



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 — Draft Report**  
March 2014





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## Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

**Submissions are due by 11 April 2014.**

We would prefer to receive them electronically via our online submission form <[www.ipart.nsw.gov.au/Home/Consumer\\_Information/Lodge\\_a\\_submission](http://www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission)>.

You can also send comments by mail to:

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Late submissions may not be accepted at the discretion of the Tribunal. Our normal practice is to make submissions publicly available on our website <[www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au)> as soon as possible after the closing date for submissions. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed on the previous page.

We may choose not to publish a submission—for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. IPART will then make every effort to protect that information, but it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

If you would like further information on making a submission, IPART's submission policy is available on our website.



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# 1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is currently reviewing the prices Essential Energy can charge for water supply and sewerage services to customers in and around Broken Hill.<sup>1</sup> We are also reviewing the prices of effluent water services, trade waste services and a range of miscellaneous services. The purpose of the review is 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 Draft Report explains our Draft Determination on these prices, including the rationale and analysis that underpin our draft decisions. We are seeking submissions from stakeholders on the Draft Report and Determination. We will consider these submissions before making our Final Determination in June 2014. Details on how to make a submission are provided on page iii at the front of this report. The closing date for submissions is 11 April 2014.

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 is expected to commence from 1 July 2014.

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<sup>1</sup> 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). See: <http://www.essentialwater.com.au/>.

<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 - deferral, April 2012).

## 1.1 Overview of the Draft Determination

Under our decisions in this Draft Report, a typical residential water and sewerage bill in Broken Hill, for a customer using 300 kL of water, will increase from \$1,251 to \$1,256 in 2017/18, excluding the effects of inflation.<sup>3</sup> This is an increase of 0.1% per year or 0.4% over the 4 years of the determination period. Including the effects of inflation, this is an estimated increase of 2.6% per year, or 11% over the 4 years.<sup>4</sup>

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. Compared with a 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 38.9% over the 4 years.

The small increases in draft prices, and the resulting small impact on customer bills, reflect our findings on Essential Energy's prudent and efficient level of expenditure, using our analysis and judgement. 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 draft decisions will allow Essential Energy to continue to provide quality services and meet regulatory standards.

In this Draft 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.

### 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 – the notional revenue requirement.

In its September 2013 submission, 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%

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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 an estimated rate of inflation of 2.7% for 2014/15 and 2.5% per year thereafter. These inflation rates mean that estimated inflation will be 10.6% over the 4 years of the determination period.

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

- ▼ 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 \$81.8 million over the 4 years, which is 11.3% lower than Essential Energy's proposal. We now explain our draft decisions on the components of the notional revenue requirement.

### Operating expenditure

Our draft decision on Essential Energy's efficient operating expenditure in 2017/18 is 15.0% lower than its 2013/14 expenditure and, on average, \$13.2 million per year. This is 6.3% lower than Essential Energy's proposed operating expenditure over the 2014 Determination period.

Our draft 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 draft 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 1% as a general productivity saving
- ▼ a reduction in forecast operating expenditure to reflect lower maintenance costs resulting from Essential Energy's proposed 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 draft decision on Essential Energy's prudent and efficient capital expenditure over the 4 years of the determination period is \$38.5 million. This is 26% lower than Essential Energy's proposed capital expenditure of \$52.2 million.

We have not removed specific projects from Essential Energy's proposed capital program. Our draft decision provides an allowance 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.

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

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>7</sup> Improved asset management and options analysis is also particularly important when considering a large capital expenditure program in an area where the population and industrial base is declining, and this is projected to continue for Broken Hill.

Our draft 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 \$38.5 million and is subsequently assessed by the Tribunal and deemed to be prudent and efficient, then Essential Energy's prices will be adjusted in the next 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 draft decision on the WACC is 4.9%, compared with its proposal of 5.9%.

Using market parameters as at 14 January 2014, our estimate of the current real post-tax WACC for Essential Energy is between 4.6% and 5.2%. Within this range, we have decided, consistent with our methodology, to use the midpoint estimate of 4.9% to calculate the return on assets. Chapter 7 and Appendix D provide more information on our methodology.

We consider that our draft 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.

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<sup>7</sup> Prudent and efficient capital expenditure of \$38.5m for the 4 years is a 68% increase on Essential Energy's actual capital expenditure over the previous 4 years.

### 1.1.2 Reforming the structure of water usage prices

In this Draft 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, 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 change to water usage price structures means that water service (fixed) charges 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, therefore sewerage charges would decline if we set them equal to efficient costs. However, we have held sewerage prices constant in real terms over the 2014 Determination period (ie, they will only increase by the rate of inflation). This has allowed us to keep the water service charge increases to around 2% per year (in addition to inflation) over the determination period. We have thus implemented water price reforms, while minimising impacts on customers.

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

**Table 1.1 IPART's draft 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	258.55	258.55	258.55	258.55	2.0%
Non-residential meter-based service charge <sup>a</sup> (25mm)	396.13	403.98	403.98	403.98	403.98	2.0%
<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 25mm meter. Applicable meter charge is set using the following formula: (meter size)<sup>2</sup>×25mm meter charge/625.

<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

The 2014 Determination is the first time that we will set prices for Essential Energy's water services to the mines in Broken Hill.

Essential Energy proposed cost-reflective prices for the mines, with no subsidy between the mines and other customers.<sup>8</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>9</sup>

<sup>8</sup> Essential Energy submission to IPART, September 2013, p 58.

<sup>9</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 by the mines and to advise on an appropriate methodology. SKM supports a high level allocation of costs to the mines as a customer group, based on the consumption of asset capacity (for capital costs) and the mines' share of total water usage (for operating costs).<sup>10</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 draft 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 prices, we 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.
- ▼ Uniform fixed service charges (on a \$ per meter, per meter size basis) are then set to recover the remainder of the revenue requirement that is not recovered through usage prices.

Our specific allocation of costs to the mines has resulted in meter-based water service charges for the mines that are higher than the meter-based charges for other non-residential customers. These are necessary to recover the mines' share of Essential Energy's efficient water costs (net of forecast revenue recovered from the mines from water usage charges).

Within the mines customer group, our draft water usage (\$ per kL) and service charges (\$ per meter size) have resulted in a small reallocation of costs between the mines. We consider our draft prices are cost-reflective. That is, the draft prices for the mines reflect Essential Energy's costs of servicing these customers, and consequently there will be no cross-subsidy between the mines and other customers, or between the mines themselves.

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<sup>10</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.

The draft mines' charges will be applied to any new mines customers to which Essential Energy provides water services over the 4 years of the determination period.

## 1.2 Impact on residential customers' bills

Table 1.2 shows indicative water and sewerage bills for residential customers under our draft decisions. It shows that bills for residential customers with water usage of 300 kL per year will increase by around \$138 or 11.0% over the 4-year determination period. This is slightly more than the estimated rate of inflation of 10.6% over the 4 years, and equates to an average annual increase of 2.6%.

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 3.6% and 10.9% 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 10.9% over the determination period, which is slightly higher than inflation.

**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	1,118.75	1,146.72	1,175.39	1,204.77	11.1%	2.7%
275 kL	1,209.70	1,247.38	1,278.56	1,310.53	1,343.29	11.0%	2.7%
300 kL	1,251.45	1,290.26	1,322.51	1,355.58	1,389.47	11.0%	2.6%
400 kL	1,418.45	1,461.77	1,498.31	1,535.77	1,574.16	11.0%	2.6%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	1,698.45	1,633.28	1,674.11	1,715.96	1,758.86	3.6%	0.9%
650 kL <sup>b</sup>	2,118.45	1,890.54	1,937.80	1,986.25	2,035.90	-3.9%	-1.0%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	1,585.45	1,633.28	1,674.11	1,715.96	1,758.86	10.9%	2.6%
650 kL <sup>b</sup>	1,892.45	1,890.54	1,937.80	1,986.25	2,035.90	7.6%	1.8%

<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.

Source: IPART analysis.

For chlorinated water and untreated water, customers who purchase less than 400 kL per year will also see their bills rise by slightly 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 1.6% and 11.3% over the determination period, depending on how much is currently used during the summer period. If the additional 100 kL is used completely during the summer period, then the bill increase will be around 11.3% over the determination period, which is slightly higher than inflation.

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

Table 1.3 shows the indicative impact of the Draft 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 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 1.4% and -2.8% 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	1,551.84	1,590.64	1,630.40	1,671.16	11.0%	2.6%
<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	4,954.56	5,078.42	5,205.38	5,335.51	-2.8%	-0.7%
80mm with 5,000 kL usage	31,951.31	27,555.95	28,244.85	28,950.97	29,674.74	-7.1%	-1.8%
<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	4,954.56	5,078.42	5,205.38	5,335.51	1.4%	0.3%
80mm with 5,000 kL usage	31,725.31	27,555.95	28,244.85	28,950.97	29,674.74	-6.5%	-1.7%

<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.

## 1.4 Impact on Essential Energy

We consider that our draft decisions will provide Essential Energy with sufficient revenue to maintain its existing service levels and to meet the standards required by its regulators.

For our determinations, we base prices on our estimate of the revenue the regulated business will require to meet its efficient costs over the determination period. Our building block approach gives the business the opportunity to recover its costs and remain financially sustainable over the determination period and creates incentives for future efficiency savings. It is our policy that before we finalise our pricing decisions, we apply a financeability assessment to understand how our decisions are likely to affect a business' short-term financial viability.

Our policy is to use the business' actual gearing ratio and a forecast of the actual interest expense in our financeability test to calculate financial ratios.<sup>11</sup> For this particular review, we were unable to obtain Essential Energy's exact gearing level and interest expense for its water business in Broken Hill and surrounds. This is because Essential Energy reported that it does not normally construct financial statements for its water business as it is owned by Essential Energy.<sup>12</sup> Therefore, we have used proxies for our estimate of Essential Energy's actual gearing ratio and actual interest cost.

Using our proxies, our forecast of Essential Energy's financial ratios is consistent with an investment grade firm (Baa2). We forecast that Essential Energy will have sufficient cash available to meet its operating obligations, to meet dividend payments and to partially fund capital expenditure, although at a declining rate. However, by the end of the determination period, increasing borrowings will mean that Essential Energy's water business will be close to the optimal notional gearing ratio that we use, and its other ratios will be at the lower end of the range for an investment grade firm. This is in large part due to its significant capital program, and we will need information on Essential Energy's actual debt and interest costs to reach a more informed view.

## 1.5 Structure of this report

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

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<sup>11</sup> IPART, *Financeability tests in price regulation - Final Report*, December 2013, p 2.

<sup>12</sup> Essential Energy correspondence 12 December 2013.

Following this chapter is a list of our draft 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 draft decisions related to the regulatory framework
- ▼ Chapter 4 provides an overview of our draft decisions on Essential Energy's notional revenue requirement
- ▼ Chapters 5 to 7 discuss our draft decisions on these individual components in more detail:
  - Chapter 5 explains the draft decisions on Essential Energy's efficient operating expenditure
  - Chapter 6 explains the draft decisions on Essential Energy's capital investment
  - Chapter 7 explains the draft decisions on the allowances for a return on assets and regulatory depreciation
- ▼ Chapter 8 discusses our draft decisions on Essential Energy's forecast water sales and customer numbers
- ▼ Chapters 9 and 10 explain the draft decisions on Essential Energy's price structures and set out the draft price levels
- ▼ Chapters 11 and 12 assess the implications of our draft 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)
- ▼ the regulatory tax allowance, the WACC and our financial viability assessment (Appendices C, D and E)
- ▼ our draft decisions on trade waste charges and miscellaneous service charges (Appendices F and G).

## List of Draft decisions

### Regulatory framework

- |   |  |    |
|---|--|----|
| 1 | To adopt a 4-year determination period from 1 July 2014 to 30 June 2018.   | 30 |
| 2 | For the purpose of setting prices, the mines' share (percentage) of Essential Energy's water revenue is maintained at its 2013/14 level over the determination period. | 33 |

- 3 At the next determination of Essential Energy's prices, IPART will consider adjusting the regulatory asset base (RAB) to reflect any under or over recovery of revenue over this determination period due to differences between the level of water sales over the determination period and the forecast water sales used in making this determination. 36

#### Notional revenue requirement and target revenue requirement

- 4 Essential Energy's notional revenue requirement is as shown in Table 4.3. 42
- 5 Draft prices are set to recover Essential Energy's target revenue requirement in net present value (NPV) terms, as shown in Table 4.4. 42
- 6 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. 43

#### Efficient operating expenditure

- 7 For the purpose of setting prices, Essential Energy's efficient level of operating expenditure is as shown in Table 5.1. 46

#### Prudent and efficient capital expenditure

- 8 Essential Energy's actual capital expenditure over the period 2010/11 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. 61
- 9 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. 61
- 10 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. 75

#### Return on assets and regulatory depreciation

- 11 For the purposes of calculating the allowance for a return on assets, a real post-tax WACC of 4.9% per year is appropriate. 78
- 12 Regulatory depreciation is calculated using a straight line depreciation method, and asset lives are as shown in Table 7.4. 79

## Price structures

- |    |  |    |
|----|--|----|
| 13 | Forecast metered water sales are as shown in Table 8.1.  | 82 |
| 14 | 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.  | 88 |
| 15 | Fixed ('service') charges are set to recover the remainder of Essential Energy's revenue requirement not recovered through usage prices, as follows:   | 94 |
|    | – For all residential customers, there is a standard water service charge - ie, a residential water service charge that does not vary by meter size.   | 94 |
|    | – For non-residential customers, there is a water service charge that varies by meter size.  | 94 |
| 16 | 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. | 96 |
| 17 | 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.  | 96 |

## Maximum prices for mines

- |    |  |    |
|----|--|----|
| 18 | The mines will pay the same water usage price, per water quality type, as the rest of the customer base.   | 98 |
| 19 | The mines' water service charges will be set on a \$ per meter, per meter size basis, to recover the difference between revenue expected to be recovered from the mines' water usage charges and the total costs to be recovered from the mines. | 98 |

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

- |    |  |     |
|----|--|-----|
| 20 | A minimum sewerage service charge for all non-residential customer connections is set equal to the standard residential sewerage service charge. | 99  |
| 21 | The maximum water usage prices that Essential Energy can charge are set out in Table 10.1.   | 102 |
| 22 | The maximum water service charges that Essential Energy can charge are set out in Table 10.3.  | 104 |
| 23 | The maximum sewerage service charges Essential Energy can charge are set out in Table 10.5.  | 107 |

24	The maximum sewerage usage charges Essential Energy can charge are set out in Table 10.5.	108
25	The maximum prices Essential Energy can charge for trade waste services are as shown in Appendix F and these charges will be indexed annually in line with changes in the CPI.	108
26	The maximum prices Essential Energy can charge for miscellaneous services are as shown in Appendix G and these charges will be indexed annually in line with changes in the CPI.	110

#### Weighted average cost of capital

27	IPART's decision is to use the risk-free rates shown in Table D.3 in determining the WACC.	138
28	IPART's decision is to use the inflation rates shown in Table D.4 in determining the WACC.	138
29	IPART's decision is to use the debt margins shown in Table D.5 in determining the WACC.	139
30	IPART's decision is to use the Market Risk Premiums shown in Table D.6 in determining the WACC.	140
31	IPART's decision is to use an equity beta range of 0.6 to 0.8 in determining the WACC.	141
32	IPART's decision is to use a gearing ratio of 60% for Essential Energy Water.	141
33	IPART's draft decision is to select the midpoint WACC (ie, 4.9%) as the WACC for Essential Energy Water given the current level of economic uncertainty.	142

## 2 Context for this review

The purpose of this review is 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>13</sup>
- ▼ invited other interested parties to make submissions on the Issues Paper and Essential Energy's submission<sup>14</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>15</sup>
- ▼ released this Draft Report and Draft Determination.

