



ICRC

independent competition and regulatory commission

Final report

Regulated water and sewerage services prices 2018–23

Report 1 of 2018, May 2018

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

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

The Commission's objectives are set out in section 7 and 19L of the ICRC Act and section 3 of the *Utilities Act 2000*.

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Executive summary

On 13 December 2016 the Independent Competition and Regulatory Commission (‘the Commission’) received from the ACT Treasurer Terms of Reference requiring it to conduct an investigation into and make a price direction for regulated water and sewerage services provided by Icon Water Limited. This report explains the Commission’s findings resulting from that investigation and the final decision on water and sewerage services tariffs for the period from 1 July 2018 to 30 June 2023.

The Commission’s decision will result in a fall in the prices ACT consumers pay for water and sewerage services for 2018–19. A typical household will see a decrease of 3.5 per cent in 2018–19 in their annual water and sewerage services bill (assuming 200 kilolitres (kL) of annual water use). This means their expected annual bill falls from \$1,200 in 2017–18 to \$1,158 in 2018–19, a saving of approximately \$42. Annual bills for non-residential customers will fall by between 1.8 and 8.7 per cent in 2018–19 compared to 2017–18, depending on water usage and the number of billable fixtures.

The Commission’s decision sets the annual increase in tariffs to be broadly consistent with the expected rate of inflation. The typical 200kL household’s bill will rise by close to \$25 per year, or around two per cent. The bill of a medium-size non-residential consumer (2500kL per year) will rise by close to \$130 per year, or around 1.4 per cent.

Prices will be lower than initially proposed by Icon Water in June 2017. The lower prices determined by the Commission result from several factors: Icon Water’s reconsideration of its planning capital expenditure program in response to the Commission’s efficiency review, small operating cost savings, lower interest rates and the Commission’s decision on the method of calculating the return on capital.

The Commission’s final decision on regulated water and sewerage services prices for the forward regulatory period (2018–23) is given below, in Table E.1.

Table E.1 The Commission’s final decision on water and sewerage services tariffs, 2018–23

	2017–18 ^a	2018–19	2019–20	2020–21	2021–22	2022–23
Commission’s final decision - water						
Supply charge (\$/pa)	104.21	120	140	160	180	200
Tier 1 price (\$/kL)	2.68	2.43	2.45	2.48	2.50	2.52
Tier 2 price (\$/kL)	5.38	4.88	4.93	4.97	5.02	5.07
Commission’s final decision - sewerage services						
Sewerage services charge (\$/pa)	537.34	531.19	531.20	531.20	531.21	531.21
Sewerage fixtures (\$/pa)	525.51	519.50	519.50	519.51	519.51	519.52

Notes: ^a Data for 2017–18 (last year of the current regulatory period) are presented for comparison purposes. Actual charges payable from 2019–20 to 2022–23 could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered. Sewerage fixtures fees are only applicable to non-residential customers who have more than two fixtures.

The Commission's final decision accepts much of Icon Water's Price Proposal and Revised Price Proposal on aspects of the form of regulation, such as retaining the use of the building block methodology to calculate prices for water and sewerage services. The Commission's final decision retains the Industry Panel's adjustment mechanism in order to share demand volatility risk between Icon Water and consumers. The Commission has not accepted Icon Water proposals for a new annual unders and overs mechanism, negotiated contract pass-throughs and contingent project allowances.

Following the Commission's capital expenditure investigation and draft report, Icon Water's Revised Price Proposal reduced proposed 2018–23 capital expenditure by over \$18m (nominal).

The Commission's final decision on prices differs from Icon Water's Revised Price Proposal due to the final decision on the estimation of parameters for the rate of return on capital assets. Further, the Commission's final decision is to apply the same percentage change to Tier 1 and Tier 2 usage prices in adjusting for inflation and pass-through costs.

The Commission recognises the importance of ensuring Icon Water's financial viability. A financial viability test was conducted by calculating a selection of financial ratios for Icon Water from 2018–19 to 2022–23. The Commission is satisfied its final decision on prices for water and sewerage services and the proposed price path for the forward regulatory period adequately provides for Icon Water's financial viability and ensures it is capable of investing to meet future demand. This decision has taken account of the information provided by Icon Water and the analysis by the Commission's expert advisors. The Commission was assisted by a team of independent engineering consultants who performed a detailed review of Icon Water's operating and capital expenditure.

In conducting its investigation the Commission used an open and consultative process, producing an issues paper in March 2017 that set out the Commission's preferred approach and pricing principles. Icon Water's Price Proposal for water and sewerage services was subsequently received on 30 June 2017 and made publicly available on the Commission's website.

To ensure that members of the public were aware of the matters being canvassed in the investigation and to provide another opportunity for consultation, the Commission held an informal public forum on 28 September 2017 to discuss Icon Water's submission.

The Commission released a draft report on 12 December 2017 that detailed its draft decision on prices for water and sewerage services. The draft report identified operating and capital expenditure savings, as well as improvements to the form of regulation and rate of return methodology. The Commission hosted a public discussion of the draft report at an open forum in February 2018.

Submissions received in response to the Commission's consultation process have been taken into account in making the final decision.

Summary of the Commission's final decision

This section sets out the primary features of the Commission's price investigation and final decision on Icon Water's water and sewerage services tariffs for the period 1 July 2018 to 30 June 2023 (the forward regulatory period).

S1 Water and sewerage services tariffs 2018–23

The Commission's final decision on water and sewerage services tariffs results in a decrease in prices paid by all consumers from 1 July 2018. These immediate decreases, are set out in Table S.1 and Table S.2. These prices then increase at a rate broadly consistent with the expected rate of inflation in the next four years of the regulatory period to 2023.

Prices will be lower than initially proposed by Icon Water in June 2017. The lower prices determined by the Commission result from Icon Water's reconsideration of its planned capital expenditure program in response to the Commission's efficiency review. Small operating cost savings, lower interest rates and the Commission's decision to lower the return on capital also decreased prices.

The Commission's final decision is:

- To retain the existing water tariff structure, with a fixed supply charge and a two-tier inclining block usage charge for the forward regulatory period.
- To decrease the Tier 1 usage price from \$2.68 to \$2.43 per kL and then adjust for changes in the Consumer Price Index (CPI) and any pass-through amounts approved as part of the annual price reset mechanism during the forward regulatory period.
- To decrease the current Tier 2 usage price of \$5.38 to \$4.88 per kL in 2018–19 and then adjust it for changes in the CPI and any pass-through amounts approved as part of the annual price reset mechanism.
- To accept Icon Water's proposal to increase the fixed supply charge in a gradual manner, by \$20 a year to \$200 by 2022–23.

For the sewerage services tariff the Commission's final decision is:

- To retain the existing sewerage services tariff structure. This consists of a fixed supply charge for residential premises, and an additional annual charge for flushing fixtures in excess of two for non-residential consumers.

The impact of the final decision on the average residential consumer will be a decrease in the combined water and sewerage services bill in the first year of the forward regulatory period (2018–19).

The Commission's decision results in an initial fall in the prices ACT consumers pay for water and sewerage services. A typical household will see a decrease of 3.5 per cent in 2018–19 in their annual water and sewerage services bill (assuming 200kL of annual water use). This means their annual bill falls from \$1,200 in 2017–18 to \$1,158 in 2018–19, which is a saving of approximately \$42.

The Commission set the annual increase in tariffs broadly consistent with expected inflation, which is 2.5 per cent. The annual combined water and sewerage services bill of a typical household consuming 200kL per year will rise by approximately \$25 per year, or 2.1 per cent. The bill of a medium-size non-residential consumer (using 2,500kL and 50 billable fixtures) will rise by close to \$130 per year, or around 1.4 per cent.

Table S.1 Icon Water's Price Proposal and the Commission's final decision on water tariffs, 2018–23

	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water's Price Proposal					
Supply charge (\$/pa)	120.00	140.00	160.00	180.00	200.00
Tier 1 price (\$/kL)	2.73	2.76	2.79	2.81	2.84
Tier 2 price (\$/kL)	4.95	4.95	4.95	4.95	4.95
Commission's final decision					
Supply charge (\$/pa)	120.00	140.00	160.00	180.00	200.00
Tier 1 price (\$/kL)	2.43	2.45	2.48	2.50	2.52
Tier 2 price (\$/kL)	4.88	4.93	4.97	5.02	5.07

Note: Actual charges payable from 2019–20 to 2022–23 could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission's calculations and Icon Water (2017a).

Table S.2 Icon Water's Price Proposal and the Commission's final decision on sewerage services tariffs, 2018–23

	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water's Price Proposal					
Sewerage services charge (\$/pa)	541.84	546.39	550.97	555.59	560.24
Sewerage fixtures (\$/pa)	529.92	534.36	538.84	543.35	547.91
Commission's final decision					
Sewerage services charge (\$/pa)	531.19	531.20	531.20	531.21	531.21
Sewerage fixtures (\$/pa)	519.50	519.50	519.51	519.51	519.52

Note: Actual charges payable from 2019–20 to 2022–23 could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission's calculations and Icon Water (2017a).

Icon Water charge a range of fees for miscellaneous services, including meter replacement, disconnection and the installation of fire hydrants. The Commission will update these fees by the change in the CPI in each year of the 2018–23 regulatory period. These fees include a Capital Contribution Code that will partially fund infrastructure augmentations required due to urban infill.

The Commission welcomes Icon Water’s commitment to consider introducing a pricing regime for trade waste during the 2018–23 regulatory period.

The modelling and calculations used in reaching the Commission’s final decision on Icon Water’s water and sewerage services tariffs were independently audited for accuracy and consistency by SIP Advisory.

S2 Regulatory objectives and process

The Commission’s investigation was guided by the Terms of Reference the ACT Treasurer issued on 13 December 2016 and the requirements specified in the *Independent Competition and Regulatory Commission Act 1997* (the ICRC Act).

As required by the Terms of Reference, the Commission has:

- Outlined its intended approach to achieving its regulatory objectives in its issues paper, public forums and draft report.
- Continued to use the current regulatory model except where improvements were considered appropriate.
- Proposed minor changes to the structure of tariffs, consistent with the economic, social and environmental objectives and the policies of the ACT Government.
- Considered the scope for incentive schemes for service levels and operating and capital expenditure and concluded that these should be considered separately during the forward regulatory period.
- Identified the incremental impact on Icon Water’s revenues and prices of its recommendations.

The Commission conducted its previous review of prices for regulated water and sewerage services in 2013. On that occasion the Commission’s decision was appealed, and an Industry Panel conducted an investigation and provided a report and substituted price direction in 2015. As required by a reset principle specified by the Industry Panel, the Commission also conducted a review of the tariff structure for Icon Water’s regulated water and sewerage services in 2016 and 2017.

In March 2017 the Commission released an issues paper that set out its approach and proposed pricing principles for determining the tariff levels and tariff structures for water and sewerage services during the period 1 July 2018 to 30 June 2023.

In response to the Commission's issues paper, Icon Water submitted its Price Proposal in June 2017. Icon Water's Price Proposal set out its proposed tariffs for water and sewerage services, and was made available on the Commission's website. To ensure that members of the public were aware of the matters being canvassed in the investigation and to provide another opportunity for consultation, the Commission held an informal public forum on 28 September 2017 to discuss Icon Water's Price Proposal. No further submissions were received in response to the issues paper.

The Commission's draft report was released for public comment on 12 December 2018. Following the public hearing on 7 February 2018, formal submissions on the draft decision closed on 23 February 2018.

In response to the Commission's draft decision, Icon Water submitted its Revised Price Proposal in February 2018. The Revised Price Proposal set out Icon Water's amended proposal for water and sewerage services tariffs.

The Commission received submissions to the draft decision from the Conservation Council (ACT) and the ACT Civil and Administrative Tribunal. These submissions and Icon Water's Revised Price Proposal were made available on the Commission's website.

S3 The Commission's approach

S3.1 Regulatory objectives and pricing principles

The Commission's role is to regulate prices, access and other matters in relation to industries involved in the provision of water, sewerage services and electricity services in the ACT.

The Commission sets prices for regulated water and sewerage services by balancing economic efficiency with social, environmental and other specific objectives as specified by the relevant legislation and consistent with ACT Government policies.

This approach is consistent with the ICRC Act's requirement that the Commission's price decisions consider the long-term interests of consumers, including social impact considerations.

Economic efficiency has several aspects, among them efficiency in the use of a service and efficiency in the provision of a service, which encompasses efficient operation and the promotion of efficient investment. Environmental objectives include consistency with ACT Government policies on sustainability and consideration to both regional and national water consumption policies. Social impact considerations can cover a wide range of matters, but the main aspect usually relates to the community's concern about fairness or equitable outcomes, and particularly the impacts on low income consumers.

The Commission considers tariff structures should be simple to understand, simple to implement, and be subject to public consultation and scrutiny.

S3.2 The regulatory model and form of price control

Consistent with the Terms of Reference, the Commission adopted as a starting point the current regulatory model, as specified in the Industry Panel's report and substitute price direction.

S3.2.1 The regulatory period

As specified in the Terms of Reference, the forward regulatory period is the five years from 1 July 2018 to 30 June 2023. Consistent with the Industry Panel's report, the Commission's final decision is for no annual or biennial recalibrations for the period.

S3.2.2 The building block methodology

The current regulatory model uses a 'building block' methodology to establish allowable costs and revenues during the regulatory period. The Commission's final decision retains the existing building block methodology for revenue calculation.

The building block approach is consistent with the Industry Panel's report and Icon Water's Price Proposal. It is the most widely used approach in Australia for determining utility businesses' allowed revenue to be recovered through prices.

Under the building block model, the allowed revenue in any one year is the sum of the operating expenditure for that year and a contribution to the costs of capital investment made in the past (referred to as the regulatory asset base), plus allowances for forecast tax paid by the firm. The contribution to the costs of capital investments is the sum of what is known as the 'return on capital' and the 'return of capital'. The model also provides for full pass-through of specified unexpected or government-mandated costs.

This method of allowing for the recovery of the regulated firms' capital gives the regulated firm a reasonable assurance that it will be able to pay back its lenders, includes a commercial rate of interest, and provide its investors with a reasonable return on their investment—given the relative risk of the businesses compared to other investments.

To summarise, under the building block model, the total allowed revenue is the sum of the following cost components, or 'blocks':

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

Under the building block methodology, expenditure is only included in allowed revenue calculations when it is deemed both ‘prudent’ and ‘efficient’. For the purposes of this investigation, the Commission relied on the following definitions of prudent and efficient:

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

S3.2.3 The hybrid price and revenue cap and demand risk

The building block approach can be implemented in conjunction with various forms of price control. The current regulatory model uses a hybrid form of price and revenue control, whereby Icon Water bears demand risk up to a specified threshold. If demand is lower than the threshold then consumer prices would increase. If demand is higher than the threshold then consumer prices would decrease.

The Commission’s final decision is to maintain the Industry Panel’s end-of-period demand volatility adjustment mechanism to account for any material deviations of demand. The demand volatility adjustment mechanism considers water sales revenue over the entire regulatory period, from 1 July 2018 to 30 June 2023. The Commission’s final decision adopts a threshold (known as a ‘deadband’) at plus or minus six per cent of the allowed revenue in net present value terms.

Under this approach, Icon Water bears the demand risk up to the level of the deadband and consumers bear the risk beyond the deadband.

S3.2.4 The tariff structure

The tariff structure refers to the levels of fixed (supply) and variable (usage) components in consumers’ water and sewerage services charges. The current ACT water tariff structure comprises one fixed supply and two usage tiers, described as an inclining block tariff structure.

The tariff structures for water and sewerage services and trade waste were reviewed in 2016 and 2017. This tariff review developed and applied pricing principles based on the Commission’s regulatory objectives and also took into account relevant government policies to determine preferred directions for gradual change in the tariff structure.

Icon Water's Price Proposal supported the Commission's view on retaining the current two-part inclining block tariff structure while introducing a measured and gradual approach to water tariff reforms, as identified in the earlier tariff review. Icon Water also supported retention of the existing sewerage services tariff structure with a single fixed charge and confirmed its intention to introduce a liquid trade waste charging regime during the forward regulatory period, with a supporting submission to be presented in due course. Icon Water's Price Proposal called for flexibility to negotiate separate pricing arrangements with large users to minimise the risks of potential uneconomic bypass issues.

The Commission has accepted Icon Water's proposed tariff structure and made further improvements, as described in Chapter 2. It welcomes Icon Water's commitment to consider introducing a pricing regime for trade waste during the 2018–23 regulatory period. The Commission notes Icon Water is already able to negotiate commercial tariffs where uneconomic bypass is a potential risk, and considers that differentiated tariff structures for residential and large non-residential water consumers may be part of the response to address potential risk of uneconomic bypass.

The Commission will update miscellaneous fees and charges by the change in the CPI in each year of the regulatory period.

S3.2.5 An ex post capital expenditure review mechanism

The Industry Panel's substituted price direction provided scope for an ex post capital expenditure review mechanism. This allows the Commission to assess the prudence and efficiency of Icon Water's capital expenditure actually undertaken in the current regulatory period, before rolling it into the regulatory asset base (RAB) at the beginning of the next regulatory period.

The Commission has reviewed Icon Water's capital expenditure before rolling it into the next regulatory period's RAB, as summarised in section S5.1.

The Commission's issues paper raised the question of the financing benefit Icon Water would receive in a situation where actual capital expenditure is materially less than the forecast allowed expenditure. What is under consideration is whether all or part of the value of this financing benefit should be determined and deducted from allowed revenue or the RAB in the next regulatory period. There is a symmetrical issue where there is overspending of capital but the overspending is considered prudent and efficient.

In its Price Proposal Icon Water strongly opposed the removal of the ex-ante prospect of a financing benefit, arguing this would have an adverse impact on incentives to reduce capital expenditure relative to forecasts through efficiency savings.

In relation to the financing benefit or cost from underspending or overspending of capital, the Commission notes that Icon Water will receive a potential financing benefit associated with underspending of capital of \$56.4m.¹

As the Commission will retain elements of the incentive mechanisms adopted by the Industry Panel, the Commission's final decision is to allow Icon to retain the financing benefit it received during the 2013–18 regulatory period. The determination of potential future financing benefits, and the extent to which these should be deducted from allowed revenue or the RAB in the next regulatory period, will be considered in a future review of incentive mechanisms.

S3.2.6 Cost pass-through measures

The Commission's final decision is to accept Icon Water's proposal to apply a CPI escalation mechanism as part of its annual reset. The CPI will be adjusted using the current 'four quarter on four quarter' approach, with the CPI measure being the weighted average of eight capital cities available from the Australian Bureau of Statistics.

The Commission considers that an annual cost pass-through mechanism is warranted to deal with material changes (positive and negative) in uncontrollable costs related to certain specified events during the regulatory period. The pass-through arrangements are in effect the same as specified in the Industry Panel's report, and have been extended to include annual adjustments for the trailing cost of debt.

Icon Water's Price Proposal sought a new pass-through event for the contingent 'Best for Region' sewage treatment project, as discussed in section 2.4.3. This project would treat sewage from the eastern side of the ACT and from Queanbeyan in cooperation with Queanbeyan–Palerang Regional Council.

The Commission's view is that the Best for Region project is contingent on further planning, consultation and agreement. It does not originate from legislation, regulatory or administrative processes. Given Icon Water's capacity under the section 24C of the Act to seek a Consent Variation, the Commission's final decision is not to include a contingent approval for the Best for Region project.

S3.2.7 Capital Contribution Code

On 30 March 2017 Icon Water submitted for the Commission's consideration an application to introduce new Capital Contribution Code for developers where redevelopment projects trigger water and sewerage infrastructure upgrades. Icon Water seeks to recover from developers the costs that arise from its 20-year capital works program, which cannot be recovered from a general tariff. A single charge applicable to all precincts or zones in the ACT was proposed, with an annual update of this charge based on updated population projections and project costs.

¹ Icon Water, 2017a (Attachment 6): 1.

The Commission received from Icon Water information to show that projects funded by the Capital Contribution Code were not funded again through the water and sewerage services tariffs. The Commission was assisted in its analysis by an independent review by the consulting firm Calibre to ensure that the pricing regime does not double up on cost recovery.

On Friday 8 December 2017 the Commission released its final determination on the Water and Sewerage Capital Contribution Code proposed by Icon Water.

The Commission accepts the need for a Capital Contribution Code and believes the Code represents a fairer and more transparent way of charging for infrastructure upgrades than the arrangement it will replace.

S4 Operating expenditure

To facilitate efficient operation and investment, it is necessary to allow Icon Water to recover the cost of both efficient operating expenditure and efficient capital expenditure. Icon Water's operating expenditure in 2016–17 comprised controllable expenditure (79 per cent) and non-controllable expenditure (21 per cent).

The Commission received independent technical assistance from Calibre in reviewing the operating and capital expenditure of Icon Water. It accepted Calibre's main findings in relation to operating expenditure and incorporated them in its final decision.

S4.1 Operating performance during the current regulatory period

The primary findings of the review of Icon Water's operating expenditure performance for the current regulatory period are as follows:

- Icon Water's operating expenditure over the current regulatory period was \$888.6m real (\$856.5m nominal) compared with the Industry Panel's allowed expenditure of \$904.4m real (\$870m nominal) – a \$15.7m (1.74 per cent) underspend.
- Icon Water's operating expenditure for water supply appears lower than the average for other large water utilities.
- Based on average performance across a range of measures, Icon Water's water supply system appears to have performed on par with other Australian water utilities during the current regulatory period.
- Icon Water's sewerage system appears to operate at a comparatively high operating cost but generally with lower performance levels in comparison with Australian peers. Sewer mains breaks and overflows incidents have remained relatively frequent.

S4.2 Forecast operating expenditure for the forward regulatory period

Icon Water undertook a program of consumer research and engagement to help strike an appropriate balance between network reliability and price from the perspective of consumers. The Commission commends Icon Water on its efforts to engage with consumers, and encourages Icon Water to take account of consumer views in developing its expenditure priorities and programs.

Icon Water's June 2017 Price Proposal forecast operating expenditure for the forward regulatory period of \$922.1m nominal (see Table S.3). In real terms (\$2017–18) this figure is \$855.5m, which is about 3.7 per cent lower than expenditure in the current regulatory period. The majority of the decrease is a result of significantly lower controllable expenditure (including corporate services and planning), which is partially offset by a forecast increase in non-controllable expenditure (primarily government charges).

Table S.3 Icon Water's Price Proposal forecast operating expenditure, 2018–23 (\$m, nominal)

	2017–18 ^a	2018–19	2019–20	2020–21	2021–22	2022–23	Total ^b
Water							
Controllable	66.0	61.8	62.6	63.8	66.8	68.0	323.0
Uncontrollable	33.9	34.7	36.2	37.6	39.3	41.0	188.8
Total water operating expenditure	99.9	96.5	98.8	101.5	106.1	109.0	511.8
Sewerage							
Controllable	75.2	73.5	74.5	75.9	79.3	80.7	384.0
Uncontrollable	4.4	4.7	4.9	5.2	5.6	5.9	26.3
Total sewerage operating expenditure	79.6	78.2	79.5	81.1	84.8	86.6	410.3
Total operating expenditure	179.5	174.7	178.3	182.6	190.9	195.6	922.1

Notes: ^a Data for 2017–18 (last year of the current regulatory period) are presented for comparison purposes.

^b Total is for 2018–23.

Source: Icon Water (2017a).

Icon Water's Price Proposal used 2016–17 as the base year on which to build its forecast operating expenditure, having realised efficiency savings in that year and achieved expenditure similar to the Industry Panel's recommendation. It proposed some reductions in base year operating expenditure (in 2016–17 prices) related to:

- A reduction in costs associated with the agreement to purchase corporate services from ActewAGL (-\$3.5m).
- A workers compensation provision that was not required (-\$2.7m).
- Actual costs associated with preparing its regulatory submission to the Commission (\$1.8m).

Icon Water's Price Proposal also identified two step changes to the base year operating expenditure (in 2017–18 prices):

- Higher costs associated with preparing regulatory submissions of \$2.5m in 2017–18 and \$5.4m towards the end of the forward regulatory period.
- Lower costs associated with lower electricity usage totalling \$3.6m as a result of investing in renewable energy generation infrastructure.

The independent review of operating expenditure conducted for the Commission by Calibre found the step changes in regulatory costs were not substantiated on the grounds of prudence and efficiency. The regulatory costs are related to the Corporate Services Agreement (CSA) between Icon Water and ActewAGL. This agreement, due to expire in 2023, establishes a payment scale for the provision of a series of business support services, including regulatory affairs and customer billing.

Calibre's investigation found that the proposed step change increase in regulatory costs for the 2018–2023 period might be too high. Given the stable regulatory environment and internal functions of staff (whose costs are already included in base operations), the large (24 per cent) increase in regulatory costs was not assessed as efficient.

Icon Water's February 2018 Revised Price Proposal adopted Calibre's recommendation for controllable operating expenditure. After submitting the Revised Price Proposal, Icon Water provided revised pass-through costs to the Commission for the 2018–2023 period. The revised pass-through costs are uncontrollable operating expenditure and have the effect of increasing the operating expenditure allowance, and are discussed in section 3.3.

Table S.4 shows the Commission's final decision on allowable operating expenditure for 2018–23. The final decision adopts Calibre's recommendation for a reduction (\$2.1m nominal) in Icon Water's controllable operating expenditure. The final decision includes the revised uncontrollable or pass-through costs. The total allowable operating expenditure is \$925.1m nominal over the forward regulatory period.

Table S.4 The Commission’s final decision on allowable operating expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Controllable	61.8	62.6	63.8	65.9	67.9	322.1
Uncontrollable	37.6	36.6	38.1	39.7	41.5	193.5
Total water operating expenditure	99.4	99.2	101.9	105.7	109.4	515.6
Sewerage						
Controllable	73.5	74.5	75.9	78.3	80.6	382.9
Uncontrollable	5.0	4.9	5.2	5.6	5.9	26.7
Total sewerage operating expenditure	78.5	79.5	81.1	83.9	86.5	409.5
Total operating expenditure	177.9	178.7	183.0	189.5	195.9	925.1¹

Notes: ¹The Commission’s final decision confirms its draft decision on controllable operating costs. Subsequent to the draft decision Icon Water advised the Commission of higher pass-through costs for the Water Abstraction Charge and the Utilities Network Facilities Tax. These uncontrollable operating costs have been added to controllable operating costs. As a result the total operating expenditure in the final decision is higher than in the draft decision.

Source: Commission’s calculations.

S5 Capital expenditure

The Commission reviewed Icon Water’s capital investment for the current regulatory period and its proposed expenditure for the forward regulatory period. The review considered whether the expenditure was prudent and efficient, as defined in section S.3.2.2. If actual and proposed capital expenditure are considered to be both prudent and efficient they are added to the current RAB or the forecast RAB, depending on when they occur.

In forming a final decision on allowable capital investment, the Commission evaluated information from a variety of sources, including Icon Water’s June 2017 Price Proposal and February 2018 Revised Price Proposal, Calibre’s independent review, feedback on the Commission’s draft decision and previous price investigations by the Commission and the Industry Panel.

S5.1 Capital expenditure during the current regulatory period

Icon Water’s Price Proposal stated actual total capital expenditure of \$404m (nominal) over the current regulatory period. In real terms (\$2017–18), this is equivalent to \$416m and is \$57m lower than the Industry Panel’s allowed capital expenditure for the period.

Calibre’s review of the prudence and efficiency of Icon Water’s capital expenditure in the current regulatory period found that no adjustments to actual expenditure were required. On the basis of that review and information in the Industry Panel’s report, the

Commission accepts Icon Water’s proposed actual capital expenditure for the current regulatory period and confirms it will be added to the RAB.

S5.2 Capital expenditure during the forward regulatory period

In its independent review of the proposed capital expenditure in Icon Water’s Price Proposal, Calibre chose a number of major projects for detailed investigation; the projects comprised over half the total forward capital expenditure. Calibre identified several projects for which prudence or efficiency in expenditure could not be established. It also recommended that further catch-up (1.5 per cent a year) and continuing efficiencies (0.4 per cent a year) be applied to Icon Water’s proposed capital expenditure.

In response to the Commission’s draft decision, Icon Water submitted a Revised Price Proposal with a lower proposed capital expenditure than its initial Price Proposal. The revised capital expenditure remained higher overall than the Commission’s draft decision, but the revised capital program was substantially different to the program provided in the earlier Price Proposal.

The Commission views Icon Water’s revisions to the capital program as consistent with Icon Water’s maintaining discretion and management control of capital expenditure. Icon Water is responsible for managing capital expenditure in order to achieve the service levels and performance expected by consumers. Icon Water states its revised capital expenditure will “allow us to continue to deliver safe and reliable water and sewerage services” which “balances cost, risk and performance”.

The Commission recognises that in developing its capital expenditure program, Icon Water has resolved a number of uncertainties identified as concerns by Calibre. Icon Water has progressed its planning and design for a number of projects, and developed more certain costings for some projects. It has deferred a number of projects that were assessed as being of lower priority and found some other efficiency savings. The Commission has decided not to apply further catch up and continuing efficiencies to Icon Water’s revised capital expenditure.

The Commission’s final decision on Icon Water’s allowable capital expenditure over the 2018–23 period is shown in Table S.5. This reflects a \$17.8m (nominal) reduction in capital expenditure from Icon Water’s Price Proposal.

Table S.5 The Commission’s final decision on allowable capital expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	33.0	47.5	40.3	28.4	24.3	173.6
Sewerage	66.6	52.6	49.3	31.3	43.6	243.4
Total capital expenditure	99.6	100.1	89.6	59.7	67.9	416.9

Sources: Commission’s calculations following Icon Water (2018).

S6 The regulatory asset base and depreciation

In the building block methodology capital expenditure is recovered through the return on capital and depreciation building blocks. This requires a roll-forward calculation of a RAB for each year of the next regulatory period. Consistent with the Industry Panel's approach, the Commission will allow capital expenditure to be incorporated in the RAB where this expenditure is shown to be prudent and efficient. The RAB is also indexed by inflation to maintain its real value, and separate adjustments are made to the allowed nominal return on capital to ensure there is no double-counting.

S7 The return on capital and taxation

S7.1 The return on capital

The return on capital is set as the allowed rate of return on assets multiplied by the RAB. It forms part of allowed revenue for Icon Water. The Commission's final decision is to calculate the rate of return using a weighted average cost of capital (WACC) formulation, measured on a post-tax nominal vanilla basis.² This is the standard methodology used for price regulation of utilities in Australia.

There are a number of parameters that need to be established in estimating an appropriate WACC. The Commission has made two adjustments to the parameters in Icon Water's Revised Price Proposal for the nominal post-tax vanilla WACC. First, it intends to lower the market risk premium to 6.5 per cent in line with recent decisions by the Australian Energy Regulator (AER) and the Queensland Competition Authority (QCA). Second, it will maintain a 40-day averaging period for the risk-free rate.

In combination with all the other parameters proposed by Icon Water, including a trailing average cost of debt, the Commission's preferred estimate for the market risk premium means that the allowed nominal post-tax vanilla WACC should be 5.78 per cent, which is slightly lower than Icon Water's June 2017 Price Proposal of 6.07 per cent and February 2018 Revised Price Proposal of 5.93 per cent.

The return on capital under the Commission's final decision is \$19.4m lower than Icon Water's Revised Price Proposal.

S7.2 Taxation

The post-tax return methodology requires separate estimates of taxation expenses, which in turn requires the estimation of a tax asset base, the calculation of taxable profit and deduction of the value of imputation credits. The Commission accepts Icon

² The term 'nominal' means that the return components are in nominal as opposed to real (inflation-adjusted terms), so that an inflation premium is already included in the components. The term 'vanilla' refers to the simple form of the WACC, where explicit tax effects are not included in the formula but are treated separately in defining allowed revenue requirements.

Water's proposed approach, which is consistent with the approach of the Industry Panel.

In calculating net tax liabilities using a benchmark approach of a typical privately owned entity, there is a need to estimate the extent to which Australia's dividend imputation system reduces tax expenses. The key parameter that reflects the impact on dividend imputation is referred to as 'gamma'. The value of gamma depends on the extent to which imputation credits for tax paid are distributed to shareholders and the extent to which shareholders can utilise imputation credits to obtain a tax rebate.

The Commission notes that the Federal Court, in reviewing an Australian Competition Tribunal decision, accepted the AER's interpretation of the value of imputation credits and not the market value concept endorsed by the Tribunal. On the basis of estimates provided by the AER, the Commission considers that a gamma estimate of 0.4 is most appropriate and notes that this is lower than the Industry Panel report's estimate of 0.5.

The impacts of the Commission's preferred estimates for the return on capital and net tax liabilities are summarised in the following section.

S8 Total revenue allowance

Icon Water's February 2018 Revised Price Proposal included a total revenue requirement of \$1,725.3m (nominal) for water and sewerage services over the forward regulatory period. Icon Water proposed \$976.7m for water services and \$748.7m for sewerage services over this period.

The Commission's final decision on Icon Water's total revenue requirement is shown in Table S.6. It is based on its final decisions on operating expenditure, return of capital (depreciation), return on capital and net tax expenses.

The Commission's final decision allows a total revenue requirement of \$1,708.9m for Icon Water over the five year forward regulatory period. The total revenue requirement is made up of \$968.1m for water services and \$740.8m for sewerage services. These amounts are approximately 2.6 per cent and 3.1 per cent lower than Icon Water's June 2017 Price Proposal total revenue requirements for water and sewerage services respectively.

Table S.6 The Commission’s final decision on the total revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Return on capital	50.2	51.7	53.3	54.5	55.5	265.2
Depreciation	31.1	34.5	37.5	40.1	40.8	184.0
Operating expenditure	99.4	99.2	101.9	105.7	109.4	515.6
Net tax liabilities	0.4	0.6	0.6	0.7	1.0	3.2
Total water revenue requirement	181.0	186.0	193.3	201.0	206.7	968.1
Sewerage						
Return on capital	29.0	30.8	32.3	33.3	34.2	159.7
Depreciation	26.3	30.3	33.2	35.7	37.8	163.3
Operating expenditure	78.5	79.5	81.1	83.9	86.5	409.5
Net tax liabilities	2.7	2.0	1.6	1.1	0.8	8.2
Total sewerage revenue requirement	136.6	142.6	148.2	154.0	159.3	740.8
Total revenue requirement	317.7	328.6	341.5	355.1	366.0	1,708.9

Source: Commission’s calculations.

The difference between the Commission’s final decision and Icon Water’s Price Proposal reflects the Commission’s decision to:

- Decrease the market risk premium from Icon Water’s proposed 7.03 to 6.5 per cent in the calculation of the rate of return, as discussed in Chapter 6.
- Increase the gamma value from Icon Water’s proposed 0.25 to 0.4 in the calculation of net tax liabilities, as discussed in Chapter 6.
- Review of Icon Water’s proposed operating and capital expenditure programs on the basis of prudence and efficiency. This resulted in Icon Water submitting a Revised Price Proposal with decreases in operating and capital expenditure.

The net revenue requirement is calculated by removing other sources of revenue from the total revenue requirement. These adjustments include subvention payments received by Icon Water and revenue from sales to non-regulated customers. This provides the maximum revenue Icon Water can receive from regulated water and sewerage service tariffs in the 2018–23 regulatory period.

Table S.7 shows the Commission’s final decision on Icon Water’s net revenue requirement for water and sewerage services to be recovered from regulated prices.

Table S.7 The Commission's final decision on the net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Total water revenue requirement	181.0	186.0	193.3	201.0	206.7	968.1
Less adjustments	16.5	17.0	17.4	17.8	18.2	86.8
Net water revenue requirement	164.6	169.0	175.9	183.3	188.5	881.3
Sewerage						
Total sewerage revenue requirement	136.6	142.6	148.2	154.0	159.3	740.8
Less adjustments	14.9	14.5	14.9	15.2	15.6	75.2
Net sewerage revenue requirement	121.7	128.1	133.3	138.8	143.7	665.6
Net revenue requirement	286.3	297.1	309.2	322.0	332.2	1,546.9

Source: Commission's calculations.

The Commission's final decision allows a total net revenue requirement for Icon Water of \$1,546.9m over the five year regulatory period, which is \$51.5m lower than Icon Water's Price Proposal. The Commission's final decision on net revenue requirement is \$26.9m (3.0 per cent) lower for water and \$24.6m (3.6 per cent) lower for sewerage services than Icon Water's Price Proposal.

S9 Forecast sales and installations

To appropriately price Icon Water's water and sewerage services for the 2018–23 period, the Commission must decide on Icon Water's forecast water sales and numbers of consumer installations.

Icon Water proposed the adoption of the ARIMA forecasting model for the 2018–23 regulatory period. The ARIMA model is a variant of a model previously proposed by the Commission for the 2013–18 regulatory period. The Commission considers that Icon Water's proposed ARIMA approach delivers greater forecast accuracy than the Industry Panel model and accepts Icon Water's proposed method and forecast numbers for water releases and water demand.

The weighting of recent observations, and absence of leading indicators, creates the potential for substantial revisions to forecasts based on updated data. This may increase the risks associated with data timing and selection. The Commission views this as a potential weakness in Icon Water's forecasting model. The Commission notes that Icon Water has recently revised its forecasts for the 2018–23 period based on updated data. The Commission's final decision is to undertake a review of the demand forecasting model during the forward regulatory period.

S10 Effects on customers and Icon Water’s financial viability

The Commission evaluated the impact of the final decision tariffs on residential and non-residential bills for water and sewerage services, shown in Table S.8.

Table S.8 Icon Water’s Price Proposal and the Commission’s final decision on combined residential water and sewerage services bill at two levels of consumption, 2017–18 to 2022–23

		Water usage (kL/year)	2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water’s Price Proposal	200	\$/year	1,200	1,227	1,257	1,286	1,316	1,346
		\$ change		27	30	29	30	30
		Percentage change		2.3	2.4	2.3	2.3	2.3
	400	\$/year	2,254	2,199	2,228	2,258	2,288	2,318
		\$ change		-93	29	28	28	29
		Percentage change		-4.1	1.3	1.3	1.3	1.3
Commission’s final decision	200	\$/year	1,200	1,158	1,183	1,208	1,232	1,257
		\$ change		-42	25	25	25	25
		Percentage change		-3.5	2.1	2.1	2.1	2.0
	400	\$/year	2,254	2,114	2,148	2,182	2,216	2,250
		\$ change		-140	34	34	34	34
		Percentage change		-6.2	1.6	1.6	1.6	1.5

Notes: All percentage changes are calculated relative to the previous year. Actual bill impacts from 2019–20 to 2022–23 could differ from the indicative impacts shown if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission’s calculations and Icon Water (2017a).

The Commission’s decision results in an initial fall in the prices ACT consumers pay for water and sewerage services. A typical household will see a decrease of 3.5 per cent in 2018–19 in their annual water and sewerage services bill (assuming 200kL of annual water use). This means their annual bill falls from \$1,200 in 2017–18 to \$1,158 in 2018–19, which is a saving of approximately \$42. Annual bills are then expected to increase by around 2 per cent each year for the rest of the regulatory period, which is broadly in line with expected inflation.

Annual bills for non-residential customers will fall by between 1.8 and 8.7 per cent in 2018–19 compared to 2017–18, depending on water usage and the number of billable fixtures. Estimated bill impacts for non-residential customers in 2018–23 range from a 0.4 to a 3.6 per cent increase depending on water usage and the number of billable fixtures. The bill of a medium-size non-residential consumer (2,500kL and 50 billable fixtures) will rise by close to \$130 per year, or around 1.4 per cent. Table S.9 shows

the combined water and sewerage services bill for a non-residential user at two levels of consumption and fixtures.

Table S.9 Combined non-residential water and sewerage services bills at two levels of consumption and two levels of fixtures, 2018–19 to 2022–23

Annual water usage (kL)	No. of billable fixtures	Combined water and sewerage services bill (\$, nominal)						Change 2017–18 to 2018–19	Change 2018–19 to 2022–23
		2017–18	2018–19	2019–20	2020–21	2021–22	2022–23	(per cent)	(per cent)
2,500	10	18,807	17,561	17,691	17,823	17,955	18,089	-6.62	3.01
	50	39,827	38,341	38,471	38,603	38,736	38,870	-3.73	1.38
7,000	10	43,017	39,530	39,867	40,207	40,551	40,897	-8.11	3.46
	50	64,037	60,309	60,647	60,987	61,331	61,678	-5.82	2.27

Note: Actual bill impacts from 2019–20 to 2022–23 could differ from the indicative impacts shown if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Source: Commission's calculations.

The Commission examined the impact of its final decision on Icon Water's financial position across the 2018–23 regulatory period. It recognises the importance of ensuring Icon Water's financial viability. A financial viability test was conducted by calculating a selection of financial ratios for Icon Water from 2018–19 to 2022–23. The Commission is satisfied that its final decision on water and sewerage services tariffs is consistent with Icon Water remaining financially viable.

S11 Incentive mechanisms

The Terms of Reference require the Commission to consider the potential for implementing incentive schemes for Icon Water in the forward regulatory period. In the Commission's view, there are merits in implementing incentive schemes and benefit-sharing mechanisms. Icon Water's Price Proposal did not support the introduction of service standards, capital expenditure, or operating expenditure incentive schemes.

The Commission will further review the potential for implementing incentive schemes for Icon Water's operating expenditure, capital expenditure and service levels during 2018–23.

1 Regulatory objectives and the review process

This chapter sets out the regulatory objectives and government policies relevant to the Commission's price investigation and decisions. This chapter explains the approach used to ensure the final decision reflects the Commission's regulatory objectives.

1.1 Background to the investigation

On 13 December 2016 the Commission received from the ACT Treasurer a Terms of Reference to conduct an investigation into the regulated water and sewerage services provided by Icon Water Limited and the making of a price direction for the utility. The reference is made under section 15(1)(a) of the *Independent Competition and Regulatory Commission Act 1997* (ICRC Act).

The Commission's last review of regulated water and sewerage services took place in 2013. Following an appeal, an Industry Panel conducted an investigation and provided a substituted price direction in 2015.

1.2 The Terms of Reference

The Terms of Reference issued to the Commission on 13 December 2016 (Disallowable Instrument DI2016-297) identify the considerations, the approach and the reporting timeline for the investigation. They also identify considerations originating in the ICRC Act and ACT government and national policies and other matters relevant to the price investigation. (The full Terms of Reference are reproduced in full in Appendix 1.)

The Terms of Reference require the Commission to consider the following:

- (a) Continuing to use the current regulatory model, and, where identified, implement improvements to particular aspects of the methodology
- (b) Appropriate mechanisms to ensure the recovery of the prudent and efficient costs of Icon Water Limited during the regulatory period, while minimising the potential for significant price fluctuations
- (c) Whether there is potential for the implementation of incentive schemes for service levels, operating expenditure or capital expenditure for Icon Water Limited in the future.

Additionally, the Terms of Reference state that the draft report should be made available for public inspection between 1 September 2017 and 12 December 2017 and that the final report (this report) must be submitted between 1 March 2018 and

1 May 2018. The draft report was released on 12 December 2017 and the final report was released on 1 May 2018.

1.3 The legislative context and the role of the Commission

In carrying out its functions under the ICRC Act, the Commission has the following objectives, as set out in section 7 of the Act:

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

In making a price direction, the Commission has the following specific objective, as set out in section 19L of the Act:

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.

In making a price direction, the Commission must have regard to the provisions set out in section 20(2) of the Act:

- (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
- (b) Standards of quality, reliability and safety of the regulated services
- (c) The need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers
- (d) An appropriate rate of return on any investment in the regulated industry
- (e) The cost of providing the regulated services
- (f) The principles of ecologically sustainable development mentioned in subsection (5)
- (g) The social impacts of the decision
- (h) Considerations of demand management and least cost planning
- (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
- (j) The effect on general price inflation over the medium term

- (k) Any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person.

At a high level there are essentially three broad groups of objectives: economic efficiency objectives, environmental objectives and social objectives. There are likely to be trade-offs in balancing the various objectives and other objectives set by government policies. The Commission's approach to balancing the objectives are discussed in section 1.5.

1.4 The government policy context

A number of government policies and national agreements are required to be addressed by the Terms of Reference for the water and sewerage services price investigation.

1.4.1 The ACT Water Strategy 2014–44

The ACT Water Strategy 2014–44: Striking the Balance³ sets out the ACT Government's policy for long-term management of water resources. The strategy is intended to achieve three outcomes: healthy catchments and waterbodies, a sustainable water supply used efficiently, and a community that values and enjoys clean, healthy catchments. The second outcome – a sustainable water supply used efficiently – is of primary relevance for the price investigation. Strategy 5, which is directed to this outcome, is to manage and promote the sustainable use of water. Action 15 under the strategy concerns encouraging water users to conserve and use water wisely. The ACT Water Strategy also proposes 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 a number of schemes in place, including permanent water conservation measures and a temporary water restrictions scheme that can be imposed at 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 overarching planning instrument, the Territory Plan, also imposes on developers a number of water quality requirements relating to the control of stormwater and run-off.

The Commission's final decision is consistent with the ACT Water Strategy and the various water conservation schemes and measures.

1.4.2 National agreements

The ACT is a signatory to the Murray–Darling Basin Agreement, an intergovernmental agreement between jurisdictions that share the basin. Among other things, the

³ ACT Government, 2014.

agreement 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) a long-term average of 40.5 gigalitres (GL) net per year for consumption. The net take in the ACT has fallen significantly in recent years to about 20GL per year.

The 2004 National Water Initiative commits the ACT Government to a number of best practice water pricing and institutional arrangements. These are primarily in relation to economically efficient prices for water infrastructure and water resources.

In 2010 a set of National Water Initiative pricing principles, agreed by all Australian governments and endorsed by the Natural Resource Management Ministerial Council, was developed as the basis for setting water prices in all jurisdictions. The price-setting principles cover various additional aspects of economically efficient prices, including application of two-part tariffs unless demonstrated not to be cost effective.

1.5 The Commission's approach to regulatory objectives

1.5.1 The Commission's pricing principles

The Terms of Reference set out regulatory objectives and public policies that the Commission must consider when making a determination on prices for water and sewerage services. As part of its investigation, the Commission is required to outline its intended approach to meeting its various regulatory objectives within its decision-making process.

The Commission has established pricing principles that take account of both legislative and government policy objectives as well as generally accepted economic and regulatory principles. The principles clarify how the Commission intends to take account of the regulatory objectives in its decision-making. They also provide the basis for the assessment framework the Commission's final decision uses in developing its recommendations for prices for water and sewerage services. The principles set out in this section are consistent with those recently presented in the Commission's final report on the tariff structure review and summarised in Table 1.1⁴.

⁴ ICRC, 2017c: 16.

Table 1.1 Regulatory objectives and pricing principles for water and sewerage services tariffs

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

The principles set out in Table 1.1 are consistent with approaches adopted by economic regulators in similar jurisdictions.

1.5.2 An explanation of the principles

As noted above, the Commission is required to set prices that accommodate a number of potentially conflicting objectives. The recent inclusion of section 19L in the ICRC Act assists in clarifying objectives and priorities: it highlights the importance of all the main aspects of economic efficiency for the long-term interests of consumers in relation to price, quality, safety, reliability and security of the service. This supports the Commission's approach of considering economic efficiency as its starting point.

To help ensure that the final decision is well understood and broadly accepted by the community, the Commission endeavours to consult thoroughly and make its recommendations as clear as possible and the reasoning for those recommendations as transparent as possible. Two of the pricing principles relate to simplicity and transparency.

