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Cost escalation forecasts

Final report

Seqwater

Supporting documentation for Seqwater's QCA submission

May 2014

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Executive summary

Overview

The QCA has been issued with a Referral Notice from the Treasurer to investigate and recommend Bulk Water Prices for the 2015-16 to 2017-18 period. As part of this process, Seqwater has engaged PricewaterhouseCoopers (PwC) to determine appropriate escalation factors for a range of cost categories, specifically:

- employee and contract labour costs
- contractors (service delivery)
- electricity
- chemicals
- other materials and services
- capital expenditure.

Approach

This report identifies and analyses expected movements in the drivers of capital and operating expenditure, and develops cost escalation factors for each of the cost categories specified above. The analysis has drawn on financial data provided by Seqwater along with relevant regulatory precedent and broader industry best-practice.

Key findings

Table 1 summarises the proposed escalation factors by cost category for the purposes of informing Seqwater's regulatory submission to the Queensland Competition Authority (QCA) for the period covering 2014 to 2028.

Table 1: Proposed escalation factors by cost category

Cost Category	Recommended escalation factor	Source
Employee and contract labour expenses	Seqwater Certified Agreement (CA) to 2015/16	Seqwater CA (2013 to 2016)
	Queensland wage price index (WPI) forecast over remainder of the forecast period (to 2027/28)	Queensland Treasury and Trade (WPI forecast to 2016/17, extrapolated over forecast period)
Contractors (service delivery)	Weighted index of the Queensland WPI forecast, CPI forecast and long run average of non-residential building construction index (Queensland). *Escalation factor = 0.38(WPI) + 0.15(CPI) + 0.46(NRBCI)*	Queensland Treasury and Trade (WPI forecast to 2016/17, extrapolated over forecast period) Reserve Bank of Australia (CPI) Australian Bureau of Statistics (NRBCI)

Cost Category	Recommended escalation factor	Source
Electricity	Estimate of actual price growth in 2013/14 and 2014/15	Seqwater large contestable site contracts (growth in variable costs)
	Long run average annual growth in SKM MMA price index for Queensland industrial customers, medium scenario, over remainder of forecast period	QCA (growth in fixed network costs)
		SKM MMA (industrial electricity price index, Queensland)
Chemicals	CPI	Reserve Bank of Australia (CPI)
Other materials and services	CPI	Reserve Bank of Australia (CPI)
Capital expenditure	Engineering Construction Price Index (to 2022/23)	Australian Construction Industry Forum (Construction Forecasting Council)
	CPI over remainder of forecast period	Reserve Bank of Australia (CPI)

Contents

1 Project overview

1.1 Background

As a regulated bulk water supplier in south east Queensland, Seqwater is required to provide the Queensland Competition Authority (QCA) with expenditure forecasts, based on reasonable and robust assumptions, which form an integral part of Seqwater's regulatory submission. A key issue in determining the prudency and efficiency of expenditure is the application of escalation rates in forecasts.

The QCA has been issued with a Referral Notice from the Treasurer to investigate and recommend Bulk Water Prices for the 2015-16 to 2017-18 period. Although this will entail a large cost review component as per the previous Grid Service Provider (GSP) annual reviews, there is a longer term focus given the recovery horizon and mechanics of the Government's Bulk Water Price Path policy. This will require derivation of operating cost estimates to FY 2028 as opposed to the prior annual regulatory submissions which were anchored to the financial year budget and covered only a shorter forecast period.

In addition to operating cost escalation factors, Seqwater also requires capital expenditure escalation rates. These will be used to rebase CAPEX estimates prior to FY 2014, as well as future capital expenditure to 2028.

Seqwater has engaged PricewaterhouseCoopers (PwC) to determine appropriate cost escalation factors for the following expenditure items:

- employee and contract labour costs
- contractors (service delivery)
- electricity
- chemicals
- other materials and services
- capital expenditure.

1.2 Cost escalation

Cost escalation is an important feature in the estimation of a regulated business' revenue requirement over the regulatory period. It seeks to ensure that any input price movements over the relevant period are captured accurately. Where revenue requirements and the associated return on capital can be affected by unit prices movements it is important to select cost escalation factors that reflect anticipated changes in input prices as closely as possible.

In determining an appropriate escalation factor for a particular cost item or set of cost items, there are a range of options.

Some costs may reasonably be assumed to move in line with a measure of underlying inflation, such as the consumer price index (CPI). While this measure reflects a 'basket of goods' that may not be comparable to goods and services purchased by a business, particularly a bulk water entity, this index has been preferred by regulators in the past on the basis that it is transparent, readily accessible and a familiar measure of inflation.

Other costs may more reasonably be expected to move in line with some composite index, reflecting the anticipated movement in relevant underlying (or related) cost categories. For example, movement in occupancy expenses can be assumed to move in line with a range of factors, including rents, utilities and maintenance costs.

Alternatively, for certain costs comprising a significant proportion of total expenses that are influenced by a range of specific factors, more 'bespoke' approaches may be warranted. For example, electricity costs form a significant proportion of overall operating expenditure for Australia's urban water sector. Accordingly, the Water Services Association of Australia (WSAA), which is the peak industry body for this industry, commissioned the development of an electricity price index. This index, which is not publicly available, has been applied by urban water businesses in order to inform their regulatory proposals.

Yet regardless of the proposed index there should be a clear basis for its application, including detailed justification regarding how the measure will align with anticipated changes in input prices over time. Indeed, this justification is particularly important where businesses choose to move away from specifically defined and universally accepted measures of inflation such as CPI or other publicly available indices.

1.3 Approach

This report identifies and analyses expected movements in Seqwater's capital and operating expenditure, and develops costs escalation factors for each of the cost categories specified above.

This assessment reviews each of the specified cost categories separately to determine an appropriate escalation factor. Each chapter:

- Describes the nature of the cost category, including a review of Seqwater's actual input price movements, where available and relevant to the assessment.
- Reviews alternative escalation measures which could be applied to the specific cost category (or cost sub-categories where relevant), including a review of precedent from recent determinations of regulated businesses by a range of Australian regulators.
- Assesses broader market and economic trends which may influence future input price movements.
- Determines an escalation factor (or factors) for the relevant cost category taking into consideration the extent to which any proposed escalation factor:
    - is transparent, repeatable and the data readily accessible
    - reflects the range of applicable cost pressures
    - accounts for uncertainty, if appropriate.

In determining the most appropriate indexation factor for each cost category, we have drawn on relevant publicly available indices, such as the CPI and wage price index published by the Australian Bureau of Statistics (ABS) along with related indices developed by other third-parties. Where appropriate, the construction of composite or weighted indices combining publicly available indices has also been considered.

Nominal and real forecasts for each escalation factor have been included for each cost category. Nationwide forecasts of general inflation have been used to calculate the real escalation factors. For 2015/16, CPI estimates are based on forecasts published by the Reserve Bank of Australia in the Statement of Monetary Policy (February 2014). Beyond 2015/16, forecasts of CPI are based on the mid-point of the Reserve Bank of Australia's (RBA) national inflation target range, described in Box 1.

We have applied forecasts of national, rather than Brisbane-specific, CPI as the measure of inflation, as it is calculated from a larger sample and allows for consistent comparisons of real price increases nation-wide. In certain cases, we have presented movements in specific CPI series at a national level to movements in Brisbane general inflation for illustrative purposes.

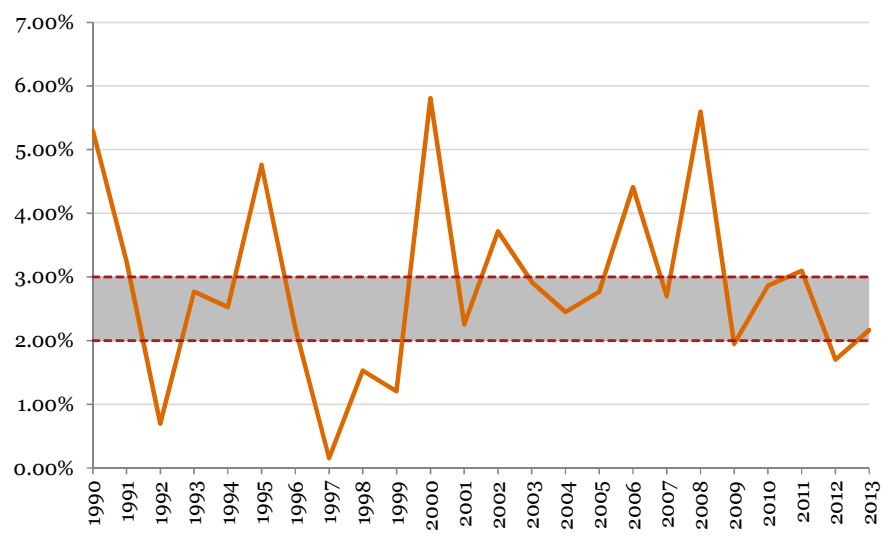
As presented below, movements in the CPI – All groups, Brisbane series have generally been consistent with the RBA's target range, suggesting that the national inflation target range also provides a reasonable indication of general price movements in Brisbane.

Box 1: Forecasting using estimates of the consumer price index (CPI)

The consumer price index measures quarterly changes in the price of a 'basket' of goods and services which account for a high proportion of expenditure by the CPI population group (i.e. metropolitan households).[1] CPI estimates are developed for Australia, and for each of the eight state and territory capital cities.

The Reserve Bank of Australia (RBA) is responsible for Australia's monetary policy. In determining monetary policy, the RBA has a duty to maintain a range of policy objectives including price stability. To achieve these objectives, the RBA has an 'inflation target' and seeks to keep CPI in the economy to 2 to 3 per cent, on average, over the medium term.

The graph below displays how annual changes (September to September) in the Brisbane All Groups CPI index (ABS) move within the RBA's inflation target range.



Over the period from 1990 to 2013, Brisbane CPI fluctuated around a mean annual increase of 2.9 percent. This result suggests that, although there were substantial variations in annual price increases, on average, price increases in Brisbane are generally in line with the RBA's target range.

For the purposes of forecasting CPI over the determination period, the mid-point of this inflation target is proposed (2.5 per cent). While annual variations may be above or below this value, it is likely they will counteract each other when averaged over a longer period of time.

[1] These goods and services include food and non-alcoholic beverages, alcohol and tobacco, clothing and footwear, housing, furnishing, household equipment and services, health, transport, communication, recreation and culture, education and insurance and financial services.

Recent developments regarding CPI forecasts

There are multiple factors which may affect future movements in inflation over the forward period. This includes:

- movements in the exchange rate, which can impact prices for tradable items
- a relatively subdued outlook for the labour market, which may exert downward pressure on wages and therefore inflation
- changes to the carbon price associated with its proposed repeal on 1 July 2014, which will affect electricity prices directly, and other good indirectly depending on their carbon intensity.

The RBA, however, has maintained that current inflation expectations remain within the 2 to 3 per cent target inflation band.[2]

1.3.1 Report structure

This report is structured as follows

- Chapter 2 – Employee and contract labour costs
- Chapter 3 – Contractors (service delivery)
- Chapter 4 – Electricity
- Chapter 5 - Chemicals
- Chapter 6 – Other materials and services
- Chapter 7 – Capital expenditure
- Chapter 8 – Summary.

1.4 Limitations

Given the significant organisational changes Seqwater has undergone in recent years (namely the merger with LinkWater and SEQ Water Grid Manager), historical cost data were not readily available to form part of this review. This limited the extent to which historical movements in actual input costs could be compared with proposed escalation factors.

Seqwater's forecast operating budget for 2014/15 has been analysed as part of this review, however data provided were not final and therefore subject to change. We do not expect that any future revisions to these figures (unless significant) will have a material impact the cost escalators recommended in this report.

Finally, the assessment does not evaluate the efficiency or prudency of Seqwater's current expenditure levels.

[2] Reserve Bank of Australia. 2014. *Statement on Monetary Policy (February 2014)*. Available at: http://www.rba.gov.au/publications/smp/index.html.

2 Employee and contract labour costs

We recommend that Seqwater escalate its annual employee and contract labour costs in line with the current Certified Agreement to 2015/16 and the WPI over the remainder of the forecast period.

