



## SA WATER REGULATORY RATE OF RETURN 2016 – 2020

*Final Report to the Treasurer*

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Enquiries concerning this Report should be addressed to:

Essential Services Commission of South Australia  
GPO Box 2605  
Adelaide SA 5001

Telephone: (08) 8463 4444  
Freecall: 1800 633 592 (SA and mobiles only)  
E-mail: [escosa@escosa.sa.gov.au](mailto:escosa@escosa.sa.gov.au)  
Web: [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au)

The Essential Services Commission of South Australia is an independent statutory authority with functions in a range of essential services including water, sewerage, electricity, gas, rail and maritime services, and also has a general advisory function on economic matters.  
For more information, please visit [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au)

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## GLOSSARY OF TERMS

AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
bps	Basis points
CAPM	Capital asset pricing model
CGB	Commonwealth Government Bond
CGS	Commonwealth Government Security
Commission	The Essential Services Commission of South Australia
DRP	Debt Risk Premium
ERA	Economic Regulatory Authority of Western Australia
ESC Act	Essential Services Commission Act 2002
ESCV	Essential Services Commission of Victoria
FVC	Fair value curve
GFC	Global Financial Crisis
ICRC	Independent Competition and Regulatory Commission
IPART	Independent Pricing and Regulatory Tribunal
MRP	Market Risk Premium
NWI	National Water Initiative
Ofwat	The Water Services Regulation Authority (UK)
Ofgem	Office of Gas and Electricity Markets (UK)
QCA	Queensland Competition Authority
QTC	Queensland Treasury Corporation
RAB	Regulated Asset Base
RBA	Reserve Bank of Australia
SA Water	South Australian Water Corporation
SA Water PD 2013	Price determination that applies to SA Water during the regulatory period 1 July 2013 to 30 June 2016

SA Water PD 2016	Price determination to apply to SA Water during the regulatory period 1 July 2016 to 30 June 2020
SEQ	South East Queensland Water Companies
SORI	Statement of Regulatory Intent
Tribunal	The Australian Competition Tribunal
WACC	Weighted average cost of capital

## EXECUTIVE SUMMARY

The Essential Services Commission of South Australia (**Commission**) is responsible for the economic regulation of the water industry in South Australia.

That role includes the regulation of the South Australian Water Corporation's (**SA Water**) drinking water and sewerage revenues, which is undertaken within an overall policy and statutory framework. The Commission performs that task through the exercise of statutory price determination powers under the Essential Services Commission Act 2002, as authorised by and in accordance with the terms of the Water Industry Act 2012.

On 2 September 2014, a Pricing Order was made pursuant to the provisions of the Water Industry Act 2012. The Pricing Order sets out certain procedural requirements for the purposes of the upcoming price determination for SA Water, to take effect from 1 July 2016 (**SA Water PD 2016**). One of those requirements is that the Commission is to provide a report to the Treasurer on the proposed approach to calculating a regulatory rate of return to apply to SA Water's regulated assets in SA Water PD 2016.

Following a period of public consultation on a draft report, the Commission has prepared this final report to the Treasurer, setting out the Commission's proposed approach. This report outlines the Commission's principles and methodology that will guide the rate of return calculation. It is not possible, at this time, to specify the value of the rate of return, as that will depend partly on market-based parameters that will be observed at the time of making the SA Water PD 2016.

### *What is the regulatory rate of return?*

The regulatory rate of return is a key input into the cost "building block" approach used in the regulation of monopoly services, such as those provided by SA Water. It is a measure of the opportunity cost of investment in regulated assets and aims to provide incentives for efficient investment in relevant infrastructure.

Consistent with the standard building block approach, the rate of return attempts to forecast the efficient cost of capital to be incurred by a prudent and efficient water utility (not necessarily SA Water itself) during the period of the SA Water PD 2016.

Under the National Water Initiative (**NWI**), to which South Australia is a signatory, the rate of return should be developed in accordance with the weighted average cost of capital (**WACC**), with the cost of equity element derived using the capital asset pricing model (**CAPM**).

## *A longer-term approach to calculating the regulatory rate of return*

The Commission's approach to setting the regulatory rate of return for SA Water in 2016 is based on the Commission's legislative objectives - principally the protection of the long-term interests of consumers with respect to price, quality and reliability of essential services.

To achieve that objective, the Commission must consider the need for SA Water to remain financially viable and able to provide reliable, safe and secure water and sewerage services to its consumers in the long run. Promoting economic efficiency and long-term investment is consistent with the factors that the Commission must have regard to under the Essential Services Commission Act 2002.

Consistent with the legislative framework for economic regulation of the water industry, the Commission is seeking to set a regulatory rate of return that reflects the prudent and efficient financing costs of an incumbent large water utility, which minimises expected costs to consumers in the long term, on a risk-adjusted basis.

While the Commission's principles and objectives for setting the rate of return have not changed, the environment in which the Commission undertakes its regulatory task is evolving and it is important for its approach to adapt to changing financial market conditions and to reflect regulatory best practice.

It is noted at the outset that there is no single right methodology for estimating the regulatory rate of return. Considerations such as the nature of the specific legislative and policy framework under which a price determination is made, the size, scale and scope of the regulated entity and the overall nature of the services provided to consumers must all be taken into account in developing a methodology.

Ultimately, the best approach is one which minimises long-term costs for consumers, provides incentives to businesses to act prudently and efficiently and which can be implemented in practice (thereby avoiding distorted outcomes driven by regulatory practice).

In the past, the Commission, consistent with most other Australian regulators at the time, set a rate of return on a basis which generally only reflected the costs of a new entrant service provider. That is, the approach sought to estimate and benchmark the costs which would be faced by a new business entering the market.

The approach relied heavily on "on-the-day" market observations, particularly in relation to setting cost of debt benchmarks. To that extent, the approach largely sought to reflect the outcomes of a competitive market, seeking to provide the right incentives for *future investment*: its focus was on providing appropriate signals for *future investment*, which are based on prevailing costs of debt.

The Commission is proposing to *evolve* that approach, to acknowledge longer-term financial strategies in calculating the cost of debt.

The proposed approach involves setting a ten-year trailing average cost of debt, updated annually during the regulatory period to reflect prevailing rates. This recognises the historic costs of debt incurred over a ten year period, while also encouraging efficient new investment through the annual update, consistent with the “new entrant” approach.

It explicitly recognises that it is prudent and efficient for a large water and sewerage business, such as SA Water, to enter into long-term debt financing arrangements given the long-term supply obligations and long asset lives that the business must invest in.

The approach is expected to reduce risk and therefore costs to consumers in the long-term, bearing in mind the nature and scale of the regulatory obligations and the regulated entity.

The proposed approach is also increasingly becoming standard regulatory practice within Australia for application in industries such as energy and water, where the regulated businesses generally have significant debt requirements, long-term supply obligations and long asset lives. It has been adopted or endorsed by other jurisdictional and national regulatory and policy bodies over the past three years.

It is also consistent with observed financing practices of large infrastructure businesses and with the requirements of the National Water Initiative (Principle 1 of the NWI Principles for the recovery of capital expenditure) and the overarching statutory framework under the Water Industry Act 2012.

Under this approach, SA Water is incentivised to finance any new investments at or below the prevailing efficient market rates, meaning that consumers ultimately pay only the efficient cost of those investments. For legacy investments, the approach recognises only efficient past financing practices (not rewarding inefficient practices), encourages efficient management of the re-financing costs of those investments over time. In that way it reduces the volatility inherent in a shorter-term approach, which assumes all legacy financing costs will be re-financed at the start of each new regulatory period.

Importantly, the proposed approach is based on an assessment of the actions of a benchmark prudent and efficient utility with the same obligations as SA Water. It does not look to the actual actions, costs or legal structure of SA Water itself.

The approach proposed will:

- ▲ protect consumers from any possible costs of poor financing decisions made by SA Water by providing a benchmark rate of return
- ▲ provide SA Water with a reasonable opportunity to earn sufficient revenue to attract equity and debt needed to finance regulated services, and

- ▲ incentivise SA Water to outperform the benchmark rate of return.

The Commission notes that the approach may not be appropriate for businesses which do not share the same characteristics as SA Water. For example, businesses with fewer assets or smaller debt portfolios may be able to cost-effectively re-finance their portfolios on a periodic basis. For those businesses, it may be appropriate to recognise that such behaviour would be prudent and efficient and therefore the approach to setting a regulatory return might be more strongly (if not entirely) based on the “on-the-day” new entrant approach.

## *Proposed Methodology*

As in the current SA Water Price Determination that applies from 1 July 2013 to 30 June 2016 (**SA Water PD 2013**), the Commission proposes to use a post-tax, real framework for determining SA Water’s revenues, with the WACC calculated using the following formula:

$$WACC_{real}^{post-tax} = \frac{1 + (k_e \frac{E}{V} + k_d \frac{D}{V})}{(1 + i_{exp})} - 1$$

where:

**k<sub>e</sub>** = cost of equity

**k<sub>d</sub>** = cost of debt

**i<sub>exp</sub>** = adjustment for expected inflation

**E** = market value of equity

**D** = market value of debt

**V** = market value of the firm (V = E + D)

The regulatory rate of return is dependent on the cost of equity and the cost of debt; with those costs weighted by the proportion of total capital that is financed by debt and by equity.

### *Cost of debt*

The proposed longer-term regulatory approach significantly impacts on the calculation of the cost of debt.

The approach adopted in the SA Water PD 2013 for estimating the cost of debt relied solely on market-based debt costs that were prevailing at the time of making the price determination. The proposed approach includes those costs but is expanded to take account of a benchmark prudent debt financing strategy, involving issuing long-term (10 year) bonds to better reflect the long lives of regulated water and sewerage assets and assuming that only a proportion of debt is refinanced each year, to avoid all debt maturing at the same time (thus lowering refinancing risk).

This avoids the potential problem of relying solely on prevailing rates, whereby the benchmark cost of debt could be set at a rate that is very different to the efficient historical costs that will form part of a prudent debt portfolio. By more closely aligning the benchmark cost to debt with the historical costs, risks to shareholders are reduced and the overall regulatory rate of return is likely to be reduced in the long-term.

The approach will therefore have the impact of lowering the benchmark cost of equity through the equity beta (discussed below).

Under a 10-year trailing average approach, it is not necessary to separately estimate the two components of the cost of debt (the risk-free rate and debt risk premium). Instead, a 10-year historic average of observed yields of 10-year corporate bonds, appropriately weighted (e.g. by capital expenditure in each year) is utilised. That average is rolled-forward during each year of the regulatory period to ensure that it incorporates latest market-based bond rates. This ensures that the rate of return provides the correct price signal for new investment, while also recognising the historic rates that would have been incurred under a prudent and efficient long-term financing approach.

Details of the updating approach, including the averaging and weighting method, will be determined as part of the SA Water PD 2016 process.

Consistent with general regulatory practice, estimation of the cost of debt is based on an entity with a target capital structure of 60 per cent debt to total value and a BBB credit rating.

### *Cost of equity*

From the capital asset pricing model, the cost of equity is:

$$k_e = r_f + \beta_L \times MRP$$

where:

$r_f$  = the risk-free rate

$\beta_L$  = the levered or equity beta (which reflects the systematic risk of an equity)

MRP = the market risk premium (that is, the expected total market return less the risk-free rate).

### *Risk-free rate*

The CAPM is forward-looking in nature and relies on observations of the prevailing risk-free rate. Unlike the cost of debt, there is no historic cost element to the cost of equity. Rather, the cost of equity is typically measured as an opportunity cost; the return that a shareholder foregoes in investing in the regulated business.

To determine the prevailing risk-free rate, the proposed approach relies on observed yields from 10-year Commonwealth Government Bonds (to reflect the long-term nature of the investment), averaged over a 20 business day period. Those observations will be taken as close as possible to the date of the price determination in 2016.

### ***Equity beta***

For SA Water PD 2016, it is proposed that the value of equity beta ( $\beta_L$ ) should be set at 0.7, which is likely to be at the top end of the reasonable range of values. This value is lower than the 0.8 equity beta determined under SA Water PD 2013. There are three key reasons why the Commission estimates that the equity beta has reduced since that time.

1. Changes to the regulatory framework applying to SA Water would suggest that the equity beta for SA Water should decline from the current amount. In particular, the introduction of revenue caps and the proposed longer-term approach to the cost of debt both reduce systematic risk to shareholders.
2. An equity beta of 0.8 is above the range of equity beta decisions made by other Australian regulators of similar businesses since the last SA Water determination in 2013. Since that last determination, no other regulator has set an equity beta of above 0.7.
3. Recent empirical evidence supports a range of equity beta from 0.4 to 0.7.

### ***Market risk premium***

The final parameter to be estimated for the cost of equity is the market risk premium (**MRP**). The proposed approach is to retain the MRP of 6 per cent as applied in SA Water PD 2013. This is consistent with the majority of regulatory decisions over the past 10 years, market surveys of academics and market practitioners and sits within the range provided by historical estimates.

### ***Implementation and transition***

There are various implementation and transition issues that will need to be considered in moving to the proposed approach for calculating SA Water's regulatory rate of return.

Despite having a longer-term focus, it is still the case that the rate of return value itself cannot be determined until the time when SA Water PD 2016 is finalised, as it will depend on market-based parameters at the time. Consequently, the impacts of the regulatory rate of return on SA Water's revenues and prices will not be known until the final determination is made in June 2016.

The Commission expects SA Water to consider the impact of the proposed new methodology for setting the regulatory rate of return, in conjunction with the impacts of its other expenditure proposals, as part of its 2016 Regulatory Business Proposal. The Commission

invites SA Water to propose a transitional adjustment, should it consider that one is required. All stakeholders will have the opportunity to comment on those proposals as part of the SA Water PD 2016 consultation processes.

# 1. INTRODUCTION

## 1.1 *Purpose of this report*

The Essential Services Commission of South Australia (**Commission**) is responsible for the economic regulation of the water industry in South Australia.

That role includes the regulation of the South Australian Water Corporation's (**SA Water**) drinking water and sewerage revenues, which is undertaken within an overall policy and statutory framework. The Commission performs that task through the exercise of statutory price determination powers under the Essential Services Commission Act 2002, as authorised by and in accordance with the terms of the Water Industry Act 2012.

On 2 September 2014, a Pricing Order was made pursuant to the provisions of the Water Industry Act 2012.<sup>1</sup> The Pricing Order sets out certain procedural requirements for the purposes of the upcoming price determination for SA Water, to take effect from 1 July 2016 (**SA Water PD 2016**). One of those requirements is that the Commission is to provide a report to the Treasurer on the proposed approach to calculating a regulatory rate of return to apply to SA Water's regulated assets in SA Water PD 2016.

Following a period of public consultation on a draft report, the Commission has prepared this final report to the Treasurer, setting out the Commission's proposed approach.<sup>2</sup> This report outlines the Commission's principles and methodology that will guide the rate of return calculation. It is not possible, at this time, to specify the value of the rate of return, as that will depend partly on market-based parameters that will be observed at the time of making the SA Water PD 2016.

## 1.2 *What is the regulatory rate of return?*

Capital (or investment funds), like any other commodity, has a price that is determined by supply and demand and the riskiness of the cash flows generated by the assets.

Determination of the regulatory rate of return therefore requires estimation of the cost of capital associated with the regulated activity.

The capital intensive nature of a water utility business makes the estimate of the cost of capital one of the more significant inputs into a price determination.

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<sup>1</sup> The September 2014 Pricing Order (as varied by the November 2014 Pricing Order) is contained in Annexure A.

<sup>2</sup> The Draft Report is available at: <http://www.escosa.sa.gov.au/library/20141121-SAWaterRateofReturn-DraftReport.pdf>. Six submissions to the Draft Report were received and are available at: <http://www.escosa.sa.gov.au/projects/218/sa-water-regulatory-rate-of-return-2016-2020-report-to-the-treasurer.aspx#stage-list=1>.

Many of the parameters of the cost of capital cannot be directly observed and must be estimated. The Commission exercises judgement when estimating the cost of capital in light of the overall legislative regime for the making of price determinations (as explained in the next Chapter). That regime includes statutory objectives set out in section 6 of the Essential Services Commission Act 2002 (**ESC Act**) and principles set out in the National Water Initiative (**NWI**) Pricing Principles.

The NWI, agreed in 2004 by the Council of Australian Governments, was designed to provide a consistent approach to water reform in Australia. In 2010, a set of pricing principles was endorsed by the Natural Resource Management Ministerial Council to assist jurisdictional governments in uniformly achieving the NWI objectives. The NWI Pricing Principles provide guidance on best practice water pricing.<sup>3</sup>

Unlike the National Electricity Rules, the NWI does not provide a detailed approach or limitations for regulators when setting the regulatory rate of return. The only specific guidance provided is that the rate of return should be developed in accordance with the weighted average cost of capital (**WACC**) and the cost of equity derived from the capital asset pricing model (**CAPM**).

The Commission's view is that the use of the CAPM is the most suitable method for calculating the cost of equity, noting that it is used by all Australian regulators and was used by the South Australian Government to estimate SA Water's cost of capital prior to the advent of independent regulation in 2013. The Commission will calculate the cost of equity using the Sharpe-Lintner CAPM, consistent with general regulatory practice.

As with all other aspects of the building block approach, the rate of return to be reflected in SA Water's prices will be a benchmarked rate of return based on the financing decisions of an efficient and prudent water utility during the period of the SA Water PD 2016.

### **1.2.1 Why does it matter?**

Consistent with the standard building block approach, the rate of return attempts to forecast the efficient cost of capital to be incurred by a prudent water utility during the period of SA Water PD 2016.

Under incentive-based regulatory arrangements, setting an efficient benchmark should provide an incentive for the business to pursue efficient financing arrangements and ensure that consumers do not pay for inefficient funding arrangements.

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<sup>3</sup> National Water Commission, National Water Initiative Pricing Principles, available at. <http://www.environment.gov.au/system/files/resources/34dbb722-2bfa-48ac-be7e-4e7633c151ed/files/nwi-pricing-principles.pdf>.

A key objective when determining the regulated rate of return is that it should provide investors with a return that is sufficient to promote efficient investment but not be so high as to encourage inefficient-investment.

### *1.3 Weighted average cost of capital*

The regulatory rate of return represents the opportunity cost of funding regulated investments and is dependent on the market for capital and the financial risks associated with regulated activities.

As the assets employed by a business are generally financed by a combination of debt and equity, part of the return that accrues to a particular asset flows to debt providers and part to equity holders. Accordingly, the WACC is often used to refer to the market-determined cost of capital for a particular asset and reflects the fact that the overall return to an asset comprises a return both to lenders and equity holders.

As noted above, the Commission will use the CAPM to determine the cost of equity.

### *1.4 Post-tax real framework*

In determining SA Water's revenues for water and sewerage services, the Commission will include an allowance for tax. SA Water Corporation is subject to a tax equivalency regime, which promotes competitive neutrality between SA Water and other privately-owned water retailers.

#### *1.4.1 Pre-tax or post-tax?*

It is the Commission's current practice to employ a post-tax real rate of return framework.

In pricing determinations prior to 2013, the Commission incorporated company tax through a pre-tax WACC at the prevailing statutory rate. It has since changed its approach to incorporate tax directly as a separate cost building block coupled with a post-tax WACC.

Incorporating tax as a separate element of the cost building block methodology more accurately reflects the tax liability that would be incurred by a similar well-managed, privately-owned business. The gains from aligning the estimate of the tax liability with Australian taxation rules more than outweigh the minor additional costs of having moved to this approach.

