. The risk free rate can change according to market conditions.

In contrast, the equity market, on average, and over the medium term, will offer a higher rate of return to investors. The market, however, offers no guarantees on the actual rate of return. Investors will only invest in equities if they can expect to receive on the average a higher return than that offered by index-linked government bonds. The difference between this expected return and the risk free rate is termed the 'market risk premium'.

Figure 1 illustrates that an investor would expect a greater return if the investment is considered to be more risky.

Figure 1: Comparison of expected rate of return and risk



The returns on a particular investment may be higher or lower than this average market rate, depending on the nature of the investment. In practice, the performance of an investment in a particular sector or company, relative to the market, will depend on the operational risks that the particular sector or company faces. The returns expected by investors will reflect these 'unique' risks.

Quantifying investment risk and return

The risk free rate of return can be estimated from index-linked Treasury bonds over a chosen time-horizon. The premium for the additional risk (beyond the risk-free rate) that an investor in a particular sector or company assumes, is harder to determine.

Market performance is a function of all the individual companies within it. This makes the performance of markets as a whole less volatile than that of an individual sector or company. Analysts use this market 'portfolio effect' to quantify the expected risk premium. They measure an index, beta, defined as:

$$\beta_i = \sigma_{im} / \sigma_m^2$$

where:

β = beta

σ_{im} = the covariance between stock i 's return and the market return

σ_m^2 = the variance of the market return

The value of beta for water and sewerage companies should reflect the volatility of returns from these companies (given their operational risks), relative to returns across the market. In practice, estimating beta for the water and sewerage sector has proven highly problematic.

There are no 'pure' water and sewerage stocks traded, since the quoted holding companies' portfolios cover other sectors, often including overseas activities. To complicate matters further, these companies adopt different financial structures.

Sources of finance

A firm can borrow, by issuing bonds or commercial paper or by seeking a loan from bankers. The firm will have to repay the initial amount of money borrowed at the end of the loan term, and meet interest costs as they become due.

Retained earnings and share issues are examples of equity. Investors normally hold equity because they expect that they will earn dividends or because they expect that the shares will increase in value.

The mix of a company's debt and equity defines its capital structure.

Debt and equity are treated differently for tax purposes. Interest charges are an allowable expense for the purpose of corporation tax. Interest charges therefore reduce a company's tax bill. Dividends are paid from the profit that a company makes after paying tax. A company has to allow investors an appropriate rate of return on their investment. This is a company's cost of capital.

Financial costs of risk

For a given company, debt is usually viewed as being less risky than equity. This is because debt normally carries a defined annual rate of interest and in the event of bankruptcy debt holders get paid before shareholders.

The financial risks defined earlier arise from individual companies being unable to pay dividends to shareholders in a particular year, or, in more extreme cases, being unable to meet debt interest or principal payments. A long-term investor in an individual company will expect to earn an appropriate rate of return over the period of their investment. Depending on the type of investment, the investor may be prepared to accept quarterly or annual fluctuations in their return.

Analysts use several different financial ratios to quantify the risks to the provider of finance. For example, a company with a substantial annual cash surplus relative to its annual interest payments is likely to be in a better position to withstand an operational shock than one with a relatively low surplus.

The use of financial ratios allows the credit rating agencies to assess the attractiveness of a company to potential and existing investors. Firms with traded debt are rated by firms such as Moody's, Standard and Poor's and Fitch Ratings. These agencies determine the credit-worthiness of different sectors and companies within sectors through a number of ratings systems. The ratings are expressed in terms of the risk of default¹.

Investment grade debt

The top four credit rating categories ('AAA', 'AA', 'A' and 'BBB' in Standard and Poors classification) are commonly known as investment-grade ratings. These ratings imply that the debt carries the lowest risk of default and consequently pay the lowest returns to investors.

It has become common for regulators to adjust the level of prices so that the regulated company complies with the financial ratios that the credit rating agencies recommend. These ratios are viewed by the market as being consistent with investment grade status. In other words, if a company's financial performance is in line with (or better than) these ratios, it should be able to continue to borrow at some of the lowest rates available in the market.

Balance of debt and equity

The balance of debt and equity in the English and Welsh water industry has varied over time and across companies. In the late 1990s, the general market view was that broadly equal levels of debt and equity were desirable. Water companies have substantial investment programmes – the need for investment to finance these programmes, coupled with commercial pressures to optimise their capital structure led companies to increase their leverage (ie increase debt relative to equity). These trends are apparent in other utility sectors, in response to similar commercial pressures.

¹ The rating for an individual loan may be different from the company's overall credit rating, depending on the exact terms of the loan.

Increasing leverage reduces the cost of capital (because of the tax allowance available on debt interest), provided that the market does not consider that the greater dependence on debt increases financial risk. The recent increases in leverage appear not to have affected credit ratings adversely, nor to have made it more difficult for companies to obtain debt on favourable terms. This would appear to indicate that markets are comfortable with the greater use of debt, relative to equity.

In our view, the assessment of the balance of debt and equity is a matter best left to markets to determine. In effect, the markets are reacting to companies' initiatives to manage risk and to investors' perceptions of those risks.

We believe that there could be useful lessons from market trends when we consider the cost of capital to allow for in setting charge caps for Scottish Water.

Implications for our approach

We consider that it is important to identify market trends that are emerging and understand any potential implications for the industry in Scotland. We intend to take account of market views of the English and Welsh water industry when we assess Scottish Water's cost of capital. We believe that this is appropriate if the operational risks of running a water and sewerage service are similar in Scotland.

However, we wish to ensure that we are using financial ratios that are up to date and appropriate for Scottish Water. We intend to work with credit rating agencies and investment banks to establish ratios that are tailored to Scottish Water's circumstances. This work will also consider to what extent, and under what circumstances, non-compliance with ratios would remain consistent with Scottish Water's financial sustainability.

Related Documents

'The Strategic Review of Charges 2006-10: The final determination', Water Industry Commission for Scotland, November 2005.

'Efficiency incentives for public sector monopolies – the case of Scottish Water', Beesley Lecture, Alan D A Sutherland, London, November 2006.

Methodology information paper 4: Setting a cost of capital

Introduction

This information paper indicates our proposed approach to setting a cost of capital. It begins by reviewing standard approaches used by regulators, and then comments on the difficulty in applying these approaches. Given these difficulties, we, the Commission, are considering an alternative approach.

How the cost of capital works in price setting

One of the most important aspects of a price determination is the financing of current and future assets. This depends on the return on the Regulatory Capital Value (RCV) allowed for. The standard regulatory approach in the UK is to estimate a real weighted average cost of capital (WACC). This WACC is multiplied by the RCV in order to determine the allowed for cash return.

The weighted average cost of capital (WACC) is the overall cost of capital for a firm. It takes account of the capital structure of the firm and the estimates of the cost of debt and of equity.

In order to estimate an appropriate WACC a regulator decides an appropriate rate of return for both debt and equity and an appropriate capital structure.

A further complication in the estimate of WACC is that debt and equity are treated differently for tax purposes. Interest charges are an allowable expense for the purpose of corporation tax. The corporation tax advantages of debt are recognised in the post-tax weighted average cost of capital calculation. This is shown in Figure 1.

