



Attachment 9

Rate of return and forecast inflation

30 June 2022

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9.1 Introduction

This attachment sets out the approach Icon Water has taken to estimate the rate of return on capital, return of capital (regulatory depreciation), and forecast inflation for the 2023–28 regulatory period.

In 2020, the Independent Competition and Regulatory Commission (the Commission) commenced a review of methodologies for the Weighted Average Cost of Capital (WACC). The review was a reset principle identified in the Commission's 2018 Price Direction,¹ with the purpose of ensuring the approach to determining water and wastewater prices provides an appropriate return on Icon Water's investments and encourages prudent and efficient investments for delivering services. Icon Water has adopted the approach set out by the Commission as part of its 2021 Review of Methodologies for the WACC. Icon Water made several submissions to the Commission's review, and largely supported the proposed methodology.

The Commission's review concluded in April 2021, with the publication of a final report on the methodologies to be used for the 2023–28 regulatory period. The Commission's review was comprehensive and confirmed the overall rate of return framework would continue to adopt 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

The Commission did not decide a value of imputation credits as part of its 2021 review of the WACC methodology. Icon Water has proposed a value of imputation credits (gamma) of 0.25, which is consistent with the approach adopted by other regulators and a market-based interpretation of gamma.

Our approach used to estimate forecast inflation for regulatory purposes is discussed in section 9.3.

¹ Independent Competition and Regulatory Commission, *Price Direction – Regulated water and sewerage services – 1 July 2018 to 30 June 2023*, 2018, p. 19.

² Independent Competition and Regulatory Commission, *Review of Methodologies for the Weighted Average Cost of Capital*, 2021, p. 12.

Box 9-1: Key points

Icon Water has adopted the Commission's 2021 methodology for calculating the rate of return and forecast inflation. This results in a rate of return of 5.11 per cent, estimated at 1 May 2022, and a forecast inflation rate of 2.62 per cent. The individual components of the WACC are set out in the table below.

Icon Water's proposed WACC Parameters

WACC parameter	Value 2023–24 (indicative)
Risk free rate	2.2%
Debt raising cost	0.108%
Equity Beta	0.7
Market risk premium	6.1%
Gearing	60%
Cost of debt	4.2%
Cost of equity	6.5%
Imputation credits	0.25
Nominal post-tax 'vanilla' WACC	5.11%

Source: Independent Competition and Regulatory Commission, *Review of Methodologies for the Weighted Average Costs of Capital, April 2021*; and Icon Water.

9.2 WACC parameters

The return on capital reflects the cost a firm incurs in financing its capital through debt and equity funds. In a regulatory context, the return on capital is calculated for each year of the regulatory period as the rate of return (or the WACC) multiplied by the regulatory asset base (RAB). Given the capital-intensive nature of regulated firms, the return on capital usually comprises a substantial proportion of the total revenue requirement and the prices customers pay.

9.2.1 Overview

The Commission's regulatory framework specifies a rate of return based on a 'benchmark efficient entity', rather than the actual costs incurred by Icon Water. The benchmark efficient entity reflects a hypothetical efficient firm operating in a competitive market for the services it issues. This approach is commonly used by Australian regulators and encourages efficient outcomes consistent with those in a workably competitive market.

The benchmark efficient entity approach is consistent with the overarching objective of the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act) (part 4, section 19L):

The objective of the commission, when making a price direction in a regulated industry, is 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.³

Regardless of Icon Water's actual costs, the benchmark efficient entity approach compensates Icon Water for the costs an efficient firm would incur in providing the regulated services. This provides Icon Water with the incentive to make efficient investment decisions and to seek out operating efficiencies, which are in the long-term interests of consumers.

Application of the WACC

Icon Water first moved to a post-tax revenue model with a nominal post-tax 'vanilla' WACC for the 2013–18 regulatory period. This approach was applied again for the 2018–23 regulatory period and re-confirmed as the Commission's preferred approach as part of the 2021 WACC review.

The post-tax nominal 'vanilla' WACC is calculated using the following formula:

$$\text{Post – tax nominal vanilla WACC} = R_e * \frac{E}{V} + R_d * \frac{D}{V}$$

Where:

R_e = required return on equity

R_d = required return on debt

$\frac{E}{V}$ = proportion of capital financing that is equity

$\frac{D}{V}$ = proportion of capital financing that is debt

The parameter values for each part of the post-tax nominal vanilla WACC formula are discussed below.