A post-tax methodology is consistent with the practice of the majority of Australia's water pricing regulators, including Australian Energy Regulator (**AER**), Essential Services Commission of Victoria (**ESCV**), Economic Regulation Authority of WA (**ERA**), Independent Pricing and Regulatory Tribunal of NSW (**IPART**), and Queensland Competition Authority (**QCA**). In addition, New Zealand's Commerce Commission, the United Kingdom's Water Services

Regulation Authority (**Ofwat**) and the Office of Gas and Electricity Markets (**Ofgem**) all employ a post-tax methodology.<sup>4</sup>

Given that tax is to be modelled as a separate cash flow in the building blocks, there is no need to incorporate the tax rate and gamma in the WACC formula. Accordingly, the matter of the prevailing corporate tax rate and the value of imputation credits “gamma”<sup>5</sup> ( $\gamma$ ) will be considered in light of the cash flows to be submitted by SA Water as a part of SA Water PD 2016.

#### **1.4.2 Real or nominal?**

Whereas there is agreement among many regulators in respect of a post-tax framework, there is greater diversity in respect of using a real (constant dollar) or nominal approach for the WACC.

The Commission has generally utilised a real, rather than a nominal, WACC. Rather than build a forecast of inflation into a revenue determination, this approach forecasts revenues in real terms and allows revenues to be adjusted for actual inflation on an annual basis. The real approach is consistent with that developed in the Commission’s final Framework and Approach paper for SA Water PD 2016.<sup>6</sup>

The Commission will adopt a real, post-tax framework to apply to the modelling of the cash flows of the business, and use the WACC formula, adjusted for inflation, as follows:

$$WACC_{real}^{post-tax} = \frac{1 + (k_e \frac{E}{V} + k_d \frac{D}{V})}{(1 + i_{exp})} - 1$$

where:

$k_e$  = the cost of equity

$k_d$  = the cost of debt

$E$  = market value of equity

$D$  = market value of debt

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<sup>4</sup> IPART, *The Incorporation of Company Tax in Pricing Determinations – Other Industries – Final Decision, 2011*.

<sup>5</sup> In a post-tax approach, the gamma is accounted for in the tax allowance of the building block approach and not in the regulatory rate of return.

<sup>6</sup> Essential Services Commission of South Australia, *SA Water Price Determination 1 July 2016 – 30 June 2020: final Framework and Approach*, November 2014, p.27 (available at [http://www.escosa.sa.gov.au/library/20141121-Water-SAWaterPriceDetermination\\_2016-2020-FinalFrameworkApproach.pdf](http://www.escosa.sa.gov.au/library/20141121-Water-SAWaterPriceDetermination_2016-2020-FinalFrameworkApproach.pdf)).

$V$  = market value of the firm ( $V = E + D$ )

$i_{exp}$  = adjustment for expected inflation.

The CAPM formula for the cost of equity is:

$$k_e = r_f + \beta_L \times MRP$$

where:

$r_f$  = the risk-free rate

$\beta_L$  = the levered or equity beta (which reflects the systematic risk of an equity)

$MRP$  = the market risk premium (that is, the expected total market return less the risk-free rate).

## 2. THE CONTEXT FOR THE RATE OF RETURN

The Commission has developed the proposed approach to setting a rate of return to be applied in SA Water PD 2016 within an overall context, established under the Essential Services Commission Act 2002 (**ESC Act**) and the Water Industry Act 2012 (**WI Act**).

Those Acts set out the requirements for the conduct and making of SA Water PD 2016. As the estimation of a regulatory rate of return will form a part of that determination, it is necessary that the proposed approach put forward in this report be consistent with, and informed by, the overall legislative and policy context.

Chapter 1 outlined the broad methodology for calculating the regulatory rate of return, including through the use of the CAPM for the cost of equity.

Within that framework, there are various methodological issues that must be resolved; for example, recent debate on the regulatory rate of return has raised the following questions:

- ▲ Should the rate of return reflect the costs that are specific to the regulated business or should it take a benchmark efficient firm approach?
- ▲ Should the rate of return reflect the costs of a new entrant business operating in a competitive market, the cost of an efficient monopolist or some mix of the two?
- ▲ Should the rate of return reflect the ownership of the business, particularly Government versus private ownership?

Various submissions to this review have commented on these questions. For example, some have argued that the Commission should take into consideration Government ownership of SA Water and the lower borrowing costs that the Government can obtain relative to the private sector (due to lower default risk).

In considering those issues, the Commission has sought to clearly define the objective of setting a regulatory rate of return for SA Water (based on the legislative framework). To do so, the Commission has developed a set of principles, to guide the practical application of the legislative requirements.

The requirements of the legislative framework and the manner in which the Commission proposes to meet those requirements (including through the application of principles based on the requirements), are explained in detail below.

## *2.1 The Commission's functions and objectives*

The regulatory functions of the Commission are set out in section 5 of the ESC Act:

### **5—Functions**

*The Commission has the following functions:*

- (a) *to regulate prices and perform licensing and other functions under relevant industry regulation Acts;*
- (b) *to monitor and enforce compliance with and promote improvement in standards and conditions of service and supply under relevant industry regulation Acts;*
- (c) *to make, monitor the operation of, and review from time to time, codes and rules relating to the conduct or operations of a regulated industry or regulated entities;*
- (d) *to provide and require consumer consultation processes in regulated industries and to assist consumers and others with information and other services;*
- (e) *to advise the Minister on matters relating to the economic regulation of regulated industries, including reliability issues and service standards;*
- (f) *to advise the Minister on any matter referred by the Minister;*
- (g) *to administer this Act;*
- (h) *to perform functions assigned to the Commission under this or any other Act;*
- (i) *in appropriate cases, to prosecute offences against this Act or a relevant industry regulation Act.*

(emphasis added)

In the performance of those functions, the Commission is required to meet statutory objectives set out at section 6 of the ESC Act:

### **6—Objectives**

*In performing the Commission's functions, the Commission must—*

- (a) *have as its primary objective protection of the long term interests of South Australian consumers with respect to the price, quality and reliability of essential services; and*
- (b) *at the same time, have regard to the need to—*

- (i) *promote competitive and fair market conduct; and*
- (ii) *prevent misuse of monopoly or market power; and*
- (iii) *facilitate entry into relevant markets; and*
- (iv) *promote economic efficiency; and*
- (v) *ensure consumers benefit from competition and efficiency; and*
- (vi) *facilitate maintenance of the financial viability of regulated industries and the incentive for long term investment; and*
- (vii) *promote consistency in regulation with other jurisdictions.*

The paramount statutory objective set out in section 6(a) captures three elements of service delivery – price, quality and reliability - and is necessarily interpreted in an economic context of efficiency. That is particularly so in light of the fact that sections 6(1)(b)(iv) and (v) expressly refer to efficiency considerations.

In that context, the second-reading speech for the ESC Act made it clear that the terms used in section 6 are economic and relate to efficiency, and therefore that economic concepts should be used in analysing and applying the provision:

*...a major element of the Bill is the introduction of a new primary objective. The Commission must protect the long term interests of South Australian consumers with respect to the price, quality and reliability of essential services. The long term interests of consumers are consistent with efficient and financially viable regulated industries, that have incentives for long term investment.*  
*Accordingly, the Commission must also have regard to these matters in its regulatory decisions.* <sup>7</sup>

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<sup>7</sup> Hansard, SA House of Assembly, 10 July 2002.

### **2.1.1 Price determination powers**

Part 3 of the ESC Act sets out a legislative scheme governing the exercise of price determination powers and functions by the Commission.

Sections 25(1) and 25(2) of the ESC Act have a combined effect of empowering the Commission to make price determinations where authorised to do so by a relevant industry regulation Act, such as the WI Act.

Section 25(3) of the ESC Act provides that a price determination may regulate prices, conditions relating to prices or price fixing factors in any manner the Commission considers appropriate. Examples of the manner in which a price determination might operate include:

- a) *fixing a price or the rate of increase or decrease in a price;*
- b) *fixing a maximum price or maximum rate of increase or minimum rate of decrease in a maximum price;*
- c) *fixing an average price for specified goods or services or an average rate of increase or decrease in an average price;*
- d) *specifying pricing policies or principles;*
- e) *specifying an amount determined by reference to a general price index, the cost of production, a rate of return on assets employed or any other specified factor;*
- f) *specifying an amount determined by reference to quantity, location, period or other specified factor relevant to the supply of goods or services;*
- g) *fixing a maximum average revenue, or maximum rate of increase or minimum rate of decrease in maximum average revenue, in relation to specified goods or services;*
- h) *monitoring the price levels of specified goods and services.*

The examples given are not exhaustive, and the Commission may make a price determination to operate in a manner it considers appropriate, subject to any specific requirements of an industry regulation Act (such as the WI Act).

## **2.1.2 Price determinations under the Water Industry Act**

The WI Act is now the primary legislation governing the operations of the water and sewerage services industries in this State.

Section 17 of the WI Act provides that the water industry is a regulated industry for the purposes of the ESC Act. As a result, the Commission has a general power to regulate prices in the water industry.

Specifically, in terms of the price regulation function, the Water Industry Act provides that:

### **7—Functions and powers of Commission**

- (1) *The Commission has (in addition to the Commission's functions and powers under the Essential Services Commission Act 2002)—*
  - (a) *the licensing, price regulation and other functions and powers conferred by this Act; and*

The relevant provisions of the WI Act which confer pricing powers on the Commission are set out in section 35. Of note, and consistent with the general discretionary powers under Part 3 of the ESC Act, the price determination power under the Water Industry Act is discretionary in nature:

### **35—Price regulation**

- (1) *Subject to this section, the Commission may make a determination under the Essential Services Commission Act 2002 regulating prices, conditions relating to prices, and price fixing factors for retail services.*  
(emphasis added)

Those discretionary provisions provide the Commission with a general power to make price determinations under the ESC Act (the detail of such determinations is described further below).

### **2.1.3 Matters to take into account in making a price determination**

The ESC Act sets out various factors that the Commission must take into account when making a price determination. Most importantly, the Commission must have regard to the objectives under section 6 of the ESC Act, in particular, promoting the long term interests of consumers with respect to the price, quality and reliability of essential services.

In making a price determination, the Commission must also have regard to the following matters, set out in section 25(4) of the ESC Act:

- (a) *the particular circumstances of the regulated industry and the goods and services for which the determination is being made;*
- (b) *the costs of making, producing or supplying the goods or services;*
- (c) *the costs of complying with laws or regulatory requirements;*
- (d) *the return on assets in the regulated industry;*
- (e) *any relevant interstate and international benchmarks for prices, costs and return on assets in comparable industries;*
- (f) *the financial implications of the determination;*
- (g) *any factors specified by a relevant industry regulation Act or by regulation under this Act;*
- (h) *any other factors that the Commission considers relevant.*

In addition, section 25(5) of the ESC Act requires that:

*In making a price determination under this section, the Commission must ensure that—*

- (a) *wherever possible the costs of regulation do not exceed the benefits; and*
- (b) *the decision takes into account and clearly articulates any trade-off between costs and service standards.*

The WI Act specifies further requirements for the making of price determinations. In particular, the Act provides for the making of “Pricing Orders” which can:

- ▲ set out any policies or other matters that the Commission must have regard to when making a determination;
- ▲ specify various parameters, principles or factors that the Commission must adopt or apply in making a determination; and
- ▲ relate to any other matter that the Treasurer considers to be appropriate in the circumstances.<sup>8</sup>

A Pricing Order, issued under section 35(4) of the WI Act on 2 September 2014, will apply to the making of SA Water PD 2016. A copy of the Pricing Order is provided in Appendix 1.

One of the requirements of that Pricing Order is that the Commission prepare and provide to the Treasurer this report on the proposed approach to the calculation of the rate of return (in a manner consistent with Principle 1 of the *NWI Principles for the Recovery of Capital Expenditure*, which provides that rate of return should be consistent with the WACC, with the cost of equity derived from the CAPM).

All of those considerations are relevant in the context of the proposed approach to setting a rate of return.

## *2.2 Objectives and principles for setting the regulatory rate of return*

As is clear from the foregoing, the Commission must act so as to best meet the primary objective under the ESC Act in choosing an approach for setting the rate of return.

The protection of consumers’ long term interests means that the Commission must consider the need for SA Water to remain financially viable and able to provide reliable, safe and secure water and sewerage services to its consumers in the long run. Promoting economic efficiency and long-term investment requirements is consistent with the factors that the

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<sup>8</sup> Under section 35 of the WI Act, a Pricing Order is issued by the Treasurer.

Commission must have regard to under section 6(b) of the Essential Services Commission Act 2002, as explained above.

The regulatory rate of return can influence SA Water's expenditure in two ways:

- ▲ by influencing its decision to undertake capital expenditure, which will earn a return that is based on the regulatory rate of return
- ▲ by influencing the way in which SA Water finances its investments, through the use of debt or equity.

The regulatory rate of return should have regard to both of those factors, to ensure that SA Water's revenues are set at economically efficient levels. It should promote the right incentives for future capital expenditure (in terms of whether or not to undertake new capital projects and the level of investment to occur) and encourage overall efficient financing practices.

If revenues were set so low as to compromise SA Water's ability to invest in necessary infrastructure needed to deliver water and sewerage services, that would not be in consumers' long-term interests. Likewise, setting revenues that exceed those needed to deliver required services in the long run is not in the long-term interests of consumers, as it would lead to them paying prices that are higher than necessary.

The question is: how is this best done in terms of the approach to setting a regulatory rate of return for SA Water PD 2016?

In the energy sector, explicit guidance has been provided to the regulator on that question, through the introduction of an "allowed rate of return" objective in both the National Electricity Rules and the National Gas Rules. As expressed under the National Gas Rules, the objective is that:

*...the rate of return for a service provider is to be commensurate with the efficient financing costs of a benchmark efficient entity with a similar degree of risk as that which applies to the service provider in respect of the provision of reference services...*<sup>9</sup>

The objective expressly recognises that this may result in differing approaches in different contexts. For example, when considering the application of the objective to the estimation of the return of debt element of the overall rate of return, Rule 87(10) of the National Gas Rules provides that:

(10) *Subject to subrule (8), the methodology adopted to estimate the return on debt may, without limitation, be designed to result in the return on debt reflecting:*

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<sup>9</sup> National Gas Rules, version 25, Rule 87(3); available at <http://www.aemc.gov.au/Energy-Rules/National-gas-rules/Current-rules>.

- (a) *the return that would be required by debt investors in a benchmark efficient entity if it raised debt at the time or shortly before the time when the AER's decision on the access arrangement for that access arrangement period is made;*
- (b) *the average return that would have been required by debt investors in a benchmark efficient entity if it raised debt over an historical period prior to the commencement of a regulatory year in the access arrangement period; or*
- (c) *some combination of the returns referred to in subrules (a) and (b).*

In the absence of express guidance of that nature, it is for the Commission to determine the best means by which it should set the rate of return so as to meet the requirements of the overall legislative and policy context.

### **2.2.1 Principles for setting SA Water's regulatory rate of return**

In order to set a rigorous framework for the application of the legislative requirements and bearing in mind that there is no single "right" way to estimate a rate of return,<sup>10</sup> the Commission has developed a set of operational principles. These provide a means by which the Commission can test the extent to which various methodologies might assist it to best meet the overall legislative requirements given the circumstance of SA Water PD 2016.

The principles are as follows:

**General principle: The rate of return should reflect the prudent and efficient financing strategy of an incumbent large water utility which minimises expected costs in the long-term, on a risk-adjusted basis.**

**Supporting principle 1: The rate of return should reflect a long-term obligation on the utility to provide reliable and secure water and sewerage services to consumers. It should not solely reflect the new entrant cost of capital.**

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<sup>10</sup> As noted by the Australian Competition Tribunal in the matter of the Application by DBNGP (WA) Transmission Pty Ltd (no 3) [2012] A CompT 14 (para 130):

*It goes without saying that the estimation of market financial parameters that are specified in theoretical financial models is contentious. Empirical methods, time periods and data can take on many dimensions and different degrees of relevance. No empirical estimation method, period or data set can lay claim to absolute superiority... What is best in any one situation will depend on many conflicting and debatable assumptions and empirical factors.*

**Supporting principle 2: The rate of return should provide an incentive for SA Water to incur prudent and efficient investment in regulated assets and financing costs.**

**Supporting principle 3: The approach to setting the regulatory rate of return should be based on consistent principles over time and should be predictable. It should change only to reflect material changes in evidence or regulatory practice.**

**Supporting principle 4: The assumed prudent financing strategy should not depend on the ownership of the regulated business (i.e. the approach is indifferent to whether the entity is in Government or private ownership).**

#### *2.2.2 Each principle reflects one or more of the elements of the legislative regime as discussed above. Background to the principles*

In developing these principles, the Commission has taken the view that it is appropriate to consider the regulatory rate of return from the perspective of a benchmark efficient firm. Consistent with general regulatory practice, regulators do not simply pass on to consumers the actual costs incurred by a regulated business, as actual costs may not represent efficient costs: consumers should only pay for efficient costs of water and sewerage services.

The Commission has considered advice provided by HoustonKemp Economists in formulating the proposed principles.<sup>11</sup> That advice argues that it is important to consider the regulatory rate of return based on a benchmark efficient entity that faces a similar degree of risk as a firm providing regulated services.

Under this approach, the costs faced by “new entrants” in a competitive market are not relevant, as new entrants do not face similar risks to the incumbent regulated business. SA Water has an ongoing legal obligation to provide water and sewerage services to most of the State. That obligation requires it to have and maintain expensive, long-life assets and therefore to hold significant levels of debt. The potential consequence to consumers of a large incumbent business being financially non-viable is more significant than the consequence of a new entrant retailer being non-viable. In a market that is workably competitive, the exit of one retailer is likely to encourage the entry or expansion of other retailers, ensuring that consumers’ demand can continue to be met. That is not the case in South Australia; new entrants do not face the same long-term, state-wide, supply obligations as does SA Water.

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<sup>11</sup> HoustonKemp, memo titled, *Appropriate objective to guide the setting of the cost of debt allowance*, March 2015 (available at [<http://www.escosa.sa.gov.au/library/20150402-SAWaterRateOfReturnFinalDecision-CostOfCapitalReport-HoustonKemp.pdf>]).

In these circumstances it follows that the regulatory rate of return should reflect the risks faced by a large incumbent utility and that regulation should promote, or at least not distort, the prudent financing strategy of that utility.

It is, however, widely accepted that different businesses may employ different financing strategies depending on the size of the business, size of the asset base and ownership structure. The fact that there is not a “one size fits all” prudent financing strategy was an important factor that led the Australian Energy Market Commission to implement the electricity and gas rules as explained above, which provide the AER with discretion in considering the efficient debt financing strategy of energy network businesses.

### ***General principle***

As discussed, the regulatory rate of return should be based on the expected behaviour of a benchmark efficient entity, not those of SA Water. This is consistent with the promotion of economic efficiency.

Minimising long-term costs is also consistent with the efficiency objective. Importantly, those costs should be considered on a risk-adjusted basis. A low-cost approach that may introduce significant financial risks to the regulated entity may create high costs for consumers in the long run, e.g. risk of financial distress or failure. The probability and consequence of those risks should be taken into account in determining what the prudent and efficient financing strategy is in the long term.

### ***Supporting principle 1***

The Commission has sought to be as explicit as possible, given the overall context of SA Water PD 2016, in stating that the regulatory rate of return should not solely reflect a new entrant’s cost, which would be driven largely by prevailing costs of capital. An incumbent regulated business will have legacy costs and it is appropriate for those costs to be recognised, particularly where the business cannot hedge against movements in those costs. This matter is discussed in more detail in chapter 3.

### ***Supporting principle 2***

Consistent with its legislative objectives, the Commission is committed to a regulatory approach that delivers incentives for regulated businesses to incur prudent and efficient expenditure, including capital expenditure. Ensuring that future expenditure is at the lowest sustainable levels, without compromising service levels, facilitates consumers receiving the lowest sustainable prices.

