



Independent Pricing and Regulatory Tribunal

# **Essential Energy's water and sewerage services in Broken Hill**

Review of prices from 1 July 2014 to 30 June 2018

**Water — Final Report**  
June 2014





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# 1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has completed its review of the prices Essential Energy can charge for water supply and sewerage services to customers in and around Broken Hill. Essential Water is the part of Essential Energy's operations that provides water services to customers in Broken Hill and surrounding areas (including Menindee, Sunset Strip and Silverton).<sup>1</sup> We also reviewed the prices of effluent water services, trade waste services and a range of miscellaneous services. The purpose of the review was to determine the maximum prices for these services over the 4 years from 1 July 2014 to 30 June 2018 (the 2014 determination period).

This Final Report explains our determination on these prices, including the rationale and analysis that underpin our decisions.

This Determination was originally intended to commence on 1 July 2013, following the completion of the 2010 Determination, which set prices from 1 July 2010 to 30 June 2013. However, we delayed our review for one year. This allowed Essential Energy to resolve uncertainties related to the management of the electricity distribution network providers.<sup>2</sup> The 2010 Determination remained in effect, and 2012/13 prices were unchanged, in 2013/14. The new determination will commence from 1 July 2014.

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<sup>1</sup> See: <http://www.essentialwater.com.au/>. In this report, when we refer to Essential Energy we are referring to its Broken Hill water business (ie, 'Essential Water'), except in our discussion of financeability. In this case, when we are discussing the financeability of the water business in Broken Hill, we refer to Essential Water to distinguish it from its parent company, Essential Energy.

<sup>2</sup> This was in response to the NSW Government's decision to make changes to the NSW electricity distribution network providers (Letter from Essential Energy to IPART, May 2012).

## 1.1 Overview of the Determination

Under our decisions in this Final Report, a typical residential water and sewerage bill in Broken Hill, for a customer using 300 kL of water, will increase from \$1,251 per year in 2013/14 to \$1,302 per year over 2014/15 to 2017/18, excluding the effects of inflation.<sup>3</sup> This is an increase of 4.0% over the 4 years of the determination period, or an average of 1.0% per year over the period. Including the effects of inflation, this is an estimated increase of 15.3% over the 4 years or an average of 3.6% per year.<sup>4</sup> The biggest increase will be from 1 July 2014, when the typical bill will rise by \$88, or \$50 more than inflation. Bills will rise in line with inflation over the remaining 3 years, resulting in a total increase in the typical bill of \$191 over the 4-year period, including inflation.

For its residential and non-residential customers, Essential Energy proposed price increases of 5.9% per year, excluding the effects of inflation, for the 4 years of the determination period (see Chapter 2). Compared with a typical water and sewerage bill of \$1,251 in 2013/14, Essential Energy's proposal would see an increase to \$1,571 in 2017/18, excluding the effects of inflation. This would be an increase of \$320 or 25.5%. Including the effects of inflation, this would be an estimated increase of 8.6% per year, or 39.1% over the 4 years.

The 2014 Determination is the first time that we have set prices for Essential Energy's water services to the mines in Broken Hill. We have set prices that would allow Essential Energy to recover its costs of providing water services to the mines.

The relatively small increases in prices under our determination, and the resulting impact on customer bills, reflect our findings on Essential Energy's prudent and efficient level of expenditure. In making our decisions, we were conscious of Broken Hill's declining market and stakeholders' concerns about the size of Essential Energy's proposed capital program.

We are confident our decisions would allow Essential Energy to continue to provide a sufficient level of services and meet regulatory standards.

In this Determination, we have set prices to recover Essential Energy's full efficient costs, without the subsidy which was provided by the NSW Government until June 2013.

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<sup>3</sup> In calculating typical residential bills, we assume water consumption of 300 kL per year throughout this report.

<sup>4</sup> When we calculate customer bills on a nominal basis, we use the actual March on March quarter increase in CPI of 2.9% for 2014 as published by the ABS and then assume an estimated rate of inflation of 2.5% per year thereafter. These inflation rates mean that estimated inflation will be 10.8% over the 4 years of the determination period.

### 1.1.1 Our decisions on Essential Energy's revenue requirement

Our principle in setting prices is to allow a business to recover the efficient costs of its regulated services – which we refer to as the notional revenue requirement.

In its September 2013 price proposal, Essential Energy proposed a notional revenue requirement of \$92.2 million<sup>5</sup> over the 4 years of the determination period. This is based on:

- ▼ a decrease in its 2013/14 operating expenditure each year, with 2017/18 operating expenditure forecast to be lower than 2013/14 expenditure by 6.6%
- ▼ a capital expenditure program of \$52.2 million over the 4 years, which is \$29.3 million or 128% more than its capital expenditure over the 4 years from 2010/11
- ▼ a real post-tax weighted average cost of capital (WACC) of 5.9%.<sup>6</sup>

We consider, however, that to meet its efficient costs Essential Energy's notional revenue requirement is \$84.2 million over the 4 years, which is 8.7% lower than Essential Energy's proposal. We explain our decisions on the components of the notional revenue requirement in the sections below.

Compared with our Draft Report, Essential Energy's notional revenue requirement is about \$3.0 million higher over the 4-year period (or 3.6%). The main reasons for the difference are our decisions to:

- ▼ Reduce the productivity adjustment that was applied in the Draft Report for operating expenditure, from 1% real per year (compound) to 0.5% real per year (compound) (\$1.0 million).
- ▼ Exclude most of the capital expenditure on the Rocky Hill reservoir replacement project (\$0.4 million). This replaces our decision in the Draft Report to reduce our consultant's recommended capital expenditure by a further 10% to reflect savings from improved asset management and options analysis.
- ▼ Apply a real post-tax WACC of 5.2%, based on our standard methodology. This is higher than the real post-tax WACC of 4.9% used in the Draft Report (\$1.5 million).<sup>7</sup>

<sup>5</sup> Throughout this report, all figures have been presented in real dollars (\$2013/14) except where specifically stated.

<sup>6</sup> Essential Energy submission to IPART, 13 September 2013, p 47.

<sup>7</sup> The remaining differences are due to higher allowances for return on working capital and tax allowance as a result of the increased WACC.

## Operating expenditure

Our decision on Essential Energy's efficient operating expenditure in 2017/18 is 12.8% lower than its 2013/14 expenditure. On average, we have allowed for \$13.4 million per year in operating expenditure over the 2014 Determination period, which is 4.6% lower than Essential Energy's proposed operating expenditure over the same period.

Our decision takes account of efficiencies and a reduction in corporate overheads that were identified by our expenditure review consultant, Sinclair Knight Merz (SKM).

Differences between our decision on Essential Energy's efficient operating expenditure over the 2014 Determination period and Essential Energy's proposal include the following:

- ▼ a reduction in forecast operating expenditure by 0.5% as a general productivity saving
- ▼ a reduction in forecast operating expenditure to reflect lower maintenance costs resulting from Essential Energy's proposed capital projects
- ▼ a reduction in corporate overheads as a percentage of direct efficient operating expenditure from 20% to 18% over the determination period
- ▼ the removal of debt raising costs of 8 basis points, because our WACC already includes a higher allowance of 12.5 basis points.

## Capital expenditure

Our decision on Essential Energy's prudent and efficient capital expenditure over the 4 years of the determination period is \$38.8 million. This is 26% lower than Essential Energy's proposed capital expenditure of \$52.2 million.

We have largely maintained Essential Energy's proposed capital projects and accepted SKM's recommendation to reduce Essential Energy's proposed expenditure by 18%, with the exception that we have excluded the majority of expenditure for the Rocky Hill Service Reservoir project from this determination period.

Our decision provides an allowance of \$38.8 million for Essential Energy to plan and deliver its capital program at a lower cost in this determination period, following options assessments and other improvements to asset management.

We consider that improved asset management and options analysis is particularly likely to yield savings in this context, where the forecast capital expenditure program is large and diverse relative to previous years.<sup>8</sup> Improved asset management and options analysis is also particularly important when considering a large capital expenditure program in an area where population numbers have been declining, as has been occurring in Broken Hill.

Our decision on Essential Energy's proposed capital expenditure is also consistent with concerns raised by stakeholders over the size of Essential Energy's capital program.

We note SKM's findings that Essential Energy's personnel have a strong understanding of its assets, but a structured asset management system is absent. As per SKM's findings, we recommend that Essential Energy implements a more structured asset management system with rigorous risk-based justification of all projects, linked to clearer decision-making and prioritisation processes. We also recommend that it develops an overall strategic approach to its long term investment planning.

We will reassess Essential Energy's capital expenditure at the next determination, as per our normal review processes. If Essential Energy's capital expenditure over the 2014 determination period exceeds \$38.8 million and is subsequently deemed by IPART to be prudent and efficient, then Essential Energy's future prices will be adjusted in the next price determination.

### The weighted average cost of capital (WACC)

Another reason why the revenue requirement we have allowed is lower than Essential Energy's proposal is that our decision on the WACC is 5.2%, compared with its proposal of 5.9%.<sup>9</sup>

Our approach for the WACC in our final decision departs from the draft decision in 2 ways. Firstly, we have implemented our new method of using data published by the RBA to set the debt margin. When we established our new WACC methodology in December 2013, we indicated our preference for adopting the RBA's data in our estimates of the cost of debt and that we would consult with stakeholders. We did not adopt it at the time, because the RBA was yet to publish its methodology and estimates.<sup>10</sup>

<sup>8</sup> Prudent and efficient capital expenditure of \$38.8m for the 4 years is a 68% increase on Essential Energy's actual capital expenditure over the previous 4 years.

<sup>9</sup> Essential Energy submission to IPART, September 2013, p 47.

<sup>10</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 14.

However, the RBA data is now available and we have consulted with stakeholders. We decided in April 2014 to use the RBA's data in our estimates of the cost of debt.<sup>11</sup> We decided this because the RBA's data is:

- ▼ based on a robust methodology
- ▼ transparent, as it is readily available through the RBA's website, and
- ▼ extends the term-to-maturity to 10 years, which is our target based on evidence that asset-intensive firms with long-lived assets operating in a competitive market seek to raise debt with a maturity of 10 years or longer.<sup>12</sup>

Secondly, we have revised our valuation for the appropriate level of gearing in the final decision. Our draft decision assumed a gearing ratio of 60% because we typically adopt a gearing level of 60% for regulated water businesses. However, we have given further consideration to the risks faced by Essential Energy, compared to other water utilities we regulate. We have decided to reduce the level of gearing for the final decision to a range of 50% to 60% (ie, a midpoint of 55%).

We consider that a lower level of gearing recognises that Essential Energy faces a higher level of risk than other metropolitan water utilities due to the market in which its water business operates. Essential Energy is exposed to a higher level of risk because it faces falling water demand due to a declining population in a geographically isolated market. Further, the water business has 2 very large customers (the mines), which account for around 35% of water sales. If one of them scales back or exits the market, it is unlikely that another business of a similar size would enter. If it were not in a declining and geographical isolated market it could potentially supply other new customers to take the place of those leaving the market. However, given its market characteristics, a reduction in consumption by one of its large customers could result in a significant loss of sales for Essential Energy.

All other aspects of the draft decision's WACC calculation have been maintained for the final decision. Using market parameters as at 12 May 2014 (and the RBA's data), our estimate of the current real post-tax WACC range for Essential Energy is between 5.0% and 5.4%. Applying our decision-making framework, we have found that the uncertainty index is within 1 standard deviation of the mean. We will therefore use the midpoint estimate for the WACC of 5.2% to calculate the return on assets. Chapter 7 and Appendix E provide more information on our methodology.

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<sup>11</sup> IPART, *Fact Sheet – IPART's new approach to estimating the cost of debt*, April 2014.

<sup>12</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 13.

We consider that our decisions on prudent and efficient expenditure, and our allowances for a return on assets and depreciation, will allow Essential Energy to provide its regulated services, and to maintain, renew and develop the assets required to provide these services. They reflect our judgement on the scope for further efficiencies relative to Essential Energy's proposal.

### 1.1.2 Reforming the structure of water usage prices

In this Determination, we have reformed the structure of water usage prices. In response to stakeholders' concerns that the inclining block tariffs are unnecessarily discouraging water consumption and our assessment that they do not reflect the marginal cost of supply under typical operating conditions, we have set a single water usage price by removing the Tier 2 usage price. We have set the water usage price for each water quality type at the current Tier 1 price, with the price to be increased only by the inflation rate in each year of the determination period.

Our removal of the second, higher tier of water usage prices means that less revenue will be raised in total from water usage prices. Hence, water service (fixed) charges would need to increase to allow Essential Energy to recover its efficient costs. However, to minimise the impact on the water portion of customer bills, we have partially reduced the revenue required from water bills with revenue from sewerage charges. The revenue requirement for sewerage services has fallen slightly, and therefore sewerage charges would decline if we set them equal to this revenue. However, we have held sewerage prices constant in real terms,<sup>13</sup> rather than allowing them to decrease with the costs of providing sewerage services. This has allowed us to keep the real increases in water service charges to around 20% over the determination period. These real increases occur in the first year of determination period (2014/15). Over the 4-year period, this 20% real increase in the water service charge in 2014/15 averages out to about 5% per year. We have thus implemented water price reforms, while minimising impacts on customers.

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<sup>13</sup> That is, sewerage price will increase by the rate of inflation over the 4 years of the determination period.

Residential and non-residential prices under our Determination are listed in Table 1.1.

**Table 1.1 IPART's decisions on residential and non-residential prices (excluding mines) (\$2013/14)**

Year ended 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-2018
<b>Water usage (\$/kL)</b>						
Treated water	1.67	1.67	1.67	1.67	1.67	0.0%
Chlorinated water	1.08	1.08	1.08	1.08	1.08	0.0%
Untreated water for a pipeline customer	0.72	0.72	0.72	0.72	0.72	0.0%
<b>Water service charges (\$/pa)</b>						
Residential service charge, and non-residential (20mm individually-metered property)	253.66	303.86	303.86	303.86	303.86	20%
Non-residential meter-based service charge <sup>a</sup> (20mm)	253.66	303.86	303.86	303.86	303.86	20%
<b>Sewerage usage charge (\$/kL)</b>						
	1.19	1.19	1.19	1.19	1.19	0.0%
<b>Sewerage service charges (\$/pa)</b>						
Residential service charge	496.79	496.79	496.79	496.79	496.79	0.0%
Non-residential meter-based service charge <sup>b</sup> (20mm)	709.39	709.39	709.39	709.39	709.39	0.0%

<sup>a</sup> Meter-based charge is based on a 20mm meter. Applicable meter charge is set using the following formula: (meter size)<sup>2</sup>×20mm meter charge/400.

<sup>b</sup> Meter-based charge is based on a 20mm meter. Applicable meter charge is set using the following formula: (meter size)<sup>2</sup>×20mm meter charge/400.

Source: IPART analysis.

### 1.1.3 Prices for the mines

Essential Energy proposed cost-reflective prices for the mines, with no subsidy between the mines and other customers.<sup>14</sup> Essential Energy provided a confidential submission on its proposal for allocating costs to, and setting prices for, the mines. This is broadly based on the mines' use of Essential Energy's water assets.<sup>15</sup>

<sup>14</sup> Essential Energy submission to IPART, September 2013, p 58.

<sup>15</sup> We reviewed the claim for confidentiality and agreed to publish a redacted version of the confidential submission.

As part of our review, we engaged Sinclair Knight Merz (SKM) to consider Essential Energy's methodology for allocating costs to be recovered from the mines and to advise on an appropriate methodology. SKM supported a high level allocation of costs to the mines as a customer group, based on:

- ▼ the consumption of asset capacity, for **capital costs**, using the mines' share of total water usage as the most suitable allocator
- ▼ the mines' share of total water usage, for **operating costs**.<sup>16</sup>

SKM made some recommendations to improve Essential Energy's cost allocation methodology and we found most of these recommendations to be reasonable.

Overall, we found that applying Essential Energy's proposed methodology, adjusted for the recommendations of our consultant, did not result in large changes to the revenue to be paid by the mines. Therefore, our decision for the 2014 determination period is to maintain the mines' contribution to Essential Energy's water revenue at its current (2013/14) share.

Once we determined the mines' share of Essential Energy's water revenue, we then set prices for the mines to recover this revenue requirement. In setting water prices for the mines, we broadly used the same methodology that we use to set other residential and non-residential customers' prices:

- ▼ The usage charges for treated water and untreated water (which are the water quality types that the mines use) are set at the current Tier 1 price, as for other customers.
- ▼ The expected revenue from usage charges is calculated using forecast water sales for each water quality type (treated and untreated).
- ▼ To recover the remainder of the mines' share of the revenue requirement, we then set the mines' fixed ('service') charges. Each mine will pay a single annual service charge based on its share of total mines' water consumption over recent years.

We consider it appropriate to set annual water service charges for each mine throughout the determination period because Essential Energy's costs of providing water to mining customers is unlikely to reduce significantly over the 4-year determination period. This is because of the large fixed costs involved in delivering water services.

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<sup>16</sup> Sinclair Knight Merz, *Strategic Management Overview and Review of Operating and Capital Expenditure for Essential Energy's water and sewerage business in Broken Hill*, Final Report, 26 January 2014, pp 118-122.

We also consider that water usage is a reasonable indicator of a customer's share of Essential Energy's system capacity – particularly for large customers.<sup>17</sup> Therefore, we consider that each mine's share of total mines' water usage over recent years is a reasonable allocator of costs between the mines for the purposes of determining fixed water service charges.

If there are new mining customers over the determination period, they would pay the same water usage charges as the existing mines (and all other customers). However, as an interim measure until the next price determination, the new mining customers would pay the meter-based water service charges applicable to other 'non-residential' customers.

## 1.2 Impact on residential customers' bills

Table 1.2 shows indicative water and sewerage bills for residential customers under our decisions. It shows that bills for residential customers with water usage of 300 kL per year will increase by around \$191 or 15.3% over the 4-year determination period with the largest increase occurring in the first year (2014/15). This is slightly more than the estimated rate of inflation of 10.8% over the 4 years, and equates to an average annual increase of 3.6%.

The bill impact for customers with usage greater than 400 kL will depend on how much of their current usage occurs in the summer period, when the Tier 2 usage threshold is 600 kL. For example, a customer who uses 500 kL per year will experience bill increases of between 6.7% and 14.3% over the determination period, depending on how much is currently used during the summer period. If the additional 100 kL is currently used completely during the summer period, then the bill will increase by around 14.3% over the determination period, which is slightly higher than inflation.

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<sup>17</sup> In support of our view, we note that SKM recommended actual water usage as a method of allocating costs to different customers (SKM, *Essential Energy (Water) expenditure review*, January 2014, p 120).

**Table 1.2 Residential annual water and sewerage bills over the 2014 determination period (\$nominal)**

Financial year ending 30 June	2013/14 <sup>a</sup>	2014/15	2015/16	2016/17	2017/18	% change 2014-18	% change average annual
<b>Treated water and sewerage</b>							
200 kL	1,084.45	1,167.55	1,196.74	1,226.66	1,257.32	15.9%	3.8%
275 kL	1,209.70	1,296.43	1,328.84	1,362.07	1,396.12	15.4%	3.6%
300 kL	1,251.45	1,339.39	1,372.88	1,407.20	1,442.38	15.3%	3.6%
400 kL	1,418.45	1,511.24	1,549.02	1,587.74	1,627.44	14.7%	3.5%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	1,698.45	1,683.08	1,725.16	1,768.29	1,812.49	6.7%	1.6%
650 kL <sup>b</sup>	2,118.45	1,940.84	1,989.37	2,039.10	2,090.08	-1.3%	-0.3%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	1,585.45	1,683.08	1,725.16	1,768.29	1,812.49	14.3%	3.4%
650 kL <sup>b</sup>	1,892.45	1,940.84	1,989.37	2,039.10	2,090.08	10.4%	2.5%

<sup>a</sup> Currently thresholds apply for Tier 2 usage charges. The threshold for Tier 2 water usage prices is 600 kL per year in the summer months and 400 kL per year at other times.

<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates, at any time of year.

**Source:** IPART analysis.

For chlorinated water and untreated water, customers who purchase less than 400 kL per year will see their bills rise by more than inflation. Due to the removal of the Tier 2 water usage charge, larger users of chlorinated and untreated water will see a smaller increase in their bills, depending on how much of it is currently used during the summer period. This is shown in Table 11.2 in the report. For example, customers who purchase 500 kL per year of chlorinated water will see their bills increase by between 7.5% and 17.8% over the determination period, depending on how much is currently used during the summer period. If the additional 100 kL is currently used completely during the summer period, then the bill increase will be around 17.8% over the determination period.

### 1.3 Impact on non-residential customers' bills

Table 1.3 shows the indicative impact of the Determination on non-residential water and sewerage bills, with varied levels of water usage and different meter sizes. It shows that for large users, with usage in excess of 400 kL per year, bills will generally increase by less than inflation. This is due to the removal of the Tier 2 usage charge. For example, a customer with a 32mm meter using 1,000 kL of water per year will have its bill vary between -0.3% and 4.0% over the determination period, depending on how much is currently used during the summer period.

**Table 1.3 Non-residential annual water and sewerage bills (\$nominal)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-18	% change average annual
<b>Treated water and sewerage</b>							
20mm with 250 kL usage	1,506.15	1,601.49	1,641.52	1,682.56	1,724.63	14.5%	3.4%
<b>All consumption above 400 kL currently charged at Tier 2 (non-summer period)<sup>a</sup></b>							
32mm with 1,000 kL usage	5,490.21	5,083.57	5,210.65	5,340.92	5,474.44	-0.3%	-0.1%
80mm with 5,000 kL usage	31,951.31	28,355.60	29,064.49	29,791.10	30,535.88	-4.4%	-1.1%
<b>Consumption between 400 &amp; 600 kL charged at Tier 1 (summer period)<sup>b</sup></b>							
32mm with 1,000 kL usage	5,264.21	5,083.57	5,510.65	5,340.92	5,474.44	4.0%	1.0%
80mm with 5,000 kL usage	31,725.31	28,355.60	29,064.49	29,791.10	30,535.88	-3.7%	-1.0

<sup>a</sup> Currently thresholds apply for Tier 2 usage charges. The threshold for Tier 1 water usage prices is 600 kL per year in the summer months and 400 kL per year at other times.

<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates, at any time of year.

**Note:** We used a standard discharge factor of 83%, as indicated in Essential Energy's submission (p 62), to estimate bills.

**Source:** IPART analysis.

For Essential Energy's mining customers, due to commercial-in-confidence considerations, we have not provided information in this report on their bills. In broad terms, we have maintained the mines' contribution to Essential Energy's water costs at its current (2013/14) share. This resulted in a small increase in the revenue to be paid by the mines in 2014/15, the first year of the determination period. In the following years, revenue to be paid by the mines will increase in line with increases in Essential Energy's costs.

## 1.4 Impact on Essential Energy

Our approach to setting prices ensures that utilities recover their efficient costs in the long term. Under the building block cost model, we set prices to cover the efficient costs of a benchmark business. This includes a market-based rate of return for equity and debt holders.

The objective of the financeability test is to assess the short term financial sustainability of the utility. This means that we assess whether the utility will be able to raise the necessary debt financing consistent with an investment grade-rated firm during the regulatory period. In applying the financeability assessment, our policy is to use the business' actual gearing ratio<sup>18</sup> and a forecast of the actual interest cost to calculate a set of financial ratios.<sup>19</sup>

Essential Energy submitted estimates of an actual gearing level and an actual interest cost for Essential Water, as part of its response to our draft decision. We used these to undertake an analysis of its financeability during this regulatory period. Its estimate of the actual gearing level was substantially higher than the gearing level of 47% we used in our draft decision and the gearing level of 55% that we consider to be appropriate for Essential Water. The gearing level of 47% used in the draft decision was a proxy based on Hunter Water's gearing level in its 2013 Determination. The 55% gearing level is our view of the appropriate gearing level for a benchmark utility operating in the same market as Essential Water's monopoly water services and facing similar levels of risk.

As a result of Essential Energy's estimates of Essential Water's actual gearing level being substantially higher than a commercially sustainable gearing level for a similar business operating in a similar market, we found that it would not be financially sustainable over the regulatory period.

We also undertook indicative analysis setting Essential Water's gearing at a more appropriate level of 55% (our benchmark over the determination period). Based on these assumptions, we consider that Essential Water would be financeable over the regulatory period. In order to achieve and maintain a gearing level of 55%, Essential Water would need to receive an initial equity injection at the start of the regulatory period to bring the gearing level down to 55% and then maintain this gearing level over the regulatory period.

In summary, Essential Water would not face financeability issues during the upcoming regulatory period if it managed its capital structure as would be appropriate for a similar commercial business. We recommend that Essential Water's management and shareholders consider this issue.

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<sup>18</sup> Calculated using the utilities' submitted debt level for its regulated business, as a proportion of its regulated asset base.

<sup>19</sup> IPART, *Financeability tests in price regulation - Final Report*, December 2013, p 2.

## 1.5 Structure of this report

This report explains decisions for the Determination in detail, including analysis that guided each decision.

Following this chapter is a list of our decisions. The remainder of the report is structured as follows:

- ▼ Chapter 2 outlines the context for the review, including our review process, Essential Energy's operating and regulatory environment and Essential Energy's submission and proposed prices
- ▼ Chapter 3 outlines our price setting approach and decisions related to the regulatory framework
- ▼ Chapter 4 provides an overview of our decisions on Essential Energy's notional revenue requirement
- ▼ Chapters 5 to 7 discuss our decisions on these individual components in more detail:
  - Chapter 5 explains the decisions on Essential Energy's efficient operating expenditure
  - Chapter 6 explains the decisions on Essential Energy's capital investment
  - Chapter 7 explains the decisions on the allowances for a return on assets and regulatory depreciation
- ▼ Chapter 8 discusses our decisions on Essential Energy's forecast water sales and customer numbers
- ▼ Chapters 9 and 10 explain the decisions on Essential Energy's price structures and set out the price levels
- ▼ Chapters 11 and 12 assess the implications of our pricing decisions, including the impacts on Essential Energy, its customers and the environment.

The appendices provide more information on technical matters, including:

- ▼ matters we are required to consider (Appendix A)
- ▼ the water demand-supply balance in Broken Hill (Appendix B)
- ▼ our analysis of capital expenditure issues raised by stakeholders in response to our Draft Report that did not impact our final decisions (Appendix C)
- ▼ the regulatory tax allowance, the WACC and our assessment of Essential Water's financeability (Appendices D, E and F)
- ▼ our decisions on trade waste charges and miscellaneous service charges (Appendices G and H).

## 1.6 List of Decisions

### Regulatory framework

- |   |   |    |
|---|---|----|
| 1 | There will be a 4-year determination period from 1 July 2014 to 30 June 2018.   | 35 |
| 2 | For the purpose of setting water prices, the existing mines' share (percentage) of Essential Energy's water revenue is maintained at its 2013/14 level over the determination period.   | 38 |
| 3 | The existing mines, and any new mining customers, will pay the same water usage price, per water quality type, as the rest of the customer base.  | 38 |
| 4 | The existing mines' water service charges will be fixed annual charges based on each mine's share of total mines' water consumption (over the recent historical period), to recover the difference between revenue expected to be received from the existing mines' water usage charges and the total costs to be recovered from the mines.                                 | 38 |
| 5 | As an interim measure, any new mining customers will pay the same meter based water service charges as other non-residential customers.   | 38 |
| 6 | At the next determination of Essential Energy's prices, IPART will consider an adjustment to the revenue requirement and prices to mitigate any over or under-recovery of revenue over this determination period due to material differences between the level of water sales over the determination period and the forecast water sales used in making this determination. | 43 |

### Notional revenue requirement and target revenue requirement

- |   |   |    |
|---|---|----|
| 7 | Essential Energy's notional revenue requirement is as shown in Table 4.3.   | 50 |
| 8 | Prices are set to recover Essential Energy's target revenue requirement in net present value (NPV) terms, as shown in Table 4.4.  | 51 |
| 9 | The revenue to be deducted from Essential Energy's target revenue to reflect the revenue it is forecast to raise through 'trade waste, miscellaneous and other charges' is as shown in Table 4.5. | 52 |

### Efficient operating expenditure

- |    |  |    |
|----|--|----|
| 10 | For the purpose of setting prices, Essential Energy's efficient level of operating expenditure is as shown in Table 5.1. | 55 |
|----|--|----|

### Prudent and efficient capital expenditure

- |    |  |    |
|----|--|----|
| 11 | Essential Energy's actual capital expenditure over the period 2009/10 to 2012/13 is deemed to be prudent and efficient, and is included in the opening value of the RAB for the 2014 determination period. | 72 |
| 12 | Essential Energy's prudent and efficient level of capital expenditure for 2013/14 and over the 2014 determination period is as shown in Table 6.1.   | 72 |
| 13 | The allowances for a return on assets and regulatory depreciation to be included in Essential Energy's notional revenue requirement are as shown in Table 7.1.   | 90 |
| 14 | For the purposes of calculating the allowance for a return on assets, a real post-tax WACC of 5.2% per year is appropriate.  | 94 |

### Return on assets and regulatory depreciation

- |    |   |    |
|----|---|----|
| 15 | Regulatory depreciation is calculated using a straight line depreciation method, and asset lives are as shown in Table 7.4. | 99 |
|----|---|----|

### Price structures

- |    |  |     |
|----|--|-----|
| 16 | Forecast metered water sales are as shown in Table 8.1.  | 101 |
| 17 | The Tier 2 water usage price for treated, chlorinated and untreated water is set to the current Tier 1 price in real terms over the determination period.  | 107 |
| 18 | Fixed ('service') charges are set to recover the remainder of Essential Energy's revenue requirement not recovered through usage prices, as follows:   | 115 |
|    | – For all residential customers, there is a standard water service charge - ie, a residential water service charge that does not vary by meter size.   | 115 |
|    | – For non-residential customers, there is a water service charge that varies by meter size.  | 115 |
| 19 | All unmetered residential and non-residential customers pay an unmetered water charge, consisting of the standard residential water service charge plus a water usage charge for a deemed consumption of 300 kL per year for the applicable water quality. | 117 |
| 20 | Effluent water prices are not regulated, and revenue from effluent water sales is treated as an unregulated income source with revenue shared 50% to Essential Energy and 50% to customers.  | 118 |

### Maximum prices for water, sewerage, trade waste and miscellaneous services

- |    |  |     |
|----|--|-----|
| 21 | A minimum sewerage service charge for all non-residential customer connections is set equal to the standard residential sewerage service charge.                                 | 120 |
| 22 | The maximum water usage prices that Essential Energy can charge are set out in Table 10.1, and these charges will be indexed annually in line with changes in the CPI.           | 123 |
| 23 | The maximum water service charges that Essential Energy can charge are set out in Table 10.3 and these charges will be indexed annually in line with changes in the CPI.         | 125 |
| 24 | The maximum sewerage service charges Essential Energy can charge are set out in Table 10.5 and these charges will be indexed annually in line with changes in the CPI.           | 128 |
| 25 | The maximum sewerage usage charges Essential Energy can charge are set out in Table 10.5 and these charges will be indexed annually in line with changes in the CPI.             | 129 |
| 26 | The maximum prices Essential Energy can charge for trade waste services are as shown in Appendix G and these charges will be indexed annually in line with changes in the CPI.   | 129 |
| 27 | The maximum prices Essential Energy can charge for miscellaneous services are as shown in Appendix H and these charges will be indexed annually in line with changes in the CPI. | 131 |

### Weighted average cost of capital

- |    |  |     |
|----|--|-----|
| 28 | The risk-free rates in determining the WACC are as shown in Table E.2.   | 162 |
| 29 | The inflation rates in determining the WACC are as shown in Table E.3.   | 163 |
| 30 | The debt margins in determining the WACC are as shown in Table E.4.  | 164 |
| 31 | The market risk premiums in determining the WACC are as shown in Table E.5.  | 165 |
| 32 | An equity beta range of 0.6 to 0.8 has been used in determining the WACC.  | 166 |
| 33 | A gearing ratio ranging from 50% to 60%, with a midpoint of 55%, has been used in determining the WACC.                          | 166 |
| 34 | The midpoint WACC (ie, 5.2%) has been selected as the WACC for Essential Energy given the current level of economic uncertainty. | 167 |

## 2 Context for this review

The purpose of this review was to determine the maximum prices that Essential Energy can charge for the water and sewerage services it provides to residential and non-residential customers in Broken Hill, as well as charges for a range of miscellaneous and ancillary services.

The following sections outline contextual issues for the review, including our review process, the matters we have considered and Essential Energy's operations and regulatory environment. The final section summarises Essential Energy's submission to the review.

### 2.1 IPART's review process

As part of our review process, we have undertaken an extensive investigation and public consultation process. We have:

- ▼ released an Issues Paper in June 2013 to assist in identifying and understanding the key issues for review
- ▼ invited Essential Energy to make a submission to the review detailing its pricing proposals, and required it to provide extensive financial and performance data on the future capital and operating expenditure necessary to maintain service levels and respond to regulatory demands<sup>20</sup>
- ▼ invited other interested parties to make submissions on the Issues Paper and Essential Energy's submission<sup>21</sup>
- ▼ held a Public Hearing on 19 November 2013 to discuss a wide range of issues raised by Essential Energy and other stakeholders
- ▼ engaged an independent consultant, Sinclair Knight Merz (SKM), to review Essential Energy's capital expenditure, asset planning, asset lives and operating expenditure proposals<sup>22</sup>
- ▼ released a Draft Report and Draft Determination, and sought stakeholder comment on our draft decisions

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<sup>20</sup> Essential Energy's submission was received on 13 September 2013.

<sup>21</sup> A total of 10 written submissions were received from other interested parties.

<sup>22</sup> SKM's Final Report was received in December 2013.

- ▼ considered all matters raised in the submissions in response to the Draft Report and Draft Determination, and released this Final Report and Determination.

The Final Report and Determination, and other reports including stakeholder submissions, SKM's report and our Draft Report are available on IPART's website ([www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au)).

We also note that we have recently completed 2 separate reviews of our methodology for determining the weighted average cost of capital (WACC)<sup>23</sup> and applying Financeability Tests in price regulation.<sup>24</sup> We outline how we applied the decisions in this price review in Chapters 7 and 12 and Appendix E.

## 2.2 Other matters we were required to consider

Our power to determine prices is derived from our governing Act, the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act). This review is being conducted under Section 11 of the IPART Act. Section 11 provides IPART with a standing reference to conduct investigations and make reports to the Minister on the determination of the pricing for a government monopoly service supplied by a government agency.<sup>25</sup>

Section 15 of this Act requires IPART to consider a broad range of matters when making determinations. These matters include:<sup>26</sup>

- ▼ **consumer protection** – the protection of consumers from abuses of monopoly power; the quality, reliability and safety standards of the services concerned; and the social impact of pricing decisions and their effect on inflation
- ▼ **economic efficiency** – the need for greater efficiency in the use and supply of services; the need to promote competition; and the need to consider demand management and least-cost planning
- ▼ **financial viability** – the cost of providing the services concerned; the appropriate rate of return on public sector assets; and the impact of pricing decisions on the agency's borrowing, capital and dividend requirements
- ▼ **environmental protection** – the need to promote ecologically sustainable development through appropriate pricing policies.

In considering these matters, we aim to balance the diverse needs and interests of stakeholders, while also ensuring that Essential Energy is adequately recompensed for the services it provides.

<sup>23</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013.

<sup>24</sup> IPART, *Financeability tests in price regulation – Final Decision*, December 2013.

<sup>25</sup> The government agency must be specified in Schedule 1 of the IPART Act. Essential Energy is listed as a government agency for the purposes of Schedule 1 of the IPART Act.

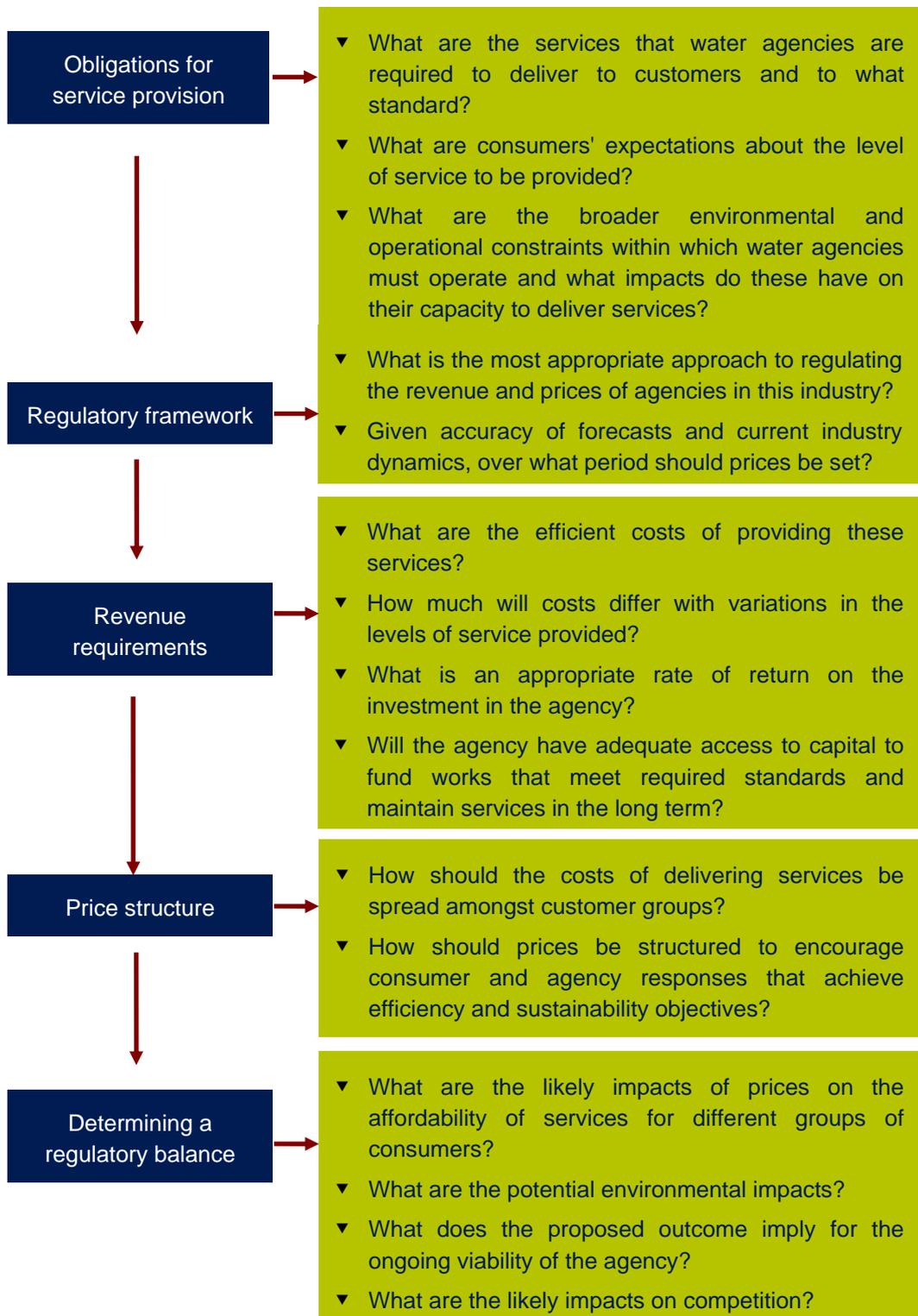
<sup>26</sup> The Section 15 requirements are listed in full in Appendix A.

