ICRC
independent competition and regulatory commission

DRAFT REPORT

Regulated water and sewerage services 2023-28

Report 6 of 2022, October 2022

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 the outcomes of the commission.

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 the commission at the following address:

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

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

How to make a submission

This draft report provides an opportunity for stakeholders to give feedback and views on the commission's draft decisions, and on the model and methodology it intends to use in making its decision on regulated retail electricity prices during the price investigation for the next regulatory period. It will also ensure that relevant information and views are made public, and the commission can consider relevant information and views in making its final decision on the model and methodology.

Submissions on the draft report close on **14 December 2022**.

Submissions may be mailed to the commission at:

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

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

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

The commission is guided by the principles of openness, transparency, consistency and accountability. Public consultation is a crucial element of the commission's processes. The commission's preference is that all submissions it receives be treated as public and be published on our website unless the author of the submission indicates clearly that all or part of the submission is confidential and not to be made available publicly. Where confidential material is claimed, the commission prefers that this be under a separate cover and clearly marked 'In Confidence'. The commission will assess the author's claim and discuss appropriate steps to ensure that confidential material is protected while maintaining the principles of openness, transparency, consistency and accountability.

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

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Executive summary

On 14 December 2021 the Independent Competition and Regulatory Commission ('the commission') received Terms of Reference from the ACT Treasurer to investigate and make a price direction for regulated water and sewerage services provided by Icon Water Limited. In preparing our draft decision, we considered the advice of our consultant, Marsden Jacob Associates (MJA), in assessing the prudency and efficiency of Icon Water's proposal for the 2023-28 period. The commission has also released a draft price direction on water and sewerage services tariffs for the period from 1 July 2023 to 30 June 2028.

Our draft decision would result in an increase in the prices ACT consumers pay for water and sewerage services for 2023–34. A typical household would see an increase of 4.2% in 2023–24 in their annual water and sewerage services bill (assuming 200 kilolitres (kL) of annual water use). This means their expected annual bill would increase from $1,177 in 2022–23 to $1,227 in 2023–24, an increase of approximately $50. Annual bills for non-residential customers would increase by between 3.33 and 5.37% in 2023–24, depending on water usage and the number of billable fixtures.

Our draft decision on regulated water and sewerage services prices for the forward regulatory period (2023–28) is below, in Table E.1.

Table E.1 Draft decision on water and sewerage services tariffs, 2023–28 ($, nominal)

Water prices	2022-23[a]	2023-24	2024-25	2025-26	2026-27	2027-28
Water supply charge ($/year/connection)	$200.00	$206.30	$212.79	$219.49	$226.40	$233.53
Tier 1 charge (0–200kL/year) ($/kL)	$2.28	$2.35	$2.43	$2.50	$2.58	$2.66
Tier 2 charge (more than 200kL/year) ($/kL)	$4.58	$4.72	$4.87	$5.03	$5.18	$5.35

Sewerage prices	2022-23[a]	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year/connection)	$502.18	$530.13	$559.64	$590.79	$623.67	$658.39
Sewerage fixtures charge ($/year/fixture)	$491.13	$518.47	$547.33	$577.79	$609.95	$643.90

Source: our calculations.

Notes: [a] Data for 2022–23 (last year of the current regulatory period) are presented for comparison purposes.

Maximum prices from 2024–25 to 2027–28 could differ from the indicative prices in this table if actual inflation differs from forecast inflation, if the cost pass-through mechanism is triggered, or depending on the annual updates to the cost of debt. Sewerage fixtures charge applies only to non-residential customers for each flushing fixture more than two.

Customer bills between 2024-25 and 2027-28 could be different from our current expectations if inflation differs from the expected 3% a year, if there are material changes in Icon Water's non-controllable costs that trigger a pass-through event during the next regulatory period and if Icon Water's borrowing costs change. Estimates in the draft report are subject to change if updated data becomes available between the release of our draft report and final report and we will ensure that the final report appropriately identifies any changes.

Overall prices are rising due to an increase in capital spending by Icon Water, including major works on sewage treatment, along with small increases in operating costs for wages growth and increases in costs for electricity, insurance and chemicals. The cost of debt and higher returns on investment have also impacted the Icon Water's revenue model. These factors have been partially offset by the growth in Canberra's population and the ability to spread these increased costs across a broader customer base.

Prices will be lower than initially proposed by Icon Water in June 2022. Icon Water's pricing proposal contained several placeholder values relating to its revenue requirement. We adjusted Icon Water's revenue requirement proposal and updated these values to account for updates to inflation, capital cost allowance parameters and 2021-22 actual base operating expenditure. This brought Icon Water's proposed total revenue requirement to $2,155.4 million.

Our draft decision total revenue requirement is $1,997.3 million, which is less than the adjusted Icon Water's total revenue requirement by $158.1 million ($7.3% less). Our prudency and efficiency assessments have reduced operating expenditure, as well as the adjusted forecast and historical capital expenditure. Our allowed return on equity is lower than the adjusted Icon Water's proposal. We have updated the demand forecast which also reduced the revenue allowance, along with fixing errors and asset lives in Icon Water's revenue model.

Our draft decision accepts much of Icon Water's Price Proposal on the form of regulation, such as retaining the use of the building block methodology to calculate prices for water and sewerage services. We have not accepted Icon Water's proposal for a new pass-through category. This draft decision also incorporates methodology reviews conducted by the commission since the last price direction. Reviews were completed into incentive mechanisms, demand forecasting and calculating the weighted average cost of capital.

No changes are proposed to the current tariff structure following the rebalancing between fixed and variable charges in the current regulatory period. We recognise the submissions made by the hospitality sector regarding the sewerage tariff for non-residential customers and propose an investigation into the issue over the period of this price direction.

We recognise the importance of ensuring Icon Water's financial viability and its capability of investing to meet future demand. A financial viability test was conducted by calculating a selection of financial ratios for Icon Water from 2022–23 to 2027–28. We are satisfied the draft decision on prices for water and sewerage services and the proposed price path for the forward regulatory period adequately provides for Icon Water's financial viability. This decision has taken account of the information provided by Icon Water and the analysis by expert advisors. We were assisted by a team of independent engineering and economic consultants who performed a detailed review of Icon Water's operating and capital expenditure as well as the revenue model.

In conducting this investigation, we used an open and consultative process, producing an issues paper in March 2022 that set out our preferred approach and pricing principles. We received 9 responses and have addressed each of these throughout the report. Icon Water's Price Proposal for water and sewerage

services was subsequently received on 30 June 2022 and made publicly available on the commission's website.

We seek comments on this draft report and the proposed findings and recommendations. The report is open for comment until **14 December 2022**. Interested parties are invited to submit comments in writing (via email or post). A public hearing on the draft decision is expected to be held in November 2022.

Summary of the commission's draft decision

This section sets out the primary features of the commission's price investigation and draft decision on Icon Water's water and sewerage services tariffs for the period 1 July 2023 to 30 June 2028.

S1 The form of regulation

Our draft decision has been to continue the range of control mechanisms and incentive mechanisms that applied for the current regulatory period. Icon Water provided us with its regulatory proposal. Icon Water proposes continuing the following regulatory controls:

- a post-tax building-block framework to determine maximum allowed prices over the 2023–28 regulatory period
- a hybrid price and revenue cap form of price control over the five-year regulatory period with individual price caps for water and wastewater services
- an end-of-period demand volatility adjustment mechanism ('deadband') to be applied if water sales revenue over the regulatory period varies by more than ± 6% of the regulatory allowance
- an annual price reset process where the commission adjusts prices to account for changes to consumer price index (CPI), any pass-through amounts (subject to an annual materiality threshold), and updates to the cost of debt
- several specific pass-through arrangements to deal with uncontrolled events
- a price variation trigger event mechanism to deal with unforeseen events.

We have not accepted Icon Water's proposed a new pass-through provision for costs arising from the Australian Capital Territory (ACT) Government's Better Building reforms.

S2 Operating expenditure

Our draft decision on Icon Water's allowable operating expenditure for the 2023-28 regulatory period is $1,071.27 million (nominal), as shown in Table S.1 below. Our draft decision adopts MJA's recommended downward adjustment of $58.64 million (nominal) applicable to Icon Water's proposed operating expenditure of $1129.91 million (nominal) during the forward regulatory period.

Table S.1 Our draft decision on operating expenditure for the 2023-28 regulatory period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water services						
Controllable operating expenditure	66.59	68.72	71.12	73.72	75.44	355.59
Non-controllable operating expenditure	43.91	45.58	47.44	49.58	52.04	238.56
Total water operating expenditure	110.50	114.30	118.56	123.30	127.49	594.15
Sewerage services						
Controllable operating expenditure	82.29	84.94	88.10	91.39	93.65	440.39
Non-controllable operating expenditure	6.62	6.90	7.18	7.66	8.38	36.74
Total sewerage operating expenditure	88.91	91.84	95.29	99.05	102.04	477.12
Our draft decision combined water and sewerage operating expenditure	**199.41**	**206.14**	**213.85**	**222.35**	**229.52**	**1071.27**

Source: our calculations

Note: Totals may not equal the sum of individual components due to rounding.

In determining the operating expenditure our draft decision is to:

- accept Icon Water's proposal to use 2021-22 as the base year operating expenditure, but with a downward adjustment, further discussed in section 3.4.4
- accept Icon Water's proposed real price changes for chemicals and labour costs across the 2023-28 regulatory period
- adjust Icon Water's proposed real price change for electricity costs to reflect MJA's recommended forecasts developed using updated information
- accept Icon Water's output growth estimate, adjusted in line with our draft decision demand forecasts
- set a conservative annual productivity growth rate of 1.4% over the 2023-28 regulatory period
- accept Icon Water's proposed step changes to their base year operating expenditure, consisting of costs associated with the Security of Critical Infrastructure (SoCI) Act obligations and higher insurance premiums, but with a downward adjustment
- accept MJA's recommendation to include a new step change arising from expenditure savings from the Cotter Pump Station Upgrade capital project.

S3 Capital expenditure

Our draft decision is to approve a net capital expenditure allowance of $685.5 million (nominal) for Icon Water for the period 1 July 2023 to 30 June 2028. This represents a reduction of $50.7 million (nominal) or 6.9% to the capital expenditure program proposed by Icon Water. In summary, this reduction relates to the following components that we have adjusted (see section 4.4.2 for more detail):

- Individual adjustment to 10 major projects which account for approximately 61% of Icon Water's proposed capex. In making these adjustments, we considered advice from MJA, which reviewed each of these projects in greater detail.
- An overall adjustment for the remainder of Icon Water's capital program reflecting opportunities for efficiency and sharing the risk of project delivery.

Table S.2 Draft decision capital expenditure for 2023-28 regulatory period ($ nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Icon Water proposed capex, gross	156.9	131.1	147.9	161.5	171.9	769.3
Capital contributions	3.1	14.6	4.7	4.6	6.2	33.1
Icon Water proposed capex, net	153.8	116.6	143.2	157.0	165.7	736.2
Top 10 major projects	88.7	59.3	89.7	113.0	125.1	475.7
Adjustments	(13.5)	(10.7)	(21.0)	1.9	18.4	(25.0)
Remaining program (excluding top 10 projects)	68.2	71.9	58.2	48.6	46.8	293.6
Adjustments	(36.0)	(33.4)	(7.1)	20.6	28.3	(27.7)
Total Adjustments	(49.5)	(44.1)	(28.1)	22.5	46.7	(52.7)
Draft decision allowance, gross	107.3	87.0	119.8	184.0	218.6	716.7
Capital contributions	2.6	4.1	6.3	8.4	9.6	31.1
Draft decision allowance, net	104.7	82.8	113.5	175.6	209.0	685.5

Note: Totals may not sum due to rounding. Capital escalation is included.

S4 Rate of return and tax liability allowance

Our draft decision results in a rate of return of 5.85% and a forecast inflation rate of 3.0%. A different rate of return will apply for the remaining regulatory years of the period. This is because we will update the return on debt component of the rate of return each year to use a 10-year trailing average portfolio return

on debt that is rolled-forward each year. We will update the estimate of the rate of return and expected inflation in our final decision based on the most up-to-date information available at the time.

For this draft report, we have adjusted Icon Water's proposal to account for the latest data for the risk-free rate and the cost of debt and to reflect the market risk premium of 6.8%, the value that Icon Water suggested is reasonable considering the most recent information. The adjusted Icon Water's proposed weighted average cost of capital (WACC) is 5.93%. This compares to Icon Water's original estimate of 5.1%.

The individual components of the WACC are set out in Table S.3 below.

Table S.3 Draft decision: rate of return and net tax liability parameter values

	2018 Decision	Icon Water's proposal		Draft decision
		As proposed	Adjusted for recent data[1]	
Risk free rate	2.8%	2.2%	3.38%	3.38%
Debt raising cost	0.125%	0.108%	0.108%	0.108%
Equity beta	0.7	0.7	0.7	0.7
Market risk premium	6.5%	6.1%	6.8%	6.5%
Gearing ratio	60%	60%	60%	60%
Return on equity	7.34%	6.48%	8.14%	7.93%
Return on debt	4.75%	4.18%	4.46%	4.46%
Nominal post-tax 'vanilla' WACC	5.78%	5.10%	5.93%	5.85%
Gamma	0.4	0.25	0.25	0.5

Source: Icon Water's price submission, Attachment 9 Rate of return and forecast inflation.

Notes: Risk free rate is calculated using a placeholder averaging period of 40 business days ending 31 August 2022.
Return on debt is calculated using a placeholder averaging period of 2 months ending 31 August 2022.
Return on debt of 4.75% applied to the first year of the 2018–28 regulatory control period.

Our draft decision is to:

- accept the return on debt averaging periods because they are consistent with our WACC methodology
- determine inputs to our WACC methodology using benchmarking approach as explained in our WACC review
- not to accept Icon Water's proposed value of imputation credits of 0.25. Instead, we adopt a value of imputation credits of 0.5.

[1] We have adjusted Icon Water's proposal to account for the latest data for the risk-free rate and the cost of debt and to reflect the market risk premium of 6.8%, the value that Icon Water suggested is reasonable considering the most recent information. This column summarises our understanding of the adjusted Icon Water's proposal.

S5 Forecast demand and service connections

Our demand forecasts for this draft decision are shown in Table S.4. We expect steady growth in demand over the 2023-28 period, largely based on a rising ACT population along with climate variability. Our forecasts are similar to Icon Water's proposal, but we have used more recent data to develop the forecasts. We have used a more conservative forecast for non-residential sewerage connections (billable fixtures) than that produced by a strict application of statistical tools. Our approach recognises that the billable fixtures historical trend may be distorted by the impact of the COVID-19 pandemic on commercial operations.

These forecasts will be further updated using the latest data before releasing our final decision.

Table S.4. Our draft decision on water and sewerage services demand forecasts

Year	Dam abstractions (GL)	Tier 1 water usage (GL)	Tier 2 water usage (GL)	No. of water customers	No. of sewerage services customers	No. of billable fixtures	Sewage volume (GL)
2023-24	52.24	27.78	16.19	201,002	200,190	67,760	37.58
2024-25	52.58	28.09	16.16	203,957	202,745	68,192	38.14
2025-26	53.13	28.47	16.25	207,061	205,300	68,623	38.70
2026-27	53.72	28.86	16.35	210,324	207,855	69,054	39.25
2027-28	54.29	29.26	16.42	213,761	210,410	69,485	39.81

Source: Our calculations.

S6 Tariff structure

We advise that our draft decision is as follows:

- We will retain the two-tier inclining block water tariff structure and apply applying price changes uniformly across all water tariff components.
- We will maintain the existing sewerage tariff structure, comprising a fixed annual supply charge for all customers, and a flushing fixture charge applying to non-residential customers.
- We will conduct a review of sewerage tariff structure over the next regulatory period. We included a future reset principle in the price direction to give effect to this review.

Water tariff structure

The tariff structure for water services consists of:

- a fixed supply charge and
- a two-tier water usage charge, with a lower price (Tier 1) for the first 200 kilolitres (kL) of water use and a higher price (Tier 2) for water use above that level.

This same tariff structure applies to both residential and non-residential customers. Customer bills are calculated on a daily pro rata basis, and payment occurs quarterly. The water tariff structure balances multiple objectives including incentivising customers to use water efficiently. This ensures that some amount of water is available at a lower charge to meet essential needs. Also, it gives Icon Water the ability to recover its efficient costs.

Sewerage tariff structure

The tariff structure for sewerage services consists of:

- a fixed supply charge and
- a fixture charge for non-residential customers for each additional flushing fixture in excess of two.

Icon Water does not currently have a trade waste tariff; however, has committed to developing a scheme in consultation with the public.

Submissions received

Following the publication of the issues paper we received 7 submissions from the hotels industry[2]. In summary, we observed several re-occurring arguments made in the submissions:

- An accommodation property (such as a hotel room) places less load on the sewerage network compared to a residential property or a commercial property.
- However, the pricing method for setting the flushing fixture charge does not capture these differences in the load.
- Therefore, the hotel and accommodation sector pay substantially more than residential and commercial office users relative to their load on the network.

For a more detailed summary of the submissions, please see Appendix 3. To see the submissions, please visit our project page[3].

Reset principle to review sewerage tariff structure in upcoming regulatory period

The terms of reference provide that we must complete the draft report by 12 December 2022 and the final report by 1 May 2023. We have considered all the information available to us now in reaching a draft decision for the sewerage tariff structure. However, to reach an optimal result, we will conduct a further review of the sewerage tariff structure, through a price reset principle, in the upcoming regulatory period.

Specifically, we will seek consultation on different approaches to balancing the allocation of costs across different customers. Charging less to one group of customers means other customers pay more to allow Icon Water to recover its costs.

As noted above, we have included a review of sewerage tariff structure in our price direction as a reset principle providing for the investigation to occur during the 2023-28 regulatory period. After we complete this review, we will then give effect to our decision in a future price reset.

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[2] Schwartz Family Co (Mercure Hotel Canberra), Novotel Canberra, Salter Brothers Asset Management Pty Ltd (Crowne Plaza Canberra Hotel), Pro-Invest Group (Sebel Canberra Civic), TFE Hotels (Adina Canberra), the ACT Branch of the Australian Hotels Association, Glemarie Capital Pty Ltd (Adina Serviced Apartments Canberra Dickson).

[3] https://www.icrc.act.gov.au/water-and-sewerage/regulated-water-and-sewerage-services-prices-202328.

1. Regulatory objectives and the review process

This investigation will determine the maximum water and sewerage services prices that will apply in the ACT for the period 1 July 2023 to 30 June 2028.

Every five years, Icon Water prepares a regulatory proposal in consultation with its customers and the communities it serves. This submission sets out what Icon Water will deliver to customers and the prices it will charge in return.

Our role at the commission is to scrutinise and challenge Icon Water's pricing proposal to ensure customers pay no more than they need to for safe and reliable water and sewerage services into the future. We will assess the reasonableness of Icon Water's forecasts and the efficiency of its expenditure proposals. If we have concerns about the costs included in Icon Water's pricing proposal, we will ask Icon Water for more detailed information or a clearer business case. We may accept or amend Icon Water's proposal in making our assessment of efficient costs.

We will be encouraging stakeholders to make submissions throughout the investigation process to ensure broader community concerns and customer views are also considered as part of this investigation.

1.1 Background to the investigation

We are the Australian Capital Territory's (ACT) independent economic regulator. We regulate prices, access to infrastructure services and other matters in relation to regulated industries in the ACT.

Icon Water is the monopoly provider of water and sewerage services in the ACT. We set the prices Icon Water can charge for the supply of water and sewerage services. We undertake price investigations under Part 3 of the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act), and issue price directions under Part 4 of the ICRC Act. The 2018 price direction sets out 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. The price direction will expire on 30 June 2023.

On 10 December 2021, we received terms of reference from the ACT Government to start an investigation into regulated water and sewerage services price for the next regulatory period. A copy of the terms of reference can be found at Appendix 1. As a result of this investigation, we will determine the amount of revenue Icon Water can earn, and what prices it can charge over the period of 1 July 2023 to 30 June 2028.

1.2 Our role and objectives

Our objectives, as set out in section 7 of the ICRC Act, are to promote effective competition in the interests of consumers while facilitating an appropriate balance between economic efficiency, environmental and social considerations.

When making price directions, section 19L of the ICRC Act also requires us to consider the interests of consumers in promoting efficient investment in, and operation of, regulated services into the future. These objectives, as well as the more detailed requirements of section 20 of the ICRC Act, guide our decision making.

We must balance the interests of consumers in receiving reliable services at the lowest price, with the need for Icon Water to earn enough revenue to cover its prudent and efficient costs, as well as provide an appropriate return on investment. In doing this, we consider environmental and social factors, any service quality, reliability and safety standards, and consumers' preferences about the quality of services delivered. The commission's regulatory approach aims to deliver both safe, high-quality utility services and reasonable prices.

Our objectives under sections 7 and 19L of the ICRC Act and the provisions we must consider under section 20(2) of the ICRC Act are provided in Appendix 2.

1.3 Government policy context

There are several ACT Government policies and national agreements that are relevant in determining appropriate regulatory arrangements and prices for regulated water and sewerage services.

1.3.1 The ACT Water Strategy 2014-44

The *ACT Water Strategy 2014–44: Striking the balance* (the strategy) sets out the ACT Government's overarching long-term water resources management policy. The strategy is intended to achieve three outcomes, the second of which – a sustainable water supply used efficiently – is of primary interest for the price investigation. Strategy 5, directed to this outcome, is to manage and promote the sustainable use of water. Action 15 under the strategy is to encourage water users to conserve and use water wisely by, among other things, investigating the use of scarcity pricing to promote water use efficiency.

To help achieve the outcome of a sustainable water supply used efficiently, the ACT has schemes in place, including permanent water conservation measures and a temporary water restrictions scheme that can be imposed in times of acute water shortage. The ACT has been under permanent water conservation measures since Stage 2 temporary restrictions were revoked on 31 October 2010.

The ACT Government's Territory Plan also places water quality requirements on developers relating to the control of stormwater and run-off.

1.3.2 National agreements

The ACT is a signatory to the Murray–Darling Basin Agreement, an intergovernmental agreement between the Australian Government and Basin jurisdictions (New South Wales, Queensland, South Australia, Victoria and the ACT). The agreement, among other things, sets a long-term cap – or upper limit – on surface water diversions. This allows the ACT to take out of the ACT watercourses (dams and rivers) for consumptive use.

The 2004 National Water Initiative commits the ACT Government to best practice water pricing and institutional arrangements covering economically efficient prices for water infrastructure and water resources.

The 2010 National Water Initiative pricing principles were developed as the basis for setting water prices in all Australian states and territories. The price-setting principles cover various additional aspects of determining prices that are economically efficient, including a tariff structure with a fixed charge and two usage-based charges.

1.4 What do the terms of reference ask us to consider?

The terms of reference (reproduced in Appendix 1) require us to consider the following matters in this investigation:

- the relevant regulatory objectives and requirements as set out in the ICRC Act
- ACT Government's policies relating to water and sewerage services including the *ACT Water Strategy 2014–44: Striking the balance*
- national and intergovernmental water policies and commitments
- continuing to use the current regulatory model, and, where identified, implement improvements to aspects of the methodology, including improvements identified in reviews undertaken in accordance with the reset principles in the current price direction
- appropriate mechanisms to ensure the recovery of the prudent and efficient costs of Icon Water during the regulatory period, while minimising the potential for significant price fluctuations.

As part of our investigation, we must outline our intended approach to meeting the various regulatory objectives in our decision-making process as outlined in Chapter 2.

We must also identify the incremental impact on prices associated with any changes to the total allowed revenue for Icon Water; any changes to the water demand forecasts used in the regulatory model; and any changes to the structure of Icon Water's regulated water and sewerage services tariff.

We are required to make a draft report available for public inspection within the period 1 September 2022 to 12 December 2022 and release a final report within the period 1 March 2023 to 1 May 2023.

1.5 Investigation timeline

We propose to adopt the timeline set out in Table 1.1.

Table 1.1 Indicative timeline for the water and sewerage services price investigation

Task	Date
Terms of Reference signed	9 December 2021
Release of issues paper	1 March 2022
Submissions on issues paper close	8 April 2022
Icon Water's pricing proposal submitted	30 June 2022
Draft report and proposed price direction	21 October 2022
Public hearing	21 November 2022
Submissions on draft report close	14 December 2022
Release of final report and price direction	March – May 2023

We are required under section 17(4)(b) of the ICRC Act to conduct a public hearing for all price investigations. We intend to conduct a public hearing after we release the draft report.

2. The form of regulation

This chapter sets out our draft decision on the control mechanisms and incentive mechanisms that will apply for the regulatory period from 1 July 2023 to 30 June 2028. Control mechanisms are the arrangements by which we set and adjust prices for water and sewerage services during the regulatory period. Incentive mechanisms aim to encourage Icon Water to pursue efficiency improvements that are shared between the business and consumers.

Table 2.1 summarises the commission's draft decision on the form of regulation for the 2023-28 regulatory period.

Table 2.1 The commission's draft decision on the form of regulation, 2023-28

Component	Icon Water's proposal	Commission's draft decision
Regulatory period	Five years, from 1 July 2023 to 30 June 2028	Five years, from 1 July 2023 to 30 June 2028
Pricing methodology	A post-tax building-block framework	A post-tax building-block framework
Form of control and measures to deal with demand risks	A hybrid price and revenue cap form of control with individual price caps for water and wastewater services An end-of-period demand volatility adjustment mechanism ('deadband') to be applied if water sales revenue over the regulatory period varies by more than ± 6 per cent of the regulatory allowance	A hybrid price and revenue cap form of control with individual price caps for water and wastewater services An end-of-period demand volatility adjustment mechanism ('deadband') to be applied if water sales revenue over the regulatory period varies by more than ± 6 per cent of the regulatory allowance There is no adjustment required for the 2018-23 period.
Measures to deal with expenditure risks	An annual price reset process where the commission adjusts prices to account for changes to consumer price index (CPI), any pass-through amounts (subject to an annual materiality threshold), and updates to the cost of debt Pass-through arrangements to deal with unexpected, uncontrolled events A new pass-through provision for unforeseen costs arising from the Australian Capital Territory (ACT) Government's Better Building reforms	An annual price reset process where the commission adjusts prices to account for changes to consumer price index (CPI), any pass-through amounts (subject to an annual materiality threshold), and updates to the cost of debt Pass-through arrangements to deal with unexpected, uncontrolled events All pass-through events will be assessed against the same criteria

Measures to deal with unforeseen events	Retain the current price variation trigger event mechanism	Retain the current price variation trigger event mechanism
Miscellaneous fees and charges	Proposed changes to some of the fees and charges for 2023–24 and the current form of control for miscellaneous fees and other charges be applied at annual price resets thereafter	Retain the current provision of updating miscellaneous fees and charges by CPI. The revised prices will be discussed in Chapter 11
Capital contribution code	A continuation of the current arrangements to update the Precinct Charge and the precinct map	A continuation of the current arrangements to update the Precinct Charge and the precinct map
Incentive mechanisms	Maintain the current approaches to incentive mechanisms for operating and capital expenditure, service standards	Maintain the current approaches to incentive mechanisms for operating and capital expenditure, service standards

2.1 Our legal framework guides our approach

On 9 December 2021, pursuant to the ICRC Act[4], the ACT Treasurer issued terms of reference to the commission for the investigation into regulated water and sewerage services provided by Icon Water. The Treasurer requires the commission to determine a price direction for the period of 1 July 2023 to 30 June 2028[5].

The terms of reference require us to consider specified matters as well as the objectives and legislative requirements set out in the ICRC Act when making decisions. For example, we must consider sections from the ICRC Act detailing:

- our overarching objectives as a commission (section 7)
- the objectives related specifically to price directions (section 19L)
- a range of factors to consider when making a price direction (section 20(2)).

We have provided a copy of the terms of reference for this investigation at Appendix 1. To see how we complied with these statutory requirements, please refer to Appendix 3.

For this chapter, we note that the terms of reference require that we:

- continue to use the current regulatory model. If we identify improvements for aspects of the methodology, we are required to improve them. This includes implementing improvements identified in reviews. These reviews are undertaken in accordance with the reset principles in clause 13 of the 2018 price direction.
- minimise the potential for significant price fluctuations during the regulatory period. In doing this, we must also ensure the recovery of the prudent and efficient costs of Icon Water.

[4] See s 3A, s 15 and s 16 of the ICRC Act.
[5] Section 15(1)(a).

The ICRC Act provides that a price direction must be in the form of a price and/or a 'revenue cap'[6].

In the 2018 price direction, as one of the reset principles, we decided to review incentive mechanisms. Incentive mechanisms encourage Icon Water to pursue efficiency improvements that can be shared between the business and consumers. Efficiency improvements benefit the business but also flow through to consumers in the form of lower prices and/or improved service quality. We concluded this review in 2020 and published a report on our website.[7]

The price direction's legal framework, as defined in the terms of reference and the ICRC Act, drives our decision making in each instance, including the forms of control and incentive mechanisms we will determine below.

2.2 Icon Water's proposal

On 30 June 2022, Icon Water provided its regulatory proposal to the commission. Icon Water proposes continuing the following regulatory controls:

- a post-tax building-block framework to determine maximum allowed prices over the 2023–28 regulatory period
- a hybrid price and revenue cap form of price control over the five-year regulatory period with individual price caps for water and wastewater services
- an end-of-period demand volatility adjustment mechanism ('deadband') to be applied if water sales revenue over the regulatory period varies by more than ± 6 per cent of the regulatory allowance
- an annual price reset process where the commission adjusts prices to account for changes to consumer price index (CPI), any pass-through amounts (subject to an annual materiality threshold), and updates to the cost of debt
- several specific pass-through arrangements to deal with uncontrolled events
- a price variation trigger event mechanism to deal with unforeseen events.

In addition to continuing the 2018-23 pass-through events, Icon Water proposes a new pass-through provision. This proposed provision would account for costs arising from the Australian Capital Territory (ACT) Government's Better Building reforms. We address this proposal further at section 2.5.3.

2.3 Building block model

Icon Water incurs a range of costs to provide water and sewerage services. We used a 'building block' approach to determine the appropriate 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 approach, Icon Water's total allowed revenue is the sum of the following cost components (or building blocks):

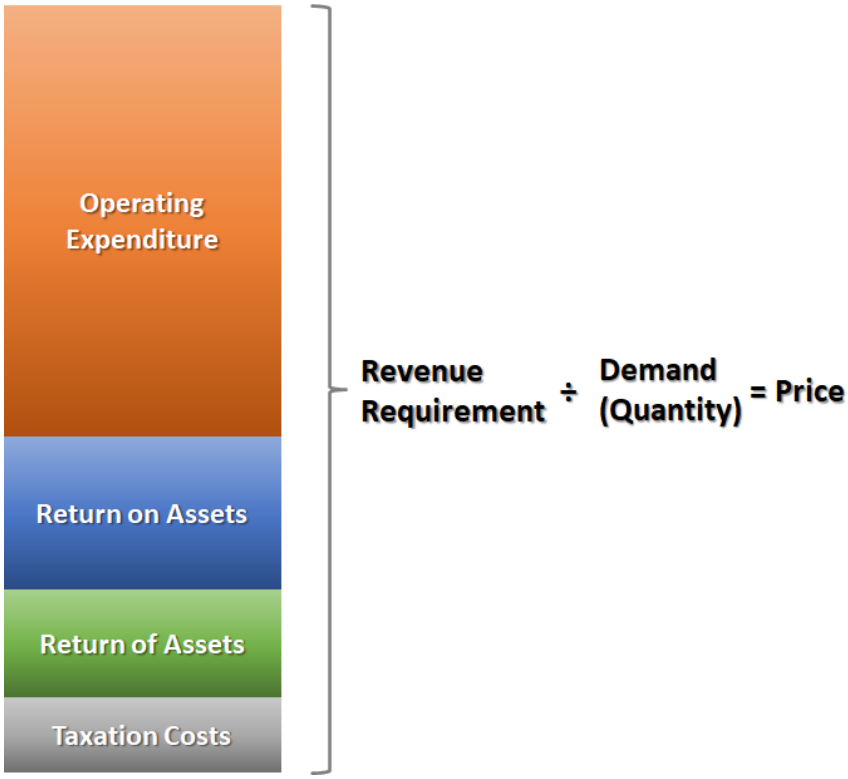
- **Operating expenditure**: These are the costs of operating and maintaining the ACT's water and sewerage system, including salaries and administration costs.
- Contribution to the cost of capital investments made over time, which comprises:

[6] Under s20A can determine either be a maximum price or a minimum and maximum price.
[7] https://www.icrc.act.gov.au/projects/completed-projects/incentive-mechanisms

- **Return on the regulatory asset base**: Shareholders and lenders that finance Icon Water's business expect a commercial return on their funds (equity and debt). The size of this return depends on the value of Icon Water's water and sewerage assets such as dams, pipelines and treatment plants (referred to as regulatory asset base or RAB), and the rate of return allowance that we set.
- **Depreciation** (a return 'of' the assets that Icon Water uses to provide its services): Icon Water earns revenue to cover its prudent and efficient costs each year, but this revenue does not include the full cost of investment in new assets made during the year. Icon Water's assets (such as dams and pipelines) have a long life, so investment costs are recovered over the economic life of the assets, which may be several decades. The depreciation allowance that Icon Water recovers each year reflects the reduction in the value of its assets each year caused by 'wear and tear'.

- An allowance for the tax Icon Water will pay.

Figure 2.1 Simplified building blocks methodology



Expenditure is only included in calculating the revenue requirement when it is deemed both prudent and efficient. We define prudent and efficient as:

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

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

2.4 Form of control and demand volatility adjustment

In our review of incentive mechanisms, we decided to continue using a hybrid price and revenue cap that consists of:

- individual price caps for water and sewerage charges
- a demand volatility adjustment mechanism that will be used to account for deviations between actual and forecast water sales revenue more than a 6% 'deadband'[8] over the regulatory period (1 July 2023 to 30 June 2028).

This form of control involves us setting prices for individual water and sewerage services, as well as approving the forecast demand and water sales revenue (i.e., the revenue derived from tier 1 and tier 2 water charges) that Icon Water can recover over the five-year regulatory period.

The actual revenue recovered by Icon Water depends on the level of water demand. Actual demand may differ from forecast demand, which means that Icon Water will recover more revenue when demand is higher than forecast and less revenue when demand is lower than forecast.

However, we limit the amount of excess revenue or shortfall through the demand volatility adjustment mechanism (also known as 'deadband'). This means if in a regulatory period Icon Water over-recovers or under-recovers its allowed revenue from water usage charges by more than 6%, we will make an adjustment to Icon Water's allowable revenue in the following regulatory period.

If the demand volatility adjustment mechanism is triggered, then the net present value of any under or over recovered revenue will be included in the calculation of water charges in the next regulatory period. This requirement is given effect through a future reset principle.

We considered the price regulation principles outlined in the ICRC Act and the terms of reference[9]. Consistent with these principles, we have determined the form of control based on the following rationale:

- The hybrid form of control clearly defines allocation of demand-related risk between Icon Water and its customers.
- The hybrid form of control will have no effect on regulatory costs within the regulatory period. We note that deviations are only accounted for at the start of the next regulatory period.
- The price cap component of the hybrid form of control ensures that prices remain relatively stable over the period.
- The price cap component also provides Icon Water with a strong incentive to pursue productive efficiencies.
- The positive and negative variations within the regulatory period will offset each other. Therefore, at the end of the regulation period, only the total deviation more than the 'deadband' will be passed through to customers.

[8] A 'deadband' is the range around water sales revenue, beyond which compensatory adjustments are made to the revenue requirement in the subsequent regulatory period.
[9] See sections 20A(1) and 20(2) of the ICRC Act and clause 1(e) of the terms of reference.

2.4.1 How the hybrid price and revenue cap operate

The demand volatility adjustment compares Icon Water's 'revenue earned' from water sales charges and the 'revenue allowed' from water sales charges. For this comparison, the allowed revenue at the start of the regulatory period is adjusted for three components to ensure the comparison is on a like-for-like basis:

- any water service-related pass-through amounts we approve during the regulatory period. Because the approved pass-through amounts are already reflected in the revenue earned through the annual price reset process, this adjustment to the revenue allowed is required.
- the borrowing cost (trailing average cost of debt) update we do in the annual price resets. Because this update affects the factor that is used to smooth price changes and is reflected in the revenue earned, this adjustment to the revenue allowed is required.
- the difference between actual and forecast inflation. Because actual inflation is reflected in the revenue earned through the annual price reset process, this adjustment to the revenue allowed is required.

For the 2018–23 regulatory period, we found the difference between the revenue earned and the revenue allowed (after the adjustment) is within the 'deadband' threshold. This finding is consistent with Icon Water's finding. Therefore, an adjustment to Icon Water's allowable revenue for the 2023-28 period is not required.

However, our estimate of the difference between the revenue earned and the adjusted revenue allowed is not consistent with Icon Water's estimate. We have estimated that the revenue earned is 0.3% more than the adjusted allowed revenue. However, Icon Water estimated that its revenue earned is 1.33% less than the adjusted revenue allowed. The difference is due to the cost of debt related adjustment to the allowed revenue. The language in the price direction can be improved to explicitly note the three types of adjustments that may be required to the allowed revenue.

The reset principle for the demand volatility adjustment mechanism in the 2023-28 draft price direction addresses this issue.

2.5 Measures to manage uncertainty

Unexpected changes in costs may arise during the regulatory period that are out of the control of Icon Water. We call such costs non-controllable expenditure. Icon Water bears the consequences of changes in costs it can control. This provides Icon Water with incentives to carefully manage its costs and spending. However, where the driver of costs is not within the control of a business, regulators typically allow for some costs to be passed on to consumers.

Our current price direction for the 2018-2023 regulatory period has provisions to allow Icon Water to recover costs associated with the following:

- inflation (CPI): changes to inflation are included in the annual price reset to allow Icon Water to recover its costs in 'real' terms. Icon Water's revenue will be higher if inflation is higher than expected, and lower if inflation is lower than expected.
- trailing average cost of debt: the interest rate that a benchmark firm would pay on its debt reflects changes in capital markets and is adjusted annually.
- pass through events: there are seven events set out in our price direction that allow Icon Water to recover costs, or repay revenue, predominantly relating to charges associated with Government policies.

We apply these adjustment mechanisms at the time of annual price reset.

We propose to continue using the existing mechanisms to deal with the risk that actual expenditure deviates from the forecast expenditure.

2.5.1 A CPI escalation mechanism

The Consumer Price Index (CPI) measures household inflation. The CPI escalation mechanism as part of the annual reset provides protection against actual changes in inflation in the regulatory period. To adjust for the CPI we use the following formula, which is based on the 'four quarter on four quarter' approach and employs CPI data (a weighted average of eight capital cities) available from the Australian Bureau of Statistics.

$$CPI_t = \frac{CPI_{June(t-2)} + +CPI_{Sep(t-1)} + CPI_{Dec(t-1)} + CPI_{Mar(t-1)}}{CPI_{June(t-3)} + CPI_{Sep\,(t-2)} + CPI_{Dec(t-2)} + CPI_{Mar(t-2)}} - 1$$

Where t = financial year

2.5.2 Trailing average cost of debt

The annual price reset includes an update of the weighted average cost of capital (WACC) with the updated trailing average of the cost of debt.

We use the trailing average approach to estimate the return on debt. Under this approach, the estimated return on debt consists of an average of ten annual return on debt estimates, which is then updated annually.

2.5.3 Cost pass through mechanisms

In response to non-controllable expenditure, we have set out six events in the 2023-28 draft price direction which allow for Icon Water to recover costs, or to repay revenue, from customers through direct billing.

We have agreed with Icon Water's proposal to keep the following pass-through events from the 2018-23 price direction:

- water abstraction charge (WAC)
- utilities network facilities tax (UNFT)
- subvention payment event
- declared fees under section 4C of the ICRC Act
- change in other taxes event
- service standard event
- regulatory obligations event.

We provide more detail about these pass-through events in the 2023-28 price direction.

The materiality threshold for pass-through events

If a pass-through event restricts Icon Water's ability to provide services, the annualised costs[10] of the event must meet the materiality threshold before it will be passed-on to the customer. The materiality threshold for the cost pass-through mechanism will be as follows:

- $0 for WAC, UNFT and subvention payments
- $2.3 million ($2022-23) per event for all other cost pass-through categories.

We use materiality thresholds to promote the long-term interests of consumers. We accomplish this by providing an appropriate balance between the following factors:

- minimising the degree of price variability
- allowing Icon Water to remain financially viable and meet its service obligations.

For the 2018 price direction, we determined that the materiality threshold as $2 million. For the 2023-28 price direction, Icon Water has proposed that we maintain the materiality threshold in the same terms as the 2018 price direction and adjust it for an increase in the CPI.

We have agreed with Icon Water's proposal to maintain the materiality threshold in real terms by adjusting for inflation in line with the CPI. We have determined the threshold figure for the price direction to be $2.3 million.[11]

In the sections below, we provide more detail about additional issues we considered when determining the pass-through events. These issues include:

- providing guidance on how to calculate the pass-through price adjustment factor
- not continuing the 'Tantangara' pass-through event from the 2018 decision
- declining Icon Water's request to add another pass-through event without a materiality threshold.

Guidance for calculating the pass-through price adjustment

In setting prices, we forecast the amount of the WAC and UNFT to be recovered from customers and paid to the ACT Government in each year of the regulatory period. For the Commonwealth subvention payment, we subtract forecast payment from Icon Water's revenue requirement, which reduces customer charges. Any difference between the forecast and actual amounts is then subject to an annual pass-through amount, which can raise prices or bring prices down.

We calculate the percentage by which prices need to adjust to account for the effect of the approved pass-through amounts. The general principle in calculating the pass-through price adjustment, in line with the post-tax building block model, is to account for the time value of money (using the weighted average cost of capital) and its effect on the return to shareholders (tax equivalent payments and imputation credits).

Because WAC and UNFT are an operating expense in the post-tax building blocks model, WAC or UNFT related pass-through amounts will not change Icon Water's tax liability. This is because a positive pass-through amount will increase Icon Water's revenue requirement, which will increase taxable income and create additional tax liability. Conversely, as an operating expense, that positive pass-through amount will

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[10] The annualised cost in any one year is equal to the amount of additional operating expenditure incurred in that year plus 15% of the additional capital expenditure incurred in that year.

[11] The materiality threshold for the 2023-28 regulatory period ($2.3 million) is obtained by indexing the 2018 price direction threshold of $2m ($ 2017–18) for the changes in CPI escalation of 1.65%, 1.34%, 1.62%, 4.45% and 3.00% (average forecast inflation), respectively for 2018–19, 2019–20, 2020–21, 2021–22 and 2022–23.

also reduce taxable income and avoid tax liability. Ultimately, the tax liability associated with the pass-through amount will cancel out.

We will apply this approach to ensure the full tax implications of the pass-through amounts are considered in calculating the price adjustment.

Declared fees under section 4C of the ICRC Act

The price direction recognises that section 4C of the ICRC Act allows the Minister to declare that a statutory fee for providing a utility service or fee for providing a regulated service be passed on in full to the consumers of the service.

Removal of the Tantangara transfer payment event

In 2014, Icon Water entered a contract with Snowy Hydro Limited. This provided for the release of water from the Tantangara Dam in New South Wales to maintain water security in the face of a potential drought.

In 2018 Icon Water determined that due to an increase in water storage capacity, this arrangement was no longer necessary. Subsequently, Icon Water cancelled the contract.

At the time of the previous price direction, the contract was still in force. However, as the contract has now ended, we have decided not to continue this as a pass-through event.

We decline Icon Water's request for a pass-through event without a materiality threshold

In 2020 the ACT Government commenced a series of reforms ('Managing Buildings Better') to improve the management of apartments, townhouses, and mixed-use developments and commercial units. One objective of the reforms includes facilitating a 'more equitable distribution of building costs, such as water, maintenance and insurance'. In its proposal, Icon Water requested that we add an additional pass-through event for costs beyond Icon Water's control that arise from these reforms.

Icon Water argued that there is uncertainty around the scale, timing and impact of these reforms. Therefore, Icon Water also suggests that the commission does not apply a materiality threshold to this proposed event.

Why we are not granting an additional event

We consider that 'Managing Buildings Better' reforms would fit within the current service standards event category. This category relates to changes caused by a legislative or administrative act that:

- substantially vary the way Icon Water is required to provide a regulated water or sewerage service; or
- impose, remove, or vary minimum service standards applicable to regulated water and sewerage services; or
- alter the nature or scope of the regulated water or sewerage services provided by Icon Water; and
- materially increases or materially decreases the costs to Icon Water of providing regulated water or sewerage services.

The pass-through materiality threshold provides a balance between:

- minimising the degree of price variability in the regulatory period by limiting the number of occasions that the cost pass-through provisions are likely to be triggered beyond that provided for changes in the WAC, UNFT and subvention payments

- allowing Icon Water to remain financially viable and meet its service obligations
- providing Icon Water with incentives to pursue efficiency gains
- minimising regulatory costs.

In our view, Icon Water's proposal to seek an exception from the materiality threshold for the new pass-through event would affect the balance of risk allocation inherent in the existing arrangement.

As the reform program is adequately covered under the above definition, we will assess any pass-through application against the existing criteria including the materiality threshold.

2.6 Unforeseen events

2.6.1 Price direction variation triggers for unforeseen events will continue

Section 20A(3)(c) of the ICRC Act states that a price direction may include a price variation trigger 'the happening of which would entitle the commission to initiate a reference for an investigation into a variation of the direction'.

We recognise that the regulatory framework should accommodate any major unforeseen events that may occur in the regulatory period and have a material impact on Icon Water's ability to provide services or its financial viability. For the 2023-28 regulatory period, we have listed five types of unforeseen events that can trigger a price direction variation, provided the materiality threshold is satisfied:

- acts of terrorism
- major natural disasters
- major damage to infrastructure
- a significant change in Icon Water's financial or corporate structure
- an unforeseen or force majeure event that severely affects its ability to provide services.

We note that we previously used these triggers for the 2018-23 price direction. In its pricing proposal, Icon Water has proposed that we carry these triggers for this price direction. We have agreed with this proposal.

We propose to maintain the materiality threshold for this mechanism in real terms by adjusting it for inflation in line with the CPI. We have determined the threshold figure to be $14.9 million.[12]

2.7 Capital contribution arrangements

Icon Water proposes a continuation of the arrangements from the previous pricing proposal. Currently, we use the Precinct Charge, and if relevant, the Precinct Map, to calculate the Class 2 infrastructure charge for developments within a precinct.

In each year of the regulatory period, Icon Water may submit an application to the commission to update the Precinct Charge and Precinct Map. We then decide the application pursuant to the *Utilities (Water and Sewerage Capital Contribution Code) Determination 2017*.

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[12] The materiality threshold for the 2023-28 regulatory period ($14.9 million) is obtained by indexing the 2018 price direction threshold of $13.19m ($ 2017–18) for the changes in CPI escalation of 1.65%, 1.34%, 1.62%, 4.45% and 3.00% (average forecast inflation), respectively for 2018–19, 2019–20, 2020–21, 2021–22 and 2022–23.

For the 2023-28 price direction, we agree with Icon Water's proposal to continue the 2018 price direction arrangements.

2.8 Miscellaneous fees and charges

Icon Water proposes to continue the current approach of updating the miscellaneous fees and charges each year in line with the change in the CPI. This approach is consistent with our 2018 price direction.

We agree to retain the current provision of updating miscellaneous fees and charges by CPI.

At attachment 12 of its proposal, Icon Water proposes updated charges to take effect from 1 July 2023. This is a separate determination, which we discuss further at chapter 10.

2.9 Incentive mechanisms

In 2020, we concluded a review of incentive mechanisms. The review was a reset principle identified in the 2018 price direction. Our final decision on the incentive mechanisms specifies a suite of incentive mechanisms. These encourage Icon Water to find and implement efficiencies in its operating and capital expenditures and in its delivery of regulated services. Services must continue to be at standards of quality, safety, reliability and security that meet the needs of consumers and are in their long-term interests. We propose to apply our current incentive mechanisms for the 2023-28 regulatory period. Our incentive mechanisms are summarised in the sections below.

2.9.1 Operating expenditure incentive mechanisms

We determine Icon Water's operating expenditure allowance after a detailed review of its forecast expenditure and assessing it for prudency and efficiency. If Icon Water is unable to achieve the efficient level of approved operating expenditure, its profits will be lower (a result of having higher operating costs). But, if Icon Water can do better than the efficient level of costs and deliver services with lower operating costs, Icon Water will increase its profits in the regulatory period. These arrangements incentivise Icon Water to achieve cost efficiencies.

In future regulatory periods, Icon Water's customers benefit from this approach as these efficiency gains flow through to customers in the form of lower prices.

2.9.2 Capital expenditure incentive mechanisms

We review the prudency and efficiency of Icon Water's proposed and actual capital expenditure over the previous regulatory period.

Specifically:

- At the beginning of the regulatory period we assess Icon Waters proposed capital expenditure for prudency and efficiency. We then approve a proposed capital expenditure allowance by Icon Water to be included in the regulatory asset base. Icon Water earns a return on and a return of this capital allowance.
- During the assessment for the next regulatory period, we review the actual capital expenditure incurred by Icon Water over the current regulatory period for its prudency and efficiency. We use the findings from this review in determining the value of the regulatory asset base for the next regulatory period.

As a result of these reviews, Icon Water has incentives over the regulatory period to find capital expenditure efficiencies. This is because Icon Water earns a return on and depreciation of the capital expenditure allowance rather than on its actual capital expenditure during the regulatory period. If Icon Water finds efficiencies in its capital program and spends less than the allowance, it will gain from those efficiencies by retaining the return on the capital expenditure savings.

2.9.3 Service standards

We require Icon Water to deliver services to meet certain guaranteed service levels imposed through the Consumer Protection Code. Rebates are payable when Icon Water does not meet these service levels. Paying rebates gives Icon Water incentives to meet the standards and recognises that, in some instances, certain customers did not receive services at the expected level of quality, safety or reliability.

3. Operating expenditure allowance

Icon Water's operating expenditure refers to the operating and maintenance expenses it incurs in providing water and sewerage services to ACT consumers. Operating expenditure activities include managing and maintaining bulk water storage, treatment and transfer, meter reading, customer services, planning, corporate services and ACT Government fees and charges.

Operating expenditure is classified as controllable and non-controllable. Controllable operating expenditure includes expenses which Icon Water has some degree of control over, such as maintenance, operations planning, asset management and corporate costs. Non-controllable operating expenditure are outside of Icon Water's control, such as costs associated with ACT Government fees and charges.

Only operating expenditure that we assess to be prudent and efficient is included in Icon Water's revenue requirement.

This chapter presents our draft decision on Icon Water's prudent and efficient operating expenditure for the 2023-28 regulatory period.

Our draft decision

As set out in Table 3.1, our draft decision total operating expenditure allowance is $1,071.27 million in nominal terms for the 2023-28 regulatory period. This is $58.64 million or 5.19% less than the adjusted Icon Water's proposal of $1129.91 million. For this draft report, we adjusted Icon Water's proposal and updated the placeholder values in Icon Water's 30 June 2022 submission to account for updates to inflation and 2021-22 actual base operating expenditure (these adjustments are discussed in section 3.2).

Our draft decision on Icon Water's operating expenditure allowance reflects the following considerations:

- accept Icon Water's proposal to use 2021-22 as the base year operating expenditure, but with a downward adjustment to account for our consultant's, Marsden Jacob Associates (MJA), recommendations, discussed in section 3.4
- accept Icon Water's proposed real price changes for chemicals and labour costs across the 2023-28 regulatory period
- adjust Icon Water's proposed real price change for electricity costs to reflect MJA's recommended forecasts developed using updated information
- accept Icon Water's output growth estimate, adjusted in line with our draft decision demand forecasts
- set a conservative annual productivity growth rate of 1.4% over the 2023-28 regulatory period
- accept Icon Water's proposal to add to its base year operating expenditure. This includes costs associated with the Security of Critical Infrastructure (SoCI) Act obligations and higher insurance premiums (cost step changes), but with a downward adjustment to reflect MJA's recommendation.
- accept MJA's recommendation to include a new step change arising from expenditure savings from the Cotter Pump Station Upgrade capital project.
- shift the cost of preparing the price submission from base year operating expenditure to a new step change component, discussed in section 3.4.

Table 3.1 Our draft decision on operating expenditure for the 2023-28 regulatory period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water services						
Controllable operating expenditure	66.59	68.72	71.12	73.72	75.44	355.59
Non-controllable operating expenditure	43.91	45.58	47.44	49.58	52.04	238.56
Total water operating expenditure	110.50	114.30	118.56	123.30	127.49	594.15
Sewerage services						
Controllable operating expenditure	82.29	84.94	88.10	91.39	93.65	440.39
Non-controllable operating expenditure	6.62	6.90	7.18	7.66	8.38	36.74
Total sewerage operating expenditure	88.91	91.84	95.29	99.05	102.04	477.12
Our draft decision combined water and sewerage operating expenditure	**199.41**	**206.14**	**213.85**	**222.35**	**229.52**	**1071.27**
Adjusted Icon Water's proposed total operating expenditure	205.10	214.75	225.79	236.66	247.60	1129.91
Variation from Icon Water's proposed operating expenditure	**-5.69**	**-8.62**	**-11.94**	**-14.31**	**-18.08**	**-58.64**

Source: Our calculations.

Note: Totals may not equal the sum of individual components due to rounding.

3.1 How we assessed operating expenditure allowance

We assessed Icon Water's controllable operating expenditure through the base-step-trend (BST) approach. In doing so, we considered Icon Water's actual operating expenditure in the current regulatory period against the allowance we set in the 2018 investigation. We also considered Icon Water's operating performance and service standards against comparable water utilities.

Non-controllable operating expenditure consists of pass-through costs such as the Utilities Network Facilities Tax (UNFT) and Water Abstraction Charge (WAC) that are set and collected by the ACT Government and are subject to a true-up mechanism through the annual price resets.

We considered the advice of our consultant, Marsden Jacob Associates (MJA), in assessing the prudency and efficiency of Icon Water's proposed operating expenditure for the 2023-28 period.

3.1.1 Base-Step-Trend Approach for controllable operating expenditure

We apply a base-step-trend approach to set a prudent and efficient operating expenditure allowance that Icon Water can recover from its customers in the upcoming regulatory period. This approach is consistent with our previous price investigations and is a common approach applied by regulators in other Australian jurisdictions including Victoria, Queensland, South Australia and Tasmania in regulating water and sewerage services.

Figure 3.1 outlines the base-step-trend approach, which includes the following steps:

Base – establishes a base year operating expenditure, which constitutes an efficient level of baseline expenditure, based on the latest available full year of actual expenditure. This base year expenditure is adjusted to remove one-off/non-recurrent costs.

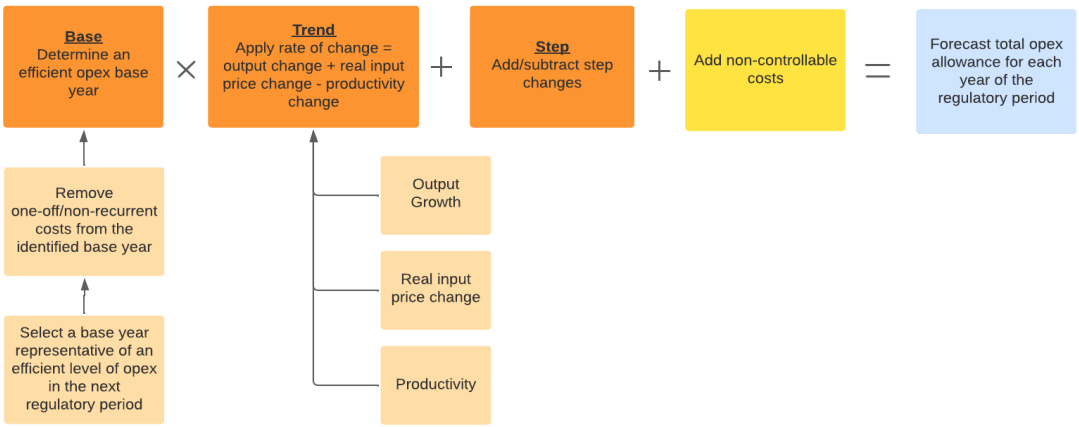
Trend – adjusts the base year for expected changes in efficient costs in each year of the forecast regulatory period. We adjust base year operating expenditure for output growth, real price growth and productivity growth. The trend factors are accounted for in an annual 'rate of change' that is calculated according to the following formula:

$$Rate\ of\ change = (1 + real\ price\ growth)(1 + output\ growth)(1 - productivity\ growth)$$

- It is reasonable to assume that the cost of inputs for an efficient firm to produce the same level of output may change at a rate different to CPI. We therefore include real price growth
- Increased demand for water and sewerage services will require an efficient business to require more inputs, and thus greater operating expenditure, to deliver more output. We therefore include forecast output growth
- It is reasonable to assume an efficient business will improve productivity over the forecast regulatory period. Efficiency improvements are expected over time due to changes in technology, economies of scale to be realised from customer growth, and improvements in how the business operates (e.g. efficiencies in business processes). We therefore include forecast productivity growth.