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

<sup>14</sup> A total of 10 written submissions were received from other interested parties.

<sup>15</sup> SKM's final report was received in December 2013.

We now invite stakeholders to make submissions to this Draft Report and Draft Determination.<sup>16</sup> Stakeholder submissions are due on 11 April 2014.

During the next stage of the review, we will consider all matters raised in the submissions in response to the Draft Report and Draft Determination, and then make our Final Determination in June 2014. The new charges are expected to apply from 1 July 2014.

IPART's Issues Paper, stakeholder submissions, the transcript from the public hearing and SKM's 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<sup>17</sup> and applying Financeability Tests in price regulation<sup>18</sup>. We outline how we applied the decisions in this price review in Chapter 7 and Appendices D and 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>19</sup>

Section 15 of this Act requires IPART to consider a broad range of matters when making determinations. These matters include:<sup>20</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.

<sup>16</sup> Submission to this draft report and draft determination should be received by 11 April 2014.

<sup>17</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013.

<sup>18</sup> IPART, *Financeability tests in price regulation – Final Decision*, December 2013.

<sup>19</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>20</sup> The Section 15 requirements are listed in full in Appendix A.

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.

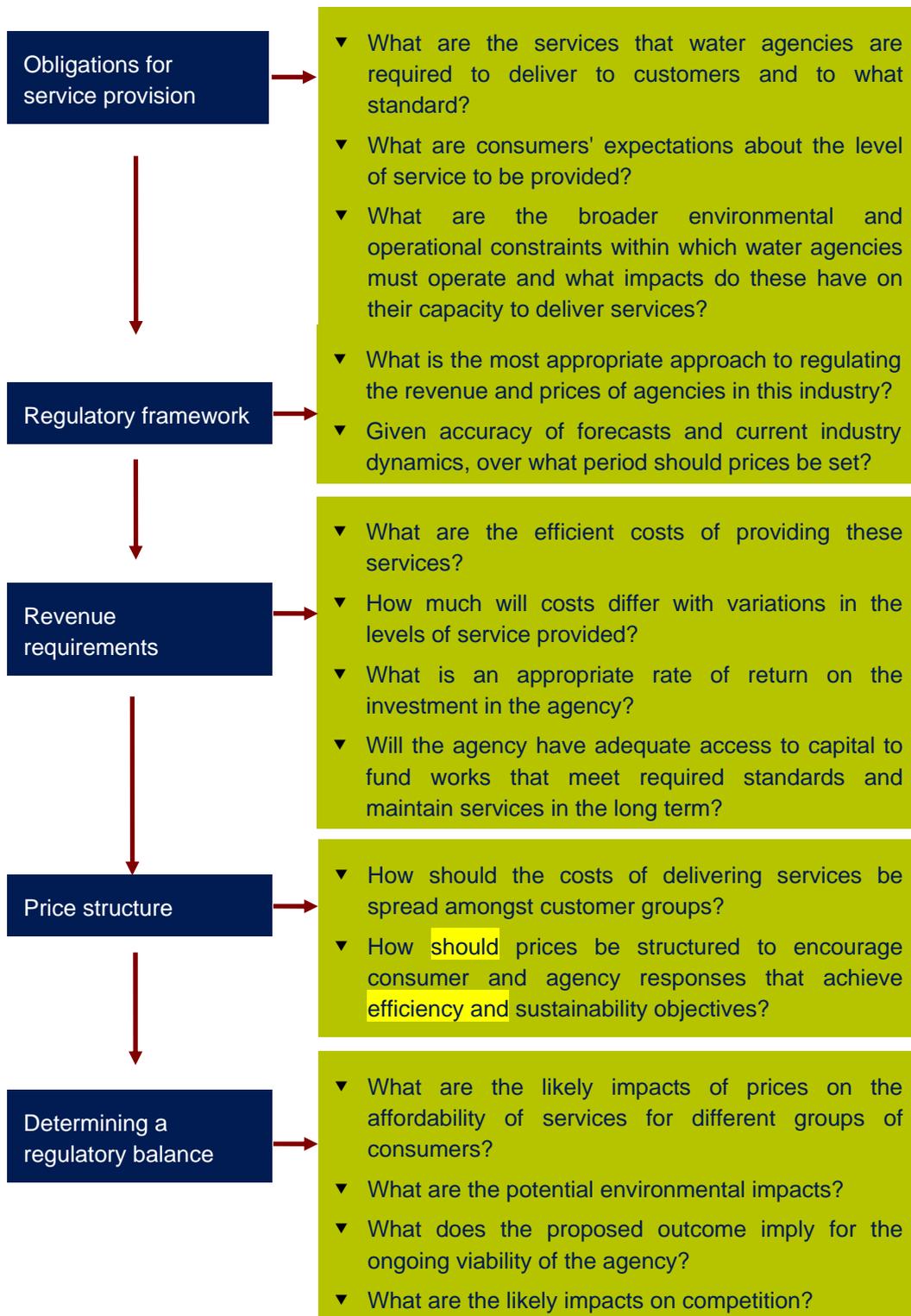
We also take into account the principles issued by the Council of Australian Governments (COAG) and contained in the National Water Initiative.<sup>21</sup>

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>21</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>22</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>23</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.

#### 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.

#### 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>22</sup> Essential Energy submission to IPART, September 2013, p 10.

<sup>23</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>24</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>25</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>26</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>24</sup> Essential Energy submission to IPART, September 2013, p 44.

<sup>25</sup> Ibid, p 10.

<sup>26</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>27</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>28</sup>

During drought,<sup>29</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>30</sup>

There are 3 other sources of water managed by Essential Energy:<sup>31</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>27</sup> Essential Energy, *Essential Water Customer Charter*, p 3.

<sup>28</sup> Essential Energy, *Essential Water History and Operations*, March 2011, p 7.

<sup>29</sup> When the total storage in the scheme falls below 480GL and until it returns to 640 GL.

<sup>30</sup> Essential Energy, *Essential Water History and Operations*, March 2011, p 7.

<sup>31</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>32</sup>

<sup>32</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>33</sup> Essential Energy has advised IPART that it does not seek to renew this agreement. We will therefore set the maximum prices applicable to all water users, including the mines, in this review (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>34</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>35</sup>
- ▼ **NSW Health**, which is responsible for regulating the quality and safety of Essential Energy's drinking water.<sup>36</sup>
- ▼ The **NSW Environment Protection Authority (EPA)**, which is responsible for monitoring and regulating sewage discharges from Essential Energy's sewerage system.

<sup>33</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>34</sup> NOW, *Best-Practice Management of Water Supply and Sewerage Guidelines*, August 2007.

<sup>35</sup> Dams Safety Committee NSW website, [http://www.damsafety.nsw.gov.au/Dams/Education/dam\\_safety.shtm](http://www.damsafety.nsw.gov.au/Dams/Education/dam_safety.shtm), accessed 1 May 2013.

<sup>36</sup> Essential Energy publicly reports on compliance with the *Australian Drinking Water Guidelines 2011*, on an annual basis (Essential Water Customer Charter).

## 2.6 Overview of Essential Energy's submission

This section outlines some of the key elements of Essential Energy's submission, which was provided to IPART in September 2013 and is available on our website.

### 2.6.1 Prices and customer bills

Over the 4 years from 1 July 2014, Essential Energy proposes 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 has 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 proposes to increase its trade waste charges by the same amount as it proposes to increase its sewerage charges – ie, by 5.9% per year, or 25.5% over 4 years (see Chapter 4 and Chapter 10).<sup>37</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 proposes to increase these charges by the change in the Consumer Price Index (CPI).<sup>38</sup>

### 2.6.2 Customer engagement

Essential Energy reports 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>39</sup>

<sup>37</sup> Essential Energy submission to IPART, September 2013, p 57.

<sup>38</sup> Ibid, p 58.

<sup>39</sup> Ibid, p 24.

According to Essential Energy, it does not propose any 'discretionary' expenditure in this determination period,<sup>40</sup> that is, expenditure that is directed to services or service levels that are not mandatory. This is one of the 2 main areas on which we require customer consultation, with the other being price structures.<sup>41</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.

### Customer satisfaction survey (February 2012)

Essential Energy<sup>42</sup> commissioned an independent Customer Satisfaction Survey 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.

### Pricing review survey (August 2013)

Essential Energy<sup>43</sup> conducted a Pricing Review survey. 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.

### Focus groups

Essential Energy<sup>44</sup> has an ongoing customer relationship program that includes bi-annual meetings of its Water Customer Council<sup>45</sup> and regular meetings with the State Member for Murray-Darling, representatives of the Energy and Water Ombudsman NSW (EWON), progress associations, community service

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<sup>40</sup> Essential Energy submission to IPART, September 2013, p 74.

<sup>41</sup> IPART, *Customer engagement on prices for monopoly services – Final Report*, August 2012.

<sup>42</sup> Essential Energy, *Pricing proposal - customer impacts summary*, September 2013, p 2.

<sup>43</sup> Ibid, p 2.

<sup>44</sup> Ibid, p 2.

<sup>45</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.

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.

### 2.6.3 Revenue requirement

Table 2.2 below shows Essential Energy's proposed notional revenue requirement for the 2014 determination period. It proposes 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:

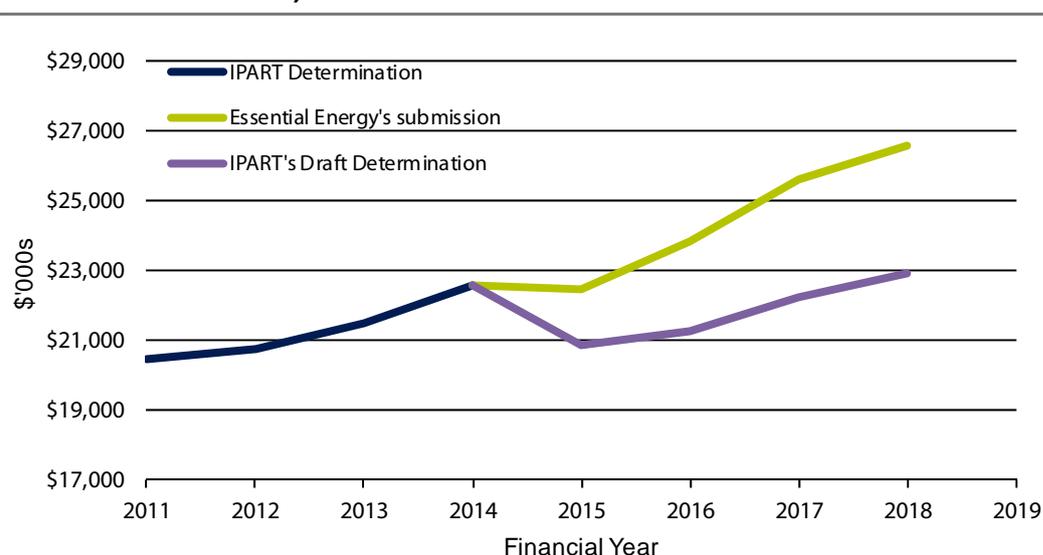
- ▼ Operating expenditure of \$56.4 million or \$14.1 million per year on average (which is lower than actual operating expenditure of \$16.0 million (\$2013/14) per year on average, over 2010/11 to 2013/14).
- ▼ Capital expenditure of \$52.2 million or \$13.0 million per year on average (which is higher than actual capital expenditure of \$5.7 million<sup>46</sup> per year on average, over 2010/11 to 2013/14).
- ▼ A real post-tax WACC of 5.9%.

<sup>46</sup> This includes Essential Energy's submitted capital expenditure of \$5.4 million for 2013/14.

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>47</sup>

Figure 2.3 below shows a comparison of Essential Energy's proposed notional revenue requirement against IPART's draft decision. It shows that under our draft decision, the notional revenue required for Essential Energy to deliver its regulated services is much lower than its proposal, including the effects of inflation.<sup>48</sup> Our draft 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 draft 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. We have assumed inflation of 2.7% in 2014/15 and 2.5% per year between 2015/16 and 2017/18.