2.1 Overview

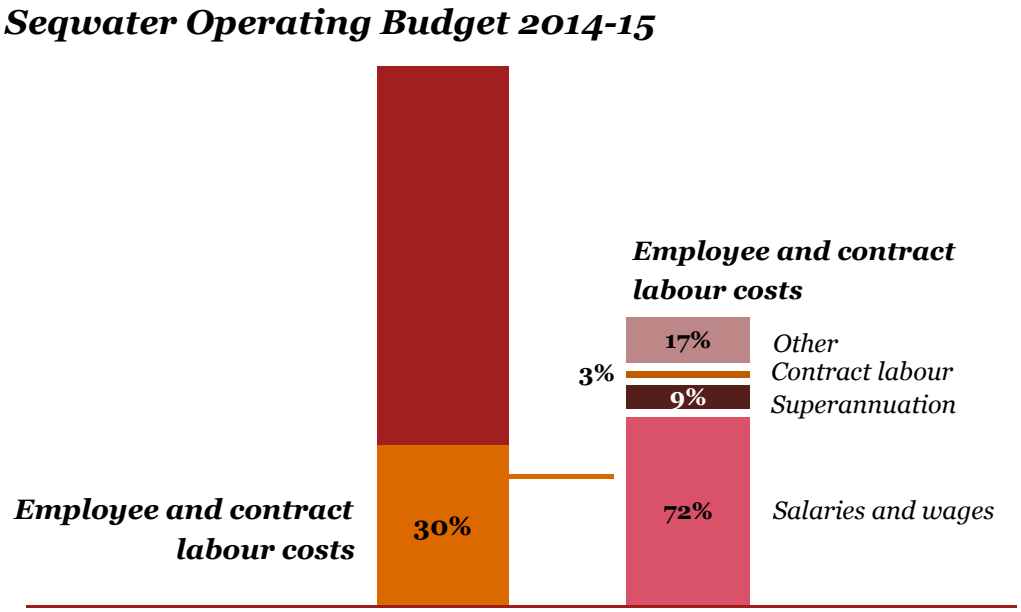
Seqwater employees, including permanent, fixed term and casual staff, are employed in accordance with the Seqwater Certified Agreement (CA). The agreement governs a number of employment conditions including working hours, allowances, non-salary benefits and annual wage increases. The current agreement covers the period from July 2013 to June 2016.

2.1.1 Estimated employee and contract labour costs

Employee expenses are forecast to account for approximately 30 per cent of Seqwater's total operating expenditure (estimated to be approximately $270 million) in 2014/15. The major components of employee expenses are summarised in Figure 1.

Salaries and wages comprise the majority of employee costs (72 per cent), followed by superannuation (9 per cent). The remainder of expenses are smaller items such as allowances and leave entitlements. Fixed term contract labour is estimated to account for less than 3 per cent of total employee costs.

Figure 1: Major cost components of employee and contract labour expenditure[3]



[3] Seqwater data, PwC analysis

2.2 Alternative approaches for the escalation of employee and contract labour costs

2.2.1 Current indices and data sources

The ABS publishes indices and data sets which could be used to inform a forecast of movements in labour costs. These include:

- average weekly ordinary time earnings
- wage price index
- compensation of employees.

Wage price index

The wage price index (WPI) measures the weighted average change in the labour cost per hour of the jobs that are performed in an industry. The weights in this calculation are the labour hours required to perform each job.

The weights used in the WPI are held constant when calculating the time series. The mix of labour hours in a particular year, 'the base year', is used as weights for the entire time series. The current base year for the series is 2008/09. As the weights of the WPI are held constant, the index measures the average magnitude of wage increases faced by an industry, assuming that employers in the industry do not respond to changes in the relative wage by changing the mix of workers they employ. That is, the wage increases are calculated based on the employee composition observed in 2008/09.

The WPI includes only wage-related payments to employees. The Labour Price Index (LPI) combined wage and non-wage payments (leave, superannuation, payroll tax and workers compensation) into a single measurement of total labour cost movements, though was discontinued after the 2010/11 financial year.

Average weekly ordinary time earnings

The average weekly ordinary time earnings (AWOTE) data series is the sum of regular cash payments made to employees divided by the number of employees. As a result, AWOTE measures the effect on total wages of changes in the mix of employees, and calculates wage growth after employers have responded to changes in relative wages by changing the mix of their employees.

Compensation of employees

Compensation of employees (COE) data is the comprehensive measure of income earned by employees. Where the AWOTE data are simply the sum of regular cash payments to employees, the COE data is the sum of regular and irregular (such as bonuses and payments from profit sharing schemes) payments to employees, plus employer superannuation contributions.

2.2.2 Review of current regulatory precedent

A range of alternative approaches have been proposed or applied by regulated businesses, including those in the electricity distribution sector, for the purposes of escalating labour costs. These are summarised in Table 2.

Table 2: Application of alternative labour escalation factors, regulatory review

Business	Regulator	Proposed approach	Approved approach
Queensland Urban Utilities *(2013/14 to 2014/15 regulatory period)*	QCA	• 3 per cent cost indexation applied to labour. • This figure was calculated based on an internal analysis of industry trends, including direct labour costs, costs associated with organisational change, and any expected increases. • The analysis focused on Certified Agreements for employees within Queensland and comparable utilities across Australia.[4]	• The QCA appointed SKM to assist in its assessment of operating expenditure. • SKM concluded that the 3 per cent increase was consistent with that included in other Enterprise Bargaining Agreements either in place or under negotiation. The QCA accepted this finding. • The QCA also noted that the proposed escalation factor was lower than long term average of the WPI as well as the 3.5% WPI forecast reflected in the Queensland budget for 2013-14.[5]
Unitywater *(2013/14 to 2014/15 regulatory period)*	QCA	• 4.05% over the regulatory period. • Calculated based on the current Certified Agreement which stipulated a 3.8% increase plus 0.25% for the federal government's superannuation guarantee increase.	• The QCA appointed SKM to assist in its assessment of operating expenditure. • SKM concluded that Unitywater's wage increase was high but consistent with other Enterprise Bargaining Agreements where entities have had difficulty in attracting skilled tradespeople and engineers. • The QCA accepted SKM's assessment.[6]

[4] Queensland Urban Utilities (2013) *QCA Interim Price Monitoring, Information Return 2013-2015*. Available at: http://www.qca.org.au/getattachment/74b33c76-c430-42da-83d8-c77dcd13a2d0/Queensland-Urban-Utilities-Submission-(Part-A).aspx

[5] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B – Queensland Urban Utilities*. Available at: http://www.qca.org.au/getattachment/f6955bad-060a-4027-a91d-6b13c4d9cb28/SEQ-Price-Monitoring-Final-Report-Part-B-QUU.aspx

[6] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B – Unitywater*. Available at: http://www.qca.org.au/getattachment/fcd40f28-0919-4916-bc1a-ea7c7736b647/SEQ-Price-Monitoring-Final-Report-Part-B-Unitywate.aspx

Business	Regulator	Proposed approach	Approved approach
Gold Coast Water *(2013/14 to 2014/15 regulatory period)*	QCA	• 4 per cent over the regulatory period. • This figure comprised a labour cost escalation of 3.5% in line with Deloitte Access Economics labour cost forecasts, plus an additional 0.5% escalation to account for the impact of the wage rise on accrued employee entitlements.[7]	• The QCA appointed SKM to assist in its assessment of operating expenditure. • Despite noting inconsistencies in Gold Coast Water's calculations, SKM considered the 4 per cent increase was not unreasonable, reflecting Australian market conditions. • The QCA however did not accept the additional allowance for increased employee entitlements. • It determined the appropriate escalator was 3.1%, in line with the Certified Agreement that covered the entire regulatory period.[8]
Melbourne Water *(2013/14 to 2017/18 regulatory period)*	Essential Services Commission (Victoria)	• 2.5% per year over the regulatory period • Based on the Victorian Government's wages policy that stipulates the total cost of an agreement is no more than 2.5% annualised.[9]	• This approach was accepted by the ESC. • In its draft decision the ESC noted that the approach to assessing wage rates was governed by Victorian Government's wages policy, which caps wage increases at 2.5% per annum.[10]

[7] Gold Coast Water (2013) *Gold Coast Water Price Monitoring Submission 2013-15*. Available at: http://www.qca.org.au/getattachment/37b1416e-3271-4d1e-af63-beb5ac3e4a97/Gold-Coast-Water-Submission.aspx

[8] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B –Gold Coast Water*. Available at: http://www.qca.org.au/getattachment/1d0f2252-c472-48b1-b3d1-940cd9df06fa/SEQ-Price-Monitoring-Final-Report-Part-B-Gold-Coas.aspx

[9] Melbourne Water (2013) *2013 Water Plan*. Available at: http://www.melbournewater.com.au/aboutus/reportsandpublications/Documents/Melbourne_Water_2013_Water_Plan.pdf

[10] Essential Services Commission (2013) *Price Review 2013: Greater Metropolitan Water Businesses, Draft Decision*. Available at: http://www.esc.vic.gov.au/getattachment/b1e2e093-1401-42eb-90d9-8cff7c760655/Executive-summary-(1).pdf

Business	Regulator	Proposed approach	Approved approach
Energex *(2010/11 to 2014/15 regulatory period)*	AER	• Energex engaged a consultant to develop forecasts of nominal wage increases, based on enterprise bargaining agreement negotiations and analysis of statistical information. The analysis undertaken as part of process is not publicly available. • Energex proposed a constant nominal rate of 5.5% throughout the regulatory period.	• The AER did not accept the proposed rates, as it did not consider Energex's constant rate to accurately represent the volatility of the labour market. • The AER engaged Access Economics to develop a growth forecast of overall Queensland LPI, and the electricity, gas and water (EGW) industries for NSW, Queensland, Victoria, South Australia, ACT and Australia.[11] This information was used to generate real labour cost growth rates over the five year regulatory period. • Energex noted that it did not accept the rationale behind all the adjustments made by the AER, though applied the AER's rates in its revised proposal. [12]
Ergon Energy *(2010/11 to 2014/15 regulatory period)*	AER	• 4.4% in first year in line with the existing Union Collective Agreement (UCA) escalation rate and 4.5% thereafter. • A single rate was applied for internal and contractor labour on the basis that its UCA applied equally to both categories of labour.	• The AER did not consider these rates appropriate, as no distinction was made between internal and contract labour costs, and applied the forecasts of LPI developed by Access Economics.[13] • While Ergon Energy disputed the use of these rates in their revised regulatory submission, the AER upheld their draft decision in the final determination.[14]

[11] The escalation factors developed by Deloitte Access Economics are not publicly available, hence it is not possible to compare how these escalation factors compared to that proposed by Energex or Ergon Energy.

[12] Australian Energy Regulatory (2010) *Queensland distribution determination, 2010-11 to 2014-15, Final Decision.* Available at: http://www.aer.gov.au/sites/default/files/Queensland%20distribution%20decision%20-%20May%202010.pdf .

[13] The escalation factors developed by Deloitte Access Economics are not publicly available, hence it is not possible to compare how these escalation factors compared to that proposed by Energex or Ergon Energy.

[14] Australian Energy Regulatory (2010) *Queensland distribution determination, 2010-11 to 2014-15, Final Decision.* Available at: http://www.aer.gov.au/siteees/default/files/Queensland%20distribution%20decision%20-%20May%202010.pdf

2.2.3 Summary findings

The ABS currently publishes three estimates of labour earnings, the WPI, AWOTE and COE. The WPI and AWOTE are published on a quarterly basis and are the two most popular data sets with which to develop forecasts of labour cost escalation rates, based on long run historical averages of these indices. There are a number of fundamental differences between the series however, such that much debate has arisen as to which most accurately represents the labour costs for which regulated businesses should be compensated.

In recent price monitoring reviews for south east Queensland retail water businesses, the QCA's preference has been to escalate labour costs in line with current CAs. Queensland Urban Utilities (QUU) escalated labour costs based on a review of CAs for comparable utilities across Queensland and Australia while Unitywater escalated labour costs in line with its current CA. Both approaches were accepted by the QCA.

Gold Coast Water on the other hand escalated expenses in line with a Deloitte Access Economics forecast of labour costs, plus an additional increase for associated increases in entitlements. This was rejected by the QCA, which instead applied the wage increase contained in the Gold Coast Water CA.

In Victoria, the approach to escalating employee costs is tied to the Victorian Government's wages policy, which restricts increases to 2.5 per cent each year.

The AER consistently preferred the use of a forecast of the LPI in recent determinations, as it excludes the compositional productivity effects present in the AWOTE series. Although a number of electricity businesses have commissioned independent expert reports, each suggesting that the AWOTE is a more suitable index on which to base forecasts of labour cost growth, the AER continued to uphold its preference for escalation forecasts to be based on the LPI (while WPI includes wage-related payments, LPI also includes non-wage payments). Though, the LPI was no longer published by the ABS after the 2010/11 financial year.

More recently, in its *Better Regulation Expenditure Forecast Assessment Guidelines for Electricity Distribution* the AER stated that the WPI published by the Australian Bureau of Statistics is its preferred index for assessing labour price changes over the forecast period.[15]

2.3 *Market trends*

2.3.1 Historical movements in wage price indices

Figure 2 compares movements in the wages of employees in the electricity, gas, water and waste services (EGWWS) sector nationwide to those of Queensland employees across all industries. Both groups have experienced real wage increases since 1999, averaging 1.25 per cent and 0.73 per cent respectively (applying the annual increase in CPI - All Groups (Australia) as the measure of inflation). In nominal terms, the national EGWWS WPI averaged 4.1 per cent growth annually, while the Queensland WPI averaged 3.6 per cent.