### ***Supporting principle 3***

To provide for regulatory certainty and predictability, the Commission will not change the principles and approach to calculating SA Water’s regulatory rate of return in the future, unless there is compelling evidence that such a change is required.<sup>12</sup>

The Commission acknowledges that there may be occasions where best practice financing or regulatory practice changes in such a way that it is appropriate to reflect that in the methodology for calculating the regulatory rate of return. However, those changes should not occur frequently, and stability of approach should be preferred, to provide certainty to SA Water and consumers.

Reducing regulatory risks to SA Water will lead to lower costs to in the long run, and hence lower prices to consumers.

### ***Supporting principle 4***

This principle explicitly states that ownership is irrelevant to the methodology for calculating SA Water’s regulatory rate of return. The risks of providing water and sewerage services are different to the risks faced by the Government as a whole. Regulated revenues should be set with reference to the risks faced by SA Water, to ensure that prices remain cost reflective and to avoid any cross subsidies between tax payers and SA Water’s consumers.

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<sup>12</sup> The importance of regulatory consistency in decision making has been emphasised by the Australian Competition Tribunal: “... *the use of a consistent and acceptable methodology would ensure regulatory consistency, and in relation to particular matters would also facilitate efficient decision making and in turn reduce the number of reviews...*” (Application by Envestra Limited (No 2) [2012] ACompT 4 at para 98.

### **2.2.3 Principles used by other regulators**

The Commission has compared the above principles for setting the regulatory rate of return with those used by other Australian economic regulators, where explicit principles have been applied. In some cases, the legislative framework that governs price determinations in other jurisdictions will set or guide the principles that each regulator adopts.

#### **Australian Energy Regulator**

The objectives applied by the AER in regulating electricity and gas network businesses are the National Electricity Objective and National Gas Objective (respectively).

The National Electricity Objective is:

*to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to-*

- (a) price, quality, safety, reliability and security of supply of electricity; and*
- (b) the reliability, safety and security of the national electricity system.<sup>13</sup>*

The same objective, as it relates to natural gas, is applied under the National Gas Law. The National Electricity Law and National Gas Law are also applied by the Economic Regulation Authority in Western Australia in its energy pricing functions.

As noted above, the National Electricity Rules and National Gas Rules provide a specific objective for the regulatory rate of return. There are two important elements to that objective.

First, costs are to be based on efficient costs, which may be different to the actual costs incurred by the regulated business. This is consistent with the overarching objective of promoting efficient investment.

Second, the risks that are reflected in the rate of return should reflect those faced by the regulated business. This means that the regulated business should be considered as a stand-alone entity, and any risks that are transferred between the regulated business and its owner or related businesses are irrelevant.

The AER has further elaborated on how it intends to apply the rate of return objective. It has stated that:

*Further, we consider that the objectives, and the overall rate of return objective, will be best achieved through the exercise of regulatory practices that:*

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<sup>13</sup> National Electricity Law, section 7.

- ▲ recognise the desirability of consistent approaches to regulation across the energy industry, so as to promote economic efficiency
- ▲ promote incentives to finance efficiently
- ▲ promote reasoned, predictable and transparent decision making
- ▲ promote flexibility and adaptability, to allow our decisions to respond to changing circumstances, and to take account of a wider range of assessment methods and information in estimating the rate of return; and
- ▲ improve the regulatory determination process to allow us adequate time for decision making, to enhance consumer engagement, and to increase transparency and accountability.<sup>14</sup>

These objectives and principles are consistent with those developed by the Commission. In particular, the AER's focus on economic efficiency, the use of the benchmark firm and predictability of approach align with the Commission's principles.

### ***Independent Pricing and Regulatory Tribunal (NSW)***

The rate of return objective set by IPART is based on its legislative objectives and factors that it must have regard to. IPART summarised the factors that are relevant to the regulatory rate of return during its 2013 review of its WACC methodology, as follows:

*Under Section 15 of the Independent Pricing and Regulatory Tribunal Act*

*(IPART Act) 1992, we must have regard to a range of factors. Some key factors relevant for this review are:*

1. *cost of providing the services concerned*
2. *protection of consumers from abuses of monopoly power*
3. *appropriate return on public sector assets and associated dividends to the Government for the benefit of the people of New South Wales*
4. *need for greater efficiency in the supply of services so as to reduce the costs for the benefit of consumers and taxpayers*
5. *impact on borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew, or increase relevant assets.*

IPART's review concluded that an appropriate objective for setting the regulatory rate of return for its regulated industries is:

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<sup>14</sup> AER, *Rate of Return Guideline: Explanatory Statement*, December 2013, pp. 15-16 (available at <http://www.aer.gov.au/sites/default/files/AER%20Explanatory%20Statement%20%20rate%20of%20return%20guideline%20-%20December%202013.pdf>).

*...to set a WACC that reflects the efficient cost of capital for a benchmark firm operating in a competitive market and facing similar risks to the regulated business.*

IPART explained that:

*Our final decision represents a change from the objective for our previous WACC methodology, in which the benchmark entity was a new entrant in a competitive market. In line with this objective, we previously set the WACC with reference to the current costs of debt and equity, since a new entrant would be financed at prevailing rates. However, because new entry is rare in practice, it was difficult to infer the efficient financing strategy for a new entrant from observed behaviour.*

*We consider that setting the WACC to reflect the efficient cost of capital for a benchmark firm that operates in a competitive market and faces similar risks to the regulated business is a more appropriate objective. It allows us to take account of how an efficient firm, in practice, would finance its operations in a competitive product market. Further, the cost of capital for such a benchmark firm is more readily observable and independent of any specific form of regulation chosen by the regulator.<sup>15</sup>*

The reference to a “competitive market” in IPART’s principle is potentially in conflict with the principle of setting a WACC to reflect a benchmark firm facing similar risks to the regulated business. As discussed previously, the practice of regulating monopoly utilities is moving away from the new entrant approach, which is based on mimicking the outcomes of a competitive market. To avoid any potential confusion, the Commission’s principle refers to a benchmark firm approach, but does not introduce the concept of a competitive market.

In all other respects, the IPART principle is consistent with those developed by the Commission.

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<sup>15</sup> IPART, *Review of WACC Methodology: Research – Final Report*, December 2013, p. 10. (available at [http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review\\_of\\_method\\_for\\_determining\\_the\\_WACC/Dec\\_2013 - Release\\_Final\\_Report/Final\\_Report - Review\\_of\\_WACC\\_Methodology - December\\_2013](http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review_of_method_for_determining_the_WACC/Dec_2013 - Release_Final_Report/Final_Report - Review_of_WACC_Methodology - December_2013)).

#### *2.2.4 Statement of regulatory intent*

The Commission intends to formalise a set of principles specific to the setting of SA Water's regulatory rate of return through a Statement of Regulatory Intent (**SORI**). The SORI will guide not only the regulatory rate of return for the SA Water PD 2016 but those of future determinations.

The Commission will provide an opportunity for all stakeholders to comment on the SORI, and any related issues regarding the methodology for calculating the regulatory rate of return, as part of the consultation processes for SA Water PD 2016.

## 3 COST OF DEBT

### Summary of approach

It is proposed that the Commission will calculate the cost of debt based on the cost of issuing long-term (10 year) BBB-rated bonds, averaged over a period of 10 years.

This approach is consistent with the principles discussed in chapter 2, since a prudent and efficient regulated business of the scale and with the obligations of SA Water is expected to periodically issue long-term debt in order to minimise refinancing risk. The approach lowers risk to shareholders and should reduce the overall cost of capital in the long term, thus leading to long term lower prices for consumers.

Calculation of the cost of debt will use the following parameters/approach.

- ▲ Credit Rating of BBB
- ▲ Proxy bond with 10 year term to maturity
- ▲ 10 year trailing average of the cost of debt
- ▲ 60% gearing
- ▲ debt raising cost of 12.5 basis points
- ▲ update the cost of debt during each year of the regulatory period

### 3.1 Overview

The cost of debt is an important component in determining the regulatory rate of return, as debt financing is a significant cost to a capital intensive business such as SA Water. The prices paid by SA Water's customers can be highly sensitive to movements in SA Water's cost of debt.

The steps involved in calculating the cost of debt include determining:

- ▲ the nature of proxy bonds, including an assumed credit rating
- ▲ the assumed term to maturity of the proxy bonds
- ▲ the period over which bond yields are to be measured
- ▲ the assumed gearing ratio (debt as a proportion of total assets), and
- ▲ the inclusion of any specific debt raising costs.

The Commission's consideration of each of those matters is discussed in this chapter.

### *3.2 General implications of a longer-term approach for calculating the cost of debt*

The Commission's longer-term regulatory approach significantly impacts on the calculation of the cost of debt.

That approach is based on a prudent debt financing strategy, involving the issuing of long-term bonds (of 10 years). This reflects the long lives of regulated water and sewerage assets and assumes that around 10 per cent of debt is refinanced each year, to avoid all debt maturing at the same time (lowering refinancing risk). In contrast, its previous approach to estimating the cost of debt relied solely on market-based debt costs that were prevailing at the time of making the price determination.

The approach avoids the potential problem of relying solely on prevailing rates, whereby the Commission's benchmark cost of debt could be set at a rate that is very different to the efficient historical costs that form part of SA Water's prudent debt portfolio. By reducing variability between those two costs, risks are reduced and the overall regulatory rate of return is reduced in the long-term, leading to lower costs for consumers.

The Commission has explicitly recognised the impact of this new approach on risks to shareholders by lowering the benchmark cost of equity through the equity beta. This is consistent with the Commission's paramount statutory objective under the Essential Services Commission Act 2002, which is to protect the long-term interests of South Australian consumers with respect to the price, quality and reliability of essential services. It is also consistent with the requirements of the National Water Initiative (Principle 1 of the NWI Principles for the recovery of capital expenditure) and the overarching statutory framework under the Water Industry Act 2012.

The approach expressly recognises that a regulator should look to provide incentives to a regulated business such as SA Water which encourage not only future prudent and efficient capital expenditure but also which encourage longer-term financing behaviours which minimise risk and volatility.

In both cases the incentives are aimed at reducing costs to consumers.

The approach incentivises SA Water to finance any new investments at or below the prevailing efficient market rates, meaning that consumers ultimately pay not more than the efficient cost of those investments. For legacy investments, the approach recognises efficient past financing practices (but does not reward inefficient practices), encourages efficient management of the re-financing costs of those investments over time and in that way reduces the volatility inherent in an approach which assumes all legacy financing costs will be re-financed at the start of a new, four or five year, regulatory period.

Importantly, the proposed approach is based on an assessment of the actions of a benchmark prudent and efficient utility with the same obligations as SA Water. It does not look to the actual actions, costs or legal structure of SA Water itself.

The approach proposed by the Commission will:

- ▲ protect consumers from any possible costs of poor financing decisions made by SA Water by providing a benchmark rate of return
- ▲ provide SA Water with a reasonable opportunity to earn sufficient revenue to attract equity and debt needed to finance regulated services , and
- ▲ incentivise SA Water to outperform the benchmark rate of return.

The longer-term approach was generally supported in submissions during the review. For example, SACOSS stated that:

*The appeal of the lower rate is obvious but SACOSS is also conscious that Global Financial Crisis (**GFC**) conditions could reappear at some future date and would prefer a solution that reduces volatility for both the owners and customers of SA Water.*

*This is an opportunity to establish a long term approach to how water users are exposed to changes in the cost of capital over time.<sup>16</sup>*

Submissions from COTA, ConsumersSA and SA Water also supported a longer-term approach to avoid the potential for large, sudden price increases for consumers.

Uniting Communities also supported this approach on the basis that it provides an incentive for SA Water to operate efficiently and benefits consumers by providing a level of certainty. Uniting Communities stated that:

*We note that the AER in considering energy markets is moving towards a longer term trailing average process and we believe that this is a more appropriate model because it does provide a degree of stability in capital cost movements for businesses, as they are affected by the risk free rate. We believe that it is more efficient for businesses to lock in borrowing for a longer period of time, providing much greater certainty for consumers and businesses over an extended period of time.<sup>17</sup>*

The application of the longer-term approach to the specific parameters of the cost of debt is discussed in the following sections.

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<sup>16</sup> SACOSS, *SA Water Regulatory Rate of Return 2016-2020 Draft Report to the Treasurer*, 22 January 2015, p.3 (available at <http://www.escosa.sa.gov.au/library/20150204-SAWaterRateOfReturnDraftReportSubmission-SACOSS.pdf>).

<sup>17</sup> Uniting Communities, *Submission Regarding: SA Water Regulatory Rate of Return 2016-2020, Draft report to the Treasurer*, January 2015, p 6.

### *3.3 Proxy bond*

#### *3.3.1 What is it?*

The proxy bond is the bond used as a benchmark for the cost of debt, or components of the cost of debt. Many regulators separately calculate the risk-free rate using Commonwealth Government Bonds (**CGBs**) as the proxy bond and a margin above the risk-free rate (the debt risk premium) based on corporate bonds that have a benchmark credit rating assumed to apply to the regulated entity.<sup>18</sup> For example, if the regulated entity has a benchmark credit rating of BBB, the proxy bond used will be a BBB rated corporate bond, subject to the regulator's selection criteria, such as country of origin and bond term.

#### *3.3.2 Why does it matter?*

As discussed in section 3.4 below, the Commission is proposing to calculate the cost of debt using a 10-year trailing average approach. That approach will apply to the overall rate of the assumed proxy bond; there is no need to separately calculate the risk-free rate and debt risk premium components of the cost of debt.

As a consequence, the Commission' consideration of the proxy bond is limited only to the nature of the benchmark corporate bond. The yield on the assumed corporate bond will have a risk-free rate embedded in it.

In selecting the proxy bond, the key matter to resolve is the assumed credit rating. This impacts directly on the cost of debt: the higher the credit rating, the lower the default risk to lenders and, consequently, the lower the cost of debt.

#### *3.3.3 Current regulatory practice*

The majority of Australian regulators (including water regulators) assume a credit rating of between BBB and BBB+.

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<sup>18</sup> The risk level of corporate bonds is banded by credit rating agencies such as Standard and Poor's, (**S&P**) with AAA representing the lowest default risk, and BBB- the highest risk among corporations that issue investment-grade bonds. The S&P ratings of BB+ down to B- are referred to as non-investment grade. Corporations with lower credit ratings than this cannot easily issue bonds, or their bonds are referred to as junk bonds, in reference to the relatively high default risk that is attached to them.

The AER used a credit rating of BBB+ in its regulatory guidelines and for all of its recent draft determinations, including for ActewAGL.<sup>19</sup> The AER provided empirical evidence that this is a suitable credit rating, given that a regulated utility is likely to face low default risk and low risk of credit migrations. It concluded that the benchmark rating should reflect that lower risk.

Recent benchmark credit ratings used by other regulators, and identified as likely to be used in forthcoming regulatory reviews, are provided in Tables 3.1 and 3.2.

**Table 3-1: Benchmark credit ratings adopted by regulators**

REGULATOR	ESCOSA	ESCV <sup>20</sup>	ERA <sup>21</sup>	IPART <sup>22</sup>	ICRC <sup>23</sup>	AER <sup>24</sup>
Credit rating	BBB (final)	BBB- to BBB+ (final)	A- (final)	BBB/BBB+ (final)	BBB (final)	BBB+ (final)

**Table 3-2: Expected future credit ratings to be adopted by regulators**

REGULATOR	ERA <sup>25</sup>	QCA <sup>26</sup>	INDUSTRY PANEL <sup>27</sup>	AER <sup>28</sup>
Credit rating	BBB (guidelines)	BBB+ (review)	BBB (review)	BBB+ (guidelines)

<sup>19</sup> AER, *Draft decision ActewAGL distribution determination 2015-16 to 2018-19, Attachment 3: Rate of return*, November 2014, p 3-301.

<sup>20</sup> ESCV, *Price review 2013: Greater metropolitan water business final decision*, June 2013.

<sup>21</sup> ERA, *Inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and the Busselton Water Board: Revised final report*, March 2013.

<sup>22</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018*.

<sup>23</sup> ICRC, *Final Report, Regulated Water and Sewerage Services*, June 2013.

<sup>24</sup> AER, *Better Regulation, Rate of Return – Appendix F*, December 2013, p 126.

<sup>25</sup> ERA, *Explanatory Statement for the rate of return guidelines*, December 2013, p 91.

<sup>26</sup> QCA, *Final report Seqwater irrigation price review 2013-17 Volume 1*, April 2013.

<sup>27</sup> Industry Panel, *Review of the Independent Competition and Regulatory Commission's 2013 Price Direction, Draft Report*, December 2014, p 169.

<sup>28</sup> AER, *Better Regulation, Rate of Return – Appendix F*, December 2013, p 126.

For SA Water PD 2013, the Commission based the Debt Risk Premium (**DRP**) on a BBB rated 10-year bond, derived from an extrapolation of information that was then available via the Bloomberg 7 year Fair Value Curve (**FVC**). The Bloomberg FVC information is not as readily available or transparent as the Reserve Bank of Australia (**RBA**) data (which was unavailable at the time of the previous SA Water determination).

The RBA now collects and publishes bond yield data, including the spread to the CGB, thus providing a reputable and easily accessed data source which extends back in time far enough to provide data for a 10-year trailing average. The RBA data series provides information on A and BBB rated bonds, and Commonwealth Government Securities (**CGS**) only. The BBB band draws from bond issues that are rated from BBB- to BBB+. The RBA data series has many more BBB bonds in the sample compared to the Bloomberg data that the Commission relied on in SA Water PD 2013. However, the RBA data set does not allow the refinement of choosing, say, a BBB+ benchmark over a BBB benchmark. On balance, the Commission considers that the larger RBA data sample and consequent data integrity outweighs the potential benefits of a more refined benchmark approach.

### *3.3.4 Discussion*

An assumed BBB credit rating for a benchmark efficient firm is consistent with SA Water PD 2013 and regulatory practice in Australia.

SACOSS and Uniting Communities submitted that a higher credit rating should be utilised, based on the AA rating of the South Australian Government.<sup>29</sup> However, the credit rating of the South Australian Government is not relevant, given the principle of assessing an *efficient benchmark* firm's risks and costs as a stand-alone entity (explained in the previous chapter).

Even if SA Water were privately owned, the relevant cost of debt is that of the regulated benchmark business, not the owner.

Uniting Communities' submission implies that there should be a cross-subsidy between SA Water and the other parts of the Government. However, that position is inconsistent with the principles of economic efficiency and competitive neutrality between government-owned business entities and private firms.

COTA's submission argues that SA Water is a natural monopoly and thus experiences low risk, which should be reflected in the assumed credit rating. The Commission acknowledges that a natural water monopoly has very low business risk, and has taken that low business risk into account when considering the benchmark efficient utility, consistent with the

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<sup>29</sup> SACOSS, *SA Water Regulatory Rate of Return 2016-2020 Draft Report to the Treasurer*, 22 January 2015, p4; Uniting Communities, *Submission Regarding: SA Water Regulatory Rate of Return 2016-2020, Draft report to the Treasurer*, January 2015, p 6.

benchmarks established by other regulators. However, business risk must be considered in conjunction with finance risk when assessing the likely credit band rating.

The proposed benchmark gearing ratio of 60 per cent is aggressive, putting the benchmark utility firmly in the BBB band.

Therefore, it is appropriate to use a credit rating of BBB for the regulated benchmark.<sup>30</sup>

### *3.4 Bond term*

#### *3.4.1 What is it?*

The bond term is the period for which the bond is issued. Generally, once a bond is issued, the bond issuer (borrower) has obligations to pay interest, via coupon payments, for the term of the bond, then it must repay the face value of the bond at the end of the period.

Corporate bond terms generally range from one to ten years. The only time the obligations of a bond issuer do not extend to maturity is for a callable bond. A callable bond allows the issuer to repay the face value of the bond prior to maturity. To protect the bond investor, the issuer of a callable bond will pay a premium over a straight bond of equivalent tenor. Financing a long term infrastructure business with callable bonds is a more expensive strategy than the use of straight bonds.