Figure 1: Post-tax weighted average cost of capital

$$\text{WACC} = \frac{[r_D * D * (1-t)]}{D + E} + \frac{[r_E * E]}{D + E}$$

Where:

| | | |
|---|---|----------------------|
| r | = | return |
| D | = | debt |
| E | = | equity |
| t | = | corporation tax rate |

The investor is however concerned with the real rate of return – that is the return after having adjusted for the effect of inflation.

The formula for calculating the real rate of return is shown in Figure 2.

Figure 2: Formula for calculating the real rate of return

Real rate of return = nominal rate of return – inflation rate

It is important to differentiate between the real rate of return (the return after inflation) and the nominal rate of return (the return before account is taken of inflation). The RCV is adjusted upwards to take account of inflation. The allowed for cash return is therefore calculated by multiplying the RCV by the allowed for real WACC.

Setting the WACC for a public corporation

Assessing the WACC for a public corporation is problematic. This is because the regulator cannot easily observe the market cost of the equity or the debt.

Scottish Water does not borrow directly from the capital markets nor does it borrow at commercial rates. Scottish Water does generate surpluses and it therefore has retained earnings, which it can invest to achieve the outputs set by Scottish Ministers. It does not currently pay dividends and therefore all of the surplus generated is reinvested for the benefit of current and future customers. These retained earnings differ from retained earnings in the private sector in that they are not reinvested with the specific goal of generating increased surpluses in the future. There is therefore a question about whether the allowed for cost of capital should be adjusted to take account of the owner's decision to forego dividends but to accept the risks of ownership.

The remaining sections of this information paper consider:

- the appropriate level of gearing (i.e. how much of the RCV should be financed by debt);
- the cost of debt; and
- the cost of equity (that proportion of the RCV not financed by debt).

Gearing

The decision on an appropriate capital structure has recently become more difficult as the market has revealed itself to be comfortable with highly geared utilities. However, some companies (most notably Yorkshire

Water) have not followed this trend and have maintained a relatively low rate of gearing. It has therefore become more difficult for a regulator to decide on an appropriate level of gearing. A regulator could theoretically set individual allowances for the cost of capital for each company that it regulates. However it is likely that in so doing, the regulator could, in effect, force companies to adopt a particular capital structure.

Cost of debt

The cost of debt is the most straightforward element in assessing an appropriate cost of capital. There is now much greater transparency in the cost of debt for different companies. There is, however, an issue about whether to use the current or long run price of debt.

Current price method

A cost of debt using current prices can either allow for embedded debt, or allow interim determination type adjustments based on changes in the observed real cost of debt. There would be interim determinations of the cost of debt when there was a significant difference between actual real market rates and the real rate allowed for in the price determination. This has the advantage that the regulator does not have to make an assessment of the nature of the embedded debt (e.g. debt that was incurred as a result of a refinancing and has subsequently become expensive should not attract any additional allowance). It also avoids the potential for over or under resourcing the regulated company that is likely to result from using long run average debt costs. The disadvantage is that customer prices cannot be fixed absolutely for a regulatory control period.

On balance, we consider that the allowance for embedded debt is a more transparent approach, but there needs to be a check on whether debt was incurred prudently and efficiently. We also consider it important to remove any unnecessary uncertainty in the prices that customers will pay.

Long run price method

The use of long run prices (where the normal real cost of debt for water utilities can be estimated) is problematic. Companies will tend to pay out surplus cash in dividends (during times when the real interest rate is lower than the long run average) and assert that the allowance for the cost of capital is insufficient when the real interest rate is higher than its long run average. In a Scottish context (where dividends are not currently paid), there would be either a lessening of the budget constraints that apply to Scottish Water or a shortfall in the required level of financing.

Cost of financing the unleveraged portion of the RCV

The RCV must be remunerated at a level that allows the company to access finance and to compensate the owner appropriately for the risks that it is required to manage. In this regard there are no essential differences between various ownership arrangements (although there may be specific differences in the opportunity costs of accessed capital). The cost of financing this unlevered portion of the RCV (equity) is, by some distance, the most problematic element in calculating the weighted average cost of capital. There are three broad approaches:

- the capital asset pricing model (CAPM);
- the dividend growth model (DGM); and
- the use of comparators.

Capital asset pricing model

The capital asset pricing model (CAPM) estimates the return on a particular equity using three variables: the risk-free rate, the market risk premium and the beta of the stock¹. The market risk premium is the expected return on the market minus the risk-free rate. This cannot be calculated with certainty but can be estimated using historical returns. The beta of a stock measures its volatility relative to the volatility of the market. A stock with a beta of 1 is no more or less volatile than the market, whereas a stock with a beta of 0.5 will be only half as volatile (i.e. it will on the average move 0.5% if the market moves 1%, up or down).

The formula for the CAPM model is shown in Figure 3.

Figure 3: The capital asset pricing model

$$r = r_f + \beta(r_m - r_f)$$

Where:

| | | |
|---------|---|----------------------------------|
| r | = | return on the equity of the firm |
| r_f | = | risk-free rate |
| β | = | beta |
| r_m | = | return on the market |

The CAPM requires the assessment of an equity beta. It may be difficult to determine the beta with confidence and even a small error could be quite material in the allowance for the cost of equity. We propose to consider whether we can pursue this traditional approach.

¹ Information paper 3 explain these terms

Dividend growth model

The dividend growth model (DGM) measures the return on a share by forecasting future dividend growth. The model assumes that expectations on future dividends are correctly incorporated into the current share price. The formula for the DGM is shown in figure 4.

Figure 4: The Dividend Growth Model

$$r = \frac{\text{DIV}_1}{P_0} + g$$

where:

- r = rate of return
- DIV₁ = projected dividend for next year
- P₀ = current market price
- g = expected rate of growth in dividends

In considering the cost of capital for non regulated businesses, the DGM can be implemented fairly straight-forwardly. The present share price can be observed in the market. Expected dividends and the likely growth rate of dividends have to be estimated based on company guidance or analysts' reports.

The DGM may be difficult to use for a regulated company. A forward looking DGM would be circular (dividends depend on the cost of capital and the cost of capital depends on the potential for dividend growth). Considering the DGM on an historic basis removes this circularity; however, it is likely to be difficult to assess the underlying real growth in dividends over the years since privatisation. This is because the capital structure of the industry has changed significantly. There is also a likelihood that the industry cost of capital has changed significantly during this period.

Comparator method

A third approach is to use comparators to estimate an appropriate WACC. The regulator could use analysis of market transactions (both proposed and realised) to gather evidence of the market's view of the cost of capital. Alternatively the regulator could use information from related or similar industries to make an estimate of the cost of capital. The use of comparators relies on the quality and detail of the information. At the current time we consider that this is most likely to be useful as a check rather than as a primary method of calculating the cost of equity.

Implications for our approach

In recent price reviews, it has become increasingly common for regulators to adjust materially the results of the building blocks approach² to price setting, to ensure that the regulated company can meet the financial ratios that are demanded by the market. However, if the regulator has to adjust prices to comply with externally determined financial ratios, this would imply that the building blocks approach to setting prices has suggested price caps that are inconsistent with the market's view of the financeability of the water industry. This could reflect a difference in view on the current cost of capital (the CAPM calculates an average cost) or in the allowance for depreciation. Perhaps such differences are to be expected given the difficulty of assessing the cost of capital.

A potential alternative approach

We are considering an alternative approach. We would recognise that the credit rating agencies contribute substantially to the market's view on the appropriate cost of capital – particularly when companies require continuing access to the debt markets for substantial sums.

