Attachment 8

Regulatory asset base

30 June 2017

2018–23 Water and Sewerage Price Proposal

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1 Summary

The regulatory asset base (RAB) reflects the written-down value of efficient capital expenditure that Icon Water has incurred to provide water and sewerage services to Australian Capital Territory (ACT) customers. The RAB provides the basis for calculating both the return on capital and the return of capital (i.e. depreciation), two of the key building blocks that comprise Icon Water's total revenue requirement.

There are two steps involved in calculating the RAB:

- first, determining the opening RAB for the 2018–23 regulatory period, commencing 1 July 2018
- second, determining the value of the RAB in each year of the 2018–23 regulatory period from 2018–19 to 2022–23.

This attachment sets out Icon Water's approach to implementing each of these steps and the resulting value of the RAB.

Box 1-1: Key points

The RAB is calculated using the same methodology as used in the 2015 Industry Panel decision. The opening value of the RAB for 2018–19 is $1,509 million for water and $860 million for sewerage. The closing value of the RAB for each year of the 2018-23 regulatory period is shown in the table below.

Closing RAB 2018–19 to 2022–23 ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water	$1,554	$1,603	$1,649	$1,687	$1,716
Sewerage	$923	$963	$1,001	$1,035	$1,061
Total	$2,478	$2,567	$2,650	$2,722	$2,777

Source: Icon Water analysis.

2 Opening RAB for 2018–19

2.1 Introduction

Icon Water has adopted the standard regulatory approach, consistent with the 2015 Industry Panel decision, to establishing the opening RAB for 2018–19, which involves the following roll-forward calculation:

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

The RAB roll-forward takes as its starting point the closing RAB value from the 2008–13 regulatory period (2012–13) as the opening RAB value for 2013–14. The closing value for 2013–14 (which is the opening value for 2014–15) is then calculated by adding actual net capital expenditure[1], deducting actual asset disposals and forecast depreciation and adding actual indexation. This calculation is then repeated for each year to arrive at a closing value for 2017–18, which is equal to the opening RAB value for the 2018–23 regulatory period starting in 2018–19.

While actual values are used for net capital expenditure and asset disposals, depreciation is based on forecast capital expenditure from the previous regulatory period. This is consistent with the approach used by the Industry Panel[2] and is the Australian Energy Regulator's (AER) default position for gas and electricity.[3]

Each of the inputs required to implement the roll-forward calculation are discussed separately below.

2.2 RAB value from previous regulatory period

The opening RAB values for 2013–14 are equal to the closing values for 2012–13 as determined in the 2015 Industry Panel Decision. The Industry Panel determined these amounts to be $1,369.80 million for water and $656.72 million for sewerage.[4]

When making its final determination, the regulator does not know actual capital expenditure for the last year of the roll-forward period. For example, the Independent Competition and Regulatory Commission (ICRC) made its final determination for the 2013–18 regulatory period in June 2013. Actual capital expenditure for 2012–13 was not known at this time. Therefore, the ICRC used forecast capital expenditure for this final year in the roll-forward calculation. The standard regulatory process is to make an adjustment for the difference between forecast and actual capital expenditure for 2012–13 in the 2018–23 regulatory decision.

While the Industry Panel remade the ICRC's pricing determination in 2015, it used the same forecast capital expenditure for 2012–13 as used by the ICRC. Therefore, an adjustment is required to the RAB for 2012–13 to account for the difference between forecast and actual capital expenditure.

[1] Net capital expenditure is total capital expenditure net of capital contributions.

[2] Industry Panel, 2015: 47.

[3] AER, 2013: 16.

[4] Industry Panel, 2015: 49.

Icon Water has adopted the same approach as used in the 2015 Industry Panel Decision. This involves calculating the difference between forecast and actual net capital expenditure, including an adjustment for the difference between forecast and actual inflation. In addition, the return on the difference in net capital expenditure is calculated and added to the difference in net capital expenditure to determine the total 2012–13 adjustment amount.

The adjustments for water and sewerage are shown below in Table 2-1. Water includes an adjustment for the difference between forecast and actual disposal values for general water licences. The total adjustment for water is positive reflecting the outcome that actual net capital expenditure for 2012–13 was higher than forecast, while the outcome for sewerage is the reverse. The total adjustment amount is added to the closing vale for 2017–18 and is therefore reflected in the opening RAB for 2018–19.