In theory, obligations under a bond may be ended prior to maturity if the issuer buys the bonds back from the bondholders. However, the purchase price of a bond reflects current interest rates so, if interest rates have fallen, the bond price will have risen commensurately. Therefore, there would be no cost advantage in re-purchasing the bonds prior to maturity (even if that were possible), and issuing more bonds at lower interest rates. In addition, another set of transaction charges would apply.

#### *3.4.2 Why does it matter?*

In calculating the cost of debt, the assumed bond term to maturity will impact on total debt costs; the shorter the assumed term, the lower the bond yield. Long-term bonds generally have higher yields to compensate for interest rate risk, liquidity risk (the risk of there being insufficient liquidity in the bond market to refinance debt) and higher default risk in the long run. However, the lower yield of a short-term bond must be traded off against higher transaction costs (as debt will need to be refinanced more often) as compared with a long-term bond.

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<sup>30</sup> For SA Water PD 2016, the Commission proposes to adopt the RBA data source for the benchmark proxy bond. This approach was supported by SA Water and is compatible with the trailing average approach being proposed for estimating the cost of debt.

### 3.4.3 Current regulatory practice

Regulatory precedent is moving in favour of a 10-year term to maturity, with ESCV, IPART and the AER all adopting that approach in the most recent regulatory reviews. The Commission adopted a 10-year term to maturity in SA Water PD 2013. The QCA adopts a 4-year term, while the ERA has used both a 5-year term for its water and electricity reviews and a 10-year term for its rail reviews (reflecting its views on the different regulatory frameworks).

**Table 3-3: Most recent indications of bond terms from Guidelines, Reviews and recent Decisions from Australian regulators**

REGULATOR	ESCOSA	ESCV <sup>31</sup>	ERA <sup>32</sup>	IPART <sup>33</sup>	ICRC	AER <sup>34</sup>
Term to maturity (from regulatory determination)	10-year	10-year	5-year 10-year (rail)	10-year	n/a	10year

REGULATOR	ERA <sup>35</sup>	IPART <sup>36</sup>	QCA <sup>37</sup>	AER <sup>38</sup>	INDUSTRY PANEL <sup>39</sup>
Term to maturity (from guideline/review)	5-year 10-year (rail)	10-year	4-year	10-year	10-year

<sup>31</sup> ESCV, *Price review 2013: Greater metropolitan water business final decision*, June 2013.

<sup>32</sup> ERA, *Inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and the Busselton Water Board: Revised final report*, March 2013.

<sup>33</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018*.

<sup>34</sup> AER, *Draft decision ActewAGL distribution determination 2015-16 to 2018-19, Attachment 3: Rate of return*, November 2014.

<sup>35</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines, Meeting the requirements of the National Gas Rules*, December 2013, p 81.

<sup>36</sup> IPART, *Final Report, Review of WACC Methodology*, December 2013, p72.

<sup>37</sup> QCA, *Final report Seqwater irrigation price review 2013-17 Volume 1*, April 2013.

<sup>38</sup> AER, *Better Regulation: Explanatory Statement Rate of Return Guideline*, December 2013, p 127.

<sup>39</sup> Industry Panel, *Review of the Independent Competition and Regulatory Commission's 2013 Price Direction, Draft Report*, December 2014, p 100.

### **3.4.4 Discussion**

Consistent with the principles discussed in chapter 2, the Commission has sought to identify best financing practice for large infrastructure businesses to arrive at an appropriate term to maturity.

It has found that evidence from other industries supports the use of longer-term bonds of around 10 years. For example, data reported by the RBA in 2014, shows that the average term to maturity of corporate and CGB bonds at the time of issuance was around 9 years.<sup>40</sup>

In addition, evidence presented by Queensland Treasury Corporation (**QTC**) to the AER in its rate of return guideline review suggested that many large unregulated infrastructure businesses utilise long-term bonds for debt financing. QTC stated that:

*The businesses most closely related to an NSP [Network Service Provider] are those with long-lived infrastructure assets such as the Sydney Airport Corporation, Brisbane Airport Corporation, Telstra and Transurban. The maturity profiles for these businesses are well-spaced and extend out to at least ten years. As at 30 June 2012, the average remaining debt tenor for these businesses was 7.1 years, which is consistent with an average debt issue tenor in excess of 10 years.*<sup>41</sup>

This provides evidence that a prudent business in an unregulated industry, with long term assets, could be expected to utilise long term debt to provide more certainty over debt obligations. The Commission's approach is based on that prudent and efficient strategy.

An argument for assuming shorter-term bond tenors (e.g. 4 years) is that it is relevant to align the term to maturity with the regulatory period, rather than reflecting the long lives of regulated assets. This recognises that the yield on 10-year bonds generally exceeds the yield on five-year bonds to compensate investors for liquidity or inflationary risks. However, those risks are reset at the commencement of each regulatory period and it is argued that the rate of return should not provide compensation for risks beyond each regulatory period.

While the Commission explored the possibility of moving to a 4-year tenor in the Draft Report for this review, based on the material presented in submissions and its own further researches, it is now of the view that, while the 4-year argument may have applicability in some cases, it is less persuasive in the circumstances of SA Water PD 2016.

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<sup>40</sup> Refer <http://www.rba.gov.au/speeches/2014/sp-ag-150414.html>.

<sup>41</sup> Queensland Treasury Corporation, *Submission to AER Rate of Return Guidelines Issues Paper*, February 2013, p. 7 (available at <https://www.aer.gov.au/sites/default/files/QTC%20submission%20%20Rate%20of%20return%20guidelines%20Issues%20Paper%20-%2020130215.pdf>).

For example, as shown above, infrastructure businesses tend to have longer term financing strategies. Requiring a shorter term strategy through regulatory design (e.g., by adopting a 4-year tenor) in this case could encourage SA Water to adopt a financing strategy which is not prudent and efficient. The principles discussed in chapter 2 are based on the opposite approach: regulation should be designed so as to not distort a prudent and efficient financing strategy.

The use of a 10-year bond tenor does not overcompensate a regulated business for inflationary risk and liquidity risk. In particular, applying a trailing average approach (discussed in section 3.5 below) ensures that the relevant costs and risks faced by the regulated business *at any point in time* are reflected in the overall calculation of the cost of debt. While regulated revenues are reset more frequently than every 10 years, the proposed averaging approach ensures that the efficient costs incurred by the regulated business, both in the past and the present, are recognised.

The Commission has also examined whether or not longer-term bonds (e.g. 10-years) produce a lower expected cost of debt (risk adjusted) than shorter-term bonds (e.g. 4-years) based on empirical evidence.

That analysis indicates that the premium paid for a 10-year bond over a 4-year bond<sup>42</sup> has averaged 81 basis points (**bps**) over the period from January 2005 to February 2015. This premium reflects investors' preference for liquidity (needing reward for foregoing it), as well as inflation risk (the longer the term to maturity, the more uncertain the investor will be about likely returns: an investor requires an additional return to compensate for this). In addition, longer bond terms expose the investor to a longer duration of default risk.

There are, however, additional costs and risks associated with short-term borrowing which need to be taken into account, such as:

- ▲ Additional transaction costs from issuing shorter-term debt. IPART recently allowed around 12.5 bps as a transaction cost associated with refinancing with 10-year bonds.<sup>43</sup> This compares with a debt raising cost benchmark of 20 bps which IPART allowed when it used a five year term to maturity. The ERA included 12.5 bps, albeit that was based on a term to maturity of five years.<sup>44</sup> The Commission has not previously included a specific transaction cost in the cost of debt.
- ▲ Additional refinancing risk associated with the need to refinance a large debt portfolio over a more compressed period of time: it is not possible to quantify this risk, but it is

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<sup>42</sup> As 4-year bonds are not issued, the value of a 4-year bond is interpolated between 3 and 5 year bonds.

<sup>43</sup> IPART, *Essential Energy's water and sewerage service in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018, Water – Final Report*, June 2014, page 164, available at [http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro\\_Pricing/Review\\_of\\_prices\\_for\\_Essential\\_Energys\\_Broken\\_Hill\\_water\\_and\\_sewerage\\_services\\_from\\_1\\_July\\_2014/News\\_HYS/Final\\_Report\\_released\\_for\\_Essential\\_Energys\\_Broken\\_Hill\\_prices](http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro_Pricing/Review_of_prices_for_Essential_Energys_Broken_Hill_water_and_sewerage_services_from_1_July_2014/News_HYS/Final_Report_released_for_Essential_Energys_Broken_Hill_prices) accessed 10 March 2015.

<sup>44</sup> ERA, 2013, page 20.

important to recognise it, particularly for an entity such as SA Water which would be issuing large amounts of debt at any point in time, even under a staggered approach.

The argument for assuming a 4-year term on a trailing average basis, rather than a 10-year term, balances lower financing costs (via reduced term premiums) against higher transaction costs. However, as it is not possible to quantify the additional refinancing risk associated with shorter-term bonds, the Commission is unable to conclude definitively whether or not the costs (including risks) of shorter-term bonds are lower than those of longer-term bonds.

As a consequence, the Commission has relied largely on the observed behaviour of businesses (including non-regulated businesses) that face similar risks to SA Water, which supports the principle that a prudent and efficient large infrastructure business would utilise long-term debt. It therefore considers it appropriate to assume a term to maturity of 10 years when calculating the cost of debt.

## *3.5 Averaging period*

### *3.5.1 What is it?*

The averaging period refers to the time period over which observations are drawn for the calculation of components of WACC, such as the cost of debt. For example, a 20-day averaging period will, as the name suggests, average the observations over a 20 business day period. A 10-year averaging period will draw upon the observations from the past 10 years.

### *3.5.2 Why does it matter?*

The risk free rate and debt risk premium can vary markedly over time, depending on economic conditions. Consistent with many other regulators at the time, the first revenue determination for SA Water was based on an “on-the-day” approach to estimating the risk free rate and debt risk premium, under which the regulatory rate of return was intended to reflect market bond rates prevailing at the time of the determination (averaged over a 20 day period).

As previously discussed, an alternative approach is now gaining regulatory acceptance in Australia, whereby the risk free rate and debt risk premium are measured over a much longer period of time (e.g. 10 years), to reflect long-term averages but at the same time recognising new entrant signals. This approach has been argued to be more consistent with the prudent financing strategy of regulated monopoly infrastructure businesses, which take a long-term view of returns on investment, matching the long lives of regulated assets.

The choice of averaging period is likely to have a major influence on the overall regulatory rate of return. Current bond rates are well below the long-term average given current low interest rates and, as a result, a long-term approach would deliver a higher rate of return than a short-

term approach under current conditions. The opposite would be true if prevailing rates exceeded long-term average rates (as they did during the GFC).

### 3.5.3 Current regulatory practice

A review of regulatory practice in Australia indicates that short averaging periods tend to have been used in the past (aside from IPART's hybrid approach), as shown in Table 3-4. However, there has been a recent shift in the stated intentions of some regulators, indicating a likely move away from short to long term averaging periods.

For example, the AER announced its intention to adopt a trailing average portfolio approach, as proposed in its rate of return guideline of December 2013, in its next revenue reset for SP AusNet (starting 1 April 2017).<sup>45</sup> Also, the ERA, in its March 2015 Discussion Paper on estimating the return on debt, put the view that there is merit in considering the hybrid trailing average approach in comparison to its current on-the-day approach.<sup>46</sup> Tables 3.4 and 3.5 shows the bond terms and averaging periods adopted in recent regulatory Reviews and Guidelines.

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<sup>45</sup> AER, *Final Decision SP AustNet Transmission determination 2014-15 to 2016-17*, January 2014, page 23 (available at <http://www.aer.gov.au/sites/default/files/AER%20final%20decision%20for%20SP%20AusNet%27s%202014-17%20regulatory%20control%20period%20-%2031%20January%202014.pdf>).

<sup>46</sup> ERA, *Estimating the return on debt: Discussion paper*, 4 March, 2015, page 21, available at [http://www.erawa.com.au/cproto/13374/2/Estimating%20the%20return%20on%20debt%20discussion%20paper.pdf?utm\\_medium=email&utm\\_campaign=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper&utm\\_content=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper+CID\\_e5c861db64db8bf1d867f992232aca0e&utm\\_source=Email&utm\\_term=Discussion%20Paper](http://www.erawa.com.au/cproto/13374/2/Estimating%20the%20return%20on%20debt%20discussion%20paper.pdf?utm_medium=email&utm_campaign=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper&utm_content=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper+CID_e5c861db64db8bf1d867f992232aca0e&utm_source=Email&utm_term=Discussion%20Paper).

**Table 3-4: Bond terms to maturity and averaging periods from recent Final Regulatory Decisions**

ESCV	IPART		QCA	ERA		AER	ICRC
Water	Water		Water	Water	Electricity	Electricity	Water
Price Review Greater metropolitan water businesses June 2013 <sup>47</sup>	Essential Energy's water and sewerage services in Broken Hill, June 2014 <sup>48</sup>		Price Review Seqwater Irrigation April 2013 <sup>49</sup>	Inquiry Efficient costs and tariffs March 2013 <sup>50</sup>	Access Determination Western Power Network <sup>51</sup>	Final Decision SP AusNet Transmission determination 2014-15 to 2016-17, January 2014 <sup>52</sup>	Final Report: Regulated water and sewerage services, June 2013 <sup>53</sup>
	Current market data	Long-term averages					
Average yield on 10-year nominal CGB	10-year CGB yield	10-year CGB yield	4-year CGB	Average yield on 5-year CGB as reported	Based on yields from 5-year CGB as reported by the RBA	10-year CGB yield	Uses ACTEW's actual cost of debt based on ACTEW's 2 year projected yield
40 business days	40 business days	10 year average	20 business days	20 business days	20 business days	20 business days	N/A

<sup>47</sup> ESCV, *Price Review 2013: Greater Metropolitan Water Businesses — Final Decision*, June 2013, p.108 (available at <http://www.esc.vic.gov.au/getattachment/653684bc-1058-4cc9-a62b-c31053e7762a/Metropolitan-water-price-review-2013-18-final-deci.pdf>).

<sup>48</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018*, page 163.

<sup>49</sup> QCA, *Final Report, Seqwater Irrigation Price Review 2013-17, Volume 1*, April 2013, p.270 (available at <http://www.qca.org.au/getattachment/3662b6af-fbd0-43a5-a52b-e99c2f6e85be/Seqwater-Irrigation-Price-Review-2013-17-Volume-1.aspx>).

<sup>50</sup> ERA, *Inquiry into the Tariffs of the Water Corporation, Aqwest and Busselton Water: Revised Final Report*, March 2013, p.57 (available at <http://www.erawa.com.au/cproto/11248/2/20130328%20D104647%20-%20Inquiry%20into%20the%20efficient%20costs%20and%20tariffs%20of%20the%20water%20corp%20aqwest%20and%20cusselton%20water%20-%20revised%20final%20report.pdf>).

<sup>51</sup> ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, September 2012, p.327 (available at <http://www.erawa.com.au/cproto/10737/2/20120905%20-%20D94955%20-%20Final%20Decision%20on%20Proposed%20Revisions%20to%20the%20Access%20Arrangement%20for%20the%20Western%20Power%20Network%20-%20Published%20Version.pdf>).

<sup>52</sup> AER, *Final Decision SP AusNet Transmission determination 2014-15 to 2016-17*, January 2014, page 21 (available at <http://www.aer.gov.au/sites/default/files/AER%20final%20decision%20for%20SP%20AusNet%27s%202014-17%20regulatory%20control%20period%20-%2031%20January%202014.pdf>).

<sup>53</sup> ICRC *Final Report: Regulated water and sewerage services, 1 July 2013 to 30 June 2019*, Report 5 of 2013, June 2013 (available at [http://www.icrc.act.gov.au/wp-content/uploads/2013/06/1-WSS-Final-Report\\_25June13-FOR-WEB1.pdf](http://www.icrc.act.gov.au/wp-content/uploads/2013/06/1-WSS-Final-Report_25June13-FOR-WEB1.pdf)).

**Table 3-5: Recent Reviews and Guidelines for bond terms and averaging periods.**

IPART		ERA	AER	INDUSTRY PANEL
<b>Review</b> Review of the WACC Methodology <sup>54</sup>		<b>Guideline</b> Rate of Return Guidelines, Meeting the Requirements of the national Gas Rules, December 2013 <sup>55</sup>	<b>Guideline</b> Better Regulation, Explanatory Statement Rate of Return Guideline, December 2013 <sup>56</sup>	<b>Review</b> Industry Panel review of the Independent Competition and regulatory Commission's 2013 Price Direction for Regulated Water and Sewerage Services in the ACT, December 2014
Current market data	Long-term averages			
10-year CGB yield	10-year CGB yield	Based on yields from 5-year CGB as reported by the RBA	10-year CGB yield	10-year CGS from Bloomberg
40 business days	10 year average	20 business days	20 business days	40 business days

### 3.5.4 Discussion

Based on the principles discussed in Chapter 2, the most appropriate approach for setting the rate of return for SA Water PD 2016 is one consistent with the prudent financing strategy of an existing, monopoly large infrastructure business.

#### *Evolving the on-the-day approach to include historical trailing averages*

A new entrant approach used in isolation does not best meet the proposed principles. The new entrant approach assumes the existence of a highly competitive market, where entry and exit can occur freely. In that market, new participants can act opportunistically by undercutting incumbent firms if they can access cheaper funding. Prices will generally reflect prevailing costs in those circumstances. These are not the circumstances of a large monopoly water utility, such as SA Water, which has long term, fixed infrastructure investments, and ongoing obligations to the community for essential water supply.

<sup>54</sup> IPART, *Review of WACC Methodology, Final Report*, December 2013, (available at [http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review\\_of\\_method\\_for\\_determining\\_the\\_WACC/Dec\\_2013\\_-\\_Release\\_Final\\_Report/Final\\_Report\\_-\\_Review\\_of\\_WACC\\_Methodology\\_-\\_December\\_2013](http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review_of_method_for_determining_the_WACC/Dec_2013_-_Release_Final_Report/Final_Report_-_Review_of_WACC_Methodology_-_December_2013) ).

<sup>55</sup> ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, September 2012, p.327 (available at <http://www.erawa.com.au/cproto/10737/2/20120905%20-%20D94955%20-%20Final%20Decision%20on%20Proposed%20Revisions%20to%20the%20Access%20Arrangement%20for%20the%20Western%20Power%20Network%20-%20Published%20Version.pdf>).

<sup>56</sup> AER, *Better Regulation: Rate of Return Guideline*, December 2013 (available at <http://www.aer.gov.au/sites/default/files/AER%20Rate%20of%20return%20guideline%20-%20December%202013.pdf>).

Regulators are increasingly recognising that economic regulation of monopoly businesses should not be solely based on a new entrant approach, and that incentives for efficient financing decisions over the long-term is of importance given the long-term investments that are required.

On that basis, the cost of debt that would be incurred by a prudent business would reflect not only a forward-looking estimate (for new investment) but also the issuing of debt over a longer term.

Assuming that the business obtains debt financing through 10-year bonds and that it staggers its debt to minimise refinancing risk (e.g. by refinancing 10 per cent of its debt each year), its overall cost of debt would reflect the historic costs incurred over the previous 10-year period. The cost of any particular debt instrument would remain fixed for the term of debt, although the business' overall cost of debt would vary over time, as existing debt matures and new debt is issued (either to fund new capex or to refinance existing debt).

While some regulated businesses utilise swap contracts to hedge against interest rate risk (to swap fixed for floating interest rates), that strategy has generally been driven by the on-the-day approach used by some regulators. This is because the strategy is used to effectively hedge against the requirements of the regulator's decision, ensuring that the actual risk-free rate incurred matches that set by the regulator. If regulators did not take an on-the-day approach, there would be no need for a business to hedge that risk and utilise interest rate derivatives.