Pricing principle 1: Economic efficiency in use

The overarching efficiency objective leads to the first proposed pricing principle, which is that tariff structures and prices should promote the economically efficient use of Icon Water's water and sewerage services infrastructure and should also encourage economically efficient use of the water resource itself.

This principle reflects the fundamental economic proposition that the community as a whole will benefit if the usage component of a tariff is based on the additional social and environmental costs that are incurred as a result of using an additional unit of water. Social and environmental costs may be incurred by those who do not use the resource or services, in which case the costs are borne externally.

In addition, this principle means that the tariff structure and tariff levels should seek to avoid creating a significant risk of uneconomic bypass. In uneconomic bypass a large user is able to gain access to a lower priced alternative source of supply but one that is in fact of higher social or environmental cost than the efficient costs of the regulated utility.

Pricing principle 2: Economic efficiency for investment and operation

The second pricing principle is that tariff structures 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, efficient investment might not occur, which 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.* This encompasses whether the project, program or activity would reasonably be expected of a utility operating in the circumstances that apply. Evidence considered for prudence would include substantiation of the benefits of and the need for the project, program or activity.
- *Efficient expenditure.* This entails whether the project, program or activity is delivered or proposed to be delivered with the best value for money. Evidence considered for efficiency would include exploration of alternative service delivery options, assessment of lowest cost over the life cycle, and the ‘deliverability’ of the proposed project, program or activity.

Auditing and incentive mechanisms are the main means of meeting this objective, although the structure of the tariff or the form of regulation, in particular, the extent to which revenues are guaranteed, can affect these aspects of economic efficiency.

Pricing principle 3: Environmental considerations

Tariff structures, prices and complementary mechanisms should ensure that environmental objectives are effectively accommodated.

Some environmental impacts can be reflected in prices, but typically environmental objectives are primarily accommodated 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.

In its submission to the Commission’s draft report, the Conservation Council ACT Region recommended that minimisation of raw water consumption should be an environmental objective under pricing principle 3⁵. The Commission notes that the ACT Government’s ACT Water Strategy 2014–44⁶ includes Strategy 5, managing and promoting efficient and sustainable use of water. In accordance with the Terms of Reference, the Commission has considered the ACT Water Strategy in its approach to water and sewerage service price investigation.

Pricing principle 4: Community impact – gradual adjustment

Any change to the structure of tariffs and prices 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.

⁵ Conservation Council ACT Region submission, 2018: 2.

⁶ ACT Government, 2014a.

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, regulators 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 for regulators.

The Commission has carefully considered the likely impact of price changes and believes its approach has moderated the impacts on low income households.

Pricing principle 6: Regulatory governance – simplicity

Tariff structures should be simple for consumers to understand and straightforward for the utility to implement.

Consumers generally prefer regulated prices and regulatory arrangements that are readily understood. Readily understood tariff structures have the added benefit of being easier and cheaper for the utility to implement, which also contributes to economic efficiency.

Pricing principle 7: Regulatory governance – transparency

Tariffs should be set using a transparent methodology and be subject to public consultation and scrutiny.

This principle relates to good governance with respect to regulatory action. Promoting community confidence in the regulatory arrangements requires that there is generally a good understanding in the community of how regulated prices for water and sewerage services are decided and adequate opportunity for community involvement in the regulatory process. Under the Act, the Commission is required to hold a Public Hearing and make draft decisions available for public scrutiny. In addition to legislative requirements, for the water and sewerage services price investigation the Commission released an issues paper and held a community consultation forum.

1.6 Investigation timeline

Table 1.2 shows the Commission's investigation timeline. Release of the final report and making of the price direction are the final steps in the water and sewerage services price investigation.

Table 1.2 Timeline for the water and sewerage services price investigation

Task	Date
Terms of Reference signed	13 December 2016
Release of issues paper	31 March 2017
Submissions on issues paper close	28 April 2017
Community consultation forum	28 September 2017
Draft report and proposed price direction	12 December 2017
Public hearing	7 February 2018
Submissions on draft report close	23 February 2018
Release of final report and price direction	1 May 2018

Under section 17(4)(b) of the ICRC Act the Commission is required to conduct a public hearing for all price regulation investigations. The hearing was conducted on 7 February 2018, to provide information and answer questions on the draft report and proposed price direction.

The modelling and calculations used in reaching the Commission’s final decision on Icon Water’s water and sewerage services tariffs were independently audited for accuracy and consistency by SIP Advisory.

1.7 Structure of this report

The Commission’s final report is structured to show the methodology followed in the calculation of water and sewerage service tariffs. The report is structured as follows:

- Chapter 2 sets out the Commission’s form of regulation and tariff structure for the next regulatory period. It also describes the Commission’s decisions on dealing with demand risks, the price reset mechanism, the Capital Contribution Code and the building block revenue calculation methodology.
- Chapter 3 discusses Icon Water’s operating expenditure and performance in the current regulatory period. It also sets out the Commission’s final decision on Icon Water’s operating expenditure for 2018–23, which is a major cost component (or ‘building block’) of Icon Water’s net revenue allowance.
- Chapter 4 provides the Commission’s final decision on the prudence and efficiency of Icon Water’s capital expenditure in the current regulatory period and the Commission’s final decision on Icon Water’s capital expenditure allowance for 2018–23. These capital expenditure allowances are included in the regulatory asset base.
- Chapter 5 sets out the Commission’s final decision and the matters the Commission considered in reaching its final decision on the value of the

water and sewerage regulatory asset bases. These asset bases are used in the calculation of the return on capital and return of capital (depreciation) building blocks.

- Chapter 6 provides the Commission’s consideration in reaching its final decision on the parameter values used to calculate the rate of return and net tax liabilities – components of the capital expenditure building block.
- Chapter 7 provides the Commission’s calculations of Icon Water’s 2018–23 net revenue requirement based on the building block model. This chapter sums the allowances for the return on capital, return of capital (depreciation), operating expenditure and net tax liabilities, then adjusts for pass-through costs and revenue earned outside of the ACT.
- Chapter 8 discusses observed data provided by Icon Water related to forecast water releases, billed sales and the number of water and sewerage services customers. These demand forecasts are used with the net revenue requirement to determine the Commission’s final decision on prices.
- Chapter 9 presents the prices and the price paths that have resulted from the Commission’s price investigation.
- Chapter 10 presents the estimated impacts of the Commission’s final decision on residential and non-residential consumers’ annual bills, general price inflation and Icon Water’s financial viability.
- Chapter 11 discusses the potential to introduce incentives schemes for Icon Water during the 2018–23 regulatory period.

The Commission’s final report includes several appendices:

- Appendix 1 contains the Terms of Reference for the water and sewerage service price investigation.
- Appendix 2 sets out the Commission’s statement of compliance with the Terms of Reference and with the ICRC Act.
- Appendix 3 summarises the submissions received by the Commission throughout the price investigation.

2 The form of regulation

This chapter sets out the Commission’s final decision on the form of regulation to apply for the regulatory period 2018–23. It summarises the submissions received and presents the Commission’s responses.

The Commission’s final decision

The Commission’s final decision on the form of regulation largely retains that of the draft decision and the Industry Panel decision. Table 2.1 summarises the Commission’s final decision on the form of regulation for the 2018–23 regulatory period.

Table 2.1 The Commission’s final decision on the form of regulation, 2018–23

Component	Commission’s final decision
Regulatory period	Five years, from 1 July 2018 to 30 June 2023.
Form of control and measures to deal with demand risks	A hybrid price and revenue cap and a demand volatility adjustment mechanism to account for deviations between actual and forecast water sales revenue in excess of six per cent deadband over the full five-year regulatory period. If the deadband is triggered the Commission will be required to include any under- or over-recovery of revenue associated with this deviation.
Measures to deal with unforeseen events	Retain the current price variation trigger event mechanism. The Commission will continue to engage with Icon Water through the regulatory period on the Best for Region project. A consent variation mechanism is available should Icon Water resolve the current project uncertainties and be unable to fund the project from its capital expenditure allowance.
Tariff structure and price reset mechanism	Retain existing water and sewerage services tariff structure while implementing a measured and gradual increase to the water fixed supply charge. The Tier 2 usage rate is set with the identical smoothing factor, inflation adjustments and pass-throughs used to set the Tier 1 usage rate.
Miscellaneous fees and charges	Retain the current provision of updating miscellaneous fees and charges by CPI.
Capital Contribution Code	Ensure that projects are not funded twice through the Capital Contribution Code and water and sewerage service tariffs.
Negotiated contracts	Icon Water has significant flexibility to manage any uneconomic bypass issues within the current framework.
Incentive schemes	Incentive mechanisms to be reviewed during the 2018–23 regulatory period.
Pricing methodology	A post-tax building block approach.

The prices for regulated water and sewerage services are currently determined as specified in the Industry Panel's report *Substituted price direction: Regulated water and sewerage services – 1 July 2013 to 30 June 2018*.⁷ The substituted price direction was developed and implemented following an application by Icon Water for review of the Commission's 2013 price direction, which was to apply from 1 July 2013 to 30 June 2019.

2.1 The length of the regulatory period

As specified in the Terms of Reference, the price direction will be for the five-year period from 1 July 2018 to 30 June 2023.

2.1.1 Submissions received on the issues paper

No submissions on the length of the regulatory period were received in response to the issues paper.

2.1.2 The Commission's draft decision

The Commission's draft decision was to adopt a five-year regulatory period from 1 July 2018 to 30 June 2023. This is consistent with the Terms of Reference.

2.1.3 Submissions received on the draft report

No submissions on the length of the regulatory period were received in response to the draft report.

2.1.4 The Commission's final decision

The Commission's final decision is to adopt a five-year regulatory period from 1 July 2018 to 30 June 2023. This decision is consistent with the Terms of Reference.

2.2 The form of control

The Commission currently applies a hybrid price and revenue cap form of control for setting prices for regulated water and sewerage services.

Forms of control include the following:

- *A pure revenue cap.* This form of control involves placing a cap on the revenue a regulated service provider can earn in a year. To account for deviations between actual revenue and the revenue cap arising as a result of variations between actual and forecast demand, an 'unders and overs' account will typically be established. Prices can then be adjusted in the

⁷ Industry Panel, 2015a.

subsequent regulatory period to reflect the extent of any under- or over-recovery.

- *An average revenue cap.* This form of control involves placing a cap on the revenue a regulated service provider can earn per unit of output (for example, revenue per consumer).
- *A price cap on individual services.* This form of control involves placing a cap on the price of each regulated service.
- *A hybrid price and revenue cap.* This form of control contains elements of both a price and a revenue cap. The precise elements combined can vary. One example, used by a number of Australian regulators, is a price cap that can be adjusted for any under- or over-recovery of revenue above a certain threshold (or deadband). Under this hybrid cap, the regulated service provider bears demand risk up to the threshold, while consumers bear the risk beyond this threshold.⁸

The choice between the alternative forms of price control affects how volume (demand) risks are allocated between consumers and the regulated business, how prices are allowed to vary during the regulatory period, the stability of the regulated business's revenue, and the regulated business's incentive to encourage efficient utilisation of the assets.

A pure revenue cap transfers all volume (demand) risk from the regulated business to its consumers, since prices can be varied to match demand to ensure the revenue target is met. This can reduce the incentive for the regulated utility to reduce costs when there is a material reduction in demand.

In contrast, a strict price cap means that the regulated business bears all the demand risk while consumers face stable prices. A price cap can create the incentive to supply more services if the cost of providing additional services is lower than the maximum price. A price cap exposes the utility to financial risk should insufficient sales volumes be achieved.

Both mechanisms can be adjusted to allow prices to change for certain pass-through events and inflation.

A hybrid mechanism allows the benefits of a revenue cap and a price cap to be achieved while minimising their disadvantages.

The Industry Panel considered forms of control when making the substituted price direction. The panel had regard to consumer price stability and predictability, minimising regulatory costs, ensuring that Icon Water remains financially viable, and promoting economic efficiency. Its decision to adopt a hybrid cap model was guided by the approach taken by other regulators and its judgement that this form of regulation would best satisfy its desire for price stability, financial viability of the regulated

⁸ Industry Panel, 2015a: 30.

business and economic efficiency. It took the view that the other regulatory approaches did not provide an appropriate allocation of the risks between consumers and the regulated business, particularly since the demand for water services may be difficult to predict.

2.2.1 Submissions received on the issues paper

Icon Water's Price Proposal supported a hybrid price and revenue cap form of price control over the five-year regulatory period, with individual price caps for water and sewerage services. The Price Proposal included an unders and overs proposal, discussed in Section 2.4.

2.2.2 The Commission's draft decision

Drawing on the foregoing discussion and the requirements of its Terms of Reference, the Commission's draft decision was to continue with the current form of hybrid price and revenue cap regulation, with individual price caps for water and sewerage services charges.

2.2.3 Submissions received on the draft report

Icon Water's Revised Price Proposal did not include an unders and overs proposal. The Revised Price Proposal adopted the Commission's draft decision:

We have accepted this hybrid approach in this revised proposal, since we are more confident that our demand forecasting methodology, which the ICRC accepted in its draft report, will more closely align with actual demand.⁹

The Commission received no further submissions which addressed form of control.

2.2.4 The Commission's final decision

The Commission's final decision on form of control is to retain the current form of hybrid price and revenue cap regulation, with individual price caps for water and sewerage charges.

2.3 Measures to deal with demand risks

The Industry Panel decision provided for an end-of-period demand volatility adjustment mechanism with a six per cent threshold. Should the total revenue over the regulatory period vary above or below the maximum allowed revenue by greater than the threshold amount, an end-of-period adjustment would be made in the following regulatory period. The mechanism is known as a deadband.

⁹ Icon Water, 2018: vii.

2.3.1 Submissions received on the issues paper

Icon Water's Price Proposal included an annual 'unders and overs' mechanism with a 0.5 per cent threshold to account for variations between estimated and actual revenue.

No further submissions on measures to deal with demand risks were received in response to the issues paper.

2.3.2 The Commission's draft decision

The Commission considered that an annual unders and overs mechanism would minimise the risk of under-recovery of revenue for Icon Water. But this approach also has disadvantages, the most notable of which is that implementation of an unders and overs mechanism would mean that consumers bear most of the demand risk. This would also entail potential price instability for consumers. The Commission noted that Icon Water's improvements to the water forecasting model are expected to reduce demand forecasting risk and reduce the need for an unders and overs mechanism as originally proposed by Icon Water.

The Commission's draft decision was to maintain the Industry Panel's end-of-period demand volatility adjustment mechanism to account for any material deviations in demand.

The demand volatility adjustment mechanism is based on water sales revenue over the entire regulatory period, from 1 July 2018 to 30 June 2023. Consistent with the Industry Panel's decision, the Commission's draft decision adopted a threshold (deadband) at plus or minus six per cent of the allowed revenue in net present value terms. Under this approach, Icon Water bears the demand risk up to the level of the deadband and consumers bear the risk beyond the deadband.

2.3.3 Submissions received on the draft report

Icon Water's Revised Price Proposal adopted the Commission's draft decision end-of-period adjustment, which does not include an annual adjustment for under- or over-revenue recovery.

No further submissions on measures to deal with demand risks were received in response to the draft report.

2.3.4 The Commission's final decision

The Commission's final decision is to retain the existing end-of-period demand volatility adjustment mechanism.

2.4 Measures to deal with expenditure risks

2.4.1 A CPI escalation mechanism

The CPI escalation mechanism is implemented as part of the annual price reset. This mechanism provides some protection against actual changes in inflation during the regulatory period 2018–23.

Under the Industry Panel’s mechanism, the Commission adjusts for CPI using the following formula, which is based on the ‘four quarter on four quarter’ approach and employs CPI data (a weighted average of eight capital cities) available from the Australian Bureau of Statistics.

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

Where t = financial year

2.4.1.1 Submissions received on the issues paper

Icon Water’s Price Proposal supported retention of the existing CPI escalation mechanism.

No further submissions on CPI escalation were received in response to the issues paper.

2.4.1.2 The Commission’s draft decision

The Commission’s draft decision was to retain the Industry Panel’s CPI escalation mechanism.

2.4.1.3 Submissions received on the draft report

Icon Water’s Revised Price Proposal supported the Commission’s draft decision on CPI adjustment.

No further submissions on CPI escalation were received in response to the draft report.

2.4.1.4 The Commission’s final decision

The Commission’s final decision is to retain the Industry Panel’s CPI escalation mechanism.

2.4.2 A cost pass-through mechanism

The Industry Panel decision included an annual cost pass-through mechanism to deal with material changes (positive and negative) in uncontrollable costs over the regulatory period, subject to a materiality threshold.

The current price direction identified pass-through arrangements for the following events as part of the annual reset process:

- A Water Abstraction Charge (WAC) event.
- A Utilities Network Facilities Tax (UNFT) event.
- A Tantangara Transfer payment event.
- A subvention payment event¹⁰.
- A change in other taxes event.
- A service standard event.
- A regulatory obligations event.

The Industry Panel approach set the materiality threshold for the cost pass-through mechanism as follows:

- \$0 for WAC, UNFT and subvention payments.
- \$2m per event for all other cost pass-through categories.

2.4.2.1 Submissions received on the issues paper

Icon Water's Price Proposal included a new pass-through event for the contingent Best for Region sewage treatment project. The Commission further considers this event in section 2.4.3.

No further submissions on the cost pass-through mechanism were received in response to the issues paper.

2.4.2.2 The Commission's draft decision

The Commission's draft decision was to not update the existing cost pass-through mechanism, as discussed in section 2.11.

2.4.2.3 Submissions received on the draft report

Icon Water's Revised Price Proposal proposed retaining the existing pass-through events and adding a new pass-through event for negotiated contracts. It also proposed adding a new pass-through event for an annual cost of debt recalculation.

The ACT Civil and Administrative Tribunal's (ACAT) submission considered that the pass-through events and arrangements proposed in the Commission's draft decision were appropriate.

¹⁰ A subvention payment is a payment from the Commonwealth Government.

2.4.2.4 The Commission's final decision

Commission's final decision updates the existing cost pass-through mechanism for Icon Water's proposed annual cost of debt recalculation.

This decision requires that the annual price reset during the 2018–2023 regulatory period include an update of the weighted average cost of capital (WACC) with the updated trailing average of the cost of debt. This involves taking the simple average of the RBA broad-BBB rated 10 year curve, extrapolated to an effective term of ten years and the Bloomberg Valuation Service (BVAL) broad-BBB rate curve (10 year estimate). In each year 10 per cent of this return on debt is re-priced, until in the 9th year a full trailing average is established.

The Commission's consideration of this issue is set out in section 6.1.4.

The Commission's final decision does not update the existing cost pass-through mechanism for negotiated contracts. The Commission's decision on negotiated contracts is set out in section 2.11.

2.4.3 The Best for Region sewage treatment project

Icon Water's Price Proposal included a new pass-through event for the contingent Best for Region sewage treatment project. This project involves the development of a cooperative arrangement with Queanbeyan–Palerang Regional Council for the treatment of sewage from the eastern side of the ACT and from Queanbeyan. There are currently significant uncertainties associated with the timing, scope and cost of this project. It is not clear that the project will proceed during the forward regulatory period.

Icon Water (formerly ACTEW) proposed pass-through events for contingent projects in previous price investigations. The Commission's response in the 2013–18 regulatory review was to not include contingent projects as pass-through events, noting the additional regulatory and administrative obligations that pass-throughs generate without necessarily producing lower costs to ACT consumers.¹¹ In the substituted price direction, the Industry Panel did not include contingent projects among the list of pass-through events.¹²

2.4.3.1 The Commission's draft decision

The Commission's draft decisions was that the Best for Region project did not originate from legislation or regulatory or administrative processes; nor did there appear to be a ministerial direction to declare the costs as a pass-through fee. Should ministerial directions or legislative provisions be implemented to develop a Best for Region project, this event would fall under the category of a regulatory obligations

¹¹ ICRC, 2013: 129.

¹² Industry Panel, 2015b: 27.

event. Regulatory obligations events are listed as pass-through events in the current regulatory period.

Consequently, the Commission's draft decision was not to include the Best for Region project as a pass-through event.

2.4.3.2 Submissions received on the draft report

Icon Water's Revised Price Proposal included a contingent project mechanism for the Best for Region sewage treatment project¹³. Icon Water's proposed mechanism is as follows:

A contingent project mechanism would allow Icon Water to make a submission to the ICRC during the 2018–23 regulatory period, which would include:

- the business case for the project, including the forecast opex and capex requirements; and
- documentation and expert advice providing evidence of the prudence and efficiency of the forecast opex and capex.

On receipt of the submission, Icon Water proposes that the ICRC would assess the prudence and efficiency of the proposed project costs (but not adjust prices in the 2018–23 period).

Icon Water stated that such an approach would provide assurance to the Commission that Icon Water was undertaking careful and appropriate planning and was transparent about the likely costs and benefits.

No further submissions on the Best for Region project were received in response to the draft report.

2.4.3.3 The Commission's final decision

The Commission has been unable to assess the prudence and efficiency of the Best for Region project. No project design, costs, funding arrangements or timing have been presented to the Commission as part of the price inquiry.

The Commission has not included a capital expenditure allowance for the Best for Region project in the 2018–23 period. The Commission's capital expenditure allowance includes only the prudent and efficient costs of providing services to ACT consumers.

¹³ Icon Water, 2018: 19.

Icon Water acknowledges that the project remains at an early development stage. Through the Price Proposal and the Revised Price Proposal, Icon Water has not sought to include costs of the project in the capital expenditure over the 2018–23 period.

Icon Water's Revised Price Proposal requests a contingent project approval. Icon Water's justification for the contingent project approval included the reduction in regulatory risk:

In practice, the decision whether to invest in a joint project of this magnitude is influenced by expectations and uncertainty regarding the likely regulatory treatment of the investment. An ex ante assessment of the prudence of the project is a practical means by which the ICRC can reduce uncertainty and encourage Icon Water to adopt the lowest-cost solution for ACT consumers.

The Commission recognises Icon Water's desire for regulatory certainty in the Commission's approach, but notes the significant uncertainties still associated with the project.

The Commission notes that it is open to Icon Water seeking a Consent Variation under section 24C of the Act. A Consent Variation would allow Icon Water to seek a variation to the price direction to fund a higher capital expenditure allowance, should it be unable to fund the project through its capital expenditure allowance. The Commission would consider such a Variation having regard to the criteria listed at section 20 (2) of the Act when the project is further developed. These criteria include, but are not limited to, greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers, the principles of ecologically sustainable development, and considerations of demand management and least cost planning. In addition the Commission would take into account consumer impacts and seek the views of stakeholders through a consultation process.

Given Icon Water's capacity under the section 24C of the Act to seek a Consent Variation under the above criteria, the Commission's final decision is to not include a contingent approval for the Best for Region project.

2.4.4 An ex post capital expenditure review mechanism

The Industry Panel's substitute price direction provided scope for an ex post capital expenditure review mechanism. Such a mechanism enables the Commission to assess the prudence and efficiency of Icon Water's actual capital expenditure in the current regulatory period before adding it to the RAB. The Commission sought feedback on the process for ex post capital expenditure review in its issues paper.

The Commission's issues paper identified the issue of financing benefit accrued to Icon Water by capital underspending compared with the forecast capital expenditure.

The financing benefit is the revenue earned on planned but not delivered capital expenditure. If there were to be a material underspend of allowed capital, Icon Water would in effect receive a financing benefit that would include both a return on capital

component and a return of capital (depreciation) component related to the amount of the underspend. The Commission notes that Icon Water will receive a financing benefit associated with underspending of capital of \$56.4m.¹⁴ The Commission considered whether the value of this financing benefit should be deducted from allowed revenue or the RAB in the next regulatory period.

2.4.4.1 Submissions received on the issues paper

Icon Water's Price Proposal strongly opposed any adjustments for financing benefits arguing this would adversely affect incentives to reduce capital expenditure relative to forecasts.

No further submissions on the ex post review of capital expenditure were received in response to the issues paper.

2.4.4.2 The Commission's draft decision

Recognising the benefits of regulatory certainty, the Commission's draft decision did not make adjustments for the additional revenues received from capital underspending during the 2013–18 regulatory period. In the Commission's view, this represented another form of risk sharing. The Commission observed that consistent receipt of financing benefits could create an incentive for forecasting high capital expenditure. In Chapter 11 the Commission considers the role of incentive mechanisms to respond to this situation.

As part of the draft decision, the Commission reviewed Icon Water's capital expenditure in the current regulatory period for prudence and efficiency in order to calculate the next regulatory period's RAB. The results of this review are set out in section 4.1.

2.4.4.3 Submissions received on the draft report

No submissions on the ex post review of capital expenditure were received in response to the draft report.

2.4.4.4 The Commission's final decision

The Commission's final decision retains the ex post capital review mechanism. Further details are provided in the final Price Direction.

¹⁴ Icon Water, 2017a (Attachment 6): 1.

2.5 Measures to deal with unforeseen events

The current regulatory model includes a price variation trigger event mechanism that can be activated if one of the following unforeseen events occurs and it satisfies the materiality threshold:

- An act of terrorism.
- A major natural disaster.
- Major damage to infrastructure.
- A significant change in Icon Water's financial or corporate structure.
- An unforeseen or *force majeure* event.

The level of this materiality threshold should ensure that the trigger event mechanism does not undermine Icon Water's incentive to act in a prudent and efficient manner or give rise to frequent price changes and higher regulatory costs. The materiality threshold adopted by the Industry Panel for the 2013–18 regulatory period is \$12m.¹⁵

2.5.1 Submissions received on the issues paper

No submissions on measures to deal with unforeseen events were received in response to the issues paper.

2.5.2 The Commission's draft decision

For the forward regulatory period the Commission's draft decision was to maintain the Industry Panel's allowed materiality threshold in real terms by indexing its nominal value for the changes in the CPI.

Accordingly, the aforementioned events would be considered price variation triggers only if they severely restrict Icon Water's ability to provide water or sewerage services and impose a total annualised cost on Icon Water for the remainder of the 2018–23 regulatory period of more than \$13.19m.¹⁶

2.5.3 Submissions received on the draft report

No submissions on measures to deal with unforeseen events were received in response to the draft report.

¹⁵ Industry Panel, 2015a: 27.

¹⁶The proposed materiality threshold for the forward regulatory period (\$13.19m) is obtained by indexing the Industry Panel's allowed threshold of \$12m (in \$ 2012–13) for the changes in actual inflation of 1.98 per cent, 2.56 per cent, 2.09 per cent, 1.50 per cent and 1.48 per cent, respectively for 2013–14, 2014–15, 2015–16, 2016–17 and 2017–18.

2.5.4 The Commission’s final decision

The Commission’s final decision is to maintain the Industry Panel’s allowed materiality threshold in real terms.

2.6 The tariff structure

2.6.1 The current tariff structure

The current ACT water tariff structure comprises one fixed and two variable cost tiers. For 2017–18 year, the annual fixed supply charge is set at \$104.21, and the two-tier inclining block usage charge sets the Tier 1 charge at \$2.68/kL for the first 200kL of water use and the Tier 2 charge at \$5.38 per kL for consumption above 200kL per year.¹⁷

Table 2.2 shows the water tariffs on a year-by-year basis for the current regulatory period.

Table 2.2 Water charges, 2013–14 to 2017–18

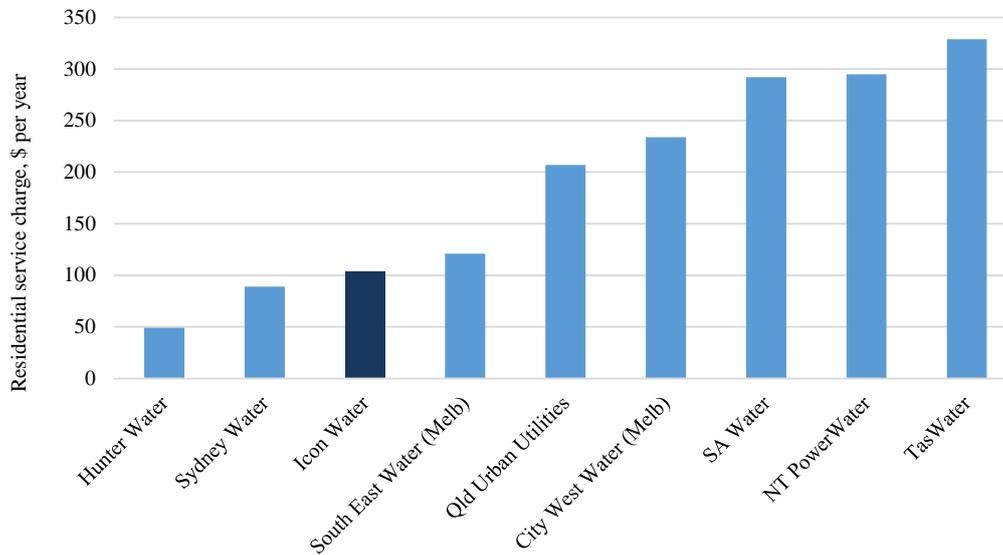
	2013–14	2014–15	2015–16	2016–17	2017–18
Fixed (\$/pa)	100	102.56	101.14	101.48	104.21
Tier 1 (0–200kL pa) (\$/kL)	2.55	2.64	2.60	2.61	2.68
Tier 2 (+200kL pa) (\$/kL)	5.10	5.29	5.22	5.24	5.38

Sources: ICRC (2017d), ICRC (2015) and ICRC (2013).

Figure 2.1 and Figure 2.2 compare Icon Water’s residential water tariff structure components with those of a number of urban utilities in Australia. The comparison indicates Icon Water’s Tier 2 price is one of the highest in Australia and its fixed charge one of the lowest.

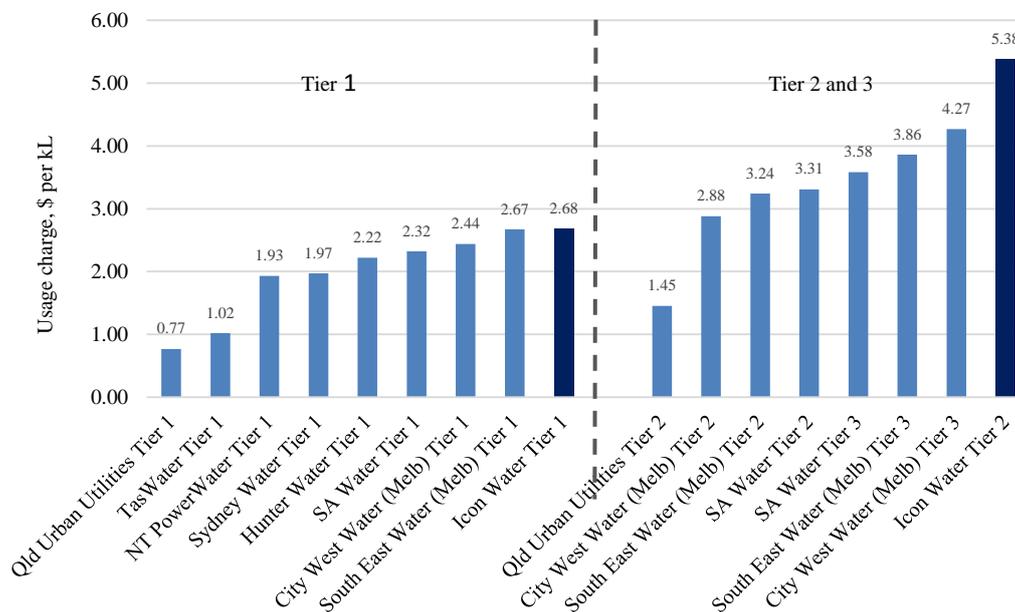
¹⁷ Charges are calculated on a daily pro rata basis and billing occurs quarterly, so the Tier 1 price can apply for consumption that is less than the annual amount of 200kL.

Figure 2.1 Australian utilities' fixed supply charge for water, 2017–18 (\$ per year)



Sources: Hunter Water (2017); Sydney Water (2017); Icon Water (2017b); ESC (2017a); Queensland Urban Utilities (2017); SA Water (2017); NT PowerWater (2017); and TasWater (2015).

Figure 2.2 Australian utilities' water tariff tiers, 2017–18 (\$ per kL)



Sources: Hunter Water (2017); Sydney Water (2017); Icon Water (2017b); ESC (2017a); Queensland Urban Utilities (2017); SA Water (2017); NT PowerWater (2017); and TasWater (2015).

Icon Water's inclining block tariff structure was in place during the Millennium Drought that affected south-east Australia from about 1997 to 2009. The shortage of water in this period led to implementation of temporary water restrictions, permanent water conservation measures and a relatively high usage charge for the higher tier. At

the time this structure was viewed as providing a price signal to conserve water, while ensuring that some water was available at a lower charge to meet essential needs. The ACT's water supply and demand balance today is different. Recent evidence suggests that the ACT is more water secure, both currently and over the long term, as a result of lower average consumption and increased storage capacity.

Icon Water's current tariff structure for regulated sewerage services consists of an annual fixed supply charge for residential premises. For non-residential premises the same fixed supply charge applies, plus there is an annual charge per flushing fixture in excess of two. Icon Water does not currently have a trade waste tariff. Table 2.3 shows the sewerage services tariffs for the current regulatory period.

Table 2.3 Sewerage services charges, 2013–14 to 2017–18

	2013–14	2014–15	2015–16	2016–17	2017–18
Supply charge (\$/pa)	492.02	505.14	523.18	529.38	537.34
Fixture charge non-residential (\$/pa) ^a	481.18	494.28	511.66	517.73	525.51

Note: ^a For every additional flushing fixture greater than two.

Sources: ICRC (2017d), ICRC (2015) and ICRC (2013).

2.6.2 The preferred direction for change: The Commission's tariff structure review 2016–17

The Commission conducted a detailed review of the tariff structure for Icon Water's regulated water and sewerage services in 2016 and 2017.¹⁸ As set out in its final report, the Commission's preferred direction for change would include:

- Retaining the existing water tariff structure with a fixed supply charge and a two-tier inclining block usage charge, but taking the opportunity to rebalance the components to better reflect supply costs while taking account of social and environmental objectives and relevant government policies.
- Considering different tariffs for different types of consumers, such as large users, as long as it can be shown that such tariffs are in the long-term interests of consumers.
- Making any changes to the tariff structure in a measured and gradual manner as part of price directions.
- Using the pricing principles as a guide in changing the tariff structure and setting any new tariffs.

¹⁸ It began the review with the release of an issues paper in November 2015. This was followed by a technical paper on the elasticity of demand for water in the ACT, released in February 2016. A technical paper on marginal cost pricing in the ACT was then published in June 2016. The Commission released its draft report and final report in September 2016 and March 2017 respectively.

2.6.3 Submissions received on the issues paper

Icon Water's Price Proposal included a water and sewerage services tariff structure with the following characteristics¹⁹:

- Retaining the inclining block two tier water usage charges, but adjusting the balance of supply and usage charges in a gradual manner over the regulatory period.
- Determining the Tier 1 water usage charge using the current methodology
- Fixing the Tier 2 water usage charge at a nominal value of \$4.95 per kL over the five year period.
- Retaining the current sewerage services tariff structure with flexibility to introduce a trade waste charge.

2.6.4 The Commission's draft decision

The fixed supply charge

The Commission's draft decision on fixed supply charges in the 2018–23 regulatory period was to accept Icon Water's proposal for increasing the fixed supply charge by \$20 per year to \$200 by 2022–23, applicable for both residential and non-residential consumers. The Commission further suggested that Icon Water give consideration to introducing a differential fixed supply charge component set at a higher value for non-residential consumers while providing a long transition period for these customers.

The Tier 1 usage charge

The Commission's draft decision was to retain the current approach to the Tier 1 usage price and support Icon Water's proposal for annual adjustments for any X factor²⁰, changes in the CPI and any pass-through amounts as part of the annual price reset mechanism for the 2018–23 period.

The Tier 2 usage charge

The Commission's draft decision accepted Icon Water's proposal for decreasing the Tier 2 water usage charge from \$5.38 to \$4.95 per kL in 2018–19 on the basis that the current Tier 2 charge remains among the highest nationwide and should be amended to reduce the risk of uneconomic bypass problems. The Commission's draft decision was also guided by the fact that a significant proportion of low-income households are current Tier 2 consumers.

The Commission's draft decision did not adopt Icon Water's proposal to fix Tier 2 prices at the lower level of \$4.95 per kL over the 2018–23 regulatory period. The Commission considered that, in order to achieve a socially more equitable outcome,

¹⁹ Icon Water, 2017a (Overview): 33.

²⁰ An X factor can be used to smooth price changes over the regulatory period. It is a mathematical function that ensures forecast tariff revenue and target revenue are equalised in net present value terms at the end of the regulatory period.

the expenditure risks associated with changes in the CPI and non-controllable payments should be shared by both Tier 1 and Tier 2 consumers. The Commission's draft decision retained the current approach of adjusting the Tier 2 usage price for changes in the CPI and any pass-through amounts as part of the annual price reset mechanism over the 2018–23 regulatory period.

Sewerage services tariffs

The Commission considered that the current fixed charge for sewerage services does not provide a price signal to promote efficient provision of and demand for sewerage services. But there are practical considerations in the measurement of sewerage services usage that must be considered.

In the absence of a reliable measure for actual discharge volumes, it is unlikely that any potential economic efficiency benefits of introducing a sewage volume charge would outweigh the costs. On that basis the Commission's draft decision accepted Icon Water's proposal to retain the existing sewerage services tariff structure with fixed charges.

Trade waste pricing

Consistent with cost-reflective pricing, the Commission has in the past noted that costs associated with trade waste should be recouped from trade waste producers. In its previous final decisions – for instance, in 2008 and 2013 – the Commission noted that it was supportive of Icon Water's stated intention to implement a trade waste policy.²¹

The Commission's draft decision welcomed Icon Water's commitment to consider introducing a trade waste pricing regime during the 2018–23 regulatory period to ensure that the actual costs imposed on the sewerage network are signalled to consumers. In view of Icon Water's previous consideration of potential trade waste approaches, the Commission expects the utility to introduce a trade waste pricing regime during the 2018–23 regulatory period.

2.6.5 Submissions received on the draft report

The Commission received a Revised Price Proposal from Icon Water on 23 February 2018²² which retained the same tariff structure as Icon Water proposed in its earlier submission. This Revised Price Proposal adopted the Commission's draft decision to increase the fixed charge, adjust Tier 1 prices by CPI and retain the fixed charge for sewerage services. The Revised Price Proposal included Icon Water's previous proposal for a fixed nominal Tier 2 rate of \$4.95 per kL, which the Commission did not adopt in its draft decision.

²¹ ICRC, 2008: 158 and ICRC, 2013: 164.

²² Icon Water, 2018.

ACAT's submission to the Commission stated²³:

The proposed price path for water supply fees is a modest rebalance between overhead and consumption charges which, in itself, should not lead to increased hardship. The recent removal of the water and sewerage concessions is likely to have a greater impact on low income water customers.

The proposed price path for sewerage services is a small reduction in Year 1 and less than inflation thereafter.

The proposed price path for tier 1 and tier 2 consumption is a welcome, small reduction in consumption charges.

The Conservation Council ACT Region's submission to the Commission included²⁴:

Recommendation 2.

That the ICRC's draft decision on water and sewerage services tariffs 2018–23 be supported

Recommendation 3.

Give further consideration to introduction of a differential fixed supply charge entailing a higher fixed charge for non-residential consumers relative to residential consumers

2.6.6 The Commission's final decision

The Commission has considered the submissions to the draft report which addressed tariff structure. The submissions broadly support the draft decision on tariff structure, though there are some elements where submissions recommend further consideration by the Commission.

Icon Water's Revised Price Proposal continued to propose a fixed nominal Tier 2 rate of \$4.95 per kL. Icon Water stated that this would reduce the Tier 2 charge to the greatest extent possible without causing material real bill increases for any customers.

The Commission considers that cost sharing and lower bill increases should apply equally to Tier 1 and Tier 2. The Commission's draft decision was to adopt equal cost sharing between Tier 1 and Tier 2 usage.

In its final decision, the Commission has slightly amended the methodology from its draft report to ensure that Tier 1 and Tier 2 are adjusted equally, both initially and then annually as part of the price reset mechanism. The initial and annual adjustment percentages should be equal between Tier 1 and Tier 2 rates, such that the proportional effects on water usage bills will be the same for low and high water uses. Accordingly, the Commission's final decision is for a Tier 2 usage rate set with the identical

²³ ACAT, 2018: 2.

²⁴ Conservation Council ACT Region, 2018: 3.

smoothing factor, inflation adjustments and pass-throughs used to set the Tier 1 usage rate.

Prices will be lower than initially proposed by Icon Water in its June 2017 Price Proposal. The lower prices determined by the Commission result from: Icon Water's reconsideration of its planned capital expenditure program in response to the Commission's efficiency review; small operating cost savings; lower interest rates; and the Commission's decision on the method of calculating the return on capital.

This means that all consumers will see the same proportional change in water usage charges and any impacts of pass-through costs, rather than the small users bearing all the price change impacts.

Following consideration of the submissions received to the draft report, the Commission's final decision is to implement a gradual increase in the fixed water supply charge, and a reduced fixed sewerage services charge, with CPI adjustment over time.

2.7 Miscellaneous fees and charges

Icon Water imposes a series of fees for miscellaneous services, including meter replacement, disconnection and the installation of fire hydrants. The Industry Panel's decision on miscellaneous fees and charges was for the Commission to annually evaluate the miscellaneous fees and charges proposed by Icon Water. Previous Commission approvals were for the fees to typically increase in line with the CPI.

The Commission will update these fees by the change in the CPI in each year of the 2018–23 regulatory period.

2.7.1 Submissions received on the issues paper

Icon Water's Price Proposal included no change to the current form of control for miscellaneous fees and charges. It stated, 'The price to be charged for each miscellaneous service should be increased in line with the change in the CPI in each year of the regulatory period including 2018–19'.²⁵

2.7.2 The Commission's draft decision

The Commission's draft decision was to approve Icon Water's proposal to maintain the current approach of updating miscellaneous fees and charges by the CPI in each year of the regulatory period.

²⁵ Icon Water, 2017a (Attachment 2): 23.

2.7.3 Submissions received on the draft report

ACAT's submission to the draft report supported retention of the current approach of the Commission to maintain oversight of miscellaneous fees and charges on an annual basis.

2.7.4 The Commission's final decision

Following submissions received to the draft report, the Commission's final decision is to retain the current provisions for Commission oversight and update of the miscellaneous fees and charges.

2.8 The Capital Contribution Code

On 30 March 2017 Icon Water submitted to the Commission an application for a Capital Contribution Code to allow developer contributions to water and sewerage infrastructure upgrades triggered by development projects. Icon Water seeks to recover from developers the costs that arise from augmenting the water and sewerage network to service new customers whose network augmentation costs would not be recovered through water and sewerage services bills alone. The single charge would be applicable to all precincts or zones in the ACT, with an annual update of this charge based on updated population projections and project costs.

The Commission reviewed project costs and allocations of project funding between the Capital Contribution Code and the water and sewerage service tariffs to ensure that the same projects were not funded twice. On 8 December 2017 the Commission released its final determination on Icon Water's proposed water and sewerage services Capital Contribution Code. Further description of the capital expenditure accounting is contained in Chapter 4.

2.9 Negotiated contract arrangements

As acknowledged in the Commission's final report on the tariff structure review, the current Tier 2 price creates a risk of uneconomic bypass where large users might have incentives to opt out of the supply of water services by Icon Water. If this risk materialised, water bills would have to increase for all Icon Water's remaining consumers to allow Icon Water to recover its costs.

The same tariff structure report encouraged the consideration of different tariffs for different types of consumers, such as large users, as long as it can be shown that such tariffs are in the long-term interests of consumers. Avoiding uneconomic bypass that results in higher charges to remaining consumers is an example of when different tariffs for large users could be in the long-term interests of consumers.

2.9.1 Submissions received on the issues paper

Icon Water's Price Proposal included provisions for negotiated contract arrangements with large users to minimise the risks of potential uneconomic bypass. The proposal included the following:

Icon Water entering into a negotiated contract with a large consumer that is demonstrably planning to bypass Icon Water's primary water supply network.

Agreeing pricing arrangements including a prudent discount sufficient to discourage bypass plans and a more appropriate tariff structure such as high fixed charge and single volumetric price, and

The ability to recover the prudent discount amount from all Icon Water consumers to ensure full cost recovery.²⁶

2.9.2 The Commission's draft decision

The Commission's draft report notes that its price direction sets a maximum price and a revenue cap, and that this arrangement gives Icon Water substantial latitude to tailor prices and negotiate accordingly. The draft report argued that Icon Water's Price Proposal did not demonstrate an inability to set prices that would prevent both uneconomic bypass and full cost recovery, and that any such demonstration would need to establish the volume at risk of uneconomic bypass, the potential impact on general prices, and how these risks differ substantially from the standard demand risk embodied within medium-term forecasting.

The Commission's draft decision did not include any provisions in relation to uneconomic bypass arrangements.

2.9.3 Submissions received on the draft report

Icon Water's Revised Price Proposal proposed a new pass-through event for negotiated contracts for uneconomic bypass²⁷:

Our revised proposal is that a pass-through provision be included in the price direction to provide a mechanism for the ICRC to:

- consider, at annual price resets, whether any negotiated price agreement proposed by Icon Water represents a legitimate prudent discount intended to avoid a credible uneconomic bypass alternative; and
- make an adjustment to tariffs for the recovery of forecast revenue forgone due to any approved negotiated price agreement.

²⁶ Icon Water, 2017a (Attachment 2): 20.

²⁷ Icon Water, 2018: 17.

This provision is necessary to ensure there is no financial disincentive to Icon Water responding in known cases of potential uneconomic bypass, so Icon Water has every opportunity to earn its allowed revenue.

Icon Water's Revised Price Proposal further included²⁸:

The volume at risk of uneconomic bypass is unknown. Abstraction from Lake Burley Griffin is not the only potential means of bypass. There may be potential for stormwater harvesting and recycling at other locations in Canberra. Around seven GL of water are used by just 200 installations each year and many of these installations serve the same organisation (for example, National Capital Authority and Australian National University each have several installations). These types of customer use substantial amounts of water and, until gradual tariff reform has reduced the usage price for these customers, they will have a strong incentive to consider bypass options.

The Conservation Council ACT Region's submission to the draft report included the following recommendations²⁹:

Recommendation 3.

Give further consideration to introduction of a differential fixed supply charge entailing a higher fixed charge for non-residential consumers relative to residential consumers

Recommendation 4.

That discounted pricing not be offered for bulk users.

2.9.4 The Commission's final decision

The Commission notes that the regulated prices are maximum prices and Icon Water can negotiate contracts with large users on a commercial basis. Commercial decisions on prudent discounts should be part of everyday business for businesses such as Icon Water. The Commission understands that, since the release of its draft decision, Icon Water has entered into negotiated relationships with at least one major consumer, with the aim of preventing losses incurred from potential uneconomic bypass.

The Commission notes Icon Water is already able to negotiate commercial tariffs where uneconomic bypass is a potential risk, and considers that differentiated tariff structures for residential and large non-residential water consumers may be part of the response to potential incidence of uneconomic bypass. This consideration is consistent with submissions during this investigation and the findings from the Commission's 2017 tariff review. The Commission notes that water utilities in similar jurisdictions have adopted a variety of commercial tariffs with higher fixed and lower variable charges.

²⁸ Icon Water, 2018: 18.

²⁹ Conservation Council ACT Region, 2018: 3.

The Commission's final decision is not to add a new pass-through event for negotiated contracts to prevent uneconomic bypass.

