



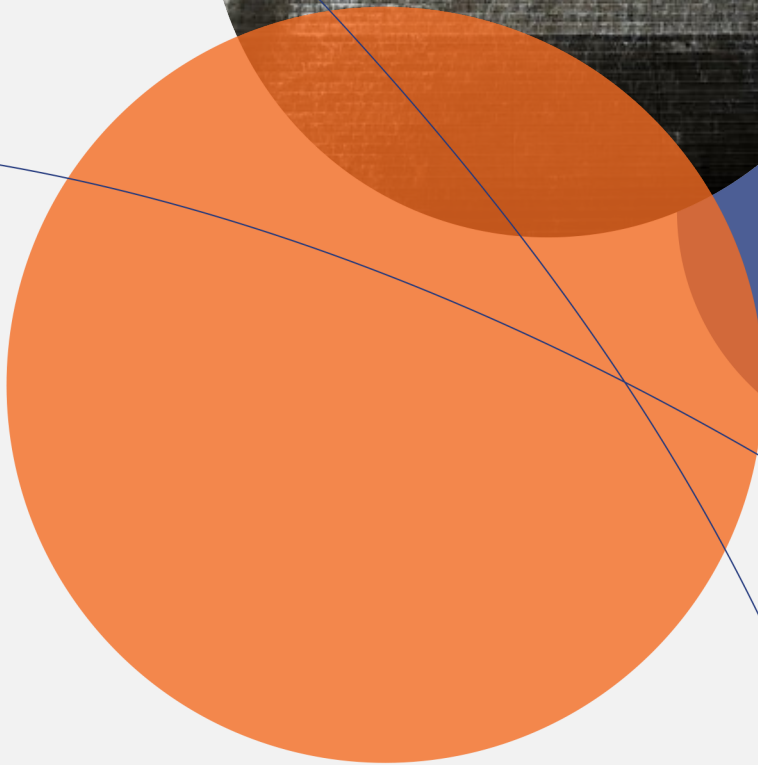
ICRC

independent competition and regulatory commission

DRAFT REPORT

Review of Methodologies for the Weighted Average Cost of Capital

Report 1 of 2021, February 2021



The Independent Competition and Regulatory Commission is a Territory Authority established under the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act). The Commission is constituted under the ICRC Act by one or more standing commissioners and any associated commissioners appointed for particular purposes. Commissioners are statutory appointments. Joe Dimasi is the current Senior Commissioner who constitutes the Commission and takes direct responsibility for delivery of the outcomes of the Commission.

The Commission has responsibilities for a broad range of regulatory and utility administrative matters. The Commission has responsibility under the ICRC Act for regulating and advising government about pricing and other matters for monopoly, near-monopoly and ministerially declared regulated industries, and providing advice on competitive neutrality complaints and government-regulated activities. The Commission also has responsibility for arbitrating infrastructure access disputes under the ICRC Act

The Commission is responsible for managing the utility licence framework in the ACT, established under the *Utilities Act 2000* (Utilities Act). The Commission is responsible for the licensing determination process, monitoring licensees' compliance with their legislative and licence obligations and determination of utility industry codes.

The Commission's objectives are set out in section 7 and 19L of the ICRC Act and section 3 of the Utilities Act. In discharging its objectives and functions, the Commission provides independent robust analysis and advice.

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Correspondence or other inquiries may be directed to the Commission at the following addresses:

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The Commission may be contacted at the above addresses, by telephone on (02) 6205 0799, or by fax on (02) 6207 5887. The Commission's website is at www.icrc.act.gov.au and its email address is icrc@act.gov.au.

How to make a submission

This draft report provides an opportunity for stakeholders to provide feedback on the Commission's draft decisions on the approach it will take for determining the weighted average cost of capital for Icon Water's regulated water business. Feedback will inform the Commission's final decisions and formulation of its final report. It will also ensure that relevant information and views are made public and brought to the Commission's attention.

Submissions on the draft report close on **5 March 2021**.

Submissions may be mailed to the Commission at:

Independent Competition and Regulatory Commission
PO Box 161
Civic Square ACT 2608

Alternatively, submissions may be emailed to the Commission at icrc@act.gov.au. The Commission encourages stakeholders to make submissions in either Microsoft Word format or PDF (OCR readable text format – that is, they should be direct conversions from the word-processing program, rather than scanned copies in which the text cannot be searched).

For submissions received from individuals, all personal details (for example, home and email addresses and telephone and fax numbers) will be removed for privacy reasons before the submissions are published on the website.

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The Commission may be contacted at the above address, by telephone on (02) 6205 0799 or via the Commission's website at www.icrc.act.gov.au.

Table of Contents

How to make a submission	ii
Executive Summary	1
1. Introduction	3
1.1 Background to the review	3
1.2 Purpose of the draft report	6
1.3 Commission's role and objectives	6
1.4 Commission's approach to this review	9
1.5 Indicative review timeline	11
1.6 Structure of the draft report	11
2. Overview of the Commission's current approach to estimating the rate of return	12
2.1 Benchmark efficient firm approach	12
2.2 Nominal vanilla post-tax WACC	12
2.3 Matters raised in the issues paper	13
2.3.1 Gearing ratio	13
2.3.2 Imputation credits	14
3. Return on equity	16
3.1 Commission's current approach	16
3.2 Matters raised in the issues paper	17
3.2.1 Market risk premium	17
3.2.2 Averaging period for the risk-free rate	24
3.2.3 Equity beta	25
4. Return on debt	27
4.1 Commission's current approach	27
4.2 Matters raised in the issues paper	28
4.2.1 Cost of debt averaging period	28
4.2.2 Third-party data series	30
4.2.3 Benchmark credit rating	32
4.2.4 Debt-raising costs	33

5. Inflation	37
5.1 Commission’s current approach	37
5.2 Submissions to the issues paper	38
5.3 Commission’s consideration and draft decision	39
Abbreviations and acronyms	45
References	46

List of Figures

Figure 1. Simplified building blocks methodology	5
Figure 2. Inflation time series and Commission’s forecast	44

List of Tables

Table 1. Regulatory objectives and pricing principles for water and sewerage tariffs	8
Table 2. Indicative timeline of events	11
Table 3. Past Regulatory decisions on MRP	22
Table 4. Past regulatory decisions on credit ratings	33
Table 5. Debt-raising rates adopted by the Australian regulators	35
Table 6. Price impact from adopting a debt-raising cost of 0.1 per cent	36
Table 7. Latest forecast inflation rates and the approaches used by other regulators	41

List of Boxes

Box 1.1. Sections 7 and 19L: Commission objectives	6
Box 1.2. Section 20(2): Commission’s considerations	7
Box 2.1. Nominal Vanilla WACC	13
Box 2.2. Value of imputation credits (gamma)	14
Box 3.1. Sharpe–Lintner Capital Asset Pricing Model	16
Box 3.2. IPART’s method of estimating MRP	19

Executive Summary

The Independent Competition and Regulatory Commission established a review of the rate of return methodology that will be used in the next water and sewerage services price investigation as a reset principle in the 2018 Price Direction.

This review of the rate of return methodology will ensure that the Commission's approach to determining water and sewerage services prices provides an appropriate return on Icon Water's investments and encourages prudent and efficient investments for delivering services. It also ensures that the Commission's regulatory framework continues to be consistent with the Commission's objectives in the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act).

The Commission released an issues paper on 28 August 2020 as the first step in the consultation process for the review. The Commission received two submissions on the issues paper, one from Icon Water and one from the ACT Council of Social Services (ACTCOSS). The Commission has considered feedback and information provided in the submissions in making its draft decisions.

This report is the second milestone in the consultation process for this review. It presents the Commission's draft decisions on the methodology for determining the rate of return to be used in the next water and sewerage services price determination.

The Commission welcomes feedback on its draft decision. The Commission will consider this feedback in developing its final report.

The rate of return

The rate of return, also known as the weighted average cost of capital (WACC), can be broken down into two major components: the cost of equity and the cost of debt. This report outlines the Commission's draft decisions on the method for calculating both the cost of equity and the cost of debt. The Commission also considered the regulatory treatment of inflation as part of this review, given the interrelationships observed between forecast inflation and the return on debt and equity.

Commission's draft decisions: return on equity

The Commission has made the following draft decisions for the cost of equity:

- **Gearing ratio:** Maintain the current benchmarking approach to determining the gearing ratio.
- **Market Risk Premium (MRP):** Maintain the current benchmarking approach to determining the MRP and give preference to arithmetic averages for estimating historical excess returns.
- **Risk-free rate averaging period:** Maintain the current approach of using a 40-day averaging period for determining the risk-free rate.
- **Equity beta:** Maintain the current benchmarking approach to determining the equity beta, giving greater weight to more recent estimates of the equity beta in implementing this approach.

Commission's draft decisions: return on debt

The Commission has made the following draft decisions for the cost of debt:

- **Cost of debt averaging period:** Allow Icon Water to nominate an averaging period of between 2 months and 12 months before the start of the regulatory period. The nominated averaging period will be used throughout the regulatory period.
- **Third party data series:** Continue using data provided by the Reserve Bank of Australia (RBA) and Bloomberg.
- **Benchmark credit rating:** Maintain the current benchmarking approach for determining the benchmark credit rating.
- **Debt-raising costs:** Place more weight on more recent estimates of debt-raising costs and give preference to estimation methods that exclude the dealer swap margin.

Commission's draft decisions: regulatory treatment of inflation

The Commission's issues paper had not proposed to consider the regulatory treatment of inflation. Following stakeholder feedback, the Commission decided to investigate the regulatory treatment of inflation in this review.

The Commission's draft decision is to adopt the Australian Energy Regulator's (AER) approach to forecasting inflation over the 5-year regulatory period. This approach uses the RBA's short-term inflation forecasts for years 1 and 2 and moves to the RBA's long-term forecast of 2.5 per cent in year 5 by using a simple 'linear glide' path in years 3 and 4.

Next steps

The Commission intends to hold a workshop in late February. This will provide an opportunity for stakeholders to ask questions and give feedback on the draft decision.

The final report is planned to be released in April 2021. It will set out the methodology the Commission proposes to use during the next price investigation to set prices from 1 July 2023.

1. Introduction

This review of the rate of return methodology for water and sewerage services (the Review) seeks to ensure that the Commission's approach to determining water and sewerage services prices provides an appropriate return on Icon Water's investments and encourages prudent and efficient investments for delivering services. It also ensures the Commission's regulatory framework continues to be consistent with the Commission's objectives in the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act).

1.1 Background to the review

The Commission is the Australian Capital Territory's (ACT) independent economic regulator, which regulates prices, access to infrastructure services and other matters in relation to regulated industries in the ACT. The Commission also has functions under the *Utilities Act 2000* (Utilities Act) for licensing electricity, natural gas, water and sewerage utility services and making industry codes.

The Commission is responsible for setting regulated prices for the supply of water and sewerage services, as well as setting minimum service standards and targets (guaranteed service levels or GSLs) for water and sewerage services in the Consumer Protection Code,¹ made under the Utilities Act.

The Commission undertakes price investigations under Part 3 of the ICRC Act, with price directions issued in compliance with Part 4 of the ICRC Act. The 2018 Price Direction sets the Commission's methodology for setting the maximum prices that Icon Water can charge for water and sewerage services from 1 July 2018 to 30 June 2023.

The Commission established a review of calculation methodologies for the WACC that may be used in the 2023 water price investigation as a reset principle in the 2018 Price Direction. Reset principles are principles governing the redetermination of prices in a regulated industry, and can provide the opportunity to assess and update, if necessary, aspects of the methodology that will be used by the Commission in the next price investigation.

The Commission considers it important to periodically consider and invite stakeholders to comment on new evidence or analytical techniques that may allow better estimates of the rate of return to be made. This process ensures the estimation techniques used by the Commission remain up-to-date and take into account new evidence and analysis.

The Commission released an issues paper on 28 August 2020 as the first step in the consultation process for this Review. The Commission received submissions on the issues paper from Icon Water and the ACT Council of Social Services (ACTCOSS); the submissions are available on the Commission's website. Summaries of the submissions are provided in Appendix 1. The Commission has considered issues raised in submissions in the relevant chapters of this report.

¹ *Utilities (Consumer Protection Code) Determination 2020* DI2020-6

The publication of the draft report is the second step in the Commission's consultation process for this Review. Stakeholder submissions on the draft report will inform the Commission's development of the final report scheduled for release in April 2021.

The regulatory model

The Commission currently uses a 'building block' methodology to determine the efficient costs that Icon Water can recover from its customers in a regulatory period. It is the most widely used approach in Australia for determining the allowable revenue a utility business may recover through prices.