Step – adjusts the base year to reflect changes in operating expenditure that relate directly to new requirements arising from a new obligation or a change in an existing obligation.

Figure 3.1 Base-Step-Trend Approach



3.2 Icon Water proposed a higher operating expenditure allowance

In its 30 June 2022 submission, Icon Water proposed total water and sewerage services operating expenditure of $1,045.1 million in real terms ($2022-23) or $1,131.6 million in nominal terms over the 2023-28 regulatory period.[13] Icon Water noted it will apply the following updates to its operating expenditure proposal after our draft report:

- inflation update: Icon Water had used a placeholder value for inflation from 2022-23 to 2027-28 and noted these data will be updated
- actual 2021-22 operating expenditure data: Icon Water used a mix of actual and estimated data for 2021-22 to propose its base year operating expenditure and noted it will provide full year actual data for 2021-22
- an update to cost escalators that will affect real price growth component
- an update to its Security of Critical Infrastructure (SoCI) operating expenditure step change to reflect updated information on costs to comply with this legislative change
- information to support a new operating expenditure step change to account for a shift in its information and communication technology (ICT) projects from capital expenditure to operating expenditure.

For this draft report, we have adjusted Icon Water's operating expenditure proposal to account for the latest inflation data and to reflect the actual 2021-22 operating expenditure data Icon Water provided. This section summarises our understanding of the adjusted Icon Water's operating expenditure proposal. The remaining three updates will be addressed in our final report when information becomes available.

From Table 3.2, the adjusted Icon Water's proposed total operating expenditure for the 2023-28 regulatory period is $1,129.91 million in nominal terms or $1,032.06 million in real terms ($2022-23). This is about $204.80 million (or 22.1%) more in nominal terms or $57.18 million (or 5.9%) more in real terms ($2022-23), than the total operating expenditure we allowed for the 2018-23 regulatory period of $925.11 million in nominal terms or $974.88 million in real terms ($2022-23).

[13] Icon Water 2022a, p 5.

Table 3.2 Our understanding of the adjusted Icon Water's operating expenditure proposal for the 2023-28 regulatory period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water						
Controllable operating expenditure	72.87	76.44	80.54	84.51	88.46	402.82
Non-controllable operating expenditure	42.70	44.43	46.37	48.45	50.60	232.55
Total water operating expenditure	**115.57**	**120.87**	**126.92**	**132.95**	**139.06**	**635.37**
Sewerage						
Controllable operating expenditure	84.00	88.11	92.84	97.41	101.96	464.32
Non-controllable operating expenditure	5.53	5.78	6.03	6.30	6.58	30.22
Total sewerage operating expenditure	**89.53**	**93.88**	**98.87**	**103.71**	**108.54**	**494.54**
Total operating expenditure	**205.10**	**214.75**	**225.79**	**236.66**	**247.60**	**1129.91**

Source: Icon Water (2022a), appendix 6.6 operating expenditure model with our adjustments.

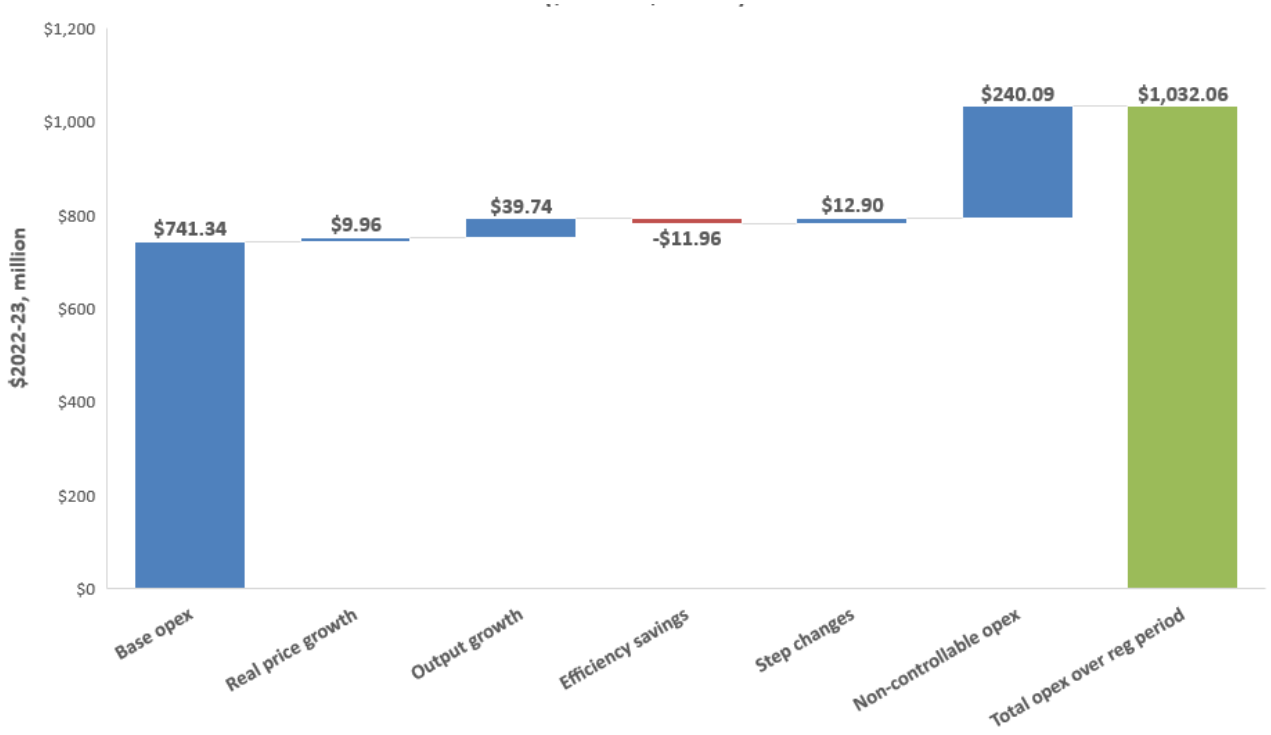
Note: Totals may not equal the sum of individual components due to rounding.

Icon Water applied the base-step-trend approach to prepare its operating expenditure forecasts for the 2023-28 regulatory period.[14] It nominated 2021-22 as the base year and adjusted the base year operating expenditure to remove non-recurrent and unregulated costs. Icon Water then applied a rate of change to the base year operating expenditure. Next, Icon Water added costs of two proposed step changes associated with the SoCI Act and higher insurance premiums.

Figure 3.2 summarises the adjusted Icon Water's proposed operating expenditure by cost components including non-controllable costs in real terms ($2022-23) over the 2023-28 regulatory period.

[14] Icon Water 2022a, p 11.

Figure 3.2 Our understanding of Icon Water's proposed adjusted operating expenditure components over the 2023-28 period ($m, $2022-23)



Source: our calculations based on Icon Water's submission.

3.2.1 Icon Water has proposed higher controllable operating expenditure to maintain the same level of service standards and performance

Icon Water's proposed operating expenditure is driven by increases in the expenses it controls. As seen from Table 3.3, the adjusted Icon Water's proposed controllable operating expenditure over the 2023-28 regulatory period is 6.6% more in real terms ($2022-23) than the allowance we approved for the 2018-23 regulatory period.

Table 3.3 Comparison of Icon Water's proposed 2023-28 operating expenditure with the 2018-23 approved allowance ($m, $2022-23)

	2018-23 approved allowance	2023-28 proposed allowance	Difference $m	Difference %
Controllable operating expenditure	**742.90**	**791.97**	**49.07**	**6.6%**
Non-controllable operating expenditure	231.98	240.09	8.11	3.5%
Total operating expenditure	974.88	1032.06	57.18	5.9%

Source: Our calculations based on Icon Water's submission.

Note: Totals may not equal the sum of individual components due to rounding.

Although Icon Water has proposed higher operating expenditure for the next regulatory period, it proposes to maintain the same levels of service standards and customer service outcome targets.[15]

We compared Icon Water's operational performance with its peers using the 2021 Urban National Performance Report (NPR) released by the Bureau of Meteorology. Overall, Icon Water has a lower than average operating cost for water services and higher than average operating cost for sewerage services. While its water supply system performed on par with other comparable Australian water utilities in the first three years of the current regulatory period (2018-19 to 2020-21), its sewerage system performed below the Australian average in the same period. This is discussed in detail in Attachment 1.

3.2.2 Productivity, output growth and step changes are driving Icon Water's proposed operating expenditure

Table 3.4 compares components of the adjusted Icon Water's proposed controllable operating expenditure for the 2023-28 regulatory period with the 2018-23 approved allowance. The higher controllable operating expenditure proposed by Icon Water for the 2023-28 period is driven by output growth, productivity, and step changes.

Table 3.4 Comparison of Icon Water's proposed controllable operating expenditure components for the 2023-28 period with the 2018-23 allowance ($m, $2022-23)

	2018-23 approved	2023-28 proposed	Difference $m
Base	752.57	741.34	-11.23
Trend - real price growth	17.50	9.96	-7.55
Trend - output growth	**11.60**	**39.74**	**28.14**
Trend - productivity	**-38.70**	**-11.96**	**26.74**
Step changes	**-0.08**	**12.90**	**12.98**
Total controllable operating expenditure	742.90	791.97	49.07

Source: Our calculations based on Icon Water's submission.

Note: Totals may not equal the sum of individual components due to rounding.

For the 2023-28 regulatory period, Icon Water used a methodology, based on benchmarking with other water businesses, to estimate output growth and productivity growth that is different from the approved growth rates in the current regulatory period.

As shown in Table 3.5, for the 2023-28 period, Icon Water has proposed output growth of over four times more than the approved output growth for the 2018-23 period. But Icon Water's proposed productivity rate is less than one-third of the approved rate for the 2018-23 period. The net impact of Icon Water's proposed output growth and productivity is an annual average increase in controllable operating expenditure of 1.25% for the 2023-28 regulatory period. This is in direct contrast with the net annual reduction of 1.33% approved for 2018-23. Our consultant's assessment of, and our view on, Icon Water's proposal is discussed in sections 3.3 and 3.4 respectively.

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[15] Icon Water 2022 (Attachment 3, p 6)

Table 3.5 Comparison of Icon Water's proposed output growth and productivity for the 2023-28 period with the 2018-23 approved rates (annual average % over the regulatory period)

	2018-23 approved	2023-28 proposed
Output growth	0.42%	1.75%
Productivity	1.75%	0.5%
Net efficiency improvement rate (growth allowance minus productivity)	-1.33%	1.25%

Source: Our calculations based on Icon Water's submission.

3.3 Independent review of Icon Water's proposed 2023-28 operating expenditure

We engaged MJA to provide an independent review of the prudency and efficiency of Icon Water's proposed operating expenditure for the 2023-28 period.

3.3.1 Historical operating expenditure in 2018-23 is close to approved allowance and annual variations are reasonable

In assessing Icon Water's proposal to use 2021-22 as the base year operating expenditure, MJA compared Icon Water's actual and estimated controllable operating expenditure for the 2018-23 regulatory period with the approved allowance.

Figure 3.3 shows the comparison. All values are in real terms ($2022-23).

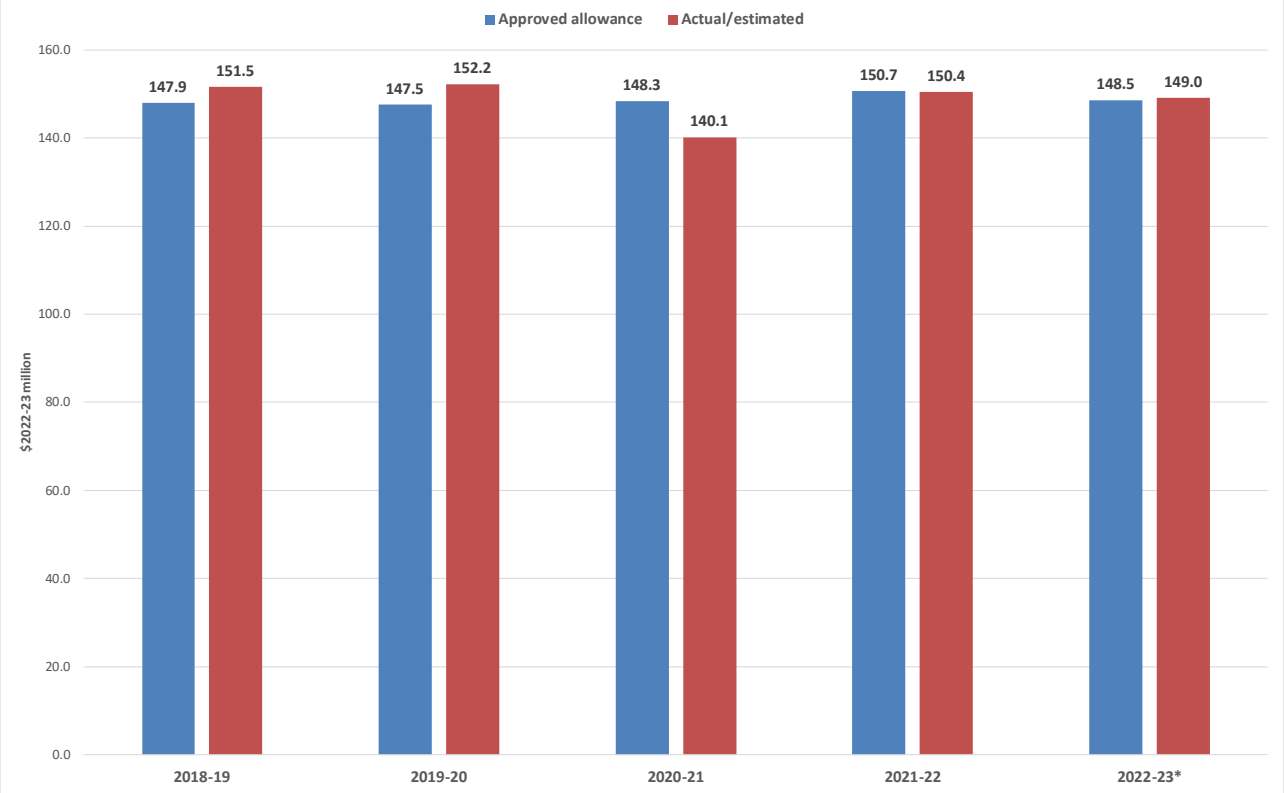
The total actual/estimated controllable operating expenditure of $743.3 million is slightly more (by $0.4 million) than the approved allowance of $742.9 million over the 2018-23 regulatory period. There are some annual variations between actual expenses and allowed expenses, which MJA considered are reasonable.

The actual expenditure in 2018-19 and 2019-20 was more than the allowance due to dry weather that required increased water pumping and therefore more electricity usage.

The lower than allowed controllable operating expenditure in 2020-21 was largely driven by a temporary reduction in labour and contractor costs due to the COVID-19 pandemic disruptions, as well as a reduction in energy costs.

The controllable expenses in 2021-22 is at levels consistent with 2018-19 and 2019-20 and is slightly below the approved allowance.

Figure 3.3 Comparison of actual/estimated controllable operating expenditure with approved allowance for the 2018-23 regulatory period ($m, $2022-23)



Source: MJA (2022), updated with 2021-22 actuals.

Note: Totals may not sum due to rounding. The 2022-23 data are an estimate.

3.3.2 Our consultant recommended downward adjustments to Icon Water's proposed base year operating expenditure

The adjusted Icon Water's proposed base year operating expenditure is $148.27 million ($2022-23) based on the controllable operating expenditure for 2021-22.[16] Icon Water's proposal excluded one-off expenses and unregulated costs from its base year operating expenditure.

MJA recommended additional downward adjustments totalling $5.11 million ($2022-23), which results in an adjusted base year controllable operating expenditure of $143.16 million ($2022-23). These adjustments reflect:

- shifting licence fees and royalty costs into non-controllable costs
- removing price review submission costs and accounting for it as a step change
- adjusting for abnormal levels of labour capitalisation in 2021-22 due to COVID-19 construction disruption, to reflect updated forecast capitalisation expected over the 2023-28 regulatory period.

[16] This adjusted base operating expenditure reflects actual 2021-22 operating expenditure data that is $1.82 million less than the estimated data Icon Water had provided in its 30 June 2022 pricing submission.

3.3.3 Our consultant recommended accepting Icon Water's proposed output growth but raising productivity growth

Icon Water has estimated its operating expenditure growth rate for the years 2023-24 to 2027-28 through a rate of change formula that considers the future growth rate of outputs and a productivity growth rate.

Icon Water applied values for these two growth rates using information from a report by Quantonomics.[17] Using NPR data, this report applies a complex statistical model, called a stochastic frontier model, to provide inputs to estimate the output growth rate and productivity growth rate. This model is complemented by estimates for total and partial factor productivity indices using the same data to provide additional insights into a relevant productivity growth rate.

MJA noted that the approach used in the Quantonomics report is similar to the approach used in the electricity sector, but it has rarely been applied in the water sector. MJA identified deficiencies in the modelling undertaken by Quantonomics. MJA also noted that the NPR data metrics are being reviewed and could change, which means this approach may not be replicable. MJA's view is that further analysis should be undertaken to provide independent verification of the approach used by Quantonomics, but outside of the current regulatory review given complexities in the modelling approach.

Icon Water's proposed output growth is appropriate, but productivity growth is unreasonable

Icon Water's output growth estimate is based on a weighted average of growth in forecast output variables of water customer numbers, water usage volumes, and sewerage volumes. The weights are derived from a model that estimates how responsive operating expenditure is to a change in each output variable.

MJA noted that this is a change from the approach used in the current regulatory period, which used asset growth as a basis for growth in controllable operating expenditure forecasts. MJA considered Icon Water/Quantonomics approach is appropriate and noted that the results provide some useful quantitative insights into the drivers of costs, notwithstanding the limitations MJA noted with the method.

MJA noted that Quantonomics estimate indicates water businesses operate under increasing returns to scale condition where a 1% increase in output increases variable costs by less than 1% (0.76%). However, MJA noted that instead of using the increasing returns to scale result, Quantonomics created output weights that sum to unity, which meant a constant returns to scale assumption (i.e. a 1% increase in output quantities increased variable costs by 1%).

MJA considered that the constant returns to scale assumption to estimate output growth is appropriate provided that the productivity growth factors are not simply scale related but also include other drivers of productivity.

However, MJA considered that Icon Water's proposed productivity growth of 0.5% per annum was unreasonable as it did not account for productivity improvements from technical change, technical efficiency or mix of inputs.

An appropriate productivity growth for Icon Water is between 1.4% to 2.4% per annum

Icon Water has proposed a productivity growth of 0.5% per annum, which is materially less than the productivity growth adjustment applied in the current regulatory period of 1.75%.

Quantonomics developed a range for a productivity adjustment based on two efficiency factors:

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[17] Quantonomics 2022

- industry-wide factors (frontier shift), to allow for general productivity gains over time
- firm specific factors, to allow for Icon Water to 'catch-up' to other efficient water businesses.

Quantonomics found:

- a reasonable range for industry-wide factor is between 0% and -0.9% per annum
- cost efficiency factor analysis indicates a catchup productivity growth rate of 0.8% per annum.

The addition of these two components produced an overall range of between -0.1% and 0.8%, which informed Icon Water to propose a productivity growth rate of 0.5% over the 2023-28 regulatory period.

Industry-wide efficiency is underestimated

Quantonomics estimated industry-wide efficiency factor based on a 15-year data over the period 2006 to 2020.

However, MJA's concern is that the growth rate of -0.9% per annum used by Quantonomics is too low when considering the movement in the index in recent years. MJA noted that a large portion of the negative growth rate is driven by large decreases in productivity from the historical period of 2006 to 2013, being -2.0% per annum. In comparison, the annual growth rate from the recent period of 2013 to 2020 is 0.3% per annum, which MJA considered was a more relevant industry-wide productivity figure.

Firm-specific efficiency is based on arbitrary assumptions

To estimate firm-specific efficiency factor, Quantonomics used NPR data to create cost efficiency scores for all water businesses (including Icon Water). These scores were averaged over a 15-year period, from 2006 to 2020.

However, MJA noted several deficiencies with Quantonomics approach.

For example, Quantonomics chose the 67th percentile to set the target for future efficiency gains for Icon Water, which MJA found was arbitrary. MJA noted that the AER has previously used the 75th percentile to define an efficient benchmark for electricity distribution companies. Applying the 75th percentile resulted in a productivity catchup rate of 1.1% per annum.

Additionally, Quantonomics allow Icon Water 10 years to reach the benchmark percentile target. An alternative would be for the benchmark to be achieved by the end of the next regulatory period (i.e. five years). MJA found a five-year period resulted in catchup growth rates between 1.6% and 2.1% for the 67th and 75th percentile, respectively.

Overall, MJA's assessment indicates a combined productivity growth range of between 1.4% and 2.4% per annum. MJA noted that a productivity growth rate of 1.4% is closer to what was set in the current regulatory period and is consistent with the minimum expectations for Victorian water business set by the Essential Services Commission for their 2023-28 operating expenditure forecasts, and the recent price review by the Office of Tasmanian Economic Regulator for TasWater.

3.3.4 Our consultant recommended downward adjustment to real price growth

MJA recommended accepting Icon Water's proposed real change in chemicals and labour costs.

However, MJA recommended downward adjustments to Icon Water's proposed real change in electricity costs. The adjustments reflect MJA accounting for more recent information, including NSW's Electricity Infrastructure Roadmap which expects a reduction in the cost of renewable energy. MJA also noted that Icon Water's proposed network cost double counted the impact of customer growth, which is already accounted for as a separate trend factor.

3.3.5 Our consultant recommended downward adjustment to Icon Water's proposed step changes

Icon Water's proposed adjusted step changes are $12.90 million in real terms ($2022-23) over the 2023-28 regulatory period.

MJA recommended $5.14 million ($2022-23), which is $7.76 million ($2022-23) less than Icon Water's proposal. MJA's recommendation reflects:

- a downward adjustment to the step change in insurance premium costs to reflect the actual increase in insurance premium costs and to avoid double counting the growth allowance. MJA found Icon Water had overestimated the insurance premium costs because it accounted for the effect of asset growth but that was already accounted for in the output growth component.
- a small downward adjustment to the SoCI step change costs to adjust for an overestimate in labour costs
- a new step change to account for operating cost savings from Icon Water's Cotter Pump Station Upgrade capital project
- a new step change for additional price review costs Icon Water may incur in developing its price proposal for the 2028-33 regulatory period. However, MJA recommended including the additional ICRC fees under non-controllable costs.

3.3.6 Our consultant's recommended operating expenditure is lower than the adjusted Icon Water's proposal

MJA's recommended prudent and efficient operating expenditure are shown in Table 3.6. This is based on a productivity factor of 1.4% per annum. The recommended operating expenditure over the five years of the 2023-28 regulatory period is $58.64 million or 5.19% lower than the adjusted Icon Water's proposed operating expenditure, in nominal terms ($52.88 million or 5.12% lower in $2022-23 terms).

Table 3.6 Our consultant's review of Icon Water's proposed adjusted operating expenditure for the 2023-28 period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water services						
Controllable operating expenditure	66.59	68.72	71.12	73.72	75.44	355.59
Non-controllable operating expenditure	43.91	45.58	47.44	49.58	52.04	238.55
Total water operating expenditure	**110.50**	**114.30**	**118.56**	**123.30**	**127.48**	**594.15**
Sewerage services						
Controllable operating expenditure	82.29	84.94	88.10	91.39	93.65	440.39
Non-controllable operating expenditure	6.62	6.90	7.18	7.66	8.38	36.74
Total sewerage operating expenditure	**88.91**	**91.84**	**95.29**	**99.05**	**102.03**	**477.12**
Our consultant's recommended water and sewerage operating expenditure	**199.41**	**206.14**	**213.85**	**222.35**	**229.52**	**1071.27**
Adjusted Icon Water's proposed total operating expenditure	205.10	214.75	225.79	236.66	247.60	1129.91
Variation from Icon Water's proposed operating expenditure	**-5.69**	**-8.62**	**-11.94**	**-14.31**	**-18.08**	**-58.64**

Source: MJA (2022) and our own calculations.

Note: Totals may not equal the sum of individual components due to rounding.

3.4 Our draft decision operating expenditure allowance for 2023-28 period

We have considered Icon Water's proposed adjusted operating expenditure and the independent review by MJA. We have accepted MJA's recommended adjustments to Icon Water's operating expenditure. Our draft decision allows for total water and sewerage operating expenditure of $1,071.27 in nominal terms (or $979.17 million in $2022-23) over the 2023-28 regulatory period. This is $58.64 million (5.19%) less than Icon Water's proposed adjusted operating expenditure of $1,129.91 million.

3.4.1 Our draft decision accepts MJA's recommended adjustments to base operating expenditure, step changes and real price growth

We have accepted MJA's recommended adjustments to base year operating expenditure

We have accepted Icon Water's proposal to use 2021-22 as the base year operating expenditure. It represents the latest year for which full year actual operating expenditure data are available and the actual operating expenditure is slightly below the approved allowance. We also accepted MJA's recommended adjustment to the base year operating expenditure to remove non-recurring and non-controllable costs.

We have accepted MJA's recommended adjustments to Icon Water's proposed step changes

We accepted the two step changes Icon Water proposed associated with the SoCI Act and higher insurance premiums. However, we have accepted MJA's downward adjustments to the costs associated with those two step changes:

- downward adjustment to Icon Water's proposed higher insurance premium to reflect the actual increase in insurance premiums Icon Water experienced in 2022-23, and
- downward adjustment to the SoCI step change to account for labour costs based on Icon Water's internal wages as opposed to external consultant rates.

We have also accepted MJA's recommendation to include a new step change relating to operating cost savings from the Cotter Pump Station Upgrade capital project, and to account for Icon Water's price review submission costs as a step change as opposed to including them in the base year operating expenditure given they are non-recurrent costs.

We have accepted MJA's recommended adjustments to Icon Water's proposed real price growth factors

Our draft decision is to accept MJA's recommended real price growth factors.

Based on MJA's recommendation, our draft decision is to accept Icon Water's proposed real changes in chemicals and labour costs. We have accepted MJA's recommended downward adjustment to real change in electricity costs to account for latest information and to avoid double counting the impact of customer growth.

3.4.2 Our draft decision accepts Icon Water's proposed output growth

We have considered Icon Water's proposed output growth and the independent review by MJA.

We note Icon Water has changed its approach to estimate output growth which has resulted in a significant increase in the output growth rate compared to the approved rate used in the current regulatory period as shown in Table 3.5. Icon Water's annual average output growth estimate of 1.75% reflects Icon Water's demand forecast. Applying our draft decision demand forecasts and using Icon Water's approach gives an adjusted average annual output growth rate of 1.42%.

We have considered MJA's view that Icon Water's output growth estimate is appropriate, subject to the qualifications noted by MJA about the method Icon Water/Quantonomics used.

We have also considered that the approach used by Icon Water is complex, has deficiencies and relies on the NPR data metrics that have limitations and are being reviewed.

In addition, we noted there is limited regulatory precedent for the use of complex modelling that Icon Water/Quantonomics have used to forecast output and productivity growth. The only notable exception is IPART's determination of Central Coast Council's (CCC) operating expenditure. Even then, IPART's consultant Frontier Economics noted that they used economic benchmarking because CCC's actual operating expenditure was affected by significant events which could not be used to benchmark against other utilities.[18]

We are aware that the ESC Victoria uses a simple approach, based on forecast growth in customer numbers, to set the output growth rate for Victorian businesses. Using this simple approach and our demand forecast, we get an average annual output growth rate of 1.49% over the 2023-28 regulatory period. Our alternative estimate is close to Icon Water's adjusted estimate of 1.42% per annum.

Based on these considerations, our draft decision is to accept Icon Water's output growth estimate, adjusted with our draft decision demand forecasts.

3.4.3 Our draft decision accepts MJA's conservative productivity estimate of 1.4% per annum

We have considered Icon Water's proposed productivity growth and the independent review by MJA.

We agree with MJA's assessment that Icon Water has underestimated the productivity growth, and an appropriate productivity growth ranges between 1.4% to 2.4% per annum.

We accept Icon Water/Quantonomics approach to consider both the firm-specific catch-up efficiency and the industry-wide ongoing efficiency. While industry-wide efficiency factor is comparable across utilities, firm-specific efficiency factor depends on where the firm (Icon Water) is relative to the efficient frontier.

An appropriate industry-wide efficiency target is between 0.3% to 0.8% per annum

We agree with MJA's view that Icon Water's industry-wide efficiency factor of 0% to -0.9% is an underestimate.

In comparison, the Essential Services Commission of Australia (ESCOSA) set an industry-wide efficiency factor of 0.5% for SA Water in its 2020 determination.[19] ESCOSA said that efficiency target was

> *based on a conservative view of the reasonable range for productivity improvements using multi-factor productivity (MFP) estimates for the Australian economy, with an expectation that SA Water should be able to become more efficient at least as quickly as the Australian economy has achieved in recent years (ESCOSA 2020, p. 204).*

IPART has set an industry-wide efficiency target of 0.8% per annum for Sydney Water.[20] This was in addition to Sydney Water's proposed base efficiencies (catch-up efficiency) of $105m relative to a total operating expenditure of about $4 billion over the 4-year regulatory period, which IPART accepted.[21] Accounting for that base efficiency would indicate a combined efficiency target of 1.4% per annum for Sydney Water.

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18 Frontier Economic & Mott McDonald 2022, p 24.
19 ESCOSA 2020, p 204.
20 IPART 2020, p 36.
21 IPART 2020, p 40.

MJA's recommendation of 0.3% per annum is conservative compared to the ESCOSA and IPART decisions.

An appropriate firm-specific efficiency target is between 1.1% to 2.1%

We agree with MJA's view that Icon Water's firm-specific efficiency factor is based on arbitrary assumptions, and an appropriate range is between 1.1% to 2.1% per annum.

Our draft decision is to use a conservative productivity growth of 1.4% per annum

Figure 3.4 presents a range of productivity growth estimates from 1.4% to 2.4% per annum.

We note that IPART's decision for Sydney Water effectively meant a combined efficiency target of 1.4% per annum. IPART's consultant noted that Sydney Water's efficiency level was at the 82nd percentile compared to other water businesses. In comparison, Icon Water's efficiency level is below the 67th percentile water business—Icon Water is less efficient than Sydney Water. This indicates a 1.4% per annum productivity factor for Icon Water is conservative.

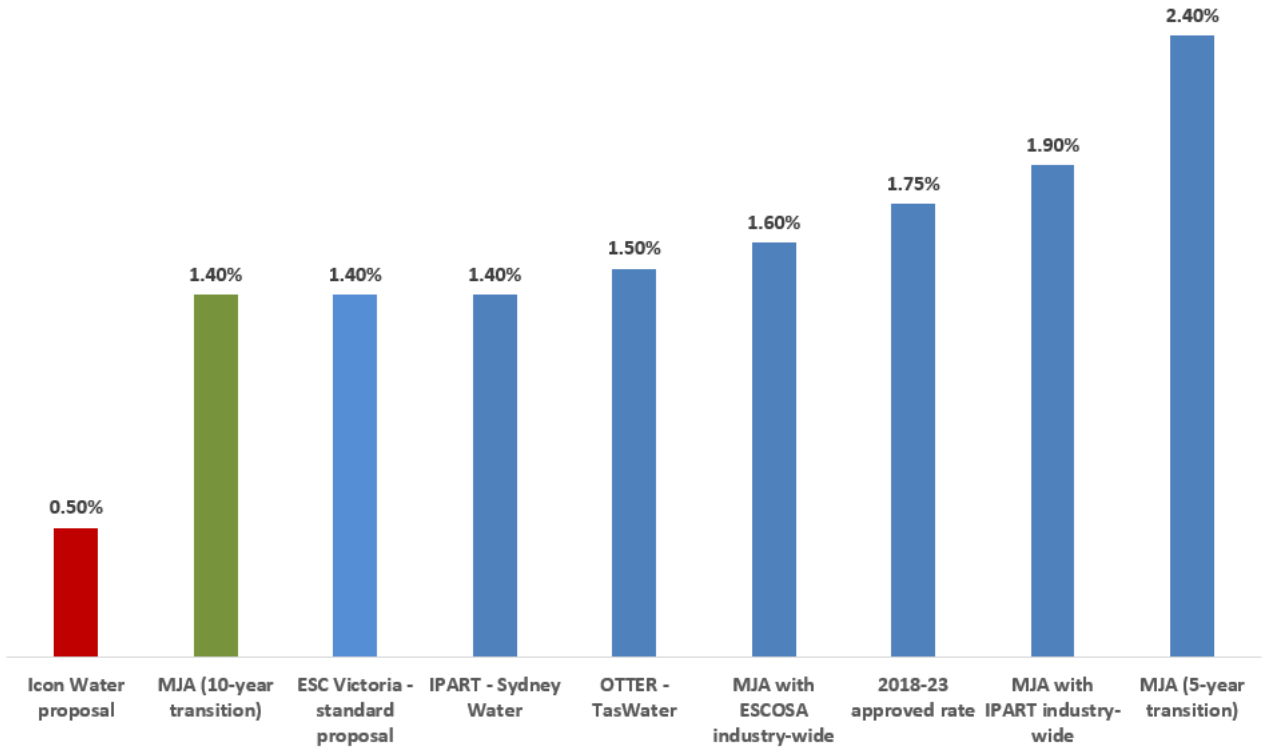
In our 2018 pricing investigation, Icon Water had proposed, and we approved, a productivity growth of 1.75% per annum. Then, Icon Water had stated that the productivity target was calculated over a 10-year horizon. We recognise circumstances have changed and the 1.75% per annum efficiency target needs to be reassessed. For example, extreme weather events have become more common in recent years which could impose additional operating expenditure.

We note MJA estimated a productivity growth of 2.4% per annum based on a 5-year transition period, which would be consistent with the length of the regulatory period. However, we also note MJA's view that it is unclear whether this productivity target is achievable within the 5-year forecast period, given Icon Water's current efficiency level is below the 67th percentile water business.

We note that Icon Water will realise some operating expenditure savings from its forward expenditure program.

Given the above considerations and recognising the level of uncertainty that exists for Icon Water's operating environment, particularly in light of the impacts of the COVID-19 pandemic, we have taken a conservative view to set a productivity growth of 1.4% per annum for Icon Water for the 2023-28 regulatory period.

Figure 3.4 Productivity growth – comparison of Icon Water proposal with alternative estimates



Source: Our calculations

3.4.4 Our draft decision on non-controllable operating expenditure reflects MJA's recommendation and updated demand forecast

The UNFT and WAC costs are government taxes and charges collected from consumers and remitted to the ACT Government by Icon Water. From Icon Water's perspective, the UNFT and WAC are 'non-controllable costs' and are accounted for separately from the 'controllable costs'. We do not review these pass-through costs, because they are subject to a true-up mechanism through the annual price resets.

Our draft decision differs from Icon Water's proposal because we have considered updated demand forecasts for the WAC component. We have also accepted MJA's recommendation to include licence fees and royalties payable by Icon Water to the ACT Government under other non-controllable costs.

Table 3.7 Our draft decision on non-controllable operating expenditure ($m, nominal)

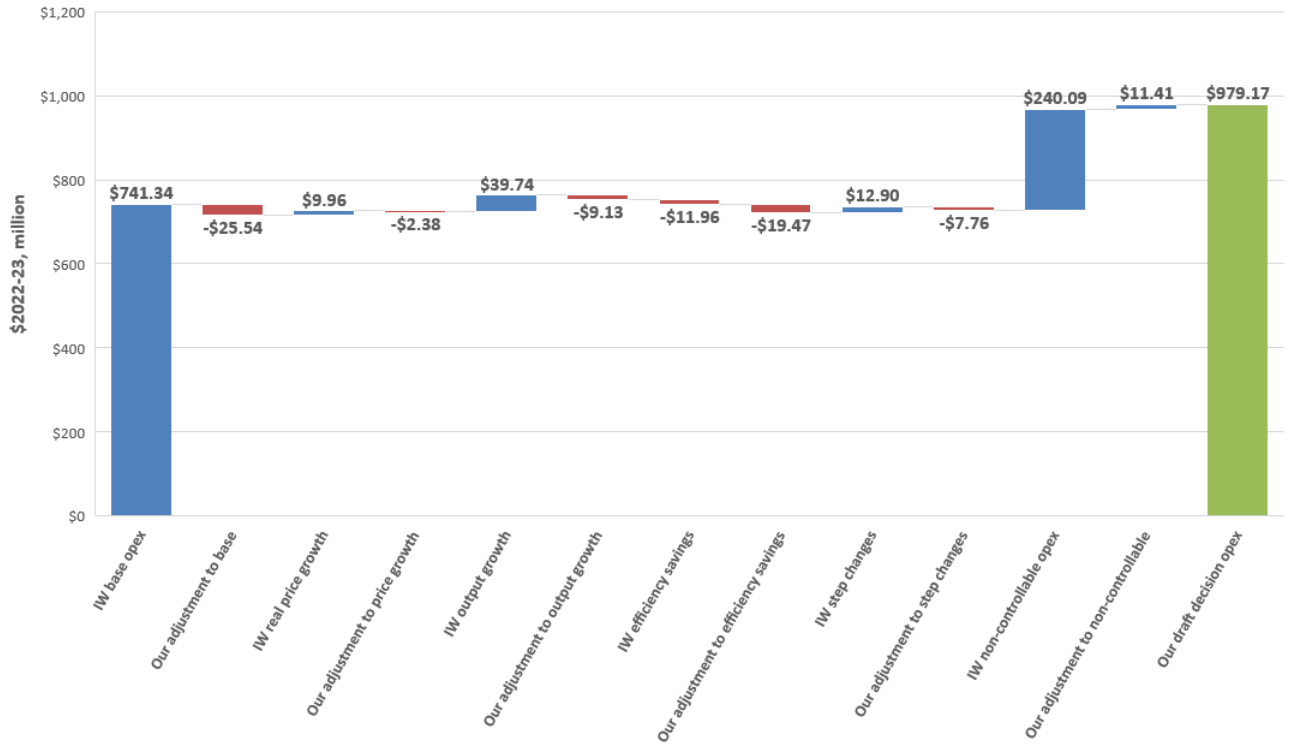
	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water						
Water Abstraction Charge	36.04	37.38	38.89	40.50	42.18	195.00
Utilities Network Facilities Tax	6.86	7.16	7.48	7.81	8.15	37.46
Other non-controllable	1.01	1.04	1.07	1.27	1.71	6.10
Total non-controllable operating expenditure - water	**43.91**	**45.58**	**47.44**	**49.58**	**52.04**	**238.56**
Sewerage						
Utilities Network Facilities Tax	5.53	5.78	6.03	6.30	6.58	30.22
Other non-controllable	1.09	1.12	1.15	1.36	1.80	6.51
Total Non-controllable operating expenditure - sewerage	**6.62**	**6.90**	**7.18**	**7.66**	**8.38**	**36.74**
Total overall non-controllable operating expenditure	**50.53**	**52.48**	**54.62**	**57.24**	**60.43**	**275.30**

Source: Our calculations based on MJA recommendations.

3.4.5 Summary of our draft decision relative to the adjusted Icon Water's proposed operating expenditure

Figure 3.5 summarises our adjustments to Icon Water's proposed operating expenditure components.

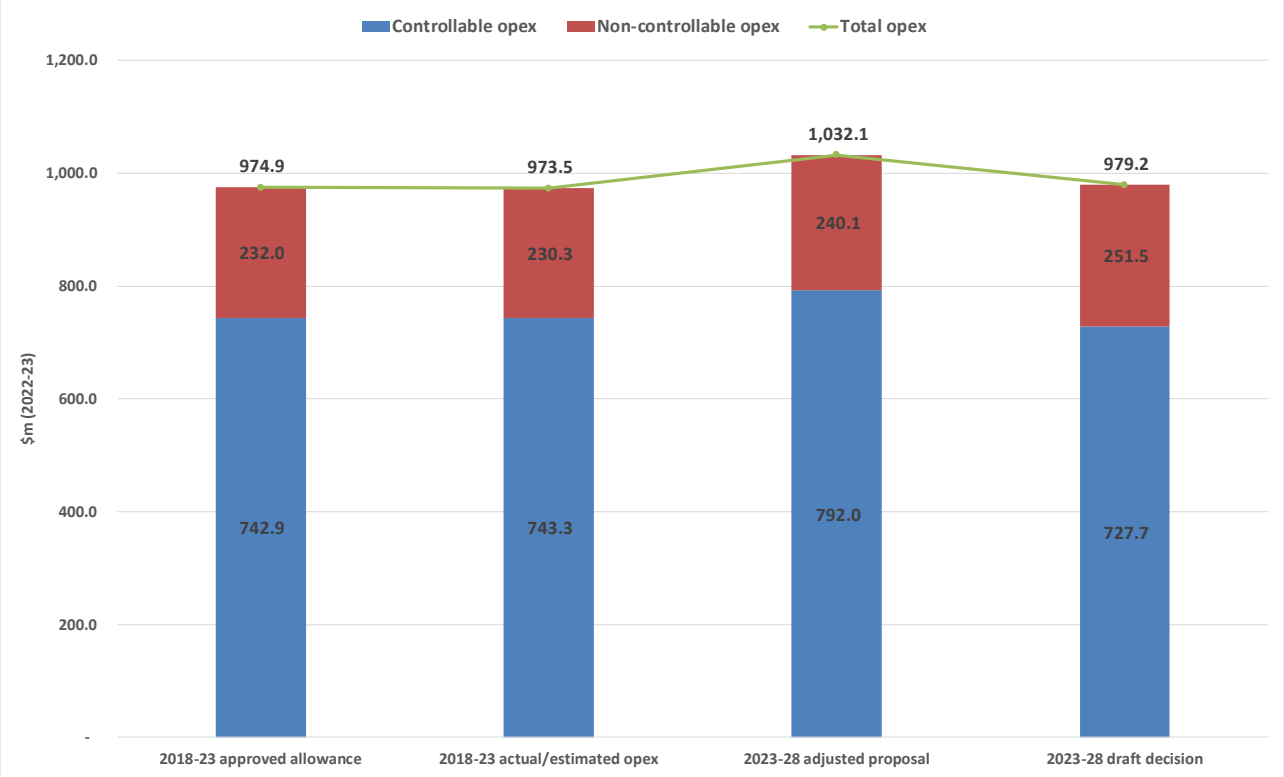
Figure 3.5 Our draft decision adjustments to Icon Water's adjusted proposed operating expenditure for the 2018-23 regulatory period ($m, $2022-23)



Source: our calculations

Figure 3.6 shows that our draft decision is slightly more than the operating expenditure for the 2018-23 regulatory period which was a challenging operating environment for Icon Water due to dry weather conditions followed by a period of wet weather, along with the disruptions caused by the COVID-19 pandemic.

Figure 3.6 Total operating expenditure – our draft decision and Icon Water's proposal for 2023-28 regulatory period, and the allowed operating expenditure for 2018-23 regulatory period ($m, $2022-23)



Source: Our calculations

3.4.6 Guidance for the regulatory treatment of ICT/cloud costs

On 8 September 2022, Icon Water informed that several of its ICT vendors are moving to 'cloud-based' models under a subscription service also known as Software as a Service (SaaS). Icon Water noted it is not expecting an increase in its total expenditure requirement from a change in the service delivery model, but there will be a shift in its forecast ICT costs from capital expenditure to operating expenditure. That shift will be based on the relevant accounting standards. In its response to our draft report, Icon Water will propose a new operating expenditure step change to account for the shifts in its forecast ICT project costs from capital expenditure to operating expenditure.

We are aware that the Australian Energy Regulator (AER) has considered similar issues in reviewing expenditure submissions of electricity network businesses. For example, in its September 2022 draft decision on ElectraNet's 2023-28 revenue proposal, the AER accepted ElectraNet's proposed step change for the implementation of a new guidance by the International Financial Reporting Standards (IFRS). The guidance clarified that costs associated with SaaS arrangements should be expensed (operating expenditure) rather than capitalised (capital expenditure). The AER was satisfied that ElectraNet's proposed IFRS step change was accompanied by an appropriate decrease in capital expenditure. The AER considered that the costs identified by ElectraNet fell within the relevant categories impacted by the IFRS accounting guidance. However, the AER removed some costs from ElectraNet's proposal to avoid double counting the costs that were already covered in ElectraNet's proposed cyber security program.[22]

[22] AER 2022b, p 18.

In its final decision on AusNet Services' 2022-27 revenue proposal, the AER accepted a step change to replace on-premises ICT infrastructure with cloud-based services. The AER was satisfied that the proposed expenditure was prudent and efficient. That is, the operating expenditure required to implement the ICT system through the cloud was less than a corresponding capital expenditure-driven solution to implement the same functionality.[23]

We consider the AER's assessment approach provide useful guidance. Icon Water should demonstrate that the proposed costs are prudent and efficient. That is, the proposed cloud-based service is needed to provide water and sewerage services and the associated expenditure program provides the least cost option over the life of the project, compared to other potential alternatives. Icon Water should demonstrate that there is no double counting with other expenditure activities, and any cost shift to operating expenditure is accompanied by an appropriate decrease in capital expenditure. Icon Water should also demonstrate that the affected cost categories fall within the relevant categories impacted by the IFRS guidance. If Icon Water expects to incur recurrent and non-recurrent (one-off) costs in transitioning ICT projects to a SaaS delivery model, it should identify them separately. This separation will ensure that one-off expenses are excluded from the consideration of base year operating expenditure in future price investigations.

[23] AER 2022a, p 23.

4. Capital expenditure

Capital expenditure is the money that Icon Water requires to build, maintain, and improve the infrastructure it operates to provide water and sewerage services to the Canberra community and the region.

As part of achieving our regulatory objectives, we assess the economic efficiency of Icon Water's proposal for capital expenditure by adopting tests for prudency and efficiency.

If we determine that Icon Water's proposed capital expenditure as prudent and efficient, Icon Water then recovers this money through billing its customers. If we deem these expenditures as prudent and efficient, Icon Water can recover this money:

- by including the expenditure in the regulatory asset base (RAB)
- through depreciation.

In this chapter, we summarise the assessment of prudent and efficient capital expenditure in the historical (2018-23) and forward (2023-28) regulatory periods.

Our draft decision

In the current regulatory period of 1 July 2018 to 30 June 2023, we made an adjustment of $7.1 million (nominal) to Icon Water's capital expenditure. We accept a historical capital expenditure allowance of $451.0 million (nominal). For more detail and our reasoning, please see section 4.3.5.

For the period 1 July 2023 to 30 June 2028, we allow a net capital expenditure forecast of $685.5 million (nominal). This is 6.9% or $50.7 million (nominal) lower than Icon Water's proposed forecast. For more detail and our reasoning, please see section 4.4.3.

4.1 Our approach to capital expenditure review

To determine Icon Water's revenue requirement, we examined capital expenditure incurred by Icon Water in the period 1 July 2018 to 30 June 2023, and its forecast expenditure for the period 1 July 2023 to 30 June 2028. The first process ensures that only prudent and efficient expenditure is added to the regulatory asset base. The second process determines the prudent and efficient costs to be included in the revenue requirement for the next regulatory period.

We commissioned MJA to assist us in our review. MJA undertook a strategic review of Icon Water's long-term investment planning, asset management systems and processes. MJA reviewed the business cases and supporting documents provided by Icon Water to support its historical and proposed capital projects and programs, including internal reviews of project appropriateness, options analysis, cost estimates, capital prioritisation and risk assessments. In this chapter we reference MJA's findings; however please visit our website[24] for the full report.

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[24] The MJA report is accessible on our water price investigation project page, along with other relevant documents mentioned in the draft report. Please visit our project page at https://www.icrc.act.gov.au/projects/current-projects/regulated-water-and-sewerage-services-prices-202328 .

4.2 Icon Water's capital expenditure in 2018-23

4.2.1 Icon Water's proposal

The actual capital expenditure for the 2018-2023 regulatory period (actuals for 2018-19 to 2021-22 and forecast for 2022-23), is forecast to be $459.6 million in nominal terms or $487.0 million in real terms ($2022–23). This includes $176.7 million in nominal terms or $193.0 million in real terms for water services and $282.9 million in nominal terms or $294.0 million in real terms for sewerage services.

Table 4.1 Icon Water's actual capital expenditure, 2018–23 ($m, nominal)

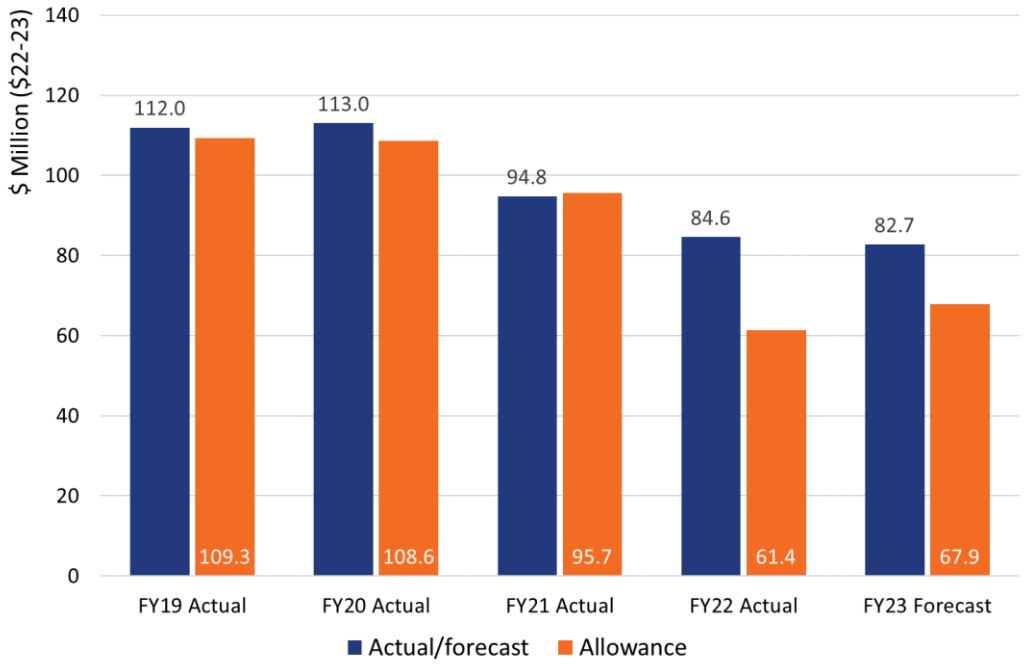
	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Water	36.1	48.6	39.3	24.4	28.3	**176.7**
Sewerage	65.7	55.5	49.4	57.8	54.5	**282.9**
Total capital expenditure	**101.8**	**104.1**	**88.7**	**82.2**	**82.7**	**459.6**

Source: Icon Water capital expenditure data for 2018-23.

Note: Forecast is used for 2022-23. An updated CPI index applied.

We set a capital expenditure allowance of $442.9 million ($2022-23) for the current regulatory period. Icon Water's estimated actual expenditure is $44.1 million or 9.9% higher than the allowance. Figure 4.1 shows Icon Waters estimated actual expenditure compared to our regulatory allowance.

Figure 4.1 Icon Water's actual capital expenditure and the commission's allowance for water and sewerage services, 2018–23 ($m, $2022-23)



Source: Icon Water capital expenditure data for 2018-23.

Note: Forecast is used for 2022-23.

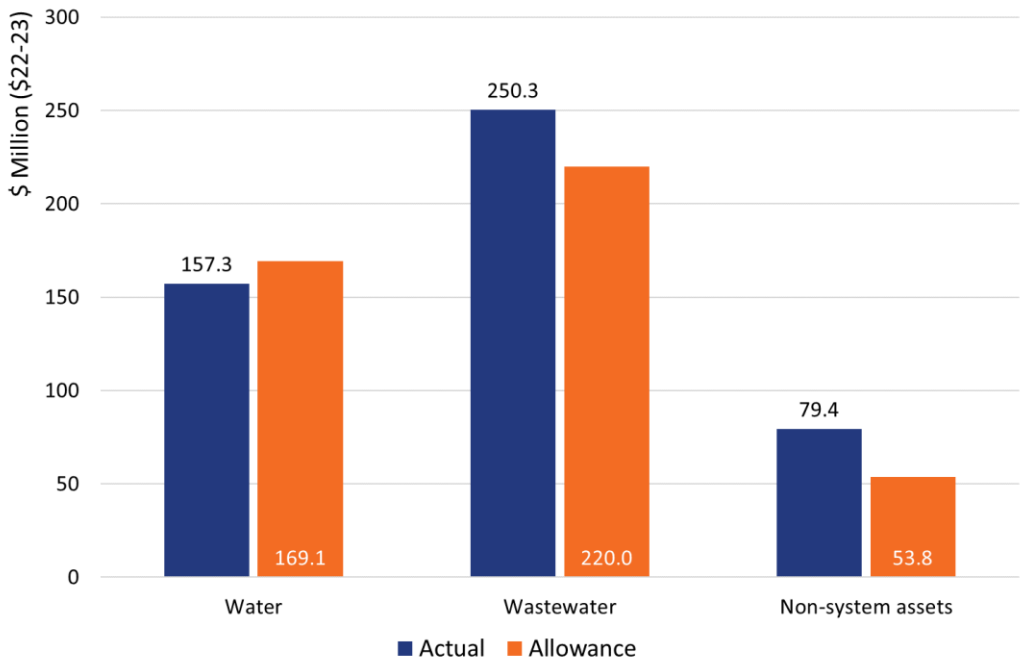
Figure 4.2 below shows the variance in capital expenditure by function (water, sewerage and non-system). Icon Water is forecasting to spend $11.9 million less than the allowance in water and $30.3 million and $25.7 million more for sewerage and non-system (IT and corporate expenditure), respectively.

In sections 4.3.1 and 4.3.2 below, we discuss Icon Water's actual capital expenditure for water and sewerage projects during the 2018-23 regulatory period. We look at several categories of water and sewerage capital expenditure:

- renewal driven projects
- growth driven projects
- regulation driven projects
- efficiency driven sewerage projects.

We discuss Icon Water's non-system asset actual expenditure separately at section 4.2.4. This section examines projects that include ICT, buildings, vehicles, and other investment which is not directly part of the water or sewerage network.

Figure 4.2 Comparison of estimated actual expenditure for 2018-23 regulatory period and regulatory allowance ($m, $2022-23)



Source: Icon Water capital expenditure data for 2018-23.

Note: Forecast is used for 2022-23.

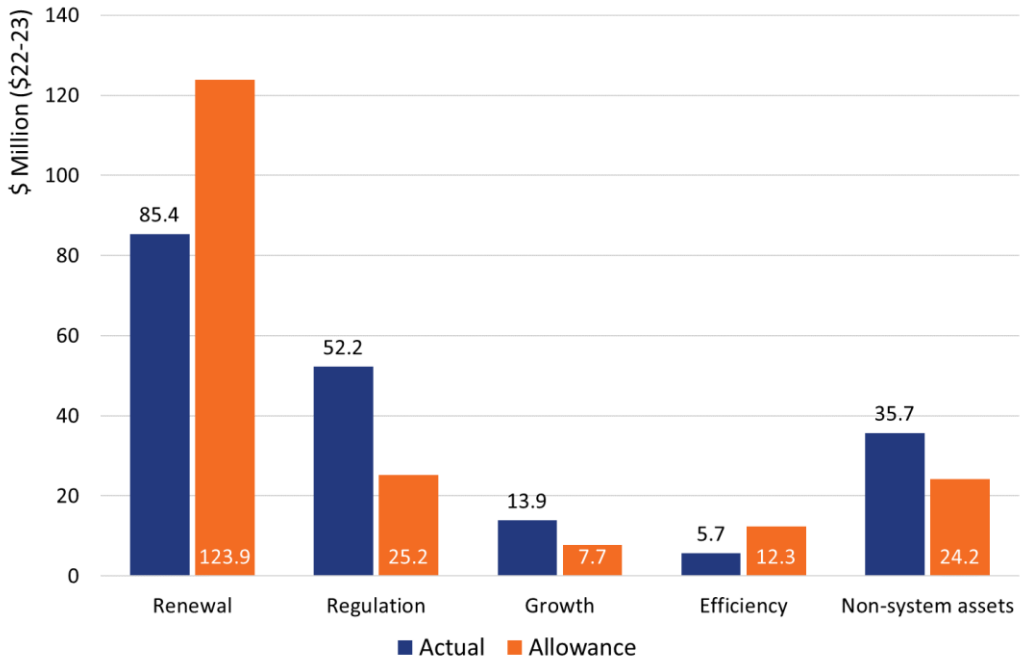
4.2.2 Water supply system capital expenditure

Icon Water's estimated actual capital expenditure on water totals $157.3 million ($2022-23) for the current regulatory period. This is $11.9 million or 7.0% less than our regulatory allowance. In total, $17.2 million of

planned expenditure was deferred from the 2018-23 period and will be required to be spend at a future date.[25]

In its regulatory proposal Icon Water provided an allocation of estimated actual expenditure against renewal, growth, regulation, efficiency and non-system expenditure. Figure 4.3 compares the allocations between expected actual expenditure on water and the determination allowance for 2018-23 by funding drivers.