We also take into account the principles issued by the Council of Australian Governments (COAG) and contained in the National Water Initiative.<sup>27</sup>

With these requirements in mind, we have developed a general approach to determining monopoly prices for water agencies. That approach is set out in Figure 2.1.

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<sup>27</sup> The National Water Initiative has built on the principles established in the 1994 COAG Water Reform Framework.

**Figure 2.1 IPART's determination process**

## 2.3 Essential Energy's services

Essential Energy's water-related functions include providing water, sewerage, liquid trade waste and miscellaneous services. The sections below provide an overview of these services.

### 2.3.1 Water supply services

Essential Energy supplies a total of approximately 5,000 ML of water per year to around 9,935 residential customers and 604 non-residential customers in the Broken Hill area. Essential Energy also provides non-potable water to 47 rural users along the Menindee to Broken Hill pipeline for stock and domestic purposes.<sup>28</sup>

The largest customer is the mining company Perilya Ltd (Perilya), which uses approximately 25% of the total water supplied. CBH Resources Ltd (Broken Hill Operations), a second mine, also operates close to Broken Hill. It accounts for around 8% of total water consumption.<sup>29</sup>

The following provides a breakdown of Essential Energy's water supply services.

#### Treated water

Treated water is known as potable water or drinking water. The water is disinfected and filtered to a standard that is fit for human consumption. Essential Energy supplies treated water to Broken Hill and Menindee.<sup>30</sup>

#### Untreated water

Untreated water is also referred to as raw water. This is water in its natural state, prior to any treatment process, or the water entering the first treatment process of a water treatment plant. It is not suitable for human consumption. Essential Energy supplies untreated water to selected locations in Broken Hill and Menindee, and to customers along the Menindee and Umberumberka pipelines.<sup>31</sup>

#### Chlorinated water

Chlorinated water is raw water that has been treated with a chlorine disinfection process but not filtered to remove solids and organic particles. This water is not suitable for human consumption. Essential Energy supplies chlorinated water to Silverton and Sunset Strip.<sup>32</sup>

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<sup>28</sup> Essential Energy submission to IPART, September 2013, p 10.

<sup>29</sup> Ibid.

<sup>30</sup> Ibid, p 14.

<sup>31</sup> Ibid.

<sup>32</sup> Ibid.

## Effluent water

Effluent water is sewage or waste water that is treated at a sewerage treatment plant before being re-used or discharged to the environment. Effluent water is not suitable for human consumption and may only be re-used under specific environmental conditions.

Essential Energy supplies effluent water to several customers for use in processing operations, dust suppression and irrigation.<sup>33</sup>

### 2.3.2 Sewerage services

Essential Energy also provides sewerage services to approximately 9,500 properties in the city of Broken Hill, including some houses and other buildings in the Perilya mining lease area.<sup>34</sup>

Essential Energy operates 2 sewage treatment plants and around half of the treated effluent is sold for non-drinking purposes. The remaining half is discharged to the environment through evaporation ponds.<sup>35</sup>

### 2.3.3 Trade waste and miscellaneous services

Essential Energy provides liquid trade waste services to non-residential customers in the city of Broken Hill only.

Essential Energy provides a range of miscellaneous services to its water and sewerage customers. These are generally one-off services such as connections and disconnections, replacing damaged services, plumbing inspections, site inspections and building plan approvals. Charges for these miscellaneous services are levied on a relatively small number of customers, and are charged on an as needed basis.

## 2.4 Essential Energy's operations

The following sections describe the key areas of Essential Energy's water and sewerage operations.

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<sup>33</sup> Essential Energy submission to IPART, September 2013, p 44.

<sup>34</sup> Ibid, p 10.

<sup>35</sup> Ibid, p 10.

### 2.4.1 Water operations

Essential Energy's service area is the most arid in the state, experiencing extreme climatic variations. This includes more frequent drought than coastal areas. Eight in every 10 years, the town water supply is dependent on water sourced from the Darling River off-take at the Menindee Lakes Scheme. Water is pumped over 116km of pipeline to Broken Hill. These unique operational circumstances, combined with drought, cause salinity and other water quality problems in the raw water that Essential Energy must treat.<sup>36</sup>

Essential Energy is an end water user and is licensed to extract 10 GL of high security water per year from the Menindee Lakes Scheme. Essential Energy also has a licence to extract 29 ML per year of raw water for Menindee. The water has to be pumped a height of 287 metres over a distance of 116km from its source at the Darling River to the Mica Street water treatment plant in Broken Hill.<sup>37</sup>

During drought,<sup>38</sup> the management of the Menindee Lakes Scheme, and hence the availability of Essential Energy's water licence entitlements, rests with the NSW Office of Water. At all other times, the management of the lakes scheme rests with the Murray Darling Basin Authority.<sup>39</sup>

There are 3 other sources of water managed by Essential Energy:<sup>40</sup>

- ▼ Stephens Creek Reservoir, which has a capacity of 19,000 ML. It receives water from its own catchment, as well as water pumped from the Darling River.
- ▼ Umberumberka Reservoir, which has a capacity of 7,800 ML and receives water from its own catchment.
- ▼ Imperial Lake Dam, which has a capacity of 670 ML and collects from its own catchment, including part of the Broken Hill urban area. It is used as an emergency storage only.

Figure 2.2 shows a schematic of Essential Energy's water supply in Broken Hill and surrounding areas.

<sup>36</sup> Essential Energy, *Essential Water Customer Charter*, p 3.

<sup>37</sup> Essential Energy, *Essential Water History and Operations*, March 2011, p 7.

<sup>38</sup> When the total storage in the scheme falls below 480 GL and until it returns to 640 GL.

<sup>39</sup> Essential Energy, *Essential Water History and Operations*, March 2011, p 7.

<sup>40</sup> *Ibid*, p 8.

**Figure 2.2 Essential Energy's water supply network in Broken Hill and surrounding areas**



**Data source:** Essential Energy submission to IPART, September 2013, p 11.

### 2.4.2 Sewerage operations

Essential Energy has 2 wastewater treatment plants – Wills Street and South Broken Hill. Sewage is treated to primary, secondary and tertiary levels and further disinfection is provided via an ultraviolet treatment system at the Wills Street plant. Sewage is piped through a network of 195 km of mains (20 km of rising mains and 175 km of gravitation mains) and 11 pumping stations to the wastewater treatment plants.<sup>41</sup>

<sup>41</sup> Essential Energy submission to IPART, September 2013, p 79.

## 2.5 Regulatory framework

There are a number of regulators that oversee Essential Energy's water and sewerage functions. Essential Energy's primary regulators include:

- ▼ **IPART**, which is responsible for setting the maximum prices that can be charged by Essential Energy for its monopoly services.
  - In the 2010 Determination, we did not determine prices for water supply services provided to the mining company Perilya Ltd, as prices had been set by the NSW Government under an agreement until 30 June 2012.<sup>42</sup> Essential Energy has advised IPART that it does not seek to renew this agreement. We now therefore set the maximum prices applicable to all water users, including the mines (see Chapter 9).
- ▼ The **Department of Primary Industries**, which includes:
  - **NSW Office of Water (NOW)**, which has primary responsibility for the management of water resources throughout NSW. NOW licences the extraction of water from surface and groundwater sources under the *Water Management Act 2000* and the *Water Act 1912*. NOW also oversees the performance of Local Water Utilities using a 'light handed regulatory framework', based on the requirements of the '*Best-Practice Management of Water Supply and Sewerage Guidelines*'.<sup>43</sup>
  - **Dams Safety Committee**, which is responsible for formulating measures to ensure the safety of dams and maintaining surveillance of prescribed dams, including those under the management of Essential Energy. This function is conducted under the *Dams Safety Act 1978*. Under the *Mining Act 1992*, the Dams Safety Committee has statutory functions, through advice to the responsible Minister, in determining the type and extent of mining allowed near dams and their storages.<sup>44</sup>
- ▼ **NSW Health**, which is responsible for regulating the quality and safety of Essential Energy's drinking water.<sup>45</sup>
- ▼ The **NSW Environment Protection Authority (EPA)**, which is responsible for monitoring and regulating sewage discharges from Essential Energy's sewerage system.<sup>46</sup>

<sup>42</sup> We set Essential Energy's notional revenue requirement based on its efficient costs. We then subtracted from the revenue requirement the estimated revenue from the Mines, established under the Mines Charges Agreement, before setting prices for the remaining customers.

<sup>43</sup> NOW, *Best-Practice Management of Water Supply and Sewerage Guidelines*, August 2007.

<sup>44</sup> Dams Safety Committee NSW website, [http://www.damsafety.nsw.gov.au/Dams/Education/dam\\_safety.shtml](http://www.damsafety.nsw.gov.au/Dams/Education/dam_safety.shtml), accessed 1 May 2013.

<sup>45</sup> Essential Energy publicly reports on compliance with the *Australian Drinking Water Guidelines 2011*, on an annual basis (Essential Water Customer Charter).

<sup>46</sup> <http://www.essentialwater.com.au/content/waste-water-monitoring>, accessed 18 June 2014.

## 2.6 Overview of Essential Energy's submissions

This section outlines some of the key elements of Essential Energy's September 2013 submission to IPART, which contains its pricing proposal and was submitted in response to our Issues Paper. Essential Energy also provided a submission to our Draft Report in April 2014. Both submissions are available on our website.

### 2.6.1 Essential Energy's submission to our Issues Paper

#### Prices and customer bills

Over the 4 years from 1 July 2014, Essential Energy proposed price increases of 25.5% (excluding inflation) for its residential and non-residential customers. This comprises annual price increases of about 5.9% (excluding inflation) for most of its services to residential and non-residential customers.

In addition to prices for its residential and non-residential customers, Essential Energy proposed separate prices for the mines. These are included in a confidential attachment to its submission to IPART.

Under its proposal for residential and non-residential customers:

- ▼ a typical residential customer's combined water and sewerage bill of \$1,251.45 (based on treated water consumption of 300 kL per year) would increase by \$319.71 (\$2013/14) over the determination period (see Table 2.1)
- ▼ a non-residential customer's combined water and sewerage bill of \$4,769.40 (based on a meter size of 25mm and treated water consumption of 1,000 kL per year) would increase by \$1,218.45 over the determination period (see Table 2.1)
- ▼ a chlorinated water residential customer's bill of \$577.66 (based on chlorinated water consumption of 300 kL per year) would increase by \$147.58 over the determination period (see Table 2.1)
- ▼ an untreated water (pipeline) customer bill of \$469.66 (based on untreated water consumption of 300 kL per year) would increase by \$119.99 over the determination period (see Table 2.1).

**Table 2.1 Essential Energy's proposed bill increases for various customers (\$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18	Total increase
<b>Residential (300 kL) - treated water and sewerage</b>	<b>1,251.45</b>	<b>1,324.69</b>	<b>1,402.22</b>	<b>1,484.29</b>	<b>1,571.16</b>	<b>319.71</b>
Increase (%)		5.9%	5.9%	5.9%	5.9%	
<b>Pensioner (300 kL) - treated water and sewerage<sup>a</sup></b>	<b>1,076.45</b>	<b>1,149.69</b>	<b>1,227.22</b>	<b>1,309.29</b>	<b>1,396.16</b>	<b>319.71</b>
Increase (%)		6.8%	6.7%	6.7%	6.6%	
<b>Non-residential (25mm, 1.000 kL) - treated water and sewerage</b>	<b>4,769.40</b>	<b>5,048.54</b>	<b>5,344.01</b>	<b>5,656.78</b>	<b>5,987.85</b>	<b>1,218.45</b>
Increase (%)		5.9%	5.9%	5.9%	5.9%	
<b>Residential (300 kL) chlorinated water only</b>	<b>577.66</b>	<b>611.47</b>	<b>647.26</b>	<b>685.14</b>	<b>725.24</b>	<b>147.58</b>
Increase (%)		5.9%	5.9%	5.9%	5.9%	
<b>Untreated water only - Pipeline (300 kL)</b>	<b>469.66</b>	<b>497.15</b>	<b>526.24</b>	<b>557.04</b>	<b>589.65</b>	<b>119.99</b>
Increase (%)		5.9%	5.9%	5.9%	5.9%	

<sup>a</sup> The dollar change in the bill is the same for a typical pensioner and a typical non-pensioner customer. The percentage increase for a pensioner is higher due to the impact of the NSW Government's \$175 nominal rebate on customer bills. Over time, the real value of the pensioner rebate is falling due to inflation.

Source: Essential Energy submission to IPART, September 2013, pp 60-62.

### Other fees and charges

Essential Energy provides liquid trade waste services to non-residential customers in Broken Hill. Although Essential Energy is not imposing its trade waste charges on most customers, it proposed to increase its trade waste charges by the same amount as it proposed to increase its sewerage charges – ie, by 5.9% per year, or 25.5% over 4 years (see Chapter 4 and Chapter 10).<sup>47</sup>

Essential Energy provides a range of miscellaneous services to its water and sewerage customers. These charges are levied on a small number of customers, as they are incurred. Essential Energy proposed to increase these charges by the change in the Consumer Price Index (CPI).<sup>48</sup>

### Customer engagement

Essential Energy reported that it has an ongoing customer relationship program to ensure that its water and sewerage expenditure programs are targeted and cost-effective, and meet current and future customer needs.<sup>49</sup>

<sup>47</sup> Essential Energy submission to IPART, September 2013, p 57.

<sup>48</sup> Ibid, p 58.

<sup>49</sup> Ibid, p 24.

According to Essential Energy, it does not propose any 'discretionary' expenditure in this determination period<sup>50</sup> – ie, expenditure that is directed to services or service levels that are not mandatory. Discretionary expenditure is one of the 2 main areas on which we require customer consultation, with the other being price structures.<sup>51</sup>

However, consistent with our customer engagement guidelines, Essential Energy conducted 2 surveys on a range of other matters. These were a Customer Satisfaction Survey (February 2012) and a Pricing Review Information Survey (August 2013). This was followed by a focus group forum.

Essential Energy<sup>52</sup> commissioned an independent Customer Satisfaction Survey in February 2012, to gain a better understanding of issues facing its customers. There were 600 respondents (100 businesses and 500 residential customers). The affordability of water supply was considered to be the biggest issue over the next 20 to 30 years. This was nominated as a major issue by 63% of respondents. Around 37% of respondents were also concerned about ageing infrastructure.

Essential Energy<sup>53</sup> conducted a Pricing Review survey in August 2013. There were 69 respondents. Overall customer satisfaction with Essential Energy's services was rated as:

- ▼ satisfied or very satisfied – in particular, with water quality, reliability and customer service levels – 69%
- ▼ unsatisfied or very unsatisfied – 16%
- ▼ neutral or did not answer the question – 15%.

Price was cited as an issue for 55% of respondents.

Essential Energy<sup>54</sup> has an ongoing customer relationship program that includes bi-annual meetings of its Water Customer Council<sup>55</sup> and regular meetings with the State Member for Murray-Darling, representatives of the Energy and Water Ombudsman NSW (EWON), progress associations, community service organisations and welfare agencies. Input obtained through this program helps Essential Energy to align its investment strategy with customer needs. The focus group as a whole acknowledged that water infrastructure is ageing and requires investment to meet required standards, with a consequent impact on future water pricing.

<sup>50</sup> Essential Energy submission to IPART, September 2013, p 74.

<sup>51</sup> IPART, *Customer engagement on prices for monopoly services – Final Report*, August 2012.

<sup>52</sup> Essential Energy, *Pricing proposal - customer impacts summary*, September 2013, p 2.

<sup>53</sup> Ibid, p 2.

<sup>54</sup> Ibid, p 2.

<sup>55</sup> The Customer Council includes representatives of: the Pastoralists Association of West Darling, Broken Hill City Council, Central Darling Shire Council, Chamber of Commerce, Perilya Mining Company and Broken Hill Health Council.

## Revenue requirement

Table 2.2 below shows Essential Energy's proposed notional revenue requirement for the 2014 determination period. It proposed an increase in its notional revenue requirement of 8.0% over the forecast period. However, the actual increase proposed for residential and non-residential customers is only 5.9%. This is because the cost to the mines needs to be deducted from its proposed revenue requirement, and thus the increase of 5.9% is calculated on the resulting amount.

**Table 2.2 Essential Energy's proposed notional revenue requirement (\$000s, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2013/14 to 2017/18
Notional revenue requirement	22,239 <sup>a</sup>	21,847	22,644	23,698	24,018	8.0%

<sup>a</sup> Essential Energy's estimated notional revenue requirement for 2013/14.

**Source:** Essential Energy's information return, November 2013.

Essential Energy's proposed revenue requirement over the 4 years includes the following key elements:

- ▼ Operating expenditure of \$56.4 million or \$14.1 million per year on average (which is lower than actual operating expenditure of \$16.0 million (\$2013/14) per year on average, over 2010/11 to 2013/14).
- ▼ Capital expenditure of \$52.2 million or \$13.0 million per year on average (which is higher than actual capital expenditure of \$5.7 million<sup>56</sup> per year on average, over 2010/11 to 2013/14).
- ▼ A real post-tax WACC of 5.9%.

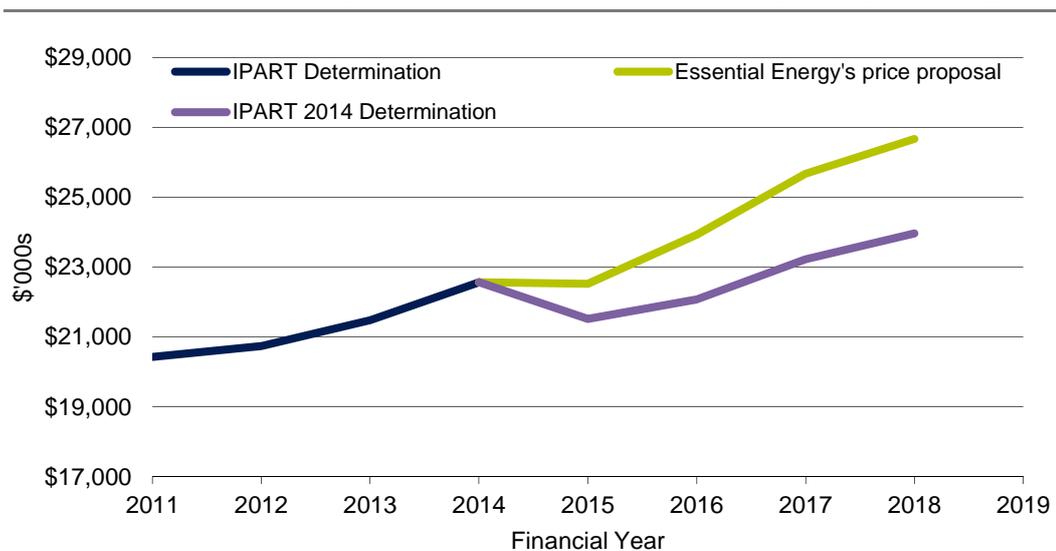
A key driver of Essential Energy's proposed increase in the notional revenue requirement is its proposal to invest \$52.2 million in capital projects to meet customer requirements, renew ageing assets, comply with safety and environmental requirements and ensure it is able to deliver water and sewerage services into the future.<sup>57</sup>

<sup>56</sup> This includes Essential Energy's submitted capital expenditure of \$5.4 million for 2013/14.

<sup>57</sup> Essential Water, *Pricing proposal – customer impact summary*, September 2013, p 2.

Figure 2.3 below shows a comparison of Essential Energy's proposed notional revenue requirement against IPART's decision. It shows that under our decision, the notional revenue required for Essential Energy to deliver its regulated services is substantially lower than its proposal, including the effects of inflation.<sup>58</sup> Our decision on Essential Energy's revenue requirement is discussed in further detail in Chapter 4.

**Figure 2.3 Essential Energy's notional revenue requirement, proposed revenue requirement and IPART's decision (\$'000s, nominal)**



**Note:** The values have been presented in nominal dollars for consistency with Chapter 11, where bills have been presented in nominal dollars.

**Data source:** IPART, *Review of Prices for Country Energy's water and sewerage services - Final Report*, June 2010, p 32; Essential Energy submission to IPART, September 2013, p 50.

## 2.6.2 Essential Energy's submission to our Draft Report

Essential Energy provided its submission to our Draft Report and Draft Determination in April 2014. It argued that our Draft Determination would fail to allow the continuation of effective, efficient, compliant operations and existing customer service levels.

Key aspects of Essential Energy's submission to our Draft Report are summarised below. We consider and respond to each element of Essential Energy's submission in subsequent chapters of this report.

<sup>58</sup> We have included the effects of inflation in presenting the notional revenue, for consistency with Chapter 11, where we have presented bills in nominal terms. We have assumed inflation of 2.7% in 2014/15 and 2.5% per year between 2015/16 and 2017/18.

## Operating and capital expenditure

Essential Energy argued that it has ‘extremely’ limited ability to reduce critical operating expenditure such as water treatment (chemicals) and pumping (energy) costs without compromising environmental and public health compliance obligations and customer service standards.<sup>59</sup> It considers that the reductions imposed in the Draft Report can only be achieved through workforce reductions.

Similarly, Essential Energy argued that the proposed reductions in capital expenditure would delay completion of all projects and result in:

- ▼ increased potential for environmental and public health non-compliance
- ▼ a change from proactive, preventative maintenance to reactive, breakdown maintenance leading to increased expenditure
- ▼ increased risk of asset failure.<sup>60</sup>

## Price structures

### Removal of Tier 2 water usage price

Essential Energy does not support the removal of Tier 2 water usage charges.<sup>61</sup> It considers the inclining tariff structure to be a water efficiency incentive, which has successfully mitigated the need for water restrictions. It also considers the second tier charge to be an effective tool to signal additional pumping costs associated with high water consumption, particularly during dry periods.

Essential Energy expressed concern that given it appears to be entering a drought period, the removal of the Tier 2 water usage charge could result in increased costs associated with higher water usage and potentially introduce the need for water restrictions due to depletion of limited water reserves.

### Mines’ prices

Essential Energy states that the pricing structure for the mines, as outlined in IPART’s Draft Report, imposes significant revenue risk on it, which its remaining customer base will ultimately have to bear.<sup>62</sup> According to Essential Energy, the risks are:

- ▼ the water usage charge (\$ per kL consumed) creates incentives for the mines to invest in alternative sources of water, such as on-site water sourcing and treatment, and substitute treated water with raw water for uses such as dust suppression

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<sup>59</sup> Essential Energy submission to the Draft Report, April 2014, p 7.

<sup>60</sup> Ibid, p 12.

<sup>61</sup> Ibid, p 18.

<sup>62</sup> Ibid, pp 19-20.

- ▼ the water service charge (\$ per meter, per meter size) could create an incentive for the mines to consolidate their many meters, which would further lower fixed charges payable.

Essential Energy expressed concern that a shortfall in the mines' contribution to water revenue (from either the water usage or water service charge components) would create a significant revenue burden that would be borne by the remaining customer base in the next regulatory period, commencing 2018/19.

#### Approach to addressing revenue risks due to variations between actual and forecast water sales

Essential Energy supports the introduction of a demand volatility adjustment mechanism, but does not support adjustments for over and under-recoveries being dealt with through the Regulatory Asset Base (RAB).<sup>63</sup>

Essential Energy proposes that adjustments for over and under-recoveries be dealt with through direct revenue adjustments at the start of the next determination period. Its arguments in support of direct revenue adjustments are:

- ▼ cash flows for the water business are currently insufficient (which, according to Essential Energy, will be exacerbated if IPART's Draft Report is implemented)
- ▼ in the event revenue is under-recovered, customers will have to wait 47 years to be compensated, in line with the remaining life of assets in the RAB. Therefore, compensation is likely to be negligible due to the time frame.

#### Weighted average cost of capital (WACC)

Essential Energy argues that the WACC of 4.9% applied in the Draft Determination is too low, and provides reasons for its view. These are discussed and considered in Chapter 7.

#### Financeability

Essential Energy has now provided an estimate of the actual interest cost and actual debt level of its water business.<sup>64</sup> Essential Energy has also provided financial ratios, which indicate the water business is below our benchmark floor of Baa2 for the financial ratios over the determination period, and is more consistent with ratios for Baa3 (moderate credit risk, but at the low end of the scale) to Ba1 (high credit risk).

Chapter 12 considers the financeability of Essential Energy's water business under our final price determination.

<sup>63</sup> Ibid, p 21.

<sup>64</sup> Essential Energy has claimed commercial-in-confidence status for this information, and it has been redacted from its submission on IPART's website.

## 3 IPART's approach to setting prices

For this review, we have generally used the same broad approach we used in the 2010 Determination to calculate Essential Energy's notional revenue requirement. We have then converted this revenue requirement into prices. We have made a range of decisions related to applying this approach. The following sections provide an overview of our price setting approach and discuss these decisions in more detail, including our decisions on:

- ▼ the length of the determination period
- ▼ our approach to determining Essential Energy's notional revenue requirement
- ▼ our approach to converting Essential Energy's notional revenue requirement into prices
- ▼ our approach to allocating costs to be recovered from the mines operating in Broken Hill
- ▼ whether to introduce a regulatory mechanism to address the risk that there is significant variation between Essential Energy's forecast water sales and actual water sales over the 2014 determination period.

### 3.1 Overview of price setting approach

Our first step was to determine the length of the upcoming determination period.

We then calculated the notional revenue requirement. The notional revenue requirement represents our view of Essential Energy's full, efficient costs in providing the regulated services for each year of the determination period. To calculate the notional revenue requirement, we used the building block approach, as we did in the 2010 Determination.<sup>65</sup>

Once we had calculated the notional revenue requirement, we considered the implications of this requirement on a range of other factors – including the level of prices and the rate at which they should change, the capacity of customers to pay the prices and the timeframe customers might need to adapt to changed price levels.

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<sup>65</sup> This is discussed further in section 3.3.

In relation to service standards, we have made decisions that will allow Essential Energy to maintain its existing service levels and to meet the standards required by its regulators.

Our price setting approach led us to make decisions on a number of issues before deciding on the prices. Discussions and explanations of our pricing decisions and other associated decisions can be found throughout this Final Report.

## 3.2 Length of the determination period

### Decision

1 There will be a 4-year determination period from 1 July 2014 to 30 June 2018.

In water pricing reviews, we make a decision on the number of years that the maximum prices we set can be levied. The period often reflects the circumstances that apply to that utility at that time.

The advantages of a longer determination period include stronger incentives for Essential Energy to increase efficiency, greater stability and predictability, and reduced regulatory costs. The disadvantages include increased risk associated with potential inaccuracies in the data, possible delays in customers benefitting from efficiency gains, and the risk that changes in the industry or the operating environment will affect the appropriateness of the determination.

### 3.2.1 Essential Energy's proposal

Essential Energy proposed a 4-year determination period. Essential Energy considered that this is a suitable regulatory period, consistent with recent IPART determinations.

### 3.2.2 Stakeholder views

Stakeholder submissions to the review supported a 4-year determination period.<sup>66</sup> Mr Roger Edwards considered that 4 years is a good balance between the uncertainty of the forecasts used to set prices and the need to reduce the costs associated with a shorter review period.<sup>67</sup>

<sup>66</sup> This includes Broken Hill Council, Public Interest Advocacy Centre (PIAC) and Mr Roger Edwards.

<sup>67</sup> Mr Roger Edwards submission, 11 October 2013, p 2.

The Public Interest Advocacy Centre (PIAC) agreed that a 4-year determination period provides an appropriate balance between providing certainty to the regulated business and limiting delays in customers benefitting from lower water prices. PIAC also submitted that it reduces the risk that consumers will pay above the efficient price for a prolonged period.<sup>68</sup>

### 3.2.3 IPART's analysis

In our analysis, we took into account Essential Energy's proposal and comments from stakeholders. We considered the confidence we could place in Essential Energy's forecasts and the advantages and disadvantages of longer or shorter determination periods. After considering these issues, we decided that a 4-year determination period is appropriate.

## 3.3 Approach for determining the notional revenue requirement

The notional revenue requirement represents our view of Essential Energy's full, efficient costs in providing the regulated services for each year of the determination period.

Similar to the 2010 review, we have used the building block approach to calculate Essential Energy's notional revenue requirement over the determination period. To apply this approach, we made decisions on the revenue Essential Energy will require in each year of the period, including:

- ▼ The **revenue required for operating expenditure** over the period. This amount represents our estimate of Essential Energy's forecast efficient operating, maintenance and administration costs (see Chapter 5).
- ▼ An **allowance for a return on the assets** used to provide the regulated services. This amount represents our assessment of the opportunity cost of the capital invested in Essential Energy by its owner, and ensures that it can continue to make efficient investments in capital in the future (see Chapter 7).
- ▼ An **allowance for a return of assets (regulatory depreciation)**. This allowance recognises that through the provision of services to customers, a water utility's capital infrastructure will wear out over time and, therefore, revenue is required to recover the cost of maintaining the regulatory asset base (see Chapter 7).

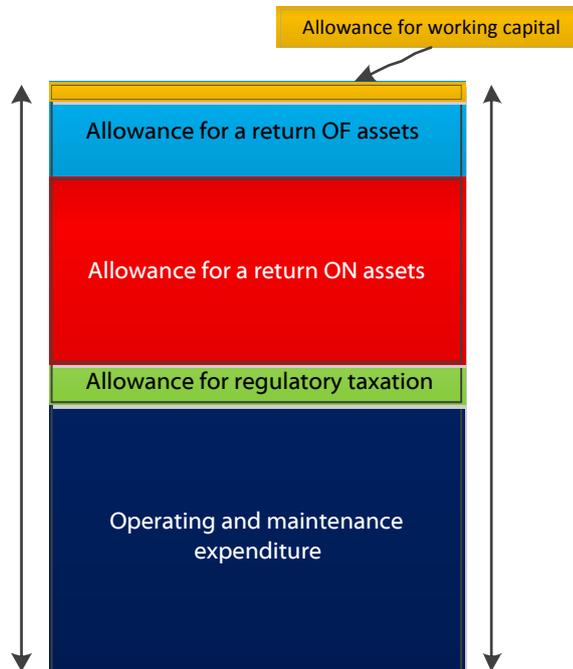
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<sup>68</sup> Public Interest Advocacy Centre (PIAC) submission, 10 October 2013, p 8.

- ▼ **An allowance for meeting tax obligations.** In the 2010 Determination, we used a real pre-tax WACC in calculating the returns on and of the Regulatory Asset Base (RAB). For this review, we used a real post-tax WACC and calculated Essential Energy's tax liability as a separate cost block.<sup>69</sup> We consider this method more accurately estimates the tax liability for a comparable commercial business. Our previous approach used a pre-tax WACC with an assumed statutory tax rate. In most cases, this overstated the tax that would be paid by a comparable commercial business. This is the first time we have implemented our changed approach to tax for Essential Energy. Appendix D outlines our calculation of Essential Energy's regulatory tax allowance. This approach was adopted in the 2012 Sydney Water Determination and has been adopted in all of our water pricing decisions since.
- ▼ **An allowance for working capital.** This allowance represents the holding cost of net current assets (see Chapter 7).

The sum of these amounts represents our view of Essential Energy's total efficient costs over the determination period, or its notional revenue requirement (Figure 3.1).

**Figure 3.1 Building block approach**



Chapter 4 provides a fuller explanation of the building block approach and summarises our decisions for each building block.

<sup>69</sup> IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011.

### 3.4 Approach for converting the notional revenue requirement into prices

Having calculated Essential Energy's notional revenue requirement for the determination period, we then converted that requirement into prices. To do this, we made a number of decisions, including:

- ▼ the target revenue for each year – see Chapter 4
- ▼ the revenue expected from trade waste, miscellaneous and other sources – see Chapter 4
- ▼ forecast water sales and customer numbers over the determination period – see Chapter 8
- ▼ the structure of Essential Energy's prices, and the revenue to be generated from various charges – see Chapters 9 and 10
- ▼ the level of prices – see Chapters 9 and 10.

### 3.5 Approach to allocating costs and setting prices for the mines

Decision

- 2 For the purpose of setting water prices, the existing mines' share (percentage) of Essential Energy's water revenue is maintained at its 2013/14 level over the determination period.
- 3 The existing mines, and any new mining customers, will pay the same water usage price, per water quality type, as the rest of the customer base.
- 4 The existing mines' water service charges will be fixed annual charges based on each mine's share of total mines' water consumption (over the recent historical period), to recover the difference between revenue expected to be received from the existing mines' water usage charges and the total costs to be recovered from the mines.
- 5 As an interim measure, any new mining customers will pay the same meter based water service charges as other non-residential customers.

In 2002, the NSW Government established arrangements for funding water supply services in Broken Hill. The Mines Charges Agreement set the charges payable by the only mining company operating at the time, Perilya Limited. This agreement set prices until June 2012.<sup>70</sup> After the Mines Charges Agreement expired, it was agreed that the mines should be subject to cost-reflective prices.<sup>71</sup> This means that, in this review, we have set prices for Essential Energy's water services to the mines for the first time.

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<sup>70</sup> Essential Energy advice, 28 September 2011, p 1.

<sup>71</sup> Essential Energy submission to IPART, September 2013, p 45.

Our decision for the 2014 determination period is to maintain the mines' contribution to Essential Energy's water revenue at its current (2013/14) share.

Once we determined the mines' share of Essential Energy's water revenue, we then set prices for the mines to recover this revenue requirement.

### 3.5.1 Essential Energy's price proposal

In its price proposal, Essential Energy provided a confidential submission on its proposal for setting cost-reflective prices for the mines.<sup>72</sup> The proposed method takes into account the assets used by the mines, historical funding, and each mine's share of water usage. Its proposal also included a price structure that would see the capital costs recovered from fixed charges and maintenance costs recovered from usage charges.

### 3.5.2 Stakeholder comments

Mr Roger Edwards argued that the method for allocating costs to the mines should not take account of the fact that the mines originally contributed to the funding of the Menindee Pipeline.<sup>73</sup> He stated that the current mining companies are not the same companies that contributed funding for the pipeline. According to Mr Edwards, it is therefore inappropriate for these companies to benefit from contributions made by other parties in the past.

Perilya has argued for a pricing structure that would provide financial incentives to reduce water consumption through increased recycling and efficiency of water use.<sup>74</sup> Perilya considered that Essential Energy's proposal for a very high fixed charge component (84% of total revenue from the mines) will discourage efficient water use.

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<sup>72</sup> We reviewed the claim for confidentiality and agreed to publish a redacted version of the confidential submission.

<sup>73</sup> Mr Roger Edwards submission, 15 November 2013, p 1.

<sup>74</sup> Perilya Ltd submission, 8 November 2013, pp 1-2.

### 3.5.3 IPART's analysis

As part of our review, we engaged SKM to consider Essential Energy's methodology for allocating costs to be recovered from the mines and to advise on an appropriate methodology.<sup>75</sup> SKM made some recommendations to improve Essential Energy's proposed cost allocation methodology. In general, we found most of SKM's recommendations to be reasonable. However, we found the need to make some amendments to its calculations. For instance, we included the Menindee Pipeline with other common assets that are allocated on the basis of the mines' share of water usage.<sup>76</sup>

We agree with Mr Roger Edwards that it is not appropriate for the current mining companies to benefit from contributions made by other companies in the past. We note that, over time, the asset base is depreciated and new refurbishment and replacement expenditure on the pipeline has occurred, for which the current mines have not contributed. Therefore, we have not taken account of historic funding contributions in our calculations of the costs to be allocated to the mines.

Overall, however, we found that applying Essential Energy's proposed methodology, adjusted for the recommendations of our consultant and our decisions on Essential Energy's notional revenue requirement, did not result in large changes to the revenue to be paid by the mines. Taking this into account, we decided to keep the mines' contribution to Essential Energy's water revenue (as a 'mines' customer group) at its 2013/14 share over the determination period (2014/15 to 2017/18).

We then set prices for the mines to recover this share of Essential Energy's revenue requirement, broadly using the same methodology that we use to set other residential and non-residential customers' prices.

Our methodology for setting prices to the mines is as follows:

- ▼ The mines are subject to the same usage charges for treated and untreated water as all other customers (see Chapter 9).
- ▼ The expected revenue from the mines' usage charges is calculated using forecast water sales to the mines for each water quality type (treated and untreated).

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<sup>75</sup> Sinclair Knight Merz, *Strategic Management Overview and Review of Operating and Capital Expenditure for Essential Energy's water and sewerage business in Broken Hill*, Final Report, January 2014.

<sup>76</sup> Our decision on the Menindee Pipeline, explained in this chapter, is different to the 2 options provided by our consultant, Sinclair Knight Merz. (*Strategic Management Overview and Review of Operating and Capital Expenditure for Essential Energy's water and sewerage business in Broken Hill*, Final Report, January 2014, p 119.)

- ▼ To recover the remainder of the mines' share of the revenue requirement, we then set the mines' fixed water ('service') charges. Each existing mine will pay a single annual service charge based on its usage share (over a recent historical period) of total mines' water consumption.

### Fixed water service charges for the existing mines

Our decision on the mines' fixed water service charges differs from our Draft Report in that they are not meter-based. Our decision reflects our view that:

- ▼ Essential Energy's fixed costs of water supply to the mines (ie, its costs of providing supply capacity to these customers) will remain relatively unchanged over the 4-year determination period.
- ▼ For very large customers, who consume a significant proportion of the utility's output, historical water usage is the most suitable allocator of costs for the purpose of determining fixed charges. This is because:
  - Historical water usage is the best available indicator of share of capacity – a view supported by the work of Sinclair Knight Merz, which recommended actual water usage as a method of allocating costs to different customers.<sup>77</sup>
  - Under a meter-based approach, very large customers could rationalise their meters without reducing their call on the utility's total system capacity. Although we considered this approach in the Draft Report, it would present practical difficulties because Essential Energy's revenue could decrease during the determination period, with no corresponding decrease in costs.

