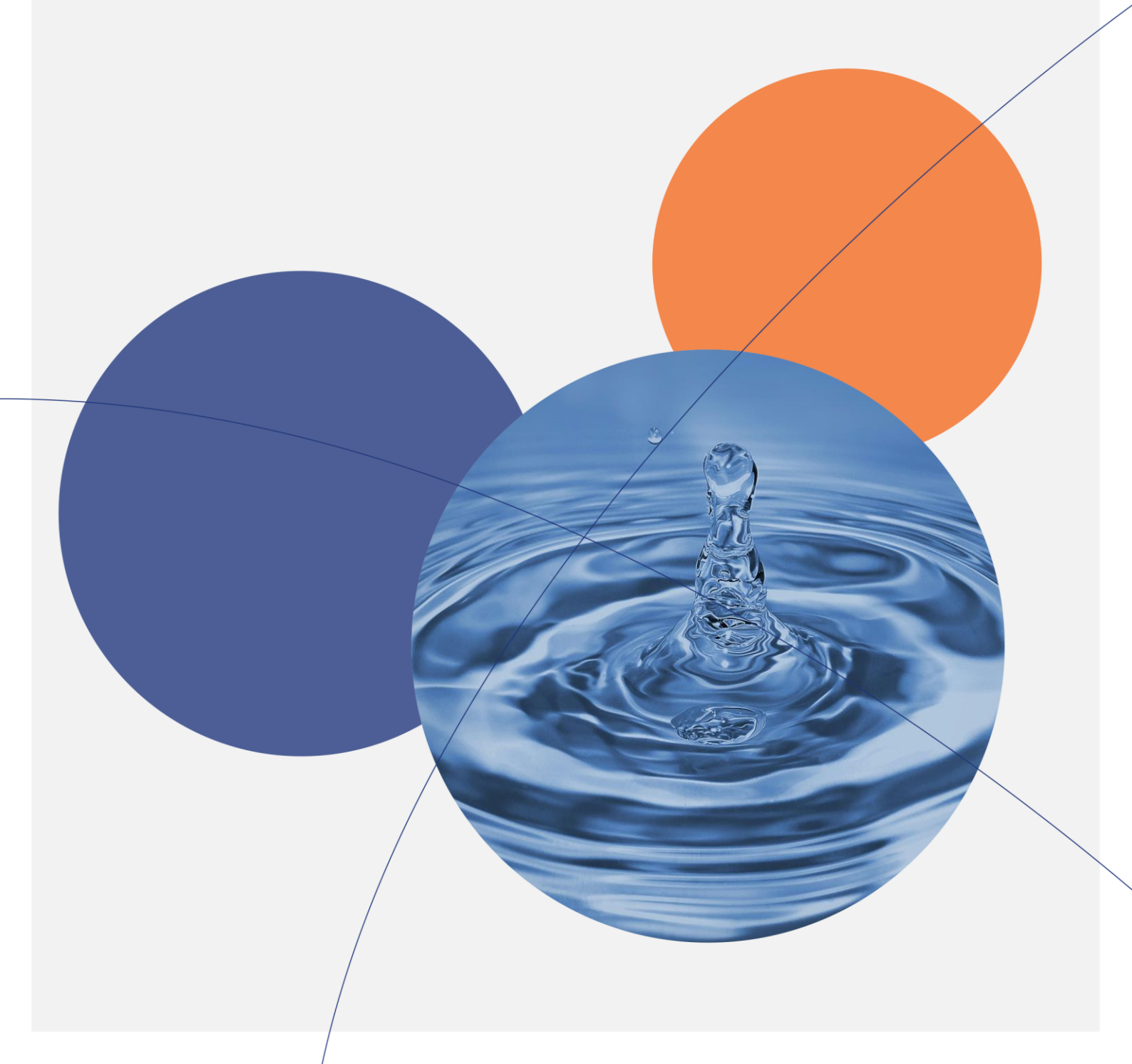
ICRC

independent competition and regulatory commission

FINAL REPORT

Regulated water and sewerage services 2023-28

Report 3 of 2023, May 2023



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.

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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 final decision, we considered the advice of our consultant, Marsden Jacob Associates (MJA), in assessing the prudency and efficiency of Icon Water's proposals for the 2023-28 period. During the review, we gave opportunities for submissions and sought feedback from Icon Water, consumers and other interested stakeholders.

This report explains the commission's findings resulting from the investigation and the final decision on water and sewerage services tariffs for the period from 1 July 2023 to 30 June 2028. The commission has also released a price direction on water and sewerage services tariffs for the period from 1 July 2023 to 30 June 2028.

Our final decision results in an increase in the prices ACT consumers pay for water and sewerage services for 2023–28. A typical household would see an increase of 6.1% 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 rise from $1,177 in 2022–23 to $1,249 in 2023–24, an increase of approximately $72. The rise for non-residential customers in 2023–24 will depend on water usage and the number of billable fixtures. An average non-residential customer consuming 5,000kL per year with 50 flushable fixtures installed will see an increase of $2,951 (or 6.2%) in its annual bill in 2023-24.

Our final decision on regulated water and sewerage services prices for the 2023-28 regulatory period is below, in Table E.1.

Table E.1 Final 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	$211.25	$223.13	$235.67	$248.93	$262.93
Tier 1 charge (0–200kL/year) ($/kL)	$2.28	$2.41	$2.54	$2.69	$2.84	$3.00
Tier 2 charge (more than 200kL/year) ($/kL)	$4.58	$4.84	$5.11	$5.40	$5.70	$6.02

Sewerage prices	2022-23[a]	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year/connection)	$502.18	$535.79	$571.66	$609.92	$650.75	$694.31
Sewerage fixtures charge ($/year/fixture)	$491.13	$524.00	$559.08	$596.50	$636.43	$679.03

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 2.92% 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.

Overall prices are rising due to recent high inflation, which has increased the value of Icon Water's asset base, a 59.8% increase in capital spending by Icon Water, including major works on sewage treatment, along with higher expected financing costs of Icon Water's investments. 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 nearly 2 percentage points higher than in our draft report. This is due largely to the movement in actual and expected inflation since October 2022, along with additional claims by Icon Water for operating expenses and increased financing costs.

However, prices are around 2 percentage points lower than they would have been under Icon Water's December 2022 proposal. Icon Water's proposed net revenue requirement, updated for inflation, the risk-free rate, cost of debt and demand is $1,992.0 million. If we accepted Icon Water's proposal in full, prices would rise by 7.9% per year, or 47% over the five year period for an average residential customer.

Our final decision for the net revenue requirement is $1,890.2 million, which is $101.8 million or 5.1% less than the adjusted Icon Water net revenue requirement.[1] 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 Icon Water's revised proposal.

Our final decision accepts much of Icon Water's 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 accepted some of Icon Water's proposed pass-through categories. This final decision 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.

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[1] To enable for a more meaningful comparison, we updated Icon Water's revised proposal figures for inflation, demand and the latest risk-free rate and cost of debt. Updates for these movements are a standard part of our process and do not result from differences between us and Icon Water.

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 to invest to meet future demand. A financial viability test was conducted by calculating a selection of financial ratios for Icon Water from 2023–24 to 2027–28. We are satisfied the final decision on prices for water and sewerage services and the 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. The release of the draft report on 21 October 2022 was the second key milestone in the commission's consultation process. We received submissions to both the issues paper and draft report. We also conducted a public forum after the draft report. Each of the issues raised through these processes have been addressed throughout our published reports. Icon Water also provided a revised response to our draft report on 16 December 2022. The publication of the final report and price direction completes the investigation.

Summary of the commission's decision

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

S1 The form of regulation

Our final decision has been to continue the range of control mechanisms and incentive mechanisms that applied for the current regulatory period. Icon Water's regulatory proposal supported 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
- In our draft and final report, we do not accept Icon Water's proposed new pass-through provision for costs arising from the ACT Government's Managing Buildings Better reforms. We consider Icon Water's request for a step change for these reforms in the operating expenditure chapter.

S2 Operating expenditure

Our final decision on Icon Water's allowable operating expenditure for the 2023-28 regulatory period is $1,112.5m (nominal), as shown in Table S.1 below. This is $73.8m (nominal) or 6.2% lower than Icon Water's proposed operating expenditure of $1,186.3m (nominal) for the forward regulatory period.

Table S.1 Our final 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	75.6	78.8	83.2	85.2	84.6	407.3
Non-controllable operating expenditure	35.9	45.1	46.9	49.1	51.4	228.5
Total water operating expenditure	**111.5**	**123.9**	**130.1**	**134.2**	**136.1**	**635.9**
Sewerage services						
Controllable operating expenditure	81.7	85.2	90.1	92.5	91.8	441.3
Non-controllable operating expenditure	5.3	6.9	7.2	7.6	8.4	35.3
Total sewerage operating expenditure	**87.0**	**92.0**	**97.3**	**100.1**	**100.2**	**476.7**
Our final decision combined water and sewerage operating expenditure	**198.5**	**215.9**	**227.4**	**234.4**	**236.3**	**1,112.5**

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

In determining the operating expenditure our final decision is to:

- Accept the majority of Icon Water's revised base year operating expenditure, but with a downward adjustment for Icon Water's price submission costs
- Accept Icon Water's proposed real price changes for chemicals and labour costs across the 2023-28 regulatory period with adjustments for updated inflation
- Adjust Icon Water's proposed real price change for electricity costs to take into account the ACT Government's decision on the repayment of funds that have been over-recovered from renewable energy contracts operating in the ACT
- Accept Icon Water's output growth methodology, adjusted in line with our final decision demand forecasts
- Set an annual productivity growth rate of 1.2% over the 2023-28 regulatory period
- Accept part of Icon Water's step change proposal to add costs associated with the Security of Critical Infrastructure (SoCI) Act obligations, higher insurance premiums and the movement of ICT costs from capital expenditure to operational expenditure. We have made downward adjustments to Icon Water's proposed step change cost estimates.
- Include a true-up for the difference between the forecast and actual values of various taxes imposed on Icon Water in the current regulatory period.

S3 Capital expenditure

Our final decision is to approve a net capital expenditure allowance of $716.6 million ($ nominal) for Icon Water for the period 1 July 2023 to 30 June 2028, as shown in Table S.2 below. This is 3.3% or $24.1 million lower than Icon Water's adjusted revised proposed forecast ($740.7 million, nominal), and 59.8% or $268.36 million higher than actual capital expenditure ($448.3 million, nominal) we allowed for the 2018-23 regulatory period.

In determining the capital expenditure our final decision is to:

- Accept most of Icon Water's proposed adjustments to the top 10 projects.
- Reprofile capital expenditure for all remaining projects and programs based upon their current stage in the planning cycle and using Icon Water's proposed reprofiling factors.
- Apply an efficiency adjustment of 0.42% to remaining projects and programs, consistent with the adjustments to the top 10 projects, reflecting opportunities for efficiency and sharing the risk of project delivery.
- Not accept new projects and further deferrals from the current regulatory period Icon Water included in its capital investment plan after the draft decision. This is due to insufficient time for a proper assessment of the projects and the opportunity to consult with customers.
- For consistency, include a notional allowance for projects Icon Water removed from its capital investment plan after the draft decision.

In the current regulatory period of 1 July 2018 to 30 June 2023, we made an adjustment of $6.2 million (nominal) to Icon Water's capital expenditure. We accept a historical capital expenditure allowance of $448.3 million (nominal).

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

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Icon Water revised proposed capital expenditure, net	113.3	102.9	124.7	191. 9	221.4	753.7
Removing new and further deferral projects	(5.4)	(4.2)	(5.3)	(6.8)	(7.6)	(29.3)
Adding back removed projects	1.9	3.9	4.4	3.3	2.8	16.3
Adjusted Icon Water's proposed capital expenditure, net	109.9	102.6	123.8	187.9	216.6	740.7
Adjustment to top 10 projects	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(2.2)
Adjustment to remaining program	(9.1)	(8.0)	(4.4)	(7.8)	7.3	(22.0)
Total Adjustments	**(9.5)**	**(8.4)**	**(4.8)**	**(8.3)**	**6.8**	**(24.1)**
Final decision allowance, net	**100.4**	**94.3**	**119.0**	**179.6**	**223.4**	**716.6**
Capital contributions	1.9	6.9	6.5	9.1	6.0	30.4
Final decision allowance, gross	**102.3**	**101.2**	**125.5**	**188. 7**	**229.4**	**747.0**

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

S4 Rate of return and tax liability allowance

Our final decision results in a rate of return of 5.89% for 2023-24 and a forecast inflation rate of 2.92%. 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 by using a 10-year trailing average portfolio that is rolled-forward each year.

Our final decision is to set the market risk premium (MRP) at 6.3%. This is a lower MRP than we adopted in the draft decision. We have updated our analysis of recent regulatory decisions to include final decisions from the Australian Energy Regulator and Economic Regulation Authority (Western Australia) on the MRP, which were pending at the time of our draft decision. Both regulators determined a lower MRP when compared to their draft estimates, which led to a lower MRP outcome from our benchmarking exercise. The risk-free rate and the cost of debt have increased since our draft decision, leading to a higher rate of return.

The individual components of the Weighted Average Cost of Capital (WACC) are set out in Table S.3 below.

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

	2018 Decision	Draft decision	Icon Water's revised proposal	Final decision
Risk-free rate	2.8%	3.38%	3.82%	3.59%
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%	6.5%	6.5%	6.3%
Gearing ratio	60%	60%	60%	60%
Return on equity	7.34%	7.93%	8.37%	8.00%
Return on debt	4.75%	4.46%	4.54%	4.48%
Nominal post-tax 'vanilla' WACC	5.78%	5.85%	6.07%	5.89%
Gamma	0.4	0.5	0.5	0.5

Source: Icon Water's price proposal updated, Attachment 3 Other matters.
Notes: Risk-free rate is calculated using an averaging period of 40 business days ending 31 March 2023.
Return on debt is calculated using a confidential averaging period nominated by Icon Water and include debt raising costs.
Return on debt of 4.75% applied to the first year of the 2018–23 regulatory control period.

S5 Revenue allowance

The revenue allowance reflects our final decisions on operating expenditure, capital expenditure and the rate of return. Our final decision on Icon Water's net revenue allowance for the 2023-28 regulatory period is $1,890.2 million in nominal terms, $101.8 million or 5.1% lower than Icon Water's adjusted revised proposal (see Table S.4). Our final decision revenue allowance is $88.3 million or 4.9% higher than our draft decision and $343.3 million or 22% higher than our decision for the 2018-23 regulatory period.

Table S.4 Total and net revenue requirement over the 2023-28 regulatory period: revised Icon Water proposal and our final decision, 2023-28 ($m, nominal)

	Our draft decision	Icon Water's revised proposal	Icon Water's adjusted revised proposal[a]	Our final decision	Difference between our final decision and Icon Water's revised proposal
Water					
Total revenue requirement	1,099.0	1,184.6	1,226.1	1,165.2	-60.9
Less adjustments for other sources	105.5	105.7	105.8	105.7	-0.1
Net revenue requirement	993.4	1,078.9	1,120.3	1,059.5	-60.7
Sewerage					
Total revenue requirement	898.4	932.3	961.7	920.5	-41.2
Less adjustments for other sources	89.9	90.0	90.0	89.8	-0.2
Net revenue requirement	808.4	842.2	871.7	830.6	-41.1
Combined					
Total revenue requirement	1,997.3	2,116.9	2,187.8	2,085.8	-102.1
Less adjustments for other sources	195.5	195.7	195.8	195.5	-0.4
Net revenue requirement	1,801.9	1,921.2	1,992.0	1,890.2	-101.8

Source: our calculations
Note: [a] To enable a like-for-like comparison we updated Icon Water's revised proposal figures for inflation, demand, the risk free rate and the cost of debt.

S6 Forecast demand and service connections

Our demand forecasts for the final decision are shown in Table S.5. We expect a steady growth in demand over the 2023-28 regulatory period, largely due to a rising ACT population along with climate variability. These forecasts are consistent with our draft report forecasts and Icon Water's revised proposal, but we have used more recent data to develop the final forecasts.

Table S.5 Our final 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	51.98	27.73	16.03	201,002	200,190	66,402	37.58
2024-25	52.31	28.04	15.99	203,957	202,745	66,817	38.14
2025-26	52.85	28.40	16.08	207,061	205,300	67,232	38.70
2026-27	53.41	28.79	16.16	210,324	207,855	67,646	39.25
2027-28	53.95	29.18	16.22	213,761	210,410	68,061	39.81

Source: Our calculations.

S7 Tariff structure

We advise that our final decision is as follows:

- We will retain the two-tier inclining block water tariff structure and apply 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 50 kL of water use per billing quarter and a higher price (Tier 2) for water use above that level.

This same tariff structure applies to both residential and non-residential customers. We have clarified the implementation of the two-tier usage charge in the price direction, with customer bills calculated on a daily *pro rata* basis, and payment occurring quarterly. The water tariff structure balances multiple objectives including incentivising customers to use water efficiently. This ensures that water is available at a lower charge to meet essential needs.

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.

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.

To see the submissions, please visit our project page[3].

To assess whether the current approach can be improved, 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.

S8 Comparison with other jurisdictions

While our final decision will see prices for water and sewerage services in the ACT increasing in 2023-24, the price paid by a typical residential customer consuming 200kL of water per year will be around the average paid in other Australian jurisdictions (see Figure S.1).

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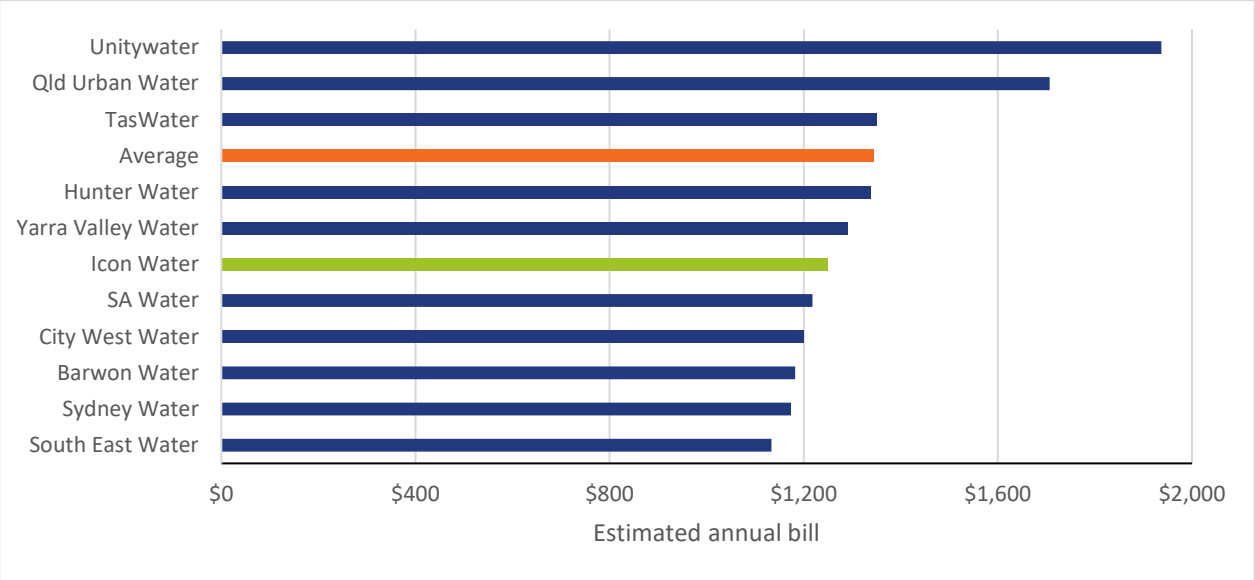
2 Schwartz Family Co (Mercure Hotel Canberra), Novotel Canberra, Salter Brothers Asset Management Pty Ltd (Crowne Plaza Canberra Hotel), Pro-Invest Group (Sebel Canberra Civic), TFE Hotels (Adina Canberra), the ACT Branch of the Australian Hotels Association, Glemarie Capital Pty Ltd (Adina Serviced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

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

Figure S.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.

1. Regulatory objectives and the review process

This investigation determines 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 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 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 encouraged stakeholders to make submissions throughout the investigation process to ensure broader community concerns and customer views are also considered as part of this investigation. In around May 2022 we received submissions in response to our issues paper. In December 2022 we received submissions in response to our draft decision and we have taken these into account in making this final decision. The submissions we received are summarised in Appendix 3 and are discussed in relevant chapters of this decision.

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 prices 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 determined 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 section 1.2.

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.

The terms of reference prescribe a five-year regulatory period from 1 July 2023 to 30 June 2028.

1.5 Investigation timeline

We progressed the investigation as described in the timeline set out in Table 1.1.

Table 1.1 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	1 May 2023

2. The form of regulation

This chapter sets out our final 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.

Our final decision

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

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

Component	Icon Water's proposal	Commission's final 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 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 Icon Water proposed a $5.17 million step-change to address costs arising from the ACT Government's Better Building reforms. Alternatively, Icon Water also proposes a new pass-	An annual price reset process where the commission adjusts prices to account for changes to 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

	through provision with a zero-materiality threshold for unforeseen costs arising from the same reforms	Materiality threshold increased from $2m ($2017-18) to $2.3m ($2022-23) through indexation.
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 are 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 terms of reference require 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 2.

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

- continuing 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.

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

- Minimising 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.

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

One of the reset principles in the 2018 price direction was 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 regulatory proposals

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

- 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 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 proposed a new pass-through provision. This proposed provision would account for costs arising from the Australian Capital Territory (ACT) Government's Managing Buildings Better reforms.

On 16 December 2022, Icon Water submitted its revised regulatory proposal in response to our draft report. This included an option to reconsider this pass-through as a $5.17 million step-change proposal. We address this proposal at section 2.5.3.

2.3 Building block model

Icon Water incurs a range of costs to provide water and sewerage services. We use 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):

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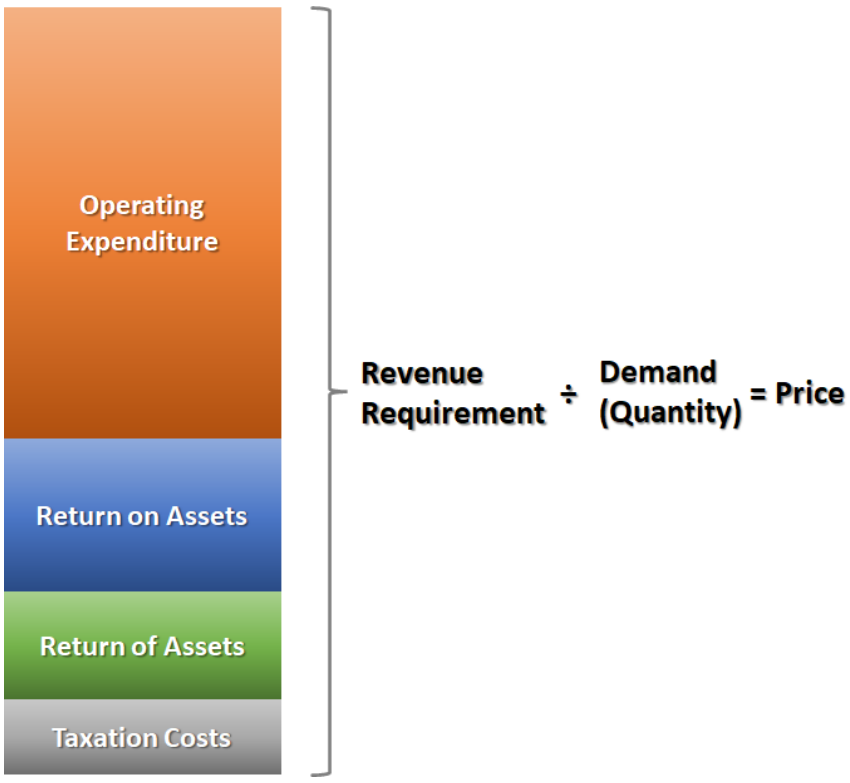
[6] Under s20A can determine either be a maximum price or a minimum and maximum price.

[7] https://www.icrc.act.gov.au/projects/completed-projects/incentive-mechanisms

- **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:
  - **Return on assets**: 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 the regulatory asset base (RAB), and the rate of return allowance that we set.
  - **Return of assets or depreciation**: 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'.
- **Taxation costs**: 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 and
- 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.

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[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.

- 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.

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. In our draft decision, we 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. We have adjusted language in the Price Direction to take into account the annual updates for the cost of debt.

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

2.5 Measures to manage uncertainty

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, 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.

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 the 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 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 (ABS).

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

Where t = financial year

2.5.2 Trailing average cost of debt

The annual price reset includes an update of the 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 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 Act
- change in other taxes event
- service standard event
- regulatory obligations event.

We provide more detail about these pass-through events in part 9 of the 2023-28 price direction.

In its submission to our draft report, Icon Water argues that the commission should allow an annual true-up for all costs classified as non-controllable costs. Specifically, Icon Water notes that the commission made a draft decision to include regulatory compliance costs, the commission's price review costs, licence fees and royalties as non-controllable, and for consistency with the treatment of other non-controllable costs, these

costs should be subject to an annual true-up[10]. It is the commission's final decision that a change in the classification of costs does not mean that a cost should be treated as a pass-through event and the commission's final decision remains consistent with its draft decision.

The materiality threshold for pass-through events

If a pass-through event restricts Icon Water's ability to provide services, the annualised costs of the event must meet the materiality threshold before it will be passed-on to the customer. [11] 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 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.[12]

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 payments 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

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[10] See Icon Water 2022, Response to the Commission's draft decision for regulated water and wastewater services, 2023-28, Attachment 3, Other matters, p.9.

[11] 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.

[12] 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 6.6%, respectively for 2018–19, 2019–20, 2020–21, 2021–22 and 2022–23.

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 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 Act

The price direction recognises that section 4C of the 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 originally 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. Despite the reforms still not being finalised, Icon Water has also included a step change proposal that we have considered in chapter 3.

Why we are not granting an additional event

We maintain our draft decision, 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 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 Consumer Price Index. We have determined the threshold figure to be $15.4 million.[13]

[13] The materiality threshold for the 2023-28 regulatory period ($15.4 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 6.6%, respectively for 2018–19, 2019–20, 2020–21, 2021–22 and 2022–23.

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 apply 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*.

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 Water's 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 RAB 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.

Icon Water's view on efficiency adjustments to capital expenditure

In its revised proposal, Icon Water argues that our draft decision deviates from the outcomes of the 2020 review of incentive mechanisms. This is because we decided to apply an efficiency adjustment of 2.3% to a subset of capital expenditure projects and programs. Icon Water describes this adjustment as an additional incentive. We disagree with this interpretation of our draft decision.

Icon Water's capital plan included more than 100 projects and it is not possible to assess them one by one.

We arrived at 2.3% figure through investigating the top 10 projects, which accounted for approximately 61% of Icon Water's proposed capital expenditure. Specifically, the overall adjustment to the top 10 projects was 5.8%, of which 3.5% was for prudency reasons and 2.3% was due to cost estimates higher than efficient levels. This led us to impose a broad scale adjustment of 2.3% to the remaining projects.

Therefore, the 2.3% adjustment represented our view on the efficient costs, rather than an additional incentive for Icon Water. The adjustment percentage has been updated to 0.42% for the final decision.

Once the ex-ante capital expenditure forecast is established, there is an incentive for Icon Water to provide services at the lowest possible cost, because the actual costs of providing services will determine its returns in the short term. This is consistent with the outcomes of our 2020 review. The incentive-based framework recognises that Icon Water should have the flexibility to prioritise its capital expenditure program given the circumstances and due to changes in information and technology.

We discuss our final decision on Icon Water's forecast capital expenditure in chapter 4.

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 final decision on Icon Water's prudent and efficient operating expenditure for the 2023-28 regulatory period.

Our final decision

As set out in Table 3.1, our final decision total operating expenditure allowance is $1,112.5 million in nominal terms ($1,018.9 million real $2022-23) for the 2023-28 regulatory period. This is:

- $73.8 million or 6.2% less than Icon Water's revised forecast of $1,186.3 million (nominal)
- $41.2 million or 3.8% higher than our draft decision of $1071.3 million (nominal)
- $187.4 million or 20.3% higher than our decision for the 2018-23 regulatory period of $925.1 million (nominal)

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

- Accept the majority of Icon Water's revised base year operating expenditure, but with a downward adjustment for Icon Water's price submission costs
- Accept Icon Water's proposed real price changes for chemicals and labour costs across the 2023-28 regulatory period with adjustments for updated inflation
- Adjust Icon Water's proposed real price change for electricity costs to take into account MJA's recommendations and the ACT Government's decision on the repayment of funds that have been over-recovered from renewable energy contracts operating in the ACT
- Accept Icon Water's output growth methodology, adjusted in line with our final decision demand forecasts
- Set an annual productivity growth rate of 1.2% over the 2023-28 regulatory period
- Accept part of Icon Water's step change proposal to add costs associated with the SoCI Act obligations, higher insurance premiums and the movement of ICT costs from capital expenditure to operational expenditure. We have made downward adjustments to Icon Water's proposed step change cost estimates.
- Include a true-up of $8.9 million for the difference between the forecast and actual values of various taxes imposed on Icon Water in the current regulatory period. This true-up is captured in 2023-24 non-controllable operating expenditure and lowers Icon Water's total operating expenditure.

Table 3.1 Our final 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	75.6	78.8	83.2	85.2	84.6	407.3
Non-controllable operating expenditure	35.9	45.1	46.9	49.1	51.4	228.5
Total water operating expenditure	**111.5**	**123.9**	**130.1**	**134.2**	**136.1**	**635.9**
Sewerage services						
Controllable operating expenditure	81.7	85.2	90.1	92.5	91.8	441.3
Non-controllable operating expenditure	5.3	6.9	7.2	7.6	8.4	35.3
Total sewerage operating expenditure	**87.0**	**92.0**	**97.3**	**100.1**	**100.2**	**476.7**
Our final decision combined water and sewerage operating expenditure	**198.5**	**215.9**	**227.4**	**234.4**	**236.3**	**1,112.5**
Icon Water's revised total operating expenditure	214.4	230.8	240.6	247.6	252.9	1,186.3
Variation from Icon Water's operating expenditure	**-15.9**	**-14.9**	**-13.2**	**-13.2**	**-16.6**	**-73.8**

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

It is important to note that the nominal figures presented in this chapter have been calculated using our forecast inflation rate of 2.92%. Each year from 2024-25 onward, the commission will reset Icon Water's retail charges for water and sewerage services, updating them for actual inflation, the cost of debt and any approved pass-throughs.

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 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, 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 a 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.

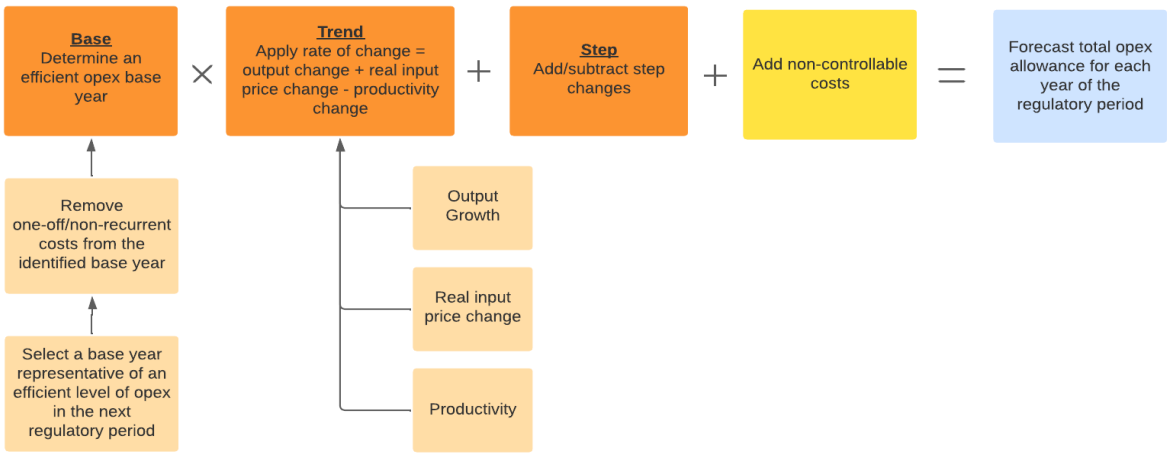
Trend – adjusts the base year for expected changes in efficient costs in each year of the forecast regulatory period. We adjust base year operating expenditure for output growth, real price growth, and productivity growth. The trend factors are accounted for in an annual 'rate of change' that is calculated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

In its 30 June 2022 submission, Icon Water proposed total water and sewerage services operating expenditure of $1,131.6 million in nominal terms over the 2023-28 regulatory period or $1,045.1 million in real terms ($2022-23).[14]

Icon Water applied the base-step-trend approach to prepare its operating expenditure forecasts for the 2023-28 regulatory period.[15] 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 2 proposed step changes associated with the SoCI Act and higher insurance premiums.

As seen from Table 3.2, 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 3.2 Comparison of Icon Water's proposed 2023-28 operating expenditure with the 2018-23 approved allowance ($2022-23, million)

	2018-23 approved allowance	2023-28 proposed allowance	Difference $m	Difference %
Controllable operating expenditure	742.9	792.0	49.1	6.6%
Non-controllable operating expenditure	232.0	240.1	8.1	3.5%
Total operating expenditure	974.9	1032.1	57.2	5.8%

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 proposed higher operating expenditure for the next regulatory period, it proposed to maintain the same levels of service standards and customer service outcome targets.[16]

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.

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14 Icon Water 2022a, p 5.
15 Icon Water 2022a, p 11.
16 Icon Water 2022 (Attachment 3, p. 6)

3.3 Independent review of Icon Water's initial proposal for operating expenditure

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

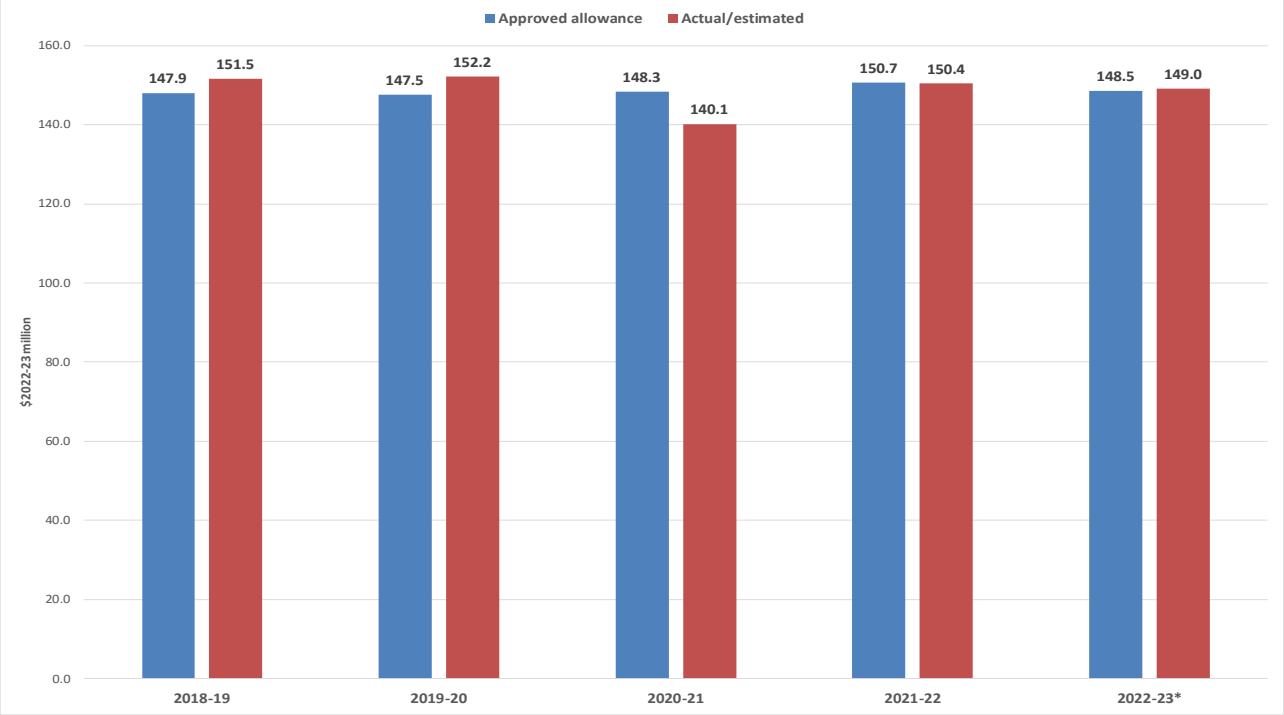
3.3.1 Operating expenditure in 2018-23 was reasonable

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 3.2 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 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.

Figure 3.2 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's recommended lower operating expenditure

MJA recommended:

- downward adjustments to Icon Water's proposed base year operating expenditure
- accepting Icon Water's proposed output growth but raising productivity growth

- downward adjustment to real price growth
- downward adjustment to Icon Water's proposed step changes

MJA's recommended prudent and efficient operating expenditure is shown in Table 3.3.

Table 3.3 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	66.6	68.7	71.1	73.7	75.4	355.6
Non-controllable operating expenditure	43.9	45.6	47.4	49.6	52.0	238.6
Total water operating expenditure	**110.5**	**114.3**	**118.6**	**123.3**	**127.5**	**594.2**
Sewerage services						
Controllable operating expenditure	82.3	84.9	88.1	91.4	93.7	440.4
Non-controllable operating expenditure	6.6	6.9	7.2	7.7	8.4	36.7
Total sewerage operating expenditure	**88.9**	**91.8**	**95.3**	**99.1**	**102.0**	**477.1**
Our consultant's recommended water and sewerage operating expenditure	**199.4**	**206.1**	**213.9**	**222.4**	**229.5**	**1,071.3**
Adjusted Icon Water's proposed total operating expenditure	205.1	214.8	225.8	236.7	247.6	1,129.9
Variation from Icon Water's proposed operating expenditure	**-5.7**	**-8.6**	**-11.9**	**-14.3**	**-18.1**	**-58.6**

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 considered Icon Water's proposed operating expenditure and the independent review by MJA. We accepted MJA's recommended adjustments to Icon Water's operating expenditure. Our draft decision allowed for total water and sewerage operating expenditure of $1,071.3 million in nominal terms (or $979.2 million in $2022-23) over the 2023-28 regulatory period. This was $58.6 million (5.2%) less than Icon Water's proposed adjusted operating expenditure of $1,129.9 million.