Under the building block model, the allowed revenue for the regulatory period is the sum of the operating expenditure and a contribution to the cost of capital investments made over time (referred to as the regulatory asset base), plus allowances for forecast tax paid by the business. The contribution to the cost of capital investments is the sum of what is known as the 'return on capital' and the 'return of capital' (depreciation). This method of allowing for the recovery of the regulated business' capital investments gives the regulated firm a reasonable assurance that it will be able to pay back its lenders, includes a commercial rate of interest, and provide its investors with a reasonable return on their investment—given the relative risk of the business compared to other investments.

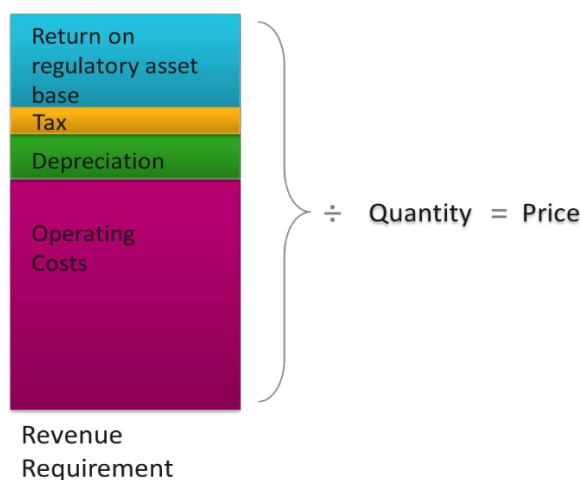
In other words, the total allowed revenue is the sum of the following cost components or 'blocks':

- Operating expenditure
- Return on capital, equal to the rate of return multiplied by the regulatory asset base
- Return of capital, also known as depreciation
- An allowance for the forecast tax paid by the firm
- The pass-through of specified unexpected or government-mandated costs.

Service standards, licence obligations and legislative requirements imposed on business operations underpin these operating expenditure and capital investment decisions.

This total allowed revenue is then divided by the forecast (or expected) water demand, which includes estimates of future water usage plus new water and sewerage service connections, to derive a price for each service (illustrated in Figure 1).

Figure 1. Simplified building blocks methodology



Under the building block methodology, expenditure is only included in allowed revenue calculations when it is deemed both 'prudent' and 'efficient'. For Icon Water's 2018 Price Direction, the Commission defined prudent and efficient as:

- Prudent expenditure. This encompasses whether the project, program or activity would reasonably be expected of a utility operating in the circumstances that apply. Evidence considered for prudence would include substantiation of the benefits of and the need for the project, program or activity.
- Efficient expenditure. This relates to whether the project, program or activity is delivered or proposed to be delivered with the best value for money. Evidence considered for efficiency would include exploration of alternative service delivery options, assessment of lowest cost over the life cycle, and the 'deliverability' of the proposed project, program or activity.

The rate of return

The Commission sets an allowed rate of return for Icon Water every five years as part of its water price investigation.

The Commission calculates the allowed return on capital each year by multiplying the regulatory asset base (RAB) by the rate of return set by the Commission. As Icon Water holds large high-value capital assets in its RAB (such as dams and pipelines), the return on capital accounts for around 25 per cent of Icon Water's total revenue.

The shareholders and lenders that finance Icon Water's business expect a commercial return on their funds (equity and debt, respectively). The rate of return is an estimate of the cost of funds required by Icon Water to attract investment in the business. To estimate this cost, the Commission considers the cost of the two sources of funding for investments – equity and debt. The return that Icon Water's shareholders require on their investments is known as the return on equity. The interest rate that a business pays on its borrowings from banks and other lenders is known as the return on debt. The combination of the estimated return on equity and the return on debt, weighted by the estimated shares of equity and debt for the business, comprises the WACC. For regulatory decision making, the WACC is a very common method to determine the rate of return.

If the Commission were to set the rate of return too low, Icon Water may not be able to attract sufficient funds to invest in maintaining, upgrading, renewing and replacing water and sewerage assets. If the rate of return were to be set too high, there would be a risk of encouraging too much investment in the business, and consumers would pay higher than necessary water bills. Neither of these outcomes are in the long-term interests of customers.

The rate of return is a significant driver of Icon Water's revenue and water bills paid by customers. A one percentage point increase in the rate of return for Icon Water would increase its revenues by around eight per cent.

The Industry Panel approach

The Commission's decision on Icon Water's prices for regulated water and sewerage services in 2013 was appealed by Icon Water under the appeal process provided for in the ICRC Act. The Industry Panel was appointed by the ACT Treasurer to review the Commission's decision. In April 2015, the Industry Panel made its final decision to substitute a new price direction for the original price direction that set prices until 30 June 2018.

The Commission's 2018 decision on the WACC was broadly consistent with the Industry Panel's methodology. The Commission revised the method for determining the market risk premium and the allowed return on debt and updated the values of several parameters for more up-to-date information.

1.2 Purpose of the draft report

There are two reasons for this draft report. The first is to inform the Commission's stakeholders of its draft decisions regarding the approach it will take towards determining the WACC for Icon Water's regulated water business. The second is to allow an opportunity for stakeholders to provide feedback on the Commission's draft decisions, which will inform the Commission's final report.

1.3 Commission's role and objectives

In carrying out its functions under the ICRC Act, the Commission has the following objectives as set out in sections 7 and 19L of the ICRC Act (Box 1.1).

Box 1.1. Sections 7 and 19L: Commission objectives

Section 7:

- (a) to promote effective competition in the interests of consumers;
- (b) to facilitate an appropriate balance between efficiency and environmental and social considerations;
- (c) to ensure non-discriminatory access to monopoly and near-monopoly infrastructure.

Section 19L:

To promote the efficient investment in, and efficient operation and use of regulated services for the long-term interests of consumers in relation to the price, quality, safety, reliability and security of the service.

When making a price direction, in addition to the terms of reference and legislative objectives, the Commission is also required to have regard to the provisions in section 20(2) of the ICRC Act (Box 1.2). Of particular relevance to this Review are considerations related to the need to provide an appropriate rate of return on investment for Icon Water.

Box 1.2. Section 20(2): Commission's considerations

- (a) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies (including policies relating to the level or structure of prices for services) and standard of regulated services; and
- (b) standards of quality, reliability and safety of the regulated services; and
- (c) the need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers; and
- (d) an appropriate rate of return on any investment in the regulated industry; and
- (e) the cost of providing the regulated services; and
- (f) the principles of ecologically sustainable development mentioned in subsection (5);
- (g) the social impacts of the decision; and
- (h) considerations of demand management and least cost planning; and
- (i) the borrowing, capital and cash flow requirements of people providing regulated services and the need to renew or increase relevant assets in the regulated industry; and
- (j) the effect on general price inflation over the medium term;
- (k) any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person; and
- (l) any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person.

As part of this Review, the Commission will also consider the pricing principles outlined in the Commission's Final Report on regulated water and sewerage services prices for 2018-23 (Table 1).² The ICRC Act and the pricing principles require the Commission to balance economic efficiency, environmental and social objectives. The Commission acknowledges that there are likely to be trade-offs in balancing the various objectives and other objectives set by government policies. Most relevant to this Review are the pricing principles relating to economic efficiency and regulatory transparency and simplicity.

² ICRC 2018, p 5.

Table 1. Regulatory objectives and pricing principles for water and sewerage tariffs

Objective	
Overarching interpretation	<p>To promote efficient investment in, and efficient operation and use of, regulated services for the long-term interests of consumers in relation to the price, quality, safety, reliability and security of the service.</p> <p>The various aspects of economic efficiency are given emphasis but with the ultimate objective being the long-term interests of consumers. 'Economic efficiency' when properly defined encompasses environmental objectives. Consumer interests must take account of equity and other social impacts, as required by the ICRC Act.</p> <p>Economic efficiency considerations related to pricing are a starting point but need to be balanced with environmental and social considerations.</p>
Pricing principle	
1. Economic efficiency in use	<p>Regulated prices should promote the economically efficient use of Icon Water's water and sewerage services infrastructure and should also encourage economically efficient use of the water resource itself.</p> <p>This includes having regard to uneconomic bypass where water supply is sourced from a higher cost alternative.</p>
2. Economic efficiency for investment and operation	<p>Regulated prices and supporting regulatory arrangements should facilitate the efficient recovery of the prudent and efficient costs of investment and operation.</p> <p>The finance recovery aspect of this principle is often described as ensuring revenue adequacy or financial viability. Costs also need to be efficient, which is primarily dealt with by auditing and incentive-sharing mechanisms.</p>
3. Environmental considerations	<p>Regulated prices and complementary mechanisms should ensure that environmental objectives are effectively accounted for.</p>
4. Community impact – gradual adjustment	<p>Any change to prices or other regulatory arrangements that will have substantial consumer impacts should be phased in over a transition period to allow reasonable time for consumers to adjust to the change.</p>
5. Community impact – fair outcomes for low-income households	<p>Adverse impacts on households with low incomes need to be limited or moderated by phasing and other compensating mechanisms or limits on changes to regulated prices or other regulatory arrangements.</p>
6. Regulatory governance – simplicity	<p>Regulated prices and their form should be simple for consumers to understand and straightforward for the utility to implement.</p>
7. Regulatory governance – transparency	<p>Regulated prices should be set using a transparent methodology and be subject to public consultation and scrutiny.</p>

1.4 Commission's approach to this review

As part of this Review, the Commission will determine the WACC methodology to be used in the next water price investigation for Icon Water, which is likely to commence in late 2021. The Commission considers it appropriate to adopt its 2018 decision on the rate of return as the appropriate starting point for this Review. Therefore, the Review focuses on examining opportunities to make improvements to the WACC calculation methodology currently in place. The scope includes:

- how the Commission determines the parameters for the return on debt and return on equity, including the gearing ratio, credit rating, risk-free rate, equity beta and market risk premium
- interrelationships between estimates of parameters that are relevant to the estimates of the return on equity and the return on debt
- review of which data series to use when estimating the return on debt.

As part of this Review, the Commission is gathering stakeholder views on possible improvements to its existing WACC methodology. The Commission does not intend to determine inputs to the methodology as part of this Review; actual parameter values will be determined as part of the next price investigation. The Commission does not propose to consider broader methodological issues related to how the WACC is applied, for example, whether the WACC is pre- or post-tax, or real or nominal.

Assessment criteria for the review

The development of assessment criteria can help promote consistency in decision-making and provide a clear framework for assessing possible changes to the existing WACC methodology. During this Review, the Commission is using the following criteria to balance its regulatory objectives:

- 1. Reliance on sound methods and robust analysis.** The WACC methodology should provide for the rate of return needed for Icon Water to attract and retain capital. This means that the methodologies used should have strong theoretical foundations and all parameter estimates be based on the best available evidence.
- 2. Transparency and replicability.** The WACC methodology should be transparent in explaining how parameter estimates have been determined and enable stakeholders to reasonably estimate the allowed rate of return that will be expected to apply to Icon Water in the Commission's determination.
- 3. Stability over time.** The WACC methodology needs to be relatively stable over time to give stakeholders certainty. The methodology should only be updated where there is sufficient evidence that the change would increase the accuracy of the rate of return estimate.
- 4. Consistency with best regulatory practice.** In determining the WACC, the Commission will consider approaches used by other Australian regulators.

The Commission considers that these criteria will address the Commission's legislative objectives and the matters that it is required to consider under section 20(2) of the ICRC Act. The rate of return must be set to promote efficient investment in, and the efficient operation and use of, regulated services for the long-term interests of consumers.

Criterion 1 is important because if the Commission were to set the rate of return too low, Icon Water may not be able to attract sufficient funds to invest in maintaining, upgrading, renewing and replacing water and sewerage assets. If the rate of return were to be set too high, there would be a risk of encouraging too much investment in the business, and consumers would pay higher than necessary water bills.

Criteria 2 and 3 are endeavouring to provide confidence in the WACC methodology and rate of return outcomes among consumers, investors and other stakeholders. Criterion 2 implies the need to ensure that all stakeholders can replicate the Commission's analysis.

Criterion 3 is reflective of the need to provide stakeholders with a degree of regulatory stability in the determination of the rate of return. Regulatory stability will promote efficient investment in, and use of, the relevant services because it gives investors the confidence to make investments in long-lived water assets. That is not to suggest that the rate of return itself must be stable. Rather, there should be predictability about the way the allowed rate of return is determined.

The Commission also considers it important to confirm that its WACC methods conform to best regulatory practice (criterion 4), provided best practice is implemented consistent with the Commission's legislative requirements under the ICRC Act.

Stakeholder views on the approach

In the issues paper, the Commission sought stakeholder comments on the Commission's approach and assessment criteria. Icon Water and ACTCOSS both supported the Commission's approach and assessment criteria.