2.10 Incentive schemes

The Terms of Reference require the Commission to consider whether there is potential for implementing incentive schemes for Icon Water in the next regulatory period.

The Commission has a longstanding record of using deadbands as a risk-sharing mechanism, and its draft decision was to maintain the current form of end-of-period demand volatility adjustment mechanism during the forward regulatory period.

2.10.1 Submissions received on the issues paper

Icon Water's Price Proposal did not support the introduction of service standard incentive schemes, or capital expenditure or operating expenditure incentive schemes. Chapter 11 provides further information on incentive mechanisms.

2.10.2 The Commission's draft decision

The Commission's draft decision on incentive mechanisms was to further examine the potential for implementing incentive schemes for Icon Water's operating expenditure, capital expenditure and service levels during the 2018–23 regulatory period. This review would be given effect through a future reset principle specified in the proposed price direction.

2.10.3 Submissions received on the draft report

The Commission received no submissions to the draft report which addressed incentive mechanisms.

2.10.4 The Commission's final decision

The Commission's final decision on incentive mechanisms is that there is potential for implementing incentive schemes for Icon Water during the forward regulatory period – this will involve continuing the existing incentive mechanisms. The Commission also decided that there would be benefit in conducting a more comprehensive review of incentive mechanisms during the 2018–23 period. This comprehensive review will be given effect under a reset principle in the Price Direction.

2.11 Revenue calculation methodology

The current regulatory model uses a 'building block' methodology to establish allowable costs and revenues during the regulatory period. The Commission's final decision retains the existing building block methodology for revenue calculation.

The building block approach is consistent with the Industry Panel’s report and Icon Water’s Price Proposal. It is the most widely used approach in Australia for determining utility businesses’ allowed revenue to be recovered through prices.

Under the building block model, the allowed revenue in any one year is the sum of the operating expenditure for that year and a contribution to the costs of capital investment made in the past (referred to as the regulatory asset base), plus allowances for forecast tax paid by the firm. The contribution to the costs of capital investments is the sum of what is known as the 'return on capital' and the 'return of capital'. The model also provides for full pass-through of specified unexpected or government-mandated costs.

This method of allowing for the recovery of the regulated firms’ capital gives the regulated firm a reasonable assurance that it will be able to pay back its lenders, includes a commercial rate of interest, and provide its investors with a reasonable return on their investment—given the relative risk of the businesses compared to other investments.

To summarise, under the building block model, the total allowed revenue is the sum of the following cost components, or ‘blocks’:

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

Under the building block methodology, expenditure is only included in allowed revenue calculations when it is deemed both ‘prudent’ and ‘efficient’. For the purposes of this investigation, the Commission relied on the following definitions of prudent and efficient:

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

2.11.1 Submissions received on the issues paper

Icon Water's Price Proposal supported the Commission's continuing use of a post-tax building block revenue model to determine Icon Water's maximum allowed revenue for the 2018–23 regulatory period.

2.11.2 The Commission's draft decision

The Commission's draft decision retained the Industry Panel's approach and calculated the rate of return using a WACC formulation, measured on a post-tax basis. Consistent with the Industry Panel's approach, the Commission's draft decision allowed capital expenditure to be incorporated in the RAB, where this expenditure is shown to be prudent and efficient. The Commission's draft decision retained the Industry Panel's straight-line depreciation method.

2.11.3 Submissions received on the draft report

The Commission received no submissions on the draft report on the building block methodology for revenue calculation.

2.11.4 The Commission's final decision

The Commission's final decision retains the existing building block methodology for revenue calculation.

3 Operating expenditure

Icon Water’s operating expenditure refers to the costs incurred in operating and maintaining the ACT’s water and sewerage systems to produce the desired services for ACT consumers. Operating expenditure items include managing and maintaining bulk water storage, treatment and transfer, meter reading, consumer service, planning, corporate services, and ACT Government taxes and charges.

The Commission’s final decision

Icon Water’s Price Proposal included total water and sewerage services operating expenditure of \$922m nominal over the five year forward regulatory period beginning 1 July 2018, as set out in Table 3.1.

Table 3.1 Icon Water’s Price Proposal operating expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Controllable operating expenditure	61.8	62.6	63.8	66.8	68.0	323.0
Water Abstraction Charge	29.1	30.1	31.3	32.5	33.8	156.7
Utilities Network Facilities Tax	5.7	6.0	6.4	6.8	7.2	32.0
Total water operating expenditure	96.5	98.8	101.5	106.1	109.0	511.8
Sewerage						
Controllable operating expenditure	73.5	74.5	75.9	78.3	80.6	382.9
Utilities Network Facilities Tax	4.7	4.9	5.2	5.6	5.9	26.3
Total sewerage operating expenditure	78.2	79.5	81.1	84.8	86.6	410.3
Total operating expenditure	174.7	178.3	182.6	190.9	195.6	922.1

Source: Icon Water (2017a).

To assist the Commission’s draft decision, the Commission sought independent review by Calibre of Icon Water’s proposed operating expenditure. Calibre recommended an adjustment of \$2.1m in nominal value to the proposed controllable operating expenditure.

The Commission’s draft decision on allowable operating expenditure was \$920m nominal over the 2018–23 period **Error! Reference source not found.**, reflecting the reduction in controllable operating expenditure across water and sewerage. In

response to the Commission’s draft decision, Icon Water submitted a Revised Price Proposal which adopted the draft decision’s operating expenditure of \$920m.

Subsequent to its Revised Price Proposal, Icon Water advised the Commission of revised pass-through costs for the Water Abstraction Charge and the Utilities Network Facilities Tax. These revised pass-through costs were included in the Commission’s final decision, as shown in Table 3.2.

Table 3.2 The Commission’s final decision on operating expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Controllable operating expenditure	61.8	62.6	63.8	65.9	67.9	322.1
Water Abstraction Charge	31.4	30.6	31.7	33.0	34.3	160.9
Utilities Network Facilities Tax	6.2	6.0	6.4	6.8	7.2	32.6
Total water operating expenditure	99.4	99.2	101.9	105.7	109.4	515.6
Sewerage						
Controllable operating expenditure	73.5	74.5	75.9	78.3	80.6	382.9
Utility Network Facility Tax	5.0	4.9	5.2	5.6	5.9	26.7
Total sewerage operating expenditure	78.5	79.5	81.1	83.9	86.5	409.5
Total operating expenditure	177.9	178.7	183.0	189.5	195.9	925.1

Source: Commission’s calculations.

The Commission’s final decision on operating expenditure reflects:

- The standard of service provided by Icon Water in the current regulatory period.
- The Commission’s acceptance of Icon Water’s operating expenditure calculation method and revised water demand forecasts.
- Independent review of inclusions and components of operating expenditure.
- Pass-through costs adjustments.

Under on Section 19L of the ICRC Act, the Commission must have regard to efficient expenditure and the standard of service. Expenditure includes operating and capital expenditure, which are reviewed in this chapter and Chapter 4. Standard of service

includes quality, safety, reliability and security measures and is reviewed in this chapter.

In deliberating on operating expenditure, the Commission has considered the following:

- Desired and actual standards of service in the current regulatory period.
- Icon Water's operating expenditure in the current period, including the benchmark year.
- Icon Water's proposed operating expenditure in the 2018–23 regulatory period, including calculation and parameters.

The Commission provides for, but does not review, pass-through costs such as the Utilities Network Facilities Tax (UNFT) and Water Abstraction Charge (WAC). These costs are government taxes and charges collected from consumers and remitted to the ACT Government by Icon Water. From Icon Water's perspective, the UNFT and WAC are deemed 'non-controllable costs' and are accounted for separately from the utility's 'controllable costs' when the Commission reviews operating expenditure.

3.1 Performance in 2013–18

Icon Water's Price Proposal included a discussion of balancing network reliability and the level of prices when undertaking 'willingness to pay' research with consumers.³⁰

Icon Water conducts performance monitoring for the purpose of self-identified key service targets, regulatory compliance, consumer satisfaction measurement, and external reporting (such as the National Performance Reporting, or NPR). The NPR is undertaken by the Bureau of Meteorology for all Australian water utilities, and there is now a national database from 2007 to 2016. The NPR data is available for comparative analysis in four of the five years of the current regulatory period (2013–14, 2014–15, 2015–16 and 2016–7).

Icon Water compliance with health and environmental regulations is monitored by the ACT's Health Directorate and the Environmental Protection Agency. Under its Utilities Service Licence, Icon Water is required to advise the Commission of any material breaches to regulations.

3.1.1 The water supply system

On a comparative basis, and using the best available cross-sectional data, Icon Water's water supply system appears to have performed on par with those of other Australian water utilities during the 2013–18 regulatory period. Neither expenditure nor

³⁰ Icon Water, 2017a (Attachment 3).

performance appears exceptional, based on the NPR data from the Bureau of Meteorology (see Table 3.3).

Table 3.3 Expenditure and performance for Icon Water’s water supply system

	Icon Water average 2013–14 to 2016–17	Australian large water utilities ^a average 2013–14 to 2016–17	Indicator and rank (highest to lowest) within large water utilities ^a	
Expenditure				
Operating cost – water (\$/property)	470	560	●	8 of 13
Water supply capital expenditure (\$/property)	212	154	●	3 of 13
Performance				
Percentage of population where microbiological compliance was achieved (per cent)	100	100	●	1 of 13
Water quality complaints (per 1,000 properties)	1.1	1.5	●	8 of 13
Real losses (kL/km water main/d)	2.3	3.2	●	10 of 12
Water main breaks (no. per 100 km of water main)	13	22	●	8 of 13
Water service complaints (per 1,000 properties)	1.6	1.3	●	3 of 12

● Within the four best-performing utilities on this metric. ● Within the four worst-performing utilities. ● Within the middle three, four or five utilities using this metric.

Note: ^a Sample includes the 13 Australian large water utilities reporting data through NPR, although not all utilities have reported all data.

Source: Bureau of Meteorology (2018)

The NPR metrics for operating expenditure indicate that Icon Water provides water supply services at a lower cost per property than the Australian average (\$470 nominal as against the \$560 Australian average). Its capital expenditure on water supply per property appears higher than the Australian average (\$212 nominal as against the \$154 Australian average).

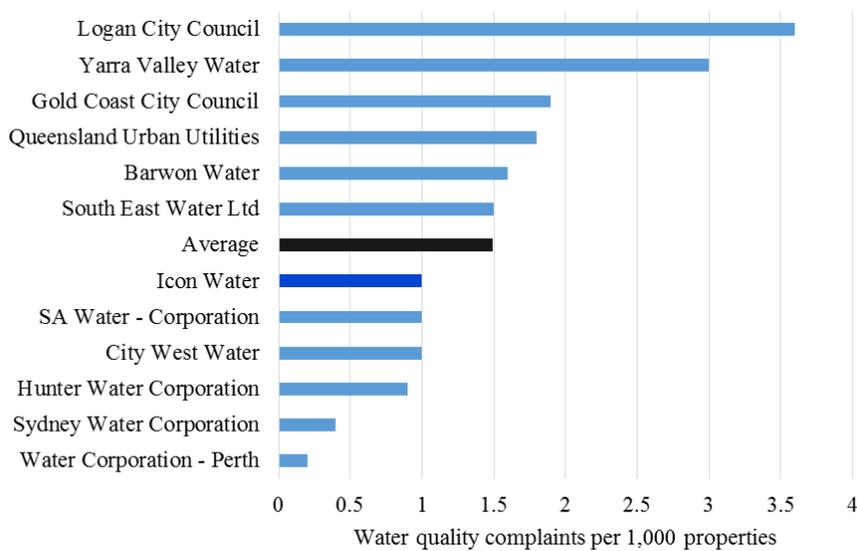
High-quality and safe drinking water

Icon Water’s performance in providing clean and healthy drinking water can be indicated by a range of metrics. Self-identified key service targets include providing 100 per cent of drinking water that achieves microbiological compliance (health regulation compliance), which is monitored by the ACT Health Department. Icon

Water’s performance in providing clean and healthy water was praised in the Chief Health Officer’s most recent report on health in the ACT.³¹

Apart from complying with minimum health regulations, Icon Water’s performance in providing high-quality, safe drinking water can be compared with other large Australian utilities using NPR data. As measured by water quality complaints, in the most recent year (2015–16) and across the previous three years, Icon Water appears to have performed as well as or better than its peer group average (see Figure 3.1). As measured by water service complaints, Icon Water appears to have performed worse than the peer group average (see Figure 3.2).

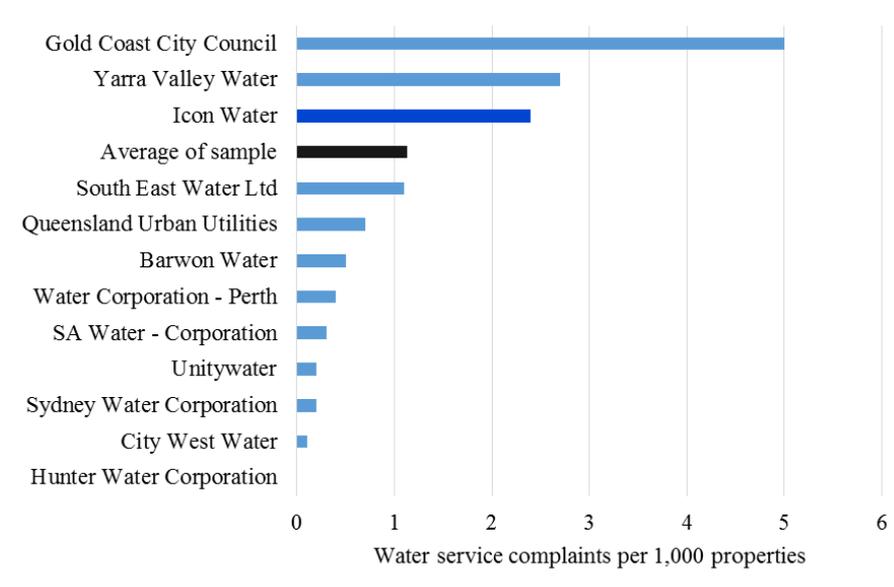
Figure 3.1 Water quality complaints for large Australian water utilities, 2016–17



Source: Bureau of Meteorology (2018).

³¹ The report is available at www.health.act.gov.au/datapublications/reports/chief-health-officers-report-2016.

Figure 3.2 Water service complaints for large Australian water utilities, 2016–17

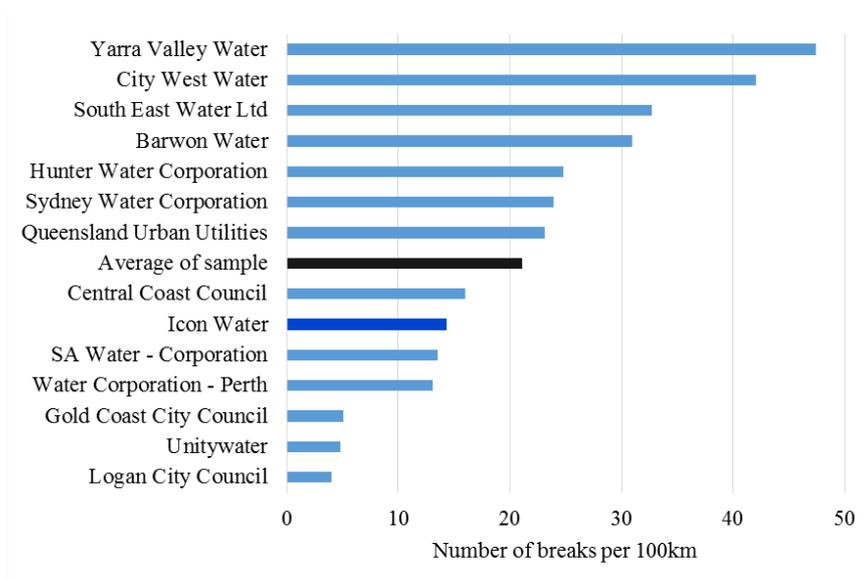


Source: Bureau of Meteorology (2018).

Reliable and secure water

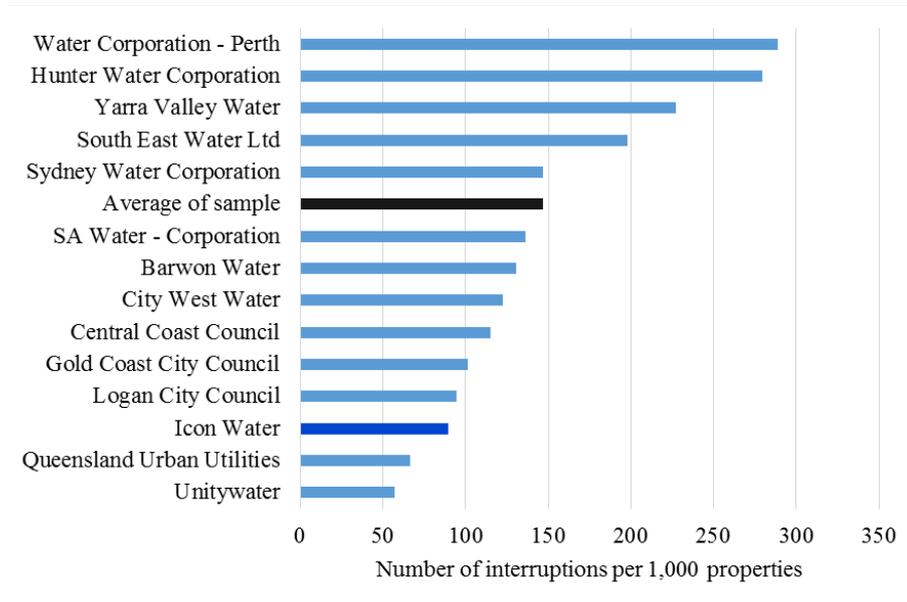
Provision of reliable, secure water can be measured within the NPR framework using the number of mains breaks and the frequency of water supply interruptions can allow comparative evaluation of performance. Icon Water’s performance by these metrics within a peer group of large Australian water utilities is shown in Figure 3.3 and Figure 3.4.

Figure 3.3 Number of water mains breaks per 100km mains for large Australian water utilities, 2016–17



Source: Bureau of Meteorology (2018).

Figure 3.4 Frequency of water supply interruptions for large Australian water utilities, 2016–17



Source: Bureau of Meteorology (2018).

The NPR data indicate that, compared with other large Australian water utilities, Icon Water provides reasonably reliable, secure water supplies. In the most recent year for which data are available Icon Water appeared to have fewer than the peer group average number of breaks per 100 km of water mains and a lower supply interruption frequency.

3.1.2 The sewerage system

The NPR data indicate that, compared with other major water utilities in Australia, Icon Water’s sewerage system operates at a high operating cost with lower performance levels. Table 3.4 shows the expenditure and performance of Icon Water for the 2013–17 period, as indicated by the NPR data.

Table 3.4 Expenditure and performance indicators for Icon Water's sewerage system

	Icon Water average 2013–14 to 2016–17	Australian large water utilities ^a average 2013–14 to 2016–17	Icon Water rank within large water utilities ^a	
Expenditure				
Operating cost – sewerage services (\$/property)	399	325	●	2 of 13
Sewerage capital expenditure (\$/property)	218	224	●	9 of 13
Performance				
Sewer overflows reported to the environmental regulator (no. per 100 km of sewer main)	1.3	0.5	●	1 of 13
Sewerage mains breaks and chokes (no. per 100 km sewer main)	53	31	●	2 of 13
Sewerage service complaints (no. per 1,000 properties)	1.0	0.4	●	2 of 12

● Within the four best-performing utilities on this metric. ● Within the four worst-performing utilities. ● Within the middle four or five utilities using this metric.

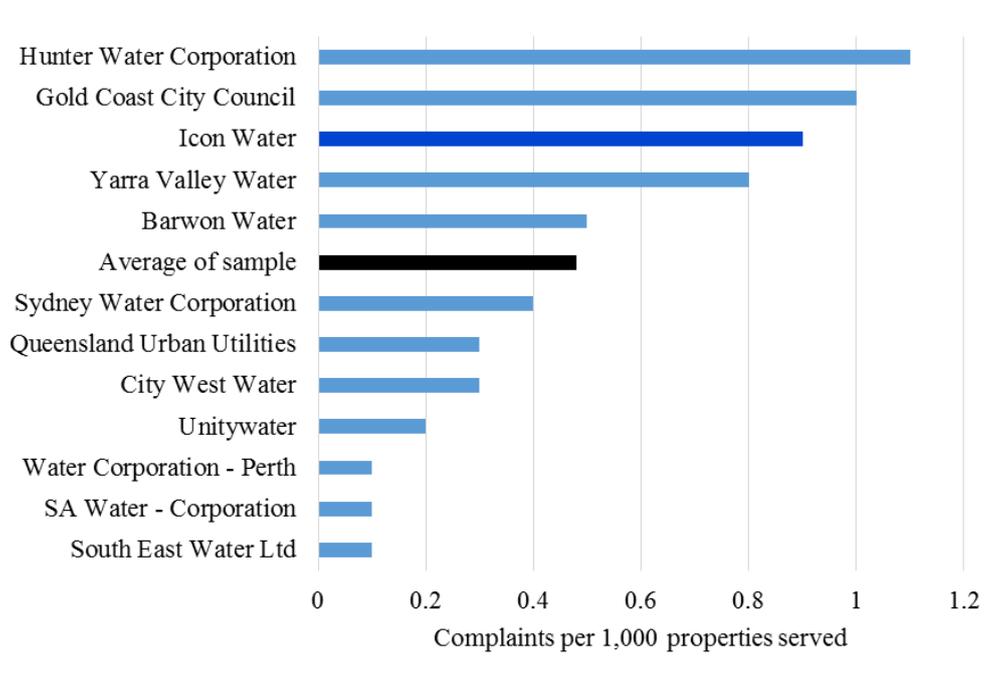
Note: ^a Sample includes the 13 Australian large water utilities reporting data through National Performance Reporting by the Bureau of Meteorology.

Source: Bureau of Meteorology (2018)

Safe and high-quality sewerage services

Icon Water receives a greater than average rate of complaints about sewerage services (Figure 3.5).

Figure 3.5 Frequency of sewerage service complaints for large Australian water utilities, 2016–17



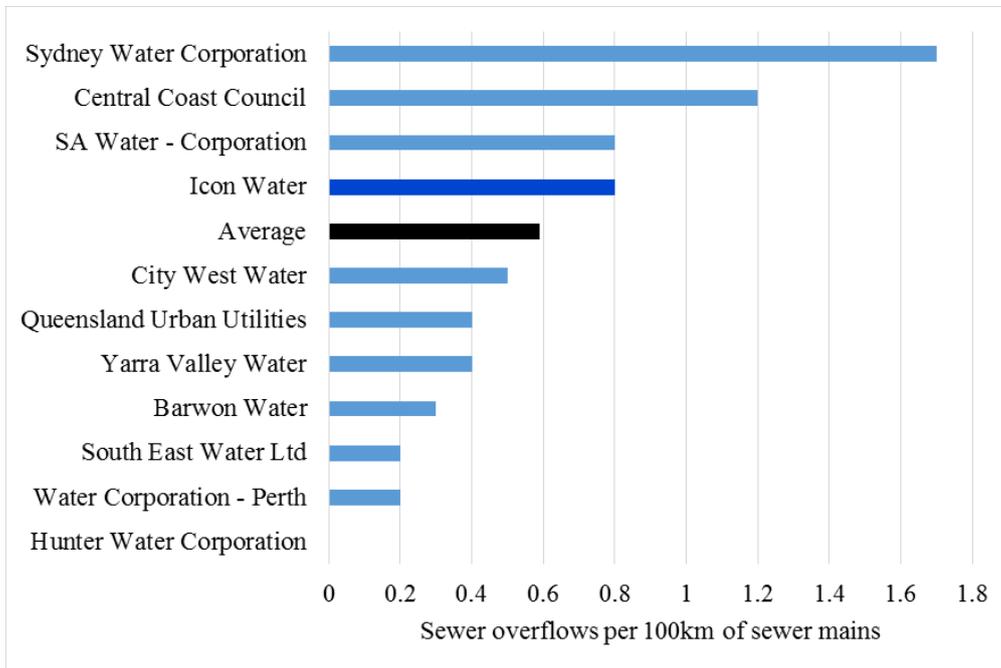
Source: Bureau of Meteorology (2018).

Reliable and secure sewerage services

The NPR data indicate that Icon Water’s sewer overflow incidents occur more frequently than Australian peers (see Figure 3.6). Icon Water’s rate of sewer overflows reported in 2016—17 was 1.3 per 100km of sewer mains.

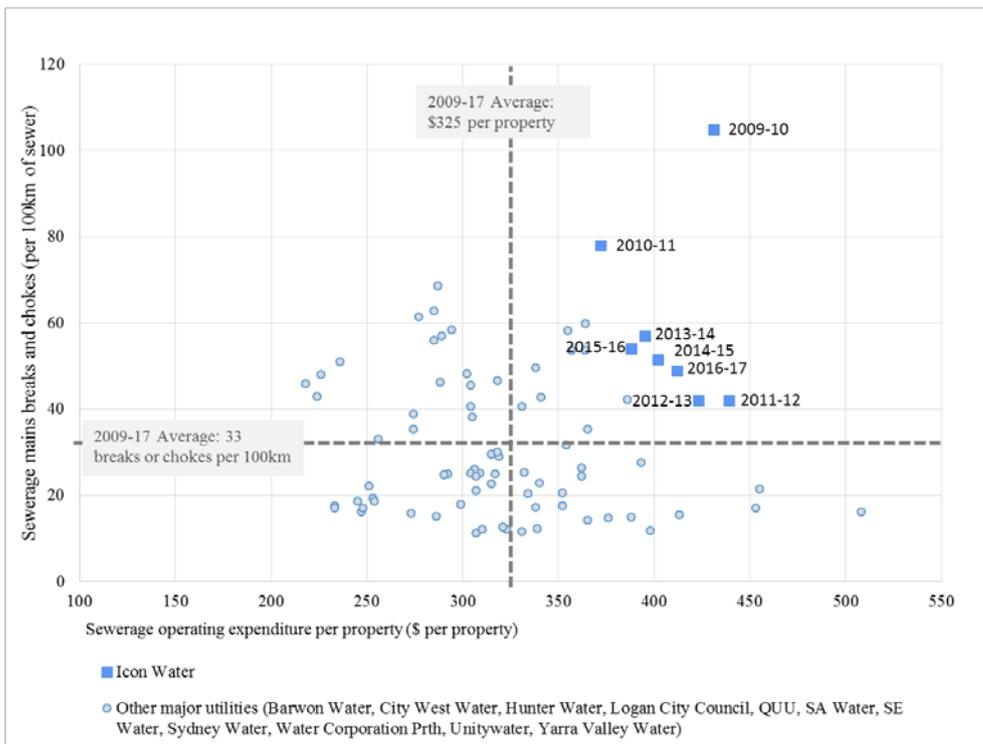
NPR data indicate that in the past six years Icon Water’s operating expenditure per property has remained high while performance, as measured by sewer mains breaks and chokes, has remained relatively poor. The data suggest that, compared with peers, Icon Water’s sewerage system operating performance runs at a higher cost while delivering lower reliability of service (see Figure 3.7).

Figure 3.6 Rate of reported sewer overflows for large Australian water utilities, 2015–16



Source: Bureau of Meteorology (2018).

Figure 3.7 Australian water utilities' sewerage system operating expenditure and performance, as measured by breaks and chokes for 2009–2017



Source: Bureau of Meteorology (2018).

3.2 Operating expenditure in 2013–18

The Commission does not conduct an ex post review of operating expenditure at the end of the regulatory period for prudence and efficiency. The Commission notes Icon Water’s stated performance against earlier proposals and regulatory decisions on allowable expenditure.

3.2.1 The Industry Panel’s allowable expenditure

When setting Icon Water’s allowable expenditure for 2013–18, the Industry Panel considered the utility’s 2014 Statement of Facts and Contentions (SOFC) which was regarded as the best available estimate of the efficient level of costs. The Industry Panel report made an allowance of \$870.1m nominal operating expenditure, of which \$691m nominal (\$719m real) was for water and sewerage services controllable costs and \$177m nominal (\$186m real) was for uncontrollable costs (WAC and UNFT). The Industry Panel’s allowable operating expenditure for Icon Water is shown in Table 3.5.

Table 3.5 Industry Panel final decision on operating expenditure for water in the current regulatory period (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	Total
Water						
Controllable operating expenditure	62.8	66.2	66.9	68.0	70.3	334.1
Water Abstraction Charge	25.0	27.3	27.6	27.9	28.3	136.0
Utilities Network Facilities Tax	4.1	4.5	4.7	5.0	5.1	23.4
Total water operating expenditure	91.9	97.9	99.2	100.8	103.7	493.5
Sewerage						
Controllable operating expenditure	67.7	69.3	70.6	73.3	76.3	357.2
Utilities Network Facilities Tax	3.4	3.7	3.9	4.1	4.3	19.3
Total sewerage operating expenditure	71.1	73.0	74.5	77.4	80.5	376.6
Total operating expenditure	163.0	170.9	173.8	178.2	184.2	870.1

Source: Industry Panel (2015a).

3.2.2 Icon Water’s Price Proposal and actual expenditure

Icon Water’s June 2017 Price Proposal stated that water and sewerage services operating expenditures during the current regulatory period were lower than the level set in both the Industry Panel report’s allowable expenditure and in Icon Water’s SOFC.

Icon Water’s Price Proposal provided data on the actual controllable and uncontrollable operating expenditure across water and sewerage services for the current regulatory period. The total operating expenditure of \$856.5m nominal included controllable expenditure of \$679m nominal (\$704m \$2017–18) and uncontrollable expenditure of \$177m nominal (\$183m \$2017–18), as shown in Table 3.6. These amounts are respectively 4.8 per cent and 1.5 per cent lower than the allowable operating expenditure set by the Industry Panel.

Table 3.6 Icon Water’s Price Proposal on operating expenditure for water and sewerage services in the current regulatory period (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	Total
Water						
Controllable operating expenditure	64.1	65.4	57.4	62.1	66.0	315.0
Water Abstraction Charge	24.9	25.5	27.6	27.7	28.6	134.3
Utilities Network Facilities Tax	3.7	5.3	4.6	4.7	5.3	23.6
Total water operating expenditure	92.7	96.2	89.6	94.5	99.9	473.0
Sewerage						
Controllable operating expenditure	74.5	72.1	68.7	73.6	75.2	364.1
Utilities Network Facilities Tax	3.6	3.7	3.8	3.9	4.4	19.4
Total sewerage operating expenditure	78.2	75.8	72.4	77.5	79.6	383.5
Total operating expenditure	170.9	172.0	162.1	172.0	179.5	856.5

Source: Icon Water (2017a).

The Icon Water Price Proposal stated that overall operating expenditure was lower than the Industry Panel allowed due to two factors:

- Adjustments were made to provisions for Comcare exit costs because provisioned claims were not realised.
- Adjustments were made to provisions for expected claims for the Commonwealth Superannuation Scheme.

Icon Water’s overall controllable operating expenditure was \$12m nominal (\$14m real) lower than the Industry Panel allowed. Controllable operating expenditure on the water supply system was \$19m nominal (\$20m \$2017–18) lower than allowable over the five-year period, whereas sewerage operating expenditure was higher by \$7m nominal (\$6m \$2017–18). Details of the higher than expected operating costs for sewerage were not provided by Icon Water.

3.3 Operating expenditure in 2018–23

The Commission assesses Icon Water’s proposed operating expenditure for the forward regulatory period on the basis of prudence and efficiency. Economically efficient operation and investment is integral to achieving the Commission’s regulatory objectives. The Commission adopts the following definitions for tests for prudence and efficiency:

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

3.3.1 Icon Water’s Price Proposal

Icon Water’s Price Proposal reduced controllable operating costs between the current (2013–18) and forward (2018–2023) regulatory periods. The reduction was equally shared between water and sewerage operating expenditure.

The uncontrollable operating costs of the Water Abstraction Charge (WAC) and Utilities Network Facilities Tax (UNFT) are expected to increase in the forward regulatory period. In \$2017–18 terms, Icon Water’s uncontrollable costs are forecast to increase from \$34.6m in 2013–14 to \$41.1m in 2022–23.

The net effect of Icon Water’s proposed changes in controllable and uncontrollable operating expenditure is a reduction in operating expenditure in \$2017–18 terms over the forward regulatory period. Total operating expenditure in the current regulatory period (2013–18) was \$856m nominal (\$889m \$2017–18). Icon Water’s Price Proposal had a total operating expenditure of \$922m (\$855m \$2017–18) over the 2018–23 period. Using \$2017–18 values (inflation adjusted) to compare across periods, the reduction in total operating expenditure is \$34m over five years.

Icon Water stated that its proposal was shaped by several factors:

- Meeting operating licence conditions and minimum standards.
- Ongoing implementation of the Business Transformation Program (BTP) and other human resource efficiency efforts.
- Renewable energy and energy efficiency programs.
- Increased maintenance costs resulting from asset base increases.

Methodology

The base-step-trend method was used by Icon Water to forecast operating expenditure. The base-step-trend method of forecasting operating expenditure has been adopted in previous price investigations by both the Commission and the Industry Panel, as well as by Icon Water in its submission to the investigation. The overall method is supported by the Commission. The analysis that follows focuses on selection of the base year and adjustments.

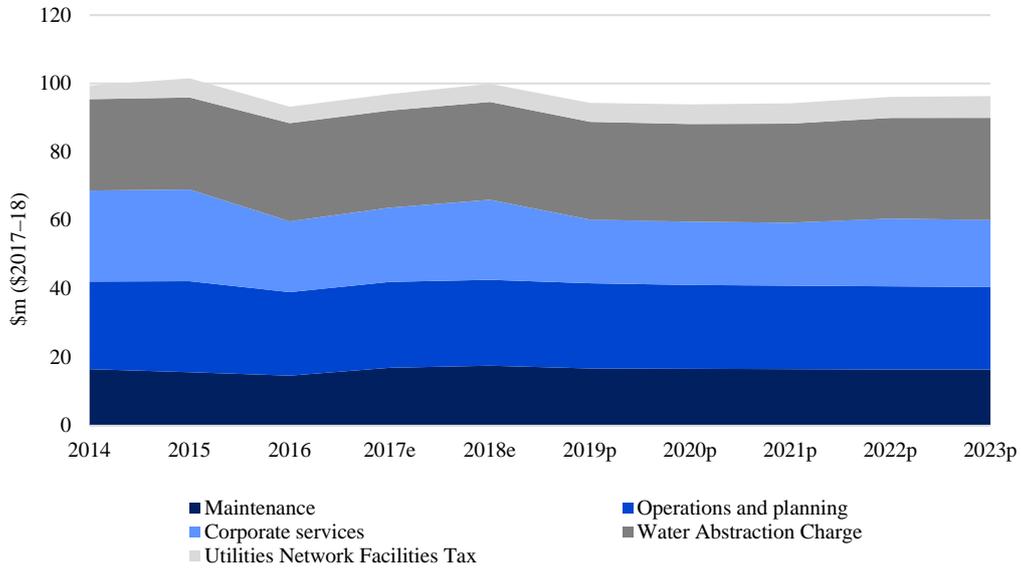
The base-step-trend method includes the following steps, as followed in the Icon Water submission:

- The selection of 2016–17 as the base year, being the most recent year for which full annual costs are available and most representative of the current regulatory and operating environment.
- Adjustments for abnormal items, such as historical provisions for workers compensation.
- Step changes during the regulatory period, in which Icon water added regulatory costs and removed the value of energy produced from its renewable energy program.
- Price growth forecasts, where the input price changes to labour, chemicals, electricity and operational costs are escalated over the forward period at different rates.³²

The forecast operating expenditure in water and sewerage services activities for Icon Water's Price Proposal are shown in Figure 3.8 and Figure 3.9, while the values for the forward period are shown in Table 3.7.

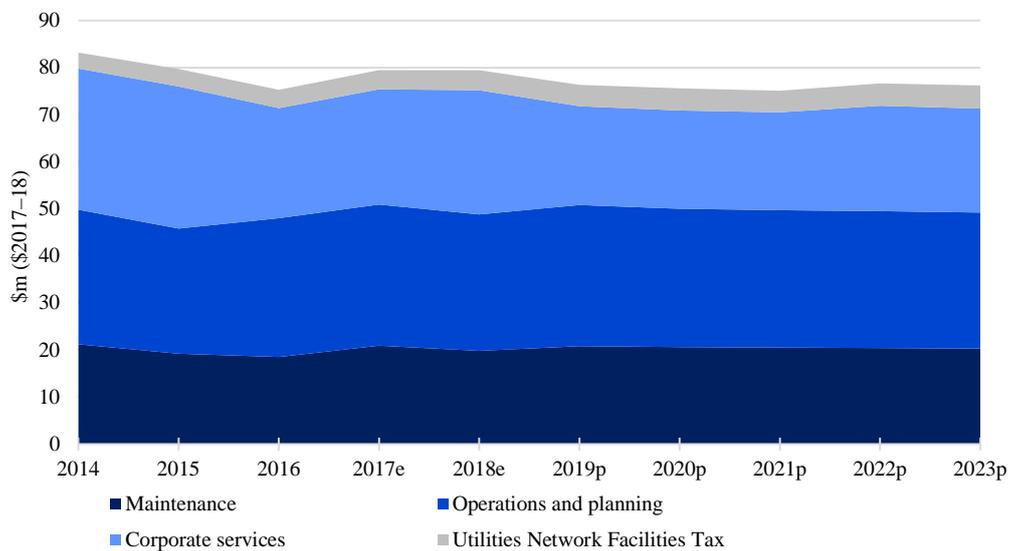
³² The escalation factors are described in Icon Water, 2017a (attachment 7): i-iii.

Figure 3.8 Icon Water's operating expenditure water, 2013–23 (\$m, 2017–18)



Notes: e: Icon Water estimated and p: Icon Water proposed.
Source: Icon Water (2017a).

Figure 3.9 Icon Water's operating expenditure for sewerage services, 2013–23 (\$m, 2017–18)



Notes: e: Icon Water estimated and p: Icon Water proposed.
Source: Icon Water (2017a).

Table 3.7 Icon Water’s Price Proposal on water and sewerage services operating expenditure for 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Controllable operating expenditure	61.8	62.6	63.8	66.8	68.0	323.0
Water Abstraction Charge	29.1	30.1	31.3	32.5	33.8	156.7
Utilities Network Facilities Tax	5.7	6.0	6.4	6.8	7.2	32.0
Total water operating expenditure	96.5	98.8	101.5	106.1	109.0	511.8
Sewerage						
Controllable operating expenditure	73.5	74.5	75.9	78.3	80.6	382.9
Utilities Network Facilities Tax	4.7	4.9	5.2	5.6	5.9	26.3
Total sewerage operating expenditure	78.2	79.5	81.1	84.8	86.6	410.3
Total operating expenditure	174.7	178.3	182.6	190.9	195.6	922.1

Source: Icon Water (2017a).

Consumer engagement

Icon Water’s Price Proposal stated that, when developing its plans for the 2018–23 regulatory period Icon Water sought to strike a balance between network reliability and price that reflected consumer preferences. The submission further stated that Icon Water conducted several pieces of targeted consumer research into preferences and priorities of consumers.³³

Icon Water indicated that its research found evidence of a consumer preference for reductions in prices and service reliability levels for water supply.

The Commission commends Icon Water on its efforts to engage with consumers and the Commission looks forward to continuing improvements in Icon Water’s consumer engagement practices.

3.3.2 Independent review

The Commission engaged Calibre to provide an independent review of the prudence and efficiency of Icon Water’s Price Proposal for operating expenditure over the forward period.

Calibre assessed Icon Water’s Price Proposal, activities and operating expenditure forecasting methodology. It recommended adjustments to Icon Water’s proposed

³³ Icon Water, 2017a (Attachment 3): 8.

regulatory costs over the forward regulatory period. Icon Water proposed an increase in regulatory costs over the five-year period, but the Calibre analysis found that, given a stable regulatory environment, regulatory costs should remain stable or decrease. Furthermore, Icon Water's regulatory services are provided through the CSA with ActewAGL and should not require additional costs to Icon Water. The CSA with ActewAGL is explained further in Box 1. Calibre recommended an adjustment of \$2.1m in nominal value to bring this expenditure towards a prudent and efficient value.

Calibre's recommended prudent and efficient operating expenditure are shown in Table 3.8. The recommended prudent and efficient operating expenditure is \$2.1m lower than Icon Water's Price Proposal's operating expenditure.

Table 3.8 Independent review of Icon Water's Price Proposal operating expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Controllable operating expenditure	61.8	62.6	63.8	65.9	67.9	322.1
Water Abstraction Charge	29.1	30.1	31.3	32.5	33.8	156.7
Utilities Network Facilities Tax	5.7	6.0	6.4	6.8	7.2	32.0
Total water operating expenditure	96.5	98.8	101.5	105.2	108.9	510.8
Sewerage						
Controllable operating expenditure	73.5	74.5	75.9	78.3	80.6	382.9
Utilities Network Facilities Tax	4.7	4.9	5.2	5.6	5.9	26.3
Total sewerage operating expenditure	78.2	79.5	81.1	83.9	86.5	409.2
Total operating expenditure	174.7	178.3	182.6	189.1	195.4	920.0
Reduction from Icon Water's Price Proposal	0.0	0.0	0.0	-1.9	-0.2	-2.1

Sources: Calibre (2017) and Icon Water (2017a).

Box 1 Independent review of the CSA between Icon Water and ActewAGL Distribution

Icon Water outsources a number of functions to ActewAGL Distribution under the Corporate Services Agreement (CSA).

The CSA is a contract between Icon Distribution Investments Limited and ActewAGL Distribution. ActewAGL Distribution is a partnership between Jemena Networks (ACT) Pty Ltd and ACTEW Corporation. The CSA was formed in 2012 and, in the absence of negotiated renewal, the contract is to expire in 2023.

The CSA follows the Utilities Management Agreement (2005) and the earlier Actew/AGL Umbrella Agreement (2000), which provided the contractual basis for the utilities partnership between ACTEW, Jemena and AGL. The utilities partnership shared functions such as customer billing, security, information and communications technology. The 2012 CSA transferred the water division's operations and maintenance activities back to ACTEW Corporation and retained some outsourced services from ActewAGL Distribution. ACTEW Corporation was renamed Icon Water in 2015.

The CSA defines 'business as usual' services to be provided by ActewAGL Distribution to Icon Water for an annual fee and for any additional requested services at additional fees. The business as usual services include accounts payable, business systems, Oracle support, property and security, human resources, networks, regulatory affairs and pricing, treasury, tax, accounting, procurement, internal audit, legal services, records management, publications, risk management, environment, health, safety and quality.

Calibre identified corporate knowledge retention and long term system ownership as potential issues arising as a consequence of the outsourcing arrangement under the CSA. Some of the outsourced functions could be regarded as essential functions for independent corporate management. Icon Water's Business Transformation Plan addresses some of these issues. Icon Water has advised that its submission to the Commission's 2023 price investigation will detail its review of the CSA. The Commission notes the timing of the CSA renewal negotiation precedes the Commission's 2023 price investigation. The Commission anticipates Icon Water will address these issues over the forward regulatory period and make a clear case for any continued arrangement, which may include market testing of contract elements.

Calibre has not recommended any adjustments to the CSA costs included in Icon Water's proposed operating expenditure for the forward regulatory period.

Sources: Icon Water (2017a) and Calibre (2017).

3.3.3 Commission's draft decision

When developing its draft decision, the Commission reviewed Icon Water's Price Proposal and the independent review by Calibre. The Commission accepted the majority of expenditure proposed by Icon Water as prudent and efficient. The Commission adopted the recommendations of Calibre, which reduced Icon Water's proposed operating expenditure. The Commission's draft decision (December 2017) allowed for total water and sewerage operating expenditure of \$920m nominal over the five year regulatory period, as shown in Table 3.8 (above).

3.3.4 Submissions received on the draft report

Icon Water's Revised Price Proposal, received in February 2018, adopted the Commission's draft decision on operating expenditure over the 2018–23 period.

Subsequent to the Revised Price Proposal, the Commission received a request from Icon Water for a pass-through adjustment for 2016–17 and 2017–18 Water Abstraction Charge (WAC) and Utilities Network Facilities Tax (UNFT). The pass-through adjustment, in \$2018–19 for WAC was \$1.96m and for water UNFT was \$0.5m. The pass-through adjustment for sewerage UNFT was \$0.4m.

In addition to the pass-through request, Icon Water provided the Commission with a revised water demand forecast for the 2018–23 period. The increased water demand forecast slightly increased forecast WAC costs in each year of the forward regulatory period.

The Commission received further submissions which addressed operating expenditure.

3.3.5 The final decision on operating expenditure for 2018–2023

The Commission reviewed submissions on the draft decision on water and sewerage operating expenditure. As Icon Water's Revised Price Proposal did not propose any change from the draft decision on controllable operating expenditure for water and sewerage and no further submissions were received, the Commission has retained the draft decision on controllable operating expenditure.

Subsequent to the Revised Price Proposal, Icon Water provided an adjustment request and revised estimate for some of the pass-through costs. The government charges are uncontrollable operating costs for Icon Water and are not subject to review by the Commission. The Commission's final decision incorporated the revised pass-through costs. Table 3.9 shows the Commission's final decision.

Table 3.9 The Commission's final decision on operating expenditure for water and sewerage, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Controllable operating expenditure	61.8	62.6	63.8	65.9	67.9	322.1
Water Abstraction Charge	31.4	30.6	31.7	33.0	34.3	160.9
Utilities Network Facilities Tax	6.2	6.0	6.4	6.8	7.2	32.6
Total water operating expenditure	99.4	99.2	101.9	105.7	109.4	515.6
Sewerage						
Controllable operating expenditure	73.5	74.5	75.9	78.3	80.6	382.9
Utilities Network Facilities Tax	5.0	4.9	5.2	5.6	5.9	26.7
Total sewerage operating expenditure	78.5	79.5	81.1	83.9	86.5	409.5
Total operating expenditure	177.9	178.7	183.0	189.5	195.9	925.1¹

Notes: ¹The Commission's final decision confirms its draft decision on controllable operating costs. Subsequent to the draft decision Icon Water advised the Commission of higher pass-through costs for the Water Abstraction Charge and the Utilities Network Facilities Tax. These uncontrollable operating costs have been added to controllable operating costs. As a result the total operating expenditure in the final decision is higher than in the draft decision.

Source: Commission's calculations.

4 Capital expenditure

Capital expenditure review is an essential component of the Commission’s water and sewerage services price investigation. Capital expenditure deemed prudent and efficient receives a return on capital through inclusion in the regulatory asset base (RAB) and a return of capital through depreciation. This chapter summarises the assessment of prudent and efficient capital expenditure in the current and forward regulatory period 2013–18 to 2018–23.

The Commission’s final decision

For the 2013–18 regulatory period, the Commission’s final decision accepts Icon Water’s revised capital expenditure of \$397m nominal (\$409m \$2017–18) as prudent and efficient. This value is a slight decrease from the Commission’s draft decision and reflects Icon Water’s revisions to current period capital expenditure.

For the 2018–23 regulatory period, Icon Water’s June 2017 Price Proposal included a total proposed capital expenditure program of \$434.7m nominal. Icon Water’s Price Proposal is shown in Table 4.1.

Table 4.1 Icon Water’s Price Proposal for capital expenditure, 2018–23 (\$m nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	38.4	43.8	42.5	36.8	28.3	189.7
Sewerage	67.7	47.2	46.9	44.9	38.3	245.0
Total capital expenditure	106.1	90.9	89.4	81.7	66.6	434.7

Source: Icon Water (2017a).