For the general customer base, we maintain our view that meters are a reasonable means of allocating a utility's fixed costs (or revenue to be recovered from fixed charges) across a large number of customers. This is because:

- ▼ across a large number of customers, meters (numbers and sizes) can provide a reasonable *indication* of each customer's share of the total network capacity
- ▼ meter information across a large number of customers is usually readily available and stable, and these customers are usually not able to rationalise their meters.

### The ratio of fixed to usage charges

The price structure for the mines (and the ratio of fixed to usage charges) depends on our decision on water usage prices (as the fixed service charge is calculated to recover the residual revenue requirement).

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<sup>77</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 120.

Under our Final Determination, approximately 53% of forecast revenue to be recovered from the mines is from usage charges and 47% is from fixed service charges. This variable component of 53% is substantially higher than Essential Energy's proposed variable component of 16%.

In its submission to our Draft Report, Essential Energy argued that:

- ▼ IPART's draft price structure would introduce significant revenue risk from the mines reducing their meters and their water usage, which the remaining customer base would ultimately have to bear
- ▼ the large variable component creates incentives for the mines to invest in on-site water sourcing and treatment via reverse osmosis, and to substitute treated water with raw water for suitable applications, such as dust suppression.<sup>78</sup>

In response, we note that, as per efficient pricing principles, we have set water usage prices with reference to the marginal cost of water supply (as discussed in Chapter 9), and we see no reason why the marginal cost of supplying the mines (and hence the usage price to the mines for a given water quality type) would be materially different to the marginal cost of supplying all other customers.

Furthermore, provided the water usage price is not set unnecessarily high (ie, above the marginal cost of supply):

- ▼ the mines should not have an incentive to invest in alternative water sources – unless it is more economically efficient for them to do so
- ▼ Essential Energy's loss of revenue from any reduction in water sales to the mines would be offset or reduced by the costs it avoids in not having to supply this water.

We also note that in our next price review, we will consider how to address any variations between forecast and actual water usage revenue over the 2014 determination period (see Section 3.7).

### Prices for new mining customers

If there are new mining customers over the determination period, they will pay the same water usage charges as all other customers.

As an interim measure, until the next price review, they will also pay meter-based charges applicable to non-residential customers.

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<sup>78</sup> Essential Energy submission to IPART's Draft Report, April 2014, p 19.

### 3.6 Customer consultation and service quality standards

Under our customer engagement guidelines, we expect Essential Energy to take into account its customers' views on the appropriate level and allocation of expenditure, as well as the level and structure of prices.<sup>79</sup> In its price proposal, Essential Energy fulfilled our request to provide a plain English summary of its entire pricing proposal.

We commend Essential Energy on its customer consultation for the 2014 price review and its ongoing customer relationship program. As discussed in Section 2.6, Essential Energy's consultation was extensive and included bi-annual meetings of its Water Customer Council, customer surveys in 2012 and a specific pricing review survey in August 2013.

We considered that Essential Energy's customer consultation achieved the objectives that we sought from such consultation. These were to inform our understanding of the key issues that are of concern to Essential Energy's customers, including providing some indicator of customers' satisfaction with the services it provides.

### 3.7 Approach to addressing the risk of significant variation between actual and forecast water sales

#### Decision

- 6 At the next determination of Essential Energy's prices, IPART will consider an adjustment to the revenue requirement and prices to mitigate any over or under-recovery of revenue over this determination period due to material differences between the level of water sales over the determination period and the forecast water sales used in making this determination.

#### 3.7.1 Essential Energy's price proposal

In its price proposal, Essential Energy noted that there is a significant risk to its water sales forecasts. The mines consume around 33% of the total water supplied and Essential Energy considered that there is real uncertainty about the level of water demand from the mines in the future.<sup>80</sup> Essential Energy also considered that its proposal for cost-reflective mines pricing may result in the mines adjusting their consumption accordingly.<sup>81</sup> Essential Energy has proposed 2 potential mechanisms for dealing with water sales uncertainty.

<sup>79</sup> IPART, *Customer engagement on prices for monopoly services – Final Report*, August 2012.

<sup>80</sup> Essential Energy submission to IPART, 13 September 2013, p 10.

<sup>81</sup> *Ibid*, p 52.

Essential Energy asked that a demand volatility adjustment mechanism for all customer consumption be introduced.<sup>82</sup> This mechanism aims to mitigate possible over/under-recovery due to material variation between net level of actual sales over the determination period and the forecast sales we used in making the determination. This is the same mechanism that has recently been flagged in the Sydney Water,<sup>83</sup> Hunter Water<sup>84</sup> and Gosford Council and Wyong Council reviews.<sup>85</sup> The only difference is that Essential Energy proposed that a material variation be defined as  $\pm 5\%$  over the whole determination period (rather than  $\pm 10\%$ ).

As an alternative, Essential Energy also supported the inclusion of an 'unders and overs' account to manage differences between ex ante and ex post consumption.<sup>86</sup> Under this approach, any difference would be recovered by an adjustment to the revenue requirement or the regulatory asset base at the next determination.

### 3.7.2 IPART's analysis

In our Draft Report, we recognised there is some uncertainty around Essential Energy's water sales forecasts. This is because the mines consume a large proportion of the total water supplied to Broken Hill. Further, under this Determination, we have removed Tier 2 water usage charges (see Chapter 9). Essential Energy's water sales can also be subject to changes in weather conditions. We therefore decided there is a case for a demand volatility adjustment mechanism. This means at the next determination we may make an adjustment to the revenue requirement to account for the risk of variations between actual water sales and the forecast water sales we have used in setting prices over this determination period.

In our Draft Report, we favoured an unders and overs account that would be operated through the RAB – that is, an adjustment to the RAB at the next determination to account for variations (+ or -) between water sales forecasts used to set prices at this determination and actual water sales over the determination period.<sup>87</sup> However, in response to our Draft Report, Essential Energy argued that adjustments through the RAB would create intergenerational

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<sup>82</sup> Ibid, p 53.

<sup>83</sup> IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2012 to 30 June 2016 - Final Report*, June 2012, p 38.

<sup>84</sup> IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2013 to 30 June 2017 - Final Report*, June 2013, p 90.

<sup>85</sup> IPART, *Gosford City Council and Wyong Shire Council Prices for water, sewerage and stormwater drainage services from 1 July 2013 to 30 June 2017 - Final Report*, May 2013, p 45.

<sup>86</sup> Essential Energy submission to IPART, 13 September 2013, p 63.

<sup>87</sup> If Essential Energy under-recovered its revenue requirement over the 2014 determination period due to water sales that are less than forecast, the RAB would be increased by this amount. Conversely, if Essential Energy over-recovers its revenue requirement due to water sales that are greater than forecast, then the RAB would be reduced by this amount.

equity issues. Essential Energy stated that in the event that revenue is over-recovered, customers would have to wait 47 years to be compensated, in line with the remaining life of assets in the RAB. Therefore, the effect of compensation is likely to be negligible due to the time frame.<sup>88</sup> We note that if we were to make an adjustment to the RAB, we could potentially address this concern by amortising the adjustment over a shorter period.

However, instead of including an unders and overs account, we favour a demand volatility adjustment mechanism that is similar to the mechanisms we have included in the Sydney Water,<sup>89</sup> Hunter Water<sup>90</sup> and Gosford Council and Wyong Council reviews.<sup>91</sup> While we note our decisions now cannot bind a future Tribunal, this demand volatility adjustment could be implemented by comparing the forecast and actual water demand over the 2014 Determination and adjusting the revenue requirement over the next determination period, as decided by the Tribunal at that time.

The key difference between the mechanism flagged in previous price reviews<sup>92</sup> and our decision here is that we have not defined a material variation in sales to be  $\pm 10\%$ . Due to differences in Essential Energy's customer base, specifically its exposure to a small number of large customers, we see merit in maintaining greater discretion in relation to if and how any adjustments are made at the next determination, to account for the magnitude of, and reasons for, any over or under recovery as a result of sales volatility.

In particular, our proposed response may vary depending on whether the variation between actual and forecast sales is considered permanent (eg, as a result of a large customer downsizing, and therefore potentially stranding some assets) or the result of short term fluctuations (eg, due to weather conditions).

In applying any adjustment, we will be mindful of the importance of being symmetric. That is, there is an equal case for protecting **customers** from over-recovery resulting from excess sales, and protecting **Essential Energy** from under-recovery if it sells less than expected.

<sup>88</sup> Essential Energy, submission to the Draft Report, April 2014, p 21.

<sup>89</sup> IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2012 to 30 June 2016 - Final Report*, June 2012, p 38.

<sup>90</sup> IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2013 to 30 June 2017 - Final Report*, June 2013, p 90.

<sup>91</sup> IPART, *Gosford City Council and Wyong Shire Council Prices for water, sewerage and stormwater drainage services from 1 July 2013 to 30 June 2017 - Final Report*, May 2013, p 45.

<sup>92</sup> Sydney Water, Hunter Water and Gosford and Wyong Councils.

Regardless, as outlined above, we consider our approach at the next price revenue should be informed by the specific reasons for any material variation between actual and forecast water sales. For instance, if one of the mines were to significantly reduce its water consumption over the 2014 determination period, we would need to consider whether:

- ▼ the revenue shortfall should be recovered from other customers
- ▼ there is an economic case for 'stranding' some of Essential Energy's assets - ie, a portion of asset capacity would not be used to provide services to the customer base, and the associated costs would not be recovered from the remaining customers.

Therefore, at this time, we are unable to indicate a preference for a specific means of adjusting prices at the next determination to account for sales volatility over the 2014 determination period.

However, at the next price review, will consider an adjustment to Essential Energy's revenue requirement and prices to account for any material variations between actual and forecast water sales (and hence revenue) over this period.

## 4 Overview of Essential Energy's revenue requirement

As Chapter 3 discussed, we used a building block approach to calculate Essential Energy's notional revenue requirement in each year of the determination period. This represents our view of Essential Energy's total efficient costs over the determination period. It includes:

- ▼ the revenue required for operating expenditure
- ▼ an allowance for a return on assets
- ▼ an allowance for a return of assets (regulatory depreciation)
- ▼ an allowance for meeting tax obligations
- ▼ an allowance for working capital.

Next, we determined the target revenue for each year – that is, the amount of revenue that price levels we set are intended to generate. This revenue is not necessarily the same as the notional revenue requirement. We sometimes target more or less than this revenue to achieve an acceptable balance between the interests of customers, the utility and economic efficiency.

Finally, we estimated the amount of revenue we expect Essential Energy to generate from trade waste services and a range of other fees and charges. We subtracted this amount from the target revenue, so that prices for water and sewerage services only recover the costs of providing these services.

The section below summarises our findings and decisions on Essential Energy's revenue requirements. The subsequent sections summarise:

- ▼ our findings and decisions on the notional and target revenue requirements
- ▼ revenue from other sources.

Chapters 5, 6 and 7 then discuss our findings on the individual components of the notional revenue requirement in detail.

## 4.1 Summary of findings and decisions on revenue requirements

We have decided to set Essential Energy's notional revenue requirement and target revenue as shown in Table 4.1 below. The following sections outline how we reached our decisions on the levels of the notional revenue requirement and target revenue.

**Table 4.1 IPART's decisions on Essential Energy's notional revenue requirement and target revenue (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18
Operating expenditure	13,720	13,426	13,549	13,087
Depreciation (regulatory)	2,020	2,095	2,189	2,312
Return on assets	4,968	5,234	5,601	6,101
Return on working capital	49	52	34	33
Tax allowance	115	82	66	48
<b>Notional revenue requirement</b>	<b>20,872</b>	<b>20,889</b>	<b>21,439</b>	<b>21,582</b>
<b>Target revenue</b>	<b>21,157</b>	<b>21,124</b>	<b>21,215</b>	<b>21,219</b>

Source: IPART Analysis.

The target revenue is the amount we expect Essential Energy to receive from all regulated services including water and sewerage (including mines), trade waste and miscellaneous services.

## 4.2 Essential Energy's proposal

Essential Energy's proposed notional revenue requirement is shown in Table 4.2 below. Compared to its estimated notional revenue of \$22.2 million in 2013/14, Essential Energy's proposal represents an increase of \$1.8 million or 8.0% over the period.

**Table 4.2 Essential Energy's proposed notional revenue requirement and target revenue (\$'000, \$2013/14)**

	2013/14 <sup>a</sup>	2014/15	2015/16	2016/17	2017/18
Operating expenditure	15,005	14,064	13,979	14,322	14,018
Depreciation (regulatory)	1,869	1,968	2,117	2,243	2,357
Return on assets	5,365	5,815	6,547	7,133	7,643
Return on working capital	-	-	-	-	-
Tax allowance	-	-	-	-	-
<b>Notional revenue requirement</b>	<b>22,239</b>	<b>21,847</b>	<b>22,644</b>	<b>23,698</b>	<b>24,018</b>
<b>Target revenue</b>	<b>21,131<sup>b</sup></b>	<b>21,647</b>	<b>22,393</b>	<b>23,181</b>	<b>24,018</b>

<sup>a</sup> Essential Energy's estimated notional revenue requirement and target revenue for 2013/14. It is currently under recovering relative to its estimated notional revenue requirement because it is charging 2012/13 prices. In turn, this is because the determination was delayed by 1-year and the 2012/13 prices included the provision of the NSW Government (Treasury) subsidy, which is currently not provided.

<sup>b</sup> Includes expected revenue from the mines.

**Source:** Essential Energy price model submission to IPART, September 2013; Essential Energy submission to IPART, September 2013, p 50 (converted to \$2013/14 for forecasts).

Essential Energy has submitted a glide path approach to setting prices, which means that its target revenue will equal its notional revenue requirement in the final year of the determination period.<sup>93</sup> It reported that, under this approach, its target revenue will be \$1 million (in nominal terms) less than its notional revenue requirement over the first 3 years of the regulatory period.<sup>94</sup>

Essential Energy submitted that under its pricing proposal, after revenue from mines and miscellaneous charges are removed, a typical<sup>95</sup> household's water and sewerage bill will increase by 25.5% from \$1,251 in 2013/14 to \$1,571 in 2017/18 (\$2013/14). This represents an increase of \$320 (\$2013/14) over 4 years, or 5.9% per year (excluding inflation).<sup>96</sup>

<sup>93</sup> Essential Energy submission to IPART, September 2013, p 64.

<sup>94</sup> Ibid, p 64.

<sup>95</sup> Based on a non-pensioner residential property consuming 300 kL of water per year.

<sup>96</sup> Essential Energy submission to IPART, September 2013, p 60.

### 4.3 IPART's decision on Essential Energy's notional revenue requirement

#### Findings

7 Essential Energy's notional revenue requirement is as shown in Table 4.3.

**Table 4.3 IPART's finding and decisions on Essential Energy's notional revenue requirement (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18
Operating expenditure	13,720	13,426	13,549	13,087
Depreciation (regulatory)	2,020	2,095	2,189	2,312
Return on assets	4,968	5,234	5,601	6,101
Return on working capital	49	52	34	33
Tax allowance	115	82	66	48
<b>Notional revenue requirement</b>	<b>20,872</b>	<b>20,889</b>	<b>21,439</b>	<b>21,582</b>

Source: IPART Analysis.

Our finding on Essential Energy's notional revenue requirement is \$7.4 million lower than its proposal, over 4 years. The main reasons for this difference are our decisions to:

- ▼ Use a weighted average cost of capital (WACC) of 5.2%, which is lower than Essential Energy's proposed WACC of 5.9%.
- ▼ Exclude about \$13.3 million of capital expenditure in our calculations for the allowances for a return on assets and regulatory depreciation, to reflect our findings on prudent and efficient capital expenditure.
- ▼ Reduce operating expenditure by about \$2.6 million over 4 years, to reflect our findings on efficient operating expenditure.

Compared with our Draft Report, Essential Energy's notional revenue requirement is about \$3.0 million higher over the 4-year period (or 3.6%). The main reasons for the difference are our decisions to:

- ▼ reduce the productivity adjustment that was applied in the Draft Report for operating expenditure from 1% real per year (compound) to 0.5% real per year (compound) (\$1.0 million)
- ▼ not allow the bulk of expenditure concerning the Rocky Hill service reservoir replacement project to be reflected in prices in this determination period, rather than further reduce Essential Energy's prudent and efficient capital expenditure by 10% after SKM's recommended 18% reduction was accepted (\$0.4 million)
- ▼ apply a real post-tax WACC of 5.2%, which is higher than the real post-tax WACC of 4.9% used in the Draft Report (\$1.5 million).<sup>97</sup>

<sup>97</sup> The remaining differences are due to higher allowances for return on working capital and tax allowance as a result of the increased WACC.

### 4.3.1 Target revenue

#### Decision

- 8 Prices are set to recover Essential Energy's target revenue requirement in net present value (NPV) terms, as shown in Table 4.4.

The target revenue is the expected amount of money raised by Essential Energy through the charges we set. It includes revenue from:

- ▼ water and sewerage charges to all customers (including mines) to whom Essential Energy delivers water and sewerage services
- ▼ trade waste charges to those non-residential customers to whom Essential Energy provides liquid trade waste services
- ▼ ancillary and miscellaneous charges on particular transactions.

Revenue from the mines, trade waste charges, and ancillary and miscellaneous charges are subtracted from Essential Energy's target revenue prior to setting all other water and sewerage charges. This is so that revenue received from other fees and charges is not double counted in the water and sewerage prices we set.

Depending on how we set the prices, the target revenue will not necessarily match the notional revenue requirement each year. Where there are significant jumps or drops in the notional revenue requirement from one year to the next, we may set prices so that there is a smoother transition over the determination period. This provides a more steady change for both customers and Essential Energy and eases potential price or revenue shocks.

We have adopted a Net Present Value (NPV) neutral approach to setting prices, which means that Essential Energy's target revenue recovers its notional revenue requirement over the determination period in NPV terms. Our decision on Essential Energy's target revenue and a comparison to its notional revenue requirement is shown in Table 4.4 below.

**Table 4.4 IPART's decision on Essential Energy's notional revenue requirement and target revenue (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Notional revenue requirement	22,564 <sup>a</sup>	20,872	20,889	21,439	21,582
Target revenue	20,882	21,157	21,124	21,215	21,219
Difference (\$)	-1,682	285	236	-224	-363
Difference (%) <sup>b</sup>	-7.5%	1.4%	1.1%	-1.0%	-1.7%

<sup>a</sup> This is our estimate of Essential Energy's theoretical notional revenue requirement for 2013/14. It is a theoretical value because there was no notional revenue requirement set for 2013/14 in our 2010 Determination (as it was originally due to end in 2012/13). The theoretical notional revenue requirement has been calculated by taking the revenue Essential Energy expects to receive from all regulated services and adding the Treasury subsidy value of \$1.7 million from 2012/13. (Prices in 2013/14 were held constant in nominal terms from 2012/13 and the 2012/13 prices were set based on a Treasury subsidy of \$1.7 million).

<sup>b</sup> Difference over the 2014 Determination is approximately zero in NPV terms.

Under our decision, once revenue from the mines, trade waste and ancillary services are deducted, a typical household's water and sewerage bill will increase by 4.0% from \$1,251.45 in 2013/14 to \$1,301.65 per year over 2014/15 to 2017/18 (\$2013/14) (excluding inflation). This typical bill will increase by \$50.20 from 1 July 2014, and will then remain constant over the remaining 3 years of the determination period (excluding inflation). This represents an increase of \$50.20 over 4 years or an average of 1.0% per year over the period (excluding inflation).

#### 4.4 IPART's decision on revenue from trade waste, miscellaneous and other charges

##### Decision

- 9 The revenue to be deducted from Essential Energy's target revenue to reflect the revenue it is forecast to raise through 'trade waste, miscellaneous and other charges' is as shown in Table 4.5.

**Table 4.5 IPART's decision on revenue from other fees and charges to be excluded from target revenue (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Revenue from trade waste charges	100	107	107	107	107
Revenue from miscellaneous charges	62	60	59	58	56
Total	162	167	166	165	163

Source: IPART analysis.

We derive the forecast revenue from trade waste, miscellaneous services and the mines from information supplied by Essential Energy as well as our own calculations. The following sections discuss our calculation and treatment of forecast trade waste and miscellaneous services revenue over the determination period.

##### 4.4.1 Trade waste charges

The trade waste revenue to be deducted from the notional revenue requirement is shown in Table 4.5 above. Essential Energy proposed that its trade waste charges should be increased by the same amount that sewerage charges increase under this determination. This is the same approach we adopted at the 2010 Determination and we considered this approach to be reasonable.<sup>98</sup>

<sup>98</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 - Determination and Final Report*, June 2010, p 69.

Trade waste charges are set because trade waste customers impose higher costs on the sewerage system than domestic strength sewerage customers as a result of their higher strength discharges.

Essential Energy has advised that due to concerns about the potential impacts on its trade waste customers, it is currently not imposing its trade waste charges on most customers.<sup>99</sup> However, we need to estimate the expected revenue from trade waste charges that Essential Energy would recover if it were imposing the maximum trade waste charges that we set, and then deduct this forecast revenue from Essential Energy's notional revenue requirement (which is then used to determine prices for other water and wastewater services). If we did not deduct this forecast trade waste revenue from Essential Energy's notional revenue requirement, then charges for other (non-trade waste) customers would be higher. This would mean customers without trade waste would be cross-subsidising those with trade waste.

To estimate Essential Energy's forecast revenue from trade waste, we used the weighted average trade waste revenue (as a proportion of sewerage revenue) for the 4 metropolitan water utilities we regulate. This is shown in Table 4.6. We have then applied the weighted average of 2.0% to Essential Energy's sewerage revenue to estimate the trade waste revenue shown in Table 4.5 above.

**Table 4.6 Trade waste revenue as a proportion of sewerage revenue – recent price determinations for water businesses**

Utility and year of determination	Trade waste revenue as proportion of sewerage revenue (%)
Sydney Water (2012)	2.1%
Hunter Water (2013)	1.4%
Gosford Council (2013)	3.1%
Wyong Council (2013)	4.3%
<b>Weighted average of the 4 utilities<sup>a</sup></b>	<b>2.0%</b>

<sup>a</sup> The weighted average is the trade waste revenue of the 4 businesses, for the 3 years of their most recent price determinations, as a percentage of their total revenue to be collected from sewerage services.

**Source:** IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2012 to 30 June 2016 - Final Report*, June 2012, IPART, *Gosford City Council and Wyong Shire Council Prices for water, sewerage and stormwater drainage services from 1 July 2013 to 30 June 2017 – Final Report*, May 2013. IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services – Review of prices from 1 July 2013 to 30 June 2017 – Final Report*, June 2013.

<sup>99</sup> Essential Energy, Email, 16 January 2014. Essential Energy has a separate trade waste agreement with Perilya.

#### 4.4.2 Miscellaneous services

The revenue from miscellaneous charges to be deducted from the notional revenue requirement is shown in Table 4.5 above.

Essential Energy<sup>100</sup> proposed to increase its miscellaneous charges by CPI over the determination period. This is the same approach that was applied in the 2010 Determination.<sup>101</sup> This approach is simple and assumes that the costs of providing miscellaneous services will change in line with general inflation. We considered this to be a reasonable approach.

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<sup>100</sup> Essential Energy submission to IPART, September 2013, p 58.

<sup>101</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 - Determination and Final Report*, June 2010, pp 70-71.

## 5 Essential Energy's operating expenditure

In building up Essential Energy's total efficient costs, we assessed Essential Energy's forecast of the operating expenditure it will incur in providing regulated services over the 2014 determination period. We also considered the information Essential Energy provided in its submission on its past operating expenditures. As part of this assessment, we engaged Sinclair Knight Merz (SKM), an independent engineering consultant, to review the efficiency of these expenditures and recommend efficient levels of operating expenditure for Essential Energy over the 2014 determination period. We also invited submissions from stakeholders and conducted our own analysis.

The sections below summarise our findings on the allowances for operating expenditure. The following sections discuss our considerations in reaching these findings, including Essential Energy's submission, SKM's review and recommendations, stakeholder comments and our own analysis and conclusions.

### 5.1 Summary of IPART's decision

#### Decision

10 For the purpose of setting prices, Essential Energy's efficient level of operating expenditure is as shown in Table 5.1.

Our final decision on operating expenditure is outlined in Table 5.1. This is \$2.6 million (or \$0.7 million on average per year) lower than Essential Energy's proposal. This reflects our view on the efficient operating expenditure required by Essential Energy to deliver its water and sewerage services in the Broken Hill area.

Compared to our draft decision, our final decision on Essential Energy's efficient operating expenditure is \$1 million (or \$0.24 million on average per year) higher. This is because we decided to reduce the productivity adjustment of 1% real per year applied in the Draft Report, to 0.5% real per year over the upcoming determination period (see Section 5.3.5).

**Table 5.1 IPART's decision on Essential Energy's operating expenditure (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18
<b>Essential Energy's proposal</b>				
Water services	9,188	9,128	9,321	9,121
Sewerage services	2,494	2,478	2,564	2,509
Corporate	2,383	2,374	2,436	2,389
<b>Total</b>	<b>14,064</b>	<b>13,979</b>	<b>14,322</b>	<b>14,018</b>
<b>IPART's final decision</b>				
Water services	9,041	8,906	8,984	8,708
Sewerage service	2,440	2,376	2,450	2,383
Corporate <sup>a</sup>	2,239	2,144	2,115	1,996
<b>Total</b>	<b>13,720</b>	<b>13,426</b>	<b>13,549</b>	<b>13,087</b>

<sup>a</sup> Despite not changing the corporate overhead allocation rates, because direct operating expenditure is higher in our final decision, corporate overheads has increased as it is calculated as a percentage of direct operating expenditure.

**Source:** Essential Energy's submission to IPART, September 2013, p 31 and Essential Energy's Information Return, November 2013.

## 5.2 Essential Energy's corporate cost allocation methodology

As part of determining Essential Energy's efficient operating expenditure, we engaged SKM to review Essential Energy's corporate cost allocation methodology and make recommendations.

Our decision on Essential Energy's corporate cost allocation methodology also applies to capital expenditure. Therefore, our decision, outlined below, has also been incorporated into our decision on Essential Energy's prudent and efficient capital expenditure (see Chapter 6).

### 5.2.1 Essential Energy's submission

Essential Energy submitted that the water business pays a share of the corporate costs, including policy, finance, human resources, safety, procurement, insurance and legal. It indicated that the costs related to the shared corporate functions are allocated to the water business using relevant cost drivers, such as employee numbers, fleet usage and IT usage.<sup>102</sup>

Essential Energy also submitted that as part of the Networks NSW initiative, it is on an efficiency drive to significantly lower overhead costs.<sup>103</sup>

<sup>102</sup> Essential Energy submission to IPART, September 2013, p 54.

<sup>103</sup> Essential Energy submission to IPART, September 2013, p 30.

Table 5.2 below shows Essential Energy's actual and forecast corporate allocations. It shows that overheads as a proportion of direct spend have declined since 2011/12 and are forecast to be constant over the next 5 years. It also shows that corporate overheads have been capped at 20% of direct spend over the forecast period.

**Table 5.2 Essential Energy's actual and forecast overheads (\$'000)**

	Actual				Forecast (\$2013/14)			
	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
<b>Water business share of overheads</b>	<b>5,400</b>	<b>8,892</b>	<b>3,519</b>	<b>3,394</b>	<b>4,697</b>	<b>4,917</b>	<b>3,946</b>	<b>4,500</b>
Direct opex	11,244	10,900	12,298	12,504	11,681	11,606	11,886	11,630
Direct capex	6,207	3,656	4,725	4,464	11,805	12,977	7,846	10,869
<b>Total direct spend</b>	<b>17,451</b>	<b>14,556</b>	<b>17,023</b>	<b>16,968</b>	<b>23,487</b>	<b>24,583</b>	<b>19,732</b>	<b>22,499</b>
Calculated overhead allocation rate	31%	61%	21%	20%	20%	20%	20%	20%
Overheads to opex	3,966	8,046	2,740	2,501	2,336	2,321	2,377	2,326
<b>Rate to opex</b>	<b>35%</b>	<b>74%</b>	<b>22%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>
Overheads to capex	1,434	846	779	893	2,361	2,595	1,569	2,174
<b>Rate to capex</b>	<b>23%</b>	<b>23%</b>	<b>16%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>	<b>20%</b>

Source: Essential Energy submission to IPART, September 2013, p 55.

Essential Energy reported that it will continue to pursue its efficiency measures into the next regulatory period. It indicated that some of the efficiency initiatives that have led to a reduction in overhead costs include a reduction in staff numbers through a hiring freeze and natural attrition, and reductions in overtime, agency staff, fleet, marketing and travel costs.

Essential Energy reported that the high level of overheads in 2011/12 is due to higher than normal overheads being allocated to the water business in that year, compounded by lower than budgeted capital spend. This resulted in a large amount of unrecovered overhead operating costs.<sup>104</sup>

<sup>104</sup> Essential Energy submission to IPART, September 2013, p 55.

### 5.2.2 SKM's analysis

SKM found that no corporate costs from outside of Essential Energy (eg, the Networks NSW business as a whole) have been allocated to the water business.<sup>105</sup>

SKM considered that Essential Energy's cost allocation methodology appears sound, in broad terms, particularly given that administrative simplicity is a key objective.<sup>106</sup> SKM also suggests that Essential Energy should provide specific worked numerical examples of its total corporate costs, to examine whether there truly are economies of scale benefits flowing to the water business as a result of being part of a larger organisation.<sup>107</sup>

SKM also comments that, while the methodology may on the whole be reasonable, there is no separate underlying justification for either the quantum of costs or the basis of the allocation or the percentage of corporate costs to direct operating expenditure (either by comparison with other water organisations or by some broader "benchmarking").<sup>108</sup>

SKM also considered that, on face value, the total corporate overhead dollars allocated to the water business seem high in absolute terms and in percentage terms when compared to other utilities. In SKM's view, there are comparable stand-alone water businesses (eg, rural irrigation, geographically dispersed with similar operating expenditure and who are on an improvement path), where corporate costs as a percentage of direct operating expenditure vary from 17% to 25%. SKM also noted that there are a number of larger water authorities, but smaller than Essential Energy as a whole, where corporate costs as a percentage of direct operating expenditure are in the range of 9% to 13% (eg, some of the South East Queensland water businesses).<sup>109</sup>

SKM concluded that, based on its analysis, Essential Energy has further scope to reduce corporate overheads. Therefore, it recommended that Essential Energy's proposed corporate overhead costs be reduced from 20% to 18% in equal deductions by the end of the determination period.<sup>110</sup>

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<sup>105</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 99.

<sup>106</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 104.

<sup>107</sup> *Ibid*, p 104.

<sup>108</sup> *Ibid*, p 104.

<sup>109</sup> *Ibid*, p 104.

<sup>110</sup> *Ibid*, pp 104-105. This means that corporate allocations will be 19.5% of direct costs in 2014/15, 19% in 2015/16, 18.5% in 2016/17 and 18% in 2017/18.

### 5.2.3 IPART's analysis

We considered there are no savings from efficiencies apparent in Essential Energy's forecasts for corporate overheads. As shown in Table 5.2 above, the water business' share of overheads is expected to increase from \$3.4 million in 2013/14 to \$4.7 million in 2014/15 and then to be, on average, \$4.5 million per year.

We accept SKM's finding that Essential Energy appears to have a broadly reasonable methodology in allocating corporate overheads to the water business by identifying relevant drivers. However, it appears that when Essential Energy actually calculates the corporate costs for *forecasts* it applies a rate of 20% to direct operational and capital expenditure, rather than applying relevant drivers. Hence, the water business' share of overheads in Table 5.2 is exactly 20% of direct operational and capital expenditure. Without further information on the total corporate costs of Essential Energy and hence how much (including what proportion) is allocated to the water business, we cannot determine whether the amounts of \$4.7 million in 2014/15 to \$4.5 million in 2017/18 are too much or too little.

We note that Essential Energy has stated that efficiencies are forecast to continue into the next regulatory period and so the total quantum of corporate costs should decrease. However, this is not evident in Essential Energy's forecast corporate costs, as shown in Table 5.2.

Therefore, we have accepted SKM's recommendation to reduce corporate overheads from 20% to 18% in equal deductions over the determination period. We also note that SKM's recommendation is consistent with Halcrow's recommendation in the 2010 Determination that corporate allocations are typically between 15% to 20% for water businesses in Australia.<sup>111</sup>

## 5.3 Essential Energy's current and forecast operating expenditure

The sections below outline Essential Energy's current operating expenditure, its forecast operating expenditure, SKM's analysis of Essential Energy's forecasts, stakeholder views, and our findings on Essential Energy's efficient operating expenditure over the upcoming determination period.

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<sup>111</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 - Determination and Final Report*, June 2010, p 52 and Halcrow, *Review of Country Energy's water business (Broken Hill)*, February 2009, p 44.

### 5.3.1 Essential Energy's current operating expenditure over the 2010 Determination

Table 5.3 below compares our allowance for operating expenditure with Essential Energy's actual operating expenditure over the 2010 Determination.

**Table 5.3 Essential Energy's operating expenditure – allowed versus actual (\$'000, \$2013/14)**

	2010/11	2011/12	2012/13
<b>IPART 2010 Determination</b>			
Water	9,576	9,385	9,197
Sewerage	2,326	2,280	2,234
Corporate	2,381	2,333	2,286
Total	14,283	13,998	13,718
<b>Essential Energy's actual</b>			
Water	8,533	8,873	10,048
Sewerage	2,632	2,178	2,322
Corporate	3,939	8,157	2,756
Total	15,104	19,208	15,126
<b>Total percentage difference (Essential Energy/IPART-1)</b>	<b>6%</b>	<b>37%</b>	<b>10%</b>

**Note:** Our 2010 Determination did not break down total operating costs into corporate costs. We have applied the same 20% allocation of corporate costs to direct operating costs as per our decision on corporate costs for capital costs in the 2010 Determination. This is to compare with Essential Energy's submission in the above table. The figures in the above table slightly differ from our Draft Report due to our update of our estimate of inflation for 2013/14, from 2.5% used in the Draft Report to 3.1% for our Final Report.

**Source:** IPART, Review of prices for Country Energy's water and sewerage services, 2010, Financial Model and Essential Energy's Information Return, November 2013.

Table 5.3 indicates that Essential Energy overspent by about 18% per year, on average, compared to the amounts we decided were efficient for it to provide its services at the 2010 Determination.

Essential Energy reported that its operating expenditure was greater than we allowed for in the 2010 Determination because:

- ▼ Pumping costs have increased substantially, due to an increase in the electricity price (changing from a low voltage to a high voltage tariff) for the major pumping station.
- ▼ Corporate costs originally intended for capital expenditure have been reallocated to operating expenditure, due to capital expenditure being lower than expected over the current determination period. Essential Energy's rationale is that corporate overheads relate to costs incurred in the wider Essential Energy business and are largely fixed and beyond the control of the water business.<sup>112</sup>

<sup>112</sup> Essential Energy's submission, September 2013, p 20.

### 5.3.2 Essential Energy's forecast operating expenditure for the 2014 Determination

Table 5.4 below shows Essential Energy's proposed operating expenditure over the 2014 determination period.

**Table 5.4 Essential Energy's proposed operating expenditure (\$'000, \$2013/14)**

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
<b>Essential Energy's proposal</b>						
Water	10,048	10,212	9,188	9,128	9,321	9,121
Sewerage	2,322	2,292	2,494	2,478	2,564	2,509
Corporate	2,756	2,501	2,383	2,374	2,436	2,389
<b>Total</b>	<b>15,126</b>	<b>15,005</b>	<b>14,064</b>	<b>13,979</b>	<b>14,322</b>	<b>14,018</b>

**Note:** The figures in this table differ from those in Table 5.2 because Essential Energy has included debt raising costs of 8 basis points as part of its proposed operating expenditure. These debt raising costs are included in the figures in this table, but excluded from the figures in Table 5.2.

**Source:** Essential Energy submission to IPART, September 2013, p 31.

Essential Energy reported that it based its forecast operating expenditure on its actual operating expenditure of \$14.7 million for 2012/13 and it submitted a real decrease in operating expenditure for 2014/15.<sup>113</sup> It then proposed operating expenditure to be fairly constant for the remainder of the proposed determination period.

Essential Energy indicates that operating expenditure in 2012/13 already includes a large number of savings initiatives and cost reduction measures arising through the formation of Networks NSW, and the resulting restructure that has taken place within Essential Energy.<sup>114</sup>

It also reported that it has factored in a reduction of 6 full time equivalent staff (FTEs) over the forecast period, and that any real wage increases are to be offset by productivity and efficiency gains driven by Networks NSW savings initiatives, and repairs and maintenance savings as a result of replacement capital spend programs.<sup>115</sup>

<sup>113</sup> Essential Energy's submission to IPART, September 2013, p 20. Essential Energy's actual operating expenditure was \$14.7 million for 2012/13 in nominal terms. In \$2013/14, it is \$15 million as per Table 5.4 above.

<sup>114</sup> Essential Energy's submission to IPART, September 2013, p 30.

<sup>115</sup> Ibid, p 31.

### 5.3.3 SKM's analysis

In its review, SKM noted that Essential Energy had exceeded its regulatory operating expenditure and found that this was largely due to 'over-expenditure/over-allocation' of corporate overheads.<sup>116</sup>

SKM also noted that the 2012/13 operating expenditure was the most recent audited financials and was satisfied that it was an appropriate base from which to set projections of future operating expenditure, subject to some review of the significant movements (especially increases) in operating expenditure line items during 2011/12 and 2012/13.<sup>117</sup>

SKM reviewed Essential Energy's proposed operating expenditure and concluded there is further scope for efficiency and productivity improvements. Its conclusion is based on information received from Essential Energy and SKM's broad water utility experience.<sup>118</sup> SKM recommended the following 3 adjustments to Essential Energy's proposed operating expenditure:

- ▼ a general productivity target of 1% per year (real) for both water and sewerage
- ▼ a specific reduction to operating expenditure to allow for transfer of personnel costs already included in capital expenditure
- ▼ a reduction in maintenance costs as a result of Essential Energy's proposed capital projects.<sup>119</sup>

These adjustments are outlined below.

Essential Energy was given the opportunity to respond to SKM's findings. Where applicable, Essential Energy's responses have been documented below.

#### General productivity savings target of 1% per year real (compound)

SKM recommended a general productivity target of 1% per year real for both water and sewerage. SKM concluded that on the 'basis of its overall review work and its broad water utility experience that there was scope for efficiency or productivity improvements, in addition to that indicated by Essential Energy for its water and sewerage activities'.<sup>120</sup>

SKM considered that the basic concept should be to at least maintain the unit operating cost per person in real terms over the next regulatory period at approximately the same level as 2013/14 or preferably at 2012/13, unless there is evidence for new real increases in costs such as new environmental obligations or

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<sup>116</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 84.