**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.

<sup>47</sup> Essential Water, *Pricing proposal – customer impact summary*, September 2013, p 2.

<sup>48</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.

## 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>49</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>49</sup> This is discussed further in section 3.3.

In relation to service standards, we have made draft 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 draft prices. Discussions and explanations of our pricing decisions and other associated decisions can be found throughout this Draft Report.

## 3.2 Length of the determination period

Draft decision

1 To adopt 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 will affect the appropriateness of the determination.

### 3.2.1 Essential Energy's proposal

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

### 3.2.2 Stakeholder views

Stakeholder submissions to the review support a 4-year determination period.<sup>50</sup> Mr Roger Edwards considers 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>51</sup>

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<sup>50</sup> This includes Broken Hill Council, Public Interest Advocacy Centre (PIAC) and Mr Roger Edwards.

<sup>51</sup> Mr Roger Edwards submission, 11 October 2013, p 2.

The Public Interest Advocacy Centre (PIAC) agrees 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 submits that it reduces the risk that consumers will pay above the efficient price for a prolonged period.<sup>52</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 draft decisions on the revenue Essential Energy will require in each year of the period, including:

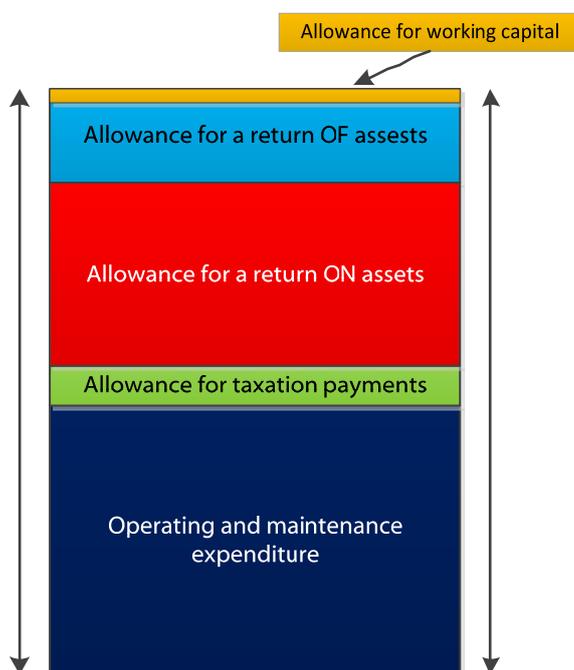
- ▼ The **revenue required for operating expenditure** over the period. This amount represents our estimate of Essential Energy's forecast efficient operating, maintenance and administration costs (see Chapter 5).
- ▼ An **allowance for a return on the assets** used to provide the regulated services. 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).

<sup>52</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>53</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 C outlines our calculation of Essential Energy's 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 draft decisions for each building block.

<sup>53</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 draft 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

Draft decision

- 2 For the purpose of setting prices, the mines' share (percentage) of Essential Energy's water revenue is maintained at its 2013/14 level over the determination period.

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>54</sup> After the Mines Charges Agreement expired, it was agreed that the mines should be subject to cost-reflective prices.<sup>55</sup> This means that, in this review, we have set prices for Essential Energy's water services to the mines for the first time.

Our draft 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 prices, we used the same methodology that we use to set other residential and non-residential customers' prices.

<sup>54</sup> Essential Energy advice, 28 September 2011, p 1.

<sup>55</sup> Essential Energy submission to IPART, September 2013, p 45.

### 3.5.1 Essential Energy's proposal

Essential Energy provided a confidential submission on its proposal for setting cost-reflective prices for the mines.<sup>56</sup> The proposed method takes into account the assets used by the mines, historical funding, and each mine's share of water usage.

### 3.5.2 Stakeholder comments

Mr Roger Edwards argues 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>57</sup> He states 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>58</sup> Perilya considers that Essential Energy's proposal for a very high fixed charge component (84% of total revenue from the mines) will discourage efficient water use. It also argues that the appropriate rate of return on water assets needs to be considered in the context of the economic circumstances of Broken Hill.

### 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>59</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>60</sup>

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<sup>56</sup> We reviewed the claim for confidentiality and agreed to publish a redacted version of the confidential submission.

<sup>57</sup> Mr Roger Edwards submission, 15 November 2013, p 1.

<sup>58</sup> Perilya Ltd submission, 8 November 2013, pp 1-2.

<sup>59</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>60</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).

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 draft 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, 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).
- ▼ To recover the remainder of the mines' share of the revenue requirement, we then set the mines' fixed ('service') charges. Service charges are set on a \$ per meter size basis.

Our specific allocation of costs to the mines has resulted in meter-based water service charges for the mines that are higher than the meter-based charges for other non-residential customers. These are necessary to recover the mines' share of Essential Energy's efficient water costs (net of forecast revenue recovered from the mines from water usage charges).

Within the mines customer group, our draft water usage (\$ per kL) and service charges (\$ per meter size) have resulted in a small reallocation of costs between the mines. We consider our draft prices are cost-reflective. That is, the draft prices for the mines reflect Essential Energy's costs of servicing these customers, and consequently there will be no cross-subsidy between the mines and other customers, or between the mines themselves.

The draft mines' charges will be applied to any new mines customers to which Essential Energy provides water services over the 4 years of the determination period.

### 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>61</sup> In its price submission, 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 consider that Essential Energy's customer consultation achieves 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

Draft decision

- 3 At the next determination of Essential Energy's prices, IPART will consider adjusting the regulatory asset base (RAB) to reflect any under or over recovery of revenue over this determination period due to 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 proposal

Essential Energy notes that there is a significant risk to its water sales forecasts. The mines consume around 33% of the total water supplied and Essential Energy considers that there is real uncertainty about the level of water demand from the mines in the future.<sup>62</sup> Essential Energy also considers that its proposal for cost-reflective mines pricing may result in the mines adjusting their consumption accordingly.<sup>63</sup> Essential Energy has proposed 2 potential mechanisms for dealing with water sales uncertainty.

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<sup>61</sup> IPART, *Customer engagement on prices for monopoly services – Final Report*, August 2012.

<sup>62</sup> Essential Energy submission to IPART, 13 September 2013, p 10.

<sup>63</sup> Ibid, p 52.

Essential Energy<sup>64</sup> asks that a demand volatility adjustment mechanism for all customer consumption be introduced. This is the same mechanism that has recently been implemented in the Sydney Water,<sup>65</sup> Gosford Council and Wyong Council reviews.<sup>66</sup> The only difference is that Essential Energy is proposing that a material variation be defined as  $\pm 5\%$  over the whole determination period (rather than  $\pm 10\%$ ).

As an alternative, Essential Energy<sup>67</sup> also supports the inclusion of an 'unders and overs' account to manage differences between ex ante and ex post consumption. 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

We did not receive any specific comments on this issue from other stakeholders.

We recognise there is some uncertainty around Essential Energy's water sales forecasts. The mines consume a large proportion of the total water supplied to Broken Hill. Further, under this Draft Determination, we have removed Tier 2 water usage charges (see Chapter 9).

Therefore, we consider there is a case to introduce a mechanism that addresses the risk of variations between actual water sales and the forecast water sales we have used in setting prices.

We favour an unders and overs account that is 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. Therefore, if Essential Energy under-recovers 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.

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<sup>64</sup> Ibid, p 53.

<sup>65</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>66</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>67</sup> Essential Energy submission to IPART, 13 September 2013, p 63.

We favour this approach because it:

- ▼ minimises price volatility, as price impacts are spread over an extended period of time that is equal to the average asset life
- ▼ ensures the impact on Essential Energy of differences between forecast and actual water sales is NPV neutral
- ▼ is symmetric – ie, it protects customers from over-recovery resulting from greater than forecast water sales, and Essential Energy from under-recovery if its water sales are less than expected
- ▼ is relatively simple to implement.

## 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:

- ▼ Essential Energy's notional revenue requirement
- ▼ 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 draft decisions on the levels of the notional revenue requirement and target revenue.

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

	2014/15	2015/16	2016/17	2017/18
Operating expenditure	13,576	13,217	13,273	12,748
Depreciation (regulatory)	2,007	2,070	2,156	2,287
Return on assets	4,609	4,808	5,110	5,624
Return on working capital	46	50	31	18
Tax allowance	84	50	34	16
<b>Notional revenue requirement</b>	<b>20,322</b>	<b>20,195</b>	<b>20,604</b>	<b>20,693</b>
<b>Target revenue</b>	<b>20,498</b>	<b>20,423</b>	<b>20,475</b>	<b>20,467</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>68</sup> It reports 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>69</sup>

Essential Energy submits that under its pricing proposal, after revenue from mines and miscellaneous charges are removed, a typical<sup>70</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>71</sup>

<sup>68</sup> Essential Energy submission to IPART, September 2013, p 64.

<sup>69</sup> Ibid, p 64.

<sup>70</sup> Based on a non-pensioner residential property consuming 300 kL of water per year.

<sup>71</sup> Essential Energy submission to IPART, September 2013, p 60.

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

Draft findings

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

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

	2014/15	2015/16	2016/17	2017/18
Operating expenditure	13,576	13,217	13,273	12,748
Depreciation (regulatory)	2,007	2,070	2,156	2,287
Return on assets	4,609	4,808	5,110	5,624
Return on working capital	46	50	31	18
Tax allowance	84	50	34	16
<b>Notional revenue requirement</b>	<b>20,322</b>	<b>20,195</b>	<b>20,604</b>	<b>20,693</b>

Source: IPART Analysis.

Our draft finding on Essential Energy's notional revenue requirement is \$10.4 million lower than its proposal, over 4 years. The main reasons for this difference are our draft decisions to:

- ▼ Use a Weighted Average Cost of Capital (WACC) of 4.9%, which is lower than Essential Energy's proposed WACC of 5.9%.
- ▼ Exclude around \$13.7 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 \$3.6 million over 4 years, to reflect our findings on prudent and efficient operating expenditure.

#### 4.3.1 Target revenue

Draft decision

5 Draft 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 draft 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 draft 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>	20,322	20,195	20,604	20,693
Target revenue	20,882	20,498	20,423	20,475	20,467
Difference (\$)	-1,682	176	229	-128	-227
Difference (%)	-8%	1%	1%	-1%	-1%

<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).

Under our draft decision, once revenue from the mines, trade waste and ancillary services are deducted, a typical household's water and sewerage bill will increase by 0.4% from \$1,251 in 2013/14 to \$1,256 in 2017/18 (\$2013/14). This represents an increase of \$5 over 4 years or 0.4% per year (excluding inflation).

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

Draft decision

- 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 draft 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	100.0	103.1	103.1	103.1	103.1
Revenue from miscellaneous charges	62.1	60.0	59.0	58.0	56.0
Total	162.1	163.1	162.1	161.1	159.1

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 proposes 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 so consider this approach to be reasonable.<sup>72</sup>

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>73</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.

<sup>72</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.

<sup>73</sup> Essential Energy, Email, 16 January 2014. Essential Energy has a separate trade waste agreement with Perilya.

To estimate Essential Energy's forecast revenue from trade waste, we have calculated 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.

#### 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>74</sup> proposes to increase its miscellaneous charges by CPI over the determination period. This is the same approach that was applied in the 2010 Determination.<sup>75</sup> This approach is simple and assumes that the costs of providing miscellaneous services will change in line with general inflation. We consider this to be a reasonable approach.

<sup>74</sup> Essential Energy submission to IPART, September 2013, p 58.

<sup>75</sup> IPART, *Review of Country Energy's water and sewerage services, from 1 July 2010 to 30 June 2013 - Determination and Final Report*, 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 draft decision

Draft decision

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

**Table 5.1 IPART's draft 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 draft decision</b>				
Water services	8,945	8,766	8,799	8,480
Sewerage service	2,416	2,341	2,402	2,323
Corporate	2,215	2,110	2,072	1,945
<b>Total</b>	<b>13,576</b>	<b>13,217</b>	<b>13,273</b>	<b>12,748</b>

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

### 5.2.1 Essential Energy's submission

Essential Energy submits that the water business pays a share of the corporate costs, including policy, finance, human resources, safety, procurement, insurance and legal. It indicates 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.

Essential Energy also submits that as part of the Networks NSW initiative, it is on an efficiency drive to significantly lower overhead costs.

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 reports that it will continue to pursue its efficiency measures into the next regulatory period. It indicates 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 reports 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>76</sup>

### 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>77</sup>

SKM considers that Essential Energy's cost allocation methodology appears sound, in broad terms, particularly given that administrative simplicity is a key objective.<sup>78</sup> SKM also suggests that Essential Energy should provide specific worked numerical examples of its total corporate costs, to examine whether there

<sup>76</sup> Essential Energy submission to IPART, September 2013, p 55.

<sup>77</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 99.

<sup>78</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 104.

truly are economies of scale benefits flowing to the water business as a result of being part of a larger organisation.<sup>79</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>80</sup>

SKM also considers 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 notes 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 Queensland water businesses).<sup>81</sup>

SKM concludes that, based on its analysis, Essential Energy has further scope to reduce corporate overheads. Therefore, it recommends 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>82</sup>

### 5.2.3 IPART's analysis

We consider 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

<sup>79</sup> Ibid, p 104.

<sup>80</sup> Ibid, p 104.

<sup>81</sup> Ibid, p 104.

<sup>82</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.

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>83</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>83</sup> IPART, *Review of prices for Country Energy's water and sewerage services*, June 2010, p 52 & 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	9,521	9,330	9,144
Sewerage	2,313	2,267	2,221
Corporate	2,367	2,319	2,273
Total	14,200	13,916	13,638
<b>Essential Energy's actual</b>			
Water	8,484	8,821	9,989
Sewerage	2,617	2,165	2,309
Corporate	3,916	8,110	2,740
Total	15,016	19,096	15,038
<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.