3.5 Icon Water's revised proposal

Icon Water submitted a revised proposal in December 2022, including a revised operating expenditure forecast of $1,186.3 million nominal ($1,073.0 million real $2022-23), 2.7% higher than its initial proposal. Icon Water stated that it considers the commission's draft decision operating expenditure reduction to be unachievable in the current economic environment.[17]

Icon Water notes that its revised forecast maintains the BST forecasting approach and reflects the most up-to-date data, including:

- An updated base year to reflect actual costs and the commission's draft decision base year adjustment for regulatory compliance costs, licence fees, and royalties
- Updated labour, chemicals and electricity cost escalators
- A proposed productivity growth rate of 0.7% annually
- Updated step change forecasts for insurance premiums and meeting SoCI regulatory obligations
- An additional step change of $25.2 million for ICT Software as a Service (SaaS) investment. This shifted an existing proposal from capital expenditure to operating expenditure.
- A step change for additional costs related to delivery of the ACT Government's proposed Managing Buildings Better reforms
- Acceptance of the commission's draft decision to include a negative step change for efficiencies associated with the Cotter Pump Station upgrade.

Icon Water's revised operating expenditure forecast is presented in Table 3.4 below.

[17] Icon Water revised proposal, p4

Table 3.4 Icon Water's revised operating expenditure forecast for the 2023-28 period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Water services						
Controllable operating expenditure	79.4	87.2	89.9	91.8	92.5	440.8
Non-controllable operating expenditure	43.7	45.3	47.2	49.3	51.7	237.2
Total water operating expenditure	**123.1**	**132.6**	**137.1**	**141.1**	**144.2**	**678.0**
Sewerage services						
Controllable operating expenditure	84.7	91.4	96.4	98.8	100.3	471.5
Non-controllable operating expenditure	6.6	6.9	7.2	7.7	8.4	36.7
Total sewerage operating expenditure	**91.3**	**98.3**	**103.5**	**106.5**	**108.7**	**508.3**
Total revised operating expenditure forecast	**214.4**	**230.8**	**240.6**	**247.6**	**252.9**	**1,186.3**

Source: Icon Water

3.5.1 Base year

Icon Water's revised proposal includes base year adjustments for regulatory compliance costs, licence fees and royalties as set out in the commissions draft decision. However, Icon Water disagrees with the commission's draft decision on overhead capitalisation and price review costs.

Icon Water argues that the commission has incorrectly adjusted the base year for overhead capitalisation due to a misinterpretation of information supplied by Icon Water. As a result, the capitalisation adjustment is inconsistent with the cost allocation methodology, the BST forecasting approach and the building block regulatory approach.

Icon Water considers an adjustment for price review costs in the base year as an unsuitable regulatory approach given that price review costs are incurred over multiple years of the regulatory period, the adjustment is inconsistent with the BST forecasting approach, which allows Icon Water to manage the ebbs and flows of operating costs and does not account for the price review costs incurred in the final year of the regulatory period.

3.5.2 Trend

Icon Water updated each component of the operating expenditure trend: real input price changes, output changes and productivity growth, and summarised the changes as shown in Table 3.5.

Table 3.5 Icon Water's estimated operating expenditure trend components ($m, 2022-23)

	Icon Water proposal	Commission draft decision	Icon Water revised proposal
Average input price change	0.4%	0.3%	0.7%
Input price change	**10.1**	**7.6**	**25.9**
Average output change	1.7%	1.4%	1.4%
Output change	**40.2**	**30.6**	**32.0**
Productivity adjustment	0.5%	1.4%	0.7%
Productivity adjustment	**-12.1**	**-31.44**	**-16.6**
Cumulative trend	8.7%	1.4%	7.4%
Trend	**38.2**	**6.7**	**41.3**

Source: Icon Water, Attachment 1 – Operating expenditure, p.15

For real price inputs, Icon Water states that it has updated cost escalators to reflect current market conditions and capture more recent publicly available data.[18]

For productivity, Icon Water states that it does not accept the commission's draft decision, contending that:

- Some of MJA's criticisms of Quantonomics econometric modelling are based on misconceptions, are inconsistent with established practices, or are incorrect or invalid.
- MJA's recommended revisions to the use of econometric modelling results, on which the Commission relied, are based on erroneous assumptions.
- A more comprehensive view of the regulatory context shows Icon Water's proposed rate of productivity growth is within the range of what utilities in other jurisdictions have been challenged to achieve.

Icon Water states that it remains of the view that the evidence points to a productivity growth factor in the range of -0.1 to 0.8 and that to strive for the best customer outcomes, its revised forecast includes a productivity growth factor towards the top end of this range at 0.7.

3.5.3 Step changes

Icon Water has proposed $53.9 million (real 2022-23) of step changes in its revised forecast compared with $13.3 million in its original proposal, the difference driven primarily by a new step change for ICT investment of $25.2 million, an increase in the step change for SOCI from $3.5 million to $14.2 million and the addition of a step change for Managing Better Building reforms of $5.2 million.

Icon Water's new step change of $25.2 million for ICT investment captures expenditure for 8 projects forecast for the 2023-28 regulatory period that is shifting from capital expenditure to operational expenditure. Of these projects, Icon Water identifies $24.0 million as non-recurrent and the remainder as recurrent. Icon Water notes that the projects included in the step change are already captured in the overall level of expenditure that the commission had determined to be prudent and efficient in its draft decision on capital expenditure. While Icon Water notes that the step change does not impact its overall forecast costs for the 2023-28 regulatory period, it does change the timing of when it passes costs to customers and anticipates that the step change will put upward but temporary pressure on prices.

[18] Icon Water, Attachment 1 – Operating expenditure, p.15

The increase in Icon Water's proposed expenditure on the SoCI step change is detailed in a confidential appendix to Icon Water's main submission but a small amount involves the movement of costs from capital to operating expenditure, while the remaining expenditure is for new obligations not covered in Icon Water's initial proposal.

Finally, Icon Water's revised proposal includes a new step change for potential amendments to ACT Government legislation in relation to the management of apartments, townhouses, mixed-use developments, and commercial units. Icon Water has estimated operating expenditure increases of $5.2 million in relation to the proposed Managing Buildings Better reforms.

3.6 Our final decision

We have considered Icon Water's revised proposal and the further independent review by MJA. Our final decision allows for total water and sewerage operating expenditure of $1,112.5 million in nominal terms over the 2023-28 regulatory period. This is $73.8 million (6.2%) less than Icon Water's proposed operating expenditure of $1,186.3 million (nominal) and $41.2 million or 3.8% higher than our draft decision of $1071.3 million (nominal). Our final decision is $187.4 million or 20.3% higher than our final decision for the previous regulatory period, 2018-23, of $925.1 million (nominal). Our final decision includes a true-up for the UNFT and WAC of $8.9 million in nominal terms for the current regulatory period. Excluding this true-up, our final decision operating expenditure is $1,121.4 million (nominal), $64.9 million or 5.5% less than Icon Water's revised proposal.

3.6.1 Our final decision is to accept most of Icon Water's base year operating expenditure

Our final decision is to accept Icon Water's arguments in relation to overhead capitalisation. MJA considered the arguments made by Icon Water in its revised proposal for removing the overhead capitalisation adjustment to be reasonable[19]. This adds $1.7 million to the base year and $8.5 million to total operating expenditure over the 2023-28 regulatory period relative to our draft decision.

In its revised proposal, Icon Water presented its price review costs for the current regulatory period as set out in Table 3.6 below. The total price review costs for the current regulatory period are $1.1 million in nominal terms, with the majority falling in the base year of 2021-22. MJA considered the inclusion of this expenditure item in the base year to be reasonable[20]. However, if the commission leaves $0.9 million of costs in the base year as suggested by Icon Water, then these costs will be included in every year of the next regulatory period, amounting to a total of $4.5 million over the 2023-28 regulatory period. We consider this unreasonable given the expenditure for the current period. Consequently, the commission's final decision in relation to price review costs is to maintain the draft decision and to exclude the price review costs from the base year but to include the equivalent of $1.1 million as a step change in 2026-27.

Table 3.6 Icon Water's price review costs for the current regulatory period, ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Icon Water price review costs	0.0	0.0	0.1	0.9	0.1	1.1

Source: Icon Water Attachment 1, Table 1.4

[19] MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.12
[20] MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.11-12

Based on these changes, our final decision is to set the total base year operational expenditure to be trended at $145.1 million. This compares with $143.2 million in the draft decision and $146.0 million in Icon Water's revised proposal ($2022-23).

There has been a significant shift in the split between water and sewerage base year operational expenditure between Icon Water's initial proposal and revised proposal. In its initial proposal, 46% of the total base year operating expenditure to be trended was related to water, with the remaining 54% related to sewerage. In our draft decision, the base year to be trended was split 45% to water and the remaining 55% to sewerage (based on information provided by Icon Water). However, in its revised proposal, Icon Water's base year for trending was split 48% to water and 52% to sewerage.

Icon Water has explained this shift in costs from sewerage to water as the result of an update from forecasts provided in the initial proposal to actuals in the revised proposal. The actual direct costs for water services were around 2% or $1.3 million higher than forecast and direct costs for sewerage services were 4% or $3.1 million lower than forecast.

The result is a significant change in the allocation of the base year to be trended between water and sewerage as set out in Table 3.7 below. The difference is particularly large between the commission's draft decision and Icon Water's revised proposal. It is also important to note that the base year impacts every year of the regulatory period.

Table 3.7 Split of base year to be trended, $ million 2022-23

	Icon Water Initial proposal		Commission's draft decision		Icon Water's revised proposal		Commission's final decision	
	Water	Sewerage	Water	Sewerage	Water	Sewerage	Water	Sewerage
$ million	70.3	81.3	64.0	79.2	70.2	75.9	69.7	75.4
%	46%	54%	45%	55%	48%	52%	48%	52%

Source: our calculations.

3.6.2 Our final decision is to replace Icon Water's proposed trend estimates

In the base-step-trend methodology, the adjusted base year is trended forward for the new regulatory period by adjusting for changes in the real prices of electricity, labour and chemicals, for changes in output and forecast improvements in productivity.

Real price changes

MJA reviewed the real price trend estimates included in Icon Water's revised proposal prepared by BIS-Oxford Economics (BISOE). For chemicals and labour, MJA accepted the proposed approach and recommended updating BISOE's proposed real price changes to reflect the updated CPI estimates applied to the total operating cost forecasts. The resulting real price changes for chemicals and labour are shown in Table 3.8 below. Our final decision is to accept MJA's revised real price changes for chemicals and labour. It is important to note that the price changes below exclude inflation. We add inflation to our total operating expenses separately.

Table 3.8 MJA's estimated real price changes for chemicals and labour

	2023-24	2024-25	2025-26	2026-27	2027-28
Chemicals	-0.37%	-0.37%	-0.37%	-0.37%	-0.37%
Labour	0.60%	1.40%	1.37%	0.73%	0.70%

Source: MJA final report.

For electricity, MJA considered the modelling approach used by BISOE results in electricity prices that are higher and that have an annual profile different than would be expected. Instead, MJA used a modelling approach that it adopts in its work with regulators, market participants and investors, which it considers industry standard[21]. It is important to note that the MJA 2023-24 real price change for electricity does not include the impact of the ACT Government's Reasonable Cost Determination (RCD) or Large-Scale Feed in Tariff repayments. These repayments reflect funds that have been collected by Evoenergy over time in excess of the contract prices paid to renewable energy providers and must be repaid to all ACT consumers on a usage basis. The RCD amount was not available to MJA or Icon Water's consultants at the time of preparing the electricity price change estimates. Therefore, the commission has replaced MJA's estimate for 2023-24 with its own estimate of retail electricity price changes for this period.

Our final decision is to accept MJA's revised estimates for real electricity prices for 2024-25 to 2027-28 and replace the real electricity price change for 2023-24 with the commission's own estimate.

Real price change weights

In its review of real price changes, MJA recommends excluding 2018-19 and 2019-20 from the calculation of the real price change weights. These two years had abnormally high electricity costs, due to high water sales over the period. MJA considers that using the four-year average as a basis for applying the real price change weights overestimates the total energy cost as a proportion of total controllable operating costs. Consequently, this overinflates the impact of the real price change in electricity costs[22]. MJA recommends that only 2020-21 and 2021-22 are used to estimate real price change weights. In the commission's view, the real price change weights are likely to vary from year to year for various reasons and it is inappropriate to alter the draft decision methodology due to higher weights for electricity in two years. Our final decision is to maintain the draft decision methodology and use the four-year real price change weights.

Output change

Output changes are determined by the updated forecasts for customer numbers, water volumes and wastewater volumes. These updated forecasts are discussed in chapter 8. Our final decision adopts the updated demand forecasts to calculate the output change trend. The annual output growth for customer numbers, water volumes and sewerage volumes are shown in Table 3.9. Output weights are applied to these growth rates to get a single forecast output growth rate per year, which is show in the last row of Table 3.9 below.

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21 MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.25-30

22 MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.33

Table 3.9 Annual output growth

	2023-24	2024-25	2025-26	2026-27	2027-28
Customer numbers	1.27%	1.46%	1.51%	1.56%	1.62%
Water volumes (kL)	7.81%	0.62%	1.01%	1.06%	0.99%
Sewerage volumes (kL)	1.50%	1.48%	1.46%	1.41%	1.42%
Forecast output growth	2.18%	1.35%	1.44%	1.47%	1.50%

Source: our calculations.

Productivity

MJA's review responds to the criticisms made by Icon Water and its consultant, Quantonomics, in relation to MJA's initial report on the productivity growth rate[23]. While we accept that there are different views on modelling approaches and the appropriate application of different modelling techniques, we do not believe it is useful to debate the details of a new approach to determining productivity growth rates during a price determination. Consideration of a new approach, such as that being proposed by Icon Water, requires significant time and resources that are not available to the commission during the price investigation process. We are open to considering a new methodology within the five-year regulatory period. Icon Water could have raised the new approach with us for consideration well before the current process commenced.

We do note however, that MJA's consideration of Icon Water's revised proposal has led to a narrowing of the gap in productivity growth estimates. MJA now estimate a range of 0.8% to 1.1% using the stochastic frontier analysis and partial factor productivity analysis, and a benchmark average of 1.2% based on other regulatory submissions and decisions[24].

Given the limited time available to properly consider the new approach to determining productivity growth proposed by Icon Water, we are not satisfied that the modelling issues have been appropriately resolved. Therefore, our final decision relies on the benchmarking evidence available, and we have set the productivity trend at 1.2%.

Final decision on the trend

Our final decision on the trend compared with Icon Water's previous proposals and the commission's draft decision is presented below in Table 3.10.

[23] MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.13-23
[24] MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.23

Table 3.10 Final decision on operating expenditure trend, $million 2022-23

	Icon Water proposal	Commission draft decision	Icon Water revised proposal	Commission final decision
Average input price change (annual)	0.4%	0.3%	0.7%	0.3%
Input price change	**10.1**	**7.6**	**25.9**	**8.7**
Average output change	1.7%	1.4%	1.4%	1.6%
Output change	**40.2**	**30.6**	**32.0**	**37.1**
Productivity adjustment (annual)	0.5%	1.4%	0.7%	1.2%
Productivity adjustment	**-12.1**	**-31.4**	**-16.6**	**-26.5**
Cumulative trend	8.7%	1.4%	7.4%	3.5%
Total Trend	**38.2**	**6.7**	**41.3**	**18.6**

Source: Icon Water and our calculations.

3.6.3 Our final decision is to accept part of Icon Water's step change proposal

As discussed above, Icon Water's revised proposal included $53.9 million of step changes compared with $13.5 million in its initial proposal. We have assessed each of Icon Water's proposed step changes and considered MJA's independent review. Icon Water accepted our draft decision on the Cotter pump station upgrade step change and our final decision on these efficiency savings remains unchanged from our draft decision.

Consistent with our draft decision, we consider that the proposed Managing Buildings Better reforms fit within the current service standards event category for pass-throughs. When the changes to the legislation and codes are finalised, and if the relevant costs meet the threshold, then Icon Water can submit a pass-through application for this event. Therefore, we have not accepted the proposed step change.

Icon Water's remaining three proposed step changes are discussed in turn below.

Insurance premiums

We accept that insurance premiums are likely to increase at least in the early years of the next regulatory period. However, we do not accept Icon Water's approach to estimating the step change for insurance premiums, which results in a proposed step change of $9.98 million ($2022-23) for the five-year regulatory period.

Instead, we have adopted an approach which involves starting with the insurance premiums forecast by Icon Water's consultant's, Marsh, and then applying the following adjustments:

- updating the 2022-23 insurance estimates underlying the Marsh forecasts with actuals
- removing growth factors from the Marsh forecasts, as these are already captured in the operating expenditure trend
- calculating the step change relative to the final year of the current regulatory period (i.e. 2022-23) rather than the base year.

This is the approach that the AER has taken in calculating the insurance step changes for both Electranet[25] and Transgrid[26] in its draft decisions for these 2023-28 transmission determinations. It is also worth noting that of the 11 proposals the AER has assessed as either draft or final decisions for the 2023-28 or 2022-27 regulatory periods, only the Electranet and Transgrid proposals included a step change for general increases in insurance costs[27]. Similarly, out of the 13 water submissions in Victoria for the period commencing 1 July 2023, only one submission included a claim for increased insurance costs of $0.5 million associated with an increased asset base.

We have also made one further adjustment to Director and Officer's liability coverage. Marsh proposed a 20% year on year increase in this category of insurance coverage, the highest of any insurance category. This insurance provides cover to Directors in relation to wrongful acts including penalties from licence breaches. In our view, it is inappropriate for Icon Water's customers to bear the costs associated with risks that are within Icon Water's control and not the significant increase being proposed for this category of insurance[28]. We have increased this category of insurance in nominal terms by inflation only.

Our decision results in an insurance step change of $3.5 million ($2022-23) over the five-year regulatory period as shown in Table 3.11 below. This is higher than our draft decision on insurance premiums of $2.03 million ($2022-23).

Table 3.11 Final decision on insurance premium step change, $2022-23

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Insurance step change	0.4	0.6	0.8	0.8	0.8	3.5

Source: our calculations.

ICT investment

Icon Water's revised proposal included a new step change of $25.2 million for ICT software as a service, which involves shifting expenditure from capital to operating expenditure. In its final report MJA reviewed Icon Water's proposed approach and found it consistent with the approach taken in other regulated industries and accepted by other regulators. MJA reviewed the approach applied to each project and the underlying costs associated with each project that was shifted, in part or in full, from capital to operating expenditure and found the basis for the movements reasonable. MJA also reviewed the expenditure to ensure no double-counting of costs. On this basis, MJA recommended accepting Icon Water's proposed step change for ICT investment[29].

Our final decision is to accept MJA's recommendation and accept the ICT step change of $25.2 million noting there is a corresponding reduction in capital expenditure.

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25 AER Attachment 6: Operating expenditure. Draft decision – Electranet transmission determination 2023-28, p19-20

26 AER Attachment 6: Operating expenditure, Draft decision – Transgrid transmission determination 2023-28, p.20-21

27 In its revised proposal, AusNet included a $7.6 million step change relating to the increased premiums for its bushfire liability insurance. The AER verified that AusNet had used a similar approach to other Victorian electricity distribution businesses that faced similar circumstances and allowed the step change

28 We note that IPART has identified the allocation of risk between Sydney Desalination Plant (SDP) and customers as an area it will give particular consideration when reviewing SDP's claim for increased insurance premiums. In its Issues Paper, IPART stated that its preliminary view is that customers should not bear the cost of insurance for controllable risks. IPART 2022, Review of prices for Sydney Desalination Plan Pty Ltd from 1 July 2023, Issues Paper, November, p.16

29 MJA 2023, Icon Water 2023-28 expenditure review, Final report, April, p.38-39

Security of critical infrastructure

The *Security Legislation Amendment (Critical Infrastructure Protection) Act 2022* was passed in April 2022 and builds on the existing framework to uplift the security and resilience of Australia's critical infrastructure. In response to the new legislation, Icon Water has included a step change in its operating expenditure forecasts of $14.2 million, an increase from $3.5 million in its initial proposal.

The majority of the increase in Icon Water's proposed expenditure is related to the positive security obligation for a Critical Infrastructure Risk Management Program (CIRMP). This measure is intended to embed preparation, prevention and mitigation activities into the business-as-usual operating of critical infrastructure assets, ensuring that the resilience of essential services is strengthened[30].

The Rules commenced on 17 February 2023. Entities responsible for critical infrastructure assets have until the end of a 6-month grace period to adopt a CIRMP. In practice, this means entities must have documented the material risks and controls in place to minimse material risks to their assets, and the mitigations that will be put in place over time. Entities must then take reasonable steps to comply with the CIRMP, through implementing controls and mitigations. The Cyber and Infrastructure Security Centre (CISC)[31] does not expect all mitigations to be in place within the 6-month grace period. The Centre suggests better practice is for an entity's board to ratify the CIRMP once developed. Additionally, entities have a further 12 months to meet the CIRMP cyber security framework requirements. This is in recognition of the time it can take to select and implement a framework at an enterprise level.

The CIRMP requires entities to:

- identify hazards where there is a material risk that the occurrence of that hazard could have a relevant impact on the asset
- as far as it is reasonably practicable to do so, minimise or eliminate any material risk of such a hazard occurring
- as far as it is reasonably practicable to do so, mitigate the relevant impact of such a hazard on the asset
- comply with any other requirements set out in the Rules.

The clear intention of the CIRMP is to set a high materiality threshold. Section 6 of the Rules defines a material risk (cyber, information security, personnel, physical security, natural hazards and supply chain) as one that could result in the occurrence of the following:

- a stoppage or major slowdown of the asset's function for an unmanageable period
- a substantive loss of access to, or deliberate or accidental manipulation of, a critical component of the asset
- an interference with an asset's operation technology or information communication technology essential to the functioning of the asset
- the storage, transmission or processing of sensitive operational information outside Australia
- remote access to operational control.

In addition, the measures put in place do not necessarily have to eliminate the risk. There is obviously a weighing up of what is reasonably practical. The CISC specifically states that term "as far as reasonably practicable" allows entities to determine how they address material risks and relevant impacts in relating to

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30 2022 Bill Explanatory Memorandum

31 CISC sits within the Department of Home Affairs and is the regulator for cyber and infrastructure security. CISC is the relevant Commonwealth regulator for annual reporting except for payment systems whose responsible entities must submit their annual report the Reserve Bank of Australia.

the operating context of their business. Mitigations are expected to be commensurate with factors such as business size, maturity and income[32].

Based on our assessment of Icon Water's proposal, we are not satisfied that the above requirements have been demonstrated.

We have reviewed the Regulatory Impact Statement prepared by the Department of Home Affairs[33] and cited by Icon Water [34]. The Regulatory Impact Statement reports average one-off compliance costs of $14.4 million and average ongoing compliance costs of $6.1 million per water entity. We note that these amounts, while reviewed by the Department of Home Affairs, are the average amounts reported by 7 water entities that responded to requests for information by the Department of Home Affairs. We also note that the amounts reported varied widely across submissions from $0 to $60 million for once-off costs and $0.5 million to $19 million for ongoing costs[35].

The amounts reported also cover both capital and operating expenses, with 20.6% of the one-off costs being attributed to operating expenses and 44.4% of the ongoing costs being attributed to operating expenses[36]. The Department of Home Affairs reported that industry expects the majority of compliance costs to be associated with addressing obligations for cyber and information security hazards (35.6%) and physical and natural hazards (52.9%) with minimal spend expected for personnel and supply chain hazards[37]. This profile of expenditure differs considerably to that proposed by Icon Water.

To compare Icon Water's proposed $14.2 million expenditure for SoCI with other regulated business, we reviewed proposals submitted by other Australian water businesses. Of the 14 Victorian water businesses that have submitted price reviews for the period commencing 1 July 2023, we found only 3 with additional cyber security related operational expenditure included in their proposals. Across the 5 year regulatory period in $2022-23 dollars, Coliban Water included $2.1 million, East Gippsland Water included $1.8 million and South Gippsland Water included $1 million for cyber security. In some cases, this expenditure was attributed to SoCI but in other cases state-based regulations and cyber security more generally was the reason for the expenditure. We did not find any reference to SoCI in NSW or Queensland submissions.

We also reviewed gas and electricity regulatory decisions for the inclusion of SoCI expenditure. We found that the AER has allowed some operational expenditure for meeting the SoCI legislation, but mainly for electricity transmission network service providers to uplift their cyber security maturity to implement the Australian Energy Sector Cyber Security Framework to achieve Security Profile 3.[38]

For gas distribution, the AER has rejected step changes for meeting the new SoCI legislation on the basis that the proposed expenditure is higher than the likely efficient expenditure required to meet the

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[32] https://www.cisc.gov.au/critical-infrastructure-centre-subsite/Files/cisc-risk-management-program-rules-critical-infrastructure-assets-guidance.pdf, p.6

[33] Department of Home Affairs 2022, Regulation impact statement: a risk management program framework for critical infrastructure assets

[34] Icon Water 2022, SOCI step change: Icon Water response to follow-up questions, p.1

[35] Department of Home Affairs 2022, Regulation impact statement: a risk management program framework for critical infrastructure assets, p. 263

[36] Department of Home Affairs 2022, Regulation impact statement: a risk management program framework for critical infrastructure assets, p. 264

[37] Department of Home Affairs 2022, Regulation impact statement: a risk management program framework for critical infrastructure assets, p. 263

[38] See for example: AER 2022, Attachment 6: Operating expenditure, Draft decision – ElectraNet Transmission determination 2023-28, p.20-22, AER 2022, Attachment 6: Operating expenditure, Draft decision – Transgrid transmission determination 2023-28, [38] AER 2022, Attachment 6: Operating expenditure, Final decision – AusNet Services Transmission determination 2022-27, p.27-27

regulatory obligations of the CIRMP[39]. For gas transmission, the AER has allowed relatively small step changes for the SoCI[40].

We also considered the AER's assessment of APA's capital expenditure for SoCI[41] where the AER assessed the risk being contemplated by the legislation as a very material level of risk. It found that APA had not shown that the risk it seeks to manage are material risks that have the relevant impact. In addition, the AER concluded that SoCI will only be relevant to the extent that a material risk exists that is not adequately managed by the current risk management controls. The AER found that APA has not demonstrated that its existing security arrangements are insufficient to manage the current level of risk. The AER's final decision for APA was consistent with its draft decision[42].

Based on our assessment of the information provided by Icon Water against the legislative requirements and our review of other regulatory submissions and decisions, we do not accept Icon Water's revised proposal to include a step change of $14.2 million for SoCI expenses. We assess a prudent and efficient level of SoCI expenditure to be $4.5 million.

Final decision on step changes

Our final decision is to accept part of Icon Water's proposed step changes as follows:

- For insurance premiums, allow $3.5 million compared with $2.03 million in the draft decision and $9.98 million in Icon Water's revised proposal
- For ICT, accept Icon Water's revised proposal to shift $25.2 million of expenditure from capital expenditure to operational expenditure
- For SoCI, allow expenditure of $4.5 million as a step change compared with the draft decision of $2.91 million and Icon Water's revised proposal of $14.2 million. Icon Water may submit a pass-through application for further SoCI expenditure if the material risk threshold, relevant impact and so far as reasonably practicable criteria can be demonstrated and when the timing and extent of the obligations are clear.

Our final decision on step changes is summarised in Table 3.12 below compared with Icon Water's proposals and our draft decision.

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39 See for example: AER 2022, Attachment 6: Operating expenditure, Draft decision – Multinet Gas Networks Access Arrangement 2023-28, p.24-27, AER 2022, Attachment 6: Operating Expenditure, Draft decision – Australian Gas Networks (VIC & Albury) Access Arrangement 2023-28, p. 30-33

40 See for example: AER 2022, Attachment 6 – Operating Expenditure, Final decision – APA VTS gas access arrangement 2023-27, p.27-28, AER 2022, Attachment 6 – Operating Expenditure, Final decision – Roma to Brisbane Pipeline Access Arrangement 2022-27, p.9-11

41 AER 2022 Attachment 5: Capital Expenditure, Draft decision – APA VTS gas access arrangement 2023-27, p. 42-44

42 AER 2022, Attachment 5: Capital expenditure, Final decision – Roma to Brisbane Pipeline Access Arrangement 2022-27, p.36

Table 3.12 Final decision on step changes, $ million 2022-23

	Icon Water proposal	Commission draft decision	Icon Water revised proposal	Commission final decision
Insurance	9.8	2.0	10.0	3.5
Security of Critical Infrastructure	3.6	2.9	14.2	4.5
ICT	0.0	0.0	25.2	25.2
Managing Buildings Better Reforms	0.0	0.0	5.2	0.0
Cotter pump station upgrade	0.0	-0.7	-0.7	-0.7
Price submission costs	0.0	0.9	0.0	1.1
Total	**13.4**	**5.1**	**53.9**	**33.6**

Source: Icon Water and our calculations.

3.6.4 Non-controllable expenditure

Non-controllable expenditure captures costs that are largely outside of Icon Water's control such as Government fees and charges. The main costs included in this category of costs are the Utilities Network Facilities Tax (UNFT) and the WAC imposed on Icon Water. In both cases, the charges are forecast for the forthcoming regulatory period and then a true-up is made for the difference between the forecast and actuals when the actual values are known.

Icon Water has provided to us the forecast value for the UNFT and the WAC for the 2023-28 regulatory period and we have included these in our operating expenditure forecasts. Icon Water has also provided to us the actual values of the UNFT and WAC for the 2021-22 year and year to date actuals for the 2022-23 year. In both cases, the actuals are below the forecasts as water demand has been lower than expected. This means Icon Water must return the difference to ACT consumers. Therefore, we have included these negative adjustments for the UNFT and WAC in our operating expenditure forecasts.

Icon Water's UNFT and WAC forecasts for the 2023-28 regulatory period and the true-up adjustments for 2021-22 and 2022-23 (year to date) and presented in Table 3.13 below together with our final decision on total uncontrollable expenditure.

Table 3.13 Final decision on non-controllable expenditure, $million nominal

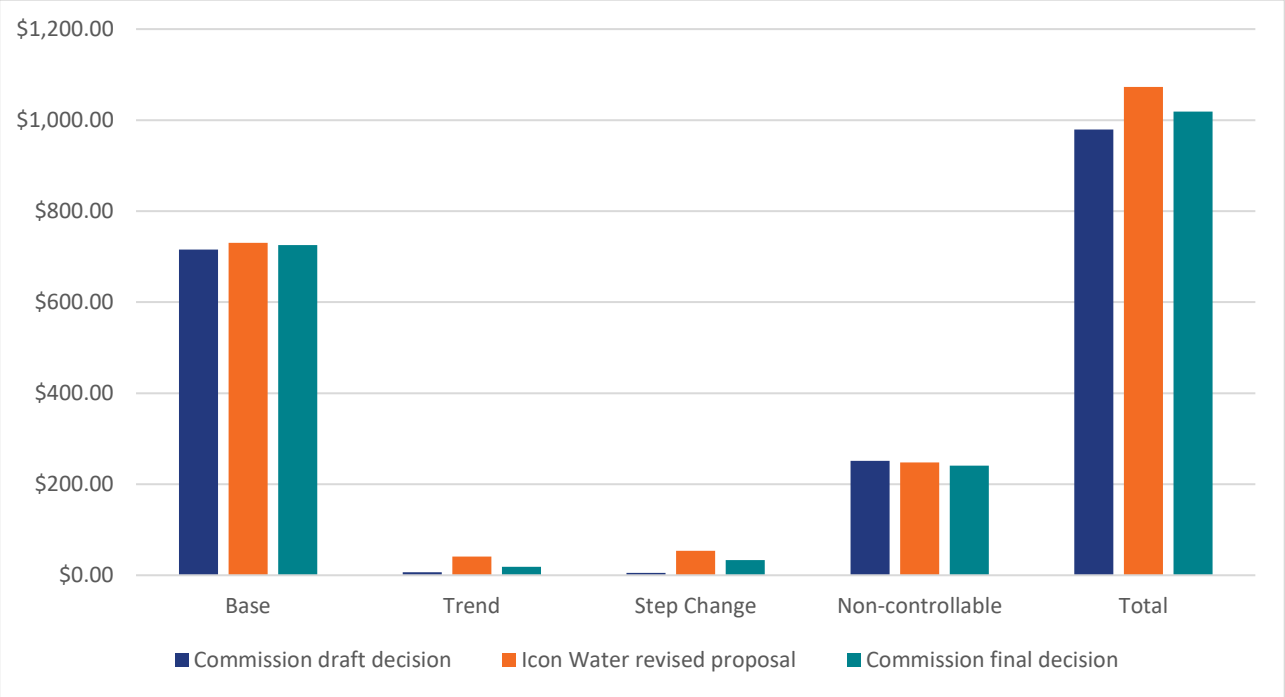
	2023-24	2024-25	2025-26	2026-27	2027-28
UNFT forecast	12.2	12.8	13.3	13.9	14.5
WAC forecast	35.9	37.2	38.7	40.3	41.9
UNFT true-up for 2021-22 & 2022-23	-2.6				
WAC true-up for 2021-22 & 2022-23	-6.2				
Other non-controllable	2.0	2.0	2.1	2.5	3.4
Total non-controllable	**41.2**	**52.0**	**54.1**	**56.7**	**59.8**

Source: our calculations.

3.6.5 Total forecast operating expenditure

Based on our assessment above, our final decision is to set operating expenditure for the 2023-28 period at $1,112.5 million in nominal terms or $1018.9 in real $2022-23. The breakdown of this decision in terms of the components of the BST methodology and compared with our draft decision and Icon Water's proposals are shown in Figure 3.3 below.

Figure 3.3 Total forecast operating expenditure, $million $2022-23



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 is prudent and efficient, Icon Water can recover this money from prices it charges to customers:

- by including the expenditure in the RAB
- through depreciation.

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

Our final decision

In the current regulatory period of 1 July 2018 to 30 June 2023, we made a reduction of $6.2 million ($nominal) to Icon Water's capital expenditure. We accept a historical capital expenditure allowance of $448.3 million ($nominal). For more detail and our reasoning, see section 4.3.54.3.5.

For the period 1 July 2023 to 30 June 2028, we allow a net capital expenditure forecast of $716.6 million ($nominal). This is 3.3% or $24.1 million lower than Icon Water's adjusted revised proposed forecast ($740.7 million, nominal)[43], and 59.8% or $268.36 million higher than the actual capital expenditure we allowed for the 2018-23 regulatory period. For more detail and our reasoning, see section 4.2.5.

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 RAB. 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. This included internal reviews of project appropriateness, options analysis, cost estimates,

[43] For comparison purpose, we adjusted Icon Water's revised capital investment plan to exclude new projects and further deferral projects from the current regulatory period, and also included projects Icon Water removed between its original and revised proposals. Icon Water's revised proposed forecast is $753.7 million without our adjustments.

capital prioritisation and risk assessments. In this chapter we reference MJA's findings; the full report is available on our website.[44]

4.2 Capital expenditure for 2023-28 period

As set out in Table 4.1, our final decision is to approve a net capital expenditure allowance of $716.6 million ($nominal) for Icon Water for the 2023-28 regulatory period. This represents an increase of $14.9 million to our adjusted draft decision ($701.7 million, nominal), but a reduction of $24.1 million ($ nominal) to adjusted Icon Water's revised proposal ($740.7 million, nominal).

Table 4.1 Our final decision on net capital expenditure for the 2023-28 regulatory period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Our final decision allowance	**100.4**	**94.3**	**119.0**	**179.6**	**223.4**	**716.6**
Adjusted Icon Water's revised proposed capital expenditure	109.9	102.6	123.8	187.9	216.6	740.7
Variance	(9.5)	(8.4)	(4.8)	(8.3)	6.8	(24.1)
Adjusted draft decision	108.2	85.1	111.5	178.4	218.6	701.7
Variance	(7.8)	9.2	7.5	1.2	4.8	14.9

Source: Icon Water revised proposal and our calculations.
Notes: Total may not sum due to rounding. Final CPI index and cost escalators applied.

To make a meaningful comparison, we have adjusted our draft decision and Icon Water's revised proposal for capital expenditure for 2023-28 period. Specifically:

- We adjusted our draft decision to exclude ICT projects that shifted to operating expenditure. We also added the customer-funded portion of capital contributions which Icon Water inadvertently excluded from its original capital expenditure forecast.
- We adjusted Icon Water's revised proposal to exclude new projects and further deferrals from the current regulatory period and to include projects Icon Water removed between its original and revised proposal.
- When calculating the adjusted draft decision and the adjusted revised proposal, we applied the final inflation index and capital escalators.

4.2.1 Icon Water's initial proposal

In June 2022, Icon Water forecasted $673 million ($2021-22) in net expenditure for its planned capital program over the 2023–28 regulatory period. This total figure is before cost escalation and comprises of:

- $176 million ($2021-22) for water services assets
- $407 million ($ 2021-22) for sewerage investment

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

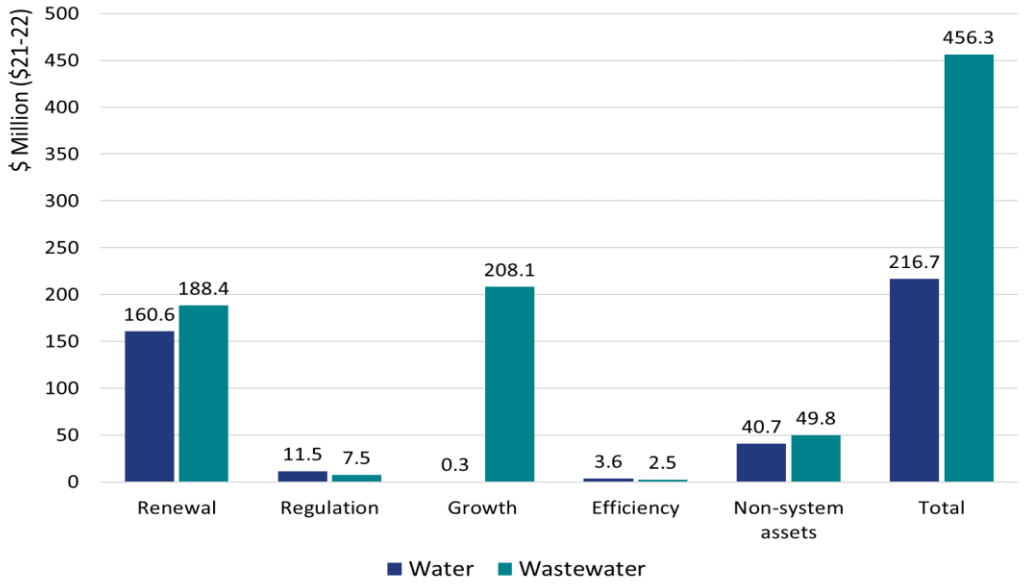
- $91 million ($ 2021-22) for non-system assets.

Icon Water identified an error within its original proposal's modelling. Specifically, Icon Water inadvertently excluded the customer-funded portion of expenditure associated with Water and Sewerage Capital Contributions Code (WSCCC) from its capital expenditure forecast. This caused its proposed 2023-28 capital expenditure to be understated. Icon Water's revenue model used a capital expenditure forecast of $643.8 million ($2021-22) instead of $673 million ($2021-22) as intended.

Upon our review of the modelling, we verified that Icon Water's capital expenditure forecast of $673 million ($2021-22) included only the customer-funded portion of capital contributions and excluded the developer-funded portion of capital contributions. We refer to such a forecast as 'net' capital expenditure.