<sup>117</sup> *Ibid*, p 85.

<sup>118</sup> *Ibid*, p 93.

<sup>119</sup> *Ibid*, p 93.

<sup>120</sup> *Ibid*, p 93.

treatment facilities. SKM indicates that such reasons were not evident in Essential Energy's submission.<sup>121</sup>

SKM also factored in the declining population in Broken Hill. It noted that Essential Energy's submission assumed a reduction of about 166 persons per year, but according to SKM's analysis it considered the population decline had been at about 220 persons per year over the past 5 years. Therefore, it assumed a decline of 200 persons per year in its recommendations.<sup>122</sup>

### Sewerage

For sewerage, SKM examined Essential Energy's proposal and considered a reasonable sewerage operating cost per person was \$135 per year in real terms. It noted that this was higher than Essential Energy's current sewerage operating cost per person of \$124.

Table 5.5 below shows a comparison of the implied operating cost per person in Essential Energy's submission and SKM's target.

**Table 5.5 Sewerage direct operating costs per person (\$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Population	18,500	18,300	18,100	17,900	17,700
EE's implied opex per person	124	136	137	143	142
SKM's target	n/a	135	135	135	135

**Source:** SKM, *Essential Energy expenditure review – Final Report*, January 2014, p 94.

By keeping operating cost per person at \$135 in real terms, as the population declines, the total size of SKM's recommended sewerage operating cost declines. SKM then found that applying a productivity improvement of approximately 1% to Essential Energy's 2013/14 sewerage operating cost level achieved a similar outcome.<sup>123</sup>

### Water

For water, SKM examined Essential Energy's proposal but came to a view on an appropriate operating cost per person by examining further historical costs, given the greater variability in water operating costs due to pumping cost variability.

It found the following costs per person: \$418 for 2010/11; \$445 for 2011/12; and \$521 for 2012/13.<sup>124</sup>

<sup>121</sup> SKM, *Essential Energy expenditure review – Final Report*, January 2014, p 94.

<sup>122</sup> Ibid.

<sup>123</sup> Ibid.

<sup>124</sup> Ibid, p 95.

SKM also considered Essential Energy's proposal, as shown in Table 5.6 below, and concluded that a reasonable range was between \$488 to \$506 per person.

**Table 5.6 Water direct operating costs per person (\$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Population	18,500	18,300	18,100	17,900	17,700
EE's implied opex per person	552	502	504	521	515
SKM's initial target	n/a	495	495	495	495
SKM's final result	n/a	490	490	490	490

Source: SKM, *Essential Energy expenditure review – Final Report*, January 2014, p 95.

SKM initially targeted \$495 per person and found that a 0.85% per year compound reduction would achieve the same result. However, it rounded the adjustment to 1% and calculated that it implied a target of \$490 per person.

SKM considered that Essential Energy should be able to achieve its recommended 1% real per year savings through:

- ▼ Sewerage cost savings - volumes will decrease with population decreasing, which means less energy, chemicals and maintenance costs are required. SKM's view is that this alone would contribute about half of the 1% real per year savings.
- ▼ Proactive maintenance with enhanced management systems, which would deliver lower reactive maintenance costs for both its water and sewerage systems than what Essential Energy proposed in its forecast operating expenditure.<sup>125</sup>

Essential Energy's response to SKM's comments on proactive maintenance is that it will only reduce unplanned overtime, with reductions in materials expected to be minimal.<sup>126</sup>

In response, SKM noted that Essential Energy is on an asset management improvement journey and intends to pursue an enhanced asset management system. SKM indicates that, in its experience, there are significant savings to be achieved with implementation of a risk-based asset management system. Therefore, SKM considered that with a well-designed asset management system, there will be a better balance between proactive maintenance, reactive maintenance and capital initiatives. Thus, SKM's view is that savings will occur not only as a result of reduced overtime, but through a reduction in the overall cost of maintenance.<sup>127</sup>

<sup>125</sup> Ibid, p 95.

<sup>126</sup> Ibid, p 96.

<sup>127</sup> Ibid, p 96.

Essential Energy also made a general comment about SKM's recommended productivity savings. Essential Energy indicated that there has been no 'contingency' incorporated into the operating expenditure forecasts in its submission. Its view is that increases in its input prices (eg, for fuel/diesel/electricity) are likely to be greater than its assumption on increases in general inflation (the Consumer Price Index) and that unforeseen contingent expenditure is also likely.<sup>128</sup>

SKM's response was that it considered there to be insufficient analysis to support either Essential Energy's view on the potential for productivity savings, or the reasonableness of the base operating expenditure for water and sewerage in 2013/14, upon which the projections are based.<sup>129</sup>

#### Reduction in operating costs due to transfer of personnel costs already captured in capital expenditure

SKM reported that Essential Energy has indicated that a redirection of FTEs from operating expenditure to capital expenditure has reduced its operating expenditure over a number of years. SKM considered that with the increased capital expenditure program over the upcoming determination, there should be a greater redirection from operating expenditure than apparent in Essential Energy's forecasts.<sup>130</sup>

SKM indicates that internal and other project management costs normally comprise at least 3% to 4% of the direct capital expenditure costs. Therefore, SKM has calculated its recommended adjustment to operating expenditure by deducting 3.5% of the difference between its recommended efficient capital expenditure for each year and the average direct capital expenditure over the past 4 years.<sup>131</sup> In other words, according to SKM, 3.5% of the increased direct capital expenditure in each year of the upcoming determination compared to the average direct capital expenditure over the past 4 years should be personnel costs that should be transferred out of operating expenditure and into capital expenditure.

SKM indicates that Essential Energy's capital expenditure already includes the costs of personnel required for the projects, and this cost is about 15% in addition to the direct costs for capital expenditure works (before corporate costs are further added). Therefore, SKM indicates that this recommended reduction to operating expenditure does not need to be further added to Essential Energy's proposed capital expenditure amounts.<sup>132</sup>

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<sup>128</sup> Ibid, p 96.

<sup>129</sup> Ibid, p 96.

<sup>130</sup> Ibid, p 92.

<sup>131</sup> Ibid, p 97.

<sup>132</sup> Ibid, pp 93 and 97.

Essential Energy's response to SKM's recommended adjustment was that it is unreasonable. Essential Energy stated that there is already an assumed level of project management costs (internal and external) factored into the other direct cost components of the capital projects to cover project management related costs.<sup>133</sup>

SKM noted Essential Energy's response, but concluded there was an absence of further information from Essential Energy detailing:

- ▼ how costs are allocated between operating expenditure and capital expenditure, and
- ▼ how costs are allocated between the water and energy side of the business, and
- ▼ how operating expenditure shifts as the extent of capital programs move up/down.

SKM therefore considered its recommendation to be reasonable.<sup>134</sup>

#### Reduction in maintenance costs due to Essential Energy's proposed capital projects

SKM reported that Essential Energy had identified operating expenditure savings generated from capital expenditure projects in its investment cases for capital projects.<sup>135</sup> Essential Energy has indicated that some projects such as the Stephen's Creek Dam wall rehabilitation will result in increased operating expenditure once completed, but in aggregate there are operating expenditure savings identified in its investment cases for the capital projects.<sup>136</sup>

SKM stated that it has seen no evidence that the operating expenditure savings have been included as savings in the operating expenditure forecasts.<sup>137</sup> SKM found that, on face value, the operating expenditure savings identified in Essential Energy's investment cases total about \$145,000 per year (or \$45,000 per year if the additional operating expenditure required for the Sunset Strip potable water upgraded is included, however Essential Energy has not provided timing on this).<sup>138</sup> SKM also considered Essential Energy's savings estimates to be low due to reasons such as:

- ▼ Essential Energy is working positively towards a more proactive maintenance program to reduce maintenance costs and so greater benefits would normally be expected from such programs.

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<sup>133</sup> Ibid, p 98.

<sup>134</sup> Ibid, p 98.

<sup>135</sup> Ibid, p 98.

<sup>136</sup> Ibid, p 106.

<sup>137</sup> Ibid, p 98.

<sup>138</sup> Ibid, p 107. Essential Energy has indicated that the additional operating expenditure cost required is not yet determined but is estimated to be in excess of \$100,000 per year.

- ▼ As rehabilitation works are completed, there should be fewer inspections of sewers or pipelines, with some cost savings.<sup>139</sup>

In response to SKM's recommendation, Essential Energy commented that operating expenditure savings from capital expenditure are "rough estimates" and, in reality, it is difficult to quantify, measure and understand the actual timing of realising these savings. It also noted that keeping operating expenditure real for the 4-year period without any contingent increases or wage increases has assumed a level of operating expenditure savings through capital expenditure, albeit not explicitly.<sup>140</sup>

SKM's response to Essential Energy's comment is that, if savings have been identified by Essential Energy in its investment cases, then it should be required to capture those savings. SKM also asserts that if savings are too difficult to quantify, measure and capture then it would not be prudent for Essential Energy to base its investment cases on them.<sup>141</sup>

#### 5.3.4 Stakeholders' submissions on Essential Energy's price proposal

Broken Hill City Council questioned the efficiency of Essential Energy's past operating expenditure. It submitted that Essential Energy has overspent its operating expenditure allowance, and that its expectation was that operating expenditure would be reduced as a result of the high capital expenditure over the previous regulatory period.<sup>142</sup>

The Public Interest Advocacy Centre (PIAC) noted that Essential Energy has not provided detailed information on its costs, which made it difficult to make comments.<sup>143</sup> PIAC also stated that Essential Energy's consumption of electricity should be moved to off peak periods where possible, to reduce its operational cost requirement.<sup>144</sup>

#### 5.3.5 IPART's analysis

Table 5.7 below shows our decision on Essential Energy's efficient level of operating expenditure for the 2014 Determination. Our decision is, on average, \$0.7 million per year (or 4.6%) less than Essential Energy's proposed operating expenditure each year.

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<sup>139</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 107.

<sup>140</sup> Ibid, p 98.

<sup>141</sup> Ibid, p 98.

<sup>142</sup> Broken Hill City Council submission, October 2013, p 4.

<sup>143</sup> PIAC submission, October 2013, p 3.

<sup>144</sup> Ibid.

**Table 5.7 Operating expenditure – Essential Energy's proposed, SKM's recommended and IPART's decisions (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
<b>Essential Energy's proposal</b>					
Water	10,212	9,188	9,128	9,321	9,121
Sewerage	2,292	2,494	2,478	2,564	2,509
Corporate	2,501	2,383	2,374	2,436	2,389
<b>Total</b>	<b>15,005</b>	<b>14,064</b>	<b>13,979</b>	<b>14,322</b>	<b>14,018</b>
<b>SKM's recommendation</b>					
Water	-	8,900	8,737	8,634	8,221
Sewerage	-	2,405	2,334	2,380	2,278
Corporate	-	2,324	2,257	2,258	2,154
<b>Total</b>	<b>-</b>	<b>13,629</b>	<b>13,328</b>	<b>13,272</b>	<b>12,653</b>
<b>IPART's draft decision</b>					
Water	-	8,945	8,766	8,799	8,480
Sewerage	-	2,416	2,341	2,402	2,323
Corporate	-	2,215	2,110	2,072	1,945
<b>Total</b>	<b>-</b>	<b>13,576</b>	<b>13,217</b>	<b>13,273</b>	<b>12,748</b>
<b>IPART's final decision</b>					
Water	-	9,041	8,906	8,984	8,708
Sewerage	-	2,440	2,376	2,450	2,383
Corporate <sup>a</sup>	-	2,239	2,144	2,115	1,996
<b>Total</b>	<b>-</b>	<b>13,720</b>	<b>13,426</b>	<b>13,549</b>	<b>13,087</b>

<sup>a</sup> Despite not changing the corporate overhead allocation rates, because direct operating expenditure is higher in our final decision, corporate overheads has increased as it is calculated as a percentage of direct operating expenditure.

**Source:** Essential Energy submission to IPART, September 2013, p 31; SKM, *Essential Energy (Water) Expenditure Review*, January 2014, p iii.

We have broadly accepted SKM's recommendations because we considered them to be reasonable. However, we have:

- ▼ reduced SKM's recommended productivity adjustment from 1% real per year (compound) to 0.5% real per year (compound) – this is a change from our Draft Report where we applied the 1% productivity adjustment
- ▼ not accepted SKM's recommendation to reduce operating costs due to transfer of personnel costs already captured in capital expenditure.

These changes are explained in the next sections.

### General productivity savings target

We have accepted SKM's recommended targets of operating costs per person of \$490 for water and \$135 for sewerage because we consider them to be reasonable, based on SKM's review of Essential Energy's proposed operating costs. We note that SKM considered current and historical levels of operating costs per person and the declining population in Broken Hill, and used its judgement from its water utility experience.

However, we have decided that Essential Energy should aim for these targets over the longer term. Therefore, for this determination we have set targets for operating costs per person of \$501 for water and \$137 for sewerage to move towards SKM's targets. This results in a productivity saving of 0.5% real per year, compared with the 1% per year that SKM recommended. Essential Energy's implied operating costs per person were \$511 for water and \$140 for sewerage, under its price proposal.

The decision to reduce SKM's recommended productivity adjustment for this determination period was an on balance decision. This is because subsequent to our Draft Report we found that there are uncertainties around Essential Energy's submitted cost estimates, as it advised that certain additional costs had not been incorporated, despite the possibility that they would be incurred if extremely dry weather conditions occur. For example, additional costs would be incurred if its reverse osmosis plant were to be switched on during extremely dry periods.<sup>145</sup>

We also note that there is arguably less room for error in assessing the costs of smaller utilities as they have less ability to absorb forecasting error and unexpected additional costs, compared to larger water utilities.

However, we note SKM's findings that, based on its analysis of Essential Energy's proposed expenditure and SKM's broad water utility experience, there is scope for further efficiencies. Therefore, we want to encourage Essential Energy to pursue further efficiencies, particularly given that it is operating in a declining market.

We will examine Essential Energy's operating expenditure against our targets of operating costs per person of \$501 for water and \$137 for sewerage, at the next price review.

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<sup>145</sup> Essential Energy correspondence, 14 May 2014.

### Reduction in operating costs due to transfer of personnel costs already captured in capital expenditure

We sought further information from Essential Energy and asked whether its direct operating expenditure forecasts include any labour costs for capital projects. Essential Energy indicated that labour costs are allocated between operational and capital expenditure depending on the expected work required and that its labour costs in its forecasts are for operating expenditure only and not for capital expenditure.<sup>146</sup>

Based on the further information provided by Essential Energy, our decision is not to accept SKM's recommendation on this specific issue. According to Essential Energy, it has apportioned its labour costs between operating and capital expenditure based on expected workload, and therefore is not counting labour costs twice: once in operating expenditure and then again in capital expenditure for project management costs.

### Other adjustments

We also found that SKM had applied the recommended reduction in corporate costs to Essential Energy's proposed operating expenditure, rather than to its direct efficient expenditure. Therefore, we undertook our own calculations and applied SKM's recommended corporate cost allocation to our findings on Essential Energy's efficient operating expenditure.

We also removed Essential Energy's debt raising costs of 8 basis points, which it included as part of its operating expenditure. This is because we allow for a higher 12.5 basis points for debt raising costs in the WACC.<sup>147</sup>

### Conclusion

In summary, we made the following adjustments to Essential Energy's forecast operating expenditure:

- ▼ reduced forecast operating expenditure by 0.5% as a general productivity saving
- ▼ reduced forecast operating expenditure to reflect lower maintenance costs resulting from Essential Energy's proposed capital projects
- ▼ reduced corporate overheads as a percentage of direct efficient operating expenditure from 20% to 18% over the determination period
- ▼ removed debt raising costs of 8 basis points because we allow for a higher 12.5 basis points in the WACC.

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<sup>146</sup> Essential Energy, correspondence December 2013.

<sup>147</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 2.

## 6 Essential Energy's capital expenditure

To determine the revenue that Essential Energy needs to fund its capital works program over the 2014 determination period, we assessed Essential Energy's:

- ▼ past capital expenditure over the 2010 determination period and in 2013/14,<sup>148</sup> to decide whether it was efficient and should be included in the opening value of its Regulatory Asset Base (RAB) for the 2014 Determination
- ▼ forecast capital expenditure to determine whether it is prudent and efficient and should be included when rolling forward the RAB over the 2014 determination period.

To assist us in assessing Essential Energy's capital expenditure, we also engaged SKM to conduct a detailed review of Essential Energy's forecast capital program and a high level review of its past capital program. References to SKM's findings and recommendations are drawn from its Final Report.<sup>149</sup> We also invited submissions from stakeholders.

The section below summarises our decisions on Essential Energy's prudent and efficient past and forecast capital expenditure. The following sections discuss our considerations in reaching these decisions, including Essential Energy's submission, SKM's review and recommendations, stakeholder comments and our own analysis and conclusions.

Chapter 7 discusses how we have used the decisions on Essential Energy's capital expenditure in this chapter to determine allowances for a return on assets and depreciation.

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<sup>148</sup> The 2010 Determination was only until 2012/13.

<sup>149</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014.

## 6.1 Summary of IPART's decisions on capital expenditure

### Decisions

- 11 Essential Energy's actual capital expenditure over the period 2009/10 to 2012/13 is deemed to be prudent and efficient, and is included in the opening value of the RAB for the 2014 determination period.
- 12 Essential Energy's prudent and efficient level of capital expenditure for 2013/14 and over the 2014 determination period is as shown in Table 6.1.

Our final decision is that Essential Energy's prudent and efficient capital expenditure is \$38.8 million over the determination period. We have allowed slightly more capital expenditure (\$0.3 million or 1%) than in our Draft Report. This is \$13.3 million (or 26%) lower than Essential Energy's proposed capital expenditure over the determination period.

**Table 6.1 IPART's decision on Essential Energy's forecast capital expenditure (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18	4-year Total
<b>Essential Energy's proposal</b>						
Water	3,922	10,017	11,447	6,249	8,348	36,061
Sewerage	543	1,789	1,530	1,598	2,521	7,437
Corporate	893	2,361	2,595	1,569	2,174	8,699
Total	5,357	14,166	15,572	9,415	13,043	52,197
<b>IPART's decision</b>						
Water	2,397	5,194	4,716	8,785	8,494	27,189
Sewerage	543	1,205	1,157	1,176	2,022	5,561
Corporate	588	1,248	1,116	1,843	1,893	6,099
Total	3,528	7,647	6,989	11,804	12,409	38,849

**Note:** Totals may not add due to rounding.

**Source:** Essential Energy's submission to IPART, September 2013, pp 39 & 40; Essential Energy's Information Return, November 2013.

Our decision is consistent with concerns raised by stakeholders over the size of Essential Energy's capital program.

Essential Energy raised concerns that its service standards and asset failure rates might be compromised by the capital expenditure allowance under our Draft Determination. We have considered its arguments and do not consider them reason to substantially change our decision. Section 6.4.4 and Appendix C provide our analysis.

We consider that Essential Energy can plan and deliver its remaining capital program in this determination period at a lower cost than in its submission, and that our capital expenditure allowance would allow it to meet its required service standards as it had planned when making its submission.

Our decision does not reflect a view that the outcomes targeted by Essential Energy's capital program are imprudent or unnecessary. Rather, it provides an allowance for Essential Energy to plan and deliver its capital program in order to achieve desired outcomes at least cost, allowing for the results of options assessments and other improvements to asset management.

However, if Essential Energy's capital expenditure over the determination period exceeds \$38.8 million and is subsequently deemed to be prudent and efficient, then Essential Energy's future prices will be adjusted accordingly at the next price determination.

## **6.2 Essential Energy's capital expenditure over the 2010 determination period**

We decided to assess Essential Energy's capital expenditure over the 2010 determination period at a high level, rather than engage SKM to conduct a detailed expenditure review. This is mainly because Essential Energy's capital expenditure was lower than our 2010 Determination allowance, which reflected our assessment of prudent and efficient capital expenditure at the time of the 2010 Determination. Hence, we decided to place more emphasis on reviewing Essential Energy's proposed capital expenditure for the 2014 determination period.

Our decision is to include Essential Energy's actual capital expenditure in the opening value of its RAB for the 2014 Determination.

### 6.2.1 Essential Energy's submission

Table 6.2 below compares our allowance for capital expenditure over the 2010 Determination period with Essential Energy's actual capital expenditure.

**Table 6.2 Essential Energy's capital expenditure – allowed versus actual (\$'000, \$2013/14)**

	2010/11	2011/12	2012/13	Total
<b>IPART 2010 Determination</b>				
Water	2,635	4,347	4,349	11,331
Sewerage	579	2,383	2,332	5,293
Corporate	643	1,346	1,336	3,325
Total	3,856	8,076	8,016	19,949
<b>Essential Energy's actual expenditure</b>				
Water	4,568	2,581	3,031	10,180
Sewerage	1,595	1,126	1,722	4,443
Corporate	1,424	858	784	3,066
Total	7,588	4,565	5,537	17,689

**Note:** The figures in the above table slightly differ from our Draft Report due to our update of our estimate of inflation for 2013/14, from 2.5% used in the Draft Report to 3.1% for our Final Report.

**Source:** IPART, *Review of prices for Country Energy's water and sewerage services – Final Report, June 2010*, Financial Model & Essential Energy's Information Return, November 2013.

Table 6.2 shows that over the 2010 determination period Essential Energy spent, in total, 11% less than the amount we decided was prudent and efficient for providing Essential Energy's services.

Essential Energy indicates this was mainly due to:

- ▼ not carrying out majority of certain expenditures, such as the Mica St Water Treatment Plant No 1 tank replacement<sup>150</sup>
- ▼ reduced expenditure on the Menindee and Umberumberka pipelines and Wills Street sewerage treatment plant project.<sup>151</sup>

<sup>150</sup> Essential Energy submission to IPART, September 2013, p 81.

<sup>151</sup> Ibid, p 22.

In particular, Essential Energy noted that:

- ▼ Capital expenditure on the Menindee and Umberumberka pipelines was less than planned due to its decision to move to a prioritised replacement strategy as opposed to an intensive replacement program, until a comprehensive review of Essential Energy's bulk water supply strategy was completed.
- ▼ Capital expenditure on Wills Street sewerage treatment plant was reduced and deprioritised until a decision was made on the future of the plant. Originally, Essential Energy was planning to refurbish the plant but, following a review by the NSW Department of Public Works, it is now considering replacing the plant in its entirety.<sup>152</sup>

### 6.2.2 SKM's analysis

In its review, SKM indicated that a reprioritisation of works occurred over the current regulatory period. This resulted in several projects which were part of the capital program not being completed and other projects not identified in the plan being completed. SKM also noted the same reasons for the overall underspend in capital expenditure as outlined by Essential Energy (see above).<sup>153</sup>

SKM also indicates that the capital expenditure program over the current period was based on a strategy that mainly involved replacing major assets and that IPART's 2010 Determination proposed moving to a refurbishment strategy for some major projects. This prompted a review and further analysis of these projects by Essential Energy. For example, SKM found that Essential Energy did not complete the Wills Street sewerage treatment plant refurbishment because Essential Energy considered that replacing the existing plant was the most suitable option.<sup>154</sup>

SKM advised us that Essential Energy's planning undertaken for the current capital program signals that the approach outlined in Essential Energy's asset management plan is not being fully implemented and decision making is based heavily on qualitative criteria. It also advised that ensuring the asset management plan is followed for each project and moving towards a quantitative approach is likely to lead to less changes resulting from emerging 'surprises' following the capital program approval.<sup>155</sup>

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<sup>152</sup> Essential Energy submission to IPART, September 2013, p 22.

<sup>153</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 69.

<sup>154</sup> *Ibid*, p 69.

<sup>155</sup> *Ibid*, p 70.

### 6.2.3 IPART's analysis

As mentioned previously, we did not undertake a detailed review of Essential Energy's past capital expenditure.

In assessing Essential Energy's actual capital expenditure over the 2010 determination period (2010/11 to 2012/13), we were mindful that its actual capital expenditure over this period was less than the amount we allowed for in our 2010 Determination. We also note that its actual expenditure for 2009/10 was \$27.3 million which is similar to our determined expenditure of \$26.9 million.

We considered Essential Energy's rationale for the overall under-spend and SKM's high level findings. Our decision is to include Essential Energy's actual capital expenditure (2009/10 to 2012/13) in the opening value of its RAB for the 2014 Determination.<sup>156</sup> Essential Energy will not earn a return on assets and depreciation over the 2014 Determination period (2014/15 to 2017/18) for expenditure it did not carry out over the current period (2010/11 to 2012/13).

We note SKM's comments about Essential Energy not fully implementing the approach outlined in its asset management plans and that decision making is based heavily on qualitative criteria. We also note SKM's advice that Essential Energy moving towards a more quantitative approach would likely lead to less 'surprises'. These findings from SKM have contributed to our decision on Essential Energy's forecast capital expenditure for the 2014 Determination period, which is detailed below.

## 6.3 Essential Energy's capital expenditure for 2013/14

Our 2010 Determination was only until 2012/13. Therefore, at the time of the 2010 Determination, we did not determine an efficient capital expenditure allowance for 2013/14.

Essential Energy submitted that it expects its capital expenditure for 2013/14 to be \$5.4 million. This is less than the previous 3 years' average annual capital expenditure of \$5.9 million.<sup>157</sup>

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<sup>156</sup> In the 2010 Determination, the capital expenditure for 2009/10 included in prices, was a budget amount. Therefore, our normal process is to also examine the actual efficiency of capital expenditure for the year (2009/10) in which the previous determination was set.

<sup>157</sup> Essential Energy submission to IPART, September 2013, p 21 (adjusted for inflation).

SKM carried out a high level assessment of Essential Energy's capital expenditure for 2013/14 and found that:

- ▼ Essential Energy's planned capital expenditure of \$1.40 million for Stephens Creek Pump Station No 4 is unlikely to proceed in 2013/14. Therefore, it has recommended a reallocation of these funds to 2016/17.<sup>158</sup>
- ▼ For 'Reservoir General Works', SKM recommends that Essential Energy undertake further investigations, options assessments and design work. Hence, SKM has recommended that Essential Energy defer works until 2016/17. This is after SKM's recommended investigation work is completed over 2014/15 and 2015/16, for which SKM recommends \$0.1 million each year. Given that Essential Energy needs to do more investigative work to determine the efficient course of action, SKM recommends that the expenditure of \$0.43 million in 2013/14 is not efficient.<sup>159</sup>

Therefore, SKM recommended that Essential Energy's prudent and efficient capital expenditure for 2013/14 be reduced from \$5.4 million to \$3.5 million.<sup>160</sup>

We considered SKM's recommendation to be reasonable and so have accepted it. We have therefore only included \$3.5 million for 2013/14 in Essential Energy's opening RAB for the 2014 Determination period. As indicated by SKM, Essential Energy should undertake robust investigation and options assessment work and be able to demonstrate that its proposed works are efficient. We have included expenditure in the latter years of the 2014 Determination period, for Essential Energy to carry out capital expenditure once options assessment work has been done.

We note that the prudence and efficiency of actual expenditure in 2013/14 will be re-assessed in the next pricing review for Essential Energy, and the RAB may be re-adjusted at that time to reflect our findings.

## 6.4 Essential Energy's forecast capital expenditure for the 2014 determination period

### 6.4.1 Essential Energy's submission

Table 6.3 shows Essential Energy's proposed capital expenditure for the 2014 Determination.

Under Essential Energy's proposed capital expenditure program, its RAB would increase significantly by about 46% to \$137 million by the end of the determination period, including the effects of depreciation.<sup>161</sup>

<sup>158</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 17.

<sup>159</sup> Ibid, pp 36 and 56.

<sup>160</sup> Ibid, p 72.

<sup>161</sup> Its opening regulatory asset base for the 2014 Determination is about \$94 million (see Chapter 7, Table 7.3).

**Table 6.3 Essential Energy's proposed capital expenditure (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18	Total
<b>Essential Energy's proposal</b>					
Water	10,017	11,447	6,249	8,348	36,061
Sewerage	1,789	1,530	1,598	2,521	7,437
Corporate	2,361	2,595	1,569	2,174	8,699
<b>Total</b>	<b>14,166</b>	<b>15,572</b>	<b>9,415</b>	<b>13,043</b>	<b>52,197</b>

**Note:** Totals may not add due to rounding.

**Source:** Essential Energy's submission to IPART, September 2013, p 40 and Essential Energy's Information Return, November 2013.

#### 6.4.2 SKM's analysis

We engaged SKM to review Essential Energy's capital and operating expenditures, as well as its strategic management and long term investment plans. SKM made recommendations on the levels of capital expenditure for the 2014 Determination period that it considered were prudent and efficient.

Essential Energy provided comments on the SKM report and these were considered by SKM in its Final Report.

##### Asset management systems

SKM reviewed Essential Energy's asset management systems, in particular its Water Asset Management Plan (WAMP). SKM considered that Essential Energy demonstrates a sound understanding of asset management principles, including contemporary service/objective asset management. However, according to SKM, the application of these asset management principles does not appear to have been translated into a structured asset management framework that clearly:

- ▼ defines and connects Essential Energy's asset management practices across strategic, tactical and operational levels over the asset life-cycle
- ▼ defines roles and responsibilities, or
- ▼ links Essential Energy's asset management systems to broader corporate systems and plans.<sup>162</sup>

SKM also noted that Essential Energy personnel have a strong understanding of its assets. However, in the absence of a structured asset management system, the consistent application of risk management and investment decision making across Essential Energy's asset base cannot be adequately demonstrated to support expenditure and prioritisation proposals. For example, there is no prioritisation between projects with safety risks (eg, Stephens Creek Reservoir and Imperial Lake rehabilitation projects) and asset risks, which could have a

<sup>162</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p vi.

material impact on customer service obligations (eg, the continued safe and reliable operation of the Menindee pipeline in supplying water to the Stephens Creek Reservoir and Broken Hill customers).<sup>163</sup>

SKM further comments that Essential Energy recognises the need for an 'asset management improvement journey' and has identified this as a key strategic objective in its WAMP.<sup>164</sup>

SKM also found that an equivalent Sewer Asset Management Plan is not yet prepared, but Essential Energy intends to develop and include one in its WAMP.<sup>165</sup>

### Long term capital investment strategy

SKM reviewed Essential Energy's long term capital investment strategy. SKM makes the following general comments, acknowledging that Essential Energy is a relatively small water utility and appears to have limited resources to deal with significant issues:

- ▼ An overall strategic approach to its long term investment plan is missing.
- ▼ Long term strategies do not appear to be clear or well documented.
- ▼ There is tension between short term 'must do' projects and formulating a solid longer term asset investment plan of optimised projects. Essential Energy's focus is on the former and there seems to be little time for the latter to be robustly developed, along with how short term projects fit into the bigger picture of a solid longer term asset investment plan.
- ▼ Essential Energy's risk assessment of its asset base and service delivery does not adequately or sufficiently inform its long term planning.
- ▼ The relative consequences of 'failure' have not been robustly assessed, tested and/or documented to establish the respective merits of projects competing for capital. This includes better identification of the consequences of a failure event and the consequential likelihood of the impact of failure affecting others – ie, the overall risk (or impact of the 2).<sup>166</sup>

SKM strongly recommends that Essential Energy implement a more rigorous risk-based justification of all projects, linked to clearer decision-making and prioritisation processes.<sup>167</sup>

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<sup>163</sup> Ibid, pp vi and 79.

<sup>164</sup> Ibid, p vii.

<sup>165</sup> Ibid, p vii.

<sup>166</sup> Ibid, pp 78-81.

<sup>167</sup> Ibid, p 82.

SKM also indicates that there needs to be stronger clarity, definition and linkages in the 'end-to-end' justification of the merits of projects and the associated expenditure. That is, identification of drivers and objectives, assessment of a wider suite of solution options, identification of the most efficient option and assessment of the associated expenditure and timing.<sup>168</sup>

#### Prudent and efficient capital expenditure for the 2014 Determination

SKM has recommended that Essential Energy's prudent and efficient capital expenditure be \$42.8 million for the 2014 Determination period. This is based on:

- ▼ detailed reviews of 10 projects, comprising 69% of Essential Energy's proposed capital expenditure, to assess the significance of the capital spend, the robustness of its decision making processes and the potential to adjust timing of works
- ▼ a general high level review of the remaining 31% of proposed capital expenditure.<sup>169</sup>

SKM's broad comment on Essential Energy's proposed capital expenditure is that it is prudent but not necessarily efficient. SKM has interpreted prudent to mean that the risk or issue that Essential Energy has identified for the capital project needs to be addressed, rather than the project itself being prudent. SKM's assessment of efficiency then relates to whether Essential Energy's proposed capital expenditure is the least cost option of addressing the identified risk or issue. Therefore, SKM did not specifically remove any projects from Essential Energy's proposal.

In its investigation, SKM has found that for most projects:

- ▼ there is insufficient justification of timing of works
- ▼ there is insufficient justification of the specific works proposed in terms of drivers
- ▼ options analysis lacks sufficient breadth and depth, and
- ▼ works are proposed in the absence of an overall strategy without any integration of a cohesive plan linking them (on a risk basis) to risk management and customer service obligations.<sup>170</sup>

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<sup>168</sup> Ibid, p 82.

<sup>169</sup> Ibid, pp ii and 12.

<sup>170</sup> Ibid, pp 76.

In assessing Essential Energy's proposed expenditure, SKM recommended:

- ▼ Further investigations and options studies, where warranted, before Essential Energy undertakes capital expenditure. This means that:
  - smaller, options assessment capital expenditure is recommended in the earlier years of the determination period
  - Essential Energy's original proposed capital expenditure, albeit with a reduction for the options assessment money, is delayed and recommended in the latter years of the determination period.

For example, Essential Energy proposed \$3.9 million in direct costs in 2014/15 for the Stephens Creek Pump Station No. 4. SKM recommended \$0.3 million in 2014/15 to allow for options assessment and then the remaining \$3.6 million in 2017/18.<sup>171</sup>

- ▼ A nominal percentage reduction in capital expenditure for projects where Essential Energy has not provided substantive project definition or justification based on specific drivers (eg, asset management).

For example, for 'other works' for water, SKM noted that Essential Energy has grouped various expenditures together and has not provided justification or project definition for the 25% increase in proposed expenditure, from \$0.522 million per year on average for the past 4 years to a proposed forecast of \$0.651 million per year. SKM recommended that Essential Energy's proposed expenditure be reduced to no more than the average of the last 4 years, and so recommended a reduction of 20% to achieve this.<sup>172</sup>

- ▼ A reduction in capital expenditure for projects where SKM considered the levels of proposed capital expenditure to be unachievable. For example, SKM considered that the level of water reticulation replacement of 1.7 km per year implied in Essential Energy's cost estimates is inadequately justified. SKM considered that a replacement rate of 1.5 km per year is more appropriate, which is Essential Energy's current replacement rate.<sup>173</sup>

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<sup>171</sup> Ibid, pp 18 and 56.

<sup>172</sup> Ibid, pp 61.

<sup>173</sup> Ibid, p 32.

Table 6.4 shows SKM's adjustments to Essential Energy's proposal and SKM's recommendation. The recommended adjustment to corporate overheads has been applied as a reduction from 20% to 18% over the determination period, as explained previously in Chapter 6.

**Table 6.4 SKM's recommendation on Essential Energy's prudent and efficient capital expenditure (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18	Total
<b>Essential Energy's proposal</b>					
Water	10,017	11,447	6,249	8,348	36,061
Sewerage	1,789	1,530	1,598	2,521	7,437
Corporate	2,361	2,595	1,569	2,174	8,699
Total	14,166	15,572	9,415	13,043	52,197
<b>SKM's recommended adjustments</b>					
Water	-4,823	-6,731	2,772	3,255	-5,526
Sewerage	-583	-372	-422	-498	-1,876
Corporate	-1,113	-1,479	317	279	-1,997
Total	-6,519	-8,583	2,668	3,036	-9,399
<b>SKM's recommendation</b>					
Water	5,194	4,716	9,021	11,604	30,534
Sewerage	1,205	1,157	1,176	2,022	5,561
Corporate	1,248	1,116	1,886	2,453	6,703
Total	7,647	6,989	12,083	16,079	42,798

**Note:** Totals will not add due to rounding.

**Source:** Essential Energy's submission to IPART, September 2013, p 40 & Essential Energy's Information Return, November 2013; SKM, *Essential Energy (Water) expenditure review*, Final Report, January 2014, p ii.

In its recommendation, SKM did not remove any specific projects from Essential Energy's proposed capital program. SKM's recommendation represents:

- ▼ a delay in timing of works to allow for robust options assessments to be carried out
- ▼ a reduction in scope of works, where it considered Essential Energy's proposed increase in works is unjustified
- ▼ some efficiencies, including a reduction in corporate costs.

SKM's detailed expenditure report can be found on our website.

### 6.4.3 Stakeholder comments

Broken Hill City Council and Mr Roger Edwards have raised concerns about the timing and necessity of Essential Energy's forecast capital expenditure.<sup>174</sup>

Broken Hill City Council noted that Essential Energy's capital expenditure over the 2010 determination period was on different projects than was approved at the 2010 price review. It therefore raised questions about Essential Energy's capital planning processes.<sup>175</sup> Broken Hill City Council also suggested that service standards may need to be relaxed in certain circumstance (eg, drought) to ensure that the additional infrastructure cost to treat poor quality water is not excessive. It also commented on the substantial increase in 'dam works' capital expenditure proposed when there was no capital expenditure over recent years. It stated that capital expenditure reviews for such a significant capital expenditure program should be rigorously tested to ensure that the program is necessary and achievable.<sup>176</sup>

Mr Roger Edwards commented that Essential Energy's recent expenditure on a new water treatment plant did not appear justified. He was of the understanding that the old manually operated plant was still performing well and with normal maintenance and minor upgrades could have continued for many years.<sup>177</sup>

At the public hearing in Broken Hill, Broken Hill City Council again raised its concern over the extent of Essential Energy's proposed capital program. It questioned whether it was necessary for all the proposed works to be undertaken in the next 4 years.<sup>178</sup> The Broken Hill Chamber of Commerce also voiced similar concerns and queried the prioritisation of projects and whether some could be delivered over a longer time frame such as 10 years.<sup>179</sup>

### 6.4.4 IPART's analysis

Our decision on Essential Energy's capital program maintains our decision in our Draft Report to significantly reduce the capital expenditure that is included in Essential Energy's prices in the new regulatory period. This draws upon SKM's findings that there is scope to improve Essential Energy's asset management and options analysis.

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<sup>174</sup> Broken Hill City Council submission, October 2013, pp 4 and 5; and R. Edwards submission, October 2013, p 2.