**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 reports 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 Essential Water's control.<sup>84</sup>

<sup>84</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	9,989	10,212	9,188	9,128	9,321	9,121
Sewerage	2,309	2,292	2,494	2,478	2,564	2,509
Corporate	2,740	2,501	2,383	2,374	2,436	2,389
<b>Total</b>	<b>15,038</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 reports 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>85</sup> It then proposes 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>86</sup>

It also reports that it has factored in a reduction in 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>87</sup>

<sup>85</sup> Essential Energy's submission to IPART, September 2013, p 30 and 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>86</sup> Essential Energy's submission to IPART, September 2013, p 30.

<sup>87</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>88</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>89</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>90</sup> SKM has recommended the following 3 adjustments to SKM'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>91</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 (cumulative)

SKM has recommended a general productivity target of 1% per year real for both water and sewerage. It has calculated the target of 1% by broadly considering the decreasing population that Essential Energy will be servicing and hence the associated reduction in operating expenditure.<sup>92</sup>

SKM considers that Essential Energy should be able to achieve 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.

<sup>88</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 84.

<sup>89</sup> *Ibid*, p 85.

<sup>90</sup> *Ibid*, p 93.

<sup>91</sup> *Ibid*, p 93.

<sup>92</sup> *Ibid*, p 94.

- ▼ Proactive maintenance with enhanced management systems, which would deliver lower reactive maintenance costs for both its water and sewerage systems than what Essential Energy proposes in its forecast operating expenditure.<sup>93</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>94</sup>

In response, SKM notes 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 considers 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 result of reduced overtime, but through a reduction in the overall cost of maintenance.<sup>95</sup>

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>96</sup>

SKM's response is that it considers 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>97</sup>

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

SKM reports 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 considers 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>98</sup>

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<sup>93</sup> Ibid, p 95.

<sup>94</sup> Ibid, p 96.

<sup>95</sup> Ibid, p 96.

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

<sup>97</sup> Ibid, p 96.

<sup>98</sup> Ibid, p 92.

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>99</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>100</sup>

Essential Energy's response to SKM's recommended adjustment is that it is unreasonable. Essential Energy states 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>101</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
- ▼ 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>102</sup>

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<sup>99</sup> Ibid, p 97.

<sup>100</sup> Ibid, pp 93 and 97.

<sup>101</sup> Ibid, p 98.

<sup>102</sup> Ibid, p 98.

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

SKM reports that Essential Energy has identified operating expenditure savings generated from capital expenditure projects in its investment cases for capital projects.<sup>103</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>104</sup>

SKM states that it has seen no evidence that the operating expenditure savings have been included as savings in the operating expenditure forecasts.<sup>105</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>106</sup> SKM also considers 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.
- ▼ As rehabilitation works are completed, there should be fewer inspections of sewers or pipelines, with some cost savings.<sup>107</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 notes 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>108</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>109</sup>

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<sup>103</sup> Ibid, p 98.

<sup>104</sup> Ibid, p 106.

<sup>105</sup> Ibid, p 98.

<sup>106</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.

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

<sup>108</sup> Ibid, p 98.

<sup>109</sup> Ibid, p 98.

### 5.3.4 Stakeholders' submissions

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>110</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>111</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>112</sup>

### 5.3.5 IPART's analysis

Table 5.5 below shows our draft decision on Essential Energy's efficient level of operating expenditure for the 2014 Determination. Our draft decision is, on average, \$0.9 million per year (or 6.3%) less than Essential Energy's proposed operating expenditure.

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<sup>110</sup> Broken Hill City Council submission, October 2013, p 4.

<sup>111</sup> PIAC submission, October 2013, p 3.

<sup>112</sup> Ibid.

**Table 5.5 Operating expenditure – Essential Energy's proposed, SKM's recommended and IPART's draft 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>

**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 consider them to be reasonable, except for the reduction in operating costs due to transfer of personnel costs already captured in capital expenditure. This is explained in the next section.

#### 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>113</sup>

<sup>113</sup> Essential Energy, correspondence December 2013.

Based on the further information provided by Essential Energy, our draft 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 draft 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>114</sup>

### Draft conclusion

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

- ▼ reduced forecast operating expenditure by 1% as a general productivity saving
- ▼ reduced forecast operating expenditure to reflect lower maintenance costs resulting from Essential Energy's proposed 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>114</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>115</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>116</sup> We also invited submissions from stakeholders.

The section below summarises our draft decisions on Essential Energy's prudent and efficient past and forecast capital expenditure. The following sections discuss our considerations in reaching these draft 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 draft 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>115</sup> The 2010 Determination was only until 2012/13.

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

## 6.1 Summary of IPART's draft decisions on past and forecast capital expenditure

### Draft decisions

- 8 Essential Energy's actual capital expenditure over the period 2010/11 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.
- 9 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.

**Table 6.1 IPART's draft 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 draft decision</b>						
Water	2,397	4,467	3,994	8,222	10,832	27,515
Sewerage	543	1,037	980	1,071	1,888	4,976
Corporate	588	1,073	945	1,719	2,289	6,027
Total	3,528	6,577	5,919	11,013	15,009	38,518

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

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

## 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 much 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 draft 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	2,620	4,322	4,324	11,265
Sewerage	575	2,369	2,318	5,263
Corporate	639	1,338	1,328	3,305
Total	3,834	8,029	7,970	19,833
<b>Essential Energy's actual expenditure</b>				
Water	4,542	2,566	3,013	10,121
Sewerage	1,586	1,119	1,712	4,417
Corporate	1,416	853	779	3,048
Total	7,543	4,538	5,504	17,586

**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 certain expenditures, such as the Mica St Water Treatment Plant No 1 tank replacement
- ▼ reduced expenditure on the Menindee and Umberumberka pipelines and Wills Street sewerage treatment plant project.

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>117</sup>

<sup>117</sup> Essential Energy submission to IPART, September 2013, p 22.

### 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>118</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>119</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>120</sup>

### 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 considered Essential Energy's rationale for the overall under-spend and SKM's high level findings.

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

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<sup>118</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 69.

<sup>119</sup> *Ibid*, p 69.

<sup>120</sup> *Ibid*, p 70.

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 draft 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 submits 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 \$5.8 million.<sup>121</sup>

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>122</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>123</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>124</sup>

We consider 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

<sup>121</sup> Essential Energy submission to IPART, September 2013, p 21 (adjusted for inflation).

<sup>122</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 17.

<sup>123</sup> Ibid, pp 36 and 56.

<sup>124</sup> Ibid, p 72.

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>125</sup>

**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
Total	14,166	15,572	9,415	13,043	52,197

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

**Source:** Essential Energy's submission to IPART, September 2013, p 40 & 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 draft SKM report and these were considered by SKM in its final report.

<sup>125</sup> Its opening regulatory asset base for the 2014 Determination is about \$94 million (see Chapter 7, Table 7.3).

### Asset management systems

SKM reviewed Essential Energy's asset management systems, in particular its Water Asset Management Plan (WAMP). SKM considers 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>126</sup>

SKM also notes 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 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>127</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>128</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>129</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.

<sup>126</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p vi.

<sup>127</sup> Ibid, pp vi and 79.

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

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

- ▼ 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>130</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>131</sup>

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>132</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>133</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

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<sup>130</sup> Ibid, pp 78-81.

<sup>131</sup> Ibid, p 82.

<sup>132</sup> Ibid, p 82.

<sup>133</sup> Ibid, pp ii and 12.

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>134</sup>

In assessing Essential Energy's proposed expenditure, SKM has 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>135</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 notes 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>136</sup>

- ▼ A reduction in capital expenditure for projects where SKM considers the levels of proposed capital expenditure to be unachievable. For example, SKM considers that the level of water reticulation replacement of 1.7 km per year implied in Essential Energy's cost estimates is inadequately justified. SKM

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<sup>134</sup> Ibid, pp 76.

<sup>135</sup> Ibid, pp 18 and 56.

<sup>136</sup> Ibid, pp 61.

considers that a replacement rate of 1.5 km per year is more appropriate, which is Essential Energy's current replacement rate.<sup>137</sup>

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 considers 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.

<sup>137</sup> SKM, *Essential Energy (Water) expenditure review*, January 2014, p 32.

### 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>138</sup>

Broken Hill City Council notes 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>139</sup> Broken Hill City Council also suggested that service standards may need to be relaxed in certain circumstance (eg, drought) to ensure that additional infrastructure costs 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>140</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>141</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>142</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>143</sup>

### 6.4.4 IPART's analysis

Table 6.5 shows our draft 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 \$38.5 million over this period, which is about 26% less than Essential Energy's proposed capital expenditure.

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<sup>138</sup> Broken Hill City Council submission, October 2013, pp 4 and 5; and R. Edwards submission, October 2013, p 2.

<sup>139</sup> Broken Hill City Council submission, October 2013, p 5.

<sup>140</sup> Ibid, p 5.

<sup>141</sup> R. Edwards submission, October 2013, p 2.

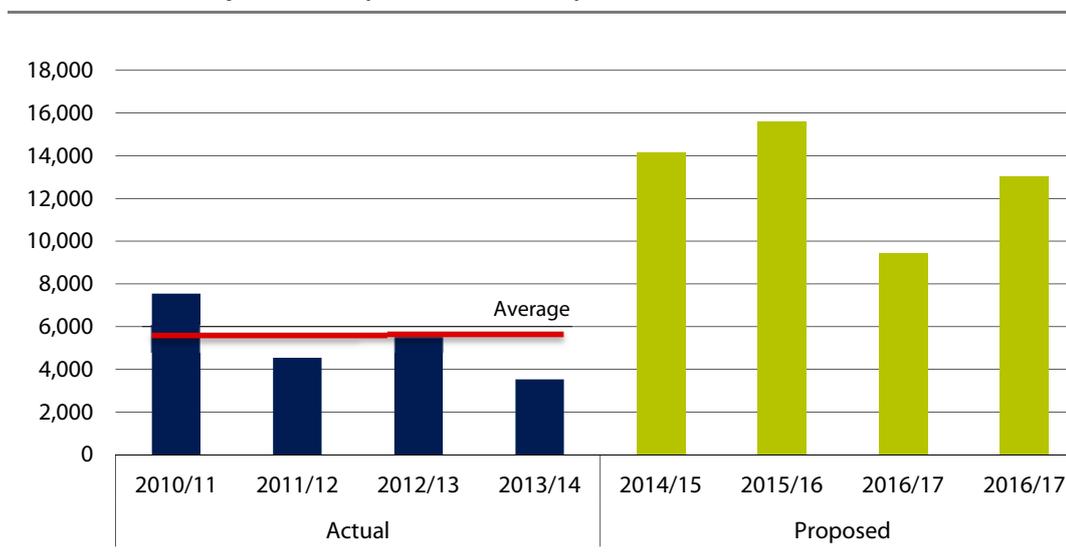
<sup>142</sup> IPART, Public Hearing Transcript, 19 November 2013, p 35.

<sup>143</sup> Ibid, p 46.

**Table 6.5 Capital expenditure – Essential Energy's proposed, SKM's recommended and IPART's draft decision (\$'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</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
<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
Total	6,577	5,919	11,013	15,009	38,518

**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.

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

**Note:** The expenditure in 2013/14 is our draft 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.

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 above)
- ▼ 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>144</sup>

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

As shown in Table 6.5, our draft decision is that Essential Energy's prudent and efficient capital expenditure over the 2014 determination period is \$38.5 million. There are 2 components to our draft 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
  - reducing proposed expenditure where SKM considers 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, using our judgement, we have further reduced SKM's recommended capital expenditure of \$42.8 million by 10% to reflect our expectation that further savings will arise from improved asset management and thorough options analysis for all capital expenditure. This builds on SKM's findings that there is scope to improve Essential Energy's asset management and options analysis.

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. Improved asset management and options analysis is also particularly important when considering a large capital expenditure program in an area where the population and industrial base has been declining – as has been occurring in Broken Hill.

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<sup>144</sup> Essential Energy, Public Hearing Presentation Slides, November 2013, slide 13.

Our draft 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.

Our draft decision on Essential Energy's prudent and efficient level of capital expenditure is also consistent with concerns raised by stakeholders (including Broken Hill City Council and the Broken Hill Chamber of Commerce) over the size of Essential Energy's proposed capital program.

We note SKM's findings that Essential Energy personnel have 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. And that it develops an overall strategic approach to its long term investment planning.

We also 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). We consider our decisions on capital expenditure and maintenance cost savings are consistent. First, we accepted SKM's recommendations on maintenance cost savings, which it recommended in combination with its adjustments to Essential Energy's forecast capital expenditure. Second, our further 10% reduction to capital expenditure (on top of SKM's recommended reductions to Essential Energy's forecasts) represents savings from improved asset management and options analysis. As noted above, we still expect Essential Energy to target the outcomes or objectives of its proposed capital expenditure program (and therefore achieve maintenance cost savings), but at a lower capital cost.

We note that at the next review of Essential Energy's prices (in 2016/17), 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 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 2017/18 onwards.

## 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 35% 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 draft 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 draft decisions on the allowances for a return on assets and regulatory depreciation

Draft decisions

- 10 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 draft 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	4,609	4,808	5,110	5,624	20,150
Allowance for regulatory depreciation	2,007	2,070	2,156	2,287	8,520

**Note:** Total will 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.

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>145</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>146</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.

<sup>145</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>146</sup> We use regulatory 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.

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	72,177	80,217	83,824	89,409
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	1,592
Plus: Indexation	1,791	2,649	989	2,076	2,279
Closing RAB	72,177	80,217	83,824	89,409	93,625

Source: IPART Analysis.

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.

### 7.2.1 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>147</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>148</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 costs for asset disposals over the 2010 determination period, and no forecast asset disposals have been submitted for the 2014 determination period.<sup>149</sup>

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

As a result of including our draft 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>147</sup> Essential Energy submission to IPART, September 2013, Information Return.

<sup>148</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>149</sup> Essential Energy submission to IPART, September 2013, pp 42, 49.