Icon Water submitted that the Commission should consider two additional assessment criteria as part of the Review. These criteria are:³

- **Internal consistency.** The WACC methodology should take into account the interrelationships between parameters (e.g., equity beta and gearing, return on debt and benchmark credit rating, risk-free rate and market risk premium) and avoid estimating each WACC parameter in isolation.
- **Proportionate treatment of evidence.** Any methodology adopted by the Commission should take into account existing evidence in a proportionate manner.

The Commission considers that the criterion of internal consistency is in line with the first assessment criterion described above (reliance on sound methods and robust analysis) and falls within the scope of this review as described above. If the WACC parameters' interrelationships are not taken into account, the estimated rate of return may be too low or too high.

The Commission also considers that the criterion relating to proportionate treatment of evidence is in line with criteria 1 and 3 described above. Any changes in the Commission's methodology should be supported by strong evidence and economic theories so that it remains reliable and stable over time.

ACTCOSS submitted that it supports the Commission's assessment criteria, based on its understanding that they will address the Commission's legislative and regulatory objectives, particularly those requiring the Commission to consider the social and economic impact of its decisions.⁴

Regarding the Commission's broader approach, ACTCOSS suggested that the Commission could assist consumers, community members and their advocates by including estimates of how the Commission's decisions might impact the average consumer's bills. Further, ACTCOSS highlighted the importance of

³ Icon Water 2020, p 11.

⁴ ACTCOSS 2020, p 1.

comparability between entities when undertaking a benchmarking approach to ensure that only appropriate entities are considered as part of the process.⁵

The Commission has accepted ACTCOSS' suggestion to provide estimates of the pricing impacts of its decisions for the average consumer. Throughout this report the Commission has provided information, where possible, about the impact of its draft decisions on prices or on estimated WACC parameters. The Commission agrees with ACTCOSS that the choice of appropriate benchmarks should consider the comparability of benchmarked entities.

1.5 Indicative review timeline

The Commission proposes to adopt the indicative timeline set out in Table 2. In developing the indicative timeline, the Commission has considered the timing of other regulatory processes, both in the ACT and in other jurisdictions, and has aimed to allow sufficient time for Icon Water and other stakeholders to participate fully in the Review.

Table 2. Indicative timeline of events

Task	Date
Release of issues paper	28 August 2020
Workshop	20 October 2020
Submissions on issues paper close	30 October 2020
Draft report	5 February 2021
Workshop	February 2021
Submissions on draft report close	5 March 2021
Final report	April 2021

The closing date for submissions on the draft report is 5 March 2021. Written submissions received by the closing date will be considered in the development of the final report. The Commission intends to hold a second workshop following the release of the draft report.

1.6 Structure of the draft report

The remainder of this draft report is structured as follows:

- Chapter 2 discusses the Commission's approach to estimating the rate of return.
- Chapter 3 discusses factors concerning the return on equity.
- Chapter 4 discusses factors concerning the return on debt.
- Chapter 5 discusses the regulatory treatment of inflation.

⁵ ACTCOSS 2020, p 4.

2. Overview of the Commission's current approach to estimating the rate of return

This chapter describes the key elements of the rate of return framework adopted by the Commission and submissions to the issues paper. The rate of return framework involves the following elements:

- using a benchmark efficient firm as the basis for setting the rate of return
- calculate the rate of return using a WACC formulation, measured on a nominal vanilla basis
- adopt a post-tax methodology, which requires separate estimates of tax expenses.

2.1 Benchmark efficient firm approach

The Commission specifies the rate of return based on the efficient financing costs of a benchmark firm, rather than the actual costs of an individual business. The benchmark efficient entity approach is commonly used by Australian regulators.

This approach ensures that Icon Water has incentives to source debt and equity efficiently because it rewards it for spending less than the efficient financing costs assumed by the Commission and penalises it for spending more. For example, if Icon Water can access lower cost financing, it can retain the difference between the actual rate of return and the allowed rate of return set by the Commission. This also means that consumers are protected if Icon Water is inefficient in its financing practices.

2.2 Nominal vanilla post-tax WACC

As explained in chapter 1, the Commission estimates the allowed rate of return by applying a WACC approach. The WACC is calculated by estimating the required return on debt and equity for a benchmark efficient firm and weighting these estimated returns by the relative shares of debt and equity held or expected to be held by a benchmark efficient firm with similar characteristics and risk profile.

The WACC can be constructed differently depending on how tax is recognised in the formula. The formulation adopted in the Industry Panel's model, and retained in the Commission's 2018 final decision, is known as the 'nominal vanilla WACC'. The term 'nominal' means that the rate of return components are in nominal as opposed to real (inflation-adjusted) terms, so that an inflation premium is already included in the components. The term 'vanilla' indicates that all tax-related matters are excluded from the WACC calculation. As explained in chapter 1, a separate tax allowance is included in the building block model used by the Commission.

Box 2.1. Nominal Vanilla WACC

The nominal vanilla WACC is defined as follows:

WACC nominal vanilla = $E(Rd) \times D/V + E(Re) \times E/V$, where:

E(Rd) is the expected nominal pre-tax rate of return on debt

E(Re) is the expected nominal post-(company) tax rate of return on equity

D/V is the proportion of debt in total financing

E/V is the proportion of equity in total financing.

2.3 Matters raised in the issues paper

The issues paper sought stakeholder feedback on the determination of the gearing ratio and imputation credits. The following section will present the Commission's draft decisions relating to these issues along with relevant feedback received from stakeholders.

2.3.1 Gearing ratio

The WACC is a weighted average of the return on equity and the return on debt, with the weights reflecting the proportion of debt and equity used to finance assets. The debt to total assets ratio is also called the 'gearing ratio'. The Commission determines a gearing ratio having regard to the capital structure that a benchmark firm would have, which may differ from the actual gearing ratio of Icon Water.

In addition to being used to weight the returns on debt and equity in the WACC formula, the gearing ratio is also used in:

- analysing the level of systematic risk across businesses in estimating the equity beta; and
- determining an appropriate credit rating for deriving the return on debt.

Regulators across Australia typically determine a gearing ratio by considering:

- gearing data for a sample of benchmark regulated firms;
- the actual gearing ratio of the regulated firm in question; and
- other regulators' decisions.

The Commission currently uses a benchmarking approach to determine the gearing ratio. For example, as part of its 2018 water price investigation, the Commission determined a gearing ratio of 60 per cent, having regard to the Industry Panel's study of the actual gearing ratios of 16 international water utilities, and consideration of regulatory decisions made by other Australian regulators.

Submissions to the issues paper

Icon Water submitted that the Commission's gearing ratio of 60 per cent is consistent with regulatory determinations made by nearly every other Australian regulator. Icon Water noted that there were some

exceptions, such as the decision for the Gladstone Area Water Board (QLD), which has a gearing ratio of 50 per cent due to firm specific factors.

Icon Water supported the continued use of 60 per cent as the Commission's gearing ratio, commenting that this was in the interest of promoting regulatory stability and consistency with sound regulatory precedent.⁶

Commission's consideration and draft decision

The Commission considers that its current benchmarking approach has delivered a gearing ratio that is consistent with best regulatory practice and provides regulatory stability. The Commission has not found evidence to indicate that a change in the current method is warranted. Therefore, the Commission has made a draft decision to continue applying its benchmarking approach. In applying the benchmarking approach, the Commission will also have regard to internal consistency between the gearing ratio, the equity beta, and the benchmark credit rating. This is because these variables depend on each other to some degree, as noted above.

2.3.2 Imputation credits

The Commission uses a post-tax framework for estimating the rate of return. The post-tax WACC framework requires separate estimates of taxation expenses. Under this framework, the value of imputation credits (γ) is not an input parameter for calculating the WACC. Instead, it is a direct input into the calculation of tax liability for Icon Water, via the corporate tax component of the building block model.

In calculating net tax liabilities, there is a need to estimate the extent to which Australia's dividend imputation system reduces shareholders' personal tax expenses. The key parameter that reflects the impact on dividend imputation is referred to as ' γ '. The value of γ depends on the extent to which imputation credits for tax paid are distributed to shareholders and the extent to which shareholders can use imputation credits to obtain a tax rebate.

Box 2.2. Value of imputation credits (γ)

Investors receive imputation (or franking) credits for the corporate income tax that has been paid before the distribution of dividends. These credits avoid double taxation, as the dividends are also taxed at the individual level through personal income taxation.

The value of imputation credits in the building block model is represented by the parameter γ which is one of the inputs used to calculate the corporate tax allowance. The value of γ lies in a range from zero to one. A higher value of γ will reduce the corporate taxation allowance and ultimately results in lower allowable revenue.

While the Commission does not use γ in calculating the WACC, the value of imputation credits is correlated with the market risk premium (MRP). Regulators use data on observed equity returns after corporate tax to estimate the MRP. However, they do not take account of the franking credit benefits that

⁶ Icon Water 2020, p 50.

Australian investors receive. To take account of this benefit, the MRP estimates are adjusted for dividend imputation.⁷

Submissions to the issues paper

In its submission to the issues paper, Icon Water agreed with the Commission's view that there is an interrelationship between gamma and the MRP and the Commission's intention to take the interrelationship into account when determining its estimate of the MRP. Icon Water stated that it would submit its views on the matter when it is reviewed by the Commission at the next price investigation.⁸

Commission's consideration and draft decision

The Commission does not intend to consider the value of imputation credits as part of this Review because is not an input parameter for calculating the WACC. The Commission will take the interrelationship between gamma and the MRP into account in determining the values for the MRP and gamma in its next price investigation.

⁷ IPART 2018a, p 53.

⁸ Icon Water 2020, p 50.

3. Return on equity

The rate of return on equity is established by applying the widely used capital asset pricing model, which consists of three parameters – a risk free rate, a market risk premium, and a beta parameter. The Commission’s draft decisions on issues relating to these parameters, along with relevant stakeholder submissions, are set out in this chapter.

3.1 Commission’s current approach

The Commission uses the Sharpe–Lintner Capital Asset Pricing Model (S-L CAPM) to estimate the return on equity. The S-L CAPM is widely used by Australian regulators. It is a simple and intuitive model that predicts the relationship between firms’ returns and their riskiness. In brief, the riskier the firm’s returns, the higher the rate of return required to compensate shareholders for the risk.

The S-L CAPM requires three input parameters:

- **The risk-free rate.** The risk-free rate is the rate of return on a ‘zero-risk’ investment. That is, the return that investors would expect to receive for investing in securities with no default risk.⁹ Australian standard regulatory practice is to use the rate of return on Commonwealth Government Securities (CGS) with a maturity of 5 or 10 years as a proxy for the risk-free rate.
- **The equity beta.** The equity beta represents a measure of systematic risk in the S-L CAPM, that is, risk associated with factors beyond the firm’s control. This is measured by the correlation of the return on the specific asset to the return on the market as a whole.
- **The market risk premium.** The MRP is the difference between the expected rate of return on a market portfolio and the risk-free rate. The market risk premium is a general market parameter that does not vary with different investments or specific firms.

Box 3.1. Sharpe–Lintner Capital Asset Pricing Model

Under the S-L CAPM, the return on equity equals the sum of the risk-free rate of return, and the product of the market risk premium (MRP) and the equity beta. The S-L CAPM is defined as follows:

$E(Re) = E(Rf) + \beta e[E(Rm) - E(Rf)]$, where:

βe is the equity beta

$E(Rf)$ is the expected risk-free rate

$E(Rm)$ is the expected return on a broad stock market index (like the ASX All Ords)

$E(Rm) - E(Rf)$ is the expected MRP.

⁹ Default risk is the risk to a lender that a borrower will be unable to make the required payments on their debt obligation. A higher level of default risk leads to a higher required return, and in turn, a higher interest rate.

3.2 Matters raised in the issues paper

The issues paper sought stakeholder feedback on the determination of the MRP, averaging period for the risk-free rate and the equity beta. The following section will present the Commission's draft decisions relating to these issues along with relevant feedback received from stakeholders.

3.2.1 Market risk premium

The MRP is a measure of the extent to which the expected return on the market portfolio as a whole exceeds the risk-free rate; and can be interpreted as the return in excess of the risk-free rate that investors require for holding risky assets such as equities, over relatively safe assets such as government bonds. It is a general market parameter that does not vary with different investments or specific firms.

The Commission currently determines the MRP using a benchmarking approach based upon consideration of recent regulatory decisions made by other Australian regulators. In its last determination, the Commission set the MRP at 6.5 per cent after concluding that the approach used by the AER at the time would result in the best estimate of the MRP. Approaches considered by the Commission as part of its benchmarking resulted in MRP estimates ranging from 6 per cent (ESC, ESCOSA, ACCC) to 7.85 per cent (IPART).