Figure 4.3 Comparison of estimated actual capital expenditure and regulatory allowance on water by funding driver,2018-23 ($m, $2022-23)



Source: Icon Water capital expenditure data for 2018-23.

Note: Forecast is used for 2022-23.

Renewals

Icon Water's estimated actual expenditure on renewing water assets is $85.4 million ($2022-23). This is $38.5 million or 31.1% lower than our regulatory allowance. The lower than forecast capital expenditure is mainly driven by:

- the re-prioritisation of expenditure during the 2018-23 period. This includes a decision to defer a portion of the Water Network EIMC26 program of works at lower risk sites to offset increased capex on other vital projects.
- project savings from lower than forecast contract prices for key projects, including the Mugga Reservoir and O'Conner Reservoir Roof replacements.

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[25] The figures are based on Icon Water's capital expenditure data for 2018-23, the categorisation of funding drivers is in accordance with MJA consultant report.

[26] This program involves upgrading and replacing electrical, instrumentation, monitoring and control systems at water pump stations, water reservoirs and bulk water valve farms.

- lower than anticipated scope of works to renew water mains to maintain the risk of service interruptions at an appropriate level.

During the 2018-23 regulatory period, Icon Water so far have replaced 36,889 water meters[27] and 7km of water mains to address structural failures. Icon Water also renewed water cleaning equipment at Googong water treatment plant and replaced roofs at Mugga Reservoir and O'Connor Reservoir.

Growth

Icon Water's estimated actual expenditure in growth projects is $13.9 million ($2022-23). This is $6.2 million or 79.8% higher than our regulatory allowance.

The higher than forecast capital expenditure is driven by a variance in the cost of the One Tree Hill Reservoir due to the discovery of fractured rock during the excavation which required stabilisation. Most growth-related capital expenditure for water assets in the 2018–23 period was spent on this single project.

Regulation

Icon Water's estimated actual expenditure in regulation projects is $52.2 million ($2022-23). This is $27.1 million or 107.5% higher than our regulatory allowance. The higher than forecast capital expenditure is mainly driven by increases to the scope of works to renew water mains to meet the hydraulic capacity required for use by the ACT Fire and Rescue in the management of this service. Icon water replaced 20km of water mains to address hydraulic failures.

Efficiency

Icon Water's estimated actual expenditure in projects to improve efficiency of water assets is $5.7 million ($2022-23). This is $6.6 million or 53.6% lower than our regulatory allowance. The lower than forecast capital expenditure is mainly driven by a decrease in the scope or deferral of projects delivered under Icon Water's renewable energy program.

4.2.3 Sewerage system capital expenditure

Icon Water' proposal estimated capital expenditure on sewerage totals $250.3 million ($2022-23) for the current regulatory period (2018-23). This is $30.3 million or 13.8% higher than our regulatory allowance. In total, $29.3 million of planned expenditure was deferred from the 2018-23 period and will be required to be spend at a future date.[28]

Most of the increased expenditure occurred in years 4 and 5 of the 2018-23 regulatory period. We note that currently we only have forecasts for these years, and we will need to conduct further assessment once the final expenditure figures become available.

In summary, Icon Water has attributed its capital expenditure as follows:

- an estimated actual expenditure of $152.4 million ($2022-23) in renewals projects, such as the Lower Molonglo Water Quality Control Centre (LMQWCC) high voltage asset renewal project, the sewer mains renewals project, and the LMWQCC aeration blower replacement project

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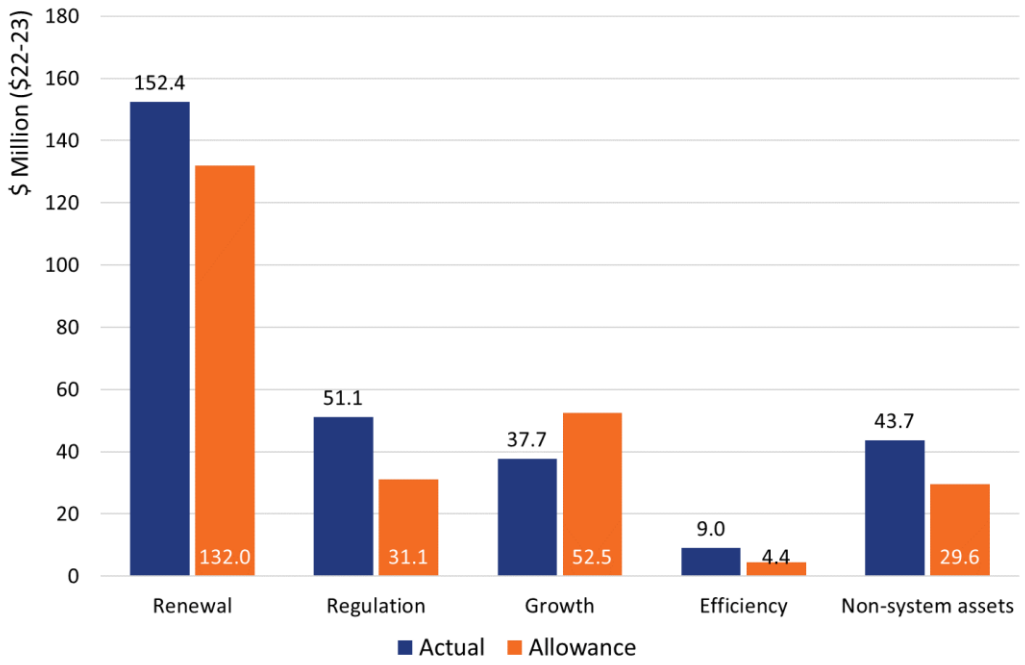
[27] Icon Water reports it has replaced 3,011 water meters reactively from 2017-18 to 2021-22 and replaced 33,878 water meters proactively from 2017-18 to 2021-22. We do not yet have figures for the 2022-23 regulatory year.

[28] The figures are based on Icon Water's capital expenditure data for 2018-23, the categorisation of funding drivers is in accordance with MJA consultant report.

- an estimated actual expenditure of $37.7 million ($2022-23) for growth projects, such as the Belconnen trunk sewer augmentation project
- an estimated actual of $51.1 million ($2022-23) in regulation projects, such as upgrading Icon Water's network access and the LMWQCC solids handling project
- an estimated expenditure of $9.0 million ($2022-23) in efficiency projects, such as the solar photovoltaic program
- an estimated expenditure of $43.7 million ($2022-23) in non-system assets, for example, ICT, buildings and vehicles.

Figure 4.4 compares the allocations between expected actual expenditure on sewerage and the determination allowance for 2018-23 by funding drivers.

Figure 4.4 Comparison of the estimated actual capital expenditure and determination on sewerage by funding driver, 2018-23 (real $2022-23)



Source: Icon Water capital expenditure data for 2018-23.

Note: Forecast is used for 2022-23.

Renewals

Icon Water's estimated actual expenditure on renewing sewerage assets is $152.4 million ($2022-23). This is $20.4 million or 15.4% higher than our regulatory allowance. The higher than forecast capital expenditure is mainly driven by:

- Icon Water's biggest investment over the 2018–23 regulatory period has been major works at LMWQCC to replace ageing assets at risk of failure. This includes renewal of high voltage assets and upgrades to the tertiary filters and disinfection systems.
- Several factors were identified for the increased costs in renewing its high voltage assets. Icon Water based the initial budget for this project on the assumption that they could simply refurbish the existing generator. However, they later determined the existing generator instead needed replacement. Icon Water also advised that they incurred more costs due to price increases in the

construction market and additional costs on a new Evoenergy feeder. This project experienced a $21.9 million ($2022-23) spending variance from the regulatory allowance. [29]

- Additional scope and costs caused a $9.6 million ($2022-23) variance to the tertiary filters and disinfection system upgrades. Icon Water needed to perform additional works for the overflow penstocks, filter building renewals and concrete repairs to filler structures. Market conditions and projects delays also increased costs.
- Icon Water also completed other projects which called for replacing or upgrading:
  - sewer mains, to manage risks associated with wastewater overflows, breaks and chokes
  - sewerage pump stations, ensuring wastewater is transferred within minimal environmental impact
  - the aeration blower at the LMWQCC, to improve the overall energy efficiency of the blowers, reduce noise, and improve personnel safety.

Growth

Icon Water expends costs to support population growth and maintain flexibility to respond to demand. For expenditure in the current (2018-23) regulatory period, Icon Water estimates it spent $37.7 million ($2022-23) on growth-driven projects for sewerage. Icon Water spent $14.8 million or 28.2% less than the regulatory allowance. To support growth, Icon Water undertook:

- augmentation works on the trunk sewer system at Belconnen and renew ageing sewer mains that require replacement because they have been identified as being at risk of failure
- construction of sewers along Ginninderra Creek, including the construction of additional odour control and ventilation units
- installed the North Weston Odour Control Facility to allow major trunk sewers at that location to be mechanically ventilated to increase asset life and control odour
- Icon Water advised that its growth-driven projects were driven by actual population growth and land release outcomes. In response, Icon Water shifted the timing of its growth-driven projects. Icon Water deferred some of these projects to prioritise other works.

Regulation

Regulation driven capital expenditure includes projects that Icon Water has identified it needs to do in response to legislation, standards, licence conditions and codes. For expenditure in the current (2018-23) regulatory period, Icon Water estimates it spent $51.1 million ($2022-23) on regulation-driven projects for sewerage. Icon Water spent $20 million or 64.4% more than the regulatory allowance. This higher than forecast capital expenditure has been attributed to projects at LMWQCC including:

- upgrades to the sludge holding tank, screens, grit handling, ventilation, and furnace and exhaust system. Icon Water reports these upgrades ensure it meets environmental regulatory requirements
- replacement of centrifuges
- replacement and reconfiguration of items (ladders and davit bases) to facilitate staff access to the network infrastructure. Icon Water reports this will improve its ability to meet safety requirements.

[29] Icon Water provided forecasts for the remaining work on the high voltage asset renewal project. We will conduct further analysis when we receive the final figures.

Efficiency

Efficiency capital expenditure projects work to reduce costs or improve the performance of an existing infrastructure asset. For expenditure in the current (2018-23) regulatory period, Icon Water estimates it spent $9.0 million ($2022-23) on efficiency-driven projects for sewerage. Icon Water spent $4.7 million or 107.7% more than the regulatory allowance. Icon Water noted the following about the efficiency driven projects during the current regulatory period:

- The higher than forecast capital expenditure has been primarily driven by expenditure to deliver upgrades to screen and ventilation at LMWQCC as a part of its solids handling works upgrades.
- The solar panels from the Solar Photovoltaic Program offset a significant proportion of the energy used at the treatment plant. This will reduce Icon Water's exposure to volatility in electricity pricing.

4.2.4 Non-system capital assets

Non-system assets include ICT, buildings, vehicles, and other investment which is not directly part of the water or sewerage network. Icon Water's investment in non-system assets during the 2018–23 regulatory period was $79.4 million ($2022-23), which is allocated between water (45%) and sewerage services (55%). This is $25.7 million ($2022-23) or 47.7% more than our regulatory allowance.

Notably, Icon Water spent 43% more than the regulated allowance on its AXLE-Asset Management and Maintenance Solution. This project upgraded and replaced the ICT systems which schedule work on assets and store asset information and maintenance history. We provide more information on Icon Water's overspending on this project in Table 4.2.

4.2.5 Our observations on actual capital expenditure

We have reviewed Icon Water's actual capital expenditure during the 2018-23 regulatory period. We note that Icon Water expects to overspend its capital expenditure allowance by 9%. In Attachment 7 of its proposal, Icon Water explains the reasoning for the increase in expenditure:

- the addition of unforeseen projects, including projects that were brought forward from the 2023–28 regulatory period. These were primarily projects on assets that were showing accelerated deterioration or prioritised ICT projects on which there are future dependencies
- increases in the scope of some projects during their development and implementation
- cost increase in some projects due to market conditions and limitations of early project estimates
- delays in the delivery of some projects that that were expected to occur prior to 2017–18.

The increase in expenditure was partially offset by deferral of expenditure into the next regulatory period, and project scope and cost decreases.

We do not determine which projects Icon Water should or should not undertake. This approach recognises the fluid nature of capital programs, and that Icon Water may need to re-prioritise its capital expenditure program in response to new circumstances over the course of the regulatory period. For example, Icon Water may need to undertake projects that it did not anticipate during the time of our investigation. Also, Icon Water may not need to complete some of the projects it proposed if circumstances change.

However, the reprioritised expenditure must meet the prudency and efficiency criteria before being added to the RAB. We summarise the findings of our consultant in relation to the aspect of Icon Water's capital expenditure in the following section.

4.2.6 Independent review of Icon Water's actual capital expenditure over 2018-23 period

MJA observed areas of increased spending when comparing the expected actual capital expenditure with our regulatory allowance across projects and programs. MJA reviewed the 2018-23 overall capital expenditure and selected a sample of projects and programs, to assess whether:

- it was prudent to bring forward of projects or program expenditure
- the increases in scope were to enable efficiencies as expenditure was incurred
- the market-based cost increases were reasonable, and
- the project delays were unavoidable.

Table 4.2 summarises the outcomes of MJA's assessment.

Table 4.2 Projects and programs selected for ex-post review

Project name	Our summary of MJA's assessment
LMWQCC High Voltage Asset Renewal	Icon Water renewed high voltage asset infrastructure at the LMWQCC. The project budget was $22.5 million, but the actual cost was $44.4 million. MJA found the significant increases in costs were due to understated estimates for the work. At the time, the project was at an earlier stage of the planning cycle with only indicative costings available. MJA considered that the competitive tender process for the project confirms that the project costs were reasonable.
Water main renewals (Hydraulic failures)	This project is part of an ongoing program to manage the performance of the water main network. The project budget was $29.5 million, but the actual cost was $30.7 million. MJA found that Icon Water accelerated the program in response to higher construction costs. This enabled administrative and overhead savings.
LMWQCC Tertiary Filters and Disinfection System Upgrade	This project involved renewal of the tertiary treatment filtration system at LMWQCC. The project budget was $24.1 million, but the actual cost was $30.6 million. MJA found that the overspend was due to scope increase, delays caused by COVID-19 and complexity of undertaking upgrade works on operational assets.
Minor assets	Minor Assets is a program to capture capital expenditure projects which are less than $100,000 in total project cost. The majority of expenditure relates to plant machinery and equipment, and computer equipment. The project budget was $8.5 million, but the actual cost was $10.3 million. * Icon Water has identified $935,000 of duplicated expenditure as part of this variance. Icon Water has recommended that this amount is excluded from the RAB roll forward.

AXLE-Asset Management and Maintenance Solution	Icon Water upgraded its asset management system, providing additional functionality and improving its operations data. The project budget for 2018-23 was $9.5 million, but actual costs were $16.8 million. Based on the information provided, MJA found costs exceeded the budget due to issues with the design and delivery of a large-scale ICT project. Despite higher costs, the original scope was not completed. MJA recommended the total cost of the project be adjusted by $6.6 million. This removes the costs related to issues with the project design and management, and scope not delivered.

Based on its analysis, MJA recommended $7.57 million ($2021-22) in adjustments to Icon Water's capital expenditure before this expenditure is added to the RAB. It comprises of $6.63 million ($2021-22) of adjustments for the AXLE program and $0.94 million ($2021-22) for minor assets projects.

Table 4.3 summarises the results of the MJA's review.

Table 4.3 Actual and independently reviewed prudent and efficient capital expenditure on water and sewerage, 2018-23 regulatory period ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Water						
Icon Water's proposal	36.1	48.6	39.3	24.4	28.3	**176.7**
MJA recommendation	32.8	48.3	39.1	24.4	28.3	**172.9**
Sewerage						
Icon Water's proposal	65.7	55.5	49.4	57.8	54.5	**282.9**
MJA recommendation	61.4	55.2	49.2	57.8	54.5	**278.1**
Total capital expenditure						
Icon Water's proposal	101.8	104.1	88.7	82.2	82.7	**459.6**
MJA recommendation	94.2	103.5	88.2	82.2	82.9	**451.0**

Source: Icon Water capital expenditure data for 2018-23. Marsden Jacob Associates (2022).

Note: Totals may not sum due to rounding. MJA recommendations were converted to $ nominal using an updated CPI index, which differs from the CPI index utilised by Icon Water in its proposal.

4.2.7 Our draft decision on historical capital expenditure

Our draft decision is to reduce the capital expenditure that will be added to the RAB by $7.1 million (nominal). Table 4.4 shows our draft decision on prudent and efficient capital expenditure for the period 2018-23. We seek stakeholder feedback on these findings ahead of our final decision.

Table 4.4 Draft decision on capital expenditure for Icon Water, 2018-23 regulatory period ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Water	32.8	48.3	39.1	24.4	28.3	**172.9**
Sewerage	61.4	55.2	49.2	57.8	54.5	**278.1**
Total capital expenditure	**94.2**	**103.5**	**88.2**	**82.2**	**82.9**	**451.0**

Source: Our calculations.

Note: Totals may not sum due to rounding. Figures were recalculated using an updated CPI index, which differs from the CPI index utilised by Icon Water in its proposal.

4.3 Capital expenditure for the period 1 July 2023 to 30 June 2028

4.3.1 Icon Water's proposal

Icon Water forecasts $673 million ($2021-22) in expenditure for its planned capital program over the 2023–28 regulatory period. This total figure comprises of:

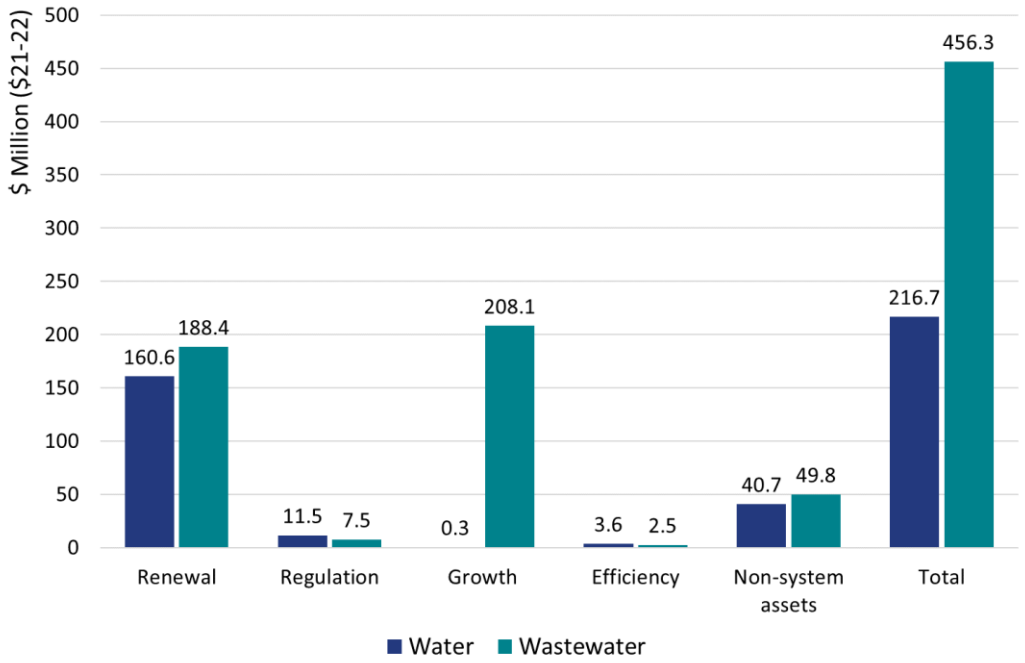
- $176 million ($2021-22) for water services assets
- $407 million ($ 2021-22) for sewerage investment
- $91 million ($ 2021-22) for non-system assets.

Icon Water forecasts $29.2 million ($2021-22) for capital contributions. We do not include capital contributions in the RAB because these projects are funded through the Capital Contribution Code.

The proposed net capital expenditure for the 2023-2028 regulatory period is 26.6% higher than the expected actual capital expenditure of $171.0 million ($2021-22) in the current regulatory period.

Figure 4.5 shows the proposed capital expenditure for water and sewerage by major cost drivers. The cost categories include renewals, growth, efficiency and regulation. The renewal category captures Icon Water's investments in maintaining, upgrading, renewing and replacing water and sewerage assets. Growth capital expenditure includes investments in new water and sewerage infrastructure. Projects designed to deliver cost savings are included in the efficiency category. Regulation includes project costs aimed at ensuring Icon Water's compliance with regulatory obligations.

Figure 4.5 Proposed capital expenditure for water and sewerage by funding driver, 2023-28 ($2021-22)



Source: Icon Water capital expenditure data for 2023-28.

Icon Water proposed capital expenditure across water and sewerage systems, including the following:

- The key driver for investment is renewal of assets which accounts for $349.0. This includes replacement of the existing furnaces at the LMWQCC, water and sewer mains renewals (renewal targets of 12.5km and 100km respectively) and a new pump station at the historic Cotter Pump Station site.
- The growth driven investment is dominated by one project, the upgrade of secondary treatment bioreactors at the LMWQCC, with proposed expenditure in the regulatory period of $179 million ($2021-22). This accounts for 86% of the proposed expenditure for growth.
- Water and sewerage expenditure to meet regulatory requirements and efficiency goals ($6.1 million ($2021-22)).
- Non-system asset expenditure of 13.5% ($90.6 million ($2021-22)), which is allocated between water (45%) and sewerage (55%).

Table 4.5 Icon Water's proposed capex for the 2023-28 regulatory period ($m, nominal) [30]

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water						
Renewal	68.3	50.9	42.2	26.4	32.6	220.4
Regulation	0.0	0.0	0.0	0.0	0.3	0.3
Growth	6.4	2.5	3.3	0.0	0.0	12.3
Efficiency	1.0	0.6	1.7	4.8	0.0	8.1
Total water capex	**75.7**	**54.0**	**47.2**	**31.2**	**33.0**	**241.1**
Sewerage						
Renewal	54.6	47.6	60.1	46.6	48.7	257.7
Regulation	20.3	24.4	33.9	73.8	86.8	239.2
Growth	4.6	3.1	2.4	1.9	0.0	12.1
Efficiency	0.9	0.9	2.5	5.3	0.1	9.6
Total wastewater capex	**80.4**	**76.0**	**98.9**	**127.7**	**135.6**	**518.6**
Total gross capital expenditure	**156.1**	**130.0**	**146.1**	**158.9**	**168.6**	**759.7**
Less capital contributions	3.0	14.4	4.7	4.5	6.0	32.7
Total net capital expenditure	**153.0**	**115.5**	**141.4**	**154.5**	**162.5**	**727.0**

Source: Icon Water capital expenditure data for 2023-28.

Note: Totals may not sum due to rounding.

4.3.2 Independent review of Icon Water's proposed capital expenditure for 2023-28 period

We engaged MJA to provide advice to inform our assessment of Icon Water's capital expenditure proposal.

The same criteria of prudency and efficiency were used to assess Icon Water's proposed capital expenditure for the forward period as were used for assessment of expenditure in the current period.

MJA raised concerns about the maturity of the projects and programs

MJA raised concerns in relation to the maturity of projects and programs that Icon Water included in its regulatory proposal. While prudency can be established early in the capital planning stage, the assessment of efficiency requires that sufficient documentation is provided to support a single solution with a well-

[30] Icon Water expressed its proposed capital expenditure forecast in real terms, in $2022-23.

defined scope of work and a robust cost estimate. According to Icon Water's Investment Planning and Deliver (IPAD) process (Figure 4.6), the availability of this documentation corresponds to the completion of the Plan Stage.

Figure 4.6 Icon Water's internal Investment Planning and Delivery (IPAD) process

The majority of programs and projects (68%) in Icon Water's proposal have not yet reached the Plan Stage, meaning they do not have a developed business case, option confirmed or detailed cost estimate. This hindered the assessment of efficiency of the proposed capital expenditure.

The early stage of development for a significant proportion of the proposed expenditure raises two key concerns:

- the accuracy of the cost estimate for the project
- the ability for the project to be delivered in the proposed timeframe.

Table 4.6 shows that 91% of the capital expenditure has an estimate range of +/-30% or greater, with 23% having a range of +/-75% or no estimate range according to Icon Water's own assessment.

Table 4.6 IPAD Stages, cost estimate range for proposed expenditure 2023-28 ($2021-22)

Stage	Cost Estimate	$million Total (2023- 2028)	Percentage of total (2023- 2028)
Identify	+/-100%*	18.5	3%
Envisage	+/-75%	134.1	20%
Evaluate	+/- 30%	459.3	68%
Plan	+/- 15%	18.9	3%
Develop	+/- 10%	31.3	5%
Execute	Monitor against approval	11.3	2%

Source: Marsden Jacob Associates (2022), p 112.

Note: *As referenced in Icon Water Attachment 7 Capital Expenditure Section 7.3.2., p 37.

In considering the efficiency of the proposed capital expenditure, MJA found the cost estimate too uncertain to balance the risk between Icon Water and its customers. MJA referenced the advice from the 2017 Calibre report, which raised similar concerns.

MJA identified several projects for which prudency or efficiency for all expenditure could not be established due to incomplete documentation, uncertain delivery, or concerns over the accuracy of cost estimates. In these instances, MJA included conservative cost estimates, noting that actual prudent and efficient capital expenditure will be rolled into its asset base at the end of the regulatory period.

MJA's review of top 10 major capital expenditure projects

MJA undertook a detailed review of 10 major capital expenditure projects. These projects represent 61% of Icon Water's proposed capital expenditure. MJA recommended adjustments to 6 projects. Table 4.7 summarises MJA's recommended adjustments and reasoning. The total reduction MJA recommended for these 10 projects is $24 million, or 5.8% of Icon Water's proposed capital expenditure for these projects.

Table 4.7 Selected significant capital projects – summary of recommended adjustments

Project name	Summary of MJA's assessment
LMWQCC Secondary Treatment Bioreactors Capacity Upgrade	The secondary treatment bioreactors are at capacity and require expansion to meet ACT population growth. Icon Water is proposing augmentation works to improve the capacity of its secondary treatment process and compliance with environmental standards. MJA had concerns that the level of detail is inadequate to assess the prudence of the timing of this project. Based on the increased risk of exceedance of secondary treatment capacity by 2030, MJA deemed the project as prudent. The project is currently in an early stage of development with options assessment not yet complete and only indicative costing available. MJA was comfortable with the cost estimate of $178.9 million that Icon Water proposed for the 2023-28 regulatory period on the basis that Icon Water deferred the contingency costs (30%) to the following regulatory period and will bear risk should the additional expenditure be required during the 2023-28 regulatory period.
LMWQCC Biosolids Management Renewal	Waste solids from the sewage treatment process at LMWQCC are processed using two furnaces. The furnaces are 45 years old and reaching their end of service life. Icon Water is proposing to replace furnaces, with $61.5 million allocated. MJA concluded that the project is needed, but the proposed timing of the expenditure is not prudent. MJA recommended delaying the construction phase resulting in expenditure of $57.6 million over the period for this project, a reduction of $3.89 million.
Sewer Mains Renewal Program	Icon Water is proposing to spend $58.8 million to undertake 20km of sewer main renewal per year for 5 years. MJA regarded this project prudent and efficient because it is similar in scope and costs compared to the same program in the current regulatory period and delivers similar outcomes.
Water Meter Renewals	Icon Water is proposing $31.1 million to install or replace an estimated 67,149 meters over the 5 years. MJA deemed program as prudent but considered that the forecast number of meters to install and replace is inefficient. MJA recommended an adjustment of $6.2 million (reducing the program total to $24.9 million) to align the program with the revised forecast of 53,434 meters – a 20% reduction on Icon Water's forecast of 67,149 meters.

Cotter Pump Station Upgrade	The historic Cotter pump station is unreliable, difficult to maintain and expensive to operate. Icon Water is proposing the construction of a new pump station at the existing cite to ensure that water from Cotter dam can be sourced by reliable means. MJA regarded the project to be prudent but considered some expenditure inefficient. MJA notes that $1.8 million of the additional overhead costs have not been identified as construction costs and are not related to additional internal costs associated with project delivery. MJA recommended an allowance for $23.5 million, which is $1 million above the Icon Water original proposal, but below its current forecast for the project at $27.7 million.
Vehicle Lease Renewals for Heavy Vehicle Fleet	Icon Water proposes to spend $12.9 million across 2023-28 to manage the renewal of its heavy fleet vehicles. MAJ notes that it does not agree with Icon Water's blanket renewal period approach as the most efficient way of managing its fleet. However, MJA advises that it is evident that Icon Water has underspent on the heavy vehicle fleet over the past 5 years and that the age and kilometre data of the vehicle suggest that it is reasonable to expect that 39 of the 48 heavy vehicle should be replaced during the 2023-28 regulatory period. However, MJA recommends reducing this allowance to $12.0 million. MJA notes that Icon Water overestimated its costs.
Asset Management Information System	Icon Water proposes $12.3 million to improve its information systems. MJA has deemed the project prudent, however MJA advises that there is 'very little' supporting information to deem the project as efficient. But, MJA recommends allowing $12.3 million be allowed as Icon Water's proposal is 'clearly more efficient' than replacing the current Oracle solution.
Water Main renewals (structural failures)	Icon Water is proposing to spend $12.2 million to undertake 2.5 km of water main renewal per year for 5 years. MJA regarded the proposed level of water main renewals as prudent. The cost estimate for the delivery of the program is based on the costs to complete similar works in the current period.
Office Expansion Space Utilisation	This project is to relocate approximately 40 staff from current premises when the lease expires in December 2024. MJA considered that the project is not sufficiently developed to allow a $12.7 million expenditure in the 2023-2028 regulatory period. MJA recommend temporarily accommodating staff into existing office space. MJA provided an allowance for development funds in the 2023-28 to strategically plan this project. MJA recommended a reduction of $10.5 million, resulting in expenditure of $1.4 million over the regulatory period for this project.

Lower Red Hill Reservoir Tank B (East)	Icon Water is proposing to replace Lower Red Hill reservoir because its condition deteriorated to the extent that it had to be permanently removed from service to prevent catastrophic failure. This led to an approximately 20% reduction in storage capacity and a reduction in system resilience for South Canberra Pressure Zone. MJA deemed this project as prudent but raised concerns that the proposed costs are higher than costs for similar storage tanks across other water utilities, and recommended adjustments of $3.5 million (reducing the project total to $8.4 million). MJA noted that their analysis had to rely on a number of assumptions due to lack of detail in relation to of the project option, cost estimate and delivery approach.

MJA's review of the remaining capital expenditure program

Setting aside the 10 major projects that received individual reviews by MJA, Icon Water's proposal for the remaining projects and programs is $259.5 million ($2021-22). This represents 39% of Icon Water's proposed capital expenditure.

As discussed in section 4.3.2 of the MJA's report, only 15% of projects have reached the Plan to Execute Stages. For year 1 (2023-24) this is higher, with 38% of projects in the Plan, Develop or Execute stages, however this drops to only 12% in Year 2. MJA considers that the increased value of the proposed capital expenditure program (i.e., 38% above current levels) together with the low maturity of the projects linked to this expenditure, creates a degree of risk that Icon Water will not be able to deliver the planned program of works in the regulatory period. This informed its prudence assessment.

MJA recommended the following adjustments:

- **Prudence adjustment**. MJA recommended a reduction of $24.3 million across the remaining capital expenditure program. MJA recommended to reprofile capital expenditure so that it aligns with a more realistic delivery timeframe. This adjustment reflects a prudence assessment and is about the timing of the expenditure and not an efficiency reduction in expenditure.
- **Efficiency adjustment**. MJA's recommendation on the efficiency of these projects is to apply a catch-up efficiency adjustment of 1%. MJA considers this adjustment appropriate due to the level of uncertainty in both the cost and timing of delivery. This represents a further reduction of $7.8 million.

MJA recommended an ongoing efficiency adjustment

As a final step, MJA have applied an ongoing efficiency target (2%) through the revised forecast to recognise that Icon Water will continue to improve its processes and practices and will make further efficiencies.

MJA considered that Icon Water applied a reasonable level of real cost escalation

MJA concluded that, in comparison to current inflationary indicators and construction sectors cost forecasts, Icon Water has applied a reasonable level of real cost escalation to its capital expenditure proposal. Icon Water note an intention to update the escalators following our draft decision to provide the most recent forecast.

Summary of MJA recommendations

Table 4.8 shows MJA's recommendations on Icon Water's proposed capital expenditure for the period 1 July 2023 to 30 June 2028. MJA recommended reducing Icon Water's proposed capital expenditure by $69.2 million ($2021-22) to $604.93 million ($2021-22).

To further support the case for the catch up and ongoing efficiencies, MJA emphasised that much of the Icon Water capital planning is very early in nature, often lacking scope development and robust options or risk analysis. This meant that MJA found many of the cost estimates be difficult to deem efficient.

Table 4.8 MJA recommended capital expenditure forecasts, $million, $2021-22

Capital expenditure adjustment	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Icon Water proposal	**147.31**	**118.73**	**129.22**	**136.52**	**141.72**	**673.51**
Adjustments						
LMWQCC Secondary Treatment Bioreactors Capacity Upgrade	-	-	-	-	-	0.00
LMWQCC Biosolids Management Renewal	(4.52)	(2.22)	(16.67)	3.16	16.36	(3.89)
Sewer Mains Renewal Program	-	-	-	-	-	0.00
Water Meter Renewals	(1.25)	(1.25)	(1.25)	(1.25)	(1.25)	(6.24)
Cotter Pump Station Upgrade	0.91	0.09	-	-	-	1.00
Vehicle Lease Renewals for Heavy Vehicle Fleet	(0.21)	0.12	(0.48)	(0.29)	-	(0.86)
Asset Management Information System	-	-	-	-	-	0.00
Water Main renewals (structural failures)	-	-	-	-	-	0.00
Office Expansion Space Utilisation	(6.18)	(4.32)	-	-	-	(10.50)
Lower Red Hill Reservoir Tank B (East)	(1.41)	(2.11)	-	-	-	(3.51)
Reprofiled capital expenditure (Excluding top ten projects)	(33.09)	(29.42)	(5.11)	19.02	24.32	(24.29)
Sub total of adjustments	**(45.75)**	**(39.11)**	**(23.50)**	**20.64**	**39.43**	**(48.29)**
Revised total	**101.56**	**79.62**	**105.72**	**157.16**	**181.15**	**625.21**
Catch up Efficiency target - 1% pa (Excluding top 10 projects)	(0.31)	(0.71)	(1.37)	(2.39)	(3.15)	(7.94)
Continuing efficiency target - fixed 2%	(2.03)	(1.58)	(2.09)	(3.10)	(3.56)	(12.35)
Total of adjustment	**(48.08)**	**(41.40)**	**(26.96)**	**15.15**	**32.72**	**(68.58)**
Revised total inc. efficiency targets	**99.23**	**77.33**	**102.26**	**151.67**	**174.44**	**604.93**

Source: Icon Water capital expenditure data for 2018-23. Marsden Jacob Associates (2022).

Note: Totals may not sum due to rounding.

4.3.3 Our draft decision capital expenditure allowance for 2023-28 period

We considered a range of information sources to develop our draft allowance for Icon Water's capital expenditure for the regulatory period 1 July 2023 to 30 June 2028. We used Icon Water's regulatory proposal as a starting point for our assessment. Icon Water's consumer engagement provided additional information on consumer support for projects and programs.

We note MJA's concerns that many projects Icon Water included in its capital expenditure program are in the early stages of the capital planning process. As a result, detailed business cases are yet to be developed, and therefore detailed information about those projects was not available for MJA's review.

We found that Icon Water responded to the uncertainties in its forward capital program by adopting the following approaches:

- Icon Water prepared documentation as per the IPAD process and timelines. The IPAD process is designed to achieve consistent decision-making, identify and manage risks, ensure efficient project delivery and control the progressive release of funding based on stage-by-stage justification. This process aligns with good industry practice.
- Icon Water used a conservative cost estimate for the 2 major projects - the bio solid furnace replacement and the capacity increase to bioreactors at the Lower Molonglo sewage treatment plant. Due to risks associated with the timing of the delivery of these two major projects, it has chosen not to pass that risk to customers via 2023-28 customer prices.
- Icon Water utilised unit rates where ongoing programs of work are being continued (e.g., sewer and water mains renewal). MJA's review confirmed that these unit rate are reasonable.

Icon Water's documentation confirms that a lot of unavailable information, including business cases, options analysis, and robust cost estimates, is expected to become available over the course of the 2023-28 regulatory period. We will consider whether Icon Water's capital expenditure has been prudent and efficient when the next investigation takes place in 2027.

We do not consider that information deficiencies in themselves should be used as the basis for reducing Icon Water's proposed capital expenditure. Our approach to addressing the issues relating to information availability for a regulatory determination process are outlined in section 4.3.5.

We have accepted MJA's recommended adjustments to the 10 major projects

MJA's detailed project reviews concluded that $25 million of expenditure should be removed from Icon Water's capital expenditure forecast as a result of the application of the prudency and efficiency tests. We agree that MJA's recommended adjustments are sufficiently justified based on the information available. We have adopted these adjustments for our draft decision.

We have accepted MJA recommendation to reprofile expenditure for remaining projects and programs

We note that Icon Water proposed a very large capital program for the 2023-28 regulatory period. There is uncertainty about Icon Water's capacity to complete the proposed forward capital expenditure program within the upcoming regulatory period given the state of current planning. MJA examined these uncertainties carefully, and we scrutinised them at length before arriving at our draft decision.

MJA assessed Icon Water's ability to deliver on the top 10 projects or programs as part of the individual assessment. MJA addressed the ability to deliver the remaining projects and programs, representing 39% of

the capital expenditure, by reprofiling the delivery timeframe to allow sufficient time to develop the projects. We accept MJA's findings and consider it prudent to reprofile the proposed capital expenditure (excluding the top major 10 projects) to align with a more realistic delivery timeframe.

We have decided to apply an efficiency adjustment of 2.3% to the remaining projects and programs

We note that MJA recommended applying a catch-up efficiency adjustment to capital expenditure excluding the top 10 projects and programs. This is to address the low maturity of asset management processes, the improvements required to asset management data and the limited data used to develop cost estimates (including options not selected).

Our draft decision is not to adopt MJA's recommended catch-up efficiency. We consider it more appropriate to make an adjustment to Icon Water's proposed capital expenditure excluding the top 10 projects. We have decided reduce reprofiled capital expenditure in each year of the next regulatory period by 2.3%.

We arrived at 2.3% figure through investigating MJA's recommendations in relation to the top 10 projects. Specifically, MJA's recommended adjustments relating to the efficiency criteria alone constitute a 2.3% reduction across these 10 projects. We consider it appropriate to extend this efficiency adjustment to the remaining capital expenditure portfolio.

We note that several projects Icon Water proposed for the forward period are funded through the Capital Contribution Code. We adjusted these projects on the same basis.

We have not accepted MJA's recommended ongoing efficiency adjustment

Our draft decision identified project-specific efficiency adjustments in relation to the 10 major projects, as well as a 2.3% efficiency adjustment across the remaining capital portfolio. On this basis, we decided not to accept MJA's recommended ongoing efficiency adjustment.

We will consider this further before making our final determination.

Summary of our draft decision adjustment to Icon Water proposed capital expenditure

For this draft report, we have adjusted Icon Water's capital expenditure proposal to account for the latest inflation. This section summarises our understanding of Icon Water's proposal based on the latest inflation data and our draft decision.

Our draft decision is to approve a net capital expenditure allowance of $685.5 million ($nominal) for Icon Water for the period 1 July 2023 to 30 June 2028. This represents a reduction of $50.7 million or 6.9% to the capital expenditure program proposed by Icon Water. This reduction relates to the following components that we have adjusted:

- 10 major projects that received individual reviews
- the remaining capital program.

Our draft capital expenditure allowance for Icon Water does not represent the amount that Icon Water is required to spend or allocate to particular projects. Where we made an adjustment to exclude a project's capital expenditure from Icon Water's capital expenditure program, we are not requiring Icon Water to remove that project. Rather, it represents our view about the overall level of expenditure (to be recovered through prices) that we consider sufficient to operate the business and to maintain or improve services

over the regulatory period. Icon Water determines how to best manage the allocation of funds and the prioritisation of its expenditure within a regulatory period. Table 4.9 summarises our draft decision on capital expenditure.

Table 4.9 Draft decision capital expenditure for 2023-28 regulatory period ($ nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Icon Water proposed capex, gross	156.9	131.1	147.9	161.5	171.9	769.3
Capital contributions	3.1	14.6	4.7	4.6	6.2	33.1
Icon Water proposed capex, net	153.8	116.6	143.2	157.0	165.7	736.2
Top 10 major projects	88.7	59.3	89.7	113.0	125.1	475.7
Adjustments	(13.5)	(10.7)	(21.0)	1.9	18.4	(25.0)
Remaining program (excluding top 10 projects)	68.2	71.9	58.2	48.6	46.8	293.6
Adjustments	(36.0)	(33.4)	(7.1)	20.6	28.3	(27.7)
Total Adjustments	(49.5)	(44.1)	(28.1)	22.5	46.7	(52.7)
Draft decision allowance, gross	**107.3**	**87.0**	**119.8**	**184.0**	**218.6**	**716.7**
Capital contributions	2.6	4.1	6.3	8.4	9.6	31.1
Draft decision allowance, net	**104.7**	**82.8**	**113.5**	**175.6**	**209.0**	**685.5**

Source: Icon Water (2022) and our calculations.

Note: Totals may not sum due to rounding. Capital escalation is included.

We recognise that some of the project-specific uncertainties raised in the current investigation might be resolved and welcome further engagement with Icon Water following release of the draft report.

We note that Icon Water has identified an error with how customer funded capital contributions have been accounted for in its regulatory proposal. Icon Water's forecast capital investment program excluded expenditure associated with Water and Sewerage Capital Contribution (WSCC) projects. We did not have time to fully consider this matter before finalising our draft report and will consider it in preparing our final report.

4.3.4 Additional information provided by Icon Water

In September 2022, Icon Water submitted a confidential memorandum which set out some amendments to its capital expenditure proposal. The amendments relate to both the actual capital expenditure incurred during the 2018–23 regulatory period and its capital expenditure proposed for the 2023–28 regulatory period. Specifically, Icon Water asked to make amendments to:

- remove a duplicate transaction, which caused historical capital expenditure to be overstated
- correct a calculation error in the vehicles forecast, which caused forecast capital expenditure to be overstated

- add the asset balance for leases which had been erroneously omitted from capital expenditure in 2019–20, which caused the expenditure to be understated. This amendment applies the change in accounting treatment under AASB 16 Leases effective 1 July 2019, which changed the classification of leases expenditure from operating expenditure to capital expenditure.

Some of these adjustments have previously been identified by Icon Water in information provided to MJA.[31] In particular, we note that:

- MJA became aware of a duplicate transaction and addressed it in their report.
- Icon Water advised MJA about two errors in the vehicles forecast, which overstated the cost estimate.[32]

Icon Water submitted new information (changes to AASB16), which we did not have time to consider in time for the releases of the draft report.

Since we did not have time to fully consider the requested amendments before finalising our draft report, we will consider the memorandum as a submission to the draft report and will assess the amendments in preparing our final report.

4.3.5 Preferred direction for future capital expenditure proposals

MJA raised concerns that Icon Water's staging of project development is aligned to the project lifecycle but does not consider the timeframes and the need for information to support regulatory determinations. We share this concern. We consider that most projects included in the regulatory proposal should be reasonably developed to give us, and Icon Water's customers, certainty that the proposed expenditure represents accurate funding requirements for the regulatory period.

We welcome Icon Water's feedback on the following suggestions for the next regulatory review:

- consider improving capital planning processes to accelerate them for the regulatory determination process. That is, once every five years undertake an accelerated capital planning process to progress more projects through the relevant gateways to detailed design, such that sufficient documentation is available to assess the efficiency of the project.
- avoid including in its price submission capital projects that are not fully scoped, costed or internally approved (via an approved business case, for example) at the time of preparing the regulatory proposal.
- publish long-term asset management plans on an annual basis. That is, at any point in time Icon Water will be working from a series of assumptions about how it will meet its current and future requirements; these assumptions will inform the expected profile of its future capital expenditure and should be shared with stakeholders.

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[31] We note that MJA's current recommended adjustment is not consistent with the figure that Icon Water submitted in its memorandum. Therefore, we need to undertake further analysis to understand what causes this difference.

[32] Marsden Jacob Associates (2022), p 158.

5. Regulatory asset base and depreciation allowance

The value of the regulatory asset base (RAB) is an integral component of the building block methodology. It is used in the calculation of both the return on capital and the depreciation building blocks that provide a return of capital.

This chapter sets outs our draft decision and the matters we considered in reaching this draft decision on the opening value and depreciation provisions for the water and sewerage RABs. This draft decision sets out:

- the value of the RAB for 1 July 2018 to 30 June 2023 regulatory period
- the value of the RAB for 1 July 2023 to 30 June 2028 regulatory period
- the depreciation based on forecast capital expenditure for establishing the RAB as at the commencement of the 2028-32 regulatory period

Our draft decision

For this draft report, we have adjusted Icon Water's RAB proposal to account for the latest inflation. Table 5.1 provides an overview of our draft decision on values of the RAB for Icon Water for the 2023-28 regulatory period, compared to the adjusted Icon Water proposal.

For this draft decision we have determined the opening water RAB as of 1 July 2023 at $1,689.4 million (nominal) and the opening sewerage RAB as at 1 July 2023 of $1,075.7 million (nominal).

We then roll forward that RAB by adding forecast capital expenditure and inflation and reducing the RAB by depreciation to arrive at a forecast closing value for the RAB as at the end of the 2023–28 regulatory period.

For this draft decision, we determine a forecast closing water RAB value on 30 June 2028 of $1,955.9 million (nominal) and a forecast closing sewerage RAB value on 30 June 2028 of $1,511.8 million (nominal). Our draft decision is $4.2 million (nominal) lower for water than adjusted Icon Water's proposal. For sewerage it is $9.5 million (nominal) lower than adjusted Icon Water's proposal.

Our final decision on the forecast closing RAB reflects the amended opening RAB as of 1 July 2023, and our draft decisions on the expected inflation rate (Chapter 6), forecast depreciation and forecast capital expenditure (Chapter 4).

Table 5.1 RAB values: adjusted Icon Water proposal and our draft decision, 2023-28 ($m, nominal)

Water services	Adjusted Icon Water proposal	Our draft decision	Difference
Water			
Opening water RAB on 1 July 2023	1,690.7	1,689.4	-1.3
Forecast closing water RAB on 30 June 2028	1,960.0	1,955.9	-4.2
Sewerage			
Opening water RAB on 1 July 2023	1,090.7	1,075.7	-14.9
Forecast closing sewerage RAB on 30 June 2028	1,521.3	1,511.8	-9.5

Source: Icon Water (2022) and our calculations.

Table 5.2 shows an annual breakdown of our draft decision on the value of RABs for water and sewerage services for the 2023-28 regulatory period.

Table 5.2 Our draft decision for water and sewerage RABs, 2023-28 regulatory period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Opening water RAB	1,689.4	1,755.4	1,802.4	1,850.0	1,902.8
Net capital expenditure	52.0	34.5	37.0	44.6	47.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	37.5	40.7	44.0	48.0	52.1
Indexation	51.5	53.2	54.6	56.2	57.8
Closing water RAB	**1,755.4**	**1,802.4**	**1,850.0**	**1,902.8**	**1,955.9**
Sewerage					
Opening sewerage RAB	1,075.7	1,125.1	1,168.7	1,238.5	1,360.8
Net capital expenditure	52.6	48.3	76.5	131.0	161.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	36.3	39.2	42.9	47.8	53.8
Indexation	33.1	34.5	36.2	39.1	43.2
Closing sewerage RAB	**1,125.1**	**1,168.7**	**1,238.5**	**1,360.8**	**1,511.8**

Source: Our calculations.

Note: Totals may not sum due to rounding.

Table 5.3 shows an annual breakdown of our draft decision on the value of RABs for water and sewerage services for the 2018-23 regulatory period.

Table 5.3 Our draft decision for water and sewerage RABs, 2018-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water					
Opening water RAB	1,511.5	1,539.0	1,574.9	1,603.9	1,661.0
Net capital expenditure	32.8	48.3	39.1	24.4	28.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	30.4	33.3	35.9	39.2	40.0
Indexation	25.2	20.9	25.9	71.9	50.2
Adjustment for 2017-18					-10.2
Closing water RAB	**1,539.0**	**1,574.9**	**1,603.9**	**1,661.0**	**1,689.4**
Sewerage					
Opening sewerage RAB	850.9	901.1	939.2	972.2	1,039.5
Net capital expenditure	61.4	55.2	49.2	57.8	54.5
Asset disposals	0.0	0.2	0.0	0.1	0.1
Forecast depreciation	25.7	29.3	31.8	34.8	37.0
Indexation	14.5	12.4	15.6	44.5	32.0
Adjustment for 2017-18					-13.2
Closing sewerage RAB	**901.1**	**939.2**	**972.2**	**1,039.5**	**1,075.7**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.1 Icon Water's proposal

Icon Water calculated the RAB values for the 2018-2023 and 2023-28 regulatory periods consistent with our methodology for rolling forward the RAB (Icon Water 2022, Attachment 8). However, as part of the roll-forward calculation, Icon Water's revenue model uses asset-specific lives for existing water and sewerage assets rather than the weighted average remaining life. We discuss this matter in section 5.4.

For this draft report, we have adjusted Icon Water's RAB proposal to account for the latest inflation. **Table 5.4** shows Icon Water's adjusted proposal on RAB values for water and sewerage for each year of the 2023–28 regulatory period.

Table 5.4 Icon Water's adjusted proposed RABs for water and sewerage, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Opening water RAB	1,690.7	1,776.6	1,838.8	1,892.0	1,926.4
Net capital expenditure	75.7	54.0	47.2	31.2	33.0
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	41.5	45.8	49.9	54.0	57.7
Indexation	51.8	54.1	55.9	57.2	58.3
Closing water RAB	**1,776.6**	**1,838.8**	**1,892.0**	**1,926.4**	**1,960.0**
Sewerage					
Opening sewerage RAB	1,090.7	1,160.6	1,213.3	1,296.5	1,406.6
Net capital expenditure	77.3	61.6	94.2	123.2	129.5
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	41.3	44.7	48.8	53.9	58.9
Indexation	33.9	35.7	37.8	40.7	44.1
Closing sewerage RAB	**1,160.6**	**1,213.3**	**1,296.5**	**1,406.6**	**1,521.3**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

Table 5.5 shows adjusted Icon Water's proposal on RAB values for water and sewerage for each year of the 2018-23 regulatory period.

Table 5.5 Icon Water's adjusted proposed RABs for water and sewerage, 2018-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water					
Opening water RAB	1,509.0	1,539.9	1,576.0	1,605.3	1,662.5
Net capital expenditure	36.1	48.6	39.3	24.4	28.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	30.4	33.3	35.9	39.1	40.0
Indexation	25.2	20.9	25.9	71.9	50.3
Adjustment for 2017-18					-10.4
Closing water RAB	**1,539.9**	**1,576.0**	**1,605.3**	**1,662.5**	**1,690.7**
Sewerage					
Opening sewerage RAB	859.6	914.2	952.8	986.3	1,054.3
Net capital expenditure	65.7	61.4	61.4	61.4	61.4
Asset disposals	0.0	0.2	0.0	0.1	0.1
Forecast depreciation	25.7	29.3	31.8	34.8	37.0
Indexation	14.7	12.6	15.8	45.1	32.4
Adjustment for 2017-18					-13.5
Closing sewerage RAB	**914.2**	**952.8**	**986.3**	**1,054.3**	**1,090.7**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.2 Methodology for rolling forward the RAB

The RAB is an important component of the building block methodology and is used in the calculation of the return on capital and the return of capital (depreciation). This requires an opening RAB for the start of the previous regulatory period and then an opening and closing RAB for each year of the next regulatory period.

The standard building block approach is to take the opening value of the RAB from the start of the previous regulatory period and roll it forward. This roll-forward is calculated for each year of the previous regulatory period by adding prudent and efficient actual capital expenditure, deducting forecast depreciation and actual asset disposals, and adding inflation indexation reflecting actual inflation. This establishes a RAB value at the end of the previous regulatory period, which then becomes the starting value for the next regulatory period. The RAB for each year of the next regulatory period (in this case 2023–28) is calculated with the same formula but using forecast capital expenditure, forecast asset disposals, forecast depreciation, and forecast inflation for the indexation adjustment.

The roll-forward calculation can be described as follows:

$$\begin{aligned} Opening\ RAB_{t+1} = {} & Opening\ RAB_t + Actual\ net\ capital\ expenditure_t \\ & - Actual\ asset\ disposals_t - Forecast\ depreciation_t \\ & + Actual\ inflation\ indexation_t \end{aligned}$$

Net capital expenditure is capital expenditure after allowing for capital contributions from other parties – for example, contributions received under the Capital Contribution Code.

One methodological consideration is that actual values are used for capital expenditure, asset disposals and inflation, but depreciation is based on forecast depreciation to establish the RAB at the start of the regulatory period. As long as the sum of depreciation that is recovered does not exceed the value of the capital expenditure, it is not necessary to use actual depreciation. This condition can be satisfied by the roll-forward methodology and the calculation of depreciation in terms of the recovery of residual values. This approach is consistent with the approach we used in our 2018 investigation.

Inclusion of actual capital expenditure in the RAB depends on the expenditure being assessed as prudent and efficient. Capital expenditure is reviewed in Chapter 5, and the results of the review are included in the calculation of the RAB in this chapter.

5.3 RAB values from 1 July 2018 to 30 June 2023 regulatory period

We calculate the RAB value for each year of the current regulatory period using the methodology described in section 5.2.

5.3.1 Adjustment for 2017-18

The opening RAB value for 2018–19 corresponds to the closing RAB value for 2017–18. The RAB value for 2017-18 must be adjusted to account for the differences between actual and forecast capital expenditure . This is because actual capital expenditure for 2017–18 was not known at the time of our last investigation, and we used forecast capital expenditure for the final year in the roll-forward calculation. These adjustments are shown in Table 5.6.

Table 5.6 Adjustments for differences between forecast and actual net capital expenditure for water and sewerage 2017–18 ($m, nominal)

Forecast	Water	Sewerage
Actual capital expenditure	34.1	68.2
Actual disposals	0.1	0.1
Actual net capital expenditure	34.0	68.1
Estimated capital expenditure	42.0	78.6
Estimated disposals	0.0	0.0
Estimated net capital expenditure (inflation adjusted)	41.8	78.2
Difference in net capital expenditure	-7.8	-10.1
Return on difference	-2.4	-3.1
Total adjustment	-10.2	-13.2

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.3.2 Actual net capital expenditure 2018-23

As detailed in the Chapter 4, we organised an independent review of Icon Water's proposal on capital expenditure to assess it for prudency and efficiency. As described in section 5.2.6, our draft decision resulted in an adjustment to Icon Water's capital expenditure to be rolled forward in the RAB. Table 5.7 shows the prudent and efficient capital expenditure in each year to be added to the RAB.

Table 5.7 Actual net capital expenditure for water and sewerage, 2018-19 to 2022-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water	32.8	48.3	39.1	24.4	28.3
Sewerage	61.4	55.2	49.2	57.8	54.5
Total net capital expenditure	**94.2**	**103.5**	**88.2**	**82.2**	**82.9**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.3.3 Actual asset disposals

Icon Water provided details of its asset disposals for the period 2018–23. Disposed assets are removed from the RAB. Asset disposals are shown in Table 5.8.