In general, the Queensland WPI has followed a similar trend to the nationwide EGWWS WPI over the past 15 years; the correlation of movements between the two series over this period is equal to 0.64. Both series experienced a period of growth between 2002 and 2009, with growth slowing following the global financial crisis. While the annual wages growth within the nationwide EGWWS sector has been slightly higher than observed in the overall Queensland labour market, the general trends are relatively consistent between the two series.

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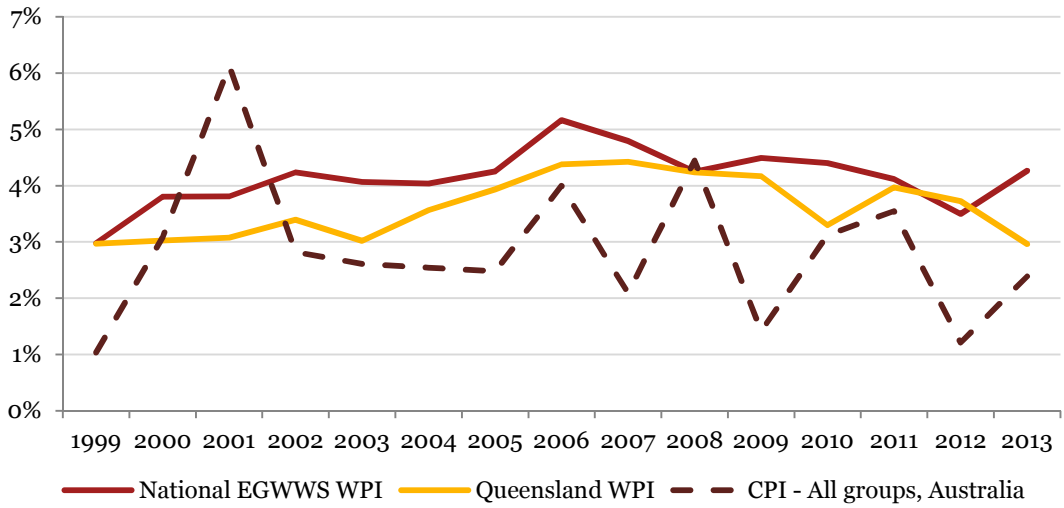
[15] Australian Energy Regulator (2013) *Better Regulation Expenditure Forecast Assessment Guideline for Electricity Distribution*. Available at: http://www.aer.gov.au/sites/default/files/Expenditure%20Forecast%20Assessment%20Guideline%20-%20Distribution%20-%20FINAL.pdf.

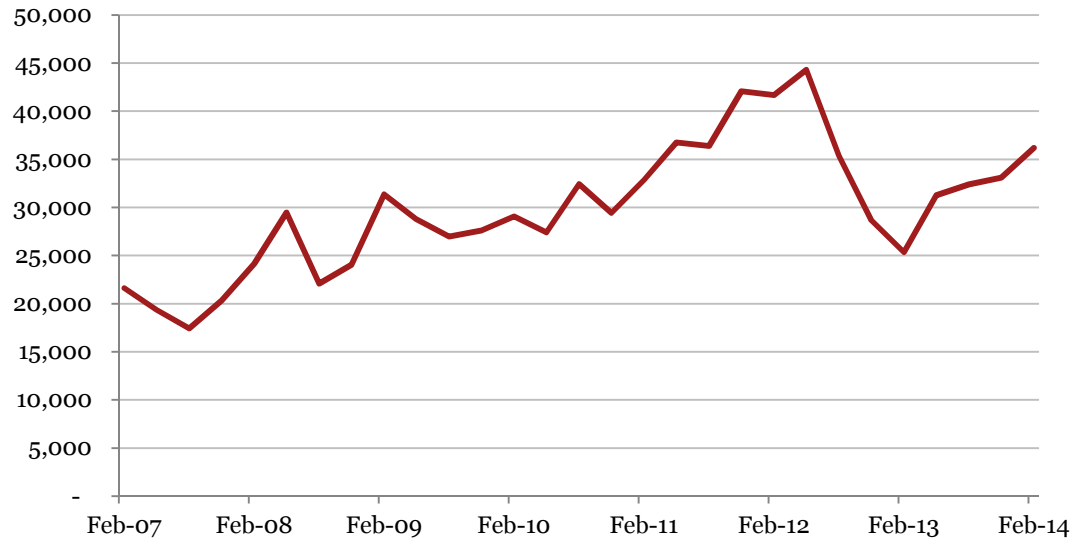
Figure 2: Comparison of historic inflation to national EGWWS industry and Queensland WPI, June 1999 to 2013[16]



2.3.2 Labour demand

Demand for labour within the Queensland EGWWS industry grew steadily between May 2007 and May 2012, with total employment more than doubling over the period. In particular, employment grew by 61.6 per cent between May 2010 and May 2012, an average quarterly increase of 6.2 per cent. Total employment declined sharply between May 2012 and February 2013 (by 42.8 per cent, or 18,966 employees), though has recently shown signs of recovery with employment increasing strongly over the year to February 2014 (Figure 3).

Figure 3: Queensland EGWWS industry employment, February 2007 to February 2014[17]



[16] Australian Bureau of Statistics (2013) *Wage Price Index – Decemberr 2013 Cat. No. 6345.0 Tables 8a and 9a*. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/3F85BC8B42C2D64ECA257B17000D36FC?opendocument

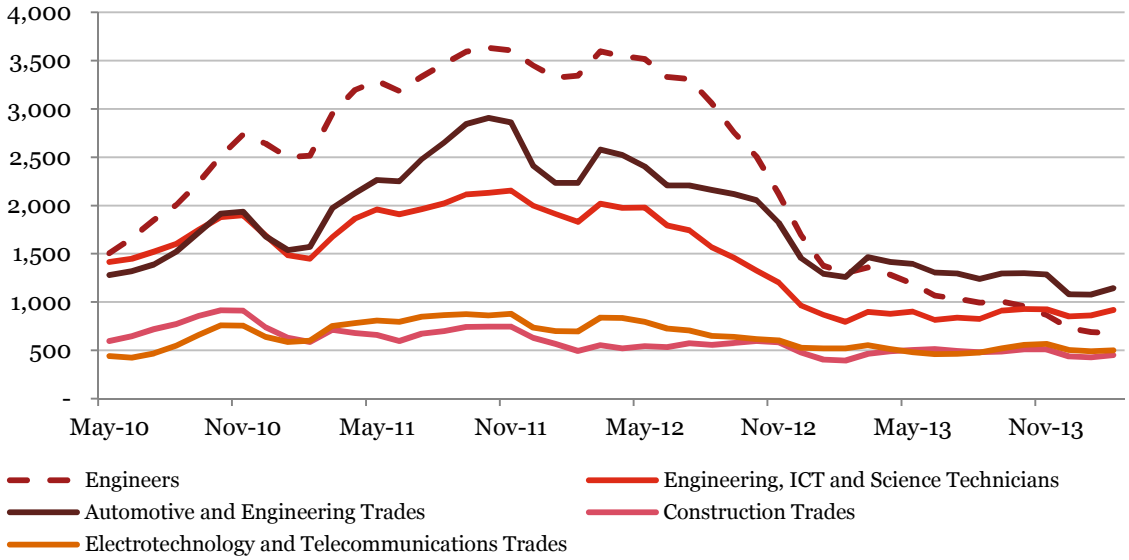
[17] Department of Employment (2013) *Labour Economics Office (LEO) Reports – Queensland*. Available at http://lmip.gov.au/default.aspx?LMIP/Publications/LabourEconomicsOfficeLEOReports/Queensland

The number of vacant positions recorded within related occupations moved in line with industry employment over the same period (Figure 4). The number of vacant Engineers, Automotive and Engineering Trades, and Electrotechnology and Telecommunications Trades positions each at least doubled between May 2010 and November 2011, while the number of vacant Engineering, ICT and Science Technicians, and Construction Trades positions also grew strongly.

From May 2012 however, the number of vacant positions in related occupations fell significantly, in line with the reduction in industry-wide employment presented in Figure 3. The total number of vacant positions across all related occupations halved from May 2012 to July 2013 (9,240 to 4,122). In particular, the number of vacant Engineers positions fell by over 70 per cent.

Unmet labour demand across all related occupations appears to have stabilised recently, as the total number of vacant positions has remained relatively constant since July 2013, though engineer vacancies have continued to fall. The number of vacancies within the Engineering, ICT and Science Technicians; and Electrotechnology and Telecommunications Trades occupations have increased slightly since December 2013.

Figure 4: Growth in the number of Queensland EGWWS related vacancies, May 2010 to February 2014[18]

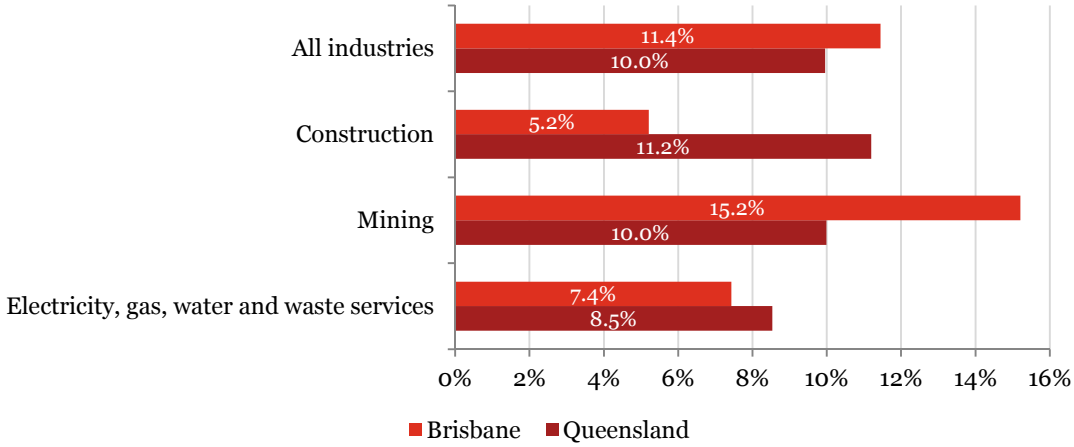


Demand for labour is forecast to increase over the period 2012 to 2017 (Figure 5), with EGWWS employment projected to grow both in Brisbane and Queensland, though at lower levels than overall employment.[19]

[18] Department of Employment (2014) *Vacancy Report*. Available at http://lmip.gov.au/default.aspx?LMIP/VacancyReport

[19] Department of Employment (2013) *Employment projections*. Available at: http://lmip.gov.au/default.aspx?LMIP/EmploymentProjections

Figure 5: Projected employment growth by industry, November 2012 to November 2017[20]



2.3.3 Projections of the wage price index

Queensland Treasury and Trade (QTT) develops forecasts of the WPI as part of its annual budgeting processes. The current forecasts, published in the 2013/14 Budget Strategy and Outlook budget paper, cover the period from 2013/14 to 2016/17 (see Table 3).

Table 3: QTT forecast movements in the Queensland WPI, 2013/14 to 2016/17[21]

	2013/14	2014/15	2015/16	2016/17
Qld WPI (% change)	3.5%	3.5%	3.5%	3.5%

In the 2013/14 Economic Performance and Outlook, QTT notes the negative effects of current household caution and the high Australian dollar on Queensland employment. However, it expects state-wide employment to grow over the medium term, in response to increased household spending driven by low interest rates, stronger income growth and faster population growth thereby driving real wage increases throughout the state from 2013/14 to 2016/17. [22]

2.3.4 Current Seqwater Certified Agreement

The current Seqwater CA covers the three year period from July 2013 to June 2016. The agreement includes both guaranteed and contingent increases, which are based on cash savings being realised that are sufficient to fund the wage increase. Table 4 outlines the timing of the guaranteed and contingent increases contained in the current agreement.

[20] We note that November 2012 Queensland EGWWS employment levels do not align between the data sets used to develop Figure 2 and Figure 4. While the 8.5 per cent growth between November 2012 and November 2017 in Figure 4 reflects an increase from 32,800 employees to 35,600, actual employment in November 2012 as reported in Figure 2 was 28,700. This suggests state-wide growth in EGWWS industry employment over the five year period could be up to 24.0 per cent (35,600/28,700).

[21] Queensland Treasury and Trade (2013) *Budget Strategy and Outlook (Section 2: Economic Performance and Outlook)*. Available at http://budget.qld.gov.au/current-budget/budget-papers/bp2.php

[22] Queensland Treasury and Trade (2013) *Budget Strategy and Outlook (Section 2: Economic Performance and Outlook)*. Available at http://budget.qld.gov.au/current-budget/budget-papers/bp2.php

Table 4: Wage increases stipulated in Seqwater's Certified Agreement

	July 2013	January 2014	July 2014	January 2015	July 2015	January 2016
Guaranteed increase	2%	-	1.50%	-	1%	-
Contingent increase	-	0.50%	0.50%	0.50%	1%	0.50%
Total increase	***2.0%***	***0.5%***	***2.0%***	***0.5%***	***2.0%***	***0.5%***

Including contingency increases, the total annual increase set out in the CA equates to a 2.5 per cent rise each year over the term of the agreement.[23]

2.4 Discussion

Overall our analysis suggests that moderate increases in real wages in the Queensland EGWWS industry are likely to continue over the 2015/16 to 2017/18 regulatory period.