The Commission concluded that the AER's approach to estimating the MRP was most appropriate because at the time, it used a range of theoretical and empirical evidence that gave weight to both past and present market conditions. In the Commission's view, an appropriate regulatory approach to determining the MRP would give consideration to a range of estimates and use other evidence as a cross-check. The Commission considers that the methods used to determine these estimates should reflect both forward-looking and historical data in order to reflect prevailing conditions and provide regulatory stability.

The AER made an estimate of the MRP based on its regulatory judgement, considering estimates from a broad array of sources at the time and considering their strengths and limitations. The AER considered dividend yields, credit spreads, implied volatility, and survey evidence. The AER considered that this approach is best suited for achieving its objective of determining a rate of return that is reflective of the efficient financing costs faced by a benchmark efficient firm. This approach was also consistent with other regulators like the ACCC and QCA, which used similar approaches to the AER at the time.

Submissions to the issues paper

In the issues paper, the Commission sought feedback from stakeholders on the appropriate sources of evidence and estimation approaches that the Commission should consider in its benchmarking process to determining the MRP.

Icon Water submitted that the Commission's approach to determining the MRP is internally inconsistent because it uses the prevailing risk free rate (that is, a forward-looking rate that depends on market conditions at the time, and expectations on what may occur in the future) with a time-invariant MRP (that is, a MRP that is based on historic data and is not forward-looking). Icon Water stated that:¹⁰

¹⁰ Icon Water 2020, p 18

The current approach to estimating the required return on equity involves pairing together inconsistent estimates of the risk-free rate and the MRP:

- The Commission's current approach is to estimate the risk-free rate by applying a 40-day averaging period close to the beginning of the regulatory period to yields on 10-year Commonwealth Government Securities. A similar approach is used by most regulators in Australia.
- This risk-free rate estimate is then combined in the SL-CAPM with an estimate of the MRP that is derived using a single method: by averaging historical excess returns on the Australian stock market over very long (130+ years) horizons.

Under this approach, the risk-free rate is assumed to move one-for-one with changes in government bond yields. However, the MRP estimate remains essentially time-invariant since historical excess returns are averaged over very long time periods.

Icon Water's submission essentially states that the Commission's approach does not provide for a return on equity that allows for changes to investors' risk appetite and is instead highly correlated with movements in bond yields. Icon Water illustrates the outcome of its interpretation of the Commission's approach, in figures 1 and 2 on pages 19 and 23 of its submission, respectively, which show the cost of equity rising and falling in a manner consistent with bond yields, and the relative volatility of the cost of equity compared with IPART's approach. In these figures, Icon Water assumes that the Commission would adopt the same MRP every regulatory period, which would result in the cost of equity being highly correlated with bond yields, as stated in its submission.

In fact, the Commission's benchmarking approach is to reconsider the MRP each regulatory period, using estimates by other regulators that consider a wide array of forward-looking and historical parameters. Icon Water's assumption that the Commission would adopt the same MRP every regulatory period overstates the extent to which the return on equity is correlated with bond yields in the Commission's approach and understates the extent to which the Commission's approach takes account of changes over time in investors' risk appetite.

Icon Water submitted that the Commission should adopt an approach that pairs consistent estimates of the risk-free rate and the MRP. It proposed that:¹¹

If a prevailing (forward-looking) estimate of the risk-free rate is used (per the Commission's existing approach), it should be combined with a prevailing (forward-looking) estimate of the MRP. If an estimate of the MRP that reflects average market conditions is used (per the long-run historical average MRP determined by the Commission), it should be combined with a risk-free rate that also reflects average market conditions (i.e., a long-run historical average of government bond yields).

Icon Water submitted that the Commission should consider the approaches adopted by IPART and the QCA in determining the MRP. It stated that these regulators consider both historic and forward-looking estimates when determining the MRP. Icon Water submitted that these regulators consider dividend growth models (DGMs) to determine forward looking estimates. Icon Water acknowledged the limitations of DGMs and stated that there are practical ways to address these limitations, citing the approach taken by IPART.

¹¹ Icon Water 2020, p 20

Commission's consideration and draft decision

As noted above, the Commission's current approach to determining the MRP is a benchmarking approach, which means that it analyses the approaches of other Australian regulators (as described above) and decides on the most appropriate estimate to use.

In the 2018 water and sewerage services price investigation, the Commission considered that the AER's approach (at the time) was the most appropriate. This was because it was based on historical estimates, forward-looking estimates (such as DGMs) and other market indicators (such as dividend yields, credit spreads, implied volatility, and survey evidence). That is, the Commission's current approach, as implemented in 2018, includes consideration of forward-looking estimates, as advocated by Icon Water.

As outlined in the issues paper, the Commission noted that the AER has since changed its approach and now considers only historical estimates and disregards forward-looking market-based indicators due to concerns about their high sensitivity and variability.

IPART approach

The approach adopted by IPART is to estimate the MRP based on both historic data and forward-looking estimates. Details of IPART's method are in Box 3.2.¹²

Box 3.2. IPART's method of estimating MRP

IPART determines a return on equity that reflects both short and long-term estimates of the required return on equity. IPART uses the following method:

- Determine a long term estimate of the required return on equity by combining a risk-free rate estimated using a 10-year historical averaging period with a fixed estimate of the MRP (intended to reflect a long-run average of historical excess returns on the Australian stock market) of 6.0 per cent; and
- Determine a current estimate of the required return on equity by combining a risk-free rate estimated using a 40-day averaging period with an entirely forward-looking MRP estimate that changes as market conditions (e.g. stock prices, dividend and earnings, interest rates) change.

IPART then allocates equal weight to its long-term and current estimates of the required return on equity to determine its overall return on equity allowance.

The forward looking MRP (or market expectation of the future MRP) is unobservable. It is estimated using quantitative methods such as DGMs that have a limitation in that they are highly sensitive to assumptions about future dividends and growth patterns. The sensitivity of forward-looking estimates to these assumptions can make them susceptible to high volatility compared with historic estimates. IPART mitigates this volatility in part by combining long-term and current estimates of the return on equity. In its 2018 WACC methodology review, IPART stated that:¹³

Other regulators, notably the AER and ACCC, only give weight to the historical average MRP in estimating the cost of equity. In our view, the case for this approach would be strongest if deviations from the historical

¹² IPART 2018a, p 47.

¹³ IPART 2018b, p 51.

average were short-lived and mean-reverting. If so, the historical average would be a reasonable indicator of the actual cost of equity a regulated firm would face during the regulatory period. However, if the deviations were to persist over a period of several years, then the case for using the historical average MRP would be weaker.

IPART goes on to note that deviations from the historical average MRP have been persistent over the past decade, leading IPART to implement its current approach of allocating equal weights to current and historical measures of the MRP in estimates for its cost of equity.¹⁴

QCA approach

The QCA is currently reviewing its rate of return methodology, including its approach to determining the MRP. The QCA's current approach employs a range of methods other than DGMs to provide a measure of prevailing market conditions and mitigate the limitations of forward-looking estimates. The QCA outlines its method as:¹⁵

- Determine estimates from historical methods (Ibbotson and Siegel methods), forward looking methods (Cornell dividend growth model) and hybrid methods (Wright approach and survey methods); and
- Consider the mean, median and weighted mean of the values estimated by the five methods and choose an appropriate value at a half-percent interval that lies between the lowest and highest estimate.

The QCA's method reduces the volatility generated by forward-looking estimates from impacting its overall estimate of the return on equity by pairing it with estimates from the historical and hybrid approaches outlined above, while also allowing prevailing market conditions to be reflected.

AER's 2022 rate of return instrument review

The AER is currently undertaking a review of some aspects of its WACC methodology. The AER's working paper published in August 2020 titled *CAPM and alternative return on equity models*, acknowledges that its 2018 rate of return instrument placed little reliance on alternative models due to low confidence in their informative power. However, the AER considers that its 2022 instrument should be informed by a broad set of models in order to have regard to recent developments in finance theory and practice.¹⁶

In analysing alternative approaches, the AER engaged two expert consultants (Partington and Satchell, and the Brattle Group) to provide reports on the merits of alternative return on equity models. The Brattle Group argued for incorporating forward-looking estimates because this approach would reflect prevailing market conditions and make the AER's approach more robust during periods of change in financial markets.¹⁷

In sharp contrast, Partington and Satchell's assessment found DGMs to be too unreliable to use in calculating the MRP, citing various concerns around their sensitivity to analyst forecasts and other assumptions. Partington and Satchell found many different specifications of DGM with different formulae

¹⁴ IPART 2018b, p 51.

¹⁵ QCA 2020a, p 15.

¹⁶ AER 2020a, p 2.

¹⁷ AER 2020a, p 19.

and inputs. Their report did not recommend any use of the DGM, primarily because of implementation problems.¹⁸

The AER's summary of stakeholder submissions highlighted a divergence of views, with the network operators and investor groups advocating the use of MRP estimates based on forward-looking data and consumer groups and retailer feedback supportive of using a range of data, including historical data. One consumer group submitted that energy networks are long term investments and it is therefore more appropriate for the return on equity to be moderated by long term assessments of the market risk premium rather than the extremely volatile short-term observations and forecasts used in other models.¹⁹

The AER has indicated that in developing the 2022 Rate of Return Instrument, it will analyse and evaluate all relevant evidence on measures to use with historical excess returns to determine whether any measures will help to make the market risk premium more forward-looking. The AER indicated that it is open to considering the use of the dividend growth model and will explore alternative approaches proposed by stakeholders.²⁰

Draft decision

The Commission considers that its current approach for selecting a benchmark is appropriate. This is because it takes into account a range of data including historic data and forward-looking estimates derived from DGMs. This is important because it is difficult to accurately obtain forward looking estimates from DGMs alone. As explained above, estimates from DGMs can be volatile over time and due to changes in underlying assumptions. The Commission considers that this approach is consistent with the approaches adopted by IPART and QCA, which both consider forward-looking estimates and historical estimates in calculating the MRP.

The Commission considers that maintaining its current approach would provide regulatory stability over time.

The Commission considers that the QCA approach of using forward-looking estimates together with estimates from four other historical and hybrid approaches, and considering the mean, median and weighted mean of the collected values, provides a robust and stable approach that reduces volatility while also allowing the MRP to reflect prevailing market conditions.

The Commission understands IPART's approach aims to mitigate the volatility of forward-looking estimates by allocating equal weights to a long-term estimation of the return on equity and a current estimation of the return on equity (based heavily on DGMs).²¹ However, the Commission considers that giving equal weighting to a heavily DGM reliant estimation may result in a more volatile return on equity estimate, compared with the approach taken by QCA.

Therefore, the Commission's draft decision is to adopt a benchmarking approach similar to the QCA's approach in using a range of appropriate estimates, including estimates using forward-looking and historical data. This would ensure that the MRP and risk-free rate both give consideration to prevailing market conditions, while addressing the volatility and implementation problems inherent in current

¹⁸ AER 2020a, p 14.

¹⁹ AER 2020a, p 18.

²⁰ AER 2020a, p 25.

forward-looking estimation methods. The Commission will consult during its next price investigation on the estimates it will use in its benchmarking approach.

The Commission acknowledges that this draft decision would mean that the MRP and risk-free rate (discussed below) are based on data from different time periods. Specifically, the risk-free rate would be based on a 40-day average while the MRP would be based on longer term historic data and forward-looking estimates derived from DGMs. As explained above, the Commission considers that it is not appropriate to base the MRP solely on forward-looking estimates derived from DGMs. Further, the Commission agrees with the AER that an estimate of the MRP based on historic data is consistent with using forward-looking data in estimating the risk-free rate. The AER considers that MRP estimates based on historical data are good indicators of the forward looking MRP. The AER states that:²²

We do not consider our current estimate is backward-looking. We estimate a consistent forward-looking market risk premium within a forward-looking rate of return.

The Commission considers that a MRP estimated in accordance with its draft decision will be both forward looking and consistent with the risk-free rate. The Commission notes that the QCA and most other regulators also base their MRP and risk-free rate using data from different time periods. The Commission therefore considers that this draft decision would ensure the use of an estimation approach for the MRP that is robust and reliable, based on a range of relevant data and information, consistent with both theoretical principles and established regulatory practice, and provides regulatory certainty.

The Commission estimates that every 0.5 per cent increase in the MRP will lead to a 0.6 per cent, or \$7.65, increase in the average residential consumer's annual water and sewerage bill. This is equivalent to a 1.2 per cent, or \$4.05 million, increase in Icon Water's annual allowed revenue.

