ICRC

independent competition and regulatory commission

FINAL REPORT

Review of Methodologies for the Weighted Average Cost of Capital

Report 8 of 2021, April 2021

The Independent Competition and Regulatory Commission is a Territory Authority established under the *Independent Competition and Regulatory Commission Act* 1997 (the ICRC Act). We are 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 our outcomes.

We have responsibility for a broad range of regulatory and utility administrative matters. We are responsible 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. We also have responsibility for arbitrating infrastructure access disputes under the ICRC Act

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

Our objectives are set out in section 7 and 19L of the ICRC Act and section 3 of the Utilities Act. In discharging our objectives and functions, we provide independent robust analysis and advice.

Correspondence or other inquiries may be directed to us at the following address:

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

We can be contacted at the above address, or by telephone on (02) 6205 0799. Our website is www.icrc.act.gov.au and our email address is icrc@act.gov.au.

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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 our 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 our regulatory framework continues to be consistent with our objectives in the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act).

The rate of return, also known as the weighted average cost of capital (WACC), has two major components: the cost of equity and the cost of debt. This report outlines our final decisions on the method for calculating the cost of equity and the cost of debt. We 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 on equity.

Our final decisions: return on equity

We have made the following 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.

Our final decisions: return on debt

We have made the following 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.

Our final decisions: regulatory treatment of inflation

Following stakeholder feedback on our issues paper, we decided to investigate the regulatory treatment of inflation in this review.

Our 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.

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

We released our draft report on 5 February 2021 as the second step in the consultation process for this Review to provide stakeholders with an opportunity to provide feedback on our draft decisions. We received a submission from Icon Water which is available on our website.

This final report is the last step in the process for this review. It addresses stakeholder feedback on our draft decisions and presents our final decisions on the methodology for determining the rate of return to be used in the next water and sewerage services price determination.

1. Introduction

This review of the rate of return methodology for water and sewerage services ensures that our 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 our regulatory framework continues to be consistent with our objectives stated in the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act).

1.1 Background to the review

We are 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. We also have functions under the *Utilities Act 2000* (Utilities Act) for licensing electricity, natural gas, water and sewerage utility services, and making industry codes.

We are 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.

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

We 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 we will use in the next price investigation.

We believe it is 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 that we use remain up-to-date and consider new evidence and analysis.

We released an issues paper on 28 August 2020 as the first step in the consultation process for this review and received submissions from Icon Water and the ACT Council of Social Services (ACTCOSS); the submissions are available on our website. We considered issues raised in these submissions in developing our draft report.

We released our draft report on 5 February 2021 as the second step in the consultation process and to give stakeholders an opportunity to provide feedback on our draft decisions. We received a submission from Icon Water, which is available on our website.

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

The regulatory model

We use 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, or RAB), 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.

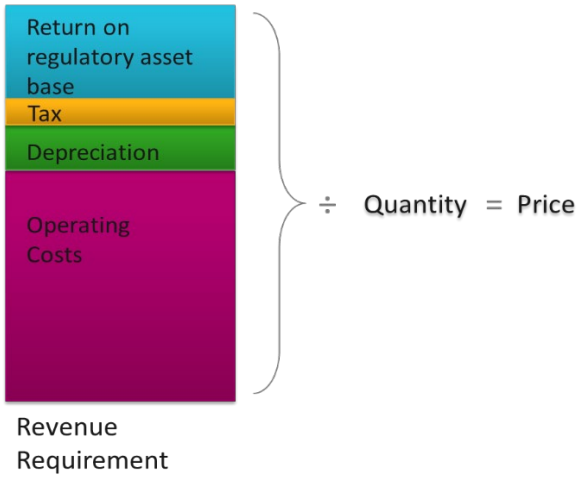
In other words, the total allowed revenue is the sum of the following cost components or 'blocks':

- 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, we 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 prudency 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

We set an allowed rate of return for Icon Water every five years in our water price investigation.

We calculate the allowed return on capital each year by multiplying the RAB by the rate of return. 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, we consider 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, estimating the WACC is a very common way to determine the rate of return.

If we 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

Our 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 our 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.

Our 2018 decision on the WACC was broadly consistent with the Industry Panel's methodology. We 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 Our role and objectives

In carrying out our functions under the ICRC Act, we have 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: Our 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, we are 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): Our 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.

In this review, we also considered the pricing principles outlined in our final report on regulated water and sewerage services prices for 2018-23 (Table 1).[2] The ICRC Act and the pricing principles require us to balance economic efficiency, environmental and social objectives. We acknowledge 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.

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

Objective	
Overarching interpretation	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. 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. Economic efficiency considerations related to pricing are a starting point but need to be balanced with environmental and social considerations.
Pricing principle	
1. Economic efficiency in use	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. This includes having regard to uneconomic bypass where water supply is sourced from a higher cost alternative.
2. Economic efficiency for investment and operation	Regulated prices and supporting regulatory arrangements should facilitate the efficient recovery of the prudent and efficient costs of investment and operation.

[2] ICRC 2018, p 5.