Table 2-1: Adjustment for difference between forecast and actual 2012–13 net capital expenditure ($million, nominal)

	Water	Sewerage
Actual net capex	$111.25	$24.48
Actual disposals	$11.83	$0.00
Actual net capex	$99.42	$24.48
Estimated net capex	$108.42	$25.30
Estimated disposals	$11.78	$0.00
Estimated net capex, inflation adjusted	$96.43	$25.24
Difference in net capex	$2.99	-$0.76
Return on difference	$1.14	-$0.29
Total adjustment	$4.13	-$1.05

Source: Icon Water analysis.

2.3 Actual efficient net capital expenditure

Actual efficient net capital expenditure for water and sewerage is set out in Table 2-2 below. Attachment 6: Capital expenditure provides details of the capital expenditure program, including explanations for the deviations from the efficient capital expenditure that was approved in the 2015 Industry Panel decision.

Table 2-2: Actual net capital expenditure ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water	$34.37	$24.57	$31.02	$34.65	$40.15
Sewerage	$18.32	$24.76	$47.48	$61.23	$87.50
Total	$52.69	$49.33	$78.50	$95.89	$127.66

Source: Icon Water analysis.

2.4 Actual asset disposals

There were a number of actual asset disposals in the 2013–18 regulatory period. The most significant of these is the sale of high security water licences sold during 2016–17 for approximately $34 million. The total actual disposal values for the 2013–18 regulatory period are presented in Table 2-3 below.

Table 2-3: Actual asset disposals ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water	$0.00	$1.55	$0.00	$34.25	$0.00
Sewerage	$0.00	$2.00	$0.00	$0.00	$0.00
Total	$0.01	$3.55	$0.00	$34.25	$0.00

Source: Icon Water analysis.

2.5 Forecast depreciation

Forecast depreciation is taken from the 2015 Industry Panel decision, which includes an indexation value based on forecast inflation. Therefore, in the roll-forward calculation, forecast depreciation is adjusted for the difference between forecast and actual inflation. The Industry Panel's forecast depreciation is presented in Table 2-4 and the adjusted forecast depreciation is presented in Table 2-5.

Table 2-4: Forecast depreciation, excluding inflation adjustment ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water	$24.63	$26.12	$27.45	$28.77	$30.30
Sewerage	$16.64	$19.13	$20.23	$23.42	$26.94
Total	$41.27	$45.25	$47.68	$52.20	$57.24

Source: Industry Panel (2015): 60.

Table 2-5: Forecast depreciation, including inflation adjustment ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water	$25.05	$26.37	$27.41	$28.50	$30.00
Sewerage	$16.93	$19.31	$20.20	$23.20	$26.68
Total	$41.98	$45.68	$47.61	$51.69	$56.68

Source: Icon Water analysis.

2.6 Actual indexation

Consistent with standard regulatory practice, the RAB is indexed to ensure the real value of the RAB is maintained over time. The Industry Panel indexed the RAB for the 2013–18 regulatory period using forecast inflation. When the RAB is rolled forward, indexation is recalculated using actual inflation. Actual inflation, measured using the all groups consumer price index (CPI), for the relevant financial year is calculated consistently with the method used in the 2015 Industry Panel decision for rolling

forward the RAB[5]. This approach uses the sum of the four quarters for the relevant financial year divided by the sum of the four quarters for the prior financial year as follows:

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

Given the timing of the regulatory proposal in June 2017, the 2016–17 CPI calculation holds the March 2017 CPI constant for June 2017. This will be updated following the release of the June 2017 CPI figures. For 2017–18, CPI is set equal to forecast CPI. The RAB roll-forward in the next regulatory period will account for the difference between forecast and actual inflation for 2017–18.

The indexation amount for each year is then calculated as follows:

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

Forecast depreciation does not enter the indexation calculation because it is adjusted separately by the difference between actual and forecast inflation as discussed above in section 2.5. The resulting indexation amounts are presented in Table 2-6 below.