Table 3. Past regulatory decisions on MRP

Regulator	Regulated business	Decision date	MRP estimate	MRP approach
QCA (QLD)	Seqwater	March 2018	7.0%	Equally weighted average of four estimates, (two historic and two current) historic averages, DGMs, survey evidence and conditional information.
ICRC (ACT)	Icon Water	May 2018	6.5%	Benchmarking approach based upon consideration of other regulators' recent estimates of the MRP.
OTTER (Tas)	TasWater	May 2018	6.5%	On-balance point estimate chosen from historical arithmetic and geometric averages, and DGM estimates. More weight given to historical estimates.
AER (National)	N/A	December 2018	6.1%	On-balance point estimate from a range

²² AER 2020b, p 25.

Regulator	Regulated business	Decision date	MRP estimate	MRP approach
				derived from theoretical and empirical evidence including historical excess returns, DGMs, survey evidence and conditioning variables. More weight given to historical estimates.
ERA (WA)	Pilbara Railways	August 2019	6.0%	On-balance point estimate from a range derived from theoretical and empirical evidence including historical excess returns, DGMs, survey evidence and conditioning variables. More weight given to historical estimates.
ESCOSA (SA)	SA Water	June 2020	6.0%	MRP of 6 per cent consistent with majority of regulatory decisions over the past 10 years, market surveys of academics and market practitioners and sits within the range provided by historic estimates.
IPART (NSW)	Sydney Water	June 2020	7.85%	Midpoint of current and historic arithmetic average of excess market returns. Two-thirds weight of median of five DGM parameter estimates and one-third weight of market indicator estimate.

Sources: Commission's Issues Paper.²³

Geometric vs arithmetic averages

In addition to the issues raised above, the Commission sought stakeholder views on whether it should consider the averaging methodology used by other regulators when assessing benchmarks. An averaging method needs to be used to determine MRPs based on historical data. The Commission stated in its issues paper that it did not have explicit regard to the weightings afforded to arithmetic and geometric averages in the regulatory approaches it considers in its benchmarking process.

In its submission, Icon Water questioned the suitability of the geometric averaging process in providing estimates of historical excess returns because it accounts for the effect of compounding over time, which Icon Water considers only necessary to determine backward looking estimates of returns that have already been realised by investors over some historical period. Icon Water submitted that applying an arithmetic average is the only appropriate way to determine an ex-ante estimate of allowed returns because it

²³ ICRC 2020, p 18.

excludes the impact of compounding, which is an unnecessary consideration when developing ex-ante estimates as it implies that the historical data series will be repeated again in sequence in the future.

The Commission considers that it would be appropriate to use arithmetic averages to determine MRPs based on historical data given the compounding issue described above. The Commission notes that using an arithmetic average to calculate the MRP is common among Australian regulators. For example, IPART²⁴ and the QCA²⁵ only consider the arithmetic average in determining historical estimates for the MRP. The Commission also notes advice to the AER from SFG Consulting recommending that:²⁶

If historical excess returns are to be used to compute the historical MRP, the estimate must be based on the arithmetic mean and not the geometric mean. This is consistent with basic statistical principles.

Further, the report recommended that a weight of only 10 per cent be afforded to geometric estimates because of the associated compounding issue, should the method be used anyway.²⁷ The Commission notes that as of 2018, the AER did observe geometric estimates of historical returns for the MRP, but consistent with the advice above, placed more weight on estimates derived from the arithmetic method.²⁸ The AER typically employs these geometric estimates as a check against its concerns that the arithmetic average may not provide an unbiased estimation of future excess returns, noting that the geometric average is downwardly biased.²⁹

The Commission's draft decision is that arithmetic averages should be used to estimate MRPs based on historical data. In selecting estimates for its benchmarking approach, the Commission intends to use estimates calculated using an arithmetic average where possible.

3.2.2 Averaging period for the risk-free rate

The risk-free rate is a component used to calculate the cost of equity. The term 'averaging period' for the risk-free rate refers to the period over which the risk-free rate is calculated. Regulatory practice in Australia for estimating the risk-free rate has primarily involved taking an average of the daily risk-free rates over a 20 to 60-day period close to the start of the regulatory period. Therefore, the estimate is an attempt to reflect the prevailing conditions in the market.

The Commission's current approach to determining the risk-free rate is to take a 40-day average of the yield on Commonwealth Government Securities with a 10-year term to maturity (sourced from the Reserve Bank of Australia website). This approach was set out in the Industry Panel's 2015 decision and is consistent with the approaches used by other Australian regulators in using short-term averaging periods.

Submissions to the issues paper

In the issues paper, the Commission sought feedback from stakeholders on the appropriate length of the averaging period for the risk-free rate.

²⁴ IPART 2018b, p 90.

²⁵ QCA 2020a, p 16.

²⁶ SFG 2012, p 4.

²⁷ SFG 2012, p 4.

²⁸ AER 2018a, p 94.

²⁹ AER 2018a, p 90.

Icon Water's submission stated that there should be internal consistency between methods used to calculate the risk-free rate and the MRP.

Commission's consideration and draft decision

The Commission considers that its approach to determining the risk-free rate remains consistent with standard regulatory practice across Australian regulators. The Commission notes that most regulators use averaging periods no longer than 60 days. The AER's March 2018 discussion paper on risk-free rate averaging periods outlines its approach of allowing businesses to nominate a period between 20 and 60 days for the averaging period, along with the ERAWA preference for a 40-day averaging period. The AER also notes that a longer averaging period will result in a risk-free rate that is less reflective of prevailing market conditions at the time of regulatory determination.³⁰ The Commission notes that IPART is the exception to this; it uses both a 40 day averaging period and a 10 year averaging period (as explained above in the section on the MRP).

The Commission considers that maintaining a 40-day averaging period meets several of the Commission's assessment criteria for the review, given that this method is consistent with best regulatory practice and based on sound approaches and robust analysis undertaken by several other Australian regulators. The Commission also considers that this averaging period captures the prevailing risk-free rate that a firm will face at the commencement of the regulatory period.

Given the above, the Commission's draft position is to maintain its current approach to determining the risk-free rate.

The Commission has considered Table 6 in Icon Water's submission that shows the benchmark utility would make a net loss if the Commission were to remake its 2018 decision using a risk-free rate estimated with data as at October 2020.³¹ The Commission found that the modelling used by Icon Water is done on a cash basis and excludes the capital gain earned by Icon Water on its RAB due to inflationary gains, which is accounted for at the end of the regulatory period. This capital gain on Icon Water's RAB is important to factor in as it allows Icon Water to earn a higher return on equity in future periods as the WACC is applied to a higher RAB. Further details on the treatment of inflation are in chapter 5.

3.2.3 Equity beta

The equity beta represents a measure of systematic risk in the capital asset pricing model, that is, risk associated with factors beyond the firm's control. It is derived from the asset beta and the gearing ratio used. The asset beta reflects how risky the business' returns are compared to the overall market. The asset beta alone does not consider the additional risk arising from debt financing. Accordingly, the equity beta increases as gearing increases so that investors are compensated for the additional risks. The equity beta adjusts the market risk premium to reflect how much premium above the risk-free rate equity investors would require to hold the company's assets in their investment portfolio.

The Commission currently determines the equity beta using empirical estimates for international water utilities and consideration of recent regulatory decisions made by other Australian regulators. In determining the equity beta, the Commission also considers the low-beta bias that arises because the S-L

³⁰ AER 2018b, p 35.

³¹ Icon Water 2020, p 39.

CAPM tends to underestimate the returns to low-beta assets. In its 2018 price investigation, the Commission adopted an equity beta of 0.7 based on the Industry Panel study of equity betas for comparable water utilities in the US and UK and having regard to the decisions made by other regulators.

Submissions to the issues paper

Icon Water submitted that the Commission's current approach is well established and supports its continued use. However, Icon Water asked the Commission to explain in more detail the precise methodology it intends to use to obtain empirical estimates of the equity beta and give stakeholders an opportunity to provide feedback on its proposed process.

Icon Water recognised that the Commission currently has regard to the low-beta bias problem when making its determination of the equity beta and supported continuing this approach.

Further, Icon Water supported maintaining the existing equity beta estimate of 0.7 unless there is compelling and sustained evidence to change the estimate. Icon Water cited IPART's recently adopted rule that it would only depart from its beta estimate of 0.7 if there were persistent empirical evidence over a prolonged period that the beta had changed materially.

Commission's consideration and draft decision

The Commission's methodology for obtaining empirical estimates of the equity beta is to consider the equity betas used by other Australian regulators in their determinations for comparable businesses. Once the Commission has obtained these estimates, it gives greater weight to more recent estimates to estimate the equity beta it will use in determining the WACC for Icon Water. The Commission also considers estimates that are consistent with its gearing parameter (as discussed in chapter 2) and benchmarking credit rating (as discussed in chapter 3) to achieve internal consistency in its methodology.

The Commission's draft position is to maintain its current approach to determining the equity beta and its approach to adjusting for the low beta bias problem. This will provide regulatory stability and is consistent with best regulatory practice.

4. Return on debt

The Commission provides Icon Water with an allowed return on debt to cover the efficient borrowing costs it is expected to incur in funding capital investments in its assets. The Commission's draft decisions on the return on debt, along with relevant stakeholder submissions, are set out in this chapter.

4.1 Commission's current approach

During the 2018 water price investigation, the Commission determined the cost of debt using a trailing average approach. This approach was consistent with contemporary regulatory practice and represented a shift away from the previous 'on-the-day' approach, which was no longer used on its own by other Australian regulators.

The on-the-day approach assumes that regulated firms refinance 100 per cent of their debt at a single point in time at the beginning of the regulatory period. In practice, most infrastructure businesses hold a diversified portfolio of debt with staggered maturity dates. This means that a regulated firm will only have to refinance a portion of its debt at any point in time. Australian regulators moved to a trailing average approach because it more closely aligns with the efficient debt financing practices of regulated businesses.

The Commission's approach to implementing the trailing average was consistent with Icon Water's revised pricing proposal for the 2018 water price investigation, which was based on the method adopted by the AER at the time. Icon Water's revised proposal argued that a 10-year trailing average cost of debt is expected to reflect efficient costs associated with standard business practice, minimise price volatility for customers and have low transaction costs.

The trailing average approach adopted by the Commission estimates the average interest rate that a regulated firm would face over a 10-year period. As the return on debt is an average of the interest rates over a period of 10 years, this approach leads to a relatively stable estimate over time. The annual cost of debt update reduces the potential for a mismatch between the allowed and actual return on debt for the benchmark efficient entity.³²

To implement this approach, the Commission's 2018 decision incorporated a transitional arrangement over 10 years. In the first year, the Commission set the allowed return on debt using the on-the-day approach. In each following year of the transition, the Commission assumes that one-tenth of the debt is refinanced at the prevailing market rate for that year. At the end of the transition, Icon Water will have an allowed return on debt that reflects an average of interest rates over a 10-year period.

Current return on debt inputs

The trailing average approach implemented by the Commission during the 2018 water price investigation used the following inputs:

³² AER 2018c, p 371.

- **Term to maturity.** This refers to the term of all types of borrowings such as bonds, bank facilities or other types of debt issued by a regulated firm. The Commission considered that a benchmark firm would raise debt with a 10-year term to maturity. This represents the Commission's view that long-lived assets are usually financed using long-term debt.
- **Benchmark credit rating.** This refers to a value assigned by credit rating agencies (such as Standard and Poor (S&P), Fitch and Moody's) that represents the assessment of the credit risk associated with lending money to a particular entity. Commonly it takes the form of a letter rating (AAA, A, BBB, etc.) with AAA denoting the lowest risk and CCC the highest risk of default. The Commission considered that a benchmark water and sewerage services provider would have a BBB credit rating. This credit rating was consistent with that adopted by other jurisdictional regulators for regulated water utilities.
- **Third-party data series.** This refers to the datasets (RBA, Bloomberg, Thomson Reuters, S&P) that can be used to obtain corporate bond yield data. The Commission estimated the return on debt using two third-party data series – RBA and Bloomberg. The Commission took a simple average of Bloomberg and RBA 10-year BBB yields.
- **Averaging period.** This refers to the period over which the regulated return on debt is calculated. The Commission used a 12-month averaging period for each regulatory year. The Commission provided the dates of averaging periods to Icon Water on a confidential basis prior to the commencement of the regulatory period.

The Commission's current approach provides an allowance for debt-raising costs as part of its cost of debt allowance. Debt-raising costs are the costs incurred by businesses for raising debt finance. These are one-off transactional costs incurred by a regulated firm when debt is first raised. The Commission added a margin of 0.125 per cent to the allowed cost of debt for debt-raising costs.

In the issues paper, the Commission sought stakeholders' feedback on identified issues including the cost of debt averaging period, use of third-party data series, benchmark credit rating, and debt-raising costs. Stakeholder submissions and the Commission's considerations and draft positions are described in the below sections.