	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.
3. Environmental considerations	Regulated prices and complementary mechanisms should ensure that environmental objectives are effectively accounted for.
4. Community impact – gradual adjustment	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.
5. Community impact – fair outcomes for low-income households	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.
6. Regulatory governance – simplicity	Regulated prices and their form should be simple for consumers to understand and straightforward for the utility to implement.
7. Regulatory governance – transparency	Regulated prices should be set using a transparent methodology and be subject to public consultation and scrutiny.

1.3 Our approach to this review

In this review, we have determined the WACC methodology to be used in the next water price investigation for Icon Water, which is likely to commence in late 2021. We considered it appropriate to adopt the 2018 decision on the rate of return as the appropriate starting point for this review. Therefore, the review focused on examining opportunities to make improvements to our current WACC calculation methodology. The scope included:

- how we determine 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.

We also considered the regulatory treatment of inflation in this review in response to stakeholder submissions and the AER's review into this issue.

During this review, we gathered stakeholder views on possible improvements to the existing WACC methodology. We have not determined inputs to the methodology as part of this review; actual parameter values will be determined as part of the next price investigation. We have not considered 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. For this review, we used the following criteria to balance our 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 methodology should have strong theoretical foundations and all parameter estimates should 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 our determination.
3. **Stability over time.** The WACC methodology should 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, we will consider approaches used by other Australian regulators.

We believe that these criteria will address our legislative objectives and the matters that we are 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 we 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 aim to promote confidence in the WACC methodology and rate of return outcomes among consumers, investors and other stakeholders. Criterion 2 aims to ensure that all stakeholders can replicate our analysis to increase understanding of how we make our decision.

Criterion 3 aims to promote stability in how the rate of return is determined. 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.

We believe it is important to confirm that the WACC methodology reflects best regulatory practice (criterion 4), provided best practice is implemented consistent with our legislative requirements under the ICRC Act.

Stakeholder views on our approach

In the issues paper, we sought stakeholder comments on our approach and assessment criteria. Icon Water and ACTCOSS both supported our approach and assessment criteria.

Icon Water submitted that we should consider two additional assessment criteria as part of the Review. These criteria were:[3]

- **Internal consistency.** The WACC methodology should consider the interrelationships between parameters (for example, 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.

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[3] Icon Water 2020, p 11.

- **Proportionate treatment of evidence.** Our methodology should take into account existing evidence in a proportionate manner.

In our draft report, we considered that the criterion of internal consistency is already addressed by our first assessment criterion (reliance on sound methods and robust analysis). If interrelationships between the WACC parameters were not considered, the estimated rate of return may be too low or too high.

We considered Icon Water's suggested criterion on proportionate treatment of evidence is addressed by our criteria 1 and 3. Any changes in our methodology should be supported by strong evidence and economic theories so that it remains reliable and stable over time.

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

ACTCOSS suggested that we could assist consumers, community members and their advocates by including estimates of how our decisions might impact the average consumer's bills. ACTCOSS also highlighted the importance of comparability between entities when undertaking a benchmarking approach to ensure that only appropriate entities are considered as part of the process.[5]

In our draft report, we accepted ACTCOSS' suggestion to provide estimates of the pricing impacts of our decisions for the average consumer. In our draft and final reports, we have provided information, where possible, about the impact of our decisions on prices or on estimated WACC parameters. We agree with ACTCOSS that the choice of appropriate benchmarks should consider the comparability of benchmarked entities.

1.4 Review timeline

Our timeline is shown in Table 2. In doing our review, we considered the timing of other regulatory processes, both in the ACT and in other jurisdictions, and aimed to allow sufficient time for Icon Water and other stakeholders to participate fully in the review.

[4] ACTCOSS 2020, p 1.
[5] ACTCOSS 2020, p 4.

Table 2. Review timeline

Task	Date
Release of issues paper	28 August 2020
Workshop	20 October 2020
Submissions on issues paper closed	30 October 2020
Draft report	5 February 2021
Workshop	1 March 2021
Submissions on draft report closed	5 March 2021
Final report	30 April 2021

1.5 Structure of the final report

The remainder of this final report is structured as follows:

- Chapter 2 discusses our 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.

2. Overview of our current approach to estimating the rate of return

This chapter describes the key elements of the rate of return framework we have adopted, and submissions on the framework received during the review. The rate of return framework involves the following elements:

- use 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

We specify 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 that we have assumed 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 our allowed rate of return. 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, we estimate 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 our 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 our building block model.

Box 2.1. Nominal Vanilla WACC

The nominal vanilla WACC is defined as follows:

WACC nominal vanilla = E(Rd) × D/V + E(Re) × 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 Gearing ratio and imputation credits

For this review, we sought stakeholder feedback on the determination of the gearing ratio and imputation credits. The following section presents our final decisions 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'. We determine 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 used in:

- analysing the level of systematic risk across businesses in estimating the equity beta
- 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
- other regulators' decisions.