Figure 4.1 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 4.1 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 accounted for $349.0 million. This includes replacement of the existing furnaces at the Lower Molonglo Water Quality Control Centre (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%).

As seen from Table 4.2, Icon Water's proposed capital expenditure over the 2023-28 regulatory period is 84.5% more in nominal terms than the allowance we approved for the 2018-23 regulatory period.

Table 4.2 Comparison of Icon Water's proposed 2023-28 net capital expenditure with the 2018-23 approved allowance ($nominal, million)

	2018-23 approved allowance	2023-28 proposed allowance[a]	Difference ($m)	Difference (%)
Water	173.6	243.7	70.1	40.4
Sewerage	243.4	525.7	282.3	116.0
Total capital expenditure	416.9	769.3	352.4	84.5

Source: our calculations based on Icon Water's submission.
Note: [a] Capital escalation is included. Totals may not equal the sum of individual components due to rounding.

4.2.2 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.

Our consultant 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 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-defined scope of work and a robust cost estimate. According to Icon Water's Investment Planning and Delivery (IPAD) process (Figure 4.2), the availability of this documentation corresponds to the completion of the Plan Stage.

Figure 4.2 Icon Water's internal Investment Planning and Delivery (IPAD) process

The majority of programs and projects (68%) in Icon Water's proposal had 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 4.3 shows that 91% of the capital expenditure had 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 4.3 IPAD Stages, cost estimate range for proposed expenditure 2023-28 ($2021-22)

Stage	Cost Estimate Range	Total Estimated Cost ($million)	Percentage of total
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 original proposal, Attachment 7 Capital Expenditure Section 7.3.2., p 37.

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.

Our consultant recommended reductions to the expenditure Icon Water initially proposed for 10 major capital expenditure projects

MJA undertook a detailed review of 10 major capital expenditure projects. These projects comprised 61% of Icon Water's proposed capital expenditure. MJA recommended adjustments to 6 projects:

- **LMWQCC Biosolids Management Renewal** - delaying the construction phase resulting in expenditure of $57.6 million over the period for this project, a reduction of $3.89 million.
- **Water Meter Renewals program** - 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 to Icon Water's meter forecast.
- **Cotter Pump Station Upgrade** - an allowance for $23.5 million, which is $1 million above Icon Water's initial proposal, but below its updated forecast for the project at $27.7 million.
- **Vehicle Lease Renewals for Heavy Vehicle Fleet** - reducing project costs from $12.9 million to $12.0 million to correct errors in Icon Water's model that were overstating the cost estimate.
- **Office Expansion Space Utilisation** - MJA considered that the project is not sufficiently developed to allow $12.7 million expenditure. MJA recommend a $1.4 million allowance for development funds to strategically plan this project.
- **Lower Red Hill Reservoir Tank B (East)** - adjustments of $3.5 million, reducing the project total to $8.4 million.

Our consultant's recommended expenditure for the remaining capital program is lower than Icon Water's initial proposal

Setting aside the 10 major projects, MJA recommended a reduction of $32.2 million ($2021-22) million across the rest of the capital expenditure program.

MJA considered that the increased value of the proposed capital expenditure program together with the low maturity of the projects linked to this expenditure, created a degree of risk that Icon Water will not be able to deliver the planned program of works in the regulatory period.

MJA recommended the following adjustments:

- **Prudence adjustment**: MJA recommended a reduction of $24.3 million ($2021-22) across the remaining capital expenditure program. MJA recommended to reprofile capital expenditure so that it aligns with a more realistic delivery timeframe.
- **Efficiency adjustment**: MJA recommended applying a catch-up efficiency adjustment of 1%. MJA considered this adjustment appropriate due to the level of uncertainty in both the cost and timing of delivery. This led to a further reduction of $7.9 million ($2021-22).

Our consultant recommended an ongoing efficiency target for Icon Water

In addition to the adjustments described in the preceding sections, MJA recommended an ongoing efficiency target (2%) for Icon Water.

Table 4.4 shows MJA's recommendations on Icon Water's proposed capital expenditure for the period 1 July 2023 to 30 June 2028. Overall, MJA recommended reducing Icon Water's proposed capital expenditure by $68.6 million ($2021-22) to $604.93 million ($2021-22).

Table 4.4 MJA recommended capital expenditure forecasts ($m, $2021-22)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Icon Water proposal	**147.3**	**118.7**	**129.2**	**136.5**	**141.7**	**673.5**
Total adjustments*	(48.1)	(41.4)	(27.0)	15.2	32.7	(68.6)
MJA recommendation	**99.2**	**77.3**	**102.3**	**151.7**	**174.4**	**604.9**

Source: Icon Water capital expenditure data for 2018-23. Marsden Jacob Associates (2022).
Notes: * including adjustments to top 10 major projects, prudence and efficiency adjustments to remaining projects, and ongoing efficiency adjustments to all projects. Totals may not sum due to rounding. Numbers do not include cost escalation.

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

Our draft decision allowed for net water and sewerage capital expenditure of $685.5 million in nominal terms over the 2023-28 regulatory period. This was $50.7 million (6.8%) less than Icon Water's proposed capital expenditure of $736.2 million ($nominal). As discussed in section 4.2.1, during the review process, Icon Water identified an error with how customer-funded capital contributions have been accounted for in its proposal. Therefore, our draft decision allowance did not include customer-funded capital contributions.

We noted MJA's concerns that many projects Icon Water included in its capital expenditure program are in the early stages of the capital planning process. We found that Icon Water responded to the uncertainties in its forward capital program by adopting the following approaches:

- Icon Water used a conservative cost estimate for the 2 major projects - 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.

While the IPAD process aligns with good industry practice, it does not mitigate the immaturity in individual project planning. However, we did not consider that information deficiencies in themselves should be used as the basis for reducing Icon Water's proposed capital expenditure. During the regulatory period, much of this information is expected to become available, including business cases, options analysis and robust cost estimates. We will consider whether Icon Water's capital expenditure has been prudent and efficient when the next investigation takes place in 2027.

We considered that the $24 million ($nominal) adjustment that MJA recommended to the 10 major capital projects was sufficiently justified and we adopted it in our draft decision. We also adopted MJA's recommended reduction of $27.7million ($nominal) across the rest of the capital program, to better balance risk associated with delivering its capital program between Icon Water and its customers.

We did not accept MJA's recommendation to apply catch-up and an ongoing efficiency. We considered it more appropriate to make an adjustment to Icon Water's proposed capital expenditure excluding the top 10 by forming a view on the efficiency of the proposed costs. We decided to reduce reprofiled capital expenditure in each year of the next regulatory period by 2.3%. We arrived at the 2.3% figure through investigating MJA's recommendations in relation to the top 10 projects. We considered it appropriate to extend this efficiency adjustment to the remaining capital expenditure portfolio.

We noted Icon Water's intention to update the escalators following our draft decision to provide the most recent forecasts.

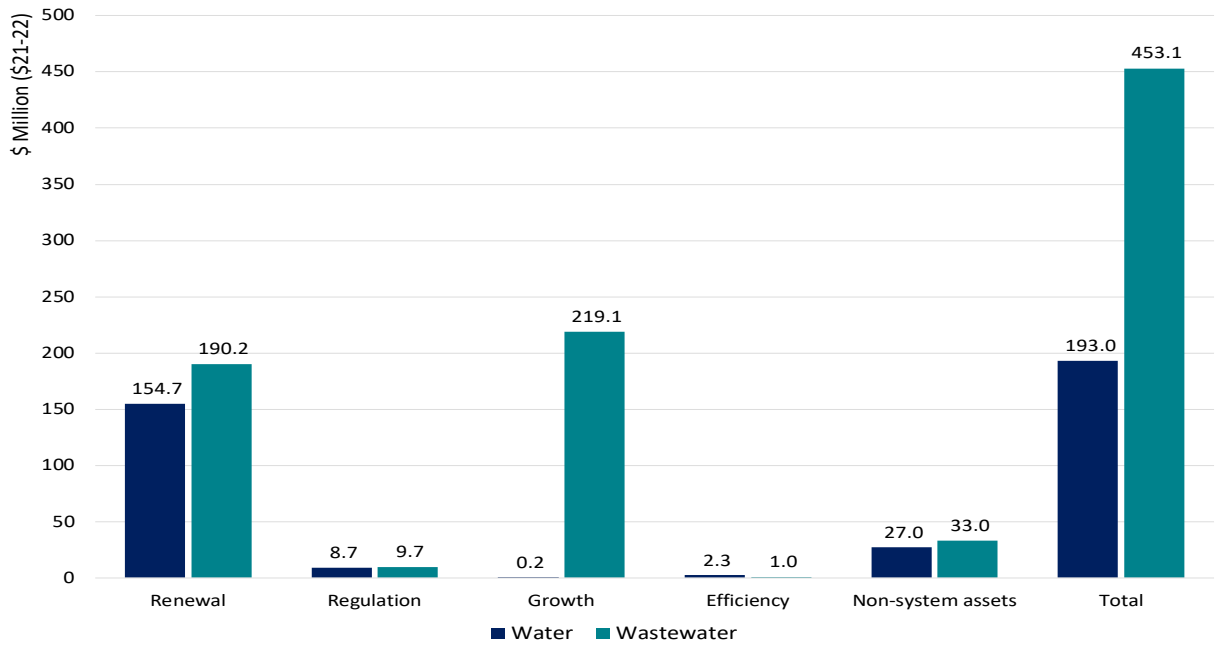
4.2.4 Submissions received on the draft report

Icon Water submitted its revised proposal in December 2022, followed by updates and corrections in February 2023 and March 2023. Icon Water's final revised capital expenditure for the 2023-28 regulatory period is $646.1 million ($2021-22). This is 3.9% lower than Icon Water's original proposal ($673.0 million, $2021-22).

The major driver of the decrease in Icon Water's revised capital expenditure is shifting 7 ICT projects to operating expenditure, totalling $19.9 million. If we were to continue treating ICT expenditure as capital expenditure, then Icon Water's revised proposal would be $665.9 million ($2021-22). This is only 1.1% lower than Icon Water's original proposal ($673.0 million, $2021-22) and 7.5% higher than our draft decision ($619.4 million ($2021-22)).

Figure 4.3 shows Icon Water's revised capital expenditure by major cost drivers for 2023-28 period.

Figure 4.3 Icon Water's revised capital expenditure for water and sewerage by funding driver for 2023-28, ($m, $2021-22)



Source: Icon Water revised proposal and our calculations.

Revised capital expenditure program

Icon Water provided the list of projects and estimated expenditures for each project in its revised proposal. We compared the project-level program between Icon Water's initial proposal and its revised proposal. Comparing the proposals, we observed:

- The revised program included 14 new projects with expenditure worth $13.7 million ($2021-22). The largest new project is to upgrade the North Weston Vent Fan facility to provide adequate ventilation to the sewerage network and to prevent nuisance odours ($8.7 million).
- The revised program further carried over project expenditure worth of $11.6 million ($2021-22) from the current period (2018-23) to the forward period (2023-28). This is in addition to around $100 million that is already deferred from the current regulatory period.
- The revised program removed 21 projects, worth $34.0 million ($2021-22) in expenditure.
  - Of these removed projects, 7 ICT projects ($19.9 million) have been reclassified as operating expenditure and removed from capital program, due to the move to cloud-based ICT solutions and its implications for accounting treatment of expenditure.[45]
  - Other removed projects were at a very early stage of Icon Water's investment planning and delivery process.

[45] Of these 7 ICT projects, 6 projects have been shifted to operating expenditure completely, including Customer relationship management, Upgrade website portal, Time series upgrade 2, AMIS, EDP stage 2 and MDS upgrade and 3D model sharing. Project Network Modernisation was partially (around 36% of total expenditure) removed from capital to operating expenditure.

- The revised program updated cost estimates across the various projects, with the overall impact being a reduction in proposed expenditure of $18.2 million ($2021-22):
  - Water project budget adjustments reduced expenditure by $8.5 million. This reduction is mainly driven by adjustments to 3 projects – Water Meter Renewals, Lower Red Hill Reservoir Tank and Treatment Plan Office Accommodation.
  - Sewerage project budgets had a net increase in expenditure of $1.3 million.
  - Non-system project budget adjustments accounted for an $10.9 million reduction in expenditure. The greatest reduction is in the Office Space Utilisation project (down by $7.6 million) to address concerns we raised in our draft decision.

In addition to an updated capital expenditure program, Icon Water provided a response to specific decisions made in our draft report.

Adjustments to top 10 projects

Icon Water's revised proposal accepted our draft decision on 5 projects, with a minor update to the expected cashflow over the regulatory period. The revised proposal included higher expenditure than our draft decision forecasts for 4 projects, totalling $11.2 million ($2021-22):

- $3.9 million for Biosolids Management Renewal – Icon Water has progressed the project through its IPAD process and provided for review a business case identifying the preferred technical option and a revised cost estimate.
- $3.1 million for Water Meter Renewal Program - Icon Water included a higher forecast for new meter installations and reactive meter replacements compared to MJA's forecast adopted in our draft decision.
- $2.9 million for Office Space Utilisation - Icon Water accepted our draft decision allowance to strategically develop the project during the 2023-28 regulatory period. The revised proposal requests additional funds for the cost of capitalised leases to accommodate 40 staff for the period January 2025 to June 2028, following expiry of the current lease.
- $1.3 million for Lower Red Hill Reservoir Tank B - Icon Water accepted some aspects of the draft decision but did not accept changes to site restoration and landscaping and only partially accepted the reduction in contingency.

In addition, Icon Water shifted project Asset Information Management System, from capital expenditure to operating expenditure.

Reprofiling of capital expenditure forecast

Icon Water partially accepted our draft decision to reprofile capital expenditure for remaining projects. Icon Water utilised the same reprofiling factors as applied in our draft report, but to a lesser extent. Icon Water did not reprofile the following:

- annual programs of works or budget allocations such as minor capital expenditure allocations
- the remaining ICT projects, based upon the assumptions that ICT project lifecycle is shorter
- projects that are co-funded through the WSCCC, based on the assertion that this reprofiling will introduce inconsistencies with the WSCCC funding model and Icon Water has a high degree of confidence in the timing

of the projects.

The revised proposal approach to reprofiling applies to 23% of the remaining portfolio and has a smaller impact than our draft decision as more projects have moved past initial phases.

Efficiency adjustment

Icon Water did not agree with our draft decision to apply an efficiency adjustment of 2.3% to projects not individually assessed. In its revised proposal, Icon Water stated that the approach of applying an efficiency adjustment is inconsistent with the current arrangement of incentive mechanisms.

4.2.5 Our final decision on capital expenditure for 2023-28

We have considered Icon Water's revised proposal and the further independent review by MJA. Our final decision allows for net water and sewerage capital expenditure of $716.6 million in nominal terms over the 2023-28 regulatory period. This is $37.1 million (4.9%) less than Icon Water's proposed capital expenditure of $753.7 million (nominal) and $14.9 million or 2.1% higher than our adjusted draft decision of $701.7 million (nominal). Our final decision is $268.4 million or 59.8% higher than the actual expenditure for 2018-23 period we allowed to be added to the regulatory asset base.

We have removed new projects and further deferrals from Icon Water's capital investment plan

In its revised proposal Icon Water included 14 new projects. It also proposed to defer 20 projects from the current regulatory period into the next regulatory period. These deferred projects are in addition to around $100 million of deferrals that Icon Water included in its initial proposal.

MJA final report raised concerns about the late inclusion of the North Weston Fanhouse Odour Control project in the capital investment plan. This project has a high forecast budget of $8.7 million ($2021-22). MJA recommended that the proposed expenditure for this project should not be included in the capital expenditure allowance. Instead, this project can be added to the RAB following an ex-post review if expenditure is deemed to be prudent and efficient as part of the next investigation.

We share MJA's concern about the late inclusion of new projects. Our view is that a business should not submit multiple new projects in a revised proposal that could have been reasonably foreseen at the initial proposal stage. This does not give us sufficient time to review the new projects and deprives stakeholders the opportunity to engage.

We also consider that the amount of deferred capital expenditure that Icon Water included in its initial proposal was material. We consider Icon Water can manage any further movements in its capital expenditure program.

Our final decision is to remove new projects and further deferrals from the capital investment plan. This represents a reduction of $25 million ($2021-22) to Icon Water's revised proposal.

For consistency in our approach, we included a notional allowance for the projects that Icon Water removed from its capital investment plan between the initial and revised proposal (which worth $14 million ($2021-22) in the initial proposal). We used our draft decision allowances for each project. We do not suggest that Icon Water needs to undertake these projects. Rather, Icon Water should consider the changing environment throughout the regulatory control period and make its spending decisions accordingly.

Our final decision is to accept most of Icon Water's adjustments to the top 10 projects

Icon Water did not agree with our draft decision in relation to 4 out of 10 major capital expenditure projects. MJA has reviewed additional information provided by Icon Water in its revised proposal.

Biosolids Management Renewal Project

Our draft decision allocated $57.6 million ($2021-22) to this project. Icon Water's revised forecast for this project is $3.9 million higher than our draft decision. Icon Water has progressed the project through its IPAD process and new project documentation became available, including a business case, the preferred technical option, and an updated cost estimate. MJA's final report considered that the revised cost estimate represents an efficient allowance for the period on the basis that the project now has an endorsed option and Icon Water deferred contingency costs to the following regulatory period.

Water Meter Renewals Program

Our draft decision allocated $24.9 million ($2021-22) to this project. Icon Water's revised forecast for this project is $3.1 million higher than our draft decision. This is due to the revised proposal including a higher forecast for new meter installations and reactive meter replacements compared to MJA's forecast. MJA's final report concluded that Icon Water has justified an uplift of 2,623 meters from its previous forecast. MJA considered that $1.2 million of expenditure should be sufficient to cover this uplift based on the unit costs it assessed during the expenditure review process.

Office Space Utilisation Project

Our draft decision allocated $1.4 million ($2021-22) to this project. Icon Water's revised forecast for this project is $2.9 million higher than our draft decision. This is because Icon Water added the cost of capitalised leases to accommodate 40 staff for the period January 2025 to June 2028, following expiry of the current lease. MJA's final report suggests that the 40 staff could be accommodated within existing Icon Water office space and, therefore, no allowance is required for the capitalised lease from January 2025.

Lower Red Hill Reservoir Tank B Project

Our draft decision allocated $8.5 million ($2021-22) to this project. Icon Water's revised forecast for this project is $1.3 million higher than our draft decision. Icon Water accepted some aspects of the draft decision but did not accept changes to site restoration and landscaping and only partially accepted the reduction in contingency. MJA reviewed the information confirming the scope of the landscaping element of the project, the revised construction costs, the approach to contingency and the associated adjustments to the revised project cost. MJA's final report concluded that the revised cost for the project is reasonable.

Summary of our adjustments to the top 10 projects

Our final decision is to accept MJA's recommended adjustments with one exception. Specifically, we did not accept MJA's recommendation in relation to the Office Space Utilisation Project. We consider it prudent to allocate annual allowance for accommodating staff of 40, pending implementation of the Office Space Utilisation project. This is consistent with the current regulatory period where the lease costs were capitalised.

We have removed $1.9 million ($2021-22) of expenditure from Icon Water's forecast for the top 10 major capital projects. We note that Icon Water deferred some of the expenditure for other projects from 2023-24 to 2024-25. We accept this adjustment to the timing of the expenditure.

We have reprofiled expenditure for remaining projects and programs

We have decided to maintain our draft decision to reprofile Icon Water's capital expenditure forecast (excluding the top 10 projects) based upon each updated IPAD classification.

Icon Water's revised proposal accepted our draft decision to reprofile the remaining capital investment program, except for 3 categories of projects. Specifically, Icon Water argued that the following projects should not be reprofiled: (1) annual programs of works or budget allocations such as minor capital expenditure allocations, (2) ICT projects and (3) the projects that are co-funded through the WSCCC.

We did not accept Icon Water's proposal of excluding some projects from reprofiling, as:

- MJA's final report did not support excluding annual programs of work because there is evidence of deferral of expenditure for annual programs in assessing the actual expenditure and our regulatory allowance for the 2018-23 period. We agree with this assessment.
- MJA's final report had excluded ICT expenditure from reprofiling because of a relatively shorter project lifecycle. In assessing the actual expenditure versus the regulatory determination for the 2018 -23 regulatory period, we observed delays in delivery of major ICT projects. Therefore, we consider it reasonable to include ICT projects in reprofiling.
- We agree with MJA's recommendation to not exclude the projects that are co-funded under the WSCCC agreement from expenditure reprofiling. Icon Water did not provide evidence to support its project timetable.

Icon Water adopted a slightly different spread of expenditure for projects at Plan, Develop and Execute stages to that applied in our draft report. We consider this change to be reasonable and adopted it in updating the reprofiling.

We have reprofiled the capital expenditure using Icon Water's capital investment plan from March 2023. This has the impact of reducing capital expenditure by $20.9 million ($2021-22), deferring expenditure beyond the period as per the draft decision.

We have applied an efficiency adjustment of 0.42% to remaining projects and programs

We have decided to retain our draft decision to reduce reprofiled capital expenditure (excluding top 10 projects) in each year of the 2023-28 regulatory period by applying an efficiency adjustment.

Icon Water argued that we have deviated from our decisions in a review of incentive mechanisms for capital expenditure, by applying an efficiency adjustment.[46] In the review of incentive mechanisms, our final decision is to maintain the current approach of a two-stage (ex-ante and ex-post) prudency and efficiency assessment of Icon Water's actual and proposed capital expenditure. Our adjustment to Icon Water's proposed capital expenditure (excluding the top 10 projects) is not an additional incentive above the existing mechanisms. Rather, this adjustment 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 as part of the ex-ante review.

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[46] The final report of Water and Sewerage Services Price Regulation: Incentive Mechanisms (August 2020) is available at https://www.icrc.act.gov.au/__data/assets/pdf_file/0018/1620108/Final-report-incentive-mechanisms.pdf.

In its revised proposal, Icon Water also argued that its IPAD process tends to underestimate costs at the early stages. However, there is insufficient evidence to support this argument. In its detailed review of top 10 projects, MJA found the cost estimate for some projects deemed inefficient was overstated.

We re-calculated the adjustment percentage taking into consideration the final decision findings in relation to the top 10 projects. This reduced the adjustment percentage from 2.3% to 0.42%.

We have accepted Icon Water's proposed capital escalation

MJA's final report recommends that we accept Icon Water's forecast escalators and how it applied them as inputs into the revenue model. We agree that Icon Water has applied a reasonable level of escalation and note that they are lower than in the initial proposal.

We have reviewed projects co-funded by the WSCCC

Several projects that Icon Water proposed for the next regulatory period are partially funded through the WSCCC. We undertook project-level matching to ensure that project funding is clearly allocated between WSCCC and water and sewerage services tariffs. Through consideration, we have ensured that consumers will not pay more than they need to for WSCCC projects undertaken by Icon Water.

Our final decision capital expenditure for 2023-28 period

Table 4.5 shows our final decision on capital expenditure of $716.61 million ($nominal) for the 2023-28 period, and our adjustments to the top major projects and remaining capital programs.

Our final 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 expenditure from Icon Water's capital expenditure program, we do not require 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 4.5 Final decision capital expenditure for 2023-28 regulatory period ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Icon Water revised proposed capital expenditure, net	**113.3**	**102.9**	**124.7**	**191.9**	**221.4**	**753.7**
Removing new and further deferral projects	(5.4)	(4.2)	(5.3)	(6.8)	(7.6)	(29.3)
Adding back removed projects	1.9	3.9	4.4	3.3	2.8	16.3
Adjusted Icon Water's proposed capital expenditure, net	**109.9**	**102.6**	**123.8**	**187.9**	**216.6**	**740.7**
Adjustment to top 10 projects	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(2.2)
Adjustment to remaining program	(9.1)	(8.0)	(4.4)	(7.8)	7.3	(22.0)
Total Adjustments	**(9.5)**	**(8.4)**	**(4.8)**	**(8.3)**	**6.8**	**(24.1)**
Final decision allowance, net	**100.4**	**94.3**	**119.0**	**179.6**	**223.4**	**716.6**
Capital contributions	1.9	6.9	6.5	9.1	6.0	30.4
Final decision allowance, gross	**102.3**	**101.2**	**125.5**	**188.7**	**229.4**	**747.0**

Source: Icon Water revised proposal and our calculations.
Notes: Total may not sum due to rounding. Final CPI index and cost escalators applied.

4.2.6 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 these concerns. 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 made three recommendations for Icon Water's consideration for the next regulatory review.

Improving capital planning processes

We recommend Icon Water consider improving its capital planning processes to accelerate them for the regulatory determination process. That is, once every five years Icon Water should 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.

Including capital projects with more accurate and confirmed information

We recommend that Icon Water should 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

We recommend Icon Water update and 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.

4.3 Capital expenditure for the period of 2018-23

As set out in Table 4.6, our final decision on prudent and efficient capital expenditure for 2018-23 period is $448.3 million ($nominal). This is 0.6% or $2.7 million lower than our draft decision ($451 million, nominal), 1.3% or $6.1 million lower than Icon Water's revised proposal ($454.4 million, nominal), but 7.5% or $31.4 million higher than our regulatory allowance ($416.9 million, nominal).

Table 4.6 Our final decision on actual capital expenditure for 2018-23 period ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Our final decision	**94.7**	**115.6**	**88.7**	**67.9**	**81.3**	**448.3**
Icon Water revised proposal	100.9	115.6	88.7	67.9	81.3	454.4
Variance	(6.2)	0	0	0	0	(6.1)
Our draft decision	94.2	103.5	88.2	82.2	82.9	451.0
Variance	0.5	12.1	0.5	(14.3)	(1.6)	(2.7)
Our regulatory allowance	99.6	100.1	89.6	59.7	67.9	416.9
Variance	(4.9)	15.5	(0.9)	8.2	13.4	31.4

Source: Icon Water revised proposal and our calculations.
Note: Total may not sum due to rounding.

4.3.1 Icon Water's initial proposal

At the time of Icon Water's initial proposal, the actual capital expenditure for the 2018-23 regulatory period (actuals for 2018-19 to 2020-21 and forecast for 2021-22 to 2022-23) was forecast to be $459.6 million in nominal terms or $487.0 million in real terms ($2022–23). This included $176.7 million in nominal terms for water services and $282.9 million in nominal terms for sewerage services (Table 4.7).

Table 4.7 Icon Water's initial proposal of 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.
Notes: Forecast is used for 2021-22 and 2022-23. An updated CPI index used in draft report applied.

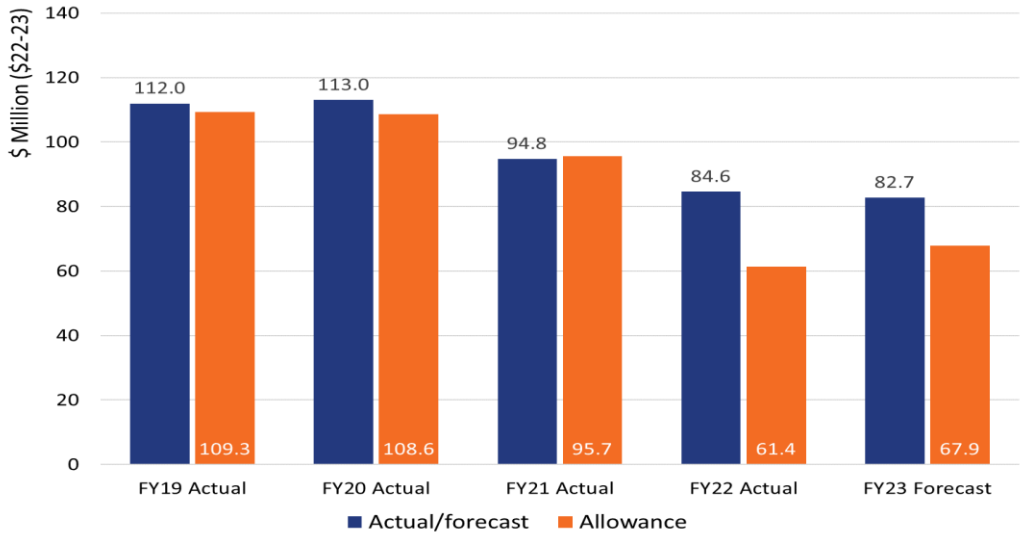
We set an ex-ante capital expenditure allowance of $442.9 million ($2022-23) for the current regulatory period. Icon Water's estimated actual expenditure is $44.1 million or 9.9% higher than the allowance. In Attachment 7 of its proposal Icon Water explained the reasoning for the increase in expenditure:

- 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 increases 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.

Figure 4.4 shows Icon Water's estimated actual expenditure compared to our regulatory allowance.

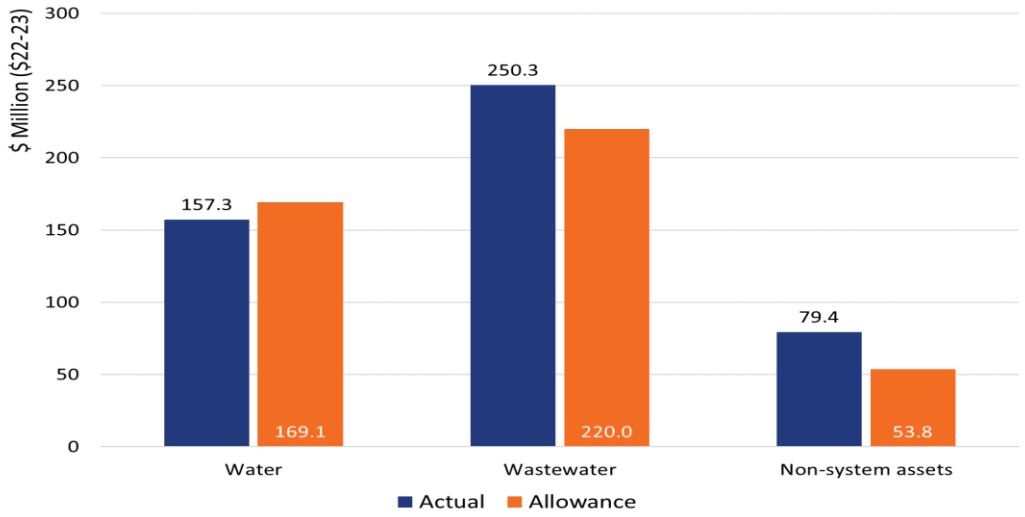
Figure 4.4 Icon Water's actual capital expenditure and the commission's allowance for water and sewerage services, 2018–23 ($m, $2022-23)



Source: Icon Water capital expenditure data for 2018-23.
Note: Forecast is used for 2021-22 and 2022-23.

Figure 4.5 shows the variance in capital expenditure by function (water, sewerage and non-system). Icon Water was 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.

Figure 4.5 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 2021-22 and 2022-23.

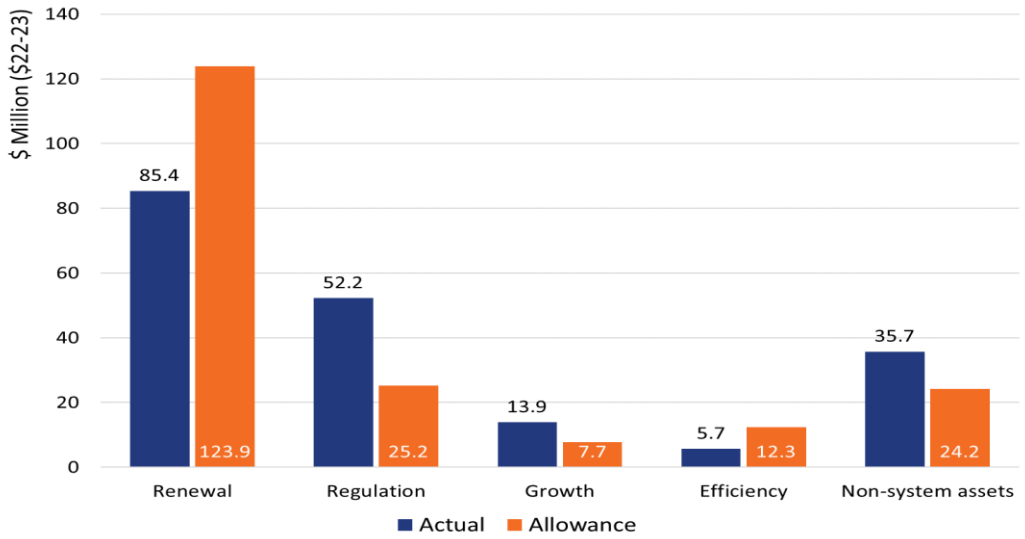
Water supply system capital expenditure

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.[47]

In its proposal Icon Water provided an allocation of estimated actual expenditure against renewal, growth, regulation, efficiency and non-system expenditure. Figure 4.6 compares the allocations between expected actual expenditure on water and the determination allowance for 2018-23 by funding drivers.

[47] 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.

Figure 4.6 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 2021-22 and 2022-23.

Renewals

Icon Water's estimated actual expenditure on renewing water assets is $85.4 million ($2022-23).[48] This is $38.5 million or 31.1% lower than our regulatory allowance, mainly driven by:

- the re-prioritisation of expenditure, such as deferral of a portion of the Water Network EIMC program of works at lower risk sites to offset increased capital expenditure on other vital projects[49]
- project savings from lower than forecast contract prices for key projects, including the Mugga Reservoir and O'Conner Reservoir Roof replacements
- lower than anticipated scope of works to renew water mains to maintain the risk of service interruptions at an appropriate level.

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. Icon Water attributes this additional

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[48] As of June 2022, Icon Water have replaced 36,889 water meters and 7km of water mains to address structural failures during the 2018-23 regulatory period. Icon Water also renewed water cleaning equipment at Googong water treatment plant and replaced roofs at Mugga Reservoir and O'Connor Reservoir.

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

expenditure primarily to water main renewals and increasing the system's hydraulic capacity. Icon Water has identified this work as necessary for ACT Fire and Rescue's ongoing fire management.

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.

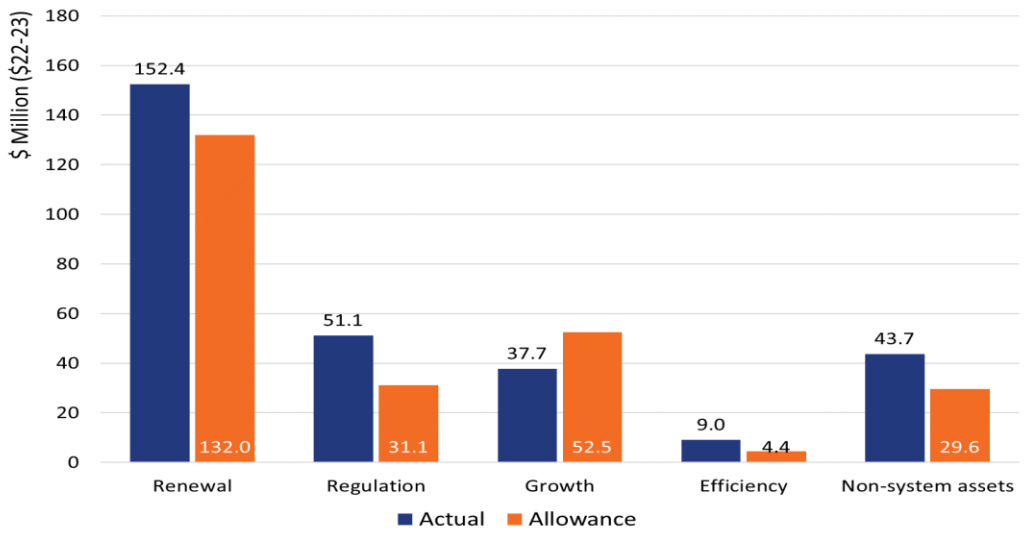
Sewerage system capital expenditure

Icon Water' proposal estimated capital expenditure on sewerage totals $250.3 million ($2022-23) for the current regulatory period. 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 spent at a future date.[50]

Most of the increased expenditure occurred in years 4 and 5 of the 2018-23 regulatory period.[51]

Figure 4.7 compares the allocations between expected actual expenditure on sewerage and the determination allowance for 2018-23 by funding drivers.

Figure 4.7 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 2021-22 and 2022-23.

[50] 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.

[51] We noted that at the time of release of draft report, we only had forecasts for these years, and we would need to conduct further assessment once the final expenditure figures become available.

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 the 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.
- 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 project 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 regulatory period, Icon Water estimated 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
- installation of 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 grown-driven projects and 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 the current 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.

Efficiency

Efficiency capital expenditure projects work to reduce costs or improve the performance of an existing infrastructure asset. For the current regulatory period, Icon Water estimates it spent $9.0 million ($2022-23) on efficiency-driven projects for sewerage, $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.

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 4.8.

4.3.2 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.

The same criteria of prudency and efficiency were used to assess Icon Water's actual capital expenditure for 2018-23 period as were used for assessment of expenditure in the forward period.

Table 4.8 summarises the outcomes of MJA's assessment.

Table 4.8 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 proposed 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 4.9 summarises the results of the MJA's review.

Table 4.9 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).
Notes: 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.

4.3.3 Our draft decision on actual capital expenditure

We considered Icon Water's proposal and the outcomes of MJA's independent review. Our draft decision accepted MJA's recommendation to reduce the capital expenditure to be added to the RAB by $7.1 million (nominal). Table 4.10 shows our draft decision on prudent and efficient capital expenditure for the period 2018-23.

Table 4.10 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.
Notes: 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.

4.3.4 Submissions received on the draft report

Additional information provided by Icon Water

In September 2022, Icon Water submitted a confidential memorandum which set out some amendments to its original capital expenditure proposal. We were not able to fully consider the proposed amendments in time for the release of our draft report. Our draft report notes that we will consider this memorandum as a submission to the draft report and will assess the amendments in preparing our final report.

Specifically, Icon Water requested amendments to:

- remove a duplicate transaction, which caused historical 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.

We note that MJA became aware of a duplicate transaction during the expenditure review process, and we addressed it in our draft decision.

Icon Water's revised proposal

Icon Water submitted its revised proposal in December 2022 with a subsequent request to correct errors and omissions in February 2023 and March 2023. Table 4.11 shows Icon Water's revised actual capital expenditure for the current period of $454.4 million ($nominal) from its March 2023 update.

Table 4.11 Icon Water's revised capital expenditure, 2018-23 regulatory period ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Water	35.7	53.8	39.3	16.0	28.0	172.8
Sewerage	65.2	61.9	49.4	51.9	53.2	281.6
Total capital expenditure	**100.9**	**115.6**	**88.7**	**67.9**	**81.3**	**454.4**

Source: Icon Water revised capital expenditure data for 2018-23.
Note: Totals may not sum due to rounding.

The difference between the original proposal and revised proposal as per March 2023 update is because Icon Water updated its actual capital expenditure for the 2018-23 period to:

- include capitalised lease costs which were omitted from its original proposal and of which Icon Water notified us in a confidential memorandum from September 2022
- remove double counting of minor assets which was identified as part of the expenditure review process
- provide an updated capital expenditure forecast for the 2022–23 financial year
- provide actual capital expenditure for 2021-22 year to replace the year-to-date estimate
- include further deferrals/delay of expenditure into the 2023-28 regulatory period.