4.2 Matters raised in the issues paper

The issues paper sought stakeholder feedback on issues relating to the determination of the cost of debt averaging period, third party data series, benchmark credit rating and debt-raising costs. The following section presents the Commission's draft decisions relating to these issues along with relevant feedback received from stakeholders.

4.2.1 Cost of debt averaging period

As described above, the estimated return on debt consists of an average of 10 annual return on debt estimates, updated annually. To estimate each annual return on debt, an averaging period is required. The Commission currently uses a 12-month averaging period.

The averaging period for the cost of debt is determined by the Commission and provided to Icon Water on a confidential basis.³³ It is provided on a confidential basis because it allows Icon Water to manage

³³ ICRC 2018, p 96.

financing arrangements without disclosing potential timing, which could put them at a disadvantage.³⁴ This was consistent with regulatory practice at the time of the determination; for example, the AER adopted this approach for the ElectraNet transmission determination in 2017³⁵ and IPART adopted this approach in 2017.³⁶

Submissions to the issues paper

In its submission to the issues paper, Icon Water supported the Commission's use of a trailing average approach to determining the return on debt allowance, as this approach more closely reflects the efficient and prudent (staggered maturity) debt management approach adopted by infrastructure firms, including regulated water businesses. However, Icon Water proposed that it should be allowed to nominate (prior to the start of the period) an averaging period of between 10 business days and 12 months in length.³⁷

Icon Water submitted that the ability to nominate the averaging period for each future year within the regulatory period would allow it to arrange its debt financing activities (e.g. the refinancing of existing debt and/or the issuance of new debt) to match its cost of debt as closely as possible to the regulatory allowance. It submitted that this approach is consistent with the AER's approach.

Commission's consideration and draft decision

Australian regulators use a range of averaging periods for the cost of debt. For instance, the Victorian ESC uses a 12-month averaging period between April to March for its annual update of the cost of debt.³⁸ IPART uses a 40-business day window as practically close to the start of a regulatory year as possible for its annual update of the cost of debt.³⁹

The Commission notes that the AER permits service providers to nominate an averaging period of between 10 days to 12 months, between 16 and four months prior to the commencement of a regulatory year.⁴⁰ The AER believes that this approach would:

- avoid service providers being forced to raise debt in some months of the year during which some participants choose to stay out of the market
- allow service providers that raise debt as part of a corporate group to select averaging periods that overlap.⁴¹

The Commission considers that these points may also apply to regulated water businesses. However, the Commission considers that short averaging periods, such as 10 days, are likely to increase volatility in the cost of debt estimate. This is because the cost of debt would be more susceptible to day-to-day influences or passing events in debt markets. The Commission notes that this volatility may be mitigated to some extent as only one-tenth of the cost of debt is updated each year.

³⁴ ICRC 2018, p 98.

³⁵ AER 2017, p 61.

³⁶ IPART 2017, p 19.

³⁷ Icon Water 2020, p 12.

³⁸ ESC 2019, p 32.

³⁹ IPART 2018a, p 36.

⁴⁰ AER 2018a, p 298.

⁴¹ AER 2018a, p 294.

The Commission considers that the selection of the averaging period, including the duration of the averaging period and dates for which it applies, should be nominated and “locked-in” at the start of a regulatory period, as required under the AER’s approach.⁴² This would ensure that averaging periods are not selected during the regulatory period to the advantage of the regulated business and disadvantage of consumers, based on movements in interest rates at the time.

The Commission’s draft decision is that Icon Water should nominate an averaging period of between two months and 12 months prior to the start of a regulatory period. The averaging period should be provided to the Commission on a confidential basis. The Commission considers that this will more accurately reflect efficient debt financing practices as it is unlikely that a business would raise debt in equal portions constantly throughout a year. This is because, in practice, an efficient business is likely to take a number of considerations into account when making a decision to go to the debt market. The business should, therefore, make these commercial decisions to minimise borrowing costs.

This range of averaging periods has similarities to those adopted by other water regulators such as IPART (40 business days averaging period) and ESC (12-month averaging period) but is more in-line with the approach adopted by the AER, albeit with a slightly smaller range of averaging periods. The Commission therefore considers that this draft decision is consistent with best regulatory practice and will continue to provide transparency to stakeholders about how the methodology is applied.

This draft decision would mean that, at the start of a regulatory period, Icon Water must select the duration of the averaging period and inform the Commission of the dates for the averaging period that will apply for the entire regulatory period. The averaging period must end no later than March given the lagged availability of cost of debt data and the timing of the price reset process that commences in May.

4.2.2 Third-party data series

The Commission uses third-party data series of corporate bond yields to determine the allowed rate of return on debt. The Commission uses data from Bloomberg and the RBA. The Commission takes a simple average of Bloomberg and RBA 10-year BBB yields. The RBA data is publicly available, while the Bloomberg data is purchased. At the time of the 2018 water price investigation, these were the only two data sources available. Since then, debt data series published by S&P and Thomson Reuters have become available.

In the issues paper, the Commission sought feedback from stakeholders on the appropriateness of third-party data sources used by the Commission to determine the return on debt allowance.

Submissions to the issues paper

Icon Water supported the use of RBA and Bloomberg data for the purpose of setting the return on debt allowance. Icon Water stated that the use of multiple data sources, rather than reliance on a single source, would be prudent because any single data source may become unavailable from time to time. Icon Water also suggested considering Thomson Reuters as a backup data source in case one of the other two data

⁴² AER 2018a, p 294.

sources ceases publishing data.⁴³ Icon Water did not support the use of S&P data to set the return on debt allowance. It stated that:⁴⁴

- there has been insufficient analysis to date of the robustness of the S&P data
- the S&P data seem to be materially inconsistent with the Bloomberg, RBA and Thomson Reuters data and no explanation has been provided for this difference
- no regulator has adopted it for the purposes of setting return on debt allowances.

Commission's consideration and draft decision

Regulators in other jurisdictions adopt a variety of approaches to gathering cost of debt data. For instance, IPART, ESC, ESCOSA and OTTER use only data published by the RBA, while the AER gives equal weight to the return on debt data sourced from the RBA, Bloomberg, and Thomson Reuters.⁴⁵ Prior to 2018, the AER used RBA and Bloomberg.

Transparency is the main reason for choosing the RBA as the sole source of data by some regulators. For example, in its 2018 WACC review, IPART stated that the RBA is selected as the only source of data because its estimates are reliable and publicly available. IPART also stated that alternative data sources are available only with a paid subscription to their services, which would make it more expensive for stakeholders to replicate.⁴⁶

In 2018, the AER compared RBA, Bloomberg, Thomson Reuters and S&P series using factors including the market expertise and credibility of the data provider; the technical characteristics of the estimate (e.g. the bond selection criteria and the estimation methodology); appropriateness of the time series considered and outcomes. The AER's investigation resulted in adding Thomson Reuters to its data sources, along with data from the RBA and Bloomberg.⁴⁷

In explaining the reasons behind adding Thomson Reuters to its existing data sources, the AER mentioned that on the bond selection criteria and estimation methodology, the approaches employed by the RBA, Bloomberg and Thomson Reuters have their unique strengths and weaknesses, but none was clearly superior. It also explained that the outcomes of the Thomson Reuters data series were consistent with both the RBA and Bloomberg data. It considered that an average of the three data providers compared to two reduces the impact of movements in any one of the individual data sources, and hence, reduces the potential for volatility. The use of three data providers also incorporates a natural contingency in the event that one of the data providers ceases publication.

The AER stated that the S&P series produces outcomes which are materially different to the other data series and to the AER's expectations. As a result, it did not include this data series as part of its cost of debt estimation.⁴⁸

⁴³ In its submission to the issues paper, Icon Water did not clearly indicate whether it was proposing Thomson Reuters as a data source in addition to the RBA and Bloomberg. Icon Water clarified its response to this issue later and supported the use of Thomson Reuters as a backup data source.

⁴⁴ Icon Water 2020, p 48.

⁴⁵ See IPART 2018a, p 46; ESC 2019, p. 32; ESCOSA 2020, p 305; and OTTER 2018, p 164.

⁴⁶ IPART 2018a, p 46.

⁴⁷ AER 2018a, p 14.

⁴⁸ AER 2018a, p 292.

The Commission considers that there are benefits to using more than one data source to set the return on debt allowance. The Commission's current approach in using the RBA and Bloomberg data series gives equal weight to the strengths and weaknesses of each series and mitigates the risk that any one series temporarily or permanently ceases to be published. The Commission notes that the RBA ceased publishing measures of Australian corporate bond spreads and yields temporarily in April 2020 and August 2020 due to the COVID-19 pandemic.

The Commission also considers that the RBA and Bloomberg data sources are accurate. Investigations show that while the RBA and Bloomberg data series do not produce identical outcomes (given the differences in the data and methodologies underlying the data), they have been largely consistent. The fact that the two sources have largely corroborated one another provides a high degree of confidence in these two data sources.

The Commission considers that it may not be appropriate to add Thomson Reuters as a third data source for several reasons. First, as mentioned above, the Thomson Reuters data series produces outcomes that are consistent with the RBA and Bloomberg, and hence, including this data is unlikely to lead to a material change in the return on debt.

Second, access to Thompson Reuters requires a paid subscription. This means that replicating the cost of debt would be more expensive for stakeholders, noting the existing requirement for a paid subscription for the Bloomberg data series.

Third, the Commission considers that continuing its current approach provides regulatory stability over time. The Commission also notes that stakeholders have not signalled support to remove either of the Bloomberg or RBA data series from the Commission's approach.

The Commission's draft decision is therefore to continue using the RBA and Bloomberg data sources for the purposes of setting the return on debt allowance.

4.2.3 Benchmark credit rating

A credit rating is an evaluation of the risk associated with lending money to a particular entity (i.e. a firm or a government). Credit rating agencies determine credit ratings, taking into account the borrower's ability to pay back the debt and the likelihood of default. Since a poor credit rating indicates a credit rating agency's opinion that the company has a high risk of default, a lower credit rating is generally associated with higher bond yields.⁴⁹

To estimate the regulated rate of return on debt, the Commission decides on the appropriate credit rating to use. The return on debt can then be calculated using debt yield data for the assumed benchmark credit rating available from third-party data providers.

The Commission currently uses a benchmarking approach based on consideration of credit ratings adopted by other regulators for regulated water businesses. At the time of the 2018 water price investigation, the Commission adopted a BBB credit rating in deriving the allowed return on debt for Icon Water.

In the issues paper, the Commission sought stakeholder comments on the appropriateness of the Commission's current approach to determining credit rating.

⁴⁹ Industry Panel 2014, p 169.

Submissions to the issues paper

Icon Water supported the Commission's current approach to determining the benchmark credit rating which provides a BBB credit rating. Icon Water proposed that the Commission maintains its use of a BBB benchmark credit rating because doing so would satisfy two of its assessment criteria: (1) providing stability over time and (2) consistency with best regulatory practice.

Commission's consideration and draft decision

The Commission considers that its current benchmarking approach to selecting a credit rating has resulted in a rating that is consistent with that faced by other regulated water businesses and best regulatory practice. Australian regulators typically adopt the S&P's rating of BBB as the investment grade for water businesses (see Table 4); the same rating used by the Commission.

The Commission considers that retaining the approach would also provide stability in estimating the cost of debt over time. The Commission's draft decision is therefore to retain its current approach to determining the benchmark credit rating.

Table 4. Past regulatory decisions on credit ratings

Regulator	Regulated business	Decision date	Credit rating
ICRC (ACT)	Icon Water	May 2018	BBB
IPART (NSW)	Sydney Water	July 2020	BBB
ESCV (VIC)	Goulburn-Murray Water	June 2020	BBB
ESCOSA (SA)	SA Water	June 2020	BBB

Sources: ICRC 2018, p 95; IPART 2018a, p 45; ESC 2019, p 20; ESCOSA 2020, p 142.

4.2.4 Debt-raising costs

Debt-raising costs are the costs incurred by businesses for raising debt finance. Debt-raising costs may include fees for investment bankers writing information memorandums for bond issues (underwriting issues), fees for lawyers preparing documentation (legal costs), fees for obtaining a credit rating for the business, and any other costs incurred when raising debt finance. These costs are a legitimate expense that should be recovered through the revenues of a regulated utility.

The Commission's current approach provides an allowance for debt-raising costs as part of its cost of debt allowance. The Commission determines the allowance for debt-raising costs by considering recent regulatory decisions in other jurisdictions. In its 2018 water price investigation, the Commission adopted a benchmarking margin of 0.125 per cent.

In the issues paper, the Commission invited stakeholders to submit their feedback on the Commission's current benchmarking approach to determining debt-raising costs.