The wage price indices for both the national EGWWS industry and Queensland overall have consistently grown above general inflation in the past 15 years, though wage growth across Queensland appears to have moderated in recent years. Further, labour demand in the Queensland EGWWS sector appears to have recovered following a sharp decline in 2012, with four quarters of employment growth to February 2014.

The most recent Queensland WPI forecasts by QTT project growth of 3.5 per cent annually to 2016/17, further supporting the view that real wages in Queensland will continue to grow in real terms over the medium term.

In recent retail water price reviews, the QCA has accepted employee cost escalation in line with current CAs. QUU analysed a range of CAs for comparable utilities across Queensland and Australia in determining its escalation factor, while Unitywater applied the wage increases contained in its current CA (in addition to a small increase related to changes to the federal government superannuation guarantee). In contrast, Gold Coast Water's approach to escalate employee costs in line with a Deloitte Access Economics labour cost forecast was rejected and instead increases stipulated in its CA were applied by the QCA.

Our recommendation is to escalate contract labour at the same rate as salaried staff. Although there may be minor differences in growth rates over the medium term, contract labour accounts for a negligible share of Seqwater's total employee expenses (less than 3 per cent) and as such applying a separate growth rate is not likely to have a material impact on overall employee expenses. Further, fixed term staff are employed under the same CA as permanent employees, suggesting both categories will follow a similar growth trend.

[23] Given that wage increases are awarded every six months, the annual increase is in fact slightly higher at 2.51 per cent each year. This is rounded down to 2.5 per cent for simplicity.

Based on this analysis, we recommend applying the following escalation rates for employee and contract labour costs:

- For the remainder of the current term of Seqwater's CA (to June 2016), we recommend escalating employee costs in line with wage increases stipulated in the CA. Given the conservative nature of the wage rises, we recommend including contingency increases in the escalation rates.

- For the remainder of the regulatory and forecast periods (to 2027/28) we recommend the current QTT forecasts for growth in the Queensland WPI be applied. Although QTT provides forecasts to 2016/17, we believe the WPI forecast provides a reasonable reflection of broader labour market tends over the medium term. This estimate aligns closely with historical growth in the Queensland WPI, which has averaged 3.6 per cent annually over the past 15 years (nominal), and is conservative compared with historical growth in the national EGWWS sector WPI, which has averaged 4.1 per cent growth over the same period.

We do not consider that Seqwater is required to distinguish between permanent employees and fixed term staff in its estimations of future labour cost escalation. We consider that the broader labour market conditions which influence wages will apply equally to employees and fixed term contractors. We also note that the employment conditions of both groups are governed by the same CA.

2.4.1 Employee and contract labour escalation forecast

The following escalation factors are proposed for employee and fixed term contractors. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[24]

Table 5: Forecast labour and fixed term contractor escalation rates

Escalation Factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19 to 2027-28
Nominal growth rate (%)	2.50%	2.50%	2.50%	3.50%	3.50%	3.50%
Real growth rate (%)	-0.49%	-0.49%	0.00%	0.98%	0.98%	0.98%

[24] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia (May 2014) for June 2014. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.5 and 3.5 per cent. For the purposes of developing real estimates, the mid-point of this range has been applied. For all remaining years, the mid-point of the RBA inflation target (2 to 3 per cent) has been applied. RBA estimates of inflation are published in its Statement on Monetary Policy, available at http://www.rba.gov.au/publications/smp/index.html

3 Contractors (service delivery)

We recommend that Seqwater escalate its Contractor (service delivery) costs in line with a weighted index comprising WPI, CPI and the non-residential building construction index.

3.1 Overview

Seqwater outsources a number of services to third party providers on a contract basis, including civil, electrical and general maintenance, vegetation management and water quality monitoring.

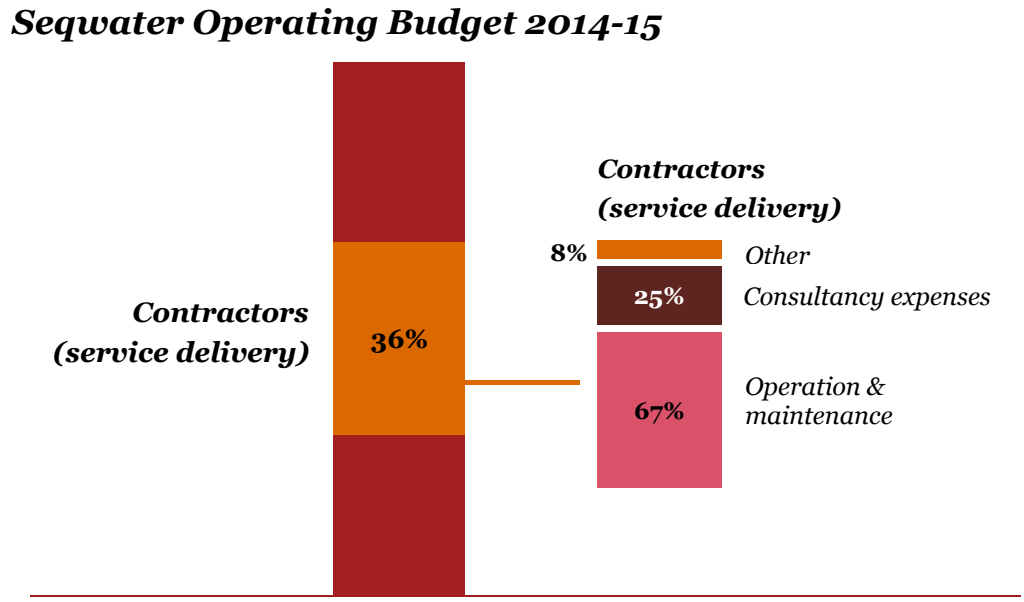
In order to develop an appropriate escalation factor for these operating items, Seqwater has provided a sample of service contracts, including the pricing variation methodology applied to escalate costs. Expenditure items contained in the 2014/15 operating budget have been mapped to specific contracts in order to develop a weighted escalation factor.

3.1.1 Estimated contractor (service delivery) costs

Contract services comprise the largest component of the Seqwater operating budget, totalling approximately 36 per cent of total operating expenditure in 2014/15.

The largest components of expenses relate to operation and maintenance and consultancy expenses, comprising 67 per cent and 25 per cent of contractor costs respectively (see Figure 6).

Figure 6: Major cost components of contractors (service delivery) expenditure[25]



[25] Seqwater data, PwC analysis

3.1.2 Seqwater service contracts

Seqwater outsources a number of services to third party providers on a contract basis, including civil, electrical and general maintenance, vegetation management and water quality monitoring. Major service contracts include:

- long-term operation and maintenance contracts for the Western Corridor Recycled Water Scheme and Gold Coast Desalination Plant
- maintenance and minor works panel agreement consisting of multiple contracts with a range of service providers. Services relate to electrical, mechanical, building and civil maintenance
- general maintenance works not included in the panel agreement
- water quality monitoring for Seqwater's water treatment plants
- other services including vegetation management and contractors not engaged in maintenance provision.

In addition, Seqwater engages consultants to provide professional services across a range of fields including engineering, water quality management, IT, and project management.

In general, movements in contracted prices are based on escalation clauses specified in legal agreements between Seqwater and the contractor. These escalation clauses seek to allow for variations in the costs of inputs associated with delivering services. Generally the escalation clauses apply a relevant index to inputs associated with the service – including labour or non-labour (such as energy, transportation, materials) inputs – and this is weighted in line with each component's contribution to the total contracted price.

Of the service contracts we have reviewed, two (representing 28 per cent of total contractor costs) contain rise and fall provisions to escalate input costs over time. The indices referenced in these contracts include:

- average weekly earnings, Queensland index (labour escalation)
- WPI – professional, scientific and technical services (labour escalation)
- CPI – Brisbane (general cost escalation).

In some cases, no rise and fall provisions are stipulated in pricing schedules. For example, contracts comprising the maintenance panel agreement do not include escalation clauses. The term of these contracts tends to be relatively short (usually two years) which may negate the need to develop and apply escalation factors. Similarly, consultancy projects are often quoted on a project-by-project basis and run over shorter time periods, and therefore do not require costs to be escalated.

3.2 Alternative approaches for the escalation of contractor (service delivery) costs

3.2.1 Review of current regulatory precedent

Table 6 summarises recent decisions of Australian regulators relating to the escalation of contractor (service delivery) costs.

Table 6: Application of alternative contractor escalation factors – regulatory review

Business	Regulator	Proposed approach	Approved approach
Aurora Energy *(2012/13 to 2016/17 regulatory period)*	AER	• Aurora initially proposed to escalate its contractor costs according to CPI only. • AER was satisfied with this in their draft determination. However, Aurora's revised proposal factored in real cost escalation rates for contractors in its operating and capital expenditure forecasts.	• AER considered this to be an unnecessary change, as there was deemed to be no revision required based on the results of the draft determination decision. • The AER decided that contractor costs would be escalated by CPI only, with no real cost increases, consistent with Aurora's initial submission.[26]
SunWater *(2012/13 to 2016/17 regulatory period)*	QCA	• SunWater proposed to escalate both materials and contractor costs by 4 per cent, based on forecasts produced by Macromonitor and historical movements in the Building Construction and Non-Residential Building Construction producer price indices. • This method was proposed on the basis it provided the best reflection of the types of contractor costs incurred.	• Upon consultants' review, ARUP and Aurecon both considered SunWater's 4 per cent escalation factor to be appropriate, while Halcrow and GHD believed SunWater had not provided enough rationale for this decision, and suggested that contractor costs be escalated at the general rate of inflation. • The QCA determined that 4 per cent was a reasonable escalation rate for contractor costs when compared against construction cost index data from the short-to-medium term investment trend analysis.[27]

[26] Australian Energy Regulator (2012) *Final Distribution Determination Aurora Energy Pty Ltd 2012–13 to 2016–17*. Available at http://www.qca.org.au/getattachment/5fad8dc9-2101-4097-bdc8-d90d25fbfbbb/SunWater-Irrigation-Price-Review-2012-17-Volum-(1).aspx

[27] Queensland Competition Authority (2012) *Sunwater Irrigation Price Review: 2012-17 (Volume 1): Final Report*. Available at: http://www.qca.org.au/getattachment/5fad8dc9-2101-4097-bdc8-d90d25fbfbbb/SunWater-Irrigation-Price-Review-2012-17-Volum-(1).aspx

Business	Regulator	Proposed approach	Approved approach
Seqwater *(2013/14 to 2016/17 regulatory period)*	QCA	• 4 per cent, in line with the QCA's SunWater irrigation price review. • Seqwater submitted that the proposed escalation rate was consistent with historical growth in construction cost indices produced by the ABS.	• In contrast to the Authority's Sunwater Review, the QCA determined that contractor costs be escalated in line with labour in place of ABS construction indices. • The QCA recommended contractor costs be escalated at 3.6%, equal to the average of Queensland Treasury's labour cost forecasts for 2013 to 2016.[28]

3.2.2 Summary findings

In recent submissions to the QCA, both SunWater and Seqwater proposed the use of various construction price indices produced by the ABS, in conjunction with consultant forecasts, to develop escalation factors for materials and contractor costs.

In its final report for the SunWater Irrigation Price Review, the QCA accepted the proposed methodology to escalate materials and contractor costs at the same rate. In contrast, a subsequent review of Seqwater irrigation prices saw the QCA group contractor costs with labour costs, escalating both by QTT's forecast of growth in the WPI.

In recent submissions to the SEQ Price Monitoring 2013-15 review, both QUU and Gold Coast Water escalated 'materials and services' expenses (which include contractors used for maintenance work) at the mid-point of the RBA's inflation target range (2.5 per cent). The QCA accepted this methodology in both cases. The AER adopted a similar approach to escalating contractor costs in its distribution determination for Aurora Energy in 2012, rejecting the approach to apply real cost increases and instead adopting an estimate of CPI.[29] [30]

Our review of recent submissions to the QCA by water businesses suggests there is not one single approach to escalating service contractor costs that is accepted by the QCA, with a number of different methodologies being applied and accepted. This has included escalation in line with projected increases in construction prices, the WPI and CPI.

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[28] Queensland Competition Authority (2013) *Seqwater Irrigation Price Review 2013-17 (Volume 1): Final Report.* Available at: http://www.qca.org.au/getattachment/3662b6af-fbd0-43a5-a52b-e99c2f6e85be/Seqwater-Irrigation-Price-Review-2013-17-Volume-1.aspx

[29] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B – Queensland Urban Utilities.* Available at: http://www.qca.org.au/getattachment/f6955bad-060a-4027-a91d-6b13c4d9cb28/SEQ-Price-Monitoring-Final-Report-Part-B-QUU.aspx

[30] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B –Gold Coast Water.* Available at: http://www.qca.org.au/getattachment/1d0f2252-c472-48b1-b3d1-940cd9df06fa/SEQ-Price-Monitoring-Final-Report-Part-B-Gold-Coas.aspx

3.3 Market trends

Figure 7 presents historical movements in four price indices that have informed contractor cost escalation factors in regulatory recent reviews of Queensland water businesses, namely:

- building construction index (Queensland)
- non-residential building construction index (Queensland)
- WPI (Queensland)
- CPI (all groups, Australia).