<sup>175</sup> Broken Hill City Council submission, October 2013, p 5.

<sup>176</sup> Ibid, p 5.

<sup>177</sup> R. Edwards submission, October 2013, p 2.

<sup>178</sup> IPART, Public Hearing Transcript, 19 November 2013, p 35.

<sup>179</sup> Ibid, p 46.

Table 6.5 shows our decision on Essential Energy's forecast prudent and efficient capital expenditure over the 2014 Determination period, for the purpose of setting prices. In total, we have allowed for capital expenditure of \$38.8 million over this period, which is about 26% less than Essential Energy's proposed capital expenditure.

**Table 6.5 Capital expenditure – Essential Energy's proposed, SKM's recommended and IPART's draft and final decisions (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18	Total
<b>Essential Energy's proposal</b>					
Water	10,017	11,447	6,249	8,348	36,061
Sewerage	1,789	1,530	1,598	2,521	7,437
Corporate	2,361	2,595	1,569	2,174	8,699
<b>Total</b>	<b>14,166</b>	<b>15,572</b>	<b>9,415</b>	<b>13,043</b>	<b>52,197</b>
<b>SKM's recommended</b>					
Water	5,194	4,716	9,021	11,604	30,534
Sewerage	1,205	1,157	1,176	2,022	5,561
Corporate	1,248	1,116	1,886	2,453	6,703
<b>Total</b>	<b>7,647</b>	<b>6,989</b>	<b>12,083</b>	<b>16,079</b>	<b>42,798</b>
<b>IPART's draft decision</b>					
Water	4,467	3,994	8,222	10,832	27,515
Sewerage	1,037	980	1,071	1,888	4,976
Corporate	1,073	945	1,719	2,289	6,027
<b>Total</b>	<b>6,577</b>	<b>5,919</b>	<b>11,013</b>	<b>15,009</b>	<b>38,518</b>
<b>IPART's final decision</b>					
Water	5,194	4,716	8,785	8,494	27,189
Sewerage	1,205	1,157	1,176	2,022	5,561
Corporate	1,248	1,116	1,843	1,893	6,099
<b>Total</b>	<b>7,647</b>	<b>6,989</b>	<b>11,804</b>	<b>12,409</b>	<b>38,849</b>

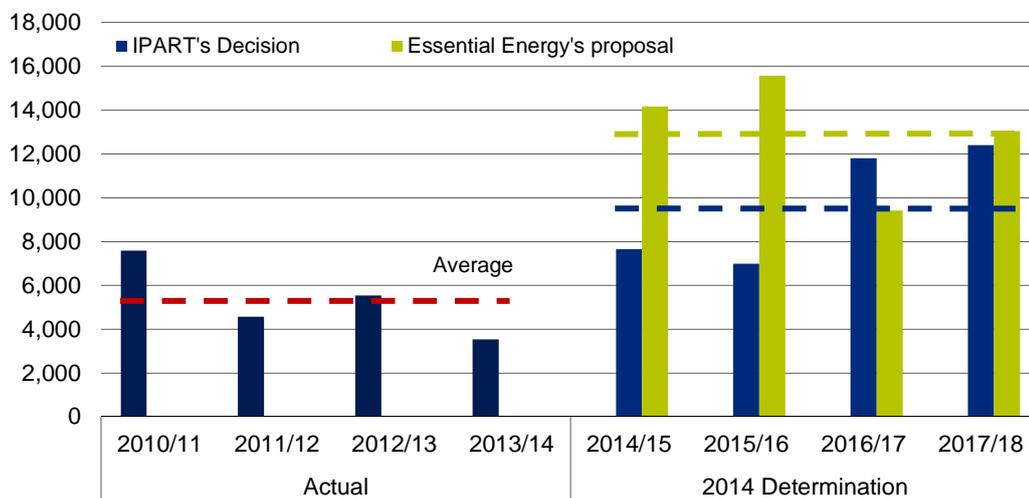
**Source:** Essential Energy's submission to IPART, September 2013, p 40 & Essential Energy's Information Return, November 2013; SKM, *Essential Energy (Water) expenditure review, Final Report*, January 2014, p ii.

We note that Essential Energy's proposed capital expenditure program of \$52.2 million, or \$13 million per year on average, is:

- ▼ large compared to Essential Energy's actual capital expenditure over 2010/11 to 2013/14, where average annual capital expenditure was \$5.9 million (\$2013/14) (as shown in Figure 6.1 below)
- ▼ more varied compared to historical expenditure programs – which, on occasion, have been dominated by single large capital projects (eg, the Mica Street Water Treatment Plant at about \$40 million).<sup>180</sup>

<sup>180</sup> Essential Energy, Public Hearing Presentation Slides, November 2013, slide 13.

**Figure 6.1 Essential Energy's actual capital expenditure and proposed expenditure (\$'000, \$2013/14)**



**Note:** The expenditure in 2013/14 is our decision on Essential Energy's prudent and efficient capital expenditure of \$3.5 million (see Section 6.3).

**Data source:** Essential Energy submission to IPART, September 2013, p 40.

In reaching our decision, we considered SKM's analysis and recommendations, including its findings on Essential Energy's asset management strategy and long term investment plan. We also considered stakeholder submissions, the size of Essential Energy's capital expenditure proposal and the declining population and industrial base of Broken Hill.

Essential Energy raised concerns in its submission to the Draft Report that its service standards and its asset failure rates might be compromised by the capital expenditure allowance.<sup>181</sup> We have considered its arguments and do not consider them reason to substantially change our decision. We note that the allowance reflects our view on prudent and efficient capital expenditure for the upcoming determination period, and provides a basis for the businesses to plan and execute its capital program. Appendix C contains further analysis.

### Reasons for our decisions on capital expenditure

As shown in Table 6.5, our decision is that Essential Energy's prudent and efficient capital expenditure over the 2014 determination period is \$38.8 million. There are 2 components to our decision.

- ▼ First, we have accepted SKM's recommended reduction to Essential Energy's forecast capital expenditure. This reduction to \$42.8 million is due to:
  - delaying capital expenditure so that further investigation and robust options assessment can be undertaken

<sup>181</sup> Essential Energy's submission to IPART's Draft Report, April 2014, pp 11-14.

- reducing proposed expenditure where SKM considered the costs to be inefficient or the proposed works unachievable by Essential Energy in the stated timeframe
  - reducing corporate overheads from 20% to 18% by the end of the determination period.
- ▼ Second, we have not allowed the majority of expenditure on the Rocky Hill Service Reservoir Replacement project for the 2014 Determination period. Our decision draws upon further advice by SKM. It is a change from our decision in the Draft Report to further reduce SKM's recommended capital expenditure by 10%, which reflected our expectation of further savings that could be obtained from improved asset management and thorough options analysis for all capital expenditure within the determination period.

### Our decision on the Rocky Hill project

Essential Energy's submission to our Draft Report noted that it has recognised in the past that improvements in asset management are required, but these improvements cannot be identified and implemented in a short time frame.<sup>182</sup> Therefore, we decided not to apply the further 10% reduction (in addition to SKM's recommended 18% reduction) because there is uncertainty about the precise magnitude of cost savings that could be achieved from improved asset management and options analysis within the determination period. However, our decision does not downplay the importance of robust asset management and options analysis in informing capital programs - particularly in a declining market.

However, we were still concerned with the resulting level of expenditure that would be reflected in prices, even with SKM's recommended 18% reduction to Essential Energy's proposed capital expenditure. Therefore, we did not allow the majority of expenditure for the Rocky Hill Service Reservoir project as subsequent advice from SKM indicated that there is a case for delaying the Rocky Hill Service Reservoir project until the next determination period (ie, from 2018/19).

SKM indicated that while it had not undertaken a detailed review of the Rocky Hill project, there was a 'reasonable prospect that it could sensibly be deferred at least one year'. A deferral of 1-year would mean that the bulk of the expenditure would occur in the next regulatory period.<sup>183</sup>

The effect of this is also consistent with the view that cost savings can be achieved from improved asset management and options analysis, as well as concerns raised by stakeholders over the size of Essential Energy's capital program.

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<sup>182</sup> Essential Energy's submission to IPART's Draft Report, April 2014, p 14.

<sup>183</sup> Email correspondence, SKM, 22 January 2014.

We consider that Essential Energy can plan and deliver its remaining capital program in this determination period at a lower cost than in its submission, and that our capital expenditure allowance would allow it to meet its required service standards as it had planned when making its submission.

At the next review of Essential Energy's prices, we will look back and examine the efficiency and prudence of actual capital expenditure over the 2014 Determination period, as per our normal processes. This may mean, for example, that if Essential Energy's actual capital expenditure over the 2014 period is higher than we have allowed for, but if we subsequently deem this expenditure to be prudent and efficient, then it will be included in Essential Energy's RAB for it to earn allowances for a return on assets and depreciation (via prices) from 2018/19 onwards.

### Resources for improved asset management

We considered Essential Energy's concern, raised in its submission to the Draft Report, that the capital expenditure allowance does not include an additional amount for the development of an asset management system. In response, we note that the capital allowance:

- ▼ for each discrete project provides funding for scoping and options analysis,<sup>184</sup> which is an important part of asset management
- ▼ provides for an allocation of corporate overheads – which could include a share of company-wide asset management or related systems.

We also note SKM's findings that Essential Energy personnel have a strong understanding of its assets, but a structured asset management system is absent. As per SKM's findings, we recommend that Essential Energy:

- ▼ implement a more structured asset management system with rigorous risk-based justification of all projects, linked to clearer decision-making and prioritisation processes
- ▼ develop an overall strategic approach to its long term investment planning.

We consider that, given the scale of the program and our overhead allowance, which is at the top end of the efficient range for comparable businesses, these are improvements in practice that should be made from within budgeted resources.

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<sup>184</sup> SKM recommended funding for options analysis for 3 of Essential Energy's discrete projects, noting that options assessment had been undertaken for the other large project, the Will St Wastewater Treatment Plant, which is planned for the next regulatory period.

### Impact of savings in capital projects on operating expenditure

We considered how our decision on Essential Energy's capital expenditure related to our decision on operating (maintenance) cost savings arising from capital projects (discussed in Chapter 5).

In relation to SKM's recommended capital expenditure, we accepted SKM's recommendations on maintenance cost savings.

In its recommendation on the Rocky Hill project, SKM conservatively included additional maintenance costs of \$8,000 per year, which was in Essential Energy's business case for the project. We have not removed this expenditure, as it is a small amount and will not have a material impact on customers.

We therefore consider that our decisions on capital expenditure and maintenance cost savings are consistent.

## 7 Revenue required for capital investment

The revenue required for capital investment comprises 2 cost blocks: an allowance for a return on assets and an allowance for regulatory depreciation. Together, these allowances make up around 36% of Essential Energy's notional revenue requirement over the 2014 determination period, and so have a significant impact on prices. We determine a value for each of these allowances by taking 4 steps:

- ▼ establishing the opening value of Essential Energy's regulatory asset base (RAB) at the start of the 2014 determination (1 July 2014)
- ▼ calculating the annual value of the RAB over the 2014 determination period by rolling the opening value forward to the end of this period (30 June 2018), taking into account our decisions on past and forecast capital expenditure and making adjustments as necessary
- ▼ calculating the allowance for a return on assets for Essential Energy by deciding on a rate of return, and multiplying the annual value of the RAB by this rate
- ▼ calculating the allowance for regulatory depreciation by deciding on an appropriate depreciation method and asset lives for Essential Energy's existing and new assets.

The section below summarises our decisions on the allowance for a return on assets and regulatory depreciation. The following sections explain how we reached these decisions by discussing each of the above steps.

## 7.1 Summary of IPART's decisions on the allowances for a return on assets and regulatory depreciation

Decisions

- 13 The allowances for a return on assets and regulatory depreciation to be included in Essential Energy's notional revenue requirement are as shown in Table 7.1.

**Table 7.1 IPART's decisions on the allowance for a return on assets and regulatory depreciation (\$'000, \$2013/14)**

	2014/15	2015/16	2016/17	2017/18	Total
Allowance for return on assets	4,968	5,234	5,601	6,101	21,904
Allowance for regulatory depreciation	2,020	2,095	2,189	2,312	8,616

**Note:** Totals may not add due to rounding.

**Source:** IPART analysis.

## 7.2 Establishing the opening value of the RAB and rolling forward the RAB

To determine both the allowance for a return on assets and the allowance for regulatory depreciation, we must calculate the value of Essential Energy's RAB in each year of the determination period.

### 7.2.1 Stakeholder submission

Mr Roger Edwards questioned the appropriateness of adding historical capital expenditure to the asset base so that a return on assets could be generated on it. He also questioned the opening RAB of \$44 million for 2009/10, as he considered it to be a lot of money and queried its composition and effectively how it was derived.<sup>185</sup>

<sup>185</sup> R Edwards submission to Draft Report, April 2014, p 1.

## 7.2.2 IPART's analysis

### Roll forward of the RAB -2010/11 to 2013/14

To establish the opening value of Essential Energy's RAB (as at 1 July 2014), we have rolled forward the 1 July 2010 RAB to 30 June 2014 by:

- ▼ including the prudent and efficient capital expenditure<sup>186</sup> that Essential Energy spent over the 2010 determination period (discussed in Chapter 6)
- ▼ making other necessary adjustments, including:
  - deducting any actual capital contributions (eg, revenue received from government grants or developer contributions)
  - deducting regulatory depreciation as allowed for in the 2010 determination<sup>187</sup>
  - deducting any asset disposals for 2010/11 to 2012/13 and estimated disposals for 2013/14
- ▼ indexing the annual closing RAB for actual inflation along with a forecast for inflation for 2013/14.

In carrying out the above calculations, we assume that half the capital expenditure and disposals occur at the beginning of the year (and therefore receive a full year of indexation), while the other half occur at the end of the period (and therefore is not indexed).

The annual values of Essential Energy's RAB for the 2010 Determination period are shown in Table 7.2 below.

**Table 7.2 Closing RAB from the 2010 Determination (\$'000, nominal)**

	2009/10	2010/11	2011/12	2012/13	2013/14
Opening RAB	44,233	<b>72,177</b>	<b>80,217</b>	<b>83,824</b>	<b>89,409</b>
Plus: Actual Capex	27,278	7,102	4,324	5,370	3,528
Less: Cash Capital Contributions	190	84	-	31	-
Less: Asset Disposals	-	-	-	-	-
Less: Allowed Depreciation	935	1,627	1,706	1,829	1,601
Plus: Indexation	1,791	2,649	989	2,076	2,826
Closing RAB	72,177	<b>80,217</b>	<b>83,824</b>	<b>89,409</b>	<b>94,162</b>

Source: IPART Analysis.

<sup>186</sup> Given that the 2010 Determination was only until 2012/13, we have calculated the regulatory depreciation for 2013/14 based on the prudent and efficient capital expenditure we have reviewed for 2013/14, as part of the 2014 Determination.

<sup>187</sup> We use allowed depreciation, rather than actual depreciation, because the impact of any over expenditure on capital during the determination period is limited to the return on capital allowance.

The RAB was established at the 2010 Determination using an economic valuation approach. The value of the RAB was calculated as the present value of the cash flows likely to be generated from Essential Energy's water and sewerage assets over their expected life.

The value of the RAB of \$44 million in 2009/10 did not represent all the capital works paid by Essential Energy, as it only reflected the economic value of assets. If Essential Energy has paid more in the past, then this is not reflected in the RAB.

In regards to Mr Roger Edwards' concerns about adding in capital expenditure over the past determination period, we consider it is appropriate because Essential Energy should be allowed to earn a return on and of capital through prices. Prices do not reflect actual capital expenditure each year. The intention is that actual capital expenditure is funded by either borrowing or using retained earnings and, in exchange, prices are set to return an opportunity cost (return on capital) and the actual capital expenditure (return of capital) over the life of the asset. This addresses intergenerational equity concerns, so that all users over the life of the asset pay a fair share.

### **Roll forward of the RAB - 2014/15 to 2017/18**

To roll forward the RAB to the end of the 2014 determination period (ie, 30 June 2018), we:

- ▼ added the forecast capital expenditure we found to be prudent and efficient (discussed in Chapter 6) to the closing value of the RAB for the previous year
- ▼ made other necessary adjustments to the value of the RAB for each year, including:
  - deducting regulatory depreciation
  - deducting forecast disposal of assets.

Both methodologies are the same as those we used in making the 2010 determination. Each of these adjustments is outlined below.

### **7.2.3 Adjustments to the RAB**

The sections below discuss the other adjustments we made to the value of the RAB, including adjustments to account for past and forecast capital contributions, past and forecast disposals of assets and regulatory depreciation.

### Adjustments for capital contributions

For water utilities, capital contributions generally refer to revenue received from developer charges, government grants or environmental levies. Cash capital contributions need to be deducted from the RAB because they represent capital expenditure that is not funded by Essential Energy and therefore should not be recovered from water customers through periodic prices.

We deducted cash capital contributions from the RAB, shown in Table 7.2, over the period 2009/10 to 2013/14 as submitted by Essential Energy.<sup>188</sup> Essential Energy submitted no forecast cash capital contributions for the 2014 determination period.

### Adjustments for regulatory depreciation

Essential Energy's RAB is adjusted each year to account for regulatory depreciation. To determine the opening value of the RAB, we deducted the allowance for regulatory depreciation included in the 2010 Determination.<sup>189</sup> To calculate future regulatory depreciation to be deducted from the RAB (to roll forward the RAB to 30 June 2018) we have used the straight line depreciation method. The forecast regulatory depreciation is as shown in Table 7.3 below.

### Adjustments for disposal of assets

Essential Energy did not submit any allowance for asset disposals over the 2010 determination period, and no forecast asset disposals have been submitted for the 2014 determination period.<sup>190</sup>

## 7.2.4 Resulting annual values of the RAB for the 2014 Determination

As a result of including our decisions on capital expenditure and making the adjustments discussed above, we calculate the annual value of the RAB as shown in Table 7.3 below. It shows that the closing value increases over the 2014 determination period because capital expenditure exceeds depreciation.

<sup>188</sup> Essential Energy submission to IPART, September 2013, Information Return.

<sup>189</sup> For 2013/14 we calculated the depreciation based on the actual RAB value and capital expenditure for 2013/14 because no allowed depreciation was set at the 2010 Determination for 2013/14.

<sup>190</sup> Essential Energy submission to IPART, September 2013, pp 42, 49.

**Table 7.3 IPART's decision on the annual value of Essential Energy's RAB for the 2014 determination period (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Opening RAB	89,409	94,162	99,737	104,578	114,135
Capital expenditure	3,528	7,647	6,989	11,804	12,409
Capital contributions	-	-	-	-	-
Asset disposals	-	-	-	-	-
Regulatory depreciation	1,601	2,072	2,148	2,246	2,371
Indexation	2,826	-	-	-	-
Closing RAB	94,162	99,737	104,578	114,135	124,174

Source: IPART Analysis.

### 7.3 Calculating the allowance for a return on assets

#### Decision

- 14 For the purposes of calculating the allowance for a return on assets, a real post-tax WACC of 5.2% per year is appropriate.

One of the most important steps in determining the allowance for a return on assets to be included in Essential Energy's notional revenue requirement is deciding on the appropriate rate of return. We calculate the allowance for a return on assets by multiplying the rate of return by the value of the RAB in each year of the determination period.

There are several approaches for deciding on an appropriate rate of return. As for previous reviews, we used the weighted average cost of capital (WACC) approach.

Our draft decision was to use a real post-tax WACC of 4.9%. We have received comments on the WACC from 2 stakeholders. The rest of this section provides our consideration of comments from stakeholders and outlines some relevant changes in the WACC since the draft decision. A detailed discussion of our findings on WACC is presented in Appendix E.

#### 7.3.1 Stakeholder's comments on the WACC and IPART's analysis

##### Essential Energy

Essential Energy submitted that it considered the draft WACC to be too low and proposed a real post-tax WACC of 5.9%. It recommended that IPART:

- ▼ use a consistent forecast of inflation (namely the midpoint of the RBA's target inflation range of 2% to 3%) for the WACC and for forecasting bills
- ▼ use RBA data to estimate the debt margin

- ▼ value the market risk premium (MRP) at 6.5% for the long term WACC calculation, compared with IPART's range of 5.5% to 6.5%
- ▼ weigh the long term and current term WACCs by 90:10, rather than the 50:50 default in our methodology.<sup>191</sup>

We discuss each of the issues raised by Essential Energy in the sections below.

### **Inflation**

Essential Energy submits that there is an internal inconsistency in our modelling where, in the Draft Report, we used an inflation rate of 2.8% to convert the nominal WACC into a real WACC and then an inflation assumption of 2.5% throughout other parts of our modelling.<sup>192</sup>

We note Essential Energy's submission on the different use of inflation rates in our modelling. However, we do not consider that there is an internal inconsistency that adversely impacts stakeholders. In the Draft Report, we used an inflation rate of 2.8% for the current WACC calculation and an inflation rate of 2.9% for the long term WACC calculation. These figures are based on swap market data and are used to convert the nominal WACC to a real WACC. As per our established WACC methodology, we consider the implied inflation rate based on swap market data to be the appropriate method to calculate the real rate of return Essential Energy should receive on its regulated asset base.

The inflation assumption of 2.5% used in other parts of our modelling is for illustrative purposes only to highlight the indicative price impacts of our decisions on customers' bills, including the effects of inflation. The 2.5% inflation assumption does not actually impact customers, as their prices are updated according to the actual increase in CPI throughout the determination period.

### **Debt margin**

Essential Energy considers that RBA data should be used to set the debt margin in the final decision.<sup>193</sup> We had flagged in a parallel review on the debt margin that we intended to use data from the RBA to set the debt margin from 1 July 2014.<sup>194</sup> Essential Energy considers that this commencement date is arbitrary, and as the data is available, it should be used for the final decision.

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<sup>191</sup> Essential Energy, *Essential water response to IPART's Draft Report*, April 2014, pp 28-32.

<sup>192</sup> Ibid, pp 28-29.

<sup>193</sup> Essential Energy, *Essential water response to IPART's Draft Report*, April 2014, p 32.

<sup>194</sup> IPART, *New Approach to Estimating the Cost of Debt: Use of the RBA's Corporate Credit Spreads – Fact Sheet*, February 2014.

However, we have now made a determination in a separate review to use data from the RBA to value the debt margin from 30 April 2014.<sup>195</sup> The debt margin used for our final decision on the WACC is therefore based on RBA data. We discuss this issue further in Appendix E.

### Market Risk Premium

Essential Energy submits that the long term MRP should be valued at 6.5%. This value is based on a recent report by NERA that has been presented to the AER.<sup>196</sup>

Our value of the long term MRP has been established over a number of major reviews on the WACC. Our consideration of the different approaches to compute the historical MRP, our own calculations of the historical MRP over different time periods and conclusions of a number of finance experts have led us to the view that our current range of 5.5% to 6.5% provides the best estimation of the long term MRP while recognising the inherent uncertainty of the MRP value. Importantly, NERA's MRP valuation falls within IPART's current MRP range.

### Averaging long term and current WACC calculations

Essential Energy submits that, instead of averaging the long term and current WACC calculations, the long term WACC should be given a weighting of 90%. It considers that this better represents its financing arrangements. Essential Energy considers that "the IPART methodology does not acknowledge the long term nature of the Essential Water business and its debts. It is not a start-up business borrowing significant amounts at current rates".<sup>197</sup>

Our approach to setting the WACC is aimed at ensuring that we provide a return that reflects the efficient cost of capital for a benchmark firm operating in a competitive market and facing similar risks to the regulated business.<sup>198</sup> It does not attempt to replicate a utility's actual financing strategy. In December 2013, we reviewed the appropriate weighting of the WACCs estimated using expected returns based on long term and current data obtained from the financial markets. We do not consider that this weighting should be adjusted for the purpose of better aligning Essential Energy's WACC with its actual cost of capital.

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<sup>195</sup> IPART, *IPART's New Approach to Estimating the Cost of Debt – Fact Sheet*, April 2014.

<sup>196</sup> Essential Energy, Essential water response to IPART's Draft Report, April 2014, pp 30-31.

<sup>197</sup> *Ibid.*, p 16.

<sup>198</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 1.

## Perilya

Perilya's submission argued that the appropriate rate of return on water assets needs to be considered in the context of the economic circumstances of Broken Hill.<sup>199</sup>

We considered Perilya's comment about taking into account the economic circumstances of Broken Hill for an appropriate rate of return on water assets. As noted above, our established policy is to set a WACC that reflects the efficient cost of capital for a benchmark firm operating in a competitive market and facing similar risks to the efficient benchmark firm. We have addressed the consideration of the economic circumstances of Broken Hill by limiting the extent of prudent and efficient capital expenditure that we have reflected in prices.

### 7.3.2 Changes in the WACC since the draft decision

The approach used to set the WACC for the final decision departs from the draft decision in 2 ways. Firstly, we have implemented our recent decision to use data published by the RBA to set the debt margin.

Our December 2013 review of the WACC methodology indicated our preference for adopting the RBA's data in our estimates of the cost of debt and that we would consult with stakeholders. We did not adopt it at the time, because the RBA was yet to publish its methodology and estimates.<sup>200</sup>

However, the RBA data is now available and we have consulted with stakeholders. Our decision is to now use the RBA's data in our estimates of the cost of debt.<sup>201</sup> We have decided this because the RBA's data:

- ▼ is based on a robust methodology
- ▼ is transparent as it is readily available through the RBA's website, and
- ▼ extends the term-to-maturity assumption to 10 years, which is our target based on evidence that asset-intensive firms with long-lived assets operating in a competitive market seek to raise debt with a maturity of 10 years or longer.<sup>202</sup>

Secondly, we have revised our valuation for the appropriate level of gearing in the final decision. Our draft decision assumed a gearing level of 60%, as we typically adopt for regulated water businesses. However, we have given further consideration to the risks faced by Essential Energy, compared to other water utilities we regulate. We have decided to reduce the level of gearing for the final decision to a range of 50% to 60% (ie, a midpoint of 55%).

<sup>199</sup> Perilya Ltd submission, 8 November 2013, p 2.

<sup>200</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 14.

<sup>201</sup> IPART, *IPART's New Approach to Estimating the Cost of Debt – Fact Sheet*, April 2014.

<sup>202</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 13.

We consider that a lower level of gearing recognises that Essential Energy's water business faces a higher level of risk than other metropolitan water utilities. Essential Energy is exposed to a higher level of risk because it faces falling water demand due to a declining population in a geographically isolated market. Further, the water business has 2 very large customers (the mines), which account for around 35% of water sales. If one of them scales back or exits the market, it is unlikely that another business of a similar size would enter. If it were not in a declining and geographical isolated market it could potentially supply other new customers to take the place of those leaving the market. However, given its market characteristics, a reduction in consumption by one of its large customers could result in a significant loss of sales for Essential Energy.

All other aspects of the WACC decision in the Draft Report have been maintained for the Final Report.

Using market parameters as at 12 May 2014 (and the RBA's data as at 30 April 2014),<sup>203</sup> our estimate of the current real post-tax WACC range for Essential Energy is between 5.0% and 5.4%. We estimate the real post-tax WACC range by establishing the midpoint of the WACCs based on current market data and long term averages. We also compute an uncertainty index. We use this index to assess if current economic conditions warrant a move above or below the midpoint. Our decision rule is that we will consider a move if the uncertainty index is more than 1 standard deviation away from the long term mean of 0.<sup>204</sup>

We have found that the uncertainty index is within 1 standard deviation of the mean. Therefore, we have decided to use the midpoint WACC of 5.2% to calculate the return on assets. This is lower than Essential Energy's proposed WACC of 5.9%.

Relative to the WACC of 4.9% used in the Draft Report, the higher WACC of 5.2% is mainly due to our decisions to:

- ▼ use RBA data to value the debt margin
- ▼ decrease the value of gearing, from 60% in the draft decision, to a range between 50% and 60% for the final decision.<sup>205</sup>

However, the increase is mitigated to an extent by a reduction in the nominal risk-free rate between the draft and final decision.

The higher WACC of 5.2% (compared to the Draft Report WACC of 4.9%) increases Essential Energy's notional revenue requirement by about \$1.5 million over the 4-year determination period.

<sup>203</sup> The RBA releases monthly data points only.

<sup>204</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 4.

<sup>205</sup> A decrease in the level of gearing increases the WACC.

## 7.4 Calculating the allowance for regulatory depreciation

### Decision

- 15 Regulatory depreciation is calculated using a straight line depreciation method, and asset lives are as shown in Table 7.4.

To calculate the allowance for regulatory depreciation, we decided on a depreciation method and asset lives for new and existing assets, and then calculated depreciation accordingly.

### 7.4.1 Asset lives

Essential Energy proposed to use the asset lives that we established in the 2010 Determination as shown in Table 7.4.<sup>206</sup> In the 2010 Determination, we calculated the asset lives using an independent expert analysis of Essential Energy's water and sewerage assets at the time.<sup>207</sup> Therefore, our decision is to maintain the asset lives as shown in Table 7.4.

**Table 7.4 IPART's decision on Essential Energy's asset lives (years)**

	Water	Sewerage
Remaining life	46	47
New assets	98	89

### 7.4.2 Depreciation method

Essential Energy proposed the use of the straight line depreciation method as adopted in the 2010 Determination. Under this method, the assets in the RAB are depreciated by an equal value in each year of their economic life, so that their written down value follows a straight line over time, from the initial value of the asset to zero at the end of the asset's life.

Our decision is to maintain this method as we consider it to be superior to alternatives in terms of simplicity, consistency and transparency.

<sup>206</sup> Essential Energy submission to IPART, September 2013, p 48.

<sup>207</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 – Final Report*, June 2010, p 60.

## 8 Forecast water sales and customer numbers

Our principle in setting prices is to allow a business to recover the efficient costs of its regulated services – the notional revenue requirement. The forecast sales of a water business play a pivotal role in the pricing process as they determine how much of the total revenue will be recovered via usage prices for water services. The usage charge and the forecast water sales for each quality of water determine the expected revenue from usage charges. The remainder of the revenue the business requires to provide water services is recovered through fixed charges.

Since the fixed service charge is calculated as a residual, water sales forecasts will also have a bearing on the level of the fixed charge. If, in setting usage prices for water, we adopt forecast water sales that are lower than actual sales, the residual to be recovered from fixed charges will be too high. Therefore, fixed charges will be set too high and the business will recover more than its efficient costs during the determination period.<sup>208</sup> Conversely, if forecast water sales are too high (ie, greater than actual sales), fixed charges will be set too low and the business will under-recover its efficient costs. The selection of an appropriate methodology for forecasting water sales therefore impacts on Essential Energy and its customers.

The section below summarises our decisions on the forecast metered water sales and customer numbers over the 2014 determination period. The subsequent sections provide background on metered water sales during the 2010 determination period and discuss Essential Energy's submission, stakeholder submissions, and our analysis in more detail.

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<sup>208</sup> This discussion is about systematic over or under-recovery of revenue from fixed water charges that are too high or too low, based on water sales forecasts that are above or below likely actual demand on a trend basis. Actual sales during a determination period will vary from forecasts eg, from wet or dry weather, and these variations also lead to over or under-recovery. We discuss how this source of revenue risk is addressed in Chapter 3.

## 8.1 Summary of IPART's decisions

Decision

16 Forecast metered water sales are as shown in Table 8.1.

**Table 8.1 IPART's decision on forecast metered sales (excluding the mines) (ML)**

	2014/15	2015/16	2016/17	2017/18
<b>Treated water</b>				
Residential and Non-residential (excl. exempt properties & mines)	2,989	2,950	2,913	2,878
Exempt properties	326	326	326	326
Total treated <sup>a</sup>	3,315	3,276	3,239	3,204
<b>Chlorinated water</b>				
Residential and non-residential	37	37	37	37
Total	37	37	37	37
<b>Untreated water</b>				
Pipeline	46	46	46	46
Non-residential	383	378	373	369
Total <sup>a</sup>	428	424	419	414
<b>Total sales<sup>a</sup></b>	<b>3,781</b>	<b>3,737</b>	<b>3,695</b>	<b>3,656</b>

<sup>a</sup> We have excluded our forecast of total mines water sales in the above table for confidentiality reasons.

**Note:** Totals may not sum due to rounding.

**Source:** IPART analysis.

Like Essential Energy's forecasts, our forecast water sales in Table 8.1 reflect the continuing gradual decline in Broken Hill's population. We have, however, made some adjustments to Essential Energy's forecasts. This includes an adjustment for the expected demand response to our decision to remove Tier 2 water usage prices and establish a single usage charge (maintained at current Tier 1 usage prices, in \$2013/14) for each water quality type. This, along with our other adjustments to Essential Energy's forecasts, is explained below. Our decisions on price structures are explained in Chapter 9.

## 8.2 Essential Energy's proposal

### 8.2.1 Sales forecasts over the 2010 determination period

In the 2010 Determination, we adopted Essential Energy's sales forecasts. These forecasts were prepared by the National Institute of Economic and Industry Research (NIEIR)<sup>209</sup> and were found to be reasonable. Table 8.2 shows that over the 2010 determination period, treated water sales (including chlorinated water) were below the forecasts. Essential Energy<sup>210</sup> stated that residential water consumption was lower than expected due to substantially higher rainfall over the summer months during the determination period.

**Table 8.2 Essential Energy's actual water sales compared to the 2010 Determination forecasts (ML)**

	2010/11	2011/12	2012/13	2013/14 <sup>b</sup>	Total 2010/11 to 2012/13
2010 Determination – treated water (including chlorinated)	4,360	4,369	4,378	n/a	13,107
Essential Energy's sales – treated water (including chlorinated)	3,696	4,047	4,756	4,716	12,499
Difference <sup>a</sup> (%)	-15.2%	-7.4%	8.6%	n/a	-4.6%

<sup>a</sup> The difference refers to the difference between the IPART allowance in 2010 and Essential Energy's actuals over the 2010 determination period.

<sup>b</sup> We did not make a determination for 2013/14.

**Note:** These values do not include untreated water.

**Source:** Essential Energy's submission, September 2013, p 17.

### 8.2.2 Sales forecasts over the 2014 determination period

Essential Energy forecasts a decline in average residential and non-residential consumption as shown in Table 8.3. Essential Energy bases its forecast water sales on historical trends and demographic and economic projections provided by NIEIR.<sup>211</sup> It has used population estimates from the Australian Bureau of Statistics (ABS) and its own forecast of customer numbers.

<sup>209</sup> Country Water, *Appendix A – NIEIR Water Consumption Forecasts Study (Confidential)*, September 2009.

<sup>210</sup> Essential Energy submission to IPART, September 2013, p 17.

<sup>211</sup> *Ibid*, p 51.

According to Essential Energy, average consumption per small customer has progressively decreased over time and is forecast to continue doing so as a result of:

- ▼ declining population
- ▼ increased water pricing
- ▼ community awareness of the need to reduce consumption
- ▼ the introduction of several water savings programs.<sup>212</sup>

However, Essential Energy does not specify exactly how each of these drivers has been factored into its sales forecasts.

Essential Energy forecasts water usage by the mines to remain at current levels, although it noted this could be affected by IPART's determination.<sup>213</sup>

**Table 8.3 Essential Energy's sales forecasts for the 2014 determination period (excluding the mines) (ML)**

Category	2014/15	2015/16	2016/17	2017/18
<b>Treated water</b>				
Tier 1	2,361	2,330	2,300	2,273
Tier 2	571	564	557	550
Exempt properties	312	312	312	312
Total treated <sup>a</sup>	3,244	3,206	3,169	3,135
<b>Chlorinated water</b>				
Tier 1	28	28	28	28
Tier 2	8	8	8	8
Total chlorinated	36	36	36	36
<b>Untreated water</b>				
Tier 1	26	26	26	26
Tier 2	19	19	19	19
Non-residential (untreated)	383	378	373	369
Total untreated <sup>a</sup>	427	422	418	413
<b>Total<sup>a</sup></b>	<b>3,707</b>	<b>3,664</b>	<b>3,623</b>	<b>3,585</b>

<sup>a</sup> We have adjusted Essential Energy's sales forecasts to exclude sales forecasts for mines in the above table.

**Source:** Essential Energy submission to IPART, September 2013, p 51 and Essential Energy's information return, November 2013.

<sup>212</sup> Essential Energy submission to IPART, September 2013, p 52.

<sup>213</sup> Ibid, p 52.

### 8.3 IPART's analysis

We have adjusted Essential Energy's sales forecasts where our decisions change water usage prices relative to current levels. To do this, we have applied estimates of price elasticity of demand<sup>214</sup> to Essential Energy's forecast water sales for Tier 2 treated, chlorinated and untreated water (pipeline), as well as its forecast water sales to exempt properties and the mines.

In doing so, we have applied the following estimates of price elasticity of demand:

- ▼ -0.3 for residential customers
- ▼ -0.15 for non-residential customers, including the mines.

The figure of -0.3 is an estimate at the upper end of a range of elasticity estimates, which were identified by IPART in a survey of studies in 2003.<sup>215</sup> Given Broken Hill's climate, we considered such an estimate is reasonable for residential customers.

Commercial and industrial demand for water is often a derived demand – ie, it depends on, and is derived from, the firm's level of output and the costs of inputs.<sup>216</sup> As such, it is considered to be more inelastic to changes in price than residential consumption. The elasticity of demand can also be expected to vary more widely in the commercial and industrial sectors, given the heterogeneous nature of demand in those sectors. There are few published papers that separately identify the price elasticity of demand for commercial or industrial users.

We note that in the short term at least, the elasticity response from non-residential customers is generally expected to be lower than residential customers. Therefore, we have assumed an elasticity estimate of -0.15 for non-residential customers, which is half the above-mentioned figure of -0.3 for residential customers.<sup>217</sup>

Our estimates of the responsiveness of demand to price changes are shown in Table 8.4. There is currently only 1 price for untreated water for non-residential customers, and we have not changed the price in the Determination. Therefore, no elasticity adjustment is needed.

<sup>214</sup> This is a measure of the sensitivity of water demanded to changes in price (Pindyck, R & Rubinfeld, D, *Microeconomics Second Edition*, 1992, New York, p 29).

<sup>215</sup> See: O'Dea, G and Cooper, J, *Water Scarcity: Does it exist and can price help solve the problem?*, IPART Staff Working Paper, January 2008, p 14.

<sup>216</sup> Pindyck, R & Rubinfeld, D, *Microeconomics Second Edition*, 1992, New York, p 505.

<sup>217</sup> There are fewer empirical studies on industrial and commercial elasticity of demand for water.