We currently use a benchmarking approach to determine the gearing ratio. For the 2018 water price investigation, we 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 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 gearing ratio, commenting that this was in the interest of promoting regulatory stability and consistency with sound regulatory precedent.[6]

Draft decision

We considered that the current benchmarking approach has delivered a gearing ratio that is consistent with best regulatory practice and provides regulatory stability. We did not find evidence to indicate that a change in the current method is warranted. Therefore, we made a draft decision to continue applying the benchmarking approach. In applying the benchmarking approach, we would 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.

Submissions to the draft report

Icon Water supported our draft decision to retain our benchmarking approach to determining the gearing ratio. Icon Water also supported the continued use of 60 per cent as the gearing ratio.[7]

Our final decision

We have decided to confirm our draft decision.

2.3.2 Imputation credits

We use 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 (gamma) 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, we 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 'gamma'. The value of gamma 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 (gamma)

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 gamma which is one of the inputs used to calculate the corporate tax allowance. The value of gamma lies in a range from zero

[6] Icon Water 2020, p 50.
[7] Icon Water 2021, p 7.

to one. A higher value of gamma will reduce the corporate taxation allowance and ultimately results in lower allowable revenue.

While we do not use gamma 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 Australian investors receive. To take account of this benefit, the MRP estimates are adjusted for dividend imputation.[8]

Submissions to the issues paper

Icon Water agreed that there is an interrelationship between gamma and the MRP and supported our intention to take the interrelationship into account when determining the estimate of the MRP. Icon Water intends to give its views on the values of imputation credits and of the MRP during the next price investigation.[9]

Draft decision

We made a draft decision to not consider the value of imputation credits in this review because is not an input parameter for calculating the WACC. We planned to take the interrelationship between gamma and the MRP into account in determining the values for the MRP and gamma in the next price investigation.

Submissions to the draft report

Icon Water supported our draft decision to take account of the interrelationship between gamma and MRP.[10]

Our final decision

We have decided to confirm our draft decision.

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[8] IPART 2018a, p 53.
[9] Icon Water 2020, p 50.
[10] Icon Water 2021, p 7.

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. Our final decisions on to the methods for estimating these parameters, along with relevant stakeholder submissions, are set out in this chapter.

3.1 Our current approach

We use 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.[11] 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.

[11] 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 review

The following section will present our final decisions and relevant stakeholder feedback on issues, including the determination of the MRP, averaging period for the risk-free rate and the equity beta.

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. It can be interpreted as the return above 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.

We currently determine the MRP using a benchmarking approach based on considering recent regulatory decisions made by other Australian regulators. In our 2018 determination, we 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. The approaches we considered in the benchmarking exercise resulted in MRP estimates ranging from 6 per cent (ESC, ESCOSA, ACCC) to 7.85 per cent (IPART).

We concluded that the AER's approach to estimating the MRP was the 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 our view, an appropriate regulatory approach to determining the MRP would consider a range of estimates and use other evidence as a cross-check. We considered that the methods used to determine these estimates should reflect both forward-looking and historical data to reflect prevailing conditions and provide regulatory stability.

The AER estimated 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 was best suited for achieving its objective of determining a rate of return that reflected 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

We sought feedback from stakeholders on the appropriate sources of evidence and estimation approaches that we should consider in our benchmarking process to determine the MRP.

Icon Water submitted that our 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:[12]

[12] 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 essentially argued that our 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 submitted that we should adopt an approach that pairs consistent estimates of the risk-free rate and the MRP. It proposed that:[13]

> 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 we 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.

Draft findings

In our draft report, we reiterated that our current approach for determining the MRP is a benchmarking approach. We considered that this approach is appropriate because it considers 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. Estimates from DGMs can be volatile over time and vary with changes in underlying assumptions. We considered that our approach is consistent with the approaches adopted by IPART and QCA, which both consider forward-looking estimates and historical estimates in calculating the MRP.

Our draft view was that maintaining our current approach would provide regulatory stability over time.

We assessed 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, as providing a robust and stable approach that reduces volatility while also allowing the MRP to reflect prevailing market conditions.

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[13] Icon Water 2020, p 20.

We noted that 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).[14] However, we considered 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.

We acknowledged that the MRP and risk-free rate of the proposed approach 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. But we considered that it is not appropriate to base the MRP solely on forward-looking estimates derived from DGMs. Further, we agreed 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 considered that MRP estimates based on historical data are good indicators of the forward looking MRP. The AER has stated that:[15]

> 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.

Our draft view was that an MRP estimated in accordance with our proposed approach would be both forward looking and consistent with the risk-free rate. We noted that the QCA and most other regulators also base their MRP and risk-free rate using data from different time periods. We therefore considered that the 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.

Our draft decision

Our draft decision was 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 consider prevailing market conditions, while addressing the volatility and implementation problems inherent in current forward-looking estimation methods. We planned to consult during the next price investigation on the estimates to use in the benchmarking approach.

We also made a draft decision that arithmetic averages should be used to estimate MRPs based on historical data. This is consistent with regulatory practice because the geometric average does not account for the effect of compounding over time. In selecting estimates for our benchmarking approach, we intended to use estimates calculated using an arithmetic average where possible.