Table 2-6: Indexation ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Water	$37.64	$24.48	$20.07	$24.30	$36.95
Sewerage	$18.07	$11.78	$9.87	$12.62	$20.57
Total	$55.71	$36.26	$29.94	$36.91	$57.52

Source: Icon Water analysis.

2.7 Opening RAB for 2018–19

Using the roll-forward calculation set out in section 2.1 and the values for each of the inputs set out above, the RAB is rolled forward as shown in Table 2-7 and Table 2-8 below to give an opening RAB for 2018–19 of $1,509 million for water and $860 million for sewerage.

[5] The CPI escalation mechanism for annual price adjustments is different to the inflation adjustment for the RAB.

Table 2-7: Water RAB roll-forward ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Opening RAB	$1,369.80	$1,416.76	$1,437.88	$1,461.56	$1,457.75
Net capital expenditure	$34.37	$24.57	$31.02	$34.65	$40.15
Asset disposals	$0.00	$1.55	$0.00	$34.25	$0.00
Forecast depreciation	$25.05	$26.37	$27.41	$28.50	$30.00
Indexation	$37.64	$24.48	$20.07	$24.30	$36.95
Adjustment for 2012–13					$4.13
Closing RAB	$1,416.76	$1,437.88	$1,461.56	$1,457.75	$1,508.97

Source: Icon Water analysis.

Table 2-8: Sewerage RAB roll-forward ($million, nominal)

	2013–14	2014–15	2015–16	2016–17	2017–18
Opening RAB	$656.72	$676.17	$691.41	$728.56	$779.22
Net capital expenditure	$18.32	$24.76	$47.48	$61.23	$87.50
Asset disposals	$0.00	$2.00	$0.00	$0.00	$0.00
Forecast depreciation	$16.93	$19.31	$20.20	$23.20	$26.68
Indexation	$18.07	$11.78	$9.87	$12.62	$20.57
Adjustment for 2012–13					-$1.05
Closing RAB	$676.17	$691.41	$728.56	$779.22	$859.57

Source: Icon Water analysis.

2.8 Asset lives

While the RAB roll-forward calculation does not require asset lives as an input, remaining asset lives are calculated as part of the roll-forward calculation. This is important because remaining asset lives are required as an input to calculating the value of the RAB for the 2018-23 regulatory period.

3 RAB for 2018–19 to 2022–23

The RAB for each year of the 2018–23 regulatory period is calculated as follows:

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

The starting point for the RAB calculation is the closing RAB from the roll-forward calculation set out in section 2. This value is then adjusted for forecast net capital expenditure[6], forecast asset disposals, forecast depreciation and forecast indexation. The calculation is repeated for each year of the new regulatory period.

3.1 Forecast efficient net capital expenditure

Forecast efficient net capital expenditure for water and sewerage is set out in Table 3-1 below. *Attachment 6: Capital expenditure* provides details of the forecast capital expenditure program and capital contributions.

Table 3-1: Forecast efficient net capital expenditure ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water	$38.38	$43.76	$42.48	$36.82	$28.28
Sewerage	$67.73	$47.17	$46.91	$44.89	$38.28
Total	$106.11	$90.93	$89.40	$81.71	$66.56

Source: Icon Water analysis.

3.2 Forecast asset disposals

There are no asset disposals forecast for the 2018–19 to 2022–23 period.

3.3 Forecast depreciation

Forecast depreciation is calculated consistently with the methodology used in the 2015 Industry Panel decision, which adopted the straight-line method using economic asset lives where possible.

The straight-line depreciation method allows for an equal proportion of the asset's value to be recovered in each year of its useful life. This approach is simple, transparent and consistent with regulatory practice used by other Australian regulators in the context of water and by the AER in the context of gas and electricity[7].

[6] Forecast net capital expenditure is total forecast capital expenditure net of capital contributions.

[7] See for example: ESCOSA, 2016: 133; QCA, 2014: 12; ESC, 2016: 29; AER, 2016: 5-8.