Table 5.8 Actual asset disposals for water and sewerage, 2018-19 to 2022-23 ($ nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water	4,620.4	8,426.0	1,265.0	4,770.5	4,770.5
Sewerage	4,620.4	213,178.0	873.0	72,890.5	72,890.5
Total disposals	**9,240.7**	**221,604.0**	**2,138.0**	**77,660.9**	**77,660.9**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.3.4 Forecast depreciation

We adjust depreciation to take into account differences between actual and forecast inflation during the regulatory period. Table 5.9 shows forecast depreciation including an adjustment for the difference between actual and forecast inflation.

Table 5.9 Forecast depreciation including an adjustment for the difference between actual and forecast inflation for water and sewerage, 2018-19 to 2022-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water	30.4	33.3	35.9	39.2	40.0
Sewerage	25.7	29.3	31.8	34.8	37.0
Total depreciation	**56.1**	**62.6**	**67.7**	**74.0**	**77.1**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.3.5 Actual indexation

The RAB is indexed to maintain its real value over time. When it is rolled forward from the start of the previous regulatory period, the convention is to use actual inflation. Our approach calculates inflation on an annual basis as the sum of the four quarters all groups CPI for the current period divided by the sum of the four quarters all groups CPI for the previous period, as follows:

$$CPI_t = \frac{CPI_{Sep(t)} + CPI_{Dec(t)} + CPI_{Mar(t)} + CPI_{June(t)}}{CPI_{Sep\,(t-1)} + CPI_{Dec(t-1)} + CPI_{Mar(t-1)} + CPI_{June(t-1)}}$$

For 2022–23 the CPI will be set to the forecast CPI, and the roll-forward for the next regulatory period will make an adjustment for the difference between forecast and actual inflation for 2022-23.

The indexation amount for each year is calculated as follows:

$$Indexation_t = CPI_t \times (Opening\ RAB_t + Net\ capital\ expenditure_t - Asset\ disposals_t)$$

Forecast depreciation does not enter the indexation calculation because it is adjusted separately for the difference between actual and forecast inflation, as described in section 5.3.4.

Table 5.10 shows the indexation amounts for 2018-23 regulatory period.

Table 5.10 Indexation of the RAB for water and sewerage, 2018-19 to 2022-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water	25.2	20.9	25.9	71.9	50.2
Sewerage	14.5	12.4	15.6	44.5	32.0
Total indexation	**39.7**	**33.3**	**41.5**	**116.4**	**82.2**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.3.6 Opening RAB for 2023-24

Table 5.11 shows the draft decision RABs for the regulatory period 2018–19 to 2022–23. We calculated these RAB values using the methodology and inputs described in section 5.2. Our calculations give an opening RAB for 2023–24 of $1,689 million for water and $1,075 million for sewerage.

Table 5.11 Draft decision water and sewerage RAB roll-forward, 2018-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water					
Opening water RAB	1,511.5	1,539.0	1,574.9	1,603.9	1,661.0
Net capital expenditure	32.8	48.3	39.1	24.4	28.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	30.4	33.3	35.9	39.2	40.0
Indexation	25.2	20.9	25.9	71.9	50.2
Adjustment for 2017-18					-10.2
Closing water RAB	**1,539.0**	**1,574.9**	**1,603.9**	**1,661.0**	**1,689.4**
Sewerage					
Opening sewerage RAB	850.9	901.1	939.2	972.2	1,039.5
Net capital expenditure	61.4	55.2	49.2	57.8	54.5
Asset disposals	0.0	0.2	0.0	0.1	0.1
Forecast depreciation	25.7	29.3	31.8	34.8	37.0
Indexation	14.5	12.4	15.6	44.5	32.0
Adjustment for 2017-18					-13.2
Closing sewerage RAB	**901.1**	**939.2**	**972.2**	**1,039.5**	**1,075.7**

Source: Icon Water (2022).

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.4 Asset lives and depreciation

We use remaining asset lives to calculate forecast depreciation for the next regulatory period. Remaining asset lives are calculated separately as part of the roll-forward calculation.

Forecast depreciation is calculated on a straight-line basis, which allows for an equal proportion of the asset's value to be calculated over each year of the asset's useful life. This is the same approach as used by other economic regulators in Australia.

We use 'economic lives' of assets to calculate depreciation, with a weighted average asset life used for 'existing' water and sewerage assets, and asset-specific lives used for 'existing' water security assets and all new capital expenditure. In its submission, Icon Water notes that it has used the same approach. However, Icon Water's revenue model uses asset-specific lives for existing water and sewerage assets rather than the weighted average remaining life.

Because weighted average asset life is dominated by long-life assets, using it has the effect of recovery of capital over a longer life. In comparison, Icon Water's approach of asset-specific lives has the effect of recovery of capital over a relatively short life and its approach inflates the depreciation amount with consequential effect on the other building block components.

Our draft decision is to retain the approach of using a weighted average asset life for existing water and sewerage assets, and asset-specific lives for water security assets and new capital expenditure.

Table 5.12 shows the economic asset lives for new capital expenditure.

Table 5.12 Economic asset lives for water, sewerage and water security assets (years)

Water asset classes	Range of economic asset lives
Efficiency	5-25
Growth	10-80
Regulation	10-50
Renewal	5-50
Sewerage asset classes	**Range of economic asset lives**
Efficiency	10-60
Growth	10-80
Regulation	10-50
Renewal	5-80
Water security assets	**Range of economic asset lives**
Dams and weirs	150
Water mains	100
Valves and pump sets	25-30
Meters	10-20

Source: Icon Water (2022).

5.5 RAB values for 2023-28 regulatory period

The roll-forward calculation for each year of the 2023–28 regulatory period uses the following formula:

$$Opening\ RAB_{t+1} = Opening\ RAB_t + Forecast\ net\ capital\ expenditure_t - Forecast\ asset\ disposals_t - Forecast\ depreciation_t + Forecast\ inflation\ indexation_t$$

The opening RAB value for the 2023-28 regulatory period is the closing RAB value for the last year of the 2018-23 regulatory period, as provided in Table 5.11.

The RAB is indexed for each year of the forward regulatory period by forecast inflation. To avoid double-counting for inflation if a nominal rate of return is used, a separate adjustment is made to the return on capital to deduct forecast inflation. This approach in effect leads to a flatter profile of capital charges than if the asset base is not indexed, but it does not change the present value amount of capital charges.

The indexation amount for each year is calculated as follows:

$$Indexation_t = Forecast\ CPI_t \times (Opening\ RAB_t + Net\ capital\ expenditure_t - Asset\ disposals_t)$$

5.5.1 Net capital expenditure 2023-28

In making our draft decision on the value of the water and sewerage RABs, we took account of independent consultant MJA's expert advice on the prudency and efficiency of the Icon Water proposed forecast capital expenditure. Chapter 4 provides details of the forecast capital expenditure program. On the basis of this, our draft decision on forecast efficient net capital expenditure is set out in Table 5.12.

Table 5.12 Our draft decision on forecast efficient net capital expenditure for water and sewerage, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	52.0	34.5	37.0	44.6	47.3
Sewerage	52.6	48.3	76.5	131.0	161.6
Total net capital expenditure	**104.7**	**82.8**	**113.5**	**175.6**	**209.0**

Source: Our calculations.

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.5.2 Forecast depreciation

We calculated forecast depreciation as described in Section 5.4. The resulting depreciation forecasts for the water and sewerage assets for the period 2023–28 are presented in Table 5.13.

Table 5.13 Our draft decision on forecast depreciation for water and sewerage, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	37.5	40.7	44.0	48.0	52.1
Sewerage	36.3	39.2	42.9	47.8	53.8
Total depreciation	**73.8**	**79.9**	**86.8**	**95.8**	**105.9**

Source: Our calculations.

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.5.3 Forecast asset disposals

There are no forecast asset disposals proposed for the 2023–28 period.

5.5.4 Indexation

Table 5.14 sets out our draft decision on the provision to be made for indexation in the forward regulatory period.

Table 5.14 Our draft decision on forecast indexation for water and sewerage, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	51.5	53.2	54.6	56.2	57.8
Sewerage	33.1	34.5	36.2	39.1	43.2
Total indexation	**84.5**	**87.6**	**90.8**	**95.3**	**101.0**

Source: Our calculations.

Note: Totals may not sum due to rounding. An updated CPI index applied.

5.5.5 RAB values for 2023-28 regulatory period

Our draft decision on the RAB roll-forward in the 2023–28 regulatory period for water and sewerage assets, using each of the input values discussed above, is shown in Table 5.15.

Table 5.15 Our draft decision for water and sewerage RABs, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Opening water RAB	1,689.4	1,755.4	1,802.4	1,850.0	1,902.8
Net capital expenditure	52.0	34.5	37.0	44.6	47.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	37.5	40.7	44.0	48.0	52.1
Indexation	51.5	53.2	54.6	56.2	57.8
Closing water RAB	**1,755.4**	**1,802.4**	**1,850.0**	**1,902.8**	**1,955.9**
Sewerage					
Opening sewerage RAB	1,075.7	1,125.1	1,168.7	1,238.5	1,360.8
Net capital expenditure	52.6	48.3	76.5	131.0	161.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	36.3	39.2	42.9	47.8	53.8
Indexation	33.1	34.5	36.2	39.1	43.2
Closing sewerage RAB	**1,125.1**	**1,168.7**	**1,238.5**	**1,360.8**	**1,511.8**

Source: Our calculations.

Note: Totals may not sum due to rounding. An updated CPI index applied.

6. Rate of return and tax liability allowance

As discussed in chapter 2, we apply a 'building block' model to set regulated revenues for water and sewerage services that Icon Water provides. We calculate the 'return on capital' building block by multiplying the regulatory asset base (RAB) by the rate of return set by the commission. As Icon Water holds large high-value capital assets in its RAB (such as dams and pipelines), the return on capital accounts for around 25% of Icon Water's total revenue.

In our 2018 Price Direction, we identified a review of methodologies for the Weighted Average Cost of Capital (WACC) as a reset principle. In 2021, we concluded and published this review on our website[33]. In our final decision on the WACC methodology, we specify how we will estimate:

- the return on debt
- the return on equity
- the overall rate of return
- the forecast inflation rate.

In forming our draft decision, we applied our WACC methodology.

Our draft decision

Our draft decision results in a rate of return of 5.85% (nominal) and a forecast inflation rate of 3.0%. A different rate of return will apply for the remaining regulatory years of the period. Each year, we will update the return on debt component by using a 10-year trailing average portfolio, which we will roll-forward. Based on the most up-to-date information available at the time, we will update the estimate of the rate of return and the expected inflation in our final report.

Our draft decision is to:

- accept the return on debt averaging periods proposed by Icon Water because they are consistent with our WACC methodology
- determine inputs to our WACC methodology using the benchmarking approach as explained in our WACC review final decision
- not accept Icon Water's proposed value of imputation credits of 0.25. Instead, we adopt a value of imputation credits of 0.5.

We set out the individual components of the WACC in Table 6.1 below.

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[33] Review of methodologies for the WACC, Final report, April 2021 https://www.icrc.act.gov.au/__data/assets/pdf_file/0011/1750295/WACC-final-report.pdf

Table 6.1 Draft decision: rate of return and net tax liability parameter values

	2018 Decision	Icon Water's proposal		Draft decision	Comment
		As proposed	Adjusted for recent data[34]		
Risk free rate	2.8%	2.2%	3.38%	3.38%	
Debt raising cost	0.125%	0.108%	0.108%	0.108%	
Equity beta	0.7	0.7	0.7	0.7	
Market risk premium	6.5%	6.1%	6.8%	6.5%	6.1% is based on 2018 data. In Attachment 9 of its proposal, Icon Water notes that it considers 6.8% more reasonable based on recent data
Gearing ratio	60%	60%	60%	60%	
Return on equity	7.34%	6.48%	8.14%	7.93%	Constant
Return on debt	4.75%	4.18%	4.46%	4.46%	Updated annually
Nominal post-tax 'vanilla' WACC	5.78%	5.10%	5.93%	5.85%	Updated annually for return on debt
Gamma	0.4	0.25	0.25	0.5	We adopted the 'utilisation' approach

Source: Icon Water's price submission, Attachment 9 Rate of return and forecast inflation

Notes: Risk free rate is calculated using a placeholder averaging period of 40 business days ending 31 August 2022.
Return on debt is calculated using a placeholder averaging period of 2 months ending 31 August 2022.
Return on debt of 4.75% applied to the first year of the 2018–28 regulatory control period.

6.1 Our WACC methodology

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:

- **return of equity**: the return that Icon Water's shareholders require on their investments
- **return of debt**: the interest rate that a business pays on its borrowings from banks and other lenders

The combination of the estimated return on equity and return on debt, weighted by the estimated shares of equity and debt for the business, comprises the 'weighted average cost of capital' (WACC). For regulatory decision making, the WACC is a common method to determine the rate of return.

The rate of return is a significant driver of Icon Water's revenue and therefore of the water bills paid by customers. A one percentage point increase in the rate of return for Icon Water would increase its revenues by around 8%.

[34] We have adjusted Icon Water's proposal to account for the latest data for the risk-free rate and the cost of debt and to reflect the market risk premium of 6.8%, the value that Icon Water suggested is reasonable considering the most recent information. This column summarises our understanding of the adjusted Icon Water's proposal.

In 2021, we reviewed our methodology for determining Icon Water's WACC. We confirmed the overall rate of return framework that 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 weighted average cost of capital formula, measured on a nominal vanilla basis
- adopt a post-tax methodology, which requires separate estimates of tax expenses.[35]

We largely confirmed our approach to estimating the parameters for the return on equity and made small refinements to how we determine the parameters for the return on debt.

In this draft decision, we applied our 2021 methodology in estimating the WACC and determined parameter values for the return on equity and return on debt. We summarise our methodology for calculating the rate of return and its components in Table 6.2 below.

Table 6.2 Summary of our WACC methodology

Parameter	WACC methodology
WACC	
Estimation approach	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. Updated annually (to reflect annually updated return on debt)
Gearing	Benchmarking approach (see section 6.3)
Return on debt	
Estimation approach	10-year trailing average, updated annually
Benchmark term	10 years
Benchmark credit rating	Benchmarking approach (see section 6.5.2)
Third party data series	Reserve Bank of Australia (RBA) and Bloomberg
Weighting	Equal weights
Return on debt averaging period	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
Return on equity	

[35] ICRC 2021, p. 12

Estimation approach	The Sharpe-Lintner Capital Asset Pricing Model formula $E(Re) = E(Rf) + \beta e[E(Rm) - E(Rf)]$, 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.
Market risk premium	Benchmarking approach (see section 6.4.2)
Equity beta	Benchmarking approach (see section 6.4.3)
Risk free rate	A 40-day average of the yield on Commonwealth Government Securities with a 10-year term to maturity
Risk free rate averaging period	As close as practical to the start of the regulatory period
Inflation	A linear glide-path from the RBA's forecasts of inflation for years 1 and 2 to the mid-point of the inflation target band (2.5%) in year 5

6.2 Icon Water's proposal

Icon Water proposed a placeholder rate of return of 5.10% (estimated at 1 May 2022) and a placeholder inflation rate of 2.62%.

Icon Water proposed a return on equity estimate of 6.48%, using an equity beta estimate of 0.7 and the market risk premium of 6.1% based on long term historical data (1988 to 2017) that was used by the Australian Energy Regulator (AER) for developing its 2018 rate of return instrument.

Icon Water proposed a return on debt estimate of 4.18%, subject to annual updating, using the trailing average approach.

Icon Water acknowledged that for the draft decision we will estimate the return on debt, the return on equity, and the overall rate of return consistent with our 2021 WACC methodology.

For this draft report, we have adjusted Icon Water's proposal to account for the latest data for the risk-free rate and the cost of debt and to reflect the market risk premium of 6.8%, the value that Icon Water suggested is reasonable considering the most recent information. The adjusted Icon Water's proposed WACC is 5.93%. This compares to Icon Water's original estimate of 5.1%.

6.3 Gearing

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.

Consistent with our WACC methodology, we applied a benchmarking approach based upon consideration of regulatory decisions made by other Australian regulators to determine the gearing ratio. Table 6.3 shows that Australian regulators have consistently used a gearing ratio of 60% for calculating the return on capital for businesses providing regulated water services and regulated energy services.

Table 6.3 Benchmark gearing in Australian regulatory decisions

Regulator	Decision date	Industry	Gearing (debt %)
ESC (VIC)	August 2022	Water	60
AER	June 2022	Gas and electricity	60
ERA (WA)	June 2022	Gas	55
QCA (QLD)	March 2022	Water	60
OTTER (TAS)	February 2022	Water	60
IPART (NSW)	September 2021	Water	60
ESCOSA (SA)	June 2020	Water	60

Source: ESC 2022, p. 37; AER 2022, p. 9; ERA 2022, p. 4 ; QCA 2022, p. 62; OTTER 2022, p. 77; IPART 2021, p. 221; ESCOSA 2020, p. 209.

Icon Water's proposed gearing ratio

Icon Water proposed to maintain a gearing ratio of 60%.

Our draft decision

In maintaining a gearing estimate of 60%, we remain consistent with recent regulatory decisions for Australian water businesses. Therefore, we adopted a gearing ratio of 60% for our draft decision.

6.4 Return on equity

We establish the rate of return on equity by applying the widely used capital asset pricing model. This model consists of three parameters – a risk free rate, a market risk premium, and an equity beta parameter. We set out our draft decisions on the values of these parameters in this section.

6.4.1 Risk free rate

Icon Water estimated a risk-free rate of 2.2% for the 40-day averaging period ending 20 April 2022.

We have used a placeholder risk-free rate of 3.38% for the draft decision. We will update this value before the final decision to reflect the relevant estimate at a period as close as possible to the start of the 2023-28 regulatory period.

6.4.2 Market risk premium

The market risk premium (MRP) measures the extent to which the expected return on the market portfolio exceeds the risk-free rate. We interpret it 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. The MRP functions as a general market parameter that does not vary with different investments or specific firms.

We estimate the market risk premium using a benchmarking approach based on consideration of recent regulatory decisions made by other Australian regulators. Our final decision on our WACC methodology review discusses the criteria we consider as desirable for determining the market risk premium through a benchmarking process. These include:

- consideration of a broad range of methods for estimates, including historical estimates and forward-looking estimates based on dividend growth models (DGM)
- preference to use arithmetic averages over geometric averages when estimating historical excess returns
- use of caution when considering estimates that are heavily based on dividend growth models.

At the time of making our final decision on the WACC methodology, we considered the QCA approach as the most appropriate. The QCA has since revised its approach. We discuss changes in the QCA approach and other recent regulatory decisions on the MRP made by Australian regulators below.

Recent regulatory developments

In this section we discuss recent determinations made by Australian regulators which have estimated the MRP.

QCA 2021 Rate of return review

During the review of our WACC methodology, we considered the QCA approach. We found this approach was the most appropriate for estimating the MRP. The QCA approach used forward-looking estimates together with estimates from four other historical and hybrid approaches. Further, QCA's approach, considered the mean, median and weighted mean of the collected values.[36] This method provided a robust and stable approach. It reduced volatility and allowed the MRP to reflect prevailing market conditions.

However, the QCA has since decided to solely rely on historical data in determining the MRP. In its 2021 rate of return review report, the QCA states that it no longer considers other methods suitable for its regulatory task. The QCA considered that estimates from the dividend growth model (DGM) remain relevant. However, given the limitations of these models, the QCA will use its estimates to provide directional guidance at the cost of equity level and not for directly determining the MRP. The change in the QCA's position on DGMs represents a shift in approach since we considered the QCA's estimate as the most appropriate.

In its 2022 decision for Seqwater, QCA estimated the MRP at 6.5%. This number is the arithmetic average of historical excess returns for the period 1958 to 2020. QCA calculated the MRP using an assumed imputation utilisation value (or theta value) of 0.55.

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[36] QCA (2020) applied the following set of weights: historical excess returns (25%), dividend growth model (25%), Siegel method (15%), Wright method (15%) and surveys (20%) to calculate the weighted average MRP estimate.

AER's 2022 draft rate of return instrument estimates

In its 2022 draft rate of return instrument, the AER estimated the MRP using 5-year and 10-year risk-free rate yield data. We adopt a 10-year term for the MRP. Therefore, we only discuss the AER's estimates that are consistent with our WACC methodology.

The AER's draft decision uses the historical excess returns (HER)[37] method to estimate the value of the MRP. The AER has estimated the MRP of 6.5% using a 10-year term. This number is the arithmetic average of historical excess returns for the period 1988 to 2021. The AER calculated it using an assumed imputation utilisation value (or theta value) of 0.65.

The AER's prefers to use historical excess returns as a primary method to set the MRP for the duration of its instrument. However, it also considered an option which gives greater weight to dividend growth models. The AER's preferred DGM version (i.e., 3-stage DGM) gives an estimate of the MRP of 6.1%. Under this option, the AER would apply a 50% weight to the MRP from historical excess returns and a 50% weight to the MRP from the 3-stage DGM. Based on a 10-year term, the AER estimated an MRP of 6.3%.

We note that the AER continues to have concerns about the suitability of DGMs for its regulatory task. The DGMs produce estimates that are very sensitive to input assumptions.[38] To address this concern, the energy network sector proposed a calibrated version of the DGM for AER's consideration. The AER recognised that the calibrated DGM has merit. However, at the time, the AER advised they did not sufficiently understand the calibrated DGM's performance and therefore decided to not use it.

ERA 2022 draft gas rate of return instrument

In its 2022 draft gas rate of return instrument, the ERA estimated an MRP of 6.2% using a 10-year term. The ERA had regard to the following sources of evidence:

- The ERA estimated an MRP of 6.0% using the historical excess returns method. The ERA based the estimate of 6.0% on estimates derived from 4 overlapping sampling periods. The ERA applied a 60% weight to the estimate based on the arithmetic average and a 40% weight to the estimate based on the geometric average. The ERA calculated the MRP using an assumed imputation utilisation value (or theta value) of 0.6.
- The ERA estimated an MRP of 6.9% from its preferred version of the dividend growth model (2-Stage DGM).
- The ERA considered that conditioning variables[39] are currently at their historic averages and support a market risk premium at the midpoint of the range from historical estimates.

The ERA applied its regulatory discretion to select the MRP point estimate of 6.2% for the 2022 draft gas instrument. The DGM received less weight due to the ongoing concerns the ERA has about the proper implementation of the DGM given the issues surrounding input assumptions, forecasts, and variability of output.

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37 The historical excess returns (HER) approach involves estimating the excess market return for each year of a long historical period by taking the return on a broad stock market index over the year and subtracting the return that could have been earned on government bonds over that same year. An average excess return over the historical period is then used as an estimate of the average MRP for that period.

38 AER 2022, p. 142.

39 Conditioning variables (such as implied volatility, dividend yields and credit spreads) are market data indicators that provide information on the potential risk in the market.

IPART 2018 WACC methodology

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

IPART combines a current estimate of the risk-free rate with a current MRP estimate to approximate the current market price of equity. IPART combines the historic estimate of the risk-free rate with a historic MRP estimate to approximate the historic average market price of equity. IPART then allocates equal weight to its long-term and current estimates of the required return on equity to determine its overall return on equity allowance.

To calculate the MRP, Icon Water uses:

- a historical excess returns method to determine a long-term estimate of the MRP. In its recent decisions, IPART adopted an estimate of 6.0% from a range of historical estimates[40]
- a few variations of the dividend growth models to determine a single point estimate of the current (forward-looking) MRP. In its 2021 decision for the Water Administration Ministerial Corporation (WAMC), IPART adopted a forward-looking MRP of 7.9%.

In our 2021 WACC review, we considered that IPART's method of giving equal weighting to a heavily DGM-reliant estimation may result in more volatile return on equity estimates. Therefore, we determined this was not the best method to adopt in our price investigation.

OTTER 2022 final decision for TasWater

In its 2022 regulatory determination for TasWater, OTTER used the MRP of 6.0%. In making this determination, OTTER relied on the AER's 2018 estimate of 6.1% and the ERA's 2018 estimate of 6.0%. As discussed above, the AER and ERA have since reviewed their approaches to estimating the MRP. They are currently consulting on their preferred estimates.

ESCOSA 2020 Final decision for SA Water

In its 2020 regulatory determination for SA Water, ESCOSA used an MRP of 6.0%. ESCOSA estimated the MRP using historical access returns over the sampling period from 1883 to 2017. The selection of 6.0% reflects a consideration of both arithmetic and geometric averages.

Icon Water's proposal

Icon Water's proposal uses an MRP of 6.1%. Icon Water stated that it is a placeholder estimate taken from the AER's 2018 rate of return instrument.

Icon Water acknowledged that we would update the MRP as part of this investigation in accordance with our WACC methodology. Icon Water's regulatory proposal also states:

> *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. 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.*
>
> **ICON WATER**

[40] IPART 2021

Noting Icon Water's comments in its pricing proposal, we have calculated the impact on prices of using an MRP of 6.8% which Icon water appears to consider is a more reasonable value than the placeholder value of 6.1% in its proposal.

To assist stakeholders in considering the impacts of the higher market risk premium, Table 6.4 shows the estimated price impacts of adopting the MRP of 6.1% and 6.8% in Icon Water's adjusted proposal, leaving everything else in the proposal unchanged. The combined water and sewerage services bill for a typical household consuming 200kL a year would be $9 higher due to adopting the MRP of 6.8% instead of 6.1%. For mid-level non-residential customer consuming 5,000kL per annum with 50 flushable fixtures, the bill would be $343 higher due to adopting the MRP of 6.8% instead of 6.1%.

Table 6.4 Estimated price and revenue impacts from adopting different values of MRP ($ nominal)

Customer Type	Change in bill (MRP set at 6.8%)
Average annual bill change in 2023-24	
Residential (200kL/year)	+$9 (+0.73%)
Commercial (5,000kL/year, 50 fixtures)	+$343 (+0.70%)

Source: Our calculations.

Our draft decision

We consider the MRP estimates from the QCA, AER, and ERA are relevant to our benchmarking task (Table 6.5).

Table 6.5 Recent regulatory decisions on the MRP

Regulator	Decision date	MRP estimate	Method
AER (Preferred option)	June 2022	6.5	HER method
AER (Alternative option)	June 2022	6.3	HER (6.5%) and DGM (6.1%)
ERA (WA)	June 2022	6.2	HER (6%) and DGM (6.9%)
QCA (QLD)	March 2022	6.5	HER method
IPART (NSW)	September 2021	6.95*	HER (6%) and DGM (7.9%)

Source: AER 2022, p. 152; ERA 2022, p. 3; QCA 2022, p. 64; IPART 2021, p. 220.

Note: * A midpoint of a static historical MRP of 6% and a current MRP recalculated every six months.

Based on the recent regulatory decisions shown in Table 6.5, the historical MRP ranges between 6.0% and 6.5%. We attribute the differences in estimates largely to the choice of sampling period and averaging techniques. In our WACC review, we decided that it would be appropriate to give preference to arithmetic averages. Due to the way it is calculated, an arithmetic average is always higher than a geometric average. Therefore, we consider that the MRP should be higher than the midpoint of the range for the historical estimates provided by other regulators.

We continue to have concerns about the proper implementation of the DGM due to issues in relation to input assumptions and variability of outputs. Therefore, as we decided in our WACC review, we must exercise caution when considering this evidence. The ERA and IPART are the only two regulators that continue to use DGM evidence in determining the MRP. Consistent with guidance in our WACC review, we consider it appropriate to place less weight on the DGM estimates due to our continuing concerns.

Our draft decision is to use an MRP of 6.5% for the period from 1 July 2023 to 31 June 2028. This strikes the appropriate balance between the need to reflect both forward-looking and historical estimates and regulatory consistency with other regulators' decisions. We will review the AER and ERA final decisions on the MRP when they become available in December 2022 and take them into consideration before finalising our decision.

6.4.3 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. 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.

In our WACC review, we confirmed that we will determine the equity beta by benchmarking values used by other Australian regulators in their determinations for comparable businesses. We highlighted that in estimating the equity beta, we will give greater weight to more recent regulatory decisions. We will also consider estimates that consider the low beta bias and are consistent with the gearing parameter and benchmark credit rating to achieve internal consistency in our methodology.

Our review of recent regulatory decisions indicates that equity beta decisions made by Australian regulators for water utilities fall between 0.65 and 0.766 (Table 6.6). As there are no listed monopoly water and sewerage businesses on the Australian Stock Exchange, water regulators use comparable international water and energy companies in their empirical analysis. We are not aware of any water or energy regulator that adjusts the estimated equity betas to account for low beta bias.

We have also considered the equity beta estimates made by the AER and ERA for electricity and gas network businesses as part of their ongoing rate of return processes (Table 6.6). We consider that energy networks are likely to face similar risk profiles to water businesses like Icon Water. We will review the AER and ERA final decisions when they become available in December 2022 and take them into consideration when finalising our decision.

Table 6.6 Recent regulatory decisions on equity beta

Regulator	Regulated business	Decision date	Equity beta	Estimation method
AER	Electricity and gas	June 2022	0.6	Empirical analysis using Australian comparator set of 9 energy firms
ERA (WA)	Gas	June 2022	0.7	Empirical analysis using a sample of domestic and international energy businesses
OTTER (TAS)	TasWater	May 2022	0.65	Based upon consideration of other regulators' recent estimates of the equity beta and regulatory precedent
QCA (QLD)	Seqwater	March 2022	0.766	Empirical analysis using a sample of energy and water businesses
IPART (NSW)	WAMC	September 2021	0.7	Empirical analysis of international comparator firms from several different types of industries with risk profiles that appear similar to water utilities

ESCOSA (SA)	SA Water	June 2020	0.67	Based upon consideration of other regulators' recent estimates of the equity beta and regulatory precedent

Source: AER 2022, p. 28; ERA 2022, p. 4 ; OTTER 2022, p. 77; QCA 2022, p. 62; IPART 2021, p. 221; ESCOSA 2020, p. 209.

Icon Water's proposal

Icon Water proposed to maintain the existing equity beta estimate of 0.7.

Our draft decision

Given equity beta decisions across jurisdictions in Australia, including for energy companies, we consider that equity beta 0.7 remains reasonable. Our draft decision is to adopt an equity beta of 0.7.

6.5 Return on debt

We will determine the cost of debt for Icon Water using a trailing average approach. Our trailing average approach estimates the average interest rate that a regulated efficient 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 firm.

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. The transition period ends in the last year of 2023-28 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.

Consistent with our WACC methodology we have:

- assumed a 10-year term to maturity
- used the RBA and Bloomberg data sources
- allowed Icon Water to nominate a return on debt averaging period of between 2 months and 12 months.

We have adopted a benchmarking approach to determine the benchmark credit rating and debt raising costs.

6.5.1 Return on debt averaging period

Our draft decision

We allow Icon Water to nominate a return on debt averaging period of between 2 months and 12 months. We have made a draft decision to accept Icon Water's proposed debt averaging periods because they

comply with our WACC methodology. We will use these periods to update the return on debt in the final decision.

For this draft decision, we have used a placeholder averaging period of 2 months ending 31 August 2022 to estimate the return on debt for the purposes of calculating the revenue Icon Water would earn and the draft prices.

6.5.2 Benchmark credit rating

A credit rating is an evaluation of the risk associated with lending money to a particular entity (i.e., a firm or a government). Credit rating agencies determine credit ratings, taking into account the borrower's ability to pay back the debt and the likelihood of default. Since a poor credit rating indicates a credit rating agency's opinion that the company has a high risk of default, a lower credit rating is generally associated with higher bond yields.[41]

In the 2021 WACC review, we decided to continue utilising a benchmarking approach based on the credit ratings adopted by other regulators for regulated water utilities. Table 6.7 indicates that a BBB credit rating is broadly consistent with the credit ratings adopted by other jurisdictional regulators in recent regulatory decisions for water utilities. The credit ratings have ranged from BBB to BBB+.

Table 6.7 Benchmark credit ratings

Regulator	Decision date	Industry	Credit rating
ESC (VIC)	August 2022	Water	BBB
AER	June 2022	Gas and electricity	BBB+
ERA (WA)	June 2022	Gas	BBB+
OTTER (TAS)	May 2022	Water	BBB+
QCA (QLD)	November 2021	Water	BBB
ESCOSA (SA)	June 2020	Water	BBB
IPART (NSW)	February 2018	Water	BBB

Source: ESC 2022, p. 40; AER 2022, p. 9; ERA 2022, p. 67; OTTER 2022, p. 77; QCA 2021, p. 38; ESCOSA 2020, p. 209; IPART 2018, p 46.

Icon Water's proposal

Icon Water proposed a benchmark credit rating of BBB.

Our draft decision

We consider that maintaining a BBB benchmark credit rating will privide stability over time and remains consistent with recent regulatory precendent. Our draft decision is to retain a BBB credit rating for the purposes of setting the return on debt allowance.

[41] Industry Panel 2014, p 169.

6.5.3 Debt raising costs

Debt raising costs (or debt issuance costs) are the costs associated with raising or refinancing debt, such as fees for underwriting bond issues, legal costs, fees for obtaining a credit rating, and any other costs incurred when raising debt finance. These are legitimate costs that must be recovered through the regulated utility's prices. A debt-raising cost margin is added to the calculation of allowed cost of debt.

In the 2021 WACC review, we decided to give more weight to recent estimates of debt-raising costs to reflect the most up-to-date information at the time of the determination. Further, we wanted to give preference to estimates excluding the dealer swap margin to avoid double counting.

In our view, the approach to estimating debt raising costs proposed by Allen Consulting Group[42] (ACG) remains fit for purpose. This approach has been adopted by Australian regulators to estimate debt-raising costs regularly over the past decade and excludes the dealer swap margin. The ACG estimates were updated in 2013 based on a report by PricewaterhouseCoopers (PwC), and more recently by Chairmont for the AER (2019) and the ERA (2021).

Table 6.8 shows that other Australian regulators have adopted estimates of debt raising costs ranging from 8.0 to 16.5 basis points per annum in previous regulatory decisions.

Table 6.8 Benchmark debt raising costs

Regulator	Decision date	Industry	Debt raising cost
ESC (VIC)	August 2022	Water	0.150
ERA (WA)	June 2022	Gas	0.165[43]
AER	April 2022	Electricity	0.085
QCA (QLD)	March 2022	Water	0.100
OTTER (TAS)	February 2022	Water	0.080
ESCOSA (SA)	June 2020	Water	0.125
IPART (NSW)	February 2018	Water	0.125

Source: ESC 2022, p. 40; ERA 2022, p. 3; AER 2022, p. 41; QCA 2022, p. 65; OTTER 2022, p. 77; ESCOSA 2020, p. 231; IPART 2018, p 87.

Icon Water's proposal

Icon Water proposed a debt rising cost allowance of 0.108% based on the 2013 PwC advice to QCA. The PwC study estimated a single-issue domestic bond issuance cost of 10.8 basis points per annum using the data over 2008–2013.

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[42] The Australian Competition Consumer Commission (ACCC) commissioned ACG to undertake a review of issues associated with allowances for the transaction costs incurred in raising debt and equity finance for regulated utilities. ACG released its final report 'Debt and Equity Raising Transaction Costs' in December 2004.

[43] Chairmont assumed a fixed weighting of 35% for non-AUD debt issuance for the calculation of debt raising costs. We give 100% weight to domestic corporate bonds.

Our draft decision

Based on more recent regulatory decisions, we consider that the appropriate debt rising cost allowance for domestic bond issues would range between 0.085% (AER 2022) and 0.133% (Chairmont 2021). This leads to an annual debt raising cost of 0.109%, which is not materially different to the estimate proposed by Icon Water. Our draft decision is to accept the 0.108% estimate proposed by Icon Water.

6.6 Expected inflation

We estimate a placeholder expected inflation of 3.0% based on the approach we determined in our 2021 WACC methodology review and the RBA's most recent inflation projection (Table 6.9).[44]

Icon Water's proposal adopted our current approach for estimating expected inflation.

Table 6.9 Inflation forecast

	Year 1	Year 2	Year 3	Year 4	Year 5	Geometric average
Expected inflation	3.50	3.25	3.00	2.75	2.50	3.00

Note: We applied the linear glide-path from the RBA's latest inflation forecast for year 1 because the RBA forecast for year 2 is not available yet.

Our draft decision uses the Statement of Monetary Policy from August 2022. We will update the value of expected inflation for the final decision.

6.7 Value of imputation credits (gamma)

We use a post-tax WACC framework for estimating the rate of return. This framework requires separate estimates of taxation expenses. As gamma is not an input parameter for calculating the WACC, we did not consider it as a part of our WACC methodology review.

In calculating net tax liabilities, we need to estimate the extent to which Australia's dividend imputation system reduces shareholders' personal tax expenses. We refer to the key parameter that reflects the impact on dividend imputation as 'gamma'.

The value of gamma depends on the extent to which:

- imputation credits for tax paid are distributed to shareholders
- shareholders can use imputation credits to obtain a tax rebate.

[44] RBA (The Reserve Bank of Australia), August 2022

Box 6. 1 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 parameter gamma represents the value of imputation credits in the building block model. We use it to calculate the corporate tax allowance. The value of gamma lies in a range of zero to one. A higher value of gamma will reduce the corporate taxation allowance and ultimately results in lower allowable revenue.

6.7.1 Our current approach

There are two methods for interpreting and estimating gamma, the market value approach, and the utilisation approach. Under the market value approach, gamma represents the price that an investor would be willing to pay for an imputation credit. Under the utilisation approach, gamma represents the rate at which imputation tax credits are redeemed by taxpayers to reduce their personal tax liabilities.

During our 2018 price investigation, we considered the underlying approaches to gamma used by other regulators.[45] We agreed with the AER and the QCA approaches that adopted a utilisation interpretation of gamma. We considered that both the AER and QCA considered a wide range of relevant evidence in a thorough manner. We made an on-balance decision to adopt the AER's estimate of 0.4.

6.7.2 Icon Water's proposal

Icon Water proposed a gamma value of 0.25 based on a market value concept. Icon Water engaged Frontier Economics to provide advice on an appropriate estimate of gamma. Frontier Economics' report argued that the market value interpretation (and estimate) of gamma is consistent with the role of that parameter within the commission's regulatory framework and models. Specifically, Frontier Economics argued that 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.

6.7.3 Our analysis

Most regulators in Australia apply a 'utilisation' approach to estimating gamma. IPART is the only regulator that uses a market value approach. Table 6.10 summarises recent Australian regulatory decisions on gamma.

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[45] https://www.icrc.act.gov.au/__data/assets/pdf_file/0019/1250236/Report-1-of-2018-Final-Report-Water-Sewerage-Services-2018-23.pdf

Table 6.10 Recent regulatory decisions on gamma

Regulator	Decision date	Industry	Gamma
ESC (VIC)	August 2022	Water	0.5
AER	June 2022	Gas and Electricity	0.585
ERA (WA)	June 2022	Gas	0.5
QCA (QLD)	March 2022	Water	0.484
ESCOSA (SA)	June 2020	Water	0.5
IPART (NSW)	February 2018	Water	0.25

Source: ESC 2022, p. 48; AER 2022, p. 23; ERA 2022, p. 3; QCA 2022, p. 65; ESCOSA 2020, p. 248; IPART 2018, p. 75.

We note the arguments in support of the market value approach that Frontier Economics, Icon Water's consultant, provided in its report. However, we consider that the 'utilisation' approach for estimating gamma is well established and supported by current regulatory practice.

We are satisfied that the 'utilisation' approach is consistent with our regulatory framework and is the best available in the circumstances. In forming our view, we gave weight to three key factors.

First, most energy and water regulators have used the 'utilisation' approach in their regulatory decisions since 2013. Many of these regulators adopt the same regulatory framework as ours.

Second, the value of imputation credits as estimated through a dividend drop-off study[46] have substantial measurement and estimation issues as described by the AER in 2018, QCA in 2021 and ERA in 2022. For these reasons, most Australian regulators place no weight on the dividend drop-off estimates and on the range of applied market value estimates more generally.

Third, all the following decisions upheld the reasoning in the regulators' decisions and found no error with the value of 0.4 (the current estimate at that time) and how it was derived:

- In May 2017, the Full Federal Court upheld the AER's appeal in respect of the Australian Competition Tribunal's (Tribunal) decision regarding gamma.
- In October 2016, the Tribunal found in favour of the AER, against SA Power Networks, that gamma should be 0.4. SA Power Networks appealed the Tribunal decision to the Federal Court. In January 2018, the Full Federal Court also affirmed the AER's decision on gamma for a value of 0.4.
- The ERA's gamma decision for the Dampier Bunbury Pipeline (DBNGP) access arrangement decision was appealed by DBNGP. In July 2018, the Tribunal dismissed the application for merits review.

Our draft decision

We have made two draft decisions.

First, we have made a draft decision to continue using the 'utilisation' approach for estimating the value of imputation credits. In selecting a gamma point estimate for the final decision, we will consider the recent estimates made by other regulators, which adopt a utilisation interpretation of gamma.

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[46] A dividend drop-off study estimates the value of imputation credits by the difference between the value of shares with dividend and without dividend, with the information being reflected in the change in the value of the shares the day the dividend is paid.

Second, based on the analysis above and taking into consideration the 5 regulatory decisions excluding IPART in table 1.10, we consider a gamma value of 0.5 appropriate. We have used this value in calculating Icon Water's expected revenue and the draft prices in this draft report.

At the time of making this draft decision, the AER and ERA have not yet published their final decision estimates. We expect these figures will become available in December 2022. We will take these figures into account in our decision making, which we will explain in our final report.

6.8 Interrelationships

In our WACC review, we acknowledged that rate of return parameters depend on each other to some degree. For example, there is an interrelationship between the gearing ratio, the equity beta and credit rating:

- The equity beta increases as gearing increases so that investors are compensated for the additional risks.
- Ratings agencies typically take gearing into account when issuing a credit rating. The proportion of debt used to fund a business' activities may have an impact on the level of interest payments. This would then have an impact on the business' ability to meet financial obligations and affect the credit rating in turn.

Further, the value of imputation credits is interrelated with the historical market risk premium (MRP).

When applying the benchmarking approach, we were cognisant of the need for internal consistency between estimates of these parameters. Our draft decisions on these parameters are consistent with the range of estimates from other regulators.

6.9 The return on capital

The return on capital (or the return on assets) is calculated by multiplying the allowed rate of return (nominal post-tax vanilla WACC) by the regulatory assets base (RAB), then deducting the inflation adjustment that is applied to the RAB, where the value of RAB is calculated by adding the starting value of the RAB each year to half of forecast capital expenditure in each year of the regulatory period. Half of the year's forecast total capital expenditure is an estimate of average capital expenditure for the year, based on an assumption that investment is made steadily through the year.

Since the rate of return is expressed in nominal terms and the asset base is indexed for forecast inflation, the indexation adjustment should be subtracted from the return on capital to avoid double counting of inflation.

The calculation of the return on capital is as follows:

$$Return\ on\ capital\ = (Opening\ RAB_t + \ Forecast\ capex_t \times 0.5) \times nominal\ post\text{-}tax\ WACC - Inflation\ adjustment_t$$

Table 6.11 shows our draft decision on the return on capital for water and sewerage services for the period 2023–28. Calculation of the rate of return is discussed in this chapter, and calculation of the RAB is explained in Chapter 5.

Table 6.11 Return on capital for water and sewerage, 2023-2028 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Value of RAB	1,715.4	1,772.7	1,820.9	1,872.3	1,926.5
Return on capital including indexation	100.3	105.6	110.4	115.5	120.9
Inflation adjustment	51.5	53.2	54.6	56.2	57.8
Return on capital excluding indexation adjustment	48.9	52.4	55.8	59.4	63.2
Wastewater					
Value of RAB	1,102.1	1,149.2	1,206.9	1,304.0	1,441.6
Return on capital including indexation	64.5	68.5	73.2	80.5	90.5
Inflation adjustment	33.1	34.5	36.2	39.1	43.2
Return on capital excluding indexation adjustment	31.4	34.0	37.0	41.4	47.3

Source: Our calculations.

6.10 Tax expenses

The use of the nominal post-tax vanilla WACC requires a separate allowance for tax expenses. Icon Water's submission provides a useful summary of how tax expenses are calculated for inclusion as an allowed cost. We propose to continue applying this approach, which involves estimating a tax asset base, calculating taxable profit, and deducting the value of imputation credits.

6.10.1 The tax asset base

To calculate tax expenses, we calculate a separate Tax Asset Base (TAB). The TAB methodology mirrors the RAB methodology as described in chapter 6 with the following exceptions:

- The opening values in the roll-forward calculation reflect TAB values, not RAB values.
- We base depreciation in the roll-forward calculation for the TAB on actual deprecation, not forecast deprecation.
- We use tax asset lives, not economic asset lives, to calculate depreciation.
- The TAB is not indexed for inflation, rather it is maintained in historic terms.

6.10.2 The TAB roll forward

We roll forward the TAB from 2018-19 to 2022-23 to establish an opening value. The opening value for 2023-24 must be adjusted for the difference between forecast and actual depreciation for the last year of the previous regulatory period 2017-18 since actual depreciation was not known at the time. Then the TAB is rolled forward, adding actual net capital expenditure, and deducting asset disposals and actual deprecation for each year of the roll forward period. The estimates of the TAB for water and sewerage for the period 2018-23 are shown in Table 6.12.

Table 6.12 Water and wastewater TAB roll forward, 2018-23 ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water					
Opening water TAB	1,042.4	1,040.6	1,052.1	1,052.4	1,036.9
Net capital expenditure	32.8	48.3	39.1	24.4	28.3
Asset disposals	0.0	0.01	0.0	0.0	0.0
Depreciation	34.5	36.8	38.7	40.0	41.1
Closing water TAB	**1,040.6**	**1,052.1**	**1,052.4**	**1,036.9**	**1,024.1**
Wastewater					
Opening wastewater TAB	511.8	550	578.1	597.9	624
Net capital expenditure	61.4	55.2	49.2	57.8	54.5
Asset disposals	0.0	0.2	0.0	0.1	0.1
Depreciation	23.2	26.8	29.4	31.6	33.7
Closing wastewater TAB	**550.0**	**578.1**	**597.9**	**624.0**	**644.8**

Source: Our calculations.

6.10.3 The TAB for 2023-24 to 2027-28

The closing value for the TAB for 2022-23 roll forward calculation just described is the opening value for the TAB for 2023-24. The opening value is adjusted for forecast net capital expenditure, forecast asset disposals and forecast depreciation for that year. The calculation is repeated for each subsequent year of the regulatory period.

Our estimates of the TAB for water and sewerage for the period 2023-24 to 2027-28 are shown in Table 6.13.

Table 6.13 Water and wastewater TAB roll forward, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Opening water TAB	1,024.1	1,037.3	1,031.0	1,025.0	1,024.2
Net capital expenditure	52.0	34.5	37.0	44.6	47.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	38.8	40.9	42.9	45.5	48.1
Closing water TAB	**1037.3**	**1,031.0**	**1,025.0**	**1,024.2**	**1,023.4**
Wastewater					
Opening wastewater TAB	644.8	669.1	687.3	731.2	825.8
Net capital expenditure	52.6	48.3	76.5	131.0	161.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	28.4	30.1	32.6	36.3	40.6
Closing wastewater TAB	**669.1**	**687.3**	**731.2**	**825.8**	**946.9**

Source: Our calculations.

6.10.4 Total tax expenses

We calculate total tax expenses by multiplying taxable profit by the corporate tax rate. We set the corporate tax rate at 30%. Adoption of a corporate tax rate of 30% is also consistent with the rate expected to be applicable in the 2023-28 period to the benchmark efficient entity that is applied in estimating the WACC and net tax expenses.

Taxable profit is calculated following the methodology used in the 2015 Industry Panel decision and adopted in our 2018 decision, as follows:

> *Taxable profit = Forecast tariff revenue + Other income – Tax depreciation – Interest expenses - Operating expenses – Previous year losses.*

The components of taxable profit are described in various parts of this report:

- forecast tariff revenue and other income
- tax depreciation
- interests expenses – calculated by multiplying the RAB by the share of debt and the costs of debt
- operating expenses
- previous year losses are the accumulated tax losses from previous years.

The taxable profit and total tax expenses for water and sewerage for the period of 2023-24 to 2027-28 are shown in Table 6.14 and Table 6.15.

Table 6.14 Calculation of taxable profit and total tax expenses for water, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Forecast tariff revenue	182.8	189.8	197.9	206.3	215.1
(+) other income	19.0	19.8	20.5	21.2	21.9
(-) tax depreciation	38.8	40.9	42.9	45.5	48.1
(-) interest	45.9	49.4	52.7	56.1	59.8
(-) operating and maintenance	110.5	114.3	118.6	123.3	127.5
(-) previous year losses	0.0	0.0	0.0	0.0	0.0
Taxable profit	**6.6**	**5.1**	**4.3**	**2.6**	**1.6**
Total tax expenses $(taxable\ profit \times tax\ rate)$	**2.0**	**1.5**	**1.3**	**0.8**	**0.5**

Source: Our calculations.

Table 6.15 Calculation of taxable profit and total tax expenses for wastewater, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Forecast tariff revenue	141.3	150.8	160.9	171.8	183.3
(+) other income	16.1	16.6	17.0	17.5	18.0
(-) tax depreciation	28.4	30.1	32.6	36.3	40.6
(-) interest	29.5	32	34.9	39.1	44.8
(-) operating and maintenance	88.9	91.8	95.3	99.1	102.0
(-) previous year losses	0.0	0.0	0.0	0.0	0.0
Taxable profit	**10.6**	**13.4**	**15.2**	**14.8**	**13.9**
Total tax expenses $(taxable\ profit \times tax\ rate)$	**3.2**	**4.0**	**4.6**	**4.4**	**4.2**

Source: Our calculations.

6.10.5 Net tax expenses

Net tax expenses are calculated as follows:

Net tax expenses = Tax expenses x (1 – γ)

Icon Water's proposed net tax expenses based on a value of gamma of 0.25 are shown in Table 6.16.

Table 6.16 Icon Water's proposed net tax expenses, water and wastewater, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	0.22	0.06	0.16	0.48	1.03
Wastewater	1.46	2.27	3.23	4.25	5.41
Total	**1.68**	**2.33**	**3.39**	**4.72**	**6.44**

Source: Icon Water (2022).

As explained in the preceding section, our draft decision adopts a gamma value of 0.5.

The resulting net tax expenses used in the calculation of maximum allowable revenue are shown below in Table 6.17.

Table 6.17 Draft decision: net tax expenses, water and wastewater 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	0.99	0.76	0.64	0.39	0.24
Wastewater	1.58	2.01	2.28	2.22	2.08
Total	**2.57**	**2.77**	**2.92**	**2.61**	**2.32**

Source: Our calculations.

7. Revenue allowance

To set regulated prices, we first determine how much revenue Icon Water will need, to recover its prudent and efficient costs of providing water and sewerage services to the ACT community. We then set prices for individual water and sewerage services, so Icon Water can raise the allowed revenue.

This chapter presents our draft decision on Icon Water's 2023–28 revenue requirement, based on our assessment of the costs Icon Water will need to provide regulated water and sewerage services over the regulatory period.

Our draft decision

We have made a draft decision on two aspects of the revenue requirement.

First, we set Icon Water's 'total revenue requirement' as the sum of each of the building blocks (or cost components) of operating expenditure allowance, capital cost allowance (return on Icon Water's regulated assets and depreciation), and tax allowance.

Second, we set the 'net revenue requirement' by deducting from the total revenue requirement, the revenue from other sources that Icon Water identified. These sources include Community Service Obligation (CSO) payments and revenue from bulk water sales to Queanbeyan–Palerang Regional Council (QPRC). The net revenue requirement is used to set the prices for regulated water and wastewater services.

Table 7.1 provides an overall view of our draft decision on Icon Water's revenue requirement for the 2023-28 regulatory period, compared to the adjusted Icon Water proposal.

We adjusted Icon Water's revenue requirement proposal and updated the placeholder values in Icon Water's submission to account for updates to inflation, rate of return parameters and 2021-22 actual base operating expenditure. These updates are discussed in Chapters 3 and 6 of this draft report.

The adjusted Icon Water proposal is a total revenue requirement of $2,155.4 million comprising $1,187.2 million for water services and $968.3 million for sewerage services over the 2023-28 regulatory period. Our draft decision allows a total revenue requirement of $1,997.3 million comprising $1,099.0 million for water services and $898.4 million for sewerage services. Our draft decision total revenue requirement is $88.2 million (7.4%) less for water services and $69.9 million (7.2%) less for sewerage services than the adjusted Icon Water proposal.

The difference between our draft decision and the adjusted Icon Water's proposal reflects our draft decision to:

- decrease Icon Water's proposed operating expenditure allowance by $58.7 million and capital expenditure allowance (which reduced total revenue requirement by $31.7 million)
- use a rate of return of 5.85% (2023-24) compared to the adjusted Icon Water proposal of 5.93% (2023-24), which reflects our draft decision on the individual rate of return parameters
- correct errors and methodological issues in Icon Water's revenue model, which decreased the adjusted Icon Water's total revenue requirement by $41.3 million.

Icon Water had deducted revenue from other sources to calculate the net revenue requirement. The adjusted Icon Water revenue from other sources is $195.3 million comprising $105.4 million for water services and $89.9 million for sewerage services over the regulatory period. Our draft decision revenue from other sources is slightly more at $195.5 million comprising $105.5 million for water services

($0.2 million more than the adjusted Icon Water proposal) and $89.9 million for sewerage services (same as the adjusted Icon Water proposal).

The adjusted Icon Water proposal is a net revenue requirement of $1,960.2 million comprising $1,081.8 million for water services and $878.4 million for sewerage services over the 2023-28 regulatory period. Our draft decision allows a net revenue requirement of $1,801.9 million comprising $993.4 million for water services and $808.4 million for sewerage services. Our draft decision net revenue requirement is $88.4 million (8.2%) less for water services and $69.9 million (8.0%) less for sewerage services than the adjusted Icon Water proposal.

Table 7.1 Total and net revenue requirement over the 2023-28 regulatory period: adjusted Icon Water proposal and our draft decision, 2023-28 ($m, nominal)

Water services	2018 Decision	Adjusted Icon Water proposal	Our draft decision	Difference
Total revenue requirement	968.1	1,187.2	1,099.0	-88.2
Less adjustments for other sources	86.8	105.4	105.5	0.2
Net revenue requirement	881.3	1,081.8	993.4	-88.4

Sewerage services	2018 Decision	Adjusted Icon Water proposal	Our draft decision	Difference
Total revenue requirement	740.8	968.3	898.4	-69.9
Less adjustments for other sources	75.2	89.9	89.9	0.0
Net revenue requirement	665.6	878.4	808.4	-69.9

Source: Our calculations.

Note: Totals may not equal the sum of individual components due to rounding.

Table 7.2 provides an annual breakdown of our draft decision total and net revenue requirement components for water and sewerage services.

Table 7.2 Our draft decision on the revenue requirement for water and sewerage services, 2023-28 ($m, nominal)

Water services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on capital	$48.9	$52.4	$55.8	$59.4	$63.2	$279.7
Depreciation	$37.5	$40.7	$44.0	$48.0	$52.1	$222.1
Operating expenditure (controllable)	$66.6	$68.7	$71.1	$73.7	$75.4	$355.6
Operating expenditure (non-controllable)	$43.9	$45.6	$47.4	$49.6	$52.0	$238.6
Net tax liabilities	$1.0	$0.8	$0.6	$0.4	$0.2	$3.0
Total revenue requirement	$197.8	$208.2	$219.0	$231.0	$242.9	$1,099.0
Less adjustments	$19.6	$20.4	$21.2	$21.8	$22.6	$105.5
Net revenue requirement	$178.2	$187.8	$197.8	$209.2	$220.4	$993.4

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on capital	$31.4	$34.0	$37.0	$41.4	$47.3	$191.0
Depreciation	$36.3	$39.2	$42.9	$47.8	$53.8	$220.1
Operating expenditure (controllable)	$82.3	$84.9	$88.1	$91.4	$93.7	$440.4
Operating expenditure (non-controllable)	$6.6	$6.9	$7.2	$7.7	$8.4	$36.7
Net tax liabilities	$1.6	$2.0	$2.3	$2.2	$2.1	$10.2
Total revenue requirement	$158.3	$167.0	$177.4	$190.5	$205.2	$898.4
Less adjustments	$17.0	$17.5	$18.0	$18.5	$19.0	$89.9
Net revenue requirement	$141.3	$149.5	$159.4	$172.0	$186.2	$808.4

Source: Our calculations.

Note: Totals may not equal the sum of individual components due to rounding.