The revised capital expenditure for 2018-23 period is $3.4 million above our draft decision allowance of $451 million ($nominal).

Project Axle

Our draft decision included an adjustment of $6.63 million ($2021-22) to the cost of Project Axle due to inefficiencies that occurred in the delivery and management of the project.

Icon Water did not accept our draft decision on Project Axle. In its revised proposal, Icon Water argued that:

- Project Axle was efficient and supported Icon Water's core business.

- The total overspend was not as high as indicated by MJA.
- Evidence provided to demonstrate efficiency was mischaracterised by MJA.
- Management decisions were effective and supported successful completion of the revised project's scope.
- Further information was provided to support the efficiency of the project.

Icon Water attributed the overspend to delayed contract negotiations and a skilled-labour shortage. It argued these issues were not entirely within its control. Therefore, Icon Water said we should not deem the project expenditure as inefficient. Rather, Icon Water argued that it mitigated project overspend through effective management actions. In particular, Icon Water characterised its replacement of the project team and its project reset as examples of effective actions.

4.3.5 Our final decision on capital expenditure for 2018-23

We have considered Icon Water's revised proposal and the further independent review by MJA. As discussed in section 4.3, Icon Water expects to overspend its capital expenditure allowance by 7.5%.

Our incentive-based framework recognises that Icon Water should have the flexibility to prioritise its capital expenditure program given their circumstances. As such, Icon Water may spend more or less than our regulatory allowance. However, the reprioritised expenditure must meet the prudency and efficiency criteria before being added to the RAB.

We have decided to confirm our draft decision on project Axle

We do not consider that the additional information provided as part of Icon Water's revised proposal has provided new arguments to change our position in the draft decision.

We agreed with our consultant's assessment. While Icon Water provided various reports and data on the successful delivery of IT projects, it did not provide further justification for two key criteria in assessing the efficiency of the project expenditure:

- Icon Water, not customers, is better placed to bear the risk of overspend when that overspend if due to design and management of the project.
- Failing to reduce the recoverable cost of project scope not delivered and/or pushed into new project Hypercare means customers pay for that scope twice when it is recovered from both project Axle and project Hypercare.

In assessing the overspend of $7.3 million ($2021-22), MJA compared the actual expenditure of project Axle to the 2018 determination allowance, not to Icon Water's internal budgets or Board approved figures. Further project Axle did not deliver the required scope in entirety and a new project was established to deliver the remaining scope.

Therefore, our final decision is in line with the draft decision that some elements of the expenditure are not efficient and $6.63 million ($2021-22) is excluded from the expenditure added to the RAB.

We accepted Icon Water's updates to actual capital expenditure

Our consultant investigated all the inconsistencies it found in Icon Water's revised proposal through discussion or follow-up requests for further information to clarify or correct where required. This is standard practice to complete our assessment and modelling ahead of making our final decision.

As mentioned in the previous section, Icon Water identified a few errors in its original proposal for actual capital expenditure. In February 2023, Icon Water provided a corrected capital expenditure of $478.45 million ($nominal) or $527 million ($2022-23) for 2018-23 period to address these errors.

MJA found that there is an overall $26.4 million ($2022-23) net reduction between Icon Water's corrected and final revised proposal. Of the total $26.4 million variance, Icon Water provided explanations for $5 million ($2022-23), including:

- project scope/cost increase - an increase of $11.53 million ($2022-23)
- project bundled/scope decrease/cost decrease - a reduction of $4.7 million ($2022-23)
- delay or deferral of expenditure into the 2023-28 period - a net reduction of $9.8 million (an overall of an increase of $1.5 million and reduction of $11.3 million, $2022-3), and
- accounting treatment change or others - a reduction of $2.1 million (2022-23).

We accepted Icon Water's updates to actual capital expenditure given Icon Water's final revised actual capital expenditure is lower than its corrected original proposal.

Our final decision capital expenditure for 2018-23 period

Our final decision is to reduce the capital expenditure that will be added to the RAB by $6.2 million ($nominal). Table 4.12 shows our final decision on prudent and efficient capital expenditure for 2018-23 regulatory period.

Table 4.12 Final decision on actual capital decision for 2023-28 regulatory period ($m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Water	33.0	53.8	39.3	16.0	28.0	170.0
Sewerage	61.8	61.9	49.4	51.9	53.2	278.2
Total capital expenditure	**94.7**	**115.6**	**88.7**	**67.9**	**81.3**	**448.3**

Source: our calculations.
Note: Total may not sum due to rounding.

5. Regulatory asset base and depreciation allowance

The value of the 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 final decision and the matters we considered in reaching this final decision on the opening and closing value and depreciation provisions for the water and sewerage RABs.

Our final decision

This final 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 value of depreciation, based on forecast capital expenditure for establishing the RAB as at the commencement of the 2028-32 regulatory period.

Table 5.1 provides an overview of our final decision on values of the RAB for Icon Water for the 2023-28 regulatory period, compared to Icon Water's revised proposal.

For this final decision we have determined the opening water RAB as at 1 July 2023 of $1,745.0 million (nominal) and the opening sewerage RAB as at 1 July 2023 of $1,112.9 million (nominal). Our opening RABs for water and sewerage are higher than Icon Water's revised proposal, as Icon Water adopted an inflation rate of 3.35% for 2022-23 while we used an inflation rate of 6.59%.

We then roll forward that RAB for each year of the 2023-28 regulatory period by adding forecast capital expenditure and inflation, before reducing the RAB by forecast depreciation. This provides a forecast closing value for the RAB as at the end of the 2023–28 regulatory period.

For this final decision, we determine a forecast closing water RAB value at 30 June 2028 of $2,005.7 million (nominal) and a forecast closing sewerage RAB value at 30 June 2028 of $1,583.6 million (nominal). Our final decision is $23.5 million (nominal) or 1.2% lower for water than Icon Water's revised proposal. For sewerage it is $29.5 million (nominal) or 1.8% lower than Icon Water's revised proposal.

Our final decision on the forecast closing RAB reflects the difference in the opening RAB as at 1 July 2023, and our final decisions on the expected inflation rate (chapter 6), forecast depreciation and forecast capital expenditure (chapter 4).

The combined RAB for water and sewerage is forecast to increase by 26% in nominal terms over the 2023-28 regulatory period, driven largely by growth in the sewerage RAB which is forecast to grow by 42% over the regulatory period.[52] The opening RABs for water and sewerage are shown in **Source**: Icon Water and our calculations.

[52] Calculated as the growth between the opening RAB as at 1 July 2023 and the closing RAB as at 30 June 2028.

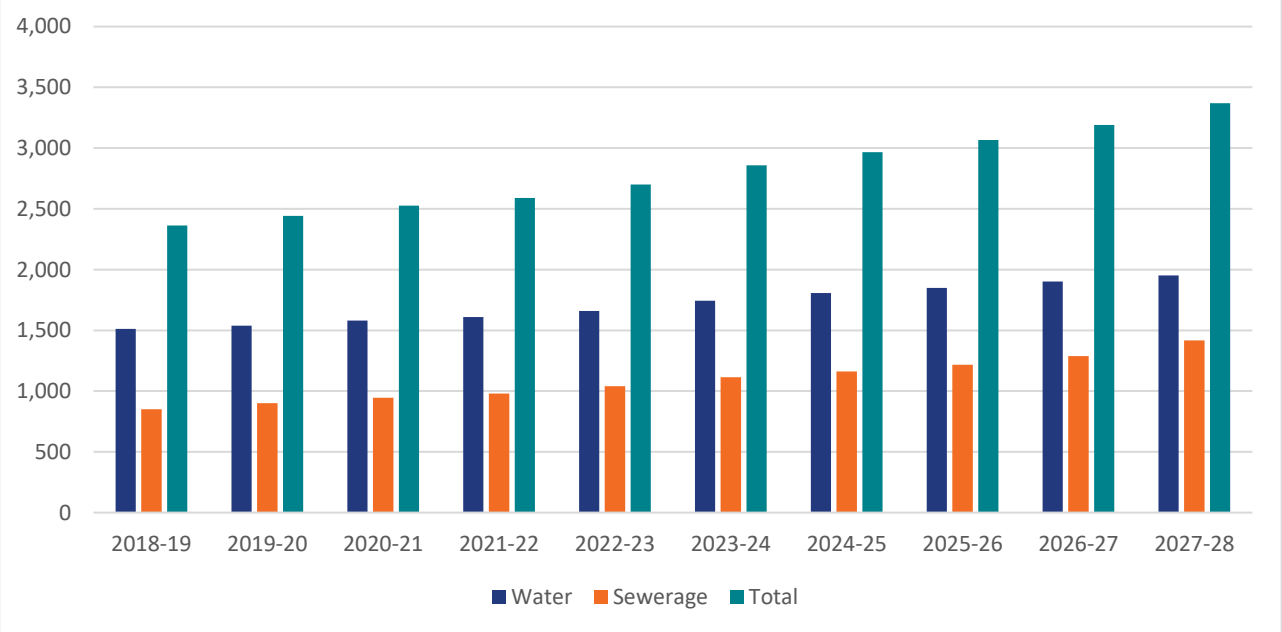
Figure 5.1.

Table 5.1 RAB values: Icon Water's proposals and our decisions, 2023-28 ($m, nominal)

	Icon Water's Initial proposal	Our draft decision	Icon water's revised proposal	Our final decision	Difference with Icon Water's revised proposal
Water					
Opening water RAB at 1 July 2023	1,675.6	1,689.4	1,715.6	1,745.0	29.5
Forecast closing water RAB at 30 June 2028	1,911.1	1,955.9	2,029.2	2,005.7	-23.5
Sewerage					
Opening sewerage RAB at 1 July 2023	1,081.4	1,075.7	1,078.7	1,112.9	34.3
Forecast closing sewerage RAB at 30 June 2028	1,490.1	1,511.8	1,613.1	1,583.6	-29.5

Source: Icon Water and our calculations.

Figure 5.1 Final decision water and sewerage opening RABs, $million nominal



Source: Icon Water and our calculations.

5.1 Icon Water's initial proposal and our draft decision

The calculation of the RAB is a mechanical process and while the input values differ, the same methodology is used in our draft and final decisions. Icon Water also adopts the same methodology in its proposals.

Consequently, we have not detailed Icon Water's initial proposal or our draft decision in this chapter. The opening values of the RAB are summarised in Table 5.2 below for both Icon Water's initial proposal and our draft decision.

Table 5.2 Icon Water Initial proposal and commission draft decision opening RABs ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Icon Water Initial proposal water	1,675.6	1,755.2	1,810.8	1,857.1	1,884.6
Icon Water Initial proposal sewerage	1,081.4	1,147.4	1,195.8	1,274.7	1,380.2
Commission draft decision water	1,689.4	1,755.4	1,802.4	1,850.0	1,902.8
Commission draft decision sewerage	1,075.7	1,125.1	1,168.7	1,238.5	1,360.8

Source: Icon Water and our calculations.

5.2 Icon Water's revised proposal

Icon Water submitted its revised proposal to the commission in December 2022. Icon Water's RAB roll-forward is presented in Table 5.3. The RAB roll-forward provides the closing RAB for 2022-23 and the opening RAB for the new regulatory period 2023-28. Based on Icon Water's RAB roll-forward, the opening value of the RAB for the 2023-28 regulatory period is $1,715.6 million (nominal) for water and $1,078.7 million (nominal) for sewerage.

Icon Water's RAB for the 2023-28 regulatory period is presented in Table 5.4. By the end of the 2023-28 regulatory period, Icon Water is forecasting a RAB of $2,029.2 million (nominal) for water and $1,613.1 million (nominal) for sewerage.

Table 5.3 Icon water's revised proposal 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	1,548.9	1,592.6	1,623.7	1,681.4
Net capital expenditure	42.5	55.9	40.9	24.1	27.8
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	30.4	33.3	35.9	39.2	40.2
Indexation	25.3	21.1	26.2	72.7	56.8
Adjustment for 2017-18					-10.3
Closing water RAB	**1,548.9**	**1,592.6**	**1,623.7**	**1,681.4**	**1,715.6**
Sewerage					
Opening sewerage RAB	850.9	903.3	946.0	979.0	1,044.5
Net capital expenditure	63.6	59.7	49.1	55.7	48.8
Asset disposals	0.0	0.2	0.0	0.1	0.1
Forecast depreciation	25.7	29.3	31.8	34.8	37.2
Indexation	14.5	12.5	15.7	44.8	35.8
Adjustment for 2017-18					-13.3
Closing sewerage RAB	**903.3**	**946.0**	**979.0**	**1,044.5**	**1,078.7**

Source: Icon Water (2022)
Note: Totals may not sum due to rounding

Table 5.4 Icon Water's revised proposal water and sewerage RABs, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Opening water RAB	1,715.6	1,788.9	1,842.8	1,903.7	1,969.7
Net capital expenditure	53.5	35.4	43.5	50.2	45.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	38.5	42.0	45.1	48.7	52.6
Indexation	58.3	60.5	62.4	64.6	66.7
Closing water RAB	**1,788.9**	**1,842.8**	**1,903.7**	**1,969.7**	**2,029.2**
Sewerage					
Opening sewerage RAB	1,078.7	1,140.2	1,209.7	1,292.0	1,434.9
Net capital expenditure	61.0	70.2	84.1	145.3	181.5
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	36.6	40.0	43.6	48.1	54.3
Indexation	37.1	39.4	41.9	45.7	51.1
Closing sewerage RAB	**1,140.2**	**1,209.7**	**1,292.0**	**1,434.9**	**1,613.1**

Source: Icon Water (2022)
Note: Totals may not sum due to rounding

5.3 Our final decision

5.3.1 RAB roll-forward 2018-23

To determine the starting RAB for the new regulatory period, 2023-28, we must first roll-forward the RAB for the current regulatory period, 2018-23, using actual values for capital expenditure, inflation, and disposals. We continue to use forecast depreciation to roll-forward the RAB so long as Icon Water does not significantly overspend its capital expenditure allowance.

The roll-forward calculation can be described as:

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

Adjustment for 2017-18

The opening RAB value for 2018–19 corresponds to the closing RAB value for 2017–18. At the time of the last price investigation, actual values for 2017-18 were not known, therefore, the value for 2017-18 must be adjusted to account for the differences between actual and forecast values. These adjustments are shown in Table 5.5.

Table 5.5 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	-2.8	-3.6
Total adjustment	**-10.6**	**-13.7**

Source: our calculations.
Note: Totals may not sum due to rounding.

Capital expenditure 2018-23

As detailed in chapter 5, Icon Water's proposal on capital expenditure has been independently reviewed to assess it for prudency and efficiency. Our final decision resulted in an adjustment to Icon Water's capital expenditure to be rolled forward in the RAB. The prudent and efficient capital expenditure, net of capital contributions, added to the RAB in each year is set out in Table 5.6.

Table 5.6 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	33.0	53.8	39.3	16.0	28.0
Sewerage	61.8	61.9	49.4	51.9	53.2
Total net capital expenditure	**94.7**	**115.6**	**88.7**	**67.9**	**81.3**

Source: our calculations
Note: Totals may not sum due to rounding

Asset disposals

Icon Water provided details of its asset disposals for the period 2018–23. Disposed assets removed from the RAB are shown in Table 5.7.

Table 5.7 Actual asset disposals for water and sewerage, 2018-19 to 2022-23 ($m nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23
Water	0.0	0.0	0.0	0.0	0.0
Sewerage	0.0	0.2	0.0	0.1	0.1
Total disposals	**0.0**	**0.2**	**0.0**	**0.1**	**0.1**

Source: Icon Water and our calculations
Note: Totals may not sum due to rounding

Forecast depreciation

Depreciation is adjusted to account for differences between actual and forecast inflation during the regulatory period. Table 5.8 shows forecast depreciation including an adjustment for the difference between actual and forecast inflation.

Table 5.8 Inflation adjusted forecast depreciation, 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	41.4
Sewerage	25.7	29.3	31.8	34.8	38.3
Total depreciation	**56.1**	**62.6**	**67.7**	**74.0**	**79.7**

Source: our calculations
Note: Totals may not sum due to rounding

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, it was not possible to use the four quarters to June 2023 given the timing of the final decision. Therefore, 2022-23 CPI was calculated using the sum of the four quarters to December 2022 divided by the sum of the four quarters for the previous period to December 2021.

The indexation amount for each year is calculated as:

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

The indexation amounts for 2018-23 regulatory period are shown in Table 5.9.

Table 5.9 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	110.3
Sewerage	14.5	12.5	15.7	44.7	70.4
Total indexation	**39.7**	**33.4**	**41.7**	**116.6**	**180.7**

Source: our calculations
Note: Totals may not sum due to rounding

RAB roll-forward 2018-23

Using the methodology and inputs described above, the final decision on RABs for the regulatory period 2018-19 to 2022–23 is shown for water and sewerage in Table 5.10.

Table 5.10 Final 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	1,539.2	1,580.6	1,609.9	1,658.7
Net capital expenditure	33.0	53.8	39.3	16.0	28.0
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	30.4	33.3	35.9	39.2	41.4
Indexation	25.2	20.9	25.9	71.9	110.3
Adjustment for 2017-18					-10.6
Closing water RAB	**1,539.2**	**1,580.6**	**1,609.9**	**1,658.7**	**1,745.0**
Sewerage					
Opening sewerage RAB	850.9	901.5	946.3	979.7	1,041.4
Net capital expenditure	61.8	61.9	49.4	51.9	53.2
Asset disposals	0.0	0.2	0.0	0.1	0.1
Forecast depreciation	25.7	29.3	31.8	34.8	38.3
Indexation	14.5	12.5	15.7	44.7	70.4
Adjustment for 2017-18					-13.7
Closing sewerage RAB	**901.5**	**946.3**	**979.7**	**1,041.4**	**1,112.9**

Source: our calculations
Note: Totals may not sum due to rounding

5.3.2 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 set out in Table 5.10 above. Forecast capital expenditure, net of capital contributions (see chapter 4), is added and any forecast asset disposals and forecast depreciation are deducted. Given that the RAB is indexed each year by forecast inflation and a nominal rate of return is used to calculate the return on capital, an indexation adjustment is made to avoid double-counting 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:

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

Forecast capital expenditure

In making our final decision on the value of the water and sewerage RABs, we took account of independent expert advice on the prudency and efficiency of the Icon Water proposed forecast capital expenditure (see chapter 4). On this basis, our final decision on forecast efficient net capital expenditure is set out in Table 5.11.

Table 5.11 Our final decision on forecast efficient net capital expenditure, 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	48.2	31.8	41.4	42.1	46.9
Sewerage	52.2	62.5	77.6	137.5	176.5
Total net capital expenditure	**100.4**	**94.3**	**119.0**	**179.6**	**223.4**

Source: our calculations
Note: Totals may not sum due to rounding

Asset lives and forecast 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 recovered 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 initial proposal, Icon Water notes that it has used the same approach. However, Icon Water's June 2022 revenue model used asset-specific lives for existing water and sewerage assets rather than the weighted average remaining life. Icon Water addressed this issue in its revised proposal.

Because the 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 final 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: our calculations (2022)

The resulting depreciation forecasts for the water and sewerage assets for the period 2023–28 are presented in Table 5.13. We intend to use forecast depreciation to roll-forward the 2023-28 RAB for the commencement of the 2028-32 regulatory period.

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

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	38.5	41.5	44.3	47.6	51.1
Sewerage	37.7	40.7	43.8	48.0	53.6
Total depreciation	**76.3**	**82.2**	**88.1**	**95.5**	**104.7**

Source: our calculations
Note: Totals may not sum due to rounding

Forecast asset disposals

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

Forecast indexation

Our final decision on the provision to be made for indexation in the forward regulatory period is set out in Table 5.14.

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

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	51.6	53.2	54.6	56.1	57.7
Sewerage	33.3	34.8	36.7	39.6	43.9
Total indexation	**84.9**	**88.0**	**91.3**	**95.7**	**101.6**

Source: our calculations
Note: Totals may not sum due to rounding

RAB roll-forward 2023-28

Based on the methodology and inputs discussed above, our final decision on the RAB roll-forward for the 2023–28 regulatory period for water and sewerage assets is shown in Table 5.15.

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

	2023-24	2024-25	2025-26	2026-27	2027-28
Water					
Opening water RAB	1,745.0	1,806.4	1,849.8	1,901.5	1,952.2
Net capital expenditure	48.2	31.8	41.4	42.1	46.9
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	38.5	41.5	44.3	47.6	51.1
Indexation	51.6	53.2	54.6	56.1	57.7
Closing water RAB	**1,806.4**	**1,849.8**	**1,901.5**	**1,952.2**	**2,005.7**
Sewerage					
Opening sewerage RAB	1,112.9	1,160.6	1,217.2	1,287.7	1,416.8
Net capital expenditure	52.2	62.5	77.6	137.5	176.5
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	37.7	40.7	43.8	48.0	53.6
Indexation	33.3	34.8	36.7	39.6	43.9
Closing sewerage RAB	**1,160.6**	**1,217.2**	**1,287.7**	**1,416.8**	**1,583.6**

Source: our calculations
Note: Totals may not sum due to rounding

6. Rate of return

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 RAB by the rate of return set by the commission. As Icon Water holds large high-value capital assets in its RAB (such as dams and pipelines), the return on capital accounts for around 25 per cent of Icon Water's total revenue.

In our 2018 Price Direction, we identified a review of methodologies for the WACC as a reset principle. In 2021, we concluded and published this review on our website[53]. 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 final decision, we applied our WACC methodology.

Our final decision

Our final decision results in a rate of return of 5.89% (nominal) for 2023-24 and a forecast inflation rate of 2.92%.

Our draft decision on the rate of return was based on indicative interest rates. As required, we made this final decision based on the more recent market data. In this case, the risk-free rate and the cost of debt have increased since our draft decision, leading to a higher rate of return.

Our final decision is to set the MRP at 6.3%. This is a lower MRP than 6.5% we adopted in the draft decision. We have updated our analysis of recent regulatory decisions we relied upon for our draft decision to include the AER and ERA final decisions on the MRP. We adopted a conservative approach and set the MRP higher than the AER and ERA final estimates.

Table 6.1 sets out the rate of return that will apply in the first year of the 2023-28 regulatory period. 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.

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[53] 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 Final decision: rate of return and net tax liability parameter values

	Draft decision	Icon Water's revised proposal	Final decision	Comment
Risk-free rate	3.38%	3.82%	3.59%	
Debt raising cost	0.108%	0.108%	0.108%	
Equity beta	0.7	0.7	0.7	
Market risk premium	6.5%	6.5%	6.3%	
Gearing ratio	60%	60%	60%	
Return on equity	7.93%	8.37%	8.00%	Constant
Return on debt	4.46%	4.54%	4.48%	Updated annually
Nominal post-tax 'vanilla' WACC	5.85%	6.07%	5.89%	Updated annually for return on debt
Gamma	0.5	0.5	0.5	We adopted the 'utilisation' approach

Source: Our calculation and Icon Water's price proposal updated, Attachment 3 Other matters.
Notes: Risk-free rate is calculated using an averaging period of 40 business days ending 31 March 2023.
Return on debt is calculated using a confidential averaging period nominated by Icon Water.
Return on debt of 4.48% is sum of debt raising cost and trailing average return on debt of 4.37%.

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 on equity**: the return that Icon Water's shareholders require on their investments
- **return on 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 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 and sewerage bills paid by customers. A one percentage point increase in the rate of return for Icon Water would increase its revenues by around 8%.

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 WACC formula, measured on a nominal vanilla basis

- adopt a post-tax methodology, which requires separate estimates of tax expenses.[54]

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 final 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 6.4)
Return on debt	
Estimation approach	10-year trailing average, updated annually
Benchmark term	10 years
Benchmark credit rating	Benchmarking approach (see section 6.6.2)
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	
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

[54] ICRC 2021, p. 12

	Ords) • *E(Rm) – E(Rf)* is the expected MRP.
Market risk premium	Benchmarking approach (see section 6.5.2)
Equity beta	Benchmarking approach (see section 6.5.3)
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 Our draft decision rate of return

For our draft decision, we applied the 2021 WACC methodology. We calculated a placeholder rate of return using the most recent information available at the time. Table 6.3 presents our draft decision on rate of return.

Table 6.3 Our draft decision rate of return and net tax liability parameter values

Parameter	Draft Decision
Risk-free rate	3.38%
Debt raising cost	0.108%
Equity beta	0.7
Market risk premium	6.5%
Gearing ratio	60%
Return on equity	7.93%
Return on debt	4.46%
Nominal post-tax 'vanilla' WACC	5.85%
Gamma	0.5

Source: our calculation.
Notes: Risk-free rate is calculated using an averaging period of 40 business days ending 31 August 2022.
Return on debt is calculated using a confidential averaging period nominated by Icon Water.
Return on debt of 4.46% is sum of debt raising cost and trailing average return on debt of 4.35%.

6.3 Stakeholder submissions to our draft report

Other than Icon Water's comments contained within its revised proposal, we did not receive public submissions about the rate of return and expected inflation in response to our draft report.

6.3.1 Icon Water's revised proposal

Icon Water accepted our draft decision on the rate of return.[55] Icon Water acknowledged that for the final decision we will update the rate of return using:

- the risk-free rate averaging period of 40 days as close as practical to the start of the regulatory period
- the cost of debt averaging period nominated by Icon Water
- the most recent benchmarks for other elements of the rate of return, and
- the Reserve Bank of Australia's (RBA) Statement of Monetary Policy from February 2023 to estimate the expected rate of inflation.

Icon Water's revised proposal uses a placeholder rate of return of 6.07% and a placeholder inflation rate of 3.35%. For comparison, we used a placeholder rate of return of 5.85% and a placeholder inflation rate of 3.0% in our draft decision. Icon Waters' revised proposal uses higher values because base interest rates and estimates of inflation increased between our draft decision and Icon Water's revised proposal.

Icon Water supported our benchmarking approach used to estimate the MRP and accepted our draft decision MRP value of 6.5%. However, it raised concerns on the inclusion of AER's final decision as an input to our approach in making our final decision. We discuss this matter in section 6.5.2.

Icon Water disagreed with our draft decision to use the utilisation method to set gamma. However, Icon Water accepted our draft decision to adopt a gamma of 0.5 for the next regulatory period as it will result in lower prices for customers in the short term.

6.4 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.

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[55] Attachment 3 of Icon Water's Price Proposal Updates is available at https://www.icrc.act.gov.au/__data/assets/pdf_file/0003/2138646/ICON-Water-Submission-for-draft-report-WSSP-2023-28-for-website.pdf.

6.4.1 Our draft decision on gearing

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. Our benchmarking exercise supported a gearing ratio of 60%, which we adopted in our draft decision.

6.4.2 Our final decision is to retain the gearing ratio of 60%

We have updated the analysis of recent regulatory decisions we relied on for our draft decision to include the AER and ERA final decisions. The AER and ERA have confirmed their draft decision reasoning and the gearing levels. Hence, no new information became available since our draft decision that is relevant to our benchmarking exercise.

Table 6.4 shows that Australian regulators have consistently used a gearing assumption of 60% for water and energy network services. The only exception is the ERA which uses the gearing ratio of 55%. Based on this information, we adopt a gearing ratio of 60% for this final decision.

Table 6.4 Benchmark gearing in Australian regulatory decisions

Regulator	Decision date	Industry	Gearing (debt %)
ESC (VIC)	August 2022	Water	60
AER	February 2023	Gas and electricity	60
ERA (WA)	December 2022	Gas	55
QCA (QLD)	March 2022	Water	60
OTTER (TAS)	February 2022	Water	60
IPART (NSW)	November 2022	Water	60
ESCOSA (SA)	June 2020	Water	60

Source: ESC 2022, p. 37; AER 2023, p. 10; ERA 2022, p. 6 ; QCA 2022, p. 62; OTTER 2022, p. 77; IPART 2022, p. 148; ESCOSA 2020, p. 209.

6.5 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 final decisions on the values of these parameters in this section.

6.5.1 Risk-free rate

The risk-free rate measures the return that an investor would expect from a 'zero-risk' investment. Our current approach to determining the risk-free rate is based on the 10-year term to maturity for Commonwealth Government Securities (available from the Reserve Bank of Australia website), and a 40-day averaging period close to the beginning of the regulatory period. In practice, this means we use the latest full month's data for the risk-free rate that is available at the time we prepare the modelling for our final decision.

For this final decision, we calculated the risk-free rate of 3.59% using the 40-day averaging period ending 31 March 2023. The final decision is lower than the 3.82% placeholder in Icon Water's revised proposal but higher than the 3.38% used in our draft decision.

6.5.2 Market risk premium

The 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 MRP 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 MRP 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 (HER), and
- use of caution when considering estimates that are heavily based on DGMs.

At the time of making our final decision on the WACC methodology, we considered the QCA approach56 as the most appropriate. The QCA original approach used forward-looking estimates together with estimates from 4 other historical and hybrid approaches. This approach contributed to our desirable criteria described above to the greatest extent. The QCA has since revised its approach. In its 2021 rate of return review the QCA decided to solely rely on historical estimates for determining the market risk premium.

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

Our draft decision on MRP

In our draft decision we applied a benchmarking approach for determining the MRP. We assessed a range of estimates from other Australian regulators including those who used both historical data and forward-looking estimates derived from DGMs.

ERA and IPART are the only two regulators that use forward-looking estimates in their decision-making. 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.

For our draft decision, we considered the MRP estimates from recent regulatory decisions by QCA, AER, and ERA as relevant to our benchmarking task. We arrived at the view that the MRP of 6.5% was supported by benchmarking of these regulatory decisions in a manner that contributes to the achievement of our

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[56] The original QCA approach used forward-looking estimates together with estimates from 4 other historical and hybrid approaches. It also considered the mean, median and weighted mean of the collected values. 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.

desirable criteria to the greatest extent. We also noted that we will update our analysis to include the outcomes of the AER and ERA final decisions on the MRP, which were pending at the time of our draft decision.

In our draft report we also discussed regulatory decisions from OTTER (2022) and ESCOSA (2017). However, these decisions were based on the old data and are superseded by recent decisions by other regulators that calculate historical MRPs.

Changes since our draft decision

The ERA and AER released their final decisions on the MRP in December 2022 and February 2023, respectively. Both regulators determined a lower MRP when compared to their draft estimates we benchmarked in our draft report. We discuss these decisions below.

AER's final decision on 2022 Rate of Return Instrument

For its final decision, the AER calculated historical MRP using 5 sampling periods. These sampling periods have been extended from December 2021 to December 2022 to reflect the current market data. Arithmetic averages for different sample periods gave the AER a range of 6.1% to 6.6%.

The AER determined a point estimate of 6.2% within the established range. 6.2% is an arithmetic average of HER for the period 1988 to 2022.[57] The AER considered that this sampling period is most likely to provide an estimate that is more representative of current investors' expectations and macroeconomic conditions. The AER's value of 6.2% is estimated in manner that is consistent with 6.1% it used in its 2018 instrument.

The AER prefers to use HER as a primary method to set the MRP for the duration of its instrument. However, it also estimated the MRP from 2-stage and 3-stage DGMs. The results from these models are currently below the historical range.

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. As such, it gave little weight to the DGM estimates in its final decision.

ERA's final decision on 2022 Rate of Return Instrument

In its 2022 final gas rate of return instrument, the ERA determined an MRP of 6.1%. This is a departure from its draft decision estimate of 6.2%. The ERA had regard to the following sources of evidence:

- The ERA estimated an MRP of 6.0% using the HER method. The ERA derived its estimates from 4 overlapping sampling periods.58 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 updated the MRP from its preferred version of the dividend growth model (2-Stage DGM), which resulted in the DGM estimate of 6.6% (compared to 6.9% in the draft decision).
- The ERA considered that conditioning variables59 are currently at their historic averages and support a MRP at the midpoint of the range from historical estimates.

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[57] The AER calculated it using an assumed imputation utilisation value (or theta value) of 0.65.
[58] The ERA calculated the MRP using an assumed imputation utilisation value (or theta value) of 0.6.
[59] 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.

The ERA applied its regulatory discretion to select the MRP point estimate of 6.1% for the 2022 final 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.

Icon Water's submission on the AER 2022 instrument process

The AER delayed the release of its rate of return instrument from December 2022 to February 2023 to enable the data up to December 2022 to be included in calculation of the historical MRP. In doing so, the AER was mindful of the advice it received from the Commonwealth Treasury (the Treasury) on the extent that the Reserve Bank's interventions have had an impact on the observed HER. Specifically, the Treasury advised that monetary policy response to the COVID-19 pandemic is likely to have increased HER in 2020 and 2021. The AER decided to extend the sample period to include the historical excess return data up to December 2022 to reduce any bias in the MRP estimates, to the extent that such a bias exists.

In its revised proposal, Icon Water cautioned against including the AER's final decision as an input to our benchmarking approach:

> *We are concerned that the AER's review may introduce data unavailable to other regulatory bodies and, given the limited time between its expected release and the Commission's final decision, it will not give stakeholders sufficient time to consider its implications if it is included in the benchmark approach. Icon Water considers the existing draft decision released by the AER in June 2022 is the most appropriate input to the benchmark approach for estimating MRP.*
>
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Based on our review of the AER's final decision, we consider that the AER uses all available recent data, while maintaining the same calculation method as in the draft decision. In the absence of a methodology change, we do not consider it would be appropriate to base our decision on older data.

Our final decision is to set the MRP at 6.3%

We have updated the analysis of recent regulatory decisions we relied on for our draft decision to include the AER and ERA final decisions on the MRP. Consistent with our draft decision, we consider the MRP estimates from the QCA, AER, and ERA relevant to our benchmarking task (Table 6.5).

Table 6.5 Recent regulatory decisions on the MRP

Regulator	Decision date	MRP estimate	Method
AER	February 2023	6.2	HER method
ERA (WA)	December 2022	6.1	HER (6%) and DGM (6.6%)
QCA (QLD)	March 2022	6.5	HER method

Source: AER 2023, p. 130; ERA 2022, p. 123; QCA 2022, p. 64.

Based on the recent regulatory decisions shown in Table 6.5**Error! Reference source not found.**, 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.

As discussed in the previous section, the AER and ERA have revised their MRP estimates between the draft and final decisions:

- the AER adopted one extra year of data to calculate the historical MRP, which led to a reduction in the MRP estimate from 6.5% to 6.2%
- the ERA updated its DGM estimate of the MRP, which led it to reduce its MRP estimate from 6.2% to 6.1%

We continue to have concerns about the proper implementation of the DGM due to issues in relation to input assumptions and variability of outputs. We have reviewed the DGM estimates from the ERA, IPART and the AER. We note that this evidence is not conclusive, some estimates point to a higher value whereas other estimates point to a lower value. 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 final decision is to use an MRP of 6.3% for the period from 1 July 2023 to 31 June 2028. This is slightly higher than the midpoint of the range for the historical estimates provided by other regulators. This is also slightly higher than the average of the AER, ERA and QCA estimates. Following the outcomes of our 2021 WACC review we consider that an MRP of 6.3% strikes the appropriate balance between the need to reflect both forward-looking and historical estimates and consistency with other regulatory decisions.

6.5.3 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 MRP 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 take into account low beta bias, the gearing parameter and benchmark credit rating to achieve internal consistency in our methodology.

Our draft decision on equity beta

To determine what equity beta to apply for the draft decision, we had regard to equity beta values that other regulators have applied to regulated water and energy businesses in recent regulatory decisions. We found that Australian water regulators have adopted equity beta values in the range of 0.65 to 0.766 in the reviews conducted since 2020. We also considered equity beta estimates by the AER and ERA for electricity and gas network businesses because energy networks are likely to face similar risk profiles to water businesses like Icon Water.

We noted that there are no listed monopoly water and sewerage businesses on the Australian Stock Exchange and water regulators use comparable international water and energy companies in their empirical analysis. Also, we were not aware of any water or energy regulator that adjusts the estimated equity betas to account for low beta bias.

The material we reviewed suggested that that equity beta of 0.7 remains appropriate.

Our final decision is to use an equity beta of 0.7

We have updated our analysis of recent regulatory decisions for the AER and ERA final decisions. The AER and ERA have confirmed their draft decision reasoning and the equity beta estimates. Hence, no new information became available since our draft decision that is relevant to our benchmarking exercise. Our final decision is to confirm our draft decision equity beta of 0.7.

Table 6.6 shows the recent regulatory decisions on equity beta.

Table 6.6 Recent regulatory decisions on equity beta

Regulator	Regulated business	Decision date	Equity beta	Estimation method
AER	Electricity and gas	February 2023	0.6	Empirical analysis using Australian comparator set of 9 energy firms
ERA (WA)	Gas	December 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 2023, p. 171; ERA 2022, p. 4 ; OTTER 2022, p. 77; QCA 2022, p. 62; IPART 2021, p. 221; ESCOSA 2020, p. 209.

6.6 Return on debt

We 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.[60] In each following year of the transition, we assume that one-tenth of the debt is refinanced at the prevailing market rate for that

[60] The on-the-day approach estimates return on debt over a short period (typically 20-40 days) closely preceding the start of the regulatory cycle to reflect current (i.e., on-the-day) rates.

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

6.6.1 Return on debt averaging period

We calculated our final decision return on debt using Icon Water's nominated averaging period

We allow Icon Water to nominate a return on debt averaging period of between 2 months and 12 months. We accepted Icon Water's proposed debt averaging periods because they comply with our WACC methodology.

Icon Water submitted its nominated averaging periods to us in its original regulatory proposal. We used these periods to update the return on debt in the final decision. We do not publish the debt averaging periods because they were provided to us on a confidential basis.

6.6.2 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 considering the borrower's ability to pay back the debt and the likelihood of default. Since a poor credit rating indicates a credit rating agency's opinion that the company has a high risk of default, a lower credit rating is generally associated with higher bond yields.[61]

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.

Our draft decision on the benchmark credit rating

In making our draft decision, we applied a benchmarking approach based upon consideration of other Australian regulators' decisions on the credit ratings. We adopted a benchmark credit rating of BBB for the purpose of setting the return on debt allowance.

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[61] Industry Panel 2014, p 169.

Our final decision is to retain BBB credit rating

We have updated our benchmarking analysis for the most recent data. 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	February 2023	Gas and electricity	BBB+
ERA (WA)	December 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 2023, p. 11; ERA 2022, p. 79; OTTER 2022, p. 77; QCA 2021, p. 38; ESCOSA 2020, p. 209; IPART 2018, p 46.

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

6.6.3 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 the 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.

We considered the approach to estimating debt raising costs proposed by Allen Consulting Group[62] (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).

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62 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.

Our draft decision on debt raising costs

In our draft decision, we considered other Australian regulators' decision on debt raising costs and decided to accept the estimate of 0.108% proposed by Icon Water.

Our final decision applies debt raising costs 0.108% per annum

Table 6.8 shows the updated analysis of other regulator's decision. It demonstrates 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)	December 2023	Gas	0.165[63]
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.