The Industry Panel considered that economic lives of assets should be used in the calculation of depreciation because this better reflects the cost of the asset over time and promotes:

- the efficient use of the assets by customers over time
- the efficient planning and investment in the assets over time
- intergenerational equity, because customers in each generation only pay for those assets that are used in the provision of services to them.[8]

Icon Water agrees with the Industry Panel that it is appropriate to use economic asset lives. Consistent with the 2015 Industry Panel decision, Icon Water has used a weighted average asset life for existing water and sewerage assets and asset specific lives for water security assets and new capital expenditure. Asset lives for new capital expenditure are determined at the project level and are set equal to the asset lives used in the 2015 Industry Panel decision where possible. Where no equivalent project exists in the Industry Panel model, an asset life is set based on Icon Water internal practices.

The resulting depreciation forecasts used in the RAB calculations are presented in Table 3-2 below.

Table 3-2: Forecast depreciation ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water	$31.09	$34.53	$37.63	$40.44	$41.78
Sewerage	$26.53	$30.53	$33.63	$36.38	$38.77
Total	$57.62	$65.06	$71.26	$76.82	$80.55

Source: Icon Water analysis.

3.4 Forecast indexation

The approach used in the 2015 Industry Panel decision is to index the RAB using forecast inflation. Then, when calculating the maximum allowed revenue, the indexation amount is removed to avoid double counting the effect of inflation through the application of a nominal WACC. This methodology does not alter the total amount that Icon Water is permitted to earn in present value terms (compared with no indexation), but it does alter the profile of how costs are recovered over time.[9]

Consistent with the Industry Panel approach, Icon Water has indexed the RAB and made the corresponding adjustment to the maximum allowed revenue. The indexation value is calculated as follows:

$$Indexation\ value = (Opening\ RAB + Net\ capital\ expenditure - Asset\ disposals) * Forecast\ inflation$$

The methodology used to calculate forecast inflation is discussed in Attachment 9: Rate of return and forecast inflation. The resulting indexation values for each year of the 2018–23 regulatory period are presented in Table 3-3 below.

[8] Industry Panel, 2015: 60.

[9] Industry Panel, 2015: 60-63.

Table 3-3: Forecast indexation ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Water	$38.20	$39.41	$40.61	$41.67	$42.52
Sewerage	$22.34	$23.67	$24.67	$25.60	$26.37
Total	$60.54	$63.08	$65.28	$67.27	$68.88

Source: Icon Water analysis.

3.5 RAB for 2018–19 to 2022–23

The RAB for each year of the 2018–23 regulatory period is calculated using the formula set out at the beginning of section 3 and each of the input values discussed above. The resulting RAB values are presented in Table 3-4 for water and in Table 3-5 for sewerage.

Table 3-4: Water RAB 2018–19 to 2022–23 ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Opening RAB	$1,508.97	$1,554.48	$1,603.11	$1,648.57	$1,686.62
Net capital expenditure	$38.38	$43.76	$42.48	$36.82	$28.28
Disposals	$0.00	$0.00	$0.00	$0.00	$0.00
Forecast depreciation	$31.09	$34.53	$37.63	$40.44	$41.78
Indexation	$38.20	$39.41	$40.61	$41.67	$42.52
Closing RAB	$1,554.48	$1,603.11	$1,648.57	$1,686.62	$1,715.65

Source: Icon Water analysis.

Table 3-5: Sewerage RAB 2018–19 to 2022–23 ($million, nominal)

	2018–19	2019–20	2020–21	2021–22	2022–23
Opening RAB	$859.57	$923.10	$963.41	$1,001.36	$1,035.47
Net capital expenditure	$67.73	$47.17	$46.91	$44.89	$38.28
Disposals	$0.00	$0.00	$0.00	$0.00	$0.00
Forecast depreciation	$26.53	$30.53	$33.63	$36.38	$38.77
Indexation	$22.34	$23.67	$24.67	$25.60	$26.37
Closing RAB	$923.10	$963.41	$1,001.36	$1,035.47	$1,061.34

Source: Icon Water analysis.

Abbreviations and acronyms

ACT	Australian Capital Territory
AER	Australian Energy Regulator
CPI	Consumer Price Index
ESC	Essential Services Commission
ESCOSA	Essential Services Commission of South Australia
ICRC	Independent Competition and Regulatory Commission
RAB	regulatory asset base

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