We could potentially set prices that allow compliance with a suite of financial ratios, and allow for an appropriate cost of capital consistent with these ratios (plus the costs of any appropriate embedded debt allowance).

We would expect the requirements of such an approach to include the following:

- an assessment of an appropriate cost of debt;
- an assessment by a credit rating agency of appropriate financial ratios for Scottish Water's circumstances;
- financial scenario and risk modelling to assess levels of revenue that are consistent with broadly meeting these ratios during the regulatory period and into the medium term;
- smoothing of these revenue levels, consistent with avoiding volatility in prices;
- deriving the percent rate of return on the unleveraged portion of the RCV that would generate sufficient cash such that the targeted financial ratios could be met.

² 'Building blocks approach' – this is explained in Information Paper 2

This approach has the disadvantage that it is novel and untested. However, it may be more transparent, and, if properly explained, is likely to be less contentious than the normal estimates of the WACC. We will ask leading experts in the field for their views before deciding how to set the cost of capital. Their advice will be published.

Related documents

‘The Strategic Review of Charges 2006-10: The draft determination’, Volumes 3 and 5, Water Industry Commissioner for Scotland, June 2005.

‘The Strategic Review of Charges 2006-10: The final determination’, Water Industry Commission for Scotland, November 2005.

Methodology information paper 5: RCV and depreciation

Introduction

In the Strategic Review of Charges 2006-10, we, the Commission, set an initial Regulatory Capital Value (RCV) for Scottish Water of around £4 billion for 2005-06, rising to around £5.4 billion by 2009-10.

This information paper details how we adopted the RCV framework at the Strategic Review of Charges 2006-10 and our proposals for the next regulatory period. The paper explains how we intend to roll the RCV forward and our proposals for the treatment of depreciation.

How we established an initial RCV in the Strategic Review of Charges 2006-10

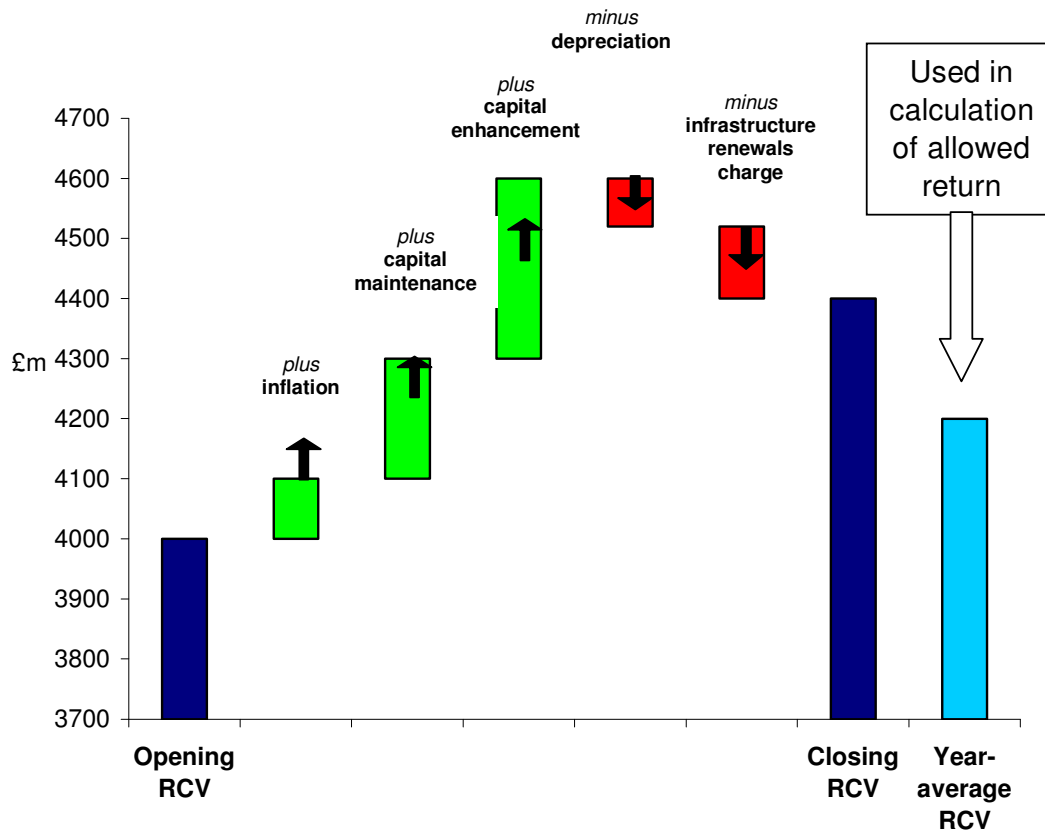
We set the RCV at a level in 2009-10 that would not require any adjustment for financial sustainability. We set the initial RCV such that allowed inflation, capital investment and depreciation would result in the targeted level of RCV in 2009-10.

We used a comparator approach to check whether the calculated initial RCV was consistent with the regulatory capital value of the companies . Our comparisons considered the relationship between a range of financial, customer and asset factors and the RCVs of the companies south of the border. We concluded that the initial RCV (required for financial sustainability) was consistent with the ranges analysed from the comparator approach.

Rolling forward the RCV

Each year, the RCV changes in value in order to recognise net new capital investment (gross investment minus maintenance charges). This is known as rolling forward the RCV. We propose to use the same method for the 2010-14 review as we used for the 2006-10 review, which was itself based on Ofwat's method. This is shown in figure 1.

Figure 1: Annual rolling forward of the RCV



We will adjust the RCV for the Strategic Review of Charges 2010-14 to take account of differences between:

- our assumptions for 2006-10; and
- the delivery of investment over the 2006-10 regulatory control period.

We will use logging up/down to adjust the RCV for differences in assumptions such as the efficient expenditure on capital enhancement and the level of output delivery.

Approach to depreciation

The RCV approach to price-setting distinguishes annual maintenance expenditure from the long-run estimated charges.

The water and sewerage industry has two broad types of asset. These are termed infrastructure (assets below ground as water mains and sewers) and non-infrastructure (above such ground assets such as treatment plants, offices, vans, computers, etc).

Above ground assets have a defined useful economic life (i.e. between 1 and 60 years) and therefore it is expected that these assets would lose their value over this period. This loss in value is called depreciation¹. However, Scottish Water will be investing constantly to maintain these assets and therefore the RCV would recognise both purchases on new assets and depreciation of existing assets.

Infrastructure assets have a very long economic life and therefore the standard depreciation methodology is not used. Instead, the industry uses the infrastructure renewals charge (IRC) as a proxy for depreciation. The IRC is normally a long term average of the amount spent in maintaining the infrastructure assets (usually called infrastructure renewals expenditure). Although in the long run the average IRE would equal the IRC, the RCV will reflect differences between IRE and IRC in any given year.

In the Strategic Review of Charges 2006-10, we applied a relatively simple test to the allowance for depreciation and infrastructure renewals charge (IRC). We explained in our methodology consultation that this was because we did not consider that Scottish Water's information was sufficiently robust to withstand detailed scrutiny. Instead, we made a series of comparisons with England and Wales and established that our allowances for both depreciation and IRC were above those that could be justified by our benchmarking.

In practice, this did not affect the charges that customers pay, as the level of revenue was determined by financial ratios. It did, however, change the composition of our allowance – moving money from the allowed return to depreciation.