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 final decision is to apply the 0.108% estimate proposed by Icon Water. This is consistent with our draft decision.

6.7 Expected inflation

We estimate an expected inflation rate of 2.92%, based on the approach we determined in our 2021 WACC methodology review and the RBA's most recent inflation projection (Table 6.9).[64] Our approach uses a 5-year average[65] of:

- The RBA's forecast inflation rate for 1 and 2 years ahead
- Applying a linear glide-path from the RBA's forecasts of inflation for years 1 and 2 to the mid-point of the inflation target band (2.5%) in year 5.

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[63] 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.

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

[65] Specifically, a 5-year geometrically annualised average.

Icon Water supported our approach to estimating inflation and noted that the value of expected inflation will be updated for the final decision.

Table 6.9 Inflation forecast

	Year 1	Year 2	Year 3	Year 4	Year 5	Geometric average
Expected inflation	3.60	3.00	2.83	2.67	2.50	2.92

Source: our calculations.

Our final decision uses the RBA Statement of Monetary Policy from February 2023, which contains an inflation forecast for June 2024 and June 2025. Our approach uses these RBA forecasts for years 1 and 2 and moves to RBA's inflation target band of 2.5% in year 5 by using a linear glide-path in years 3 and 4.

Expected inflation will be updated to actual inflation as part of our annual reset process. If actual inflation outturns to be higher than expected inflation we determined in this decision, this will lead to higher customer prices over the course of the regulatory period. We expect upward pressure on water and sewerage services' prices if the environment of high inflation continues in the coming years.

6.8 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.

Box 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.

6.8.1 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.[66] 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.

6.8.2 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.

6.8.3 Our draft decision on gamma

We reviewed the material that Icon Water has provided to us in support of its market value approach to gamma. We also reviewed the most recent decisions on gamma used by other regulators to understand how regulatory practice has evolved since our 2018 decision.

We considered that the 'utilisation' approach for estimating gamma is well established and supported by current regulatory practice. Most regulators in Australia apply a 'utilisation' approach to estimating gamma. IPART is the only regulator that uses a market value approach.

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 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

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

appealed by DBNGP. In July 2018, the Tribunal dismissed the application for merits review.

Based on the preceding reasoning, we made two draft decisions.

First, we have made a draft decision to continue using the 'utilisation' approach for estimating the value of imputation credits. We noted that in selecting a gamma point estimate for the final decision, we will consider the final estimates made by the AER and ERA regulators, which were pending at the time of our draft decision.

Second, based on benchmarking 5 regulatory decisions excluding IPART, we considered a gamma value of 0.5 as appropriate. We used this value in calculating Icon Water's expected revenue and the prices in our draft report.

6.8.4 Icon Water's revised proposal

Icon Water disagreed with our draft decision to use the utilisation approach for setting gamma. However, Icon Water accepted the draft decision to adopt a gamma of 0.5 for the next regulatory period as it will result in lower prices for customers in the short term.

6.8.5 Our final decision is to adopt gamma of 0.5

We confirm our draft decision to continue using the 'utilisation' approach for estimating the value of imputation credits. Table 6.10 summarises our updated analysis of recent regulatory decisions on gamma. Most regulators in Australia apply a 'utilisation' approach to estimating gamma. IPART is the only regulator that uses a market value approach.

We note that the AER has revised its draft decision on gamma from 0.58 to 0.57. This is due to the updated approach to rounding – the AER decided not to round the intermediate numbers (utilisation rate and distribution rate) before rounding the gamma number. This does not change the outcomes of our benchmarking exercise and our final decision is to adopt a value for gamma of 0.5.

Table 6.10 Recent regulatory decisions on gamma

Regulator	Decision date	Industry	Gamma
ESC (VIC)	August 2022	Water	0.5
AER	February 2023	Gas and Electricity	0.57
ERA (WA)	December 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 2023, p. 12; ERA 2022, p. 219; QCA 2022, p. 65; ESCOSA 2020, p. 248; IPART 2018, p. 75.

6.9 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 MRP.

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

6.10 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 final 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	1,769.1	1,822.2	1,870.5	1,922.6	1,975.7
Return on capital including indexation	104.1	109.4	114.4	119.8	125.4
Inflation adjustment	51.6	53.2	54.6	56.1	57.7
Return on capital excluding indexation adjustment	52.5	56.2	59.8	63.7	67.8
Wastewater					
Value of RAB	1,139.0	1,191.9	1,256.0	1,356.4	1,505.0
Return on capital including indexation	67.0	71.5	76.8	84.6	95.6
Inflation adjustment	33.3	34.8	36.7	39.6	43.9
Return on capital excluding indexation adjustment	33.8	36.7	40.2	45.0	51.6

Source: our calculations.

6.11 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.

6.11.1 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.

6.11.2 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	1,040.8	1,057.3	1,056.7	1,031.8
Net capital expenditure	33.0	53.8	39.3	16.0	28.0
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	34.5	37.3	39.8	41.0	41.3
Closing water TAB	**1,040.8**	**1,057.3**	**1,056.7**	**1,031.8**	**1,018.5**
Wastewater					
Opening wastewater TAB	511.8	550.3	584.6	603.2	622.2
Net capital expenditure	61.8	61.9	49.4	51.9	53.2
Asset disposals	0.0	0.2	0.0	0.1	0.1
Depreciation	23.2	27.4	30.8	32.9	34.1
Closing wastewater TAB	**550.3**	**584.6**	**603.2**	**622.2**	**641.3**

Source: our calculations.

6.11.3 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	1,018.5	1,028.1	1,019.5	1,018.9	1,017.2
Net capital expenditure	48.2	31.8	41.4	42.1	46.9
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	38.6	40.4	42.0	43.9	46.0
Closing water TAB	**1,028.1**	**1,019.5**	**1,018.9**	**1,017.2**	**1,018.1**
Wastewater					
Opening wastewater TAB	641.3	665.0	697.2	742.5	844.9
Net capital expenditure	52.2	62.5	77.6	137.5	176.5
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	28.5	30.3	32.3	35.1	38.9
Closing wastewater TAB	**665.0**	**697.2**	**742.5**	**844.9**	**982.5**

Source: our calculations.

6.11.4 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
- interest expenses – calculated by multiplying the RAB by the share of debt and the cost 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	186.0	197.7	211.0	225.2	240.3
(+) other income	19.0	19.8	20.5	21.2	21.9
(-) tax depreciation	38.6	40.4	42.0	43.9	46.0
(-) interest	47.5	51.1	54.6	58.3	62.2
(-) operating and maintenance	111.5	123.9	130.1	134.2	136.1
(-) previous year losses	0.0	0.0	0.0	0.0	0.0
Taxable profit	**7.4**	**2.2**	**4.8**	**10.0**	**17.9**
Total tax expenses $(taxable\ profit \times tax\ rate)$	**2.2**	**0.6**	**1.4**	**3.0**	**5.4**

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	142.1	153.3	165.3	178.3	192.3
(+) other income	16.0	16.6	17.0	17.5	18.0
(-) tax depreciation	28.5	30.3	32.3	35.1	38.9
(-) interest	30.6	33.4	36.6	41.1	47.4
(-) operating and maintenance	87.0	92.0	97.3	100.1	100.2
(-) previous year losses	0.0	0.0	0.0	0.0	0.0
Taxable profit	**12.0**	**14.1**	**16.1**	**19.5**	**23.8**
Total tax expenses $(taxable\ profit \times tax\ rate)$	**3.6**	**4.2**	**4.8**	**5.8**	**7.1**

Source: our calculations.

6.11.5 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 final 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 Final decision: net tax expenses, water and wastewater 2023-28 ($m, nominal)

	2023-24	2024-25	2025-26	2026-27	2027-28
Water	1.1	0.3	0.7	1.5	2.7
Wastewater	1.8	2.1	2.4	2.9	3.6
Total	**2.9**	**2.4**	**3.1**	**4.4**	**6.3**

Source: our calculations.

7. Revenue allowance

Icon Water incurs costs in providing water and sewerage services that need to be matched by allowed revenue to ensure Icon Water remains financially viable. 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 final 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 final decision

We have made a final 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 revenue from bulk water sales to Queanbeyan–Palerang Regional Council (QPRC), subvention payments and asset disposals. The net revenue requirement is used to set the prices for regulated water and wastewater services.

Our final decision on Icon Water's total revenue requirement is $2,085.8 million (nominal) and our final decision on Icon Water's net revenue requirement is $1,890.2 million (nominal). In nominal terms, this is:

- $101.8 million or 5.1% below Icon Water's adjusted revised proposal net revenue requirement of $1,992.0 million
- $88.3 million or 4.9% higher than our draft decision net revenue requirement of $1,801.9 million
- $343.3 million or 22% higher than our final decision net revenue requirement of $1,546.9 million for the 2018-23 regulatory period

We note that Icon Water's adjusted revised proposal figures reported above and in Table 7.1 below have been updated for inflation, demand and the latest risk-free rate and cost of debt figures. These updates, which are not controversial, increase Icon Water's net revenue requirement forecast by $70.8 million in nominal terms. Table 7.1 provides a summary of our final decision revenue requirement for the 2023-28 regulatory period compared with Icon Water's revised proposal and our draft decision.

The key factors driving the difference between the total nominal revenue requirement in our final decision and Icon Water's revised proposal over the regulatory period are:

- a decrease Icon Water's proposed operating expenditure allowance of $64 million (excluding the true-up of pass-throughs) (see chapter 3)
- a reduction in Icon Water's proposed capital expenditure allowance, reducing the total revenue requirement by $18 million

- a lower rate of return of 5.89% (2023-24) compared to the revised Icon Water proposal of 5.93% (2023-24), which reflects updates to some rate of return parameters as well as our final decision on the MRP having a total impact of $37 million on the revenue requirement
- a negative true-up for pass-throughs of $9 million as a result of actuals being lower than forecast values
- an increase in the revenue requirement of $98 million due to an inflation rate of 6.59% for 2022-23 compared with 3.35% used in Icon Water's revised proposal and a forecast inflation rate of 2.92% for the 2023-28 regulatory period compared with 3.35% used in Icon Water's revised proposal

Icon Water deducted revenue from other sources to calculate the net revenue requirement. The revised adjusted Icon Water revenue from other sources is $195.8 million comprising $105.8 million for water services and $90.0 million for sewerage services over the regulatory period. Our final decision revenue from other sources is slightly lower at $195.5 million comprising $105.7 million for water services and $89.8 million for sewerage services.

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

	Our draft decision	Icon Water's revised proposal	Icon Water's adjusted revised proposal[a]	Our final decision	Difference between our final decision and Icon Water's revised proposal
Water					
Total revenue requirement	1,099.0	1,184.6	1,226.1	1,165.2	-60.9
Less adjustments for other sources	105.5	105.7	105.8	105.7	-0.1
Net revenue requirement	993.4	1,078.9	1,120.3	1,059.5	-60.7
Sewerage					
Total revenue requirement	898.4	932.3	961.7	920.5	-41.2
Less adjustments for other sources	89.9	90.0	90.0	89.8	-0.2
Net revenue requirement	808.4	842.2	871.7	830.6	-41.1
Combined					
Total revenue requirement	1,997.3	2,116.9	2,187.8	2,085.8	-102.1
Less adjustments for other sources	195.5	195.7	195.8	195.5	-0.4
Net revenue requirement	1,801.9	1,921.2	1,992.0	1,890.2	-101.8

Source: our calculations.
Note: [a] To enable a like-for-like comparison we updated Icon Water's revised proposal figures for inflation, demand, the risk free rate and the cost of debt. 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 3).
- **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 5).
- **Return on capital**: This is calculated by multiplying the allowed rate of return by the value of Icon Water's regulated asset base in each year of the regulatory period (see the discussion in chapter 6).
- **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 6).

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 bulk water sales to QPRC, subvention payments, revenue from asset disposals, notional Community Service Obligation (CSO) payments and other sources of revenue. The net revenue requirement is used to set the prices for regulated water and wastewater services.

7.2 Icon Water's initial proposal and our draft decision

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 June 2022 submission, Icon Water proposed a total revenue requirement of $1,998.6 million (nominal) for water and sewerage services over the 2023-28 regulatory period.

Our draft decision was to set a net revenue requirement of $993.4 million (nominal) for water services and $808.4 million (nominal) for sewerage services over the 2023-28 regulatory period. This was $88.4 million or 8.2% less for water services and $69.9 million or 8.0% less for sewerage services than Icon Water's proposal.

Our draft decision on the revenue requirement for regulated water and sewerage services is shown in Table 7.2.

Table 7.2 Our draft decision on 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.

7.3 Icon water's revised proposal

In response to our draft decision, Icon Water submitted a revised proposal in December 2022 with a net revenue requirement of $1078.9 million (nominal) for water services and $842.2 million (nominal) for sewerage services. The total net revenue requirement of $1921.2 million over five years would increase the bill of a typical residential customer[67] by 6.5% each year on average during 2023–28 regulatory period. However, Icon Water's revised proposal did not include updates for inflation, the risk-free rate, the cost of debt or demand. Including updates for these parameters increases Icon Water's net revenue requirement for water services to $1,120.3 million and for sewerage services to $871.7 million. In total, Icon Water's adjusted revised proposal would result in a net revenue requirement of $1,992.0 million and a combined bill impact of 7.9% annually for an average residential consumer using 200kL of water per year for each year of the 5 year regulatory period.

The details of Icon Water's revised revenue requirement for water and sewerage services are presented in Table 7.3 below.

[67] An average residential customer is assumed to consume 200 kilolitres (kL) of water per year.

Table 7.3 Icon Water's revised proposed 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	208.4	225.7	237.7	250.0	262.8	1,184.6
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	95.9
CSO payments	0.6	0.6	0.6	0.7	0.7	3.1
Total revenue adjustments	19.6	20.4	21.2	21.9	22.6	105.7
Net revenue requirement	188.7	205.3	216.5	228.2	240.2	1,078.9
Net revenue requirement adjusted	197.0	212.9	224.2	237.0	249.2	1,120.3

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	159.1	172.9	186.0	199.2	215.1	932.3
Subvention	12.6	13.0	13.3	13.7	14.0	66.6
Other adjustments	3.5	3.6	3.7	3.8	4.0	18.6
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	90.0
Net revenue requirement	142.1	155.4	168.0	180.7	196.0	842.2
Net revenue requirement adjusted	147.9	161.2	173.8	186.7	202.2	871.7

Source: our calculations.

7.4 Our final decision net revenue requirement is lower than Icon Water's proposal

The Commission's final decision on the total and net revenue requirement brings together our final decisions on operating expenditure (chapter 3), capital expenditure (chapter 4), the RAB (chapter 5) and the rate of return and tax liability allowance (chapter 6).

The annual breakdown of our final decision on the total forecast revenue requirement for the 2023-28 period is provided in Table 7.4 for water and sewerage services.

Table 7.4 Our final decision on the 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	52.5	56.2	59.8	63.7	67.8	300.0
Depreciation	38.5	41.5	44.3	47.6	51.1	223.0
Operating expenditure (controllable)	75.6	78.8	83.2	85.2	84.6	407.3
Operating expenditure (non-controllable)	43.5	45.1	46.9	49.1	51.4	236.0
Net tax liabilities	1.1	0.3	0.7	1.5	2.7	6.3
Total revenue requirement	203.6	221.9	235.0	247.0	257.6	1,165.2

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Return on capital	33.8	36.7	40.2	45.0	51.6	207.3
Depreciation	37.7	40.7	43.8	48.0	53.6	223.7
Operating expenditure (controllable)	81.7	85.2	90.1	92.5	91.8	441.3
Operating expenditure (non-controllable)	6.6	6.9	7.2	7.6	8.4	36.7
Net tax liabilities	1.8	2.1	2.4	2.9	3.6	12.8
Total revenue requirement	160.4	171.6	183.7	196.0	209.0	920.5

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

We deduct from the total revenue requirement other sources of revenue that Icon Water receives including subvention payments, sales to QPRC, notional CSO payments and other revenue. Icon Water also passes through to consumers any differences between forecast and actual values for the WAC, the Utilities Network Facilities Tax (UNFT) and subvention payments when the actual values are known. As actual values for 2021-22 and 2022-23 are lower than forecast, the true-up involves returning revenue to consumers. The resulting net revenue requirement is shown in 7.5.

Table 7.5 Our final 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	203.6	221.9	235.0	247.0	257.6	1,165.2
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	95.8
CSO payments	0.6	0.6	0.6	0.7	0.7	3.2
Total revenue adjustments	19.6	20.4	21.2	21.9	22.6	105.7
Net revenue requirement	184.0	201.5	213.8	225.2	235.1	1,059.5

Sewerage services	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	160.4	171.6	183.7	196.0	209.0	920.5
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	143.4	154.1	165.7	177.5	190.0	830.6

Combined	2023-24	2024-25	2025-26	2026-27	2027-28	Total
Total revenue requirement	364.0	393.4	418.7	443.0	466.6	2,085.8
Subvention	13.9	14.2	14.6	15.0	15.5	73.2
Other adjustments	21.3	22.1	22.9	23.6	24.4	114.3
CSO payments	1.5	1.5	1.6	1.7	1.7	8.0
Total revenue adjustments	36.6	37.9	39.1	40.3	41.6	195.6
Net revenue requirement	327.4	355.5	379.6	402.7	425.0	1,890.2

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

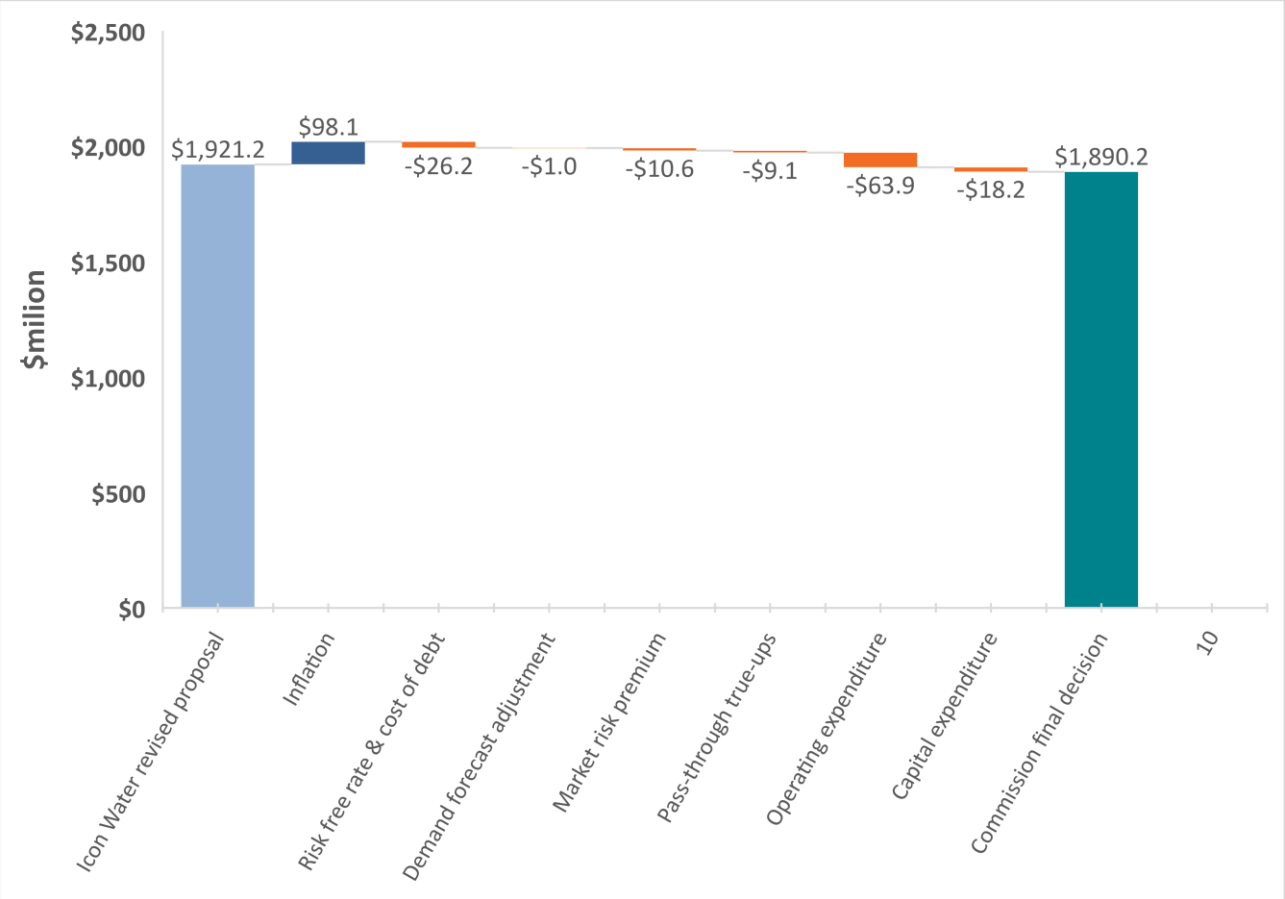
The key factors driving the difference between Icon Water's revised proposal and our final decision are presented in Figure 7.1. These are:

- The inflation rate, which we set at 6.59% for 2022-23 and 2.92% for the 2023-28 regulatory period in our final decision. Icon Water used 3.35% for both 2022-23 and the future regulatory period. Had Icon Water's proposal used the same inflation rates as our final decision then its revised proposal would be $98.1 million higher. While we have used the forecast inflation rate of 2.92% to forecast revenue and prices for the full regulatory period, we will update prices for 2024-25 to 2027-28 annually for actual inflation.
- Updates to the risk-free rate and the cost of debt, which were not available to Icon Water at the time it submitted its revised proposal. Both the risk-free rate and the cost of debt have declined compared to the estimates used in Icon Water's revised proposal, reducing the net revenue requirement by $26.2 million in nominal terms. However, the cost of debt will be updated annually over the course of the regulatory period

from 2024-25 onward as part of the annual price resets.

- A small reduction in revenue as a result of updating demand, which flows through to the calculation of the water abstraction charge.
- A reduction in the MRP parameter of the rate of return to 6.3% compared to Icon Water's revised proposal which used a value of 6.5%, discussed in chapter 6.
- A lower operating expenditure allowance than proposed by Icon Water in its revised proposal, discussed in chapter 3.
- A lower capital expenditure than proposed by Icon Water in revised proposal as discussed in chapter 4.

Figure 7.1 Key drivers of the difference between Icon Water's proposal and our final decision on the net revenue requirement, $m nominal



Source: our calculations.

8. Forecast demand and service connections

We use demand forecasts to set maximum prices for water and sewerage services. Demand forecasts also influence Icon Water's operating and capital expenditure forecasts.

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 final decision on the demand forecasts we will use to set the prices for water and sewerage services for the 2023–28 regulatory period.

Our final decision

We have developed demand forecasts using the methodology and data sources we confirmed in our review of water and sewerage services demand forecasting methods.[68]

As shown in Table 8.1, we expect a steady growth in demand over the 2023-28 regulatory period, largely due to a rising ACT population along with climate variability. These forecasts are similar to our draft report forecasts and Icon Water's revised proposal, but we have used more recent data to develop the final forecasts.

Table 8.1 Our final 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	51.98	27.73	16.03	201,002	200,190	66,402	37.58
2024-25	52.31	28.04	15.99	203,957	202,745	66,817	38.14
2025-26	52.85	28.40	16.08	207,061	205,300	67,232	38.70
2026-27	53.41	28.79	16.16	210,324	207,855	67,646	39.25
2027-28	53.95	29.18	16.22	213,761	210,410	68,061	39.81

Source: Our calculations.

[68] 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.

8.1 Our approach to develop demand forecasts

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:

- **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 WAC paid by Icon Water to the ACT Government.
- **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.
- **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.
- **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.
- **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.
- **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.

To forecast demand for each component, we adopted the methodology and data inputs we confirmed in our demand methodology review.[69]

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.

In developing the water demand forecast, we have adopted a three-step process in our analysis:

- Step 1 - forecast the volume of water abstractions from Icon Water's dams.
- Step 2 - forecast the share of dam abstractions that will be used by ACT consumers.
- 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.

8.2 Icon Water's initial proposal

As part of its initial 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.

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[69] ICRC, 2021.

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 would 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).

8.3 Our draft decision

Our draft decision adopted the methodology and data inputs we confirmed in our demand methodology review. We developed the forecasts using actual data to 14 July 2022 for the draft report.

In making our draft decision, we have accepted Icon Water's suggested approach and made a post-model adjustment to water and sewerage services connection numbers. This is because the number of water and sewerage connections estimated by our model for 2022-23 is lower than the actual number of connections for the previous year, which is not consistent with observed trend.

Our draft decision on forecast water demand, sales and number of customers is provided in Table 8.3.

Our forecasts were similar to Icon Water's initial proposal, but we used an additional 8 months of data from November 2021 to July 2022. 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.

Table 8.3 Our draft decision on water and sewerage services demand forecasts, 2023-28

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.

8.4 Submissions received on the draft report

In its revised proposal, Icon Water supported the approach we used in our draft decision to forecast demand for the 2023–28 regulatory period.

Icon Water attempted to replicate our draft decision demand forecast using the data to 14 July 2022, which is the same as our draft report. Icon Water could not exactly replicate the water volumes forecast. The small difference is likely due to the dataset missing an observation for dam abstractions on 3 May 2022. We used an average of 2 May 2022 and 4 May 2022 to complete the forecast for our draft report. However, we will include the actual observation supplied by Icon Water in our final analysis. Icon Water's revised forecasts for other elements of demand are consistent with our draft report.

8.5 Our final decision

Our final decision is to retain the methodologies and data sources used in the draft report and update the actual data up to 31 January 2023. The difference between our draft report forecasts and final forecasts are mainly due to the additional 6 months data used in our analysis. Specifically, we updated forecasts for water abstractions from dam and ACT water usage.

Forecasts for sewerage volumes and water and sewerage services connections are the same as in our draft report because they rely on yearly data. In practice, this means that we use the most recent financial year for which data is available. In this case, we have the data up to 2021-22.

We have revised our forecast for billable fixtures to account for an error Icon Water identified in its proposal on the 2021-22 billable fixtures number, which was overstated by 1,089. This resulted in a downward adjustment to the forecast for billable fixtures.

8.5.1 We have used ACT population projections to develop the forecasts

We have forecast 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 residential

population by the 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.

Secondly, we applied the estimated historical relationship to ACT population projections to forecast connection numbers and billable fixtures for the 2023–28 regulatory period. 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.[70]

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.

8.5.2 Upward trend in the volume of water abstractions

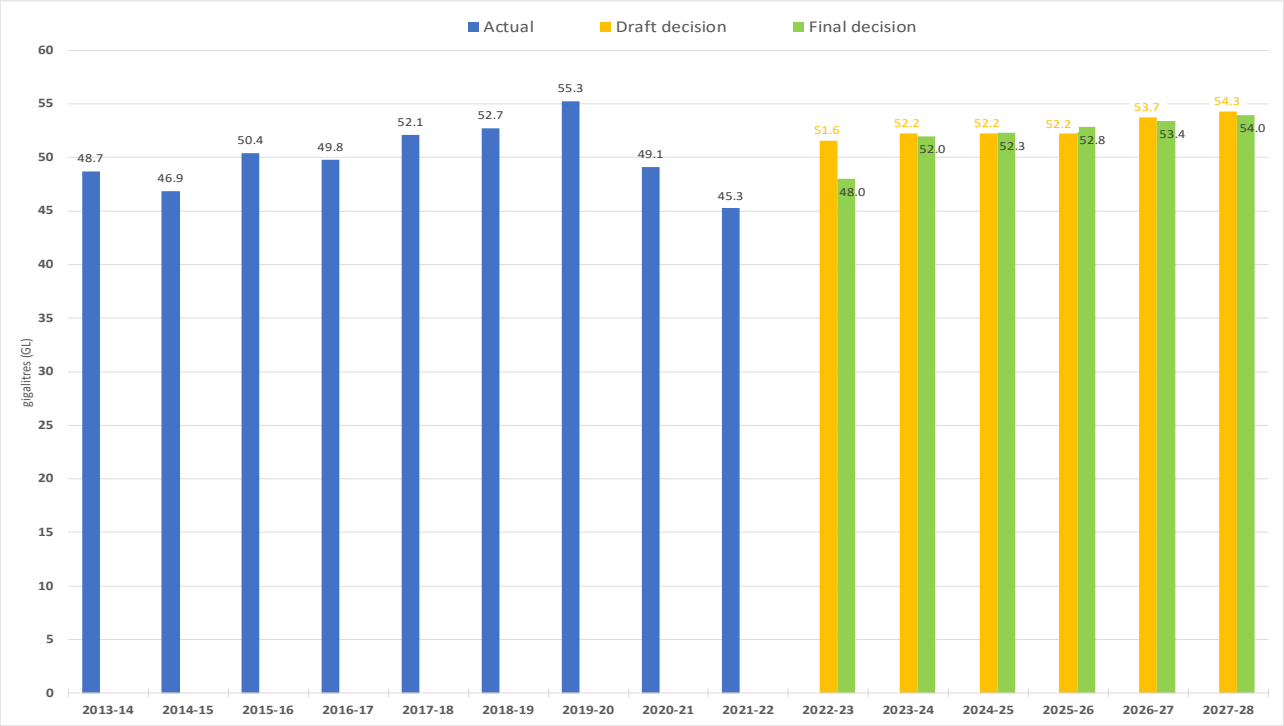
Our final dam abstractions forecast for the 2023-28 period is shown in Figure 8.1 (green bars).

Our model forecasts a slight upward trend in the volume of dam abstractions - an average increase of 0.9% 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 31 January 2023, our forecast is slightly different from our draft report (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.

[70] We considered using the ACT Government's population projections which is likely to account for the effect of the COVID-19 pandemic and the ABS revisions; however, at the time of making final decision, the ACT Government have not released their projections yet.

Figure 8.1 Dam abstractions: actual volume and forecast, 2013-14 to 2027-28



Source: our analysis based on data from Icon Water.

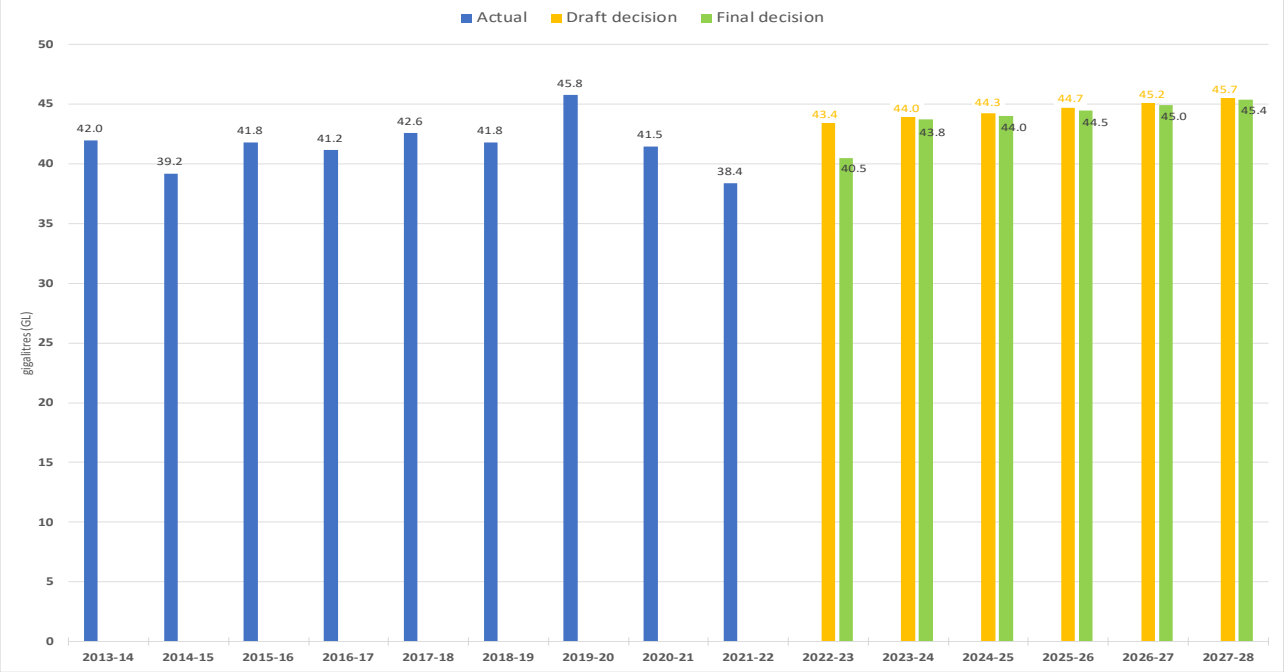
8.5.3 Upward trend in the volume of ACT water usage

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 0.9% 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 our draft report 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.

8.5.4 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.[71]

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 final decision, we have used an expanded dataset from 2009–10 to 2021–22. Like in our draft report, we have considered different forms of the relationship to forecast the split of water usage at Tier 1 and Tier 2 to identify the form that best explains the historical trend based on an expanded dataset from 2009–10 to 2021–22.[72]

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

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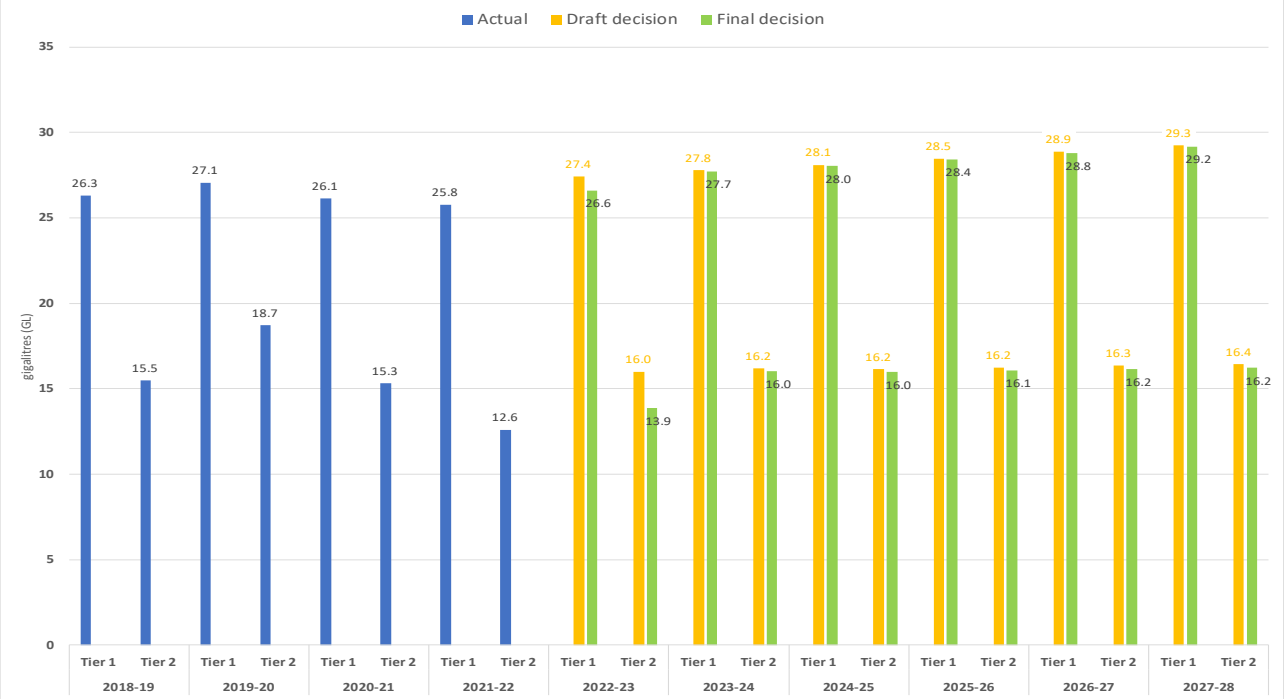
71 ICRC, 2021.

72 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. Appendix 2 provides further details on the different forms of the relationship we considered.

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.

8.5.5 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 1.6% per annum over the 2023–28 regulatory period. This trend is consistent with the growth expected in the ACT population.[73]

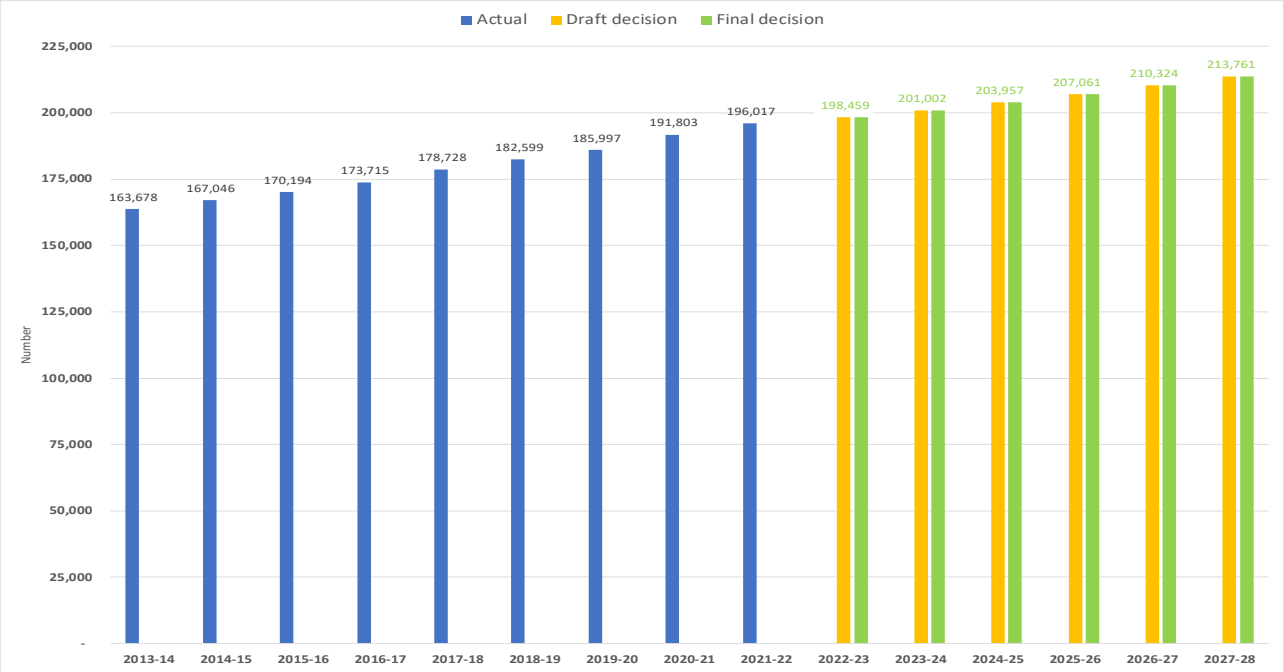
The historical data shows that the number of water connections increases each year (blue bars). However, the number of connections estimated by our model for 2022-23 (194,401 connections) is lower than the actual number of connections for the previous year (196,017 in 2021-22), which is not consistent 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 the 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

[73] ACT Government (2022), *22-23 Australian Capital Territory Budget Outlook*.

water connections in that year.[74] This increased the water service connection numbers in each year of the forecast. 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.