Growth in the Queensland WPI has been relatively stable over the past decade, following a similar trend to inflation albeit it at a higher growth rate of 3.9 per cent compared with 2.7 per cent. Although the building construction and non-residential building construction indices have been volatile in comparison, over the long term they have averaged similar growth to the WPI. The building construction index for Queensland averaged 3.9 per cent growth annually over the ten years to June 2013, while the non-residential index averaged 3.6 per cent over the same period.

Figure 7: Comparison of service contract price indices to general inflation [31] [32] [33]

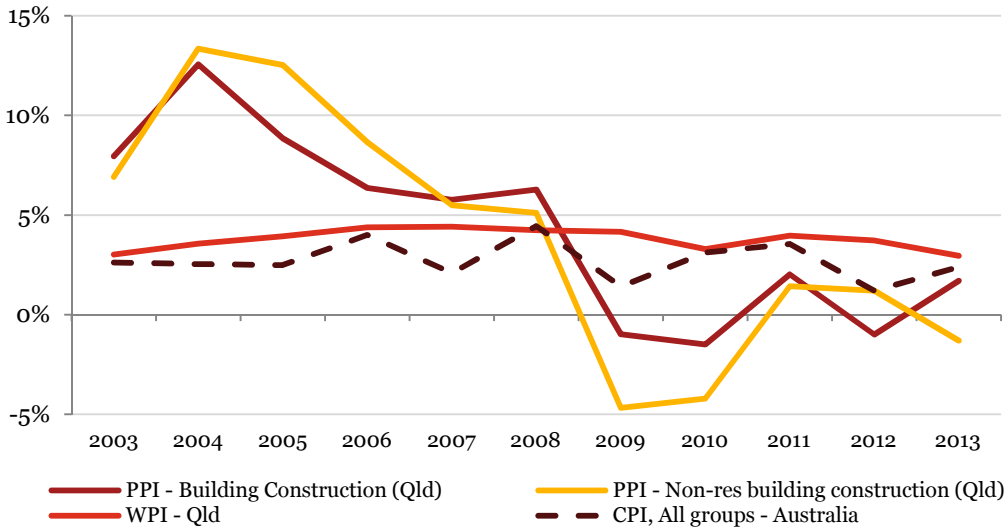

Table 7 summarise average annual growth of the various price industries across various time periods. Price growth across all indices moderated between 2008 and 2013 compared with the previous five years, particularly for the two construction series. Over the longer term, average growth has been similar for all three indices over ten years, between 3.6 per cent and 3.9 per cent.

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[31] All figures are for June of the corresponding year

[32] Australian Bureau of Statistics (2013) *Producer Price Indexes – December 2013.* Cat. No. 6427.0 Table 17. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/6F15F0CA1F2C2EFECA25765800181C2B?opendocument

[33] Australian Bureau of Statistics (2013) *Wage Price Index – December 2013.* Cat. No. 6345.0 Tables 8a and 9a. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/3F85BC8B42C2D64ECA257B17000D36FC?opendocument

Table 7: Comparison of price growth in construction and wage price indices

Index	CAGR		
	2003-2008	2008 - 2013	2003 - 2013
PPI – Building Construction, Qld	7.9%	0.0%	3.9%
PPI – Non-residential building construction, Qld	9.0%	-1.5%	3.6%
WPI, Qld	4.1%	3.6%	3.9%
CPI – All groups, Australia	3.1%	2.3%	2.7%

3.4 Discussion

In general, there is no single approach to escalating service contract costs that has been adopted by regulated water businesses in Queensland.

Recent reviews by the QCA have seen a number of approaches applied and approved, including an estimate of general inflation, the Queensland WPI forecast and a long-run average of various construction-based price indices.

In instances where historical growth in construction based indices has been used to inform escalation forecasts, the QCA has noted that these indices are at best an imperfect match of with a water business's operating activities. In particular, building cost indices are more closely aligned to commercial, industrial and community service building activity than they are to operating and maintaining civil engineering infrastructure associated with water storage and supply. Additionally, the underlying cost components of these indices do not nearly align with specific cost components of a water business.[34]

Despite these issues, the QCA considered the use of appropriate ABS labour and construction indices was a reasonable approach to escalating contractor costs given the limited information available on disaggregated cost indices.

Of the service contractor agreements we have reviewed, two agreements (representing approximately 28 per cent of contractor costs) included rise and fall provisions, which stipulated separate escalation factors for labour and general costs. The remaining contractor costs not covered by these contracts (approximately 72 per cent of total contractor expenses) either did not contain specific rise and fall provisions, or were not available to review.

Given the varying availability of contract information available to determine underlying cost components of Seqwater's contractor costs, we propose applying a weighted index to develop an appropriate escalation factor.

[34] See Queensland Competition Authority (2012) *Sunwater Irrigation Price Review: 2012-17 (Volume 1): Final Report.* Available at: http://www.qca.org.au/getattachment/5fad8dc9-2101-4097-bdc8-d90d25fbfbbb/SunWater-Irrigation-Price-Review-2012-17-Volum-(1).aspx

3.4.1 Weighted index for contractor (service delivery) escalation

The proposed weighted index is based on the following three publicly available indices:

- forecast of the Queensland WPI, produced by QTT[35]
- forecast of CPI, based on Reserve Bank of Australia estimates[36]
- 10 year average to June 2013 of the non-residential building construction index, Queensland.[37]

We have made the following assumptions in applying the respective indices to contractor expenses:

- Where rise and fall provisions have been stipulated in a contract, we have applied WPI and CPI forecasts to labour and general costs respectively, based on weights provided in contract escalation clauses.[38]
- For consultancy expenses, we have assumed that the major cost driver is labour and have applied the WPI forecast to these costs.
- In instances where no rise and fall provisions are included in contracts (such as the maintenance panel agreement) or contractor costs could not be linked to a specific contract, we have escalated costs using the 10 year average growth rate of the non-residential building construction index. While this index may not perfectly align with Seqwater's underlying cost components, regulatory precedent suggests this it is a reasonable approach given the limited availability of disaggregated cost indices. [39] In addition, it provides a relatively conservative estimate compared with other commonly referenced historical indices such as the building construction index and WPI (see Table 7).

Based on these assumptions, the weights applied to each index for total contractor (service delivery) costs are[40]:

- WPI (Queensland)– 38 per cent
- CPI – 15 per cent
- non-residential building construction index (Queensland) – 46 per cent.

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[35] Queensland Treasury and Trade (2013) *Budget Strategy and Outlook (Section 2: Economic Performance and Outlook)*. Available at http://budget.qld.gov.au/current-budget/budget-papers/bp2.php

[36] RBA estimates of inflation are published in its Statement on Monetary Policy (February 2014), available at http://www.rba.gov.au/publications/smp/index.html

[37] Australian Bureau of Statistics (2013) *Producer Price Indexes – December 2013*. Cat. No. 6427.0 Table 17. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/6F15F0CA1F2C2EFECA25765800181C2B?opendocument

[38] One contract includes the indices used to escalate labour and general costs, however does not state the weights applied to each factor. We have reviewed Seqwater's forecast operating expenditure for 2014/15 which provides a detailed breakdown of cost components relating to the contract and weighted labour and general costs based on projected expenditure.

[39] See Queensland Competition Authority (2012) *Sunwater Irrigation Price Review: 2012-17 (Volume 1): Final Report*. Available at: http://www.qca.org.au/getattachment/5fad8dc9-2101-4097-bdc8-d90d25fbfbbb/SunWater-Irrigation-Price-Review-2012-17-Volum-(1).aspx

[40] Weights may not add due to rounding

3.4.2 Contractor (service delivery) cost escalation factors

Table 8 summarises the weighted index developed to escalate contractor (service delivery) costs. We have applied the weighted index over the term of the regulatory period and remainder of the forecast period (to 2027/28). Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[41]

Table 8: Contractor (service delivery) escalation forecast

Escalation factor	Weight	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19 - 2027-28
WPI	38%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
CPI	15%	3.00%	3.00%	2.50%	2.50%	2.50%	2.50%
Non-residential building construction	46%	3.58%	3.58%	3.58%	3.58%	3.58%	3.58%
Weighted index		3.46%	3.46%	3.38%	3.38%	3.38%	3.38%
Nominal growth rate	-	**3.46**	**3.46%**	**3.38%**	**3.38%**	**3.38%**	**3.38%**
Real growth rate	-	**0.45%**	**0.45%**	**0.86%**	**0.86%**	**0.86%**	**0.86%**

[41] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia (May 2014) for June 2014. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.5 and 3.5 per cent. For the purposes of developing real estimates, the mid-point of this range has been applied. For all remaining years, the mid-point of the RBA inflation target (2 to 3 per cent) has been applied. RBA estimates of inflation are published in its Statement on Monetary Policy, available at http://www.rba.gov.au/publications/smp/index.html

4 Electricity

It is recommended that Seqwater escalate its electricity costs in line with estimated growth in electricity costs for large contestable sites in 2013/14 and 2014/15, and the long run average growth rate of SKM MMA's electricity price index forecasts (medium scenario) for Queensland industrial customers over the remainder of forecast period.

4.1 Overview

Given the energy intensive nature of Seqwater's operations (particularly its water treatment plants, pump stations, the Gold Coast Desalination Plant and assets associated with the Western Corridor Recycled Water Scheme), electricity costs form a major component of the business's operating budget.

Seqwater's current retail electricity contract covers the 2014 and 2015 calendar years. Separate pricing schedules are negotiated for the Gold Coast Desalination Plant and Mount Crosby Water Treatment Plants, with remaining treatment plants and pump stations grouped under a single schedule.

Considerable uncertainty currently exists around the likely price of carbon in 2014/15. While the Federal Government has initiated the process of repealing the carbon tax, it remains to be seen whether this will occur in 2014/15.[42] This uncertainty further complicates any forecasts of future electricity price movements.

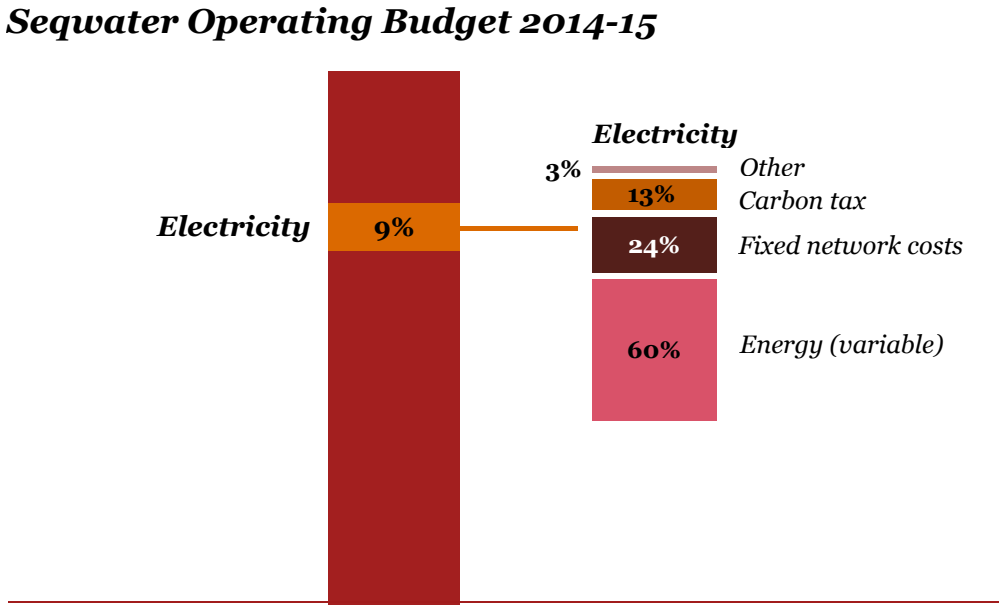
Current forecasts of electricity price movements tend to be carbon-inclusive, and may therefore not represent a likely growth path if the carbon price is repealed. Recent historical data (e.g. the CPI electricity indices) also are affected by the implementation of the carbon tax in July 2012.

4.1.1 Estimated electricity costs

Seqwater's electricity costs are estimated to account for 9 per cent of total operating expenditure in 2014/15. Major cost components include variable energy costs (60 per cent of electricity expenditure), fixed network costs (24 per cent) and costs associated with the carbon tax (13 per cent), as shown in Figure 8. Breaking cost components down further, the variable energy category is comprised of wholesale, environmental and variable network components. The cost shares of these components were not provided by Seqwater.