**Table 8.4 Estimates of the responsiveness of demand to price changes**

	\$2013/14	Proposed prices	% change in price	% change in volume
<b>Treated water</b>				
Tier 1 price	1.67	1.67		
Tier 2 price	2.80	1.67	-40%	10%
<b>Chlorinated water</b>				
Tier 1 price	1.08	1.08		
Tier 2 price	1.84	1.08	-41%	12%
<b>Pipeline customers</b>				
Tier 1 price	0.72	0.72		
Tier 2 price	1.08	0.72	-33%	5%
<b>Exempt properties</b>	2.38	1.67	-30%	4%

**Note:** We have applied weighted averages for the elasticity demand response, based on revenue from residential and non-residential users in the Tier 2 category. Therefore, the weighted average applied to Treated water is -0.25, for Chlorinated water -0.3, for Pipeline customers -0.15 and for Exempt properties -0.15.

**Source:** IPART analysis.

With regard to the mines, we note there is a minor inconsistency between Essential Energy's forecast sales for the mines used in its proposed mines' cost allocation methodology and its sales forecasts for the mines. Specifically, Essential Energy has:

- ▼ used the average of sales in 2011/12 and 2012/13 for its proposed mines' cost allocation methodology
- ▼ held the mines' actual 2012/13 sales constant for its sales forecasts.

For forecasting water sales volumes to the mines, we have used the average of sales over recent years. This approach is supported by Perilya's comment at the Public Hearing that the 2012/13 sales 'reflect historically high water consumption'.<sup>218</sup>

In summary, the adjustments we have made to Essential Energy's demand forecasts are:

- ▼ applied price elasticity impacts
- ▼ used an average of actual sales over recent years for demand forecasts for the mines.

<sup>218</sup> Ibid, p 33.

## 8.4 Customer numbers

It is necessary to know forecast customer (or connection) numbers and their connection sizes so that we can calculate the appropriate service charges. This will enable Essential Energy to obtain the target revenue we set. That is, once usage revenue has been deducted from the target revenue, the service charges are calculated, using forecast customer numbers and their connection sizes, to recover the remaining amount.

Essential Energy supplied us with customer numbers as part of its special information return for the price review. For residential customers, Essential Energy forecast a 0.1% increase in customer numbers in each year of the determination period due to an increase in single occupant housing.<sup>219</sup> Essential Energy also stated that this is consistent with ABS data and demographic projections from the NIEIR.<sup>220</sup> For the remainder of its customer base (non-residential, mines and pipeline customers), it has held the customer numbers constant over the determination period.

We have accepted Essential Energy's forecast customer numbers. We considered them to be reasonable as they are supported by information from the ABS and NIEIR. However, in modelling prices, we have added exempt property numbers<sup>221</sup> to the forecast property numbers initially supplied by Essential Energy.<sup>222</sup>

We note the distinction between population numbers and customer numbers in Broken Hill. The population in Broken Hill has been steadily declining, which, as mentioned above, impacts on Essential Energy's forecast water sales. However, due to an increase in single occupant dwellings, the number of customers (or connections to the water and sewerage systems) is forecast to increase slightly.

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<sup>219</sup> Essential Energy submission to IPART, September 2013, p 52.

<sup>220</sup> Ibid, p 52.

<sup>221</sup> Under the *Water Management Act 2000* (s312), certain properties are exempt from water and sewerage service charges (eg, Crown land, hospitals, churches). We have obtained the number of these exempt properties from Essential Energy.

<sup>222</sup> If we did not add exempt properties to customer numbers when modelling prices, then other customers would be cross-subsidising the exempt properties through higher prices. By including exempt properties in our modelling, we ensure such cross-subsidisation does not occur. The funding for exempt properties (ie, foregone water and sewerage service revenue from exempt properties) is a matter for Essential Energy and the NSW Government.

## 9 Review of Essential Energy's price structures

In response to stakeholders' concerns about Essential Energy's inclining block tariff for water usage prices, we have reviewed whether its water price structures are consistent with our price structure principles.<sup>223</sup> Since stakeholders did not raise concerns about sewerage prices, we focussed our efforts on addressing concerns with Essential Energy's water prices.

This chapter outlines the principles of an efficient price structure and our decisions on how we have applied these principles to Essential Energy's water price structures.

Decisions and discussion on prices and price structures for the mines were previously discussed in Chapter 3.

### Water prices for residential and non-residential customers

#### 9.1 Water usage prices

Decision

- 17 The Tier 2 water usage price for treated, chlorinated and untreated water is set to the current Tier 1 price in real terms over the determination period.

##### 9.1.1 Essential Energy's current practice

Table 9.1 summarises the current water price structures for Essential Energy's water business. Its prices vary by water quality and type. For most water types, Essential Energy levies a fixed service charge (based on the size of each property's meter) and usage charges (\$ per kL of water supplied). The usage prices are split into 2 tiers: a lower 'Tier 1' price up to a specified threshold (600 kL per year in summer, and 400 kL per year at any other time); and a higher 'Tier 2' price above this consumption threshold. This 2-tiered approach is also known as an 'inclining block tariff'.

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<sup>223</sup> IPART, *Review of price structures for metropolitan water utilities - Final Report*, March 2012, p 3.

Essential Energy did not propose any changes to its current price structures in this review. At the Public Hearing, Essential Energy<sup>224</sup> indicated that the inclining block tariff was designed to assist low income earners, signal the costs of pumping additional water, and encourage efficient water use. Since most customers' consumption is below the Tier 2 threshold, Essential Energy considered that the inclining block tariff has been working to encourage water conservation.

In response to our Draft Report, Essential Energy proposed that we reinstate the inclining block tariff for water prices. Essential Energy argued that the inclining block tariff is a 'user pays' water efficiency initiative and that it signals additional pumping costs associated with high water consumption, particularly during dry conditions.<sup>225</sup> Essential Energy also states that the higher Tier 2 price has avoided the need for restrictions since it was introduced in July 2004.

**Table 9.1 Essential Energy's current water price structures and prices (\$2013/14)**

Water usage charges (\$/kL)	2013/14
<b>Treated water</b>	
Tier 1	1.67
Tier 2	2.80
<b>Chlorinated water</b>	
Tier 1	1.08
Tier 2	1.84
<b>Untreated water (pipeline)</b>	
Tier 1	0.72
Tier 2	1.08
<b>Single tier tariffs</b>	
Treated water for exempt land	2.38
Untreated water for non-residential	1.47
Effluent water	0.63
<b>Water service charges</b>	
Standard meter-based charge for all customers (20mm connection)	253.66

**Note:** We have converted the values from the 2010 Determination into \$2013/14.

**Source:** IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 – Determination and Final Report*, June 2010, p 60.

<sup>224</sup> IPART, Public Hearing Transcript, 19 November 2013, p 22.

<sup>225</sup> Essential Energy submission to IPART's Draft Report, April 2014, p 18.

### 9.1.2 Stakeholder comments

Many stakeholders raised concerns about the inclining block tariff. Broken Hill Council<sup>226</sup> made the following comments:

- ▼ The inclining block tariff should be aligned to reflect the marginal cost of increased consumption. The inclining block could be altered at times of water restrictions.
- ▼ The inclining block tariff disadvantages those customers that are least able to change their water use.

The Broken Hill Residents Association<sup>227</sup> argued that the inclining block tariff discourages water consumption as it penalises those who use more water to green the city. It argued that this is likely to increase the community's exposure to lead-contaminated soil. It considered that there should be a single tier water usage price or, otherwise, the Tier 2 price should not be more than 50% greater than the Tier 1 price. Similarly, at the Public Hearing, the Broken Hill Residents Association<sup>228</sup> argued that the inclining block tariff was introduced for the sole purpose of reducing water consumption. It also argued that higher water users are subsidising lower water users.<sup>229</sup>

Mr Roger Edwards<sup>230</sup> questioned Essential Energy's statement that the Tier 2 prices are related to the additional pumping costs it incurs. He also stated that prices should not be based on Long Run Marginal Cost because there is no capacity constraint or growth in Broken Hill.<sup>231</sup>

Ms Marvis Sofield<sup>232</sup> argued that the inclining block tariff is not assisting low income earners.

With the exception of Essential Energy, most stakeholder submissions supported our draft decision to remove the inclining block tariff and set water usage prices at their current Tier 1 levels.

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<sup>226</sup> Broken Hill Council submission, October 2013, p 6.

<sup>227</sup> Broken Hill Residents Association submission, 25 October 2013, p 4.

<sup>228</sup> IPART, Public Hearing Transcript, p 48.

<sup>229</sup> Ibid, p 26.

<sup>230</sup> Ibid, p 30.

<sup>231</sup> Mr Roger Edwards submission, October 2013, p 3.

<sup>232</sup> IPART, Public Hearing Transcript, p 32.

### 9.1.3 IPART's analysis

#### What is an efficient water price structure?

##### Setting a single water usage price

For water utilities, a 2-part tariff is generally considered an efficient price structure where it comprises a single water usage price (set at the marginal cost of supply) and a fixed charge (set to recover the remaining revenue requirement). See Box 9.1 for further explanation.

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### Box 9.1 Efficient water pricing

Economic theory suggests that an efficient price structure is one that encourages an efficient allocation of resources in the economy via signals that it sends to consumers and producers. This is achieved by setting prices at the marginal cost of supply. Marginal cost is the increase in total costs resulting from the production of one more unit of output.<sup>a</sup>

If prices are set lower (or higher) than marginal cost, this will understate (or overstate) the sacrifice that society makes in producing this product over others – known as opportunity cost. Rational consumers will respond by over-consuming (or under-consuming) that product. As explained by Kahn (1988):<sup>b</sup>

...only [when prices reflect the opportunity cost] will buyers be judging, in deciding what to buy and what not, whether satisfaction they get from the purchase of any particular product is worth the sacrifice of other goods and services that its production entails.

The marginal cost of supplying water is largely dependent on the capacity of large, indivisible capital investments, such as dams and transmission pipelines. Once the cost of building a dam or pipeline has been incurred, the marginal cost of supplying water is much lower than the average cost of supply.<sup>c</sup> This means that, if prices are set at marginal cost, the utility may not fully recover its costs. This will impact on the utility's incentives to invest in the future.

Therefore, it is generally accepted that pricing of monopoly services is efficient if it meets the following objectives:

- ▼ it signals to consumers the costs imposed (or avoided) if they increase (or reduce) their consumption by a small amount – the marginal cost pricing objective
- ▼ it allows utilities to recover the efficient cost of service provision and recovers these costs with the least harm to economic efficiency – the cost-recovery objective.

A 2-part tariff is generally considered the most efficient price structure for monopoly services, as it comprises a single usage charge (set at the marginal cost of supply) and a fixed charge (to recover the remaining revenue requirement). A fixed charge is considered an efficient means of recovering the difference between average costs and marginal costs, because it is levied independently of usage and does not distort the pricing signal set by the usage charge.

<sup>a</sup> Marginal cost should also include any costs or benefits accruing to third parties (ie, those external to the transaction). These costs and benefits are known as externalities.

<sup>b</sup> Kahn, A.E. (1988) *The Economics of Regulation: Principles and Institutions*. The MIT Press: Cambridge, Massachusetts, p 66.

<sup>c</sup> Marginal cost can be low for long periods of time. However, as capacity is taken up, marginal cost increases as the next augmentation approaches (and may exceed average cost).

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Under the *NWI Pricing Principles*,<sup>233</sup> the water usage price should be a single usage price. An inclining block tariff, with 2 variable prices, is less efficient than a single usage price set at the marginal cost of supply. This is because an inclining block tariff does not reflect the marginal cost of supply. Under an inclining block tariff, at least some consumption is priced at a level either above or below marginal cost. Further, neighbouring customers can pay different prices per kL of water consumption (Tier 1 or Tier 2), even though the marginal cost of supplying water to each customer is the same.

We also note that stakeholders have argued against the inclining block tariff because it is unnecessarily discouraging water use, and they are concerned about the impact this has on the community's health and amenity.

For reasons outlined above, we have decided to remove the inclining block tariff and set a single usage price for each water quality type. The section below considers how the single usage price should be set.

#### How to set the single tier water usage price?

As outlined above, economic theory suggests that water usage prices should be set at the marginal cost of supply. Setting prices below the marginal cost of supply encourages the over-consumption of water. Alternatively, setting prices above the marginal cost of supply will result in consumers unnecessarily reducing their consumption.

Where there is likely to be a supply capacity constraint in the foreseeable future, and therefore a potential need to invest in water supply augmentation and/or demand management measures, water usage prices should be set at the long run marginal cost of supply (LRMC). This signals the incremental cost of new supply augmentation and/or demand management measures to bring the demand and supply of water into balance over the longer term.

For metropolitan water utilities that we regulate, our practice has been to set usage prices with reference to LRMC. These utilities service growing populations and have been faced with the prospect of capacity constraints, and therefore the need for supply augmentation, in the foreseeable future.<sup>234</sup>

We have found, however, that there is no long term water supply/demand imbalance in Broken Hill for the foreseeable future. Consumption has never reached more than 67% of the safe system yield and Broken Hill's population, and therefore water consumption, is declining (see Appendix B for more detail). Therefore, no augmentation of water supplies is required in Broken Hill for the foreseeable future.

<sup>233</sup> National Water Initiative (NWI), *Council of Australian Government National Water Initiative Pricing Principles*, April 2010, p 10.

<sup>234</sup> This is consistent with the NWI water pricing principles, which state that water usage charges should have regard to the long run marginal cost of the supply of additional water.

For this reason, Essential Energy's LRMC of water supply effectively equals its short run marginal cost of supply (SRMC). That is, the water usage price should be set with reference to the SRMC, or simply the marginal cost of supply.

### Estimates of Essential Energy's marginal cost of supply

Essential Energy has provided estimates of its marginal cost to supply water. Essential Energy's estimates of its marginal costs to supply treated water range from \$0.49 per kL in relatively moderate conditions to \$2.84 per kL in extremely dry conditions (when pumping is required 24 hours day and the reverse osmosis plant is required for treating water).

Essential Energy has provided us with estimates of its marginal costs of supplying water in various weather conditions, and the expected frequency of these conditions. Based on this cost and frequency information, we estimate that the weighted average marginal cost of treated water supply across all conditions is about \$1.31 per kL. We therefore consider it reasonable to maintain a single usage price for treated water at \$1.67 per kL and to also set usage prices for other water quality types at their current Tier 1 prices, as per our Draft Report.

In many scenarios, the marginal cost of water supply is likely to be below our recommended usage prices (while in some very dry scenarios it may be above). However, for this determination, we did not adjust usage prices away from current Tier 1 prices. This is because we were mindful of the following factors:

- ▼ the current Tier 1 usage prices are a close approximation of 'on average' or 'typical' marginal costs of supply (for instance, the treated water usage price of \$1.67 per kL is relatively close to the \$1.31 per kL estimate of the weighted average marginal cost of supplying treated water across all conditions)
- ▼ the potential for lower usage prices to adversely impact on some customers through higher fixed ('service') charges (ie, all other things being equal, a decline in water usage prices would need to be offset by increases in fixed service charges to allow Essential Energy to recover its efficient costs).

### Accounting for higher than typical marginal costs of supply

Essential Energy has stated in its response to our Draft Report that the NSW Far West region has recently entered a drought cycle and that drought conditions are predicted over the 4 years of the determination period.<sup>235</sup> This means that Essential Energy may be required to operate its reverse osmosis plant in this determination period. However, Essential Energy did not include these costs in its September 2013 submission.<sup>236</sup> Therefore, on this basis, the notional revenue requirement we set (our estimate of its efficient costs) would not allow Essential Energy to recover these higher costs if the plant is in operation.

<sup>235</sup> Essential Energy submission to the Draft Report, April 2014, pp 9-10.

<sup>236</sup> Essential Energy correspondence, 14 May 2014.

We acknowledge that Essential Energy's marginal costs of water supply may be higher than usage prices if weather conditions become extremely dry and it is required to operate the reverse osmosis plant.

We considered introducing a cost pass-through or price adjustment mechanism in this determination. This would mean allowing Essential Energy to charge a higher water usage price in the event that it is required to operate the reverse osmosis plant. We could set the trigger based on the 'rules for operation of Essential Energy's reverse osmosis plant' (Box 9.2 provides a summary of the rules). These rules determine when Essential Energy will operate the reverse osmosis plant, and therefore incur a step change in treatment costs.

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### **Box 9.2 Rules for operation of Essential Energy's reverse osmosis (RO) plant**

- ▼ The trigger to switch on the RO plant is based on raw water quality parameters. That is, once Total Dissolved Solids (TDS) levels exceed 1,000 mg/Litre.
- ▼ This is part of EE's Drought Management Action Plan, which sets out actions in 7 stages from low to extreme drought conditions and 1 stage of 'pre-activation'.
- ▼ The stages are consistent with 2003 Technical Guidelines for Drought Management by the NSW Local Government Water Directorate.

**Source:** Essential Energy, *Drought Management Plan for the Water Supply Business in the Broken Hill Region*, 11 July 2011.

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However, for this determination, we decided not to introduce a cost pass-through (or price adjustment) mechanism for increases in marginal costs as a result of the reverse osmosis plant's operation. This is because experience suggests the plant will be used very infrequently, if at all, over the determination. Our analysis shows that the water usage prices we have set should, on average, cover the marginal cost of water supply over the determination period.

However, in the event that Essential Energy is required to use its reverse osmosis plant in accordance with its rules for operation, and this has a material adverse impact on its financial position, then we would consider the case for an early review and determination.<sup>237</sup>

Chapter 10 outlines our decisions on prices.

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<sup>237</sup> We would consider any request made by Essential Energy for commencing a new price review and making an early determination.

## 9.2 Water service charges

### Decisions

- 18 Fixed ('service') charges are set to recover the remainder of Essential Energy's revenue requirement not recovered through usage prices, as follows:
- For all residential customers, there is a standard water service charge - ie, a residential water service charge that does not vary by meter size.
  - For non-residential customers, there is a water service charge that varies by meter size.

### 9.2.1 Essential Energy's proposal

In the 2010 Determination,<sup>238</sup> we set a meter-based water service charge for residential and non-residential customers. That is, service charges increased proportionally with meter size (the larger the meter size, the larger the charge).

However, Essential Energy<sup>239</sup> currently applies the standard 20mm residential service charge to all residential customers regardless of their meter size. This means that for some residential customers it is effectively levying a service charge less than provided under the 2010 Determination. It does this because these are some residential customers who require a larger meter size to ensure water pressure is adequate. It found that this was a cheaper alternative than to upgrade water mains.

Table 9.2 presents Essential Energy's residential customer base by meter size. It shows that only a small percentage of customers (4.6%) have a meter size greater than 20mm.

**Table 9.2 Residential customers by meter size**

Meter size	2013/14	% of customer base
20mm	9,496	95.4
25mm	219	2.2
32mm	16	0.2
40mm	84	0.8
50mm	136	1.4
Total	9,951	100.0

**Source:** Essential Energy's Information Return, November 2013.

<sup>238</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 – Determination and Final Report*, June 2010.

<sup>239</sup> Essential Energy email correspondence, 12 November 2013.

## 9.2.2 IPART's analysis

### Residential water service charge

We have decided to set a single standard residential water service charge that does not vary by meter size. The small number of residential customers that require larger meters to address water pressure are receiving a similar service to customers with a 20mm meter size and therefore should be charged the same.

It is also consistent with our approach to setting water service charges for the other water utilities we regulate.<sup>240</sup>

This decision effectively represents no change to charges, as Essential Energy is already charging all its residential customers a standard residential service charge that is based on a 20mm meter connection size. We have brought the Determination into line with sound practice.

### Non-residential water service charge

We have decided to continue to set meter-based water service charges for Essential Energy's non-residential water customers. These are broadly cost-reflective and consistent with the price structures of other water utilities we regulate.<sup>241</sup> Therefore, no changes are needed.

In response to the Draft Report, the Broken Hill Chamber of Commerce<sup>242</sup> requested that consideration be given to charging non-residential customers a standard service charge regardless of meter size. It argues that infrastructure is not renewed every year and that customers with larger meters are ultimately charged for their higher water usage, regardless of meter size.

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<sup>240</sup> IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2012 to 30 June 2016 - Final Report*, June 2012; IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services - Review of prices from 1 July 2013 to 30 June 2017 - Final Report*, June 2013, and IPART, *Gosford City Council and Wyong Shire Council Prices for water, sewerage and stormwater drainage services from 1 July 2013 to 30 June 2017 - Final Report*, May 2013.

<sup>241</sup> IPART, *Review of price structures for metropolitan water utilities - Final Report*, March 2012.

<sup>242</sup> Broken Hill Chamber of Commerce submission to the Draft Report, March 2014, p 1.

We do not support a standard service charge for non-residential customers. This is because customers with larger meters (to access a higher flow rate) generally impose a higher capacity cost compared to customers with smaller meters. However, we note that where a non-residential customer has a larger meter size for water pressure reasons and receives a similar service standard to a customer with a 20mm meter, Essential Energy may (subject to approval from the Treasurer<sup>243</sup>) reduce the water service charge.<sup>244</sup>

### 9.3 Water prices for unmetered properties

#### Decision

- 19 All unmetered residential and non-residential customers pay an unmetered water charge, consisting of the standard residential water service charge plus a water usage charge for a deemed consumption of 300 kL per year for the applicable water quality.

#### 9.3.1 Essential Energy's proposal

Essential Energy's 2010 Determination does not allow charges to be applied to unmetered properties.<sup>245</sup>

#### 9.3.2 IPART's analysis

To ensure that any unmetered properties pay water usage charges, we have decided to set a specific price for these properties. Unmetered residential and non-residential properties will pay the standard residential water service charge plus a water usage price for a deemed level of consumption. This is consistent with our price structure principle that customers imposing similar costs on the system should pay similar charges.<sup>246</sup>

The average level of residential consumption over the 2014 Determination period is around 260 kL. Therefore, we have set the deemed consumption at 300 kL per year. This ensures there is incentive for small water users to have a meter installed. This is consistent with the approach we apply for the other utilities we regulate.

<sup>243</sup> Under section 18(2) of the IPART Act, the approval of the NSW Treasurer must be obtained if Essential Energy sets a price below the maximum determined by IPART.

<sup>244</sup> Essential Energy advises that there are a small number of commercial customers that have larger meter sizes, even though they receive a similar service to customers with 20mm meters. This is to address water pressure issues (Essential Energy correspondence, 28 April 2014).

<sup>245</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 - Determination and Final Report*, June 2010.

<sup>246</sup> IPART, *Review of price structures for metropolitan water utilities - Final Report*, March 2012, p 3.

Vacant properties that are not connected to the water supply system but are reasonably available for connection will continue to be charged the water service charge only.

## 9.4 Water prices for effluent water

### Decision

- 20 Effluent water prices are not regulated, and revenue from effluent water sales is treated as an unregulated income source with revenue shared 50% to Essential Energy and 50% to customers.

### 9.4.1 Essential Energy's proposal

Essential Energy treats effluent from its sewage treatment plants to a secondary standard. Secondary-treated effluent is disposed to the environment via its own dedicated pipeline. All secondary effluent that is reused is drawn from the Wills Street Sewerage Treatment Plant at the site boundary. There are dedicated separate pipelines transferring secondary-treated effluent to the respective users' properties.<sup>247</sup>

Users of the secondary-treated effluent have provided their own infrastructure (at no cost to Essential Energy) to get access to the secondary-treated effluent. Two of the major pipelines are owned by Broken Hill Golf Course and Perilya.<sup>248</sup>

Each of the owners of the pipeline has an agreement with Essential Energy for the supply of secondary-treated effluent. They are currently charged \$0.17 per kL. The customers also pay a fixed charge that has been negotiated with Essential Energy.<sup>249</sup>

Essential Energy<sup>250</sup> does not recover treatment costs from customers who use secondary-treated effluent. This is because:

- ▼ the secondary-treated effluent would otherwise have been discharged to the environment
- ▼ Essential Energy receives a benefit in terms of avoided load-based fees for discharges to the environment, with approximately 25% lower volumes and load discharges than would otherwise occur.

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<sup>247</sup> Sinclair Knight Merz, *Strategic Management Overview and Review of Operating and Capital Expenditure for Essential Energy's water and sewerage business in Broken Hill*, Final Report, 28 January 2014, p 3.

<sup>248</sup> Ibid, p 4.

<sup>249</sup> Ibid, p 5.

<sup>250</sup> Ibid, p 5.

Essential Energy considered that the secondary-treated effluent is effectively a 'new water' supply for the re-users. It considered that if these customers did not have access to this lower cost effluent water, they would not substitute treated water.<sup>251</sup> Essential Energy proposed to continue this approach to charging effluent water customers.

#### 9.4.2 IPART's analysis

We set an effluent water usage charge in the 2010 Determination<sup>252</sup> and Essential Energy proposed that we continue to set regulated prices for effluent water. However, it is currently not charging the prices set. The 2010 Determination sets effluent water prices at \$0.63 per kL; whereas (as noted above) Essential Energy is currently charging \$0.17 per kL plus a fixed service charge negotiated with the customers.

To reflect Essential Energy's current charging practice, we have decided to treat effluent water as an unregulated income source, and share this income equally between Essential Energy and its customers. Essential Energy has already established contracts with its customers for the supply of effluent.<sup>253</sup> By not setting a price, we are allowing Essential Energy to continue its current practice. We considered this is reasonable as effluent water is not a monopoly service.

Our general approach to unregulated income is to share it equally between the business and its customers.<sup>254</sup> This is because the regulated business is earning income from assets included in the RAB, which are funded through the prices we set. Therefore, customers should benefit from the income generated from the regulated assets. Allowing Essential Energy to retain 50% of the revenue provides an incentive for it to optimise earnings from its regulated assets.

In response to our Draft Report, Mr Roger Edwards<sup>255</sup> submitted that the effluent pipeline to the golf club was constructed and owned by the Water Board. He also indicated that the golf club was required to pay a capital contribution based on the estimated cost of a pipeline sized to supply only the golf club's stated effluent requirements.

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<sup>251</sup> Ibid, p 5.

<sup>252</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 – Determination and Final Report*, June 2010, p 65.

<sup>253</sup> Sinclair Knight Merz, *Strategic Management Overview and Review of Operating and Capital Expenditure for Essential Energy's water and sewerage business in Broken Hill*, Final Report, 28 January 2014, p 5.

<sup>254</sup> We share the revenue from effluent water between water and sewerage customers and Essential Energy as follows: we deduct 50% of the expected revenue from effluent water from the target revenue to be recovered through prices for water and sewerage services, before prices are calculated. This allows lower prices for customers, and allows Essential Energy to retain 50% of the revenue.

<sup>255</sup> Roger Edwards submission to the Draft Report, 11 April 2014, p 1.

Essential Energy advised that the golf club pipeline was constructed by capital contributions from secondary users, with ownership reverting to the Broken Hill Water Board. The pipeline to the Cristal Mining mineral separation plant was also constructed by capital contributions. Essential Energy maintains the golf club pipeline to the point of metering and the line to the Cristal mining separation plant,<sup>256</sup> and we assume that maintenance costs are met through revenue from the negotiated contracts. Therefore, we do not consider that the new information on ownership of the effluent pipelines requires any change to our Draft Determination.

## 9.5 Sewerage prices

### Decision

21 A minimum sewerage service charge for all non-residential customer connections is set equal to the standard residential sewerage service charge.

While stakeholders didn't comment on Essential Energy's sewerage price structures, we have identified that there is no minimum sewerage service charge for non-residential customers.

Since the non-residential sewerage service charge is a meter-based charge multiplied by the discharge factor, it is possible that large non-residential customers (with meter sizes greater than 20mm) are paying lower sewerage service charges than residential customers with a 20mm meter size.

To address this inconsistency with our price structure principles, we have decided to introduce a minimum non-residential sewerage service charge that is set to the standard residential sewerage service charge. This was the only change that we have made to the structure of sewerage charges.

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<sup>256</sup> Essential Correspondence, 28 April 2014.

## 10 Pricing decisions for Essential Energy

As outlined in Chapter 9, in this Determination we have set a single water usage price by removing the Tier 2 usage price. The water usage price for each water quality type will be set at the current Tier 1 level in real terms (ie, before the effects of inflation) for each year of the determination period. This means that those customers who have Tier 2 consumption will face a lower average price for water. Therefore, even after we have increased forecast sales to account for a demand response to lower prices (as explained in Chapter 8), water service (fixed) charges need to increase to allow Essential Energy to recover the revenue it needs to meet its efficient costs.

To minimise these increases in the water service charges, we have held sewerage charges constant in real terms. The revenue requirement for sewerage services has fallen slightly, and sewerage prices would decline if we set them equal to costs. Holding sewerage prices constant in real terms leads to an over-recovery in sewerage revenue, which has allowed us to keep the water service charge increases to around 20% over the 4-year determination period, or an average of 5% per year over the 4 years.<sup>257</sup> This has allowed us to implement the necessary water price reforms, while minimising impacts on customers.

The overall impact on customer bills of our pricing decisions is discussed in Chapter 11.

### 10.1 Water charges for residential and non-residential customers

The sections below outline our decisions on Essential Energy's water charges, Essential Energy's proposal, stakeholder decisions and our analysis.

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<sup>257</sup> We have increased water service charges by 20% from 2013/14 to 2014/15, and then held them constant for the remaining 3 years of the determination period (excluding inflation). This equates to an average annual real increase of about 5% over the 4-year period.

### 10.1.1 Summary of pricing decisions

The summary of our decisions on Essential Energy's water charges is shown in Table 10.1

**Table 10.1 IPART's decision on water charges (\$2013/14)**

Financial year ending 30 June	Current 2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-2018
<b>Water usage (\$/kL)</b>						
<i>Treated water</i>						
Tier 1	1.67	1.67	1.67	1.67	1.67	0%
Tier 2	2.80	1.67	1.67	1.67	1.67	-40%
<i>Chlorinated water</i>						
Tier 1	1.08	1.08	1.08	1.08	1.08	0%
Tier 2	1.84	1.08	1.08	1.08	1.08	-41%
<i>Untreated water for a pipeline customer</i>						
Tier 1	0.72	0.72	0.72	0.72	0.72	0%
Tier 2	1.08	0.72	0.72	0.72	0.72	-33%
<i>Single tier tariffs</i>						
Treated water for exempt land	2.38	1.67	1.67	1.67	1.67	-30%
Untreated water for non-residential customer	1.47	1.47	1.47	1.47	1.47	0%
Effluent water <sup>b</sup>	0.63	n/a	n/a	n/a	n/a	n/a
<b>Water service charges (\$/pa)</b>						
Residential water service charge	253.66	303.86	303.86	303.86	303.86	20%
Non-residential (20mm individually metered property) <sup>a</sup>	253.66	303.86	303.86	303.86	303.86	20%

<sup>a</sup> Meter-based charge is based on a 20mm meter. Applicable meter charge is set using the following formula: (meter size)<sup>2</sup> × 20mm meter charge / 400.

<sup>b</sup> We have not set a price for effluent water in this Determination as discussed in Section 9.4.

Source: IPART's analysis.

### 10.1.2 Water usage prices

Decision

- 22 The maximum water usage prices that Essential Energy can charge are set out in Table 10.1, and these charges will be indexed annually in line with changes in the CPI.

#### Essential Energy's submission

Table 10.2 lists Essential Energy's proposed water usage prices. It proposed increases of 5.9% per year (excluding inflation) to most tariffs over the determination period. The proposed increases were based on recovering the costs of Essential Energy's proposed notional revenue requirement, set out in Chapter 4.

**Table 10.2 Essential Energy's proposed water usage prices (\$2013/14)**

Financial year ending 30 June	Current 2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-2018
<b>Water usage</b>						
<i>Treated water</i>						
Tier 1	1.67	1.77	1.87	1.98	2.10	25.7%
Tier 2	2.80	2.97	3.14	3.33	3.52	25.7%
<i>Chlorinated water</i>						
Tier 1	1.08	1.14	1.21	1.28	1.36	25.9%
Tier 2	1.84	1.95	2.06	2.18	2.31	25.5%
<i>Untreated water for a pipeline customer</i>						
Tier 1	0.72	0.77	0.81	0.86	0.91	26.4%
Tier 2	1.08	1.14	1.21	1.28	1.36	25.9%
<i>Single tier tariffs</i>						
Treated water for exempt land	2.38	2.52	2.67	2.83	2.99	25.6%
Untreated water for non-residential customer	1.47	1.56	1.65	1.74	1.85	25.9%
Effluent water	0.63	0.63	0.63	0.63	0.63	0%

**Source:** Essential Energy's information return, November 2013.

### Stakeholder comments

As noted in Chapter 9, stakeholders raised concerns about the inclining block tariff and the fact the high prices were discouraging water consumption.<sup>258</sup> Stakeholders argued that Essential Energy's price increases will have a significant impact on the affordability of water services, particularly for low income earners.<sup>259</sup> The Broken Hill Chamber of Commerce stated that Essential Energy's proposed price increases are likely to threaten the economic viability of most businesses in Broken Hill.<sup>260</sup> It argued that price increases should be linked to CPI. The Public Interest Advocacy Centre raised concerns of affordability for low income and other vulnerable customers and proposed payment assistance measures.<sup>261</sup> Ms Marvis Sofield argued that the inclining block tariff was not assisting low income earners as water prices were already unaffordable.<sup>262</sup>

### IPART's analysis

#### Treated water, chlorinated water and untreated water for pipeline customers

As explained in Chapter 9, our decision is to remove Tier 2 water usage prices and set the usage prices for each water quality type at their respective current Tier 1 prices, and maintain these prices in real terms over the determination period. Our prices are as shown in Table 10.1 above.

#### Untreated water for non-residential customers

For untreated water for non-residential customers, we have applied the same principle of holding the current price constant in real terms over the determination period.

#### Treated water for exempt properties

Table 10.2 shows that Essential Energy's current water usage price for exempt land is around the average of the current Tier 1 and Tier 2 treated water usage prices. Since the cost to supply treated water to exempt properties or other properties is the same, we considered that the treated water price for exempt properties should be the same as for the rest of the customer base. Therefore, we have decided to set the price for treated water for exempt land to the same price as treated water for the rest of the customer base (as shown in Table 10.1 above).

<sup>258</sup> Broken Hill Council submission, October 2013, p 6; Broken Hill Residents Association submission, 25 October 2013, p 4.

<sup>259</sup> This included: the Broken Hill Chamber of Commerce, Broken Hill Council, Broken Hill Residents Association and the Public Interest Advocacy Centre.

<sup>260</sup> Broken Hill Chamber of Commerce submission, 9 October 2013, p 4.

<sup>261</sup> Public Interest Advocacy Centre submission, October 2013, p 2.

<sup>262</sup> IPART, Public Hearing Transcript, p 32.

## Effluent water

As discussed in Chapter 9, we have decided not to set a price for effluent water. Instead, we are treating effluent water as an unregulated income source, with the revenue generated shared equally between Essential Energy and its customers.

### 10.1.3 Water service charges for residential and non-residential customers

#### Decision

23 The maximum water service charges that Essential Energy can charge are set out in Table 10.3 and these charges will be indexed annually in line with changes in the CPI.

**Table 10.3 IPART's decision on water service charges (\$2013/14)**

Financial year ending 30 June	Current 2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-2018
Residential water service charge	253.66	303.86	303.86	303.86	303.86	20%
Non-residential meter-based service charge (20mm) <sup>a</sup>	253.66	303.86	303.86	303.86	303.86	20%

<sup>a</sup> Meter-based charges for meter sizes larger than 20mm are based on a 20mm meter. Applicable meter charges for larger meters are set using the following formula: (meter size)<sup>2</sup>x20mm meter charge/400.

**Note:** This formula results in meter-based charges that are set on the same basis that Essential Energy proposed, as shown in Table 10.4.

This section provides information on water service charges for residential and non-residential customers. Essential Energy's proposals and our decisions on water service charges for the mines customers is discussed in Section 3.5.

### Essential Energy's submission

Table 10.4 lists Essential Energy's proposed water service charges for residential and non-residential customers. It shows that Essential Energy has proposed significant price increases. It has applied increases of 5.9% per year (excluding inflation) to its service charges over the determination period. The proposed increases were based on recovering the costs of Essential Energy's notional revenue requirement set out in Chapter 4.

**Table 10.4 Essential Energy's proposed water service charges (\$2013/14)**

Financial year ending 30 June	Current 2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-2018
Residential water service charge (20mm meter)	253.66	268.50	284.22	300.85	318.46	25.5%
Non-residential meter-based charge (20mm meter) <sup>a</sup>	253.66	268.50	284.22	300.85	318.46	25.5%

<sup>a</sup> The meter-based non-residential sewerage service charge is based on a 20mm meter. The applicable meter charge is set using the following formula: (meter size)<sup>2</sup> × 20mm meter charge / 400.

Source: Essential Energy's information return, November 2013.

### Stakeholder comments

Stakeholders' concerns about high usage prices also relate to Essential Energy's proposed service charges (see section 10.1.2).

### IPART's analysis

We modelled the revenue that Essential Energy is likely to raise from our water usage prices and our decisions on forecast water sales (discussed in Chapter 7). We then subtracted this from our target revenue to determine the revenue that needs to be recovered from water service charges. The relevant charges for the various meter sizes are set based on capacity using a common measuring basis of meter equivalents. For example, a 40mm meter has 2.56 times the capacity of a 25mm meter and so is appropriately charged 2.56 times the amount of a 25mm meter.<sup>263</sup>

We have increased water service charges by 20% from 2013/14 to 2014/15, and then held them constant for the remaining 3 years of the determination period (excluding inflation). This amounts to an average annual real increase of about 5% over the 4-year period. This ensures that Essential Energy recovers its revenue requirement in net present value terms over the determination period and minimises the total price increases to customers over the determination period.

Our decisions on the water service charges are shown in Table 10.3.

<sup>263</sup> The capacity of larger meters, relative to 25mm meters, is calculated as (meter size)<sup>2</sup> / 625. Therefore, for a 40mm meter the relative capacity is (40)<sup>2</sup> / 625 = 2.56.

## 10.2 Sewerage charges for residential and non-residential customers

### 10.2.1 Summary of pricing decisions

The summary of our decisions on Essential Energy's sewerage charges are shown in Table 10.5.

**Table 10.5 IPART's decisions on sewerage charges for residential and non-residential customers (\$2013/14)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2015-18
Residential	496.79	496.79	496.79	496.79	496.79	0%
Non residential <sup>a</sup>						
20mm connection	709.39	709.39	709.39	709.39	709.39	0%
25mm connection	1,108.34	1,108.34	1,108.34	1,108.34	1,108.34	0%
32mm connection	1,816.41	1,816.41	1,816.41	1,816.41	1,816.41	0%
40mm connection	2,837.57	2,837.57	2,837.57	2,837.57	2,837.57	0%
50mm connection	4,433.37	4,433.37	4,433.37	4,433.37	4,433.37	0%
80mm connection	11,350.27	11,350.27	11,350.27	11,350.27	11,350.27	0%
100mm connection	17,734.80	17,734.80	17,734.80	17,734.80	17,734.80	0%
150mm connection	39,902.97	39,902.97	39,902.97	39,902.97	39,902.97	0%
Usage charges						
Non-residential usage charge	1.19	1.19	1.19	1.19	1.19	0%

<sup>a</sup> Non-residential meter-based charges are based on a 20mm meter. Applicable meter charges for larger meters are set using the following formula: (meter size)<sup>2</sup>x20mm meter charge/400.