Importantly, regulated businesses cannot hedge against a regulator's decision on the debt risk premium, as there are no derivative products available to hedge against movements in, for example, BBB bond rates. Therefore, a regulated business is not able to replicate an on-the-day approach to setting the debt risk premium without reissuing all of its debt at the same time (resulting in high refinancing risk, including a risk of paying a premium if the market is illiquid at the time of issue).

If a business cannot hedge the regulator's decision, shareholders bear the impact of that decision (which could be positive or negative, depending on where prevailing rates sit in relation to the business' actual cost of debt at that time). The risk to equity holders is therefore higher in that scenario, which increases the business' overall cost of capital and increases prices to consumers.

The inability for a business to replicate an on-the-day approach to the debt risk premium provides a strong argument for moving to a longer-term approach, which lowers risk to equity holders and produces lower prices in the long run. The consequence of a long-term averaging approach on the cost of equity is discussed further in section 3.7 below.

One of the major arguments used to support the on-the-day approach is that it sends a better signal for new investment than a historic approach, which may distort future capex decisions

if the historic rate calculated by the regulator is different to the prevailing cost of debt used to finance new investments.

This concern can be addressed under a weighted trailing average approach, which updates the cost of debt annually during the regulatory period to reflect current rates. Under this approach, as new capex is incurred or as existing debt is refinanced, the new debt is included in the 10-year average at the prevailing rate. At the same time, any matured 10-year debt is excluded from the trailing average to ensure that the overall cost of debt reflects the new debt profile of the business.

The weighted trailing average approach provides the correct efficiency incentives to the regulated business as it:

- ▲ sends the right price signal for future investment
- ▲ ensures that the business is able to recover the cost of historic debt financing that has been prudently incurred, and
- ▲ minimises the risk of a prudent business being unable to replicate the regulator's approach, which minimises risks to equity holders and lowers the overall cost of capital.

### **Price Stability**

Many of the submissions to the Draft Report commented on the objective of delivering price stability and minimising price shocks to consumers when setting the regulatory rate of return.

SA Water argued for longer term bond tenors and averaging periods to enable prices to consumers to be smoothed and to provide greater stability.<sup>57</sup> Submissions from SACOSS<sup>58</sup> and COTA<sup>59</sup> argued for both lower prices and the need for price stability.

In contrast, however, Business SA argued that:

*Although ESCOSA may find it difficult to protect the interests of consumers with respect to both price and stability, businesses should only be charged the lowest possible price which is reflective of the actual costs of an efficient entity delivering water and waste related services.*

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<sup>57</sup> SA Water, *SA Water Regulatory Rate of Return 2016 – 2020 Draft Report to the Treasurer: Public Response*, 23 January 2015, p.18 (available at <http://www.escosa.sa.gov.au/library/20150204-SAWaterRateOfReturnDraftReportSubmission-SAWater.pdf>).

<sup>58</sup> SACOSS, *SA Water Regulatory Rate of Return 2016-2020 Draft Report to the Treasurer*, 22 January 2015, p.3 (available at <http://www.escosa.sa.gov.au/library/20150204-SAWaterRateOfReturnDraftReportSubmission-SACOSS.pdf>).

<sup>59</sup> COTA, *Submission to the Essential Services Commission of South Australia on the SA Water Price Determination 2016-20*, 22 January 2015, p.3 (available at <http://www.escosa.sa.gov.au/library/20150204-SAWaterRateOfReturnDraftReportSubmission-COTASA.pdf>).

*The primary consideration for ESCOSA should always be to deliver consumers the lowest possible price, and if stability in price can be achieved without materially impacting the optimum price level, only then should ESCOSA look to ‘iron out’ short term fluctuations. If ESCOSA cannot be confident that its attempts to stabilise price have a negligible impact on achieving optimum efficient prices for business, businesses prefer to manage this risk themselves.<sup>60</sup>*

Business SA also submitted:

*From the perspective of business, prices must be cost reflective which should concurrently be efficient as a matter of regulatory principle. In so far as any trade off between volatility and price, business is unwilling to pay more for certainty and no differently to how businesses manage any input cost risk, it will be an individual decision based on the relativity of that cost to each individual business’s bottom line.*

*While businesses prefer not to have volatility in the short term, they are willing to risk volatility to ensure the probability of paying the most efficient price is maximised through using a recent market observation approach. Notwithstanding, ESCOSA should consider adjusting the cost of debt on an annual basis, akin to the AER’s approach of annual adjustments to the trailing average cost of debt, although this approach would require flexibility in the revenue cap.<sup>61</sup>*

The Commission agrees with Business SA that where price stability is created at the expense of prices being above the lowest sustainable levels, that approach would conflict with the Commission’s objectives and principles. It also notes that price stability is not an explicit objective or factor that the Commission must consider under its legislative requirements, although the September 2014 Pricing Order does refer to the objective of price stability in contexts unrelated to the rate of return.<sup>62</sup>.

In the context of the debate over a long-term versus short-term averaging period when calculating the cost of debt, the Commission notes that both approaches will have the same average in the long run. This is consistent with the view put by Strategic Finance Group in its

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<sup>60</sup> Business SA, *Submission to Draft Report*, 22 January 2015, p.1 (available at <http://www.escosa.sa.gov.au/library/20150204-SAWaterRateOfReturnDraftReportSubmission-BusinessSA.pdf>).

<sup>61</sup> Business SA, *Submission to Draft Report*, p.4.

<sup>62</sup> Refer to sections 3.5 and 3.6 of the September 2014 Pricing Order (Annexure A).

advice to the Australian Energy Market Commission (**AEMC**) on the merits of a trailing average approach, where it argued that:

*Averaging does not systematically increase or decrease the allowed cost of debt. Indeed, by definition, the contemporaneous value will sometimes be above the historical average and sometimes below it – on average, the two will be the same.<sup>63</sup>*

There is no additional cost incurred by applying a long-term approach, other than a transitional cost (discussed below). The question as to whether or not consumers would prefer to pay a premium for the stability provided by a long-term averaging approach therefore does not arise.

### ***Implementation***

The Commission is currently considering implementation options for the trailing average approach. There are various options that could be adopted, based on:

- ▲ The AER's approach, which recalculates the cost of debt each year to reflect the prevailing risk free rate and debt risk premium. The AER applies an arithmetic average over a 10-year period<sup>64</sup>, which may not replicate a prudent financing strategy depending on the business' capex profile over the 10 year period. Adopting weights for each year based on capex incurred is more likely to achieve the efficiency incentives.
- ▲ The ERA has commenced a consultation process canvassing the option of moving away from its on-the-day approach to a trailing average or a hybrid approach.<sup>65</sup> It is considering two options: the AER approach (although applying weights) or a "hybrid" trailing average approach, which fixes the risk free rate for the entire regulatory period using an on-the-day approach and only adopts a trailing average for the debt risk premium. The hybrid approach assumes that a business would prefer to hedge the risk free rate through derivatives at the commencement of a regulatory period. This is based on the assumption that a regulated business which has been operating under

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<sup>63</sup> Strategic Finance Group, *Rule change proposals relating to the debt component of the regulated rate of return: Report for AEMC*, August 2012, p.15 (available at <http://www.aemc.gov.au/Media/docs/12-18603-SFG-report---Return-on-debt---final---for-publication-c7225c79-25c3-4868-a641-8e3a33abb9af-0.pdf>).

<sup>64</sup> AER, *Draft Decision Actew AGL distribution determination 2015-16 to 2018-19 Attachment 3: Rate of return*, November 2014, page 290, available at [http://www.aer.gov.au/sites/default/files/AER%20draft%20decision%20ActewAGL%20distribution%20determination%20-%20Attachment%2003%20-%20Rate%20of%20return%20-%20November%202014\\_0.pdf](http://www.aer.gov.au/sites/default/files/AER%20draft%20decision%20ActewAGL%20distribution%20determination%20-%20Attachment%2003%20-%20Rate%20of%20return%20-%20November%202014_0.pdf) accessed 4 March 2015.

<sup>65</sup> ERA WA, *Proposed revised access arrangements for the mid-west and south-west gas distribution systems, Return on debt consultation*, 25 February 2014, available at <http://www.erawa.com.au/cproot/13371/2/Proposed%20Revised%20Access%20Arrangement%20for%20the%20Mid-West%20and%20South-West%20Gas%20Distribution%20Systems%20-%20Return%20on%20Debt%20consultation.pdf> accessed 3 March 2015.

an on the day approach for estimating the cost of debt, will have already adopted a financing strategy that uses swaps to manage their interest rate risks.<sup>66</sup> In March 2015 the ERA issued a discussion paper on estimating the return on debt.<sup>67</sup>

- ▲ The IPART approach, which gives the regulator some discretion as to how to have regard to short-term and long-term averages (currently it sets a mid-point),<sup>68</sup> may deliver an outcome similar to a trailing average approach, depending on how the regulator exercises that discretion. The IPART approach is arguably less transparent and predictable, and potentially introduces regulatory risks that could be avoided by setting out a clear framework for updating the cost of debt over time.

Uniting Communities proposed a five-year trailing average approach, as this roughly aligns with the regulatory period, recognising that a trailing average approach provides a degree of stability.<sup>69</sup> While a five year trailing average period was considered, as argued above there is evidence that longer term financing, e.g. 10-year bonds, is regarded as more efficient for infrastructure businesses.<sup>70</sup>

In considering the averaging approach, the Commission is mindful of the views put by the Australian Competition Tribunal on the matter. In the matter of Jemena (No 5), the Tribunal noted:

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<sup>66</sup> ATCO Gas Australia, *Cost of debt consistent with the NGR and NGL*, Tom Hird, CEG Consulting, November 2014, Appendix 9.2, page 23, available at <http://www.erawa.com.au/cproot/13031/2/20141129%20GDS%20-%20ATCO%20-%20AA4%20-%20Appendix%209.2%20CEG%20Report%20ATCO%20Response%20to%20draft%20decision.PDF> accessed 3 March 2015.

<sup>67</sup> ERA Estimating the return on debt: Discussion paper, 4 March, 2015, available at [http://www.erawa.com.au/cproot/13374/2/Estimating%20the%20return%20on%20debt%20discussion%20paper.pdf?utm\\_medium=email&utm\\_campaign=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper&utm\\_content=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper+CID\\_e5c861db64db8bf1d867f992232aca0e&utm\\_source=Email&utm\\_term=Discussion%20Paper](http://www.erawa.com.au/cproot/13374/2/Estimating%20the%20return%20on%20debt%20discussion%20paper.pdf?utm_medium=email&utm_campaign=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper&utm_content=Invitation+for+public+submissions+-+Estimating+the+return+on+debt+discussion+paper+CID_e5c861db64db8bf1d867f992232aca0e&utm_source=Email&utm_term=Discussion%20Paper).

<sup>68</sup> For example, IPART, *NSW Rail access undertaking – Review of the rate of return and remaining mine life from 1 July 2014, Transport – Final Report and Decision*, July 2014, available at [http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Rail%20Access/Review%20of%20rate%20of return%20and%20remaining%20mine%20life%20from%201%20July%2014/15%20Jul%2014%20-%20Final%20Decision/Final%20Report%20and%20Decisions%20-%20NSW%20Rail%20Access%20Undertaking%20-%20Review%20of%20rate%20of%20return%20and%20remaining%20mine%20life%20-%20from%201%20July%2014](http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Rail%20Access/Review%20of%20rate%20of%20return%20and%20remaining%20mine%20life%20from%201%20July%2014/15%20Jul%2014%20-%20Final%20Decision/Final%20Report%20and%20Decisions%20-%20NSW%20Rail%20Access%20Undertaking%20-%20Review%20of%20rate%20of%20return%20and%20remaining%20mine%20life%20-%20from%201%20July%2014) accessed 4 March, 2015.

<sup>69</sup> Uniting Communities submission, page 6.

<sup>70</sup> For example, see the October 2013 submission from Queensland Treasury Corporation to the AER's draft rate of return guideline, which provided evidence that the observed financing practices of non-regulated infrastructure businesses, and businesses operating in capital intensive industries (e.g. Sydney airport), support a benchmark debt tenor of 10 years (available at <https://www.aer.gov.au/sites/default/files/QTC%20Submission%20to%20draft%20AER%20rate%20of%20return%20guideline%20-%202011%20Oct%202013f.pdf>).

*An average is a blunt instrument unless careful thought is given to the individual components and whether each should be given the same consideration, or weight in the calculation of the average.<sup>71</sup>*

### **Conclusion**

The Commission proposes that it will utilise a weighted 10-year averaging approach to calculating the cost of debt, estimated directly from bond yields published by the RBA.

Further work will be required on selection of the particular model of trailing average to be implemented. A number of options are available and the Commission will seek stakeholder comment on those options through the public consultation phases of the price determination.

## **3.6 Gearing**

### **3.6.1 What is it?**

The capital structure or the capital financing of a business consists of equity funding from shareholders and debt funding from lenders. Gearing is the value of debt to total capital; an indicator of how efficient the firm's capital structure is. The optimal level of debt to equity ratio is considered to be where the business' value is maximised, balanced against the risk of default.

The value of debt and equity as a proportion of the overall asset value is an important parameter in the calculation of the WACC. It is used to weight both the return of debt and the return on equity in determining the weighted average cost of capital.

### **3.6.2 Why does it matter?**

The mix between debt and equity will influence the overall regulatory rate of return, on the basis that debt is generally less expensive than equity (because of the higher risk of equity).

The regulatory gearing ratio examines how a benchmark firm would undertake capital financing. Choosing the optimal level of gearing requires a trade-off between lowering the overall cost of capital (which implies high gearing) and the increased default risk that comes from having high levels of debt. As a result, a firm's credit rating will be higher if its gearing is lower, all other things being equal.

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<sup>71</sup> Application by Jemena Gas Networks (NSW) Ltd (No 5) [2011] ACompT at para 62.

### *3.6.3 Current regulatory practice*

Within the Australian regulatory sector, most recent determinations show that a gearing ratio of 60 per cent is adopted universally, except for some special cases.<sup>72</sup>

The AER has published empirical evidence that supports 60 per cent being used for a regulated entity in Australia.<sup>73</sup> It reviewed four different approaches to determining the gearing ratio for a range of regulated firms within Australia, producing an average range of 59 to 66 per cent. The AER considered that 60 per cent was therefore appropriate.

Although the AER came to this conclusion by looking at the energy sector, all Australian water regulators have also adopted a 60 per cent gearing ratio as a benchmark (refer Table 3.6).

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<sup>72</sup> One such case is IPARTS' price determination for Essential Energy Broken Hill operations, where a gearing ratio of 55 per cent was used due to the perceived decrease in demand as the population decreases. IPART took the view that this would mean Essential Energy would face higher risk than the benchmark firm. For this reason, this particular determination is not relevant when comparing gearing ratios as it deviates from the principle of using a benchmark efficient firm.

<sup>73</sup> AER, *Better Regulation, Rate of Return – Appendix F*, December 2013, p126.

**Table 3-6: Benchmark gearing ratios applied in recent regulatory decisions.**

REGULATOR	ESCOSA	ESCV <sup>74</sup>	ERA <sup>75</sup>	IPART <sup>76</sup>	ICRC <sup>77</sup>	AER <sup>78</sup>
Gearing Ratio	60% (final)	60% (final)	60% (final)	55% (final)	60% (final)	60% (draft)

**Table 3-7: Benchmark gearing ratios applied in other regulatory documents.**

REGULATOR	ERA <sup>79</sup>	IPART <sup>80</sup>	QCA <sup>81</sup>	AER <sup>82</sup>	INDUSTRY PANEL <sup>83</sup>
Gearing Ratio	60% (guidelines)	60% (guidelines)	60% (review)	60% (draft)	60%

### 3.6.4 Discussion

In previous determinations for energy and water businesses the Commission adopted a gearing ratio of 60 per cent.

A 60:40 debt to equity ratio is considered to reflect the efficient level of debt which an efficient benchmark utility firm would carry. This assumption is universally applied among Australian regulators of water utilities and was generally supported in submissions to this review.<sup>84</sup>

<sup>74</sup> ESCV, *Price review 2013: Greater metropolitan water business final decision*, June 2013.

<sup>75</sup> ERA, *Inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and the Busselton Water Board: Revised final report*, March 2013.

<sup>76</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018*.

Note: this determination follows the IPART guidelines on determining the rate of return but, as the natural of the environment in Broken Hill is different to other NSW regions the benchmark has been adapted to reflect these differences.

<sup>77</sup> ICRC, *Final Report, Regulated Water and Sewerage Services*, June 2013, p69.

Note: ICRC state that the gearing ratio used reflects ACTEW's actual level of gearing.

<sup>78</sup> AER, *Final Decision, SP AusNet Transmission determination 2014-15 to 2016-17*, January 2014, p22.

Note: the AER released the new guidelines in December 2013. However, due to the short window between the guidelines and the final decision for AusNet, AusNet uses the former methodology for its determination.

<sup>79</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines*, meeting the requirements of the National Gas Rules, December 2013, p 44.

<sup>80</sup> IPART, *Review of WACC Methodology, Research – Final Report*, December 2013, p 72.

<sup>81</sup> QCA, *Final report Seqwater irrigation price review 2013-17 Volume 1*, April 2013.

<sup>82</sup> AER, *Better Regulation, Explanatory Statement Rate of Return Guideline*, December 2013, p 9.

<sup>83</sup> Industry Panel, *Review of the Independent Competition and Regulatory Commission's 2013 Price Direction, Draft Report*, December 2014, p 106.

<sup>84</sup> For example, Uniting Communities submission, page 6; SA Water, p 34.

The Commission has not changed its position that a gearing ratio of 60% is appropriate, and is not aware of any generally accepted alternative position at this time.

## *3.7 Debt raising costs*

### *3.7.1 What is it?*

Debt raising costs encompass the administrative costs associated with raising debt. In the context of the benchmark regulated entity, these are the costs associated with issuing bonds. An intermediary, such as a merchant bank, is engaged to organise and conduct a bond issue on behalf of the business. This service carries a range of fees which are collectively referred to as debt raising costs or transaction costs.

### *3.7.2 Why does it matter?*

Debt raising costs are unavoidable for businesses that wish to access the bond market, and are, therefore, a legitimate cost of doing business. Those costs are a fixed charge associated with each bond issue. A business that issues long term bonds enters the market less frequently than if it issues short term bonds. As a result, due to the fixed cost nature of debt raising costs, its debt raising costs would be lower. This is a consideration in terms of moving to a long term trailing average approach, which assumes less frequent bond issuance than does an on-the-day approach.

### *3.7.3 Current regulatory practice*

Regulators sometimes add an allowance for debt raising costs. For example, IPART allows 12.5 bps for debt raising costs associated with debt with a 10 year term to maturity. This compares with 20 bps that IPART used to allow when it utilised five year, rather than 10 year bonds, as the higher frequency of refinancing carried with it higher transaction costs for raising debt.<sup>85</sup> The ERA also allowed 12.5 bps for debt raising costs in its latest water pricing inquiry.<sup>86</sup>

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<sup>85</sup> See IPART, *Review of WACC methodology, Final Report, December 2013*, page 14, available at [http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review\\_of\\_method\\_for\\_determining\\_the\\_WACC/Dec\\_2013\\_-\\_Release\\_Final\\_Report/Final\\_Report\\_-\\_Review\\_of\\_WACC\\_Methodology\\_-\\_December\\_2013](http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review_of_method_for_determining_the_WACC/Dec_2013_-_Release_Final_Report/Final_Report_-_Review_of_WACC_Methodology_-_December_2013) accessed 5 March 2015.

<sup>86</sup> ERA, *Inquiry into the Tariffs of the Water Corporation, Aqwest and Busselton Water: Final Report*, 2013, page 177, available at <https://www.erawa.com.au/cproto/11248/2/20130328%20D104647%20-%20Inquiry%20into%20the%20efficient%20costs%20and%20tariffs%20of%20the%20water%20corp%20aqwest%20and%20cusselton%20water%20-%20revised%20final%20report.pdf> accessed 5 March 2015.