**Table 7.3 IPART's draft 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	93,625	98,147	101,946	110,751
Capital expenditure	3,528	6,577	5,919	11,013	15,009
Capital contributions	-	-	-	-	-
Asset disposals	-	-	-	-	-
Regulatory depreciation	1,592	2,055	2,120	2,208	2,343
Indexation	2,279	-	-	-	-
Closing RAB	93,625	98,147	101,946	110,751	123,417

Source: IPART Analysis.

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

Draft decision

- 11 For the purposes of calculating the allowance for a return on assets, a real post-tax WACC of 4.9% 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. In the 2010 review, we used a real pre-tax WACC. However, this time we adopted a real post-tax WACC estimate.

In December 2011, we decided to move to the use of a real post-tax WACC because we consider it provides a superior estimate of the tax liability that a similar well-managed, privately owned business would pay. The previous real pre-tax methodology overestimated the tax liabilities of the regulated businesses and hence over-compensated them (primarily for capital gains tax, which was not being incurred, as a result of indexing the RAB). The decision to adopt a post-tax WACC methodology was subject to a public process.<sup>150</sup>

In December 2013, we established a new methodology to establish the real post-tax WACC range and how we would select an appropriate WACC value within the range.<sup>151</sup> Our new methodology was subject to a public process.

<sup>150</sup> IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011.

<sup>151</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013.

Using market parameters as at 14 January 2014, our estimate of the current real post-tax WACC range for Essential Energy is between 4.6% and 5.2%. Under our new methodology, we estimate the real post-tax WACC range by establishing the midpoint of the WACCs based on current and long-term average data. 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 consider a move if the uncertainty index is more than 1 standard deviation away from the mean.<sup>152</sup>

We have found that the uncertainty index is within 1 standard deviation of the mean. Therefore, we have decided to use the midpoint estimate for the WACC of 4.9% to calculate the return on assets. This is lower than Essential Energy's proposed WACC of 5.9%.<sup>153</sup>

A detailed discussion of our findings on WACC is presented in Appendix D.

## 7.4 Calculating the allowance for regulatory depreciation

Draft decision

12 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 proposes to use the asset lives that we established in the 2010 Determination as shown in Table 7.4.<sup>154</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>155</sup> Therefore, our draft decision is to maintain the asset lives as shown in Table 7.4.

<sup>152</sup> IPART, *Review of WACC Methodology – Final Report*, December 2013, p 4.

<sup>153</sup> Essential Energy submission to IPART, September 2013, p 47.

<sup>154</sup> Ibid, p 48.

<sup>155</sup> IPART, *Review of prices for Country Energy's water and sewerage assets*, Final Report, June 2010, p 60.

**Table 7.4 IPART’s draft 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 proposes 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 draft decision is to maintain this method as we consider it to be superior to alternatives in terms of simplicity, consistency and transparency.

## 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>156</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 draft 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>156</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 draft decisions

Draft decision

13 Forecast metered water sales are as shown in Table 8.1.

**Table 8.1 IPART's draft decision on forecast metered sales (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
Mines	1,325	1,325	1,325	1,325
Total treated	4,641	4,601	4,564	4,530
<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
Mines	420	420	420	420
Total	848	844	839	834
Total sales	5,526	5,482	5,440	5,401

**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 draft 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 draft 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>157</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>158</sup> states 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>159</sup> It has used population estimates from the Australian Bureau of Statistics (ABS) and its own forecast of customer numbers.

<sup>157</sup> Country Water, *Appendix A – NIEIR Water Consumption Forecasts Study (Confidential)*, September 2009.

<sup>158</sup> Essential Energy submission to IPART, September 2013, p 17.

<sup>159</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>160</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 notes this could be affected by IPART's determination.<sup>161</sup>

**Table 8.3 Essential Energy's sales forecasts for the 2014 determination period (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
Mines	1,396	1,396	1,396	1,396
Exempt properties	312	312	312	312
Total treated	4,640	4,602	4,565	4,531
<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
Mines	594	594	594	594
Total untreated	1,021	1,016	1,012	1,007
<b>Total</b>	<b>5,697</b>	<b>5,654</b>	<b>5,613</b>	<b>5,575</b>

**Source:** Essential Energy submission to IPART, September 2013, p 51 and Essential Energy's information return, November 2013.

<sup>160</sup> Essential Energy submission to IPART, September 2013, p 52.

<sup>161</sup> Ibid, p 52.

### 8.3 IPART's analysis

We have adjusted Essential Energy's sales forecasts where our draft decisions change water usage prices relative to current levels. To do this, we have applied estimates of price elasticity of demand<sup>162</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>163</sup> Given Broken Hill's climate, we consider 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>164</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>165</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 Draft Determination. Therefore, no elasticity adjustment is needed.

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<sup>162</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>163</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>164</sup> Pindyck, R & Rubinfeld, D, *Microeconomics Second Edition*, 1992, New York, p 505.

<sup>165</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 in 2011/12 and 2012/13, in accord with Essential Energy's proposed cost allocation methodology.<sup>166</sup> This approach is supported by Perilya's comment at the Public Hearing that the 2012/13 sales 'reflect historically high water consumption'.<sup>167</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 in 2011/12 and 2012/13 for demand forecasts for the mines.

<sup>166</sup> IPART, Public Hearing Transcript, 19 November 2013, p 45.

<sup>167</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>168</sup> Essential Energy also states that this is consistent with ABS data and demographic projections from the NIEIR.<sup>169</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 accept Essential Energy's forecast customer numbers. We consider them to be reasonable as they are supported by information from the ABS and NIEIR. However, in modelling draft prices, we have added exempt property numbers<sup>170</sup> to the forecast property numbers initially supplied by Essential Energy.<sup>171</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>168</sup> Essential Energy submission to IPART, September 2013, p 52.

<sup>169</sup> Ibid, p 52.

<sup>170</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>171</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>172</sup> Since stakeholders did not raise concerns about sewerage prices, we focused our efforts on addressing concerns with Essential Energy's water prices.

This chapter outlines the principles of an efficient price structure and our draft decisions on how we have applied these principles to Essential Energy's water price structures.

### Water prices for residential and non-residential customers

#### 9.1 Water usage prices

Draft decision

- 14 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>172</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>173</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 considers that the inclining block tariff has been working to encourage water conservation.

**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.

### 9.1.2 Stakeholder comments

Many stakeholders raised concerns about the inclining block tariff. Broken Hill Council<sup>174</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.

<sup>173</sup> IPART, Public Hearing Transcript, 19 November 2013, p 22.

<sup>174</sup> Broken Hill Council submission, October 2013, p 6.

The Broken Hill Residents Association<sup>175</sup> argued that the inclining block tariff discourages water consumption as it penalises those who use more water to green the city. It argues that this is likely to increase the community's exposure to lead-contaminated soil. It considers 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>176</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>177</sup>

Mr Roger Edwards<sup>178</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>179</sup>

Ms Marvis Sofield<sup>180</sup> argued that the inclining block tariff is not assisting low income earners.

### 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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<sup>175</sup> Broken Hill Residents Association submission, 25 October 2013, p 4.

<sup>176</sup> IPART, Public Hearing Transcript, p 48.

<sup>177</sup> Ibid, p 26.

<sup>178</sup> Ibid, p 30.

<sup>179</sup> Mr Roger Edwards submission, October 2013, p 3.

<sup>180</sup> IPART, Public Hearing Transcript, p 32.

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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.

#### **Sources:**

**a** 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.

**b** Kahn, A.E. (1988) *The Economics of Regulation: Principles and Institutions*. The MIT Press: Cambridge, Massachusetts, p 66.

**c** 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>181</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.

Box 9.2 provides some background on inclining block tariffs.

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### **Box 9.2 Why implement Inclining Block Tariffs?**

In areas where the demand for water has exceeded the available supply, governments have tended to implement water restrictions. Prices (in the form of inclining block tariffs) have commonly been used to complement water restrictions by encouraging consumers to reduce their discretionary water consumption (eg, watering gardens and filling swimming pools).

Specifically, Essential Energy's 2-tiered approach to pricing water usage was consistent with the NSW Government's 2007 *Best-Practice Management of Water Supply and Sewerage Guidelines*.<sup>a</sup> To encourage water conservation, these guidelines promoted a step increase in prices for incremental usage above a specified threshold. The Guidelines allowed for an increased threshold to account for the high incidence of evaporative air coolers in the summer period.

We note that as of March 2011, the NSW Government has removed the need for the use of inclining block tariffs by Local Water Utilities.<sup>b</sup> The NSW Government encourages local water utilities to use a 2-part tariff, with a uniform water usage charge per kL for all water use. This is consistent with how we have regulated prices for other water utilities (eg, Sydney Water, Hunter Water) in recent years.

#### **Sources**

**a** NSW Office of Water (formerly Department of Water and Energy), *Best-Practice Management of Water Supply and Sewerage Guidelines*, August 2007, p 8.

**b** NSW Office of Water, *2011-12 NSW Water Supply and Sewerage Performance Monitoring Report*, March 2013, p 6.

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<sup>181</sup> National Water Initiative (NWI), *Council of Australian Government National Water Initiative Pricing Principles*, April 2010, p 10.

### 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>182</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.

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.

Essential Energy has provided estimates of its marginal cost to supply water. While there is significant uncertainty, its estimates suggest that its marginal cost to supply water in average conditions is below \$1.00 per kL. This compares to Essential Energy's current treated water usage price of \$1.67 per kL for Tier 1 consumption and \$2.80 per kL for Tier 2 consumption. This suggests that the current water usage prices are above the marginal cost of supply.

Given the above, in addition to removing the Tier 2 tariff, we decided not to increase the Tier 1 water usage charge. That is, for this draft determination, we have set the water usage prices at the current Tier 1 price for each water quality type. This effectively equates to a reduction in the weighted average usage price of water for those customers consuming at Tier 2 levels.

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<sup>182</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.

In deciding not to reduce the usage price further, we were mindful of the following factors:

- ▼ uncertainty associated with estimates of Essential Energy's marginal cost of water supply
- ▼ uncertainty around the demand response to lower usage prices
- ▼ 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.)

Chapter 10 outlines our draft decisions on prices.

## 9.2 Water service charges

Draft decisions

- 15 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>183</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>184</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.

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<sup>183</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>184</sup> Essential Energy email correspondence, 12 November 2013.

**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.

### 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>185</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 draft 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>186</sup> Therefore, no changes are needed.

<sup>185</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>186</sup> IPART, *Review of price structures for metropolitan water utilities - Final Report*, March 2012.

### 9.3 Water prices for unmetered properties

Draft decision

- 16 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>187</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>188</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.

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

Draft decision

- 17 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.

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<sup>187</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>188</sup> IPART, *Review of price structures for metropolitan water utilities - Final Report*, March 2012, p 3.

### 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>189</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>190</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>191</sup>

Essential Energy<sup>192</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.

Essential Energy considers that the secondary-treated effluent is effectively a 'new water' supply for the re-users. It considers that if these customers did not have access to this lower cost effluent water, they would not substitute treated water.<sup>193</sup> Essential Energy proposes to continue this approach to charging effluent water customers.

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<sup>189</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>190</sup> Ibid, p 4.

<sup>191</sup> Ibid, p 5.

<sup>192</sup> Ibid, p 5.

<sup>193</sup> Ibid, p 5.

#### 9.4.2 IPART's analysis

We set an effluent water usage charge in the 2010 Determination<sup>194</sup> and Essential Energy proposes 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>195</sup> By not setting a price, we are allowing Essential Energy to continue its current practice. We consider 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>196</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.

### 9.5 Water price structures for the mines

Draft decision

- 18 The mines will pay the same water usage price, per water quality type, as the rest of the customer base.
- 19 The mines' water service charges will be set on a \$ per meter, per meter size basis, to recover the difference between revenue expected to be recovered from the mines' water usage charges and the total costs to be recovered from the mines.

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<sup>194</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>195</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>196</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.

### 9.5.1 Essential Energy's proposal

As discussed in Chapter 3, Essential Energy provided a confidential submission on its proposal for setting cost-reflective prices for the mines. This included a proposed methodology for allocating costs to the mines, and a price structure that would see the capital costs recovered from fixed charges and maintenance costs recovered from usage charges.

### 9.5.2 IPART's analysis

Under this Draft Determination, we have set prices for the mines by applying the same methodology that we use to set other residential and non-residential customers' prices. This means that the mines will pay the same water usage prices as the rest of the customer base. The mines' service charges will then recover the difference between revenue expected to be recovered from the mines' water usage charges and the revenue to be recovered from the mines. Chapter 3 explains how we have determined the revenue to be recovered from the mines as a customer group. Following our standard methodology, service charges for the mines will be based on the size of meter connections.

## 9.6 Sewerage prices

Draft decision

20 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.

## 10 | Draft pricing decisions for Essential Energy

As outlined in Chapter 9, in this draft 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 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 2% per year over the determination period. This has allowed us to implement the necessary water price reforms, while minimising impacts on customers.

The overall impact on customer bills of our draft pricing decisions is discussed in Chapter 11.

### **10.1 Water charges for residential and non-residential customers**

The sections below outline our draft decisions on Essential Energy's water charges, Essential Energy's proposal, stakeholder decisions and our analysis.

### 10.1.1 Summary of draft pricing decisions

The summary of our draft decisions on Essential Energy's water charges is shown in Table 10.1

**Table 10.1 IPART's draft 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	258.55	258.55	258.55	258.55	2.0%
Non-residential (20mm individually metered property)	253.66	258.55	258.55	258.55	258.55	2.0%
Non-residential meter based service charge <sup>a</sup> (25mm)	396.13	403.98	403.98	403.98	403.98	2.0%

<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>x20mm meter charge/400.

<sup>b</sup> We have not set a price for effluent water in this draft determination as discussed in Section 9.4.