**Note:** The above service charges are subject to a Discharge Factor adjustment.

**Source:** IPART analysis.

## 10.2.2 Sewerage service charges

### Decision

24 The maximum sewerage service charges Essential Energy can charge are set out in Table 10.5 and these charges will be indexed annually in line with changes in the CPI.

### Essential Energy's submission

Table 10.6 lists Essential Energy's proposed sewerage service charges for residential and non-residential customers, including the mines. Essential Energy's proposed increases are based on recovering the higher notional revenue requirement it proposed in its submission.<sup>264</sup>

**Table 10.6 Essential Energy's proposed sewerage service charges for residential and non-residential customers (\$2013/14)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2015-18
Residential	496.79	525.86	556.64	589.22	623.70	25.5%
Non residential <sup>a</sup>						
20mm connection	709.39	750.91	794.86	841.38	890.62	25.5%
25mm connection	1,108.34	1,173.21	1,241.87	1,314.55	1,391.49	25.5%
32mm connection	1,816.42	1,922.72	2,035.26	2,154.37	2,280.46	25.5%
40mm connection	2,837.57	3,003.65	3,179.44	3,365.52	3,562.49	25.5%
50mm connection	4,433.37	4,962.84	4,967.50	5,258.23	5,565.98	25.5%
80mm connection	11,350.28	12,014.57	12,717.75	13,462.07	14,249.96	25.5%
100mm connection	17,734.82	18,772.77	19,871.48	21,034.49	22,265.57	25.5%
150mm connection	39,903.00	42,238.39	44,710.47	47,327.22	50,097.13	25.5%

<sup>a</sup> Meter-based charge is based on a 20mm meter. Applicable meter charge is set using the following formula: (meter size)<sup>2</sup> × 20mm meter charge / 400.

**Note:** The above service charges assume a discharge factor of 100%.

**Source:** Essential Energy's information return, November 2013.

### IPART's analysis

We did not receive any specific comments from stakeholders about Essential Energy's sewerage charges, so have focussed on water usage prices.

As noted in Chapter 9, we have restructured water usage prices in response to stakeholders' concerns. To implement these water pricing reforms while minimising the impacts on customers' bills, we have held sewerage service charges constant in real terms over the determination period (as shown in Table 10.5).

<sup>264</sup> Essential Energy submission to IPART, September 2013, pp 31 and 39.

### 10.2.3 Non-residential sewerage usage charges

#### Decision

- 25 The maximum sewerage usage charges Essential Energy can charge are set out in Table 10.5 and these charges will be indexed annually in line with changes in the CPI.

#### Essential Energy's submission

Table 10.7 shows Essential Energy's proposed sewerage usage charges.

**Table 10.7 Essential Energy's proposed sewerage usage charges (\$2013/14)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2015-18
Non-residential usage charge (\$/kL)	1.19	1.19	1.19	1.19	1.19	0%

**Source:** Essential Energy's information return, November 2013.

#### IPART's analysis

We did not receive any specific comments from stakeholders about Essential Energy's sewerage charges, so we have focussed on water usage prices. As noted in Chapter 9, we have restructured water usage prices. To implement these water pricing reforms while minimising the impacts on customers' bills, we have held sewerage usage charges constant in real terms over the determination period (as shown in Table 10.5).

### 10.3 Trade waste charges

#### Decision

- 26 The maximum prices Essential Energy can charge for trade waste services are as shown in Appendix G and these charges will be indexed annually in line with changes in the CPI.

#### Essential Energy's proposal

Trade Waste is wastewater from commercial and industrial customers with concentrations of pollutants that exceed a domestic equivalent.<sup>265</sup> Essential Energy currently only charges some customers trade waste charges.

<sup>265</sup> IPART, *Review of prices for Sydney Water Corporation's water, sewerage, stormwater drainage and other services from 1 July 2012 to 30 June 2016 - Final Report*, June 2012, p 134.

Essential Energy considered 4 options for increasing its current trade waste charges:

1. by the annual change in CPI over the determination period
2. by the average annual percentage increase in all water and sewerage charges under this determination
3. by the annual percentage increase in sewerage prices under this determination
4. by the annual percentage increase in the operating expenditure cost block of the revenue requirement.

Essential Energy proposed option 3 – ie, to increase its trade waste charges by the annual percentage increase in sewerage prices under this determination.<sup>266</sup>

### Stakeholder comments

Stakeholders did not comment on Essential Energy's trade waste charges.

### IPART's analysis

In the 2010 Determination, we increased Essential Energy's trade waste charges by the same percentage increase as sewerage prices.<sup>267</sup> This is because trade waste is disposed of via the sewerage system and therefore incurs many of the same costs.

Essential Energy has proposed the same approach for this determination. We considered that this approach is reasonable and should be adopted. We note that Essential Energy's trade waste charges will remain constant in real terms, due to our decision to hold sewerage prices constant in real terms. This means that the charges will be indexed annually in line with changes in the CPI.

In the context that Essential Energy is currently not charging some trade waste customers the maximum prices in the determination, we note that, as with all charges set out in this report, our Determination sets maximum prices.

Further detail on our decisions on trade waste charges is shown in Appendix F.

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<sup>266</sup> Essential Energy's appendix of proposed prices indicates that it has only applied a CPI adjustment to its prices, rather than the 5.9% change it has applied to sewerage prices.

<sup>267</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 - Determination and Final Report*, June 2010, p 70.

## 10.4 Miscellaneous charges

### Decision

- 27 The maximum prices Essential Energy can charge for miscellaneous services are as shown in Appendix H and these charges will be indexed annually in line with changes in the CPI.

### Essential Energy's submission

Essential Energy provides a range of miscellaneous services to its water and sewerage customers, generally for one off services such as connections and disconnections, replacing damaged services, plumbing inspections, site inspections and building plan approvals. These charges are levied on a relatively small number of customers, as they are incurred (ie, as the service is provided).

Essential Energy proposed to increase the current level of charges by the change in the annual forecast CPI over the determination period. This approach is simple and assumes that the costs of providing miscellaneous services will stay constant in real terms.

Essential Energy also proposed the introduction of 2 new charges as shown in Table 10.8.

**Table 10.8 Proposed new miscellaneous charges**

	Miscellaneous fee type	Amount (excluding GST)
1	<b>Personal service of final warning notice</b> A nominal fee to prevent defaulters waiting for personal delivery of a final warning notice before paying their account. Charging this nominal fee will assist in reducing operating costs for Essential Energy.	\$20.00
2	<b>Water reconnections – after restriction</b> a) during business hours  A fee to cover the restoration of water supply during business hours (8am to 3pm) to a property which has been restricted for non-payment of accounts	\$86.25
	b) Outside business hours  Restoration of water supply outside of business hours to a property which has been restricted for non-payment of accounts	\$119.20

**Source:** Essential Energy submission to IPART, September 2013, p 58.

### Stakeholder comments

Stakeholders did not comment on Essential Energy's ancillary and miscellaneous charges.

### IPART's analysis

Essential Energy proposed to maintain the approach in the 2010 Determination.<sup>268</sup> That is, to maintain the charges in real terms in each year of the determination period. This means that the charges will be indexed annually in line with changes in the CPI. We considered this approach reasonable.

Our decisions on miscellaneous charges are detailed in Appendix G. We have made a decision to allow Essential Energy to introduce the new charges in its proposal (as shown Table 10.8), and these are included in Appendix G.

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<sup>268</sup> IPART, *Review of prices for Country Energy's water and sewerage services from 1 July 2010 to 30 June 2013 – Determination and Final Report*, June 2010, pp 70-71.

## 11 Implications of pricing decisions for customers

In making our Determination, we considered section 15 of the IPART Act (Appendix A). We are satisfied that the Determination achieves a good balance between the needs and interests of customers, financial outcomes for Essential Energy, economic efficiency and the environment.

We assessed the implications of our decisions for residential and non-residential customers. In particular, we analysed the impacts of our decisions to restructure water prices (discussed in Chapter 9), as well as the impacts of our overall determination on affordability for various customer groups, including pensioners and other vulnerable customers.

We consider that our decisions will provide Essential Energy with sufficient revenue to maintain its existing service levels and to meet the standards required by its regulators. More information is provided in Chapter 12.

The following sections summarise our findings, then discuss our analysis of the implications in detail.

Throughout this report, figures have generally been presented in real dollars (\$2013/14). However, in this chapter we show the impact on customer bills in nominal dollars. This means we have included the impact of expected inflation<sup>269</sup> on future prices and bills to make it easier for customers to understand the combined impact of new prices and inflation.

### 11.1 Implications for customers

The bills in this chapter have been calculated using the prices set out in Chapter 10. To put these bills into context, Essential Energy refers to a typical residential water customer consuming 300 kL per year, while the current average residential water usage in Broken Hill is around 270 kL per year.<sup>270</sup> These figures are higher than for the metropolitan water utilities that we regulate (around 200 kL per year). However, this is to be expected, given Broken Hill's climate.

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<sup>269</sup> Based on inflation of 2.9% for 2014/15 and 2.5% per year between 2015/16 and 2017/18. This results in a compound expected inflation of 10.8% over the 4 years.

<sup>270</sup> IPART, Public Hearing Transcript, 19 November 2013, p 9; Essential Energy submission to IPART, September 2013, p 52.

As a result of removing the Tier 2 usage charges, customers with water usage less than 400 kL per year will see their bills increase by slightly more than our expected inflation, whereas customers with usage greater than 400 kL may see their bills increase by less than our expected inflation.

The actual bill impact for customers with usage greater than 400 kL will depend on how much of their current usage occurs in the summer period, when the Tier 2 usage threshold is 600 kL. Therefore, we have presented customer bills using both 400 kL and 600 kL Tier 1 usage thresholds to show the range of indicative bill impacts.

### 11.1.1 Implications for residential customers

To assess the impact of our Determination on the affordability of Essential Energy's services for residential customers, we analysed the overall impact of our pricing decisions on the annual bills for a range of customers. The following sections discuss our findings.

#### Impact on residential water and sewerage bills

Table 11.1 shows indicative water and sewerage bills for residential customers. It shows that over the 2014 determination period, the bill for a residential customer with water usage of 300 kL per year will increase by 15.3% in nominal terms over the 4-year period. This represents an average increase of 3.6% per year, including inflation. However, as discussed in previous chapters, the largest increase for all customers occurs in the first year of the determination period (2014/15), as we have set prices so that the real increases in water service charges occur in year 1 of the determination.

The bill impact for customers with usage greater than 400 kL will depend on how much of their current usage occurs in the summer period, when the Tier 2 usage threshold is 600 kL. For example, a customer who consumes 500 kL per year will experience a bill increase of between 6.7% and 14.3% over the 4-year determination period, depending on how much is currently used during the summer period. If the additional 100 kL is currently used completely during the summer period, then the bill increase will be slightly higher than inflation, around 14.3% over the determination period.

**Table 11.1 Residential annual water and sewerage bills over the 2014 determination period (\$nominal)**

Financial year ending 30 June	2013/14 <sup>a</sup>	2014/15	2015/16	2016/17	2017/18	% change 2014-18	% change average annual
<b>Treated water and sewerage</b>							
200 kL	1,084.45	1,167.55	1,196.74	1,226.66	1,257.32	15.9%	3.8%
275 kL	1,209.70	1,296.43	1,328.84	1,362.07	1,396.12	15.4%	3.6%
300 kL	1,251.45	1,339.39	1,372.88	1,407.20	1,442.38	15.3%	3.6%
400 kL	1,418.45	1,511.24	1,549.02	1,587.74	1,627.44	14.7%	3.5%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	1,698.45	1,683.08	1,725.16	1,768.29	1,812.49	6.7%	1.6%
650 kL <sup>b</sup>	2,118.45	1,940.84	1,989.37	2,039.10	2,090.08	-1.3%	-0.3%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	1,585.45	1,683.08	1,725.16	1,768.29	1,812.49	14.3%	3.4%
650 kL <sup>b</sup>	1,892.45	1,940.84	1,989.37	2,039.10	2,090.08	10.4%	2.5%

<sup>a</sup> Currently thresholds apply for Tier 2 usage charges. The threshold for Tier 2 water usage prices is 600 kL per year in the summer months and 400 kL per year at other times.

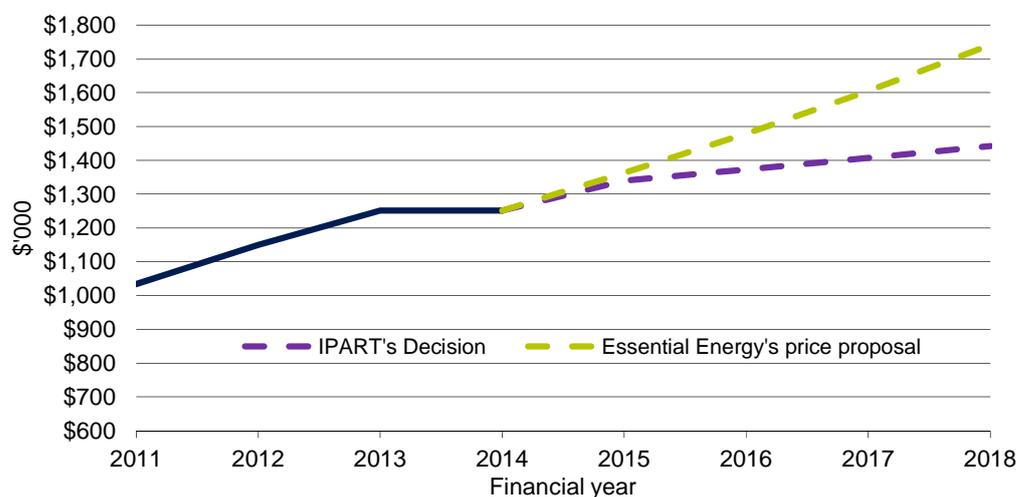
<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates at any time of year.

**Source:** IPART analysis.

Figure 11.1 compares the impact of our Determination on annual water and sewerage bills against Essential Energy's proposal, for a residential customer consuming 300 kL per year. If we had accepted Essential Energy's pricing proposal for the 2014 determination period, these customers' bills would have increased by 39.1%, an average of 8.6% per year, including inflation. Under our Determination, water and sewerage bills for these customers are estimated to increase by 15.3%, or an average of 3.6% per year, including the effects of inflation.<sup>271</sup>

<sup>271</sup> We have set Essential Energy's prices in real \$2013/14, and hence these bills are estimates based on inflation of 2.9% for prices in 2014/15 and then 2.5% per year thereafter.

**Figure 11.1 Impact of IPART's decision on annual water and sewerage bills compared to Essential Energy's submission for residential customers consuming 300 kL per year (nominal)**



**Data source:** Essential Energy submission to IPART, September 2013 and IPART analysis.

Table 11.2 shows indicative water bills for residential customers who purchase chlorinated or untreated water. It shows that, over the 2014 determination period, the chlorinated water bill for a residential customer with water usage of 300 kL per year will increase by around 20.4% in nominal terms over the 4-year period. This represents an average increase of about 4.8% per year, including inflation.

Larger users of chlorinated water (eg, 500 kL per year) will see their bills increase by between 7.5% and 17.8% over the determination period, depending on how much is currently used during the summer period. If the additional 100 kL is currently used completely during the summer period, then the bill impact will be slightly higher than inflation, around 17.8% over the 4 year determination period.

Untreated water customers with usage of 300 kL per year will experience bill increases of 22.7% over the 4 years, or 5.2% per year on average.

**Table 11.2 Residential annual Chlorinated water and Untreated water bills over the 2014 determination period (\$nominal)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-18	% change average annual
<b>Chlorinated water</b>							
200 kL	469.66	534.94	548.31	562.02	576.07	22.7%	5.2%
275 kL	550.66	618.28	633.74	649.59	665.83	20.9%	4.9%
300 kL	577.66	646.07	662.22	678.78	695.74	20.4%	4.8%
400 kL	685.66	757.20	776.13	795.53	815.42	18.9%	4.4%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	869.66	868.33	890.04	912.29	935.10	7.5%	1.8%
650 kL <sup>b</sup>	1,145.66	1,035.03	1,060.91	1,087.43	1,114.61	-2.7%	-0.7%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	793.66	868.33	890.04	912.29	935.10	17.8%	4.2%
650 kL <sup>b</sup>	993.66	1,035.03	1,060.91	1,087.43	1,114.61	12.2%	2.9%
<b>Untreated water (pipeline)</b>							
200 kL	397.66	460.85	472.37	484.18	496.28	27.9%	6.3%
275 kL	451.66	516.41	529.32	542.56	556.12	23.1%	5.3%
300 kL	469.66	534.94	548.31	562.02	576.07	22.7%	5.2%
400 kL	541.66	609.02	624.25	639.86	655.85	21.1%	4.9%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	649.66	683.11	700.19	717.69	735.64	13.2%	3.2%
650 kL <sup>b</sup>	811.66	794.24	814.10	834.45	855.31	5.4%	1.3%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	613.66	683.11	700.19	717.69	735.64	19.9%	4.6%
650 kL <sup>b</sup>	739.66	794.24	814.10	834.45	855.31	15.6%	3.7%

<sup>a</sup> Currently thresholds apply for Tier 2 usage charges. The threshold for Tier 2 water usage prices is 600 kL per year in the summer months and 400 kL per year at other times.

<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates at any time of year.

Source: IPART analysis.

### 11.1.2 Impacts on pensioners

Essential Energy provides rebates to pensioners for service charges, funded by the NSW Government and Essential Energy itself. The concessions are \$87.50 for both the water and sewerage service charges respectively- ie, a pensioner with a water and sewerage bill will receive a concession of \$175 per year.

Table 11.3 shows that the annual water and sewerage bill for a pensioner with water usage of 300 kL per year is likely to increase by about \$191 (17.7%) over the 4-year determination period, including inflation.

We note that the increases in pensioner bills are slightly larger than for other residential customers. This is because pensioners receive a \$175 *nominal* rebate on their bill, which is not increased in line with inflation. Therefore, as water and sewerage bills increase in real terms over time, pensioner rebates decline in value relative to the total water and sewerage bills.

**Table 11.3 Annual water and sewerage bills for pensioners (\$nominal)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-18	% change average annual
<b>Treated water and sewerage</b>							
200 kL	909.45	992.55	1,021.74	1,051.66	1,082.32	19.0%	4.4%
300 kL	1,076.45	1,164.39	1,197.88	1,232.20	1,267.38	17.7%	4.2%
400 kL	1,243.45	1,336.24	1,374.02	1,412.74	1,452.44	16.8%	4.0%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	1,523.45	1,508.08	1,550.16	1,593.29	1,637.49	7.5%	1.8%
650 kL <sup>b</sup>	1,943.45	1,765.84	1,814.37	1,864.10	1,915.08	-1.5%	-0.4%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	1,410.45	1,508.08	1,550.16	1,593.29	1,637.49	16.1%	3.8%
650 kL <sup>b</sup>	1,717.45	1,765.84	1,814.37	1,864.10	1,915.08	11.5%	2.8%

<sup>a</sup> Currently thresholds apply for Tier 2 usage charges. The threshold for Tier 2 water usage prices is 600 kL per year in the summer months and 400 kL per year at other times.

<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates at any time of year.

**Note:** A concession of \$175 has been applied to the water and sewerage service charge.

**Source:** IPART analysis.

### 11.1.3 Impacts on non-residential customers

For non-residential customers, we assessed the determination's implications for the affordability of Essential Energy's services. We did this by analysing its impact on the annual bills for a range of customers with varied levels of water usage and differing metering arrangements.

Table 11.4 shows the indicative impact of the Determination on non-residential water and sewerage bills. Due to the removal of the Tier 2 usage charge, customers that use large quantities of water (eg, 1,000 kL per year) will see their bills increase by less than inflation. For example, a customer with a 32mm meter using 1,000 kL of water per year will have its bill vary between -0.3% and 4.0% over the 4-year determination period, depending on how much is currently used during the summer period.

**Table 11.4 Non-residential annual water and sewerage bills (\$nominal)**

Financial year ending 30 June	2013/14	2014/15	2015/16	2016/17	2017/18	% change 2014-18	% change average annual
<b>Treated water and sewerage</b>							
20mm with 250 kL usage	1,506.15	1,601.49	1,641.52	1,682.56	1,724.63	14.5%	3.4%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
32mm with 1,000 kL usage	5,490.21	5,083.57	5,210.65	5,340.92	5,474.44	-0.3%	-0.1%
80mm with 5,000 kL usage	31,951.31	28,355.60	29,064.49	29,791.10	30,535.88	-4.4%	-1.1%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
32mm with 1,000 kL usage	5,264.21	5,083.57	5,210.65	5,340.92	5,474.44	4.0%	1.0%
80mm with 5,000 kL usage	31,725.31	28,355.60	29,064.49	29,791.10	30,535.88	-3.7%	-1.0%

<sup>a</sup> Currently thresholds apply for Tier 2 usage charges. The threshold for Tier 2 water usage prices is 600 kL per year in the summer months and 400 kL per year at other times.

<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates at any time of year.

**Note:** To estimate bills, we used a standard discharge factor of 83%, as indicated in Essential Energy's submission (p 62).

**Source:** IPART analysis.

## 12 Implications of pricing decisions for Essential Energy and other matters

In addition to considering the implications of our Determination on customers (see Chapter 11), we had regard to the other matters listed in the IPART Act (see Appendix A). In particular, we considered the implications of our pricing decisions for Essential Energy's service standards, financial viability and shareholders, and for general inflation and the environment. We are satisfied the Determination achieves an appropriate balance between these matters.

### 12.1 Implications for Essential Energy's service standards

We consider that our decisions will provide Essential Energy with sufficient revenue to maintain its existing service levels and to meet the standards required by its regulators.

Essential Energy considered its proposal will permit it to provide services in accordance with regulatory requirements.<sup>272</sup> This was based on its proposed operating and capital expenditure.

Our decision on Essential Energy's efficient expenditure is lower than Essential Energy's proposed expenditure, to take account of efficiencies.

In our decision on Essential Energy's capital program, its proposed projects have largely been maintained, with the exception of the Rocky Hill service reservoir replacement project. Our decision provides funds for Essential Energy to plan and deliver its capital program at a lower cost in this determination period, while options assessments are undertaken and other improvements to asset management are put in place.

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<sup>272</sup> Essential Energy submission to IPART, 13 September 2013, pp 28-29.

We note that, following robust options assessment, if actual expenditure over the 2014 determination period is higher than what we have allowed, and we deem it to be prudent and efficient when we next review prices (which will be at the end of the 2014 determination period), then we will include this expenditure in Essential Energy's RAB so that it can earn a return on assets and depreciation through prices at the next determination.

We therefore consider that our expenditure allowances will permit Essential Energy to satisfactorily service its customers and to continue to meet the requirements of its regulators.

## 12.2 Financeability

Our approach to setting prices ensures that utilities are financially sustainable so that they can recover their efficient costs over the long term. Under our building block model, we set prices to recover the efficient costs of a benchmark business. This includes a market-based rate of return for equity and debt holders.

The objective of the financeability test is to assess the short term financial sustainability of the utility. This means that we assess whether the utility will be able to raise the necessary debt financing, consistent with an investment grade-rated firm, during the regulatory period. In applying the financeability test, our policy is to use the business' actual gearing ratio<sup>273</sup> and a forecast of the actual interest cost to calculate a set of financial ratios.<sup>274</sup>

In much of this report, when we refer to Essential Energy we are referring to its water business in Broken Hill (ie, 'Essential Water'). The section below outlines our assessment of Essential Water's financial viability under our price determination.

### 12.2.1 IPART's analysis

In this section, we provide our analysis of Essential Water's financeability using its submitted estimates of its actual gearing level and its actual interest cost for this Final Report.

Due to Essential Energy's estimates of Essential Water's actual gearing level being substantially higher than a commercially sustainable gearing level for a similar business operating in a similar market, and facing similar risks, we have found that it would not be financially sustainable over the regulatory period. Its financial ratios would fall below our benchmark floor of Baa2.

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<sup>273</sup> Calculated using the utilities' submitted debt level for its regulated business, as a proportion of its regulated asset base.

<sup>274</sup> IPART, *Financeability tests in price regulation - Final Report*, December 2013, p 2.

Below we provide an indicative analysis setting Essential Water's actual gearing at the more appropriate gearing level of 55% (our benchmark used in the determination). We found that under these assumptions, Essential Water would be financeable over the regulatory period – as its indicative financial ratios would meet our Baa2 benchmark floor. In order to achieve and maintain a gearing level of 55%, Essential Water's shareholders would need to provide an initial equity injection at the start of the regulatory period to bring the gearing level down to 55%, and then maintain this gearing level over the regulatory period.

### Draft Determination

For the Draft Determination, we were unable to obtain Essential Water's actual gearing level and interest cost. According to Essential Energy, it does not construct separate financial statements for its water business.<sup>275</sup> For the Draft Determination, we decided to use proxy values for Essential Water's gearing level and interest cost based on our 2013 decision on Hunter Water Corporation's water, sewerage, stormwater drainage and other services.<sup>276</sup>

We used Hunter Water as a proxy on the basis that it is a stand-alone utility operating in the same industry. However, we acknowledged that Essential Water faces higher levels of risk. This includes, for example, demand and asset stranding risks, as Essential Water is in a geographically remote area with a declining population and with 2 of its customers (the mines) accounting for a significant proportion of its water sales (the mines use about 35% of Broken Hill's water consumption).<sup>277</sup> In contrast, Hunter Water is in an area with increasing growth, and a diverse customer base. Therefore, we considered it likely that Essential Water would adopt a lower gearing ratio than Hunter Water, and so we adopted a proxy we considered to be conservative.

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<sup>275</sup> Essential Energy correspondence 12 December 2013.

<sup>276</sup> In the 2013 Hunter Water draft determination, our estimate of its actual gearing for 2013/14 was 47%, excluding any Moody's adjustment to debt, such as unfunded superannuation liabilities (IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services – Review of prices from 1 July 2013 to 30 June 2017*, March 2013, p 166).

<sup>277</sup> Approximate average over 2011/12 and 2012/13.

The analysis we undertook for the Draft Report showed that Essential Water's financial ratios would be consistent with our benchmark floor of Baa2 for the financial ratios over the determination period. Under our proxies, Essential Water's gearing would be at 47% in 2013/14 and increase to 58% by the end of the upcoming determination period (2017/18).

### Essential Energy's response to our draft decision

In response to our draft decision, Essential Energy submitted that although Essential Water's actual interest cost is close to that used in our draft decision, its estimated actual gearing level is substantially higher. It argued that under IPART's draft decisions, sufficient cash flows have not been provided to support a benchmark credit rating of Baa2.

### Stakeholder submissions

We did not receive any other stakeholder submissions on our draft financeability test for Essential Water.

### IPART's considerations

In response to our draft decision, Essential Energy submitted an estimate of Essential Water's actual gearing level and actual interest cost. While the estimates of its actual interest cost were in line with the interest cost we used in our draft decision, the actual gearing level was well above the proxy of 47% used in our draft decision.

In estimating its actual gearing level, we note that Essential Energy broadly calculated Essential Water's debt by:

- ▼ recasting financial statements from the beginning of 2005/06 (Essential Energy submits that it combined with the water business in 2005)<sup>278</sup>
- ▼ starting with a debt value of \$0
- ▼ writing off any capital expenditure in the year that it occurred<sup>279</sup>
- ▼ applying the interest cost applicable to Essential Energy's consolidated business.

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<sup>278</sup> Essential Energy's submission to IPART's Draft Report, April 2014, p 26.

<sup>279</sup> Essential Energy advises that its assets are impaired and so capital expenditure on its impaired assets is expensed in the year that it occurs (IPART, Public Hearing Transcript, 19 November 2013, p 27).

We have undertaken an analysis of Essential Water’s financeability using its submitted estimates of its actual gearing level and its actual interest costs. As a result of Essential Energy’s estimates of Essential Water’s actual gearing level being substantially higher than a commercially sustainable gearing level for a similar business operating in a similar market, we found that it would not be financially sustainable over the regulatory period. Its financial ratios would fall below our benchmark floor of Baa2.

We also undertook indicative analysis setting Essential Water’s actual gearing level at 55%, which we consider to be an appropriate level over the determination period. We found that under these assumptions, Essential Water would be financeable over the regulatory period, and would meet our benchmark floor of Baa2 (Table 12.2 below). In order to achieve and maintain a gearing level of 55%, Essential Water would need to obtain an initial equity injection at the start of the regulatory period to bring the gearing level down to 55%, and then maintain this gearing level over the regulatory period.

The following table lists the benchmark floors that we use for each of the financial ratios when applying our financeability test. Our policy provides that more weight should be placed on the first 2 ratios, and that we do not expect a utility will meet every benchmark in every year of a determination period. We have attached the indicative underpinning financial statements in Appendix F.

**Table 12.1 Financial Ratio benchmarks**

	A3	Baa1	Baa2	Baa3	Ba1
FFO/interest Coverage	>2.9	2.3x–2.9x	1.7x-2.5x	1.4/1.5x- 1.7x	<1.4/1.5
Net Debt/ RAB <sup>a</sup>	<60%	80%-85%	60%-91%	90%->100%	>100%
FFO/net debt	>10%	>10%	<6-10%	5-8%	<4%

<sup>a</sup> Regulatory Asset Base.

Source: IPART, *Financeability tests in price regulation – Final Decision*, December 2013, p 10.

**Table 12.2 Indicative financial ratios under an actual gearing of 55%**

	2013/14 <sup>a</sup>	2014/15	2015/16	2016/17	2017/18
FFO/interest Coverage	1.1	1.9	1.8	1.8	1.7
Net Debt/ RAB	55%	55%	55%	55%	55%
FFO/net debt	1%	6%	5%	6%	5%

<sup>a</sup> The adverse financial situation in 2013/14 is due to a combination of Essential Energy’s substantially high gearing in 2012/13 resulting in relatively large interest expenses in 2013/14 and under recovering relative to costs in 2013/14 since it was charging 2012/13 prices as a result of a delay in the price review.

**Note:** We have assumed equity funding each year such that Essential Water’s actual gearing is maintained at 55%.

In summary, Essential Water would not face financeability issues during the upcoming regulatory period if it were to adopt a lower gearing level. We consider that the appropriate capital structure is an issue for Essential Water’s management and shareholders to resolve.

### 12.3 Impact on the Consolidated Fund

Under section 16 of the IPART Act, IPART is required to report on the likely impact to the Consolidated Fund if prices are not increased to the maximum levels permitted. If this is the case, then the level of tax equivalent and dividends paid to the Consolidated Fund will fall. The extent of this fall will depend on NSW Treasury's application of its financial distribution policy and how the change affects after-tax profit.

Our financial modelling is based on a tax rate of 30% for pre-tax profit and dividend payments at 70% of after-tax profit. A \$1 decrease in pre-tax profit would result in a loss of revenue to the Consolidated Fund of 49 cents in total, which is 70% of the decrease in after-tax profit of 70 cents.

Also, as mentioned previously, we have set prices to recover Essential Energy's full efficient costs, without the subsidy which was provided by the NSW Government until June 2013.

### 12.4 Implications for general inflation

Under section 15 of the IPART Act, we are required to consider the effect of our determinations on general price inflation. As the Australian Bureau of Statistics (ABS) does not collect data on Essential Energy's water and sewerage impact on the consumer price index, we have derived an estimate of their impact on general price inflation using the ABS estimate of Sydney Water's impact on the consumer price index (CPI).

Currently, water and sewerage prices in Sydney contribute about 0.24% towards the consumer price index (all groups, 8 capital cities).<sup>280</sup> Using Essential Energy's customer numbers (around 11,000) relative to Sydney Water's (around 1,700,000) we estimate the relative contribution of Essential Energy towards general inflation to be about 0.002%.

Under our decisions, the annual average increase in the water and sewerage bill for a customer consuming 300 kL of water per year is 1.0% (in real terms). Therefore, the annual impact on general nation-wide price inflation is negligible.<sup>281</sup>

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<sup>280</sup> IPART, *Hunter Water Corporation's water, sewerage, stormwater drainage and other services – Review of prices from 1 July 2013 to 30 June 2017 – Final Report*, June 2013, p 169.

<sup>281</sup> The approximate annual impact is 0.00002%, calculated as 1.0% x 0.002%.

## 12.5 Implications for the environment

The NSW Government is responsible for determining the risk of negative impacts of Essential Energy on the environment, and imposing standards or requirements to address these risks and minimise any impacts.

For example, the Office of Environment and Heritage is responsible for setting standards for, and monitoring the environmental impacts of, the effluent Essential Energy discharges from its treatment plants and sewerage systems.

Essential Energy's environment-related programs include:

- ▼ Water savings initiatives, including the provision of educational resources to manage water consumption, a home and garden rebate program and active monitoring of high water accounts and customer visits to address water consumption.
- ▼ The re-use of partially treated wastewater (effluent water) for non-drinking purposes, such as water for the Silverlea Plant Nursery, the Broken Hill Racecourse Trust and Broken Hill City Council Properties.
- ▼ The provision of water to assist in suppressing dust and reducing lead levels.<sup>282</sup>

In determining Essential Energy's revenue requirements, we have ensured it can fully recover all efficient costs it incurs in meeting its environmental obligations through prices.

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<sup>282</sup> Essential Energy submission to IPART, 13 September 2013, pp 62 and 63.



## **Appendices**



## A Matters to be considered by IPART under section 15 of the IPART Act

In making determinations, IPART is required, under Section 15 of the IPART Act, to have regard to the following matters (in addition to any other matters IPART considers relevant):

- a) the cost of providing the services concerned
- b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services
- c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales
- d) the effect on general price inflation over the medium term
- e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment
- g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets
- h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body
- i) the need to promote competition in the supply of the services concerned
- j) considerations of demand management (including levels of demand) and least cost planning
- k) the social impact of the determinations and recommendations
- l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

Table A.1 outlines the sections of the report that address each matter.

**Table A.1 Consideration of Section 15 matters by IPART**

<b>Section 15(1)</b>	<b>Report reference</b>
a) the cost of providing the services	Chapters 3, 4, 5, 6 and 7
b) the protection of consumers from abuses of monopoly power	Whole report
c) the appropriate rate of return and dividends	Chapters 4, 6 and Appendix C and D
d) the effect on general price inflation	Chapter 12
e) the need for greater efficiency in the supply of services	Chapters 4 to 6
f) ecologically sustainable development	Chapter 12
g) the impact on borrowing, capital and dividend requirements	Chapter 12
h) impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body	Chapter 9
i) need to promote competition	Not applicable
j) considerations of demand management and least cost planning	Chapters 5, 6 and 7
k) the social impact	Chapter 11
l) standards of quality, reliability and safety	Chapter 12

## B The water demand supply balance in Broken Hill

To determine whether there is likely to be a water supply-demand imbalance in Broken Hill in the foreseeable future and therefore inform our assessment of water price structures (discussed in Chapter 9), this appendix provides a brief history of Broken Hill's available water supply and its demand for water.

### B.1 Does Broken Hill's water supply need to increase to meet demand?

Essential Energy advises that augmentation of the water supply is not required, given Broken Hill's declining population. It noted that if new mines are established, water demand would increase but this could be met by a new service reservoir or increased pumping capacity.<sup>283</sup>

Our analysis also indicates that, given current circumstances, augmentation of Broken Hill's water supply is not required in the foreseeable future, because:

- ▼ Broken Hill's safe system yield is around 9 GL<sup>284</sup>
- ▼ over the period 1996 to 2012, Broken Hill's demand has never been above 7 GL<sup>285</sup>
- ▼ there is a declining population, and therefore demand for water is also generally declining.

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<sup>283</sup> Essential Energy, *Answers to questions from IPART for the Public Forum in Broken Hill*, 27 November 2013, p 1.

<sup>284</sup> As advised by Essential Energy on 2 December 2013. 9 GL is based on its entitlement at Menindee Lakes and assumes that Essential Energy's storages are empty. Essential Energy has stated that it has always been able to receive its entitlement.

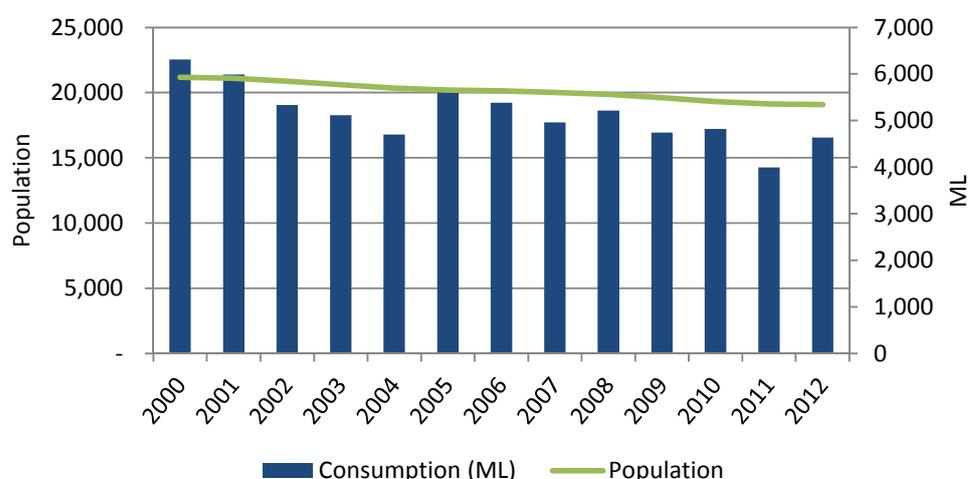
<sup>285</sup> Sustainable system yield is the amount of water that can be drawn down from the system each year without needing to impose drought (water) restrictions too frequently or for too long and without creating a risk that the system will approach emptiness during deep and prolonged drought.

## B.2 Essential Energy’s customers and water consumption

This section provides a brief history of the demand for water in Broken Hill.

Figure B.1 shows Broken Hill’s water consumption and population over the period 2000 to 2012. Over this period, Broken Hill’s population has declined by 10.0%, while water consumption has fallen by 26.6%.