7.1 How do we assess the revenue allowance?

We use the 'building block' method to set Icon Water's revenue requirement. Under this approach, Icon Water's total revenue requirement is calculated as the sum of the following building blocks (or cost components) for each year of the next regulatory period:

- **Operating expenditure**: This represents the prudent and efficient level of forecast operating costs, including a range of controllable expenditure items and non-controllable costs (see the discussion in Chapter 4).
- **Regulatory depreciation** (the return of capital): This reflects the reduction in the value of Icon Water's regulated assets each year caused by 'wear and tear' (see the discussion in Chapter 6).
- **Return on capital**: This is calculated by multiplying the allowed rate of return by the value of Icon Water's regulated assets in each year of the regulatory period (see the discussion in Chapter 7).
- **Net tax expense**: The post-tax form of the building block method we use requires a separate allowance for tax expenses, net of the value of imputation credits (see the discussion in Chapter 7).

The sum of these allowances represents the total revenue requirement. Then, the net (or 'target') revenue requirement is estimated by deducting, from the total revenue requirement, the revenue Icon Water would receive from sources other than water and sewerage services tariffs. Other revenue sources include Community Service Obligation (CSO) payments and bulk water sales to Queanbeyan–Palerang Regional Council (QPRC). The net revenue requirement is used to set the prices for regulated water and wastewater services.

7.2 Icon Water's proposal

Icon Water calculated the total revenue requirement for the 2023-28 regulatory period as the sum of each of its proposed building block cost components (Icon Water 2022, Attachment 10). In its 30 June 2022 submission, Icon Water proposed total revenue requirement of $1,998.6 million for water and sewerage services over the 2023-28 regulatory period.

Icon Water's submission included placeholder values for forecast inflation, WACC and actual 2021-22 base opex. For this draft report, we have updated these placeholder values based on our understanding of Icon Water's proposal and this section summarises our understanding of Icon Water's adjusted proposal (see the discussion in Chapters 3 and 6. Icon Water also noted that after the release of our draft report it will update cost escalators for capital expenditure and operating expenditure, and update aspects of its operating expenditure proposal. Because information was not available for these additional updates, we have not accounted for them in this draft report.

Table 7.3 shows our understanding of the adjusted Icon Water's proposed revenue requirement for the 2023-28 regulatory period. Icon Water's adjusted total revenue requirement is $2,155.4 million over the regulatory period. This is made up of $1,187.2 million for water services and $968.3 million for sewerage services.

Table 7.3 Our understanding of Icon Water's adjusted proposed total revenue requirement for water and sewerage services, 2023-28 ($m, nominal)

Water services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on capital	$50.7	$54.9	$58.6	$62.1	$65.3	$291.6
Depreciation	$41.5	$45.8	$49.9	$54.0	$57.7	$249.0
Operating expenditure (controllable)	$72.9	$76.4	$80.5	$84.5	$88.5	$402.8
Operating expenditure (non-controllable)	$42.7	$44.4	$46.4	$48.4	$50.6	$232.6
Net tax liabilities	$0.7	$1.1	$1.9	$3.0	$4.5	$11.2
Total revenue requirement	$208.6	$222.7	$237.4	$252.0	$266.5	$1,187.2

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on capital	$33.1	$36.2	$39.7	$44.2	$49.5	$202.7
Depreciation	$41.3	$44.7	$48.8	$53.9	$58.9	$247.5
Operating expenditure (controllable)	$84.0	$88.1	$92.8	$97.4	$102.0	$464.3
Operating expenditure (non-controllable)	$5.5	$5.8	$6.0	$6.3	$6.6	$30.2
Net tax liabilities	$1.9	$3.1	$4.5	$6.1	$7.9	$23.5
Total revenue requirement	$165.9	$177.9	$191.8	$207.8	$224.8	$968.3

Source: Icon Water with our understanding of the expected adjustments.

Note: Totals may not equal the sum of individual components due to rounding.

To calculate the net revenue requirement, Icon Water proposed deducting income received from other sources. These are subvention payments by the Commonwealth Government, notional CSO payments, sales of bulk water to QPRC, income from miscellaneous charges and other sources, and adjustments related to services that are not price-regulated. We updated Icon Water's proposed revenue adjustments to reflect the updated forecast inflation. The adjusted Icon Water's proposed revenue adjustments and the net revenue requirement for regulated water and sewerage services are shown in Table 7.4.

Table 7.4 Our understanding of Icon Water's adjusted proposed revenue adjustments and net revenue requirement for water and sewerage services, 2023-28 ($m, nominal)

Water services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	$208.6	$222.7	$237.4	$252.0	$266.5	$1,187.2
Subvention	$1.3	$1.3	$1.3	$1.4	$1.4	$6.7
Sales to QPRC and other adjustments	$17.7	$18.5	$19.2	$19.8	$20.4	$95.5
CSO payments	$0.6	$0.6	$0.6	$0.7	$0.7	$3.2
Total revenue adjustments	$19.6	$20.4	$21.1	$21.8	$22.5	$105.4
Net revenue requirement	$189.0	$202.3	$216.2	$230.3	$244.0	$1,081.8

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	$165.9	$177.9	$191.8	$207.8	$224.8	$968.3
Subvention	$12.6	$13.0	$13.3	$13.7	$14.0	$66.6
Other adjustments	$3.5	$3.6	$3.7	$3.8	$3.9	$18.5
CSO payments	$0.9	$0.9	$1.0	$1.0	$1.0	$4.8
Total revenue adjustments	$17.0	$17.5	$18.0	$18.5	$19.0	$89.9
Net revenue requirement	$148.9	$160.4	$173.9	$189.4	$205.8	$878.4

Source: Icon Water with our understanding of the expected adjustments.

Note: Totals may not equal the sum of individual components due to rounding.

7.3 Our draft decision total revenue requirement is lower than adjusted Icon Water's proposal

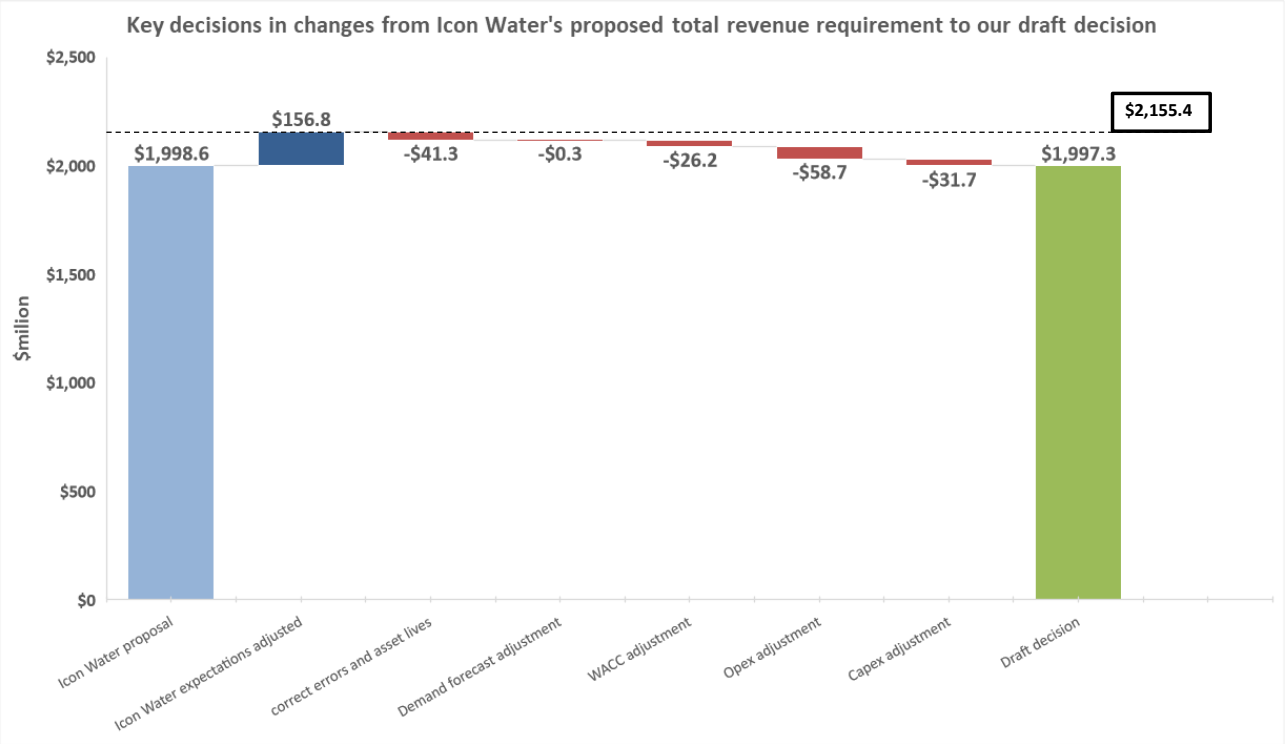
Our draft decision allows a total revenue requirement of $1,997.3m for water and sewerage services over the 2023-28 regulatory period. It is less than the adjusted Icon Water's proposed total revenue requirement by $158.1m (7.3% less). The reduction is due to:

- correcting errors and asset lives in Icon Water's revenue model to make them consistent with the 2018 revenue model, which decreased Icon Water's total revenue requirement by $41.3 million. Most of this reduction is due to our draft decision to retain the method to calculate regulatory depreciation, which is discussed in Chapter 5.
- our demand forecast, which reduced the total revenue requirement by $0.3 million due to its impact on water abstraction charge and tax allowance. Our demand forecast is discussed in Chapter 8.
- our rate of return (WACC) of 5.85% (2023-24) compared to adjusted Icon Water's proposal of 5.93% (2023-24), which reduced the total revenue requirement by $26.2 million. Our draft decision on the individual rate of return parameters is discussed in Chapter 6.
- our adjustments to Icon Water's proposed operating expenditure allowance which reduced total revenue requirement by $58.7 million. This is discussed in Chapter 3.
- our adjustments to forecast capital expenditure (ex-ante adjustment) and historical capital expenditure (ex-post adjustment), which reduced total revenue requirement by $31.7 million. The

impact of capital expenditure adjustments on total revenue requirement is through the return on, and of, capital components. Our capital expenditure adjustments are discussed in Chapter 4.

Figure 7.1 shows the effect of our draft decisions on the total revenue requirement compared to Icon Water's proposal. The dashed line shows Icon Water's adjusted total revenue requirement of $2,155.4 million.

Figure 7.1 Effect on total revenue requirement of adjustments from Icon Water's proposal to our draft decision ($m, nominal)



Source: Our calculations.

7.4 Our revenue adjustments are slightly higher than Icon Water's proposal

Icon Water derives revenue from several sources, which are unrelated to its provision of regulated water and sewerage services. These revenue items must be deducted from Icon Water's total revenue requirement to determine the net revenue requirement for the forward regulatory period. We use the net revenue requirement to set the regulated prices for water and sewerage services.

These revenue adjustments include the following:

- revenue from bulk water sales to QPRC
- subvention payments by the Commonwealth Government
- income from miscellaneous charges and other sources, which reflects Icon Water's proposed new prices for miscellaneous services. Our draft decision accepts Icon Water's proposed miscellaneous fees and charges, which is discussed in Chapter 10 of this draft report.

Revenue from CSO payments should also be deducted from Icon Water's total revenue requirement to determine the net revenue requirement. Icon Water has adopted the same approach as our 2018 decision to calculate notional CSO payments associated with:

- greenhouse gas abatement activities associated with water security projects
- sewerage services to Uriarra Village over and above what it would recover from residents through the regulated sewerage services charge.

Icon Water also included an adjustment for costs related to non-potable water services, including the supply of recycled water from the Lower Molonglo Water Quality Control Centre. Because the price of non-potable water services is not regulated, the cost of providing non-potable water services must not be included in the revenue requirement and any shared costs should be allocated appropriately between regulated services and non-regulated services.

We are satisfied with Icon Water's proposed approach to adjust the revenue requirement for the costs related to non-potable water services. However, historical inflation data in Icon Water's non-potable water services model was inconsistent with the revenue model. We corrected this error and used our draft decision rate of return (WACC), which resulted in our revenue adjustments being $0.2 million more than Icon Water's adjusted proposal over the regulatory period.

7.5 Our draft decision net revenue requirement is lower than Icon Water's proposal

The net revenue requirement provides the maximum revenue Icon Water can receive from regulated water and sewerage services tariff in the 2023–28 regulatory period.

Our draft decision is to set a net revenue requirement of $993.4 million for water services and $808.4 million for sewerage services over the 2023-28 regulatory period. This is $88.4 million (8.2%) less for water services and $69.9 million (8.0%) less for sewerage services than Icon Water's proposal.

Our draft decision on the revenue adjustments and the net revenue requirement for regulated water and sewerage services are shown in Table 7.5.

Table 7.5 Our draft decision on the revenue adjustments and net revenue requirement for water and sewerage services, 2023-28 ($m, nominal)

Water services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	$197.8	$208.2	$219.0	$231.0	$242.9	$1,099.0
Subvention	$1.3	$1.3	$1.3	$1.4	$1.4	$6.7
Sales to QPRC and other adjustments	$17.8	$18.5	$19.2	$19.8	$20.5	$95.7
CSO payments	$0.6	$0.6	$0.6	$0.7	$0.7	$3.1
Total revenue adjustments	$19.6	$20.4	$21.2	$21.8	$22.6	$105.5
Net revenue requirement	$178.2	$187.8	$197.8	$209.2	$220.4	$993.4

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	$158.3	$167.0	$177.4	$190.5	$205.2	$898.4
Subvention	$12.6	$13.0	$13.3	$13.7	$14.0	$66.6
Other adjustments	$3.5	$3.6	$3.7	$3.8	$3.9	$18.5
CSO payments	$0.9	$0.9	$1.0	$1.0	$1.0	$4.8
Total revenue adjustments	$17.0	$17.5	$18.0	$18.5	$19.0	$89.9
Net revenue requirement	$141.3	$149.5	$159.4	$172.0	$186.2	$808.4

Source: Our calculations.

Note: Totals may not equal the sum of individual components due to rounding.

8. Forecast demand and service connections

We use demand forecasts to set maximum prices for water and sewerage services. We need forecasts of water connection numbers, water usage, sewerage connection numbers and billable fixtures to set prices that will allow Icon Water to recover its prudent and efficient costs of providing water and sewerage services. We also need the forecast of sewage volume to assess Icon Water's sewage treatment costs.

This chapter presents our draft decision on the demand forecasts we will use to set the prices for water and sewerage services for the 2023–28 regulatory period.

Our draft decision

We have developed the demand forecasts using the methodology and data sources we confirmed in our review of water and sewerage services demand forecasting methods.[47]

Our demand forecasts for this draft decision are shown in Table 8.1. We expect steady growth in demand over the 2023-28 period, largely based on a rising ACT population along with climate variability. Our forecasts are similar to Icon Water's proposal, but we have used more recent data to develop the forecasts. Our forecast approach for non-residential sewerage connections (billable fixtures) recognises that the billable fixtures historical trend may be distorted by the impact of the COVID-19 pandemic on commercial operations. These forecasts will be further updated using the latest data before releasing our final decision.

Table 8.1 Our draft decision on water and sewerage services demand forecasts

Year	Dam abstractions (GL)	Tier 1 water usage (GL)	Tier 2 water usage (GL)	No. of water customers	No. of sewerage services customers	No. of billable fixtures	Sewage volume (GL)
2023-24	52.24	27.78	16.19	201,002	200,190	67,760	37.58
2024-25	52.58	28.09	16.16	203,957	202,745	68,192	38.14
2025-26	53.13	28.47	16.25	207,061	205,300	68,623	38.70
2026-27	53.72	28.86	16.35	210,324	207,855	69,054	39.25
2027-28	54.29	29.26	16.42	213,761	210,410	69,485	39.81

Source: Our calculations.

8.1 Icon Water's proposal

As part of its proposal, Icon Water developed its demand forecasts for the 2023–28 period using the same methodology and data sources confirmed in our demand methodology review.

[47] ICRC 2021, available at https://www.icrc.act.gov.au/__data/assets/pdf_file/0007/1914262/Final-report-Water-and-sewerage-services-demand-forecasting-methods.pdf

However, to forecast water connections, sewerage connections and billable fixtures, Icon Water suggested making a post-model adjustment because the estimated result from the forecast models were not consistent with the actual observations.

Icon Water developed the forecasts using actual data to 7 November 2021. Icon Water noted that it will update its forecasts with the latest available data when it responds to our draft price direction in late 2022. Icon Water's proposed forecasts are summarised in Table 8.2.

Table 8.2 Icon Water's proposed water and sewerage services demand forecasts

Year	Dam abstractions (GL)	Tier 1 water usage (GL)	Tier 2 water usage (GL)	No. of water customers	No. of sewerage services customers	No. of billable fixtures	Sewage volume (GL)
2023-24	51.94	27.29	16.43	199,679	197,572	64,962	37.58
2024-25	52.42	27.67	16.44	203,460	200,538	65,231	38.14
2025-26	53.14	28.14	16.57	207,469	203,565	65,506	38.70
2026-27	53.90	28.62	16.73	211,639	206,592	65,780	39.25
2027-28	54.63	29.10	16.86	215,890	209,558	66,049	39.81

Source: Icon Water (2022).

8.2 How we developed the forecasts

We have applied the methodology and data inputs we confirmed in our demand methodology review (ICRC 2021). For this draft report, we have developed the forecasts using actual data to 14 July 2022. We will update the forecasts with the latest available data for the final report.

In the demand methodology review, we decided to largely retain our previous forecasting approach and to make improvements to the data inputs used to forecast dam abstractions, develop future climate scenarios, and forecast connection numbers and billable fixtures. We decided to update the datasets used in the model to include the latest available data.

8.3 We use a three-step process to forecast water demand in the ACT

In step 1, we forecast the volume of water abstractions from Icon Water's dams, which is presented in section 8.3.1.

In step 2, we forecast the share of dam abstractions that will be used by ACT consumers, which is presented in section 8.3.2.

Icon Water supplies water at two price tiers—the Tier 1 rate applies to water usage up to 50kL per quarter and the Tier 2 rate applies to water usage above that amount. In step 3, the total ACT water usage forecast is split into Tier 1 and Tier 2, which is presented in section 8.3.3.

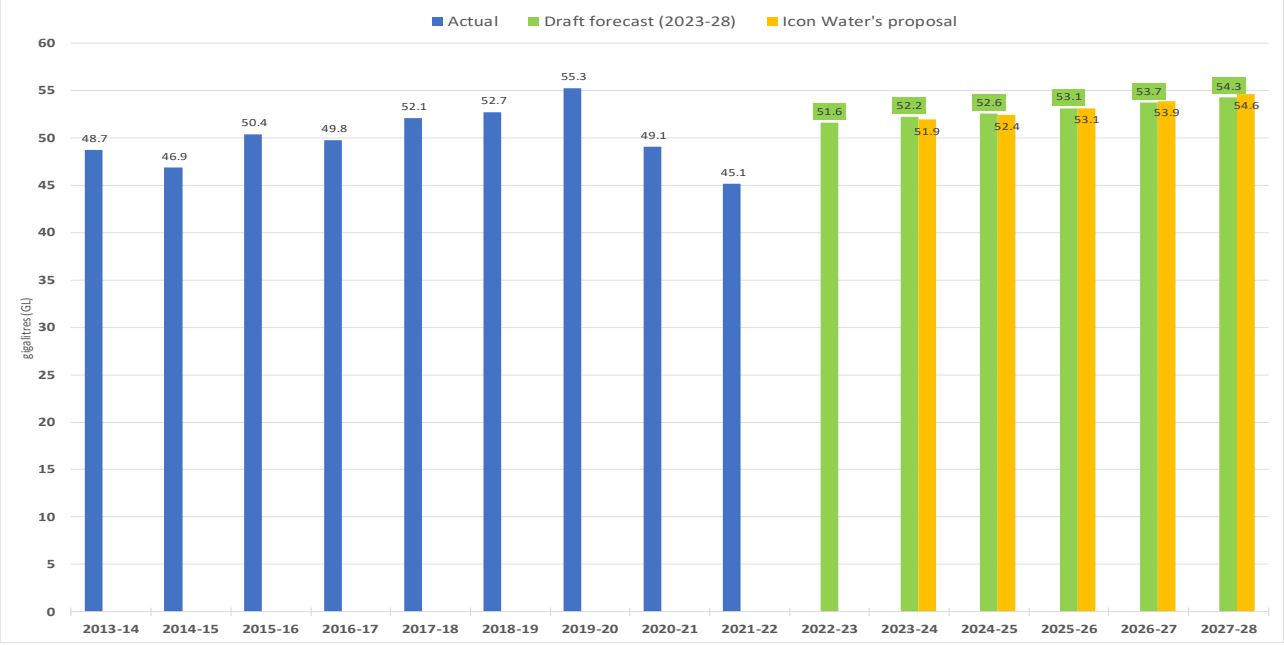
8.3.1 We expect an upward trend in the volume of water abstractions

Our dam abstractions forecast for the 2023–28 period is shown in Figure 8.1 (green bars).

Our model forecasts a slight upward trend in the volume of dam abstractions—an average increase of 1% per annum over the 2023–28 regulatory period. This trend reflects the effect of changing climate and rising population on water demand.

Because we have used up-to-date data to 14 July 2022, our forecast is slightly different from Icon Water's forecast (yellow bars). Our forecast is in line with the trend in water abstraction volumes over the past decade (blue bars), considering the volatility in past volumes caused by changes in annual climate variables (rainfall, temperature and evaporation) over the decade.

Figure 8.1 Dam abstractions: actual volume and forecast, 2013-14 to 2027-28



Source: Our analysis based on data from Icon Water.

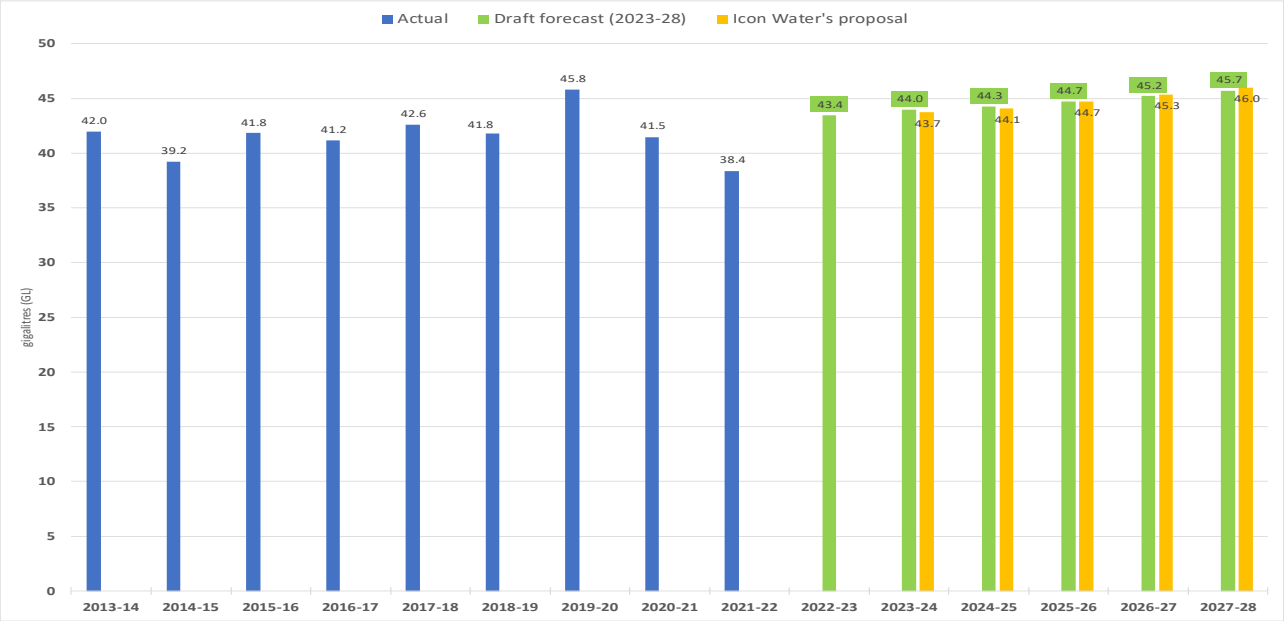
8.3.2 We expect an upward trend in the volume of ACT water usage

Our forecast of total ACT water usage for the 2023–28 period is shown in Figure 8.2 (green bars). Like dam abstractions, our model forecasts a slight upward trend in the volume of total ACT water usage—an average increase of 1% per annum over the 2023–28 regulatory period.

We have estimated the historical relationship between ACT water usage and dam abstractions to develop the forecast using an expanded dataset from 1999–2000 to 2021–22.

Because we used more recent data, our forecast is slightly different from Icon Water's forecast (yellow bars).

Figure 8.2 Total ACT water usage actual volume and forecast, 2013-14 to 2027-28



Source: Our analysis based on data from Icon Water.

8.3.3 We expect Tier 1 water usage will increase by more than Tier 2 water usage

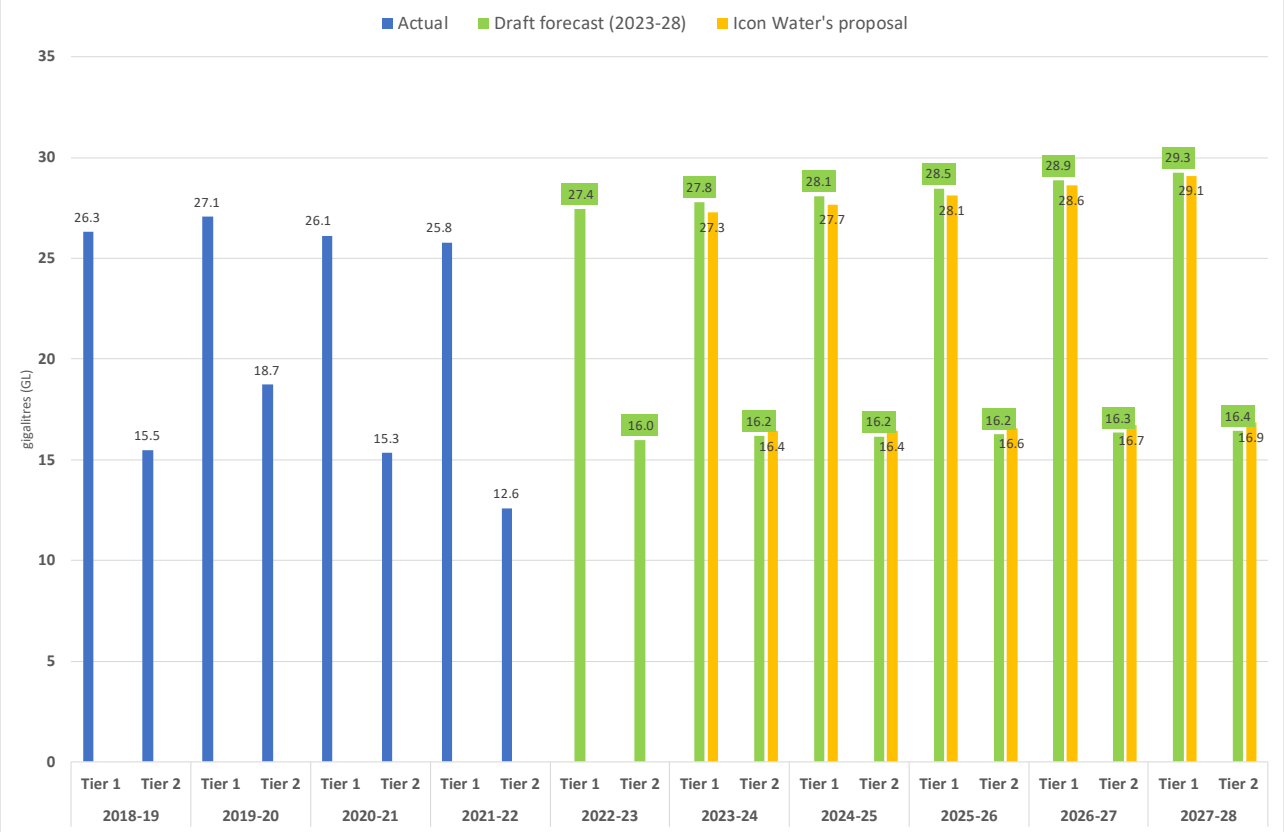
Our Tier 1 and Tier 2 water usage forecasts for the 2023–28 period are shown in Figure 8.3 (green bars).

Our model forecasts Tier 1 water usage will increase, on average, by 1.3% per annum but Tier 2 water usage will increase, on average, by only 0.3% per annum over the 2023-28 period. Most of the increase in ACT water usage over this period is expected to come from low usage customers. This trend is consistent with the change in water consumption behaviour that occurred during the millennium drought when water consumption per customer declined, and since then has remained stable at that lower level (ICRC 2021).

We forecast the Tier 1 sales based on the historical relationship between the average amount of water consumed per connection and the proportion of total water usage falling into the Tier 1 category. For this draft decision, we have used an expanded dataset from 2009–10 to 2021–22. As noted in our demand methodology review, we modelled different forms of the relationship such as straight line and exponential forms to identify the form that best explains the historical trend. Attachment 2 provides further details on the different forms of the relationship we considered. We have then applied the best relationship to forecast the split of water usage at Tier 1 and Tier 2.

Our forecasts are in line with average actual water usage over the past four years. Our Tier 2 forecast is stable compared to the annual variability in the actual Tier 2 water usage. The annual variability in actual water usage reflects changes in annual climate variables (rainfall, temperature and evaporation). Because we cannot forecast climate variables accurately, the normal volatility in climate variables is smoothed out in the demand forecasts. The higher Tier 2 water usage in 2019-20 is due to drier than average conditions that would have made some customers, who normally would use just under 50kL per quarter (the Tier 1 threshold), to use more than 50kL water per quarter. In contrast, the lower level of Tier 2 water usage in 2021–22 is due to wetter than average conditions that would have made some customers, who normally would use just over 50kL per quarter, to use less than 50kL water per quarter.

Figure 8.3 Tier 1 and Tier 2 water usage actual volumes and forecasts, 2018-19 to 2027-28



Source: Our analysis based on data from Icon Water.

8.4 We expect an upward trend in connection numbers and billable fixtures

8.4.1 We have used ACT population projections to develop the forecasts

We have forecasted water and sewerage services connection numbers and billable fixtures based on ACT population projections.

Firstly, we have estimated the historical relationship between ACT population and each demand component of water service connection numbers, sewerage service connection numbers, and billable fixtures. In estimating the relationship, we considered the revisions to the ACT's historical resident

population by the Australian Bureau of Statistics (ABS) that followed the release of Census 2021 in June 2022. The ABS has rebased the estimated resident population from 2016 and revised the ACT population.[48]

Secondly, we applied the estimated historical relationship to ACT population projections to forecast connection numbers and billable fixtures for the 2023–28 regulatory period. In this draft report, we have used the projections developed by the Australian Government's Centre for Population, which are the most current projections available that account for the effect of the COVID-19 pandemic. Because the Centre for Population projections were released before the ABS revisions, we used the revised ACT population for 2021–22 as the starting point in the Centre for Population workbook and used the resulting adjusted projections.[49]

We note the ACT Government's population projections are being updated to account for the effect of the COVID-19 pandemic and the ABS revisions.[50] For the final report, we will consider using the ACT Government's population projections if they become available in time, otherwise we will retain the approach used in this draft report.

Attachment 2 gives further details on the relationship we estimated between the ACT population and each demand component of water service connection numbers, sewerage service connection numbers, and billable fixtures.

8.4.2 We expect an upward trend in water service connection numbers

Our forecast water service connection numbers for the 2023–28 period is shown in Figure 8.4 (green bars).

Our model forecasts a slight upward trend in the water connection numbers—an average increase of 1.5% per annum over the 2023–28 regulatory period. This trend is consistent with the growth expected in the ACT population (ACT Government 2022).

For this draft report, we used an expanded dataset from 2006-07 to 2021-22 to estimate the historical relationship between ACT population and forecast water connection numbers.

The historical data shows that the number of water connections increases each year (blue bars). However, the number of connections estimated by our model for 2022-23 (194,401 connections) is lower than the actual number of connections for the previous year (196,017 in 2021-22), which is not consistent with the observed trend. This is because of a greater increase in water connection numbers in 2020-21 and 2021-22 (5,010 connections per year) than the average increase of slightly under 4,000 connections per year observed in the decade before 2020-21. Because the forecast model reflects long-term average trend, the most recent above average increase in connection numbers is smoothed out. It also means that our estimated connection numbers for 2021-22 is less than the actual connection numbers. Therefore, we have made a post-model adjustment such that the estimated value for 2021-22 is equal to the actual number of

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[48] According to the rebased number, as of 30 June 2021, the ACT population has been revised up from 432,000 to 454,000. See https://www.abs.gov.au/statistics/detailed-methodology-information/information-papers/methodology-used-rebased-population-estimates-june-2021 for details.

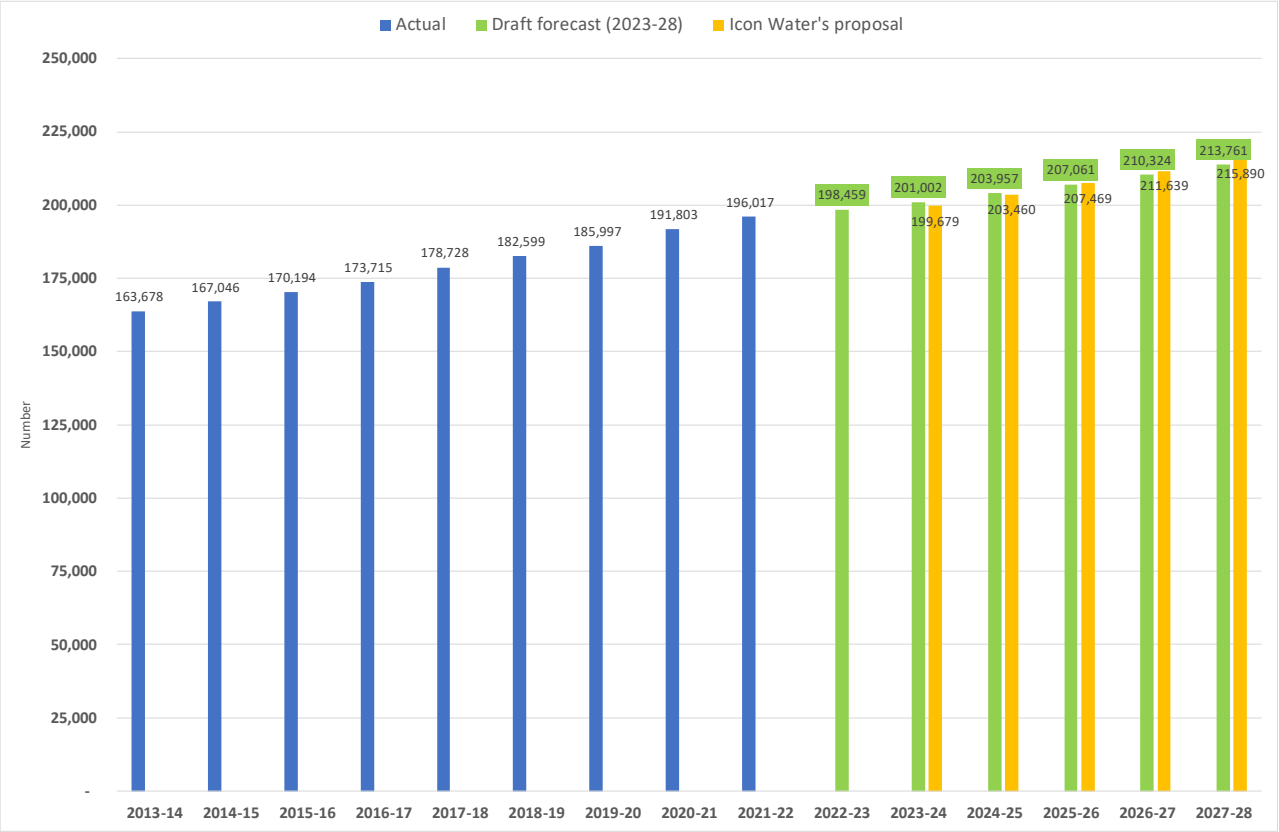
[49] In the Centre for Population workbook, we updated the population at the start of 2021-22 and assumed that the long-term natural increase and net overseas/interstate migration applied by the Centre for Population remain the same.

[50] https://www.treasury.act.gov.au/snapshot/demography/act

water connections in that year.[51] In making this post-model adjustment, we have accepted Icon Water's suggested approach, which had noted a similar issue based on data to 2020-21.

Because we used more recent data and considered the ABS' revisions to the ACT population, our forecast is slightly different from Icon Water's forecast (yellow bars).

Figure 8.4 Water service connection actual numbers and forecasts, 2013-14 to 2027-28



Source: Our analysis based on data from Icon Water.

8.4.3 We expect an upward trend in sewerage service connection numbers

Our forecast sewerage service connection numbers for the 2023–28 period are shown in Figure 8.5 (green bars).

Like water service connection numbers, our model forecasts a slight upward trend in the sewerage service connection numbers—an average increase of 1.2% per annum over the 2023–28 regulatory period.

For this draft report, we used an expanded historical dataset from 2006-07 to 2021-22 to estimate the historical relationship between ACT population and forecast sewerage connection numbers.

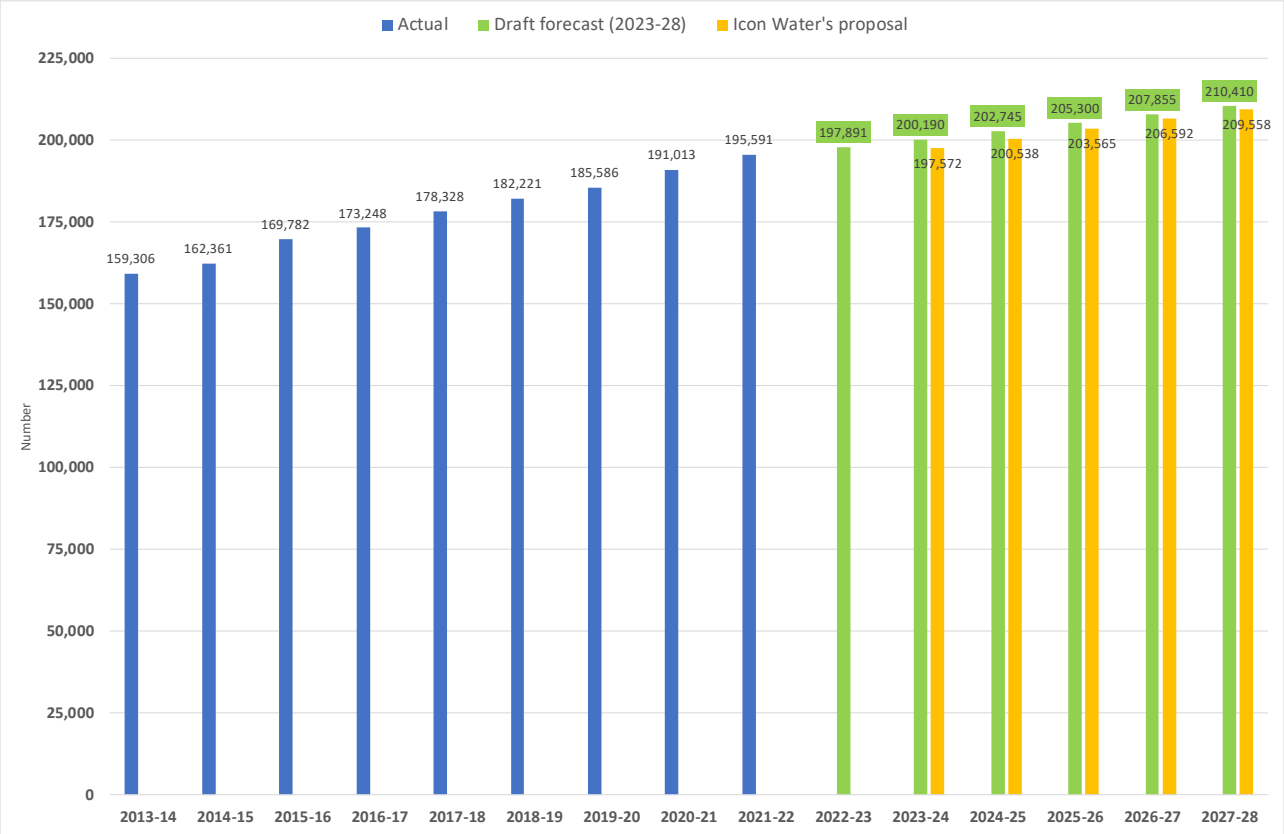
Like the water service connection forecasts, the number of sewerage connections estimated by our model for 2022-23 (194,175 connections) is lower than the actual number of connections for the previous year

[51] The adjustment involved an upward shift of the model fitted line by adding a fixed constant of 4,058 connections to each year of the forecast—4,058 is the difference between the actual connections and the fitted connections for 2021–22. The rate at which connections increase with population was unchanged.

(195,591 in 2021-22), which is not consistent with the observed trend of connections consistently increasing each year. This is due to an above average increase in sewerage connection numbers in 2021-21 and 2021-22. Therefore, we have made a post-model adjustment and accepted Icon Water's suggested approach.[52]

Because we used more recent data and considered the ABS' revisions to the ACT population, our forecast is slightly different from Icon Water's forecast (yellow bars).

Figure 8.5 Sewerage service connection actual numbers and forecast, 2013-14 to 2027-28



Source: Our analysis based on data from Icon Water.

8.4.4 We expect an upward trend in billable fixtures numbers

Our forecast of billable fixtures for the 2023–28 period is shown in Figure 8.6 (green line).

Our forecast over the 2023–28 regulatory period is, on average, 4.8% higher than Icon Water's forecast (yellow line). Most of that difference is because we have used the most recent actual data to 2021–22 (blue line). Our forecast includes the sharp increase in the number of billable fixtures in 2021-22, which is not considered in Icon Water's forecast.

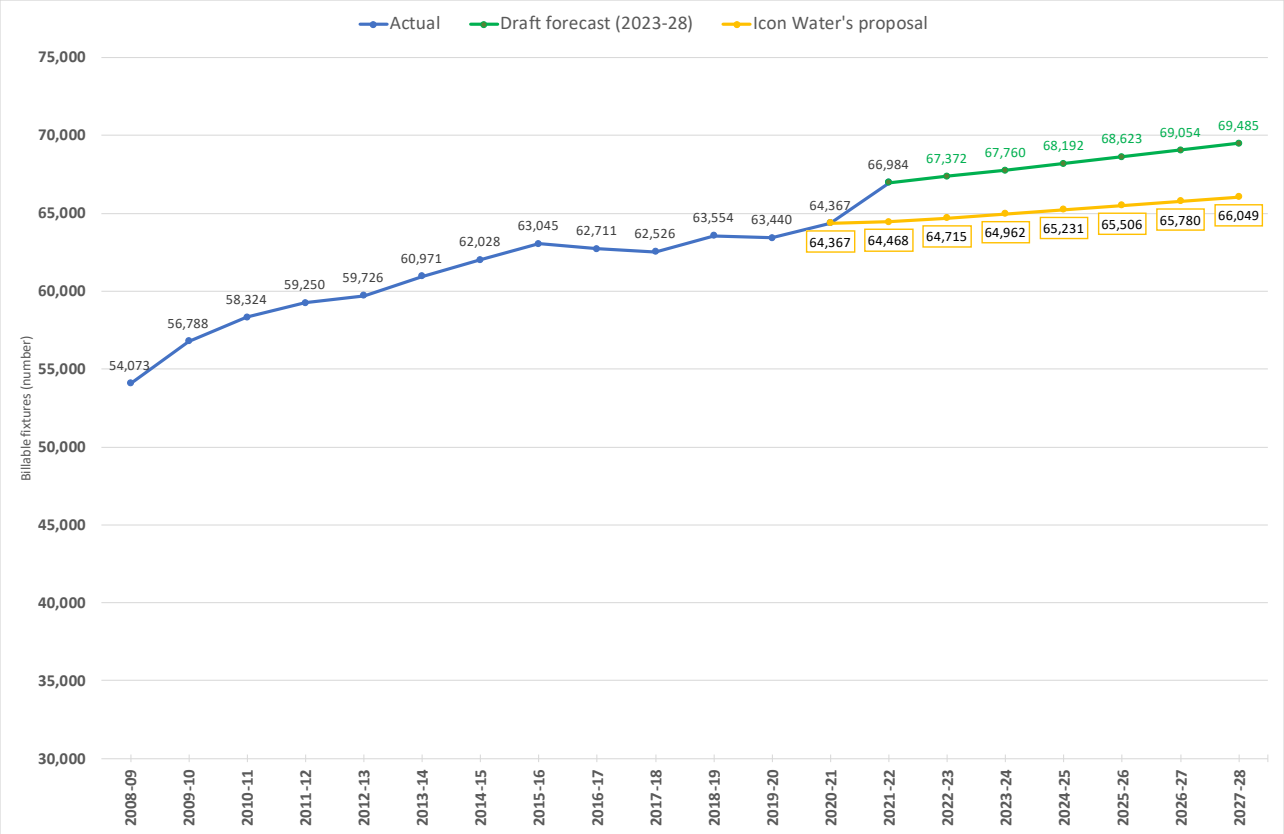
Billable fixture numbers are driven by activity in the commercial sector because non-residential customers with more than two flushable fixtures pay a separate fee for each additional fixture. The sharp increase in

[52] The adjustment involved an upward shift of the model fitted line by adding a fixed constant of 3,716 connections to each year of the forecast—3,716 is the difference between the actual connections and the fitted connections for 2021–22. The rate at which connections increase with population was unchanged.

2021-22 reflects an increase in commercial operations, as they return to normal after the COVID-19 pandemic-induced lockdowns.

The observed data shows two contrasting trends: a period of gradual growth in the number of billable fixtures (2008-09 to 2015-16) and a period when the number of billable fixtures is relatively flat (2016-17 to 2020-21), which includes the impact of the COVID-19 pandemic on commercial operations. We have used the straight-line form of relationship as it smooths out the two trends including the sharp increase observed in 2021-22. For this price investigation, we had 14 annual observations available from 2008–09 to 2021–22 to estimate the historical relationship between ACT population and forecast billable fixtures. Because the data are affected by COVID-19 related disruptions, we will review the form of the relationship in the next price investigation when more data will be available.

Figure 8.6 Billable fixtures actual numbers and forecast, 2008-09 to 2027-28



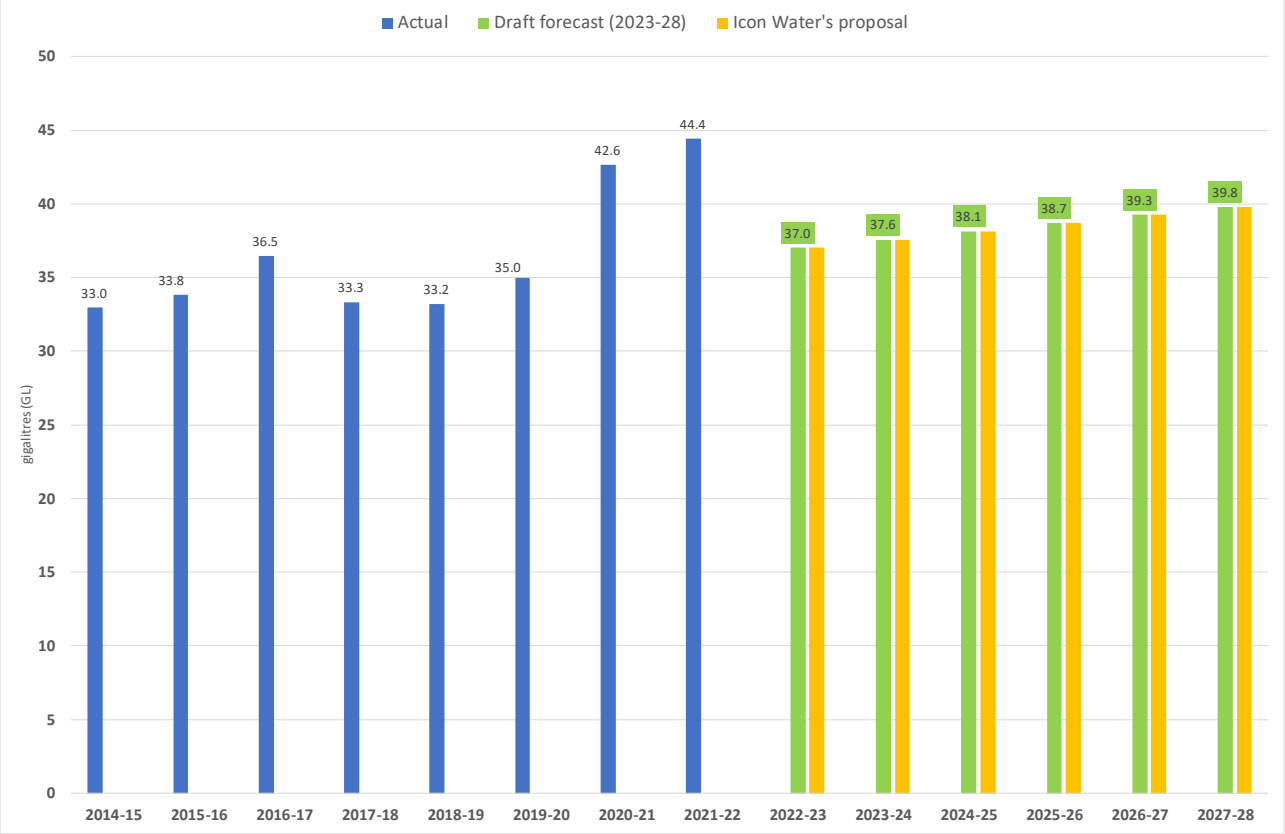
Source: Our analysis based on data from Icon Water.

8.5 We expect an upward trend in sewage volumes

We have accepted Icon Water's forecast of sewage volumes for the 2023–28 period (green and yellow bars in Figure 8.7). Sewage volumes are forecast to increase, on average, by 1.5% per annum over the 2023–28 regulatory period. This trend is consistent with the growth expected in the ACT population.

The forecasts are generally in line with the trend in actual sewage volume (blue bars), considering the volatility in past volumes caused by changes in annual rainfall. However, the years 2020-21 and 2021-22 are exceptions because above average rainfall resulted in greater than forecast sewage flows into the Lower Molonglo Water Quality Control Centre (LMWQCC).

Figure 8.7 Sewage actual volumes and forecasts, 2014-15 to 2027-28



Source: Icon Water calculation.

8.6 Background

We use demand forecasts to set maximum prices for water and sewerage services so Icon Water can recover its prudent and efficient costs of providing those services. We need forecasts of six components of water and sewerage services demand to set the maximum prices. The components are:

Water services demand components

1. Total water abstractions from dams

The forecast volume of dam abstractions in each year is used to estimate the total water usage in the ACT and to estimate the annual water abstraction charge paid by Icon Water to the ACT Government.

2. Water usage at Tier 1 and Tier 2

Icon Water sells water at two price tiers. The Tier 1 rate applies to water usage up to 50kL per quarter and the Tier 2 rate applies to water usage above that amount. Water usage is forecast for these two tiers separately.

3. Number of water service connections

The number of water service connections in each year is forecast to estimate Icon Water's revenue from water supply charges in each year.

Sewerage services demand components

4. Number of sewerage services connections

The number of sewerage service connections in each year is forecast to estimate Icon Water's revenue from sewerage supply charges in each year.

5. Number of additional billable fixtures

A flushable fixture is either a toilet, urinal or other fixture with a flushing cistern or flush valve. Non-residential customers with more than two flushable fixtures pay a separate fee for each additional fixture. We forecast the total number of additional billable fixtures to estimate Icon Water's revenue from supply charges for these fixtures.

6. Sewage volumes

Forecasts of sewage volumes are required to estimate sewage treatment costs, which are then used to set Icon Water's sewerage service prices.

9. Tariff structure

The tariff structure is a mix of charges Icon Water uses to recover the required revenue from water and sewerage consumers. In this chapter, we will provide our draft decision and rationale regarding the structure of the water tariffs and sewerage tariffs that will apply for the regulatory period 1 July 2023 to 30 June 2028.

In determining the tariff structure, we take into consideration:

- the Terms of Reference[53]
- our Pricing Principles[54]
- Icon Water's pricing proposal
- submissions from industry stakeholders, including the public.

Our draft decision

Our draft decision on the tariff structures for the 2023-28 regulatory period is summarised below:

- We will retain the two-tier inclining block water tariff structure and apply applying price changes uniformly across all water tariff components.
- We will maintain the existing sewerage tariff structure, comprising a fixed annual supply charge for all customers, and a flushing fixture charge applying to non-residential customers.
- We will conduct a review of sewerage tariff structure over the next regulatory period. We included a future reset principle in the price direction to give effect to this review.

We provide Icon Water's proposed water and sewerage pricing schedule at Chapter 10.

9.1 Water tariffs

The tariff structure for water services consists of:

- a fixed supply charge and
- a two-tier water usage charge, with a lower price (Tier 1) for the first 200 kilolitres (kL) of water use and a higher price (Tier 2) for water use above that level.

This same tariff structure applies to both residential and non-residential customers. Customer bills are calculated on a daily *pro rata* basis, and payment occurs quarterly.[55]

The water tariff structure balances multiple objectives including incentivising customers to use water efficiently. The first tier ensures that some amount of water is available at a lower charge to meet essential needs. Also, it gives Icon Water the ability to recover its efficient costs.

We completed a detailed review of the water tariff structure in 2017. During the 2018 water price investigation, we retained the structure but rebalanced its components by gradually increasing the fixed

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[53] See Appendix 1
[54] See Appendix 3 of the commission's Issues Paper
[55] Customer bills are calculated by applying the Tier 1 price to the first 0.548kL on average per day of their billing period, and the Tier 2 price for any usage thereafter. Note, 200kL / 365 days = 0.548kL

supply charge ($20 per year). This had the effect of proportionally reducing the two usage-based charges. To arrive at this decision, we considered the following factors:

- The ACT was more water secure because of increased storage capacity due to the enlarged Cotter Dam and lower average water consumption.
- The two usage-based charges were the highest in the country (Figure 9.2) and the fixed supply charge was one of the lowest (Figure 9.1).
- The increase in in the fixed supply charge would better align the water tariff structure with Icon Water's cost structure, which is predominantly made of fixed costs.

Tariff rebalancing efforts in the 2018–23 regulatory period have brought the ACT's tier 1 and fixed charges in line with charges in other jurisdictions. However, the tier 2 charge remains the highest in the country.