Submissions to the draft report

Icon Water largely reiterated its submission to the issues paper, that our 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).[16]

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[14] IPART 2018a, p 56.
[15] AER 2020b, p 25.
[16] Icon Water 2020, p 18.

Icon Water raised concerns over the ability of the QCA approach to reflect market conditions. Icon Water stated that since 2014, the QCA has consistently adopted a fixed MRP estimate of 6.5% regardless of the estimates produced by the 5 inputs it considers.[17] However, in checking Icon Water's statement, we found that the QCA's estimate of the MRP has varied between 6.5% and 7.0% in recent regulatory determinations.[18]

Icon Water advocated for the approach used by IPART for two reasons. First, the MRP is based on the same time periods as the risk-free rate, which Icon Water considered is important for internal consistency. Second, IPART's method places greater reliance on DGMs.

Icon Water stated that volatility in the MRP estimates generated by DGMs was not necessarily a disadvantage. It stated that:[19]

> … variability in the DGM estimate is not *per se* a shortcoming. When combined with volatile estimates of the risk-free rate, variable MRP estimates tend to produce relatively stable return on equity estimates that are more economically meaningful than the return on equity estimates that would be produced under the Commission's approach.

Icon Water agreed with our draft decision to give preference to arithmetic averages over geometric averages when estimating historical excess returns for use in determining the MRP.

Our final decision

We have decided to confirm our draft decisions on the MRP estimation method. We will continue using a benchmarking approach to determine the MRP and consider forward-looking estimates derived from DGMs. We will also continue to give preference to arithmetic averages over geometric averages when observing historical estimates of excess returns.

Our decision will ensure the estimation approach for the MRP is robust and reliable, based on a range of relevant data and information, and consistent with both theoretical principles and established regulatory practice. It also provides regulatory certainty.

We disagree with Icon Water's view that our benchmarking approach results in MRPs that are time invariant or do not adequately reflect prevailing market conditions. Our approach involves using information from forward looking estimates from DGMs which change over time.

We recognise that our approach means that the MRP and risk-free rate are based on data of different time periods. But we consider that an MRP based on historic data is consistent with using forward-looking data in estimating the risk-free rate. We note that the QCA and most other regulators also base their MRP and risk-free rate using data from different time periods.

We continue to have concerns that an estimate of the MRP based heavily on DGMs may lead to unnecessary volatility in the MRP estimate and the return on equity. For this reason, we prefer an approach that considers a wider variety of data, such as the QCA's approach. Our approach of balancing forward looking estimates with historic estimates is consistent with established regulatory practice.[20]

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[17] Icon Water 2021, p 13.
[18] QCA 2018, p 62 and QCA 2014, pp 23, 54.
[19] Icon Water 2021, p 17.
[20] AER 2020a, p 14.

Based on our review of recent regulatory decisions, we maintain our guidance that the benchmarking approach will result in an approach that is similar to the QCA's when determining the MRP in the next water price investigation. That is, we will consider approaches that balance forward-looking estimates of excess returns with historical estimates of excess returns.

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. In this way the estimate reflects the prevailing conditions in the market.

Our 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

Icon Water advocated internal consistency between methods used to calculate the risk-free rate and the MRP.

Draft findings

Our draft view was that our current approach to determining the risk-free rate is consistent with standard regulatory practice across Australian regulators. We noted that most regulators use averaging periods no longer than 60 days.

The AER's March 2018 discussion paper on risk-free rate averaging periods outlined 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 noted that a longer averaging period would result in a risk-free rate that was less reflective of prevailing market conditions at the time of regulatory determination.[21] We noted that IPART was the exception in using both a 40-day averaging period and a 10-year averaging period.

We considered that maintaining a 40-day averaging period met several of our assessment criteria for the review, being consistent with best regulatory practice and based on sound approaches and robust analysis undertaken by several other Australian regulators. This averaging period would also produce a risk-free rate that reflected the prevailing risk-free rate that a firm would face at the start of the regulatory period.

We disagreed with the calculation method Icon Water used to produce Table 6 in its submission to the issues paper. Icon Water used the Table to argue that the benchmark utility would make a net loss if we were to remake our 2018 decision using a risk-free rate estimated as at October 2020.[22] We found that the modelling used by Icon Water was done on a cash basis and excluded the capital gain earned by Icon Water

[21] AER 2018b, p 35.
[22] Icon Water 2020, p 39.

on its RAB due to inflationary gains, which are accounted for at the end of the regulatory period. This capital gain on Icon Water's RAB has to be factored 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.

Draft decision

Our draft decision was to maintain our current approach to determining the risk-free rate.

Submissions to the draft report

Icon Water repeated its position that there should be internal consistency between the methods used to calculate the risk-free rate and the MRP.[23] Icon Water did not comment specifically on our decision to maintain a 40-day averaging period of the risk-free rate.

Our final decision

We have decided to confirm our draft decision.

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 require to hold the company's assets in their investment portfolio.