We propose to increase our scrutiny of this area insofar as the information allows us. There are two main reasons for this:

- Scottish Water is revaluing its assets; and
- increased transparency.

Asset revaluation

Prior to the 2005 review, Scottish Water valued its assets using the EARC (Equivalent Asset Replacement Cost) methodology. Ofwat asks the

¹ There are many approaches to model this loss in value over time, but the most common methodology is 'straight line' depreciation. This means that the asset would lose its value in equal amounts per year throughout its life.

companies in England and Wales to value their assets using the MEAV (Modern Equivalent Asset Value) methodology.

We have asked Scottish Water to value its assets using the MEAV methodology. Scottish Water is due to submit a MEA valuation as part of its Regulatory Accounts for 2007-08. A different asset value may imply a different annual depreciation rate, which may affect either prices or the allowed return in the 20010-14 Review. We will therefore scrutinise carefully the asset value that Scottish Water submits.

Increased transparency

In order to demonstrate that customers are paying for an appropriate level of capital maintenance through their bills, Ofwat applies two separate tests:

- renewals accounting methodology; and
- the 'broad equivalence' check.

Both tests perform a similar function, in that they check whether maintenance expenditure is in line with the maintenance charges that affect price limits. Table 1 compares these two tests. Ofwat stressed in its methodology consultation for the 2004 Price Review that neither assessment is applied mechanistically.

Table 1: **Comparison of renewals accounting and broad equivalence**

| | Renewals accounting | Broad equivalence |
|----------------------------------|------------------------------|--|
| Maintenance expenditure | IRE | Maintenance of non-infrastructure charge |
| Accounting charge | IRC | Current cost Depreciation |
| Method of assessment | Forward-looking | Forward and backward looking |
| Time period of assessment | 15 years | 28 years |
| Tolerance | IRC set equal to average IRE | 5% of company turnover on an NPV basis. |

We consider that we may be able to implement the renewals accounting check that IRC and IRE are in line over 15 years. However, we consider that the information required for the broad equivalence check may be too onerous and subjective at this stage as Scottish Water is still on the process of improving the knowledge about its asset base. Instead, we

propose to assess current cost depreciation over a similar period as the infrastructure renewals charge, but allow a greater tolerance for error.

We propose to ask Scottish Water to justify its current cost depreciation and infrastructure renewals charges with reference to long-run levels of maintenance in the industry in its business plan.

We propose to make the necessary adjustments to the depreciation charges if Scottish Water's approach is not sufficiently robust.

Related Documents

'The Strategic Review of Charges 2006-10: The draft determination', Volumes 3 and 5, Water Industry Commissioner for Scotland, June 2005.

'The Strategic Review of Charges 2006-10: The final determination', Water Industry Commission for Scotland, November 2005.

Methodology information paper 6: Financial modelling

Introduction

This information paper explains the role of the Commission's financial model. It also describes the approach to the Strategic Review of Charges 2006-10 and the changes that we, the Commission, believe may be needed to the model for the next price review.

The role of our financial model

Our statutory remit requires us to set prices at a level consistent with the delivery of ministerial objectives for the lowest reasonable overall cost. One of the ways in which we do this is by ensuring that Scottish Water has sufficient resources to carry out its core functions as a water and sewerage service undertaker in an efficient manner.

Scottish Water's resources currently come from two sources:

- revenue raised through charges to customers; and
- borrowing (from government).

The revenue that is raised from customers is determined by the charge limits that we set for Scottish Water. We use a financial model to inform our calculation of these charge limits.

The model therefore plays a key role in the Strategic Review of Charges, having an impact on:

- customers – because it is used in determining the limits on charges for water and sewerage services; and
- Scottish Water – because it is used in determining the level of resources that we will make available for the business to carry out its core functions.

The financial model has two principal elements:

- calculation of the revenue that Scottish Water requires to carry out its core functions; and
- the tariff basket model, which translates the revenue collected from customers to the tariffs they will pay.

The model developed for the Strategic Review of Charges 2006-10

The current version of the financial model forecasts revenue as a sum of building blocks. These are the return allowed on the regulatory capital value, allowable operating costs, depreciation on non-infrastructure assets, the infrastructure renewals charge and the cost of public/private partnerships contracts. However, the model also allows us to adjust revenue as a means of fine-tuning (for example, to match financial ratios).

We developed the model using internal resources. It was subject to rigorous internal analysis that ensured that all of the formulae performed as we would expect and that the results were consistent with our expectations when inputting test information.

We asked Ernst & Young LLP to review our financial model. We also gave Scottish Water an opportunity to comment on the model.

We provided Scottish Water with the input tables for the financial model as part of the business plan guidance.

Financial sustainability

One of the key considerations of our modelling was the financial sustainability of Scottish Water. We used the same financial ratios as those used by Ofwat to assess the financial sustainability of the water industry south of the border in its Final Determination.

Table 1 shows the list of financial ratios we used in the 2006-10 review:

Table 1: Financial ratios used in the 2005 Final Determination

| Ratio | Target value |
|---|---------------------|
| Cash interest cover (funds from operations / interest expenses) | Around 3 times |
| Adjusted cash interest cover (funds from operations less capital charges / interest expenses) | Around 1.6 times |
| Funds from operations / debt | Greater than 13% |
| Retained cash flow / debt | Greater than 7% |
| Gearing (net debt / regulatory capital value) | Below 65% |

In the 2006-10 review we set Scottish Water's revenue in 2009-10 such that it complied with all of the cash-based financial ratios.

Changes affecting our approach

Although the financial model worked well at the last price review, we have identified some changes that we consider it would be appropriate to make. We do not consider that we need to develop an entirely new model. Instead, we believe that a revised version should be sufficient to accommodate the new needs. The reasons for change include:

The introduction of competition: Scottish Water has separate wholesale and retail businesses. In addition, we would be setting retail tariffs for household properties and setting wholesale and 'default' tariffs for non-household properties. As such, the model needs to be able to calculate tariffs at a retail and wholesale level. In the 2006-10 review we calculated a retail margin and a simple wholesale charge cap. We need to adjust the financial model to allow us to calculate wholesale charge caps for each tariff basket at the next price review.

In order to set both levels of tariffs we propose to set revenue for Scottish Water as a vertically integrated business (hence, ensuring adequate comparators for revenue setting). Wholesale revenue would be calculated by subtracting the assessed costs of retail activities and an appropriate return.

New or better information: we propose to adjust the model to reflect new or better information. Such changes may include:

- updating the calculation of current cost depreciation: better information on Scottish Water's MEAV assets would allow us to improve the modelling of depreciation;
- updating tax calculations: we plan to take into account the latest changes in the tax rules (UKGAAP);
- updating Current Cost Accounts: we will update the model to be in line with the latest version of the Regulatory Accounting Rules; and
- introducing the gilts buffer.

Adding scenario-modelling options: we propose to add scenario modelling options. We will also consider merging the financial model with the tariff basket model in order to extend the scope of any scenario modelling.

Methodological changes: any changes in our approach would need to be incorporated in the model. Examples of these changes are:

- updating financial ratios (formulae and targets);

- updating cost of capital/building blocks calculations based on the defined price setting framework; and
- updating the calculation of the return to RCV

Rationalisation of inputs and outputs: We propose to rationalise the size of the model by eliminating unnecessary detail in inputs and outputs.