[42] Queensland Competition Authority (2013) *Draft Determination Regulated Retail Electricity Prices 2014-15*. Available at: http://www.qca.org.au/getattachment/3baf64ca-979f-4445-860c-b9f43716cc72/Draft-Determination.aspx

Figure 8: Major costs components of electricity expenditure[43]



4.1.2 Seqwater electricity contract

Seqwater's current electricity contract covers its large contestable sites for the 2014 and 2015 calendar years. This includes the majority of the business's assets, including most water treatment plants and pump stations, the Western Corridor Recycled Water Scheme and the Gold Coast Desalination Plant.

Three separate energy pricing schedules are stipulated in the contract – the first for the Gold Coast Desalination Plant, the second for the Mount Crosby water treatment plant, and the third for all remaining assets covered by the contract. We estimate the assets covered by the contract account for approximately 87 per cent of Seqwater's total electricity costs for 2014/15.

Table 9 summarises our estimate of growth in electricity costs for Seqwater's large contestable sites for 2013/14 and 2014/15.[44] Growth in variable electricity prices is estimated based on the current electricity supply contract for large contestable sites in conjunction with the previous contract covering the 2011 to 2013 period.[45] The estimate of growth in fixed network costs (12.5 per cent) is taken from the QCA's SunWater Irrigation Price Review (2012-17), which is based on the AER's price paths for Queensland electricity distribution businesses for 2011 to 2015.[46] No escalation is applied to the carbon tax and other components of electricity costs. Growth estimates are weighted using percentage shares contained in Figure 8.

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[43] Seqwater data, PwC analysis

[44] Prices are converted from a calendar year to financial year basis for the purpose of escalation.

[45] Contracts stipulate separate rates for peak, off-peak and (in some cases) shoulder periods. The overall variable price increase is a weighted average of price increases for each rate, and each period's share of consumption. Where only peak and off-peak rates apply (the 2011 to 2013 contract), it is assumed that 46 per cent of consumption is during peak periods, and 54 per cent is during off peak periods. Where a shoulder rate applies (for the Gold Coast Desalination Plant and Mount Crosby Water Treatment Plants for 2014 and 2015), the applied weights are 39% peak, 54% off-peak and 7% shoulder. Actual consumption in 2012/13 is used to develop these weights.

[46] Queensland Competition Authority (2012) *Sunwater Irrigation Price Review: 2012-17 (Volume 1): Final Report*. Available at: http://www.qca.org.au/getattachment/5fad8dc9-2101-4097-bdc8-d90d25fbfbbb/SunWater-Irrigation-Price-Review-2012-17-Volum-(1).aspx

This methodology provides estimated increases of 17.46% and 5.71% for 2013/14 and 2014/15 respectively.

Table 9: Estimated electricity prices increases, 2013/14 and 2014/15

		Unweighted		Weighted	
	Weight	2013/14	2014/15	2013/14	2014/15
Variable cost	60%	23.93%	4.49%	14.46%	2.71%
Fixed network cost	24%	12.50%	12.50%	3.00%	3.00%
Carbon tax and other	16%	-	-	-	-
Total	**100%**			**17.46%**	**5.71%**

4.2 *Alternative approaches for the escalation of electricity costs*

4.2.1 Review of current regulatory precedent

Table 10: Application of alternative electricity escalation factors – regulatory review

Business	Regulator	Proposed approach	Approved approach
Queensland Urban Utilities *(2013/14 to 2014/15 regulatory period)*	QCA	• For its large contestable sites, QUU escalated electricity costs for the first half of 2013/14 based on contracts that ran to December 2013. For the remainder of the year QUU escalated prices based on forecasts developed by SKM.MMA for the Water Services Association of Australia (WSAA), equal to 2.3%. • For small contestable sites, QUU applied the SKM.MMA estimate for 2013/14. • For 2014/15, QUU applied cost indexation of 10.3% based on the SKM.MMA medium scenario for commercial businesses.[47]	• The QCA accepted QUU's proposed price increased for its large sites were efficient as they were based on contractual provisions arising from competitive tender. • In line with previous reviews, the QCA considered the appropriate price increase to apply to small sites is the QCA's electricity retail tariff determinations, adjusted for the 19% discount that QUU receives. • The QCA accepted QUU's cost escalation estimate for 2014/15 based on the SKM.MMA medium scenario.[48]

[47] Queensland Urban Utilities (2013) *QCA Interim Price Monitoring, Information Return 2013-2015*. Available at: http://www.qca.org.au/getattachment/74b33c76-c430-42da-83d8-c77dcd13a2d0/Queensland-Urban-Utilities-Submission-(Part-A).aspx

Business	Regulator	Proposed approach	Approved approach
Unitywater *(2013/14 to 2014/15 regulatory period)*	QCA	• Initial submission proposed price escalation of 7.32% for 2013/14 and 4.05% for 2014/15, based on forecast increases in electricity prices for Unitywater's large sites. • The price escalation for 2013/14 was based on advice provided to Unitywater by Energetics, prior to electricity contracts being renewed in May 2013. • Unitywater subsequently revised its escalation forecast for 2013/14 to 15.2 per cent following the renewal of its contract rates.	• The QCA accepted the energy price increase for 2013/14 as efficient as it is based on contract rates for large contestable sites. • The QCA did however revise the 2013/14 escalation factor down from 15.2% to 12.4% based on its 2013 retail electricity determination, which contained a smaller increase in regulated network charges compared with Unitywater's estimate. • The proposed price escalation for 2014/15 was accepted by the QCA.
Gold Coast Water *(2013/14 to 2014/15 regulatory period)*	QCA	• Gold Coast Water (GCW) noted that small sites account for approximately 90 per cent of its electricity costs. • For 2013/14 GCW proposed to escalate costs by 11.86% based on an Australian Energy Market Commission (AEMC) report that estimated distribution costs would increase by 40 per cent over the three years to 2013/14. The estimate was annualised to derive a 2013/14 escalation factor. • 4.5% in 2014/15, derived by annualising an AEMC forecast for Queensland electricity prices over two years to 2014/15. [49]	• The QCA stated that the appropriate price increase to apply to small sites is the QCA's electricity retail tariff determinations, adjusted for any discount. • The appropriate increase for large sites was deemed to be the contract prices that came into effect on 1 January 2014. • As GCW nominated a cost escalator lower than the weighted QCA estimate, this was accepted as efficient. • GCW's escalation rate of 4.5% was accepted for 2014/15.[50]

[48] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B – Queensland Urban Utilities*. Available at: http://www.qca.org.au/getattachment/f6955bad-060a-4027-a91d-6b13c4d9cb28/SEQ-Price-Monitoring-Final-Report-Part-B-QUU.aspx

[49] Gold Coast Water (2013) *Gold Coast Water Price Monitoring Submission 2013-15*. Available at: http://www.qca.org.au/getattachment/37b1416e-3271-4d1e-af63-beb5ac3e4a97/Gold-Coast-Water-Submission.aspx

[50] Queensland Competition Authority (2014) *SEQ Price Monitoring for 2013-15 Part B – Gold Coast Water*. Available at: http://www.qca.org.au/getattachment/1d0f2252-c472-48b1-b3d1-940cd9df06fa/SEQ-Price-Monitoring-Final-Report-Part-B-Gold-Coas.aspx

Business	Regulator	Proposed approach	Approved approach
SunWater (2012/13 to 2016/17 regulatory period)	QCA	• In its initial submission, SunWater proposed escalating electricity costs at CPI, with annual adjustments during the regulatory period to account for differences between forecast and actual costs. • SunWater later revised its methodology to escalate prices by 10.5% per annum reflecting the average Benchmark Retail Cost Index (BRCI) between 2008 and 2012. • In addition, SunWater proposed further escalation of 10 per cent in 2012/13 in line with the introduction of a carbon price, and 1 per cent in 2015-16 to reflect the commencement of carbon trading.	• For 2012-13, the QCA recommended an escalation factor of 12.5 percent. This value reflected a 10 percent rise due to the Australian Government's carbon tax plus the QCA's estimate of inflation (2.5 percent). • For 2013-14 to 2016-17, the QCA reviewed the various drivers of electricity costs for the balance of SunWater's regulatory period and determined that a weighted annual increase of 6.6 percent per annum, or for the purposes of forecasting, rounded to 7.0 percent, was appropriate. • An additional percentage point escalation was included in 2015-16 to account for the introduction of carbon trading. [51]

4.2.2 Summary findings

In its 2013-15 price monitoring review for south east Queensland water retailers, the QCA applied separate methodologies for escalating electricity prices for small and large sites over the first year of the regulatory period.

For small sites, the QCA stated that the appropriate increase is the Authority's retail electricity determinations, less any discount received by the business. For large sites, the QCA accepted the price increase contained in electricity contracts as being efficient, as they are based on contractual provisions arising from competitive tender.

For the second year of the regulatory period, the proposed approach to escalation differed amongst businesses. QUU escalated prices for both small and large sites based on SKM.MMA's electricity forecasts developed for WSAA. Unitywater's escalation rate was based forecast price increases for its large sites, while Gold Coast Water escalated costs based on an AEMC forecast of retail electricity price increases in Queensland. In all three cases the escalation rate was accepted by the QCA.

The escalation factors recommended by the QCA in its SunWater irrigation price review for 2012-2017 involved a number of assumptions and calculations. For the first year of the regulatory period, the QCA recommended a 10 per cent increase to account for the introduction of a carbon price, in addition to inflation. For the remainder of the regulatory period, the Authority reviewed various cost drivers influencing SunWater's electricity costs and produced a weighted average based on distribution, transmission, energy and retail cost increases. An additional increase was included in 2015/16 to account for the expected commencement of carbon trading.

[51] Queensland Competition Authority (2012) *SunWater Irrigation Price Review: 2012-17*. Available at: http://www.qca.org.au/getattachment/5fad8dc9-2101-4097-bdc8-d90d25fbfbbb/SunWater-Irrigation-Price-Review-2012-17-Volum-(1).aspx

4.3 Market Trends

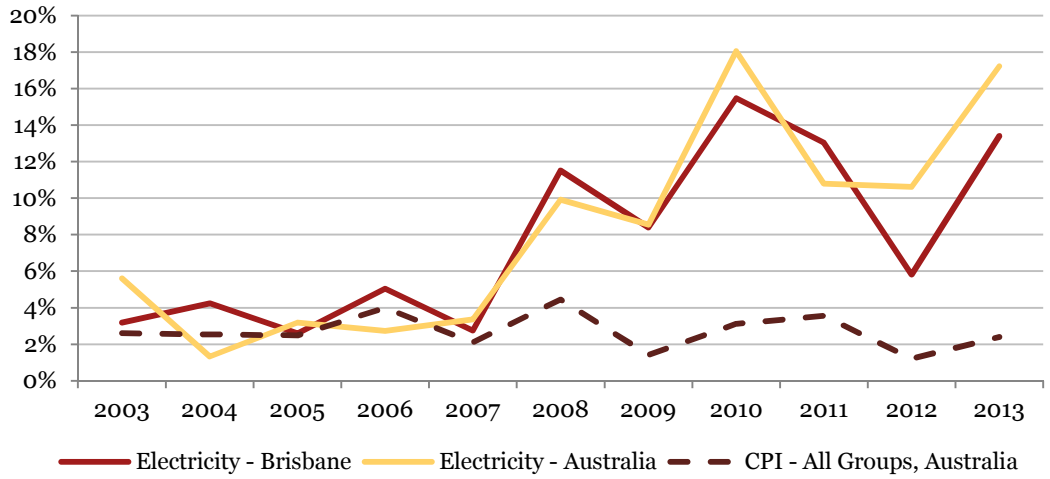
4.3.1 Historical movements in electricity price indices

Figure 9 compares movements in electricity prices for Brisbane and Australia with general inflation over the past decade. Up to 2007, electricity prices followed a similar trend to CPI, however since this time there has been significant and sustained growth in electricity prices in real terms.

In the five years to 2007, electricity prices in Brisbane and Australia increased at a compound annual rate of 3.6 per cent and 3.2 per cent respectively (nominal), slightly higher than growth in inflation of 2.7 per cent over the same period. Between 2007 and 2013, Brisbane electricity prices averaged 11.2 per cent growth annually while Australian electricity prices averaged 12.5 per cent (nominal). This was significantly higher than the average inflation rate over the same period of 2.7 per cent, representing significant growth in real terms.

In general, Brisbane electricity prices have followed a similar trend to the national average over the past decade, with moderate nominal growth to 2007 followed by substantial annual increases to 2013. Over the 10 years to 2013, Brisbane electricity prices increased at a nominal rate of 8.1 per cent compared with 8.4 per cent for Australia as a whole. In real terms, Brisbane electricity prices averaged 5.3 per cent annual growth compared with 5.6 per cent for Australia (applying the annual increase in CPI - All Groups (Australia) as the measure of inflation).