We used the same dataset (from 2006-07 to 2021-22) to estimate the historical relationship between ACT population and forecast water connection numbers in our draft and final report, our final forecast is consistent with the draft report 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.

8.5.6 Upward trend in sewerage service connection numbers

Our forecast sewerage service connection numbers for the 2023–28 period is shown in Figure 8.5 (green bars).

Our model forecasts a slight upward trend in the sewerage service connection numbers—an average increase of 1.3% per annum over the 2023–28 regulatory period.

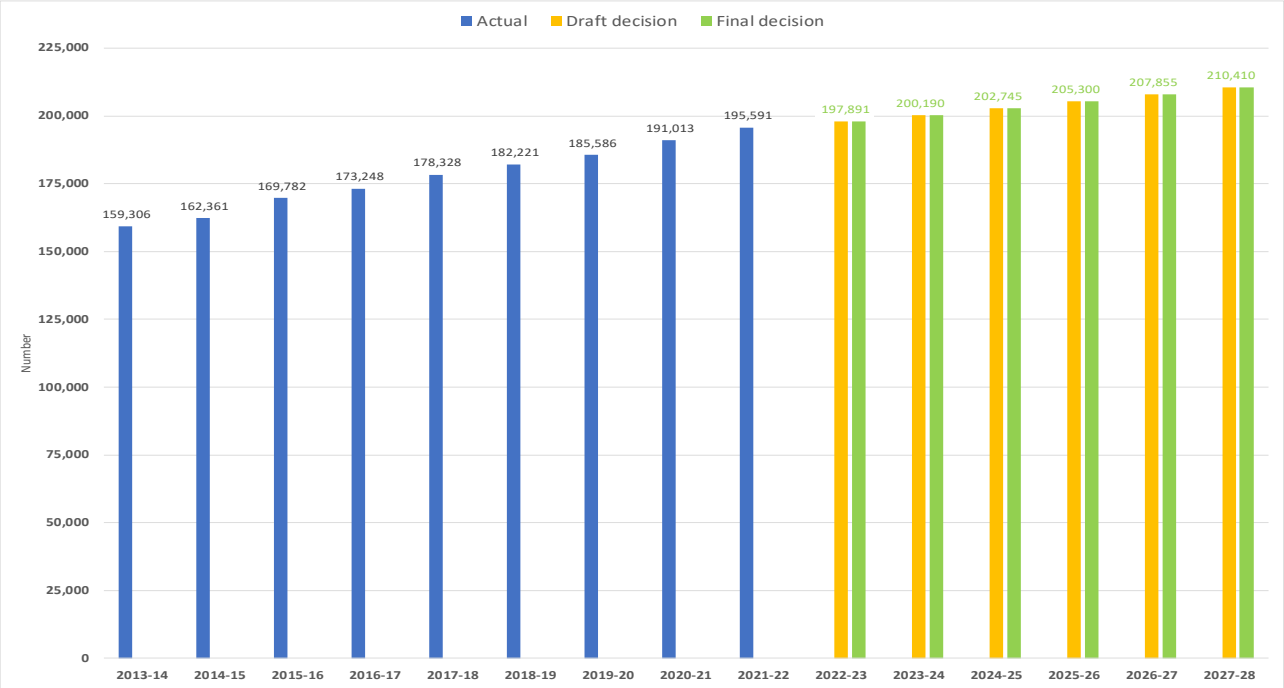
Like the water service connection forecasts, the number of sewerage connections estimated by our model for 2022-23 (194,175 connections) is lower than the actual number of connections for the previous year (195,591 in 2021-22), which is not consistent with the observed trend of connections consistently increasing each year. This is due to an above average increase in sewerage connection numbers in 2021-21

[74] 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.

and 2021-22. Therefore, we have made a post-model adjustment and accepted Icon Water's suggested approach.[75]

We used the same dataset (from 2006-07 to 2021-22) to estimate the historical relationship between ACT population and forecast sewerage connection numbers, our final forecast is consistent with the draft report 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.

8.5.7 Upward trend in billable fixtures numbers

Our forecast of billable fixtures for the 2023–28 period is shown in Figure 8.6 (green line).

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.

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 2021-22 reflects an increase in commercial operations, as they return to normal after the COVID-19 pandemic-induced lockdowns.

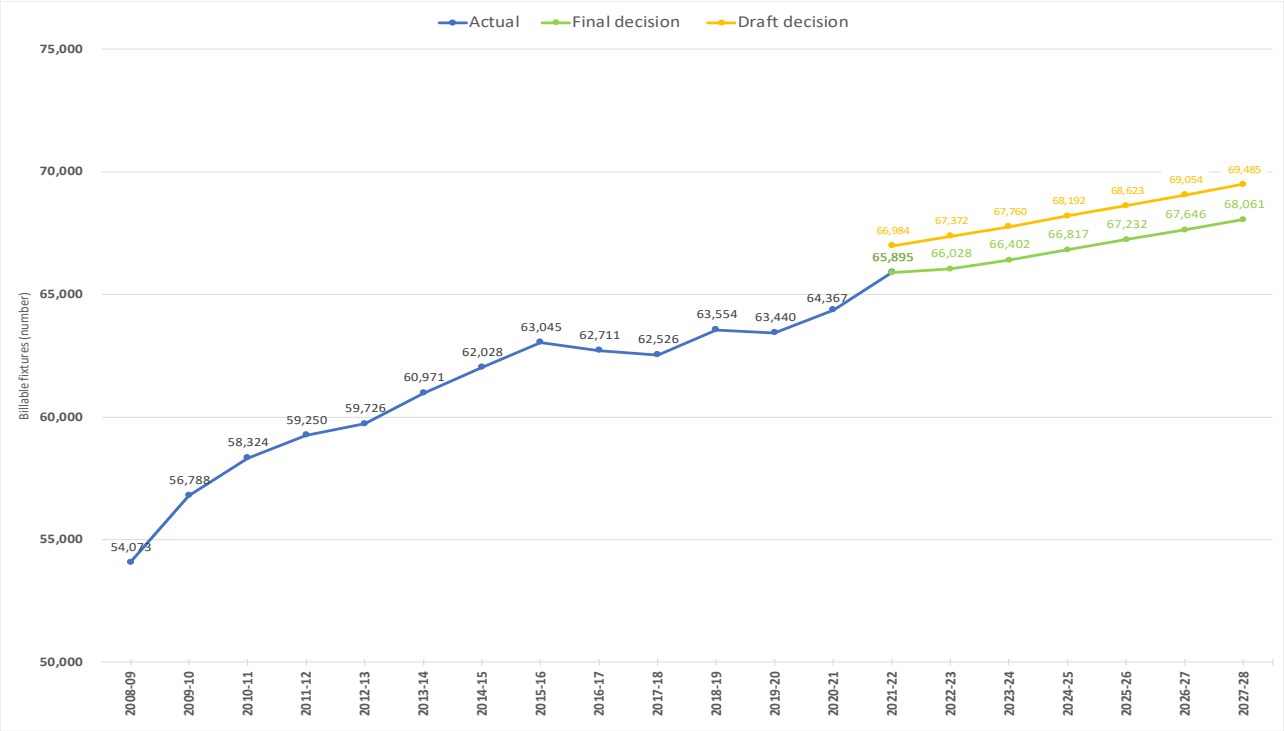
The observed data shows two contrasting trends: a period of gradual growth in the number of billable fixtures (2008-09 to 2015-16) and a period when the number of billable fixtures is relatively flat (2016-17 to

[75] 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.

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.

Because we updated the number of billable fixtures for 2021-22, our final forecasts are lower than the draft report forecasts (yellow line). [76]

Figure 8.6 Billable fixtures actual numbers and forecast, 2008-09 to 2027-28



Source: our analysis based on data from Icon Water.

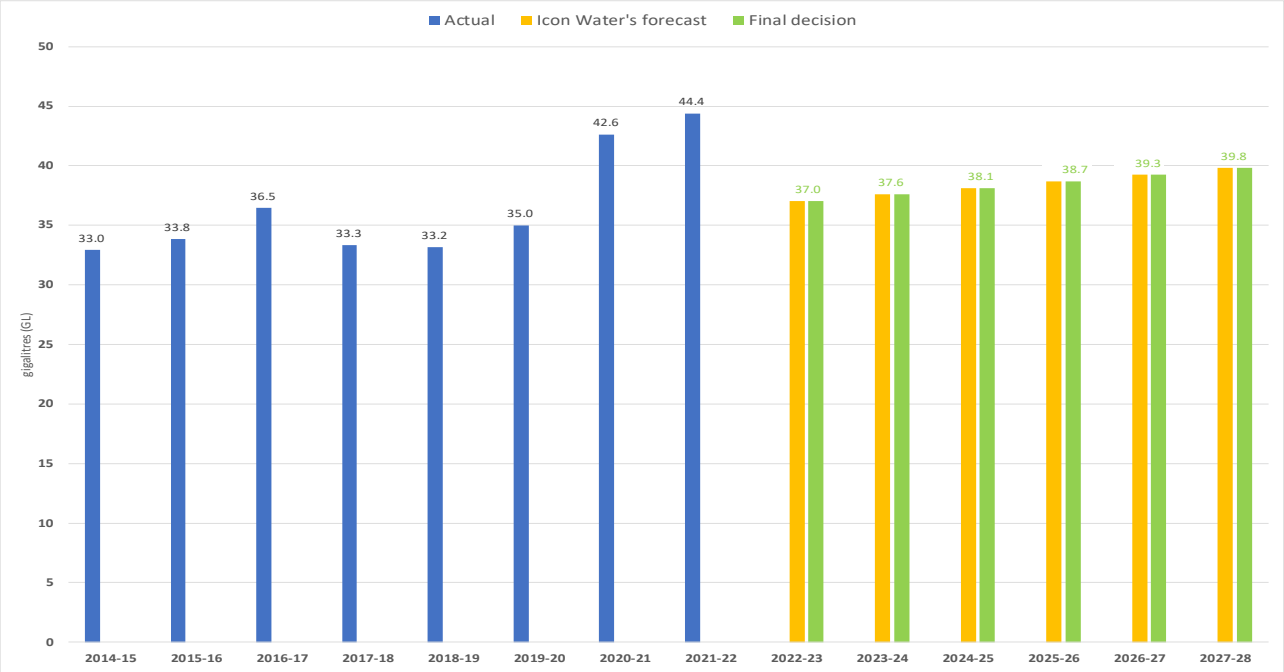
8.5.8 Upward trend in sewage volumes

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), taking into account 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 LMWQCC.

[76] Icon Water identified an error in its June proposal on the 2021-22 billable fixtures number, which was overstated by 1,089. The correct number of billable fixtures for 2021-22 is 65,895.

Figure 8.7 Sewage actual volumes and forecasts, 2014-15 to 2027-28



Source: Icon Water calculation.

9. The 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 provide our final 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[77]
- our pricing principles[78]
- Icon Water's pricing proposal[79]
- submissions from industry stakeholders, including the public.

Our final decision

Our final 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 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.

In response to our draft decision, Icon Water provided in its revised proposal that it agrees with our approach, including the decision to undertake a future review of the sewerage tariff structure.[80]

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.

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77 See Appendix 1
78 See Appendix 3 of the commission's Issues Paper
79 Icon Water submitted a revised pricing proposal in December 2022
80 See Chapter 3.3 of Attachment 3

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.[81]

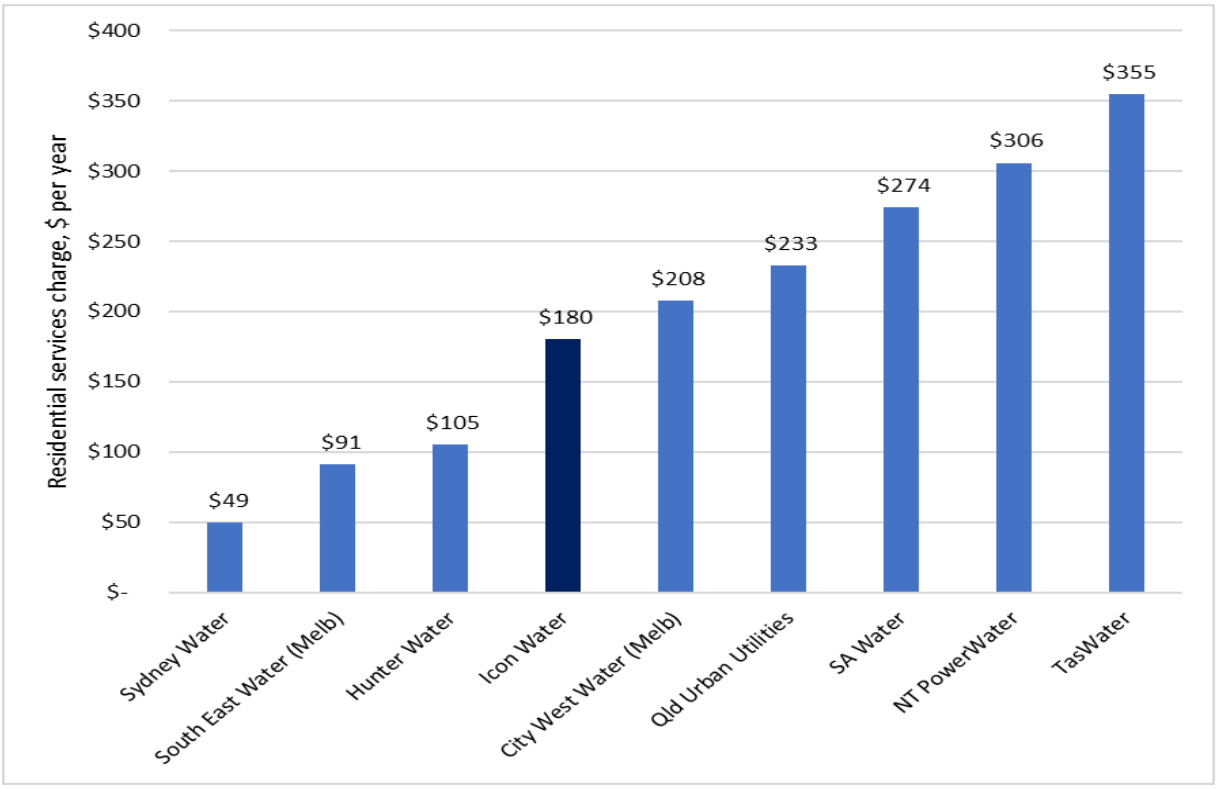
The water tariff structure balances multiple objectives including incentivising customers to use water efficiently. The first tier ensures that some amount of water is available at a lower charge to meet essential needs. Also, it gives Icon Water the ability to recover its efficient costs.

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 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 and the fixed supply charge was one of the lowest.
- The increase in the fixed supply charge would better align the water tariff structure with Icon Water's cost structure, which is predominantly of fixed costs.

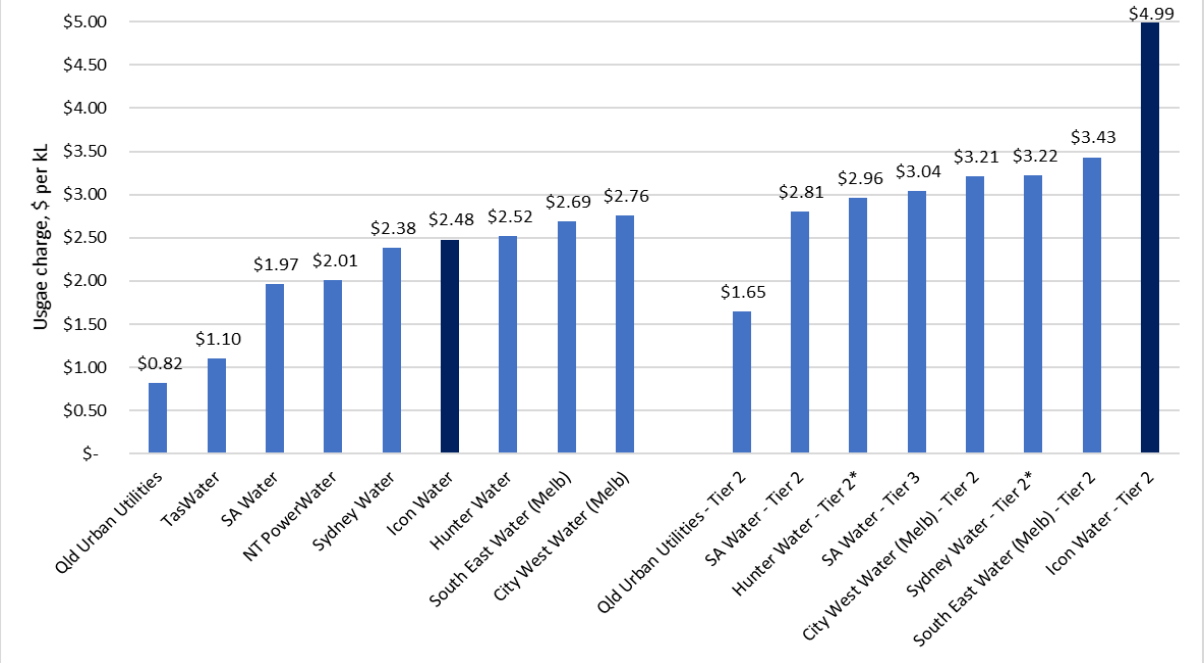
Tariff rebalancing efforts in the 2018–23 regulatory period have brought the ACT's Tier 1 (Figure 9.1) and fixed charges (Figure 9.2) in line with charges in other jurisdictions. However, the Tier 2 charge remains the highest in the country.

Figure 9.1 Australian utilities' fixed supply water charge, 2021–22 ($ per year)



[81] 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.

Figure 9.2 Australian utilities' water tariff tiers, 2021–22 ($ per kL)



Sources: City West Water (2021), Hunter Water (2021), ICRC (2021), Power Water (2021), Urban Utilities (2021), SA Water (2021), Southeast Water (2021), Sydney Water (2021); and Tas Water (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 in excess of two.

Icon Water does not currently have a trade waste tariff.

9.3 Icon Water proposes to maintain the existing tariff structure

9.3.1 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.

9.3.2 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.[82] 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).

[82] These submissions can be accessed via our project page. To see our fuller response to these submissions, please see our draft decision.

9.4 Our final decision

9.4.1 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 better achieve equity across the different customers groups (large and small).

As part of achieving our statutory objectives, we facilitate an appropriate balance between efficiency and environmental and social considerations.[83] 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.

In response to our draft decision, Peter Sutherland submitted that he agreed with 'the water pricing structure and the balance proposed between supply charge, the Tier 1 price up to 200 kL/year, and the higher Tier 2 price above 200 kL/year'.[84] However, he recommended that the Tier 2 price be based on 200 kL/year rather than on 50 kL per quarter. He argued that his approach would better account for summer season pattern of usage. He said that 'some domestic customers pay Tier 2 prices for some of their usage during one or two quarters, even though their annual usage is under 200 kL'.

While Mr Sutherland's proposed approach would introduce some implementation complexities it could also distort the price signals the tiered pricing structure was intended to provide. For example, during hot summer months when water may be in shorter supply, customers would not be charged the Tier 2 price for higher usage if average consumption over the year fell below the average 200 kL threshold and would therefore face no incentive to limit water usage. Similarly, there would be less incentive to conserve water

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83 See section 7 of the ICRC Act. This section provides the commission's objectives.

84 To access a submission, please visit our project page website at https://www.icrc.act.gov.au/water-and-sewerage/regulated-water-and-sewerage-services-prices-202328.

in winter months, limiting the ability to recharge the water levels between dry spells. There is also a risk of bill shock for vulnerable customers if the excess charges were all applied at the back end of the billing cycle, when the reconciliation would need to occur.

We have introduced a definition for Tier 1 and Tier 2 within the price direction that reflects Icon Water's application of the tiered charges**.**

Our final decision for the 2023-28 regulatory period

Having considered the information provided by Icon Water in its proposal and other community feedback, 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.

9.4.2 Sewerage tariff structure: further consideration required

Background – the hotel and accommodation sector raised concerns about the current structure

In written submissions, the hotel and accommodation sector noted that Icon Water charges hotels for each flushing fixture (or on a per room basis), but that residential houses and apartments are charged for each address regardless of the number of flushing fixtures.[85] Based on this, they argued that they pay substantially more than residential and commercial office users relative to their load on the network; therefore subsidising commercial office and residential dwellings. To address this concern, they proposed the following options:

- setting the fixed supply charge based on the 'Equivalent Tenement' (ET) methodology
- 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 response regarding changes to the sewerage tariff structure

In its revised proposal, Icon Water wrote:

> *The current wastewater tariff structure, with a flushing fixture charge for non-residential customers, is designed to approximate the volume of wastewater produced by different customers and their associated impacts on the wastewater network. The design reflects the fact that Icon Water cannot accurately measure wastewater discharges for individual customers at this time.*[86]

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85 In May 2022, we received 7 submissions from the hotel and accommodation sector in response to our issues paper. These submissions can be accessed on our project page located on the ICRC website.

86 Please see page 7 of Attachment 3 of Icon Water's revised proposal.

ICON WATER 2022

Icon Water has advised that it undertakes to continue its investigations of the impact of liquid trade waste during the 2023-28 regulatory period.

Background – the 2016-17 tariff structure review[87]

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. As of this writing, such a regime has not yet commenced. 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 final 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 ET methodology used by the Office of the Tasmanian Economic Regulator (OTTER) that was suggested by the Australian Hotels Association as a suitable way forward. We note that there are ongoing concerns with the

[87] Please see our Final Report Tariff Structure Review 2016-17 **(link)**.

accuracy of the ET methodology and OTTER has committed to review its ET methodology before the next regulatory period.[88]

- 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.

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 final decision is to maintain the existing tariff structure and consider these issues further during the coming regulatory period. We have included a reset principle in the 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.

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[88] Please see page 114 of OTTER's final report (link)

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 final decision on the water and sewerage services prices and price paths for the 2023–28 regulatory period.

Our final decision

Our final decision on maximum water and sewerage services prices for the 2023-28 regulatory period is set out in Table 10.1. Prices are determined by spreading the allowed net revenue requirement, discussed in chapter 7, over forecast demand, presented in chapter 8, using the structure of tariffs set out in chapter 9.

Our final decision will result in a rise 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, maximum water prices for 2023–24 will be $2.41 per kL for the Tier 1 usage charge, $4.84 per kL for the Tier 2 usage charge and $211.25 per year for the fixed supply charge—this is an increase of 5.6% in nominal terms compared to the prices in 2022–23. The maximum sewerage prices for 2023–24 will be $535.79 per year for the supply charge, and an additional annual charge of $524.00 per flushable fixture for non-residential customers with more than two flushable fixtures—this is an increase of 6.7% in nominal terms compared to the maximum prices in 2022–23.

As discussed in chapter 11 of this final report, these increases translate to a 6.1% increase in the combined water and sewerage bill in 2023-24 for a residential customer consuming 200kL of water per year, compared to 2022-23. A mid-level non-residential customer consuming 5,000kL per annum with 50 flushable fixtures will see an increase of 6.2% in its combined bill. While these price increases are above our draft decision estimates, they are below the prices that would be charged if we accepted Icon Water's revised proposal.

Our final decision sets the annual increase in water and sewerage prices over the 2023-28 regulatory period above the forecast rate of inflation of 2.92%. This largely reflects the higher starting RAB for the period, the significant increase in Icon Water's capital expenditure program, particularly for sewerage services, and the higher rate of return compared with the 2018-23 regulatory period.

It is important to note that the prices presented for 2024-25 to 2027-28 are indicative only. Prices for these years will be updated annually for actual inflation, the cost of debt and any approved pass-throughs.

Table 10.1 Our final 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	$211.25	$223.13	$235.67	$248.93	$262.93
Tier 1 charge (0–200kL/year) ($/kL)	$2.28	$2.41	$2.54	$2.69	$2.84	$3.00
Tier 2 charge (more than 200kL/year) ($/kL)	$4.58	$4.84	$5.11	$5.40	$5.70	$6.02

Sewerage prices	2022-23[a]	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year/connection)	$502.18	$535.79	$571.66	$609.92	$650.75	$694.31
Sewerage fixtures charge ($/year/fixture)	$491.13	$524.00	$559.08	$596.50	$636.43	$679.03

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.

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 initial proposal

In its submission dated 30 June 2022, Icon Water recommended retaining the existing tariff structure but 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, the WACC and actual 2021-22 base operating expenditure. We updated these placeholder values, which had the impact of increasing the water and sewerage prices in Icon Water's proposal. Using these adjusted values increased Icon Water's

proposed water prices to 6.0% per year (2.9% in real terms) and sewerage prices to 9.1% per year (5.9% in real terms) over the 2023-28 regulatory period (see Table 10.2).

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 and our calculations

10.3 Our draft decision on water and sewerage prices

Our draft decision was to retain the existing water tariff structure with a fixed supply charge and a two-tier inclining block usage charge[89]. Our draft decision was lower water and sewerage service prices than the adjusted Icon Water proposal. The difference reflects our draft decision on Icon Water's revenue requirements and demand forecasts (see Table 10.3).

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 accepted Icon Water's proposal to apply price changes uniformly across all water and sewerage tariff components (both supply and usage charges) in each year of the regulatory period[90]. This smoothing factor will be updated annually to reflect an update to the trailing average cost of debt.

[89] See chapter 10 of our draft decision.
[90] The smoothing factor is calculated separately for water and sewerage services.

Table 10.3 Draft decision water and sewerage prices for 2023-28 ($, nominal)

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

Sewerage prices	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year)	$530.13	$559.64	$590.79	$623.67	$658.39
Flushing fixture charge ($/year)	$518.47	$547.33	$577.79	$609.95	$643.90

Source: our calculations.

10.4 Icon Water's revised proposal

In December 2022, Icon Water submitted a revised proposal including a combined forecast bill increase of 6.5% per year for a typical residential customer consuming 200kL of water per year. Icon Water maintained the same structure of tariffs and the same smoothing methodology. Icon Water's proposed prices reflect updates to its proposed revenue requirement (discussed in chapter 7) and demand forecasts (discussed in chapter 8). Icon Water's proposed prices for the individual components of the water and sewerage charges are shown in Table 10.4 below.

Table 10.4 Icon Water's revised water and sewerage prices for 2023-28 ($, nominal)

Water prices	2023-24	2024-25	2025-26	2026-27	2027-28
Water supply charge ($/year)	$212.19	$225.12	$238.83	$253.38	$268.82
Tier 1 charge (0–200kL/year) ($/kL)	$2.42	$2.57	$2.72	$2.89	$3.06
Tier 2 charge (more than 200kL/year) ($/kL)	$4.86	$5.16	$5.47	$5.80	$6.16

Sewerage prices	2023-24	2024-25	2025-26	2026-27	2027-28
Sewerage supply charge ($/year)	$537.15	$574.56	$614.58	$657.38	$703.16
Flushing fixture charge ($/year)	$525.33	$561.92	$601.05	$642.91	$687.68

Source: Icon Water.

10.5 Our final decision on water prices

Our final decision is to retain the existing water tariff structure with a fixed supply charge and a two-tier inclining block usage charge. Our final decision on the tariff structure is presented in chapter 9.

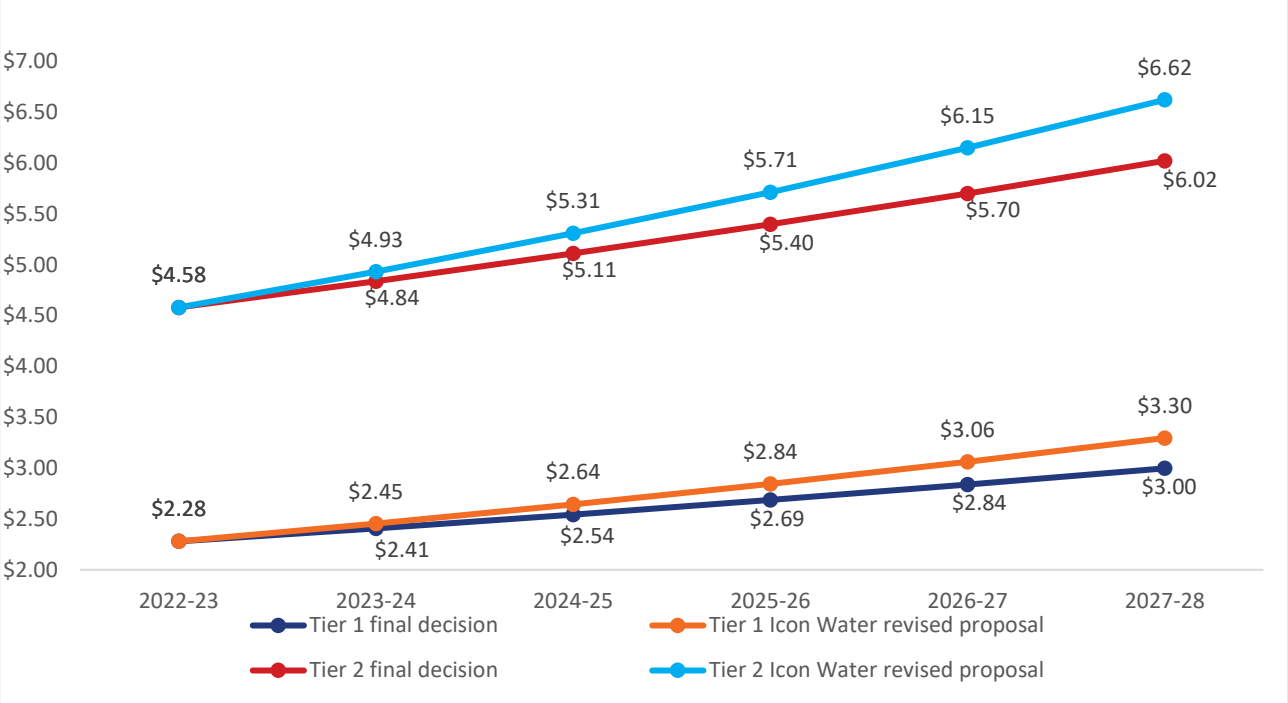
Our final decision has lower water service prices than the Icon Water revised proposal[91].

[91] To make a like for like comparison with our final decision, we have updated uncontroversial parameters in Icon Water's revised proposal, namely, inflation, the risk free rate, the cost of debt and demand.

As shown in Figure 10.1 and Figure 10.2, our final decision maximum water price for 2023–24 is $2.41 per kL for the Tier 1 usage charge, $4.84 per kL for the Tier 2 usage charge and $211.25 per year for the fixed supply charge. The Tier 1 and Tier 2 prices are 5.6% more, in nominal 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 7.6% increase per year in Tier 1 and Tier 2 prices under the adjusted Icon Water proposal. Figure 10.1 and Figure 10.2 also compare the price path under the adjusted Icon Water proposal and our final decision.

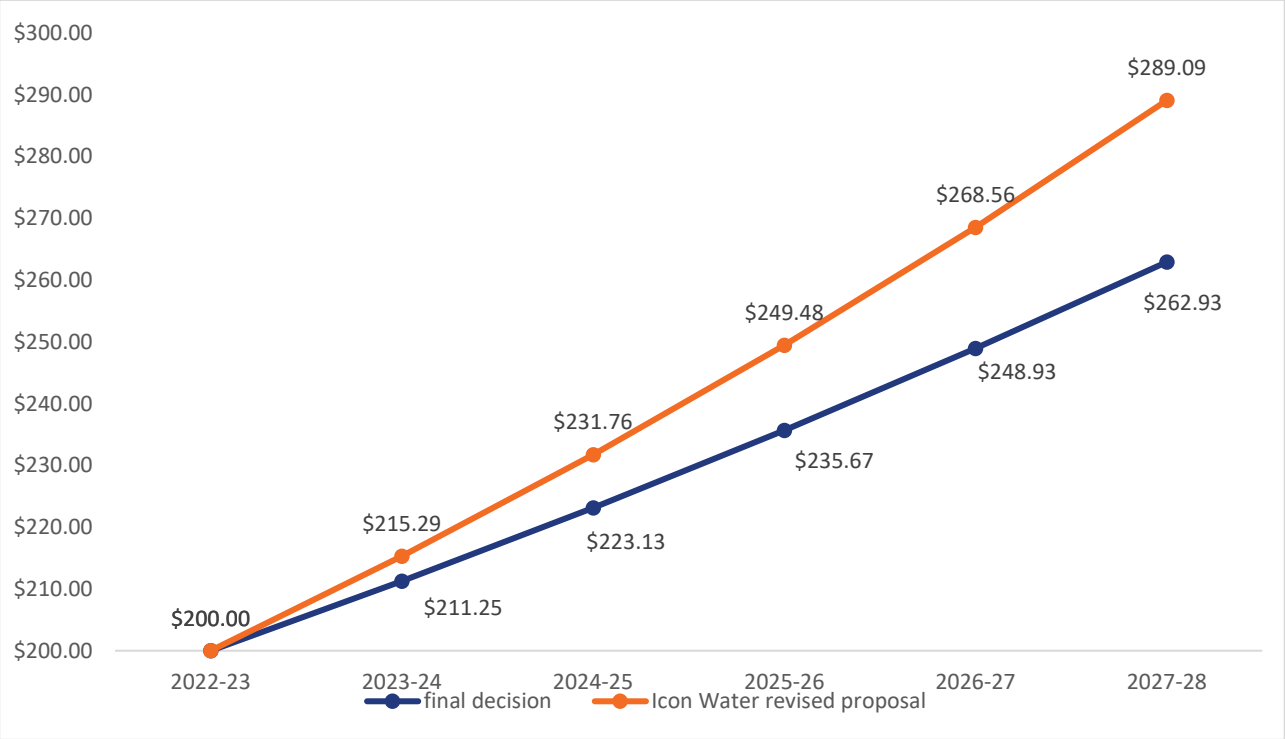
We have retained the approach to 'smooth' the price path over the 2023–28 regulatory period to help manage bill impacts and provide greater price-certainty for the community. For the 2023-28 regulatory period, we have accepted Icon Water's proposal to apply price changes uniformly across all water tariff components (both supply and usage charges) in each year of the regulatory period. The smoothing factor for water prices is set to 2.6%. This smoothing factor will be updated annually to reflect an update to the trailing average cost of debt.

Figure 10.1 Comparison of our final decision and Icon Water's adjusted revised proposal Tier 1 and Tier 2 charges over the 2023-28 regulatory period ($/kL)



Source: our calculations.

Figure 10.2 Comparison of our final decision and Icon Water's adjusted revised proposal water supply charge over the 2023-28 regulatory period ($/year)



Source: our calculations.

10.6 Our final decision on sewerage prices

Our final 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 final decision on tariff structure is presented in chapter 9.

Our final decision has lower sewerage prices than the adjusted Icon Water proposal[92].

As shown in Figure 10.3 and Figure 10.4, our final decision maximum sewerage price for 2023–24 is $535.79 per year for the supply charge. There is an additional annual charge of $524.00 per flushable fixture for non-residential customers with more than two flushable fixtures. These prices are 6.7% more in nominal 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 final decision percentage increase in sewerage prices is less than the 8.4% increase per year in nominal terms under the adjusted Icon Water proposal. Figure 10.3 and Figure 10.4 also compare the price path under the adjusted Icon Water's proposal and our final decision.

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

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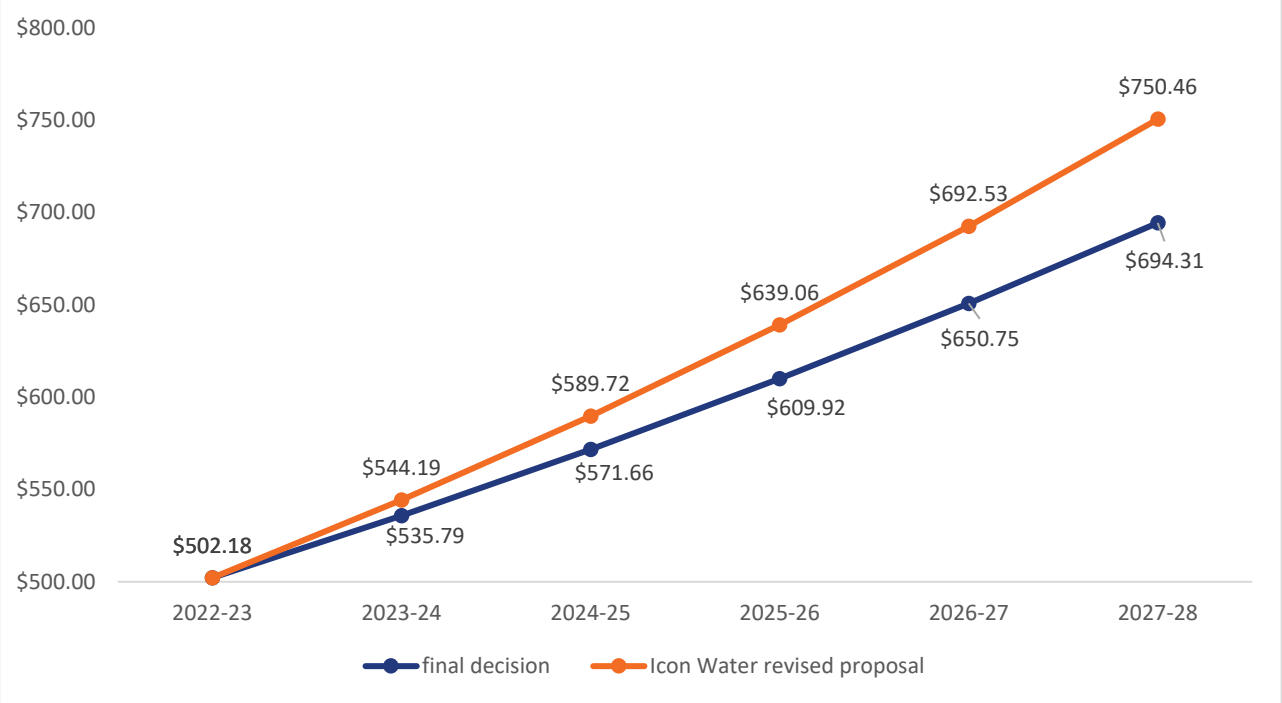
92 To make a like for like comparison with our final decision, we have updated uncontroversial parameters in Icon Water's revised proposal, namely, inflation, the risk free rate, the cost of debt and demand.