Developing the revised financial model

We will develop the model in-house in order to ensure that we have a detailed knowledge of the model's logic and processes. This will allow us to make any additional amendments at any point in time. However, we will seek advice on modelling 'best practice' and ensure that our use of the model is appropriate.

A draft final version of the model structure and logic will be produced once we have had an opportunity to consider consultation responses.

This draft final version will be subjected to a detailed external review. Additionally, we plan to have the model audited approximately one month prior to the publication of the draft determination.

We will keep Scottish Water informed about any changes to the financial model and arrange training sessions or workshops.

However, we propose only to provide feedback on financial aspects of Scottish Water's business plans if it uses the price review model. In our view this avoids a risk that we misinterpret Scottish Water's intentions.

Related Documents

'The Strategic Review of Charges 2006-10: The draft determination', Volume 7, Water Industry Commissioner for Scotland, June 2005.

'The Strategic Review of Charges 2006-10: The final determination', Water Industry Commission for Scotland, November 2005.

Methodology information paper 7: Gilts buffer

Introduction

This information paper explains how we, the Commission, propose to operate the gilts buffer. It sets out how we intend to assess outperformance and the process by which the outperformance will be transferred to the gilts buffer. The paper also outlines possible approaches on how we could determine the appropriate size of the gilts buffer. The paper concludes by explaining how we propose to release resources from the gilts buffer.

At present, Scottish Water's customers are more immediately exposed than customers in England and Wales to the operational risks of the business. In England and Wales, the presence of private equity acts as a significant shock¹ absorber, and as a result protects customers. A good example of this is the cost of the Yorkshire drought in 1995 (approximately £250 million), which had to be absorbed by the equity holders of Yorkshire Water. In Scotland, Scottish Ministers have agreed to meet the costs of similar operational shocks. However, there may be operational shocks that are outside the control of management. The costs of such shocks would not be met by Ministers and the gilts buffer would protect customers from their potential price implications..

In the Strategic Review of Charges 2006-10 we proposed that any outperformance in the regulatory contract should be transferred into a 'gilts buffer'. This ensured that Scottish Water was subject to a tight budgetary constraint. An important consequence to note is that Scottish Water should borrow in line with the profile established in the final determination, unless it invests at a materially faster or slower rate. We also proposed that, although the buffer would clearly belong to Scottish Water (and its customers), it would be important that decisions to release some or all of this reserve were agreed by Ministers and the Commission.

Analysing outperformance

We will assess Scottish Water's outperformance on a yearly basis and define the amount that should be transferred into the gilts buffer. We intend to do this by comparing Scottish Water's net debt position at the end of each financial year with the net debt assumptions in price limits and include any difference in the buffer.

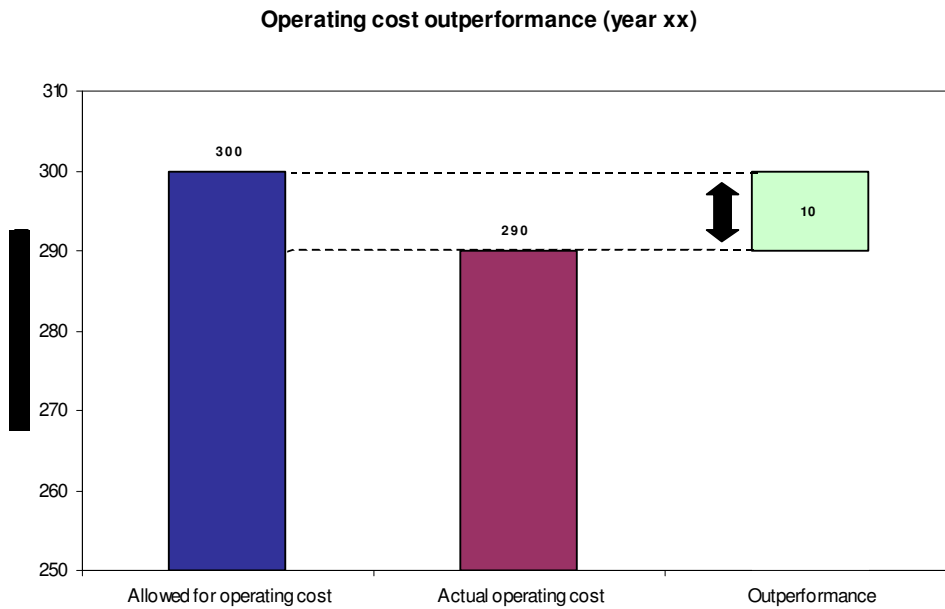
¹ Shock outside the control of management

Before determining the amount to be transferred, we will review whether Scottish Water had delivered the forecast levels of service for the assessed year.

We will make any necessary adjustments to recognise the impact on net debt due to the differences between Scottish Water’s actual capital expenditure against our assumed profile in the price limits.

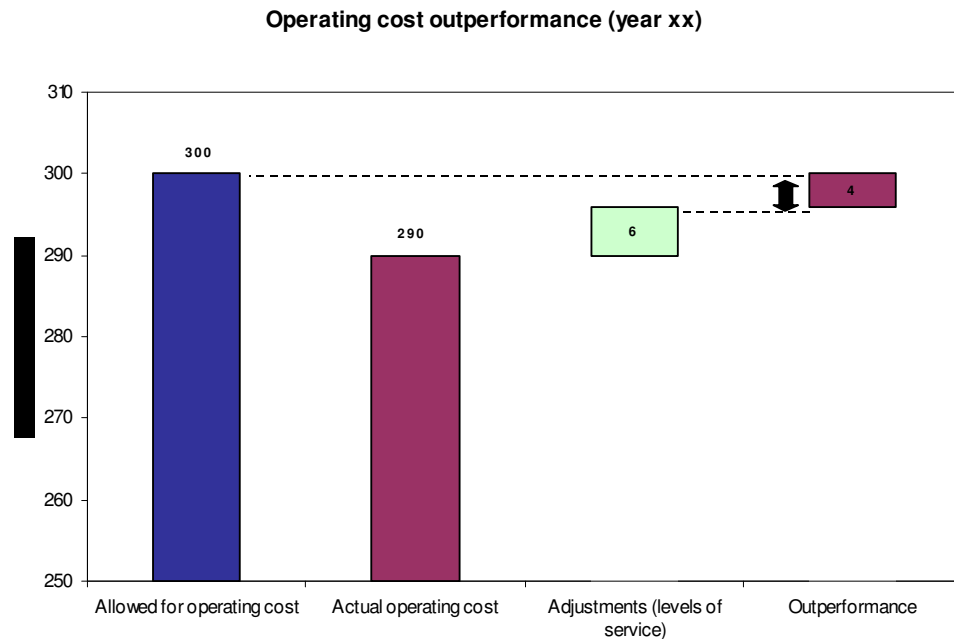
It should normally be straightforward to assess the extent to which Scottish Water has succeeded in bettering the assumptions in the price review with regard to operating or financing costs. This is shown in the following two worked examples.

Worked example 1: Outperformance calculation (with no adjustments)



In this example, the Commission allows for an operating cost target of £300m and Scottish Water outperforms that target by £10m. In this case, £10m would be added to the gilts buffer.