**Source:** IPART's analysis.

### 10.1.2 Water usage prices

Draft decision

21 The maximum water usage prices that Essential Energy can charge are set out in Table 10.1.

#### 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>197</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>198</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>199</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>200</sup> Ms Marvis Sofield argued that the inclining block tariff was not assisting low income earners as water prices were already unaffordable.<sup>201</sup>

## IPART's analysis

### Treated water, chlorinated water and untreated water for pipeline customers

As explained in Chapter 9, our draft 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 draft 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 consider 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>197</sup> Broken Hill Council submission, October 2013, p 6; Broken Hill Residents Association submission, 25 October 2013, p 4.

<sup>198</sup> This included: the Broken Hill Chamber of Commerce, Broken Hill Council, Broken Hill Residents Association and the Public Interest Advocacy Centre.

<sup>199</sup> Broken Hill Chamber of Commerce submission, 9 October 2013, p 4.

<sup>200</sup> Public Interest Advocacy Centre submission, October 2013, p 2.

<sup>201</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

Draft decision

22 The maximum water service charges that Essential Energy can charge are set out in Table 10.3.

**Table 10.3** IPART's draft 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	258.55	258.55	258.55	258.55	2.0%
Non-residential (20mm individually metered property)	253.66	258.55	258.55	258.55	258.55	2.0%
Non-residential meter-based service charge <sup>a</sup> (25mm)	396.13	403.98	403.98	403.98	403.98	2.0%

<sup>a</sup> Meter-based charges for meter sizes larger than 25mm are based on a 25mm meter. Applicable meter charges for larger meters are set using the following formula: (meter size)<sup>2</sup>×25mm meter charge/625.

**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 are discussed in Section 3.5 and Section 9.5.

### 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 draft water usage prices and our draft 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>202</sup>

Our draft decisions on the water service charges are shown in Table 10.3.

<sup>202</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 draft pricing decisions

The summary of our draft decisions on Essential Energy's sewerage charges are shown in Table 10.5.

**Table 10.5 IPART's draft 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> × 20mm meter charge / 400.

**Note:** The above service charges are subject to a Discharge Factor adjustment.

**Source:** IPART analysis.

## 10.2.2 Sewerage service charges

Draft decision

23 The maximum sewerage service charges Essential Energy can charge are set out in Table 10.5.

### 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>203</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	4,97.50	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>x20mm 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>203</sup> Essential Energy submission to IPART, September 2013, pp 31 and 39.

### 10.2.3 Non-residential sewerage usage charges

Draft decision

24 The maximum sewerage usage charges Essential Energy can charge are set out in Table 10.5.

#### 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

Draft decision

25 The maximum prices Essential Energy can charge for trade waste services are as shown in Appendix F 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>204</sup> Essential Energy currently only charges some customers trade waste charges.

<sup>204</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 proposes option 3 – ie, to increase its trade waste charges by the annual percentage increase in sewerage prices under this determination.<sup>205</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>206</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 consider 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 draft 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 draft determination sets maximum prices.

Further detail on our draft decisions on trade waste charges is shown in Appendix F.

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<sup>205</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>206</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

Draft decision

- 26 The maximum prices Essential Energy can charge for miscellaneous services are as shown in Appendix G 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's proposal is to maintain the approach in the 2010 Determination<sup>207</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 consider this approach reasonable.

Our draft decisions on miscellaneous charges are detailed in Appendix G. We have made a draft 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.

<sup>207</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 draft pricing decisions

In making our draft determination, we considered section 15 of the IPART Act (Appendix A). We are satisfied that the draft 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 determination overall on affordability for various customer groups, including pensioners and other vulnerable customers.

We consider that our draft 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, all figures have 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>208</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>209</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>208</sup> Based on forecast inflation of 2.7% for 2014/15 and 2.5% per year between 2015/16 and 2017/18. This results in a cumulative expected inflation of 10.6% over the 4 years.

<sup>209</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 draft 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 11.0% in nominal terms over the 4 year period. This represents an average increase of 2.6% per year, including inflation.

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 3.6% and 10.9% 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 10.9% 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	1,118.75	1,146.72	1,175.39	1,204.77	11.1%	2.7%
275 kL	1,209.70	1,247.38	1,278.56	1,310.53	1,343.29	11.0%	2.7%
300 kL	1,251.45	1,290.26	1,322.51	1,355.58	1,389.47	11.0%	2.6%
400 kL	1,418.45	1,461.77	1,498.31	1,535.77	1,574.16	11.0%	2.6%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	1,698.45	1,633.28	1,674.11	1,715.96	1,758.86	3.6%	0.9%
650 kL <sup>b</sup>	2,118.45	1,890.54	1,937.80	1,986.25	2,035.90	-3.9%	-1.0%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	1,585.45	1,633.28	1,674.11	1,715.96	1,758.86	10.9%	2.6%
650 kL <sup>b</sup>	1,892.45	1,890.54	1,937.80	1,986.25	2,035.90	7.6%	1.8%

<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.

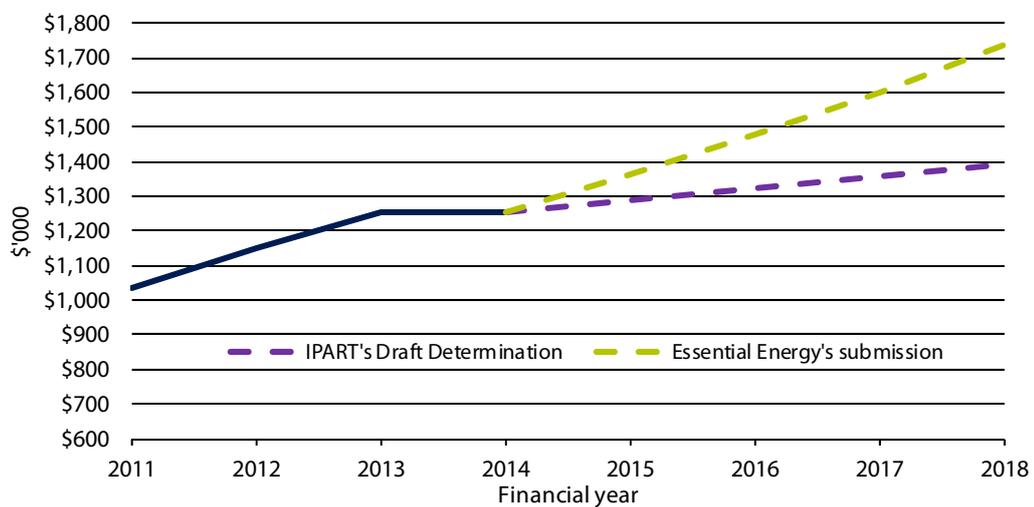
<sup>b</sup> Consumption above 600 kL per year is currently charged at Tier 2 rates at any time of year.

Source: IPART analysis.

Figure 11.1 compares the impact of our Draft 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 38.9%, an average of 8.6% per year, including inflation. Under our Draft Determination, water and sewerage bills for these customers are estimated to increase by 11.0%, or 2.6% per year, including the effects of inflation.<sup>210</sup>

<sup>210</sup> We have set Essential Energy's prices in real \$2013/14, and hence these bills are estimates based on our estimate of inflation of 2.7% for 2013/14 and 2.5% per year thereafter.

**Figure 11.1 Impact of IPART's draft 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 11.5% in nominal terms over the 4-year period. This represents an average increase of about 2.8% per year, including inflation.

Larger users of chlorinated water (eg, 500 kL per year) will see their bills increase by between 1.6% and 11.3% 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 impact will be slightly higher than inflation, around 11.3% over the 4 year determination period.

Untreated water customers with usage of 300 kL per year will experience bill increases of 11.7% over the 4 years, or 2.8% 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	487.36	499.55	512.03	524.83	11.7%	2.8%
275 kL	550.66	570.55	584.81	599.43	614.42	11.6%	2.8%
300 kL	577.66	598.28	613.24	628.57	644.28	11.5%	2.8%
400 kL	685.66	709.19	726.92	745.1	763.72	11.4%	2.7%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	869.66	820.11	840.61	861.63	883.17	1.6%	0.4%
650 kL <sup>b</sup>	1,145.66	986.48	1,011.15	1,036.42	1,062.33	-7.3%	-1.9%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	793.66	820.11	840.61	861.63	883.17	11.3%	2.7%
650 kL <sup>b</sup>	993.66	986.48	1,011.15	1,036.43	1,062.34	6.9%	1.7%
<b>Untreated water (pipeline)</b>							
200 kL	397.66	413.42	423.75	434.35	445.21	12.0%	2.9%
275 kL	451.66	468.88	480.6	492.61	504.93	11.8%	2.8%
300 kL	469.66	487.36	499.55	512.04	524.84	11.7%	2.8%
400 kL	541.66	561.31	575.34	589.72	604.46	11.6%	2.8%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	649.66	635.25	651.13	667.41	684.10	5.3%	1.3%
650 kL <sup>b</sup>	811.66	746.17	764.82	783.94	803.54	-1.0%	-0.3%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	613.66	635.25	651.13	667.41	684.09	11.5%	2.8%
650 kL <sup>b</sup>	739.66	746.17	764.82	783.94	803.54	8.6%	2.1%

<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 \$138 (12.8%) 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	943.75	971.72	1,000.38	1,029.77	13.2%	3.2%
300 kL	1,076.45	1,115.26	1,147.51	1,180.58	1,214.46	12.8%	3.1%
400 kL	1,243.45	1,286.77	1,323.31	1,360.77	1,399.16	12.5%	3.0%
<b>Non-summer period: all consumption above 400 kL currently charged at Tier 2<sup>a</sup></b>							
500 kL	1,523.45	1,458.28	1,499.11	1,540.96	1,583.86	4.0%	1.0%
650 kL <sup>b</sup>	1,943.45	1,715.54	1,762.80	1,811.25	1,860.90	-4.2%	-1.1%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
500 kL	1,410.45	1,458.28	1,499.11	1,540.96	1,583.86	12.3%	2.9%
650 kL <sup>b</sup>	1,717.45	1,715.54	1,762.80	1,811.25	1,860.90	8.4%	2.0%

<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:** 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 Draft 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 1000 kL of water per year will have its bill vary between 1.4% and -2.8% 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	1,551.84	1,590.64	1,630.40	1,671.16	11.0%	2.6%
<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	4,954.56	5,078.42	5,205.38	5,335.52	-2.8%	-0.7%
80mm with 5,000 kL usage	31,951.31	27,555.95	28,244.85	28,950.97	29,674.74	-7.1%	-1.8%
<b>Summer period: consumption between 400 &amp; 600 kL charged at Tier 1</b>							
32mm with 1,000 kL usage	5,264.21	4,954.56	5,078.42	5,205.38	5,335.51	1.4%	0.3%
80mm with 5,000 kL usage	31,725.31	27,555.95	28,244.85	28,950.97	29,674.74	-6.5%	-1.7%

<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.

**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 Draft 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 Draft Determination achieves an appropriate balance between these matters.

### 12.1 Implications for Essential Energy's service standards

We consider that our draft 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 considers its proposal will permit it to provide services in accordance with regulatory requirements.<sup>211</sup> This was based on its proposed operating and capital expenditure.

Our draft decision on Essential Energy's efficient operating expenditure is lower than Essential Energy's proposed expenditure, to take account of efficiencies.

In our draft decision on Essential Energy's capital program, no specific projects have been removed. Our draft 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>211</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 it 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

### IPART policy

For our price determinations, we base prices on our estimate of the revenue the regulated business will require to meet its efficient costs over the determination period. Our building block approach gives the business the opportunity to recover its costs and remain financially sustainable over the determination period, and creates incentives for future efficiency savings. It is our policy that before we finalise our pricing decisions we apply a financeability assessment to understand how our decisions are likely to affect a business' short-term financial viability.

Our policy is to use the business' actual gearing ratio and a forecast of the actual interest expense<sup>212</sup> to calculate financial ratios. For this particular review, we were unable to obtain Essential Energy's exact gearing level and interest expense for its water business in Broken Hill and surrounds. According to Essential Energy, it does not normally construct separate financial statements for its water business.<sup>213</sup> Therefore, we have used proxies for our estimate of Essential Energy's actual gearing ratio and actual interest cost for its water business.

Essential Energy has indicated that further information may be available prior to the Final Determination.<sup>214</sup>

### Essential Energy's submission

In its submission, Essential Energy reported that it used the building block method to calculate its revenue requirement to ensure that the full efficient costs in providing water and sewerage services had been taken into account over the determination period.<sup>215</sup>

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<sup>212</sup> IPART, *Financeability tests in price regulation - Final Report*, December 2013, p 2.

<sup>213</sup> Essential Energy correspondence 12 December 2013.

<sup>214</sup> Ibid.

<sup>215</sup> Essential Energy submission to IPART, 13 September 2013, p 62.

However, it did not submit any financial ratios and did not raise any financeability concerns.

### IPART's analysis

The proxy we used for our estimate of Essential Energy's actual gearing ratio was our estimate of Hunter Water's actual gearing in the 2013 Hunter Water Determination.<sup>216</sup>

The proxy we used for our estimate of Essential Energy's actual interest expense was based on a 10-year average interest rate (nominal NSW Treasury bond)<sup>217</sup> and the Government Guarantee Fee we used for Hunter Water's actual cost of debt in our 2013 Hunter Water Determination.

We used Hunter Water as a proxy on the basis that it is a stand-alone utility operating in the same industry. However, we acknowledge that Essential Energy faces higher levels of risk. This includes, for example, demand and asset stranding risks, as Essential Energy is in an area with declining population growth, whereas Hunter Water is in an area with increasing growth. It is likely that Essential Energy adopts a lower gearing ratio than Hunter Water.

In assessing Essential Energy's financeability, we analysed our estimates of its forecast financial performance, financial position, and cash flows that result from our Draft Determination, using the above proxies for its debt level and interest costs. We also forecast a range of financial ratios (again, using proxies) to assess Essential Energy's financial strength and ability to service and repay debt.

Table 12.1 below shows that our analysis indicates that Essential Energy will have sufficient cash available to meet its operating obligations and between \$3.1 million to \$3.5 million per year to meet dividend payments and partially fund capital expenditure.