### **3.7.4 Discussion**

As debt raising costs are part of the overall cost of debt, the Commission proposes to include debt-raising costs of 12.5 bps commensurate with 10-year bonds.

## **3.8 Annual updates of the cost of debt**

As noted previously, the cost of debt will be most accurate if the weighted trailing average is updated annually over the regulatory period. This approach allows the cost of debt for each year of the regulatory period to be weighted (e.g. by capex), and would incorporate average benchmark financial parameters which have been observed throughout the year (rather than actual interest rates which apply to specific parcels of debt). This approach provides the correct signals for capital expenditure based on the cost of debt prevailing in each year, which promotes efficient investment decisions and the lowest sustainable price for consumers.

The process of updating annually does not distort the capex and refinancing decisions in any way, as there is no incentive for the regulated business to ‘game’ the system – to bring forward or withhold capex and debt refinancing, depending upon prevailing and allowed rates of return, due to the risk of not having its debt costs reflected in its allowed revenue.

The implication of annual updating is that the regulator cannot determine in advance what the exact revenue allowed will be in the outer years of the regulatory period. Therefore, just as allowed revenue is adjusted each year for actual inflation, adjustments could also be made to reflect changes in the cost of debt. These annual adjustments would not be substantial as nine out of ten years which make up the cost of debt calculation would be the same as the previous year, thus smoothing out the revenue path when compared with resets that coincide with regulatory terms.

## 4 COST OF EQUITY

### Summary of approach

It is proposed that the Commission calculate the cost of equity using the Sharpe-Lintner capital asset pricing model (**CAPM**). In applying the CAPM, the Commission proposes to adopt the following parameters:

Calculation of the cost of debt will use the following parameters/approach.

- ▲ a risk free rate based on the 20-day average of 10-year Commonwealth Government bonds (CGBs), determined as close as possible to the commencement of the regulatory period
- ▲ a long-term historic market risk premium (MRP) of 6.0% as the best estimate of the future MRP, and
- ▲ an equity beta of 0.7, noting that this value is at the upper bound of a reasonable range of values.

### 4.1 Overview

The cost of equity is the return required by investors for investing in a business. This return consists of both a risk premium associated with the non-diversifiable (systematic) risk associated with a specific asset or firm plus the risk free rate.

Under the National Water Initiative, to which the South Australia Government is a signatory, the rate of return is to be developed in accordance with the weighted average cost of capital and the cost of equity derived from the CAPM consistent with Principle 1 of the NWI Pricing Principles.

The September 2014 Pricing Order and the NWI pricing principles require the Commission to use the CAPM. The Commission agrees that the CAPM is the most suitable method for calculating the cost of equity at this point in time. The Commission also notes that the CAPM is uniformly used across all Australian regulators (and was used by the South Australian Government to estimate SA Water's cost of capital prior to the advent of independent regulation in 2013).

It should be noted that the approach for the cost of equity differs from that taken for the cost of debt. There are methodological differences between the two: the cost of equity is a forward looking concept; whereas the cost of debt incurred by a firm is a reflection of its historic and legacy debt.

This approach was supported by the Queensland Treasury Corporation in its submission to the AER's rate of return guideline review, which noted that:

*Efficient financing costs are those that are incurred as a result of efficient equity and debt financing strategies, employed by firms over time and spanning multiple regulatory periods. In the case of equity, due to the fact that funds are typically committed on an indefinite basis, opportunity cost approaches using prevailing market data may provide an appropriate return. Different considerations arise for debt because financing costs are usually locked in for a fixed period at the time of borrowing, often well in advance of a particular regulatory period.<sup>87</sup>*

(Emphasis added)

Accordingly, the Commission calculates a point-estimate of the cost of equity using the Sharpe-Lintner capital asset pricing model (**CAPM**).

A critical assumption of the CAPM is that the risk margins depend on the extent of exposure to systematic risk.

In the CAPM, the nominal cost of equity ( $k_e$ ) is defined as the sum of the returns available on a risk-free asset and the premium required to accept the risks associated with equity, in the following manner:

$$k_e = r_f + \beta_L \times MRP$$

where:

$r_f$  = the nominal risk free rate

$\beta_L$  = the levered or equity beta which reflects the systematic risk of an equity, and

MRP = the expected market risk premium – that is, the expected total market return less the risk-free rate,  $r_f$ ) normally written as:  $MRP = E(r_m) - r_f$ , where  $E(r_m)$  is defined as the expected return on the market.

This model requires the application of the most current information to derive the cost of equity.

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<sup>87</sup> Queensland Treasury Corporation, *Rate of Return Guidelines Issues Paper: Submission to the Australian Energy Regulator*, February 2013, p. 3 (available at <http://www.aer.gov.au/sites/default/files/QTC%20submission%20-%20Rate%20of%20return%20guidelines%20Issues%20Paper%20-%2020130215.pdf>).

Inputs to a model should be appropriate for use in that model, so individual equity parameters should be consistent with the CAPM framework. Complementing the above and, in accordance with the principles and objectives outlined in Chapter 2, the cost of equity reflects the principle of shareholders investing in a firm with assets with long lives.

In implementing CAPM, the risk free rate, equity beta and MRP must be determined. Each of the parameters that comprise the cost of equity is considered in the sections that follow.

## 4.2 *Risk free rate*

### 4.2.1 *What is it?*

In the CAPM, the risk free rate reflects the return an investor would expect from an asset with zero risk of default.<sup>88</sup>

The most commonly adopted proxy for a risk-free rate in Australia is the yield on Commonwealth Government bonds (**CGBs**). As the market value of CGBs fluctuates with interest rates, they are not completely risk-free. However, CGBs are often regarded as default risk-free securities due to the guaranteed return of capital provided by the Australian Government.

### 4.2.2 *Why does it matter?*

The risk free rate compensates investors for the time value of money. In effect, it is the compensation that an investor demands having consigned funds to an investment and, therefore, relinquishing the opportunity to spend those funds immediately on goods and services.

The risk-free rate is observed directly from market data and is a required parameter to calculate the cost of equity.

In order to calculate the risk-free rate, the Commission will need to determine:

- ▲ the security that will act as the proxy for the risk-free rate
- ▲ the term to maturity of the proxy instrument, and
- ▲ the appropriate period for taking observations (the averaging period).

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<sup>88</sup> M. McKenzie, and G. Partington, *Report to the AER: Supplementary report on the equity market risk premium*, 22 February 2012, pp. 11–12.

#### *4.2.3 SA Water PD 2013*

For SA Water PD 2013, the Commission calculated a risk-free rate using the following approach:

- ▲ selecting the longest traded Government security as a proxy for a risk-free asset – that is, a 10-year CGB, and
- ▲ averaging the yields on a 10-year CGB over a 20 business day period as close as possible to the date of the determination, to capture the most recent market data.

#### *4.2.4 Current regulatory practice*

Prior to SA Water PD 2013, most Australian economic regulators selected the tenor of the proxy risk free bond (that is, a CGB) with the length of the regulatory period.

Only the Essential Services Commission – Victoria (**ESCV**) and the Australian Energy Regulator (**AER**) used a 10-year CGB to determine the risk-free rate. The Independent Pricing and Regulatory Tribunal (**IPART**), Queensland Competition Authority (**QCA**) and Economic Regulation Authority (**ERA**) matched the tenor of the bond term to the regulatory period; which was either a four or five-year CGB.

In the past, regulators had generally adopted either a 20 or 40 day averaging period (and in some instances 10 days), although IPART uses a range based on averaging over 40 days and 10 years. The AER is the only regulator that differs in this regard; it is proposing to use a 10-year trailing averaging period in future price determinations.

The table that follows notes recent practice by regulators for bond tenors and averaging periods.

**Table 4-1: Proxy bonds and averaging periods assumed by other regulators**

ESCV	IPART		QCA	ERA		AER	ICRC
<b>Water</b> Price Review Greater metropolitan water businesses June 2013 <sup>89</sup>	<b>Water</b> Essential Energy's water and sewerage services in Broken Hill, June 2014 <sup>90</sup>		<b>Water</b> Price Review Seqwater Irrigation April 2013 <sup>91</sup>	<b>Water</b> Inquiry Efficient costs and tariffs March 2013 <sup>92</sup>	<b>Electricity</b> Access Determination Western Power Network <sup>93</sup>	<b>Electricity</b> Final Decision SP AusNet Transmission determination 2014-15 to 2016-17, January 2014 <sup>94</sup>	<b>Water</b> Final Report: Regulated water and sewerage services, June 2013 <sup>95</sup>
Average yield on 10-year nominal CGB	Current market data: 5-year CGB yield	Long-term averages: 5-year CGB yield	4-year CGB	Average yield on 5-year CGB as reported	Based on yields from 5-year CGB as reported by the RBA	10-year CGB yield	Uses ACTEW's actual cost of debt based on ACTEW's 2 year projected yield
40 business days	Current market data: 40 business days	Long-term averages: 10 year average	20 business days	20 business days	20 business days	20 business days	N/A

<sup>89</sup> ESCV, *Price Review 2013: Greater Metropolitan Water Businesses — Final Decision*, June 2013, p.108 (available at <http://www.esc.vic.gov.au/getattachment/653684bc-1058-4cc9-a62b-c31053e7762a/Metropolitan-water-price-review-2013-18-final-deci.pdf>).

<sup>90</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018* (available at [http://www.ipart.nsw.gov.au/files/00b55712-a330-437c-8459-a1d600daf637/Final\\_Report\\_-\\_HWCs\\_water\\_sewerage\\_stormwater\\_drainage\\_and\\_other\\_services\\_-\\_1\\_July\\_2013\\_to\\_30\\_June\\_2017.pdf](http://www.ipart.nsw.gov.au/files/00b55712-a330-437c-8459-a1d600daf637/Final_Report_-_HWCs_water_sewerage_stormwater_drainage_and_other_services_-_1_July_2013_to_30_June_2017.pdf)).

<sup>91</sup> QCA, *Final Report, Seqwater Irrigation Price Review 2013-17, Volume 1*, April 2013, p.271 (available at <http://www.qca.org.au/getattachment/3662b6af-fbd0-43a5-a52b-e99c2f6e85be/Seqwater-Irrigation-Price-Review-2013-17-Volume-1.aspx>).

<sup>92</sup> ERA, *Inquiry into the Tariffs of the Water Corporation, Aqwest and Busselton Water: Revised Final Report*, March 2013, p.57 (available at <http://www.erawa.com.au/cproto/11248/2/20130328%20D104647%20-%20Inquiry%20into%20the%20efficient%20costs%20and%20tariffs%20of%20the%20water%20corp%20aqwest%20and%20cusselton%20water%20-%20revised%20final%20report.pdf>).

<sup>93</sup> ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, September 2012, p.327 (available at <http://www.erawa.com.au/cproto/10737/2/20120905%20-%20D94955%20-%20Final%20Decision%20on%20Proposed%20Revisions%20to%20the%20Access%20Arrangement%20for%20the%20Western%20Power%20Network%20-%20Published%20Version.pdf>).

<sup>94</sup> AER, *Final Decision SP AustNet Transmission determination 2014-15 to 2016-17*, January 2014 (available at <http://www.aer.gov.au/sites/default/files/AER%20final%20decision%20for%20SP%20AusNet%27s%202014-%20regulatory%20control%20period%20-%2031%20January%202014.pdf>).

<sup>95</sup> ICRC *Final Report: Regulated water and sewerage services, 1 July 2013 to 30 June 2019*, Report 5 of 2013, June 2013 (available at [http://www.icrc.act.gov.au/wp-content/uploads/2013/06/1-WSS-Final-Report\\_25June13-FOR-WEB1.pdf](http://www.icrc.act.gov.au/wp-content/uploads/2013/06/1-WSS-Final-Report_25June13-FOR-WEB1.pdf)).

**Table 4-2: Proxy bonds and averaging periods used in Regulators' guidelines and other reviews**

IPART		ERA	AER	INDUSTRY PANEL
<b>Review</b> Review of the WACC Methodology <sup>96</sup>		<b>Guideline</b> Rate of Return Guidelines, Meeting the Requirements of the National Gas Rules, December 2013 <sup>97</sup>	<b>Guideline</b> Better Regulation, Explanatory Statement Rate of Return Guideline, December 2013 <sup>98</sup>	<b>Review (Draft)</b> Industry Panel review of the Independent Competition and Regulatory Commission's 2013 Price Direction for Regulated Water and Sewerage Services in the ACT, December 2014
Current market data: 10-year CGB yield	Long-term averages: 10-year CGB yield	Based on yields from 5-year CGB as reported by the RBA	10-year CGB yield	10-year CGS from Bloomberg
Current market data: 40 business days	Long-term averages: 10 year average	20 business days	20 business days	40 business days

#### 4.2.5 Discussion

##### Tenor of Bond

Where regulators have used 10-year CGBs as a proxy to measure the risk-free rate, they have done so on the basis that a 10-year bond is often the longest tenor available and is most closely aligned with the life of a regulated utility's assets (which have an average life of around 60 years or so).

<sup>96</sup> IPART, *Review of WACC Methodology, Final Report*, December 2013, (available at [http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review\\_of\\_method\\_for\\_determining\\_the\\_WACC/Dec\\_2013\\_-\\_Release\\_Final\\_Report/Final\\_Report\\_-\\_Review\\_of\\_WACC\\_Methodology\\_-\\_December\\_2013](http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Review_of_method_for_determining_the_WACC/Dec_2013_-_Release_Final_Report/Final_Report_-_Review_of_WACC_Methodology_-_December_2013)).

<sup>97</sup> ERA, *Final Decision on Proposed Revisions to the Access Arrangement for the Western Power Network*, September 2012, p.327 (available at <http://www.erawa.com.au/cproto/10737/2/20120905%20-%20D94955%20-%20Final%20Decision%20on%20Proposed%20Revisions%20to%20the%20Access%20Arrangement%20for%20the%20Western%20Power%20Network%20-%20Published%20Version.pdf>).

<sup>98</sup> AER, *Better Regulation: Rate of Return Guideline*, December 2013 (available at <http://www.aer.gov.au/sites/default/files/AER%20Rate%20of%20return%20guideline%20-%20December%202013.pdf>).

The Commission notes the debate that has developed with regard to the appropriateness of a 10-year term for the proxy bond. Subject to the term structure of the bond, it is possible that an over or under-recovery of revenue could occur if the term of the bond exceeds the length of the regulatory period. One approach utilised by regulators to circumvent this issue is to use a bond that possesses a term that matches the regulatory cycle (e.g. four years) instead of the life of the regulatory assets.

That approach is not favoured, largely because it is not consistent with the principles and objectives discussed in chapter 2. A shareholder of a large, capital intensive infrastructure business is likely to have a long-term view of expected returns. A long-term CGS (of ten years) provides the best proxy instrument for the risk-free component of the cost of equity.

In developing its rate of return guideline, the AER proposed a 10-year CGB, arguing that:

*Conceptually, the adoption of a 10 year forward looking risk free rate, based on prevailing conditions in the market for funds at the commencement of the regulatory control period is:*

- *reflective of prevailing market conditions*
- *consistent with the Sharpe–Lintner CAPM*
- *internally consistent with our estimate of the MRP.*<sup>99</sup>

IPART has similarly proposed adopting a 10-year CGB, on the basis of internal consistency with the MRP, which relies on a longer-term view of returns to shareholders.

The Commission agrees that a 10-year CGB is more consistent with the basis upon which the MRP is set (discussed in section 4.3 below). It is also consistent with the principles and objectives discussed in chapter 2. For those reasons, the Commission proposes to utilise a 10-year CGB to calculate the risk-free rate component of the cost of equity.

### **Averaging period**

The cost of capital can vary substantially over time as supply and demand changes within capital markets. In determining the regulatory rate of return, consideration must be given to whether or not the market-based parameters, which includes the risk-free rate, should reflect current market conditions or some longer-term historic period.

While, in theory, the cost of capital could reflect point-in-time market-based observations, regulators generally average those observations over a period of time; from a minimum of 10 days up to 10 years, to ensure that any once-off events are not given undue weight.

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<sup>99</sup> AER, *Explanatory statement – rate of return guideline*, December 2013, p 74.

In terms of the use of the risk-free rate with CAPM (for calculating the cost of equity), the AER explains (in its Rate of Return Guidelines) that, in theory, the CAPM requires that the risk free rate be an ‘on-the-day’ rate rather than a reflection of an historic average.<sup>100</sup> In concluding this, the AER stated that:

*A short averaging period provides a reasonable estimate of the prevailing rate while not exposing service providers to unnecessary volatility. It is a pragmatic alternative to using a risk free rate that is precisely consistent with the CAPM.*

The AER went on to note that:<sup>101</sup>

*A short averaging period (for example, 20 business days) as close as practically possible to the commencement of the access arrangement period provides a pragmatic alternative—violating the theoretical requirements of the model only to a small extent.*

With respect to a short averaging period for the risk free rate, the Commission agrees with the AER’s observations that an on-the-day approach is most consistent with the CAPM and that a 20-day averaging period is a pragmatic means of determining the risk-free rate.

#### ***Selection of an Averaging Period to apply to market observations***

Notionally, the selection of the values to apply to the parameters of the risk free rate would be based on market observations at a single point in time, as close as possible to the commencement of the regulatory period. In reality, this is not possible for various reasons.

Dependent on timing, volatility in the market and the possibility of unique, unusual or one-off market movements may have temporary or short-term (potentially adverse) consequences that may be locked in to the rate of return for the life of the regulatory period. This would result in a rate that either overly advantages or disadvantages the regulated firm.

The use of an averaging period seeks to “smooth” out such market impacts so that less weight is given to unique events or other inexplicable variations that have little or nothing to do with the underlying state of the market while not violating the “on-the-day” requirement of the CAPM.

A review of regulatory practice indicates that Australian regulators use averaging periods that range from as little as 20 business days to 40 business days - with most adopting an averaging period of 20 business days (as noted earlier).

The ERA tested the forecasting efficiency of several different averaging periods (extending from one day through to five years) using a range of statistical techniques and concluded that:

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<sup>100</sup> AER, *Explanatory statement – rate of return guideline*, December 2013, p 77.

<sup>101</sup> AER, *Explanatory statement – rate of return guideline*, December 2013, p 78.

*The results suggested that, statistically, there is no difference in forecasting efficiency between twenty, five or one day averaging period forecasts. Twenty day based forecasts were significantly superior to one year based forecasts with 95 per cent statistical confidence. They were also superior to five year based forecasts, but with only 90 per cent statistical confidence. The tests again confirm that the most recent value of Australian Government bond yields is the most efficient predictor of the future yields, being the twenty trading day average period.<sup>102</sup>*

Accordingly, the Commission is satisfied its practice of using an averaging period of 20 business days is appropriate.

### ***Conclusion***

It is proposed that the yields of 10-year CGBs, averaged over a 20 business day period as close as possible to the date of making the SA Water PD 2016, be used to calculate the risk-free rate as part of the cost of equity.

## ***4.3 Market risk premium***

### ***4.3.1 What is it?***

The market risk premium is the expected market return above the risk-free rate from equity investments (that is, the excess returns earned by investors). Although, the market risk premium is a forward-looking estimate it cannot be directly observed; however, it is a significant component of the cost of equity and regulatory rate of return.

### ***4.3.2 Why does it matter?***

The market risk premium compensates for the exogenous market risk investors face when investing in a benchmark firm. Exogenous market risk is the risk that affects all firms within that market and no individual firm can influence or avoid this risk. Firms cannot eliminate or diversify this risk away.

The MRP compensates investors for the unavoidable market risk that they may experience. It is necessary as investors require it to deal with the risk they face in investing in the market portfolio of risky assets.