Worked example 2: Scottish Water spends less than the allowed for operating cost amount but fails in delivering the assumed levels of service



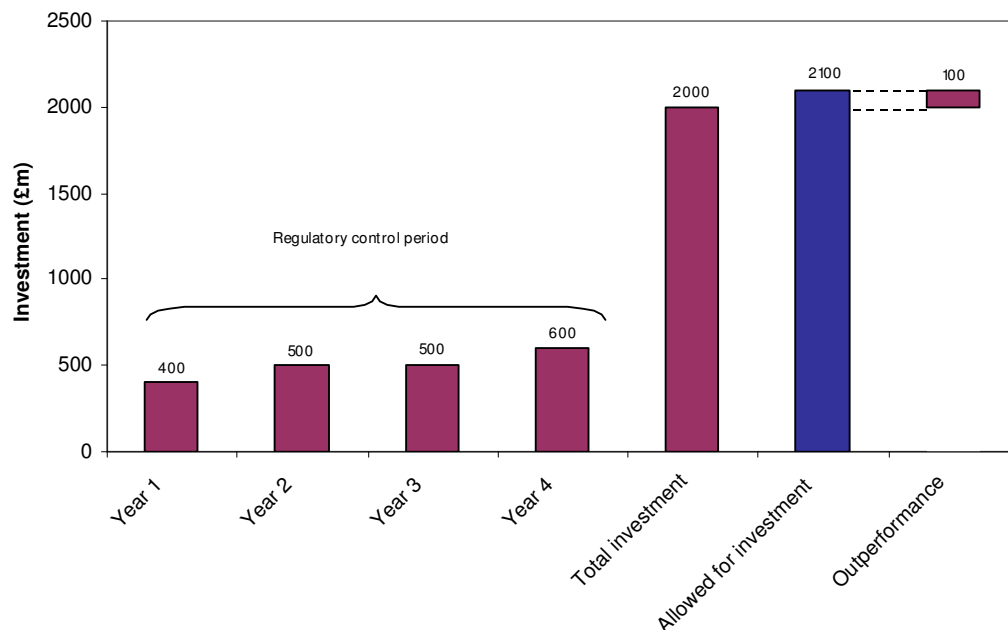
In this example Scottish Water has not delivered the levels of service. The Commission carefully analyses the costs of the shortfall in the level of service provided to customers. For the purposes of the example, we conclude that this shortfall would have cost £6m to address. As such, we reduce the original £10m outperformance by £6m. We therefore require that £4m be transferred to the gilts buffer.

Ministers set a number of objectives that Scottish Water has to deliver through capital expenditure by the end of a regulatory control period. In its determination of Scottish Water's charges, the Commission allows for efficient capital expenditure to deliver the ministerial objectives. Ministers' objectives are for the four year regulatory control period and, as such, definitive analysis of whether Scottish Water has out- or under performed in its capital expenditure programme cannot be completed until the end of the regulatory control period. It would therefore be prudent to delay any transfer to the gilts buffer resulting from performance in capital expenditure until financial year 2010-11.

Worked example 3 explains how he would deal with capital expenditure outperformance.

Worked example 3: Capital expenditure outperformance

Calculation of capital expenditure outperformance



In this example, Scottish Water delivers the ministerial outputs by spending £2bn and the allowed for amount is £2.1bn. In this case, the gilts buffer should increase by £100m during year 5. It is worth noting that the phasing of capital expenditure is not relevant to the assessment of whether Scottish Water has out-performed its regulatory contract. That is why only the regulatory period total can be used to calculate outperformance.

Size of the gilts buffer

We do not consider that the gilts buffer should grow without limit. Once the gilts buffer has reached a sufficient size to provide a cushion for an operational shock, we propose that any additional outperformance should be distributed back to customers. This would also be in line with the hard budgetary constraint.

We propose to use a number of different approaches to assessing the appropriate size of the gilts buffer for a company the size of Scottish Water.

The gilts buffer is in essence an 'insurance policy' for customers who could otherwise be exposed to substantial price fluctuations. As such, its size should depend on the operational risks faced by Scottish Water. We

could therefore determine the size of the gilts buffer by analysing a series of potential operational shocks (outwith management control), assessing their impact of these on Scottish Water's finances and assigning a possible likelihood for each of these events. These operational shocks can be intrinsic to the water industry (e.g. Yorkshire drought in 1995 or the leakage problems at Thames Water) as well as external (macroeconomic shock). We would then set the size of the buffer once all these events are analysed.

A simplified approach to the previous alternative could be to focus on one big known operational shock and link the gilts buffer size to this shock. For instance, if the Yorkshire drought cost shareholders £250m, how much would it cost to customers in Scotland if it suffered a drought of similar magnitude?

A third approach could be to analyse how Welsh Water dealt with these uncertainties. Given that Welsh Water does not have access to equity funds, it maintains 'committed'² credit lines from banks that could be used to meet the costs of an operational shock. The size of these credit lines could be scaled to the size of Scottish Water and we could therefore set the size of the gilts buffer accordingly.

A fourth approach would be to rely on financial ratios. Banks use ratios to assess the financial health of a company. Targets on financial ratios could also be taken as the banks' tests for debt repayment. For instance, the difference between the 'funds from operations/debt' ratio target of 13% and the 'retained cash flow/debt' of 7% could imply that in an eventual shock, equity holders could forgo their dividends and provide the company a cushion equal to 6% of their net debt (if a company had £3.3bn. of net debt, the potential amount forgone would be around £200m).

Changes in the buffer

The rules relating to transfers into and out of the gilts buffer are set out below.

Cash inflows

We propose to analyse Scottish Water's outperformance on a yearly basis and publish our conclusions in the Cost and performance report. Cash generated from any outperformance against the regulatory contract will be transferred to the gilts buffer.

² A committed credit line is a lending facility that guarantees a company that it will have access to those funds when required.

Our analysis will use Scottish Water's Annual Return and we would request Scottish Water to comment on our conclusions prior to publication. Table 1 sets out the annual timetable.

Table 1: Indicative dates for determining additions to the gilts buffer

| Action | Indicative Date |
|---|------------------------|
| Scottish Water submits Annual Return (i.e. year ended March 200X) | June 200X |
| WICS' analysis of Scottish Water's outperformance | June – August 200X |
| WICS formally requests Scottish Water to increase gilts buffer | September 200X |
| Scottish Water provides comments on WICS analysis | October 200X |
| Conclusions published in the Cost and Performance Report | November 200X |
| Scottish Water increases gilts buffer | January 200X+1 |

Cash outflows

The gilts buffer has been created in order to provide insurance to Scottish Water for events outwith management control (external shocks). Extreme events could happen at any time in the year and therefore the process should be flexible enough to address these needs. However, any outflow of money would need to be authorised by the Scottish Executive and the Commission.

The Commission proposes to agree to release resources if the costs incurred were outside the control of management. If a determined management could have avoided these costs, we believe that it should fall to the Scottish Executive to meet these costs.

Related documents

'The Strategic Review of Charges 2006-10: The draft determination', Volume 5, Water Industry Commissioner for Scotland, June 2005.

'The Strategic Review of Charges 2006-10: The final determination', Water Industry Commission for Scotland, November 2005.

'Efficiency incentives for public sector monopolies – the case of Scottish Water', Beesley Lecture, Alan D A Sutherland, London, November 2006.

Methodology information paper 8: Rolling incentives

Introduction

In the Strategic Review of Charges 2006-10 we, the Commission indicated our intention to apply rolling incentives in the next regulatory period, whereby gains from outperformance would be retained for a number of years by Scottish Water, reflecting Ofwat's practice in England and Wales. Proceeds would be used to build up a gilts buffer.