We currently determine the equity beta using empirical estimates for international water utilities and consideration of recent regulatory decisions made by other Australian regulators. We also consider the low-beta bias that arises because the S-L CAPM tends to underestimate the returns to low-beta assets. In the 2018 price investigation, we 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 our current approach is well established and supported its continued use. However, Icon Water asked us to explain in more detail the precise methodology we intend to use to obtain empirical estimates of the equity beta and give stakeholders an opportunity to provide feedback on our proposed process.

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

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[23] Icon Water 2021, p 9.

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.

Draft decision

Our draft decision was to maintain our current approach to determining the equity beta. We considered that this would provide regulatory stability and would be consistent with best regulatory practice.

We highlighted that in estimating the equity beta, we give greater weight to more recent regulatory decisions. We also consider estimates that consider the low beta bias and are consistent with the gearing parameter (discussed in chapter 2) and benchmarking credit rating (discussed in chapter 3) to achieve internal consistency in our methodology.

Submissions to the draft report

Icon Water supported our draft decision.[24]

Our final decision

We have decided to confirm our draft decision.

[24] Icon Water 2021, p 7.

4. Return on debt

Our regulatory framework 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. Our final decisions on the return on debt, along with relevant stakeholder submissions, are set out in this chapter.

4.1 Our current approach

During the 2018 water price investigation, we 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.

Our 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.

Our trailing average approach 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.[25]

To implement this approach, our 2018 decision incorporated a transitional arrangement over 10 years. In the first year, we set the allowed return on debt using the on-the-day approach. In each following year of the transition, we assume 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 we implemented during the 2018 water price investigation used the following inputs:

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[25] 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. We considered that a benchmark firm would raise debt with a 10-year term to maturity because long-lived assets are usually financed using long-term debt.
- **Benchmark credit rating.** This is 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. We 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. We estimated the return on debt using two third-party data series – RBA and Bloomberg. We took a simple average of Bloomberg and RBA 10-year BBB yields.
- **Averaging period.** This is the period over which the regulated return on debt is calculated. We used a 12-month averaging period for each regulatory year. We gave the dates of averaging periods to Icon Water on a confidential basis prior to the commencement of the regulatory period.

Our current approach provides an allowance for debt-raising costs as part of the 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. We added a margin of 0.125 per cent to the allowed cost of debt for debt-raising costs.

In this review, we sought stakeholders' feedback on issues including the cost of debt averaging period, use of third-party data series, benchmark credit rating, and debt-raising costs. Stakeholder submissions and our findings are described in the below sections.

4.2 Matters raised in the review

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

4.2.1 Cost of debt averaging period

As described in section 4.1, 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. We currently use a 12-month averaging period.

We determine the averaging period for the cost of debt and give it to Icon Water on a confidential basis.[26] This allows Icon Water to manage its financing arrangements without disclosing potential timing, which could put it at a commercial disadvantage.[27] This was consistent with regulatory practice at the time of the

[26] ICRC 2018, p 96.
[27] ICRC 2018, p 98.

determination; for example, the AER adopted this approach for the ElectraNet transmission determination in 2017[28] and IPART adopted this approach in 2017.[29]

Submissions to the issues paper

Icon Water supported our 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.[30]

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 (for example, 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.

Draft findings

We found that 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.[31] 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.[32]

We noted 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.[33] 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.[34]

We considered that these points may also apply to regulated water businesses. However, we considered 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. We noted that this volatility may be mitigated to some extent as only one-tenth of the cost of debt is updated each year.

We considered 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.[35] This would ensure that averaging periods are not selected during the

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[28] AER 2017, p 61.
[29] IPART 2017, p 19.
[30] Icon Water 2020, p 12.
[31] ESC 2019, p 32.
[32] IPART 2018a, p 36.
[33] AER 2018a, p 298.
[34] AER 2018a, p 294.
[35] AER 2018a, p 294.

regulatory period to advantage the regulated business and disadvantage consumers, based on movements in interest rates at the time.

Draft decision

Our draft decision was 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 on a confidential basis. We considered that this would 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 is similar 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, but with a slightly smaller range of averaging periods. We therefore found 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 tell us 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 starts in May.

Submissions to the draft report

Icon Water supported our draft decisions to (a) continue with the trailing average approach to determining the return on debt allowance, and (b) allow Icon Water to nominate a return on debt averaging period of between 2 months and 12 months.[36]

Our final decision

We have decided to confirm our draft decision.

4.2.2 Third-party data series

We use third-party data series of corporate bond yields to determine the allowed rate of return on debt, provided by Bloomberg and the RBA. We take 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.

We sought feedback from stakeholders on the appropriateness of third-party data sources that we use to determine the return on debt allowance.

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[36] Icon Water 2021, p 7.

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 using multiple data sources, rather than relying 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 sources stops publishing data.[37] Icon Water did not support the use of S&P data to set the return on debt allowance because:[38]

- 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.

Draft findings

We found that 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.[39] Before 2018, the AER used RBA and Bloomberg.