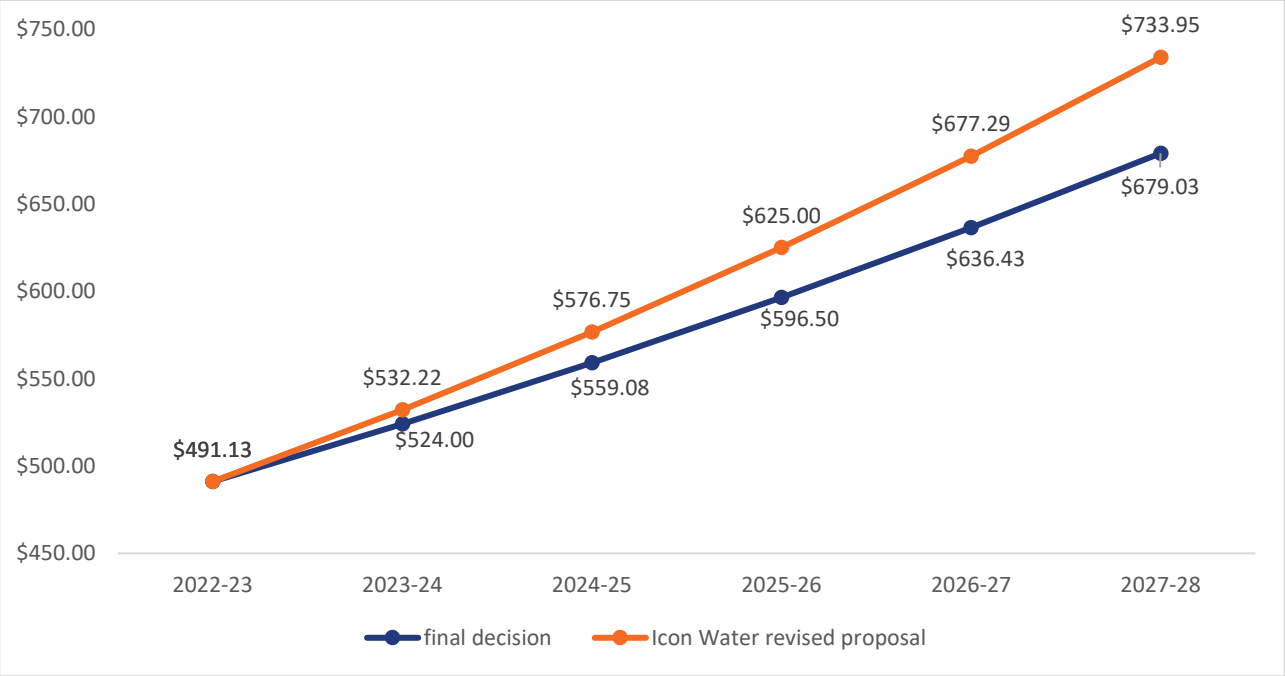
sewerage fixture charge in each year of the regulatory period. The smoothing factor for sewerage prices is set to 3.67%. This smoothing factor will be updated annually to reflect an update to the trailing average cost of debt.

Figure 10.3 Comparison of our final decision and Icon Water's adjusted revised proposal sewerage supply charge over the 2023-28 regulatory period ($/year)



Source: our calculations.

Figure 10.4 Comparison of our draft decision and Icon Water's adjusted revised proposal billable fixtures charge over the 2023-28 regulatory period ($/year)



Source: our calculations.

10.7 Miscellaneous fees and charges

10.7.1 Icon Water's proposal and our draft decision

Icon Water charges a range of fees for miscellaneous services that primarily relate to development activities or one-off connection and infrastructure-based services for customers. 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.

Icon Water's initial proposal incorporated 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.

Icon Water proposed retaining 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.

Based on our assessment of customer impacts, revenue impacts and charges in other jurisdictions, our draft decision was to accept Icon Water's proposed miscellaneous fees and charges[93].

10.7.2 Our final decision

Icon Water made no changes to its proposed fees and charges in its revised proposal. Based on our assessment from the draft decision, we continue to accept Icon Water's proposed miscellaneous fees and charges in our final decision.

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[93] See chapter 11 of our draft decision.

11. Effects on consumers, inflation and Icon Water's financial viability

This chapter presents the estimated impacts of our final decision on residential and non-residential consumers' annual bills, general price inflation and Icon Water's financial viability.

Our final decision

Our final 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 Icon Water's revised proposal. For the purposes of a direct comparison with our final decision, we have updated Icon Water's revised proposal for inflation, the risk-free rate, the cost of debt and demand. These parameters are not controversial, the updated values were simply not available to Icon Water at the time it was preparing its revised proposal.

Indicative effects on residential consumers

Under our final decision, a typical residential customer consuming 200kL a year will pay $1,249 for their annual combined water and sewerage services bill in 2023-24. This is $72 or 6.1% more than the annual bill in 2022-23. It is $22 (1.7%) less than the $1,271 annual bill under the adjusted Icon Water proposal.

Under our final decision, the combined bill for a typical residential customer is expected to increase by 6.1% per year on average over the regulatory period, whereas the adjusted Icon Water proposal would have resulted in 7.9% per year increases.

Indicative effects on non-residential consumers

Under our final decision, a mid-level non-residential customer consuming 5,000kL per annum with 50 flushable fixtures will pay $50,649 for its combined water and sewerage services bill in 2023-24. This is an increase of $2,951 (or 6.2%) compared to 2022-23. It is $877 (1.7%) less than the $51,526 annual bill 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 2.92% 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 final decision is likely to have no material effect on the general price inflation in Australia. We are satisfied our final 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.

11.1 Impacts on consumers

11.1.1 Residential consumers

To assess the indicative effects of our final 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 final decision, the combined water and sewerage services bill for a typical household consuming 200kL a year will increase by 6.1% 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 3.1%.

Table 11.1 Indicative impacts of our final 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	816	867	922	980	1,042	1,107
	% change	6.3	6.3	6.3	6.3	6.3	6.3
100	$/year	930	988	1,049	1,114	1,183	1,257
	% change	6.2	6.2	6.2	6.2	6.2	6.2
150	$/year	1,044	1,108	1,176	1,249	1,325	1,407
	% change	6.1	6.1	6.1	6.1	6.1	6.1
200 (typical customer)	**$/year**	**1,177**	**1,249**	**1,325**	**1,406**	**1,491**	**1,582**
	% change	**6.1**	**6.1**	**6.1**	**6.1**	**6.1**	**6.1**
250	$/year	1,387	1,471	1,559	1,653	1,752	1,858
	% change	6.0	6.0	6.0	6.0	6.0	6.0
300	$/year	1,616	1,712	1,814	1,923	2,037	2,159
	% change	6.0	6.0	6.0	6.0	6.0	6.0
350	$/year	1,845	1,954	2,070	2,192	2,322	2,460
	% change	5.9	5.9	5.9	5.9	5.9	5.9
400	$/year	2,074	2,196	2,325	2,462	2,607	2,761
	% change	5.9	5.9	5.9	5.9	5.9	5.9
500	$/year	2,532	2,680	2,836	3,002	3,177	3,363
	% change	5.8	5.8	5.8	5.8	5.8	5.8
750	$/year	3,677	3,889	4,114	4,351	4,602	4,868
	% change	5.8	5.8	5.8	5.8	5.8	5.8

Source: our calculations.
Notes: The estimated effects assume a forecast inflation of 2.92% 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 final decision, a typical household is expected to pay $1,582 for its annual combined bill in 2027-28, a cumulative increase of $333 from the first year of the regulatory period (2023-24). This cumulative increase is $122 less than under the adjusted Icon Water proposal; the adjusted Icon Water proposal has a cumulative increase in the bill of $455 over the same period.

11.1.2 Comparison with bills payable in other jurisdictions

Our final 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 a 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.

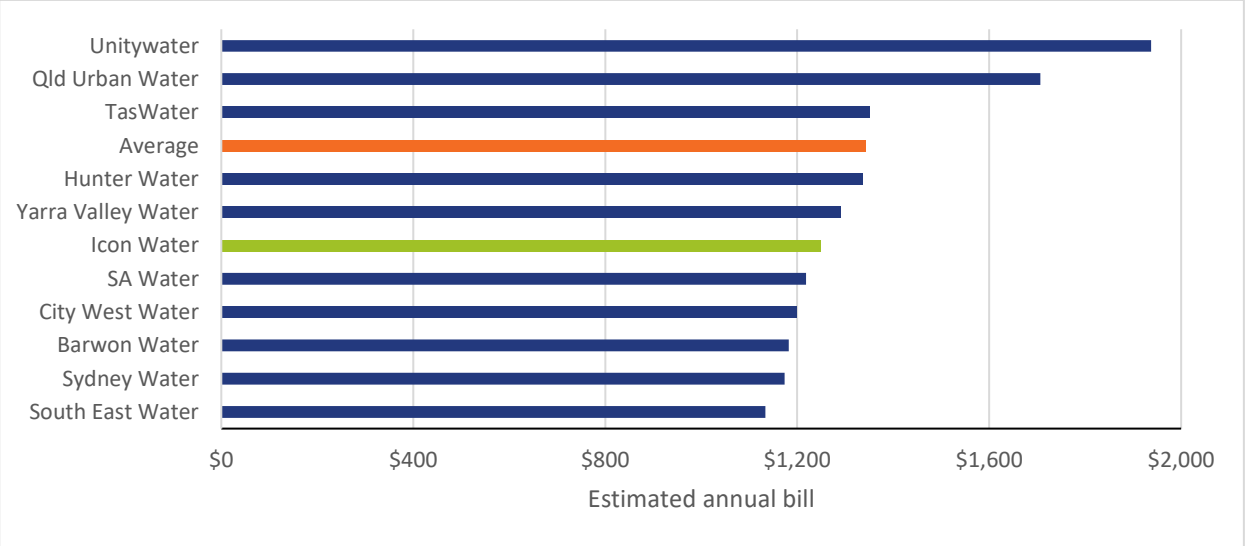
Table 11.2 Comparison of combined water and sewerage services bills of Australian water utilities, assuming residential consumer with 200kL a year consumption ($, nominal)

Urban utility	Actual (2022-23)	Estimates (2023-24)
Sydney Water	1,141	1,174[b]
Barwon Water	1,165	1,183[c]
City West Water	1,166[a]	1,200[b]
Icon Water	**1,177**	**1,249**
SA Water (Adelaide)	1,184	1,218[b]
South East Water	1,205[a]	1,134[c]
Hunter Water	1,299	1,337[b]
TasWater	1,300	1,351[d]
Average	**1,321**	**1,344**
Yarra Valley Water	1,356[a]	1,290[b]
Queensland Urban Utilities	1,658	1,706[b]
Unitywater – Moreton Bay	1,882	1,937[b]

Source: our calculations and utility websites.

Notes: [a] Victoria Government waterways and drainage charge and parks charge are not applied; Bills updated to reflect decreases in water usage charges from October 2022 due to the remaining 2022-23 desalination water order for Melbourne ceasing; [b] indexed assuming annual inflation of 2.92% from 2022-23; [c] based on utilities' price submission for 2023-24 and ESC's draft decision; [d] 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	10,339	10,982	11,666	12,392	13,164	6.2
	50	29,379	31,299	33,345	35,526	37,849	40,325	6.5
	100	53,935	57,499	61,299	65,351	69,671	74,277	6.6
2,500	10	16,603	17,595	18,646	19,761	20,943	22,195	6.0
	50	36,249	38,555	41,010	43,621	46,400	49,357	6.4
	100	60,805	64,756	68,964	73,446	78,221	83,308	6.5
5,000	10	28,053	29,689	31,420	33,253	35,194	37,248	5.8
	50	**47,699**	**50,649**	**53,784**	**57,113**	**60,651**	**64,409**	**6.2**
	100	72,255	76,849	81,738	86,939	92,473	98,361	6.4
15,000	10	73,853	78,065	82,517	87,223	92,198	97,458	5.7
	50	93,499	99,025	104,880	111,083	117,656	124,620	5.9
	100	118,055	125,225	132,834	140,908	149,477	158,571	6.1

Source: our calculations.
Note: Annual bills for 2022-23 are included for comparison purposes.

Under our final decision, indicative bill cumulative increases for non-residential consumers over the 2023-28 period range from 24.8% to 29.2%, 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 34.5% to 37.6%, depending on water usage and the number of billable fixtures.

11.2 Impacts on inflation

We are required to consider the effects of changes in water and sewerage services bills on general price inflation, under Section 20(2)(j) of the ICRC Act. 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[94]. Using this percentage and our final decision of an approximately 3.1% annual average increase (in real terms) for a typical residential consumer consuming 200kL of water a year, we estimated that the approximate annual impact of our final decision on general price inflation in Australia is 0.0006%[95].

We consider an annual 0.0006% 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

Under section 20(2) of the ICRC Act we are required to ensure the ongoing financial viability of Icon Water. The Terms of Reference also 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 final 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 similar to 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,

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94 ABS 2022, Consumer Price Index, Weighting Pattern, 20 December.

95 0.02% x 3.0% = 0.0006%

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[96].

Table 11.4 shows the financial ratios used by the ESC and IPART in their most recent decisions.

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 our final 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	2.7	2.8	2.9	3.0	3.2
Net debt gearing ratio (%)	<85	46	47	45	50	47
FFO to net debt (%)	>6.0	5.4	5.5	6.1	6.0	6.9
Retained cash flow to capital expenditure	>0.5	0.6	0.7	0.6	0.4	0.4

Source: our calculations.

The impacts of our final 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[97]. For example, IPART and Moody's consider the FFO interest cover and the net debt to RAB ratios as more significant than others[98]. According to the ESC, the FFO interest cover is the most important

96 NERA, 2013:5.
97 Industry Panel, 2015a: 121.
98 IPART, 2013b: 11 and Moddy's, 2019.

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 final 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.

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 3 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.

A1.1 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 3 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 is above the Australian average (Table 1.1).

Attachment 1 Table 1.1 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 5 best-performing utilities on this metric
Within the bottom 5 performers on this metric
Within the middle 5 performers on this metric

Source: Bureau of Meteorology (2022a)
Notes: [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.

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 expenditure 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.

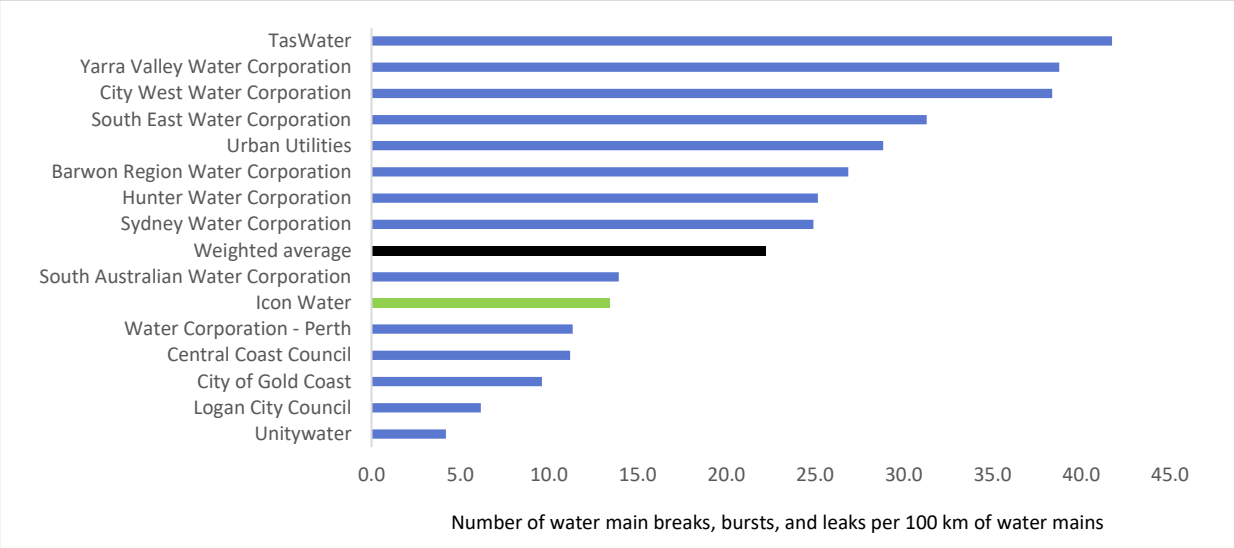
Icon Water provided safe and clean drinking water as 100%of its supplied drinking water achieved microbiological compliance. It performed better than its peer group on water quality complaints. As measured by water service complaints, Icon Water performed worse than the Australian average.

A1.1.1 Water supply service reliability

Icon Water provided more reliable and secure water supply services than the other major Australian water utilities.

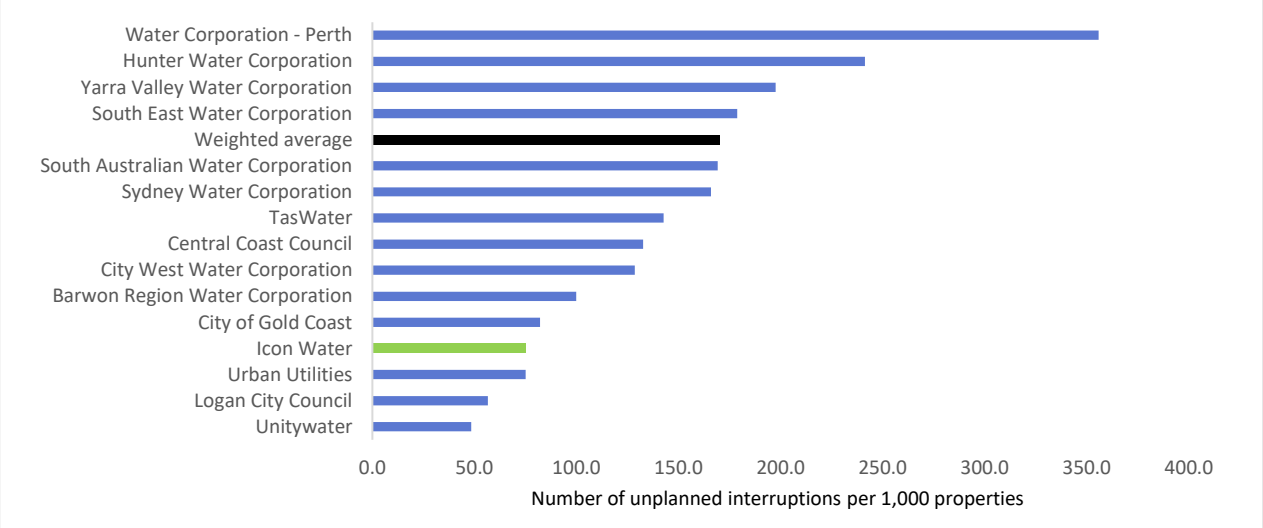
Icon Water had fewer water main breaks, bursts and leaks per 100 km of water mains (see **Error! Not a valid bookmark self-reference.**), fewer unplanned supply interruptions per 1,000 properties (see Figure 1.2 Icon Water had the fourth lowest number of unplanned interruptions among major water utilities during 2018-19 to 2020-21) and lower water supply losses (see Figure 1.3 Icon Water had the third lowest level of water losses among major water utilities during 2018-19 to 2020-21) than most other major utilities.

Attachment 1 Figure 1.1 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



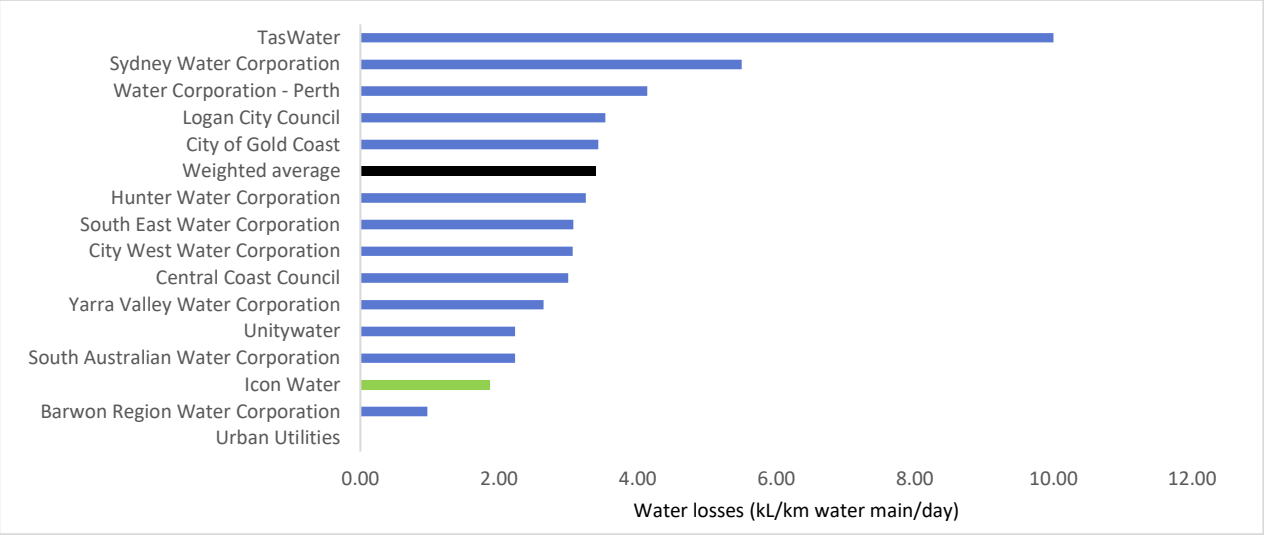
Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the length of water mains.

Attachment 1 Figure 1.2 Icon Water had the fourth lowest number of unplanned interruptions among major water utilities during 2018-19 to 2020-21



Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the number of properties connected to the water system.

Attachment 1 Figure 1.3 Icon Water had the third lowest level of water losses among major water utilities during 2018-19 to 2020-21



Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the length of water mains.

A1.1.2 High-quality and safe drinking water

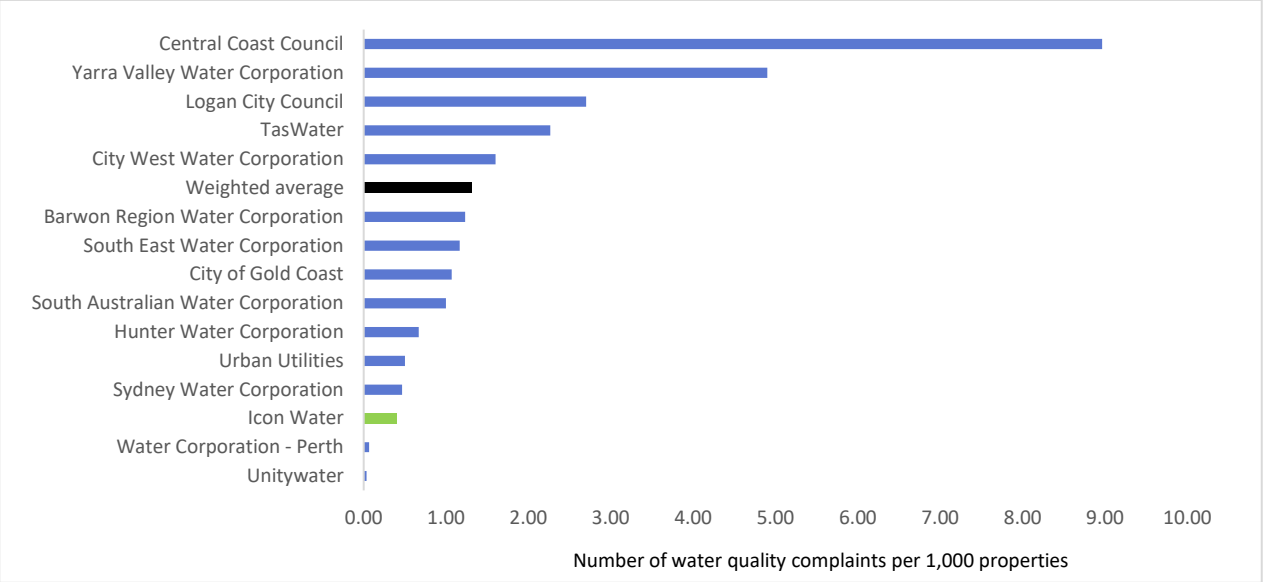
Icon Water provided safe and high-quality water with fewer water quality complaints but more water service complaints than the peer group average. Like other Australian major water utilities, 100%of drinking water supplied by Icon Water achieved microbiological compliance.

As measured by the number of water quality complaints per 1,000 properties, Icon Water performed better than most of its peers and was the third best-performing major utility (see Figure 1.4). However, Icon Water appears to have performed worse than its peer group average as measured by the higher number of water service complaints per 1,000 properties (see Figure 1.5).

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.[99]

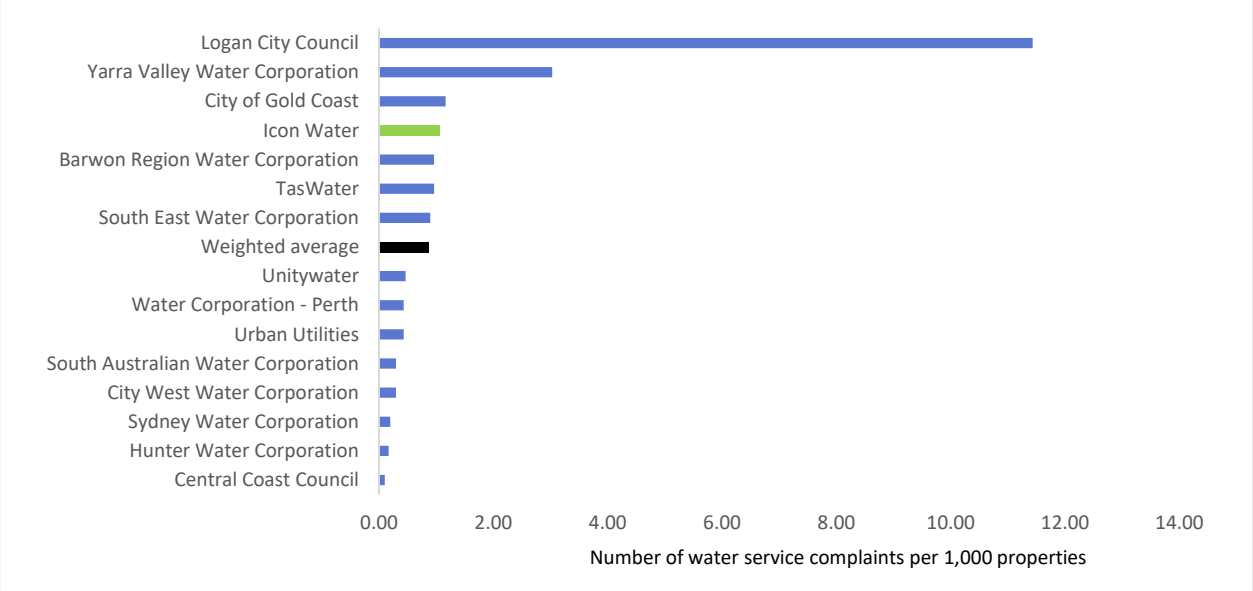
[99] ICRC 2022, p 15.

Attachment 1 Figure 1.4 Icon Water had the third lowest number of water quality complaints among its peers during 2018-19 to 2020-21



Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the number of properties connected to the water system.

Attachment 1 Figure 1.5 Icon Water was the fourth-worst performing major utility based on the average number of water service complaints during 2018-19 to 2020-21



Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the number of properties connected to the water system.

A1.1.3 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 1.2). 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 1.2).

Attachment 1 Table 1.2 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

Source: Bureau of Meteorology (2022a)

Notes: [1.] Cost data in real 2020-21 dollars

A1.2 The sewerage system

Icon Water's sewerage system operates at a higher cost with lower performance levels compared to the Australian average. Table 1.3 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.

Attachment 1 Table 1.3 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 5 performers on this metric Within the middle 5 performers on this metric

Source: Bureau of Meteorology (2022a)
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.

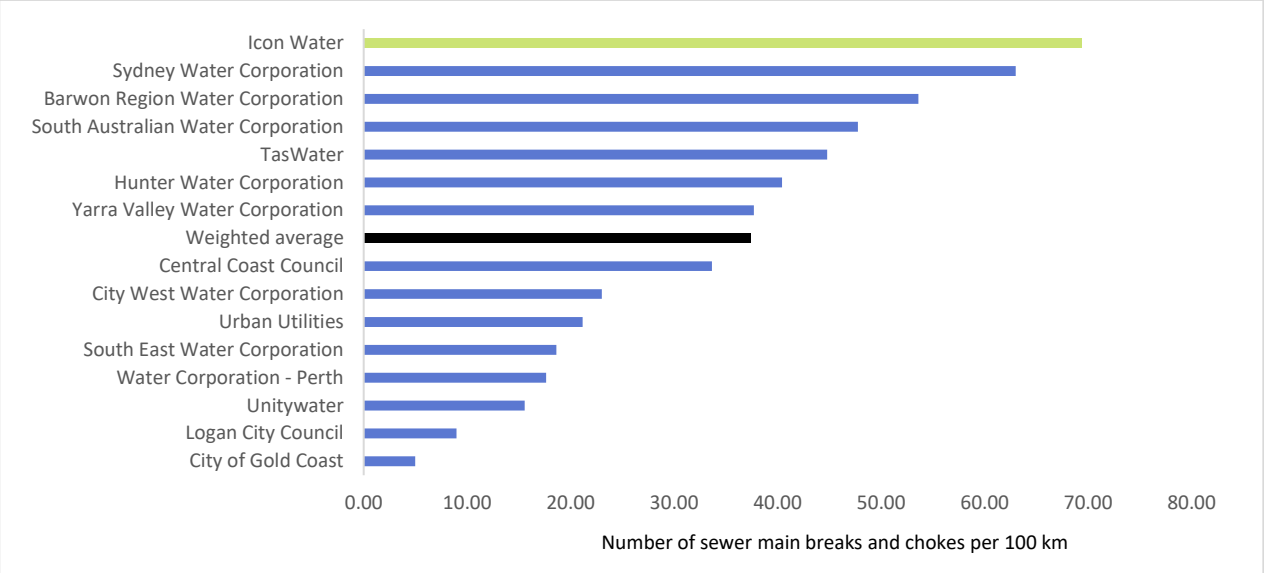
Icon Water's operating cost per property continue to be higher than the Australian average. The higher sewerage costs could be due to:

- 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.

A1.2.1 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 1.6). The number of Icon Water's sewer break incidents (69) were twice the average across all major utilities (37) (see Figure 1.6).

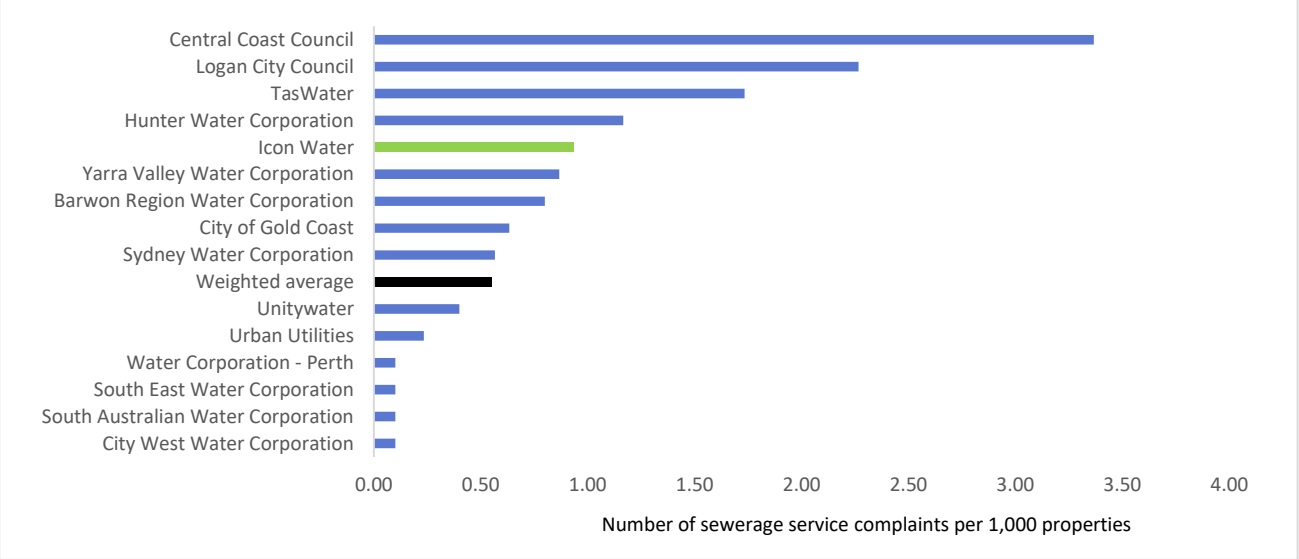
Attachment 1 Figure 1.6 Icon Water had the highest number of sewerage mains breaks and chokes per 100 km sewerage main among its peers during the 2018-19 to 2020-21 period



Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the length of sewerage mains and channels.

Icon Water received a greater than average rate of complaints about sewerage services (0.93 compared to 0.55) (see Figure 1.7). It received the fifth-highest number of complaints about sewerage services among its peers.

Attachment 1 Figure 1.7 Icon Water received more than the average number of complaints about sewerage services during the 2018-19 to 2020-21 period



Source: Bureau of Meteorology (2022a)
Note: The average is weighted based on the number of properties connected to the sewerage system.

A1.2.2 Sewerage system performance over time

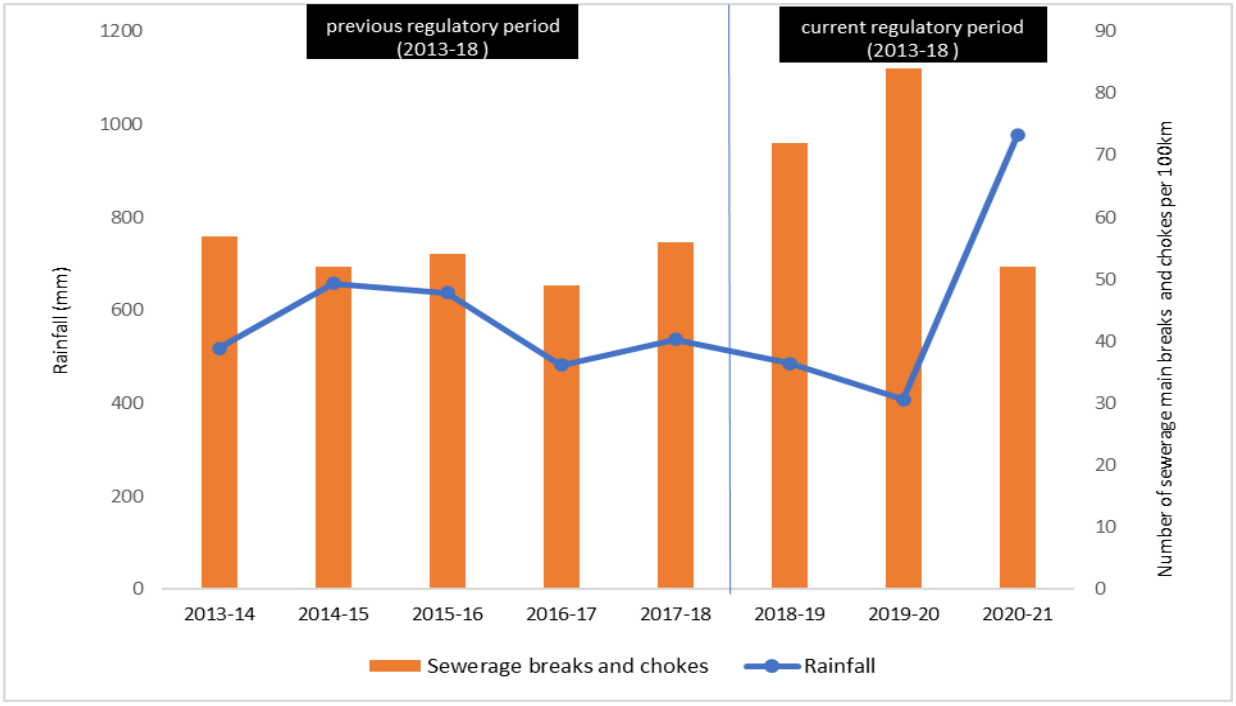
On average, Icon Water's sewerage system in the current regulatory period is operating at a lower cost ($395 per property) than the previous regulatory period ($428 per property) (see Table 1.4).

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 1.4).

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 1.8, 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.

Attachment 1 Figure 1.8 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 1,000 properties) than in the previous regulatory period (1.00 per 1,000 properties) (see Table 1.4).

Attachment 1 Table 1.4 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	●

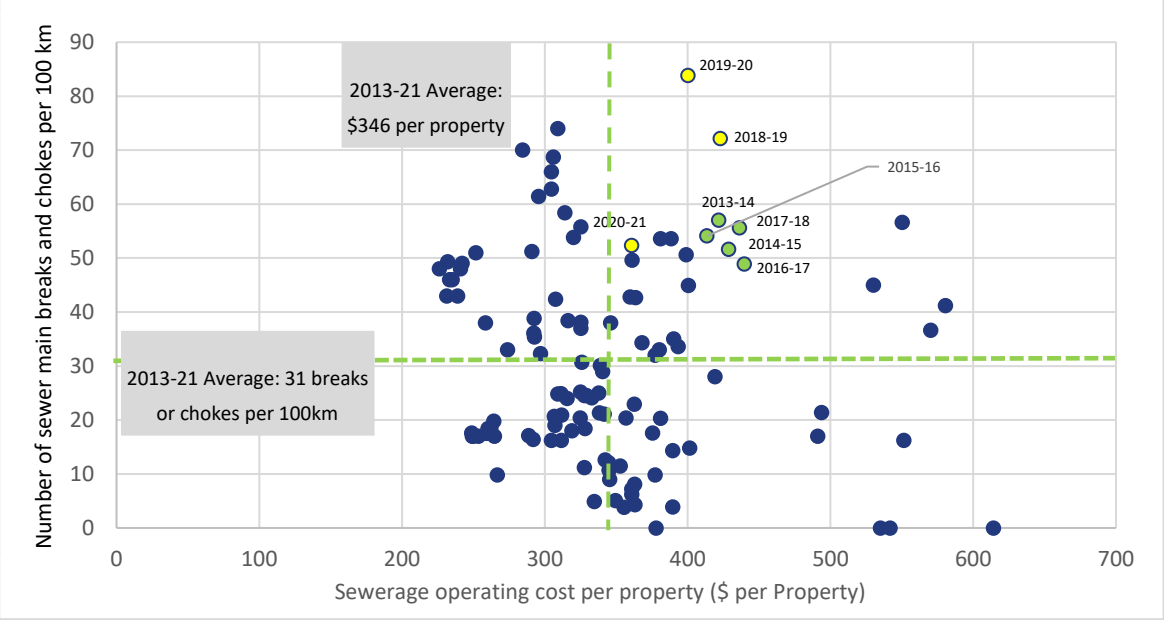
● Improved ● Worsened

Source: Bureau of Meteorology (2022a)

Note: [1.] In real 2020-21 dollars.

Over the 8 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 1.9).

Attachment 1 Figure 1.9 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



Source: Bureau of Meteorology (2022a).

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.

Attachment 2 Technical details of the demand forecasting models

A2.1 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 31 January 2023.