³ ACT Government, *Independent Competition and Regulatory Commission Act 1997*, 1997: 27.

9.2.2 Return on equity

The approach adopted by the Commission to establish the return on equity applies the Sharpe-Lintner Capital Asset Pricing Model (S-L CAPM). The S-L CAPM is widely used by Australian regulators and has been applied in previous regulatory periods. The model predicts the relationship between a firm's return and risk, and consists of three parameters – a risk free rate, a market risk premium and a beta parameter.

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 = the equity beta

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

$E(Rm)$ = the expected return on a broad stock market index

$E(Rm) - E(Rf)$ = the expected MRP

As at 1 May 2022, Icon Water's estimate of the return on equity is 6.5 per cent (2.2 per cent + 0.7 * 6.1 per cent). The value of the risk-free rate and MRP are placeholders, which will be updated by the Commission before its final decision.

The risk-free rate

The risk-free rate is the basis for calculating the return on equity and reflects the return an investor would expect to earn in the absence of default risk. A premium is added to the risk-free rate to calculate the total return on equity and hence the risk-free rate has a substantial impact on the resulting return on equity estimate.

The Commission maintained the approach it applied for the 2018–23 regulatory period when it considered the approach to the risk-free rate as part of its 2021 WACC Review.⁴ That is, to determine the risk-free rate by taking 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 (RBA) website).

Icon Water's regulatory submission uses this approach, with the 40-day average taken until 20 April 2022, noting this parameter will be updated by the Commission before its final decision.

The equity beta

The equity beta measures the degree of systematic risk associated with an equity investment in a particular industry or business. Under the S-L CAPM, risk is measured relative to the market. An equity beta of one implies that the business' returns vary with economic conditions by the same amount as the overall market.

An equity beta between zero and one implies the business' returns tend to vary in the same direction as the overall market but not by as much. The equity beta is used to weigh the MRP to reflect the businesses' risk premium (above the risk-free rate) that equity holders would require to hold that particular business as part of a well-diversified portfolio.

⁴ Independent Competition and Regulatory Commission, *Review of Methodologies for the Weighted Average Cost of Capital*, 2021, p 20.

The Commission maintained the approach it applied for the 2018–23 regulatory period when it considered the approach to the equity beta as part of its 2021 WACC review.⁵ That is, to adopt an equity beta of 0.7, which is based on a study of equity betas for comparable water utilities in the US and UK, low-beta bias, and having regard to the decisions made by other regulators. Icon Water’s regulatory submission uses an equity beta of 0.7.

The market risk premium

The MRP is the amount by which the required return on a broadly diversified ‘market’ portfolio exceeds the risk-free rate. Within the S-L CAPM, the MRP is multiplied by the equity beta to determine an equity premium, which is then added to the risk-free rate to determine the total return on equity.

The Commission maintained the approach it applied for the 2018–23 regulatory period and will continue to use a benchmarking approach to determine the MRP and consider forward-looking estimates derived from a Dividend Growth Model (DGM). The approach uses both forward-looking estimates of excess returns and historical estimates of excess returns.

The Commission’s 2021 WACC review specifies an approach, but not a value for the MRP:

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.⁶

Icon Water’s regulatory submission uses a MRP of 6.1 per cent, which is a placeholder estimate taken from the Australian Energy Regulator’s (AER) 2018 Rate of Return Instrument. However, we note that the Commission will update the MRP as part of its price investigation in accordance with its preferred approach.⁷

In June 2022, the AER released its draft determination for the 2022 Rate of Return Instrument, which proposes a MRP of 6.8 per cent.⁸ The AER’s approach primarily relies on estimates of historical excess returns and would be a reasonable estimate to apply given the Commission’s WACC framework.

9.2.3 Return on debt

The Commission’s regulatory framework provides Icon Water with an allowed return on debt to cover efficient borrowing costs. The Commission uses a trailing average approach to calculate the benchmark costs of debt, with consideration given to the following inputs:

- term to maturity
- benchmark credit rating
- debt data series
- averaging period
- debt-raising costs.

⁵ Independent Competition and Regulatory Commission, *Review of Methodologies for the Weighted Average Cost of Capital*, 2021, p 22.

⁶ Independent Competition and Regulatory Commission, *Review of Methodologies for the Weighted Average Cost of Capital*, 2021, p. 21.

⁷ Australian Energy Regulator, *2018 Rate of Return Instrument – Explanatory Statement*, 2018, p. 220.

⁸ Australian Energy Regulator, *Draft 2022 Rate of Return Instrument*, 2022.