Transparency is the main reason given by some regulators for choosing the RBA as the sole source of data. For example, in its 2018 WACC review, IPART selected the RBA 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.[40]

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 (such as the bond selection criteria and the estimation methodology); appropriateness of the time series considered; and outcomes. The AER decided to add Thomson Reuters to its data sources, along with data from the RBA and Bloomberg.[41]

The AER explained that it added Thomson Reuters because the bond selection criteria and estimation methodologies used by the RBA, Bloomberg and Thomson Reuters have their unique strengths and weaknesses, but none was clearly superior. The AER considered the outcomes of the Thomson Reuters data series were consistent with both the RBA and Bloomberg data. Also, 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. Using three data providers also incorporates a natural contingency if one of the data providers ceases publication.

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[37] 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.

[38] Icon Water 2020, p 48.

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

[40] IPART 2018a, p 46.

[41] AER 2018a, p 14.

In contrast, the AER found 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.[42]

We considered that there are benefits to using more than one data source to set the return on debt allowance. Our current approach of 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. We noted 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.

We also considered 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.

We considered 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, we considered that continuing the current approach provides regulatory stability over time. We also noted that stakeholders have not signalled support to remove either of the Bloomberg or RBA data series from our approach.

Draft decision

Our draft decision was to continue using the RBA and Bloomberg data sources for the purposes of setting the return on debt allowance.

Submissions to the draft report

Icon Water supported our draft decision to continue using the RBA and Bloomberg data sources for the purposes of setting the return on debt allowance.[43]

Our final decision

We have decided to confirm our draft decision.

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[42] AER 2018a, p 292.
[43] Icon Water 2021, p 7.

4.2.3 Benchmark credit rating

A credit rating is an evaluation of the risk associated with lending money to a particular entity (a firm or a government). Credit rating agencies determine credit ratings, considering 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.[44]

To estimate the regulated rate of return on debt, we decide 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.

We currently use a benchmarking approach based on consideration of credit ratings adopted by other regulators for regulated water businesses. In the 2018 water price investigation, we adopted a BBB credit rating in deriving the allowed return on debt for Icon Water.

In this review we sought stakeholder comments on the appropriateness of our current approach to determining credit rating.

Submissions to the issues paper

Icon Water supported our current approach to determining the benchmark credit rating which provides a BBB credit rating. Icon Water proposed that we maintain our use of a BBB benchmark credit rating because doing so would satisfy two of our assessment criteria: stability over time and consistency with best regulatory practice.

Draft findings

We found that our 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 rating of BBB as the investment grade for water businesses (see Table 4); this is the same rating that we use.

We considered that maintaining our approach would provide stability in estimating the cost of debt over time.

Table 3. 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.

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[44] Industry Panel 2014, p 169.

Draft decision

Our draft decision was to maintain the current approach to determining the benchmark credit rating.

Submissions to the draft report

Icon Water supported our draft decision to retain a BBB benchmark credit rating assumption for the purposes of setting the return on debt allowance.[45]

Our final decision

We have decided to confirm our draft decision.

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.

Our current approach provides an allowance for debt-raising costs in the cost of debt allowance. We determine the allowance for debt-raising costs by considering recent regulatory decisions in other jurisdictions. In our 2018 water price investigation, we adopted a benchmarking margin of 0.125 per cent.

In this review, we invited stakeholders to submit their feedback on our current benchmarking approach to determining debt-raising costs.

Submissions to the issues paper

Icon Water supported our approach of providing an allowance for debt-raising costs:[46]

> 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.

Draft findings

We found that 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. In this review, we considered how we should apply the benchmarking approach and how various estimates have been determined.

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[45] Icon Water 2021, p 7.
[46] Icon Water 2020, p 13.

We found that the rationale for using a debt-raising cost of 0.125 per cent dates back to work by the ACCC in the early 2000s.[47] The 0.125 per cent figure was based on information provided to the ACCC by Westpac in 2002.[48] 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.[49]
- 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).[50]

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.[51]

We considered 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 2010 estimate,[52] PwC's 2011[53] and 2013[54] estimates, the ERA's estimates in 2013[55] and 2019,[56] and the AER's estimate in 2019.[57]

We found these issues are relevant to how we apply the benchmarking approach. We considered the method used by Allen Consulting Group and PwC is correct and the separate allowance for the dealer swap margin should be excluded from the debt-raising cost. There is evidence that this cost component results in double counting and other regulators removed it from their recent estimates. We found 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.

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[47] For instance, AER 2002a, p 25; and AER 2002b, p 95.
[48] Allen Consulting Group 2004, p 18.
[49] Allen Consulting Group 2004, p 28.
[50] Allen Consulting Group 2004, p xvii.
[51] PwC 2011, p 20.
[52] Deloitte 2010, p 4.
[53] PwC 2011, p 20.
[54] PwC 2013.
[55] ERA 2013, p 202.
[56] ERA 2019, p 34.
[57] AER 2020c, p 13.

Table 4. 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.