Submissions to the issues paper

Icon Water supported the Commission's approach of providing an allowance for debt-raising costs. Icon Water also submitted that:⁵⁰

The Commission's approach of determining the allowance for debt-raising costs by reference to recent regulatory decisions is reasonable; and

The recent regulatory precedent presented by the Commission supports the continuation of an allowance of 0.125%. Continued use of a regulatory allowance of 0.125% for debt-raising costs would also be consistent with the Commission's principle of stability in the rate of return allowance over time.

Commission's consideration and draft decision

Other regulators determine debt-raising costs either by using a benchmarking approach or by estimating the cost that would be incurred by a well-managed efficient benchmark business operating in a competitive market. As part of this review, the Commission considered how it should apply the benchmarking approach and, therefore, considered how various estimates have been determined.

The Commission found that the rationale for using a debt-raising cost of 0.125 per cent dates back to work undertaken by the ACCC in the early 2000s.⁵¹ The Commission found that the 0.125 per cent figure was based on figures provided to the ACCC by Westpac in 2002.⁵² This figure was examined in an Allen Consulting Group's report in 2004, which noted that an allowance of 0.125 per cent was likely to have been overstated. Specifically, Allen Consulting Group stated that:

- The ACCC had inappropriately included a dealer swap margin in 2004, resulting in a double count.⁵³
- Without a swap margin, the ACCC's estimate would have been about 0.075 per cent (which was closer to other estimates sourced by the ACCC from banks at the time).⁵⁴

The QCA had concerns about the inclusion of the swap margin and the age of the 0.125 per cent estimate. The QCA engaged PwC to prepare updated advice on debt-raising costs. PwC found that debt-raising costs were within the range of 0.09 to 0.108 per cent. PwC's method used the same cost categories identified by Allen Consulting Group in 2004; that is, it excluded the dealer swap margin that resulted in double counting.⁵⁵

The Commission considers that Allen Consulting Group's 2004 study is still relevant and fit-for-purpose as its method has been used to estimate debt-raising costs regularly over the past decade – including Deloitte's

⁵⁰ Icon Water 2020, p 13.

⁵¹ For instance, AER 2002a, p 25; and AER 2002b, p 95.

⁵² Allen Consulting Group 2004, p 18.

⁵³ Allen Consulting Group 2004, p 28.

⁵⁴ Allen Consulting Group 2004, p xvii.

⁵⁵ PwC 2011, p 20.

2010 estimate⁵⁶, PwC's 2011⁵⁷ and 2013⁵⁸ estimates, the ERA's estimates in 2013⁵⁹ and 2019⁶⁰ and the AER's estimate in 2019.⁶¹

The Commission considers that the issues described above are relevant to how it applies its benchmarking approach. In particular, the Commission considers that the method used by Allen Consulting Group and PwC are correct and the separate allowance for the dealer swap margin should be excluded in the debt-raising cost. As discussed above, there is evidence to suggest this cost component results in double counting and it has been removed from more recent estimates used by other regulators. The Commission also considers that inputs to the methodology change over time because of changing market conditions. The debt-raising rates recently used by various regulators are shown in Table 5.

Table 5. Debt-raising rates adopted by the Australian regulators

Regulator	Regulated business	Regulated year	Debt-raising rate (%)
IPART	Water	2018	0.125
ICRC	Water	2018	0.125
ESC	Water	2019	0.15
ERA	Railways	2019	0.100
QCA	Water, Railways	2020	0.108
ESCOSA	Water	2020	0.125
AER	Electricity and gas	2020	0.085

Source: ICRC 2018; IPART 2018a; AER 2020c; ESC 2016; QCA 2020b; ESCOSA 2018; ERA 2019.

The Commission has made two draft decisions. First, the Commission has made a draft decision to give more weight to recent estimates of the debt-raising cost compared to older estimates. The Commission considers that this would ensure that the debt-raising cost is based on more recent and up-to-date analysis that more accurately reflects debt-raising costs at the time of the determination. Second, when identifying appropriate benchmarks, the Commission will give preference to estimation methodologies that exclude the dealer swap margin.

To assist stakeholders in considering the impacts of these draft decisions, the Commission has estimated that its draft decisions would, on the basis of current information, result in an allowed debt-raising rate of around 0.1 per cent. Table 6 shows the estimated price impacts of adopting the proposed debt-raising methodology using currently available benchmarks. The Commission notes that the debt-raising allowance

⁵⁶ Deloitte 2010, p 4.

⁵⁷ PwC 2011, p 20.

⁵⁸ PwC 2013.

⁵⁹ ERA 2013, p 202.

⁶⁰ ERA 2019, p 34.

⁶¹ AER 2020c, p 13.

adopted in the next price investigation, and therefore the price impacts of adopting the draft decisions, will depend on relevant benchmarks available at the time of the investigation.

Table 6. Estimated price impacts from adopting a debt-raising cost of 0.1 per cent (down from 0.125 per cent)

Customer type	\$ change in bill
Average annual residential bill	-0.41
Average non-residential bill (10 fixtures)	-6.92
Average non-residential bill (50 fixtures)	-12.09
Average non-residential bill (100 fixtures)	-18.55

Source: Commission's calculations.

5. Inflation

As part of this Review of the rate of return methodology, the Commission has also considered the regulatory treatment of inflation. The treatment of inflation is an important factor influencing the rate of return received by Icon Water. While the Commission did not state in its issues paper that it would investigate the treatment of inflation as part of this Review, it has decided to consider this issue in response to stakeholder feedback.

5.1 Commission's current approach

The goal of the Commission's current approach to calculating the return on capital is to allow Icon Water to recover the real rate of return required by investors and lenders plus actual inflation (that is, a nominal rate of return based on actual inflation).

In completing each price investigation, the Commission makes a determination on the maximum prices that Icon Water can recover over the coming regulatory period. Around one-third of Icon Water's allowed revenue is derived from the allowed return it receives on its RAB, defined as the WACC multiplied by the value of the RAB. The expected RAB for each year of the regulatory period is calculated using forecasts for capital expenditure, asset disposals, depreciation, and inflation, starting in the first year with the 'opening value' of the RAB.

At the end of each regulatory period, a 'closing value' of the RAB is calculated and 'rolled-forward' as the opening value for the **next** regulatory period. The closing value is calculated by taking the opening value for the current regulatory period, applying actual inflation, adding prudent and efficient capital expenditure, and deducting estimated depreciation and actual asset disposals for each year of the current regulatory period.

Since the Commission uses a nominal WACC (which includes an allowance for inflation) and the asset base is also indexed for forecast inflation during the regulatory period, inflation would be double-counted without an adjustment to avoid this double-counting. The Commission deducts the indexation adjustment to the RAB from the return on capital to avoid double-counting inflation. This is the approach used by the Industry Panel for the Commission's 2013-18 water price determination and by most other economic regulators that apply the building block model in Australia.⁶²

⁶² There are two ways that inflation can be included in the return. The first method is to grow the asset base by inflation each year (the current arrangement). As a nominal WACC is used, an adjustment needs to be made to the return on capital to avoid double counting inflation. The second method is to add inflation to the allowed real rate of return. In this case, the RAB is not indexed to inflation. Either option should ultimately provide the same amount of compensation, but the cash flow profiles over time are quite different. If inflation is added to the allowed rate of return (method two) then revenues are higher early in the lives of assets because a higher return is applied to the asset value. Revenues then fall over time as the asset depreciates. If inflation is added to the asset value each year (method one) then initial revenues are lower because of the lower rate of return, but revenues grow over time as the asset value grows by the inflation rate (less depreciation). The AER's final report on the regulatory treatment of inflation states that its adoption of the first method was established in rules developed by the Australian Energy Market Commission (AEMC) in 2006 (AER 2020d, p 9).

Because the Commission does not know what inflation will be at the start of each regulatory period, it uses a forecast of inflation in rolling the RAB forward in each year of the regulatory period. The Commission currently forecasts inflation by applying the mid-point of the RBA's target rate of inflation, which is 2.5 per cent in each year of the regulatory period.

5.2 Submissions to the issues paper

Icon Water's submission set out two perceived problems with the way the Commission's model accounts for forecast inflation. Icon Water has referred to these as the 'debt allowance problem' and the 'inflation forecasting problem'. Icon Water submitted that both problems unreasonably reduce its return on capital when actual inflation is below forecast inflation, as is currently the case.

The 'debt allowance problem'

Icon Water submitted that, when actual inflation is below forecast inflation, the Commission's regulatory framework does not deliver a sufficient "cash return" in each regulatory period for Icon Water to service its prudent and efficient debt obligations. Icon Water considers this problem is caused by differences between actual inflation and investor expectations of inflation and can be broken down into two issues: debt allowance and cash return.⁶³

Debt allowance

Icon Water submitted that the current regulatory arrangement gives it a nominal rate of return equal to the real rate of return required by investors and lenders plus actual inflation. Icon Water stated that this nominal return is not sufficient to cover its cost of debt because it faces a nominal cost of debt which is equal to a real rate of return plus expected inflation, rather than actual inflation. Icon Water submitted that its nominal cost of debt therefore differs from the nominal allowance provided by the Commission.

Icon Water's argument is that lenders charge interest rates that are equal to a real rate of return plus their expectation for inflation over the duration of the loan. However, the Commission provides an allowance equal to an estimated real rate of return plus actual inflation. Since lenders' expectations of inflation inevitably end up being different from actual inflation, the allowance provided by the Commission under the current regime will either over/under-compensate compared to the actual interest cost.

Icon Water states that this perceived problem results in an insufficient allowance for Icon Water to meet its nominal debt obligations when actual inflation is lower than the Commission's forecasts. Icon Water states that this shortfall is borne by the equity holder and, therefore, ultimately leads to equity holders being under-compensated when actual inflation is lower than the Commission's forecasts.

Icon Water's suggestion for solving the 'debt allowance' problem is for the Commission to set the return on debt allowance so that it allows full recovery of its nominal debt costs. To do this, Icon Water has submitted that nominal rate of return on debt should be calculated using expected inflation, rather than actual inflation.

⁶³ Icon Water 2020, p 27.

Cash return

Icon Water submitted that the Commission's regulatory framework does not deliver a sufficient 'cash return' in each regulatory period for Icon Water to service its prudent and efficient debt obligations. The potential for insufficient cash returns can arise because:

- A deduction is made to current revenues to ensure that inflation compensation does not occur twice.
- Compensation for inflation is provided through indexation of the RAB, which results in higher cash flows in the future and lower initial cash flows.
- Icon Water has current debt obligations that require cash.

The 'inflation forecasting problem'

Icon Water's submission raised a second issue with the Commission's treatment of forecast inflation. Icon Water states that differences between the Commission's forecast of inflation (currently the mid-point of the RBA's target range of 2.5 per cent) and investor expectations of inflation will result in a under/over-compensation of revenue compared to the efficient required return.⁶⁴

Icon Water submitted that, if the Commission's inflation forecast differs from investor expectations, the real rate of return provided by the WACC will be too high or low (compared to the real rate of return required by investors). Icon Water acknowledges in its submission that the real rate of return required by investors is difficult to observe.

5.3 Commission's consideration and draft decision

The Commission considers that the issues raised by Icon Water warrant consideration as part of this review. The Commission notes that these issues have also been raised with the AER by network providers. The AER has addressed these issues in its recent Final Position paper for its review of the regulatory treatment of inflation.

Recent regulatory decisions on the treatment of inflation

In December 2020, the AER completed its review into the regulatory treatment of inflation, including the way it forecasts inflation. The inflation forecast currently used by the AER is calculated by taking the average of 10 data points: the first two data points are the RBA's short term inflation forecasts for the next two years, and the remaining eight data points are the mid-point of the RBA's target (2.5%). The AER's draft position considers that its current approach is fundamentally sound, but considers it could be improved by:

- shortening the averaging period from 10 years to a term that matches the length of a regulatory period (typically 5 years); and
- applying a linear glide-path from the RBA's forecasts of inflation for years 1 and 2 to the mid-point of the inflation target in year 5.

⁶⁴ Icon Water 2020, p 29.

The AER considers this method is likely to result in the best estimate of expected inflation and it would be superior to market-based measures relying on bond and derivatives markets.

The AER's decision to shorten the averaging period may appear inconsistent with its decision to adopt a 10-year rolling average cost of debt period. However, the AER considers that debt is managed over long time periods and network businesses should be compensated for inflation expectations for a given regulatory period. The AER stated that the new approach is more responsive to changes in market circumstances.⁶⁵

Inflation forecasting problem

Icon Water has attributed the 'inflation forecasting problem' to the difference between the Commission's forecast inflation and investor expectations of inflation, which are unobservable.

Icon Water has proposed that using the best possible estimates of investors' inflation expectations would correct this problem and stated that:⁶⁶

The regulatory framework delivers exactly the regulator's estimate of the real required return on equity. However, when the regulator misestimates inflation expectations, the regulatory framework fails to deliver the true real returns required by the investor.