Attachment 2 Table 2.1 Estimated coefficients of the dam abstractions forecasting model

Variables	Coefficient	p-value	Sig.	Variables	Coefficient	p-value	Sig.
AR1	0.78	0.00	***	**Evap**	21.50	0.00	***
MA1	-0.37	0.00	***	**Evap1**	23.38	0.00	***
Intercept	215.3	0.00		**Temp_g30**	18.23	0.00	***
Temp0	6.43	0.00	***	**Temp_g35**	30.38	0.00	***
Temp3	2.22	0.00	**	**nudaysgeq1mm**	-17.86	0.00	***
Temp4	2.06	0.00	**	**Cumx**	-0.05	0.00	***
Temp-_sq_lag2	0.05	0.00	**	**Summer**	19.55	0.08	
Rain0	-6.18	0.00	***	**December**	-20.55	0.03	
Rain1	9.79	0.00	***	**Cust**	0.002	0.00	***
Rain1sqrt	-46.90	0.00	***	**Sin**	-21.85	0.04	*
Rain2sqrt	-18.87	0.00	***	**Cosin**	-30.75	0.00	***
Rain3sqrt	-13.76	0.00	***				
BIC	9526.80			**AIC**	9412.80		

Source: our calculations.
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.

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:

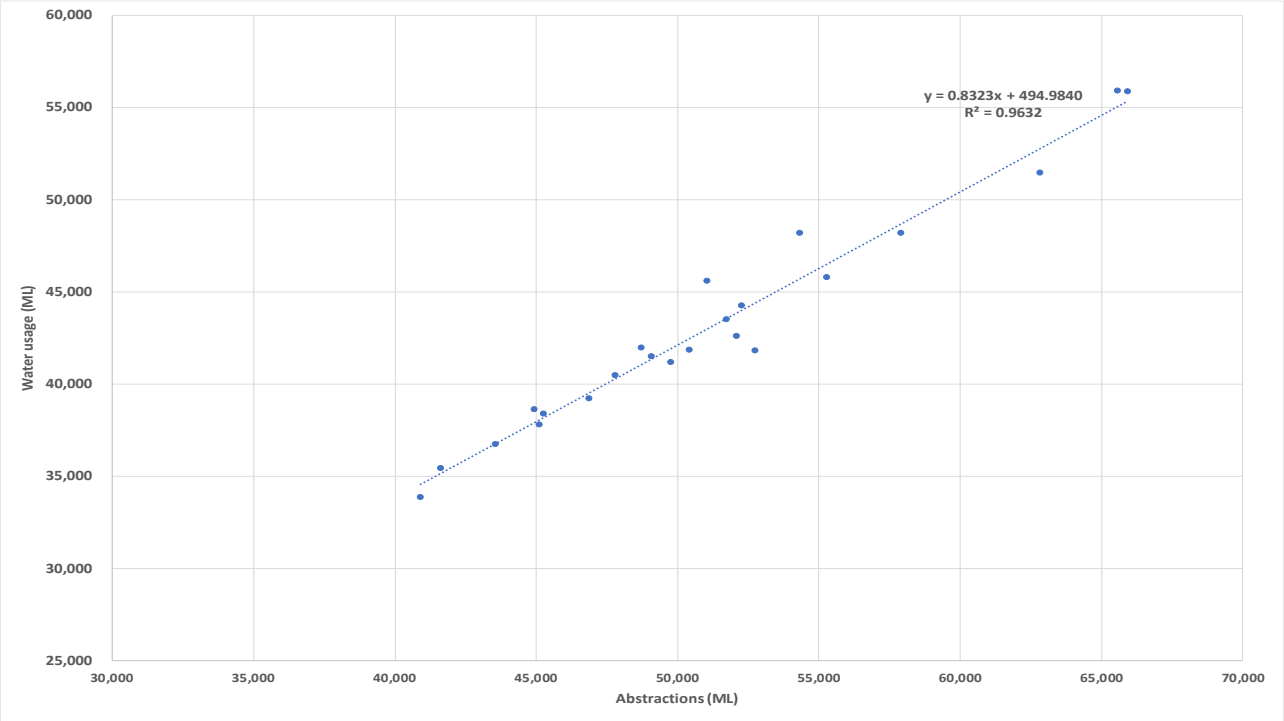
$$F_t = \rho_1 sin\left(\frac{2\pi t}{52}\right) + \rho_2 cos\left(\frac{2\pi t}{52}\right),$$

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 $\rho_2 \equiv \rho_{2,1}$.

A2.2 Total ACT water usage

Figure 2.1 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.

Attachment 2 Figure 2.1 Annual dam abstractions and total water usage, 1999-2000 to 2021-22



Source: our calculation based on data from Icon Water.

A2.3 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 2.2 shows the relationship between the average amount of water consumed per connection and observed Tier 1 proportion from 2008-09 to 2021-22.

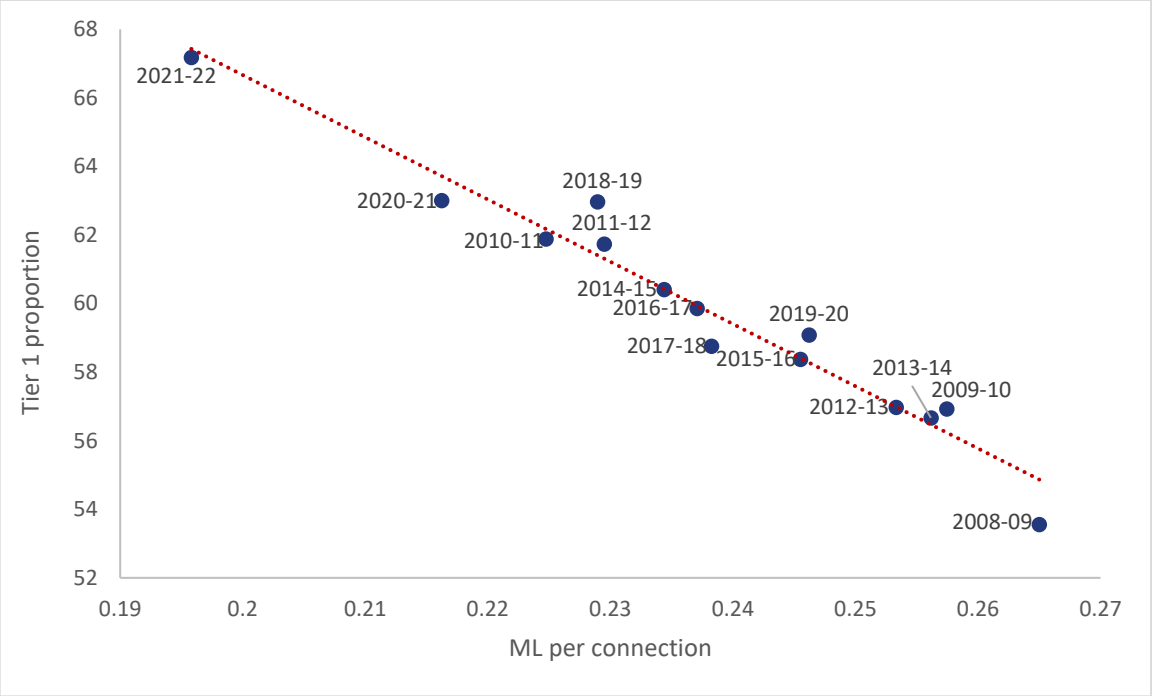
Attachment 2 Table 2.2 Observed water usage by Tier and connection numbers

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 2.2 shows the observed relationship between the Tier 1 proportion and average customer consumption. A visual examination of the data suggests a linear relationship.

Attachment 2 Figure 2.2 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 2 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 2.3shows the performance of each of the equations against the observed values. Equations 2 and 4 produce the least squared residuals among all the equations.

Attachment 2 Table 2.3 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 2.4 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.

Attachment 2 Table 2.4 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 2.5 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.

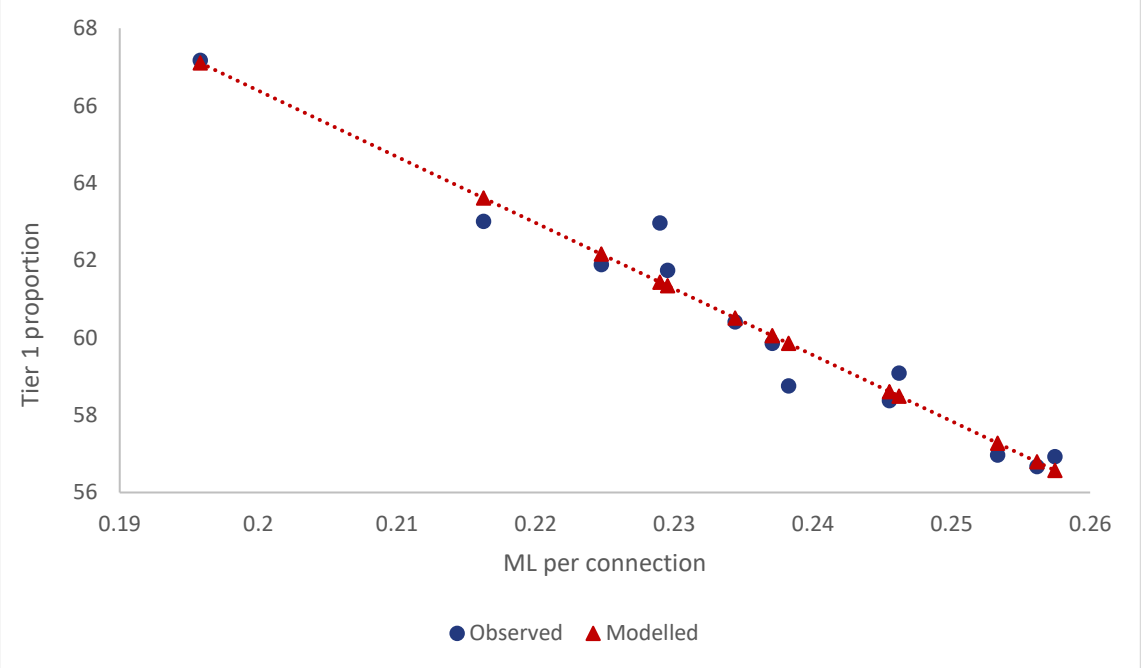
Attachment 3 Table 2.5 Equation 4 parameter significance

	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 2.3 shows the modelled Tier 1 proportion over the 2009-10 to 2021-22 period, in comparison to the observed values.

Attachment 2 Figure 2.3 Observed and modelled Tier 1 proportion



Source: our analysis based on data from Icon Water.

A2.4 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.

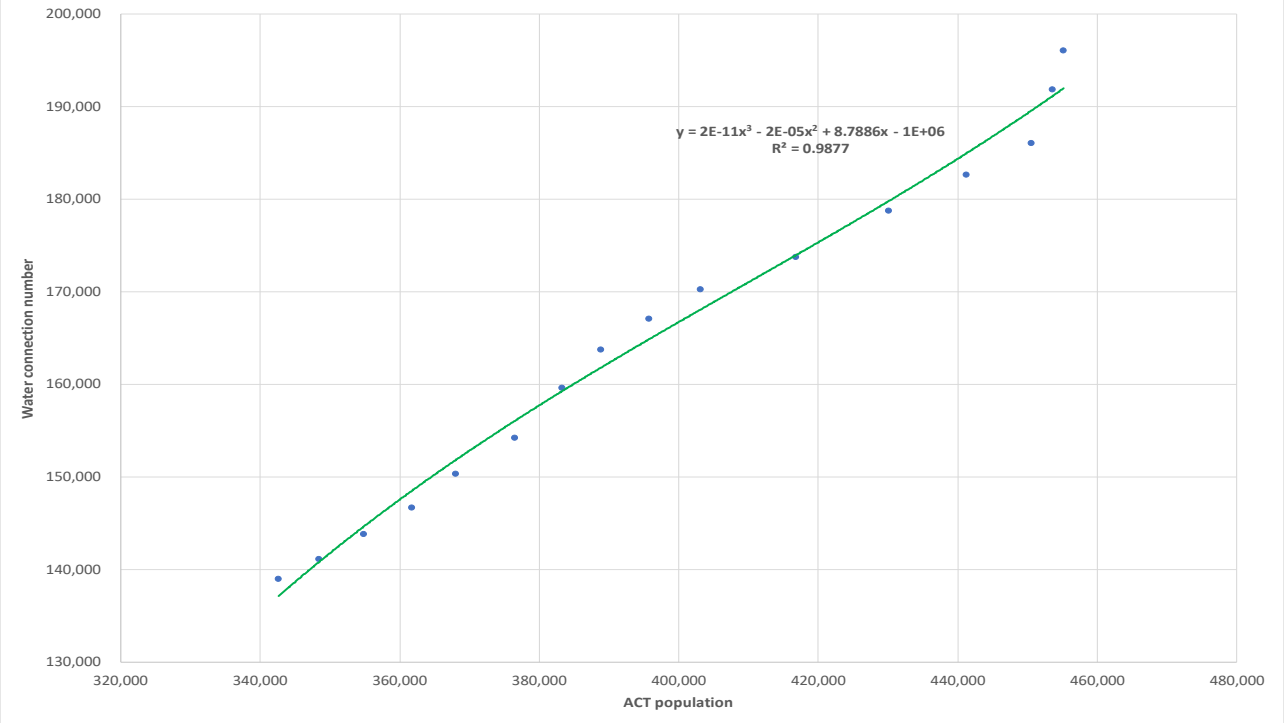
Then, we applied the estimated historical relationship to ACT population projections to forecast connection numbers and billable fixtures for the 2023–28 regulatory period.

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 2.4 shows the modelled relationship between ACT population and water connection numbers.

Attachment 2 Figure 2.4 Relationship between ACT population and water connection numbers, 2006-07 to 2021-22



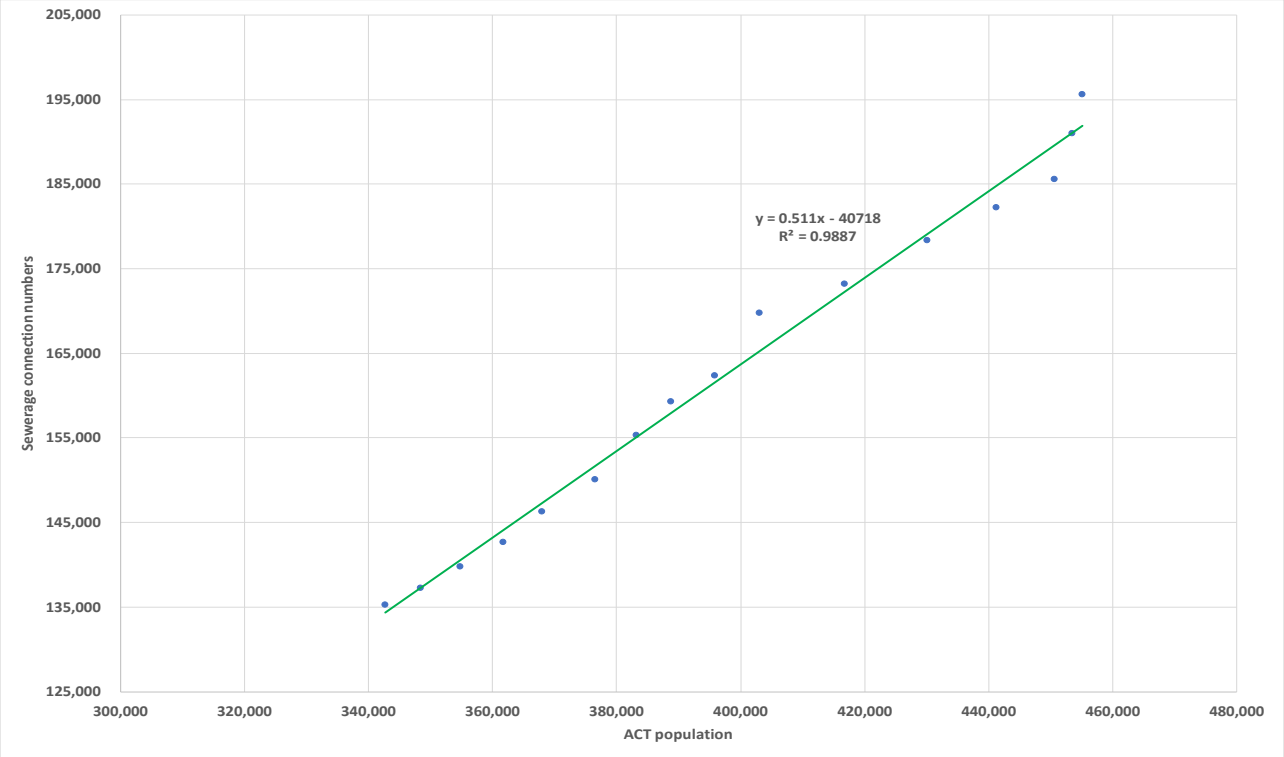
Source: our calculations.

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 2.5 shows the modelled relationship between ACT population and sewerage connection numbers.

Attachment 2 Figure 2.5 Relationship between ACT population and sewerage connection numbers



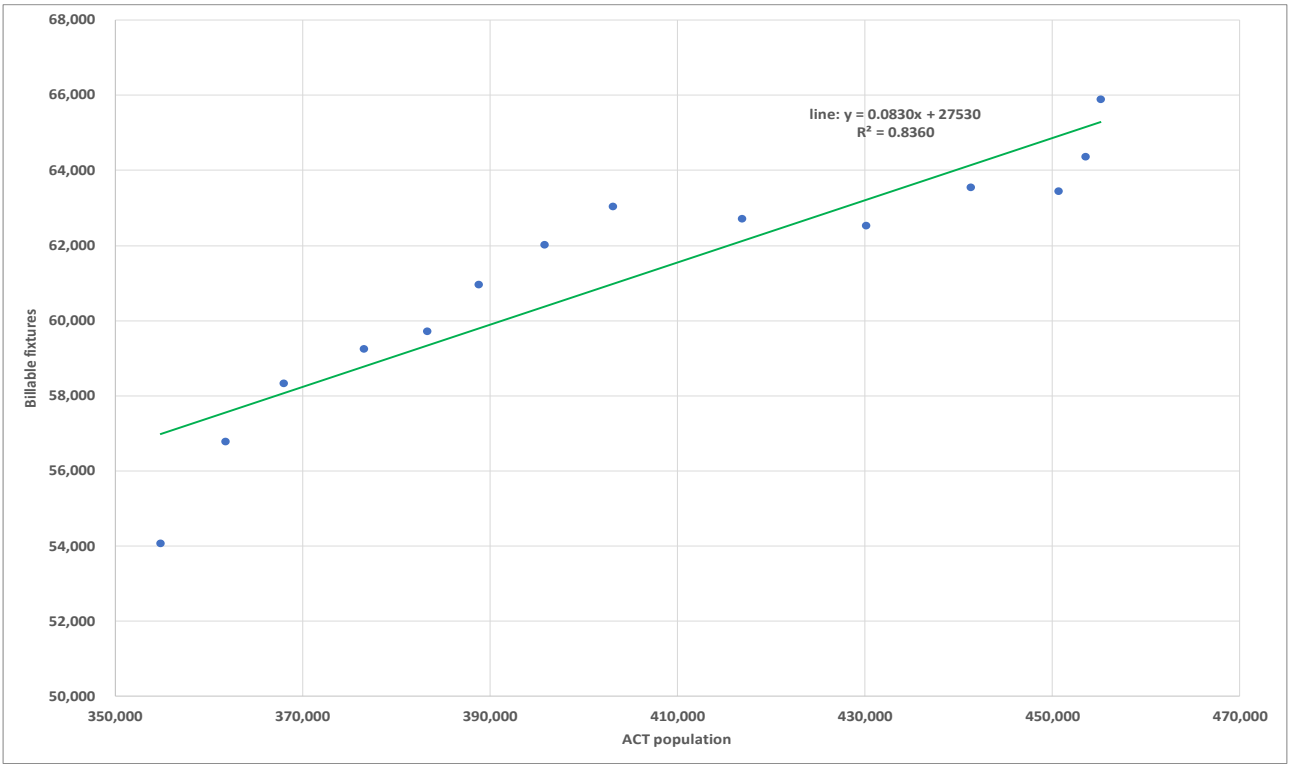
Source: our calculations.

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 2.6 shows the modelled relationship between ACT population and billable fixtures.

Attachment 2 Figure 2.6 Relationship between ACT population and billable fixtures



Source: our calculations.

Attachment 3 Miscellaneous fees and charges

A3.1 Icon Water's proposed miscellaneous fees and changes for 2023-24

Attachment 3 Table 0.1 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).	721.47	1,180.00	64%
Drawing non-compliance fee (for drawings that are submitted and do not comply with Icon Water design and drafting standards).	362.28	590.00	63%
Relocation of 20mm and 25mm stop cock and meter Where additional excavation is required	1,139.27	1,827.00	60%
Sewer main connections - Supply and fit "gatic" type cover to an existing manhole	1,513.95	1,969.00	30%
Sewer main connections – gatic (if required)	601.05	727.00	21%
Hydrants (metered standpipe) – short-term hire	85.42	102.00	19%
Cut in stop valve for 150mm main	2,383.62	2,685.00	13%
Sewer main connections - Disconnection (temporary cap off) of sewer tie for non-compliance	1,063.17	1,185.00	11%
Cut in stop valve for 225mm main	3,567.2	3,864.00	8%
Hydrants (metered standpipe) – quarterly hire (32mm)	160.55	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 2.92%.

Attachment 3 Table 0.2 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	2,959.97	1,513.00	-49%
Disconnection of water service - Service 50mm to 150mm diameter (cap main cock / blank flanged tee)	1,025.08	611.00	-40%
Disconnection of water service - Service 20mm to 40mm diameter (cap main cock)	780.14	463.00	-41%
Where insertion of hydrant tee is required ("standard" main depth) - 150mm	3,174.05	1,939.00	-39%
Sewer Main connections - Connecting main to end of existing main or collar out of existing manhole, 150mm or 225mm	2,669.74	1,644.00	-38%
Remove hydrant / endcap and connect main - 150mm	2,208.66	1,512.00	-32%
Hydrants (metered standpipes) – annual hire 65mm	608.25	419.00	-31%
Remove hydrant / endcap and connect main - 100mm	1,728.02	1,224.00	-29%
Where insertion of hydrant tee is required ("standard" main depth) - 300mm	4,533.62	3,361.00	-26%
Where insertion of hydrant tee is required ("standard" main depth) – 225mm	3,606.32	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 CPI forecasts of 2.92%.

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.

A3.2 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.

A3.3 Comparative pricing outcomes

Attachment 3 Table 0.3 Comparative pricing outcomes - water connection fees[1]

Business	Main Connections (tapping) fees	Disconnection fees	Relocation fees
Icon Water	Tapping fees based on water main size and main cock size - $893.56 to $1,224.51	20 to 40mm disconnects - $464.33 50 to 150mm disconnects - $612.76	Relocation of 20/25mm stop cock and meter - $843.42 $1,832.25 if additional works needed
Hunter Water	Application fee for service connections (all sizes) - $37.51 Recycled water main drillings based on main size - $220.25 to $725.59	Application to disconnect water - $30 Application to disconnect recycled water - $45.02	No scheduled fees
Sydney Water	Water connection fees for 32mm or larger connections - $364.14	Business properties or developers on quote basis	Application for asset adjustment - $223.33 and $590.6 Water and sewer extensions - $590.6
South East Water	Connection fees based on main size and service size - $414.8 to $5,914.81	$165.91 performed as a separate job and $89.34 performed with a new tapping. Tee removal and blank end services are price on application.	Relocation of 20mm water and recycled water - $2,419.64 to $3,312.52
Yarra Valley Water	Connection fees based on connection size - $263.69 to $5,647.55	Application fees - $83.35 to $200.06	Relocate new estate connections - $124.12
SAWater	Connection fees (include meter installation) based on connection size and include a per meter charge- $2,927.04 to $5,986.85	Disconnection up to 50mm - $785.28 Disconnection 100/150mm - $1,272.09	A range of relocation fees based on metered, unmetered and connection into box - $757.49 to $2,708.85
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.
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 2.92 percent. Prices have been adjusted to exclude GST consistent with Icon Water's proposed schedule.

Attachment 3 Table 0.4 Comparative pricing outcomes - hydrant fees[1]

Business	Installation	Raise/lower	Remove	Hire	Usage (kL)
Icon Water	Main sized fees - $1,507.32 to $3,370.66	$1,489.27	Main sized fees - $1,227.52 to $3,411.8	Annual $420.2 Quarterly $172.5 Fortnightly $102.3	$4.72
Hunter Water	No scheduled charge	No scheduled charge	No scheduled charge	Annual fees based on meter size - $121.35 to $247.01	$2.75
Sydney Water	No scheduled charge	No scheduled charge	No scheduled charge	Quarterly fees based on meter size - $22.71 to $37.21	$2.58
South East Water	Price on application Replacement - $1,656.8	No scheduled charge	No scheduled charge	Permit to draw - $371.37	$3.57
Yarra Valley Water	Supply and install fees based on main size - $2,610.24 to $7,488.25	No scheduled charge	No scheduled charge	Usage permit - $279.94	$3.03
SAWater	Estimated cost to deliver service	No scheduled charge	No scheduled charge	Quarterly hire fee - $127.62 Application fee - $244.95	No scheduled charge
TasWater	Price on application	No scheduled charge	No scheduled charge	Private annual fee - $378.1 Portable annual fee - $378.1	Levied by filling station type: Private - $1.17 Public - $1.81 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 CPI forecasts of 2.92 percent. Prices have been adjusted to exclude GST consistent with Icon Water's proposed schedule.

Attachment 3 Table 0.5 Comparative pricing outcomes - sewer connection fees[1]

Business	Connection	Disconnection	Manhole connection	Manhole alteration/ rebuild	Manhole gatic covers
Icon Water	Main sized connection fees - $1,549.44 to $2,313.63	Disconnection for non-compliance - $1,188.41 Permanent - $907.6	Work required - $1,648.73 to $3,087.85	$1,222.5 for alteration and rebuild by quote	Supply and fit - $1,974.66 Gatic - $729.09
Hunter Water	Application fees - $48.12 (sewer), $60 (sewer and water combined)	Application fees - $48.12 (sewer), $60 (sewer and water combined)	No scheduled fee	No scheduled fee	No scheduled fee
Sydney Water	Asset adjustment - $304.47 Application fees - $223.33 to $590.60	No scheduled fee	No scheduled fee	Business and development by quote	No scheduled fee
South East Water	Notice of agreement - $233.55 Deeds of contract - $1,133.45	No scheduled fee	No scheduled fee	No scheduled fee	No scheduled fee
Yarra Valley Water	Pressure sewerage fees - $19,103.57 to $47,203.13	Application fees - $83.35 to $200.06	No scheduled fee	No scheduled fee	No scheduled fee
SAWater	Main sized connection fees - $3,063.93 to $6,313.12	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 CPI forecasts of 2.92 percent. Prices have been adjusted to exclude GST consistent with Icon Water's proposed schedule.

A3.4 Interjurisdictional miscellaneous fees— water connection and drawing and planning

Attachment 3 Table 0.6 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 $9.73 per service for electronic service location diagrams through to $101.53 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 $8.01 for individual conveyancing certificates through to $52.58 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 $22.95 for the provision of Asset Information Plans through to $238.64 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 $109.36 for express processing of 2 lot developments to $1,442.66 for multi-unit >19 lot development applications.
SAWater	SAWater 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 $337.58 and a Design and Administration charge for extensions of $1062.13. Sewer link up administration fee of $89.03 and a water link up administration fee of $223.34.
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 331.14 per service for minor developments through to 483.74 for major developments. Fees for engineering design and approval range from $328.07 for minor developments through to $1,564.57for 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 CPI forecasts of 2.92%.

Attachment 3 Table 0.7 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 - $37.52 • Recycled water main size drillings– $220.25 (80mm) through to $725.59 (375mm) • Water meter affixtures – $52.28 (20mm) through to $242.89 (50mm, delivered) • Disconnection water and recycled water - $30.01 (water) and $45.03 (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 - $373.7 • Water pump application - $154.8 • Asset adjustment application (complying) - $304.47 • Asset adjustment application (other) - $590.6 • Sewer and water extension - $590.60 • 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 - $414.79 (20mm) through to $3,331.5 (80mm to 300mm connections where tapping saddles are required) • Relocation fee - $2,419.64 (short side) • Relocation fee - $3,312.52 (long side) • Main meter removal fees - $460.51 (20mm) through to $734.49 (50mm) • Disconnection (separate job) - $165.91 • Disconnection (performed with new tapping) - $89.34
SAWater	Fees are levied for both connection and disconnection services. SAWater has an extensive range of relocation charges based on connection size for standard altering, altering into a box and unmetered connections.	• Water connections fees - $2,927.04 (20mm) to $5,986.85 (50mm) • A per meter rate applied for each meter over 12m up to 25m - $138.94 per meter (20mm) to $215.11 per meter (50mm) • Standard relocations are stepped based on the associated meters - $1,284.44 (up to 0.5m), $1,338.99 (0.5m to 2.0m), $1,454.26 (2.0m to 4.m) • Disconnection fees - $785.28 (up to 50mm) and $1,272.09 (100/150mm)

Yarra Valley Water	YVW 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. YVW'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 - $263.69 (20mm) through to $5,647.55 (225mm) • Complete connection supplement (long) fees - $2,035.75 (20mm) through to $5,068.9 (225mm) • Complete connections supplement (short) fees - $1,311.27 (20mm) through to $5,068.9 (225mm) • Aqua stop (100mm) - $2,317.44 • Aqua stop (150mm) - $2,474.03 • Temporary pump station (per lot) - $1,424.41 • Relocation of check meter - $63.7 • Relocation of service for new estate - $124.12
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 CPI forecasts of 2.92%.

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 the ICRC Act

Section 7 ICRC Act

Box 3 Terms of reference considerations

1 The Commission must consider:

a. the objectives of the Commission outlined within section 7 of the Act

b. the objectives 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, Murry - 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 identified in reviews undertaken in accordance with the reset principles in clause 113 of the Price Direction for Regulated Water and Sewerage Services 1 July 2018 to30 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 this 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.

Box 4 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 5 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.

A2.1 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.

A2.2 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*.

Appendix 2 Table 2.1 Compliance with the Terms of Reference

Clause	Requirement	Chapter(s)	Comments
4(1)(a)	The commission must consider the objectives of the commission outlined within section 7 of the Act.		See table 2 below
4(1)(b)	The commission must consider the objective related to price directions outlined in section 19L of the Act.		See table 3 below
4(1)(c)	The commission must consider the legislative requirements outlined in section 20(2) of the Act.		See 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.	2	
4(1)(e)	The commission must consider the National Water Initiative, Murray-Darling Basin Plan commitments and associated policies and agreements.	1, 2, 3	

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.	3, 5, 6, 7, 8, 9	

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.	3, 4, 5, 6, 7, 8, 9, 10	The commission's 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 final 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 net revenue requirement, in conjunction with its final 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, 11, 12	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, 10, 11, 12	Icon Water's regulated water and sewerage services tariffs will be reviewed during the period of the 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 final 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	The final report was sent to the referring authority 1 May 2023

Appendix 2 Table 2.2 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, 11, 12	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

Appendix 2 Table 2.3 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, 12	The commission's 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.

Appendix 2 Table 2.4 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, 9	The commission's 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, 4	The commission's 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, 9	The commission's 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	7	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, 9	The Commission's 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, 3	The pricing principles developed as part of the commission's tariff structure review provided the basis for how the commission considered an appropriate balance between efficiency and environmental and social considerations. These principles take account of a number of government policies and national agreements associated with ecologically sustainable development, including the National Water Initiative (NWI), the Murray- Darling Basin Plan and ACT Government policies including the ACT Water Strategy - Striking the Balance 2014-2044.
(g)	The social impacts of the decision	1, 2, 3, 4, 10, 12	Social considerations have been considered by ensuring that the regulated prices are based on efficient costs. The commission has considered the impacts of 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, 5, 9	The commission's 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	4, 5, 6, 7, 9, 10, 11	The commission's 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 final decision, the commission also considered the estimated impacts on Icon Water's financial viability. The commission is confident that its final 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	11, 12	The Commission identified the estimated impacts of its final 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	4	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 Submissions

A3.1 Written submissions to the draft decision

Date received	Submitter	Key issues raised or information provided
04/12/2022	Peter Sutherland	• Recommends basing the Tier 2 price on 200 kL per year rather than 50kL per quarter to better account for seasonal usage patterns. • Suggests that Icon Water consult more widely than only with its direct customers to better capture the views and interests of the community. For example, he suggests obtaining the views of private tenants who are not directly contracted with icon Water. • Recommends that we use ACT-specific data when assessing the impact of electricity price increases. • Recommends that we explicitly identify the impact of CPI increases in our final report and publicise the quantum of the increase in household water and sewerage bills attributable to inflation spikes. • Recommends examining the feasibility of constructing a volumetric pricing arrangement for sewerage services in the ACT.
10/11/2022	Terry Dwyer	• Argues our Regulatory Asset Base draft decision includes works (Corin Dam and Bendora Dam) that have already been paid for and submits that increased indexing is unwarranted. • Submits that our two-tier pricing model is unnecessary and questions why urban households should pay more than farmers. • Recommends that system construction and maintenance costs should be recovered by rates on the land values. • Recommends that only operating expenditure should be recovered in per kl charges. • Argues that the ACT community should only incur charges for water services proportionate to its water use and that other cities downstream reliant on the water from the dams should contribute proportionate amounts.
13/12/2022	ACTCOSS	• Suggests funding infrastructure investment through general taxation and by shifting the burden to developers and away from low-income consumers. • Recommends that the ICRC further consider the impact the decision will have on low-income households with different levels of water

		usage. • Requests that we consider the distributional impact of pricing across businesses and community organisations. ACTCOSS emphasises that non-profit community organisations may be especially impacted by a price increase. • Recommends examining the levels of debt and/or hardship among Icon Water customers and analysing whether the Utilities Concession sufficiently addresses water and sewerage service affordability for low-income households.
16/12/2022	Icon Water	**Operating expenditure** • Icon Water argues the commission's draft decision is not achievable and will not provide a sufficient budget to deliver services and undertake planning work to secure water security and improve climate resilience. In response, it submitted a revised operating expenditure proposal. • Icon Water provided a revised operating forecast of $1186.3 million nominal ($1073.0 million $2022-23) for the 2023-28 regulatory period. • It updated base year forecasts to actual costs and accepted the commission's draft decision base year adjustment for regulatory compliance costs, licence fee and royalties. It did not accept the commission's base year adjustments for overhead capitalisation or price submission costs. • Icon Water adopted a productivity growth rate of 0.7% annually and updated other cost escalators for the latest information available. • It increased its step change forecast to $53.9 million from $13.5 million in its initial proposal, reflecting higher costs for insurance premiums and meeting security of critical infrastructure obligations. In addition, Icon Water added step changes for ICT expenditure and Managing Buildings Better reforms. **Capital expenditure** • Icon Water provided an updated forecast of its capital expenditure for the 2023-28 regulatory period of $689.1 million ($2023-28). This includes $206.8 million for water assets and $482.2 million for wastewater assets. Icon Water's revised forecast is 2.1% lower than its previous forecast. • Icon Water forecasts an additional $28.3 million of investment by developers through the capital contributions charge. • It included new projects and further deferrals from current regulatory

		period. • It removed 7 ICT projects to reflect the shift in expenditure from capital to operating expenditure. • Icon Water argued that the draft decision to reprofile the capital investment forecast did not adequately consider: the speed of its delivery cycle, the complexity of delivery, or the delivery timing needed to maximise customer benefits. • Icon Water reprofiled some projects based on risk, resulting in a delay in passing on the costs of those projects to customers • In relation to top 10 projects, Icon Water accepted draft decision on 5 projects with a minor update to the expected cashflow over the regulatory period; included higher expenditure than draft decision forecast for 4 projects. • Icon Water did not agree with draft decision to apply an efficiency adjustment of 2.3% to projects not individually assessed, and argued this approach is inconsistent with the current arrangement of incentive mechanisms. • Icon Water updated project costs and delivery timeframe forecasts **Other matters** • Icon Water agrees with the commission's draft decision to retain the two-tier inclining block water tariff structure and apply price changes uniformly across all water tariff components. • Icon Water agrees with the commission's draft decision to maintain the existing sewerage tariff structure and decision to conduct a review of the sewerage tariff structure over the next regulatory period • Icon Water agrees with the commission's decision to continue using its demand forecasting methods (2021)[100] • Icon Water requested clarification on whether uncontrollable operational expenditure costs will attract an annual true-up through a pass-through provision • Icon Water agrees with the commission's draft decision for the weighted average cost of capital.

[100] https://www.icrc.act.gov.au/projects/completed-projects/water-and-sewerage/review-of-water-and-sewerage-services-demand-forecasting-methods

A3.2 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 capital expenditure 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.
Calibre	Calibre Consulting (ACT) Pty Ltd, an independent expert consultancy hired 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.
Gamma	The parameter that reflects the impact on dividend imputation. The value of gamma depends on the extent to which imputation credits for tax paid are distributed to shareholders and the extent to which shareholders can use imputation credits to in effect obtain a tax rebate.
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.
Market Risk Premium	A measure of the extent to which the expected return on the market portfolio as whole exceeds the risk-free rate.
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 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	A gain or loss on an investment over a specified time period, expressed as a percentage of the investment's cost or value.
Total revenue allowance	The amount of revenue required to meet Icon Water's efficient costs minus its taxation liabilities.
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
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
AER	Australian Energy Regulator
AIC	Akaike Information Criterion
ACG	Allen Consulting Group
ARIMA	autoregressive integrated moving average model
ASX	Australian Stock Exchange
BIC	Bayesian Information Criterion
BST	Base-step-trend
CCC	Central Coast Council
CIRMP	Critical Infrastructure Risk Management Program
CISC	Cyber and Infrastructure Security Centre
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
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
GL	gigalitre
HER	historical excess returns

ICRC	Independent Competition and Regulatory Commission190
ICRC Act	*Independent Competition and Regulatory Commission Act 1997* (ACT)
ICT	information and communication technology
IFRS	International Financial Reporting Standards
IPAD	Icon Water Investment Planning & Delivery
IPART	Independent Pricing and Regulatory Tribunal (NSW)
kL	kilolitre
km	kilometre
LMWQCC	Lower Molonglo Water Quality Control Centre
m	million
MFP	Multi-factor productivity
MJA	Marsden Jacob Associates
MRP	market risk premium
n.a.	not applicable
NPR	National Performance Reporting, undertaken by the Bureau of Meteorology
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
TAB	tax asset base
Tier 1 price	the usage price charged by Icon Water to its residential and non-residential customers for up to 0.548kL per day averaged over the billing period
Tier 2 price	the usage price charged by Icon Water to its residential and non-residential customers for water usage in excess of 0.548 kilolitres on average per day of the billing period
UNFT	Utilities (Network Facilities) Tax
WAC	water abstraction charge
WACC	weighted average cost of capital
WAMC	Water Administration Ministerial Corporation

WSCCC	Water and Sewerage Capital Contribution Code
YVW	Yarra Valley Water

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