To assist the Commission’s draft decision, the Commission sought independent review of Icon Water’s proposed capital expenditure. In response to the Calibre review and the Commission’s draft decision, Icon Water submitted a revised capital expenditure program as part of its Revised Price Proposal in February 2018. The revised proposal included a total capital expenditure program of \$417m nominal (\$406m \$2017-18).

The Commission’s final decision is to adopt Icon Water’s February 2018 revised capital expenditure, which is \$17m lower than the initial proposal. The Commission’s final decision on capital expenditure is shown in Table 4.2.

Table 4.2 The Commission’s final decision on capital expenditure allowance, 2018–23 (\$m nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	33.0	47.5	40.3	28.4	24.3	173.6
Sewerage	66.6	52.6	49.3	31.3	43.6	243.4
Total capital expenditure	99.6	100.1	89.6	59.7	67.9	416.9

Source: Commission decision following Icon Water (2018).

The Commission’s final decision reflects:

- Icon Water’s Revised Price Proposal, with a lower proposed capital expenditure for both current and forward regulatory periods.
- Icon Water’s statement that the revised capital expenditure program will “allow us to continue to deliver safe and reliable water and sewerage services” which “balances cost, risk and performance”.
- The Commission’s independent review of Icon Water’s proposed capital expenditure program. Icon Water has sought to address the project-specific queries raised in this review.

Assessment of economically efficient investment is essential to achieving the Commission’s regulatory objectives. In order to assess such investment the Commission adopted tests for prudence and efficiency, as described in Chapter 3 and shown below:

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

Capital expenditure in the current regulatory period that is deemed prudent and efficient is to be added to the RAB for future regulatory periods. Capital expenditure in the forward regulatory period that is deemed prudent and efficient is to be included in the forecast RAB for that period. The addition of assets to the RAB is described in Chapter 5.

4.1 Capital expenditure, 2013–18

In April 2015, the Industry Panel’s decision on Icon Water’s allowable capital expenditure was \$459m nominal (\$474m \$2017-18) over the five-year period 2013–18. In arriving at this value, the Industry Panel’s decision reduced Icon Water’s proposed capital expenditure by \$20m nominal, citing Icon Water’s capacity challenges with project delivery within the timeframe.

4.1.1 Icon Water’s Price Proposal

In June 2017, Icon Water’s Price Proposal submission estimated total actual capital expenditure of \$404m (\$416m \$2017-18) for the current regulatory period (see Table 4.3). The capital expenditure is weighted towards sewerage system investment in the latter half of the regulatory period.

Table 4.3 Icon Water Price Proposal’s estimated capital expenditure, 2013–18 (\$m, nominal)

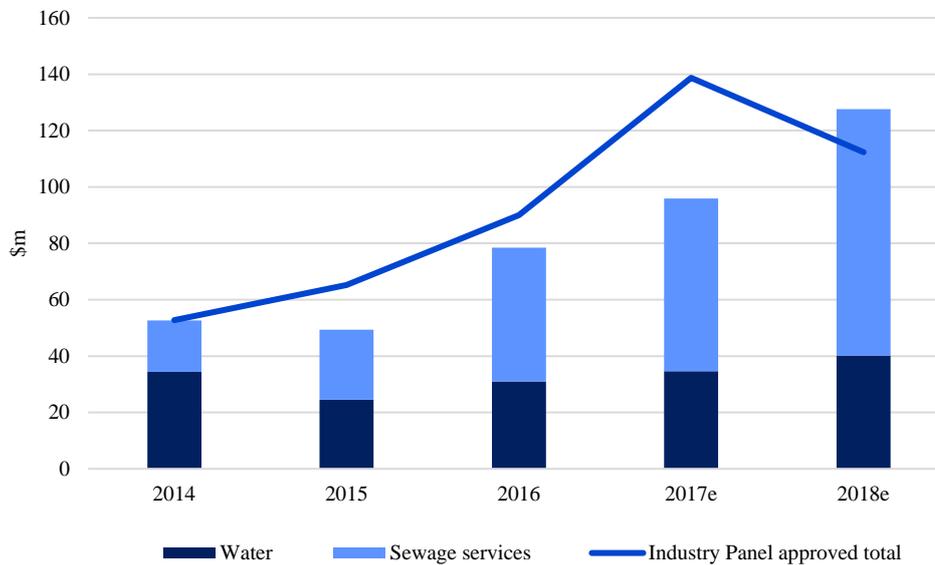
	2013–14	2014–15	2015–16	2016–17 ^e	2017–18 ^e	Total
Water	34.4	24.6	31.0	34.7	40.2	164.8
Sewerage	18.3	24.8	47.5	61.2	87.5	239.3
Total capital expenditure	52.7	49.3	78.5	95.9	127.7	404.1

Note: ^e Estimate.

Source: Icon Water (2017a).

Icon Water’s Price Proposal estimated capital expenditure \$55m nominal (\$57m \$2017–18) lower than the Industry Panel’s allowable capital expenditure. The estimated expenditure and the Industry Panel’s allowable expenditure are shown in Figure 4.1.

Figure 4.1 Icon Water Price Proposal capital expenditure and the Industry Panel allowance for water and sewerage, 2013–18 (\$m, nominal)



Note: e: Icon Water estimated.

Source: Icon Water (2017a).

Water supply system capital expenditure

Icon Water's Price Proposal estimated capital expenditure on water of \$171m (\$2017–18) for the current regulatory period. This value included expenditure on non-system projects, renewal projects, growth projects, and regulatory and improvement projects, such as:

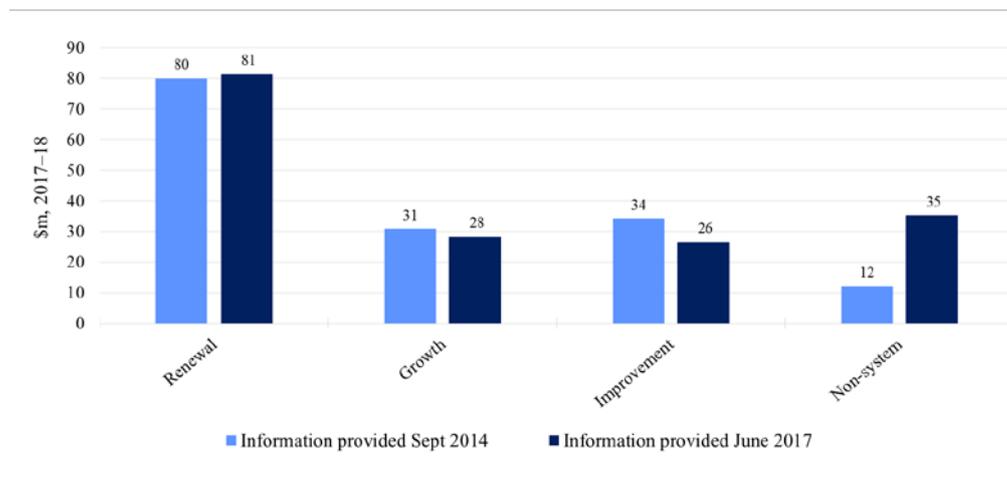
- Investment of \$35m (\$2017–18) in water-related non-system assets such as ICT, buildings, vehicles, programs for working at heights and critical infrastructure.³⁴
- Renewals project expenditure of \$81m (\$2017–18) and deferral of some planned renewals projects, including reservoir roof repairs and Googong water treatment plant upgrades to later regulatory periods.
- Growth project expenditure of \$28m (\$2017–18) and deferral of some planned growth projects in Belconnen, the Molonglo Valley and Gungahlin.

³⁴ In the current regulatory period Icon Water invested \$78m in non-system assets such as ICT, buildings, vehicles, programs for working at heights and critical infrastructure. The water system's share of non-system capital expenditure was \$35m. The expenditure on non-system assets was substantially larger than expected.

- Regulatory and improvement project expenditure of \$26m (\$2017–18) and deferral of some planned projects, including asset relocation works at Corin Dam.

Icon Water’s June 2017 Price Proposal provided information on the allocation of estimated expenditure against renewal, growth, improvement and non-system projects. The Price Proposal is compared with the forecast provided by Icon Water in September 2014 in Figure 4.2.

Figure 4.2 Comparison of Icon Water’s proposed and actual water capital expenditure for the current regulatory period (\$m, 2017–18)



Sources: Commission’s calculations based on information received from Icon Water (2014 and 2017a).

The Commission considered the evolving capital expenditure plans submitted by Icon Water in 2014 and 2017. The Commission notes the accuracy of forecasts for expenditure on renewal, growth and improvement projects. The large variation in non-system asset expenditure for the three-year period is discussed further below.

Sewerage system capital expenditure

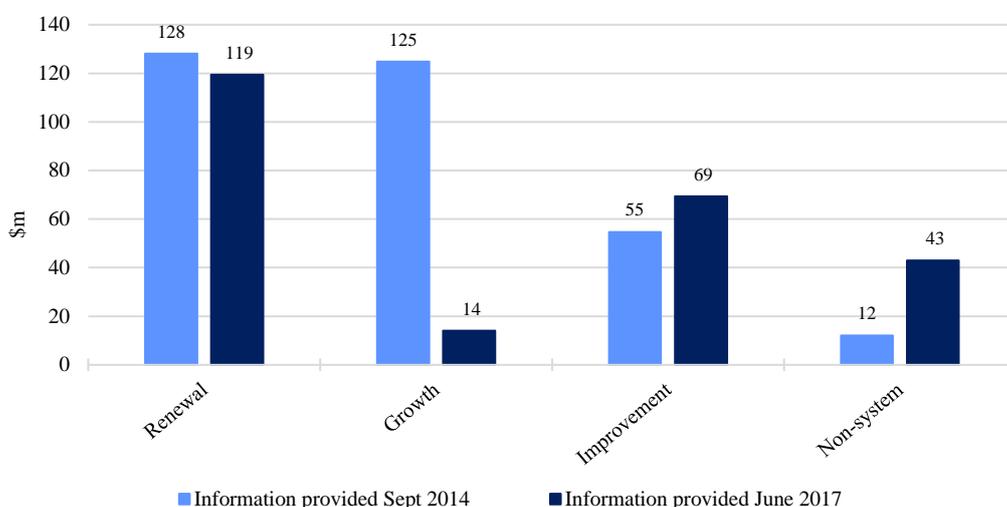
Icon Water’s Price Proposal estimated capital expenditure on sewerage of \$246m (\$2017–18) in the current regulatory period. This expenditure included:

- The sewerage system’s share of non-system assets, such as ICT, buildings and vehicles, of \$43m (\$2017–18).
- Expenditure on renewals projects of \$119m (\$2017–18) and some deferral of planned projects such as the Fyshwick sewage treatment upgrade.
- Expenditure on growth projects of \$14m (\$2017–18) and deferral of some growth projects to later periods, including Belconnen trunk sewer augmentation and the Molonglo Valley interceptor sewer odour control.

- Expenditure on regulatory and efficiency improvement projects of \$69m (\$2017–18), which includes upgrades to Lower Molonglo Water Quality Control Centre (LMWQCC).

As with capital expenditure on water, the Industry Panel’s decision did not make an allowance for sewerage expenditure across each of the drivers of renewal, growth, improvement and non-system expenditure. The Commission has compared the Icon Water 2014 and 2017 submissions, which both show Icon Water’s expenditure against the relevant driver, as shown in Figure 4.3.

Figure 4.3 Comparison of Icon Water’s proposed and actual sewerage capital expenditure for the current regulatory period (\$, 2017–18)



Sources: Commission’s calculations based on Icon Water (2017a) and Cardno (2014).

The Commission notes the accuracy of forecasts for expenditure on renewal and improvement programs between 2014 and 2017 submissions by Icon Water. The variation between forecast and actual expenditure in growth and non-system projects are discussed below.

Capital expenditure on growth-driven projects for sewerage

For expenditure in the current (2013–18) regulatory period, Icon Water’s 2014 submission to the Industry Panel estimated capital expenditure of \$125m (\$2017–18) on growth-driven projects for the sewerage system. Three years later, Icon Water’s 2017 submission to the Commission estimated expenditure to be \$14m (\$2017–18) over the five-year period.

When explaining the reduced expenditure on growth projects, Icon Water’s Price Proposal noted the deferral of the Belconnen trunk sewer augmentation and the Molonglo Valley interceptor sewer augmentation, as well as arranging for the

Constitution Avenue stage 1 trunk sewer to be delivered by the developer. The Commission notes that these projects were estimated to cost \$54.8m (\$2017–18) by Icon Water in its 2014 submission for delivery before 2018. There is insufficient information to identify the further \$55m of growth projects proposed in 2014 but not delivered during the 2013–18 regulatory period.

Non-system assets

Icon Water’s investments in non-system assets during the current regulatory period were much greater than proposed in its earlier submissions to the Commission and the Industry Panel, as shown in Table 4.4.

Table 4.4 Icon Water’s estimated capital expenditure on non-system assets, 2013–18 (\$m, 2017–18)

Submission	Estimated total non-system capital expenditure
Statement of Facts and Contentions, September 2014	21.9
Price proposal, June 2017	77.9
Difference	56.0

Sources: Commission’s calculations based on information received from Icon Water (2014 and 2017a).

Icon Water’s Price Proposal attributed the additional \$56m (\$2017–18) expenditure to the Business Transformation Program (BTP), the Mitchell building extension and refurbishment, the working at heights program and the critical infrastructure stage 2 program. The BTP includes implementing the outcomes of the Enterprise Asset Management Strategy and the Information and Communications Technology Strategy.

4.1.2 Independent review

Calibre conducted an independent review of current period capital expenditure in Icon Water’s Price Proposal. The review assessed the prudence and efficiency of investment. Calibre recommended no adjustments to Icon Water’s capital expenditure before this expenditure is added to the RAB. The results of the Calibre’s review are shown in Table 4.5.

Calibre’s independent review of Icon Water’s capital expenditure over the current regulatory period observed variation between expected and actual capital expenditure across projects and programs. It found the additional expenditure on non-system assets, the largest unexpected variation, to be prudent and efficient.

Table 4.5 Icon Water's Price Proposal and Calibre's recommended capital expenditure, 2013–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	Total
Water						
Icon Water's Price Proposal	34.4	24.6	31.0	34.7	40.2	164.8
Calibre's recommendation	34.4	24.6	31.0	34.7	40.2	164.8
Sewerage						
Icon Water's Price Proposal	18.3	24.8	47.5	61.2	87.5	239.3
Calibre's recommendation	18.3	24.8	47.5	61.2	87.5	239.3

Sources: Icon Water (2017a) and Calibre (2017).

4.1.3 Commission's draft decision on capital expenditure for 2013–18

The Commission considered Icon Water's 2017 submission, Calibre's independent review and the information contained in previous price investigations. The Commission's draft decision accepted Calibre's recommendation and recognised Icon Water's capital expenditure in the current period as prudent and efficient. Table 4.6 shows the Commission's draft decision on prudent and efficient capital expenditure for the period 2013–18.

Table 4.6 The Commission's draft decision on capital expenditure for Icon Water, 2013–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	Total
Water	34.4	24.6	31.0	34.7	40.2	164.8
Sewerage	18.3	24.8	47.5	61.2	87.5	239.3
Total capital expenditure	52.7	49.3	78.5	95.9	127.7	404.1

Source: Commission's calculations.

4.1.4 Submissions received on the draft report

Icon Water submitted its Revised Price Proposal in February 2018, with updated estimates for water and sewerage capital expenditure in the current period. The revised Icon Water capital expenditure is shown in Table 4.7.

Table 4.7 Icon Water Revised Price Proposal's capital expenditure, 2013–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	Total
Water	34.4	24.5	31.0	34.7	42.0	166.6
Sewerage	18.3	24.8	47.5	61.2	78.6	230.4
Total capital expenditure	52.8	49.3	78.5	95.9	120.6	397.0

Source: Icon Water (2018).

Icon Water’s Revised Price Proposal contained a lower estimate for current period capital expenditure. Icon Water attributed the reduction in expected project expenditure to delays in major projects, particularly works at the Lower Molonglo plant. The Commission notes that the \$7m (5.5 per cent) reduction in 2017–18 expenditure is a substantial revision to expenditure for the current year.

The Commission received no further submissions which addressed capital expenditure in the 2013–18 regulatory period.

4.1.5 The Commission’s final decision

The Commission has considered Icon Water’s Revised Price Proposal and the revised capital expenditure for the 2013–18 period. As the revised expenditure is lower than the Commission’s draft decision, the Commission has accepted Icon Water’s revised expenditure as the final decision. Table 4.8 shows the Commission’s final decision on allowable capital expenditure in the 2013–18 period.

Table 4.8 The Commission’s final decision on prudent and efficient capital expenditure, 2013–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18	Total
Water	34.4	24.5	31.0	34.7	42.0	166.6
Sewerage	18.3	24.8	47.5	61.2	78.6	230.4
Total capital expenditure	52.8	49.3	78.5	95.9	120.6	397.0

Source: Commission’s calculation.

4.2 Capital expenditure in 2018–23

To review capital expenditure in the forward regulatory period, the Commission adopted the same criteria of prudence and efficiency it used for the current regulatory period and for operating expenditure. Calibre undertook an independent review of Icon Water’s proposed capital expenditure over the forward period.

4.2.1 Icon Water’s Price Proposal

Icon Water’s Price Proposal was for total capital expenditure of \$469m nominal over the 2018–23 period. The total capital expenditure would be financed by water and sewerage services tariffs and the Capital Contribution Code.

In \$2017–18 terms, Icon Water’s Price Proposal was \$21m greater (5.1 per cent higher) than for the 2013–18 regulatory period (an increase from \$416m to \$437m). Expenditure on water would increase from \$170.6m to \$176.8m (a 3.6 per cent increase) and sewerage expenditure would increase from \$245.4m to \$260.6m (a 6.2 per cent increase) between the 2013–18 and 2018–23 regulatory periods.

The major 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, as well as expenditure on completion of remaining works required on the main water security projects undertaken in the previous regulatory period.³⁵ 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.

Icon Water's Price Proposal included capital expenditure across water and sewerage systems with the following characteristics:

- The majority of water and sewerage capital expenditure to be spent on asset renewals (56 per cent, or \$245m \$2017–18), which includes roof renewals for Mugga and O'Connor reservoirs, water and sewer mains renewals (renewal targets of 27.5km and 80km respectively) and Lower Molonglo treatment plant renewals and upgrades.
- Water and sewerage capital expenditure to meet growth demands (18 per cent, or \$79m \$2017–18), with some expenditure shared with Capital Contribution Code for projects such as the Belconnen trunk sewer augmentation and the Fyshwick sewage pump station augmentation.
- Water and sewerage expenditure to meet regulatory requirements and efficiency goals (11 per cent, or \$46m \$2017–18).
- Non-system asset expenditure of 15 per cent (\$68m \$2017–18), which is allocated between water and sewerage systems.

4.2.2 Independent review

The Commission engaged Calibre to review Icon Water's proposed capital expenditure over the forward regulatory period. Calibre's review selected a number of planned projects for detailed investigation. The projects comprised over half the total forward capital expenditure program. Calibre sought to identify any systemic issues in the capital expenditure portfolio through investigating this group of major projects.

Calibre's review identified several projects for which prudence or efficiency for all expenditure could not be established at the time of its review. These projects were CX11060 Sewer mains renewals, CX10066 Belconnen Trunk Sewer augmentation, CX11176 Water meter renewals, CX10846 Fyshwick Sewage Pump Station, CX11065 Water mains renewals and CX10950 Lower Molonglo High Voltage Assets. Queries arose from incomplete documentation, uncertain delivery or asset ownership.

Calibre's review noted the challenges of assessing efficiency of expenditure for projects which are at an early stage of development. Icon Water's recently implemented IPaD process, planning and delivery cycle provides a project lifecycle

³⁵ Icon Water, 2017a (attachment 6): 20.

from 'envisage stage' through to 'monitor stage'. Although the IPaD process provides a framework, Calibre's review found that Icon Water's proposed expenditure plans contained a large proportion of capital expenditure that was for projects in an early stage of development. At the time of review by Calibre, nearly 30 per cent of proposed expenditure in 2018–19 and nearly 60 per cent of the proposed expenditure in 2019–20 were for projects that were at an early stage of development ('indicative option' was the categorisation provided by Icon Water). Calibre considered that this result is unexpected from a stable regulated business with scheduled capital expenditure review.

The Commission expects that Icon Water's capital expenditure proposal should be constituted from later stage (well defined, scoped and approved) projects, particularly the larger projects. The Commission notes the Essential Services Commission's (ESC) approach of excluding uncertain capital expenditure from forward budgets, on the expectation that ex post review of capital expenditure will find it prudent and efficient and therefore recoverable from water and sewerage service tariffs³⁶. The Queensland Competition Authority's review of SEQwater excluded project expenditure which had not passed early internal project approval gateways³⁷. The Commission has not adopted the approach of the ESC or QCA for the current price investigation. The Commission may consider this approach in future price inquiries.

Calibre's review identified systemic transparency issues in project cost accounting by Icon Water. Although Calibre did not recommend an adjustment to the proposed capital expenditure program as a result of this, Calibre recommended a review of project cost accounting practices by Icon Water. Particular practices of project job code splitting into sub-projects, delivery of works against new or different project codes and not reallocating resources to sub-projects or new codes should be reviewed by Icon Water to improve the transparency and traceability of expenditure.

Following its assessment of project specific issues and project maturity, Calibre recommended project delivery efficiencies in Icon Water's proposed capital expenditure program of \$52.1m over the forward regulatory period (Table 4.9).

³⁶ ESC, 2016: 35.

³⁷ QCA, 2017: 37.

Table 4.9 Calibre’s recommended capital expenditure for Icon Water, including project delivery efficiencies, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	38.0	43.2	41.8	35.8	27.1	185.9
Sewerage	64.1	36.0	35.8	29.2	31.7	196.7
Total capital expenditure	102.1	79.2	77.5	65.0	58.8	382.6
Reduction from Icon Water’s Price Proposal	-4.0	-11.7	-11.9	-16.7	-7.8	-52.1

Source: Calibre (2017).

In addition to project delivery efficiencies, Calibre’s review identified opportunities for catch-up and continuing efficiencies in Icon Water’s capital expenditure program for the forward regulatory period. Calibre’s review recommended catch-up and continuing efficiency adjustments as described in Box 2.

Box 2 Calibre’s recommended efficiency adjustment to Icon Water’s proposed capital expenditure

Calibre’s draft report to the Commission noted the following:

Efficiency adjustments

Calibre are proposing to apply catch up and continuing efficiency adjustments to Icon Water’s total capital program at similar levels to those recommended in the Commission’s 2012 Determination. Calibre believe that the implementation of the Business Transformation Program should allow Icon Water to easily realise the catch up and continuing efficiencies. These adjustments are:

- Catch up efficiency = 1.5 per cent per annum; and
- Continuing efficiency = 0.4 per cent per annum.

These proposed efficiency adjustments are well within the scope of Icon Water’s ability to deliver and are comparable to the factors applied in other jurisdictions. For example:

- IPART recently applied catch up efficiencies to Sydney Water ranging from 2.9 per cent to 8.6 per cent and continuing efficiencies ranging from 0.25 per cent to 1.00 per cent;
- The water businesses in Victoria have recently submitted pricing proposals which have included proposed capital efficiencies for ongoing programs of 14 per cent (Yarra Valley Water presentation to the ESC October 2017) and proposed reductions to total capital programs of 20 per cent on previous years (Barwon Water Price Submission September 2017). In addition, other businesses are factoring in efficiency savings of around 9 per cent on their total capital program (South East Water Price Submission September 2017); and

- The Economic Regulation Authority of WA recently applied efficiency targets on Water Corporation ranging from 1 per cent to 5 per cent.

Calibre also note that the previous regulatory pricing review applied efficiency targets significantly higher than we have proposed with catch up efficiency factors of between 2.5 per cent and 5.5 per cent. These efficiencies were delivered as part of the currently [sic] regulatory period expenditure.

Source: Calibre (2017).

Table 4.10 shows Calibre’s recommended adjusted capital expenditure for Icon Water, including project delivery efficiencies, catch-up efficiencies and continuing efficiencies. The Calibre review found possible efficiencies totalling \$59.4m for the 2018–23 regulatory period.

Table 4.10 Calibre’s recommended capital expenditure, including project delivery, catch-up and continuing efficiencies, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	37.3	42.4	41.0	35.2	26.6	182.4
Sewerage	62.9	35.3	35.1	28.6	31.1	193.0
Total capital expenditure	100.2	77.7	76.1	63.8	57.6	375.4
Reduction from Icon Water’s Price Proposal ^	-5.9	-13.2	-13.3	-17.9	-8.9	-59.4

Note: ^ including adjustments in Table 4.9.

Source: Calibre (2017).

4.2.3 The Commission’s draft decision on capital expenditure 2018–23

Calibre’s independent review of Icon Water’s proposed capital expenditure program identified opportunities for prudent and efficient project delivery at lower costs. Calibre’s review identified delivery efficiency opportunities in particular projects and catch-up and continuing efficiencies across the portfolio.

The Commission’s draft decision recognised that Icon Water should achieve greater efficiency in its capital expenditure. The Commission found the project delivery efficiencies recommended by Calibre were sufficiently justified, based on the information available, to be adopted for the Commission’s draft decision. The Commission recognised that some of the project-specific uncertainties cited in the draft decision could be resolved and sought further engagement with Icon Water following release of the draft report.

The Commission’s draft report noted the recent setting and achieving of catch-up and continuing efficiencies by water utilities and regulators in other jurisdictions. Drawing on evidence elsewhere, Calibre recommended catch-up and continuing efficiencies of 1.5 per cent and 0.4 per cent per year to apply to Icon Water’s capital expenditure program. The Commission noted that the project delivery efficiencies Calibre

recommended are substantially greater in impact on Icon Water’s capital expenditure program than the catch-up and continuing efficiencies. The Commission’s draft decision did not adopt Calibre’s recommended catch-up and continuing efficiencies on the basis of the information available at the time of the draft decision and the Commission’s draft decision to adopt the project delivery efficiencies.

The Commission’s draft decision on capital expenditure provided for an allowance of \$382m (\$358m \$2017–18) for 2018–23. The draft decision reflected the project delivery efficiencies and project delivery uncertainties Calibre identified. Table 4.11 shows the draft decision on total approved capital expenditure for Icon Water over the forward regulatory period.

Table 4.11 The Commission’s draft decision on prudent and efficient capital expenditure for Icon Water in 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	38.0	43.2	41.8	35.8	27.1	185.9
Sewerage	64.1	36.0	35.8	29.2	31.7	196.7
Total capital expenditure	102.1	79.2	77.5	65.0	58.8	382.6

Source: Commission’s calculations.

The Commission considered capital expenditure in the current regulatory period when formulating its draft decision on the capital expenditure allowance for 2018–23. There is potential for confusion about ‘like for like’ comparison with the previous regulatory period, owing to the inclusion of capital expenditure to be financed by the Capital Contribution Code. The draft decision’s allowable capital expenditure, including expenditure financed by capital contributions, was \$397m (\$370m \$2017–18) for the forward period. In \$2017–18 terms, the draft decision expenditure is slightly lower than Icon Water’s estimated expenditure in the current period (\$416m \$2017–18).

The Commission’s draft decision noted that several projects Icon Water proposed for the forward period were partially funded through the Capital Contribution Code. Careful project-level matching was undertaken by Icon Water and the Commission to ensure that project funding is clearly allocated between Capital Contribution Code and water and sewerage services tariffs. By taking all due care and consideration, the Commission has ensured that consumers will not be double-charged for Capital Contribution Code projects undertaken by Icon Water.

4.2.4 Submissions received on the draft report

Icon Water submitted its Revised Price Proposal on 23 February 2018, which included a revised capital expenditure proposal for the 2018–23 period. The Revised Price Proposal had \$12.3m lower capital expenditure on water than the Commission’s draft decision, and \$46.7m higher capital expenditure on sewerage.

Icon Water's introduced its revisions to the capital expenditure as:

a revised capital expenditure (capex) program, seven per cent lower than our June 2017 gross capex proposal (\$2017–18), that will allow us to continue to deliver safe and reliable water and sewerage services;³⁸

Icon Water explained the changes in the capital expenditure program as:

Our planning, review and delivery of capex is an ongoing, iterative process that balances cost, risk and performance. Since preparing our initial proposal, we have revised our capital expenditure plans to reflect the latest available information, which included deferring some lower-risk projects beyond 2023.³⁹

Icon Water's revised capital expenditure proposal is compared with the Commission's draft decision in Table 4.12.

Table 4.12 Comparison of the Commission's draft decision and Icon Water Revised Price Proposal's capital expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Commission's draft decision	38.0	43.2	41.8	35.8	27.1	185.9
Icon Water's Revised Price Proposal	33.0	47.5	40.3	28.4	24.3	173.6
Difference	-5.0	4.3	-1.5	-7.4	-2.8	-12.3
Sewerage						
Commission's draft decision	64.1	36	35.8	29.2	31.7	196.7
Icon Water's Revised Price Proposal	66.6	52.6	49.3	31.3	43.6	243.4
Difference	2.5	16.6	13.5	2.1	11.9	46.7
Total capital expenditure						
Commission's draft decision	102.1	79.2	77.6	65.0	58.8	382.6
Icon Water's Revised Price Proposal	99.6	100.1	89.6	59.7	67.9	416.9
Difference	-2.5	20.9	12.0	-5.3	9.1	34.3

Source: Commission (2017) and Icon Water (2018).

The Commission received the list of projects and budgets that Icon Water uses to formulate the overall capital expenditure. The Commission compared the project-level program for Icon Water's Price Proposal (June 2017) and the subsequent Revised Price Proposal (February 2018). Comparing the programs the Commission found:

- The revised program carries over project expenditure worth \$8.6m from the current period (2013–18) to the forward period (2018–23). The largest group of projects carried over were the 'non-system' projects, such as business systems, asset planning systems, real-time monitoring and other

³⁸ Icon Water, 2018: 1.

³⁹ Icon Water, 2018: v.

information technology works. The non-system project expenditure carried over \$6.1m from 2017–18 into 2018–19, while sewerage business carried over \$2.3m and water \$0.2m.

- The revised program removes some proposed projects, with \$24.3m in expenditure. The projects were distributed between water (\$12.5m), sewerage (\$8.9m) and non-system (\$2.9m). The removed water projects appear to be primarily reservoir and pump station maintenance and access improvement works. The removed sewerage projects appear associated with upkeep at the Lower Molonglo sewage treatment plant and buildings.
- The revised program changes budgets for most proposed projects, with the overall impact being a reduction in proposed expenditure by \$2.2m:
 - Water project budget adjustments reduced expenditure by \$0.4m.
 - Non-system project budget adjustments accounted for an \$11m reduction in expenditure. Budget reductions were greatest in vehicle leases, where maintenance vehicle leases expenditure were reduced from \$10.8m to \$8.8m, while passenger vehicle leases were reduced from \$4.3m to \$3.3m.
 - Sewerage project budget adjustments which had a net increase in expenditure of \$9.2m. The decision to fully fund the Belconnen Trunk Sewer added expenditure of \$8.5m, as this project had previously been half funded through the Capital Contribution Code. The deferral of the start date of the Fyshwick works program by one year reduced project expenditure by \$1.2m. The adjustments to the other 26 projects make a net increase of \$1.9m over the five year period.

In addition to an updated capital expenditure program, Icon Water sought to address Calibre’s project specific queries raised in the Commission’s draft report. Icon Water provided additional technical information and briefings to the Commission.

The Commission received no further submissions which addressed capital expenditure over the 2018–23 period.

4.2.5 The Commission’s final decision

Icon Water’s Revised Price Proposal included a lower capital expenditure program than its initial proposal. The proposed expenditure remains higher overall than the Commission’s draft decision (see Table 4.12 for the comparison). Icon Water substantially updated the project composition and budgets within the revised capital expenditure program.

The Commission views Icon Water’s revisions to the capital expenditure program as consistent with Icon Water’s maintaining discretion and management control of capital expenditure. Icon Water is responsible for managing capital expenditure in order to achieve the desired service levels and performance. Icon Water state that its revised

capital expenditure program will “allow us to continue to deliver safe and reliable water and sewerage services” which “balances cost, risk and performance”.

The Commission’s final decision does not retain the project delivery efficiencies from the Commission’s draft decision. The project delivery efficiencies, recommended by Calibre, reflected an earlier capital expenditure program. Icon Water has submitted a substantially revised capital expenditure program as part of its Revised Price Proposal. Furthermore, Icon Water has sought to address the project-specific queries raised by Calibre.

The Commission has reconsidered Calibre’s recommended catch up and continuing efficiencies. These capital expenditure efficiencies, 1.5 and 0.4 per cent respectively, were recommended by Calibre on the basis of Icon Water achieving efficiencies from the Business Transformation Program and the comparative efficiencies achieved in other jurisdictions. The draft decision did not adopt these modest adjustments due to the Commission’s decision to apply the larger project delivery efficiencies. The draft report stated that catch-up and continuing efficiencies would be reconsidered again at the final decision.

The Commission recognises that in developing its capital expenditure program, Icon Water has resolved a number of uncertainties identified as concerns by Calibre. Icon Water has progressed its planning and design for a number of projects, and developed more certain costings for some projects. It has deferred a number of projects that were assessed as being of lower priority and found some other efficiency savings. The Commission has decided not to apply further catch up and continuing efficiencies to Icon Water’s revised capital expenditure.

Icon Water’s commitment to achieve efficiencies in its capital expenditure program will benefit ACT consumers through lower water and sewerage service tariffs. Further benefits may be sought through the implementation of incentive mechanisms for efficient capital expenditure. The Commission’s preliminary review of incentive mechanisms (Chapter 11), indicates that capital expenditure sharing schemes may be a useful approach to realise further efficiencies in future regulatory periods.

The Commission’s final decision on Icon Water’s capital expenditure allowance over the 2018–23 period is shown in Table 4.13. The values in Table 4.13 exclude the capital expenditure financed by the Capital Contribution Code.

Table 4.13 The Commission’s final decision on capital expenditure, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water	33.0	47.5	40.3	28.4	24.3	173.6
Sewerage	66.6	52.6	49.3	31.3	43.6	243.4
Total capital expenditure	99.6	100.1	89.6	59.7	67.9	416.9

Source: Icon Water (2018).

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 return of capital (depreciation) building blocks.

This chapter sets out the Commission’s final decision and the matters the Commission considered in reaching its final decision on the opening value and depreciation provisions for the water and sewerage RABs.

The Commission’s final decision

Icon Water’s Price Proposal included its proposed calculation of the RAB. Icon Water’s Price Proposal is shown in Table 5.1

Table 5.1 Icon Water’s Price Proposal water and sewerage RAB, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Opening RAB	1,509.0	1,554.5	1,603.1	1,648.6	1,686.6
Forecast net capital expenditure	38.4	43.8	42.5	36.8	28.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	31.1	34.5	37.6	40.4	41.8
Indexation	38.2	39.4	40.6	41.7	42.5
Closing water RAB	1,554.5	1,603.1	1,648.6	1,686.6	1,715.6
Sewerage					
Opening RAB	859.6	923.1	963.4	1,001.4	1,035.5
Forecast net capital expenditure	67.7	47.2	46.9	44.9	38.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	26.5	30.5	33.6	36.4	38.8
Indexation	22.3	23.7	24.7	25.6	26.4
Closing sewerage RAB	923.1	963.4	1,001.4	1,035.5	1,061.3

Source: Icon Water (2017a).

The Commission has reviewed Icon Water’s proposed calculation of the water and sewerage RAB. The Commission’s final decision on the water and sewerage RAB value is shown in Table 5.2.

Table 5.2 The Commission's final decision water and sewerage RAB, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Opening RAB	1,511.5	1,551.6	1,604.1	1,647.5	1,677.3
Forecast net capital expenditure	33.0	47.5	40.3	28.4	24.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	31.1	34.5	37.5	40.1	40.8
Indexation	38.2	39.4	40.6	41.5	42.2
Closing water RAB	1,551.6	1,604.1	1,647.5	1,677.3	1,703.0
Sewerage					
Opening RAB	850.9	913.3	959.0	999.7	1,020.7
Forecast net capital expenditure	66.6	52.6	49.3	31.3	43.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	26.3	30.3	33.2	35.7	37.8
Indexation	22.1	23.5	24.6	25.4	26.1
Closing sewerage RAB	913.3	959.0	999.7	1,020.7	1,052.6

Source: Commission's calculation.

The Commission's final decision on water and sewerage RAB values reflects:

- The Commission's adoption of Icon Water's revised capital expenditure (Chapter 4), asset disposals and depreciation method.
- The Commission's correction of the 2016-17 inflation figure used in the calculation by Icon Water, the result of which is a slightly different RAB indexation and calculation to Icon Water's Revised Price Proposal.

5.1 RAB calculation methodology

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

The standard building block approach is to take the opening value of the RAB from the start of the previous regulatory period and roll it forward. This roll-forward is

calculated for each year of the previous regulatory period by adding prudent and efficient actual capital expenditure, deducting forecast depreciation and actual asset disposals, and adding inflation indexation reflecting actual inflation. This establishes a RAB value at the end of the previous regulatory period, which then becomes the starting value for the next regulatory period. The RAB for each year of the next regulatory period (in this case 2018–23) can be calculated with the same formula but using forecast capital expenditure, forecast asset disposals, forecast depreciation, and forecast inflation for the indexation adjustment.

The building block methodology was used by the Industry Panel for 2013–18 and supported by Icon Water in its submission. The roll-forward calculation can be described thus:

$$\begin{aligned} \text{Opening RAB}_{t+1} &= \text{Opening RAB}_t + \\ &\text{net capital expenditure}_t - \text{asset disposals}_t - \text{depreciation}_t + \\ &\text{inflation indexation}_t \end{aligned}$$

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

Inclusion of actual capital expenditure in the RAB depends on the expenditure being assessed as prudent and efficient. Capital expenditure is reviewed in Chapter 4, and the results of the review are included in the calculation of the RAB in this chapter.

5.1.1 Depreciation calculation

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

The RAB roll-forward does not require asset lives as an input, but remaining asset lives are needed to calculate depreciation for the next regulatory period. Remaining asset lives are calculated separately as part of the roll-forward calculation.

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

The Industry Panel used ‘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 water security assets and new capital expenditure.⁴⁰ Icon Water’s Price Proposal proposed the same approach.

The Commission notes the Industry Panel expressed concern with the weighted average asset life methodology in relation to transparency and recovery of some asset values that did not match their useful lives.⁴¹ The panel expressed a preference for an approach that recognises depreciation based on different asset classes but accepted the weighted average approach because of time constraints.⁴²

The Commission notes that ‘depreciation’ in a regulatory context is defined to ensure the recovery or return of capital to the investor over time and that decisions about the profile of depreciation do not have to align with useful lives on an asset class basis. Provided there is a credible commitment to the recovery of the present value of an investment, the profile of depreciation can be adjusted to achieve other regulatory objectives that would mean a deviation from the straight-line convention used for calculating depreciation.

Provided the estimates of ‘economic lives’ are based on estimates of ‘useful lives’, and that these estimates are fixed once decided and not revised, the Commission accepts Icon Water’s proposed approach to estimating depreciation (see Table 5.3 and Table 5.4).

⁴⁰ Industry Panel, 2015a: 60 and Industry Panel, 2014: 94.

⁴¹ Industry Panel, 2014: 93.

⁴² Industry Panel, 2014: 93.

Table 5.3 Economic asset lives for water, sewerage and water security assets (years)

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

Source: Icon Water (2017a).

Table 5.4 Weighted average asset lives for water security assets (years)

Water security assets	Asset lives	Remaining asset lives in		Weighted average of remaining economic asset lives				
		2013–14	2018–19	2018–19	2019–20	2020–21	2021–22	2022–23
Dams and weirs	150	149	144	144	143	142	141	140
Water mains (bulk and pump)	100	99	94	94	93	92	91	90
Valves (bulk and pump)	30	29–30	24–25	24–25	23–24	22–23	21–22	20–21
Pump sets	25	24	19	19	18	17	16	15
Flow meters and cathodic protection systems	20	19–20	14–15	14–15	13–14	12–13	11–12	10–11
Pressure sensors, transmitters and meters	10	10	5	5	4	3	2	1
Telemetry	10	9	4	4	3	2	1	0

Source: Icon Water (2017a).

5.1.2 Indexation calculation

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. The Industry Panel approach calculated 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 2017–18 the CPI will be set to the forecast CPI, and the roll-forward for the next regulatory period will make an adjustment for the difference between forecast and actual inflation for 2017–18.

The indexation amount for each year is calculated thus:

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

5.2 The RAB values for 2013–18

It is necessary to calculate the RAB values for each year of the current regulatory period using the methodology described in Section 5.1. The current regulatory period spans the years 2013–14 to 2017–18.

5.2.1 Icon Water's Price Proposal

Icon Water's Price Proposal in June 2017 included the calculation of the RAB values for 2013–18. Icon Water's proposal is summarised below.

Adjustment for 2012–13

The opening RAB values for 2013–14 correspond to the closing RAB values for 2012–13. The value for 2012–13 must be adjusted to account for the differences between actual and forecast values at the time of the last price investigation (2012). These adjustments are shown in Table 5.5.

Table 5.5 Adjustments for differences between forecast and actual net capital expenditure, water and sewerage, 2012–13 (\$m, nominal)

Forecast	Water	Sewerage
Actual capital expenditure	111.3	24.5
Actual disposals	11.8	0.0
Actual net capital expenditure	99.4	24.5
Estimated capital expenditure	108.4	25.3
Estimated disposals	11.8	0.0
Estimated net capital expenditure (inflation adjusted)	96.4	25.2
Difference in net capital expenditure	3.0	-0.8
Return on difference	1.1	-0.3
Total adjustment	4.1	-1.1

Source: Icon Water (2017a).

Capital expenditure, 2013–18

Icon Water’s proposed capital expenditure is summarised in Chapter 4. Icon Water’s Price Proposal included \$404m nominal capital expenditure over the 2013–18 period. The capital expenditure in each year is added to the RAB as described in the methodology shown in section 5.1. Icon Water’s proposed capital expenditure is included in the RAB values in Table 5.6.

Asset disposals, 2013–18

Icon Water’s Price Proposal indicated that it had disposed of \$37.8m of water and sewerage assets over the period 2013–18. Disposed assets are removed from the RAB.

Depreciation, 2013–18

Depreciation is adjusted to take into account differences between actual and forecast inflation during the regulatory period. Icon Water’s proposed depreciation is calculated using the asset lives shown in Section 5.1.1.

Indexation

The RAB values are indexed to inflation to maintain their real value over time. The indexation calculation follows the formula described in Section 5.1.2

Opening RAB value for 2018–23

Using the methodology and inputs just described, the revised RAB values for the regulatory period 2013–14 to 2017–18 are shown for water and sewerage in Table 5.6.

Table 5.6 Icon Water's Price Proposal RAB roll-forward, 2013–14 to 2017–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water					
Opening water RAB	1,369.8	1,416.8	1,437.9	1,461.6	1,457.8
Net capital expenditure	34.4	24.6	31.0	34.7	40.2
Asset disposals	0.0	1.6	0.0	34.3	0.0
Forecast depreciation	25.1	26.4	27.4	28.5	30.0
Indexation	37.6	24.5	20.1	24.3	36.9
Adjustment for 2012–13					4.1
Closing water RAB	1,416.8	1,437.9	1,461.6	1,457.8	1,509.0
Sewerage					
Opening RAB	656.7	676.2	691.4	728.6	779.2
Net capital expenditure	18.3	24.8	47.5	61.2	87.5
Asset disposals	0.0	2.0	0.0	0.0	0.0
Forecast depreciation	16.9	19.3	20.2	23.2	26.7
Indexation	18.1	11.8	9.9	12.6	20.6
Adjustment for 2012–13					-1.0
Closing sewerage RAB	676.2	691.4	728.6	779.2	859.6

Source: Icon Water (2017a).

5.2.2 Commission's draft decision

The Commission's draft decision on the RAB 2013–18 was to adopt Icon Water's proposed adjustments for 2012-13, asset disposals, depreciation and indexation. As detailed in Chapter 4, the Commission organised an independent review of Icon Water's proposed capital expenditure to assess it for prudence and efficiency. The Commission's draft decision was to accept Icon Water's capital expenditure in the current regulatory period as prudent and efficient.

As the Commission's draft decision on RAB values for 2013–18 did not diverge from Icon Water's Price Proposal, the Commission's draft decision is to adopt the RAB values shown in Table 5.6.

5.2.3 Submissions received on the draft report

Icon Water provided a Revised Price Proposal to the Commission in February 2018. Icon Water provided revised capital expenditure figures for 2017–18. The revised RAB value proposal from Icon Water is shown in Table 5.7.

No further submissions to the RAB calculation 2013–18 were received.

Table 5.7 Icon Water's Revised Price Proposal RAB roll-forward, 2013–14 to 2017–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water					
Opening water RAB	1,369.8	1,416.8	1,437.9	1,461.6	1,457.8
Net capital expenditure	34.4	24.5	31.0	34.7	42.0
Asset disposals	0.0	1.6	0.0	34.3	0.0
Forecast depreciation	25.1	26.4	27.4	28.5	30.0
Indexation	37.6	24.5	20.1	24.3	37.0
Adjustment for 2012–13	0.0	0.0	0.0	0.0	4.1
Closing water RAB	1,416.8	1,437.9	1,461.6	1,457.8	1,510.9
Sewerage					
Opening RAB	656.7	676.2	691.4	728.6	779.2
Net capital expenditure	18.3	24.8	47.5	61.2	78.6
Asset disposals	0.0	2.0	0.0	0.0	0.0
Forecast depreciation	16.9	19.3	20.2	23.2	26.7
Indexation	18.1	11.8	9.9	12.6	20.5
Adjustment for 2012–13	0.0	0.0	0.0	0.0	-1.1
Closing sewerage RAB	676.2	691.4	728.6	779.2	850.6

Source: Icon Water (2018).

5.2.4 Commission's final decision

The Commission accepted the revisions to 2013–18 capital expenditure in Icon Water's Revised Price Proposal.

The Commission identified a slight discrepancy in the inflation value for 2016–17. Icon Water had used a CPI figure of 1.66 per cent for the June year-on-year 2016–17 inflation. The correct ABS CPI figure is 1.71 per cent, which the Commission used in the water and sewerage service price calculation.

The Commission's correction to actual CPI has generated slightly different RAB indexation and calculation to Icon Water's Revised Price Proposal. The Commission's final decision is shown in Table 5.8.

Table 5.8 The Commission's final decision RAB roll-forward, 2013–14 to 2017–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water					
Opening water RAB	1,369.8	1,416.8	1,437.9	1,461.6	1,458.4
Net capital expenditure	34.4	24.5	31.0	34.7	42.0
Asset disposals	0.0	1.6	0.0	34.3	0.0
Forecast depreciation	25.1	26.4	27.4	28.5	30.0
Indexation	37.6	24.5	20.1	25.0	37.0
Adjustment for 2012–13	0.0	0.0	0.0	0.0	4.1
Closing water RAB	1,416.8	1,441.0	1,461.6	1,526.9	1,511.5
Sewerage					
Opening RAB	656.7	676.2	691.4	728.6	779.6
Net capital expenditure	18.3	24.8	47.5	61.2	78.6
Asset disposals	0.0	2.0	0.0	0.0	0.0
Forecast depreciation	16.9	19.3	20.2	23.2	26.7
Indexation	18.1	11.8	9.9	13.0	20.5
Adjustment for 2012–13	0.0	0.0	0.0	0.0	-1.0
Closing sewerage RAB	676.2	691.4	728.6	779.6	850.9

Source: Commission's calculation.