**Figure B.1 Broken Hill’s water consumption and population – 2000 to 2012**



**Data source:** Australian Bureau of Statistics, 3218.0 *Regional Population Growth*, Australia and Essential Energy information return.

## B.3 Essential Energy’s water supply

This section provides information on Broken Hill’s available water supply.

### B.3.1 Essential Energy’s water sources

Essential Energy is an ‘end water user’ and is licensed by the NSW Office of Water to extract 10 GL of high security water per year from the Menindee Lakes Scheme.<sup>286</sup> However, limitations on pumping capacity mean that the maximum sustainable supply from this source is around 9 GL per year.<sup>287</sup>

Essential Energy can also extract up to an additional 6.3 GL per year from Umberumberka and Stephens Creek reservoirs, but the availability of water from these 2 sources is heavily dependent on rainfall.<sup>288</sup>

<sup>286</sup> Essential Energy, *Essential Water History and Operations*, March 2011, p 7.

<sup>287</sup> Meeting with Essential Energy on 2 December 2013.

<sup>288</sup> Correspondence from Essential Energy, received 9 January 2014.

Essential Energy has also stated that it is not able to trade water entitlements, as it is not possible to pump the water from other locations.

Given the above, we considered it reasonable to assume Essential Energy's safe system yield is around 9 GL per year (which is effectively Essential Energy's high security water entitlement from the Menindee Lakes Scheme).

### B.3.2 Water storages

Essential Energy has 3 water storages:<sup>289</sup>

- ▼ Stephens Creek Reservoir, which has a capacity of 19,000 ML. It receives water from its own catchment, as well as water pumped from the Darling River.
- ▼ Umberumberka Reservoir, which has a capacity of 7,800 ML and receives water from its own catchment.
- ▼ Imperial Lake Dam, which has a capacity of 670 ML and collects water from its own catchment, including part of the Broken Hill urban area. It also receives water pumped from Stephen's Creek. It is used as an emergency storage only.

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<sup>289</sup> Essential Energy submission to IPART, September 2013, p 10.

## C Detailed analysis of Essential Energy's submission to our Draft Report relating to capital expenditure

This appendix summarises the section of Essential Energy's submission to our Draft Report relating to capital expenditure<sup>290</sup>, and explains our analysis of this matter.

### C.1 Essential Energy's capital expenditure and its impact on service standards

#### C.1.1 Essential Energy's submission

In response to the Draft Report, Essential Energy submitted that IPART's proposed \$13.7 million reduction in capital expenditure would delay completion of all projects and result in:

- ▼ increased infrastructure failure rates
- ▼ increased potential for environmental and public health non-compliance
- ▼ a change from pro-active, preventative maintenance to reactive, breakdown maintenance leading to increased expenditure
- ▼ increased risk of asset failure.

In addition, Essential Energy argues the resulting workforce reductions due to IPART's draft operating expenditure decisions would result in degraded asset condition and increasing, rather than decreasing, capital and operational costs.

Essential Energy considers a number of projects would be unlikely to proceed, including:

- ▼ Stephens Creek dam wall rehabilitation (resulting in Essential Energy being non-compliant with NSW Dam Safety Committee requirements)
- ▼ refurbishment of service reservoirs (resulting in a decline in water quality standards)
- ▼ major works at Menindee water treatment plant
- ▼ Sunset Strip potable water upgrade

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<sup>290</sup> Essential Energy's submission to IPART's Draft Report, April 2014, pp 11-14.

- ▼ preparatory work for the replacement of Wills Street Waste Water Treatment Plant
- ▼ refurbishment of the South Waste Water Treatment Plant.

Essential Energy also indicates that expenditure on several other proposed projects would need to be reduced.

Essential Energy claims the reduction in operational funds to carry out regular maintenance programs and reduced capital expenditure to repair aging infrastructure will lead to more system failures.

Essential Energy acknowledges SKM's and IPART's views that there are improvement opportunities in regards to asset management practices. However, it contends that IPART's Draft Determination does not include financial provision for development and implementation of improved asset management practices. It also indicates that it has identified asset management improvements in the past, but improvements cannot continue due to reductions in both operating and capital expenditure and the associated depletion of resources (a reduction of 22 full-time equivalent employees) required to deliver enhanced asset management practices.

Essential Energy also highlights the review of its capital program undertaken by NSW Public Works and states that its submission was a capital program that largely incorporated NSW Public Works' findings.

### C.1.2 IPART's analysis

We have considered Essential Energy's arguments that its service standards might be compromised and asset failure rate increased by the amount of the capital expenditure allowance, and do not consider them reason to change our decision.

Under our regulatory approach, we set prices to reflect the efficient costs related to the capital works program that we decide is prudent and efficient.<sup>291</sup> We note that the projects that Essential Energy states may be unlikely to proceed are all in SKM's recommended projects, which we have adopted as the basis for the capital expenditure allowance. The main project for which SKM significantly reduced expenditure was the Stephens Creek Dam Wall Rehabilitation, the larger of the 2 dam safety projects (the other project being the Imperial Lake project). We consider that the expenditure we have allowed on this project is sufficient for Essential Energy to meet its requirements under the Dams Safety Act. Therefore, we consider that Essential Energy can manage its entire capital program, including meeting Dams Safety Committee requirements, with the expenditure that has been included in prices.

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<sup>291</sup> The capital expenditure allowance that we include in prices is the Return On Assets and the Return Of Assets for the capital program that we decide is prudent and efficient.

### C.1.3 Dam safety requirements and expenditure

At the time of this Report, the NSW Government is reviewing the Dams Safety Act. The first stage was an independent review of the Act, and the Dams Safety Committee (DSC), to:

- ▼ ensure consistency with contemporary standards, and
- ▼ develop an understanding of the expectations of the NSW public and of other jurisdictions' approaches to the safety of dams.<sup>292</sup>

The review arose from findings of the 2012 NSW Commission of Audit. The Audit noted that very small reductions in risk were being achieved at a cost that was disproportionate to safety cost/benefit trade-offs in other industries.<sup>293</sup> We note that until the findings of the review are known, it is 'business as usual' for the Dams Safety Committee. Owners of prescribed dam are to continue to comply with any Dams Safety Committee requests, notices or directives in a timely manner.<sup>294</sup>

The Stephens Creek Dam Wall Rehabilitation was the only project for which SKM recommended a substantive reduction over the 5 years of expenditure that it examined. Our consultant found these requirements were not clear, and at the time of review, the DSC had only asked for a program and options assessment and there had been no mandated timeframe to upgrade the dam.<sup>295</sup>

For the Stephens Creek project Essential Energy and its consultant, the Public Works Department, recognised the need for further investigation to define the cost and scope and stage construction.<sup>296</sup> SKM examined correspondence between Essential Energy and the DSC regarding requirements for the 2 dams which are prescribed under the Act. In SKM's opinion:

- ▼ there is sufficient documentation that makes clear what the various aspects of safety to be addressed are and the broad remedial works required for both the Stephens Creek Reservoir and the Imperial Lake dam<sup>297</sup>
- ▼ the NSW DSC appears to have focussed more on Imperial Lake (from a safety viewpoint)<sup>298</sup>
- ▼ there is no clear indication of the timing of the dam safety projects.

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<sup>292</sup> <http://www.dpi.nsw.gov.au/aboutus/about/legislation-acts/review/dams-safety>, accessed 2 June 2014.

<sup>293</sup> See NSW Department of Primary Industries, *NSW Dams Safety Review Community Consultation Paper*, September 2013, p 2.

<sup>294</sup> <http://www.dpi.nsw.gov.au/aboutus/about/legislation-acts/review/dams-safety>, accessed 2 June 2014.

<sup>295</sup> Sinclair Knight Merz, *Strategic Management Overview and Review of Operating and Capital Expenditure for Essential Energy's water and sewerage business in Broken Hill*, Final Report, 26 January 2014, p 21.

<sup>296</sup> Ibid.

<sup>297</sup> Ibid, p 79.

<sup>298</sup> Ibid.

SKM recommended that both dam safety projects be included in regulatory capital expenditure. We have adopted SKM's recommendations and included these expenditures as prudent and efficient.

## D Implementation of our new approach to tax in the 2014 Determination

In December 2011, after consultation with stakeholders, we decided to calculate a more accurate and commercially based tax allowance as a discrete building block, and to use a post-tax weighted average cost of capital (WACC).<sup>299</sup> The tax allowance is intended to more accurately reflect the tax liability for a comparable commercial business. Our previous approach used a pre-tax WACC with an assumed statutory tax rate. In most cases, this overstated the tax that would be paid by a comparable commercial business.

This Appendix outlines our calculation of Essential Energy's tax allowance for the 2014 Determination (Table D.1).

**Table D.1 Decision on Essential Energy's tax allowance (\$'000s, nominal)**

	2014/15	2015/16	2016/17	2017/18
<b>Water</b>				
Notional revenue requirement <sup>a</sup>	15,927	16,413	17,300	17,918
Cash and in-kind contributions	-	-	-	-
Tax depreciation	2,995	3,263	3,488	3,679
Interest expense allowance	2,713	2,974	3,314	3,776
Operating expenditure	11,066	11,122	11,454	11,333
Taxable income	(847)	(946)	(955)	(870)
Accumulated tax losses	102	949	1,895	2,850
Taxable income after tax losses	-	-	-	-
Regulatory tax allowance (adj. for gamma)	-	-	-	-
<b>Regulatory tax allowance (adj. for gamma) - real (\$2013/14)</b>	-	-	-	-
<b>Sewerage</b>				
Notional revenue requirement <sup>a</sup>	5,349	5,328	5,533	5,594
Cash and in-kind contributions	-	-	-	-
Tax depreciation	628	669	709	763
Interest expense allowance	1,317	1,378	1,443	1,534
Operating expenditure	2,997	2,984	3,137	3,113
Taxable income	407	296	243	183

<sup>299</sup> IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011.

	2014/15	2015/16	2016/17	2017/18
Accumulated tax losses	-	-	-	-
Taxable income after tax losses	407	296	243	183
Regulatory tax allowance (adj. for gamma)	118	86	71	53
<b>Regulatory tax allowance (adj. for gamma) - real (\$2013/14)</b>	<b>115</b>	<b>82</b>	<b>66</b>	<b>48</b>
<b>Water and Sewerage</b>				
Regulatory tax allowance (adj. for gamma)	118	86	71	53
<b>Regulatory tax allowance (adj. for gamma) - real (\$2013/14)</b>	<b>115</b>	<b>82</b>	<b>66</b>	<b>48</b>

<sup>a</sup> Revenue excludes tax allowance.

**Note:** Totals may not add due to rounding.

We calculate tax allowances in each year of the determination period by applying a 30% statutory corporate tax rate adjusted for gamma<sup>300</sup> to Essential Energy's (nominal) taxable income. To calculate its taxable income, we deduct Essential Energy's operating cost allowances, tax depreciation, and interest expenses from the notional revenue requirement (excluding tax allowance).

Operating costs refer to the allowances included in the building block that we determine to be efficient for the determination period (see Chapter 5).

We adopt Essential Energy's forecasts of tax depreciation over the 2014 period. This differs from the regulatory depreciation allowance that we include in Essential Energy's building block and notional revenue.

We base our estimate of Essential Energy's interest expense on the parameters used for the WACC (see Appendix D):

- ▼ a 55% notional gearing ratio (ie, borrowings = 0.55 x regulatory asset base)
- ▼ a nominal risk-free rate of 4.0% to 5.0%
- ▼ a debt margin of 2.7% to 2.9%.

We have adopted an interest rate or cost of debt of 7.3% for the purpose of calculating the regulatory tax allowance. This is the sum of the mid-point of our estimates of the range of the nominal risk-free rate and the cost of debt. The cost of debt is applied to the average of Essential Energy's opening and closing RAB in each year, along with a notional gearing ratio of 55%, to calculate the interest expense.

<sup>300</sup> Under a post-tax framework, the value of franking credits (gamma) enters the regulatory decision only through the estimate of the tax liability.

## E Weighted average cost of capital (WACC)

In December 2013, we completed an extensive review of our WACC methodology. Our draft decision for Essential Energy contains a summary of our revised WACC methodology.<sup>301</sup> We have also recently made a decision to use data from the RBA to value debt margin from 30 April 2014.<sup>302</sup> Our final decision on the WACC for Essential Energy has therefore been made using:

- ▼ our revised methodology, based on our December 2013 review
- ▼ data from the RBA to set the debt margin.

Our final decision is to apply a real post-tax WACC of 5.2% per year. Table E.1 sets out the WACC parameters, ranges and midpoints.

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<sup>301</sup> IPART, *Essential Energy's Water and Sewerage Services in Broken Hill - Review of Prices from 1 July 2014 to 30 June 2018 - Draft Report*, pp 134-135.

<sup>302</sup> IPART, *IPART's New Approach to Estimating the Cost of Debt - Fact Sheet*, April 2014.

**Table E.1 WACC parameters, ranges and midpoint**

	Current WACC range and midpoint			Long term WACC range and midpoint			Final WACC range and midpoint		
	Low	Mid	High	Low	Mid	High	Low	Mid	High
Nominal risk-free rate	4.0%	4.0%	4.0%	5.0%	5.0%	5.0%			
Inflation	2.8%	2.8%	2.8%	2.9%	2.9%	2.9%			
Debt margin	2.7%	2.7%	2.7%	2.9%	2.9%	2.9%			
Gearing	60%	55%	50%	60%	55%	50%			
MRP	7.2%	7.9%	8.6%	5.5%	6.0%	6.5%			
Equity beta	0.6	0.7	0.8	0.6	0.7	0.8			
Cost of debt (nominal pre-tax)	6.7%	6.7%	6.7%	7.9%	7.9%	7.9%			
Cost of equity (nominal post-tax)	8.3%	9.5%	10.9%	8.3%	9.2%	10.2%			
Nominal Vanilla WACC	7.3%	8.0%	8.8%	8.1%	8.5%	9.1%	8.0%	8.2%	8.5%
<b>Real post-tax WACC</b>	4.4%	5.0%	5.8%	5.0%	5.4%	6.0%	5.0%	<b>5.2%</b>	5.4%

Note: IPART analysis.

Source: Bloomberg, Thomson Reuters, SFG and RBA.

Our WACC calculation is based on market parameters sampled to 12 May 2014. The approach used to set the WACC for the final decision departs from the draft decision approach in 2 ways:

- ▼ we have implemented our recent decision to use data published by the RBA to set the debt margin
- ▼ we have lowered the assumed level of gearing; from 60% to a range between 50% and 60%.

Our rationale for these 2 changes is set out in section E.1.2. We have maintained all other aspects of the draft decision's WACC calculation for the final decision.

We have used the midpoint of the WACC range. This is because the uncertainty index is currently within 1 standard deviation from the long term average of 0.

Our real post-tax WACC point estimate of 5.2% is 30 basis points higher than the draft decision (4.9%). The increase is due to our decisions to:

- ▼ use RBA data to estimate the debt margin
- ▼ decrease the value of gearing, from 60% in the draft decision, to a range between 50% and 60% for the final decision.<sup>303</sup>

<sup>303</sup> A decrease in the level of gearing increases the WACC.

However, the increase is mitigated to an extent by a reduction in the nominal risk-free rate between the draft and final decision.

The rest of this Appendix explains how we have determined the WACC for the final decision and provides the details of the individual WACC parameters.

## E.1 Setting the WACC for this review

### E.1.1 Establishing a WACC range and midpoint

We have estimated the long term and current WACC ranges, and used their midpoints as the upper and lower bounds of our final WACC range.

Using market parameters as at 12 May 2014 (and the RBA's data to 30 April 2014<sup>304</sup>), the *current* WACC range is 4.4% to 5.8%, with a midpoint of 5.0%. The *long term* WACC range is 5.0% to 6.0%, with a midpoint of 5.4%. We have used the midpoints of the current and long term WACC ranges as the upper and lower bounds of the final WACC range. As a result, our final WACC range is 5.0% to 5.4%. Applying our decision-making framework, we have found that the uncertainty index is within 1 standard deviation of the long term mean of 0. We have therefore used the midpoint estimate for the WACC of 5.2%.

### E.1.2 Estimating individual WACC parameters

This section provides the details of the individual market-wide and industry-specific parameters used to estimate the WACC.

#### Risk-free rate

Decision

28 The risk-free rates in determining the WACC are as shown in Table E.2.

**Table E.2 Decision on risk-free rate**

	Risk-free rate
Expected return based on current market data	4.0%
Expected return based on 10-year average market data	5.0%

**Note:** Market data as at 12 May 2014.

**Source:** Bloomberg.

<sup>304</sup> This data from the RBA is available monthly.

The risk-free rate is used as a point of reference in determining both the cost of equity and the cost of debt within the WACC. It is used as a base rate to which an equity or debt risk premium is added to reflect the riskiness of the specific business for which the rate of return is being derived.

For this decision, we have used a risk-free rate of:

- ▼ 4.0% to estimate the current WACC range. This reflects the 40-day average of the 10-year Commonwealth Government Security yields.
- ▼ 5.0% to estimate the long term WACC range. This reflects the 10-year average of the 10-year Commonwealth Government Security yields.

### Inflation rate

Decision

29 The inflation rates in determining the WACC are as shown in Table E.3.

**Table E.3 Decision on inflation rate**

	Inflation rate
Expected return based on current market data	2.8%
Expected return based on 10-year average market data	2.9%

**Note:** Market data as at 12 May 2014.

**Source:** Bloomberg and the RBA.

The inflation rate is used to convert the nominal WACC into a real WACC. For this decision, we have used an inflation rate of:

- ▼ 2.8% to estimate the current WACC range. This reflects the 40-day average of the swap market-implied inflation with a 10-year term-to-maturity.
- ▼ 2.9% to estimate the long term WACC range. This is estimated based on a hybrid approach with an averaging period of 10 years. This approach combines:
  - Swap market implied inflation expectations for the period from 2 January 2009 to 12 May 2014.
  - Break-even inflation (BEI) for the period over which the swap market implied inflation is not available.<sup>305</sup>

<sup>305</sup> We will substitute swap market inflation for BEI as it becomes available.

## Debt margin

Decision

30 The debt margins in determining the WACC are as shown in Table E.4.

**Table E.4 Decision on debt margins**

	Debt margin
Expected return based on current market data	2.7%
Expected return based on 10-year average market data	2.9%

**Note:** The debt margins include 12.5 basis points for debt raising costs. Market data as at 30 April 2014.

**Source:** RBA.

The debt margin represents the cost of debt a company has to pay above the nominal risk-free rate. Between the draft and final decision, we determined a new approach to estimating the debt margin.<sup>306</sup> We decided to apply our methodology from 30 April 2014. Our new method uses credit spreads for Australian non-financial corporations (NFCs) published by the RBA. We have used data from the RBA instead of Bloomberg data to set the debt margin in making our final decision because the RBA's data is:

- ▼ based on a robust methodology
- ▼ transparent as it is readily available through the RBA's website, and
- ▼ extends the term-to-maturity to 10 years which is our target based on evidence that asset-intensive firms with long-lived assets operating in a competitive market seek to raise debt with a maturity of 10 years or longer.<sup>307</sup>

In their response to our Draft Report, Essential Energy supported the use of RBA data.<sup>308</sup>

Consistent with our new approach to estimating the debt margin, we have used:

- ▼ A debt margin of 2.7% to estimate the current WACC range. We established this range using data from the RBA.
- ▼ A debt margin of 2.9% to estimate the long term WACC range. This estimate is based on the long term average using data from the RBA.

The debt margins include an allowance of 12.5 basis points for debt raising costs.

<sup>306</sup> IPART, *New Approach to Estimating the Cost of Debt: Use of the RBA's Corporate Credit Spreads – Fact Sheet*, 24 February 2014.

<sup>307</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 13.

<sup>308</sup> Essential Energy, *Essential water response to IPART's Draft Report*, April 2014, p 31.

## Market risk premium

Decision

31 The market risk premiums in determining the WACC are as shown in Table E.5.

**Table E.5 Decision on MRPs**

	Market risk premium
Expected return based on current market data	7.2% to 8.6% with a midpoint of 7.9%
Expected return based on 10-year average market data	5.5% to 6.5% with a midpoint of 6.0%

**Note:** IPART analysis.

**Source:** Bloomberg, Thomson Reuters and SFG.

The market risk premium (MRP) is the expected rate of return over the risk-free rate that investors would require for investing in a market portfolio. The MRP is an expected return and is not directly observable. It therefore needs to be estimated through proxies.

For this decision, we have used:

- ▼ A MRP range of 7.2% to 8.6% and a midpoint of 7.9%, to estimate the current WACC range. We established the range by using the maximum and minimum of the implied MRPs estimated based on 6 MRP methodologies. The maximum MRP is given by SFG's model that uses data from analysts' forecasts and the minimum MRP is given by Damodaran's model.<sup>309</sup> The average of the maximum and minimum MRPs is 7.9%, which is the midpoint of our implied MRP range.
- ▼ An MRP range of 5.5% to 6.5% and a midpoint of 6.0% to estimate the long term WACC range. This estimate is based on the historical arithmetic average of the excess market return over the risk-free rate.

<sup>309</sup> For a more detailed explanation of the underlying models, please see our Final Report on the review of WACC methodology: IPART, *Review of WACC methodology – Final report*, December 2013.

Table E.6 shows the implied MRPs estimated based on 6 MRP methodologies.

**Table E.6 Implied MRPs based on 6 models**

Date	Damodaran (2013)	Bank of England (2002)	Bank of England (2010)	Bloomberg	SFG - economic indicators	SFG – analysts' forecasts
30/04/2014	7.20%	8.29%	7.35%	7.85%	7.46%	8.56%

**Note:** The implied MRPs include the benefits of imputation credits. The implied MRPs using current market data are estimated monthly, as at 30 April 2014. The MRP based on SFG's analysts' forecasts is estimated half-yearly.

**Source:** Thomson Reuters, Bloomberg and SFG.

## Equity beta

Decision

**32** An equity beta range of 0.6 to 0.8 has been used in determining the WACC.

The equity beta measures the extent to which the return of a particular security varies in line with the overall return of the market. It represents the systematic risk of a security that cannot be avoided by holding it as part of a diversified portfolio. It is important to note that the equity beta does not take into account business-specific or diversifiable risks. In determining the equity beta, our current practice is to estimate an industry beta and adopt the same equity beta for regulated businesses within an industry.

In this decision, we have maintained our draft decision that the appropriate equity beta range is 0.6 to 0.8 for Essential Energy. We do not consider that there has been a material change in the equity beta for water businesses since the draft decision, and that the equity beta of 0.6 to 0.8 remains the most appropriate range.

## Gearing

Decision

**33** A gearing ratio ranging from 50% to 60%, with a midpoint of 55%, has been used in determining the WACC.

The gearing ratio is the ratio of debt to total assets in the business' capital structure. In determining the level of gearing, our current practice is to adopt a benchmark capital structure (rather than the actual capital structure of the regulated entity) to ensure that customers will not bear the costs associated with an inefficient capital structure. This is consistent with the regulatory practice in Australia.

Our draft decision was to assume a gearing level of 60% because we typically adopt a gearing level of 60% for regulated water businesses. However, we have given further consideration to the risks faced by Essential Energy, compared to other water utilities we regulate.

For our final decision we reduced the level of gearing to a range of 50% to 60% (ie, a midpoint of 55%). Reducing the level of gearing has, *inter alia*, an effect of increasing the WACC by around 10 basis points.

We consider that a lower level of gearing recognises that Essential Energy's water business faces a higher level of risk than other metropolitan water utilities due to the market it operates in. Essential Energy is exposed to a higher level of risk because it faces falling water demand due to a declining population in a geographically isolated market. Further, the water business has 2 very large customers (the mines), which account for around 35% of water sales. If one of them scales back or exits the market, it is unlikely that another business of a similar size would enter. If it were not in a declining and geographical isolated market it could potentially supply other new customers to take the place of those leaving the market. However, given these market characteristics, a reduction in consumption by one of its large customers would result in a significant loss of sales for Essential Energy.

While we typically value the level of gearing for water businesses at 60%, we consider that a lower level of gearing combined with an equity beta of 0.6 to 0.8 appropriately recognises the risks faced by Essential Energy's water business.

### **E.1.3 Determining an appropriate point estimate based on the level of economic uncertainty**

Decision

- 34 The midpoint WACC (ie, 5.2%) has been selected as the WACC for Essential Energy given the current level of economic uncertainty.

Figure E.1 shows the current uncertainty index from 2002 to 2014.<sup>310</sup> The index is currently within 1 standard deviation from the long term mean of 0. Based on our WACC decision rule, we therefore select the midpoint WACC as our point estimate, ie, 5.2%.

**Figure E.1** IPART’s uncertainty index



**Note:** IPART analysis.

**Data source:** Thomson Reuters.

<sup>310</sup> Our uncertainty index is estimated monthly. Therefore, the latest uncertainty index at the time of this final decision is as at April 2014.

## F Financeability

The tables below are indicative financial statements that underpin the financial ratios in Table 12.2 (Section 12.2). The information presented here is indicative only and is an example of how Essential Water could achieve financial ratios that would meet our benchmark floor of Baa2, under the prices that we set in the determination.

**Table F.1 Indicative Profit and Loss Statement (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Regulatory revenue	20,882	21,157	21,124	21,215	21,219
Non-regulatory revenue	21	55	57	59	60
AFOC	0	0	0	0	0
<b>Total Regulated Revenue</b>	<b>20,902</b>	<b>21,212</b>	<b>21,181</b>	<b>21,274</b>	<b>21,279</b>
Operating expenditure	15,005	13,720	13,426	13,549	13,087
EBITDA	5,898	7,493	7,755	7,725	8,192
Depreciation & amortisation	1,601	2,072	2,148	2,246	2,371
EBIT	4,297	5,421	5,607	5,479	5,821
Interest paid	5,350	3,700	4,071	4,243	4,607
Interest income	0	0	0	0	0
Operating profit before abnormals	-1,054	1,721	1,536	1,236	1,213
Abnormal items	0	0	0	0	0
Net Profit before Tax (NPBT)	-1,054	1,721	1,536	1,236	1,213
Tax equivalent	0	516	461	371	364
<b>Net Profit After Tax (NPAT)</b>	<b>-1,054</b>	<b>1,205</b>	<b>1,075</b>	<b>865</b>	<b>849</b>
Retained profits at beginning of year	0	-1,054	0	323	582
Adjustments / transfers from reserves	0	0	0	0	0
Total available for appropriation	-1,054	151	1,075	1,188	1,431
<b>Dividends</b>	<b>0</b>	<b>151</b>	<b>753</b>	<b>606</b>	<b>594</b>
Retained Earnings	-1,054	0	323	582	837

Source: IPART indicative analysis.

**Table F.2 Indicative Cash flow Statement (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Earnings before interest and tax	4,297	5,421	5,607	5,479	5,821
Depreciation and amortisation	1,601	2,072	2,148	2,246	2,371
Cost of assets sold	0	0	0	0	0
Change in other assets	0	0	0	0	0
Change in working capital	-67	188	-69	368	11
Change in provisions and other liabilities	87	0	0	0	0
Abnormal items	0	0	0	0	0
Tax paid (-)	0	-516	-461	-371	-364
<b>Cash flow from operations</b>	<b>5,918</b>	<b>7,164</b>	<b>7,226</b>	<b>7,722</b>	<b>7,839</b>
Payment for fixed assets	-3,528	-7,647	-6,989	-11,804	-12,409
Capital contributions (cash)	0	0	0	0	0
<b>Cash flow from investing</b>	<b>-3,528</b>	<b>-7,647</b>	<b>-6,989</b>	<b>-11,804</b>	<b>-12,409</b>
Net interest received (paid)	-5,350	-3,700	-4,071	-4,243	-4,607
Dividends (paid)	0	-151	-753	-606	-594
Equity injections	- a	1,371	1,853	3,910	4,257
New borrowings	2,960	2,963	2,734	5,021	5,515
<b>Cash flow from financing</b>	<b>-2,390</b>	<b>483</b>	<b>-236</b>	<b>4,082</b>	<b>4,571</b>
<b>Net Cash flow</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

<sup>a</sup> Essential Water would need an equity injection in 2013/14 to lower its gearing ratio to 55%. However, due to confidentiality over its submitted estimate of its actual debt level for 2013/14, we have purposely not disclosed the equity injection required to lower its gearing to 55%. The indicative balance sheet has already been adjusted so that the debt level of \$52 million in 2013/14 represents a gearing level of 55%.

**Source:** IPART indicative analysis.

**Table F.3 Indicative Balance Sheet (\$'000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
<b>Assets</b>					
Cash and investments	0	0	0	0	0
Receivables	2,574	2,604	2,600	2,611	2,611
Inventory	102	117	112	139	140
Prepayments	0	0	0	0	0
Property, plant & equipment	94,162	99,737	104,578	114,135	124,174
Future income tax benefit	0	0	0	0	0
Other	0	0	0	0	0
<b>Total Assets</b>	<b>96,838</b>	<b>102,458</b>	<b>107,289</b>	<b>116,885</b>	<b>126,924</b>
<b>Liabilities</b>					
Accounts payable	1,523	1,756	1,678	2,084	2,096
Provision for income tax	0	0	0	0	0
Provision for dividends	0	0	0	0	0
Borrowings	52,423	55,386	58,120	63,141	68,656
Provision for deferred income tax	0	0	0	0	0
Employee and other provisions	3,426	3,426	3,426	3,426	3,426
Other	126	126	126	126	126
<b>Total liabilities</b>	<b>57,499</b>	<b>60,695</b>	<b>63,350</b>	<b>68,777</b>	<b>74,304</b>
Net assets employed	39,339	41,763	43,939	48,108	52,620
<b>Equity</b>					
<b>Total capital and reserves</b>	<b>39,339</b>	<b>41,763</b>	<b>43,939</b>	<b>48,108</b>	<b>52,620</b>

Source: IPART indicative analysis.

## G Decisions on trade waste charges

Table G.1, Table G.2 and Table G.3 show our decisions on trade waste charges. In 2014/15 and each subsequent year of the determination period, these charges will remain unchanged in real terms from 2013/14. That is, they will be increased each year in line with inflation.

We note there is an inconsistency between Essential Energy's proposed trade waste charges on page 57 of its submission and the prices it has proposed in Attachment 6 of its submission. In the body of its submission, it proposed increasing trade waste charges by 5.9%, excluding inflation. However, its proposed prices in Attachment 6 of its submission have only been increased by the inflation rate of 2.5% (ie, it has not applied a real 5.9% per year increase to its trade waste charges). We have presented Essential Energy's proposal as per Attachment 6 of its submission.

**Table G.1 IPART's decision on Trade Waste administration/inspection charges (\$2013/14)**

	Essential Energy's proposed 2013/14	Decision 2014/15 and each year thereafter
<b>Category 1 and 1a</b>		
Trade Waste application fee (\$ per application)	219.29	219.29
Trade Waste Annual Fee (\$ per year)	101.72	101.72
Trade Waste re-inspection fee (\$ per inspection)	95.11	95.11
Trade Waste non-compliant Usage (\$ per kL)	1.90	1.90
<b>Category 2</b>		
Trade Waste application fee (\$ per application)	219.29	219.29
Trade Waste Annual Fee (\$ per year)	681.65	681.65
Trade Waste re-inspection fee (\$ per inspection)	95.11	95.11
Trade Waste Usage (\$ per kL)	1.90	1.90
Trade Waste non-compliant usage (\$ per kL)	17.44	17.44
<b>Category 3</b>		
Trade Waste application feel (\$ per application)	219.29	219.29
Trade Waste Annual Fee (\$ per year)	By quote	By quote
Trade Waste re-inspection fee (\$ per inspection)	95.11	95.11
Food Waste Disposal (\$ per bed)	27.74	27.74

Source: Essential Energy submission to IPART, September 2013, Attachment 6.

**Table G.2 Excess Mass Charges (\$2013/14)**

<b>Excess mass charges</b>	<b>Essential Energy's proposal 2013/14 \$/kg</b>	<b>Decision 2014/15 and each year thereafter \$/kg</b>
Acid demand	0.86	0.86
Alkali demand	0.86	0.86
Aluminium	0.86	0.86
Ammonia	2.60	2.60
Arsenic	85.87	85.87
Barium	42.27	42.27
Bio Oxygen Demand	0.86	0.86
Boron	0.86	0.86
Bromine	17.09	17.09
Cadmium	396.31	396.31
Chloride	0	0
Chlorinated Hydrocarbons	42.27	42.27
Chlorinated Phenolic	1,712.05	1,712.05
Chlorine	1.79	1.79
Chromium	28.72	28.72
Cobalt	17.78	17.78
Copper	17.78	17.78
Cyanide	85.87	85.87
Fluoride	4.23	4.23
Formaldehyde	1.79	1.79
Grease & Oil (total)	1.53	1.53
Herbicides	856.02	856.02
Iron	1.79	1.79
Lead	42.27	42.27
Lithium	8.59	8.59
Manganese	8.59	8.59
Mercaptans	85.87	85.87
Mercury	2,853.42	2,853.42
Methylene Blue Active Substances (MBAS)	0.86	0.86
Molybdenum	0.86	0.86
Nickel	28.72	28.72
Nitrogen	0.22	0.22
Organ arsenic compounds	856.02	856.02
Pesticides	856.02	856.02
Petroleum Hydrocarbons	2.87	2.87
Phenolic Compounds	8.59	8.59
Phosphorus	1.79	1.79
Polynuclear Aromatic Hydrocarbons	17.78	17.78

<b>Excess mass charges</b>	<b>Essential Energy's proposal 2013/14 \$/kg</b>	<b>Decision 2014/15 and each year thereafter \$/kg</b>
Selenium	60.15	60.15
Silver	1.38	1.38
Sulphate	0.17	0.17
Sulphide	1.79	1.79
Sulphite	1.91	1.91
Suspended Solids	1.09	1.09
Thiosulphate	0.30	0.30
Tin	8.59	8.59
Total Dissolved Solids (TDS)	0.06	0.06
Uranium	8.59	8.59
Zinc	17.50	17.50
Non-compliant excess mass charges	As per Essential Energy's Policy for the Discharge of Liquid Trade Waste	As per Essential Energy's Policy for the Discharge of Liquid Trade Waste

Source: Essential Energy submission to IPART, September 2013, Attachment 6.

**Table G.3 Mines' trade waste charges**

	<b>2013/14</b>	<b>Decision 2014/15 and each year thereafter</b>
Annual trade waste fee per operating mine (\$ per year)	1,491.62	1,491.62

Source: Essential Energy submission to IPART, September 2013, Attachment 6.

## H Decisions on miscellaneous charges

Table H.1 shows our decisions on Essential Energy's miscellaneous charges. In 2014/15 and each subsequent year of the determination period, these charges will remain unchanged in real terms from 2013/14, as proposed by Essential Energy. That is, they will be increased each year in line with inflation.

**Table H.1 IPART's decisions on miscellaneous charges (\$2013/14)**

	Current 2013/14	2014/15 and each year thereafter
<b>1 Conveyancing certificate</b>		
▼ full certificate with meter read	68.47	68.47
▼ updated meter read request (special meter read)	51.33	51.33
▼ full certificate with history search	120.29	120.29
▼ Urgent full certificate with meter read (within 48 hours)	118.62	118.62
<b>2 Meter test</b> (Refunded if meter is $\pm 3\%$ )	71.17	71.17
<b>3 Drainage Diagram</b>	20.06	20.06
<b>4 Plumbing inspection</b>	33.21	33.21
<b>5 Plumbers application</b>	35.48	35.48
<b>6 Site inspection for water and sewerage</b>	114.30	114.30
<b>7 Statement of available pressure</b>	164.88	164.88
<b>8 Building plan approval – extension</b>	32.03	32.03
<b>9 Building plan approval – new connection</b>	48.42	48.42
<b>10 Fire Service application</b>	84.65	84.65
<b>11 Relocation /increase in size of water service</b> (tapping fee)	81.95	81.95
<b>12 Backflow prevention device testing and certification</b> (per hour plus materials)	68.64	68.64
<b>13 Install water service</b>		
▼ 20mm service up to 3 metres	703.08	703.08
▼ 20mm service over 3 meters and less than 30 metres	1,813.78	1,813.78
▼ All others	By quote	By quote

	<b>Current 2013/14</b>	<b>2014/15 and each year thereafter</b>
<b>14 Alter or relocate existing water service</b>		
▼ Alter existing service	By quote	By quote
▼ Relocate existing service	Charge for Install Water Service (charge no. 13) plus charge for Water Service disconnection (charge no.19)	Charge for Install Water Service (charge no. 13) plus charge for Water Service Disconnection (charge no. 19)
<b>15 Downgrade meter size</b>		
▼ 25mm to 20mm	90.36	90.36
▼ All others	By quote	By quote
<b>16 Repair damaged water service</b>		
▼ free for first repair within 5-year period	nil	nil
▼ second and subsequent repairs (per hour plus materials)	90.36	90.36
<b>17 Rectification of illegal services</b>	Greater of 220.20 or actual cost	Greater of 220.20 or actual cost
<b>18 Replace Damaged Meter</b>		
First replacement in 5 years	Nil	Nil
20mm	106.00	106.00
25mm	208.72	208.72
32mm	303.56	303.56
40mm	731.01	731.01
50mm	911.85	911.85
80mm	1,001.14	1,001.14
100mm or greater	By quote	By quote
<b>19 Water Service Disconnection</b>		
First disconnect within 1 year	Nil	Nil
Capping	88.16	88.16
20mm to 25mm	147.30	147.30
32mm or greater	By quote	By quote
Bitumen repairs (\$ per metre) (minimum 1 metre)	17.15	17.15
<b>20 Water Service Reconnection</b>		
First reconnection within 1 year	Nil	Nil
Un-capping	94.90	94.90
20mm to 25mm	158.52	158.52
32mm or greater	By quote	By quote
Bitumen repairs (\$ per meter) (minimum 1 metre)	17.15	17.15

	<b>Current 2013/14</b>	<b>2014/15 and each year thereafter</b>
<b>21 Asset Location</b>		
Major or critical infrastructure (per hour)	90.36	90.36
Minor or non-critical initial location	Nil	Nil
Reinspect asset location (per hour)	90.36	90.36
<b>22 Relocate existing stop valve or hydrant</b>	By quote	By quote
<b>23 Replace water main before customer installations</b>	By quote	By quote
<b>24 Standpipe Hire</b>		
Monthly (minimum charge)	29.20	29.20
Annually	350.47	350.47
<b>Water Usage</b>		
Treated (\$/kL)	1.67	1.67
Untreated (\$/kL)	1.47	1.47
<b>25 Personal service of final warning notice</b>	na	20.00
<b>26 Water reconnections - after restrictions</b>		
a) during business hours	na	86.25
b) outside business hours	na	119.20