<sup>216</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>217</sup> This can be found in the RBA statistics, Capital Market Yields – Government Bonds – Daily – F2 [http://www.rba.gov.au/statistics/tables/index.html#interest\\_rates](http://www.rba.gov.au/statistics/tables/index.html#interest_rates). The 10-year average interest rate we have used is 5.57%, as at 17 December 2013. This approach is consistent with NSW Treasury Corporation's methodology for pricing for debt financing facilities for State Owned Corporations.

**Table 12.1 Essential Energy’s forecast cash flow analysis (\$’000, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Earnings before interest and tax	4,306	4,922	5,144	5,053	5,436
Cash flow before dividends & capex	2,353	3,395	3,197	3,534	3,406
Dividends paid	-525	-815	-802	-656	-557
Payment for fixed assets (capex)	-3,528	-6,577	-5,919	-11,013	-15,009

**Note:** The proxy for actual interest costs that we have applied ranges from 7.4% to 7.6% over 2014/15 to 2017/18.

**Source:** IPART Analysis.

The following table lists the benchmarks we use for each of the financial ratios when applying our financeability test.

**Table 12.2 Financial Ratio benchmarks**

	A3	Baa1	Baa2	Baa3	Ba1
<b>FFO/interest Coverage</b>	>2.9	2.3x–2.9x	1.7x-2.5x	1.4/1.5x- 1.7x	<1.4/1.5
<b>Net Debt/ RAB<sup>a</sup></b>	<60%	80%-85%	60%-91%	90%->100%	>100%
<b>FFO/net debt</b>	>10%	>10%	<6-10%	5-8%	<4%

<sup>a</sup> Regulatory Asset Base

**Source:** IPART, *Financeability tests in price regulation*, December 2013, p 10.

Table 12.3 shows that, using our proxies for gearing and the actual interest expense, our forecast of Essential Energy’s financial ratios is consistent with an investment grade firm (Baa2). 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.

However, by the end of the determination period, increasing borrowings will mean that Essential Energy’s water business will be close to the optimal notional gearing ratio that we use, and its other ratios will be at the lower end of the range for an investment grade firm. This is in large part due to its significant capital program, and we will need information on Essential Energy’s actual debt and interest costs to reach a more informed view.

**Table 12.3 Essential Energy's key financial ratios used in assessing  
financeability**

	2013/14	2014/15	2015/16	2016/17	2017/18
FFO Interest Cover	1.7	2.0	1.9	1.8	1.7
Net Debt/RAB	47%	49%	50%	54%	58%
FFO to Net Debt	5%	7%	6%	5%	4%

**Note:** Given that we do not have specific financial statement information from Essential Energy concerning its water business, we have not applied any Moody's adjustments to the ratios. This also means that we have excluded the unfunded pension liability adjustment that we made to Hunter Water's Net Debt/RAB ratio in the 2013 Hunter Water Determination. Without the Moody's adjustment, Hunter Water's actual Net Debt/RAB ratio was expected to be about 47% for 2013/14.

**Source:** IPART Analysis.

Our detailed forecast of Essential Energy's cash flow statement over the 2014 determination period is presented in Appendix E.

### 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>218</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 draft decisions, the annual average increase in the water and sewerage bill for a customer consuming 300 kL of water per year is 0.1% (in real terms). Therefore, the approximate annual impact on general nation-wide price inflation is negligible.<sup>219</sup>

## 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>220</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>218</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>219</sup> The approximate annual impact is 0.000002%, calculated as 0.1% x 0.002%.

<sup>220</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 11
e) the need for greater efficiency in the supply of services	Chapters 4 to 6
f) ecologically sustainable development	Chapter 11
g) the impact on borrowing, capital and dividend requirements	Chapter 11
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 11

## 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 notes 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>221</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>222</sup>
- ▼ over the period 1996 to 2012, Broken Hill's demand has never been above 7 GL<sup>223</sup>
- ▼ there is a declining population, and therefore demand for water is also generally declining.

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<sup>221</sup> Essential Energy, *Answers to questions from IPART for the Public Forum in Broken Hill*, 27 November 2013, p 1.

<sup>222</sup> As advised by Essential Energy on 2 December 2013. 9GL 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.

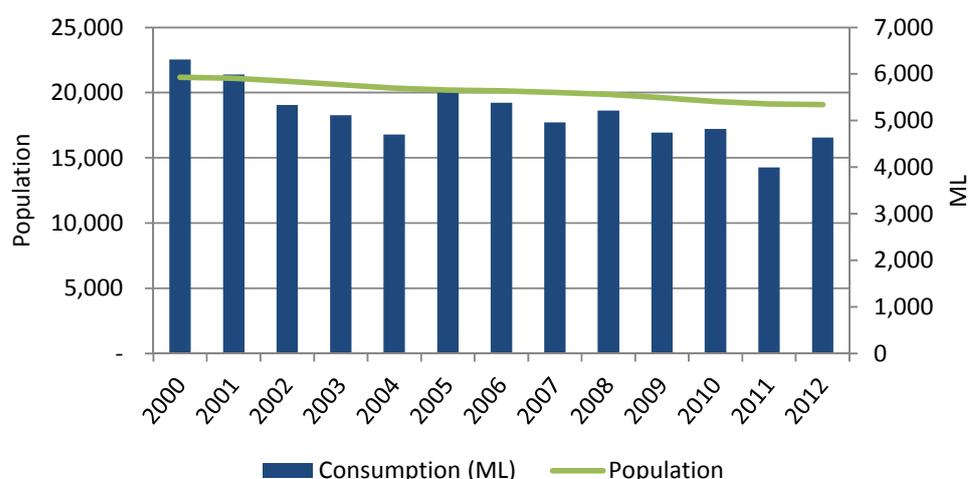
<sup>223</sup> Sustainable system yield is the amount of water that can be drawn down from the system each year without needing to impose drought (water) restrictions too frequently or for too long and without creating a risk that the system will approach emptiness during deep and prolonged drought.

## 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>224</sup> However, limitations on pumping capacity mean that the maximum sustainable supply from this source is around 9 GL per year.<sup>225</sup>

Essential Energy can also extract up to an additional 6.9 GL per year from Umberumberka and Stephens Creek reservoirs, but the availability of water from these 2 sources is heavily dependent on rainfall.

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.

<sup>224</sup> Essential Energy, *Essential Water History and Operations*, March 2011, p 7.

<sup>225</sup> Meeting with Essential Energy on 2 December 2013.

Given the above, we consider 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 form the Menindee Lakes Scheme).

### B.3.2 Water storages

Essential Energy has 3 water storages:<sup>226</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>226</sup> Essential Energy submission to IPART, September 2013, p 10.

## C 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>227</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 C.1).

**Table C.1 Draft 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>	15,546	15,901	16,651	17,219
Cash and in-kind contributions	-	-	-	-
Tax depreciation	2,995	3,263	3,488	3,679
Interest expense allowance	2,684	2,909	3,214	3,708
Operating expenditure	10,948	10,947	11,218	11,037
Taxable income	(1,081)	(1,217)	(1,269)	(1,205)
Accumulated tax losses	(102)	979	2,196	3,465
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>	5,198	5,151	5,328	5,363
Cash and in-kind contributions	-	-	-	-
Tax depreciation	628	669	709	763
Interest expense allowance	1,307	1,361	1,418	1,505
Operating expenditure	2,967	2,939	3,076	3,035
Taxable income	295	182	125	60

<sup>227</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	295	182	125	60
Regulatory tax allowance (adj. for gamma)	86	53	36	18
<b>Regulatory tax allowance (adj. for gamma) - real (\$2013/14)</b>	<b>84</b>	<b>50</b>	<b>34</b>	<b>16</b>
<b>Water and Sewerage</b>				
Regulatory tax allowance (adj. for gamma)	86	53	36	18
<b>Regulatory tax allowance (adj. for gamma) - real (\$2013/14)</b>	<b>84</b>	<b>50</b>	<b>34</b>	<b>16</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>228</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 60% notional gearing ratio (ie, borrowings = 0.6 x regulatory asset base)
- ▼ a nominal risk free rate of 4.3% to 5.1%
- ▼ a debt margin of 1.6% to 2.5%.

We have adopted an interest rate or cost of debt of 6.7% 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 60%, to calculate the interest expense.

<sup>228</sup> Under a post-tax framework, the value of franking credits (gamma) enters the regulatory decision only through the estimate of the tax liability.

## D Weighted Average Cost of Capital (WACC)

Throughout 2013, IPART reviewed its approach to setting the Weighted Average Cost of Capital (WACC). On 9 December 2013, we released our final report. In the final report, we indicated that we would apply our final new WACC methodology from the publication of that report. The WACC draft decision for Essential Energy Water is the first time we are applying our new WACC methodology.

Section D.1 summarises our new WACC methodology. We focus on how we estimate a WACC range and the decision rule we use to select a point estimate. We also summarise major differences between the interim and new WACC methodologies. In Section D.2, we explain how we have determined the WACC for this draft determination, based on the new WACC methodology, and provide the details of the individual WACC parameters.

### D.1 Summary of the final new WACC methodology

#### D.1.1 3-stage process to determine the WACC

As part of our new WACC methodology, we have established the following 3-stage process:

1. **Establish a WACC range and midpoint:** Estimate a WACC range based on long-term averages (hereafter **long-term WACC range**) and a WACC range based on current market data (hereafter **current WACC range**); use the midpoints of the long-term and current WACC ranges as the upper and lower bounds of our final WACC range. The midpoint of the final WACC range is given by the average of the midpoints of the long-term and current WACC ranges.
2. **Choose a WACC point estimate:** Choose a WACC point estimate within the final WACC range based on our WACC decision rule. Our WACC decision rule is explained in Section D.1.2.
3. **Specify point estimates:** Specify our point estimates for the cost of debt and the cost of equity, and the evidence we consider in choosing the WACC point estimate.

### D.1.2 WACC decision rule: How do we select a WACC point estimate?

In determining the WACC, our default position is to choose the midpoint of the final WACC range as our point estimate. We consider the financial market conditions at the time of our WACC decision, to assess if the midpoint is the best estimate of the WACC or whether we should consider going above or below the midpoint.

As part of our final decisions on the review of the WACC methodology, we decided to construct an index of economic uncertainty in Australia (ie, uncertainty index). We decided to use this uncertainty index as a proxy for assessing financial market conditions. Our uncertainty index is based on the S&P/ASX 200 VIX Index, the dispersion in analysts' forecasts for companies in the S&P/ASX 200, credit spread and Bills-OIS spread.<sup>229</sup> We use the uncertainty index as the first decision point in our WACC decision rule to assess whether current economic conditions warrant a move over or below the midpoint WACC.

In particular, our decision rule is that:

- ▼ If the uncertainty index is within or at 1 standard deviation from the long-term average of 0 (ie, economic uncertainty is neutral), we will select the midpoint WACC.
- ▼ If the uncertainty index is more than 1 standard deviation from the long-term average of 0, we will consider moving away from the midpoint WACC within the final WACC range. In deciding whether and how much the WACC point estimate should deviate from the midpoint, we will have regard to the value of the uncertainty index and additional financial market information, including debt and equity transaction data, interest rate swap curves, equity analyst reports and independent expert reports.

### D.1.3 Comparison of IPART's interim and final new WACC methodologies

Table D.1 summarises major differences between IPART's interim and final new WACC methodologies. Prior to the release of the final decision on the review of the WACC methodology, we applied our interim WACC methodology to several price reviews, including:

- ▼ the review of prices for Hunter Water Corporation (HWC) from 1 July 2013
- ▼ the review of developer charges for Gosford City Council and Wyong Shire Council from 1 July 2013
- ▼ the review of regulated electricity retail prices from 2013 to 2016

<sup>229</sup> The S&P/ASX 200 VIX is a volatility index which reflects the market's expected volatility in the S&P/ASX 200. Credit spreads refer to a difference in yields between different securities due to different credit quality. The dispersion in analysts' forecasts is the standard deviation of individual analysts' EPS forecasts. The bills-OIS spread is the difference between the 3-month Bank bills and the 3-month overnight index swap (OIS). All variables are sourced from Thomson Reuters Datastream.

- ▼ the review of fares for metropolitan and outer metropolitan bus services from January 2014
- ▼ the review of requirements for early termination charges.

**Table D.1 Comparison of the interim and final new WACC methodologies**

	Interim WACC methodology	New WACC methodology
MRP for a WACC using current market data	▼ Use the 40-day average of Bloomberg’s implied MRP.	<ul style="list-style-type: none"> <li>▼ Estimate implied MRPs using 6 different models.</li> <li>▼ Establish a range using the maximum and minimum of the 6 MRP estimates.</li> <li>▼ Calculate the midpoint as the average of the upper and lower bound of the range.</li> </ul>
Inflation expectation for a WACC using long-term averages	▼ Use breakeven inflation expectation.	<ul style="list-style-type: none"> <li>▼ Use a hybrid approach, which combines:                             <ul style="list-style-type: none"> <li>– all available swap market implied inflation expectations from 2 January 2009 to date</li> <li>– breakeven inflation (BEI)<sup>a</sup> expectations for the period over which the swap market implied inflation is not available.</li> </ul> </li> </ul>
Use of uncertainty index	No	Yes
Target term-to-maturity	5 years for all industries except for gas and electricity	10 years for all industries

<sup>a</sup> The breakeven inflation is derived based on the Fisher equation where inflation rate =  $(1 + \text{nominal rate}) / (1 + \text{real rate}) - 1$ . For this estimation, we used the 10-year Australian Government bond (Mnemonic: FCMYGBAG10D) and indexed bond (FCMYGBAGID), sourced from the RBA website: [www.rba.gov.au/statistics/tables/xls/f02dhist.xls](http://www.rba.gov.au/statistics/tables/xls/f02dhist.xls).

**Source:** IPART, *WACC methodology - Interim Report*, June 2013; IPART, *WACC methodology - Final Report*, December 2013.