5.3 RAB values for 2018–23

The RAB for 2018–23 is calculated similarly to 2013–18. Forecasts are used in place of actual for expenditure, asset disposals, inflation and depreciation. The closing RABs for 2017–18 are the opening RABs for 2018–19.

5.3.1 Icon Water's Price Proposal

Capital expenditure

Chapter 4 provides details of Icon Water's proposed capital expenditure program over the 2018–23 period. Icon Water's Price Proposal included \$190m capital expenditure on water assets and \$245m capital expenditure on sewerage assets over the five year period.

Forecast asset disposals

Icon Water's Price Proposal included no forecast asset disposals for the 2018–23 period.

Forecast depreciation

Icon Water's Price Proposal calculated forecast depreciation for water and sewerage assets for 2018–23. The depreciation calculation followed the methodology and asset lives shown in Section 5.1.1.

Forecast indexation

Icon Water's Price Proposal included forecast indexation of water and sewerage RABs for the period 2018–23. The indexation following the calculation method explained in section 5.1.2.

RAB values for 2018–23

Drawing on the 2017-18 RAB values, Icon Water's Price Proposal calculated the 2018 to 2023 RAB values as shown in Table 5.9.

Table 5.9 Icon Water's Price Proposal water and sewerage RABs, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Opening water RAB	1,509.0	1,554.5	1,603.1	1,648.6	1,686.6
Capital expenditure	38.4	43.8	42.5	36.8	28.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	31.1	34.5	37.6	40.4	41.8
Indexation	38.2	39.4	40.6	41.7	42.5
Closing water RAB	1,554.5	1,603.1	1,648.6	1,686.6	1,715.6
Sewerage					
Opening sewerage RAB	859.6	923.1	963.4	1,001.4	1,035.5
Forecast net capital expenditure	67.7	47.2	46.9	44.9	38.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	26.5	30.5	33.6	36.4	38.8
Indexation	22.3	23.7	24.7	25.6	26.4
Closing sewerage RAB	923.1	963.4	1,001.4	1,035.5	1,061.3

Source: Icon Water (2017a).

5.3.2 The Commission's draft decision

Capital expenditure

In making its draft decision on the value of the water and sewerage RABs, the Commission took account of independent consultant Calibre's advice on the prudence and efficiency of the Icon Water proposed forecast capital expenditure. On the basis of this, the Commission's draft decision on forecast efficient net capital expenditure was for \$186m capital expenditure on water and \$197m capital expenditure on sewerage. The Commission's draft decision is outlined further in Chapter 4.

Asset disposals

The Commission's draft decision adopted Icon Water's forecast for no asset disposals for the 2018–23 period.

Depreciation

The Commission's draft decision adopted lower capital expenditure than was proposed by Icon Water, and thus the forecast depreciation was slightly lower than Icon Water's proposed depreciation. The Commission adopted the same depreciation calculation method and asset lives as shown in Section 5.1.1.

Indexation

The Commission's draft decision adopted lower capital expenditure than was proposed by Icon Water, and thus the indexation amounts of the asset base was slightly lower than Icon Water's proposed indexation amounts. The Commission adopted the same indexation calculation method as shown in Section 5.1.2.

RABs for 2018–23

Drawing on the above calculation of capital expenditure, asset disposals, forecast depreciation and indexation, the Commission's draft decision calculated a slightly lower water and sewerage RAB roll-forward in the 2018–23 regulatory period, as given in Table 5.10.

Table 5.10 The Commission's draft decision water and sewerage RABs, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Opening water RAB	1,509.0	1,554.1	1,602.2	1,647.0	1,684.1
Capital expenditure	38.0	43.2	41.8	35.8	27.1
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	31.1	34.5	37.6	40.4	41.6
Indexation	38.2	39.4	40.6	41.6	42.4
Closing water RAB	1,554.1	1,602.2	1,647.0	1,684.1	1,711.9
Sewerage					
Opening sewerage RAB	859.6	919.5	948.6	975.3	993.7
Capital expenditure	64.1	36.0	35.8	29.2	31.7
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	26.5	30.3	33.2	35.5	37.5
Indexation	22.3	23.4	24.2	24.7	25.2
Closing sewerage RAB	919.5	948.6	975.3	993.7	1,013.1

Source: Commission's calculations.

The Commission’s draft decision on the value of RABs was \$3.7m lower for water than Icon Water’s Price Proposal and \$48.2m lower for sewerage over the regulatory period. These differences are a result of the Commission’s draft decision to decrease the water and sewerage capital expenditure allowances (see Chapter 4). The values also reflect appropriate adjustments in keeping with the Capital Contribution Code.

5.3.3 Submissions received on the draft report

Icon Water’s submitted a Revised Price Proposal in February 2018. The Revised Price Proposal included a lower capital expenditure than Icon Water’s earlier Price Proposal. Icon Water’s revised RAB roll-forward for 2018–23 is shown in Table 5.11.

Table 5.11 Icon Water Revised Price Proposal water and sewerage RABs, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Opening water RAB	1,510.9	1,551.0	1,603.4	1,646.8	1,676.6
Capital expenditure	33.0	47.5	40.3	28.4	24.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	31.1	34.5	37.5	40.1	40.8
Indexation	38.2	39.4	40.6	41.5	42.2
Closing water RAB	1,551.0	1,603.4	1,646.8	1,676.6	1,702.3
Sewerage					
Opening sewerage RAB	850.6	912.9	958.7	999.3	1,020.4
Capital expenditure	66.6	52.6	49.3	31.3	43.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	26.3	30.3	33.2	35.7	37.8
Indexation	22.1	23.5	24.6	25.4	26.1
Closing sewerage RAB	912.9	958.7	999.3	1,020.4	1,052.2

Source: Icon Water (2018).

5.3.4 The Commission’s final decision

The Commission’s final decision adopted Icon Water’s revised capital expenditure, depreciation and asset disposals. The Commission identified a discrepancy in the inflation calculation for 2017-18, which when corrected, provides the opening RABs asset values for 2018–19, depreciation, and indexation calculations. Table 5.12 contains the Commission’s final decision on water and sewerage RABs 2018–23.

Table 5.12 The Commission's final decision on 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	1,551.6	1,604.1	1,647.5	1,677.3
Capital expenditure	33.0	47.5	40.3	28.4	24.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	31.1	34.5	37.5	40.1	40.8
Indexation	38.2	39.4	40.6	41.5	42.2
Closing water RAB	1,551.6	1,604.1	1,647.5	1,677.3	1,703.0
Sewerage					
Opening sewerage RAB	850.9	913.3	959.0	999.7	1,020.7
Capital expenditure	66.6	52.6	49.3	31.3	43.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Forecast depreciation	26.3	30.3	33.2	35.7	37.8
Indexation	22.1	23.5	24.6	25.4	26.1
Closing sewerage RAB	913.3	959.0	999.7	1,020.7	1,052.6

Source: Commission's calculation.

6 Rate of return and tax liability allowance

The rate of return is used to calculate the ‘return on capital’ building block when using the building block methodology. The Commission’s consideration of this methodology is set out in Section 2.13.

The rate of return is the result of a series of complex calculations. These calculations use a series of set parameters that substantially determine the regulated business’ required revenue. As such, the decisions made on key parameters have important consequences.

This chapter presents the Commission’s consideration in reaching its final decision on the parameter values used to calculate the rate of return and net tax liabilities.

The Commission’s final decision

The Commission’s final decision on the parameters used to calculate the rate of return (the nominal vanilla WACC) and the net tax liabilities building block is set out in Table 6.1. Icon Water’s Price Proposal is provided as a comparison of the WACC parameters.

Table 6.1 The Commission’s final decision on rate of return and net tax liability parameter values

WACC parameter	Icon Water Price Proposal	Commission’s final decision
Risk-free rate (per cent)	2.78	2.79
Debt-raising cost (per cent)	0.125	0.125
Cost of debt (per cent)	4.99	4.75
Equity beta	0.70	0.70
Market risk premium (per cent)	7.03	6.50
Cost of equity (per cent)	7.71	7.34
Gearing (per cent)	60.00	60.00
Nominal post-tax ‘vanilla’ WACC (per cent)	6.07	5.78
Net tax liabilities parameter		
Tax rate (per cent)	30.00	30.00
Value of imputation credit (gamma) (per cent)	40.00	40.00

Sources: Commission’s calculations and Icon Water (2017a).

6.1 The rate of return

6.1.1 Introduction

The return on capital forms part of the allowed revenue for Icon Water. It is calculated as the allowed rate of return on assets multiplied by the RABs on an annual basis. As Icon Water holds a large number of high-value capital assets (such as dams and pipelines), the return on capital plays an important role in determining Icon Water's allowed revenue.

As discussed in Section 2.13, the Commission considers it is appropriate to retain the Industry Panel's cost of capital methodology. It is the standard methodology used for price regulation of utilities in Australia and is also supported in Icon Water's Price Proposal. The methodology is considered appropriate for ensuring that the allowed rate of return will provide incentives for efficient investment that is in the long-term interests of consumers, provided appropriate parameters are set in applying the methodology.

But the Commission considers that there is a case for updating the values of several parameters adopted in the Industry Panel decision, as explained in this chapter.

6.1.2 Reference point for estimating the rate of return

The rate of return on assets is also known as the weighted average cost of capital, or WACC. The 'weighting' refers to the cost of equity and the cost of debt being weighted by their respective shares in the overall asset value, or financing, of an entity.

Most regulators in Australia specify a WACC that is considered to reflect the efficient financing costs of a benchmark entity and is the same irrespective of whether the assets are privately or publicly owned. This entails specifying relationships and parameters for the equity and debt returns (and the shares of equity and debt financing) based on a benchmark private entity with risk characteristics similar to those of the regulated business. This is consistent with the principles of competitive neutrality and allocative efficiency.

The WACC can be constructed differently depending on how tax is recognised in the formula. The formulation adopted in the Industry Panel's model, and retained in the Commission's final decision, is known as the 'nominal vanilla WACC'. 'Nominal' means that the return components are in nominal as opposed to real (or inflation-adjusted) terms, so that an inflation premium is already included in the components. 'Vanilla' refers to the simple form of the WACC, whereby explicit tax effects are not included in the formula but are treated separately in defining allowed revenue requirements.

The nominal vanilla WACC is defined as follows:

$$(1) \text{WACC}_{\text{nominalvanilla}} = E(R_d) \times \frac{D}{V} + E(R_e) \times \frac{E}{V}$$

where

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

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

$\frac{D}{V}$ is the proportion of debt in total financing

$\frac{E}{V}$ is the proportion of equity in total financing.

Note that the tax effects are not shown: they are treated separately, recognising the company tax rate, the tax deductibility of interest, and the value of tax credits to shareholders under the dividend imputation system.⁴³ The allowance for tax liabilities is explained in Section 6.3.

The cost of debt, $E(R_d)$, is established by determining the appropriate cost of debt for a private entity considered to have a relevant benchmark credit rating.

The rate of return on equity, $E(R_e)$, is established by applying the widely used capital asset pricing model, or CAPM. The CAPM requires three parameters – a risk-free rate; a market risk premium that reflects the risk relating to the market for investments as a whole relative to the risk-free rate; and a beta parameter that reflects the sensitivity of the benchmark entity's returns relative to the return for the market as a whole.

The CAPM is defined thus:

$$(2) E(R_e) = E(R_f) + \beta_e [(E(R_m) - E(R_f))]$$

where

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

β_e is the equity beta, which is a measure of the amount of relevant risk of the investment (as measured by the sensitivity of the return on the specific asset to the return on the market as a whole)

$E(R_m) - E(R_f)$ is the expected market risk premium above the expected risk-free rate and can be interpreted as the price of relevant risk.

It is important to recognise the CAPM assumes business-specific risk can be fully diversified by investors. This means that the only risk for the business depends on the risk for the market as a whole (the market risk premium) and the extent to which the business's returns are related to returns for the market as a whole (the equity beta). This means many business-specific risks that are not related to risks in the economy as a whole are not recognised (and consequently priced) in the CAPM.

The standard CAPM assumes investors are risk averse and concerned only about expected returns and the variability of those returns. This means that the CAPM in

⁴³ Officer, 1994:1–17, definition B. (iii).

effect assumes that the distribution of risks for the benchmark entity is symmetric: upside risk is balanced by downside risk. In applying the CAPM, regulators need to recognise that regulation caps upside potential (by regulating prices) but that it can also put a floor on many downside risks so the expected symmetry in returns may be retained. For example, there might be minimal relevant downside risk if there is considerable scope to pass through cost increases and good assurance that the value of the RAB will not be written down by the regulator.

In setting the equity beta it is important to recognise that regulation may reduce the variability of a business' earnings relative to an unregulated benchmark. This may occur if, for instance, the business is able to recoup losses arising from under-estimates of demand by an unders and overs mechanism. In this case the reduced variability of returns should be reflected in the equity beta parameter.

The parameters for equations (1) WACC and (2) CAPM are discussed in the following sections.

6.1.3 The cost of equity

In the building block methodology discussed in Chapter 2, the cost of equity comprises a risk-free rate and a margin representing the product of an equity beta and a market risk premium. The equity beta is a firm-specific or investment-specific parameter that represents a firm's non-diversifiable risk, relative to the risk-free rate. The market risk premium is the price of the risk and is calculated as the difference between the expected return to the market as a whole and the risk-free rate. The Commission's consideration of these parameters is presented in the following sections.

6.1.4 The equity beta

The equity beta measures the relationship between expected equity returns for a specific investment and returns for the market as a whole. An asset beta relates to the value of an asset as a whole and is in effect a weighted average of an equity and debt beta. Asset betas are preferred as benchmarks because they are not viewed as sensitive to changes in gearing (being the proportion of debt funding for assets). Once a benchmark asset beta is established, the equity beta can be derived given an assumption about gearing.

Beta shows how strongly one investment responds to systemic volatility of the entire market. A beta of 1 means that the investment responds to market volatility in tandem with the market: on average its returns correlate with the markets. A larger beta means that the investment is more susceptible to market risk, while a beta less than 1 means that the investment is less responsive to market risk.

An equity beta of 0 means the investment has the same expected return as a risk-free investment (in this case a 10 year Commonwealth Government Security).

The Industry Panel adopted an equity beta parameter of 0.7, assuming a gearing ratio of 60 per cent. This estimate was based on consideration of a number of sources of information, including 16 international water utility companies in the United Kingdom and the United States (0.53 to 0.77, with gearing of 60 per cent), equity beta values adopted by other regulators (0.55 to 0.80), and the recognition of estimation bias, which suggests the need to set a point estimate for the equity beta at the top of the range when equity beta estimates are substantially less than 1, as discussed by HoustonKemp in their 2017 report for Icon Water⁴⁴.

6.1.4.1 Submissions received on the issues paper

Icon Water's Price Proposal included retention of an equity beta of 0.7 assuming a gearing ratio of 60 per cent. The Proposal presented the equity beta estimates of other recent Australian regulators, showing ranges from 0.65 to 0.7, and refers to the estimates in the 2017 HoustonKemp report, with a range of 0.6 to 1.0 (for gearing of 60 per cent).⁴⁵

No further submissions that addressed the equity beta were received in response to the issues paper.

6.1.4.2 The Commission's draft decision

The Commission's draft decision was to continue the approach used by the Industry Panel.

6.1.4.3 Submissions received on the draft report

No submissions that addressed the equity beta were received in response to the draft report.

6.1.4.4 The Commission's final decision

As the Commission will continue with the current hybrid price and revenue cap form of control, consistent with the Industry Panel, the Commission's final decision is to adopt Icon Water's proposed equity beta of 0.7 for a gearing ratio of 60 per cent.

6.1.5 The risk-free rate

The risk-free rate is a component used to calculate the cost of equity and can be used in the calculation of the cost of debt, depending on the modelling process. In calculating

⁴⁴ HoustonKemp 2018, 'Equity beta for a benchmark Australian water network service provider: a report for Icon Water': 21

⁴⁵ Icon Water, 2018: 11 and Icon Water 2017a (Attachment 9): 8–9.

the cost of equity, a premium is added to the risk-free rate to take account of the market risk premium and the relevant specific risk (beta) for the regulated entity.

The Industry Panel adopted a standard approach for both the cost of equity and cost of debt in using a 10 year term to maturity for Commonwealth Government Securities, and a 40 day averaging period at the time of its decision.

The Commission notes a potential issue in using a 10 year term to maturity when prices are reset at five year intervals: the reset makes use of the latest estimates of yield for a 10 year Commonwealth Government Security but prices are reset after five years making use of the latest relevant 10 year data. The Queensland Competition Authority (QCA) and the Western Australian Economic Regulation Authority (ERA) use five year terms, reflecting concerns that resetting based on 10 years is not likely to be consistent with ensuring that the NPV = 0 condition⁴⁶ is satisfied over time.

The 40 day averaging period is used to smooth out day-to-day fluctuations around the time that the estimate is required. Current regulatory practice in Australia includes a range of averaging periods used to estimate the one-the-day rate, typically using between 20 days and 12 months of data.

The Industry Panel's approach has the advantage of being simple to apply and is considered to be appropriate when financing conditions are relatively stable.

6.1.5.1 Submissions received on the issues paper

Icon Water's Price Proposal supported the approach used by the Industry Panel, resulting in a risk-free rate of 2.78 per cent as at 31 March 2017.

No further submissions addressing the risk-free rate were received.

6.1.5.2 The Commission's draft decision

The Commission's draft decision was to continue the approach used by the Industry Panel.

6.1.5.3 Submissions received on the draft report

Icon Water's Revised Price Proposal diverged from its Price Proposal in proposing to extend the averaging period for the risk-free rate used in estimating the cost of equity from 40 days to 12 months. This proposal was consistent with the Revised Price Proposal's averaging period for the return on debt. Icon Water's Revised Price Proposal argued that:

⁴⁶ The NPV = 0 condition or principle is that expected revenues should be just sufficient to finance all expected costs, including appropriate allowances for the return on capital and the return of capital (depreciation).

“[there is a] lottery-style selection of parameter values inherent in the Industry Panel approach.⁴⁷ ...there is significant volatility in these estimates over short periods. For example, in the 12 months to December 2017 the risk-free rate range was between 2.63 per cent and 2.98 per cent, a difference of 63 basis points. This translates to a difference of \$45 million in Icon Water’s total revenue requirement due to nothing other than a difference in the choice of averaging period for the risk-free rate.”⁴⁸

No further submissions addressing the risk-free rate were received in response to the draft report.

6.1.5.4 The Commission’s final decision

The Commission considered established best practice by other regulators in arriving at its final decision. IPART’s recent WACC review⁴⁹ discussed approaches used by Australian regulators, noting that the AER and ACCC use a 20-day averaging period. The IPART final decision for a 40-day averaging period sought to remain consistent with these established latest-available data methods in seeking the best available forecast. The Commission has been unable to identify regulatory decisions in Australia that use an averaging period longer than 40 days in relation to setting the risk-free rate for the calculation of the cost of equity.

Icon Water’s Revised Price Proposal did not address the issue of forward- and backward-looking estimates. Regardless of which time period is chosen, the risk-free rate should be the best estimate of the corresponding forward-looking parameter. If the specified time horizon is 10 years the aim should be to obtain a 10 year forward-looking cost of equity, with a 10 year forward-looking return on equity, 10 year forward-looking risk-free rate and 10 year forward-looking market risk premium.⁵⁰

The Commission further notes that Icon Water’s proposed risk-free rate calculation methodology was not included in its Price Proposal, but only in its Revised Price Proposal. As a result of which, the proposed methodology and its implications have not been widely consulted upon. Further, the late submission gives the Commission limited opportunity to fully examine the proposal and conduct a complete analysis.

The Commission’s final decision is to retain the Industry Panel approach for setting the risk-free rate used in the calculation of the cost of equity. This approach uses a 10 year term to maturity for Commonwealth Government Securities, and a 40 day averaging period at the time when the risk-free rate was estimated to start to apply. This results in a risk-free rate of 2.79 per cent.

⁴⁷ Icon Water, 2018: 10.

⁴⁸ Icon Water, 2018: 16.

⁴⁹ IPART, 2017: 87.

⁵⁰ AER, 2013b: 108.

To allow a further consideration of the WACC parameters, and potential interactions among them, the Commission's final decision is to further examine the averaging periods for the risk-free rate as part of a general WACC review during the 2018–23 regulatory period. This review will be given effect through a future reset principle specified in the price direction.

6.1.6 The cost of debt

The Industry Panel's model constructed the cost of debt comprises a risk-free rate, a margin to represent the impact of adopting a relevant credit rating for the benchmark cost of debt estimate, and a margin to reflect debt raising costs. Until recently most regulators used an 'on-the-day' approach which focused on estimating the cost of debt based on prevailing conditions near the start of the regulatory period.

This approach assumes that firms refinance all their debt at a single point in time, an assumption that may differ from established standard practice. In consequence, regulators have adopted various versions of a trailing average cost of debt with a rolling average, typically applying for 10 years.

The Icon Water Price Proposal⁵¹ provides a useful summary of the various approaches to estimating the cost of debt that are being used by various regulators of utilities and monopoly infrastructure services in Australia.

In some cases the trailing average relates to the cost of debt as a whole and in other cases to the debt premium only, which is then added to an estimate of the risk-free rate.

The AER is in the process of transitioning from an on-the-day approach to a 10 year trailing average approach.⁵² In the first year of the transitional period the allowed rate of return for all of the debt is set based on the on-the-day approach. In each following year of the transitional period, 10 per cent of the first year debt is treated as if it were reissued at the prevailing market rate for that year and the debt for the remaining transitional period is set at the on-the-day approach, so that after 10 years the allowed rate of return reflects an average for the past 10 years. In its current review of the rate of return methodology the AER has proposed to continue with its trailing average approach for determining the cost of debt.⁵³

When financial conditions are relatively stable the on-the-day approach is likely to be reasonable, but if financial conditions were to change substantially over the regulatory period and substantial refinancing had to occur when this happened there could be financial gains and losses that might need to be addressed – including with a separate price reset during the regulatory period. This concern could be met by providing for a price reset if debt conditions changed beyond a specific materiality threshold.

⁵¹ Icon Water, 2017a (Attachment 9): 15–16.

⁵² AER, 2017c: 20.

⁵³ AER, 2017c: 22.

The Tasmanian Economic Regulator and (until recently) IPART use an average of the on-the-day approach and a 10 year trailing average.

IPART, in its recent review of its WACC methodology, recognised its approach of taking a simple average of a 10 year trailing average and an on-the-day estimate still entailed refinancing risk, and has changed its approach to take an average of both a 10 year trailing average and a short term trailing average over the length of the regulatory period. IPART also confirmed that it will decide on a case-by-case basis whether prices will be adjusted annually or the adjustment will take the form of a ‘true-up’ at the beginning of the following regulatory period.⁵⁴

The Industry Panel adopted an on-the-day approach and used a 40 day average of the credit spreads for 10 year BBB Australian corporate bonds using Reserve Bank of Australia data and the same risk-free rate for the cost of debt as for the cost of equity. This meant a margin of 3.13 per cent was added to the risk-free rate. An additional margin of 0.125 per cent was added for debt raising costs.

6.1.6.1 Submissions received on the issues paper

Using the Industry Panel approach, Icon Water’s Price Proposal calculated the debt margin as of 31 March 2017 as 2.08 per cent.⁵⁵ With a risk-free rate of 2.78 per cent and a debt raising cost margin of 0.125 per cent, Icon Water’s Price Proposal calculated a cost of debt of 4.99 per cent.

Icon Water’s Price Proposal noted that using the prevailing cost of debt and the on-the-day approach gives the lowest estimate of a debt margin compared with other approaches used by Australian regulators.⁵⁶

No further submissions addressing the cost of debt were received.

6.1.6.2 The Commission’s draft decision

The Commission’s draft decision was to retain the Industry Panel’s on-the-day approach, noting that the use of a credit margin based on BBB rating is likely to provide a reasonable buffer if credit conditions were to worsen and additional debt financing were required during the regulatory period. The on-the-day approach also had the advantage of being simple to apply. If credit conditions changed dramatically, having materially adverse impacts on its cash flows, the draft decision noted that Icon Water could apply for a special price reset.

Accordingly, the Commission’s proposed to retain the Industry Panel’s methodology for estimating the cost of debt and Icon Water’s proposed estimate of 4.99 per cent.

⁵⁴ IPART, 2018: 24-25.

⁵⁵ Icon Water, 2017a (Attachment 9): 15.

⁵⁶ Icon Water, 2017a (Attachment 9): 16.

The draft decision noted that this estimate would need to be updated at a time close as possible to the start of the 2018–23 period.

6.1.6.3 Submissions received on the draft report

Icon Water's Revised Price Proposal differs from its Price Proposal in estimating the cost of debt parameter using a trailing average approach, consistent with the AER guidelines. This approach incorporates a transitional arrangement, setting an initial 12-month simple average of Bloomberg and RBA 10-year BBB yields. In each year 10 per cent of this return of debt is re-priced, until in the 9th year a full trailing average is established. A margin of 0.125 per cent is added to the averaged yields to represent debt raising costs.

The trailing average approach assumes that 10 per cent of the total debt is reissued at the prevailing market rate each year from the second year. As such, it implies an additional calculation process as part of the annual reset. At the annual reset, water and sewerage service prices will be updated to reflect the updated cost of debt parameter and associated WACC returns.

The Icon Water proposal requests the averaging period for the trailing average cost of debt be agreed on a confidential basis, in line with AER guidelines.

Icon Water's proposed approach is broadly consistent with the AER's approach. The only difference is that the AER approach interpolates RBA monthly data to obtain estimates for each business day, whereas Icon Water uses the data as published by the RBA without daily interpolation.

No further submissions addressing the cost of debt were received.

6.1.6.4 The Commission's final decision

The Commission's consideration identified a number of issues with the construction and implementation of the Industry Panel approach. The most notable is the assumption that regulated businesses refinance all debt at the beginning of the regulatory period. Icon Water argued that this approach does not reflect the debt management practices employed by infrastructure businesses, and that it may mean regulated businesses are exposed to refinancing risk if financial conditions change over the regulatory period.

The on-the-day approach may also create investment distortions. If the cost of debt rises during the regulatory period the regulated business may delay efficient investments. Alternatively, a falling cost of debt may provide the regulated business with a windfall return.

There are merits in implementing the on-the-day approach. The on-the-day approach is easy to apply and works well under stable financial conditions. Retaining the on-the-day approach is consistent with the Terms of Reference section 2a) 'continuing to use the current regulatory model, and, where identified, implement improvements to

particular aspects of the methodology.' Implementing the Industry Panel's on-the-day approach requires no adjustment to the annual price adjustment process.

The financial literature indicates the on-the-day approach is consistent with estimating the WACC for use in NPV calculations (see, amongst others, Partington and Satchell⁵⁷). The literature indicates that the most current returns on debt and equity should be used for any NPV calculations. This implies that the current cost of debt, not the trailing average cost of debt, should be used in the WACC estimation.

Another issue is that trailing averages are disconnected from current market required returns, in that they are looking backwards rather than forwards. Trailing averages may not correctly reflect the current cost of debt.

But Icon Water's Revised Price Proposal argued that, compared to the on-the-day approach, regulated businesses are less likely to be exposed to interest rate or refinancing risk under the trailing average approach. Icon Water further argued that the trailing average approach better reflects the actual debt management portfolios of infrastructure businesses.

The Commission notes that there is not a single agreed trailing average approach. Whilst the Icon Water approach is consistent with the method adopted by the AER, there are a number of reasonable alternative methodologies. These include variations to annual adjustments, differing averaging periods, hybrid approaches, different third party data series, borrowing profile matching and debt raising costs. There is further debate about whether the trailing average should apply only to the debt margin and not to the entire cost of debt.

The Commission notes that Icon Water's proposed cost of debt calculation methodology was not included in its Price Proposal, but only in its Revised Price Proposal. As a result of which the proposed methodology and its implications have not been widely consulted upon.

It is important to note that the implementation method suggested by Icon Water effectively locks-in the debt rate of the 12 months to March 2018 for ten years. These 12 months are the lowest-yielding 12 months since before 2005. Should bond yields increase from these lows over the forward period, then locking-in these 12 months would imply a lower WACC at the 2023 price investigation.

The possibility for the trailing average method to imply a lower WACC in 2023 is supported by the most recent available data. The rate for the on-the-day approach (40 day average of yields) is currently 30 basis points higher than the rate for trailing average approach (12 month average of yields).

⁵⁷ AER 2017a, 2017b and 2016.

This potential for pricing variations in 2023 highlights the importance of considering possible variations to all components of the WACC when evaluating any single component. In recent reports, IPART and the QCA have discussed the importance of joint consideration of WACC components in setting prices and providing regulatory certainty. This is particularly the case when regulatory practice is evolving rapidly, as typified by recent AER investigations and discussed in detail in the Commission's draft decision.

On the balance of submitted evidence and established regulatory practice, the Commission's accepts the trailing average cost of debt methodology outlined in the Icon Water Revised Price Proposal. The Icon Water proposal is broadly consistent with evolving regulatory practice, has some implementation costs for the Commission, but likely results in a less volatile price path for consumers.

The Commission's final decision is to estimate the cost of debt parameter using a trailing average approach. This approach incorporates a transitional arrangement, setting an initial 12-month simple average of Bloomberg and RBA 10-year BBB yields. This average will in effect comprise both the risk-free rate and the debt margin. In each year 10 per cent of this return of debt is re-priced, until in the 9th year a full trailing average is established. A margin of 0.125 per cent is added to the averaged yields to represent debt raising costs.

Accordingly, the Commission's final decision results in a cost of debt of 4.75 per cent per cent. The final averaging periods will be provided to Icon Water on a confidential basis to allow Icon Water to manage financing arrangements in line with regulatory best-practice.

The Commission's draft decision included an annual price reset process, in which tariff levels are updated for specified pass-through costs (including WAC, UNFT and CPI). Icon Water's proposal would alter this process to include the annual update of the cost of debt. This would imply new WACC figures being passed through to tariffs on an annual basis.

6.1.7 The market risk premium

The market risk premium is a general market parameter that does not vary with different investments or specific firms. It is a measure of the extent to which the expected return on the market portfolio as whole exceeds the risk-free rate. It is defined thus:

$$(3) \text{ Market risk premium} = (E(R_m) - E(R_f))$$

A forward-looking perspective

The market risk premium is defined on an ex ante (expected) basis and so is forward looking. A time horizon of 10 years is typically used by Australian regulators, although this can be questioned if prices are reset in a shorter period.

Regardless of which time period is chosen, the risk-free rate and the market risk premium should be the best estimates of the corresponding forward-looking parameters. If the specified time horizon is 10 years the aim should be to obtain a 10 year forward-looking cost of equity, with a 10 year forward-looking return on equity, 10 year forward-looking risk-free rate and 10 year forward-looking market risk premium.⁵⁸

For the cost of equity, estimates based on long term averages and forward-looking methodologies are both relevant to the extent that they contribute to the best estimate of the forward-looking market risk premium over the relevant time frame. There is often confusion about this point and claims that using historical information or on-the-day information together are inconsistent, but this is not the case if the objective is the best estimate of the forward-looking market risk premium as both approaches contain relevant information.⁵⁹ In addition, there is considerable imprecision in the estimates derived from both historic and forward-looking methodologies and considering a range of approaches can reduce the margin of error in choosing a particular point estimate.

The Industry Panel's estimate

The market risk parameter that was preferred in the Industry Panel's report was based on a single methodology, whereas regulators tend to use a range of approaches in order to determine an appropriate market risk premium. Using a range of approaches also helps reduce the margin for error in a particular approach.

The panel's estimate of 7.23 per cent is similar to that adopted in a recent IPART decision for Sydney Water⁶⁰ although it is higher than the estimates adopted by several other regulators in recent decisions and reviews.

The Industry Panel noted in its draft report that it preferred market based parameters using prevailing rates and the choice of an implied market risk premium (based on a dividend discount growth model) was consistent with this preference.⁶¹

In estimating important regulatory parameters, consideration of a range of methods is likely to provide a more robust estimate. The objective is to obtain the best estimate to apply over the relevant five year regulatory period. To rely solely on recent information can give too much weight to passing circumstances.

The Commission therefore considered in some detail how to best arrive at a suitable estimate of the market risk premium as explained in the rest of this section. The following sub-section explains the methodology, known as a dividend growth model.

⁵⁸ AER, 2013b: 108.

⁵⁹ AER, 2013b: 108–9.

⁶⁰ IPART, 2016a: 125.

⁶¹ Industry Panel, 2014: 175.

Dividend growth models and the market risk premium

Dividend growth models estimate an implied market risk premium. They do so by solving for the expected rate of return that will ensure that the present value of expected dividends (over a long time horizon) will equal the current market price of the market portfolio and then deducting the relevant risk-free rate.

The simplest formulation for a dividend growth model is to assume a constant growth rate of expected dividends per share on a perpetuity basis and solve for the expected return on equity that will equate the present value of expected dividends to the current market value of the market portfolio.

Thus, using the perpetuity assumption:

$$(4) P_m = D_0(1 + E(g))/(E(R_m) - E(g))$$

where

P_m is the current value of the market portfolio

D_0 is the current level of dividends per share

$E(g)$ is the expected growth rate of dividends

$E(R_m)$ is the expected total return on the market portfolio.

and

$$(5) E(R_m) = D_0(1 + E(g))/P_m + E(g)$$

The implied market risk premium can then be calculated by deducting an appropriate measure of the risk-free rate, $E(R_f)$, from the expected return for the market as a whole, $E(R_m)$.

The key unobservable parameters are the expected dividend growth rate, $E(g)$, and the expected risk-free rate, $E(R_f)$, that should apply.

There are significant difficulties in estimating the expected growth of dividends on a perpetuity basis (that is, effectively over an infinite time horizon). Typically, analysts' forecasts are used, but many experts consider these have an upward bias. As discussed by Cornell, analysts' forecasts of dividend growth rates tend to be higher than reasonable estimates of the long term growth rate of GDP. This is not credible over a long time horizon because eventually the absolute value of dividends would exceed GDP.⁶² The AER and the QCA have also highlighted concerns about the reliability of dividend growth models.⁶³

⁶² Cornell, 1999.

⁶³ AER 2017a, 2013a and QCA 2014.

The Industry Panel's estimate of the market risk premium

The market risk parameter specified in the Industry Panel's report was 7.23 per cent.

The panel estimated the implied market risk premium as a 40 day average of Bloomberg's daily implied market risk premiums as estimated by their dividend growth models.⁶⁴ This approach assumes that the current equity market is correctly priced and solves for the required rate of return that equates the present value of expected dividends over a long time horizon with the current price of the market portfolio.⁶⁵ The Industry Panel's final and draft reports did not provide a discussion of why the Bloomberg estimates were preferred over other dividend growth model approaches.

In its issues paper for the investigation into water and sewerage services prices for 2018–23, the Commission noted its concern about reliance on the Bloomberg methodology as the sole method for estimating a preferred market risk premium. It noted that the Bloomberg methodology appears to be relatively sensitive to short-term fluctuations in share prices and that the objective is to obtain the best estimate of the market risk premium that is likely to be relevant for a five year regulatory period.⁶⁶

In this regard, SFG Consulting advice to IPART on methodologies for estimating the market risk premium is worthy of noting:⁶⁷

Over the time period for which data is available, it is clear that the Bloomberg estimates of the market cost of equity are both higher than our estimates, and more variable over time. We cannot say with certainty which series exhibited the 'correct' level of variation over time because both series are estimates of the cost of capital. The Bloomberg series could be more volatile over time because the true cost of equity varied considerably over this time period; or the Bloomberg series could be more volatile because of noise.

The Bloomberg series is more sensitive to short-term price fluctuations because analysts do not instantaneously adjust their earnings forecasts every time the share price moves. When there is a large change in the share price, this reflects news about expected cash flows, or news about the risk of those cash flows, or both. If analysts instantaneously adjusted their earnings forecasts every time the share price moved, the news about expected cash flows would be reflected in the share price and the analyst's earnings forecast. But if the share price changes and analysts do not immediately adjust their earnings forecasts, the movement in the implied cost of capital will be overstated.

⁶⁴ Industry Panel, 2015a: 71.

⁶⁵ Industry Panel, 2015a: 78.

⁶⁶ ICRC, 2017a: 27.

⁶⁷ SFG Consulting, 2013: 12-68.

Other regulators' use of dividend growth models

To address the problem of forecasting the growth of dividends in using dividend growth models to estimate the market risk premium, the models are modified by defining two or more growth stages. This is a complicated modification and requires further assumptions that can also be questioned.

The AER's primary concern with using dividend growth models to estimate the market risk premium relates to the sensitivity of the estimates to assumptions about the long term growth rate of dividends.⁶⁸ The AER further noted that it did not consider any particular set of assumptions to be superior or more reliable.⁶⁹ In a recent decision in November 2017 the AER reiterated its concerns about the reliability of dividend growth models.⁷⁰

The AER recognises that these models are more likely to reflect prevailing market conditions than other approaches but, given concerns about the reliability of the estimates, uses them (in addition to other evidence) to inform its view of the market risk premium. The AER's approach establishes a 'foundation model' based on the standard CAPM as a starting point and uses a range of evidence to arrive at a point estimate of the allowed expected return on equity for certain regulatory purposes.⁷¹

To develop more reliable information based on dividend growth models, the AER uses two-stage and three-stage models to produce a range of estimates to inform its view of the market risk premium rather than to set a benchmark for incorporation in its foundation model. Single-stage dividend growth models use a constant rate of growth for dividends, while multiple-stage dividend growth models adopt different assumptions about the rate of growth for dividends.

The AER is currently undertaking a review of its rate of return guidelines with a Draft Report due in May 2018 and a Final Report due in December 2018. An Issues Paper was released in October 2017 where the AER noted that it considered many aspects of its current approach to determining the cost of equity remained appropriate but that it would be reviewing the level of prescription in setting an equity risk premium and whether less regard should be given to dividend growth models and more to conditioning variables to inform the market risk premium.⁷²

The approach adopted in the Industry Panel report is one of the six methodologies that have been used by IPART to help form a preferred estimate of the market risk premium based on current market data.⁷³ The estimates based on current market data

⁶⁸ AER, 2013b: 15, 84–5.

⁶⁹ AER, 2013b: 84–5.

⁷⁰ AER, 2017a: 3–189 to 3–191.

⁷¹ AER, 2013a: 50.

⁷² AER, 2017c: 27.

⁷³ IPART, 2013a: 33.

are combined with averages based on historic estimates to obtain an overall preferred estimate of the market risk premium. Five of the six current market data estimates IPART refers to are based on dividend growth models. The sixth current market data model has been based various market indicators, informed by the distributions of influencing variables. This technique does not appear to be referred to in the academic literature or other regulators' reports.

IPART recently published a Final Report reviewing its WACC method.⁷⁴ The Final Report proposed that the existing six methods, using current market data, would continue to be used but some refinements would be made to the current market indicators data approach to make it more accurate and to reduce the number of market indicators to three. In addition the median rather than the mid-point of the five dividend growth estimates would be used, as this would reduce the sensitivity to outliers (and the Bloomberg high estimate) and missing information. It was proposed that the dividend growth estimates would be given a weight of two thirds and the market indicators would be given a weight of one third in forming a weighted average rather than finding a central estimate across all methods. To arrive at a point estimate of the market risk premium the mid-point of the estimates based on the current cost of equity and historical estimates will be used except where the market was not considered to be in a normal state and discretion would be applied.⁷⁵

The most recent IPART biannual estimate of the MRP (averaging current and 10 year estimates of 9.1 and 6.0 respectively in January 2018) is 7.55 per cent.⁷⁶

The QCA adopts a similar approach to the AER in using a range of information to form a view about a preferred point estimate for the market risk premium and also uses a multi-stage dividend growth model, with a range of assumptions. In its market parameters paper, the QCA obtained an estimated range for the market risk premium using the dividend growth model of 5.5–8.0 per cent, with a median estimate of 6.9 per cent.⁷⁷ The QCA further noted, 'The QCA considers that results from dividend growth models should be treated with some caution due to the sensitivities of the results to the assumptions and inputs'.⁷⁸

In its recent decision on the access price for Dalrymple Bay Coal Terminal, the QCA expressed its view about the reliability of dividend growth models as follows:

For the reasons outlined in our market parameters decision, we consider DGM methods to be worthy of consideration because of their forward-looking nature, but

⁷⁴ IPART, 2018a.

⁷⁵ IPART, 2018a: 47–59.

⁷⁶ IPART 2018b: 2.

⁷⁷ QCA, 2014: 72.

⁷⁸ QCA, 2014: 73.

relatively unreliable due to their sensitivity to underlying assumptions and inputs. In this respect, we note that the DGM estimates have declined significantly in May 2016 from their level in October 2015 (from a level of 7.3 per cent–9.0 per cent, with a median of 8.2 per cent, to a level of 6.0 – 8.0 per cent, with a median of 7.0 per cent). We therefore consider that relatively less emphasis should be placed on DGM methods than on methods that rely on historical data (such as Siegel and Ibbotson) because of the objectivity and reliability of these latter approaches.⁷⁹

The QCA summarised its overall view on the market risk premium and the role of historic and recent data as follows⁸⁰:

As mentioned above, although historical-based methods may not be sensitive to short-term changes in the MRP (and therefore may not reflect the current ‘true’ MRP), they are nevertheless better estimators of the long-term average MRP, the latter of which is the preferred measure for our purposes.

As pointed out by Lally (2013), even though placing significant weight on the Ibbotson and Siegel estimators may imply that the MRP estimate may not react quickly to changes in the ‘true’ MRP, this approach is nevertheless desirable because:

In a statistical context, the ‘best’ estimate of the MRP at the present time is usually understood to mean an estimate that minimises mean squared error (MSE), and this is more likely to occur by placing significant weight on the Ibbotson and Siegel estimators.

It is important for a regulator to provide appropriate compensation over the life of the regulated assets, and therefore it is important to obtain a good estimate of the long-run average MRP rather than that prevailing at the current time. Consequently, even if use of the Ibbotson and Siegel approaches tends to underestimate the MRP at the present time, they are likely to contribute to better estimates of the long-run average MRP.

We emphasise that our methodology is not founded solely on historical-based methods but also has regard to forward-looking methods such as the DGM approach, surveys, and general market conditions. Moreover, investors’ current expectations are likely to be informed by history. In this way, historical measures could be seen as informing estimates of the forward-looking MRP.’

In its most recent Draft Decision on an appropriate market risk premium as of December 2017, the QCA gave greater weight to estimates predominantly based on current market conditions to arrive at a proposed market risk premium of 7 per cent.⁸¹ In arriving at this decision the QCA also noted that while it undertook a detailed review of the reasonableness of individual parameters it was ultimately guided by whether the overall allowed rate of return was reasonable and appropriate having regard to relevant statutory criteria.⁸² In this respect the QCA also noted that the

⁷⁹ QCA, 2016: 79.

⁸¹ QCA, 2017: 81–84 and 127–133.

⁸¹ QCA, 2017: 81–84 and 127–133.

⁸² QCA, 2017: 66.

combination of a market risk premium of 7 per cent and the allowed (revised lower) equity beta provided an appropriate rate of return having regard to the relevant risk under the regulatory framework.⁸³

The inverse relationship between the market risk premium and the risk-free rate

An issue in selecting a preferred estimate of the market risk premium is whether the forward-looking market risk premium is likely to be fixed irrespective of changes in the risk-free rate. This issue is also related to the extent to which weight should be given to recent market conditions when specifying a preferred market risk premium for regulatory purposes.

Until recently Australian regulators had not explicitly recognised the scope for a relationship between the market risk premium and the risk-free rate. The two factors were typically estimated separately, assuming there was no relationship. Estimates of the market risk premium tended to be relatively stable, while estimates of the risk-free rate were based on current financial conditions at the start of the regulatory period.

With this approach, the overall estimated market rate of return varied in lock-step with the risk-free rate: as the risk-free rate declines the return on the market as whole declines. Regulators in Australia have tended to adopt a relatively stable market risk premium, although both the AER and the QCA increased the market risk premium from a longstanding preference for 6 to 6.5 in recent years and the QCA increased it further to 7 per cent in its most recent draft decision.⁸⁴

In contrast, Wright reports on practice in the United Kingdom, where the Office of Gas and Electricity Markets and the UK appeals body (formerly the Competition Commission but now the Competition and Markets Authority), have assumed that the real cost of equity for the market as a whole is relatively stable over time, so that if the risk-free rate declines materially the market risk premium increases materially.⁸⁵

The two approaches are in effect extremes: one assumes there is no relationship between the risk-free rate and the market risk premium; the other assumes they are perfectly negatively correlated.

In developing its rate of return guidelines, the AER discussed a wide range of evidence and views on the relationship between the market risk premium and the risk-free rate.

⁸³ QCA, 2017: 85.

⁸⁴ QCA, 2017: 81–84 and 127–133.

⁸⁵ Wright, 2012. See also NERA 2017.

They concluded there was no consensus in the academic literature on the direction, magnitude and stability of the relationship.⁸⁶

The AER noted that Wright's principal argument was that the risk-free rate is procyclical (lowest in depressed economic conditions and highest in favourable economic conditions), while the MRP is counter-cyclical (highest in depressed economic conditions and lowest in favourable economic conditions).⁸⁷ These aspects are not features of the standard CAPM, which in effect abstracts from macroeconomic considerations in terms of its underlying theory.

In a recent application of the rate of return guidelines, the AER has re-affirmed its view that no weight should be given to the Wright approach to form an estimate of the market risk premium and hence the proposition that there is a strong negative relationship between the risk-free rate and the market risk premium.⁸⁸ The AER noted that models based on the Wright approach are not theoretically justified and that market practitioners, academics and regulators do not support them.⁸⁹

The AER also referred to the work of Lally who noted that the crucial question is not whether the correlation is negative but whether it is sufficiently negative. A negative correlation is not a sufficient condition for the real market return on equity to be more stable than the MRP. Using Australian data, Lally found the correlation coefficient between the risk-free rate and the MRP needs to be at least -0.76 for the real market return on equity to exhibit greater stability than the MRP. The actual correlation between the two in Australia was only -0.12. He also noted that other indirect evidence presented by Wright similarly does not reveal the extent of the correlation. It is therefore not sufficient to support the argument that the real market return on equity is more stable over time than the MRP.⁹⁰

The AER also refers to reports by academics Handley,⁹¹ and Partington and Satchell⁹² to support its concerns about the Wright approach.

The AER used the Wright approach to estimate the market risk premium to inform its final view. Using an arithmetic average (the preferred approach), the AER estimated a real return on the market as a whole of 7.1 to 10.0 per cent, depending on the period

⁸⁶ AER, 2013b: 26.

⁸⁷ AER, 2013b: 107.

⁸⁸ AER, 2017a: 3–197 to 3–201.

⁸⁹ AER, 2017a: 3–197 to 3–198.

⁹⁰ Lally, 2013: 15.

⁹¹ Handley, 2014 in AER 2017a: 3–198.

⁹² Partington and Satchell, 2017a, b and 2016 in AER: 3–199.