This information paper begins by discussing the purpose of rolling incentives. It then considers how outperformance of regulatory settlements can be measured and treated. It summarises Ofwat's approach to rolling incentives and provides a worked example of how Ofwat calculated the rolling incentive allowance for operating costs in its 2004 price review. The paper concludes with a discussion of options that we propose to consider in setting prices for 2010-14, and on which we seek views.

Purpose of rolling incentives

The purpose of rolling incentives is to encourage companies' outperformance of regulatory assumptions. A rolling incentive mechanism allows the regulated company to extend the number of years over which any cash savings that are generated through outperformance are retained, before being passed to customers. In the private sector, the longer retention of savings means higher dividends to shareholders, or higher bonus payments for employees, or both.

If a company outperforms its regulatory settlement, it demonstrates, in effect, that it can deliver the expected services for less cost than assumed by the regulator when prices were set. Using this evidence, the regulator can then assume a lower cost when setting prices for the next regulatory period. In this way, savings are quickly passed to customers through lower bills. Rolling incentives delay the transfer of savings to customers, and mean that reductions in bills are phased gradually. However, customers benefit over the medium term, provided that the strengthened incentive to outperform encourages companies to demonstrate even lower costs.

It follows that the decision to use rolling incentives, and the choice of mechanism to adopt, has a direct impact on the prices that customers pay.

In the case of Scottish Water, there is no shareholder to benefit from higher dividends. Instead, more of the proceeds from outperformance would be available to purchase gilt-edged securities.

Measurement of outperformance

There are two main ways in which we could measure outperformance by Scottish Water. The first is to compare the costs allowed for in the 2006-10 review with the costs that Scottish Water reports in its annual regulatory accounts. This 'accounting approach' is the method used by Ofwat. The second is to record annual payments made by Scottish Water into the gilts buffer, since these would represent the cash savings from outperformance. This 'cash approach' may be preferable, as we explain later in this information paper.

Sharing outperformance gains between companies and customers

Under either of these approaches, prices would need to be set to allow for Scottish Water to retain the benefits of outperformance for a period of time. This delays the transfer of savings to customers.

In Ofwat's framework for rolling incentives, customers receive around 65% to 75% of the overall outperformance¹ of the company that serves them.

To encourage outperformance, we believe that any rolling incentive mechanism should provide Scottish Water and its employees with incentives that are comparable to those that apply in England and Wales. Customers ultimately would benefit from the full value of outperformance less the cost of bonuses to the staff of Scottish Water. If Scottish Water does not outperform the regulatory settlement, then there can be no additional benefit for customers.

Ofwat's approach

Ofwat introduced rolling incentive mechanisms for both capital and operating costs in its 1999 price review.

Ofwat's rolling incentive mechanism for capital costs rewards total outperformance (except for infrastructure renewals expenditure) over a five year period, irrespective of when the savings were made. Companies retain the benefits of outperformance for five years through a rolling adjustment to their RCVs.

¹ This estimate is based on the net present value of benefits over 25 years, assuming a 5% discount rate. If the company is a leading comparator for the industry, then further benefits accrue to customers generally, as Ofwat can use the new benchmark when it sets prices for all companies. Ofwat recognises this benefit by allowing leading companies to retain 1.5 times the incremental outperformance.

The main characteristics of Ofwat's rolling incentive mechanism for operating costs in the 2004 price review were:

- outperformance is defined as the difference between the allowed for operation costs and the actual operating costs;
- outperformance is measured on a year-by-year basis;
- outperformance is retained for a period of 5 years;
- only the incremental outperformance is allowed for;
- outperformance on each year is capped by the outperformance achieved in the latest available year (base year);.
- underperformance in one year is netted against any outperformance in the remaining years;
- Ofwat has incorporated 'enhanced mechanisms' so that the best performing companies receive additional benefits; and.
- rolling incentives are assessed on a service level basis (ie separately for water and wastewater).

Table 1 is an example² of Ofwat's operating cost rolling incentive.

Table 1: Worked example of Ofwat's operating cost rolling incentive

| Financial year | AMP2 | | AMP 3 | | | | AMP3 | | | | |
|--|------------|------------|------------|------------|------------|------------|------|------|------|------|------|
| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| Initial regulatory assumption | 275 | 270 | 265 | 265 | 260 | 255 | | | | | |
| +/- Idoks assumption | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| +/- logging up/down | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| - less shortfalls | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| Revised regulatory expectations | 275 | 270 | 265 | 265 | 260 | 255 | | | | | |
| Actual expenditure | 265 | 255 | 250 | 240 | 238 | ?? | | | | | |
| Less atypical and exceptional costs | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| Less any cross subsidy adjustment | 0 | 0 | 0 | 0 | 0 | 0 | | | | | |
| Adjusted actual expenditure | 265 | 255 | 250 | 240 | 238 | 0 | | | | | |
| Outperformance | NA | 15 | 15 | 25 | 22 | | | | | | |
| Outperformance (setting negatives to zero) | NA | 15 | 15 | 25 | 22 | | | | | | |
| Outperformance constrained at 2003 level | NA | 15 | 15 | 22 | 22 | | | | | | |
| Incremental outperformance in 2000-01 | | 15 | 15 | 15 | 15 | 15 | | | | | |
| Incremental outperformance in 2001-02 | | | 0 | 0 | 0 | 0 | 0 | | | | |
| Incremental outperformance in 2002-03 | | | | 7 | 7 | 7 | 7 | 7 | | | |
| Incremental outperformance in 2003-04 | | | | | 0 | 0 | 0 | 0 | 0 | | |
| Incremental outperformance in 2004-05 | | | | | | | | | | | |
| Final incentive allowance | | | | | | | 7 | 7 | 0 | 0 | 0 |

² This example is adapted from 'Periodic Review 2004 - A further consultation on incentive mechanisms: Rewarding future out-performance and handling under-performance of regulatory expectations', Ofwat, June 2003.

In this example, the company outperforms by £15m in 2000-01, but as this is the first year of a five year regulatory period ('AMP 3'), it retains the benefit of its outperformance until 2004-05, ie for five years. Therefore, no rolling incentive allowance is required in 'AMP 4'. In 2002-03, the company improves its outperformance by an increment of £7m. It retains this for three years until 2004-05. Rolling incentive allowances of £7m are applied in both 2005-06 and 2006-07, so that the company retains the benefit for a total of five years. These allowances are included in prices for the 'AMP 4' period.

Under Ofwat's framework, had the company in this example been assessed as 'leading', the total benefits retained by the company would have been multiplied by a factor of 1.5.

Possible options

There are three main approaches to rolling incentives that we could consider:

- adopting Ofwat's approach to rolling incentives;
- adopting an adjusted approach to rolling incentives; or
- taking the decision not to include rolling incentives.

Ofwat's approach could, we believe, be difficult to implement. Ofwat's mechanism rewards annual incremental improvements in operating cost performance, relative to the regulatory settlement. This requires a set of detailed rules that deal with the incremental impact of variations in performance from year to year. For example, it may be necessary to assess whether incremental outperformance in a given year (compared with the previous year) should be adjusted or disallowed if it does not mark an improvement in actual performance over that achieved some years earlier. The complexity of these rules could reduce the effectiveness of the incentive.