## D.2 Application of the final new methodology to this review

This section explains how we estimated the WACC for this draft determination, based on the new WACC methodology.

### D.2.1 Establishing a WACC range and midpoint

As noted in Section 7.3, our final WACC range is 4.6% to 5.2% and the midpoint WACC is 4.9%, based on the new WACC methodology. We have adopted this WACC in setting Essential Energy’s draft prices.

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 14 January 2014, the current WACC range is 3.7% to 5.5%, with a midpoint of 4.6%. The long-term WACC range is 4.8% to 5.6%, with a midpoint of 5.2%. 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 4.6% to 5.2%. The midpoint of the final WACC range is 4.9%, which is given by the midpoints of the current and long-term WACC ranges.

Table D.2 sets out the WACC parameters, ranges and midpoints.

**Table D.2 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	4.3%	4.3%	4.3%	5.1%	5.1%	5.1%			
Inflation	2.8%	2.8%	2.8%	2.9%	2.9%	2.9%			
Debt margin	1.0%	1.6%	2.3%	2.5%	2.5%	2.5%			
Gearing	60%	60%	60%	60%	60%	60%			
MRP	7.2%	8.0%	8.9%	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)	5.3%	5.9%	6.6%	7.5%	7.5%	7.5%			
Nominal Vanilla WACC	6.6%	7.5%	8.5%	7.9%	8.2%	8.6%	7.5%	7.8%	8.2%
<b>Real post-tax WACC</b>	3.7%	4.6%	5.5%	4.8%	5.2%	5.6%	4.6%	<b>4.9%</b>	5.2%

**Note:** IPART analysis.

**Source:** Thomson Reuters, Bloomberg and SFG.

## D.2.2 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

Draft decision

27 IPART's decision is to use the risk-free rates shown in Table D.3 in determining the WACC.

**Table D.3 Decision on risk-free rate**

	Risk-free rate
Current WACC range	4.3%
Long-term WACC range	5.1%

**Note:** Market data as at 14 January 2014.

**Source:** Bloomberg.

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 a premium or debt margin is added to reflect the riskiness of the specific business for which the rate of return is being derived.

For this draft decision, we have used a risk-free rate of:

- ▼ 4.3% to estimate the current WACC range. This reflects the 40-day average of the 10-year Commonwealth Government Security yields.
- ▼ 5.1% to estimate the long-term WACC range. This reflects the 10-year average of the 10-year Commonwealth Government Security yields.

### Inflation rate

Draft decision

28 IPART's decision is to use the inflation rates shown in Table D.4 in determining the WACC.

**Table D.4 Decision on inflation rate**

	Inflation rate
Current WACC range	2.8%
Long-term WACC range	2.9%

**Note:** Market data as at 14 January 2014.

**Source:** Bloomberg and the RBA.

The inflation rate is used to convert nominal parameters into real parameters. For this draft 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 14 January 2014.
  - Break-even inflation (BEI) for the period over which the swap market implied inflation is not available (ie, from 15 January 2004 to 31 December 2008).<sup>230</sup>

### Debt margin

Draft decision

29 IPART's decision is to use the debt margins shown in Table D.5 in determining the WACC.

**Table D.5 Decision on debt margins**

	Debt margin
Current WACC range	1.0-2.3% with a midpoint of 1.6%
Long-term WACC range	2.5%

**Note:** The debt margins include 12.5 basis points for debt raising costs. Market data are as at 14 January 2014.

**Source:** Bloomberg.

The debt margin represents the cost of debt a company has to pay above the nominal risk-free rate. For this draft decision, we have used:

- ▼ A debt margin range of 1.0% to 2.3% and a midpoint of 1.6% to estimate the current WACC range. This estimate is based on an interquartile range and median of the 40-day averages of the debt margins of the 7-year Bloomberg fair value curve and a portfolio of BBB+ and BBB rated Australian corporate bonds issued in Australia and the US.
- ▼ A debt margin of 2.5% to estimate the long-term WACC range. This estimate is based on the 10-year average of the 7-year Bloomberg fair value curve.<sup>231</sup>

<sup>230</sup> We will substitute swap market inflation for BEI as it becomes available.

<sup>231</sup> Our final decision on the WACC methodology specifies that we will use a 10-year term-to-maturity for all industries regulated by us. Currently, Bloomberg does not publish a 10-year fair value curve. We will continue to use a Bloomberg fair value curve with a maturity closest to 10 years, which is, at this point in time, 7 years, until the 10-year fair value curve becomes available.

The debt margins include an allowance of 12.5 basis points for debt raising costs.

### Market risk premium

Draft decision

30 IPART’s decision is to use the Market Risk Premiums shown in Table D.6 in determining the WACC.

**Table D.6 Decision on MRPs**

	Market risk premium
Current WACC range	7.2-8.9% with a midpoint of 8.0%
Long-term WACC range	5.5-6.5% 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 risky assets. The MRP is an expected return and is not directly observable. It therefore needs to be estimated through proxies.

For this draft decision, we have used:

- ▼ A MRP range of 7.2% to 8.9% and a midpoint of 8.0%, 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 Bloomberg’s model and the minimum MRP is given by Damodaran’s model.<sup>232</sup> The average of the maximum and minimum MRPs is 8.0%, 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>232</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 D.7 shows the implied MRPs estimated based on 6 MRP methodologies.

**Table D.7 Implied MRPs based on 6 models**

Date	Damodaran (2013)	Bank of England (2002)	Bank of England (2010)	Bloomberg	SFG - economic indicators	SFG – analysts’ forecasts <sup>a</sup>
31/12/2013 <sup>b</sup>	7.0%	7.9%	7.0%	8.8%	7.7%	8.6%

<sup>a</sup> Based on the latest estimate available as at 30 April 2013.

<sup>b</sup> Since our MRPs for the WACC using current market data are estimated monthly (except for that based on SFG’s analysts’ forecasts), the latest MRPs available as at 14 January 2013 are the December 2013 estimates.

**Note:** The implied MRPs include the benefits of imputation credits. We estimate implied MRPs monthly for all models but SFG’s methodology based on analysts’ forecasts in which MRPs are estimated half-yearly. IPART analysis.

**Source:** Thomson Reuters, Bloomberg and SFG.

## Equity beta

Draft decision

31 IPART’s decision is to use an equity beta range of 0.6 to 0.8 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 determined that an appropriate equity beta range is 0.6 to 0.8 for Essential Energy Water. This is the same range as was used in our final decision for the review of prices for Hunter Water Corporation in June 2013<sup>233</sup>, which was based on our analysis and the analysis performed by our consultants, Strategic Finance Group, as part of the 2012 Sydney Desalination Plant price review on the benchmark water utility beta. We do not consider that there has been a material change in the equity beta for water businesses since then, and that the equity beta of 0.6 to 0.8 remains the most appropriate range.

## Gearing

Draft decision

32 IPART’s decision is to use a gearing ratio of 60% for Essential Energy Water.

<sup>233</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 192.

The gearing ratio is the ratio of debt to total assets in the business' capital structure. In determining this ratio, 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.

In our draft decision, we have determined that a suitable level of gearing for an efficiently-run privately-owned water business is 60%. We typically adopt a gearing level of 60% for other regulated water businesses. We consider that a gearing level of 60% combined with an equity beta of 0.6 to 0.8 appropriately recognises the risks faced by a water business.

### D.2.3 Determining an appropriate point estimate based on the level of economic uncertainty

Draft decision

33 IPART's draft decision is to select the midpoint WACC (ie, 4.9%) as the WACC for Essential Energy Water given the current level of economic uncertainty.

Figure D.1 shows the current uncertainty index from 2001 to 2013.<sup>234</sup> The index at the end of 2013 is 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. The draft decision WACC for Essential Energy Water is 4.9%.

**Figure D.1 IPART's uncertainty index**



**Note:** IPART analysis.

**Data source:** Thomson Reuters and Bloomberg.

<sup>234</sup> Our uncertainty index is estimated monthly. Therefore, the latest uncertainty index at the time of this draft decision is as at 31 December 2013.

#### **D.2.4 The effect of the new WACC methodology on the WACC for Essential Energy Water**

Applying the new WACC methodology rather than the interim methodology does not have a material impact on the estimated WACC.

## E | Financeability

This section provides further detail on our forecast of Essential Energy's cash flows.

Table E.1 below shows our forecast of Essential Energy's cash flows over the 2014 determination period. Using proxies for its actual gearing ratio and interest cost (as discussed in Chapter 12), we forecast that Essential Energy will have sufficient cash available to meet its operating obligations (including interest repayments) and dividend payments.<sup>235</sup> Essential Energy will also be able to partially fund its capital expenditure program over the determination period from revenue.

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<sup>235</sup> We have used NSW Treasury's standard reference point of a dividend payout ratio of 70% of after-tax profit for Government businesses. NSW Treasury, *Financial Distribution Policy for Government Businesses*, November 2009, TPP 09/06, p 2.

**Table E.1 Essential Energy combined business cash flow  
(\$'000s, \$2013/14)**

	2013/14	2014/15	2015/16	2016/17	2017/18
Earnings before interest and tax	4,306	4,922	5,144	5,053	5,436
		0	0	0	0
Depreciation and amortisation	1,592	2,055	2,120	2,208	2,343
Cost of assets sold	0	0	0	0	0
Change in other assets	0	0	0	0	0
Change in working capital	-75	176	-69	389	268
Change in provisions and other liabilities	87	0	0	0	0
Abnormal items	0	0	0	0	0
Cash flow from operations	5,909	7,153	7,195	7,650	8,046
Net interest received (paid)	-3,234	-3,259	-3,508	-3,714	-4,299
Tax paid (-)	-321	-499	-491	-402	-341
<b>Cash flow before capex</b>	<b>2,353</b>	<b>3,395</b>	<b>3,197</b>	<b>3,534</b>	<b>3,406</b>
Dividends paid (-)	-525	-815	-802	-656	-557
Payment for fixed assets (capex)	-3,528	-6,577	-5,919	-11,013	-15,009
Capital contributions (cash)	0	0	0	0	0
Net cash flow	-1,700	-3,997	-3,524	-8,135	-12,160
Net cash for the year	-1,700	-3,997	-3,524	-8,135	-12,160
Opening cash	0	0	0	0	0
<b>Net cash available</b>	<b>-1,700</b>	<b>-3,997</b>	<b>-3,524</b>	<b>-8,135</b>	<b>-12,160</b>
allocated to unscheduled repayments	0	0	0	0	0
new borrowings	1,700	3,997	3,524	8,135	12,160
Closing cash	0	0	0	0	0

## F Draft decisions on trade waste charges

Table F.1, Table F.2 and Table F.3 show our draft 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 rates. That is, they will be increased each year from the 2013/14 charge, 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 F.1 IPART's draft decision on Trade Waste administration/inspection charges (\$2013/14)**

	Essential Energy's proposed 2013/14	Draft 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 F.2 Excess Mass Charges (\$2013/14)**

<b>Excess mass charges</b>	<b>Essential Energy's proposal 2013/14 \$/kg</b>	<b>Draft 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>Draft 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	17.5	17.5

Source: Essential Energy submission to IPART, September 2013, attachment 6.

**Table F.3 Mines' trade waste charges**

	<b>2013/14</b>	<b>Draft 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.

## G Draft decisions on miscellaneous charges

Table G.1 shows our draft 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 rates, as proposed by Essential Energy. That is, they will be increased each year in line with inflation.

**Table G.1 IPART's draft decisions on Miscellaneous charges (\$2013/14)**

	Current 2013/14	2014/15 and each year thereafter
<b>1 Conveyancing certificate</b>		
▼ full with meter read	68.47	68.47
▼ special meter read	51.33	51.33
▼ full with history	120.29	120.29
▼ Urgent	118.62	118.62
<b>2 Meter test</b>	71.17	71.17
<b>3 Drainage Diagram</b>	20.06	20.06
<b>4 Plumbing inspection</b>	33.21	33.21
<b>5 Plumber's application</b>	35.48	35.48
<b>6 Site inspection</b>	114.30	114.30
<b>7 Statement of pressure</b>	164.88	164.88
<b>8 Building plan approval - extension</b>	32.03	32.03
<b>9 Building plan approval - new</b>	48.42	48.42
<b>10 Fire service application</b>	84.65	84.65
<b>11 Relocation / Increase in meter</b>	81.95	81.95
<b>12 Backflow prevention device</b>	68.64	68.64
<b>13 Install water service (&lt;3m)</b>	703.08	703.08
Install water service (>3m)	1813.78	1813.78
<b>14 Alter existing water service</b>	By quote	By quote
<b>15 Downgrade meter size</b>	90.36	90.36
<b>16 Repair damaged water service (free for first repair within 5-year period)</b>	90.36	90.36
<b>17 Rectification of illegal service</b>	220.20	220.20

	<b>Current 2013/14</b>	<b>2014/15 and each year thereafter</b>
<b>18 Replace Damaged Meter</b>		
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
<b>19 Water Service Disconnection</b>		
Capping	88.16	88.16
20 / 25mm	147.30	147.30
Bitumen repairs	17.15	17.15
<b>20 Water Service Reconnection</b>		
Un-capping	94.90	94.90
20-25mm	158.52	158.52
Bitumen repairs	17.15	17.15
<b>21 Asset Location</b>		
Critical Infrastructure	90.36	90.36
Re-inspection	90.36	90.36
<b>22 Relocate existing stop valve or hydrant</b>	By quote	By quote
<b>23 Replace water main before customer consultations</b>	By quote	By quote
<b>24 Standpipe Hire</b>		
- per month	29.20	29.20
- per year	350.47	350.47
<b>Water Usage</b>		
- Treated (\$/kL)	2.27	2.27
- Untreated (\$/kL)	1.47	1.47
<b>25 Personal service of final warning notice</b>	na	na
<b>26 Water reconnections - after restrictions</b>		
a) during business hours	na	na
b) outside business hours	na	na