(from 1883 to 2011). With expected inflation of 2.5 per cent, the range for the long term average nominal return to the market was estimated to be 9.9 to 12.7 per cent.⁹³

The AER also used the Wright approach as one of the sources of information it had regard to in arriving at its preferred point estimate of an overall return on equity, within the foundation model range, rather than a point estimate of the market risk premium per se.⁹⁴ The AER noted that the amount of emphasis it would place on the Wright method would be considered at the time of a determination. It also noted that it considered dividend growth models as relevant and that they also calculate market risk premiums that are sensitive to interest rates.⁹⁵

In its recent appeal decision, the Australian Competition Tribunal endorsed the AER's consideration of the Wright approach and its overall methodology.⁹⁶

The QCA⁹⁷ and the ERA⁹⁸ have also both noted the contradictory evidence and lack of consensus about the relationship between the market risk premium and the risk-free rate.

Recent regulatory developments

Table 6.2 summarises the methodologies and estimates recently used by other Australian economic regulators for determining the market risk premium.

⁹³ AER, 2013b: 27–28.

⁹⁴ AER, 2013b: 28.

⁹⁵ AER, 2013b: 12 and 215.

⁹⁶ ACT, 2016: 221.

⁹⁷ QCA, 2014: 19–22 and QCA, 2016: 79.

⁹⁸ ERA, 2013: 145–7.

Table 6.2 Regulatory methodologies and estimates of the market risk premium

Regulator (sector)	Methodology	Time	Estimate
ACCC (Australia Post)	Historical evidence and other regulatory decisions, AER rate of return guidelines	December 2015	6.0
ACCC (NBN)	Current one-year MRP of 10.5 per cent, transitioning to long-term average of 7 per cent over 10 years. Supported by historical data adjusted for franking tax credits.	December 2013	7.0
ACCC (Telecommunications fixed-line services)	Most weight on historical estimates, various periods 1883–2014. Supported by evidence from 7 surveys over the period 2013–2015, conditioning variables (dividend yields, credit spreads and implied volatility, regulatory decisions). No weight to dividend growth models. No clear consensus on relationship between market risk premium and risk-free rate.	October 2015	6.0
ACCC (Hunter Rail Coal Network)	Most weight on historical returns, various periods 1883–2015 and 8 surveys over the period 2013–2015. Previous regulatory decisions for ARTC, NSW bulk water, fixed-line telecommunications services.	April 2017	6.0
ACCC (Bulk water in the Murray–Darling Basin)	Historical returns, 13 surveys 2005–2013.	June 2014	6.5
AER (Energy network businesses guidelines)	Estimate a range based on various sources including historical returns as primary sources, with consideration given to dividend growth models, survey evidence, conditioning variables (dividend yields, credit spreads and implied volatility). Point estimate gives greatest consideration to historical averages, significant consideration to dividend growth estimates, some consideration to survey estimates and limited consideration to conditioning variables and other regulators' estimates.	December 2013	6.5
AER (Electricity networks in various jurisdictions)	As above	October 2015	6.5
AER (APA VTS gas network)	As above	November 2017	6.5
ESC (Water)	Not specified	June 2016	6.0
ESCOSA (Water)	Historical approach	June 2016	6.0
ERA (Gas distribution)	Broad range of material, standard CAPM and dividend growth models; historical and forward-looking models used to establish a range from 5.4 to 8.8 per cent.	June 2016	7.4
ERA (Rate of return guidelines)	As above, with a range of 5.0 to 7.5 per cent using historical averages and dividend growth model. Contradictory evidence of relationship between risk-free rate and MRP.		5.0 to 7.5
IPART (Water)	Average of historic long-term and current market data estimates (based on dividend growth models and current market indicators), providing a range of 5.5 per cent to 9.8 per cent	June 2016	7.35

Regulator (sector)	Methodology	Time	Estimate
IPART biannual update	Average of historic long-term and current market data estimates, (based on dividend growth models and current market indicators)	January 2018	7.55
QCA (Aurizon Network Draft Decision)	Historic returns as primary sources, with consideration given to survey evidence, Wright method, dividend growth model, volatility measures, corporate debt premiums, liquidity premiums, consideration of relationship between MRP and risk-free rate. Changing relationship between MRP and risk-free rate. More weight given to current market conditions than in earlier decisions.	December 2017	7.0
QCA (SEQ Bulk Water Draft Report)	As above	December 2017	7.0
QCA (Dalrymple Bay Coal Terminal)	Similar factors as above but with more weight given to historic information.	November 2016	6.5
QCA (Gladstone Area Water Board)	Same factors as above.	May 2015	6.5
QCA (Market parameters decision)	Same factors as above.	August 2014	6.5

Sources: ACCC 2017: 143–9, ACCC 2015a: 30, ACCC 2015b: 68–77, 88–9, ACCC 2013: 98, AER 2017a, AER 2013a: 90–7, ESC 2016: 53, ESC 2015: 28, ESCOSA 2016: 124, ERA, 2016: 126, ERA, 2013: 136–60, IPART 2018, IPART 2016a: 125, QCA 2017a: 81–84, 127–133, QCA 2017b, QCA 2016: 75–80, QCA, 2015; and QCA, 2014: 15–23.

Most Australian regulators use a range of methodologies to arrive at a preferred estimate of the market risk premium. The AER, ERA, IPART and the QCA have completed major reviews of their WACC methodologies in recent years and used a range of information to establish a preferred market risk premium.⁹⁹

Such practices effectively recognise that there is no firm consensus on how the market risk premium should be estimated for regulatory applications.

The AER's current approach to estimating the market risk premium uses a range of theoretical and empirical evidence, including historical excess returns, the dividend growth model, survey evidence, financial market volatility measures, debt risk premiums, regulatory precedents, and regulatory judgement.¹⁰⁰ The AER's preferred estimate of the market risk premium has been 6.5 per cent for several years now, but before that it was set at 6.0 per cent. The AER has also noted its concerns about the reliability of estimates based on dividend growth models and their tendency to lead to estimates with an upward bias.¹⁰¹

The Australian Competition Tribunal also noted the AER's concerns about the reliability of dividend growth models when considering the merits review appeal by

⁹⁹ AER, 2013, ERA, 2013, IPART, 2013 and QCA, 2014.

¹⁰⁰ AER, 2013.

¹⁰¹ AER 2016a: 3–180 to 3–181.

various electricity distribution and transmission companies about various AER decisions, including in relation to the return on equity.¹⁰² The Tribunal upheld the AER approach to estimating the return on equity.¹⁰³

IPART uses several methodologies to help form a preferred estimate of the market risk premium.¹⁰⁴ IPART uses both long term averages and current market data (with six methodologies for current market data, including the Bloomberg approach) to establish a range for the market risk premium, the mid-point of the range being the default estimate.¹⁰⁵ The default estimate may be adjusted along with other parameters in the WACC if an uncertainty index measure exceeds one standard deviation of the long-term average. IPART's recent decision for setting the price for water services for Sydney Water Corporation estimated the market risk premium as the average of the mid-points for a long-term average of 6 per cent and an implied short-term value of 8.7 per cent to obtain a preferred average estimate, across the various approaches, of 7.35 per cent.¹⁰⁶ As noted above, the most recent IPART biannual estimate of the MRP is 7.55 per cent.¹⁰⁷

The ERA also uses a range of methodologies. It establishes a range based on the lower and upper points of various historical and dividend growth model estimates and then exercises its judgement to determine a point estimate that is consistent with prevailing conditions at the time of its final decision.¹⁰⁸

The QCA uses a similar approach to the AER, comprising two types of historical averaging methods, a dividend growth model, survey evidence, information about the volatility of returns, and debt premiums and regulatory judgement to also arrive at a preferred market risk premium of 6.5 per cent.¹⁰⁹ Before the review conducted in 2014 the QCA's preferred market risk premium was also 6 per cent, as was the case for several other regulatory decisions. In its recent final decision, in relation to the Dalrymple Bay Coal Terminal, the QCA continued to prefer a market risk premium of 6.5 per cent.¹¹⁰ But in its most recent draft decision, the QCA gave greater weight to recent market conditions and proposed a market risk premium of 7.0 per cent, implying greater influence for the Wright approach and dividend growth models.¹¹¹

¹⁰² ACT, 2016: 190.

¹⁰³ AER, 2016b: 2.

¹⁰⁴ IPART, 2013: 33.

¹⁰⁵ IPART, 2013: 2–4.

¹⁰⁶ IPART, 2016: 125.

¹⁰⁷ IPART 2018b: 2.

¹⁰⁸ ERA, 2017: 126 and ERA 2013: 159–60.

¹⁰⁹ QCA, 2014: 23.

¹¹⁰ QCA, 2016: 123.

¹¹¹ QCA, 2017: 81–84 and 127–133.

The AER reports also discuss the estimates of other regulators.¹¹² In its draft decision for AusNet Services (transmission) the AER noted that for some 20 regulatory decisions, covering rail, gas pipelines, water utilities, telecommunications and Australia Post between August 2015 and March 2016, the estimates of the market risk premium ranged from 6 per cent to 7.6 per cent. Similarly in its recent final decision for APA VTS gas access arrangements the AER noted that estimates of the market risk premium from other regulators' decisions (dated between September 2016 and September 2017) range from 6 to 7.75 per cent and that its preferred estimate of 6.5 per cent for the market risk premium is consistent with the range of estimates from other regulators over time.¹¹³

The AER's approach and preferred estimate have involved extensive research and consultation. Development of its Rate of Return Guidelines entailed consideration of a wide range of models and information and was subject itself to an extensive consultation process.¹¹⁴ It was challenged by many service providers in the process and in its application to various electricity distribution and transmission network services business, including in the recent merits review appeal to the Australian Competition Tribunal, which upheld its approach.¹¹⁵

The AER's current approach is considered to give less weight to dividend growth models and recent market conditions than the ERA, the IPART and the Industry Panel decision and until recently the QCA.

6.1.7.1 Submissions received on the issues paper

Icon Water's Price Proposal included a market risk premium of 7.03 per cent, estimated using a 40 day average of Bloomberg's daily implied market risk premium. This estimation was consistent with the Industry Panel approach.

6.1.7.2 The Commission's draft decision

The Commission considered the AER and QCA approach should be given the greatest weight given the range of evidence used and the greater weight applied to historical estimates. Historical estimates are considered more reliable, given the lower standard errors of the estimates, which in turn are considered to contribute to a lower mean squared error (the sum of the bias squared and the variance of the estimate).

Furthermore, there was conflicting evidence of the relationship between the market risk premium and the risk-free rate where a negative relationship is required to justify an increase in the market risk premium when the risk-free rate declines. The draft

¹¹² AER, 2013.

¹¹³ AER, 2017a: 3–237 to 3–238.

¹¹⁴ AER, 2013.

¹¹⁵ ACT, 2015.

decision also noted there appeared little prospect of a material change in the risk-free rate over the regulatory period that is the subject of the Commission's investigation.

Higher estimates of the market risk premium also rely on greater weight being given to dividend growth models, but, as noted, these are considered to incorporate an upward bias. In this respect it is clear that reliance on a single dividend growth model, as in the Industry Panel report, is not reasonable. The practice of using a range of methods and models, provided they have credibility, is more appropriate when there is uncertainty about a parameter, as recognised by the Australian Competition Tribunal in endorsing the AER approach.¹¹⁶

Considering all the above factors, the Commission's draft decision was to adopt a market risk premium of 6.5 per cent.

6.1.7.3 Submissions received on the draft report

Icon Water's Revised Price Proposal is for a market risk premium of 7.0 per cent based on: its interpretation of the AER's Guideline approach using updated information; and recent QCA and IPART decisions.¹¹⁷ This represents a slight change from Price Proposal, which supported a market risk premium of 7.03 per cent based on the Industry Panel approach of a 40 day average of Bloomberg's daily implied market risk premium.¹¹⁸

Icon Water's Revised Price Proposal notes the Commission's reliance on the work of the AER in establishing a preferred estimate of the market risk premium. Icon Water claims that implementation of the AER's 2013 Guideline approach using updated evidence results in an MRP of at least 7 per cent.¹¹⁹ In support of this estimate Icon Water refers to a number of claims made in a Frontier Economics Report prepared for it in June 2017.¹²⁰ In its most recent application of the Guideline the AER¹²¹ has reviewed a subsequent report by Frontier, prepared in August 2017,¹²² that makes similar claims. The claims made by Frontier Economics in the June and August 2017 reports and the AER's views on these claims (based on the material presented in November 2017) are summarised in Table 6.3.

¹¹⁶ ACT, 2015: 86.

¹¹⁷ Icon Water, 2018: 11–13.

¹¹⁸ Icon Water, 2017a: 27.

¹¹⁹ Icon Water, 2017a: 12.

¹²⁰ Frontier Economics, 2017.

¹²¹ AER, 2017c.

¹²² Frontier Economics, 2017.

Table 6.3 Frontier Economics implementation of the AER's 2013 Rate of Return Guideline for the MRP and the AER interpretation

Frontier Economics June and August 2017	AER November 2017
<p>"The AER's 2013 Guideline approach involves establishing a range derived by combining historical excess returns evidence and dividend growth model (DGM) evidence, and then choosing a point estimate that 'lies between the historical average range and the range of estimates produced by the DGM'. The AER's Guideline material states that it would also give some consideration to survey evidence and limited consideration to other evidence (including conditioning variables and other regulators' estimates of the MRP). The worked example in the 2013 Guideline material settled on a point estimate very close to the mid-point between the historical excess returns range and the DGM range."¹²³</p>	<p>"The Guideline approach is not to simply average estimates across historical excess returns and dividend growth models to inform point estimate selections."¹²⁴</p> <p>"Our estimation of the market risk premium is informed by a range of relevant material:</p> <ul style="list-style-type: none"> ○ We place most reliance on historical excess returns. Therefore, we use this information to determine a baseline estimate of the market risk premium. ○ We place less reliance on our dividend growth model estimates of the market risk premium. This information indicates whether we should select a market risk premium point estimate above or below the baseline estimate. ○ We place some reliance on the other information (survey evidence and conditioning variables). This information, in conjunction with dividend growth model evidence, helps to indicate how far above or below the baseline estimate the market risk premium point estimate should be. We use other Australian regulators' market risk premium estimates as a cross check on how we consider information."¹²⁵
<p>"The AER's excess return estimates have increased somewhat to support a range of 6.0 per cent to 6.5 per cent."¹²⁶</p>	<p>"Frontier's historical excess returns are based only on arithmetic averages. We consider both arithmetic and geometric average of historical excess returns should be used."¹²⁷</p> <p>"We consider 6.0 per cent (from a range of 5.1–6.4 per cent) is, at this time, a reasonable point estimate based on this source of evidence."¹²⁸</p>
	<p>"Results in Table 3-22 show that, for the two month period up to end-September 2017, the dividend growth models produce</p>

¹²³ Icon Water 2017a: 12.

¹²⁴ AER 2017c: 3–81.

¹²⁵ AER 2017c: 3–81.

¹²⁶ Icon Water 2017a: 12.

¹²⁷ AER 2017c: 3–86.

¹²⁸ AER 2017c: 3–81.

<p>"DGM estimates have increased substantially to support a range of 7.14 per cent to 8.18 per cent." ¹²⁹</p>	<p>a range of market risk premium estimates between 6.86 to 8.12 per cent." ¹³⁰</p>
<p>"The information from historical excess returns and dividend growth models (including the combined range) indicate a market risk premium of at least 7 per cent." ¹³¹</p>	<p>"Frontier's conclusion is based on selectively adopting and mischaracterising aspects of the Guideline to drive up estimates from historical excess returns and dividend growth models (as seen above). We did not and do not average between historical excess returns and dividend growth model estimates." ¹³²</p>
<p>"Recent decisions by other Australian regulators have been almost exclusively above 7.0 per cent." ¹³³</p>	<p>"The estimates of the market risk premium from other regulators' decisions (dated between September 2016 and September 2017) range from 6 to 7.75 per cent." ¹³⁴</p>
<p>"The most recently available Fernandez survey, on which the AER placed primary regard in its 2013 Guideline, supports a MRP estimate well in excess of 7.0 per cent." ¹³⁵</p>	<p>"As noted above the balance of information from survey evidence indicate a market risk premium of 6 per cent or less. We did not and do not have more regard to the Fernandez survey compared to any other survey. Further, if Frontier's approach is followed, survey evidence would now indicate a market risk premium of 6 per cent based on the most recent survey from KPMG." ¹³⁶</p>
<p>"Cross-checked evidence in the form of recent reports from valuation experts and estimates derived from the Wright approach provide strong directional evidence that the MRP in prevailing market conditions is materially higher than 7.0 per cent." ¹³⁷</p>	<p>"Our Guideline and subsequent regulatory decisions assessed that valuation reports contains a number of limitations which makes them unsuitable for informing the market risk premium. "We disagree with Frontier's use of the Wright CAPM. Our assessment of the Wright CAPM in the Guideline and subsequent regulatory decisions shows that it should be used as a cross-check for the overall return on equity." ¹³⁸ (i.e. does not use a direct estimate of the MRP)" ¹³⁹</p>

¹²⁹ Icon Water 2017a: 12.

¹³⁰ AER 2017c: 3–211.

¹³¹ Frontier Economics 2017a August: 30 in AER 2017c: 3–86.

¹³² AER 2017c: 3–86.

¹³³ Icon Water 2017a: 12.

¹³⁴ AER 2017c: 3–238.

¹³⁵ Icon Water 2017c: 12.

¹³⁶ AER 2017c: 3–87.

¹³⁷ Icon Water 2017a: 12.

¹³⁸ AER 2017c: 3–86.

¹³⁹ AER, 2017c:3–86.

In its most recent application of the Guideline the AER¹⁴⁰ indicated that the best estimate of the MRP for the 2018–2022 regulatory period at the time was 6.5 per cent. As per the Guideline, this estimate was based on a range of methodologies but with long term historic estimates given the most weight.

6.1.7.4 The Commission’s final decision

As discussed above, recent regulatory decisions on the market risk premium range from 6.0 to 7.75 per cent. The Commission considers that the recent decision by the AER in November 2017 provides the best estimate of a market risk premium and is well supported by a wide range of historical and current market information. The Commission notes that this estimate is consistent with recent regulatory decisions, including by the QCA and ACCC. The Commission’s final decision is therefore for a market risk premium of 6.5 per cent.

6.1.8 Gearing

The cost of equity and the cost of debt are weighted by the shares of equity and debt capital in the total asset value of the benchmark entity. The gearing ratio is simply the ratio of debt to the value of debt plus equity. The Industry Panel adopted a 60 per cent gearing ratio, which was consistent with the gearing ratio adopted by other regulators at the time.

From Table 6.1, the Commission’s final decision on estimation of the cost of equity for Icon Water results in an estimate of 7.34 per cent. The same table lists the outcome of the cost of debt decision as 4.75 per cent, using yields from BBB-rated entities. Accordingly, the Commission notes that a gearing ratio of 60 per cent is likely to be relatively low for an entity with a credit rating higher than a B rating who, in comparison with the values identified above, would likely face a lower cost of debt and a very similar cost of equity.

6.1.8.1 Submissions received on the issues paper

Icon Water’s Price Proposal proposed to retain a gearing ratio of 60 per cent.

6.1.8.2 The Commission’s draft decision

The Commission’s draft decision was to continue the approach used by the Industry Panel.

6.1.8.3 Submissions received on the draft report

No submissions on gearing were received in response to the draft report.

¹⁴⁰ AER, 2017c.

6.1.8.4 The Commission's final decision

The Commission's final decision is to retain the gearing ratio of 60 per cent, in line with decisions of other regulators and the Industry Panel.

6.1.9 Nominal post-tax vanilla WACC

Table 6.4 provides a comparison of the WACC parameters through the current price investigation. The WACC parameters are shown for the Industry Panel's decision, Icon Water's Price Proposal, the Commission's draft decision, Icon Water's Revised Price Proposal and the Commission's final decision.

Table 6.4 WACC parameters: a comparison

WACC parameter	Industry Panel, May 2013	Icon Water Price Proposal, June 2017	Commission's draft decision, December 2017	Icon Water Revised Price Proposal, February 2018	Commission's final decision, May 2018
Risk-free rate (per cent)	3.22	2.78	2.78	2.64	2.79
Debt margin (per cent)	3.13	2.08	2.08	NA	NA
Debt-raising cost (per cent)	0.125	0.125	0.125	0.125	0.125
Cost of debt (per cent)	6.48	4.99	4.99	4.86	4.75
Equity beta	0.70	0.70	0.70	0.70	0.70
Market risk premium (per cent)	7.23	7.03	6.50	7.00	6.50
Cost of equity (per cent)	8.28	7.71	7.33	7.54	7.34
Gearing (per cent)	60.00	60.00	60.00	60.00	60.00
Nominal post-tax 'vanilla' WACC (per cent)	7.20	6.07	5.93	5.93	5.78

Sources: Industry Panel (2015), Icon Water (2017a, 2018), ICRC (2017b) and Commission's calculations.

The Commission's final decision results in a nominal post-tax 'vanilla' WACC of 5.78 per cent, as of 31 March 2017.

This WACC is close to Icon Water's Price Proposal WACC of 5.93 per cent. It is markedly lower than the Industry Panel's WACC of 7.20 per cent, reflecting a lower risk-free rate, a lower cost of debt margin and a lower market risk premium.

6.2 The return on capital

The return on capital is calculated by multiplying the allowed rate of return (nominal post-tax vanilla WACC) by the starting value of the RAB plus half of forecast capital expenditure in each year of the regulatory period and deducting the indexation adjustment that is applied to the RAB.

Since the rate of return is specified in nominal terms and the asset base is indexed for forecast inflation, there is a need to deduct the indexation adjustment from the return

on capital to avoid double-counting of inflation. This approach leads to a flatter revenue stream than if the asset base is not indexed and no adjustment is made to the nominal return on capital. It is the approach used by the Industry Panel and most other economic regulators applying the building block model in Australia.

Forecast capital expenditure is assumed to occur mid-year, so a rate of return is applied to only half the value of the capital expenditure in a year.

The calculation of the return on capital is as follows:

$$\text{Return on capital} = (\text{Opening RAB}_t + \text{Forecast capex}_t \times 0.5) \times \text{nominal post-tax WACC} - \text{Inflation adjustment}_t$$

Calculation of the rate of return is discussed in Section 6.1. Calculation of the RAB is explained in Chapter 5.

Table 6.5 shows the Commission's final decision on the return on capital for water and sewerage services for the period 2018–23.

Table 6.5 The Commission's final decision calculation of return on capital for water and sewerage, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Value of RAB	1,528.0	1,575.4	1,624.2	1,661.7	1,689.4
Return on capital excluding indexation adjustment	50.2	51.7	53.3	54.5	55.5
Inflation adjustment	38.2	39.4	40.6	41.5	42.2
Return on capital including indexation adjustment	88.4	91.1	93.9	96.1	97.7
Sewerage					
Value of RAB	884.2	939.6	983.7	1,015.3	1,042.5
Return on capital excluding indexation adjustment	29.0	30.8	32.3	33.3	34.2
Inflation adjustment	22.1	23.5	24.6	25.4	26.1
Return on capital including indexation adjustment	51.1	54.3	56.9	58.7	60.3

Source: Commission's calculations.

6.3 Tax expenses

The use of the nominal post-tax vanilla WACC requires a separate allowance for tax expenses. Icon Water's Price Proposal provides a useful summary of how tax expenses

are calculated for inclusion as an allowed cost.¹⁴¹ The approach is the same as in the Industry Panel report. As set out in Section 2.13, Commission's final decision is to continue applying this approach, which involves the estimation of a tax asset base, the calculation of taxable profit, and the deduction of value of imputation credits.

6.3.1 The tax asset base

To calculate tax expenses a separate Tax Asset Base (TAB) is calculated. The TAB methodology mirrors the RAB methodology with the following exceptions:

- The opening values in the roll-forward calculation reflect TAB values, not RAB values.
- Depreciation in the roll-forward calculation for the TAB is based on actual depreciation, not forecast depreciation.
- Tax asset lives, not economic asset lives, are used to calculate depreciation.
- The TAB is not indexed for inflation; rather, it is maintained in historic terms.

6.3.2 The TAB roll forward

The TAB is rolled forward from 2013–14 to 2017–18 to establish an opening value for 2018–19. The opening value for 2013–14 must be adjusted for the difference between forecast and actual depreciation for the last year of the previous regulatory period (2012–13) 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 depreciation for each year of the roll forward period. The Commission's final decision calculation of the TAB for water and sewerage for the period 2013–18 are shown in Table 6.6.

¹⁴¹ Icon Water, 2017a (Attachment 10).

Table 6.6 The Commission’s final decision calculation water and sewerage TAB roll forward, 2013–18 (\$m, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water					
Opening water TAB	1,086.8	1,089.7	1,080.3	1,078.1	1,044.4
Net capital expenditure	34.4	24.5	31.0	34.7	42.0
Asset disposals	0.0	1.6	0.0	34.3	0.0
Depreciation	31.6	32.4	33.1	34.1	36.2
Closing water TAB	1,089.7	1,080.3	1,078.1	1,044.4	1,050.2
Sewerage					
Opening TAB	392.2	394.4	400.2	429.3	469.1
Net capital expenditure	18.3	24.8	47.5	61.2	78.6
Asset disposals	0.0	2.0	0.0	0.0	0.0
Depreciation	16.2	16.9	18.4	21.4	25.8
Closing TAB	394.4	400.2	429.3	469.1	521.9

Source: Commission calculations.

6.3.3 The TAB for 2018–19 to 2022–23

The closing value for the TAB for 2017–18 from the roll forward calculation just described is the opening value for the TAB for 2018–19. This 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.

The Commission’s final decision calculation of the TAB for water and sewerage for the period 2018–23 are shown in Table 6.7.

Table 6.7 The Commission’s final decision on water and sewerage TAB roll forward, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water					
Opening TAB	1,050.2	1,048.3	1,058.4	1,059.2	1,046.4
Net capital expenditure	33.0	47.5	40.3	28.4	24.3
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	34.9	37.4	39.5	41.2	42.2
Closing TAB	1,048.3	1,058.4	1,059.2	1,046.4	1,028.4
Sewerage					
Opening TAB	521.9	564.9	590.6	610.9	611.7
Net capital expenditure	66.6	52.6	49.3	31.3	43.6
Asset disposals	0.0	0.0	0.0	0.0	0.0
Depreciation	23.6	26.8	28.9	30.6	31.7
Closing TAB	564.9	590.6	610.9	611.7	623.5

Source: Commission’s calculation.

6.3.4 Total tax expenses

Total tax expenses are calculated by multiplying taxable profit by the corporate tax rate. Consistent with the Industry Panel report, the corporate tax rate is set at 30 per cent. Adoption of a corporate tax rate of 30 per cent is also consistent with the rate expected to be applicable in the 2018–23 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, as follows:

$$\text{Taxable profit} = \text{Forecast tariff revenue} + \text{Other income} - \text{Tax depreciation} - \text{Interest expenses} - \text{Operating expenses} - \text{Previous year losses}$$

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

- Forecast tariff revenue and other income – Chapter 7.
- Tax depreciation – as described.
- Interest expenses – calculated by multiplying the RAB by the share of debt and the cost of debt.
- Operating expenses – Chapter 3.
- Previous year losses are the accumulated tax losses from previous years.

The Commission’s final decision uses the taxable profit and total tax expenses for water and sewerage for the period 2018–19 to 2022–23 as shown in Table 6.8 and Table 6.9.

Table 6.8 The Commission’s final decision calculation of taxable profit and total tax expenses for water, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Forecast tariff revenue	165.25	169.50	175.23	182.04	189.13
plus other income	14.70	15.18	15.57	15.97	16.37
less tax depreciation	34.91	37.45	39.53	41.19	42.23
less interest	43.51	44.86	46.25	47.32	48.11
less operating & maintenance	99.37	99.22	101.90	105.68	109.40
less previous year losses	0.00	0.00	0.00	0.00	0.00
Taxable profit	2.15	3.15	3.11	3.82	5.76
Total tax expenses	0.65	0.94	0.93	1.15	1.73

Source: Commission’s calculations.

Table 6.9 The Commission’s final decision calculation of taxable profit and total tax expenses for sewerage, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Forecast tariff revenue	128.18	130.43	132.73	135.06	137.43
plus other income	14.24	13.86	14.19	14.53	14.87
less tax depreciation	23.62	26.84	28.94	30.57	31.74
less interest	25.18	26.76	28.01	28.91	29.69
less operating & maintenance	78.54	79.48	81.14	83.86	86.51
less previous year losses	0.00	0.00	0.00	0.00	0.00
Taxable profit	15.09	11.22	8.83	6.24	4.37
Total tax expenses	4.53	3.37	2.65	1.87	1.31

Source: Commission’s calculations.

6.3.5 Imputation credits

In establishing an appropriate allowance for tax expenses for a regulated entity in Australia, it is necessary to calculate a value for imputation credits. This is then deducted from tax expenses to obtain an estimate of net tax expenses.

Under Australia’s imputation tax system, introduced in 1987, company tax is integrated with the personal tax system for Australian taxpayers. Under the system, tax is first collected as ‘company tax’ and then when shareholders receive (franked) dividends they are credited with these ‘company tax’ payments, called imputation credits, for use against their personal tax liabilities on the grossed-up (for tax credits) dividends.¹⁴²

¹⁴² Officer, 2011: 4–5.

In a seminal paper that still forms the basis for how to interpret the impact of dividend imputation on the cost of capital or allow for it in the cash flows for regulated businesses, Officer derived various formulae for the cost of capital recognising the impact of imputation credits.¹⁴³

The formula for the cost of capital differed depending on how the cash flows were defined to recognise the treatment of tax. In the case of the formula for the nominal post-tax vanilla WACC, all the tax adjustments are incorporated in the cash flows, rather than by the inclusion of terms in the WACC.

In his analysis Officer used the variable name ‘gamma’ to represent the value of imputation credits. He defined gamma as follows:

Thus [gamma] is the proportion collected from the company which gives rise to the tax credit associated with a franked dividend. This franking credit can be utilized as tax credit against the personal tax liabilities of the shareholder. [Gamma] can be interpreted as the value of a dollar of tax credit to the shareholder.¹⁴⁴

In the Officer framework it is clear that the value of gamma depends on the proportion of company tax paid that is distributed as imputation credits attached to franked dividends and the proportion of distributed imputation credits that can be utilised by resident taxpayers to obtain a rebate on their tax.¹⁴⁵ Many overseas investors in Australian companies would not be able to use the imputation credit to obtain a rebate for the company tax paid in Australia.

Thus gamma is the product of two elements:

- 1) The distribution rate – the ratio of imputation credits to company tax paid.
- 2) The utilisation rate – the rate at which investors (in aggregate) utilise the distributed imputation credits to obtain a tax rebate.

Or

$$(3) \text{ gamma } (\gamma) = \text{ distribution rate } \times \text{ utilisation rate}$$

In order to estimate an appropriate allowance for imputation credits it is necessary to estimate the distribution rate and the utilisation rate and form their product.

The value of gamma can vary between 0 and 1. If all franked dividends are distributed and can be fully utilised then gamma = 1. But gamma must be less than 1 because not all franked dividends are distributed and some shareholders (particularly foreign shareholders) cannot utilise imputation credits.

¹⁴³ Officer, 1994.

¹⁴⁴ Officer, 1994: 4.

¹⁴⁵ Officer, 2011: 4–5.

The Industry Panel preferred a gamma estimate of 0.5. It noted that several regulators had lowered their estimates of gamma following a decision by the Australian Competition Tribunal but that a value of 0.5 had greater regulatory precedent in the water and sewerage services industry than a 0.25 value.¹⁴⁶

Central to the disagreement about an appropriate value for gamma is the definition of gamma and its interpretation. The disagreement concerns whether it should be interpreted as a ‘value of a dollar of tax credit to the shareholder’, as defined by Officer, or a ‘market value’ (that can be estimated by dividend drop-off studies).

The AER interprets the utilisation rate as the rate at which investors in the aggregate can utilise the imputation credits to obtain a tax rate and not as the market value of the imputation credits.¹⁴⁷ In its 2013 review the AER considered various approaches to estimating the distribution rate (or payout ratio) and the utilisation rate. It preferred a distribution rate of 0.7 (based primarily on taxation statistics) and a utilisation rate of 0.7 (based on consideration of the share of equity owned by domestic residents, tax statistics, implied market values, conceptual boundaries and other supporting evidence). This leads to a preferred estimate of gamma of 0.5.¹⁴⁸

In its 2013 review the AER noted previous reviews, studies and estimates of gamma, including an Australian Competition Tribunal 2011 decision that set a payout ratio of 0.7 and a utilisation rate of 0.35 based on a single dividend drop-off study.¹⁴⁹ This leads to a gamma estimate of 0.25. The AER noted that the Tribunal indicated it would be assisted by further information about the rationale for the gamma component and how it relates to the building block components and that issues relating to the foundations for an appropriate value of gamma may be taken up in a further decision.¹⁵⁰

The AER used a gamma value of 0.25 after 2011 until it completed its 2013 review. It took the opportunity in its 2013 review to discuss conceptual factors and a wider range of evidence in relation to an appropriate determination for gamma and recommended an estimate of 0.5 for gamma.¹⁵¹ In subsequent decisions it has adopted a gamma value of 0.4 (from a possible range of 0.3 to 0.5).¹⁵²

¹⁴⁶ Industry Panel, 2015a: 79–81.

¹⁴⁷ AER, 2013b: 139.

¹⁴⁸ AER, 2013b: 159.

¹⁴⁹ AER, 2013a: 162, 2013b: 144 and ACT, 2010, paras 149–50.

¹⁵⁰ AER, 2013b: 144.

¹⁵¹ AER 2013b: 146–50.

¹⁵² ACT, 2016: para 131.

In May 2015 four electricity distribution networks and one gas network business applied to the Australian Competition Tribunal for review of decisions made by the AER in relation to a number of matters, including gamma. The main issues in dispute in relation to gamma were: the appropriate interpretation of the distribution rate and the utilisation rate and appropriate methods; and information and estimates of the components of gamma. In February 2016 the Tribunal released its decision and reasoning.¹⁵³ The Tribunal considered that, ‘of the various methodologies for estimating gamma employed by the AER, market value studies are best placed to capture the considerations that investors make in determining the worth of imputation credits to them’.¹⁵⁴

The Tribunal also concluded that tax statistics and the equity ownership methodologies provide an upper bound on estimates of the utilisation.¹⁵⁵ It put forward a provisional view that the best estimate of the utilisation rate was 0.35.¹⁵⁶

The AER applied to the Federal Court for judicial review of the Tribunal’s decision on gamma and in particular on the meaning of ‘value’ in the expression of ‘value of imputation credits’. The Full Federal Court’s decision was handed down on 24 May 2017. The court upheld the AER’s appeal as the meaning of ‘value’ and found that the Tribunal’s interpretation of value as based on market studies was incorrect and that the AER did not make an error of construction in focusing on utilisation rather than market values.¹⁵⁷ The court accepted the AER’s submission that the rules require consistency in the way the relevant building blocks interact – that is, on a post-company tax and pre-personal tax and personal costs basis.¹⁵⁸

The Federal Court found that the Tribunal erred in concluding that the value of gamma is (only) the value claimed or utilised as demonstrated by the behaviour of the shareholder recipients of the imputation credits:

The present context relates to a statutory model rather than the value of something which exists. In our opinion the Tribunal was distracted by the apparent simplicity of the concept of market studies and data into mistaking what was to be estimated as real in a market rather than as estimates within a model.

This is what led the Tribunal into error at [1081]-[1082] in concluding that the value of gamma is (only) what is claimed or utilised as demonstrated by the behaviour of the shareholder recipients of the imputation credits.¹⁵⁹

¹⁵³ ACT, 2016: 269–94.

¹⁵⁴ ACT, 2016: para 1096.

¹⁵⁵ ACT, 2016: para 1095.

¹⁵⁶ ACT, 2016: para 1103.

¹⁵⁷ Federal Court of Australia, 2017: 215–16.

¹⁵⁸ AER, 2017b: 4–10.

¹⁵⁹ Federal Court of Australia, 2017: paras 753–4, 216.

The most recent AER decision after the Federal Court decision noted that the Full Federal Court's decision on this point was consistent with the approach it has taken in all regulatory decisions released since November 2014 (which is for a gamma of 0.4).¹⁶⁰

The AER decision also noted that a further Tribunal decision in relation to SA Power Networks in October 2016 upheld the AER's decision to value gamma at 0.4 and found there was no error in the AER's approach or conclusion.¹⁶¹ SA Power Networks subsequently sought review of the Tribunal's decision in the Full Federal Court. The Full Federal Court's decision in January 2018 rejected SA Power Network's application for judicial review in relation to gamma.¹⁶²

The AER recently summarised the range of evidence it uses to estimate gamma and in particular the utilisation rate.¹⁶³ The key points are as follows:

- The approach set out in the Rate of Return Guideline has been broadly maintained but re-examination of the relevant evidence and estimates leads to a departure from the 0.5 value of imputation credits in the guideline
- A value of imputation credits of 0.4 from within a range of 0.3 to 0.5 is preferred
- A range of relevant evidence is used to estimate the utilisation rate:
 - The equity (domestic) ownership rate is considered to provide the best estimate of the utilisation rate. Estimates of the utilisation rate vary from 0.56 to 0.68 for all companies and from 0.38 to 0.55 for listed companies. With respective preferred distribution rates of 0.7 and 0.75 the ranges for gamma are 0.40 to 0.47 for all companies and 0.28 to 0.41 for listed companies. An estimate well below the top of the range for all equity is used
 - Taxation statistics are considered to provide a separate point estimate of the utilisation rate that is not inconsistent with the evidence from the equity ownership approach but is considered to be of questionable reliability and not an upper bound estimate
 - Implied market value studies are another source of evidence, but they are affected by factors such as differential personal taxation and other personal costs and so they do not provide an estimate of the utilisation value to investors in the market per dollar of imputation credits distributed on a post-tax (pre-personal tax and costs basis)
 - The estimate of 0.4 is within the range supported by the opinion of several experts in the field

¹⁶⁰ AER, 2017b: 4–18.

¹⁶¹ AER, 2017b: 4–18

¹⁶² Federal Court of Australia, 2018: paras 52–66.

¹⁶³ AER, 2017b: 4–29 to 3–30.

- The preferred estimate is consistent with providing regulatory certainty since it is consistent with the value used for all AER regulatory decisions released in 2015 and 2016
- Adopting a value of imputation credits that is rounded to one decimal place appropriately reflects the uncertainty and imprecision associated with this parameter

In its current review of rate of return issues the AER has indicated in its Issues Paper that it proposes to continue with the current approach but to update the parameters where relevant.¹⁶⁴

The Commission also notes that in a recent decision on the cost of capital for the Dalrymple Bay Coal Terminal the Queensland Competition Authority reviewed recent information on gamma, including the Tribunal decision, and confirmed its interpretation of gamma as being consistent with the AER interpretation and preferred approach.¹⁶⁵ The QCA confirmed that its preferred method for estimating the utilisation rate was to consider the relative importance of several estimation methods and that it did not accept the market-value definition.¹⁶⁶ After reviewing the evidence, the QCA required the use of a gamma of 0.47¹⁶⁷, the value preferred in its market parameters paper of 2014.¹⁶⁸ In its most recent draft decision, in relation to an Aurzion Network draft access undertaking, the QCA confirmed the retention of its existing approach which with updated parameters meant a gamma of 0.46, comprising a distribution rate of 0.83 and utilisation rate of 0.55.¹⁶⁹

6.3.5.1 Submissions received on the issues paper

Icon Water's Price Proposal proposed a gamma of 0.25 based on a distribution rate of 0.7 and a utilisation rate of 0.35 for imputation credits.¹⁷⁰ Icon Water maintained that the value of imputation credits should be a market value concept, rather than being based on investors' eligibility to redeem imputation credits.

Icon Water's estimate of the distribution rate was consistent with estimates preferred by the AER. Its estimate of the utilisation rate was based on a single dividend drop-off study¹⁷¹ the Australian Competition Tribunal relied on in its decision in favour of the

¹⁶⁴ AER 2017c: 32.

¹⁶⁵ QCA, 2016.

¹⁶⁶ QCA, 2016: 119.

¹⁶⁷ QCA, 2016: 121.

¹⁶⁸ QCA, 2014: 101.

¹⁶⁹ QCA, 2017: 162.

¹⁷⁰ Icon Water, 2017a (Attachment 10): 11.

¹⁷¹ A dividend drop-off study estimates the value of imputation credits by the difference between the value of shares with dividend and without dividend, with the information being reflected in the change in the value of the shares the day the dividend is paid.

businesses in their appeal against the AER.¹⁷² The AER and the QCA have, however, pointed to problems with the reliability and relevance of dividend drop-off studies. There are other factors that can affect share prices at the time, and the implied values based on trading are affected by factors such as differential personal taxation and other personal costs. Implied values are based on a market value in a particular trading context and are considered not to reflect the value of imputation credits to all shareholders who can make use of them; that is, they do not provide an estimate of the utilisation value to investors in the market per dollar of imputation credits distributed on a post-tax (pre-personal tax and costs) basis.

No further submissions on gamma were received in response to the issues paper.

6.3.5.2 The Commission's draft decision

The Commission's draft decision agreed with the AER and the QCA interpretations of the definition of gamma, and considers that both organisations have considered a wide range of relevant and recent evidence in a thorough manner. The Commission also recognises the importance of the Federal Court decision that upheld the AER approach when it appealed the Tribunal decision.

The Commission's draft decision was for a gamma of 0.4.

6.3.5.3 Submissions received on the draft report

No submissions on gamma were received in response to the draft report.

6.3.5.4 The Commission's final decision

The Commission's final decision is for a gamma of 0.4.

6.3.6 Net tax expenses

Net tax expenses are calculated thus:

$$\text{Net tax expenses} = \text{Tax expenses} \times (1 - \gamma)$$

As explained in the preceding section, the Commission's final decision adopts a gamma value of 0.4.

The resulting net tax expenses used in the calculation of maximum allowable revenue are shown below in Table 6.10.

¹⁷² ACT, 2016.

Table 6.10 The Commission's final decision on net tax expenses, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water	0.39	0.57	0.56	0.69	1.04
Sewerage services	2.72	2.02	1.59	1.12	0.79
Total	3.10	2.59	2.15	1.81	1.82

Sources: Commission's calculations.

7 Total revenue allowance

Icon Water incurs costs in providing water and sewerage services. These costs need to be matched by allowed revenue to ensure that Icon Water remains financially viable. This chapter explains Commission’s final decision on Icon Water’s 2018–23 revenue requirement, based on the efficient costs incurred by Icon Water in providing regulated water and sewerage services in each year of that regulatory period.

The Commission’s final decision

Table 7.1 shows Icon Water’s Revised Price Proposal for net revenue requirement for water and sewerage services for the 2018–23 regulatory period.

Table 7.1 Icon Water’s Price Proposal net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Return on capital	54.6	56.3	58.1	59.6	60.8	289.4
Depreciation	31.1	34.5	37.6	40.4	41.8	185.5
Operating expenditure (controllable)	61.8	62.6	63.8	66.8	68.0	323.0
Water Abstraction Charge	29.1	30.1	31.3	32.5	33.8	156.7
Utility Network Facilities Tax	5.7	6.0	6.4	6.8	7.2	32.0
Net tax liabilities	1.8	1.6	1.5	1.3	1.5	7.7
Total revenue requirement	184.0	191.2	198.6	207.4	213.1	994.3
Less adjustments	16.5	16.8	17.2	17.6	18.0	86.2
Net water revenue	167.5	174.4	181.4	189.8	195.1	908.1
Sewerage						
Return on capital	31.9	33.8	35.3	36.6	37.7	175.3
Depreciation	26.5	30.5	33.6	36.4	38.8	165.8
Operating expenditure (controllable)	73.5	74.5	75.9	79.3	80.7	384.0
Utility Network Facilities Tax	4.7	4.9	5.2	5.6	5.9	26.3
Net tax liabilities	3.5	2.9	2.6	2.0	2.0	13.0
Total revenue requirement	140.1	146.8	152.7	159.8	165.1	764.5
Less adjustments	14.1	14.5	14.9	15.2	15.6	74.3
Net sewerage revenue	126.0	132.3	137.8	144.6	149.5	690.2
Net revenue requirement	293.5	306.7	319.3	334.4	344.6	1,598.4

Source: Icon Water (2017a).

Table 7.2 shows the Commission's final decision on Icon Water's net revenue requirement for water and sewerage services in 2018–23.

Table 7.2 The Commission's final decision on net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Return on capital	50.2	51.7	53.3	54.5	55.5	265.2
Depreciation	31.1	34.5	37.5	40.1	40.8	184.0
Operating expenditure (controllable)	61.8	62.6	63.8	65.9	67.9	322.1
Water Abstraction Charge	31.4	30.6	31.7	33.0	34.3	160.9
Utility Network Facilities Tax	6.2	6.0	6.4	6.8	7.2	32.6
Net tax liabilities	0.4	0.6	0.6	0.7	1.0	3.2
Total revenue requirement	181.0	186.0	193.3	201.0	206.7	968.1
Less adjustments	16.5	17.0	17.4	17.8	18.2	86.8
Net water revenue	164.6	169.0	175.9	183.3	188.5	881.3
Sewerage services						
Return on capital	29.0	30.8	32.3	33.3	34.2	159.7
Depreciation	26.3	30.3	33.2	35.7	37.8	163.3
Operating expenditure (controllable)	73.5	74.5	75.9	78.3	80.6	382.9
Utility Network Facilities Tax	5.0	4.9	5.2	5.6	5.9	26.7
Net tax liabilities	2.7	2.0	1.6	1.1	0.8	8.2
Total revenue requirement	136.6	142.6	148.2	154.0	159.3	740.8
Less adjustments	14.9	14.5	14.9	15.2	15.6	75.2
Net sewerage revenue	121.7	128.1	133.3	138.8	143.7	665.6
Net revenue requirement	286.3	297.1	309.2	322.0	332.2	1,546.9

Sources: Commission's calculations based on Icon Water (2018).

The Commission's final decision on Icon Water's net revenue requirement for the forward regulatory period is:

- \$26.9m (3.0 per cent) lower for water than Icon Water's Price Proposal
- \$24.6m (3.6 per cent) lower for sewerage services than Icon Water's Price Proposal.

These differences reflect the Commission's final decisions on:

- Operating expenditure (Chapter 3) and capital expenditure (Chapter 4).
- Rate of return on capital (Chapter 6).
- Adjustments for pass-throughs in 2018–19.

7.1 Revenue requirement calculation method

The building block methodology is a widely used means of estimating a utility's costs to determine its revenue requirement. Under the methodology, the total revenue requirement is calculated as the sum of the different building blocks (or cost components) for each year of the next regulatory period. To calculate Icon Water's total revenue requirement, the Commission determined, for each year of the next regulatory period, an allowance for the following:

- *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 full discussion in Chapter 3).
- *Regulatory depreciation (the return of capital).* This reflects the cost of investing in and maintaining the RAB and is calculated on a straight-line basis (see the discussion in Chapter 5).
- *The return on capital.* This is calculated by multiplying the allowed rate of return (nominal post-tax vanilla WACC) by the starting value of the RAB plus half of forecast capital expenditure in each year of the regulatory period and deducting the indexation adjustment that is applied to the RAB (see the discussion in Chapter 6).
- *Net tax expenses.* These are calculated by deducting a value for imputation credits from tax expenses (see the discussion in Chapter 6).

The sum of these allowances represents the total revenue requirement. Once the total revenue requirement for the forward regulatory period is estimated, the net (or 'target') revenue requirement can be estimated. The target revenue is the total amount less revenue received from sources other than water and sewerage services tariffs. Other revenue sources include Community Service Obligation (CSO) payments and bulk water sales to Queanbeyan–Palerang Regional Council.