Draft decisions

We made two draft decisions. First, we made a draft decision to give more weight to recent estimates of the debt-raising cost compared to older estimates. 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, we would give preference to estimation methodologies that exclude the dealer swap margin.

To assist stakeholders in considering the impacts of these draft decisions, we estimated that the draft decisions would, based on 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 debt-raising allowance 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 5. 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.

Submissions to the draft report

Icon Water supported our draft decisions.[58]

Our final decision

We have decided to confirm our draft decision.

[58] Icon Water 2021, p 7.

5. Inflation

In this review, we have considered the regulatory treatment of inflation. The treatment of inflation is an important factor influencing the rate of return received by Icon Water. We decided to consider this issue in response to stakeholder feedback.

5.1 Our current approach

The goal of our 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 each price investigation, we determine 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 we use 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. We deduct 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 our 2013-18 water price determination and by most other economic regulators that apply the building block model in Australia.[59]

Because we don't know what inflation will be at the start of each regulatory period, we use a forecast of inflation in rolling the RAB forward in each year of the regulatory period. We currently forecast inflation by

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[59] 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).

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 our model accounts for 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, our 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 can be broken down into two issues: debt allowance and cash return.[60]

Debt allowance

Icon Water submitted that the current regulatory arrangement gives it a real rate of return required by investors and lenders plus actual inflation. Icon Water stated that this is not sufficient to cover its cost of debt because it faces a nominal cost of debt.

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, we provide 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 us under the current regime will 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 our 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 our forecasts.

Cash return

Icon Water submitted that our 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.

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[60] Icon Water 2020, p 27.

The 'inflation forecasting problem'

Icon Water stated that differences between our 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.[61]

Icon Water submitted that if our 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 acknowledged that the real rate of return required by investors is difficult to observe.

5.3 Our draft findings

We decided that the issues raised by Icon Water warranted consideration as part of this review. We noted that these issues have also been raised with the AER by network providers. The AER 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 AER's current inflation forecast 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 found that its current approach is fundamentally sound, but considered 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)
- 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.

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 considered 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.[62]

Inflation forecasting problem

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

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[61] Icon Water 2020, p 29.
[62] AER 2020d, p 38.

Icon Water proposed using the best possible estimates of investors' inflation expectations to correct this problem and stated that:[63]

> 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:[64]

> 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.[65] 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.[66]

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

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[63] Icon Water 2020, p 31.

[64] AER 2020d, p 13.

[65] 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).

[66] AER 2020d, p 49.

Table 6. Latest forecast inflation rates and the approaches used by other regulators

Regulator	Annual forecast inflation rate (%)	Approach
ESC[67]	**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[68]	**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[69]	**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[70]	**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[71]	**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

Icon Water's concerns about under-compensation when actual inflation is lower than forecast inflation were raised by energy network businesses during the AER's review. The AER's response was that network businesses are responsible for managing this risk. It stated that there are a variety of products available to businesses to manage this risk.[72]

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[67] ESC 2020, p 9.
[68] QCA 2020c, p11.
[69] AER 2020c, p 52.
[70] IPART 2020, p 253.
[71] ESCOSA 2019, p 8.
[72] AER 2020e, p 80.

The AER went on to say that:[73]

> 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:[74]

> 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.

In our draft report we agreed that Icon Water is likely to be fully compensated for its nominal debt costs if:

- our 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
- if there is residual risk from our 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 considers 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:[75]

> 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 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).

We agreed 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 we recognise the

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[73] AER 2020e, p 13.
[74] AER 2020e, p 88.
[75] AER 2020e, p 88.

importance of cash flows to businesses, we also considered 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.

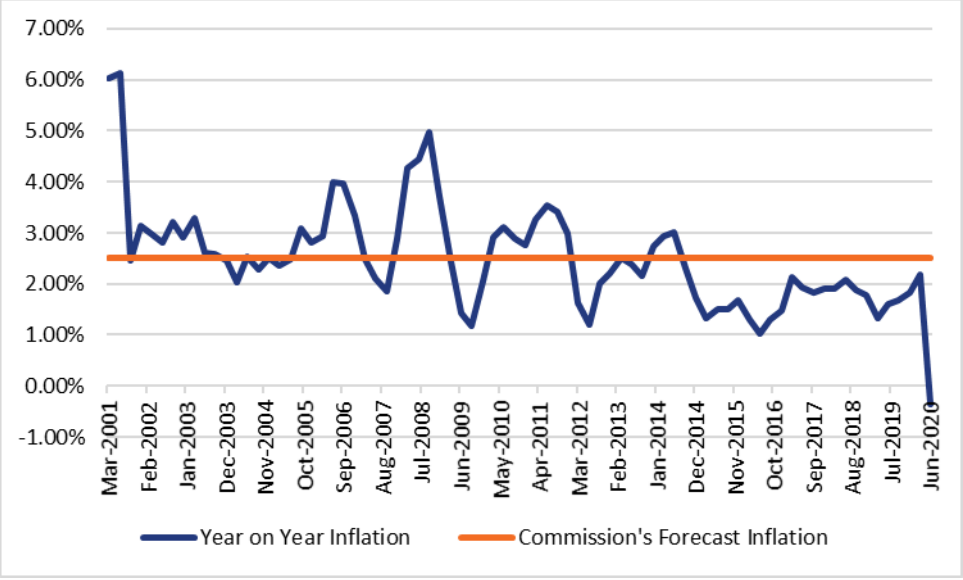
The AEMC has investigated the cashflow issue, which has been described as the 'financeability issue' and concluded that the current regulatory framework did not create barriers to utilities securing finance for projects.[76] The AEMC noted market evidence that Australian infrastructure projects continue to be financed under the current regulatory settings, and that it is reasonable to assume that investors are aware and accepting of the risks associated with these projects.[77] We agreed with the outcome of the AEMC's determination and did not consider that this issue applied to Icon Water.