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<sup>102</sup> ERA, *Inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and Busselton Water Board - Final report*, January 2013, pp 152-153.

### *4.3.3 Current regulatory practice*

Generally there are three methods in estimating the MRP:

- ▲ Survey-based MRP, which gathers opinions from investors, analysts, and academics on their expectations of MRP; however, the survey methodology is time consuming, costly and based on opinion rather than market observations.<sup>103</sup>
- ▲ Historic MRP, which takes the difference between the average return on the market portfolio and the average return on the risk free asset for a historic period. This method assumes that the MRP has not changed over time; however, depending on some of the fundamental assumptions made, different values can be calculated (such as the averaging period, proxy bonds used and the averaging method used);
- ▲ Implied MRP, which assumes that the current equity market is correctly priced and is calculated by solving for the required rate of return given current expected dividends and the current price of the market portfolio.

The majority of Australian regulators use an historic MRP approach due to the ease of use and regulatory consistency. In addition to the historic approach for the long term WACC, IPART also use the implied approach, as the MRP is a forward-looking component and therefore the forward-looking approach gives the most accurate estimate. A disadvantage of the implied approach is that its results are highly volatile, which is why the majority of regulators continue to use an historic MRP.

From the available evidence, regulators have adopted an MRP of 6 per cent as the best estimate for use in determining the cost of equity, as noted in the following table:

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<sup>103</sup> For example, a report by SFG commissioned by IPART suggested that data obtained through a survey is unlikely to provide a reliable estimate of the MRP as: (1) responses are impacted by individual respondent's interpretation of the questions and the analysis undertaken to provide their answers; (2) unlikely market participants, respondents do not have an economic stake in the outcomes of the survey; and (3) the rate of incomplete responses to surveys can be high. Refer IPART, *Review of WACC Methodology Appendix B*, 2013, p53.

**Table 4-3: Regulators' decisions on market risk premium**

ESCOSA	ESCV <sup>104</sup>	ERA <sup>105</sup>	IPART <sup>106</sup>	ICRC <sup>107</sup>	AER <sup>108</sup>
Historic: 6% (final)	Historic: 6% (final)	Historic: 6% (final)	Implied: 7.2% - 8.6% Historic: 5.5% - 6.5% (final)	Historic: 6% (final)	Hybrid <sup>109</sup> : 6.5% (final)

**Table 4-4: Other reports on market risk premium**

ERA <sup>110</sup>	IPART <sup>111</sup>	QCA <sup>112</sup>	INDUSTRY PANEL <sup>113</sup>	AER <sup>114</sup>
Hybrid: 5% - 7.5% (guidelines)	Historic: 5.5% - 6.5% (guidelines)	Historic: 6% (review)	Implied: 7.23% (review)	Hybrid: 6% or 6.5% (guideline)

<sup>104</sup> ESCV, *Price review 2013: Greater metropolitan water business final decision*, June 2013.

<sup>105</sup> ERA, *Inquiry into the efficient costs and tariffs of the Water Corporation, Aqwest and the Busselton Water Board: Revised final report*, March 2013.

<sup>106</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill: Review of prices from 1 July 2014 to 30 June 2018*.

<sup>107</sup> Independent Competition and Regulatory Commission (ICRC), *Final Report, Regulated Water and Sewerage Services*, June 2013.

<sup>108</sup> AER, *Final decision, SP AustNet 2014-17*, January 2014, p 22.

<sup>109</sup> The AER use a hybrid approach that examines the historic excesses observed to reduce the volatility the forward-looking actuals estimated may experience. Generally, they pick 6% or 6.5%.

<sup>110</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines*, December 2013, p133.

<sup>111</sup> IPART, *Final Report, Review of WACC Methodology*, December 2013, p6.

<sup>112</sup> QCA, *Final Report Seqwater irrigation price review 2013-17 Volume 1*, April 2013.

<sup>113</sup> ICRC, *Final Report, Regulated Water and Sewerage Services*, June 2013.

<sup>114</sup> AER, *Better Regulation; Explanatory Statement, Rate of Return Guideline*, December 2013, p89.

#### **4.3.4 Discussion**

In previous determinations, the Commission adopted an MRP of 6%.

SACOSS and Uniting Communities both suggest that MRP should be lower, due to current low interest rates and more recent data.<sup>115</sup> The Commission has considered that suggestion and reviewed those data, but it has found that they are not significant to support a move away from an MRP of 6%.

Arguments have been put by other regulators that the return on equity should be constant and that movements in the risk-free rate should be offset by the MRP (effectively meaning that the MRP varies over time). However, as the ERA has noted, the relationship between the risk free rate and the MRP is still not well understood, and current theory and evidence remain inconclusive.<sup>116</sup>

The implied MRP approach relies on the dividend growth model to estimate the MRP. That model assumes a negative relationship between the risk free rate and the MRP.<sup>117</sup> It also assumes a steady and perpetual growth rate that may not be reasonable,<sup>118</sup> and that the stock price is very sensitive to the chosen growth rate.<sup>119</sup> The implied method has the potential to be very volatile and unreliable due to the on the day approach of measuring it. The approach is not generally used by Australian regulators and is not favoured by the Commission.

The survey-based approach is not used by any Australian regulator and is generally considered to be unreliable because it is solely based on opinion. The Commission will not be using that approach.

The historic approach assumes there is no relationship between the risk free rate and the MRP and, as a consequence the long term average of the MRP of 6% appears to be the best estimate of the forward MRP. Evidence presented by the ERA suggests that the notion that there is no relationship between the risk free rate and MRP is questionable, but admits that any evidence for one method over the other remains inconclusive.<sup>120</sup>

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<sup>115</sup> SACOSS, *SA Water Regulatory Rate of Return 2016-2020 Draft Report to the Treasurer*, 22 January 2015, p5; Uniting Communities, *Submission Regarding: SA Water Regulatory Rate of Return 2016-2020, Draft report to the Treasurer*, January 2015, p 7.

<sup>116</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines*, December 2013, p136.

<sup>117</sup> The dividend growth model forecasts future dividends on an index, and equating this with the observed price index. The risk free rate is then subtracted from this value and the remainder is the MRP.

<sup>118</sup> Limitations of the dividend growth model are outlined by Damodaran, A., *Investment Valuation*, Second Edition, 2002, Chapter 13, p322-350.

<sup>119</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines*, December 2013, p155.

<sup>120</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines*, December 2013, p148-149.

While all three approaches have flaws, the Commission considers the historic approach to be the best available and most consistent with regulatory precedent. For this reason, the Commission will continue using the current approach of a historic estimate but will keep up to date with any new research done on this topic.

## 4.4 *Equity beta, $\beta$*

### 4.4.1 *What is it?*

Under the capital asset pricing model (**CAPM**), the total risk of an asset is comprised of systematic and non-systematic risk. Systematic risk is a function of broad macroeconomic factors (such as economic growth rates) that affect all assets and that cannot be eliminated by diversification.

The key insight of the CAPM is that the contribution of an asset to the systematic risk of a portfolio of assets is the correct measure of the asset's risk (known as beta) and the only systematic determinant of the asset's return, over and above the return on a risk free asset.

In contrast, non-systematic risk relates to the attributes of a particular asset. The CAPM assumes this risk can be managed by portfolio diversification. Therefore, the investor in an asset does not require compensation for this risk.

Beta correlates the return on the specific asset, in excess of the risk free rate of return, to the rise and fall of the return on the market portfolio.

### 4.4.2 *Why does it matter?*

Equity beta provides compensation for the risk that cannot be diversified by holding an equity (shares) as part of a portfolio of investments. Under the CAPM, the regulatory rate of return only reflects non-business specific risk which cannot be hedged.

An equity beta of 1 indicates that exogenous risks will impact on the variability of a regulated business' returns in the same way that it impacts the market as a whole: the returns to the firm and market co-vary perfectly. An equity beta greater than 1 indicates that the returns to the firm are more volatile than those of the market and an equity beta less than 1 indicates that the returns to the firm are more stable than those of the market.

In addition, in the CAPM, the equity beta represents a scaling factor applied to the MRP, to reflect the relative risk for the cost to equity.

#### 4.4.3 Current regulatory practice

The observed range of regulatory decisions and stated intentions for equity beta is shown in Tables 4.5 and 4.6 respectively.

The most recent determinations for regulated water businesses show that the water regulators are generally estimating a range of 0.6 – 0.8 for equity beta, with point estimates of 0.65 or 0.7.

**Table 4-5: Regulators' recent decisions on equity beta**

REGULATOR	REGULATED ENTITY	INDUSTRY SECTOR	DOCUMENT	DECISION DATE	EQUITY BETA
IPART	Essential Energy (Broken Hill)	Water	Determination Final <sup>121</sup>	June 2014	0.7 <i>midpoint chosen from the range 0.6 – 0.8</i>
ACCC	State Water Corporation	Water	Determination Final <sup>122</sup>	June 2014	0.7
ESCV	Greater Metropolitan Water Business	Water	Determination Final <sup>123</sup>	June 2014	0.65
QCA	Seqwater Irrigation Price Review	Irrigation	Determination Final <sup>124</sup>	April 2013	0.55
ESCOSA	SA Water	Water	Determination Final <sup>125</sup>	May 2013	0.8

<sup>121</sup> IPART, *Essential Energy's water and sewerage services in Broken Hill*, Final Report, June 2014, p. 161.

<sup>122</sup> <http://www.accc.gov.au/system/files/ACCC%20Final%20Decision%20on%20State%20Water%202014-17%20pricing%20application%20%282%20July%202014%29.pdf>.

<sup>123</sup> <http://www.esc.vic.gov.au/getattachment/653684bc-1058-4cc9-a62b-c31053e7762a/Metropolitan-water-price-review-2013-18-final-deci.pdf>.

<sup>124</sup> <http://www.qca.org.au/getattachment/3662b6af-fbd0-43a5-a52b-e99c2f6e85be/Seqwater-Irrigation-Price-Review-2013-17-Volume-1.aspx>.

<sup>125</sup> Essential Services Commission of SA, *SA Water's water and sewerage revenues 2013/14 – 2015/16, Final Determination, Statement of Reasons*, May 2013, accessed at [http://www.escosa.sa.gov.au/library/130527-SAWater\\_Water\\_SewerageRevenues\\_2013-16-FinalDetermination-StatementOfReasons\\_O.pdf](http://www.escosa.sa.gov.au/library/130527-SAWater_Water_SewerageRevenues_2013-16-FinalDetermination-StatementOfReasons_O.pdf).

**Table 4-6: Other relevant equity beta reports/reviews**

REVIEWER	REGULATED ENTITY	INDUSTRY SECTOR	DOCUMENT	DECISION DATE	EQUITY BETA
AER	ActewAGL	Electricity distribution	Determination Draft <sup>126</sup>	November 2014	0.7
Industry Panel	ACTEW	Water	Review of the ICRC Price direction for regulated water and sewerage services in ACT Report Draft <sup>127</sup>	December 2014	0.7
ERA	Water Corporation	Water	Report to Govt <sup>128</sup>	March 2013	0.65

### IPART

In its most recent determinations (since 2011) for water companies, IPART adopted a range for equity beta from 0.6 to 0.8 and has consistently adopted a point estimate of 0.7.

IPART's current estimate of equity beta is based on its review of water prices for the Sydney Desalination Plant which in turn was based on the empirical studies undertaken by the Strategic Finance Group (SFG). <sup>129</sup>

As noted in the table above, in its determination for Essential Energy's water and sewerage services in Broken Hill, IPART indicated that it saw no reason to change from its stated position and thus selected an equity beta of 0.7, based on the midpoint of the range of 0.6 to 0.8.

<sup>126</sup> [http://www.aer.gov.au/sites/default/files/AER%20draft%20decision%20ActewAGL%20distribution%20determination%20-%20Attachment%2003%20-%20Rate%20of%20return%20-%20November%202014\\_0.pdf](http://www.aer.gov.au/sites/default/files/AER%20draft%20decision%20ActewAGL%20distribution%20determination%20-%20Attachment%2003%20-%20Rate%20of%20return%20-%20November%202014_0.pdf)

<sup>127</sup> Industry Panel, *Review of the Independent Competition Regulatory Commission's 2013 Price Direction, for Regulated Water and Sewerage Services in the ACT*, Draft Report, December 2014 accessed at [http://apps.treasury.act.gov.au/\\_data/assets/pdf\\_file/0009/670149/Industry-Panel-Draft-Report-December-2014.pdf](http://apps.treasury.act.gov.au/_data/assets/pdf_file/0009/670149/Industry-Panel-Draft-Report-December-2014.pdf)

<sup>128</sup> ERA, *Inquiry into the efficient costs and tariffs of Water Corporation, Aqwest and Busselton Water Board: Revised final report*, March 2013.

<sup>129</sup> IPART, *Review of water prices for the Sydney Desalination Plant Pty Limited from 1 July 2012: Water – Final report*, December 2011.

## AER

In November 2014, the AER released draft determinations for several electricity distribution businesses where it departed from its previously determined value for equity beta of 0.8 to a value of 0.7 (based on a narrowing of the reasonable range to 0.4 – 0.7). This change is consistent with the approach the AER outlined in its Rate of Return Guideline of December 2013.

The AER undertook empirical analysis of the most recent data of Australian networks and compared this to a conceptual analysis to cross check the range estimated. The conceptual analysis suggested that the systematic risk a benchmark firm would face would be less than the market average (that is, less than 1.0). Although it did consider the international empirical evidence, the main weighting was placed on Australian empirical estimates. The AER placed more confidence in the Australian estimates because there was a consistent pattern with a range of econometric techniques, comparator sets and time periods.

The AER put the view that the international studies are not as well aligned with the benchmark efficient entity, compared with Australian comparators. In addition, differences in regulatory regimes, economic conditions and market structures, mean that there is difficulty in comparing results.

In a 2014 study undertaken for the AER, Professor Olan Henry gave an opinion that equity beta lies between 0.4 and 0.7, with a convergence around 0.5.<sup>130</sup> Henry used a large data set based energy network data from 2002 to 2014. These results are consistent with other, smaller, studies.

In conclusion, the AER based its position on equity beta largely on recent empirical evidence, including studies examining returns to Australian energy network firms. The upper value of 0.7 was selected by the AER based on regulatory precedent and as a way of providing a level of certainty and stability for the regulated firms.

## ERA

The ERA also used a 2009 study by Professor Henry on the estimation of beta, conducting its own analysis of the Henry study.<sup>131</sup> The ERA disregarded the international data set on the basis that the benefit of a larger sample did not outweigh the distortions of the regulatory and economic differences. To check the robustness of its estimates, the ERA performed additional estimates using a variety of different econometric techniques.

The ERA's conclusion on equity beta (in its review of the guidelines for the National Gas Rules) was that equity beta lies in a range from 0.5 to 0.8.

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<sup>130</sup> Henry, O, *Estimating  $\beta$ : An update*, April 2014, may be accessed at <http://www.aer.gov.au/sites/default/files/Henry%20E2%80%93%20Estimating%20Beta%20E2%80%93%20An%20update%20E2%80%93%20April%202014.PDF>

<sup>131</sup> Henry, O, *Estimation Beta*, 2009

In a report to the WA Government on the review of water pricing for Water Corporation, Aqwest and Busselton Water Boards, the ERA concluded that the estimate of beta for these entities was 0.65, being the mid-point of the 0.5-0.8 range.<sup>132</sup> This was supported by the ERA's consideration of the following information:<sup>133</sup>

- ▲ the QCA's choice of an equity beta of 0.65 for the Gladstone Area Water Board
- ▲ analysis by the AER of WACC parameters for electricity network service providers indicating that equity betas ranged between 0.44 and 0.68, and
- ▲ internal analysis undertaken by it for the purposes of Western Power's Access Arrangement.

In considering arguments for only using forward-looking data to estimate the equity beta, the ERA noted that, while equity beta is a forward-looking concept, it can be estimated using historic data.<sup>134</sup>

The ERA reached its position using the same sample of companies as used by Henry as it found no better alternative. It did, however, update the data for currency.<sup>135</sup>

#### *ACT Industry Panel Review of the ICRC ACTEW Determination*

In contrast to the above studies, in its review of the above decision by the ICRC for ACTEW, the Industry Panel estimated equity beta using overseas water companies.

It empirically analysed 16 listed international water utility companies across the UK and US using monthly stock returns over a 5 year period to 31 May 2013.

It also noted that:

*Several studies in the finance literature have found that equity betas obtained from the OLS regression are likely to be subject to a high degree of estimation bias due to sampling error. To mitigate these potential estimation errors, the OLS betas of the individual stocks in the sample have been adjusted using the Blume (1975) and Vasicek (1973) techniques...<sup>136</sup>*

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<sup>132</sup> ERA, *Inquiry into the efficient costs and tariffs of Water Corporation, Aqwest and Busselton Water Board: Revised final report*, March 2013.

<sup>133</sup> ERA, *Inquiry into the efficient costs and tariffs of Water Corporation, Aqwest and Busselton Water Board: Revised final report*, March 2013, p 57.

<sup>134</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines, Meeting the requirements of the National Gas Rules*, December 2013, p163.

<sup>135</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines, Meeting the requirements of the National Gas Rules*, December 2013, p168.

<sup>136</sup> Industry Panel, *Review of the Independent Competition Regulatory Commission's 2013 Price Direction, for Regulated Water and Sewerage Services in the ACT*, Draft Report, December 2014, p. 182.

The Blume adjustment resulted in a median beta of 0.77 and the Vasicek adjustment in a median beta of 0.53.

The Panel went on to note that:<sup>137</sup>

*... studies in the finance literature have demonstrated that the expected return for a stock (ie, the cost of equity) with beta less than one is likely to be higher than that predicted by the S-L CAPM and the expected return for a stock with a beta greater than one is likely to be lower than predicted by the S-L CAPM. Since the beta range of 0.53 to 0.77 is below one, the Panel considers it appropriate to account for the potential underestimation of the true cost of equity under the S-L CAPM, by adopting an equity beta that is:*

- *higher than the midpoint of the range for the empirical beta estimates (ie, 0.53 to 0.77) and*
- *toward the upper bound of the equity beta range based on past regulatory decisions (ie, 0.55 to 0.80).*
- *The specific equity beta value that the Panel has decided to adopt is 0.70.*

The Panel's conclusion was that equity beta lay in a range from 0.53 to 0.77 and elected to adopt a point estimate of 0.7.

#### 4.4.4 Discussion

For SA Water PD 13, the Commission adopted an equity beta of 0.8, having regard to regulatory precedent at the time.

In submissions to the Draft Report, SA Water supported an equity beta of 0.8 while many consumer groups, including SACOSS<sup>138</sup> and Business SA,<sup>139</sup> argued for a lower equity beta based on recent regulatory decisions.

SACOSS commissioned an independent estimate of WACC for SA Power Networks (SAPN) from the South Australian Centre for Economic Studies (SACES) for submission to the AER's revenue determination process for SAPN. SACOSS' noted that:

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<sup>137</sup> Industry Panel, *Review of the Independent Competition Regulatory Commission's 2013 Price Direction, for Regulated Water and Sewerage Services in the ACT*, Draft Report, December 2014, p. 176.

<sup>138</sup> SACOSS submission to Draft Report, p.5.

<sup>139</sup> Business SA, Submission to Draft Report, 22 January 2015.

*... the preliminary SACES work also suggests that the ‘regulatory precedent’ of 0.8 for the ‘equity beta’ ( $\beta$ ) now represents the high point on a range with a strong evidence base pointing toward 0.5.*

The SACES paper also notes that the recent introduction of revenue caps for the next regulatory period effectively removes volume risk faced by SAPN.<sup>140</sup> SACES notes that as the equity beta is based on historic observations when SAPN did face volume risk then this should result in an even further lowering of the equity beta for SAPN.

It is clear from Tables 4.5 and 4.6 above that an equity beta of 0.8 for SA Water would sit above all other recent regulatory decisions.