7.2 Icon Water's Price Proposal

Table 7.3 shows Icon Water's proposed total revenue requirements for water and sewerage services for the forward regulatory period. Icon Water determined its total revenue requirement using the same methodology as applied in the Industry Panel's report, being the sum of each of the building blocks of operating expenditure, depreciation, return on capital and net tax liabilities.¹⁷³

¹⁷³ Icon Water, 2017a (Attachment 11): 4.

Table 7.3 Icon Water's Price Proposal - total revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Return on capital	54.6	56.3	58.1	59.6	60.8	289.4
Depreciation	31.1	34.5	37.6	40.4	41.8	185.5
Operating expenditure	96.5	98.8	101.5	106.1	109.0	511.8
Net tax liabilities	1.8	1.6	1.5	1.3	1.5	7.7
Total water revenue requirement	184.0	191.2	198.7	207.4	213.1	994.3
Sewerage						
Return on capital	31.9	33.8	35.3	36.6	37.7	175.3
Depreciation	26.5	30.5	33.6	36.4	38.8	165.9
Operating expenditure	78.2	79.5	81.1	84.8	86.6	410.3
Net tax liabilities	3.5	2.9	2.6	2.0	2.0	13.0
Total sewerage revenue requirement	140.1	146.8	152.7	159.8	165.1	764.5
Total revenue requirement	324.1	338.0	351.3	367.2	378.2	1,758.8

Source: Icon Water (2017a).

Icon Water derives revenue from a number of sources, among them sources unrelated to its provision of regulated water and sewerage services. These revenue items must be deducted from Icon Water's total revenue requirement to determine the net revenue requirement for the forward regulatory period. These adjustments include the following:

- Icon Water earns additional revenue from bulk water sales to Queanbeyan–Palerang Regional Council.
- Icon Water receives additional subvention payments from the Commonwealth.
- Icon Water earns income from miscellaneous charges and other sources.

Revenue from CSO payments should also be deducted from Icon Water's total revenue requirement to determine the net revenue requirement. Among these CSOs are Icon Water's costs associated with:

- Icon Water maintains the Cotter Dam Discovery Trail.
- Icon Water undertakes greenhouse gas abatement activities associated with water security projects.
- Icon Water provides services to Uriarra Village, with costs higher than would be recovered from local residents though the standard sewerage services charges

For the purposes of calculating the net revenue requirement, Icon Water proposed to deduct income received from other sources.¹⁷⁴ Each of these revenue adjustments and resulting net revenue requirements for regulated water and sewerage services is shown in Table 7.4.

Table 7.4 Icon Water's Price Proposal for net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Total water revenue requirement	184.0	191.2	198.7	207.4	213.1	994.3
Sales to QPRC and other income	13.7	13.9	14.3	14.6	15.0	71.5
Subvention	1.1	1.1	1.2	1.2	1.2	5.9
CSO payments	1.8	1.8	1.8	1.8	1.8	8.9
Net water revenue requirement	167.5	174.4	181.4	189.8	195.1	908.2
Sewerage						
Total sewerage revenue requirement	140.1	146.8	152.7	159.8	165.1	764.5
Subvention	11.2	11.4	11.7	12.0	12.3	58.7
Other income	2.3	2.4	2.5	2.5	2.6	12.2
CSO payments	0.6	0.7	0.7	0.7	0.7	3.4
Net sewerage revenue requirement	126.0	132.3	137.8	144.6	149.5	690.2
Net revenue requirement	293.5	306.7	319.3	334.4	344.6	1,598.4

Source: Icon Water (2017a).

7.3 The Commission's draft decision

On the basis of its draft decisions on operating expenditure, the return of capital, the return on capital and net tax expenses building blocks (as discussed in Chapters 3, 5 and 6), the Commission's draft decision set Icon Water's total revenue requirement in the manner shown in Table 7.5.

The Commission's draft decision on Icon Water's total revenue requirement for the next regulatory period was \$976.3m for water services and \$744.5m for sewerage services. The decision was approximately 1.82 per cent and 2.62 per cent lower than Icon Water's proposed total revenue requirements for water and sewerage services respectively.

¹⁷⁴ Icon Water, 2017a (Attachment 11): 4.

Table 7.5 The Commission’s draft decision on total revenue requirement water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Return on capital	52.3	54.0	55.6	57.0	58.2	277.1
Depreciation	31.1	34.5	37.6	40.4	41.7	185.2
Operating expenditure	96.5	98.8	101.5	105.2	108.9	510.9
Net tax liabilities	0.7	0.5	0.5	0.6	0.8	3.1
Total water revenue requirement	180.6	187.8	195.2	203.2	209.5	976.3
Sewerage						
Return on capital	30.5	32.1	33.1	33.9	34.6	164.3
Depreciation	26.5	30.3	33.2	35.5	37.5	163.0
Operating expenditure	78.2	79.5	81.1	83.9	86.5	409.2
Net tax liabilities	2.6	2.0	1.6	1.1	0.8	8.0
Total sewerage revenue requirement	137.8	143.9	149.0	154.4	159.4	744.5
Total revenue requirement	318.4	331.6	344.2	357.6	368.9	1,720.7

Source: Commission’s calculations.

The net revenue requirement was calculated by removing other sources of revenue from the total revenue requirement. This provides the maximum revenue Icon Water can receive from regulated water and sewerage service tariffs in the 2018–23 regulatory period.

The Commission’s draft decision was to accept Icon Water’s proposed revenue adjustments. The calculation of the draft net revenue requirement is shown in Table 7.6.

Table 7.6 The Commission's draft decision on net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Total water revenue requirement	180.6	187.8	195.2	203.2	209.5	976.3
Sales to QPRC and other income	13.7	13.9	14.3	14.6	15.0	71.5
Subvention	1.1	1.1	1.2	1.2	1.2	5.9
CSO payments	1.8	1.8	1.8	1.8	1.9	9.1
Net water revenue requirement	164.1	170.9	177.9	185.5	191.4	889.8
Sewerage						
Total sewerage revenue requirement	137.8	143.9	149.0	154.4	159.4	744.5
Subvention	11.2	11.4	11.7	12.0	12.3	58.7
Other income	2.3	2.4	2.5	2.5	2.6	12.2
CSO payments	0.7	0.7	0.7	0.7	0.7	3.5
Net sewerage revenue requirement	123.6	129.3	134.1	139.2	143.8	670.0
Net revenue requirement	287.7	300.2	312.0	324.7	335.2	1,559.8

Source: Commission's calculations.

7.4 Submissions received on the draft decision

In response to the Commission's draft decision, Icon Water provided a Revised Price Proposal in February 2018. The Revised Price Proposal contained revised total revenue requirement and net revenue requirement calculations, which reflect the revisions to proposed operating expenditure (Chapter 3), capital expenditure (Chapter 4), regulatory asset base (Chapter 5), and return on capital and tax liabilities (Chapter 6). Icon Water's revised proposed total revenue requirement and revised proposed net revenue requirement are shown in Table 7.7 and Table 7.8.

Table 7.7 Icon Water's Revised Price Proposal for total revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Return on capital	52.5	54.1	55.8	57.0	58.0	277.3
Depreciation	31.1	34.5	37.5	40.1	40.8	184.0
Operating expenditure	96.5	98.8	101.5	105.2	108.9	510.9
Net tax liabilities	1.2	0.9	0.8	0.8	0.9	4.5
Total water revenue requirement	181.2	188.2	195.5	203.1	208.6	976.7
Sewerage						
Return on capital	30.4	32.3	33.8	34.9	35.8	167.0
Depreciation	26.3	30.3	33.2	35.7	37.8	163.3
Operating expenditure	78.2	79.5	81.1	83.9	86.5	409.2
Net tax liabilities	2.5	2.0	1.8	1.5	1.4	9.2
Total sewerage revenue requirement	137.3	144.1	149.9	155.9	161.4	748.7
Total revenue requirement	318.6	332.3	345.4	359.1	370.0	1,725.3

Source: Icon Water (2018).

Table 7.8 Icon Water's Revised Price Proposal for net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Total water revenue requirement	181.2	188.2	195.5	203.1	208.6	976.7
Sales to QPRC and other income	13.8	14.0	14.4	14.8	15.1	72.1
Subvention	1.1	1.1	1.2	1.2	1.2	5.9
CSO payments	1.8	1.8	1.8	1.8	1.9	9.1
Net water revenue requirement	164.5	174.4	178.1	185.3	190.4	889.6
Sewerage						
Total sewerage revenue requirement	137.3	144.1	149.9	155.9	161.5	748.7
Subvention	11.2	11.4	11.7	12.0	12.3	58.7
Other income	2.3	2.4	2.5	2.5	2.6	12.2
CSO payments	0.7	0.7	0.7	0.7	0.7	3.5
Net sewerage revenue requirement	123.2	129.5	135.0	140.7	145.8	674.2
Net revenue requirement	287.7	303.9	313.1	326.0	336.2	1,563.8

Source: Icon Water (2018).

Subsequent to the Revised Price Proposal, Icon Water submitted a pass-through request for differences between forecast and actual subvention payments in 2016-17 and 2017-18. Using Icon Water's 2013-18 WACC of 7.20 per cent, the 2018-19 value of the difference in water subvention payments was a \$178,413 shortfall, while the value of the difference in sewerage subvention payments was \$782,650 additional receipts.

No further submissions which addressed total or net revenue requirement were received in response to the draft decision.

7.5 The Commission's final decision

The Commission's final decision on total and net revenue requirement is a summation of the Commission's final decisions on operating expenditure (Chapter 3), capital expenditure (Chapter 4), regulatory asset base (Chapter 5), and return on capital and tax liabilities (Chapter 6). The total revenue requirement is shown in Table 7.9.

Table 7.9 The Commission's final decision total revenue requirement for water and sewerage services, 2018-23 (\$m, nominal)

	2018-19	2019-20	2020-21	2021-22	2022-23	Total
Water						
Return on capital	50.2	51.7	53.3	54.5	55.5	265.2
Depreciation	31.1	34.5	37.5	40.1	40.8	184.0
Operating expenditure	99.4	99.2	101.9	105.7	109.4	515.6
Net tax liabilities	1.2	0.9	0.8	0.8	0.9	4.5
Total water revenue requirement	181.0	186.0	193.3	201.0	206.7	968.1
Sewerage						
Return on capital	29.0	30.8	32.3	33.3	34.2	159.7
Depreciation	26.3	30.3	33.2	35.7	37.8	163.3
Operating expenditure	78.5	79.5	81.1	83.9	86.5	409.5
Net tax liabilities	2.7	2.0	1.6	1.1	0.8	8.2
Total sewerage revenue requirement	136.6	142.6	148.2	154.0	159.3	740.8
Total revenue requirement	317.7	328.6	341.5	355.1	366.0	1,708.9

Source: Commission's calculations.

The Commission's final decision adopts a lower rate of return than Icon Water proposed (as described in Chapter 6). As a consequence of a lower rate of return, the Commission's final decision on the total revenue requirement for water and sewerage services (a total of \$1,709m over five years) is slightly lower than Icon Water's Revised Price Proposal (\$1,725m over five years). The \$16.4m difference overall is generated from differences in both the water and sewerage total revenue requirements.

The Commission's final decision on the total water revenue requirement is \$8.6m (0.9 per cent) lower and the sewerage services revenue requirement is \$7.8m (1.0 per cent) lower than Icon Water's Revised Price Proposal.

The Commission's final decision on the net revenue requirement, \$1,546m over five years, is \$17m lower than Icon Water's Revised Price Proposal of \$1,563m. This difference arises from the lower total revenue requirement, and rate of return applied to CSO payments and the adjustments for pass-through costs, as requested by Icon Water.

The Commission's final decision on the net revenue requirement includes revision to the pass-through forecasts for subvention payments in 2018–19 to include the adjustments between forecast and actual subvention payments in 2016–17 and 2017–18. The water and sewerage subvention payments are adjusted separately using 2018–19 values. The Commission's final decision on the net revenue requirement is shown in Table 7.10.

Table 7.10 The Commission's final decision net revenue requirement for water and sewerage services, 2018–23 (\$m, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23	Total
Water						
Total water revenue requirement	181.0	186.0	193.3	201.0	206.7	968.1
Sales to QPRC and other income	13.8	14.0	14.4	14.8	15.1	72.1
Subvention	0.9	1.1	1.2	1.2	1.2	5.7
CSO payments	1.8	1.8	1.8	1.8	1.8	9.0
Net water revenue requirement	164.6	169.0	175.9	183.3	188.5	881.3
Sewerage						
Total sewerage revenue requirement	136.6	142.6	148.2	154.0	159.3	740.8
Subvention	11.9	11.4	11.7	12.0	12.3	59.5
Other income	2.3	2.4	2.5	2.5	2.6	12.2
CSO payments	0.7	0.7	0.7	0.7	0.7	3.5
Net sewerage revenue requirement	121.7	128.1	133.3	138.8	143.7	665.6
Net revenue requirement	286.3	297.1	309.2	322.0	332.2	1,546.9

Source: Commission's calculations.

8 Forecast sales and installations

In order to price Icon Water’s water and sewerage services for the 2018–23 period, the Commission must determine Icon Water’s forecast water sales and the expected numbers of customer numbers and billable fixtures. Five important sets of figures need to be forecast: total water releases, billed water sales at Tier 1 and Tier 2, the number of water supply consumers, the number of sewerage service consumers, and the number of billable sewerage fixtures.

This chapter discusses observed data from the current regulatory period and the forecasting methods proposed by Icon Water. It then presents the Commission’s final decision on forecasting methodology together with forecast demand numbers.

The Commission’s final decision

Following detailed review, the Commission considers that Icon Water’s proposed forecasting methodology is reasonable. The Commission accepts Icon Water’s methodologies for forecasting water releases, water and sewerage installations and billable fixtures as proposed in Icon Water’s Price Proposal (2017). The forecast methodologies for Tier 1 and Tier 2 are accepted with a minor adjustment as described by the Commission in its 2017 draft decision and were adopted by Icon Water in its Revised Price Proposal (2018).

Table 8.1 shows the Commission’s final decision on the forecasts for water demand, water installations, sewerage installations, and billable fixtures. These forecasts used Icon Water’s methodologies and the latest available data as of April 2018, and have been confirmed by Icon Water as being an accurate representation of the output from Icon Water’s preferred demand model.

Table 8.1 The Commission’s final decision on water service demand forecasts, 2018–23

Year	Total water releases (GL)	Total billed water sales at Tier 1 (GL)	Total billed water sales at Tier 2 (GL)	No. of water consumers	No. of sewerage services consumers	No. of billable fixtures
2018–19	49.47	25.43	16.47	178,795	178,344	64,380
2019–20	49.91	25.79	16.41	182,083	181,609	65,377
2020–21	50.17	26.13	16.28	185,432	184,933	66,389
2021–22	50.67	26.51	16.31	188,842	188,318	67,417
2022–23	51.20	26.91	16.35	192,315	191,765	68,461

Sources: Commission’s calculations and Icon Water (2017a).

8.1 Forecast components

To price Icon Water’s water and sewerage services for the 2018–23 period, the Commission must forecast Icon Water’s water sales, numbers of consumers and numbers of fixtures. The essential demand forecast components and their uses are shown in Table 8.2.

Table 8.2 Essential demand forecast components for developing pricing for the forward regulatory period

Forecast	Use in pricing water and sewerage services
Total billed water sales at Tier 1	The forecast volume of water sold at Tier 1 prices is used to estimate total revenue from water sales in each year.
Total billed water sales at Tier 2	The forecast volume of water sold at Tier 2 prices is used to estimate total revenue from water sales in each year.
Total water releases	The volume of water releases is used to determine the allowance to be made for the ACT Government’s Water Abstraction Charge (WAC). Under the <i>Water Resources Act 2007 (ACT)</i> , an annual WAC is charged at a rate of \$0.60 per kilolitre (2018–19) for urban water usage. The total WAC paid is estimated using total water releases in each year and the charge rate in each year.
Total water supply consumers	The forecast number of water supply consumers is used to estimate total revenue from water supply charges in each year.
Total sewerage supply consumers	The forecast number of sewerage supply consumers is used to estimate total revenue from sewerage supply charges in each year.
Additional billable fixtures	The forecast number of additional billable fixtures is used to estimate total revenue from sewerage supply charges in each year.

Source: Commission.

As part of this review the Commission re-evaluated the forecasting methods for each demand component to ensure that the forecasts are reasonable and consistent with established best practice.

8.2 Submissions

8.2.1 Icon Water’s Price Proposal

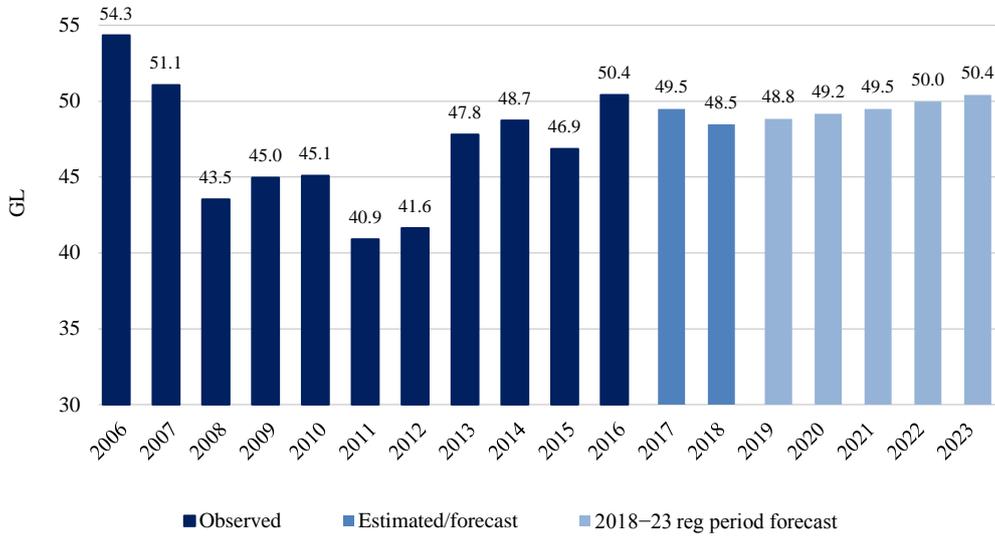
Water demand

Icon Water proposed the adoption of an ARIMA forecasting model for the 2018–23 regulatory period. The ARIMA model is a variant of a model previously proposed by the Commission for the 2013–18 regulatory period. The model uses daily dam release data together with up to 12 days of weather data and seasonal variation information to forecast daily demand. Daily dam releases under alternative climate scenarios (driest, dry, medium and wet) were estimated, and a simple average across the scenarios was used to forecast the total annual releases over the forward regulatory period.

The forecast annual water releases for 2018–23 are shown in Figure 8.1. Forecast demand data are provided in Figure 8.2, noting that these demand figures are obtained

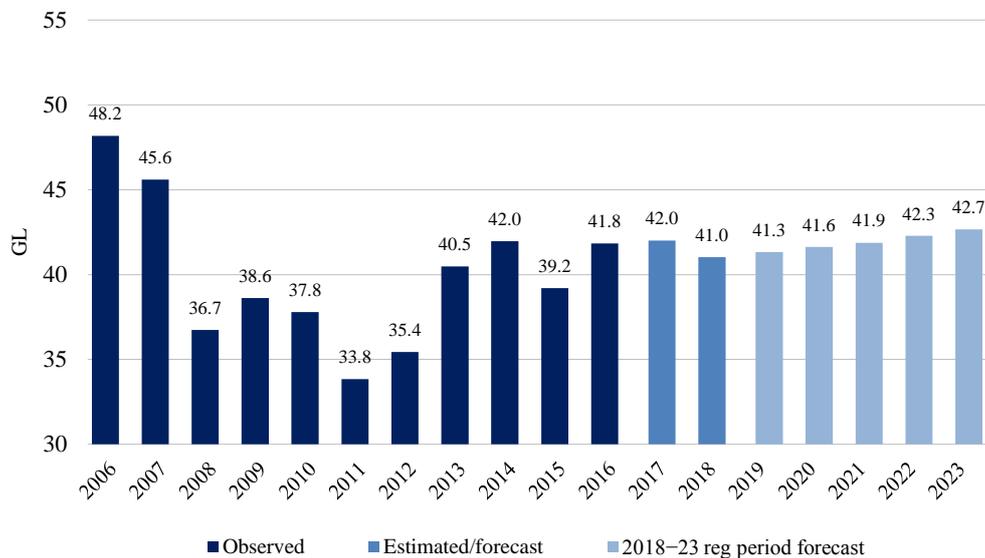
by applying the average of the historical ratio of billed consumption water sales to water releases of 84.6 per cent.

Figure 8.1 Icon Water’s Price Proposal for observed and forecast water releases, 2006–23



Source: Icon Water (2017a).

Figure 8.2 Icon Water’s Price Proposal for observed and forecast billed water sales, 2006–23



Source: Icon Water (2017a).

Icon Water’s Price Proposal presented the underlying theory, model selection process and test statistics associated with the ARIMA model. It provided evidence that Icon

Water's proposed ARIMA model is appropriately established and implemented; provides reliable results; and delivers greater forecast accuracy for the 2013–18 period than the Cardno model or the Commission's 2013 ARIMA model.

Tier 1 and Tier 2 sales

Icon Water's Price Proposal supported the adoption of the Commission's earlier method for forecasting Tier 1 and Tier 2 sales proportions. The method uses the observed relationship between annual average per capita water consumption and the allocation of sales between Tier 1 and 2. Using forecast per capita water consumption, the method allows estimation of water sales in each tier over the forward period.

Icon Water's Revised Price Proposal agreed with the Commission's draft decision to apply Icon Water's proposed methodology with a minor revision to exclude an irregular data point in estimation.¹⁷⁵

Consumer numbers and fixtures

Icon Water proposed to use the Industry Panel's method to forecast water and sewerage installations and billable fixtures. This method extends the observed annual growth rate over 2013–14 to 2017–18 (being 1.84 per cent for water installations, 1.83 per cent for sewerage installations, and 1.55 per cent for billable fixtures) to the forward regulatory period.

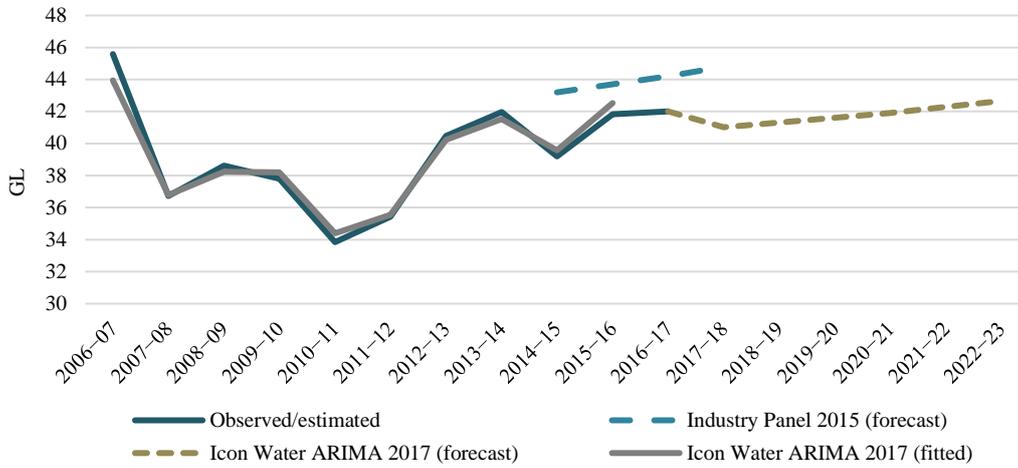
8.3 The Commission's draft decision

8.3.1 Water releases and water demand

The Commission's draft decision adopted Icon Water's proposed ARIMA model, rather than retain the Industry Panel model. The Commission replicated Icon Water's proposed ARIMA model and the Industry Panel's model. The evidence available at the time of the draft decision indicated that Icon Water's proposed ARIMA model provides a more accurate model for fitted and forecast values (see Figure 8.3).

¹⁷⁵ For details, see the Commission's draft decision in ICRC (2017b): 129–30.

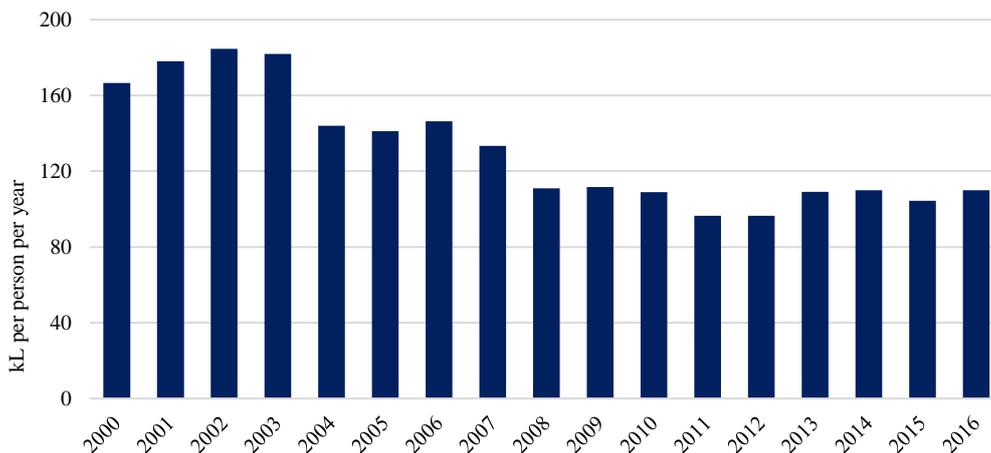
Figure 8.3 Comparison of actual water sales and Icon Water's ARIMA model and the Industry Panel's model forecast water sales



Source: Data from Icon Water (2017a).

The Industry Panel model consistently forecast higher water sales than were observed in the current regulatory period. This discrepancy might reflect an apparently lasting change to ACT consumers' water consumption patterns (see Figure 8.4). The change was not incorporated in the Industry Panel's model,¹⁷⁶ but was a change to which the ARIMA model specification appeared comparatively robust.

Figure 8.4 Long term change in ACT water consumption patterns as seen in dam releases per person, 2000-16



Source: Data from Icon Water (2017a).

¹⁷⁶ Icon Water, 2017a (Attachment 4): 18.

8.3.2 The Tier 1 proportion

The Commission's draft decision considered Icon Water's proposed approach for estimating Tier 1 sales. Icon Water proposed retaining the existing methodology, which the Commission found to be reasonable. The Commission's draft decision was to apply Icon Water's proposed method with a minor revision to exclude an irregular data point in estimation of the Tier 1 and Tier 2 proportions.

8.3.3 Consumer numbers and fixtures

The Commission considered Icon Water's proposed approach to be reasonable, and accepted the submitted method and forecast numbers for consumer numbers and fixtures. The draft decision on consumer numbers and fixtures is shown in Table 8.3.

8.3.4 The Commission's draft decision

The draft decision on forecast water releases, sales and consumer numbers is provided in Table 8.3.

Table 8.3 The Commission's draft decision on water service demand forecasts, 2018–23

Year	Total water releases (GL)	Total Tier 1 sales (GL)	Total Tier 2 sales (GL)	No. of water consumers	No. of sewerage consumers	Billable fixtures
2018–19	48.84	25.29	16.03	178,795	178,344	64,380
2019–20	49.18	25.65	15.97	182,083	181,609	65,377
2020–21	49.50	25.99	15.89	185,432	184,933	66,389
2021–22	49.97	26.37	15.91	188,842	188,318	67,417
2022–23	50.41	26.75	15.92	192,315	191,765	68,461

Sources: Commission's calculations and Icon Water (2017a).

In making its draft decision the Commission found Icon Water's proposed approach reasonable and the Commission accepted Icon Water's submitted method and forecast numbers for water releases and water demand.

The Commission's draft decision noted that the ARIMA model for demand forecasting does not integrate changing climate, policy and demographic projections. Given the potential for change in the climate, policy and demographic environments in the 2018–23 regulatory period, and given the evidence of potential model-misspecification, the Commission's draft decision was to review the method for forecasting water demand for the following regulatory period.

8.4 Submissions received on the draft report

Icon Water submitted a Revised Price Proposal in response to the Commission's draft decision. The Revised Price Proposal supported the Commission's draft decision on

forecast water releases, water sales and customer numbers. Icon Water supported the Commission’s amended calculation for the Tier 1 and Tier 2 proportions.

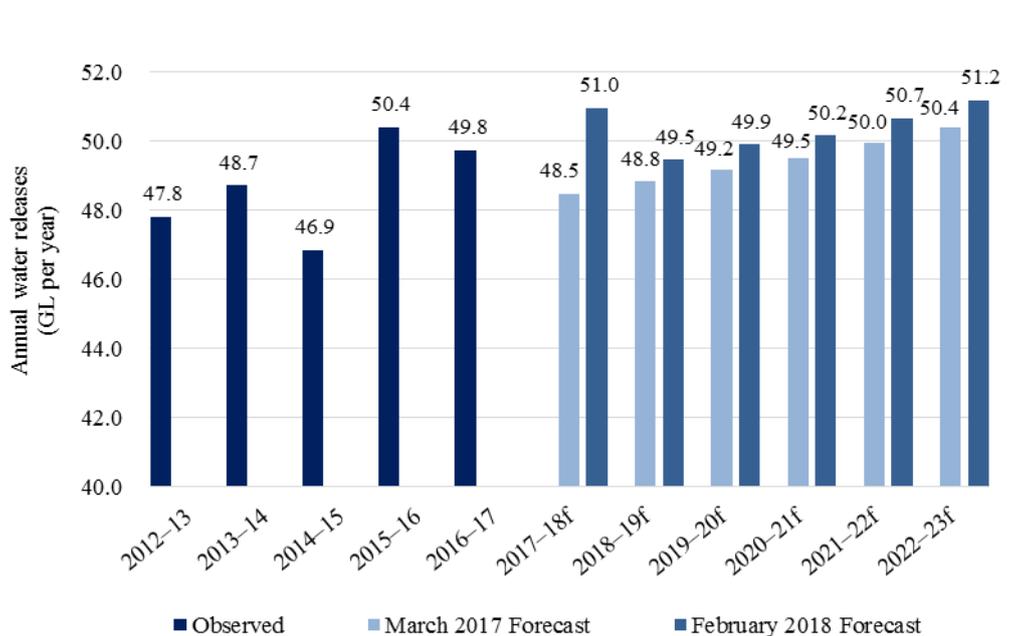
In subsequent communication, Icon Water provided updated forecasts for total water releases, Tier 1 and Tier 2 water sales. The updated forecasts reflected more recent data. Icon Water’s earlier forecast used actual consumption data up until 31 March 2017. The updated forecast used actual consumption up until 28 February 2018. The updated forecast is shown in Table 8.4. Figure 8.5 compares the earlier and revised forecast water releases for the 2017–18 to 2022–23 period.

Table 8.4 Icon Water’s updated demand forecast, 2018–23

Year	Total water releases (GL)	Total Tier 1 sales (GL)	Total Tier 2 sales (GL)
2018–19	49.47	25.43	16.47
2019–20	49.91	25.79	16.41
2020–21	50.17	26.13	16.28
2021–22	50.67	26.51	16.31
2022–23	51.20	26.91	16.35

Source: Icon Water (2018).

Figure 8.5 Icon Water’s revised forecasts for water releases 2017–18 to 2022–23



Source: Icon Water (2017a and 2018).

8.5 The Commission’s final decision

The Commission’s final decision is to accept Icon Water’s submitted method and revised forecast numbers for water releases and water demand, as given in Table 8.5.

Table 8.5 The Commission’s final decision on water service demand forecasts, 2018–23

Year	Total water releases (GL)	Total Tier 1 sales (GL)	Total Tier 2 sales (GL)	No. of water consumers	No. of sewerage consumers	Billable fixtures
2018–19	49.47	25.43	16.47	178,795	178,344	64,380
2019–20	49.91	25.79	16.41	182,083	181,609	65,377
2020–21	50.17	26.13	16.28	185,432	184,933	66,389
2021–22	50.67	26.51	16.31	188,842	188,318	67,417
2022–23	51.20	26.91	16.35	192,315	191,765	68,461

Sources: Commission’s calculations and Icon Water (2018).

The Commission notes the significant revisions to the forecast as a result of using an additional 11 months of data from April 2017 to February 2018; the period between submissions for Icon Water’s Price Proposal and Revised Price Proposal. The forecast water releases were increased by 1.3 per cent to 1.5 per cent in each year over the forward regulatory period. The updated forecast reflects the best and latest available information at the time of the Commission’s price inquiry. Icon Water has informed the Commission that the revised forecast water demand is a correct and accurate output from the demand forecasting model.

As noted in the Commission’s draft decision, the weighting of recent observations, and absence of leading indicators, creates the potential for substantial revisions to forecasts based on updated data. This may increase the risks associated with data timing and selection. The Commission views this as a potential weakness in the forecasting model.

The Commission’s final decision retains the draft decision, which is to undertake a review of the demand forecasting model. This final decision is supported by the recent revisions to the demand forecast following the draft decision. This review will be given effect through a future reset principle specified in the price direction.

9 Prices for water and sewerage services

This chapter presents the prices and price paths that have resulted from the price investigation. The Commission has followed the Terms of Reference and legislative framework as set out by the ICRC Act in conducting its investigation into water and sewerage service prices in the ACT. The outcome of the investigation process is the Commission's final decision on water and sewerage services prices for the 2018–23 period.

The Commission's final decision

The Commission's final decision on water tariffs for 2018–23, alongside Icon Water's Price Proposal, are shown in Table 9.1.

Table 9.1 Icon Water's Price Proposal and the Commission's final decision on water tariffs, 2018–23

	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water's Price Proposal					
Supply charge (\$/pa)	120.00	140.00	160.00	180.00	200.00
Tier 1 price (\$/kL)	2.73	2.76	2.79	2.81	2.84
Tier 2 price (\$/kL)	4.95	4.95	4.95	4.95	4.95
Commission's final decision					
Supply charge (\$/pa)	120.00	140.00	160.00	180.00	200.00
Tier 1 price (\$/kL)	2.43	2.45	2.48	2.50	2.52
Tier 2 price (\$/kL)	4.88	4.93	4.97	5.02	5.07

Note: Actual charges payable from 2019–20 to 2022–23 could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission's calculations and Icon Water (2017a).

The Commission's final decision on sewerage services tariffs for 2018–23, alongside Icon Water's Price Proposal are shown in Table 9.2.

Table 9.2 Icon Water's Price Proposal and the Commission's final decision on sewerage service tariffs, 2018–23 (\$, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water's Price Proposal					
Sewerage Charge (\$/pa)	541.84	546.39	550.97	555.59	560.24
Sewerage Fixtures (\$/pa)	529.92	534.36	538.84	543.35	547.91
Commission's final decision					
Sewerage services charge	531.19	531.20	531.20	531.21	531.21
Sewerage fixtures	519.50	519.50	519.51	519.51	519.52

Note: Actual charges payable from 2019–20 to 2022–23 could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission's calculations and Icon Water (2018).

The Commission's final decision reflects the following:

- The regulatory objectives, as detailed in Chapter 1.
- The form of regulation, as detailed in Chapter 2.
- Operating and capital expenditure, as detailed in Chapters 3 and 4.
- The RAB and depreciation allowances, as detailed in Chapter 5.
- The rate of return and tax liability allowance, as detailed in Chapter 6.
- The total revenue allowance, as detailed in Chapter 7.
- Forecast sales and installations, as detailed in Chapter 8.

The calculation of water and sewerage service prices follow as outcomes of the decisions made in the previous chapters. The building block calculation method followed by Icon Water and the Commission means that the prices shown are outcomes of decisions.

9.1 Final decision on water and sewerage services tariffs 2018–23

9.1.1 Final water price path and tariff structure

The Commission's final decision details a price path for water services. Table 9.3 compares the price path proposed in Icon Water's June 2017 Price Proposal and the Commission's final decision. For the water tariff the Commission's final decision is:

- Accept Icon Water’s proposal to retain the existing water tariff structure with a fixed supply charge and a two-tier inclining block usage charge for the next regulatory period.
- Accept Icon Water’s proposal to increase the fixed supply charge in a gradual manner by \$20 a year to \$200 by 2022–23.
- Accept Icon Water’s proposal to adjust the Tier 1 usage price for changes in the CPI and any pass-through amounts approved as part of the annual price reset mechanism during the next regulatory period.
- Accept Icon Water’s proposal to decrease the current Tier 2 usage price, however decrease Tier 2 usage price by the same proportion as the Tier 1 usage price rather than adopt a fixed nominal value.

The Commission’s final decision is not to adopt Icon Water’s proposal to retain a fixed nominal Tier 2 water usage rate (\$4.95 per kL). The Commission’s final decision is to decrease Tier 1 and Tier 2 usage rate by the same proportion between 2017–18 and 2018–19, and adjust by the same CPI and pass-through amounts in each year after that.

The Commission has adopted Icon Water’s proposed smoothing factor in the price path calculation for 2018–19 to 2022–23. This factor acts to smooth price changes for consumers during the regulatory period and is set to negative 1.52 per cent. This smoothing factor is applied to both Tier 1 and Tier 2 usage charges.

Current water prices, prices from Icon Water’s Price Proposal and the Commission’s final decision on the prices for the first year of the forward regulatory period are shown in Table 9.4. The current water prices were the outcome of the 2015 Industry Panel substituted price direction and expire in June 2018. Icon Water’s Price Proposal included proposed tariffs and charges for the 2018–23 period. The impact on consumers of the tariff changes are described and analysed in greater detail in Chapter 10.

Table 9.3 Icon Water's Price Proposal and the Commission's final decision on standard water tariffs, 2018–23 (\$, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water's Price Proposal					
Supply charge (\$/pa)	120.00	140.00	160.00	180.00	200.00
Tier 1 price (\$/kL)	2.73	2.76	2.79	2.81	2.84
Tier 2 price (\$/kL)	4.95	4.95	4.95	4.95	4.95
Commission's final decision					
Supply charge (\$/pa)	120.00	140.00	160.00	180.00	200.00
Tier 1 price (\$/kL)	2.43	2.45	2.48	2.50	2.52
Tier 2 price (\$/kL)	4.88	4.93	4.97	5.02	5.07

Note: Actual charges payable could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission's calculations and Icon Water (2017a).

Table 9.4 Comparison of current water prices, prices from Icon Water's Price Proposal and the Commission's final decision (\$, nominal)

Water prices	Current prices, 2017–18	Icon Water Price Proposal, 2018–19	Commission's final decision, 2018–19
Supply charge (\$/pa)	104.21	120.00	120.00
Tier 1 price (\$/kL)	2.68	2.73	2.43
Tier 2 price (\$/kL)	5.38	4.95	4.88

Sources: Commission's calculations and Icon Water (2017a).

9.1.2 Final sewerage services price path and tariff structure

The final decision retains the existing sewerage services tariff structure, comprising a fixed supply charge for residential premises and the same fixed supply charge plus an additional annual charge for flushing fixtures in excess of two for non-residential consumers.

In determining its proposed price path for each component of the sewerage services tariff structure from 2018–19 to 2022–23, the Commission accepted Icon Water's proposal to include a smoothing factor in the price setting formula. The factor has a mathematical function in smoothing price changes for consumers during the regulatory period and is set to negative 2.44 per cent. The same smoothing factor is applied to both the sewerage services charge and sewerage fixture charge.

The Commission's final decision on the 2018–19 sewerage services charge and the sewerage fixtures charge are set at \$531.19 and \$519.50 respectively.

Table 9.5 shows the Commission’s final decision has lower sewerage service prices than were proposed by Icon Water. The difference reflects the Commission’s final decision on Icon Water’s total revenue requirement, as detailed in Chapters 3 to 7.

Table 9.5 Icon Water’s Price Proposal and the Commission’s final decision on sewerage services tariffs, 2018–23 (\$, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Icon Water’s Price Proposal					
Sewerage services charge (\$/pa)	541.84	546.39	550.97	555.59	560.24
Sewerage fixtures (\$/pa)	529.92	534.36	538.84	543.35	547.91
Commission’s final decision					
Sewerage services charge (\$/pa)	531.19	531.20	531.20	531.21	531.21
Sewerage fixtures (\$/pa)	519.50	519.50	519.51	519.51	519.52

Note: Actual charges payable could differ from the indicative charges in this table if actual inflation differs from forecast inflation or if the cost pass-through mechanism is triggered.

Sources: Commission’s calculations and Icon Water (2017a).

The current sewerage services prices, Icon Water’s proposed prices 2018–19 and the Commission’s final decision on 2018–19 prices are shown in Table 9.6.

Table 9.6 Comparison of current sewerage services prices, prices from Icon Water’s Price Proposal and the Commission’s final decision (\$, nominal)

	Current prices, 2017–18	Icon Water’s Price Proposal, 2018–19	Commission’s final decision, 2018–19
Sewerage services charge (\$/pa)	537.34	541.84	531.19
Sewerage fixtures (\$/pa)	525.51	529.92	519.50

Sources: Commission’s calculations and Icon Water (2018).

The immediate impact of the Commission’s final decision on water and sewerage services prices will be a slight reduction in the total annual bill of a typical household. The impacts of changes in water and sewerage services tariffs over the entire forward period and on other consumers are described and analysed in Chapter 10.

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

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

The Commission's final decision

The Commission's final decision on regulated water and sewerage services prices for 2018–23 is likely to have a modest impact on ACT consumers.

- *Indicative effects on residential consumers.* Under the Commission's final decision, a typical household consuming 200kL a year will see a decrease in its annual combined water and sewerage services bill of \$42 or 3.5 per cent in 2018–19. This typical household will pay \$1,257 for its annual combined bill in 2022–23, an increase of \$99 or 8.6 per cent over the five years from 2018–19. Following the Commission's final decision, the 2022–23 combined bill is \$14 lower than under Icon Water's Revised Price Proposal.
- *Indicative effects on non-residential consumers.* The final decision is expected to decrease combined water and sewerage bills from 2017–18 to 2018–19. Over the five year period 2018–19 to 2022–23 combined water and sewerage services bills will increase between 0.8 and 3.6 per cent, depending on usage. Over the same period Icon Water's Revised Price Proposal indicated combined bill increases ranging from 0.4 per cent to 3.1 per cent, depending on usage.

Due to the form of regulation outlined in Chapter 2, the Commission notes that indicative customer bills between 2019–20 and 2022–23 may vary from actual if inflation differs from the expected 2.5 per cent a year and there are material changes in Icon Water's non-controllable costs.

In finalising its final decision, the Commission assessed the indicative impacts of its pricing decisions on ACT consumers, general price inflation and Icon Water's financial sustainability.

10.1 Impacts on consumers

10.1.1 Residential consumers

To assess the indicative effects of its final decision on residential consumers, the Commission examined the average annual bills payable by residential consumers with varying consumption levels.

Table 10.1 presents the estimated combined water and sewerage services bills for residential consumers at different consumption levels.

Table 10.1 Indicative impacts on residential water and sewerage services bills (\$, nominal)

Water consumption (kL/year)		2017–18	2018–19	2019–20	2020–21	2021–22	2022–23
50	(\$/year)	776	773	794	815	836	857
	Percentage change		-0.4	2.7	2.7	2.6	2.5
100	(\$/year)	910	894	917	939	961	984
	Percentage change		-1.7	2.5	2.4	2.4	2.3
150	(\$/year)	1,044	1,016	1,039	1,063	1,086	1,110
	Percentage change		-2.6	2.3	2.3	2.2	2.2
200	(\$/year)	1,200	1,158	1,183	1,208	1,232	1,257
	Percentage change		-3.5	2.1	2.1	2.1	2.0
250	(\$/year)	1,447	1,382	1,409	1,435	1,463	1,490
	Percentage change		-4.5	1.9	1.9	1.9	1.9
300	(\$/year)	1,716	1,626	1,655	1,684	1,714	1,743
	Percentage change		-5.2	1.8	1.8	1.7	1.7
400	(\$/year)	2,254	2,114	2,148	2,182	2,216	2,250
	Percentage change		-6.2	1.6	1.6	1.6	1.5
500	(\$/year)	2,792	2,602	2,641	2,679	2,718	2,757
	Percentage change		-6.8	1.5	1.5	1.4	1.4
750	(\$/year)	4,137	3,823	3,872	3,923	3,973	4,024
	Percentage change		-7.6	1.3	1.3	1.3	1.3

Note: Customer bills 2019–20 to 2022–23 may vary from expected if inflation differs from the expected 2.5 per cent a year and there are material changes in Icon Water's non-controllable costs that would trigger a pass-through during the next regulatory period. Source: Commission's calculations.

A typical household consuming 200kL a year will see a decrease in its annual bill of 3.5 per cent (approximately \$42) in 2018–19 compared with 2017–18. In 2022–23 a typical household will pay \$1,257 for its annual combined bill, an increase of \$99 from

2018–19. For the same household, under Icon Water’s June 2017 Price Proposal the 2022-23 combined bill would be \$1,346 or \$89 more than the Commission’s final decision.

Under the Commission’s final decision, the average annual increase of the combined water and sewerage services bill for a household consuming 200kL a year during the regulatory period is 2.1 per cent. This rate of increase is below the expected rate of inflation (2.5 per cent) and thus the cost of water and sewerage services is expected to decline in real terms by 1.7 per cent over the 2018–23 period.

10.1.2 Comparison with bills payable in other jurisdictions

As a result of the Commission’s final decision, the combined water and sewerage services bills payable by residential consumers in the ACT will be lower than the average of comparable jurisdictions.

Table 10.2 provides a comparison of annual water and sewerage services bills for a residential consumer consuming 200kL of water a year for a number of 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 10.2 Comparison of combined water and sewerage services bills of Australian water utilities, assuming residential consumer with 200kL a year consumption (\$, nominal)

	Actual (2017–18)	Estimates (2018–19)	Notes
Sydney Water	1,096	1,132	d
Barwon Water	1,097	1,124	a,c
Hunter Water	1,130	1,185	d
SA Water (Adelaide)	1,149	1,177	a,c
TasWater	1,166	1,214	b
Icon Water	1,200	1,158	
South East Water	1,243	1,152	a,c
City West Water	1,270	1,301	a,c
Average	1,276	1,285	
Yarra Valley Water	1,392	1,311	b,c
Queensland Urban Utilities	1,487	1,524	a
Unitywater – Moreton Bay	1,811	1,857	a

Notes: a Indexed assuming inflation of 2.5 per cent from 2017–18. b: Based on Draft Determination. c: Victorian Government rebate applied but not parks or waterways charge. d: 2018–19 figures based on IPART determination (in 2015–16 values) adjusted by the CPI by the Commission.

Sources: Commission’s calculations and utility and regulator websites.

10.1.3 Non-residential consumers

Table 10.3 shows 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.

Annual bills for non-residential customers will fall by between 1.8 and 8.7 per cent in 2018–19 compared to 2017–18, depending on water usage and the number of billable fixtures.

Indicative bill increases for non-residential consumers over the period 2018–23 range from 0.8 per cent to 3.6 per cent, depending on water usage and the number of billable fixtures. Over the same period Icon Water’s February 2017 Revised Price Proposal indicated combined bill increases ranging from 0.4 per cent to 3.1 per cent, depending on usage.