Figure 9.1 Australian utilities' fixed supply water charge, 2021–22 ($ per year)

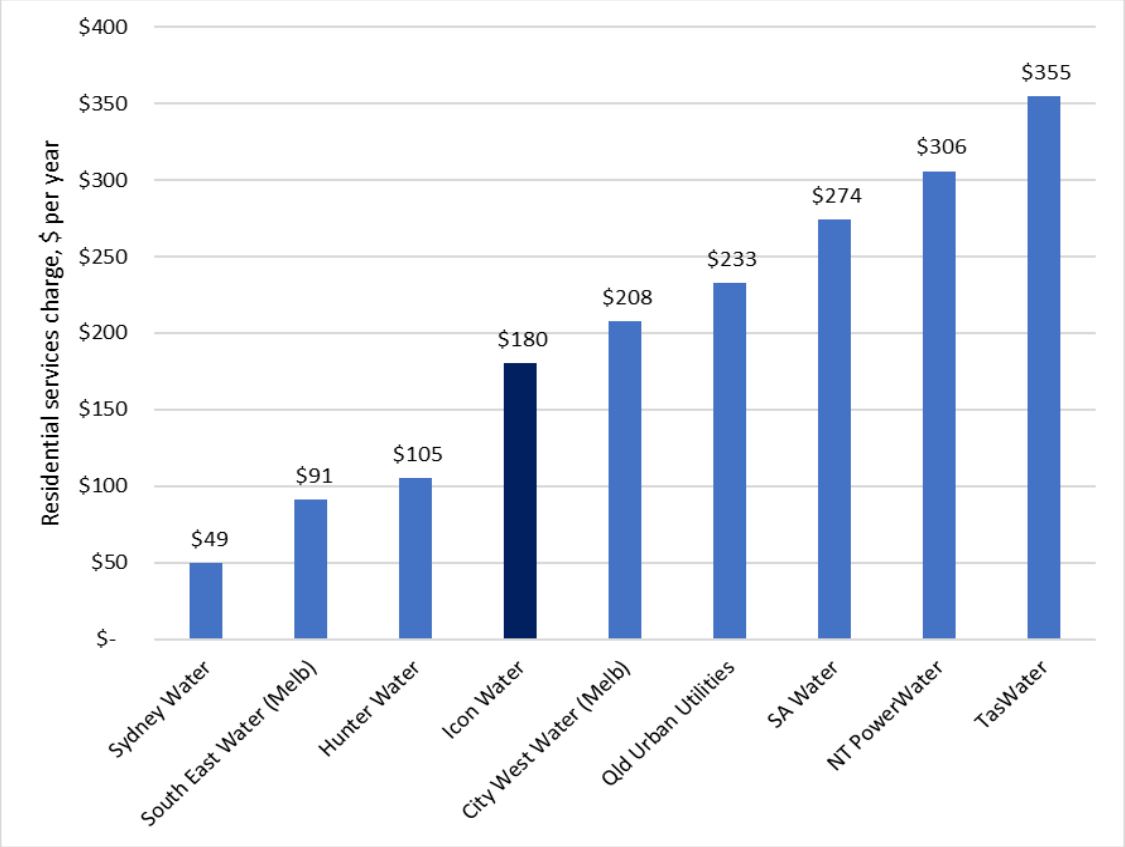
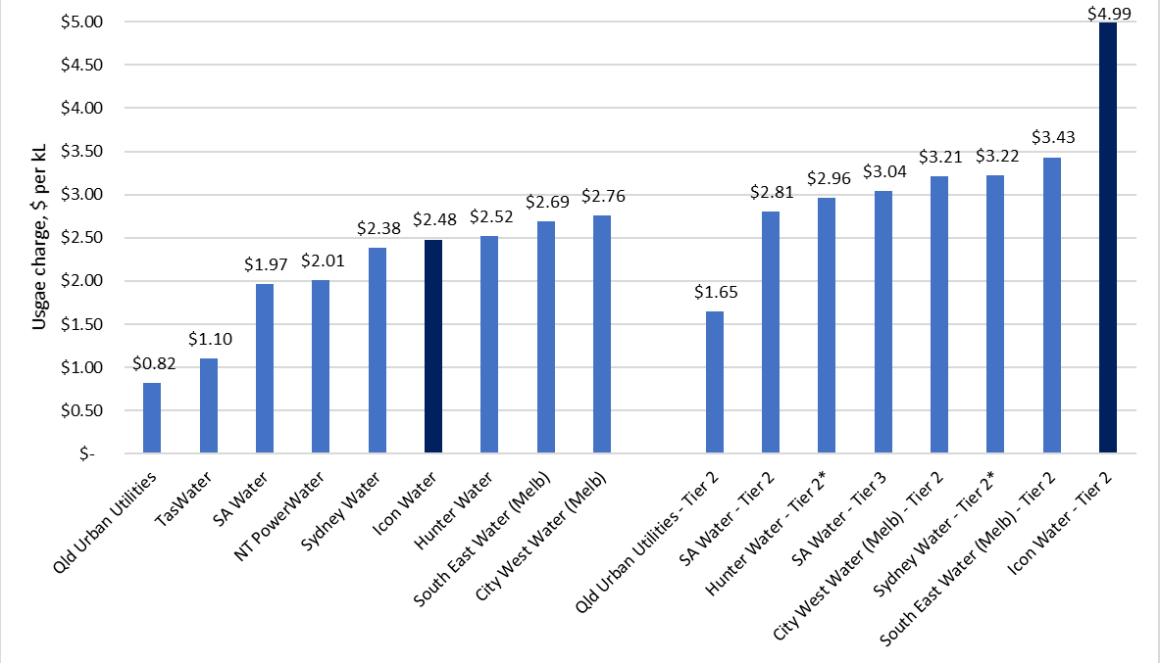


Figure 9.2 Australian utilities' water tariff tiers, 2021–22 ($ per kL)



Sources: City West Water (2021), Hunter Water (2021), ICRC (2021), PowerWater (2021), Urban Utilities (2021), SA Water (2021), South East Water (2021), Sydney Water (2021); and TasWater (2021).
Note: * NSW water providers' drought prices are denoted as tier 2 prices (Hunter Water and Sydney Water).

9.2 Sewerage tariffs

The tariff structure for sewerage services consists of:

- a fixed supply charge and
- a fixture charge for non-residential customers for each additional flushing fixture more than two.

Icon Water does not currently have a trade waste tariff.

9.3 Stakeholder submissions on the issues paper

Hotel and accommodation sector proposed changing the sewerage tariff structure

We received 7 submissions from the hotel and accommodation sector[56], with several arguments consistent across the submissions:

- An accommodation property (such as a hotel room) places less load on the sewerage network compared to a residential property or a commercial property.
- However, the pricing method for setting the flushing fixture charge does not capture these differences in the load.

[56] Schwartz Family Co (Mercure Hotel Canberra), Novotel Canberra, Salter Brothers Asset Management Pty Ltd (Crowne Plaza Canberra Hotel), Pro-Invest Group (Sebel Canberra Civic), TFE Hotels (Adina Canberra), the ACT Branch of the Australian Hotels Association, Glemarie Capital Pty Ltd (Adina Serviced Apartments Canberra Dickson).

- Therefore, the hotel and accommodation sector pay substantially more than residential and commercial office users relative to their load on the network.
- The Australian Hotels Association (ACT) submission notes that the hotel and accommodation properties place less load on the sewerage network for the following reasons:
    - Unlike residential premises, hotel rooms do not have laundries and kitchens, so their use of the sewerage network is lower.
    - The number of guests per hotel room is on average lower than the users per residential premises.
    - The number of users per flushing fixture is on average lower in a hotel than a commercial office building, however commercial buildings pay the same supply charge per fixture.

The Australian Hotels Association (ACT) also noted that hotels are charged for each flushing fixture (or on a per room basis), but residential houses and apartments are charged for each address regardless of the number of flushing fixtures. This meant accommodation hotels pay more per flushing fixture than residential properties, including those used for private rentals (e.g., AirBnB).

Further, representatives for Sebel Canberra, Adina Canberra, and Crowne Plaza Canberra Hotel, respectively, argued that the occupancy levels are not anticipated to reach pre-COVID levels for the foreseeable future. Subsequently, they argue that the hotel and accommodation sector does not expect to be contributing to peak demand pressure on the sewerage system. Therefore, they argue that the current way of determining the charges acts to subsidise commercial office and residential dwellings.

The Australian Hotels Association (ACT) proposed the following options:

- setting the fixed supply charge based on the 'Equivalent Tenement' (ET) methodology. We note that TasWater uses the ET methodology to measure the load a property places on the sewerage system and to determine an equitable sewerage service price.
- setting the fixed charge at a discounted rate for the hotel and accommodation sector relative to the charge for a residential property (83% off residential charge) or a commercial property (92% of commercial property charge). This is to reflect the differences in load and intensity of use per fixture.

Icon Water's submission regarding sewerage and water

Icon Water submitted that its position is that any further rebalancing of tariffs should only occur if there is strong community support and understanding of the impacts on different customer segments. It advised that they had consulted with the community and found that their customers were generally split on the balance of fixed and variable charges. We provide more detail about Icon Water's consumer engagement on water tariff structure and its position below, when discussing Icon Water's proposal.

ACTCOSS recommends that we consider the impact on low-income households

The ACT Council of Community Services (ACTCOSS) provided a broad support of the water tariff structure's use of a fixed supply charge and a two-tiered water usage rate. Further, ACTCOSS recommended that our investigation include an analysis of distributional impacts of the tariff structure across households and organisations. They recommended that we consider the impacts on affordability for low-income households and not-for-profit organisations with different levels of water usage. In response, we note that as a part of the terms of reference and the ICRC, in particular section 7, we are required to facilitate an appropriate balance between efficiency and environmental and social considerations.

9.4 Icon Water proposes to maintain the existing tariff structure

Proposed water tariff structure

Icon Water has proposed to retain the two-tier inclining block water tariff structure for all customers.

As part of its community engagement, Icon Water reports that it explored the rebalancing issue with its customers by posing three options to customers:

Option A: Customers pay a higher fixed supply charge, where the water supply charge increases by $20 a year. This option continues the approach from the 2018-23 regulatory period.

Option B: the water supply charge increases by $10 per year and moderate usage charges

Option C: the price changes are applied uniformly across the water supply charge and the usage charges. This results in higher usage charges compared to Options A and B.

While some customer segments strongly supported continued tariff rebalancing and/or introducing a non-residential tariff, there was not a broad level of support across all customer segments to pursue changes at this time. Icon Water summarised the customer feedback as follows:

- Their customers had mixed opinions about their preferred approach.
- Most residential customers slightly preferred Option C.
- Larger water users and small to medium enterprise business customers favoured Option A.

- A small number of participants expressed concern about the charges that large water users would be paying compared to low water users. These customers preferred Option B.
- Some large water users advised that they could not restrict their water usage. Therefore, they argued that the Tier 2 price did not act as an effective signal for water conservation and did not reflect Icon Water's marginal cost of supply.

Icon Water proposes to maintain the current balance of water supply and usage charges. This means that Icon Water would cease the tariff rebalancing which occurred during the 2018-23 regulatory period, where the annual supply charge was increased by a fixed amount of $20 per year.

Proposed sewerage tariff structure

Icon Water received feedback on the current sewerage tariff structure, which comprises an annual supply charge payable by all customers and a flushing fixture charge payable by non-residential customers.

Icon Water acknowledged that some non-residential customers (including those in the hotels and accommodation sector) feel the flushing fixture charge is too high and does not reflect their costs on the wastewater network, particularly when compared to residential customers on a per-person basis.

In response to the concerns raised by the hotel and accommodation sector, Icon Water argues that the benefits of maintaining a simple and familiar sewerage tariff structure outweighs the costs of transitioning to a volume-based tariff. Therefore, Icon Water has proposed to retain the existing sewerage services tariff structure. However, Icon Water will continue to investigate non-residential discharges, their impacts and how it can best manage these discharges (including possible pricing options).

9.5 The commission's draft decisions

Water tariff structure

In our review of Icon Water's proposal, we have closely examined its consumer engagement on water tariffs. We found the opinions and suggestions made by customers, the Customer Advocacy Forum and the community councils helpful and informative.

From these engagements, we understand that the views and needs of smaller residential customers differ from larger usage customers (businesses and not-for profit organisations). Larger customers have advised that they would prefer a higher fixed supply charge, while lower usage charges and smaller customers advocate for the opposite approach. Based on the stakeholder submissions received to the Issues Paper and our review of Icon Water's regulatory proposal, we did not identify strong support for further rebalancing.

In the absence of strong community support for rebalancing, Icon Water contends that that we should maintain the current balance of supply and usage charges. Icon Water argues we can achieve this balance by applying a uniform increase to the fixed water supply charge and two-tiered usage charges (Option C). Further, Icon Water advises that the Customer Advocacy Forum recommended Option C to achieve equity across the different customers groups (large and small).

As part of achieving our statutory objectives[57], we facilitate an appropriate balance between efficiency and environmental and social considerations. In consideration of the consumer feedback that Icon Water provided, we must balance the needs of smaller and larger customers. Customers with lower water usage favour a lower fixed supply charge and higher usage rates. However, customers that consume lots of water want a higher fixed supply charge and lower usage rates.

Icon Water noted that some commercial customers that consume lots of water said that they cannot change their water usage. These customers argue that because they cannot change their consumption, increasing Tier 2 usage charges does not drive them to use less water. Therefore, they argue that the Tier 2 pricing does not drive economically efficient water usage.

Conversely, among small customers we find support for a two-tiered usage structure. If a customer can change their consumption in response to a price change, the two-tiered structure then promotes responsible water usage.

Our draft decision for the 2023-28 regulatory period

Having considered the information provided by Icon Water in its proposal, we determine that a uniform increase across both the fixed supply charge and usage rates (Option C) provides an appropriate balance for our statutory objectives.

We also agree with Icon Water's recommendation to retain the two-tier inclining block water tariff structure. From our reading of the submissions, we did not identify strong disagreement with this approach.

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[57] See section 7 of the ICRC Act. This section provides the commission's objectives.

Sewerage tariff structure: further consideration required

Background – the 2016-17 tariff structure review[58]

In the 2016 review, we said that the current tariff structure does not provide price signals to promote efficient provision and use of sewerage services. Despite this, we concluded that there was not a strong case for change because:

- Icon Water's costs are mostly fixed and do not vary significantly with changes in customer discharge. In theory, a more efficient structure would entail a multi-part tariff that includes a sewage volume charge set with reference to the marginal cost. However, just 7% of the total costs to be recovered in tariffs vary with customer discharge, reducing the importance of a usage-based price signal.
- There is no reliable measure of actual discharge volumes. Sewage is not metered; and no information is available on the volume of sewage discharge produced by customers. In addition, there is no practical way to monitor the type or composition of sewage produced and therefore the cost associated with treatment. The costs of designing and implementing a proxy measure for sewage discharge would reduce the benefits of introducing a sewage volume charge.

In its submissions during our 2016 tariff structure review, Icon Water advised that it planned to engage customers on specific tariff options. Specifically, Icon Water advised that it planned to ask its customers about a charging regime for liquid trade waste. Further, Icon Water advised that, in their view, sewerage pricing reform in the period commencing 2018 should focus on introducing a trade waste charging regime. Icon Water is yet to implement such a scheme. However, Icon Water advises that it will consult on a trade waste regime during the upcoming regulatory period

In the upcoming regulatory period, we will examine these issues again when undertaking our reset principles.

Our draft decision for the 2023-28 regulatory period

In undertaking our review of the submissions and materials provided thus far, we have identified several implementation challenges to changing the existing fixture-based system:

- It is not possible to make sewerage pricing more cost-reflective without adding complexity to our approach, such as the introduction of a usage charge. Without a usage charge, the scope of the reform will be limited to distributional considerations, rather than the extent to which prices reflect forward-looking costs.
- The reform may lead to significant bill increases for individual customers. Reforms that reduce costs for one group of customers will necessarily lead to higher charges for other groups of customers to ensure Icon Water can recover its costs.
- We need to examine approaches adopted by other regulators in more depth. This includes reviewing the Equivalent Tenement (ET) methodology used by Tasmania that was suggested by the Australian Hotels Association as a suitable way forward. We note that there are ongoing concerns with the accuracy of the ET methodology and the Office of the Tasmanian Economic Regulator (OTTER) has committed to review its ET methodology before the next regulatory period.[59]
- We need to investigate the volume of discharge/load produced by different businesses operating in the ACT to better understand the impact they impose on the network.

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[58] Please see our Final Report Tariff Structure Review 2016-17 at https://www.icrc.act.gov.au/__data/assets/pdf_file/0018/1250154/Tariff-Review-Final-Report.pdf.

[59] OTTER 2022, p 114.

To develop an informed view, we must undertake an investigation of the above identified issues and any other matters that require further consideration. This includes assessing any proposed changes against our pricing principles and the requirements outlined in the terms of reference. We must satisfy ourselves that any proposed change will lead to an improved outcome. Due to the complexity of the issues, the need to consult broadly, and the limited timeline for this price investigation, our draft decision is to maintain the existing tariff structure and consider these issues further during the coming regulatory period. We have accordingly proposed to include a reset principle in the draft price direction to review the flushable fixture charge in the context of sewerage charges and Icon Water's development of a trade waste strategy.

We intend to undertake these investigations during the 2023-28 regulatory period. We will give effect to this investigation through a future reset principle. We will keep industry stakeholders informed throughout the investigation and we will seek stakeholder consultation.

We note that Icon Water is currently considering approaches that would lead to better practices in managing liquid trade waste and reduce costs associated with collection and treatment of trade waste. Icon Water argues that future reforms to sewerage tariffs should account for the outcomes of its ongoing review of liquid trade waste.

Historically, we have been supportive of this position. For example, in our 2016 tariff review, we supported the introduction of trade waste pricing and said that this should be the focus of pricing reform for sewerage services in the upcoming years. We agree with Icon Water that this work is relevant to our future review of the sewerage tariff.

10. Prices for water and sewerage services

We set the maximum prices Icon Water can charge for regulated water and sewerage services. This chapter presents our draft decision on the water and sewerage services prices and price paths for the 2023–28 regulatory period.

Our draft decision on water and sewerage services prices

Our draft decision on maximum water and sewerage services prices for the 2023-28 regulatory period is set out in Table 10.1.

Our draft decision will result in an increase in the maximum water and sewerage charges for 2023-24 (the first year of the next regulatory period), compared to the 2022-23 prices (the last year of the current regulatory period). As shown in Table 10.1, each water charge increasing by 3.1% in nominal terms compared to the maximum prices in 2022–23. This is broadly consistent with the expected rate of inflation of 3%. The annual increase in sewerage prices at 5.6% per year in nominal terms is higher than forecast inflation, reflecting the significant increase in Icon Water's capital expenditure program for sewerage services.

The increases in water and sewerage prices reflect the effect of higher capital expenditure, operating expenditure, rate of return and forecast inflation in the 2023-28 regulatory period compared to the 2018-23 regulatory period, which more than offset the higher forecast demand.

As discussed in Chapter 11 of this draft report, these increases will translate to a 4.2% increase in the combined water and sewerage bill in 2023-24 for a residential customer consuming 200kL of water, compared to 2022-23. A mid-level non-residential customer consuming 5,000kL per annum with 50 flushable fixtures will see an increase of 4.4% in its combined bill.

However, our draft decision water prices are 2.7% lower and sewerage prices are 3.2% lower than the adjusted Icon Water proposal. It reflects our decision on the revenue requirements (see Chapter 7) and demand forecasts (see Chapter 8). The adjusted Icon Water proposal reflects our updates to the placeholder values in Icon Water's 30 June 2022 pricing submission. See Chapter 7 for a discussion on the adjusted Icon Water's proposal.

Table 10.1 Our draft decision on the maximum water and sewerage prices for 2023-28 ($, nominal)

Water prices	2022-23[a]	2023-24	2024-25	2025-26	2026-27	2027-28
Water supply charge ($/year/connection)	$200.00	$206.30	$212.79	$219.49	$226.40	$233.53
Tier 1 charge (0–200kL/year) ($/kL)	$2.28	$2.35	$2.43	$2.50	$2.58	$2.66
Tier 2 charge (more than 200kL/year) ($/kL)	$4.58	$4.72	$4.87	$5.03	$5.18	$5.35

Sewerage prices	2022-23[a]	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year/connection)	$502.18	$530.13	$559.64	$590.79	$623.67	$658.39
Sewerage fixtures charge ($/year/fixture)	$491.13	$518.47	$547.33	$577.79	$609.95	$643.90

Source: Our calculations.

Notes: [a] Data for 2022–23 (last year of the current regulatory period) are presented for comparison purposes.

Maximum prices from 2024–25 to 2027–28 could differ from the indicative prices in this table if actual inflation differs from forecast inflation, if the cost pass-through mechanism is triggered, or depending on the annual updates to the cost of debt. Sewerage fixtures charge applies only to non-residential customers for each flushing fixture in excess of two.

Our draft decision on miscellaneous fees and charges

Our draft decision accepts Icon Water's proposed miscellaneous fees and charges. We considered Icon Water's proposal within the context of its bottom-up review of the costs of providing miscellaneous services. We also considered miscellaneous charges levied by other regulated water businesses for comparable services.

While direct price comparisons are difficult given differences between businesses in the nature and scope of miscellaneous services being funded through prices, we note that Icon Water's proposed charges broadly align with those of other businesses.

We also note that Icon Water's proposed changes include both increases and decreases across most of its miscellaneous services. Our assessment of the sample of actual quotes that Icon Water had analysed for its submission show an average bill decrease (based on 2020-21 invoices) of $372.

Miscellaneous fees constitute a relatively small revenue stream for Icon Water, accounting for less than 1% of total revenue. We note that forecast revenue from miscellaneous fees and charges over the 2023-28 regulatory period is on average 2.7% per year more than the actual revenue in the 2018-23 period. However, this increase reflects an assumed annual inflation rate of 2.6% by Icon Water and increased development activity which is consistent with the growth in customer numbers we noted in setting the 2022-23 precinct charge.

10.1 How do we set the maximum water and sewerage prices?

To set the maximum water and sewerage prices, we divide the net revenue requirement by the forecast demand for each service, which includes estimates of future water usage and expected number of water and sewerage services connections.

Icon Water earns revenue from water services through a supply charge (per day) and a two-tier usage charge that depends on the amount of water used by a customer. We use forecasts of water connection numbers and water usage to determine prices that will allow Icon Water to recover its costs of providing water services.

Icon Water earns revenue from sewerage services through fixed supply charges. There is also an additional fixed charge that applies to non-residential customers with more than two flushable fixtures. We use forecasts of sewerage installations and flushable fixtures to determine prices that will allow Icon Water to recover its costs of providing sewerage services.

10.2 Icon Water's proposal

10.2.1 Water and sewerage services prices

Icon Water retained the current water services tariff structure and the sewerage services tariff structure.

In its 30 June 2022 submission, Icon Water proposed increasing water prices by 2.9% per year (0.3% in real terms) and sewerage prices by 6.4% per year (3.7% in real terms) over the 2023-28 regulatory period.

Icon Water's submission included placeholder values for forecast inflation, WACC and actual 2021-22 base opex. For this draft report, we have updated these placeholder values based on our understanding of Icon Water's proposal. This section summarises our understanding of Icon Water's adjusted proposal (see the discussion in Chapters 3 and 6). Icon Water also noted that after the release of our draft report it will update cost escalators for capital expenditure and operating expenditure, and update aspects of its operating expenditure proposal. Because information was not available for these additional updates, we have not accounted for them in this draft report.

Table 10.2 shows our understanding of the adjusted Icon Water's proposed water and sewerage prices for the 2023-28 regulatory period. The adjusted Icon Water's proposal will increase water prices by 6.0% per year (2.9% in real terms) and sewerage prices by 9.1% per year (5.9% in real terms) over the 2023-28 regulatory period.

Table 10.2 Adjusted Icon Water's proposed water and sewerage prices for 2023-28 ($, nominal)

Water prices	2023-24	2024-25	2025-26	2026-27	2027-28
Water supply charge ($/year)	$211.99	$224.70	$238.17	$252.44	$267.58
Tier 1 charge (0–200kL/year) ($/kL)	$2.42	$2.56	$2.72	$2.88	$3.05
Tier 2 charge (more than 200kL/year) ($/kL)	$4.85	$5.15	$5.45	$5.78	$6.13

Sewerage prices	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year)	$547.70	$597.34	$651.48	$710.53	$774.93
Flushing fixture charge ($/year)	$535.64	$584.19	$637.14	$694.89	$757.87

Source: Icon Water with our understanding of the expected adjustments.

10.2.2 Miscellaneous fees and charges

Icon Water has reviewed the cost basis for its miscellaneous fees and charges and is proposing widespread changes across its proposed schedule of miscellaneous fees and charges (Icon Water 2022, Attachment 12). Icon Water's miscellaneous charges review is based on a bottom-up costing of each miscellaneous service that identified the labour, material and equipment costs associated with the delivery of service.

10.3 Our draft decision on water prices

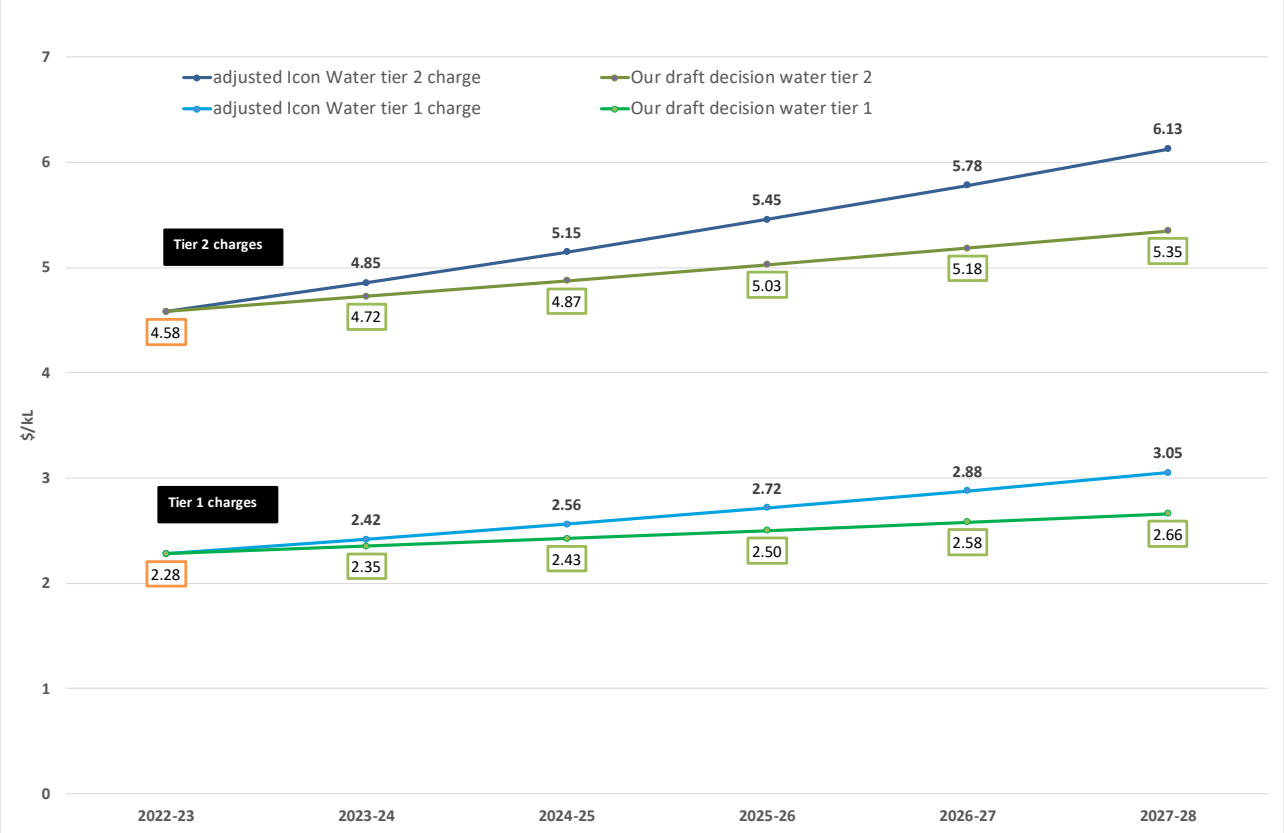
Our draft decision is to retain the existing water tariff structure with a fixed supply charge and a two-tier inclining block usage charge. Our draft decision on tariff structure is presented in Chapter 9.

Our draft decision has lower water service prices than the adjusted Icon Water proposal. The difference reflects our draft decision on Icon Water's revenue requirements and demand forecasts.

We have retained the approach to 'smooth' the price path over the 2023–28 regulatory period to help manage bill impacts and provide greater price-certainty for the community. For the 2023-28 regulatory period, we have accepted Icon Water's proposal to apply price changes uniformly across all water tariff components (both supply and usage charges) in each year of the regulatory period. The smoothing factor for water prices is set to 0.14%. This smoothing factor will be updated annually to reflect an update to the trailing average cost of debt.

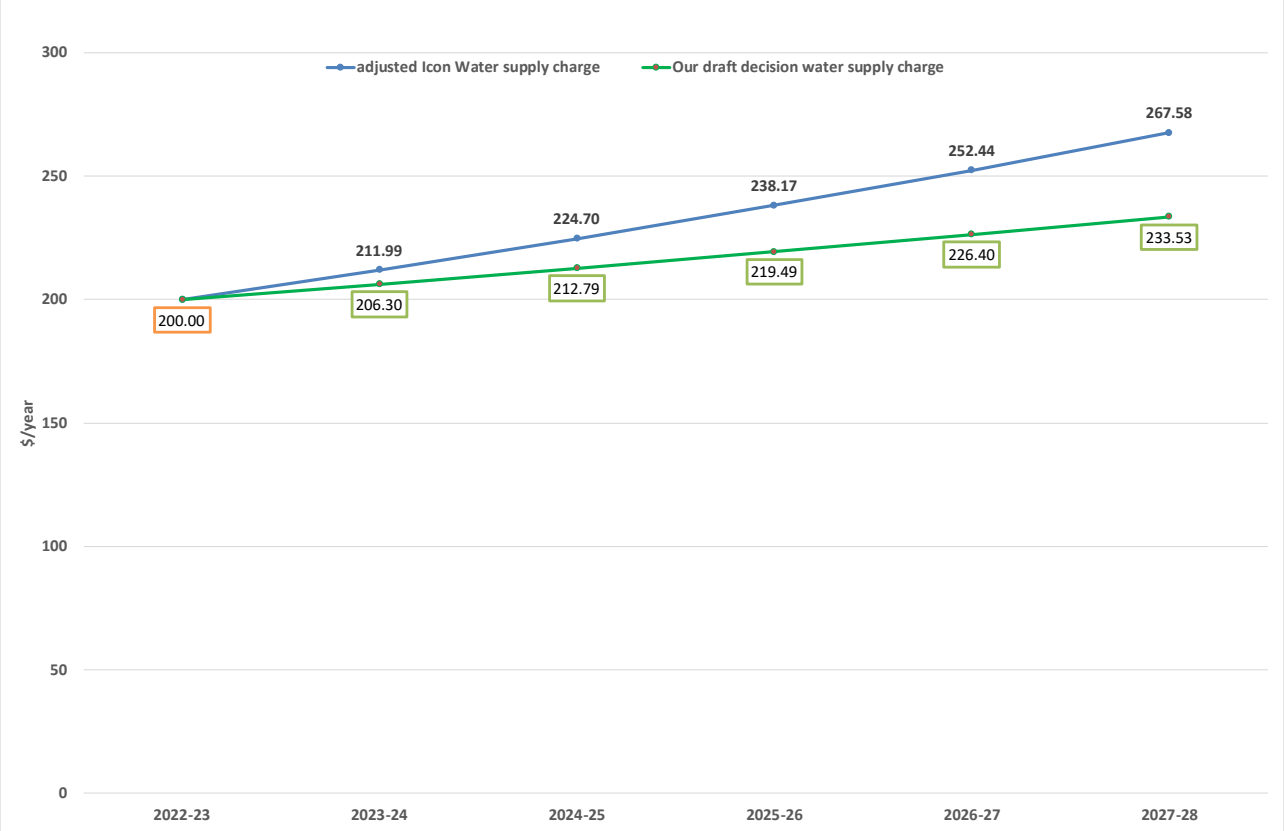
Our draft decision maximum water price for 2023–24 is $2.35 per kL for the Tier 1 usage charge, $4.72 per kL for the Tier 2 usage charge and $206.30 per year for the fixed supply charge. These prices are 3.1% more in nominal terms (0.14% in real terms) than the maximum prices in 2022–23 and increase by the same percentage per year over the remainder of the 2023-28 regulatory period. This percentage increase is less than the 6.0% increase per year in nominal terms (2.9% in real terms) under the adjusted Icon Water proposal. Figures 10.1 and 10.2 also compare the price path under the adjusted Icon Water proposal and our draft decision.

Figure 10.1 Comparison of our draft decision and adjusted Icon Water's tier 1 and tier 2 charges over the 2023-28 regulatory period ($/kL)



Source: Our calculations.

Figure 10.2 Comparison of our draft decision and adjusted Icon Water's water supply charge over the 2023-28 regulatory period ($/year)



Source: Our calculations.

10.4 Our draft decision on sewerage prices

Our draft decision is to retain the existing sewerage services tariff structure with a fixed supply charge for residential customers and the same fixed supply charge plus an additional annual charge for flushing fixtures more than two for non-residential customers. Our draft decision on tariff structure is presented in Chapter 9.

We have retained the approach to 'smooth' the price path over the 2023–28 regulatory period. This involves applying price changes uniformly, in percentage terms, to both the sewerage services charge and sewerage fixture charge in each year of the regulatory period. The smoothing factor for sewerage prices is set to 2.49%. This smoothing factor will be updated annually to reflect an update to the trailing average cost of debt.

Our draft decision has lower sewerage prices than the adjusted Icon Water proposal. The difference reflects our draft decision on Icon Water's revenue requirements and demand forecasts.

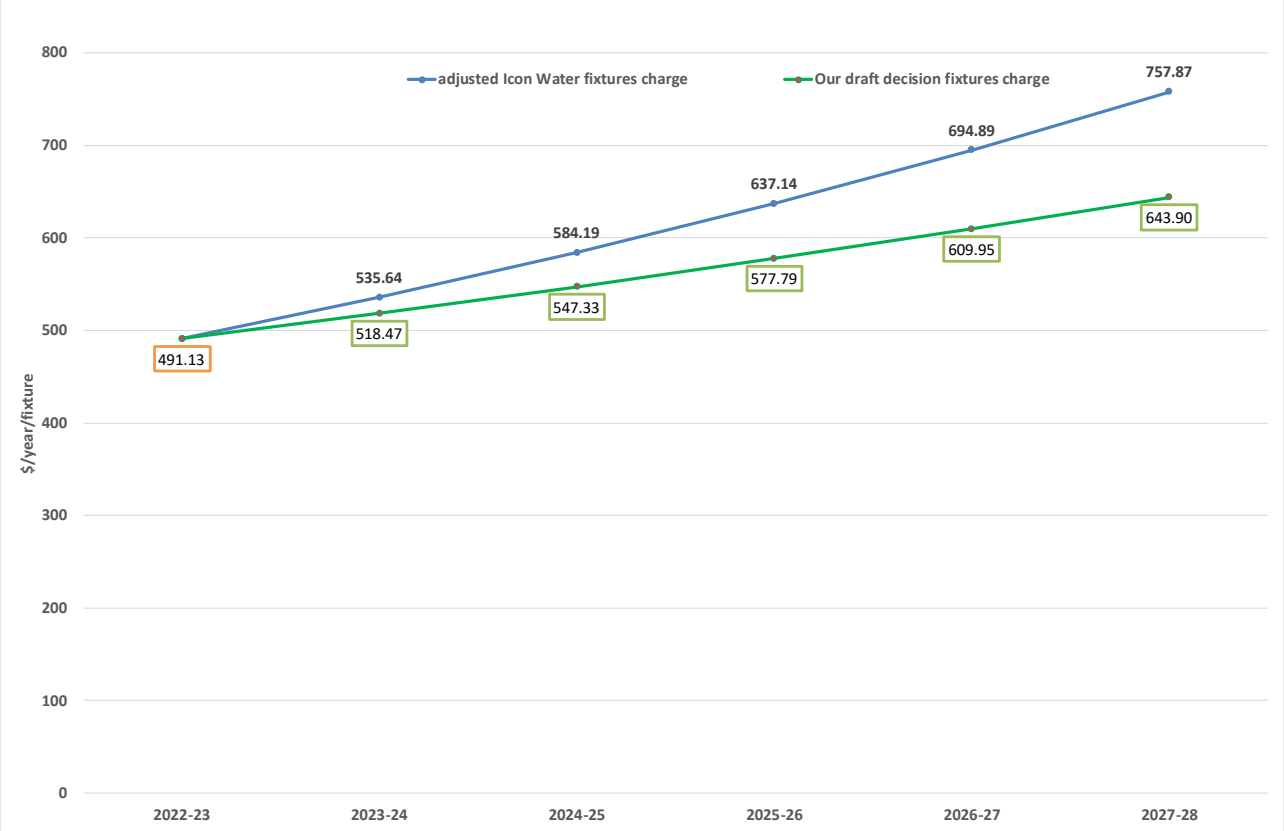
Our draft decision maximum sewerage price for 2023–24 is $530.13 per year for the supply charge. There is an additional annual charge of $518.47 per flushable fixture for non-residential customers with more than two flushable fixtures. These prices are 5.6% more in nominal terms (2.49% in real terms) than the maximum prices in 2022–23 and increase by the same percentage per year over the remainder of the 2023-28 regulatory period. The significant increase in Icon Water's capital expenditure program in the 2023-28 regulatory period for sewerage services is putting more upward pressure on sewerage prices than water prices.

Our draft decision percentage increase in sewerage prices is less than the 9.1% increase per year in nominal terms (5.9% in real terms) under the adjusted Icon Water proposal. Figures 10.3 and 10.4 also compare the price path under the adjusted Icon Water's proposal and our draft decision.

Figure 10.3 Comparison of our draft decision and adjusted Icon Water's sewerage supply charge over the 2023-28 regulatory period ($/year)

Source: Our calculations.

Figure 10.4 Comparison of our draft decision and adjusted Icon Water's billable fixtures charge over the 2023-28 regulatory period ($/year)



Source: Our calculations.

10.5 Our draft decision accepts Icon Water's proposed miscellaneous fees and charges

Icon Water charges a range of fees for miscellaneous services that primarily relate to development activities or one-off connection infrastructure-based services for customers. Miscellaneous services include the assessment of design drawings, the physical connection or disconnection of customers to the water and sewer network, and the installation/removal or use of hydrants.

To recover the costs associated with these services Icon Water levies a schedule of 63 separate fees and charges. These charges are proposed to generate an annual average revenue of $3.7 million over the 2023-28 regulatory period, representing approximately 0.9% of Icon Water's total revenue requirement from water and sewerage services.

The modelling provided by Icon Water indicates that the cost build-up for each service does not include allocated indirect costs (such as corporate costs) or an allowance for a rate of return. This implies that the charges being proposed by Icon Water may be less than full cost recovery.

Proposed 2023-24 prices

Icon Water's proposal incorporates the following changes for 2023-24 miscellaneous fees and charges (see details in Attachment 3):

- widespread changes to the level of miscellaneous charges that are based on better alignment between charges and costs:

  - Increases on 2022-23 charges for 28 miscellaneous services that range from 1% increase up to 64% increase (in 2023-24 dollar terms). The top 10 price increases resulting from Icon Water's miscellaneous cost review are outlined in Table A3.1 in Attachment 3; and
  - Decreases on 2022-23 charges for 31 miscellaneous services that range from 1% through to 49% (in 2023-24 dollar terms). The top 10 price decreases resulting from Icon Water's miscellaneous cost review are outlined in Table A3.2 in Attachment 3.
- the discontinuation of four manhole related miscellaneous charges
- the adoption of quote based charges for three miscellaneous charges
- the introduction of two new miscellaneous charges for quotation and scheduling fee services to be applied to each water and sewer connection job quoted.

Proposed price control

Icon Water is proposing to retain the current form of price control for annual price resets over the regulatory period. That is, miscellaneous fees and charges for 2024–25 to 2027-28 are proposed to increase annually in line with CPI. This is discussed in Chapter 2 of this draft report.

10.5.1 Customer impacts

Miscellaneous services typically relate to single or one-off activities such as the processing and approval of applications to develop a lot or the reallocation or installation of a water and sewerage connection. Individual customers such as developers may require multiple services in connection to a single development and or alternatively overtime as they bring multiple developments online. Residential customers are likely to require miscellaneous services where they are doing works to their properties that require the relocation of connections and meters.

How much exposure individual customers will have to the changes in price is driven by the scale and scope of their development activity, the nature of their development applications and the type of services being sought.

To measure the potential impact of its proposed prices on customers, Icon Water conducted billing impact assessment based on a representative sample of actual quotes issued to customers over 2021-22. This analysis compared individual billing outcomes by comparing 2021-22 (adjusted for inflation) prices against the proposed 2023-24 prices.

Icon Water noted that its proposed changes would lead to an average bill increase for the sample by 1%. It also noted that the impact on the customer of the proposed changes varied depending on the number of services requested. Customers requesting only one service on average would experience a price increase of about 25%.

We have updated this analysis to account for the recently available 2022-23 miscellaneous fees and charges schedule. Our findings are consistent with those observed by Icon Water in its proposal. Based on the sample of 77 actual quotes issued over 2021-22 we found:

- Nine of the 77 customers were no longer on scheduled prices but subject to quotation.
- 30 percent of customers experienced bill increases ranging from between $38 to $887 per quote. These increases typically relate to those customers only requesting two to three services.
- 58 percent of customers experienced bill decreases ranging from $19 to $4,093. These decreases related to those customers requesting four or more services.
- On average across all 77 customers, bills decreased by $372.05.
- Billing impacts are indeterminate for those customers requesting services that are subject to quote.

10.5.2 Revenue impacts

In considering Icon Water's proposal we have also been mindful of the impact of the proposal on Icon Water's miscellaneous charges revenue stream. Miscellaneous revenue streams over the 2018-19 to 2022-23 period declined on average by 1.56% per year. In comparison, forecast revenue is expected to increase by approximately 2.6% per annum over the 2023-24 to 2027-28 period. This increase in revenues is consistent with an assumed annual inflation rate of 2.6% by Icon Water. The revenue subcategories underlying our analysis are set out in Attachment 3.

Given that many of Icon Water's miscellaneous services are development related we have also taken into consideration the relationship between new connections and miscellaneous revenue. Over the 2023-28 regulatory period connections are forecast to grow at compound average annual rate of 1.9%. The growth in new connections and the relatively constant level of miscellaneous revenue (after accounting for inflation) indicate that the forecasted level of miscellaneous revenue per new connection is declining.

10.5.3 Miscellaneous fees and charges in other jurisdictions

To inform our assessment of Icon Water's proposed charges we have undertaken an interjurisdictional review of miscellaneous fees and charges. Comparisons of charges across jurisdictions and businesses can be problematic given that miscellaneous pricing frameworks have often been developed to address specific issues associated with each business's networks and different approaches or priorities that businesses have adopted to cost recovery. However, there are commonalities across businesses and there are several key observations that can be drawn from the prices that have been implemented in other jurisdictions which provide insights into Icon Water's proposal.

We considered several water businesses who provide a broadly similar range of services that include water, sewerage and development activities and have mature pricing frameworks that are subject to independent regulatory oversight. These included:

- Hunter Water (NSW)
- Sydney Water (NSW)
- South East Water (Victoria)
- Yarra Valley Water (Victoria)
- SA Water (South Australia)
- TasWater (Tasmania).

For each of these businesses we sourced miscellaneous charges from publicly available pricing schedules.[60] Each of the 2022-23 fees and charges have been inflated to 2023-24 dollar terms using the CPI forecast of 2.6% in Icon Water's proposal.

It is important to note when making comparisons across different businesses that the fees and charges levied by businesses reflect the operating circumstances and costs associated with individual businesses. In the context of development activities, these costs may differ between businesses due to differences in the nature of the development being serviced such as general geography, differences between infill (which may require additional costs associated with the restoration of existing public infrastructure) and greenfield developments, and differences in responsibilities for works between the utility and the developer.

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[60] The sources of information and relevant hyperlinks used in the review are listed in Attachment 3.

Drawing and planning fees

Icon Water is proposing a drawings non-compliance fee of $590.00 and a drawings resubmission fee of $1,180. Both of these proposed fees represent material increases on 2022-23 charges of 63% and 64% (in 2023-24 dollar terms). We note that Icon Water's proposed fees are aimed at incentivising compliance and is avoidable where customers submit compliant drawings.

All six comparator businesses levy planning and application based miscellaneous fees (see Table A3.6 in Appendix 3) typically relate to the processing of applications. No business levies a fee specifically related to non-compliance or resubmission of technical drawings.

We accept Icon Water's proposed drawing and planning fees on the basis that they are incentivising compliance and align with the underlying cost build up resulting from Icon Water's miscellaneous charges review.

Water main connections

Icon Water is proposing several water connection related fees and charges that relate to several different services including water tappings, the provision of cut in stop valves, temporary water connections, disconnections and relocations.

Icon Water's proposed changes to its water connection fees vary considerably by service. Proposed changes for tapping fees range from a 6% increase for 225mm main/40mm main cock tappings to a 9% decrease for 150mm main/25mm main cock tappings. Disconnection fees are proposed to decrease by 40%. Relocation fees are proposed to increase by 61% where additional works are required.

Comparisons between businesses for connections, disconnections and relocations are outlined in Table A3.3 in Attachment 3. The comparative price outcomes for each of Icon Water's miscellaneous services are mixed:

- **Connections/tappings** - The upper end of the range of tapping fees being proposed by Icon Water is significantly less than the fees currently levied by South East Water, Yarra Valley Water and SA Water. These fees relate to large sized mains and large sized connections. For smaller mains and connections Icon Water's fees are higher than South East Water and Yarra Valley Water but lower than SA Water.
- **Disconnections** - In relation to disconnection fees Icon Water's proposed fees are generally higher than other businesses except for SA Water that levied $1,268.44 fees for large connections.
- **Relocation fees** - Relocation fees for South East Water and SA Water are significantly higher than Icon Water for large connections. Sydney Water and Yarra Valley Water fees are significantly lower than Icon Water (between $123.76 and $588.91).
- **Cut in stop valves** – The only business to levy comparable fees is Yarra Valley Water that levies fees for Aqua-Stop based on main size that ranged from $2,310.80 (100mm) to $2,466.94 (150mm). These fees are broadly comparable to Icon Water's fees of $2,105.00 (100mm), $2,685.00 (150mm) and $3,864.00 (300mm).
- **Temporary connections** – No other business levied a miscellaneous charge for temporary connections.

It is difficult to draw conclusions on the relative pricing outcomes between these water businesses and Icon Water as they may reflect differences in the technical services being provided (see details on water connection related fees and charges for each business in Table A3.7 in Attachment 3). However, we note that Icon Water's prices based on the above sample of water connection services are broadly within the range of prices levied by the other businesses. On this basis we accept Icon Water's proposed water main connection miscellaneous charges.

Hydrant charges

Icon Water is proposing fees and charges that relate to hydrant works which include installation, raising or lowering, and removing hydrants. Icon Water is also charging hire-rates and usage fees for the drawing of water from hydrants. Hydrant related charges are proposed to decrease materially over the regulatory period from between 49% and 12% depending on the service.

Comparisons between businesses for hydrant connections, disconnections and relocations are outlined in Table A3.4 in Attachment 3.

The comparative price outcomes for hydrant services are mixed:

- **Installation** – Icon Water's installation fees are higher than Yarra Valley Water's fees for 100mm mains of $2,602.76 but significantly lower than Yarra Valleys fees for 300m mains of $7,466.79. South East Water, SA Water and TasWater fees are levied on a quotation basis.
- **Raising or lowering of hydrants** – Other businesses do not explicitly charge fees for raising or lowering hydrants.
- **Removal** – Other businesses do not explicitly charge fees for the removal of hydrants.
- **Hire** – Icon Water's annual hire fee exceeds those of Hunter Water, Sydney Water (annualised quarterly fee), South East Water, Yarra Valley Water and TasWater but is lower than that levied by SA Water (annualised quarterly fee). Icon Water's quarterly fee is exceeded by Sydney Water and SA Water. Icon Water is the only business that levies a fortnightly hire fee. We note that fortnightly hire options provide customers with greater flexibility where they have a short term demand for the service.
- **Usage** - All businesses with the exception of SA Water levy scheduled hydrant usage charges. Icon Water's per kL rate ($4.71) is materially higher than other businesses. TasWater has the lowest per kL rates that range from $1.17 to $1.80. The second highest rate is South East Water that levies $3.56 per kL.

It is worth noting that while Icon Water is the only business that explicitly levies fees for raising or lowering and removal of hydrants, other participating businesses levy other hydrant fees that Icon Water does not. For example, Hunter Water and SA Water levy fees for administration of breaches of the terms and conditions associated with hire agreements.

We note that the hydrant usage fees levied by Icon water are significantly greater than those levied by the other businesses. However, the charge is consistent with Icon Water's tier 2 variable charge.

We accept Icon Water's proposed hydrant charges on the basis that they reflect the outcomes of Icon Water's miscellaneous charge review, and broadly align with those levied by other businesses (where comparable charges are levied). We also note that the usage charge is consistent with the conservation signals Icon Water has adopted for its broader water consumption charges.

Sewer connections

Icon Water is proposing fees and charges that relate to sewer connections including connection and disconnection, manhole connection, manhole alterations, gatic covers for manholes and manhole rebuilds.

Icon Water's proposed price changes vary based on service and range from an increase of 30% for supply and fit of gatic type covers to existing manholes to a 38% decrease for connecting main to end of existing main or collar out of an existing manhole.

Comparisons between businesses' prices for these services are outlined in Table A3.5 in Attachment 3. Except for actual sewerage connection, most businesses do not levy explicit miscellaneous fees for

connection related services that are comparable to Icon Water's. In relation to sewer connection charges Icon Water's proposed charges are materially less than those levied by SA Water.

The comparative price outcomes for sewer connection services include:

- **Sewer connection** – Hunter Water and Sydney Water levy application fees that are not directly comparable to Icon Water's connection services. Yarra Valley Water only levies sewer connection charges for pressure connections for residential, commercial, and industrial customers and these fees are materially higher than those proposed by Icon Water and relate to technically different connections. SA Water levies main sized connection fees that exceed Icon Water's proposed fees for 100mm and 150mm mains.
- **Sewer disconnection** – Hunter Water and Yarra Valley Water levy application fees for disconnection. All other businesses with the exception of Icon Water do not levy scheduled fees.
- **Manhole connections and works** – All other businesses do not typically levy manhole related fees, with the exception of Sydney Water that levies fees on commercial and developer customers for applications to alter manholes.

While we have not been able to draw meaningful interjurisdictional comparisons between businesses for sewerage connection services, we accept Icon Water's proposed charges on the basis that they reflect the outcomes of Icon Water's cost base review for miscellaneous services.

Quotations

Icon Water has proposed to levy quotation-based fees and charges for the following miscellaneous services:

- temporary water connection
- cut in stop valve for 300mm mains
- relocation of 20mm and 25mm stop cock and meter where shutdown of main is required
- sewer main connections for 150mm or 225mm connection to existing standard manhole with external drops
- rebuild of sewer manholes.

Icon Water's approach for quotation is based on the National Water Initiative pricing principles. These principles also form the underlying basis for Icon Water's scheduled miscellaneous fees and charges. The key principles Icon Water applies in quoting for services are:

- Prices aim to eliminate cross-subsidisation of services.
- Fees are set at a level that recovers the cost of delivering the services, and include:
  - marginal direct internal costs of labour, materials and plant associated with the quotation, scheduling and delivery of services
  - pass through of third party services
  - a fair and reasonable contribution to overheads.
- No margin or WACC is applied.

All businesses levy some miscellaneous or developer services fees based on quotation. Only Sydney Water sets out a scheduled labour rate ($179.83) as the basis for any quoted miscellaneous fee. Both Victorian businesses, South East Water and Yarra Valley Water, reference the Essential Services Commission's (ESC) pricing principles as the basis for their miscellaneous fees. These principles stipulate that fees must be calculated based on:

- direct third party or contractor invoice cost

- direct marginal internal costs, including labour, materials and transport costs
- a fair contribution to overheads.

The other businesses do not outline the basis for quotation.

We note that the approach adopted by Icon Water aligns with the pricing principles that underly its scheduled miscellaneous fees and charges and are based on the established National Water Initiative pricing principles. These principles have been widely accepted by both regulatory and businesses across the water sector. Therefore, we accept Icon Water's proposal.

11. Effects on consumers, inflation and financial viability

This chapter presents the estimated impacts of our draft decision on residential and non-residential consumers' annual bills, general price inflation and Icon Water's financial viability.

Our draft decision

Our draft decision on regulated water and sewerage services prices for 2023-28 will increase the annual water and sewerage services bills for both residential and non-residential customers. However, the bill increases will be less than under the adjusted Icon Water proposal. The adjusted Icon Water proposal reflects our updates to the placeholder values in Icon Water's 30 June 2022 pricing submission. Chapter 7 discusses the adjustments to Icon Water's proposal.

Under our draft decision, a typical residential customer consuming 200kL a year will pay $1,227 for their annual combined water and sewerage services bill in 2023-24. This is $50, or 4.2% more than the annual bill in 2022-23. It is $36 less than the $1,263 annual bill under the adjusted Icon Water proposal.

Under our draft decision, the combined bill for a typical residential customer is expected to increase by 4.2% per year on average over the regulatory period, whereas the adjusted Icon Water proposal would have resulted in 7.3% per year increases. In real terms (excluding inflation) the combined bill is expected to increase at an annual average of 1.2%.

Under our draft decision, a mid-level non-residential customer consuming 5,000kL per annum with 50 flushable fixtures will pay $49,806 for its combined water and sewerage services bill in 2023-24. This is an increase of $2,107 (or 4.4%) compared to 2022-23. It is $1,521 less than the $51,327 annual bill under the adjusted Icon Water proposal.

Under our draft decision, the combined bill for a mid-level non-residential customer is expected to increase by 4.4% per year on average over the regulatory period, which is less than the 7.7% per year increase under the adjusted Icon Water proposal.

Customer bills between 2024-25 and 2027-28 could be different from our current expectations if inflation differs from the expected 3% a year, if there are material changes in Icon Water's non-controllable costs that trigger a pass-through during the next regulatory period and if Icon Water's borrowing cost changes.

Our draft decision is likely to have no material effect on the general price inflation in Australia. We are satisfied our draft decision water and sewerage services prices and the proposed price path for the 2023-28 regulatory period are consistent with Icon Water's continued financial viability.

11.1 Impacts on consumers

11.1.1 Residential consumers

To assess the indicative effects of our draft decision on residential consumers, we examined the average annual bills payable by residential consumers with varying consumption levels.

Table 11.1 shows the estimated combined water and sewerage services bills for residential consumers at different consumption levels. Under our draft decision, the combined water and sewerage services bill for a typical household consuming 200kL a year will increase by 4.2% per year on average over the regulatory

period. In real terms (excluding inflation) the combined bill is expected to increase at an annual average of 1.2%.

Table 11.1 Indicative impacts of our draft decision on annual residential water and sewerage bills ($, nominal)

Water consumption (kL/year)	Indicator	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28
50	$/year % change	816	854 4.6	894 4.6	935 4.7	979 4.7	1,025 4.7
100	$/year % change	930	972 4.5	1,015 4.5	1,061 4.5	1,108 4.5	1,158 4.5
150	$/year % change	1,044	1,089 4.3	1,136 4.3	1,186 4.3	1,237 4.4	1,291 4.4
200 (typical customer)	**$/year** **% change**	**1,177**	**1,227** **4.2**	**1,278** **4.2**	**1,332** **4.2**	**1,388** **4.2**	**1,447** **4.2**
250	$/year % change	1,387	1,443 4.0	1,501 4.0	1,562 4.0	1,626 4.1	1,692 4.1
300	$/year % change	1,616	1,679 3.9	1,745 3.9	1,813 3.9	1,885 3.9	1,959 3.9
350	$/year % change	1,845	1,915 3.8	1,989 3.8	2,065 3.8	2,144 3.8	2,227 3.9
400	$/year % change	2,074	2,152 3.7	2,232 3.7	2,316 3.8	2,403 3.8	2,494 3.8
500	$/year % change	2,532	2,624 3.6	2,719 3.6	2,819 3.6	2,922 3.7	3,029 3.7
750	$/year % change	3,677	3,805 3.5	3,938 3.5	4,075 3.5	4,218 3.5	4,366 3.5

Source: Our calculations.

Note: The estimated effects assume a forecast inflation of 3% a year and no material changes in Icon Water's non-controllable costs that would trigger a pass-through during the next regulatory period, and no change in borrowing costs. Annual bills for 2022-23 are included for comparison purposes.

Under our draft decision, a typical household is expected to pay $1,447 for its annual combined bill in 2027-28, a cumulative increase of $220 from the first year of the regulatory period (2023-24). This cumulative increase is $195 less than under the adjusted Icon Water proposal; the adjusted Icon Water proposal has a cumulative increase in the bill of $415 over the same period.

11.1.2 Comparison with bills payable in other jurisdictions

Our draft decision prices will mean the combined water and sewerage services bills payable by residential consumers in the ACT will be lower than the average of comparable jurisdictions.

Table 11.2 and Figure 11.1 provide comparison of annual water and sewerage services bills for a residential consumer consuming 200kL of water a year for several urban utilities in Australia. A simple comparison of

prices across jurisdictions should be read with caution as the underlying costs of providing water and sewerage services may vary between water service providers.