Each of these inputs is discussed further below.

For the purpose of this submission, the placeholder cost of debt for 2023–24 is 4.19 per cent. Icon Water recognises that this estimate will be updated using our nominated debt averaging period before the start of the 2023–28 regulatory period. We also note that the cost of debt parameter in the WACC will be updated annually over the regulatory period.

Term to maturity

The term to maturity refers to the term of borrowings, such as bonds, that an efficient firm enters into to fund its business.

The Commission maintained the approach it applied for the 2018–23 regulatory period – a 10-year term to maturity.

Icon Water’s estimate of the return on debt assumes a 10-year term to maturity.

Benchmark credit rating

The benchmark credit rating refers to the value assigned by credit rating agencies that represents an assessment of the credit risk associated with lending money to a particular entity.

The Commission maintained the approach it applied for the 2018–23 regulatory period and maintained that an efficient water and wastewater services provider would have a BBB credit rating.

Icon Water’s estimate of the return on debt uses datasets for BBB-rated corporate debt.

Debt data series

The calculation of the return on debt relies on datasets that can be used to obtain corporate bond yield data.

The Commission estimates the return on debt using two third-party data series – RBA and Bloomberg, and takes a simple average of the 10-year BBB yields from each.

Icon Water’s estimate of the return on debt follows this approach.

Averaging period

The averaging period refers to the period over which Icon Water’s return on debt is calculated.

For the 2018–23 regulatory period the Commission used a 12-month averaging period for each regulatory year, and gave the dates of the averaging periods to Icon Water annually on a confidential basis.

The Commission changed its approach in response to Icon Water’s submission to the 2021 WACC review. The Commission’s new approach allows Icon Water to nominate an averaging period of between two and 12 months prior to the start of a regulatory period, to be provided on a confidential basis.

Icon Water has provided a debt averaging period of between two and 12 months to the Commission as a confidential attachment as part of this regulatory submission.

Debt raising costs

Debt-raising costs are the costs incurred by businesses for raising debt finance. This can include fees for investment bankers underwriting bond issues, legal fees, fees to obtain a credit rating and any other costs incurred when raising debt finance. These are one-off transaction costs that are incurred by a regulated business when debt is raised. A margin for debt-raising costs is added to the calculation of the allowed cost of debt.

For the 2018–23 regulatory period, the Commission adopted a benchmark margin of 0.125 per cent for debt-raising costs. For the 2021 WACC review the Commission made two decisions:

- first, to give more weight to recent estimate of the debt-raising cost compared to older estimates
- second, when identifying appropriate benchmarks, preference would be given to estimation methodologies that exclude the dealer swap margin.

Icon Water notes that the Commission did not make an explicit decision on the value of the margin for debt-raising costs, but noted their concerns with the basis for the 0.125 per cent estimate in light of other evidence and approaches adopted by other regulators.

The 0.125 per cent estimate of debt-raising costs is based on information provided to the Australian Competition and Consumer Commission (ACCC) by Westpac in 2002.⁹ A report by Allen Consulting Group in 2004 noted that an allowance of 0.125 per cent was likely overstated because it had inappropriately included a dealer swap margin, resulting in double counting.¹⁰

Issues with the ACCC's 2002 estimate have been known for some time. Queensland Competition Authority (QCA) engaged PricewaterhouseCoopers (PwC) to prepare updated advice on debt-raising costs in 2013. The PwC report used the method adopted by Allen Consulting Group's 2004 study and produced an estimate of 0.108 per cent.¹¹

Icon Water has adopted the PwC estimate of 0.108 per cent in calculating the WACC, which is consistent with the two decisions made by the Commission as part of its 2021 WACC review.

9.2.4 Proposed value for imputation credits

Under the Australian imputation tax system, eligible shareholders receive imputation tax credits with dividends, which offset liabilities. Therefore, investors would accept a lower rate of return for an investment with imputation credits attached than if there were no imputation tax credits attached.

The Commission adopts a post-tax framework for estimating the rate of return, so it requires a separate estimate of taxation expenses. The value of imputation credits (γ), is accounted for separately from the WACC in the calculation of tax liabilities.

The Commission made a decision not to consider the value of imputation credits in its 2021 WACC review because it is not an input parameter for calculating the post-tax nominal vanilla WACC.¹² The Commission planned to take the interrelationship between γ and the MRP into account in determining the values for the MRP and γ as part of the 2023–28 price investigation.