Table 10.3 Indicative impacts on non-residential water and sewerage services bills (\$, nominal)

Annual water usage (kL)	No. of billable fixtures	2018–19	2019–20	2020–21	2021–22	2022–23	Change between 2017–18 and 2018–19	Change between 2018–19 and 2022–23
							(per cent)	(per cent)
1,000	10	10,238	10,299	10,361	10,424	10,486	-4.64	2.4
	50	31,018	31,080	31,142	31,204	31,267	-2.33	0.8
	100	56,993	57,055	57,117	57,180	57,243	-1.79	0.4
2,500	10	17,561	17,691	17,823	17,955	18,089	-6.62	3.0
	50	38,341	38,471	38,603	38,736	38,870	-3.73	1.4
	100	64,316	64,446	64,578	64,711	64,845	-2.70	0.8
7,000	10	39,530	39,867	40,207	40,551	40,897	-8.11	3.5
	50	60,309	60,647	60,987	61,331	61,678	-5.82	2.3
	100	86,284	86,622	86,963	87,307	87,654	-4.46	1.6
15,000	10	78,585	79,290	80,002	80,720	81,445	-8.68	3.6
	50	99,365	100,070	100,782	101,500	102,225	-7.20	2.9
	100	125,339	126,045	126,757	127,476	128,201	-6.01	2.3

Source: Commission’s calculations.

10.2 Impacts on inflation

Under Section 20(2)(j) of the ICRC Act, the Commission is required to consider the effects of changes in water and sewerage services bills on general price inflation. The

Commission assessed general inflationary effects by replicating the methodology adopted by the Industry Panel.¹⁷⁷

As reported by the Australian Bureau of Statistics, water and sewerage services costs in Canberra contribute 0.03 per cent towards the weighted average of the general CPI (all groups, eight capital cities) in Australia.¹⁷⁸ The Commission estimates that the approximate annual impact of its final decision on general price inflation in Australia is -0.0003 per cent.¹⁷⁹

The Commission considers an estimated annual -0.0003 per cent contribution by water and sewerage services prices in Canberra to have no material effect on general price inflation in Australia.

10.3 Impacts on Icon Water's financial viability

In arriving at its final decision the Commission had regard to matters set out in the ICRC Act. Section 20(2) of the Act requires the Commission to ensure the ongoing financial viability of Icon Water. The Terms of Reference also require the Commission to consider appropriate mechanisms for ensuring the recovery of the prudent and efficient costs of Icon Water during the regulatory period.

The Commission determined regulated water and sewerage services prices for the 2018–23 regulatory 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 in that 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, the Commission estimated the impact of its final decision on Icon Water's financial position during the 2018–23 regulatory period. A financial viability test was conducted by calculating a selection of financial ratios for Icon Water from 2018–19 to 2022–23. These selected financial ratios are those used by the Industry Panel in assessing Icon Water's financial viability for the current regulatory period and are similar to those used by authorities such as the ESC and IPART in their recent decisions¹⁸⁰:

¹⁷⁷ It has also been the approach adopted by IPART in similar assessments (IPART, 2016: 193).

¹⁷⁸ ABS, 2017.

¹⁷⁹ $0.03 \text{ per cent} \times -1.0 \text{ per cent} = -0.0003 \text{ per cent}$.

¹⁸⁰ Industry Panel, 2015a: 120.

- Funds from operations (FFO) interest cover ratio, which provides an indication of Icon Water’s ability to make interest payments.
- Net debt gearing ratio, which measures the proportion of Icon Water’s overall regulatory capital structure that is made up by debt, and provides an indication of its ability to repay its debt (or increase borrowings in the short term if required).
- FFO to net debt ratio, which provides an indication of whether Icon Water’s debt servicing ability is improving, remaining stable or declining.
- Retained cash flow to capital expenditure ratio, which provides an indication of Icon Water’s ability to finance a prudent portion of capital expenditure after paying dividends.

Although regulated water service providers are typically financed through a mixture of debt and equity, in practice regulators have primarily focused on debt-related financial viability assessments. This is a reasonable approach considering that debt is typically sourced from external markets, must be periodically refinanced, and must be provided on the basis of the maintenance of a specified credit rating.¹⁸¹

Table 10.4 shows the financial ratios used by the ESC and IPART in their most recent decisions. Table 10.4 also provides figures from NERA Economic Consulting which the Industry Panel adopted as reference levels for assessing Icon Water’s financial viability.

Table 10.4 Target level of financial ratios

	ESC	IPART	NERA
Target credit rating	Not Stated	Baa2	Ba
FFO interest cover	>1.5	1.7 to 2.5	1.8 to 2.5
Net debt gearing ratio (per cent)	<70	60 to 91	70 to 85
FFO to net debt (per cent)	>10	6 to 10	6 to 10
Retained cash flow to capital expenditure	>0.35	Not stated	0.5 to 1.0

Source: Industry Panel (2015) data.

For this price investigation, the Commission’s final decision is to adopt the target levels as recommended by the Industry Panel. **Error! Reference source not found.** presents estimated financial ratios for Icon Water together with the Industry Panel’s recommended targets.

¹⁸¹ NERA, 2013: 5.

Table 10.5 Estimated financial ratios for Icon Water

	Industry Panel target	2018–19	2019–20	2020–21	2021–22	2022–23
FFO interest cover	>1.8	2.2	2.3	2.4	2.4	2.4
Net debt gearing ratio (per cent)	<85.0	53.3	50.0	49.6	49.6	50.5
FFO to net debt (per cent)	>6.0	5.9	6.6	6.8	6.8	6.8
Retained cash flow to capital expenditure	>0.5	0.5	0.5	0.6	0.9	0.8

Sources: Commission's calculations and Industry Panel (2015).

The impacts of the Commission's 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 is lower in the first year of the regulatory period but returns to adequate coverage in the years following.

In considering the impact of its proposed prices on its financial viability, Icon Water presented financial ratios similar to those estimated by the Commission for its final decision, with the estimated retained cash flow to capital expenditure ratio marginally below the target minimum ratio.

Different regulators and credit rating agencies have given differing weights to the aforementioned financial ratios in their analyses.¹⁸² For instance, IPART considers the FFO interest cover and the net debt to RAB ratios as more significant than others.¹⁸³ According to the ESC, the FFO interest cover is the most important indicator.¹⁸⁴ Moody's prefers FFO interest cover and net debt to RAB over other ratios.¹⁸⁵ In the ESC's view, utility businesses are not expected to achieve all financial ratio benchmarks in every year of the regulatory period.

On the basis of the established regulatory practice, the Commission's final decision is 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. This decision is made in view of the Commission's expectation that Icon Water will exceed all other important financial health indicators, as recommended by other regulators and credit rating agencies, during the forward period.

The Commission is satisfied that its final decision on water and sewerage services prices and the price path for the 2018–23 regulatory period are consistent with Icon Water's continued financial viability.

¹⁸² Industry Panel, 2015a: 121.

¹⁸³ IPART, 2013b: 11.

¹⁸⁴ ESC, 2013: 34.

¹⁸⁵ Industry Panel, 2015a: 121 and Moody's, 2009.

11 Incentive mechanisms

This chapter discusses the potential to introduce incentive schemes for Icon Water during the 2018–23 regulatory period. It identifies key issues that need to be addressed in ensuring that effective incentive schemes are developed and implemented for Icon Water.

The Commission’s final decision

Icon Water’s Price Proposal did not support the introduction of incentive schemes relating to service standards, capital expenditure or operating expenditure.

The Commission’s final decision is to continue to implement existing incentive mechanisms (see the discussion of Deadbands section 2.2) and to further review the potential for implementing such schemes for Icon Water’s operating expenditure, capital expenditure and service levels during 2018–23. This review will be given effect through a future reset principle specified in the price direction.

11.1 Context

The Terms of Reference require the Commission to consider the potential for future implementation of incentive schemes for the operating expenditure, capital expenditure or service levels of Icon Water.

The Commission has a longstanding record of implementing incentive mechanisms, notably the use of deadbands as a risk-sharing mechanism (section 2.3). The Commission’s final decision was to maintain the current form of end-of-period demand volatility adjustment mechanism during the forward regulatory period.

The Commission’s framework for the effective regulation of a natural monopoly entity, such as Icon Water, requires the setting of prices that reflect the prudent and efficient costs incurred in delivering the regulated services and meeting specified service standards. Currently, the Icon Water’s costs and service delivery are evaluated by the Commission as part of the five yearly regulatory process.

Incentive-based regulation is central to the regulatory decisions of a number of Australian regulators, including the AER, ESC and IPART. Across Australia, incentive schemes are variously applied for operational expenditure, capital works expenditure, service standards and customer engagement. These incentive schemes set financial rewards and penalties linked to targeted outcomes.

Standard regulatory arrangements have the potential to create a distortion with respect to the timing of efficiency initiatives. A regulated business may have an incentive to reduce operating or capital expenditure below allowed expenditure in the early part of a regulatory period because the savings (and resulting higher profits) are retained until the end of the regulatory period. But the regulated business will often have an incentive to defer potential savings near the end of a regulatory period to the next regulatory period because it will then retain the savings (and higher profits) for the whole regulatory period; in contrast, savings made at the end of the regulatory period will reduce allowed expenditure in the next regulatory period, passing on the savings to consumers. This is known as the ‘periodicity of incentives problem’.

Some Australian regulators have implemented efficiency carryover mechanisms to provide continuous incentives for efficiency in capital and operating expenditure. A carryover scheme allows the firm to retain a fixed percentage of any cost savings, irrespective of when the efficiency gain is initiated. This is done by adding a carryover component as one of the building blocks when establishing the efficient cost base for the next period. This carryover amount reflects the additional income the firm would have retained had the cost allowance not been reset at the end of the regulatory period.

In general, incentive-based regulation seeks to encourage regulated businesses to pursue efficiency improvements that benefit both the business and consumers.

11.2 Options

Two key Australian examples of implementing incentive schemes are the approaches adopted by IPART in NSW for urban metropolitan water businesses and by the AER for electricity transmission and distribution network service providers (NSPs).

11.2.1 IPART’s incentive scheme for Sydney Water

Service performance incentive measures

IPART is responsible for regulating the performance of urban water utilities in NSW according to standards (output measures) specified in their operating licenses.¹⁸⁶ In the 2016 price regulation determination for Sydney Water, IPART revised the performance measures to reflect the nature of Sydney Water’s capital program. A list of output measures for the current determination period is provided in Appendix G of the IPART final decision.¹⁸⁷ The output measures largely relate to various targets for asset renewal.

IPART’s guidelines for water agency submissions to a pricing review specify that regulated agencies should report on their performance over the current determination

¹⁸⁶ IPART, 2015a and 2016a, b.

¹⁸⁷ IPART, 2016a: 282.

period, including various measures of service levels, complaints, revenue, connections, operating expenditure and capital expenditure.¹⁸⁸

IPART's output measures for service standards are not linked directly to financial rewards or penalties, but rather provide information for assessing the efficiency of expenditure.

Operating expenditure efficiency benefit sharing scheme

IPART established an efficiency benefit sharing scheme for Sydney Water¹⁸⁹ to manage the periodicity of incentives problem:¹⁹⁰

- The scheme applies to controllable operating expenditure (defined as total operating expenditure less bulk water costs covering 70 per cent of total operating expenditure for regulated services). There are separate cost pass-through mechanisms that apply to defined non-controllable costs.
- The scheme is asymmetric in that it does not allow automatic sharing of permanent cost increases, as this is considered to be in the long-term interests of consumers.
- Temporary over- and under-spends within budget are treated symmetrically and not passed on to consumers.
- The scheme does not apply to capital expenditure, reflecting concerns about the risk of incentives to over-forecast and inefficiently defer capital expenditure, limited opportunities for efficient trade-offs between operating and capital expenditure, and complexity.
- The scheme is designed to apply to the four years preceding its application (three years for the first application). This means that the value of a permanent efficiency gain is allowed to be retained for four years regardless of when it is realised.¹⁹¹

11.2.2 AER incentive schemes

Service target performance incentive scheme

The AER applies a service target performance incentive scheme to NSPs that aims to encourage improvement or maintenance of the performance of their electricity distribution and transmission networks. This is achieved by linking service providers' allowed revenues to their performance against defined service-level measures.

¹⁸⁸ IPART, 2015a: 5–7.

¹⁸⁹ IPART, 2016a: 53–60.

¹⁹⁰ IPART, 2016a: 53–55.

¹⁹¹ This gain can be measured in terms of the share of the permanent present value gain that is realised, which depends on the gain and a discount rate. The share of the gain increases as the discount rate increases since future gains are worth less relative to gains for the first four years. For a four-year holding period and a 5.3 per cent discount rate, the share of the present value of a permanent efficiency gain is approximately 18 per cent (IPART, 2015b: 86).

Different measures of performance and service standards apply to distribution and transmission businesses.

When the AER first introduced the scheme in 2007, it was based on the service standards guidelines developed by the Australian Competition and Consumer Commission (ACCC). Those guidelines were designed to address the incentives provided to transmission NSPs under a revenue cap to reduce operating expenditure at the expense of service quality, by linking transmission service providers' allowed revenues to their performance against defined service-level measures.

The scheme has since undergone three major rounds of amendments. The latest version of the scheme for transmission NSPs has three main components:

- A service component, with performance measures covering the frequency of unplanned outages and the duration of these events. This can lead to a maximum reward or penalty worth 1.25 per cent of the maximum allowable revenue.
- A market-impact component, which provides an incentive to reduce the impact of planned and unplanned outages on wholesale market outcomes. This has a maximum reward of one per cent of the maximum allowable revenue.
- A network-capability component, which encourages NSPs to undertake low-cost projects that deliver improvements in network capability, availability or reliability. This has a maximum reward of 1.5 per cent of the maximum allowable revenue, and there are penalties if improvement targets are not met (up to a maximum of 3.5 per cent of the maximum allowable revenue).¹⁹²

The rewards and penalties are based on estimates of consumers' willingness to pay for service and reliability improvements.

Efficiency benefit sharing schemes

The AER has implemented operating expenditure and capital expenditure efficiency incentive schemes for both transmission and distribution NSPs. Both the operating and capital expenditure schemes still apply to transmission NSPs and the capital expenditure scheme still applies to distribution NSPs. The operating expenditure scheme for distribution NSPs was recently replaced by a more comprehensive use of benchmarking.¹⁹³

The efficiency benefit sharing scheme (EBSS) for operating expenditure was designed to provide continuous incentives for NSPs to pursue efficiency and to share efficiency gains and losses between NSPs and consumers.

¹⁹² AER, 2015a.

¹⁹³ AER, 2015b: 47.

Similar to IPART's scheme for Sydney Water, the AER's EBSS has an incremental rolling mechanism whereby NSPs retain a share of 'incremental' efficiency gains and losses for a fixed period (known as the carryover period and typically equal to the length of the regulatory period of five years). The unused carryover amounts are added into the NSP's allowed revenue for the next regulatory period.

This mechanism ensures that NSPs retain a fixed percentage of any efficiency gains in net present value terms, regardless of the nature of the operating expenditure reduction (that is, one-off or recurrent) and the time when the efficiency gain occurs. Thus, NSPs are provided with continuous incentives to pursue efficiency in operating expenditure. The EBSS operates on a symmetric basis in the sense that both over- and under-performance are shared between NSPs and their consumers.

The EBSS is linked to the AER's approach for setting the operating expenditure allowance, which is usually the revealed-cost approach. With the revealed-cost approach, the AER uses actual operating expenditure in a base year (either the penultimate or the final year of the previous regulatory period) as a starting point for forecasting operating expenditure. This actual operating expenditure is then adjusted downwards for any past inefficient costs (if identified) and scaled to reflect forecast changes in input costs, productivity and output growth in order to establish a cost benchmark.

The AER argues that actual operating expenditure from the previous period would be an appropriate efficient benchmark if the regulated firm had operated under an effective incentive framework (such as the EBSS) and had behaved in a profit-maximising manner.¹⁹⁴ If adjustments are made to actual operating expenditure, this implies that the incentive framework was not fully effective (for example, there are distortions affecting the company's decision-making). The Commission notes that the effectiveness of the incentive framework should encompass the extent to which the firm behaves in a profit-maximising manner.

The efficiency incentives are designed to encourage the NSPs to reduce their operating expenditure allowances by identifying and implementing efficiencies (hence earning additional profits) and ensuring they can retain the additional profits.

The capital expenditure sharing scheme

The EBSS for operating expenditure was first introduced by the AER in 2007, but there was no similar scheme for capital expenditure. This provided incentives for NSPs to favour capital expenditure solutions and to misclassify operating expenditure as capital expenditure, since they would gain from the scheme for operating expenditure whilst simultaneously receiving a return on and a return of capital for their actual capital expenditure. NSPs also faced the incentive to delay implementing efficiencies in their capital expenditure. In addition, while an NSP would incur additional financing

¹⁹⁴ AER, 2015a: 15.

costs if it overspent the capital expenditure allowance, actual capital expenditure would automatically be rolled into the RAB at the end of the regulatory period without being subjected to any ex post assessments.¹⁹⁵

In 2012 the AEMC made a number of changes to the National Electricity Rules in response to these issues.¹⁹⁶ The changes gave the AER the following responsibilities:

- Develop a capital expenditure sharing scheme (CESS) to provide greater incentives to incur efficient capital expenditure.
- Undertake ex post efficiency reviews of actual capital expenditure, including the ability to preclude inefficient capital expenditure from being rolled into the RAB.

The AER has since developed CESS guidelines and a new ex post test that will apply to an NSP's actual capital expenditure.¹⁹⁷ These measures were introduced for all NSPs in 2016.

Similar to the AER's EBSS, the CESS is an application of an efficiency carryover scheme for operating expenditure. Under the EBSS, NSPs retain any incremental efficiency gains or losses for a fixed period via carryover payments. But the exact share of the present value of permanent benefits retained by NSPs under an EBSS will depend on the value of the discount rate (WACC) used to calculate the present value as well as the carryover period.

In contrast, the CESS operates on a fixed-sharing basis. At the end of each regulatory period a sharing ratio of 30 per cent is applied to the value of the cumulative capital expenditure underspend or overspend to determine the NSP's share that can be retained or paid for by the NSP (the scheme is symmetric). A capital expenditure sharing scheme payment is calculated; it can be positive or negative depending on whether there is underspending or overspending. The payment also takes account of the net benefit the NSP has already earned, or net cost already incurred, in the regulatory period. This amount is added to or deducted from the next period's allowed revenue.

Under the CESS, consumers are better off where the RAB is lower due to efficient underspending of a capital allowance (since it results in a lower return on and return of capital in the future). In addition, as both the CESS and EBSS have approximately the same sharing ratio of 30 per cent (given a six per cent real WACC), there are limited incentives for the NSP to prefer one type of expenditure to the other.

The AER's CESS also makes adjustments to remove the incentive to inefficiently defer capital expenditure. Without such an adjustment, a business can gain an advantage from the financing benefit (return on and return of capital) associated with the difference between forecast capital expenditure and lower actual expenditure in the

¹⁹⁵ AER, 2013d.

¹⁹⁶ AEMC, 2012: v.

¹⁹⁷ AER, 2013c, d.

current regulatory period while still being compensated when the deferred capital expenditure actually occurs.

To calculate the CESS payment, the AER estimates the present value of the underspend in the current regulatory period; the present value of any material increase in forecast capital expenditure in the next regulatory period, as a result of a material deferral; and the present value of the financing benefits during the regulatory control period. It then calculates the CESS payments to be made to or paid by the regulated NSP as follows:

$$\text{CESS payments} = 30 \text{ per cent} \times (\text{NPV of underspend in period } n - \text{NPV of forecast marginal increase in capex in period } n+1 \text{ from capex deferred in period } n) - \text{financing benefits received in period } n.^{198}$$

This approach means that the NSP will still retain 30 per cent of the estimated present value of the short-term deferral.¹⁹⁹

The calculation of the payment when there is no deferral is simply 30 per cent of the NPV of an underspend, after deducting the NPV of the financing benefit the entity has already received from the underspend. If there is overspending the NSP will be faced with a deduction from its allowed revenue in the next regulatory period.

It is also relevant to recognise that a deferral of a fixed nominal amount of capital expenditure entails a benefit in present value terms because the expenditure is delayed by a year and there will be a financing benefit to both the regulated firm and its consumers from such a delay. But the deferral could mean that capital costs increase materially for the same project, which would reduce or more than offset the financing benefits from the delay. The benefits and risks of a delay can be shared between the regulated business and its consumers, and these considerations should be recognised when specifying how the financing benefits or costs of a deferral should be treated.

11.2.3 Submissions received on the issues paper

In its issues paper released in March 2017, the Commission raised a number of matters in relation to introducing incentive schemes for Icon Water. Some of the issues on which the Commission sought feedback included whether the incentive mechanisms should be developed for Icon Water's service performance, operating expenditure, and capital expenditure, whether these incentive schemes should include financial rewards and penalties and if so, how should these be determined and to what extent the incentive schemes should be symmetric.²⁰⁰

¹⁹⁸ AER, 2013b: 32.

¹⁹⁹ The AER (2013b) explanatory statement shows that the NSP would receive 30 per cent of the estimated benefit of an inter-period deferral after an adjustment to the CESS payments (Attachment D).

²⁰⁰ For the full list of issues, please see ICRC, 2017a: 40.

Icon Water's Price Proposal did not support the introduction of a service standard incentive scheme, a capital expenditure incentive scheme or an operating expenditure incentive scheme, and did not respond to the issues raised in the issues paper, citing (for example) complexity and administrative cost. In addition, Icon Water submitted that its current processes already provide sufficient incentives for prudent and efficient operating and capital expenditure:

Icon Water believes that [its] opex proposal will provide a better outcome for consumers than would be achieved through the introduction of an opex incentive scheme in the 2018–23 regulatory period ... Icon Water's rigorous asset management planning system, underpinned by best-practice governance arrangements provides a sound basis for developing and implementing a prudent and efficient capex programme, which mitigates the need for a capex incentive scheme.²⁰¹

The Commission received no responses from other interested parties and stakeholders in relation to introducing incentive mechanisms for Icon Water.

11.2.4 The Commission's draft decision

The Commission's draft decision was to further examine the potential for implementing incentive schemes for Icon Water's operating expenditure, capital expenditure and service levels during the 2018–23 regulatory period. This review would be given effect through a future reset principle specified in the price direction.

In its future examination of potential incentive schemes for Icon Water, the Commission's draft decision was to consider a number of factors identified from analysis of other regulatory approaches:

Regulating service standards

In order to regulate service quality, the regulator needs to define and monitor relevant quality performance measures. Some quality measures might be technical in nature (such as water quality, leakage and supply interruptions), while others might be based on consumer surveys of service performance.²⁰² Effective incentive schemes should be aligned with consumer preferences on service quality and service standards.

Icon Water is already required to meet certain service standards set by the broader regulatory framework established by the ACT and the Commonwealth governments. Among its regulatory obligations are compliance with the Utility Services License under the *Utilities Act 2000* and with the Drinking Water Utility License, the Consumer Protection Code July 2012, and technical codes under the *Utilities (Technical Regulation) Act 2014* and legislative instruments under the *Environment Protection Act 1997*. Icon Water reports to the Commission, the Utilities Technical Regulator, the Bureau of Meteorology and the Australian Bureau of Statistics on

²⁰¹ Icon Water, 2017a: 36–9.

²⁰² The UK Office of Water Services has used consumer surveys to determine how satisfied consumers were with services and with the handling of complaints (Ofwat, 2010).

specific service-level measures such as consumer complaints and unplanned interruptions to water supply and sewerage services.

Avoiding incentives to delay the implementation of efficiency improvements

Incentives to reduce costs depend on the extent to which the regulated firm is allowed to retain part of the cost savings that it is able to achieve.

Balancing operating and capital expenditure incentives

Efficiency-sharing schemes need to ensure that incentives to pursue operating and capital expenditure savings are balanced. Such balance will seek to ensure that, for example, an incentive scheme for operating expenditure does not create a distortion whereby the operating expenditure 'saving' is reflected in higher capital expenditure. This means that there is a need to consider either incentive schemes for both operating expenditure and capital expenditure or complementary mechanisms to avoid distorted outcomes.

Ensuring symmetry of incentives in relation to underspending and overspending

Another issue is the extent to which rewards for reducing costs should be balanced by penalties if expenditure is higher than forecast. In the context of economic regulation, it is typical to allow a wide range of cost pass-through events so that consumers bear all of the costs of specified non-controllable events. But ex post reviews can disallow overspending of operating and capital expenditure and, in particular, not allow some (inefficient) capital expenditure to be rolled into the RAB in the next regulatory period.

As a result, when implementing a capital expenditure efficiency scheme it is necessary to determine the extent to which there is a penalty for overspending of controllable capital expenditure.

Avoiding incentives to bias forecasts

When efficiency incentive schemes are introduced, there can be stronger incentives to overstate forecasts of expenditure to the extent that this increases the profits of the regulated entity. This can be addressed by improving the review process for forecasts and by ex post adjustments where there are material differences between actual and forecast expenditure.

In the case of capital expenditure deferrals, adjustments could be made to remove or reduce the financing benefit (return on and return of the difference between actual and forecast capital expenditure) if the capital expenditure difference is largely attributable to a pure deferral of the expenditure rather than a permanent efficiency benefit.

Establishing efficient risk sharing mechanisms

Incentive mechanisms should ideally establish efficient and appropriate risk sharing adjustments. One common form of risk, benefit and cost sharing used by Australian regulators is a price cap that can be adjusted for any under- or over-recovery of revenue above a certain threshold (deadband). Deadbands allow for the regulated service provider to bear the demand risk up to the threshold, while consumers bear the risk beyond this threshold.

This form of risk sharing is administratively simple in that minor variations in demand do not require a costly administrative response. It also provides a degree of regulatory certainty in relation to pricing. The arrangements are typically symmetrical, so that if demand exceeds the threshold the benefits accrue to the firm up to the threshold and to customers beyond the threshold.

The Commission has a longstanding record of using deadbands as a risk-sharing mechanism, and its final decision to maintain the current form of end-of-period demand volatility adjustment mechanism during the forward regulatory period is communicated in section 2.2.

11.2.5 Submissions received on the draft report

No submissions in relation to incentive mechanisms were received in response to the draft report.

11.3 Commission's final decision

The Commission's final decision is to confirm the draft decision, and further examine the potential for implementing incentive schemes for Icon Water's operating expenditure, capital expenditure and service levels during the 2018–23 regulatory period. This review will be given effect through a future reset principle specified in the price direction.

Appendix 1 Terms of Reference

Following are the Commission's Terms of Reference, as issued by the ACT Treasurer on 13 December 2016.

Australian Capital Territory

Independent Competition and Regulatory Commission (Regulated Water and Sewerage Services) Terms of Reference Determination 2016

Disallowable instrument DI2016-297

made under the

Independent Competition and Regulatory Commission Act 1997 ('the Act'), **Section 15 (Nature of industry references) and Section 16 (Terms of industry references).**

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 2018 to 30 June 2023.

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 particular aspects of the methodology;

- b. appropriate mechanisms to ensure the recovery of the prudent and efficient costs of Icon Water Limited during the regulatory period, while minimising the potential for significant price fluctuations; and
 - c. whether there is potential for the implementation of incentive schemes for service levels, operating expenditure or capital expenditure for Icon Water Limited in the future.
 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. the implementation of any reforms to the tariff structure arising from the Commission's review 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 2017 to 12 December 2017.
 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 2018 to 1 May 2018.

Andrew Barr MLA
Treasurer
13 December 2016

Appendix 2 Compliance with 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*, and particularly section 20(2).

A2.1 Compliance with the Terms of Reference

Table A2.1 Compliance with the Terms of Reference

Clause	Requirement	Chapter	Comments
Section 15 of the Act	The price direction will be for the period of 1 July 2018 to 30 June 2023.	2	The price direction applies for the five year period from 1 July 2018 to 30 June 2023.
1.a	The Commission must consider the objectives of the Commission outlined within section 7 of the Act.		See Table A2.2
1.b	The Commission must consider the objective related to price directions outlined in section 19L of the Act.		See Table A2.3
1.c	The Commission must consider the legislative requirements outlined in section 20(2) of the Act.		See Table A2.4
1.d	The Commission must consider the policies of the ACT Government as they relate to the supply and use of water and sewerage services, including the ACT Water Strategy - Striking the Balance 2014-2044.	1,2	As part of the Commission's tariff structure review leading to this investigation, the Commission established key price setting principles in order to clarify how it intended to take account of relevant ACT government policies. In making its final decision based on the aforementioned pricing principles, the Commission took into account various water conservation actions, policies and initiatives, including the ACT Water Strategy – Striking the Balance 2014–2044.

Clause	Requirement	Chapter	Comments
1.e	The Commission must consider the National Water Initiative, Murray-Darling Basin Plan commitments and associated policies and agreements.	1, 2	In making its final decision, based on the aforementioned key pricing principles, the Commission considered various government policies and national agreements.
1.f	The Commission must consider any other matters considered to be directly relevant to the pricing investigation.	1, 2	In making its final decision, the Commission regarded a number of matters it is required to consider under the ICRC Act and the key price setting principles it established as part of the tariff structure review in 2016–17.
2.a	The Commission should consider continuing to use the current regulatory model and, where identified, implement improvements to particular aspects of the methodology.	2, 5, 6, 7, 8	For the purposes of the final decision, the Commission continued to use the Industry Panel's regulatory model with improvements to the parameters and demand forecasting methodology.
2.b	The Commission should consider appropriate mechanisms to ensure the recovery of the prudent and efficient costs of Icon Water Limited during the regulatory period, while minimising the potential for significant price fluctuations.	2, 3, 4, 5, 6, 7, 8	The form of regulation and 'building block' methodology have been designed to recover the efficient costs of providing water and sewerage services in the ACT.
2.c	The Commission should consider whether there is potential for the implementation of incentive schemes for service levels, operating expenditure or capital expenditure for Icon Water Limited in the future.	2, 11	The Commission's final decision is to further examine the potential for implementing incentive schemes for Icon Water's operating expenditure, capital expenditure and service levels during the 2018–23 regulatory period. This review will be given effect through a future reset principle.
3.	As part of its investigation, the Commission should outline its intended approach to achieving its various regulatory objectives within its decision-making process.	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. These principles provided the basis for the assessment framework the Commission used to develop its recommendations for prices for water and sewerage services.
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.	7, 9	The Commission's draft and final reports describe and show the calculation of water and sewerage service prices from net revenue requirement and service demand forecasts. The revisions were outlined and the associated impacts identified in both draft and final reports.

Clause	Requirement	Chapter	Comments
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.	8, 9	As part of the investigation, the Commission made some revisions to the current model in the direction of improving the demand forecasting methodology. The revisions have been outlined and associated impacts have been identified in both draft and final reports. The Commission will further examine improvements to the demand forecasting methodology during the 2018–23 regulatory period.
4.c	The Commission should identify, in the draft and final reports of the investigation, the incremental impact on prices associated with the implementation of any reforms to the tariff structure arising from the Commission's review of Icon Water Limited's regulated water and sewerage services tariffs.	2, 9	The Commission's 2016–17 tariff structure review provided the basis for implementation of the prices. The Commission's draft and final decisions retain the existing water tariff structure while introducing a measured and gradual approach to changing the fixed supply charge. In both draft and final decisions no changes have been made for the existing sewerage services tariff structure.
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 2017 to 12 December 2017.	n.a.	The Commission's draft report and proposed price direction were released on 12 December 2017, in accordance with the Terms of Reference.
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 1 March 2018 to 1 May 2018.	n.a.	The final report was released on 1 May 2018.

A2.2 Compliance with the ICRC Act

A2.2.1 Objectives

Table A2.2 Compliance with section 7 of the ICRC Act

Section 7	Requirement	Chapter	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	The pricing principles developed as part of the Commission's tariff structure review in 2016–17 provided the basis for how the Commission considered an appropriate balance between efficiency and environmental and social considerations in forming its final decision. The 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. Social considerations have been taken into account by ensuring that the regulated prices are based on efficient costs. The Commission also considered the impacts of price changes on customers' annual water bills.
(c)	to ensure non-discriminatory access to monopoly and near monopoly infrastructure	n.a.	n.a.

A2.2.2 Section 19(L)

Table A2.3 Compliance with section 19(L) of the ICRC Act

Section 19L	Requirement	Chapter	Comments
	The Objective of the Commission, when making a price direction in a regulated industry, is to promote the efficient investment in, and efficient operation and use of regulated services for the long term interests of consumers in relation to the price, quality, safety, reliability and security of the service.	1, 2, 3, 4, 5, 6, 7, 8, 9, 10	The 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. The long-term interests of consumers have been taken into account by ensuring that the regulated prices are based on efficient costs to meet the required standards. The Commission also considered the impacts of price changes on customers' annual water bills.

A2.2.3 Section 20(2)

Table A2.4 Compliance with section 20(2) of the ICRC Act

Section 20(2)	Requirement	Chapter	Comments
(a)	The protection of consumers from abuses of monopoly power in terms of prices, pricing policies (including policies relating to the level or structure of prices for services) and standard of regulated services	1, 2, 3, 4, 5, 6, 7, 8	The Commission's pricing methodology recovers the efficient costs of providing regulated water and sewerage services in the ACT. Consumers are protected from abuses of monopoly power by the Commission ensuring that the regulated prices are based on efficient costs to meet the required standards.
(b)	Standards of quality, reliability and safety of the regulated services	2, 3, 11	The 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. Various Territory and national water conservation actions, policies and initiatives, including the ACT Water Strategy – Striking the Balance 2014–2044, have been considered. The Commission will further examine the potential for implementing incentive schemes for Icon Water's service levels during the 2018–23 regulatory period.
(c)	The need for greater efficiency in the provision of regulated services to reduce costs to consumers and taxpayers	2, 3, 4, 5, 6, 7, 8	The Commission's 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 consultant.
(d)	An appropriate rate of return on any investment in the regulated industry	6	The Commission determined an appropriate rate of the return by considering a number of factors, including the requirements of the ICRC Act, consistency with the approaches used by the majority of Australian regulators and consistency with the competitive neutrality and allocative efficiency principles. The Commission is confident that it provides, in the current circumstances, an appropriate rate of return on investment in the regulated industry.
(e)	The cost of providing the regulated services	2,3,4,5,6,7,8	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. The Commission considers that the allowed revenue represents a reasonable balance between cost recovery and efficient operation.

Section 20(2)	Requirement	Chapter	Comments
(f)	The principles of ecologically sustainable development	1, 2	The pricing principles developed as part of the Commission's tariff structure review in 2016–17 provided the basis for how the Commission considered an appropriate balance between efficiency and environmental and social considerations in forming its final decision. These principles took account of a number of government policies and national agreements associated with ecologically sustainable development, including the National Water Initiative, 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	The pricing principles developed as part of the Commission's tariff structure review in 2016–17 provided the basis for how the Commission considered an appropriate balance between efficiency and environmental and social considerations in forming its final decision. Social considerations have been taken into account by ensuring that the regulated prices are based on efficient costs. With regard to the water tariff structure, the existing tariff structure has been retained while introducing a measured and gradual approach to changing the fixed supply charge. The Commission 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 services prices.
(h)	Considerations of demand management and least-cost planning	2, 3, 4, 8, 11	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. The Commission will further examine the potential for implementing incentive schemes for Icon Water's operating expenditure, capital expenditure and service levels during the 2018–23 regulatory period. The Commission has made some revisions to the current demand model and will further examine improvements to the demand forecasting methodology during the 2018–23 regulatory period.

Section 20(2)	Requirement	Chapter	Comments
(i)	The borrowing, capital and cash flow requirements of people providing regulated services and the need to renew or increase relevant assets in the regulated industry	3, 4, 5, 6, 8, 9, 10	The Commission's 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	10	The Commission identified the estimated impacts of its final decision on general price inflation. The Commission's assessment is that its final decision on prices is expected to have no material effect on general inflation.
(k)	Any arrangements that a person providing regulated services has entered into for the exercise of its functions by some other person	3	The Commission reviewed Icon Water's arrangements with other parties for the provision of regulated water and sewerage services. The Commission has found these arrangements sufficiently documented to allow due consideration for the purposes of the price investigation.

Appendix 3 Submissions

A3.1 Written submissions to the issues paper

Date received	Submitter	Key issues raised or information provided
30 June 2017	Icon Water	<p>Icon Water's comprehensive submission addressed the following:</p> <ul style="list-style-type: none">• The form of regulation, in which Icon Water proposed to maintain the five-year regulatory period, to retain the pass-through events for government fees and charges but to add a pass-through event for the Best for Region project and create a new 'unders and overs' mechanism for differences between target and actual revenue.• Operating expenditure over the current and forward regulatory period, in which Icon Water proposed 2016–17 as the base year and additional regulation costs.• Capital expenditure over the current and forward regulatory period, in which Icon Water proposed total capital expenditure of \$437m over the forward regulatory period.• RAB and depreciation, in which Icon Water proposed to retain the roll-forward methodology and the asset lives used previously.• Rate of return and tax liability allowance, in which Icon Water proposed a vanilla post-tax nominal WACC rate of 6.07 per cent.• Total net revenue allowance across water and sewerage services businesses of \$294m in 2018–19 rising to \$345m in 2022–23.• Forecast water sales volume of 41.3GL in 2018–19.• Prices and tariff structure, in which Icon Water proposed to retain the current tariff structure for water and sewerage services but increase the fixed supply charge from \$120 to \$200 over the regulatory period and fix Tier 2 prices in nominal terms at \$4.95/kL throughout the regulatory period.

A3.2 Submissions at the public consultation September 2017

Date received	Submitter	Key issues raised or information provided
28 September 2017	Ian Falconer	<p>The submission was supportive of Icon Water's proposal, particularly the retention of the tiered pricing structure for water, which assists low use customers. The submission highlighted areas for further evaluation: the high return on capital delivered by Icon Water and the 'uneconomic bypass' contracts that might transfer a cost burden to other consumers.</p>
28 September 2017	Kevin Cox	<p>The submission proposed the removal of fixed charges for water and sewerage services entirely. All water and sewerage services costs would be recouped through a single variable water charge. Assistance to particular customer groups would occur through rebates and other transfer systems, rather than tiered pricing. Higher variable water prices would provide an incentive for water recycling.</p>

A3.1 Written submissions to the draft report

Date received	Submitter	Key issues raised or information provided
23 February 2018	Icon Water	<p>Icon Water's Revised Price Proposal addressed the following:</p> <ul style="list-style-type: none"> • Adoption of the form of regulation described in the Commission's draft decision with the exception of two elements. The two elements were creation of a pass-through event for negotiated price agreements intended to avoid uneconomic bypass and creation of a new contingent project mechanism for the Best for Region project. • Proposed two adjustments to the tariff structure described in the Commission's draft decision. The two adjustments were to retain a fixed nominal tier 2 rate (\$4.95/kL) through the regulatory period and to adjust sewerage service price smoothing from 2018-19. • Adopted the Commission's draft decision on operating expenditure of \$920m nominal over the 2018-23 period. • Proposed an adjusted capital expenditure program in the current and forward regulatory period. The proposed total capital expenditure over the forward period is \$389.8m (\$2017-18) over the forward regulatory period. • Proposed an alternative estimation for Icon Water's rate of return, including a revised market risk premium and revised return on debt and risk-free rate calculation methodology. The calculated rate of return (vanilla post-tax nominal WACC rate) of 5.93 per cent is the approximately the same value adopted by the Commission in the draft decision. • Adopted the Commission's draft decision on water sales and customer numbers over the 2018-23 period.
23 February 2018	ACT Civil and Administrative Tribunal (ACAT)	<p>ACAT supports the Commission's draft decision and notes the proposed price path for water supply fees should not lead to increased hardship. ACAT noted the recent ACT Government decision to remove water and sewerage concessions is likely to have an impact on low income customers. ACAT supports continued Commission oversight of miscellaneous fees and charges. ACAT considered the proposed pass-through events and arrangements appropriate.</p>
26 February 2018	Conservation Council ACT Region	<p>The Conservation Council supported the draft decision on water and sewerage service tariffs 2018-23, but raised concern regarding the increase to the fixed supply charge in a gradual manner by \$20 a year to \$200 by 2022-23 as it does not reflect the ability of consumers to pay. The Conservation Council recommended that 'minimisation of raw water consumption' should be an environmental objective under the Commission's Pricing Principles. The Conservation Council recommended further consideration of the introduction of differential fixed supply charges, entailing a higher fixed charge for non-residential consumers relative to residential consumers. The Conservation Council recommended that discounted pricing not be offered to bulk users.</p>

A3.2 Submissions at the public hearing

Date received	Submitter	Key issues raised or information provided
7 February 2018	Peter Sutherland - ACAT	The submission inquired as to the rate of return and how Icon Water calculated it to the extent that it is similar or dissimilar to the Australia Energy Regulator's work in the same field in electricity and gas. The submission further questioned the annual basis of Tier 1 and Tier 2 pricing calculations, in comparison with Icon Water's quarterly billing practices. The submission noted these billing practices potentially had important revenue implications. Finally, the submission expressed concern that Icon Water's billing system may not recognise the difference between tiers, and in the event of over-charging may reimburse the customer on the basis of the annual amount, rather than differentially by quarter.
7 February 2018	Ian Falconer - Conservation Council ACT Region	The submission queried Icon Water's proposal to provide a discounted water rate for large users, noting the example of the Department of Parliamentary Services and their use of potable drinking water on the lawns of Parliament House. The submission held that it seemed more sensible to pump water out of Lake Burley-Griffin as long as the water is safe to use, allowing that this would have revenue implications for Icon Water. The submission concluded by requesting a further explanation from Icon Water as to its proposed treatment of major consumers requesting a discounted rate.

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	Under the building block model, the allowed revenue in any one year is the sum of the operating expenditure for that year and a contribution to the costs of capital investment made in the past (referred to as the regulatory asset base), plus allowances for forecast tax paid by the firm. The contribution to the costs of capital investments is the sum of what is known as the 'return on capital' and the 'return of capital'. The model also provides for full pass-through of specified unexpected or government-mandated costs.
Calibre	Calibre Consulting (ACT) Pty Ltd, an independent consultancy engaged by the Commission to review Icon Water's operating expenditure and capital expenditure.
Capital expenditure	Expenditure that creates or 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, which was 12 December 2017 to 23 February 2018.
Current regulatory period	The current regulatory period 2013–14 to 2017–18. The forward regulatory period 2018–19 to 2022–23.
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 goods that buyers will take at a particular price.
Depreciation	The loss in value of an asset over its life.

Economic efficiency	Economic efficiency has several aspects, among them efficiency in the use of a service and efficiency in the provision of a service, which encompasses efficient operation and the promotion of efficient investment. Economic efficiency should include environmental and social objectives when properly defined.
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 exploration of alternative service delivery options, assessment of lowest cost over the lifecycle, and the deliverability of the proposed project, program or activity.
Environmental considerations	Regulated prices and complementary mechanisms should ensure that environmental objectives are effectively accounted for.
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, numbers 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 2018 to 30 June 2023, for which the Commission’s 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.
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 regulatory 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 difference between the present value of cash inflows and the present value of cash outflows that occur as a result of undertaking an investment project.
Nominal value	The dollar value expressed as it would be in the day it was received; values without adjustment for the time value of money.
Nominal vanilla weighted average cost of capital	The weighted average cost of capital is a weighted average of the cost of debt and the cost of equity with the weights reflecting the relative amounts of debt and equity funds appropriate for the investment. The nominal vanilla WACC is not adjusted for inflation or tax effects. The WACC represents the future returns for an efficiently managed business, and is accordingly often used as an indicator of the time value of money.
Operating expenditure	The non-capital costs of operating and maintaining a product or service.
Pass-through	A mechanism for adjusting prices during the regulatory period for unexpected and uncontrollable costs.
Present value	The dollar value expressed in terms that adjust for the time value of money.
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 prudence would include the substantiation of benefits of and the need for the project, program or activity.

Real value	The monetary value expressed in constant value terms after adjusting for inflation.
Regulatory model	The ‘building block’ methodology approach used in conjunction with a hybrid form of price and revenue control.
Regulatory objectives	Under the ICRC Act the Commission must adhere to the objectives of promoting effective competition in the interests of consumers, facilitate an appropriate balance between efficiency and environmental and social considerations, and ensure non-discriminatory access to monopoly and near-monopoly infrastructure.
Residential customers	Customers of Icon Water, excluding businesses and other large water users.
Return on capital	A profitability ratio that measures the return an investment generates for capital contributors.
Revenue requirement	The amount of revenue required to meet Icon Water’s efficient costs.
Social impacts	The effects an organisation’s actions have on the wellbeing of the community.
Tariff	The price per unit of service.
Tariff structure	A combination of tariffs for a package of services, which can provide different incentives and signals to customers – for example, a two-part tariff (a fixed service charge and an inclining block tariff variable charge).
Tax expenses	A liability owing to the federal, state or local government.
Terms of Reference	The scope and limitations issued by the ACT Government to the Commission for the investigation into regulated water and sewerage services.
Trade waste	Non-domestic sewage that requires more effort to treat than average.
Rate of return	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.
Uneconomic bypass	The situation in which one customer may access water resources at a lower cost than through the regulated entity. Such bypass reduces costs to one customer but increases overall average network costs.
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

ACAT	ACT Administrative and Civil Tribunal
ACCC	Australian Competition and Consumer Commission
ACT	Australian Capital Territory
ACTEW	Australian Capital Territory Electricity and Water Corporation
ACT Government	The unicameral legislature of the ACT, including the Executive
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
ARIMA	autoregressive integrated moving average model
ARTC	Australian Rail Track Corporation
ASX	Australian Stock Exchange
BTP	Business Transformation Program
BVAL	Bloomberg Valuation Service
CAPEX	capital expenditure
CAPM	capital asset pricing model
CESS	capital expenditure spending scheme
Commission	Independent Competition and Regulatory Commission
CPI	consumer price index
CSA	Corporate Services Agreement
CSO	community service obligation
DGM	dividend growth model
EBSS	efficiency benefit sharing scheme
ERA	Economic Regulation Authority (Western Australia)
ESC	Essential Services Commission (Victoria)
ESCOSA	Essential Services Commission of South Australia
FFO	funds from operation
GDP	gross domestic product
GL	gigalitre
NPR	National Performance Reporting, undertaken by the Bureau of Meteorology

ICRC	Independent Competition and Regulatory Commission
ICRC Act	<i>Independent Competition and Regulatory Commission 1997 (ACT)</i>
ICT	information and communication technology
IPART	Independent Pricing and Regulatory Tribunal (NSW)
kL	kilolitre
km	kilometre
LMWQCC	Lower Molonglo Water Quality Control Centre
m	million
MAR	maximum allowable revenue
MLA	Member of the Legislative Assembly of the ACT
MRP	market risk premium
MSE	mean squared error
n.a.	not applicable
NBN	National Broadband Network
NPR	National Performance Reporting
NPV	net present value
NT	Norther Territory
NSP	network service provider
NSW	New South Wales
OPEX	operating expenditure
pa	per annum
QCA	Queensland Competition Authority
QPRC	Queanbeyan Palerang Regional Council
RBA	Reserve Bank of Australia
RAB	regulatory asset base
SOFC	statement of facts and contentions
SA	South Australia
TAB	tax asset base
Tier 1 price	The usage price charged by Icon Water to its residential and non-residential customers for up to 200kL of water per annum.

Tier 2 price	The usage price charged by Icon Water to its residential and non-residential customers for 200kL-plus of water per annum.
UK	United Kingdom
UNFT	Utilities (Network Facilities) Tax
US	United States of America
UTR	Utilities Technical Regulator
Vic	Victoria
WA	Western Australia
WAC	water abstraction charge
WACC	weighted average cost of capital

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