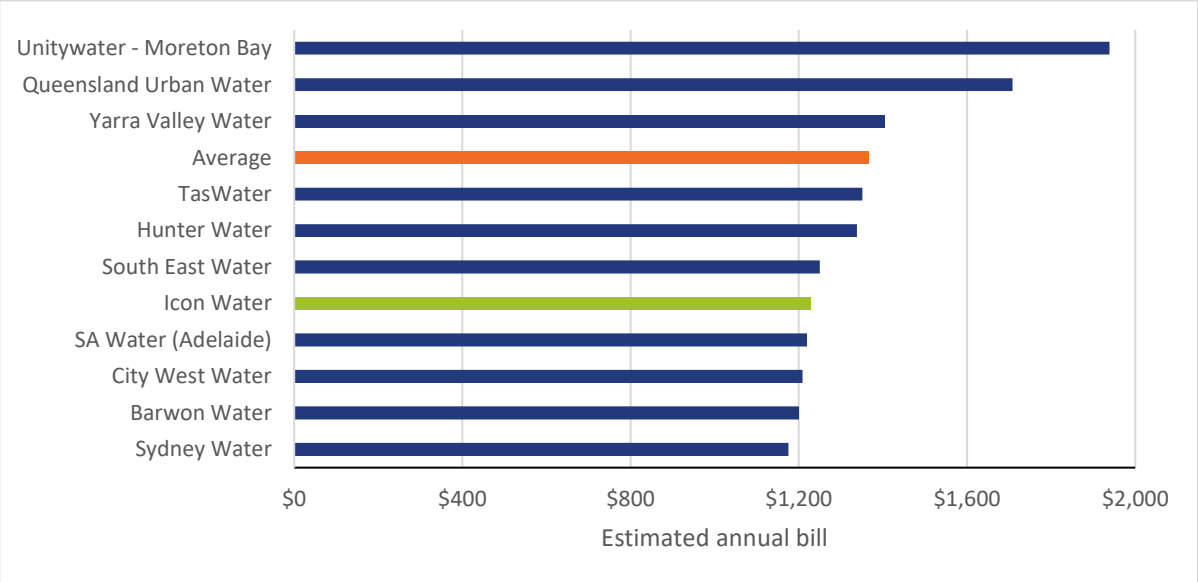
Table 11.2 Comparison of combined water and sewerage services bills of Australian water utilities, assuming residential consumer with 200kL a year consumption ($, nominal)

Urban utility	Actual (2022-23)	Estimates (2023-24)
Sydney Water	1,141	1,175[b]
Barwon Water	1,165	1,200[b]
City West Water	1,173[a]	1,208[b]
Icon Water	**1,177**	**1,227**
SA Water (Adelaide)	1,184	1,219[b]
South East Water	1,205[a]	1,241[b]
Hunter Water	1,299	1,338[b]
TasWater	1,300	1,351[c]
Average	**1,323**	**1,365**
Yarra Valley Water	1,364[a]	1,405[b]
Queensland Urban Utilities	1,658	1,708[b]
Unitywater – Moreton Bay	1,882	1,939[b]

Source: Our calculations and utility websites.

Notes: [a] Victoria Government waterways and drainage charge and parks charge are not applied; [b] indexed assuming annual inflation of 3% from 2022-23; [C] based on OTTER's 2022-26 determination.

Figure 11.1 Comparison of estimated water and sewerage services bills of Australian water utilities for 2023-24, assuming residential consumer with 200kL a year consumption ($, nominal)



Source: Our calculations.

11.1.3 Non-residential consumers

Table 11.3 presents the estimated changes in the combined annual water and sewerage services bills for non-residential consumers by water usage and number of billable sewerage fixtures.

Table 11.3 Indicative impacts on non-residential water and sewerage services bills ($, nominal)

Annual water usage (kL/year)	No. of billable fixture	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	Change between 2022-23 and 2023-24 (%)
1,000	10	9,733	10,171	10,629	11,110	11,614	12,142	4.5
	50	29,379	30,909	32,522	34,221	36,012	37,898	5.2
	100	53,935	56,833	59,888	63,111	66,509	70,093	5.4
2,500	10	16,603	17,257	17,939	18,649	19,390	20,164	3.9
	50	36,249	37,996	39,832	41,761	43,788	45,920	4.8
	100	60,805	63,919	67,198	70,650	74,286	78,115	5.1
5,000	10	28,053	29,068	30,121	31,215	32,352	33,533	3.6
	50	**47,699**	**49,806**	**52,014**	**54,327**	**56,750**	**59,289**	**4.4**
	100	72,255	75,730	79,380	83,216	87,248	91,7484	4.8
15,000	10	73,853	76,310	78,851	81,479	84,199	87,012	3.3
	50	93,499	97,048	100,744	104,591	108,597	112,768	3.8
	100	118,055	122,972	128,110	133,480	139,094	144,963	4.2

Source: our calculations.

Note: Annual bills for 2022-23 are included for comparison purposes.

Under our draft decision, indicative bill cumulative increases for non-residential consumers over the 2023-28 period range from 14.0% to 23.3%, depending on water usage and the number of billable fixtures. Over the same period estimated bill cumulative increases under the adjusted Icon Water proposal range from 27.1% to 40%, depending on water usage and the number of billable fixtures.

11.2 Impacts on inflation

Under Section 20(2)(i) of the ICRC Act, we are required to consider the effects of changes in water and sewerage services bills on general price inflation. We assessed general inflationary effects by applying the methodology used in the 2018 price investigation.

As reported by the ABS, water and sewerage services costs in Canberra contribute 0.02% towards the weighted average of the general CPI (all groups, eight capital cities) in Australia[61]. Using this percentage and our draft decision of an approximately 1.2% annual average increase (in real terms) for a typical residential

[61] ABS 2021, Consumer Price Index, Weighting Pattern (https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/annual-weight-update-cpi-and-living-cost-indexes/latest-release#data-download).

consumer consuming 200kL of water a year, we estimated that the approximate annual impact of our draft decision on general price inflation in Australia is 0.0002%[62].

We consider an annual 0.0002% contribution by water and sewerage services prices in Canberra to have no material effect on general price inflation in Australia.

11.3 Impacts on Icon Water's financial viability

The terms of reference require us to consider appropriate mechanisms for ensuring the recovery of the prudent and efficient costs of Icon Water during the regulatory period.

We determined regulated water and sewerage services prices for the 2023-28 period by using the building block methodology, which is designed to ensure that allowed revenues are sufficient to meet regulated utility businesses' prudent and efficient costs.

Nevertheless, a general risk could exist where the allowed revenue might not be sufficient to cover the utility's costs, particularly in the short run. This could occur should material differences between allowed and actual costs eventuate, thereby affecting the regulated business's short-term viability.

Recognising the importance of ensuring the financial viability of Icon Water, we estimated the impact of our draft decision on Icon Water's financial position during the 2023-28 regulatory period. A financial viability test was conducted by calculating a selection of financial ratios for Icon Water from 2023-24 to 2027-28. These selected financial ratios are those used in assessing Icon Water's financial viability for the current regulatory period and are like those used by ESC and IPART in their recent decisions:

- Funds from operations (FFO) interest cover ratio, which provides an indication of Icon Water's ability to make interest payments
- Net debt gearing ratio, which measures the proportion of Icon Water's overall regulatory capital structure that is made up by debt, and provides an indication of its ability to repay its debt (or increase borrowings in the short-term if required)
- FFO to net debt ratio, which provides an indication of whether Icon Water's debt servicing ability is improving, remaining stable or declining
- Retained cash flow to capital expenditure ratio, which provides an indication of Icon Water's ability to finance a prudent portion of capital expenditure after paying dividends.

Although regulated water service providers are typically financed through a mixture of debt and equity, in practice regulators have primarily focused on debt-related financial viability assessments. This is a reasonable approach considering that debt is typically sourced from external markets, must be periodically refinanced, and must be provided based on the maintenance of a specified credit rating[63].

Table 11.4 shows the financial ratios used by the ESC and IPART in their most recent decisions.

[62] 0.02 per cent x 1.2 per cent = 0.00024 per cent
[63] NERA, 2013:5.

Table 11.4 Target level of financial ratios

	ESC	IPART
Target credit rating	Not Stated	Baa2
FFO interest cover	>1.5	>1.8 or 2.2
Net debt gearing ratio (%)	<70	<70
FFO to net debt (%)	>10	>6 or7
Retained cash flow to capital expenditure	>0.35	Not Stated

Source: ESC 2020 and IPART 2018.

For this draft report, we have retained the target levels as used in our 2018 price investigation for assessing Icon Water's financial viability. Table 11.5 presents estimated financial ratios for Icon Water together with the target levels.

Table 11.5 Estimated financial ratios for Icon Water

	Target	2023-24	2024-25	2025-26	2026-27	2027-28
FFO interest cover	>1.8	2.6	2.7	2.9	2.9	2.9
Net debt gearing ratio (%)	<85	47	48	47	52	48
FFO to net debt (%)	>6.0	5.2	5.4	5.9	5.6	6.0
Retained cash flow to capital expenditure	>0.5	0.5	0.8	0.6	0.4	0.4

Source: Our calculations.

The impacts of our draft decision on Icon Water satisfy the target minimums for the FFO interest cover ratio and the net debt gearing ratio for the entire forward regulatory period. The FFO to net debt ratio and the retained cash flow to capital expenditure ratio are met in some years.

Different regulators and credit rating agencies have given differing weights to the financial ratios in their analyses[64]. For example, IPART and Moody's consider the FFO interest cover and the net debt to RAB ratios as more significant than others[65]. According to the ESC, the FFO interest cover is the most important indicator. In the ESC's view, utility businesses are not expected to achieve all financial ratio benchmarks in every year of the regulatory period.

We remain of the view that exceeding all financial ratio targets in every year of the regulatory period is not a necessary determinant of Icon Water's ongoing financial viability. Our view reflects our analysis that Icon Water will exceed important financial health indicators, as used by other regulators and credit rating agencies, during the forward period.

We are satisfied that our draft decision on water and sewerage services prices and the proposed price path for the 2023-28 regulatory period are consistent with Icon Water's continued financial viability.

[64] Industry Panel, 2015a: 121.
[65] IPART, 2013b: 11 and Moddy's, 2019.

Attachment 1 Icon Water's operating performance

We reviewed Icon Water's operating performance against the 2021 Urban National Performance Report (NPR) dataset. We found that while its water supply system appears to have performed on par with other comparable Australian water utilities in the first three years of the 2018-23 regulatory period, its sewerage system has operated at a higher cost whilst performing below the Australian average in the same period.

In drawing comparisons between utilities, we also recognise several limitations with NPR dataset, including:

- potential reporting errors or missing data
- not accounting for differences in the operating environment between utilities which may stem from differences in regulatory obligations imposed on each utility or network specific factors
- not accounting for efficient operating and capital expenditure trade-offs, where operating expenditure is proposed to offset a corresponding reduction in capital expenditure.

The water supply system

On a comparative basis, Icon Water's performance is on par with those of other Australian major water utilities in the first three years of the 2018-23 regulatory period. While Icon Water's operating expenditure per property is considered average, its performance in other measures such as water supply reliability and water quality are above the Australian average (see Table A1.1).

Table A1. 1 Comparing Icon Water's expenditure and performance with major utilities, 2018-19 to 2020-21

Indicator	Icon Water average 2018-19 to 2020-21	Australian major water utilities[1] average 2018-19 to 2020-21	Performance ranking (best to worst) within major water utilities[1]
Expenditure			
Operating cost ($ per property)[2]	556	575	8 of 15
Capital expenditure ($ per property)[2]	211	194	11 of 15
Combined expenditure ($ per property)[2]	767	769	8 of 15
Water supply reliability			
Real losses (kL/km water main per day)	1.9	3.3	3 of 15
Unplanned interruptions (number per 1,000 properties)	75	143	4 of 15
Water main breaks, bursts, and leaks (number per 100 km of water mains)	13	22	6 of 15

Water quality and customer satisfaction			
Population where microbiological compliance was achieved (%)	100	100	On par
Water quality complaints (number per 1,000 properties)	0.4	1.8	3 of 15
Water service complaints (number per 1,000 properties)	1.1	1.5	12 of 15

Within the five best-performing utilities on this metric Within the bottom five performers on this metric

Within the middle five performers on this metric

Note: [1.] Sample includes data reported through the NPR by 15 Australian major water utilities (Icon Water inclusive). This ranking is based on the average value of each metric from 2018-19 to 2020-21. [2.] In real 2020-21 dollars.

Source: Bureau of Meteorology (2022a)

Icon Water's water supply system continues to operate at a lower operating cost per property but higher capital expenditure per property than the average of all major utilities. Overall, Icon Water's combined capital and operating expenditure per property in the current regulatory period is slightly lower than the Australian average ($767.7 as against the $768.3 Australian average).

Icon Water provided reasonably reliable, secure water supplies when compared with the Australian average. It had fewer unplanned interruptions, water main breaks and water losses than the Australian average.

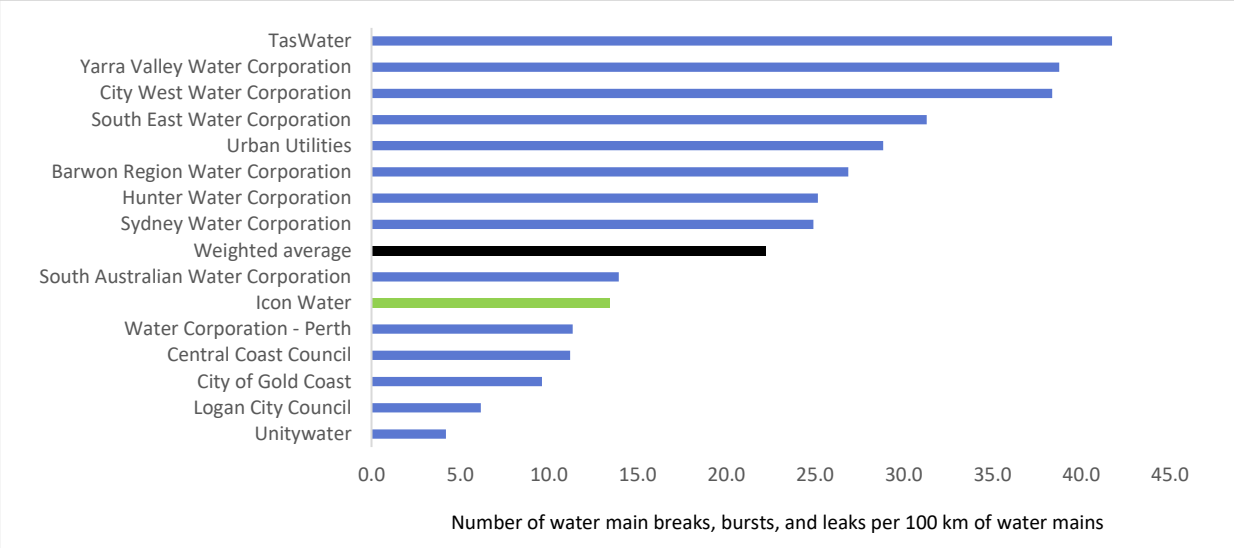
Icon Water provided safe and clean drinking water as 100 per cent of its supplied drinking water achieved microbiological compliance. It performed better than its peer group on water quality complaints. As measured by water service complaints, Icon Water performed worse than the Australian average.

Water supply service reliability

Icon Water provided more reliable and secure water supply services than the other major Australian water utilities.

Icon Water had fewer water main breaks, bursts and leaks per 100 km of water mains (see Figure A1.1), fewer unplanned supply interruptions per 1000 properties (see Figure A1.2) and lower water supply losses (see Figure A1.3) than most other major utilities.

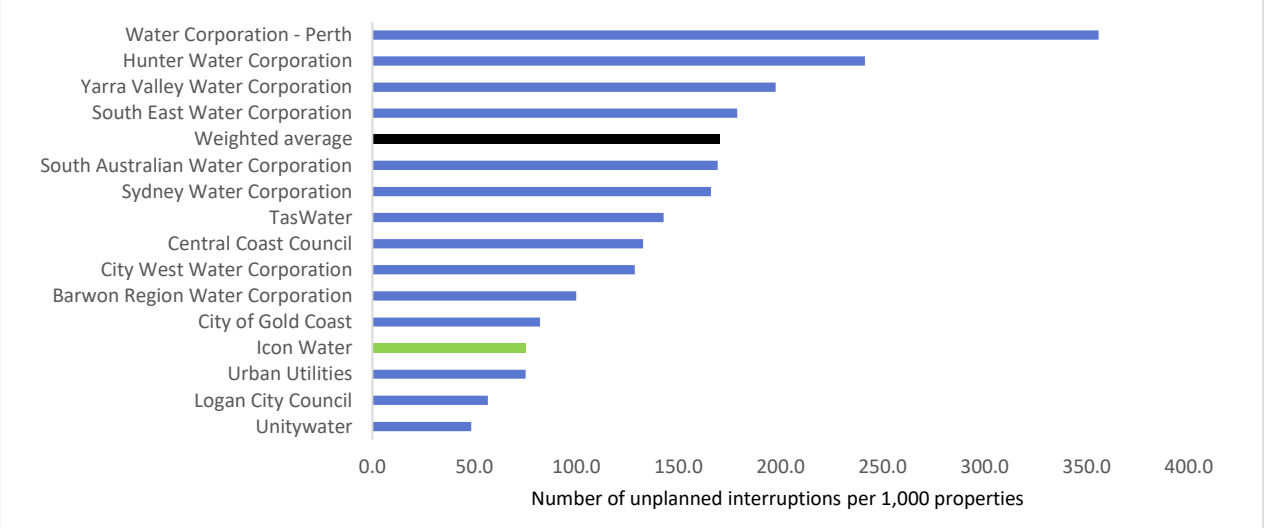
Figure A1. 1 Icon Water had fewer water main breaks, bursts, and leaks per 100 km of mains than most other major utilities during the 2018-19 to 2020-21 period



Note: The average is weighted based on the length of water mains.

Source: Bureau of Meteorology (2022a)

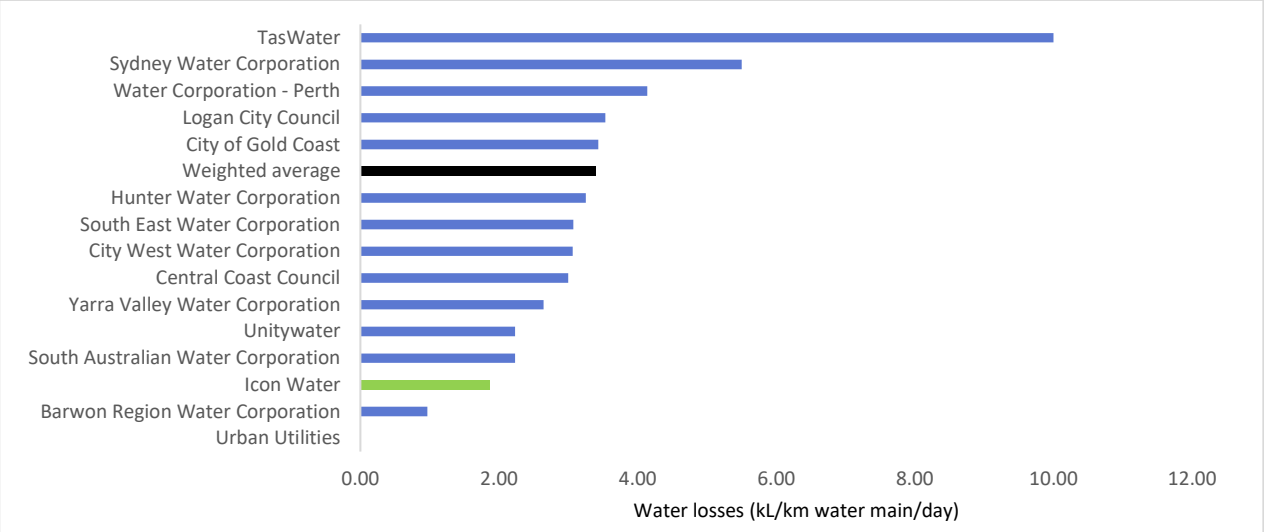
Figure A1. 2 Icon Water had the fourth lowest number of unplanned interruptions among major water utilities during 2018-19 to 2020-21



Note: The average is weighted based on the number of properties connected to the water system.

Source: Bureau of Meteorology (2022a)

Figure A1. 3 Icon Water had the third lowest level of water losses among major water utilities during 2018-19 to 2020-21



Note: The average is weighted based on the length of water mains.

Source: Bureau of Meteorology (2022a)

High-quality and safe drinking water

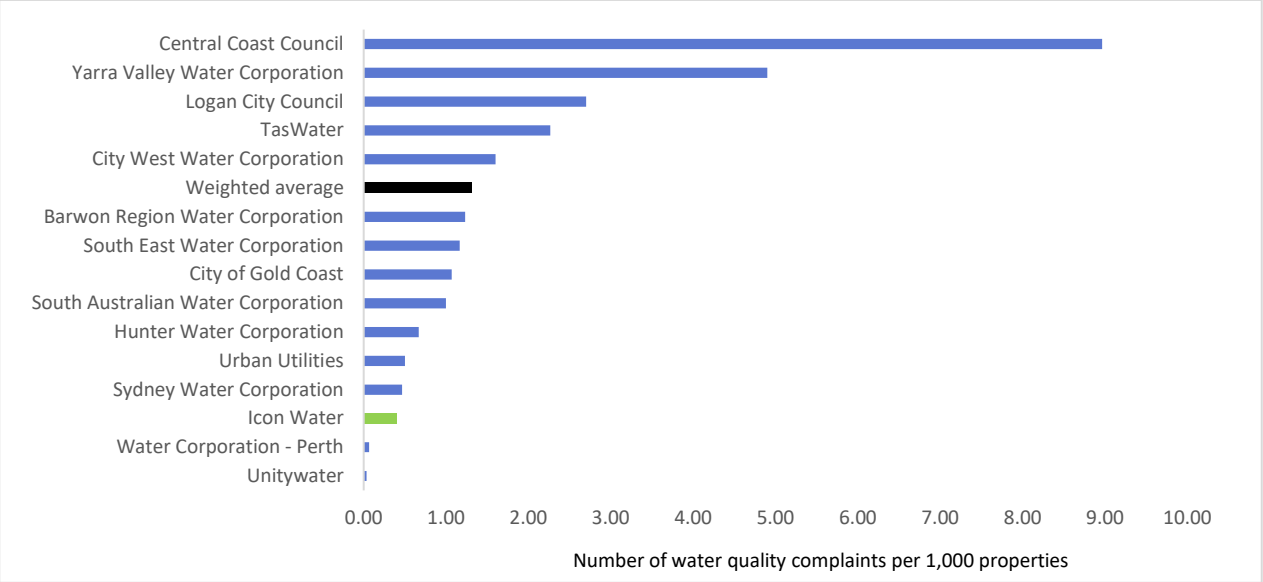
Icon Water provided safe and high-quality water with fewer water quality complaints but more water service complaints than the peer group average. Like other Australian major water utilities, 100 per cent of drinking water supplied by Icon Water achieved microbiological compliance.

As measured by the number of water quality complaints per 1000 properties, Icon Water performed better than most of its peers and was the third best-performing major utility (see Figure A1.4). However, Icon Water appears to have performed worse than its peer group average as measured by the higher number of water service complaints per 1000 properties (see Figure A1.5).

This indicates that Canberrans may place higher expectations on water services they receive, given that Icon Water's services were identified to be above average when compared to most other major utilities. Complaints on Icon's water supply performance are also measured through our Utilities License Annual Report, which shows a declining trend over the period from 2016-17 to 2020-21.[66]

[66] ICRC 2022, p 15.

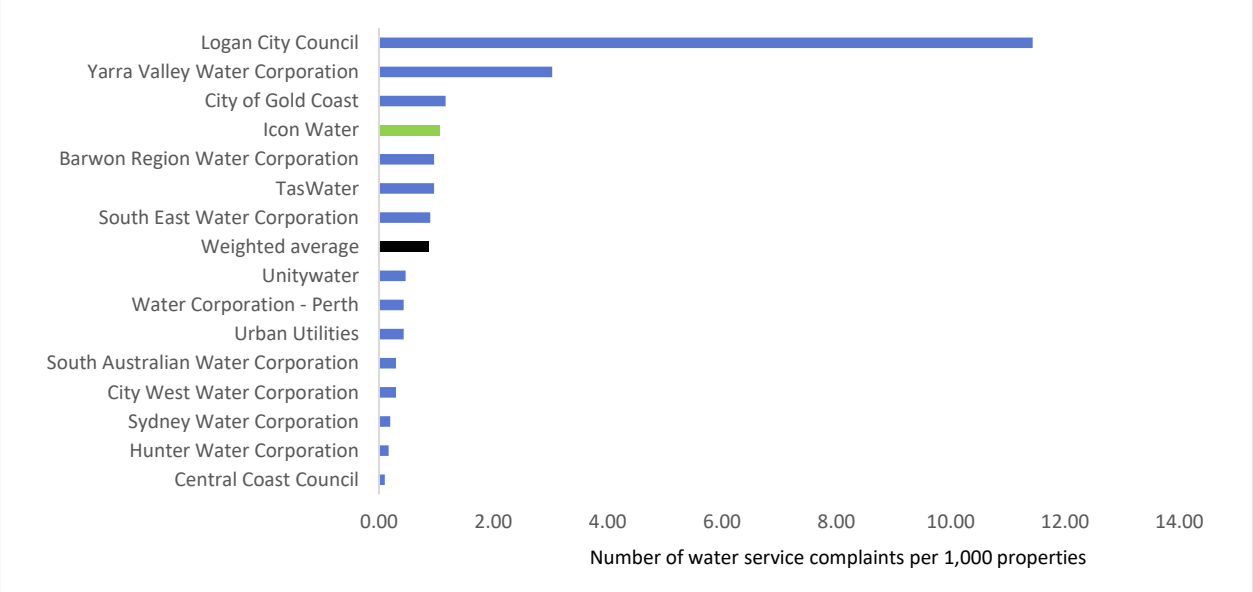
Figure A1. 4 Icon Water had the third lowest number of water quality complaints among its peers during 2018-19 to 2020-21



Note: The average is weighted based on the number of properties connected to the water system.

Source: Bureau of Meteorology (2022a)

Figure A1. 5 Icon Water was the fourth-worst performing major utility based on the average number of water service complaints during 2018-19 to 2020-21



Note: The average is weighted based on the number of properties connected to the water system.

Source: Bureau of Meteorology (2022a)

Water supply performance over time

On average, Icon's operating cost per property of providing water services ($556 per property) is greater than in the previous period ($522 per property) in the current regulatory period (see Table A1.2). Higher per property cost is associated with improved performance across a range of measures in the current regulatory period than in the previous regulatory period (see Table A1.2).

Table A1. 2 Icon Water has improved its water service performance between the 2013-18 and 2018-21 regulatory periods

Indicator	Icon water average 2013-14 to 2017-18	Icon water average 2018-19 to 2020-21	Performance comparison
Expenditure			
Operating cost ($ per property)[1]	522	556	🔴
Capital expenditure ($ per property)[1]	212	211	🟡
Combined expenditure ($ per property)[1]	734	767	🔴
Water supply reliability			
Real losses (kL/km water main per day)	2.5	1.9	🟢
Unplanned interruptions (number per 1,000 properties)	85	66	🟢
Water main breaks, bursts, and leaks (number per 100 km of water mains)	14	13	🟢
Water quality and customer satisfaction			
Population where microbiological compliance was achieved (%)	100	100	🟡
Water quality complaints (number per 1,000 properties)	1.0	0.4	🟢
Water service complaints (number per 1,000 properties)	1.8	1.1	🟢

🟢 Improved 🔴 Worsened 🟡 Similar level/Unchanged

Notes: [1.] Cost data in real 2020-21 dollars

Source: Bureau of Meteorology (2022a)

The sewerage system

Icon Water's sewerage system operates at a higher cost with lower performance levels compared to the Australian average. Table A1.3 shows the expenditure and performance of Icon Water and the average across all major utilities for the 2018-21 period, as indicated by the NPR data.

Table A1. 3 Icon Water's sewerage system has performed worse with higher expenditure compared with its peers during the 2018-19 to 2020-21 period

Indicator	Icon Water average 2018-19 to 2020-21	All major utilities average 2018-19 to 2020-21[1]	Performance ranking (best to worst) within major water utilities[1]
Expenditure			
Operating cost ($ per property)[2]	395	329	🔴 14 of 15
Capital expenditure ($ per property)[2]	300	290	🟡 10 of 15
Combined expenditure ($ per property)	694	618	🔴 11 of 15
Sewerage service quality and reliability			
Mains breaks and chokes (number per 100 km sewer main)	69	37	🔴 15 of 15

Sewerage service complaints (number per 1,000 properties)	0.93	0.55	11 of 15

Within the top five performers on this metric Within the middle five performers on this metric

Notes: [1.] Sample includes the data reported through NPR by 15 Australian major water utilities (Icon Water inclusive), although not all utilities have reported all data. This ranking is based on the average value of each metric from 2018-19 to 2020-21. [2.] In real 2020-21 dollars.

Source: Bureau of Meteorology (2022a)

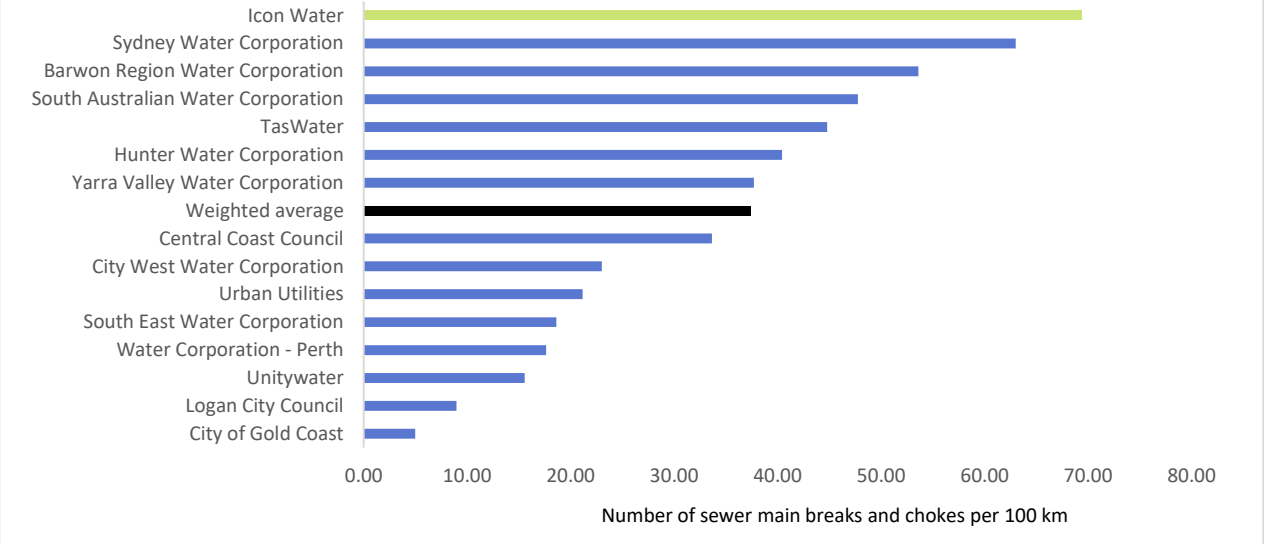
Icon Water's operating cost per property continue to be higher than the Australian average. The higher sewerage costs could be due to:

- relatively high rates of tree root incursion
- relatively high sewage treatment levels (most sewage treated to tertiary standard)
- relatively low customer density across Icon's sewerage network increased the cost to service each property.

Sewerage service reliability and customer satisfaction

Icon Water's sewerage system is less reliable than its peers with above average complaints about sewerage services. Icon Water had the highest number of sewer main breaks and chokes among Australian major utilities during the 2018-19 to 2020-21 period (see Figure A1.6). The number of Icon Water's sewer break incidents (69) were twice the average across all major utilities (37) (see Figure A1.6).

Figure A1. 6 Icon Water had the highest number of sewerage mains breaks and chokes per 100 km sewerage main among its peers during the 2018-19 to 2020-21 period

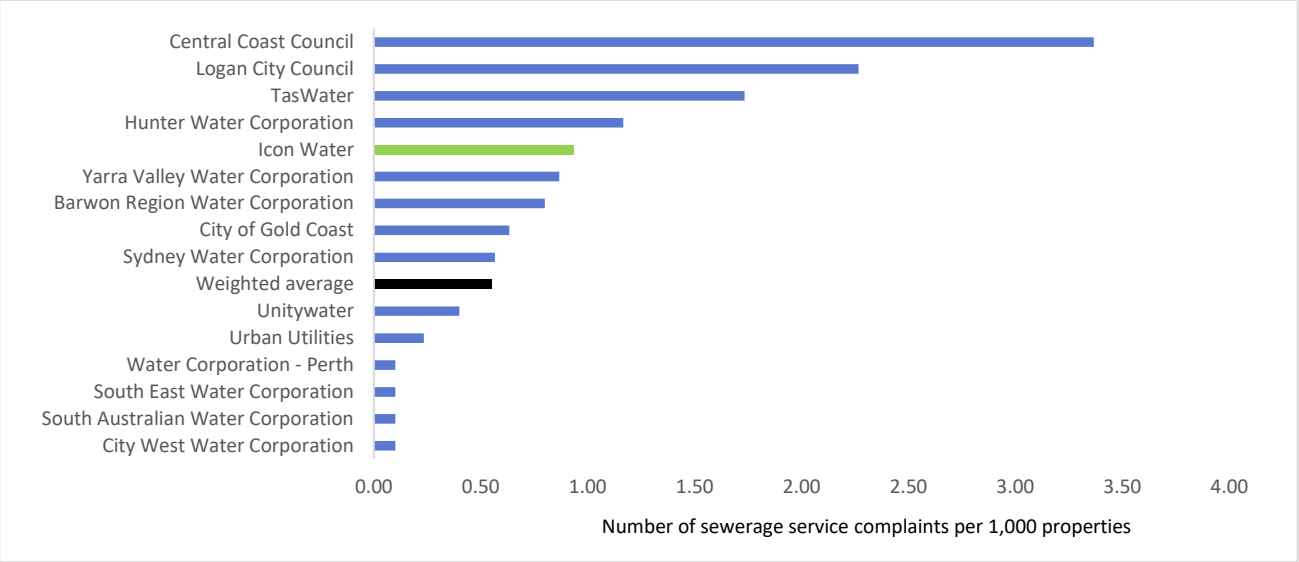


Note: The average is weighted based on the length of sewerage mains and channels.

Source: Bureau of Meteorology (2022a)

Icon Water received a greater than average rate of complaints about sewerage services (0.93 compared to 0.55) (see Figure A1.7). It received the fifth-highest number of complaints about sewerage services among its peers.

Figure A1. 7 Icon Water received more than the average number of complaints about sewerage services during the 2018-19 to 2020-21 period



Note: The average is weighted based on the number of properties connected to the sewerage system.

Source: Bureau of Meteorology (2022a)

Sewerage system performance over time

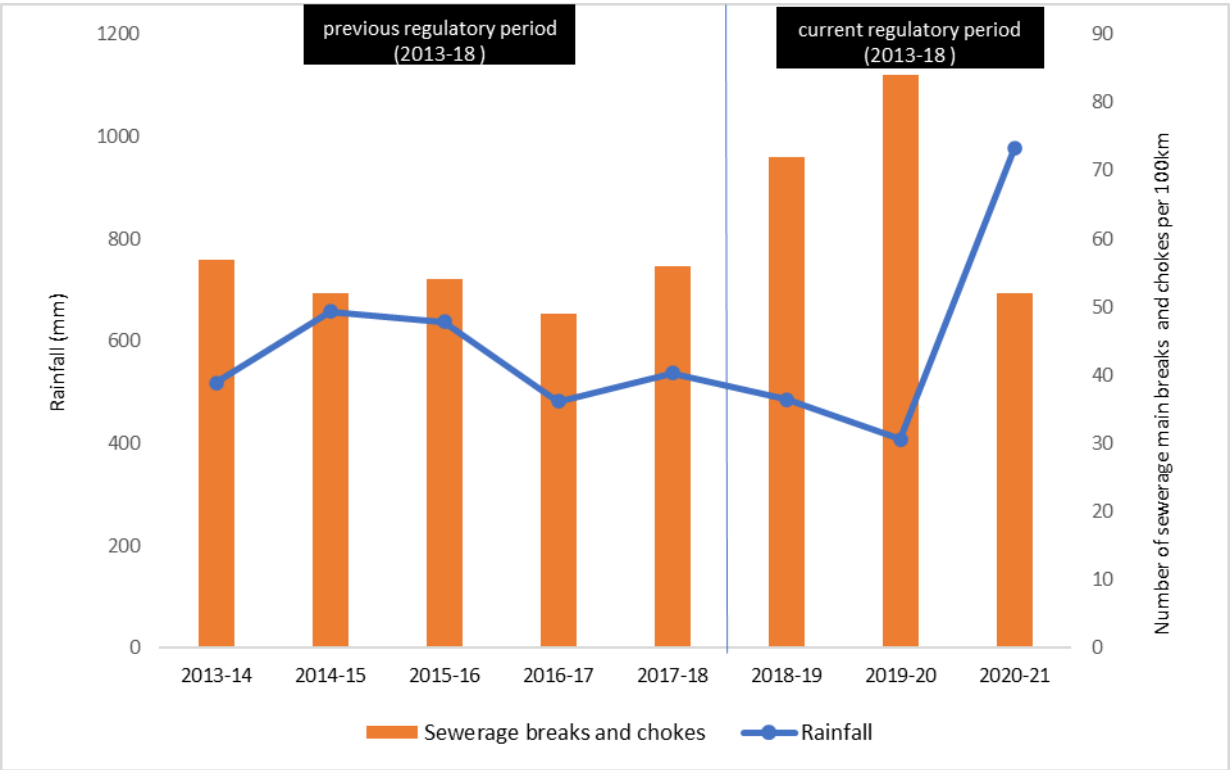
Icon Water's sewerage system in the current regulatory period has on average operated at a lower cost ($395 per property) than the previous regulatory period ($428 per property) (see Table A1.4).

The reliability of Icon Water's sewerage system has worsened in the current regulatory period with more sewer mains breaks and chokes (69 per 100km of sewer mains) than in the previous regulatory period (53 per 100km of sewer mains) (see Table A1.4).

One possible explanation for the sharp increase in sewer mains break and chokes in the current regulatory period could be the dry weather conditions experienced from 2016-17 to 2019-20. Prolonged dry conditions have been known to result in increased rates of tree root incursions, which leads to increased instances of sewerage main breaks and chokes.

As shown in Figure A1.8, there was a step increase in the number of sewerage main breaks and chokes in 2018-19 and 2019-20 following a prolonged period of low rainfall. However, sewerage main breaks and chokes declined rapidly in 2020-21 to 2013-18 levels following the sharp increase in rainfall.

Figure A1. 8 Icon Water's number of sewerage main breaks and chokes per 100km increased significantly when the rainfall declined during 2018-2020



Source: Number of sewerage main breaks and chokes from Bureau of Meteorology (2022a); The annual rainfall is the average amount of monthly rainfall at Canberra Parliament House station in a financial year (Bureau of Meteorology 2022b).

There appears to be some improvement in Icon Water's sewerage service customer satisfaction as the number of service complaints in the current regulatory period is lower (0.93 per 1000 properties) than in the previous regulatory period (1.00 per 1000 properties) (see Table A1.4).

Table A1. 4 Comparing Icon Water's sewerage system expenditure and performance indicators between 2013-18 and 2018-21 regulatory periods

Indicator	Icon water average 2013-14 to 2017-18	Icon water average 2018-19 to 2020-21	Performance comparison
Expenditure			
Operating cost ($ per property)[1]	428	395	●
Capital expenditure ($ per property)[1]	261	300	●
Combined expenditure ($ per property)[1]	689	694	●
Sewerage service quality and reliability			
Mains breaks and chokes (number per 100 km sewer main)	53	69	●
Sewerage service complaints (number per 1,000 properties)	1.00	0.93	●

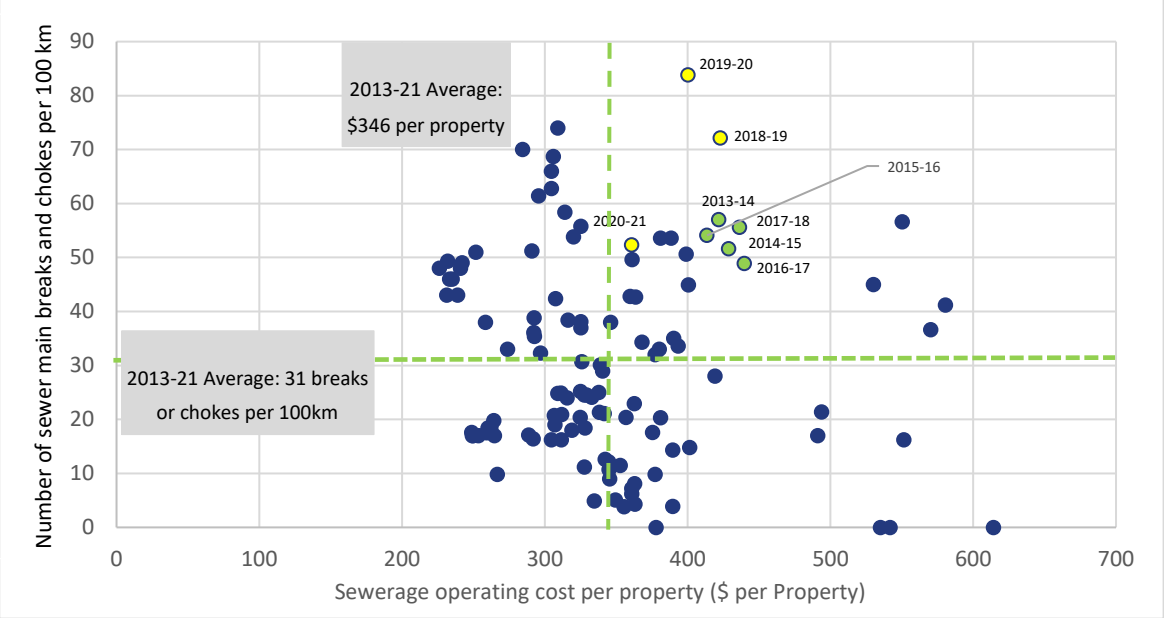
● Improved ● Worsened

Note: [1.] In real 2020-21 dollars.

Source: Bureau of Meteorology (2022a)

Over the eight years from 2013-14 to 2020-21, Icon Water's sewerage system operating cost per property has consistently been higher than the average, and the performance as measured by the rate of sewer mains breaks and chokes has remained relatively poor (see Figure A1.9).

Figure A1. 9 Icon Water's sewerage system operated at a higher cost and delivered lower reliability of service than the average across its peers during the 2013-14 to 2020-21 period



Note: Sample includes the data reported through NPR by 15 Australian major water utilities, including Icon Water, although not all utilities have reported all data.

Source: Bureau of Meteorology (2022a).

Attachment 2 Technical details of the demand forecasting models

Dam abstractions forecasting model

We use a multivariate Autoregressive Integrated Moving Average (ARIMA) model to forecast dam abstractions. This type of model is a widely used statistical analysis technique that, put simply, uses time series data (past trends) to predict future trends in variables that determine the variable of interest, which in this case is dam abstractions.

The specification of the ARIMA model is given in our demand methodology review (ICRC 2021). The model was estimated based on actual data from 1 July 2006 to 8 July 2022.

Estimated coefficients of the dam abstractions forecasting model

Variables	Coefficient	p-value	Sig.	Variables	Coefficient	p-value	Sig.
AR1	0.78	0.00	***	**Evap**	25.08	0.00	***
MA1	-0.38	0.00	***	**Evap1**	23.92	0.00	***
Intercept	180.92	0.00	***	**Temp_g30**	17.00	0.00	***
Temp0	6.76	0.00	***	**Temp_g35**	29.46	0.00	***
Temp3	2.28	0.00	***	**nudaysgeq1mm**	-18.06	0.00	***
Temp4	2.18	0.00	***	**Cumx**	-0.05	0.00	***
Temp_sq_lag2	0.05	0.00	***	**Summer**	17.55	0.08	*
Rain0	-5.66	0.00	***	**December**	-18.35	0.052	*
Rain1	10.35	0.00	***	**Cust**	0.002	0.00	***
Rain1sqrt	-46.53	0.00	***	**Sin**	-23.94	0.027	**
Rain2sqrt	-19.39	0.00	***	**Cosin**	-41.87	0.016	**
Rain3sqrt	-13.95	0.00	***				
BIC	9202.37			**AIC**	9089.00		

Note: '*', '**' and '***' indicate statistically significant coefficients using the 10%, 5% and 1% level of significance, respectively. Temp0 denotes the value of average maximum temperature at week t, Temp3 denotes the value of average maximum temperature at week t-3, and so one for the remaining variables.

Source: our calculations.

Description of variables in the weekly data model

- dam release data for the previous week (this is the AR1 component)

- forecast error of dam releases for the previous week (MA1)
- average value of daily maximum temperatures (degrees Celsius) during week t (temp0, temp3, temp4, where temp0 denotes average maximum temperature for the latest week, temp3 denotes average maximum temperature for 3 weeks prior, and so on)
- square root of daily maximum temperature for 2 weeks prior (Temp_sq_lag2)
- average daily rainfall (mm) during a week (rain0, rain1, where rain0 denotes average daily rainfall for the latest week, and rain1 denotes average daily rainfall for 1 week prior)
- square root of rainfall data (rain1sqrt, rain2sqrt, rain3sqrt, where rain1sqrt denotes the square root of average daily rainfall for 1 week prior and so on)
- average daily evaporation during a week (evap0, evap1, where evap0 denotes average daily evaporation for the latest week, and evap1 denotes average daily evaporation for 1 week prior)
- icon water customer connections at the end of a week (cust)
- number of days where daily temperature exceeded 30 °C during the previous week (temp_g30);
- number of days where daily temperature exceeded 35 °C during the previous week (temp_g35);
- number of days where rain exceeded 1 mm during the previous week (nudaysgeq1mm);
- binary variables that take the value of 1 if the first day of a week belongs to summer and December, respectively, and zero otherwise (Summer, December)
- the Fourier terms are computed based on the following formula:

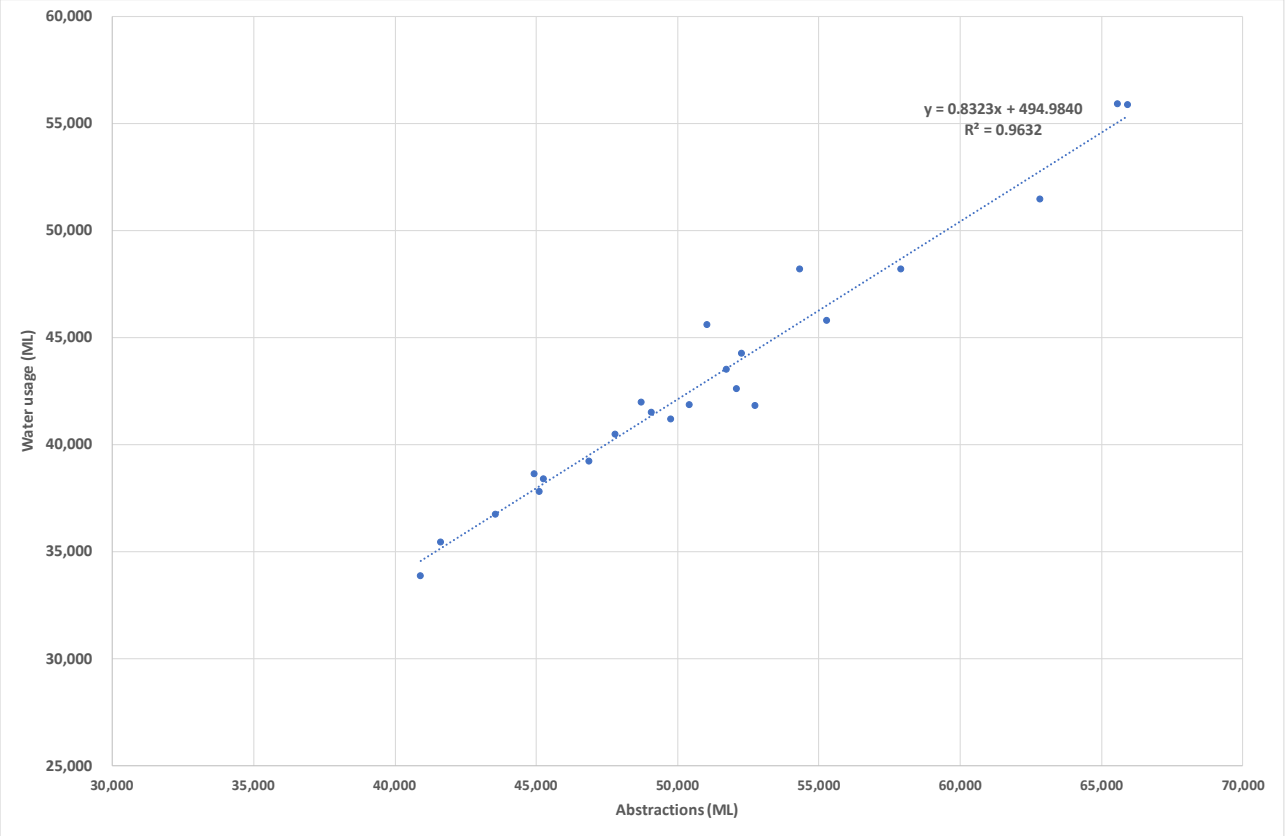
$$F_t = \rho_1 sin\left(\frac{2\pi t}{52}\right) + \rho_2 cos\left(\frac{2\pi}{52}\right),$$

When it comes to the Fourier terms, in the weekly model, the optimal choice of J is $J = 1$. Therefore, in the above equation $F_t(\boldsymbol{\rho}) = \rho_1 sin\left(\frac{2\pi t}{n}\right) + \rho_2 cos\left(\frac{2\pi t}{n}\right)$, where $\rho_1 \equiv \rho_{1,1}$ and $\rho_2 \equiv \rho_{2,1}$.

Total ACT water usage

Figure A2.1 shows the relationship between annual dam abstractions and billed consumption from 1999-2000 to 2021-22. As seen in the figure, there is a strong relationship between the two variables.

Figure A2. 1 Annual dam abstractions and total water usage, 1999-2000 to 2021-22



Source: our calculation based on data from Icon Water.

Billed water usage at Tier 1 and Tier 2

Tier 1 proportion

To estimate the proportion of total water usage that is expected to fall into the Tier 1 category, we estimate an equation that best fits the relationship between the average amount of water consumed per connection and proportion of total sales falling into the Tier 1 category.

We have re-estimated different forms of the relationship using the latest available data to date and identified the equation that provides the best fit. Table A2.1 shows the relationship between the average amount of water consumed per connection and observed Tier 1 proportion from 2008-09 to 2021-22.

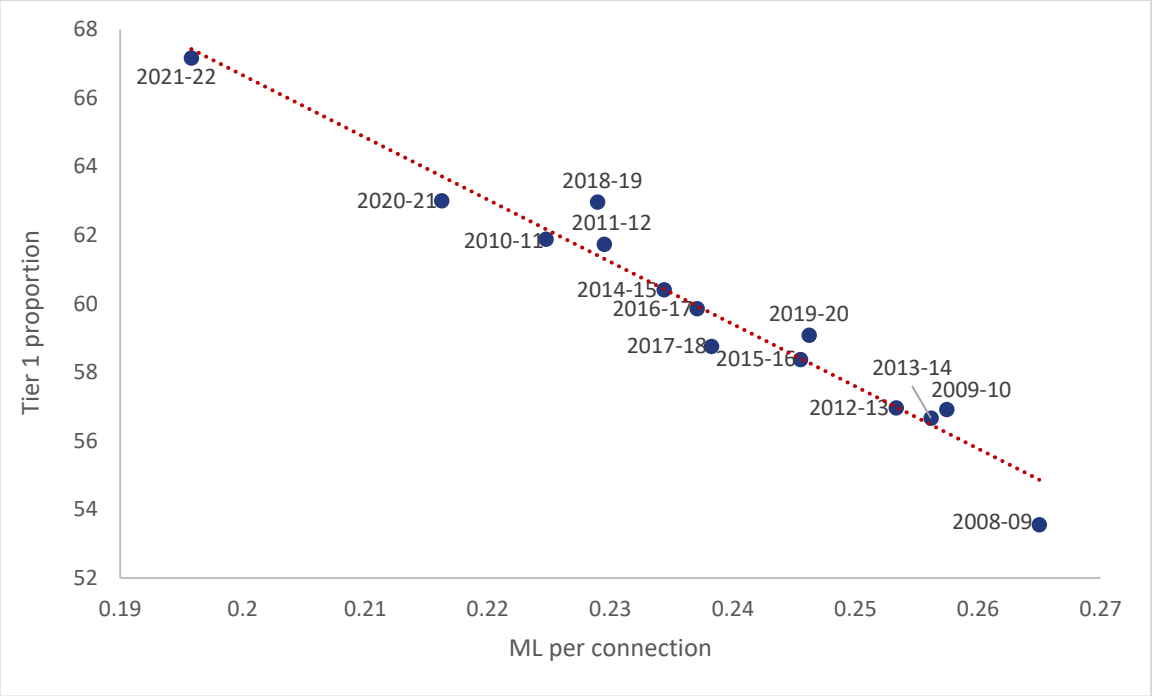
Table A2. 1 Observed water usage by Tier and connection numbers

Year	Total ACT sales (ML)	Tier 1 sales (ML)	Tier 2 sales (ML)	Connections (#)	ML/ connection/ year	Observed Tier 1 proportion
2008–09	38,179	20,448	17,731	144,165	0.265	53.56
2009–10	37,744	21,485	16,259	146,608	0.257	56.92
2010–11	33,780	20,906	12,874	150,309	0.225	61.89
2011–12	35,393	21,851	13,541	154,210	0.230	61.74
2012–13	40,428	23,032	17,396	159,593	0.253	56.97
2013–14	41,928	23,759	18,169	163,678	0.256	56.67
2014–15	39,152	23,652	15,500	167,046	0.234	60.41
2015–16	41,786	24,393	17,393	170,194	0.246	58.38
2016-17	41,182	24,650	16,532	173,715	0.237	59.86
2017-18	42,581	25,019	17,562	178,728	0.238	58.76
2018-19	41,808	26,324	15,484	182,599	0.229	62.96
2019-20	45,795	27,059	18,736	185,997	0.246	59.09
2020-21	41,472	26,130	15,343	191,803	0.216	63.00
2021-22	38,381	25,782	12,599	196,017	0.196	67.17

Source: our analysis based on data from Icon Water.

Figure A2.2 shows the observed relationship between the Tier 1 proportion and average customer consumption. A visual examination of the data suggests a linear relationship.

Figure A2. 2 Observed Tier 1 proportion and water usage (ML) per connection, 2008-09 to 2021-22



Source: our analysis based on data from Icon Water.

Box A2.1 Equations tested to identify the best equation to forecast Tier 1 water usage

We re-estimated several equations using the nonlinear least squares, linear model and polynomial functions and identified the best equation based on following criteria.

- best fit between observed and modelled values
- ability of the equation to forecast sensible values
- statistical significance of the estimated coefficients and identification by various well-established model information criterion tests

We considered the following four equations.

equation 1: $y = e^{a+bx}$

equation 2: $y = ax^2 + bx + c$

equation 3: $y = c + a.e^{bx}$

equation 4: $y = a + bx$

where: y is Tier 1 proportion of total ACT water usage; x is the average annual ACT water consumption per customer; a, b and c are the coefficients determined by the regression results of the historical relationship between y and x.

The form of equation we used in the 2018-23 price investigation is equation 3. We found in our 2018-23 investigation that the 2008-09 data point biased the parameter values estimation (ICRC 2018). This was because 2008-09 was the last year of the millennium drought and in that year per capita water

consumption was very low. As a result, this data point was removed. Therefore, we use annual data from 2009-10 to 2021-22 to test each equation.

Table A2.2 shows the performance of each of the equations against the observed values. Equations 2 and 4 produce the least squared residuals among all the equations.

Table A2. 2 Observed and modelled Tier 1 proportions and residuals

		Equations, modelled proportion				Equations, residuals			
Year	**Observed**	**Eq 1**	**Eq 2**	**Eq 3**	**Eq 4**	**Eq 1**	**Eq 2**	**Eq 3**	**Eq 4**
2009–10	56.92	56.69	56.57	56.56	56.57	0.23	0.35	0.37	0.35
2010–11	61.89	62.08	62.16	62.17	62.16	0.20	0.27	0.28	0.27
2011–12	61.74	61.27	61.35	61.35	61.34	0.47	0.39	0.38	0.39
2012–13	56.97	57.34	57.28	57.27	57.28	0.37	0.31	0.30	0.31
2013–14	56.67	56.89	56.79	56.78	56.79	0.23	0.12	0.11	0.13
2014–15	60.41	60.44	60.51	60.52	60.51	0.03	0.10	0.11	0.10
2015–16	58.38	58.60	58.61	58.61	58.61	0.22	0.23	0.23	0.23
2016-17	59.86	59.99	60.06	60.06	60.05	0.14	0.20	0.20	0.20
2017-18	58.76	59.80	59.85	59.86	59.85	1.04	1.10	1.10	1.10
2018-19	62.96	61.36	61.44	61.45	61.44	1.60	1.52	1.52	1.53
2019-20	59.09	58.49	58.49	58.49	58.49	0.60	0.60	0.60	0.60
2020-21	63.00	63.57	63.62	63.62	63.61	0.57	0.61	0.61	0.61
2021-22	67.17	67.28	67.10	67.08	67.10	0.11	0.08	0.10	0.07
				Sum of squared residuals		4.928	4.830	4.831	4.830

Source: our analysis based on data from Icon Water; the residuals are in absolute value.