Icon Water engaged Frontier Economics to provide advice on an appropriate estimate of γ that was consistent with the Commission's post-tax regulatory framework.

The Frontier Economics report recommends an estimate of γ of 0.25, which is consistent with a market value approach to determining the value equity investors place on imputation tax credits. This approach is also consistent with the regulatory framework the Commission uses to regulate Icon Water.

The Frontier Economics report put forward the following key points:

⁹ Allen Consulting Group, *Debt and Equity Raising Transaction Costs*, 2004, p 18.

¹⁰ Allen Consulting Group, *Debt and Equity Raising Transaction Costs*, 2004, p 28.

¹¹ PwC, *A cost of debt methodology for businesses regulated by the Queensland Competition Authority*, 2013, p 20.

¹² Independent Competition and Regulatory Commission, *Review of Methodologies for the Weighted Average Cost of Capital*, 2021, p. 15.

- the gamma parameter should be interpreted (and estimated) in a way that is consistent with its role in the Commission's regulatory framework
- because the market value interpretation (and estimate) of gamma is consistent with the role of that parameter within the Commission's regulatory framework and models, that is the interpretation (and estimate) that the Commission should adopt
- gamma plays the role of determining the amount by which the allowed dividends and capital gains will be reduced to reflect the value of the imputation credits that investors will receive
- the best such market value estimate of gamma is 0.25. This figure is the product of a distribution rate of 0.7 and a theta of 0.35.¹³

Frontier Economics' report is provided as Appendix 1.1 to this attachment.

An estimate of gamma of 0.25 has been used to calculate Icon Water's net tax expense, which is outlined in section 8.5.1 of **Attachment 8: Regulatory asset base and corporate income tax**.

¹³ Frontier Economics, An appropriate regulatory estimate of gamma, 11 April 2022, p. 1 & 15.

9.3 Return on capital

Consistent with the Commission's 2018 decision, the return on capital is calculated by multiplying the rate of return by the value of the RAB and deducting the indexation adjustment.¹⁴

9.3.1 Rate of return

Based on the methodology set out in section 1.2 and each of the parameters discussed above, the post-tax nominal 'vanilla' rate of return, estimated at 1 May 2022 is 5.11 per cent. Each of the parameters that make up the WACC and the methodology used are summarised in Table 9-1.

Table 9-1: Rate of return parameter values, estimated at 1 May 2022

WACC parameter	Value	Methodology
Risk free rate	2.2%	Calculated annualised return on Commonwealth Government Securities with a maturity of 10 years, using a 40-day averaging period as close as practical to the start of the regulatory period.
Debt raising cost	0.108%	Derived using actual data, and based on expert advice and consistent with recent regulatory precedent. Excludes a dealer swap margin.
Equity beta	0.7	Based on equity betas for comparable water utilities in the US and UK, low-beta bias, and consistent with recent regulatory precedent.
Market risk premium	6.1%	Calculated as the expected return on a market portfolio minus the risk-free rate. Placeholder estimate based on the AER's 2018 RORI methodology.
Gearing	60%	Rate adopted by the Commission based on study of actual gearing ratios and consideration of recent regulatory precedent.
Cost of debt	4.2%	Cost of debt derived as a 'return on debt' plus debt raising costs. The return on debt is calculated using third-party debt data with a 10-year term to maturity for a firm with a BBB credit rating. The calculation uses a trailing average approach and an averaging period nominated by Icon Water.
Cost of equity	6.5%	Cost of equity is calculated using the S-L CAPM derived estimate of the return on equity multiplied by the proportion of capital financing that is equity.
Imputation credits	0.25	Based on Frontier Economics' report recommending a market value interpretation of imputation credits (gamma), which is consistent with the Commission's regulatory framework.
Nominal post-tax 'vanilla' WACC	5.11%	Derived using the WACC parameters mentioned in this table.

¹⁴ The indexation adjustment is calculated as inflation multiplied by the value of the RAB.

9.3.2 Return on capital (depreciation)

Consistent with the Commission's 2018 decision, the return on capital is calculated by multiplying the opening value of the RAB plus mid-year capex by the nominal post-tax 'vanilla' rate of return. The Commission's post-tax framework sees a deduction for the value of the indexation adjustment (see **Attachment 8: Regulatory asset base**):

$$\begin{aligned} \text{Return on capital}_t &= (\text{Opening RAB}_t + \text{Forecast Capex}_t * 50\%) * WACC_{\text{post-tax nominal}} \\ &\quad - \text{Indexation Adjustment}_t \end{aligned}$$

The value of the asset base for the rate of return calculation, the indexation adjustment and the resulting return on capital are presented in Table 9-2 for water and Table 9-3 for wastewater.