Figure 9: Comparison of historic inflation to Brisbane and Australia electricity prices, 2003 to 2013 (June)[52]



[52] Australian Bureau of Statistics (2014) *Consumer Price Index, Australia, Dec 2013. Series no. 6401.0.* Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

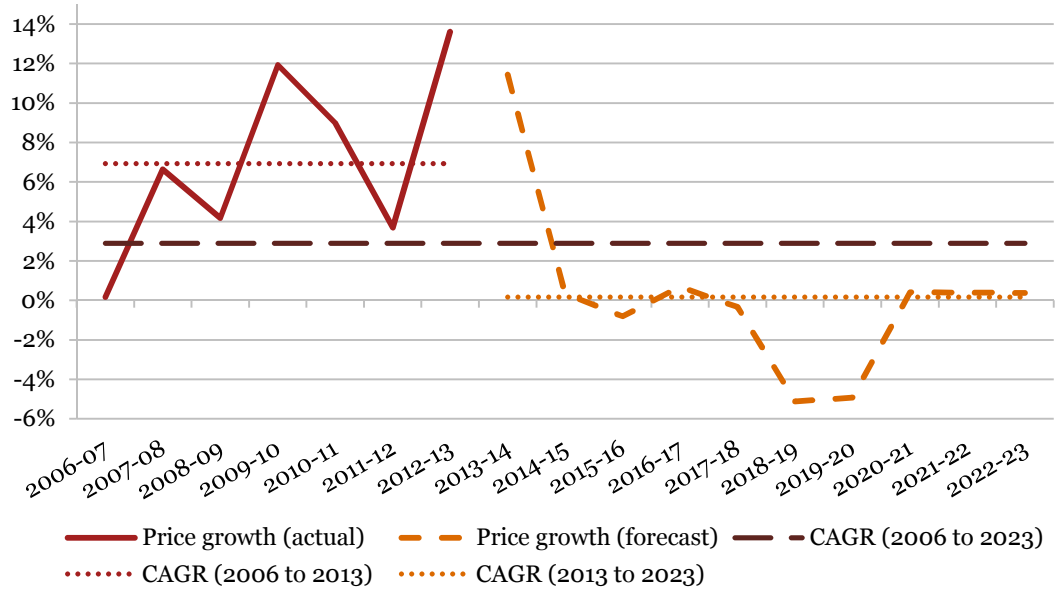
4.3.2 Australian Energy Market Operator forecasts

The Australian Energy Market Operator (AEMO) publishes electricity price forecasts annually as a part of the National Electricity Forecasting Report[53]. The most recent forecasts (released in June 2013) were developed by the National Institute of Economic and Industry Research (NIEIR), using a building block approach. Forecasts are developed for each state in the National Electricity Market, based on assumptions of growth in wholesale, transmission, distribution, retail and green program costs, and include a price on carbon. Three scenarios are developed by AEMO, based on high, medium and low demand assumptions.

Figure 10 shows historical price movements in total[54] Queensland electricity prices and forecasts for the 2013/14 to 2022/23 period (real terms) based on AEMO's medium growth scenario.

Real prices increased consistently between 2005/06 and 2012/13, averaging 6.9 per cent growth annually. Over the ten years to 2023, growth is forecast to moderate substantially, averaging 0.2 per cent in real terms. Taking a longer-term view over both the historic and forecast periods (2006 to 2023), average annual growth in electricity prices is equal to 2.9 per cent in real terms.

Figure 10: Annual movements in total Queensland electricity prices (real), 2006/07 to 2022/23[55]



53 Australian Energy Market Operator (2013) *National Electricity Forecasting Report 2013*. Available at: http://www.aemo.com.au/Electricity/Planning/Forecasting/National-Electricity-Forecasting-Report-2013

54 The total electricity price is a weighted average of the residential and business prices

55 Australian Energy Market Operator (2013) *National Electricity Forecasting Report 2013*. Available at: http://www.aemo.com.au/Electricity/Planning/Forecasting/National-Electricity-Forecasting-Report-2013

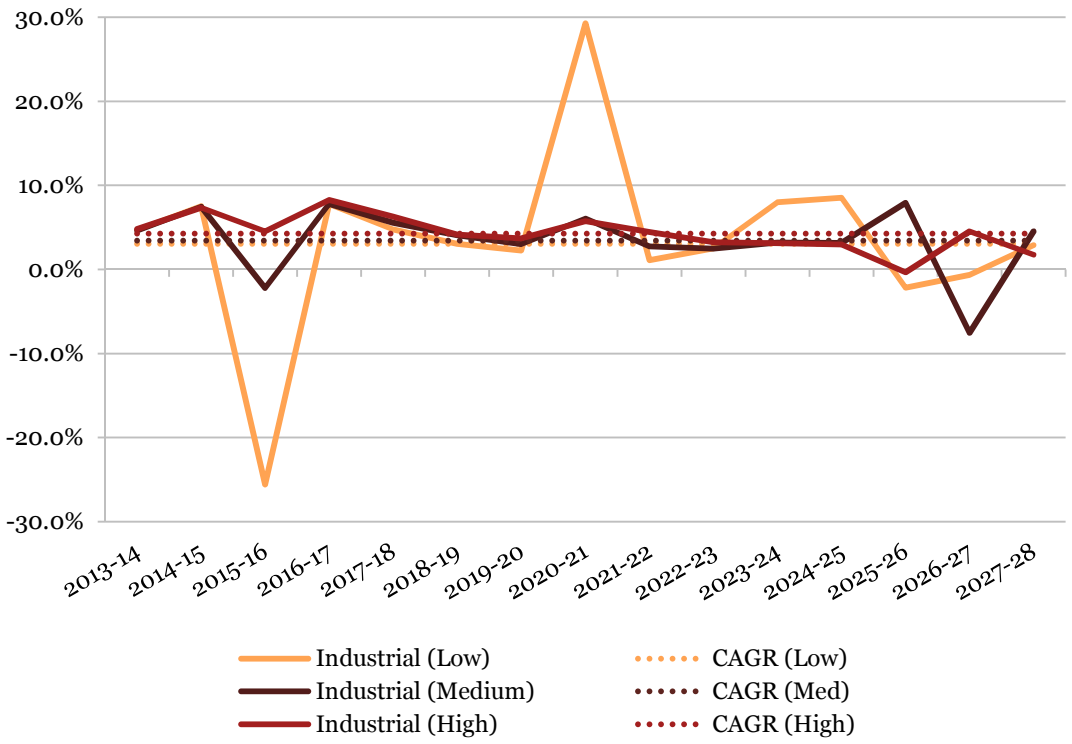
4.3.3 SKM MMA forecasts

In 2012 the members of WSAA commissioned SKM MMA to develop electricity price forecasts at the state level out to 2032. Price indices were developed for four customer classes - residential, commercial, industrial and energy intensive. Three scenarios were modelled (high, medium and low), differentiated primarily by the carbon price path assumption. The medium scenario assumes a fixed carbon price to 2016, falling following the commencement of a floating price, and growing at 3.5 per cent annual in real terms thereafter. The high scenario emulates the Federal Treasury's Core Policy scenario, designed to meet an emission reduction target of a 5 per cent cut to 2000 emission levels by 2020. The low scenario assumes the carbon price is abolished in 2016 and subsequently reinstated in 2020 in line with international action, escalating at a rate of 2.5 per cent annually thereafter.

Figure 11 shows annual real price growth in Queensland retail electricity prices for industrial customers[56] between 2014 and 2028 under SKM MMA's low, medium and high scenarios. The low scenario displays a degree of volatility resulting from the repeal and subsequent reinstatement of a carbon price, while the medium and high scenarios display smoother price growth paths.

Despite the large price movements in the low scenario in 2016 and 2020, average growth is moderate over the forecast period (to 2028), at 3.0 per cent annually in real terms. The medium and high scenarios produce higher annual growth estimates due to the continuation of the carbon price, and higher assumed carbon price growth, with average annual growth of 3.4 per cent and 4.3 per cent respectively.

Figure 11: SKM MMA electricity price growth forecasts, Queensland, 2013/14 to 2027/28 (real)[57]



[56] According to SKM MMA, the industrial category comprises loads such as industrial processes, production and water pumping. This aligns most closely with Seqwater's core activities as a bulk water supplier.

[57] SKM MMA (November 2012), *Energy Price Forecasts 2013 to 2032 (Final Draft)*. Not publicly available.

4.4 Discussion

Queensland electricity prices have increased significantly over the past six years, growing by 59.6 per cent in real terms between 2006/07 and 2012/13.[58] However, it is unclear whether this trend will continue over the medium term. Analysts have argued that electricity prices are likely to increase over the coming period, driven by the rising costs of production and increased adoption of more expensive renewable energy sources.[59] The QCA's draft determination for electricity prices in 2014/15 contains tariff increases in line with recent trends, with most retail tariffs increasing by at least 10 per cent compared with the previous year[60].

In contrast, price forecasts released by AEMO indicate growth will be more moderate over the coming decade, citing the decreased cost of electricity distribution.[61] Over the 10 year forecast period to 2022/23, AEMO estimate average annual growth of 0.2 per cent in electricity prices in real terms. Electricity price forecasts produced by SKM MMA are also relatively moderate compared with recent trends, with Queensland electricity price growth for industrial customers averaging 3.4 per cent annually to 2028 (real terms) under the medium scenario.

The already difficult task of developing reliable electricity price forecasts is further complicated by the current uncertainty surrounding carbon pricing. While the Federal Government has initiated the process of repealing the carbon tax, it remains to be seen when this will be achieved.

In its recent review of SEQ retail water pricing, the QCA recommended escalating prices in the first year using the most recent retail electricity determination for small sites, and escalation rates included in current contracts held with electricity providers for large sites. For subsequent years, a less uniform approach was adopted, with a range of methodologies accepted, including those based on estimates produced by consultants and regulatory bodies.

Given this variable precedent, we recommend escalating prices for 2013/14 and 2014/15 based on the price schedules in Seqwater's electricity contracts for large contestable sites (which cover 87 per cent of total electricity costs in 2014/15), in conjunction with an estimate of fixed network cost increases cited by the QCA in its SunWater Irrigation Pricing Review 2012-17 (calculations presented in Table 9).

For the remainder of the forecast period, we recommend applying the average annual growth rate of SKM MMA's electricity price index (between 2013 and 2028) for Queensland industrial customers under the medium scenario, equal to 3.4 per cent in real terms. This reflects our expectation that while future price growth is likely to moderate compared with recent historical trends, it is unlikely that major cost drivers will dissipate to the point where no real growth occurs. While the federal government has initiated the process of repealing the carbon tax, the ultimate success of this initiative remains uncertain given the current political climate. We therefore believe it is prudent to apply a growth scenario that is carbon price inclusive, with any future legislative changes likely to be taken into account by the QCA if and when they occur.

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[58] Australian Energy Market Operator (2013) *National Electricity Forecasting Report 2013*. Available at: http://www.aemo.com.au/Electricity/Planning/Forecasting/National-Electricity-Forecasting-Report-2013

[59] Ibisworld (2013) *Business Environment Profiles: Electricity Service Price*. Available at http://clients1.ibisworld.com.au/reports/au/bed/default.aspx?entid=292

[60] Queensland Competition Authority (2013) *Draft Determination Regulated Retail Electricity Prices 2014-15*. Available at: http://www.qca.org.au/getattachment/3baf64ca-979f-4445-860c-b9f43716cc72/Draft-Determination.aspx

[61] Australian Energy Market Operator (2013) *Economic Outlook Information Paper 2013*. Available at http://www.aemo.com.au/~/media/Files/Other/planning/NEFR/2013/Economic_Outlook_Information_Paper_2013.pdf.ashx

Applying a long term average rather than specific annual estimates reflects the inherent complexity of forecasting electricity price movements, which is exacerbated by the current uncertainty around carbon pricing. While this forecast is conservative compared with the ten year average of growth in Brisbane electricity prices (as measured by the electricity CPI index, equal to 5.3 per cent in real terms) we believe this is an appropriate approach given significant uncertainty around future electricity price movements.

4.4.1 Electricity cost escalation factors

Table 11 presents the proposed electricity escalation rates. Forecasts of CPI used to adjust nominal values to real values (for 2013/14 and 2014/15) and real values to nominal values (for remaining years) are based on current forecasts published by the RBA.[62]

Table 11: Forecast electricity escalation rates[63]

Escalation Factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19 to 2027-28
Nominal growth rate (%)	17.46%	5.71%	6.03%	6.03%	6.03%	6.03%
Real growth rate (%)	14.04%	2.63%	3.44%	3.44%	3.44%	3.44%

[62] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia (May 2014) for June 2014. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.5 and 3.5 per cent. For the purposes of developing real estimates, the mid-point of this range has been applied. For all remaining years, the mid-point of the RBA inflation target (2 to 3 per cent) has been applied. RBA estimates of inflation are published in its Statement on Monetary Policy, available at http://www.rba.gov.au/publications/smp/index.html

[63] 2013/14 and 2014/15 values are calculated in nominal terms and converted to real values using CPI estimates. For remaining years, forecasts are presented in real terms and adjusted to nominal values using a forecast of CPI.

5 Chemicals

It is recommended that Seqwater escalate its chemical costs in line with CPI.