Ofwat's method measures outperformance using cost accounts. This means that the approach also requires scrutiny of the accounting treatment of operating costs, to ensure that factors such as atypical provisions and accruals are not affecting reported performance artificially.

An alternative and simpler approach is to use Ofwat's framework for sharing the rewards of outperformance between the company and its customers, but to focus on outperformance in the 'base year' of each price review. Regulators use the base year to assess the costs that companies

demonstrate can be achieved. Prices depend on the level of outperformance achieved in the base year. An approach that encouraged such outperformance could benefit customers directly, whilst allowing Scottish Water to retain a share. However, the assessment of costs would still require scrutiny of their accounting treatment.

Either approach would become easier to implement, and we believe more effective, if outperformance were measured not through the annual accounts, but rather using actual cash proceeds to the gilts buffer, under the arrangements discussed in information paper 7.

Implications for our approach

We are currently of the view that replicating Ofwat's approach in Scotland may significantly reduce the transparency of our approach to setting prices. This is a function of the complexity of the Ofwat approach to rolling incentives. However, we do see benefit in providing an incentive to Scottish Water (and its management) in order to maintain the pressure to improve efficiency. Our current preferred approach would be to link rolling incentives to additions to the gilts buffer. In doing so we would also expect bonuses for the staff of Scottish Water to be linked partly to growth in the buffer and partly to other indicators of performance such as those measured by the Overall Performance Assessment.

At this stage, our proposals exclude incentives for outperformance on capital expenditure, where we do not believe there is a clear customer interest. In particular, we consider that a rolling incentive allowance for capital expenditure could increase the risk of overscoping or overpricing of capital projects in Scottish Water's business plans.

Related documents

'The Strategic Review of Charges 2006-10: The draft determination', Volume 5, Water Industry Commissioner for Scotland, June 2005.

'The Strategic Review of Charges 2006-10: The final determination', Water Industry Commission for Scotland, November 2005.

'Efficiency incentives for public sector monopolies – the case of Scottish Water', Beesley Lecture, Alan D A Sutherland, London, 16 November 2006.

Methodology Volume 1: Information paper 8

Methodology information paper 9: Our Proposed Approach to Public Private Partnerships (PPPs)

Introduction

This information paper discusses the nine PPP wastewater treatment contracts inherited by Scottish Water from the three former water authorities. These contracts account for more than 10% of Scottish Water's current annual spending. It will therefore be important to examine the experience of using PPP in the Scottish water industry and ensure these contracts continue to deliver value for money to customers. Scottish Water should be alert to opportunities to reduce the costs associated with PPP contracts.

In the last Strategic Review of Charges we, in the Commission, analysed these PPP contracts in some detail¹. We decided not to apply an efficiency target for this element of Scottish Water's costs at that time. However, we did confirm that we would return to this issue in the 2010-14 review. We noted the potential opportunities for Scottish Water to seek better value for customers from these contracts and said we would seek evidence as to whether these opportunities had been realised. This information paper sets out our findings from the last review and discusses how we propose to take this work forward.

Our Approach in the Strategic Review of Charges 2006-10

Our examination in 2005 of the operation of the PPP contracts concluded that, while the contracts for the nine projects represented good value for money at inception, it was less certain that this remained the case. We presented analysis that suggested that customer's bills were financing substantial and possibly excessive returns by equity holders in the PPP schemes.

We therefore considered setting an efficiency target for the payments to PPP contractors. We considered that this would provide an incentive for Scottish Water to pursue opportunities with the PPP contractors to share the benefits of refinancing.

A number of respondents to our methodology consultation in October 2004, including Scottish Water and Water UK along with the PPP contractors, did not consider that this was appropriate. Their arguments

¹ The Strategic Review of Charges 2006-10 : The draft determination, Volume 5, Section 3, Chapters 8 to 11 and The Strategic Review of Charges 2006-10 : The final determination, Section 3, Chapter 14, Page 153

included concerns that this proposal had not been properly signaled and breached the regulatory principles of consistency and predictability set out by the Better Regulation Task Force. They also questioned whether it was fair to ask Scottish Water to renegotiate the contracts, given that they were always intended to be long-term arrangements. They argued that the risks of the projects would have been averaged over the life of the projects.

We considered that these arguments had only limited merit. We did, however, consider that it would be possible to argue that we had not given sufficient notice of our intention to challenge the PPP contractors to provide better value for money for customers. We therefore decided to delay the decision about setting an efficiency target for PPP to the next regulatory control period.

In our draft determination we made it clear that our scrutiny and monitoring of the PPP projects would increase for the next regulatory control period. We stated that, if we did not see an improvement in the value for money of these contracts, we may seek to establish an efficiency target for the 2010-14 Strategic Review of Charges.

In the final determination we allowed for Scottish Water's estimated PPP costs without applying an efficiency target. In establishing the allowed for level of PPP costs we included an additional allowance to address the shortfalls in performance of these contracts relative to the level of service required by the ministerial objectives. This amounted to around an extra £5 million a year by 2009-10, sufficient to finance at least £30 million of capital expenditure by the PPP contractors.

Our Proposed Approach for 2010-14

In the Strategic Review of Charges 2010-14 we propose to establish whether Scottish Water have sought to improve value for money for customers either through:

- refinancing the contracts; and/or
- renegotiation to reflect reduced levels of revenue costs being borne by the contractors.

The financing costs included in the annual PPP charges cover the interest charges on loans taken out by the consortia and the equity return required by the consortia partners on their initial investment. Typically, the equity funding of a PPP contract is relatively small.

We have previously identified two principal reasons why we believe that it may be possible to reduce the cost of capital included in the annual charge to Scottish Water:

- over the period since the contracts were established, the real cost of long-term borrowing has declined quite significantly; and
- some of the earlier contracts may have included an additional risk premium in the cost of capital to reflect the novelty of delivering waste water projects through PPP.

There is likely to be an opportunity to refinance loans that were taken out at the start of the construction of the waste water treatment works. If borrowing costs were reduced by the consortia and the benefit was not shared with customers, then the entire benefit of the reduced cost and resulting higher profit earned would accrue to the equity partners in the consortia.

We understand that most of Scottish Water's PPP contracts contain no mechanism to ensure that customers can share in any gains from the refinancing of debt. However, this should not preclude Scottish Water from proactively discussing refinancing opportunities with its PPP contractors. HM Treasury guidance is that the public sector partner should receive 30% of the benefit of any refinancing, in such cases, of legacy PPP contracts.

In the absence of evidence that Scottish Water have sought to refinance the PPP contracts, we will consider what incentives are required to ensure the potential benefits to customers are realised. In particular, we will consider whether it will be appropriate to impose efficiency targets on PPP expenditure in the 2010-14 period.

We recognise that our proposed approach in seeking to maximise the benefits for customers of these contracts will be unpopular with the PPP consortia. However, our proposed analysis will indicate the extent to which these contracts are still providing value for money for customers. This is consistent with our duty to establish the lowest reasonable overall cost of providing these wastewater services.

Related documents

'Our work in regulating the Scottish water industry : The scope for operating cost efficiency : Water Industry Commissioner for Scotland, October 2004.

'The Strategic Review of Charges 2006-10: The draft determination',
Volume 5, Water Industry Commissioner for Scotland, June 2005.

'The Strategic Review of Charges 2006-10: The final determination', Water
Industry Commission for Scotland, November 2005.