Table 9-2: Return on capital for water assets (\$million, nominal)

	2023–24	2024–25	2025–26	2026–27	2027–28
Value of asset base for calculating return on capital	\$1,713.5	\$1,782.2	\$1,834.4	\$1,872.7	\$1,901.1
Return on capital (excluding indexation adjustment)	\$87.4	\$89.7	\$91.1	\$91.8	\$92.0
Less indexation adjustment	\$45.0	\$46.8	\$48.2	\$49.2	\$49.9
Less imputation credits	\$0.1	\$0.0	\$0.1	\$0.2	\$0.3
Return on capital (including indexation adjustment)	\$42.3	\$42.9	\$42.9	\$42.5	\$41.8

Source: Icon Water.

Note: Totals may not sum due to rounding.

Table 9-3: Return on capital for wastewater assets (\$million, nominal)

	2023–24	2024–25	2025–26	2026–27	2027–28
Value of asset base for calculating return on capital	\$1,120.1	\$1,189.0	\$1,263.4	\$1,361.6	\$1,475.8
Return on capital (excluding indexation adjustment)	\$57.1	\$59.8	\$62.8	\$66.8	\$71.4
Less indexation adjustment	\$29.4	\$31.2	\$33.2	\$35.7	\$38.7
Less imputation credits	\$0.5	\$0.8	\$1.1	\$1.4	\$1.8
Return on capital (including indexation adjustment)	\$27.2	\$27.9	\$28.6	\$29.6	\$30.9

Source: Icon Water.

Note: Totals may not sum due to rounding.

9.4 Forecast inflation

The regulatory treatment of inflation impacts the rate of return received by Icon Water. The Commission's stated goal of its 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).

A forecast of inflation is required to roll forward the RAB in each year of the regulatory period. Since the Commission's framework uses a nominal WACC, and the RAB is indexed for forecast inflation during the regulatory period, inflation would be double-counted without an adjustment. A deduction is made to remove the indexation adjustment to the RAB from the return on capital to avoid double-counting inflation. This approach is adopted by most other regulators in Australia that apply a building block model to derive a regulated businesses revenue requirement.

The Commission's approach for the 2018–23 regulatory period was to forecast inflation by applying the mid-point of the RBA's target rate of inflation, which is 2.5 per cent, in each year of the regulatory period.

The Commission considered its approach to forecast inflation as part of its 2021 WACC review. The Commission's final decision was to adopt the AER's approach to forecasting inflation. In summary, the AER's approach derives a simple average of:

- inflation expectations outlined in the RBA's Statement of Monetary Policy (SoMP) for years one and two of the regulatory period
- a calculated 'glide path' for years three and four of the regulatory period
- 2.5 per cent for the last year of the regulatory period, which represents the middle of the RBA's target band.

The RBA's latest SoMP provides inflation forecasts out to June 2024.¹⁵ As such, Icon Water's approach to forecasting inflation for this regulatory submission uses inflation expectations outlined in the RBA's SoMP for year one (2024) of the inflation forecast, and a calculated 'glide path' for years two, three and four of the regulatory period because an inflation forecast for year two is not available. This approach is consistent with the AER's approach when an inflation forecast is not available for year two of the regulatory period.

This approach produced a forecast inflation rate of 2.62 per cent, noting that this value will be updated by the Commission before it makes its final decision.

¹⁵ Reserve Bank of Australia, *Statement of Monetary Policy - February 2022*, 2022, p. 56.

Appendices: Supporting documents

Reference number	Appendix title	Author
9.1	An appropriate regulatory estimate of gamma	Frontier Economics
9.2	Cost of debt averaging period (confidential)	Icon Water

Abbreviations and acronyms

ACCC	Australian Competition and Consumer Commission
AER	Australian Energy Regulator
Commission	Independent Competition and Regulatory Commission
DGM	Dividend Growth Model
ICRC Act	<i>Independent Competition and Regulatory Commission Act 1997</i>
MRP	Market risk premium
PwC	PricewaterhouseCoopers
QCA	Queensland Competition Authority
RAB	Regulatory asset base
RBA	Reserve Bank of Australia
S-L CAPM	Sharpe-Lintner Capital Asset Pricing Model
SoMP	Statement of Monetary Policy
WACC	Weighted Average Cost of Capital