Table A2.3 shows the model information criterion tests. The Akaike Information Criterion (AIC) and the Bayesian Information Criterion (BIC) indicate equation 4 to be the best model while the log likelihood values test suggests equation 2.

Table A2. 3 Model selection tests

	Eq 1	Eq 2	Eq 3	Eq 4
Log likelihood values	47.73219	**47.86293**	47.86107	47.86283
Akaike Information Criterion	-91.46437	-89.72587	-91.72213	**-91.72567**
Bayesian Information Criterion	-90.33447	-88.03102	-90.59223	**-90.59577**

Source: our analysis based on data from Icon Water.

Note: A lower AIC and BIC, and a higher log-likelihood indicate a better fit model

Table A2.4 shows the parameter estimates for equation 4. Both parameter estimates are significant at the 99 percent level. However, we found all the parameters (a, b and c) are insignificant for equation 2. So, we consider that equation 4 is the optimal model.

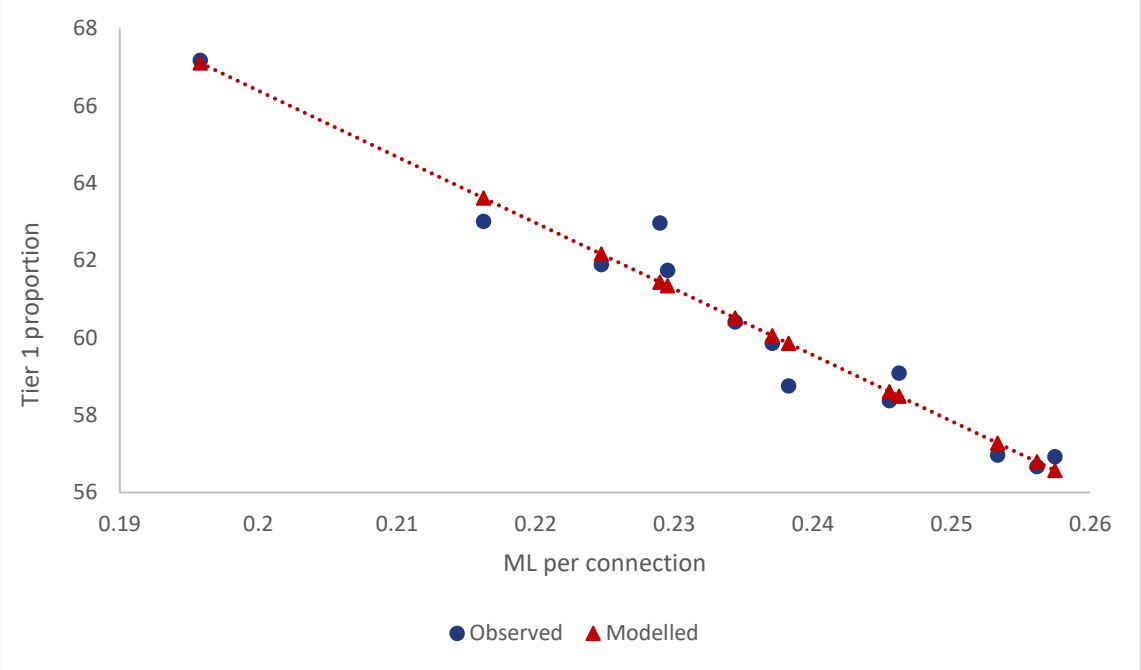
Table A2. 4 Equation 4 parameter significance

	Coefficient	Standard error	t-value	p-value	Significance
a	100.5538	2.610008	38.53	0.000	***
b	-170.8395	11.04782	-15.46	0.000	***

Source: our analysis based on data from Icon Water.

Figure A2.3 shows the modelled Tier 1 proportion over the 2009-10 to 2021-22 period, in comparison to the observed values.

Figure A2. 3. Observed and modelled Tier 1 proportion



Source: our analysis based on data from Icon Water.

Connections and billable fixtures

We have used the ACT population projections to forecast these variables.

We first estimated the historical relationship between ACT population and each of the three variables: water connection numbers, sewerage connection numbers and billable fixtures.

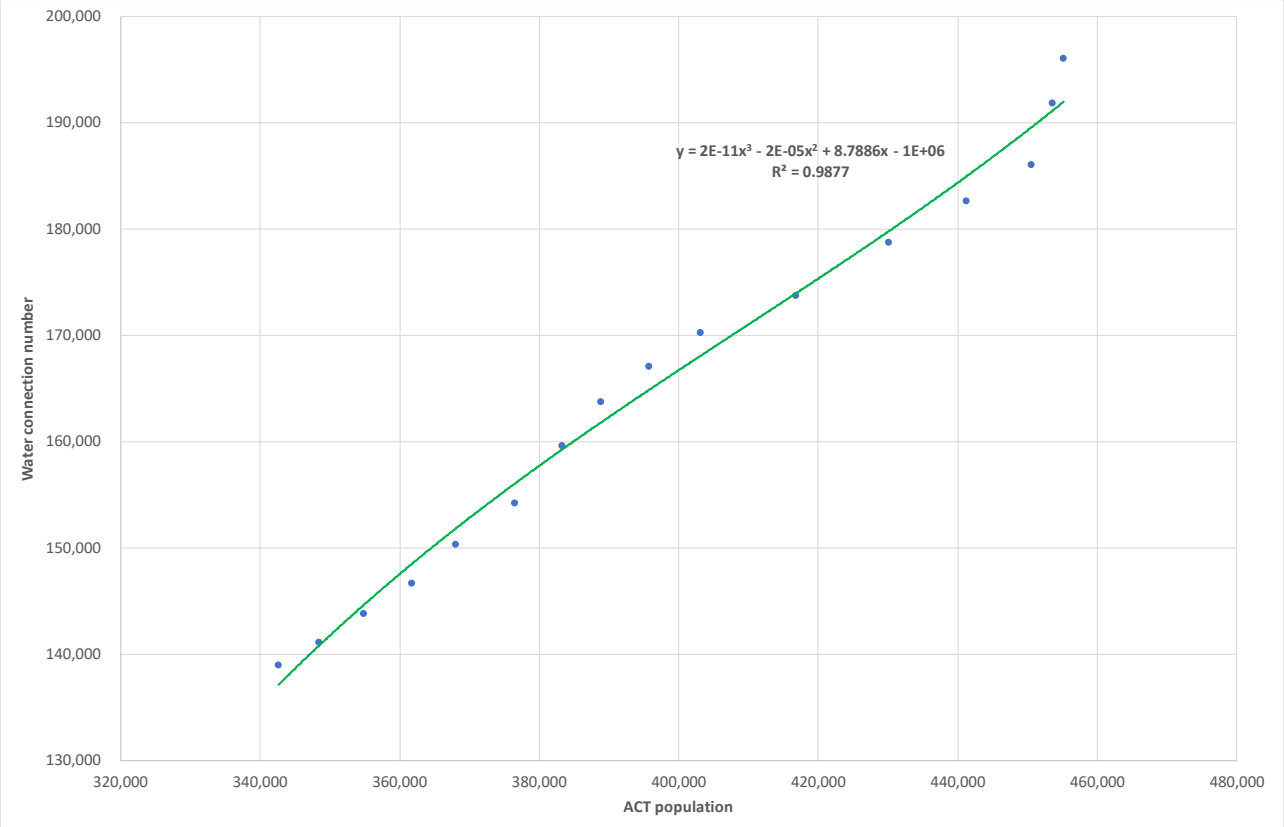
Then, we applied the estimated historical relationship to ACT population projections to forecast connection numbers and billable fixtures for the 2023–28 regulatory period.

Water service connection numbers

To estimate the historical relationship between water connection numbers and ACT population, we used annual ACT population data and water connection numbers from 2006-07 to 2021-22. Year 2006-07 was used because this is the oldest date for which we had data. As noted in our demand methodology review, we ran a polynomial form of linear regression model.

Figure A2.4 shows the modelled relationship between ACT population and water connection numbers.

Figure A2. 4 Relationship between ACT population and water connection numbers,2006-07 to 2021-22.



Source: Our calculations.

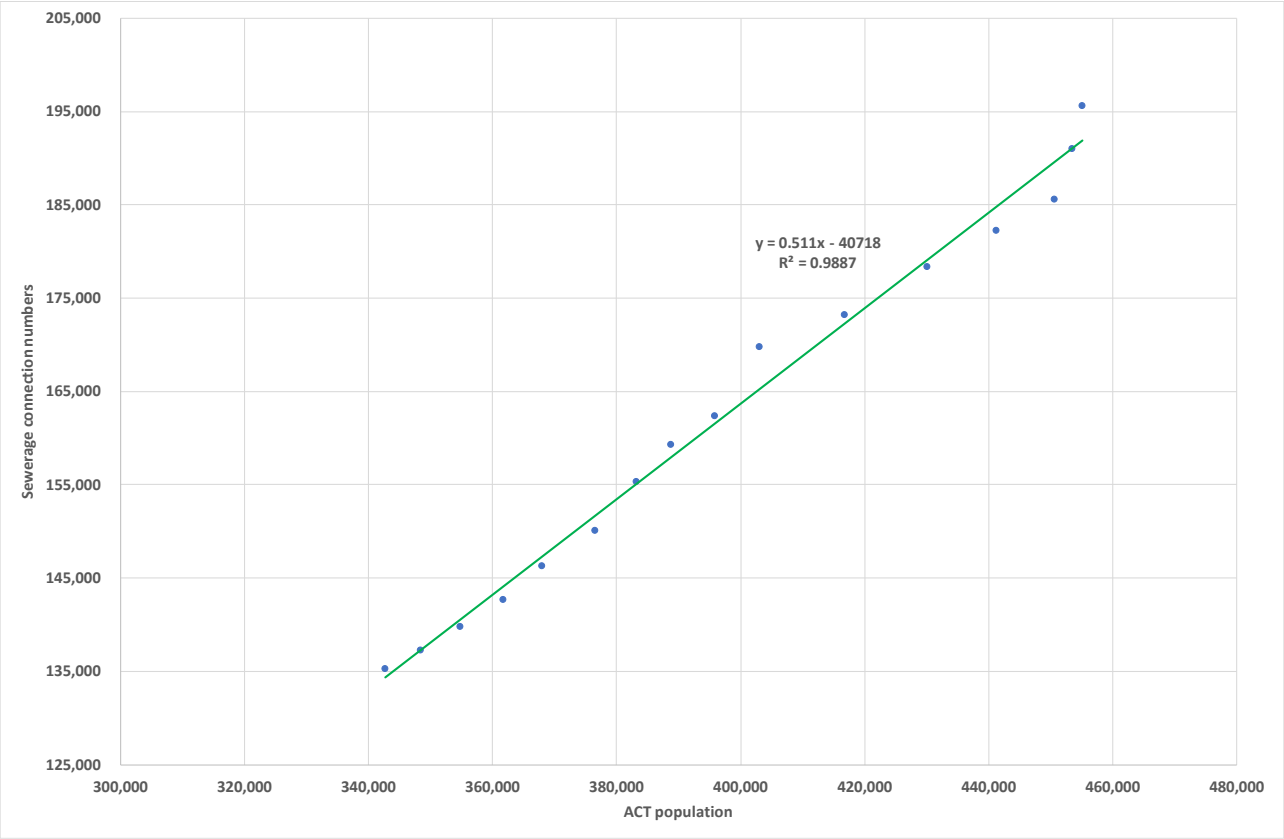
Sewerage service connection numbers

To estimate the historical relationship between sewerage connection numbers and ACT population, we used annual ACT population data and sewerage connection numbers from 2006-07 to 2021-22. Year 2006-

07 was used because this is the oldest date for which we had data. As noted in our demand methodology review, we ran a straight-line form of linear regression model.

Figure A2.5 shows the modelled relationship between ACT population and sewerage connection numbers.

Figure A2. 5 Relationship between ACT population and sewerage connection numbers



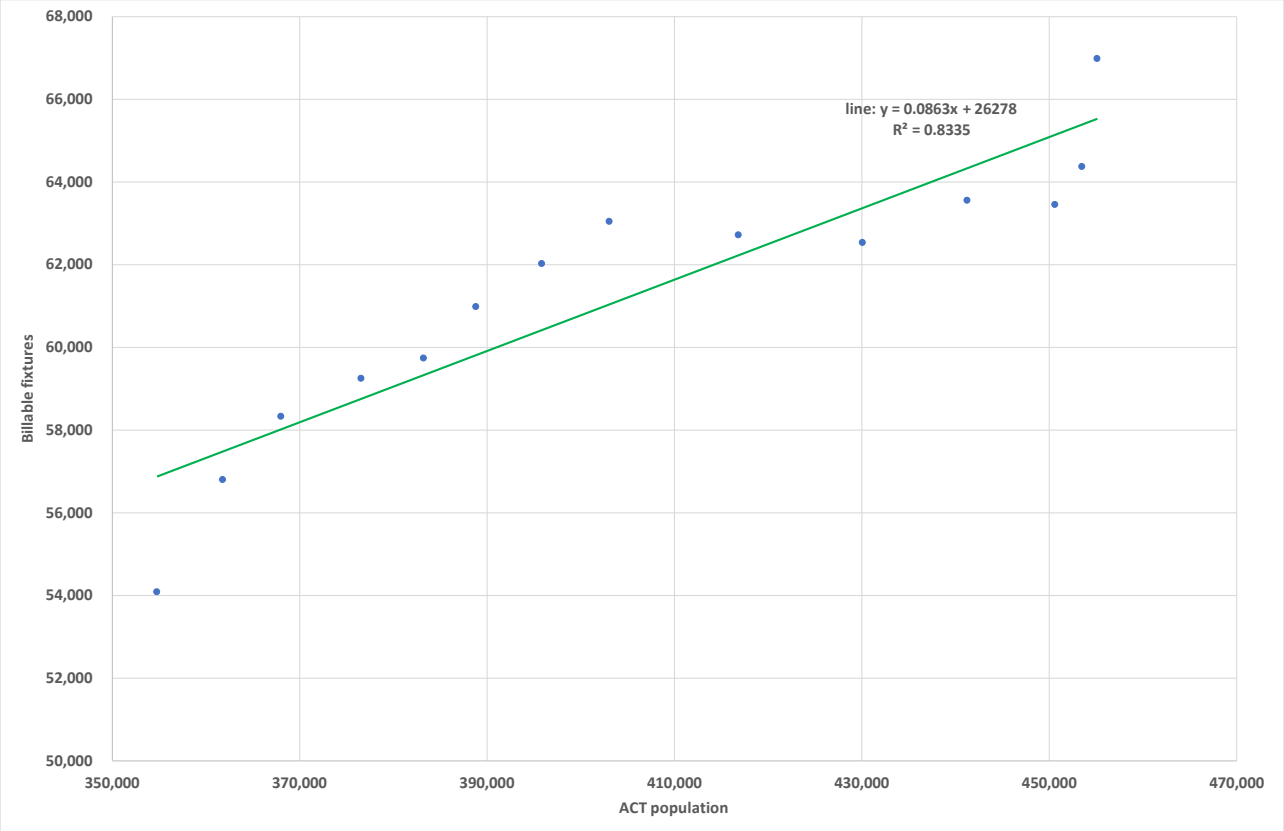
Source: Our calculations.

Billable fixtures

To estimate the historical relationship between billable fixtures and ACT population, we used annual ACT population data and billable fixtures from 2008-09 to 2021-22. We ran a straight-line form of linear regression model.

Figure A2.6 shows the modelled relationship between ACT population and billable fixtures.

Figure A2. 6 Relationship between ACT population and billable fixtures



Source: Our calculations

Attachment 3 Miscellaneous fees and charges

Icon Water's proposed miscellaneous fees and changes for 2023-24

Table A3. 1 Top ten increased miscellaneous fees and charges

Miscellaneous charge	2022-23[1]	2023-24	Increase
Drawings resubmission fee (for the third and any subsequent submission of drawings that have already been rejected twice as incorrect or not compliant with standards).	719.40	1,180.00	64%
Drawing non-compliance fee (for drawings that are submitted and do not comply with Icon Water design and drafting standards).	361.24	590.00	63%
Relocation of 20mm and 25mm stop cock and meter Where additional excavation is required	1,136.00	1,827.00	61%
Sewer main connections - Supply and fit "gatic" type cover to an existing manhole	1,509.61	1,969.00	30%
Sewer main connections – gatic (if required)	599.33	727.00	21%
Hydrants (metered standpipe) – short-term hire	85.18	102.00	20%
Cut in stop valve for 150mm main	2,376.79	2,685.00	13%
Sewer main connections - Disconnection (temporary cap off) of sewer tie for non-compliance	1,060.12	1,185.00	12%
Cut in stop valve for 225mm main	3,556.98	3,864.00	9%
Hydrants (metered standpipe) – quarterly hire (32mm)	160.09	172.00	7%

Source: Icon Water proposal

Notes: [1] In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CPI forecasts of 2.625%.

Table A3. 2 Top ten decreased miscellaneous fees and charges

Miscellaneous charge	2022-23[1]	2023-24	Decrease
Where insertion of hydrant tee is required ("standard" main depth) – 100mm	2,951.49	1,513.00	-49%
Disconnection of water service - Service 50mm to 150mm diameter (cap main cock / blank flanged tee)	1,022.14	611.00	-40%
Disconnection of water service - Service 20mm to 40mm diameter (cap main cock)	777.90	463.00	-40%
Where insertion of hydrant tee is required ("standard" main depth) - 150mm	3,164.95	1,939.00	-39%
Sewer Main connections - Connecting main to end of existing main or collar out of existing manhole, 150mm or 225mm	2,662.09	1,644.00	-38%
Remove hydrant / endcap and connect main - 150mm	2,202.33	1,512.00	-31%
Hydrants (metered standpipes) – annual hire 65mm	606.51	419.00	-31%
Remove hydrant / endcap and connect main - 100mm	1,723.07	1,224.00	-29%
Where insertion of hydrant tee is required ("standard" main depth) - 300mm	4,520.63	3,361.00	-26%
Where insertion of hydrant tee is required ("standard" main depth) – 225mm	3,595.98	2,855.00	-21%

Source: Icon Water proposal

Notes: [1]In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CIP forecasts of 2.625%.

Icon Water's proposed discontinued miscellaneous charges are:

- supply and fix stop valve locking cover
- charge for addition meter of drop relating to the retained charge for 150mm to 225mm connection to existing standard manhole with external drop
- charge for 225mm connection to existing standard manhole including external drop of up to 2 meters and the related charge for charge for additional meter of drop.

Icon Water is proposing the adoption of quote based charges for three miscellaneous charges:

- relocation of stop cock and meter – Where shut down of main is required
- 150mm or 225mm connection to existing standard manhole with external drop
- rebuild of sewer manhole.

Forecast miscellaneous revenue subcategories

Icon Water does not separately identify its forecasts for miscellaneous fees and charges revenue. Our analysis of the revenue is based on the following revenue subcategories reported by Icon Water in its proposal:

- standpipe income
- commercial services income
- conveyancing fees – water
- conveyancing fees – wastewater
- other miscellaneous revenue.

Comparative pricing outcomes

Table A3. 3 Comparative pricing outcomes - water connection fees[1]

Business	Main Connections (tappings) fees	Disconnection fees	Relocation fees
Icon Water	Tapping fees based on water main size and main cock size - $891.00 to $1,221.00	20 to 40mm disconnects - $463.00 50 to 150mm disconnects - $611.00	Relocation of 20/25mm stop cock and meter - $841.00 $1,827.00 if additional works needed
Hunter Water	Application fee for service connections (all sizes) - $37.41 Recycled water main drillings based on main size - $219.62 to $723.51	Application to disconnect water - $22.92 Application to disconnect recycled water - $44.90	No scheduled fees
Sydney Water	Water connection fees for 32mm or larger connections - $363.10	Business properties or developers on quote basis	Application for asset adjustment - $222.69 and $588.91 Water and sewer extensions - $588.91
South East Water	Connection fees based on main size and service size - $413.60 to $5,897.86	$165.43 performed as a separate job and $89.08 performed with a new tapping. Tee removal and blank end services are price on application.	Relocation of 20mm water and recycled water - $2,412.70 to $3,303.03
Yarra Valley Water	Connection fees based on connection size - $262.93 to $5,631.36	Application fees - $83.11 to $199.49	Relocate new estate connections - $123.76
SA Water	Connection fees (include meter installation) based on connection size and include a per meter charge- $2,918.65 to $5,969.69	Disconnection up to 50mm - $783.03 Disconnection 100/150mm - $1,268.44	A range of relocation fees based on metered, unmetered and connection into box - $755.32 to $2,701.09
TasWater	Standard and non-standard connections are charged on a quote basis.	No scheduled fees	No scheduled fees

Source: compiled based on available information on businesses' website.

Note: [1] In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CIP forecasts of 2.625 percent. Prices have been adjusted to exclude GST consistent with Icon Water's proposed schedule.

Table A3. 4 Comparative pricing outcomes - hydrant fees[1]

Business	Installation	Raise/lower	Remove	Hire	Usage (kL)
Icon Water	Main sized fees - $1,503.00 to $3,361.00	$1,485.00	Main sized fees - $1,224.00 to $3,402.00	Annual $419.00 Quarterly $172.00 Fortnightly $102.00	$4.71
Hunter Water	No scheduled charge	No scheduled charge	No scheduled charge	Annual fees based on meter size - $121.00 to $246.30	$2.74
Sydney Water	No scheduled charge	No scheduled charge	No scheduled charge	Quarterly fees based on meter size - $22.64.00 to $37.10	$2.57
South East Water	Price on application Replacement - $1,652.05	No scheduled charge	No scheduled charge	Permit to draw - $370.31	$3.56
Yarra Valley Water	Supply and install fees based on main size - $2,602.76 to $7,466.79	No scheduled charge	No scheduled charge	Usage permit - $279.14	$3.02
SA Water	Estimated cost to deliver service	No scheduled charge	No scheduled charge	Quarterly hire fee - $127.25 Application fee - $244.25	No scheduled charge
TasWater	Price on application	No scheduled charge	No scheduled charge	Private annual fee - $377.02 Portable annual fee - $377.02	Levied by filling station type: Private - $1.17 Public - $1.80 Portable - $1.17

Source: compiled based on available information on businesses' website.

Notes: [1] In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CIP forecasts of 2.625 percent. Prices have been adjusted to exclude GST consistent with Icon Water's proposed schedule.

Table A3. 5Comparative pricing outcomes - sewer connection fees[1]

Business	Connection	Disconnection	Manhole connection	Manhole alteration/ rebuild	Manhole gatic covers
Icon Water	Main sized connection fees - $1,545.00 to $2,307.00	Disconnection for non-compliance - $1,185 Permanent - $905.00	Work required - $1,644.00 to $3,079	$1,219 for alteration and rebuild by quote	Supply and fit - $1,969.00 Gatic - $727.00
Hunter Water	Application fees - $47.98 (sewer), $59.83 (sewer and water combined)	Application fees - $47.98 (sewer), $59.83 (sewer and water combined)	No scheduled fee	No scheduled fee	No scheduled fee
Sydney Water	Asset adjustment - $303.60 Application fees - $222.69 to $588.91	No scheduled fee	No scheduled fee	Business and development by quote	No scheduled fee
South East Water	Notice of agreement - $232.88 Deeds of contract - $1,130.20	No scheduled fee	No scheduled fee	No scheduled fee	No scheduled fee
Yarra Valley Water	Pressure sewerage fees - $19,048.81 to $47,067.83[2]	Application fees - $83.11 to $199.49	No scheduled fee	No scheduled fee	No scheduled fee
SA Water	Main sized connection fees - $3,055.15 to $6,295.02	No scheduled fee	No scheduled fee	No scheduled fee	No scheduled fee
TasWater	By quotation	No scheduled fee	No scheduled fee	No scheduled fee	No scheduled fee

Source**:** compiled based on available information on businesses' website.

Notes: [1] In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CIP forecasts of 2.625 percent. Prices have been adjusted to exclude GST consistent with Icon Water's proposed schedule.

Interjurisdictional miscellaneous fees – water connection and drawing and planning

Table A3. 6 Drawing and planning fees

Business	Miscellaneous Services	2022-23 Scheduled Fee[1]
Hunter Water	Planning activities include conveyancing certificates, locational diagrams for sewer and applications to build over/adjacent to sewer or stormwater infrastructure.	Fees range from $9.70 per service for electronic service location diagrams through to $101.24 for plans for single residences to connect to or build over/adjacent to a stormwater channel.
Sydney Water	Sydney Water levies planning specific fees that cover certificates and diagrams, sewerage service diagrams and building plans.	Certificate and diagram fees range from $7.99 for individual conveyancing certificates through to $52.43 for building over or adjacent to Asset letters.
South East Water	Processing of applications for easements and to build over easements, and provision of location plans.	Fees range from $22.88 for the provision of Asset Information Plans through to $237.96 for the creation of easements (per title).
Yarra Valley Water (YVW)	Processing of applications. YVW expects developers to engage engineering consultants to undertake the design, construction and survey of the services associated with land development applications.	Fees range from $109.05 for express processing of 2 lot developments to $1,438.52 for multi-unit >19 lot development applications.
SA Water	SA Water only levies two planning/design miscellaneous charges. It levies separate Design and Administration charges for non-standard connections and extensions. A relatively small administration charge is applied for water and sewer.	Design and administration charge for non-standard connections $336.61 and a Design and Administration charge for extensions of $1059.09. Sewer link up administration fee of $88.77 and a water link up administration fee of $222.70.
TasWater	TasWater planning fees are set out in the Developer Fees and Charges schedule. The fees cover a range of services that include the issuance of information certificates and account establishment. The schedule also includes fees for the certification of water and sewerage works and engineering design and approval. These fees are levied on the basis of the scale of development.	Fees for certification of water and sewerage works range from 330.19 per service for minor developments through to 482.35 for major developments. Fees for engineering design and approval range from $327.13 for minor developments through to $1,560.09 for major services.

Source: compiled based on available information on businesses' website.

Notes: [1] In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CIP forecasts of 2.625%.

Table A3. 7 Water connection fees

Business	Miscellaneous Services	2022-23 Scheduled Fee[1]
Hunter Water	Fees are levied for connection applications, main drillings for recycled water, the installation of affixtures and applications for disconnection.	• Application fee - $37.41 • Recycled water main size drillings– $219.62 (80mm) through to $723.51 (375mm) • Water meter affixtures – $52.13 (20mm) through to $242.19 (50mm, delivered) • Disconnection water and recycled water - $29.92 (water) and $44.90 (recycled water)
Sydney Water	Fees are levied for water connection and water pump applications. Sydney Water has relocation charges for application to adjust assets or extend water and sewer services. Sydney Water also levies a disconnection charge for business or development on a quotation basis.	• Water connection 32mm or larger - $372.63 • Water pump application - $154.36 • Asset adjustment application (complying) - $303.60 • Asset adjustment application (other) - $588.91 • Sewer and water extension - $588.91 • Disconnection - quote
South East Water	Fees are levied for connections (including tappings), relocation for plugging and retapping differentiated between short and long side, service upgrades and main meter removal including the installation of a stop tap. Fees are also levied for disconnection services based on whether the capping is associated with new tappings or not.	• Connection fees - $413.60 (20mm) through to $3,321.93 (80mm to 300mm connections where tapping saddles are required) • Relocation fee - $2,412.70 (short side) • Relocation fee - $3,303.03 (long side) • Main meter removal fees - $459.19 (20mm) through to $732.38 (50mm) • Disconnection (separate job) - $165.43 • Disconnection (performed with new tapping) - $89.08
SA Water	Fees are levied for both connection and disconnection services. SA Water has an extensive range of relocation charges based on connection size for standard altering, altering into a box and unmetered connections.	• Water connections fees - $2,918.65 (20mm) to $5,969.69 (50mm) • A per meter rate applied for each meter over 12m up to 25m - $138.54 per meter (20mm) to $214.49 per meter (50mm) • Standard relocations are stepped based on the associated meters - $1,280.76 (up to 0.5m), $1,335.15 (0.5m to 2.0m), $1,450.09 (2.0m to 4.m) • Disconnection fees - $783.03 (up to 50mm) and $1,268.44 (100/150mm)

Table A3.7 Water connection fees, continued

Business	Miscellaneous Services	2022-23 Scheduled Fee[1]
Yarra Valley Water	Yarra Valley Water has a relatively extensive schedule of connection fees outlined in its Developer Fees schedule. Connection services may include connection, meter pit, pressure limiting valve, meter lock etc. to standard, multi-unit and high-rise developments. Yarra Valley Water's miscellaneous charges schedule includes services for the supply and installation of an aqua stop device, temporary pump stations and meter relocations.	• Meter connection charges for water and recycled water - $262.93 (20mm) through to $5,631.36 (225mm) • Complete connection supplement (long) fees - $2,029.91 (20mm) through to $5,054.37 (225mm) • Complete connections supplement (short) fees - $1,307.51 (20mm) through to $5,054.37 (225mm) • Aqua stop (100mm) - $2,310.80 • Aqua stop (150mm) - $2,466.94 • Temporary pump station (per lot) - $1,420.33 • Relocation of check meter - $63.52 • Relocation of service for new estate - $123.76
TasWater	TasWater does not levy a scheduled charge for connections. A TasWater approved contractor carries out the works at a quoted price.	• N/A

Source: compiled based on available information on businesses' website.

Notes: [1] In order to account for inflation and allow for meaningful comparisons 2022-23 prices for miscellaneous services have been escalated to 2023-24 dollar terms using the CIP forecasts of 2.625%.

Interjurisdictional data references

Data sources for out interjurisdictional review:

- Hunter Water, Miscellaneous Fees, effective 1 July 2022 to 30 June 2023. Available at https://www.hunterwater.com.au/home-and-business/managing-your-account/business-pricing-fees-and-charges
- Sydney Water, Our Prices, https://www.sydneywater.com.au/accounts-billing/managing-your-account/about-your-account/our-prices.html
- South East Water 2022-23 Pricing Handbook, Version 1.0, 6 June 2022, https://southeastwater.com.au/business/accounts-and-billing/prices-and-charges-business/
- Yarra Valley Water, Pricing Handbook 2022-23, Edition 1-July 2022, https://www.yvw.com.au/help-advice/watercare/understand-my-bill/fees-and-charges
- SA Water, Pricing Schedule, Fees and Charges 2022-23, 1 July 2022, https://www.sawater.com.au/my-account/water-and-sewerage-prices/water-prices
- TasWater, https://www.taswater.com.au/accounts-billing/fees-charges/connection--disconnection-and-relocation-fees

Appendix 1 Terms of reference

Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Determination 2021

Disallowable instrument DI2021- 278

made under the

***Independent Competition and Regulatory Commission Act 1997*,**
s 15 (Nature of industry references) and s 16 (Terms of industry references).

1 Name of instrument

This instrument is the *Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Determination 2021*.

2 Commencement

This instrument commences on the day after it is notified.

3 Reference for investigation under s 15

Pursuant to subsection 15 (1) (a) of the Act, I refer to the Independent Competition and Regulatory Commission (the 'Commission') the matter of an investigation into, and the making of a price direction for regulated water and sewerage services provided by Icon Water Limited.

The price direction will be for the period of 1 July 2023 to 30 June 2028.

4 Terms of Reference for investigation under s 16

1. The Commission must consider:

a. the objectives of the Commission outlined within section 7 of the Act;

b. the objective related to price directions outlined in section 19L of the Act;

c. the legislative requirements outlined in section 20 (2) of the Act;

d. the policies of the ACT Government as they relate to the supply and use of water and sewerage services, including the *ACT Water Strategy - Striking the Balance 2014-2044*;

e. the National Water Initiative, Murray-Darling Basin Plan commitments and associated policies and agreements; and

f. any other matters considered to be directly relevant to the pricing investigation.

2. The Commission should consider:

a. continuing to use the current regulatory model, and, where identified, implement improvements to aspects of the methodology, including improvements identified in reviews undertaken in accordance with the reset principles in clause 13 of the Price Direction for Regulated Water and Sewerage Services 1 July 2018 to 30 June 2023; and

b. minimising the potential for significant price fluctuations during the regulatory period, while ensuring the recovery of the prudent and efficient costs of Icon Water Limited.

3. As part of its investigation, the Commission should outline its intended approach to achieving its various regulatory objectives within its decision making process.

4. The Commission should identify, in the draft and final reports of the investigation, the incremental impact on prices associated with:

a. any changes to the total allowed revenue for Icon Water Limited;

b. any changes to the water demand forecasts used in the regulatory model; and

c. any changes to the structure of Icon Water Limited's regulated water and sewerage services tariffs.

5. In accordance with subsection 16 (2) (d) of the Act, the Commission must make available a draft report for public inspection within the period of 1 September 2022 to 12 December 2022.

6. In accordance with subsection 16 (2) (a) of the Act, the Commission must submit its final report to the referring authority within the period of 1 March 2023 to 1 May 2023.

Andrew Barr MLA
Treasurer
9 December 2021

Appendix 2 Compliance with the terms of reference and ICRC Act

Section 7 ICRC Act

(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.

Box B2. 1 Sections 7 and 19L: Commission objectives

Section 7:

(a) to promote effective competition in the interests of consumers;

(b) to facilitate an appropriate balance between efficiency and environmental and social considerations;

(c) to ensure non-discriminatory access to monopoly and near-monopoly infrastructure.

Section 19L:

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

Box B2. 2 Section 20(2): Commission's considerations

(a) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies (including policies relating to the level or structure of prices for services) and standard of regulated services; and

(b) standards of quality, reliability and safety of the regulated services; and

(c) the need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers; and

(d) an appropriate rate of return on any investment in the regulated industry; and

(e) the cost of providing the regulated services; and

(f) the principles of ecologically sustainable development mentioned in subsection (5);

(g) the social impacts of the decision; and

(h) considerations of demand management and least cost planning; and

(i) the borrowing, capital and cash flow requirements of people providing regulated services and the need to renew or increase relevant assets in the regulated industry; and

(j) the effect on general price inflation over the medium term; and

(k) any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person.

An explanation of the principles

To achieve our objectives, we have developed 'pricing principles', which we have outlined below.

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.

Regulated prices should provide a price signal to customers about the efficient costs of providing the services and recognise water supply circumstances in the ACT.

In addition, this principle means that regulated prices should be set having regard to a risk of uneconomic bypass. In uneconomic bypass a large user can gain access to an alternative source of water supply and bypass the main water network at a net cost to all other users. This is due to higher social or environmental cost associated with this alternative source of supply than the efficient costs of the regulated utility.

Pricing principle 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.

This principle covers two aspects of economic efficiency.

First, overall revenue needs to be sufficient to finance the efficient costs of operation and investment. If this is not the case, a regulated utility may not be able to attract sufficient funds to invest in maintaining, upgrading, renewing and replacing its assets. This could have a major adverse impact on services. The finance recovery aspect of the principle is often described as ensuring revenue adequacy or financial viability.

Second, the cost of investment and operations expenditure needs to be prudent and efficient, as defined here:

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

We use expenditure reviews and incentive mechanisms as the main means of meeting this objective. However, the tariff structure and the form of regulation (in particular, the extent to which revenues are guaranteed) can also affect these aspects of economic efficiency.

Pricing principle 3: Environmental considerations

Regulated prices and complementary mechanisms should ensure that environmental objectives are effectively accounted for.

Environmental objectives are typically imposed by specific legislated and government policy requirements. This includes giving priority to designated environmental flows and various permanent and temporary water conservation measures or restrictions. Therefore, regulated prices can reflect some costs associated with consideration of environmental impacts.

Pricing principle 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.

Consumers typically prefer price stability in the overall bills they face as it helps them manage their budgets. An adequate transition period for any material changes in prices can ease adjustment costs.

Pricing principle 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.

In implementing a set of pricing principles for water and sewerage services, we need to consider the impacts on households with low incomes. Identifying the impacts on all households with low income and forming a judgement about equity and fairness is a challenging task. We will carefully consider the likely impact of price changes on households with low incomes and apply relevant mechanisms to address or moderate any adverse impacts.

Pricing principle 6: Regulatory governance – simplicity

Regulated prices and their form should be simple for consumers to understand and straightforward for the utility to implement.

Consumers generally prefer regulated prices and regulatory arrangements that are easy to understand. Easy to understand tariff structures have the added benefit of being easier and cheaper for the utility to implement.

Pricing principle 7: Regulatory governance – transparency

Regulated prices should be set using a transparent methodology and be subject to public consultation and scrutiny.

This principle relates to good regulatory governance. Promoting community confidence in the regulatory arrangements requires a good understanding in the community of how regulated prices for water and sewerage services are decided. This also requires an adequate opportunity for community involvement in the regulatory process. The ICRC Act requires us to hold a public hearing and make draft decisions available for public scrutiny. In addition, we released this issues paper and will hold a community consultation forum.

Our open consultation process helps us understand the views and priorities of consumers and broader community. We recognise that stakeholders need confidence that their input will be considered in our decision-making and that the regulatory process can deliver outcomes that reflect their needs and interests. Our reports explain how stakeholder input (such as submissions) was considered and how it informed the outcome of the decision.

Compliance with the terms of reference and the ICRC Act

This appendix first sets out how the commission's investigation complies with the Terms of Reference. Second, it considers how the price direction complies with the provisions of the *Independent Competition and Regulatory Commission Act 1997*.

Table B1. 1 Compliance with the Terms of Reference

Clause	Requirement	Chapter(s)	Comments
3	The price direction will be for the period of 1 July 2023 to 30 June 2028.	2	
4(1)(a)	The commission must consider the objectives of the commission outlined within section 7 of the Act.		See appendix 2 table 2 below
4(1)(b)	The commission must consider the objective related to price directions outlined in section 19L of the Act.		See appendix 2 table 3 below
4(1)(c)	The commission must consider the legislative requirements outlined in section 20(2) of the Act.		See appendix 2 table 4 below
4(1)(d)	The commission must consider the policies of the ACT Government as they relate to the supply and use of water and sewerage services, including the ACT Water Strategy – Striking the Balance 2014-2044.	1	
4(1)(e)	The commission must consider the National Water Initiative, Murray-Darling Basin Plan commitments and associated policies and agreements.	1	

4(1)(f)	The commission must consider any other matters considered to be directly relevant to the pricing investigation.	2, 3, 4, 5, 6, 7, 8 Note: the demand volatility adjustment was assessed but was found not to have been triggered.	In chapter 13 of the 2018-2023 price direction the commission outlined the following actions that would be considered as directly relevant to this pricing investigation. • During the regulatory period, the Commission will conduct a review of potential incentive mechanisms for the regulation of Icon Water. • The Commission will make provision for a demand volatility adjustment in the next price investigation if the net present value of water sales revenue earned over the period 1 July 2018 to 30 June 2023 differs by more than 6 per cent of the revenue set out in Table 13.1 • The Commission will carry out an ex post review of the prudence and efficiency of the amount Icon Water spent on capital expenditure in the regulatory period as part of the next price investigation • During the regulatory period, the Commission will review calculation methodologies for weighted average cost of capital that may be used in the next price investigation. • During the regulatory period, the Commission will review forecasting methodologies for forecast demand that may be used in the next price investigation.

4(2)(a)	The commission should consider continuing to use the current regulatory model, and, where identified, implement improvements identified in reviews undertaken in accordance with the reset principles in clause 13 of the Price Direction for Regulated Water and Sewerage Services 1 July 2018 to 30 June 2023.	2, 5, 6, 7, 8	
4(2)(b)	The commission should consider minimising the potential for significant price fluctuations during the regulatory period, while ensuring the recovery of the prudent and efficient costs of Icon Water Limited.	2, 3, 4, 5, 6, 7, 8	The commission's proposed form of regulation and 'building block' methodology have been designed to recover the efficient costs of providing water and sewerage services in the ACT.
4(3)	As part of the investigation, the commission should outline its intended approach to achieving its various regulatory objectives within its decision-making prices	1, 2	In making its draft decision, the commission regarded key pricing principles that took account of both legislative and government policy objectives as well as generally accepted economic and regulatory principles.
4(4)(a)	The commission should identify in the draft and final reports of the investigation, the incremental impact on prices associated with any changes to the total allowed revenue for Icon Water Limited	8, 9, 11, 12	The commission's proposed net revenue requirement, in conjunction with its draft decision on demand forecasts, is used to calculate the prices to be charged for water and sewerage services. The revisions are outlined and the associated impacts identified.
4(4)(b)	The commission should identify in the draft and final reports of the investigation, the incremental impact on prices associated with any changes to the water demand forecasts used in the regulatory model	2, 9	As part of the investigation, the commission made revisions to the current model in the direction of improving the demand forecasting methodology. The revisions are outlined and the associated impacts have been identified.
4(4)(c)	The commission should identify in the draft and final reports of the investigation, the incremental impact on prices associated with any changes to the structure of Icon Water Limited's regulated water and sewerage services tariffs.	3	Icon Water's regulated water and sewerage services tariffs will be reviewed during the period of the proposed price direction. This review has been included as a future reset principle.
4(5)	In accordance with subsection 16(2)(d) of the Act, the commission must make available a draft report for public inspection within the period of 1 September 2022 to 12 December 2022.	n/a	The draft decision will be made available to the public in accordance with the terms of reference

4(6)	In accordance with subsection 16(2)(a) of the Act, the commission must submit its final report to the referring authority within the period of 1 March 2023 to 1 May 2023.	n/a	This refers to the final decision

Table B1. 2 Compliance with section 7 of the ICRC Act

Section 7	Requirement	Chapter(s)	Comments
(a)	to promote effective competition in the interests of consumers	n/a	n/a
(b)	to facilitate an appropriate balance between efficiency and environmental and social considerations	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	Refer to the pricing principles outlined at the start of appendix 2
(c)	To ensure non-discriminatory access to monopoly and near monopoly infrastructure	n/a	n/a

Table B1. 3 Compliance with section 19L of the ICRC Act

Section 19L	Requirement	Chapter(s)	Comments
	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.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	The commission's proposed form of regulation and the pricing methodology have been designed to recover the efficient costs of providing regulated water and sewerage services in the ACT. This includes the costs of meeting quality, reliability and safety standards.

Table B1. 4 Compliance with section 20(2) of the ICRC Act

Section 20(2)	Requirement	Chapter(s)	Comments
(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	1, 2, 3, 4, 5, 6, 7, 8	The commission's proposed pricing methodology recovers the efficient costs of providing regulated water and sewerage services in the ACT. Consumers are protected from abuses of monopoly power by the commission ensuring that the regulated prices are based on efficient costs to meet the required standards

(b)	Standards of quality, reliability and safety of the regulated services	2, 3, 11	The commission's proposed form of regulation and the pricing methodology have been designed to recover the efficient costs of providing regulated water and sewerage services in the ACT. This includes the costs of meeting quality, reliability and safety standards
(c)	The need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers	2, 3, 4, 5, 6, 7, 8	The commission's proposed price setting model is based on the prudent and efficient costs of providing regulated water and sewerage services in the ACT, reviewed by an independent expert
(d)	An appropriate rate of return on any investment in the regulated industry	6	The commission determined an appropriate rate of the return by considering a number of factors, including the requirements of the ICRC Act, consistency with the approaches used by the majority of Australian regulators and consistency with the competitive neutrality and allocative efficiency principles.
(e)	The cost of providing the regulated services	2, 3, 4, 5, 6, 7, 8	The Commission's proposed form of regulation and the pricing methodology have been designed to recover the efficient costs of providing regulated water and sewerage services in the ACT
(f)	The principles of ecologically sustainable development	1, 2	
(g)	The social impacts of the decision	1, 2, 3, 4, 10	Social considerations have been considered by ensuring that the regulated prices are based on efficient costs. The commission has considered the impacts of proposed price changes on customers' annual combined bills. In adjusting for changes in prices between and during regulatory periods the commission has applied a price smoothing factor for water and sewerage prices.

(h)	Considerations of demand management and least-cost planning	2, 3, 4, 8, 11	The commission's proposed price setting model is based on prudent and efficient costs of providing regulated water and sewerage services in the ACT, reviewed by an independent expert.
(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	3, 4, 5, 6, 8, 9, 10	The commission's proposed water and sewerage services pricing provides for the efficient costs of providing these services in the ACT. This includes an appropriate rate of return. In making its draft decision, the commission also considered the estimated impacts on Icon Water's financial viability. The commission is confident that its draft decision is consistent with Icon Water remaining financially viable and provides sufficient room to meet the borrowing capital, cash flow and investment requirements.
(j)	The effect on general price inflation over the medium term	10	The Commission identified the estimated impacts of its draft decision on general price inflation.
(k)	Any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person	3	The commission reviewed Icon Water's arrangements with other parties for the provision of regulated water and sewerage services. The commission has found these arrangements sufficiently documented to allow due consideration for the purposes of the price investigation.

Appendix 3 Submission summary

Written submissions to the issues paper

Date received	Submitter	Key issues raised or information provided
22 March 2022	Adina Dickson	argue that the hotel and accommodation sector is charged a much higher sewerage supply charge when compared to residential apartments and commercial office buildings propose for Icon Water to apply a sewerage supply charge similar to commercial office buildings
06 April 2022	TFE Hotels	
07 April 2022	Sebel Canberra	
07 April 2022	Novotel Canberra	
08 April 2022	Salter Brothers	
13 April 2022	Mercure Hotel Canberra	
08 April 2022	Australia Hotels Association & Accommodation Association	argues hotel and accommodation sector pay substantially more than residential and commercial office users relative to their load on the network, and that the current pricing method for setting the fixed sewerage supply charge does not capture these differences in the load proposes for Icon Water to set the fixed supply charge based on the 'Equivalent Tenement' (ET) methodology, noting that TasWater uses the ET methodology to measure the load a property places on the sewerage system and to determine an equitable sewerage service price as an alternative, proposes setting the fixed charge at a discounted rate for the hotel and accommodation sector relative to the charge for a residential property (83% off residential charge) or a commercial property (92% off commercial property charge), to reflect the differences in load and intensity of use per fixture
08 April 2022	Icon Water	supports the current deadband mechanism and considering the 6% threshold to be appropriate

		supports the current water services tariff structure and noting that any further rebalancing of tariffs should only occur if having strong community support has reviewed its 2 service agreements with ActewAGL: the corporate services agreement (CSA), and the customer services and community support agreement (CSCSA). These agreements expire on 30 June 2023. Icon Water notes that ActewAGL will continue to provide services under the CSCSA but will not provide corporate services under the CSA will include any proposed changes to miscellaneous fees and charges in its pricing proposal submission has developed a drought management plan, and water and wastewater system strategies, which have informed the capex activities it will implement in the 2023-28 regulatory period
13 April 2022	ACT Council of Social Service (ACTCOSS)	supports our pricing principles recommends that we assess the distributional impact of pricing across household income groups and/or household types recommends that we examine the levels of debt and/or hardship among Icon Water customers recommends that we analyse the impact of Utilities Concession in addressing affordability for low-income households recommends the ACT Government include Icon Water into the Utilities Hardship Fund supports the current water tariff structure as it includes consideration of equality impacts wants to continue its engagement in the current price investigation

Glossary

Annual price reset process	A process undertaken by the commission and Icon Water before the 1 July regulatory year start date to adjust water and sewerage services prices to incorporate inflation and any approved pass-through events.
Asset lives	The period of time (or total amount of activity) for which an asset will be economically feasible for use in a business.
Benchmark approach	An approach that sets the rate of return in line with the efficient debt and equity costs in the industry.
Building block model	A model used in public utility regulation to calculate the required revenue of the regulated entity. The building block model builds up the required revenue by calculating the Regulated Asset Base, the rate of return upon the asset base, and the consequential revenue return including tax effects.
Marsden Jacob Associates	Marsden Jacob Associates Pty Ltd, an independent expert consultancy engaged by the commission to review Icon Water's operating expenditure and capital expenditure.
Capital expenditure	Expenditure that adds to the value of an existing fixed asset with a useful life extending beyond the taxable year.
Commission	The Independent Competition and Regulatory Commission.
Consultation period	The period of time available to the public for comments on the commission's draft report.
Current regulatory period	The current regulatory period 2018–19 to 2022–23. The forward regulatory period 2023–24 to 2027–28.
Deadband	The range around water sales revenue beyond which adjustments are made to the revenue requirement in the subsequent regulatory period to compensate the water authority (or its customers) for under- or over-recovery of revenue where water sales are lower or higher than forecast.
Demand	The quantity of any goods buyers will take at a particular price.

Depreciation	The loss in value of an asset over its life.
Draft decision	The result of the commission's price investigation into Icon Water's regulated water and sewerage services.
Draft report	The document produced by the commission to outline the results of its investigation into regulated water and sewerage services.
Economic efficiency	The situation in which it is impossible to generate a larger welfare total from the available resources.
Efficient expenditure	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, but not be limited to, the substantiation of alternative service delivery options, assessment of lowest cost over the lifecycle, and the deliverability of the proposed project, program or activity.
Environmental considerations	Overserving minimum environmental flows of water and various permanent and temporary water conservation measures or restrictions.
Financial viability	The ability to generate sufficient income to meet operating payments and debt commitments and, where applicable, to allow for growth while maintaining service levels.
Fixed charge or fixed supply charge	A charge for a given product or service that is not linked to the amount used.
Forecast components	The components used by the Commission in its water and sewerage services model to forecast Icon Water's water sales, number of customers and fixtures.
Form of regulation	The manner in which regulation applies to a regulated party, such as prices or revenue regulation.
Forward regulatory period	The period 1 July 2023 to 30 June 2028, for which the commission's final price direction will apply.
Government policy context	The circumstances of government policies and how decisions made by the commission relate to them.
Icon Water	Icon Water Limited, an unlisted public company that owns and operates the water and sewerage services assets and business in the ACT. It is the regulated water and sewerage services entity at the centre of this price investigation.
Incentive mechanism	A tool used to encourage the regulated entity to increase service levels and find efficiencies in operating and capital expenditure.
Inclining block tariff	The provision of two or more prices for water used, whereby each price applies to a customer's use within a defined tier. Prices rise with each successive tier.
Indexation	An adjustment to take into account the effect of inflation on the regulated asset base.

Industry Panel report	The report of the Industry Panel appointed in April 2014 to review the June 2013 price direction made by the Commission in relation to Icon Water's prices for the 1 June 2013 to 30 June 2019 period.
Inflation	The general increase in prices and fall in the purchasing value of money.
Net present value	The dollar value that remains after any additions or deductions, as expressed in terms that adjust for the Weighted Average Cost of Capital (WACC).
Nominal value	The dollar value expressed as it would be in the day it was received.
Nominal vanilla weighted average cost of capital	The weighted average cost of capital that is not adjusted for inflation or tax effects.
Operating expenditure	The non-capital costs of operating and maintaining a product or service.
Pass-through	A mechanism for adjusting prices in the regulatory period for unexpected and uncontrollable costs.
Present value	The dollar value expressed in terms that adjust for the weighted average cost of capital.
Price direction	The legal instrument issued by the Commission that, under section 20(1) of the ICRC Act, follows the conclusion of the investigation and directs the regulated entity in relation to the service prices for the period specified.
Pricing principles	A set of principles that take account of both legislative and government policy objectives, as well as generally accepted economic and regulatory principles.
Prudent expenditure	Whether the project, program or activity would reasonably be expected of a utility operating in those circumstances. Evidence considered for prudency would include the substantiation of benefits of and the need for the project, program or activity.
Real value	The monetary value expressed in terms after adjusting for inflation.
Regulatory model	The 'building block' methodology approach used in conjunction with a hybrid form of price and revenue control.
Regulatory objectives	Under the ICRC Act the Commission must adhere to the objectives of promoting effective competition in the interests of consumers, facilitate an appropriate balance between efficiency and environmental and social considerations, and ensure non-discriminatory access to monopoly and near- monopoly infrastructure.
Residential customers	Customers of Icon Water, excluding businesses and other large water users.

Return on capital	A profitability ratio that measures the return an investment generates for capital contributors.
Revenue requirement	The amount of revenue required to meet Icon Water's efficient costs.
Social impacts	The effects an organisation's actions have on the wellbeing of the community.
Tariff	The price per unit of service.
Tariff structure	A combination of tariffs for a package of services, which can provide different incentives and signals to customers – for example, a two-part tariff (a fixed service charge and an inclining block tariff variable charge).
Tax expenses	A liability owing to the federal, state or local government.
Terms of Reference	The scope and limitations issued by the ACT Government to the commission for the investigation into regulated water and sewerage services.
Trade waste	Non-domestic sewage that requires more effort to treat than average.
Rate of return (or Weighted Average Cost of Capital)	The general form of the opportunity cost (or discount rate) most used in regulatory practice in Australia, and is the weighted sum of the costs of debt and equity finance
Total revenue allowance	The amount of revenue required to meet Icon Water's efficient costs.
Uneconomic bypass	Bypass that reduces costs to one customer but increases overall average network costs, thus creating costs for other customers.
Variable charge	A charge for a product or service which is based on the amount of quantity used. Also known as a usage or volumetric charge.

Abbreviations and acronyms

ABS	Australian Bureau of Statistics
ACCC	Australian Competition and Consumer Commission
ACT	Australian Capital Territory
ACTCOSS	Australian Council of Community Services
ACTEW	Australian Capital Territory Electricity and Water Corporation
ACT Government	The unicameral legislature of the ACT, including the Executive
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
AIR	Akaike Information Criterion
ARIMA	autoregressive integrated moving average model
ARTC	Australian Rail Track Corporation
ASX	Australian Stock Exchange
BIC	Bayesian Information Criterion
BST	Base-step-trend
BTP	Business Transformation Program
CAPEX	capital expenditure
CAPM	capital asset pricing model
CCC	Central Coast Council
CESS	capital expenditure spending scheme
Commission	Independent Competition and Regulatory Commission
CPI	consumer price index
CSA	Corporate Services Agreement
CSO	community service obligation
DBNGP	Dampier Bunbury Pipeline
DGM	dividend growth model

EBSS	efficiency benefit sharing scheme
ERA	Economic Regulation Authority (Western Australia)
ESC	Essential Services Commission (Victoria)
ESCOSA	Essential Services Commission of South Australia
ET	Equivalent Tenement
FFO	funds from operation
GDP	gross domestic product
GL	gigalitre
NPR	National Performance Reporting, undertaken by the Bureau of Meteorology IBT inclining block tariff
ICRC	Independent Competition and Regulatory Commission188
ICRC Act	*Independent Competition and Regulatory Commission Act 1997* (ACT)
ICT	information and communication technology
IFRS	International Financial Reporting Standards
IPART	Independent Pricing and Regulatory Tribunal (NSW)
kL	kilolitre
km	kilometre
LMWQCC	Lower Molonglo Water Quality Control Centre
m	million
MAR	maximum allowable revenue
MFP	Multi-factor productivity
MJA	Marsden Jacob Associates
MRP	market risk premium
MSE	mean squared error
n.a.	not applicable NBN National Broadband Network
NER	National Electricity Rules
NPR	National Performance Reporting
NPV	net present value
NSP	network service provider
NSW	New South Wales
NWI	National Water Initiative
OPEX	operating expenditure pa per annum

OTTER	Office of the Tasmanian Economic Regulator
PwC	PricewaterhouseCoopers
QCA	Queensland Competition Authority
QPRC	Queanbeyan–Palerang Regional Council
RAB	regulatory asset base
SaaS	Software as a Service (SaaS)
SoCI	Security of Critical Infrastructure
SOFC	statement of facts and contentions
STP	sewage treatment plant
STPIS	Service Target Performance Incentive Scheme
TAB	tax asset base
Tier 1 price	The usage price charged by Icon Water to its residential and nonresidential customers for up to 200kL of water per annum.
Tier 2 price	The usage price charged by Icon Water to its residential and nonresidential customers for 200kL-plus of water per annum.
UK	United Kingdom
UNFT	Utilities (Network Facilities) Tax
US	United States of America
UTR	Utilities Technical Regulator
WAC	water abstraction charge
WACC	weighted average cost of capital
WAMC	Water Administration Ministerial Corporation
WTP	water treatment plant
YVW	Yarra Valley Water

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