The AER has expressed a similar view:⁶⁷

As long as the estimated expectation used to set the real return on assets was unbiased (in the sense that it reflects investors' expectations) at the time the real return target was set, service providers are correctly compensated irrespective of actual inflation outcomes.

The AER considers that the best indicator of inflation expectations is the RBA's short-term inflation forecast for the first two years and then a gradual increase to the mid-point of the target range of 2.5 per cent for the remaining years of the regulatory period.⁶⁸ The AER considers that investors' inflation expectations closely align with the RBA forecasts (in the short term) and the mid-point of the target range in the medium to longer term. The AER investigated whether investor expectations had decoupled from the RBA forecasts but found no evidence of this.⁶⁹

The Commission considers that the AER's proposed approach is an appropriate way to improve the inflation forecasting approach.

Reviewing the most recent regulatory decisions by other Australian regulators reveals that other regulators have also faced concerns over relatively high inflation rate forecasts, with several regulators modifying

⁶⁵ AER 2020d, p 38.

⁶⁶ Icon Water 2020, p 31.

⁶⁷ AER 2020d, p 13.

⁶⁸ The AER also considered, and decided not to adopt, alternative approaches to the debt allowance and inflation forecasting problems, including changing the regulatory framework so that it targets a nominal rate of return or a hybrid rate of return (a nominal return on debt and real return on equity) instead of a real rate of return. These options were discussed in detail by the AER in its recent review, where the AER concluded that such a change would be unnecessary given that the current approach works well (AER 2020d, p 66).

⁶⁹ AER 2020d, p 49.

their approach to forecasting inflation. Table 7 summarises the most recent approaches adopted by other Australian regulators, along with corresponding forecast inflation rates.

Table 7. Latest forecast inflation rates and the approaches used by other regulators

Regulator	Annual forecast inflation rate (%)	Approach
ESC ⁷⁰	1.7	The ESC estimated forecast inflation of 1.7% based on the midpoint of the RBA geometric and bond breakeven inflation rates. The RBA geometric inflation rate is the RBA forecast consumer price index inflation rate one and two years ahead and the midpoint of the RBA target inflation band of two to three per cent from three to 10 years ahead. The bond breakeven inflation rate is implied by the difference between the yields on 10-year nominal and indexed (inflation-linked) Commonwealth Government Securities.
QCA ⁷¹	1.75 – 2.5	For the rural irrigation price review 2020–24 for Seqwater, the QCA used the RBA's most recent short-term inflation forecasts for the years ended June 2020 (2.0%) and June 2021 (1.75%). For the year ended June 2022, the QCA estimated an annualised inflation rate of 2.2% based on the RBA forecasts for the years ended June 2021 and December 2021 (2.0%) coupled with an assumption of annualised inflation of 2.5% for the six-month period to June 2022. For remaining years of the price path period, the QCA used the midpoint of the RBA's target range.
AER ⁷²	2.27 – 2.5	For its 2020–25 network revenue determinations, the AER implemented a trimmed mean inflation forecast rate of 2.27% from the RBA (RBA's quarterly statements) for the first two years of the regulatory period, and an estimate of 2.5% for the remaining eight years. The AER has announced a larger review of its inflation methodology, which will determine its approach for future periods.
IPART ⁷³	2.3 – 2.5	For the first year of the regulatory period, the RBA's one-year inflation forecast rate of 2.3% was used and an inflation rate of 2.5% was used for all remaining years. IPART will commence a WACC review shortly and may consider its approach to forecasting inflation.
ESCOSA ⁷⁴	2.3 – 2.5	The estimate of expected annual inflation is an average of ten yearly figures, being the RBA's one-year forecast of inflation for the first -year and the mid-point of the RBA's medium-term inflation target for the nine years thereafter.
ICRC	2.5	The forecast used the mid-point of the RBA's target inflation band over the regulatory periods.

Debt allowance problem

The concerns raised by Icon Water about under-compensation when actual inflation is lower than forecast inflation have also been raised recently by energy network businesses during the AER's review. The AER's response was that network businesses are responsible for managing the risk of expected inflation being

⁷⁰ ESC 2020, p 9.

⁷¹ QCA 2020c, p11.

⁷² AER 2020c, p 52.

⁷³ IPART 2020, p 253.

⁷⁴ ESCOSA 2019, p 8.

higher or lower than actual inflation. It stated that there are a variety of products available to businesses to manage this risk.⁷⁵

The AER went on to say that:⁷⁶

Inflation being higher or lower than expected inflation does not mean a service provider was incorrectly compensated for inflation. Under our regulatory framework, service providers receive a target real return plus actual inflation. As long as the estimated expectation used to set the real return on assets was unbiased (in the sense that it reflects investors' expectations) at the time the real return target was set, service providers are correctly compensated irrespective of actual inflation outcomes.

The AER also stated that:⁷⁷

The current approach targets the overall rate of return—the aggregate return across both debt and equity investors—rather than the return to equity holders directly. The equity holders receive the benefit or the detriment of many financing decisions, including what gearing level to target; whether to issue fixed or floating debt; whether to issue debt in Australia or overseas; and so on. The ability to outperform (or underperform) is an important feature of our incentive-based regime. This extends to the inflation implications of financing decisions which may also result in over or under recovery relative to the benchmark. Changing our approach may change the incentives for efficient financing.

We also note that if there is a risk with the current approach, service providers are likely already compensated for it as part of the Beta estimation and the credit ratings used to calculate our rate of return. We consider that, given the long period over which the current approach has been applied, the effect of the current approach will already be included in the historical share market data and credit rating data used when we estimate the rate of return. There are therefore grounds to conclude that the total compensation package we provide will be appropriate.

The Commission agrees that Icon Water is likely to be fully compensated for its nominal debt costs if:

- the Commission's forecast of inflation is unbiased as this means it will reflect investor/lender expectations;
- it is reasonable to expect Icon Water to manage the risk that lenders' inflation expectations might be incorrect in that actual inflation turns out to be different; and
- if there is residual risk from the Commission's current approach, Icon Water is likely compensated for it through the cost of equity (via the equity beta and market risk premium) and the credit ratings used to calculate the rate of return, as these parameters are based on market data which takes into account the regulatory framework.

Icon Water's concerns relating to the 'cash return' component of the debt allowance problem have also been raised by energy network businesses during the AER's review. In response, the AER stated that:⁷⁸

It is important to note that network operators receive two streams of return: a cash return in the revenue stream and a capital growth stream through the escalation of the regulatory asset base. It is the total of these two streams that is critical, and it is important not to look at one stream in isolation. For

⁷⁵ AER 2020e, p 80.

⁷⁶ AER 2020e, p 13.

⁷⁷ AER 2020e, p 88.

⁷⁸ AER 2020e, p 88.

example, there are numerous companies that have never paid cash dividends but are valued by investors because of their capital accumulation (such as Alphabet Inc., which owns Google).

The Commission agrees that the total return received by Icon Water, both in cash flows and capital growth, should be considered in assessing whether there is any over- or under-compensation. While the Commission recognises the importance of cash flows to businesses, the Commission considers that cash flows are unlikely to be a significant problem for utilities that have a portfolio of long-lived assets and make capital investments over time. This is because low cashflow early in the lives of recent investments will be balanced by high cashflows later in the lives of other assets.

The AEMC is investigating the cashflow issue, which has been described as the ‘financeability issue’. The AEMC recognises the current approach to incorporating inflation in the rate of return leads to a pattern of cash flows over the life of an assets that is lower earlier in the asset’s life and larger later in the asset’s life. However it considers there is only a potential ‘financeability issue’ because a large increase in transmission investments is planned which will mean that ‘a significant proportion of the transmission network service providers’ assets will be in an early phase of their life’. The transmission network service providers have argued that this shift in the average age of their assets could cause a cashflow problem.⁷⁹ The Commission considers Icon Water is not in the same situation of needing to undertake a much larger than usual program of capital investments in water and sewerage assets in the foreseeable future.

The Commission has considered the modelling results reported by Icon Water in Figure 4 of its submission⁸⁰, which estimated an under-recovery of around \$40 million (in nominal terms) over the 2013–18 regulatory period due to the debt allowance problem. The Commission’s own modelling confirms Icon Water’s estimates of the magnitude of this issue.

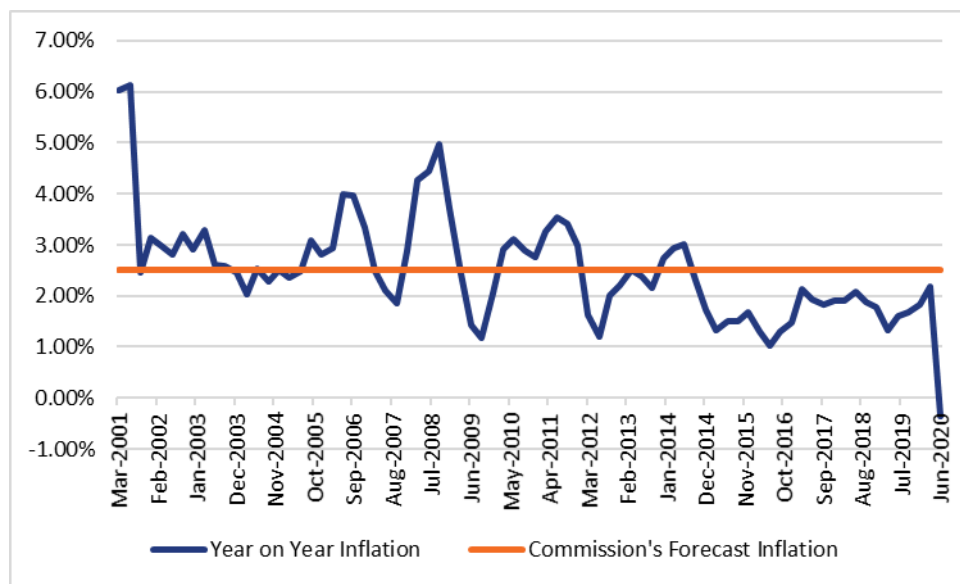
The Commission notes that this issue works both ways and that there have been periods of time where Icon Water would have over-recovered compared to their allowed revenue. Figure 2 illustrates inflation over time compared to the Commission’s static 2.5 per cent forecast and shows that prior to 2012, Icon Water were more likely to experience an over-recovery in revenue and have conversely been more likely to experience an under-recovery in revenue since 2012.

As outlined above, the Commission considers that adopting the AER’s proposed approach to forecasting inflation will assist in mitigating the magnitude of the under/over-recovery in Icon Water’s revenues.

⁷⁹ See <https://www.aemc.gov.au/rule-changes/participant-derogation-financeability-isp-projects-transgrid>.

⁸⁰ Icon Water 2020, p 29.

Figure 2. Inflation time series and Commission’s forecast



Source: Reserve Bank of Australia website.

Draft decision

The Commission considers that the most practical approach for improving its inflation forecasts is to adopt the AER’s revised approach. This approach will ensure that forecast inflation reflects investor expectations. The approach is to use the RBA’s short-term inflation forecasts for the first two years of a regulatory period, before gradually reverting to the RBA’s 2.5 per cent mid-point for the remaining years of a regulatory period. The gradual reversion to the RBA’s mid-point is done via a “simple linear glide path” that applies for years three and four of the regulatory period. The glide path means that inflation changes at equal steps for each year of the glide.⁸¹

The Commission considers its draft decision will adequately address the inflation forecasting problem raised by Icon Water and largely address the debt allowance problem raised by Icon Water.

The Commission’s draft decision is to adopt the AER’s approach to forecasting inflation as it is simple, transparent, and consistent with regulatory practice; thereby adhering to the Commission’s assessment criteria for this Review.

⁸¹ AER 2020d, p 55.

Abbreviations and acronyms

ACT	Australian Capital Territory
AER	Australian Energy Regulator
AEMC	Australian Energy Market Commission
Commission	Independent Competition and Regulatory Commission (ACT)
DGM	Dividend Growth Model
ERA	Economic Regulation Authority (WA)
ESC	Essential Services Commission (VIC)
ESCOSA	Essential Services Commission of South Australia
ICRC	Independent Competition and Regulatory Commission (ACT)
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i>
IPART	Independent Pricing and Regulatory Tribunal (NSW)
MRP	Market Risk Premium
OTTER	Office of the Tasmanian Economic Regulator
QCA	Queensland Competition Authority
RAB	Regulatory Asset Base
RBA	Reserve Bank of Australia
S-L CAPM	Sharpe–Lintner Capital Asset Pricing Model
Utilities Act	<i>Utilities Act 2000</i>
WACC	Weighted Average Cost of Capital

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