The Pricing Order requires the use of revenue caps for SA Water PD 2016, rather than the average revenue caps permitted for the SA Water PD 2013. This change will reduce the risk to SA Water of demand being higher or lower than that forecast (risk in this sense being a departure from the expected outcome, rather than only a down-side risk).

A revenue cap guarantees that SA Water will recover the revenue set in the determination. It therefore provides longer-term stability of returns to SA Water and lower systematic risk of equity.

In addition, the move to a long-term approach for setting the cost of debt (discussed in chapter 3) will reduce the volatility in returns to shareholders which, all else being equal, will reduce the equity beta.

While it is difficult to quantify the impact of those changes in the regulatory framework, there is now a much stronger case for lowering the equity beta from the current value of 0.8.

Although the Commission’s value used in SA Water PD 2013 (of 0.8) is within the range for Australian water regulators, it is now considered an outlier.

Based on the legislation and regulatory context (including proposed change in the approach to setting the cost of debt, recent empirical research and Australian regulatory precedent, an appropriate equity beta is 0.7. This value is likely to be at the upper end of a reasonable range for the equity beta.

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<sup>140</sup> SACOSS submission to the AER and the accompanying SACES paper may be accessed at <https://www.aer.gov.au/node/20941>.

## 5 INFLATION

### Summary of approach

The Commission proposes to calculate inflation using a geometric mean of inflation estimates over a ten-year period using the following:

- ▲ the RBA inflation forecast for the first year of the ten-year period
- ▲ the mid-point of the RBA inflation target band for the other nine years.

### 5.1 Overview

The Commission uses a real post-tax framework to calculate the regulatory rate of return for SA Water. To derive a real rate of return, the nominal WACC must be deflated to a real WACC, by removing inflation by using the Fisher equation.<sup>141</sup>

In the past, the Commission used a methodology to forecasting inflation that relied on examining data from nominal and inflation-indexed bonds. It has become evident that there are problems associated with this approach, including the availability of data from appropriate CGBs to be considered and the liquidity issues that may arise during periods of financial stress (as evidenced during the financial crises since 2007).

In SA Water PD 2016, the Commission proposes to use the geometric mean<sup>142</sup> of the RBA's forecast of headline inflation for the first year and the middle of the RBA target inflation band (2.5%) for the remaining nine years.

### 5.2 Current regulatory practice

Previously regulators who adopted a real WACC (in lieu of nominal) tended to use either the bond-yield or swap market implied inflation methodology; however, in recent times regulators are moving away from those approaches.

ESCV and the ACT Industry Panel (in its Draft Report) both take a long term approach to inflation and use the mid-point of the RBA target band (2.5%).<sup>143</sup> ERA has opted to use two years of RBA forecasts of headline inflation citing that the bond-yield method previously used is sensitive to liquidity issues in the market.<sup>144</sup>

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<sup>141</sup> The Fisher equation can be expressed as:  $(1 + \text{nominal rate}) = (1 + \text{real rate}) \times (1 + \text{inflation rate})$ .

<sup>142</sup> The geometric mean is the average of a geometric progression.

<sup>143</sup> Industry Panel, *industry panel review of the ICRC's 2013 Price Direction: Draft Report*, December 2014, p8  
ESCV, *Price Review 2013: Greater Metropolitan Water Business: Final Decision*, June 2013, p 108.

<sup>144</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines, meeting the requirements of the National Gas Rules*, 16 December 2013, pp 224-230.

In March 2015, IPART concluded its review of the WACC inflation adjustment. Its conclusion is to change from using a swap market implied inflation approach to using the geometric mean of the one-year RBA forecast and the middle of the RBA's target band of inflation (i.e. 2.5%) for the remaining nine years. This is for reasons of simplicity, replicability and superior forecasting performance.<sup>145</sup> Prior to adopting the swap-market implied approach in 2009, IPART was using the bond-yield approach. It decided to abandon the approach as a result of the lack of liquidity of bonds requiring “*adjustments for biases in the market*”.<sup>146</sup>

### 5.3 Options considered

As noted previously, a forecast of inflation is required to convert a nominal return to a real return. The Commission has given consideration to the following approaches in arriving at a suitable forecast for inflation:<sup>147</sup>

1. Calculating break-even inflation from data obtained from inflation indexed and nominal CGBs (the Commission's current approach).
2. The 10-year yield-to-maturity of the swap market implied inflation
3. The middle of the RBA's target band of inflation (2.5%).
4. Using the RBA inflation forecast for the first two years gathered from its quarterly statement on Monetary Policy and using the middle of the target inflation band for the remaining eight years.
5. Using the RBA's forecast of headline inflation for the first year obtained from its quarterly statement on Monetary Policy and the middle of the RBA target inflation band for the remaining nine years.

Option 1, the break-even inflation methodology, derived from the yield data of applicable CGBs, is one of the more complex of the five options. It uses the Fisher equation to calculate the difference between the nominal CGBs and inflation-indexed CGBs.<sup>148</sup> By using this approach, the estimates of both the nominal and real risk-free rate are directly observed from financial markets, so reflect the market expectation for inflation.

IPART notes that it stopped using this approach because of a scarcity of inflation-linked bonds that resulted in a bias in yields and thus the inflation forecasts.<sup>149</sup> ERA also highlight that this method has the potential to have liquidity issues. For example, during the global

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<sup>145</sup> IPART, *New approach to forecasting the WACC inflation adjustment*, March 2015.

<sup>146</sup> IPART, *New approach to forecasting the WACC inflation adjustment*, February 2015, p 4.

<sup>147</sup> This section is drawn from the work undertaken by IPART in its review of the WACC inflation adjustment completed in February 2015 which can be found at [http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Calculating\\_the\\_inflation\\_adjustment\\_for\\_the\\_WACC](http://www.ipart.nsw.gov.au/Home/Industries/Research/Reviews/WACC/Calculating_the_inflation_adjustment_for_the_WACC).

<sup>148</sup> The Fisher equation can be expressed as:  $(1 + \text{nominal rate}) = (1 + \text{real rate}) \times (1 + \text{inflation rate})$ .

<sup>149</sup> IPART, *Adjusting for expected inflation in deriving the cost of capital - Final Decision*, May 2009, pp 1-2.

financial crisis there was clearly a liquidity problem with the Treasury indexed bonds, which significantly increased the potential for bias in the estimate of a real risk-free rate.<sup>150</sup>

The potential liquidity issues that exist with this method cause concern for the continued use of this approach.

Option 2, in principle, represents the price a business would pay to hedge against inflation (a methodology used by IPART).

Generally, due to the small number of instruments available, the estimated inflation values are likely to produce biased inflation estimates (upward or downward depending when the sample is taken).<sup>151</sup> This approach is also the most complex and opaque of all the options listed because of the need to gather data that is not publically available and the complex financial model needed. It is not a suitable method for determine inflation forecasts.

Option 3 is the simplest and easiest to apply. It also provides certainty for the regulated entity; however, this approach may not provide a good forecast for inflation over a (four year) regulatory period as actual inflation generally differs from the RBA's mid-point of its target band (2.5%).

Option 4 provides a better estimate between implied and actual inflation than just taking the mid-point of the RBA's target band. However, the RBA has admitted that the further forward the estimate the more unreliable it becomes.<sup>152</sup> In fact, the RBA only provides a point estimate for the first two years and then a range thereafter. Due to the decrease in reliability of the forecast for the second year, this not the preferred method.

Option 5 provides a more accurate estimate of the inflation forecast than the above options (as found by IPART in its review). It uses the geometric average of the RBA's estimate of inflation in the first year and the mid-point of the target band (2.5%) for the remaining 9 years to match the 10-year averaging period for the term-to-maturity of the cost of debt.

Other advantages of this approach are that it is easy to replicate, robust and a good predictor of future inflation (as the RBA has the tools to guide the interest rate towards the target band). The counter argument, however, is that during times of interest rate volatility, RBA targeting of inflation may not be effective in directing inflation. Given this risk, the inclusion of the RBA's first year of forecast for inflation will mitigate this concern somewhat.

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<sup>150</sup> ERA, *Explanatory Statement for the Rate of Return Guidelines – Final Report*, December 2013, pp225-227.

<sup>151</sup> IPART, *New approach to forecasting the WACC inflation adjustment*, December 2014, p 4.

<sup>152</sup> IPART, *New approach to forecasting the WACC inflation adjustment*, December 2014, p 6-7.

## *5.4 Discussion*

In SA Water PD 2013, the Commission used the 10-year bond yield implied inflation to convert the nominal WACC into a real WACC.

In its submission to the Draft Report, SACOSS recommended that a forward looking approach be adopted:

*SACOSS is of the view a forward looking approach to the inflation forecast - i.e. using the '20 Days' approach exclusively as opposed to the 10 year trailing average - is appropriate.*

Consistent with that submission, the Commission proposes to adopt Option 5 (above) to convert the WACC from a nominal to a real basis. It considers that the proposed forward-looking methodology, determined from the geometric mean of the RBA's inflation forecast for the first year and 2.5% thereafter, as being the most reliable approach to determining the inflation forecast. It is also a relatively simple and transparent process for adjusting for inflation.

## 6 NEXT STEPS

This report has outlined the Commission's proposed approach for calculating the regulatory rate of return to be utilised for SA Water PD 2016.

As discussed previously, it is not possible to determine the value of the rate of return at this time, as it will depend on parameters that will be observed at the time of making the final price determination, in the second quarter of 2016.

The rate of return may also depend on any transitional adjustment mechanism that the Commission has invited SA Water to propose as a result of moving to a longer-term approach. The need for such a mechanism may depend on the revenue impacts from other aspects of SA Water's regulatory business proposal.

Finally, while the principles and objectives for setting the regulatory rate of return are not expected to change over time under the Commission's proposed approach, the estimation of the required parameters may change if there is compelling new evidence that arises prior to the making of SA Water PD 2016. The Commission must remain open to considering changes in regulatory practice and precedent and the implications of any material changes in financial markets, to ensure that regulation remains best practice.

# ANNEXURE A: SEPTEMBER 2014 PRICING ORDER

## WATER INDUSTRY ACT 2012 (SECTION 35)

### PRICING ORDER

FOR THE REGULATORY PERIOD 1 JULY 2016 – 30 JUNE 2020

#### PREAMBLE

This pricing order has been prepared in order to provide information that would assist SA Water to prepare its Regulatory Business Proposal and the Essential Services Commission of South Australia (ESCOSA) to prepare its Final Framework and Approach in July 2014 and its Draft Determination for SA Water's drinking water and sewerage services for the second regulatory period.

A further pricing order may be issued to vary this pricing order prior to ESCOSA issuing its Final Determination. These variations may be required in response to matters raised by ESCOSA in its Draft Determination or its Final Inquiry Report on water pricing reform once the South Australian Government has considered these matters and developed an appropriate response.

Pursuant to section 35(4) of the *Water Industry Act 2012 (the Act)*, the Treasurer hereby issues the following pricing order (**this Order**):

#### 1. INTERPRETATION

- 1.1 Where a term used in this Order is defined in the Act, it has the meaning given in the Act.
- 1.2 In this Order, unless the contrary intention appears:

*determination* means a determination of the Commission under section 35 of the Act and Part 3 of the *Essential Services Commission Act 2002 (the ESC Act)* made in respect of retail services;

*drinking water retail service* means a retail service constituted by the sale and supply of water of a quality fit for human consumption;

*Initial Pricing Order* means the order issued by the Treasurer pursuant to section 35(4) of the Act dated 24 September 2012;

*NWI Pricing Principles* means the National Water Initiative Pricing Principles 2010 agreed by Australian governments as the basis for setting water prices / charges in their jurisdictions, as amended or replaced from time to time;

*NWI Principles for the Recovery of Capital Expenditure* means the Principles for the recovery of capital expenditure which form part of the NWI Pricing Principles, as amended or replaced from time to time;

*NWI Principles for Urban Water Tariffs* means the Principles for urban water tariffs which form part of the NWI Pricing Principles, as amended or replaced from time to time;

*second regulatory period* means the four year period commencing 1 July 2016;

*sewerage retail service* means the sale and supply of sewerage services for the removal of sewage.

## 2. APPLICATION

- 2.1 This Order is to take effect from the date that it is signed.
- 2.2 This Order is to apply to a determination for the second regulatory period in respect of drinking water retail services and sewerage retail services provided by SA Water, and as such applies in conjunction with the Initial Pricing Order.
- 2.3 Clause 3 of the Initial Pricing Order is varied to include a new subclause 3.3 as follows:

“3.3 In the case of a determination to which any further order made pursuant to section 35(4) of the Act applies, clause 3.1 applies subject to that further order.”
- 2.4 For the avoidance of doubt, the Commission must ensure that any draft of a determination to which this Order will apply and which is provided to any person in accordance with section 26(1) of the ESC Act is prepared consistently with, and complies with, all applicable requirements of the Initial Pricing Order and this Order.

## 3. SA WATER DRINKING WATER AND SEWERAGE RETAIL SERVICES

The Commission must adopt or apply the following parameters, principles or factors when making a determination to which this Order applies:

- 3.1 The second regulatory period must be adopted as part of the determination.
- 3.2 The determination must only determine the total revenue which may be derived from the provision of drinking water retail services and sewerage retail services.
- 3.3 The determination must apply a separate total revenue control for drinking water retail services and sewerage retail services respectively.
- 3.4 The determination must not establish, or require the establishment of, a revenue control for a drinking water retail service or a sewerage retail service based on customer class or location.
- 3.5 The determination must include a mechanism which allows for the adjustment of the total revenue which may be derived where the Commission determines there to be a relevant and material variation between forecast and actual rates of water consumption or sewerage connections. The adjustment mechanism must operate on the basis of efficient costs associated with variations in demand, and so as to promote a stable price path for retail services.
- 3.6 The determination must include a mechanism which allows for the adjustment of the total revenue which may be derived where the Commission determines appropriate as a result of the occurrence of an event beyond the control of SA Water which has or will have a material impact on the cost of provision of a drinking water retail service or a sewerage retail service during the regulatory period. The adjustment mechanism must operate on the basis of efficient costs attributable to the event, and so as to promote a stable price path for retail services.
- 3.7 The determination must adopt or apply the NWI Principles for the Recovery of Capital Expenditure, subject to the following:

- 3.7.1 the determination must adopt or apply the value of \$7.77 billion as the regulated asset base (**RAB**) as at 1 July 2013 (in December 2012 dollars) in relation to assets used by SA Water in the provision of drinking water retail services;
  - 3.7.2 the determination must adopt or apply the value of \$3.58 billion as the RAB as at 1 July 2013 (in December 2012 dollars) in relation to assets used by SA Water in the provision of sewerage retail services;
  - 3.7.3 the determination must allow SA Water to recover the efficient cost of assets acquired (or to be acquired) after 1 July 2013 which are required to support activities that SA Water is required to provide in accordance with a direction under section 6 of the *Public Corporations Act 1993*;
  - 3.7.4 for the avoidance of doubt, the Commission must only adopt or apply Principle 6 of the NWI Principles for the Recovery of Capital Expenditure in relation to contributed assets that SA Water acquires after 1 July 2013.
- 3.8 The determination must adopt or apply Principle 1 of the NWI Principles for Urban Water Tariffs, subject to the following:
- 3.8.1 in relation to costs relating to externalities (including water planning and management), the determination must only allow SA Water to recover such costs as are attributable to and payable by SA Water in accordance with the law, including a direction under section 6 of the *Public Corporations Act 1993*;
  - 3.8.2 the determination must allow SA Water to recover such costs (less any relevant contributions to such costs that it receives) that are attributable to activities that SA Water is required to provide in accordance with a direction under section 6 of the *Public Corporations Act 1993*, and are either:
    - (i) specified in the relevant direction, or if not so specified,
    - (ii) determined by the Commission to be efficient.

#### **4. PREPARATION AND PRESENTATION**

- 4.1 The determination must be prepared and presented consistently with “*the Regulated Asset Base (RAB), or building blocks approach*” as described in the NWI Principles for the Recovery of Capital Expenditure (subject to clause 3.7 above).
- 4.2 In particular, the determination must identify the assumptions on which it is based, including the method of calculation of, and monetary value assigned to, each of the following parameters for the purposes of the determination:
  - 4.2.1 the RAB, where the values set out in clauses 3.7.1 or 3.7.2 (as appropriate) are to be rolled forward consistently with Principle 5 of the NWI Principles for the Recovery of Capital Expenditure;
  - 4.2.2 the rate of return on the RAB (which should be consistent with Principle 1 of the NWI Principles for the Recovery of Capital Expenditure);

- 4.2.3 any allowance for working capital (i.e. any allowance considered appropriate to adjust for the lead or lag in cash flow as a result of incurring costs in providing services and receiving payment for those services);
  - 4.2.4 the rate of return of capital (depreciation), including its method of calculation, and any adopted classifications of, or remaining life attributable to, the regulatory assets on which it is based;
  - 4.2.5 operating expenditure (which should include efficient operational, maintenance and administrative costs);
  - 4.2.6 the costs of externalities, consistent with clause 3.8.1; and
  - 4.2.7 any allowance for tax paid (which should be identified separately from the rate of return on the RAB where the weighted average cost of capital (WACC) is calculated on a post-tax basis).
- 4.3 Where the Commission anticipates a likely material variation in either the method of calculation of, or monetary value assigned to, any of the parameters identified in clause 4.2 as between any draft of a determination to which this Order will apply in accordance with clause 2.4, and the relevant final determination, then the draft of the determination must identify, in relation to any such anticipated likely material variation:
    - 4.3.1 the relevant parameter;
    - 4.3.2 the likely cause or causes;
    - 4.3.3 where the anticipated variation is to the monetary value assigned to a parameter, the likely magnitude and direction.
  - 4.4 The Commission must prepare and provide to the Treasurer, on or before 31 December 2014, a separate report setting out the Commission's proposed approach to the calculation of the rate of return on the RAB (which should be consistent with Principle 1 of the NWI Principles for the Recovery of Capital Expenditure).

## 5. VARIATION

This Order may be varied by a subsequent pricing order issued under section 35 of the Act.

  
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Jay Weatherill  
PREMIER  
A/TREASURER

JW / 2014

# ANNEXURE B: NOVEMBER 2014 PRICING ORDER

## WATER INDUSTRY ACT 2012 (SECTION 35)

### PRICING ORDER

#### FOR THE VARIATION OF A PREVIOUS PRICING ORDER

Pursuant to section 35(4) of the *Water Industry Act 2012* (**the Act**), the Treasurer hereby issues the following pricing order (**this Order**):

##### 1. INTERPRETATION

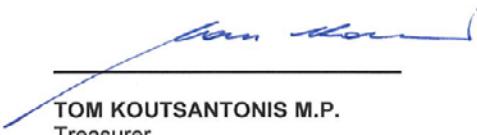
- 1.1 In this Order, *September Pricing Order* means the order issued by the Treasurer pursuant to section 35(4) of the Act dated 2 September 2014.

##### 2. APPLICATION

- 2.1 This Order is to take effect from the date that it is signed.
- 2.2 This Order applies so as to vary the September Pricing Order.
- 2.3 Clause 4.4 of the September Pricing Order is varied to delete the words "31 December 2014" and substitute in their place "31 March 2015".

##### 3. VARIATION

- 3.1 This Order may be varied by a subsequent pricing order issued under section 35 of the Act.



TOM KOUTSANTONIS M.P.  
Treasurer

Date: 18<sup>th</sup> November 2014

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The Essential Services Commission of South Australia

Level 1, 151 Pirie Street Adelaide SA 5000

GPO Box 2605 Adelaide SA 5001

T 08 8463 4444

E [escosa@escosa.sa.gov.au](mailto:escosa@escosa.sa.gov.au) | W [www.escosa.sa.gov.au](http://www.escosa.sa.gov.au)