We considered the modelling results reported by Icon Water in Figure 4 of its submission,[78] which estimated an under-recovery of around $40 million (in nominal terms) over the 2013–18 regulatory period due to the debt allowance problem. Our own modelling confirmed Icon Water's estimates of the magnitude of this issue.

We noted 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 our static 2.5 per cent forecast and shows that Icon Water was more likely to have over-recovered revenue before 2012 and more likely to have under-recovered revenue since 2012.

We found that adopting the AER's proposed approach to forecasting inflation would reduce the magnitude of the under/over-recovery in Icon Water's revenues.

Figure 2. Inflation time series and Commission's forecast



Source: Reserve Bank of Australia website.

[76] AEMC 2021, p ii.
[77] AEMC 2021, p iv.
[78] Icon Water 2020, p 29.

5.4 Our draft decision

Our draft decision was to adopt the AER's approach to forecasting inflation as it is simple, transparent, and consistent with regulatory practice.

We considered that this approach would ensure that forecast inflation reflects investor expectations, by using 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.[79]

We considered that the draft decision would adequately address the inflation forecasting problem raised by Icon Water and largely address the debt allowance problem raised by Icon Water.

5.5 Submissions to the draft report

Icon Water supported our draft decision to adopt the AER's approach to forecasting inflation and considered that it addresses the 'inflation forecasting' problem. Icon Water asked us to clarify that our inflation forecasting method does not define the precise measure of inflation to be employed in advance, consistent with the AER's approach.[80]

Icon Water submitted that we have not fully addressed the 'debt allowance' problem, reiterating its previous submission.[81]

Icon Water said there are no products available to it to manage the risk associated with the debt allowance problem. It did not believe that residual risk associated with this problem is taken into account by other WACC parameters such as the MRP and credit rating.

Icon Water put forward two possible solutions, stating that:[82]

> The debt allowance problem can be addressed either by:
>
> - Allowing Icon Water to earn a nominal; return on debt in each regulatory period, and applying no inflation indexation to the debt portion of the RAB; or, equivalently
> - Indexing the debt portion of the RAB using the Commission's forecast of inflation, rather than actual inflation.
>
> Either of these approaches are simple to implement and would eliminate the source of the debt allowance problem, which is a mismatch between the expected inflationary gain that the Commission 'takes out' when the Commission sets a real return on debt capital in each regulatory period, and the inflationary gain the Commission 'puts back' when indexing Icon Water's RAB.

[79] AER 2020d, p 55.
[80] Icon Water 2021, p 8.
[81] Icon Water 2021, p 5.
[82] Icon Water 2021, p 5.

5.6 Our final decision

We have decided to confirm our draft decision. That is, we will implement the AER's approach to forecasting inflation. This includes adopting the AER's decision to not define in advance the form of inflation that will be used from the RBA's Statement on Monetary Policy. It is expected that the CPI will generally be used as the measure of inflation. However, it may be appropriate to use other measures, like trimmed mean inflation, in exceptional circumstances where inflation is quite volatile.[83]

If we were to adopt one of Icon Water's options for addressing the 'debt allowance problem', our regulatory framework would be significantly very different to other Australian regulators' frameworks.

Any significant change to our regulatory approach would have to be supported by analysis and evidence that there would be a net benefit to businesses and consumers. But the AER's recent review of the regulatory treatment of inflation did not find such evidence and concluded that changes like those proposed by Icon Water are not necessary.[84]

We agree with the AER's finding that the regulatory approach that we and other regulators use already allows the regulated businesses to recover their nominal debt costs. This is because:

- our forecast of inflation is unbiased, so 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
- if there is residual risk from our 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.

We disagree with Icon Water that investors are not adequately compensated for any residual risks posed by the debt allowance problem.[85] While none of the WACC parameters specifically accounts for the debt allowance problem, the AER found that all financing practices entail some level of risk and what is important is that the total compensation matches expectations, including expectations of risk.[86]

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[83] AER 2020d, p 72.
[84] AER 2020d, p 20.
[85] Icon Water 2021, p 23.
[86] AER 2020d, p 20.

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	*Independent Competition and Regulatory Commission Act 1997*
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	*Utilities Act 2000*
WACC	Weighted Average Cost of Capital

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