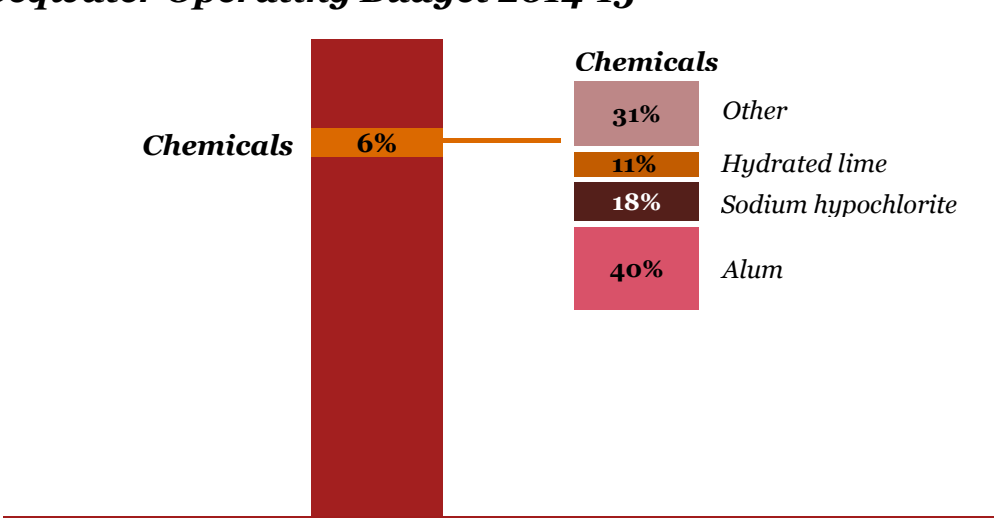
5.1 Overview

Seqwater purchases chemicals primarily for use in its water treatment operations. The business manages close to 50 water treatment and advanced water treatment plants, as a result chemical costs form a significant component of the operating budget.

5.1.1 Estimated chemical costs

In 2014/15, Seqwater forecasts chemicals expenditure to account for approximately 6.0 per cent of total operating costs. Of total chemical costs, close to 70 per cent are comprised of three chemicals – alum, sodium hypochlorite and hydrated lime (see Figure 12).

Figure 12: Major cost components of chemicals expenditure[64]



5.2 Alternative approaches for the escalation of chemicals costs

5.2.1 Review of current regulatory precedent

Queensland – Queensland Competition Authority

In its submission to the 2013-15 Interim Price Monitoring review, QUU proposed to escalate chemical costs using an estimate of inflation produced by the Reserve Bank of Australia. This was based on advice from PwC that noted a lack of publicly available forecasts suitable for specifically escalating chemical costs.

[64] Seqwater data, PwC analysis

In submissions to the 2011-12 Interim Price Monitoring review, Unitywater and Allconnex also proposed to escalate chemicals prices using different measures of inflation. While Unitywater applied RBA forecasts, equal to 3 percent in 2012-13 and 3.07 percent in 2013-14, Allconnex proposed to escalate its chemical costs in 2011-12 using the inflation forecast reported by Australian Government in July 2010, equal to 2.7 percent,[65] and at 2.5 percent thereafter. The QCA accepted these cost escalation methodologies. [66]

In its 2010 price review submission, GAWB considered that increases in its major chemical expenditure items have been greater than CPI, and proposed to escalate its chemicals costs according to the three year (2007 to 2009) average of the ABS Articles Produced by Manufacturing Industries – Chemicals index, equal to 4.84 percent. [67] This index subsequently has been replaced by the Producer Price Index – Basic chemicals and chemicals manufacturing.

The QCA determined that indices based on three years observations at the peak of the construction cycle would not provide appropriate escalation factors for the period 2010 to 2015. As GAWB did not propose an alternative approach, the QCA determined that CPI should be applied to chemicals cost escalation over the period from 2010 to 2015. [68]

5.2.2 Summary findings

Retail water businesses in south east Queensland have adopted a reasonably uniform approach to escalating chemical costs in recent years, using an estimate of general inflation. This approach has the benefit of being transparent, repeatable and easily accessible and has been accepted by the QCA in recent reviews.

In contrast, GAWB's proposal to escalate costs according to a chemical specific index was rejected by the QCA, on the basis that it was based on short term historical price movements that did not necessarily provide an indication of future price movements.

5.3 Market trends

5.3.1 Historical movements in chemical price indices

One means by which to examine historical movements in chemical prices is to use producer price indices (PPI) developed by the ABS. Detailed manufacturing PPIs are produced at the national level, including a basic chemical manufacturing index. This group is broken down further into industrial gas manufacturing, basic organic chemical manufacturing and basic inorganic chemical manufacturing.

Given the majority of Seqwater's chemical expenditure relates to inorganic chemicals, the basic inorganic chemical manufacturing series is likely to provide a more accurate representation of historical input price movements experienced by Seqwater. Figure 13 compares changes in general inflation with both the basic chemical manufacturing series and the more specific basic inorganic chemical manufacturing series.

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65 Commonwealth of Australia (2010) *Economic Statement July 2010*. Accessed online at http://www.budget.gov.au/2010-11/content/economic_statement/download/ES_Consolidated.pdf

66 Queensland Competition Authority (2012) *Final Report. SEQ Interim Price Monitoring for 2011-12. Part B Detailed Assessment*. Accessed online at http://www.qca.org.au/getattachment/c618d45b-ecc7-4aad-a49d-ff184e3d263f/SEQ-Interim-Price-Monitoring-for-2011-12-Final-(1).aspx

67 Gladstone Area Water Board (2010) *Expenditure proposals for the 2010 price review*. Accessed online at http://www.qca.org.au/getattachment/50efda4f-8b93-4006-ba7e-978302642d1c/Submission-2-Expenditure-Proposals.aspx

68 Queensland Competition Authority (2010) *Gladstone Area Water Board: Investigation of Pricing Practices*. Accessed online at http://www.qca.org.au/getattachment/478dc5a6-4981-459d-800f-018003607aa4/Final-Report-Gladstone-Area-Water-Board-Investigat.aspx

Figure 13 indicates that chemical prices have been more volatile than general inflation over the past 15 years, particularly since 2008. A temporary price spike in 2009 is largely responsible for recent volatility, the result of a salt shortage in the United States in early 2009, combined with an increase in transportation costs.[69] By mid-2011 the index was at roughly the same level as late 2008, and has remained relatively stable since. Data for the basic chemical series indicate the index has followed a similar trend to the inorganic chemical series since 2003, albeit a less volatile one.

Figure 13: Comparison of chemical price movements with general inflation[70]

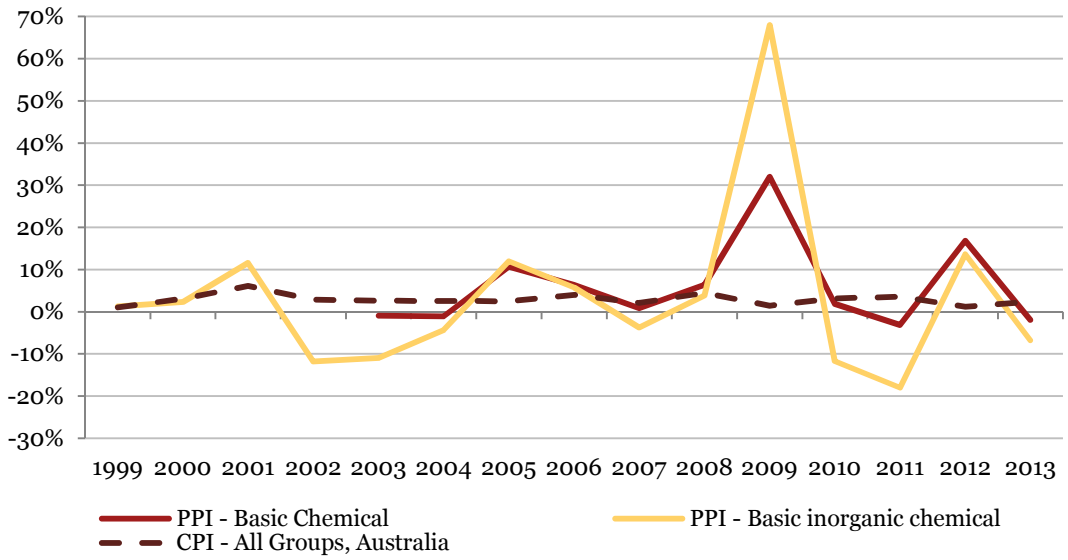


Table 12 summarises price movements in chemicals and general inflation over the past fifteen, ten and five year periods. Taking a long term view (15 years), growth in inorganic chemical prices has been modest at 1.9 per cent in nominal terms. Examining price movements over shorter time frames reveals a trend of increasing growth rates in both the basic chemical and basic inorganic chemical index.

Table 12: Comparison of chemical price growth and general inflation[71]

Index	CAGR		
	1998 - 2013	2003 - 2013	2008 - 2013
PPI – Basic chemical manufacturing, Australia	n/a	6.4%	8.3%
PPI – Basic inorganic chemical manufacturing, Australia	1.9%	3.8%	5.2%
CPI – All groups, Australia	2.9%	2.7%	2.3%

[69] Analysis based on advice provided by the ABS in May 2014.

[70] Australian Bureau of Statistics (2013) *Producer Price Indexes – December 2013*. Cat. No. 6427.0 Table 12. Data are only available for the PPI – Basic Chemical index from September 2001 onwards. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/6F15F0CA1F2C2EFECA25765800181C2B?opendocument

[71] Australian Bureau of Statistics (2013) *Producer Price Indexes – December 2013*. Cat. No. 6427.0 Table 12. Data are only available for the PPI – Basic Chemical index from September 2001 onwards. Available at: http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/6F15F0CA1F2C2EFECA25765800181C2B?opendocument

5.4 Discussion

Analysis of ABS data suggests that volatility in manufactured chemical prices has increased substantially in recent years, particularly since 2009. While chemical prices have grown above CPI over the past five and ten year periods, taking a fifteen year view produces a more modest average annual increase of 1.9 per cent in nominal terms. Given significant price volatility in recent years, basing an escalation factor for chemicals on historical ABS data may not be appropriate.

Further limiting the applicability of the ABS series is the use of national data in developing the chemical price indices, resulting in the inclusion of geographical areas that are not directly relevant to Seqwater's water business. In addition, only three chemicals (alum, sodium hypochlorite and hydrated lime) comprise the majority of Seqwater's total chemical costs (approximately 70 per cent). As a result, price movements in the ABS chemical indices may not be representative of price movements for these three chemicals.

An alternative approach to escalate chemical costs is to create a composite index based on escalation clauses contained in Seqwater's chemical supply contracts. We have reviewed the rise and fall provision included in a sample of contracts covering the majority of Seqwater's chemical expenditure, noting the following major drivers of price increases:

- raw inputs (i.e. the compounds used to synthesise chemicals), which on average account for approximately 45 per cent of total chemical escalation weighting.
- general costs (usually linked to CPI), which account for around 40 per cent of the escalation weighting, and;
- labour and fixed components, which together comprise around 15 per cent of the escalation weighting.

A composite index would apply a specific growth forecast to each component, and then weight these by the share each component contributes to overall price escalation. Growth factors for general costs and labour components could be approximated by applying CPI and WPI forecasts respectively, however the appropriate factor to apply to raw inputs is less clear. Historical data relating to bulk costs of individual chemical compounds are not readily available, nor are forecasts of future price movements. Further, the marginal improvement of adopting a relatively complex composite index approach compared with a more transparent measure such as CPI needs to be considered.

Regulatory precedent indicates a preference to apply CPI to escalate chemical costs. with a number of south east Queensland water retailers applying an estimate of inflation in recent regulatory submissions. This approach has the benefit of being transparent, repeatable and easily accessible and as such has been accepted by the QCA in its reviews.

Given recent volatility in the relevant ABS producer price indices, and the uncertain marginal benefit of applying a more complicated composite index approach, we propose that CPI be used for the purposes of forecasting price movements in chemicals over the regulatory period and out to 2027/28.

5.4.1 Chemical escalation forecast

The following escalation factors are proposed for chemical costs. Forecasts of CPI for 2013/14 and 2014/15 are based on current forecasts published by the RBA.[72]

Table 13: Forecast chemical escalation rates

Escalation Factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19 to 2027-28
Nominal growth rate (%)	3.00%	3.00%	2.50%	2.50%	2.50%	2.50%
Real growth rate (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

[72] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia (May 2014) for June 2014. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.5 and 3.5 per cent. For the purposes of developing real estimates, the mid-point of this range has been applied. For all remaining years, the mid-point of the RBA inflation target (2 to 3 per cent) has been applied. RBA estimates of inflation are published in its Statement on Monetary Policy, available at http://www.rba.gov.au/publications/smp/index.html

6 Other materials and services

We recommend Seqwater escalate its other materials and services costs in line with CPI.

6.1 Overview

Other materials and services include operating costs that are not captured by the major categories discussed previously. Costs comprising this category include but are not limited to:

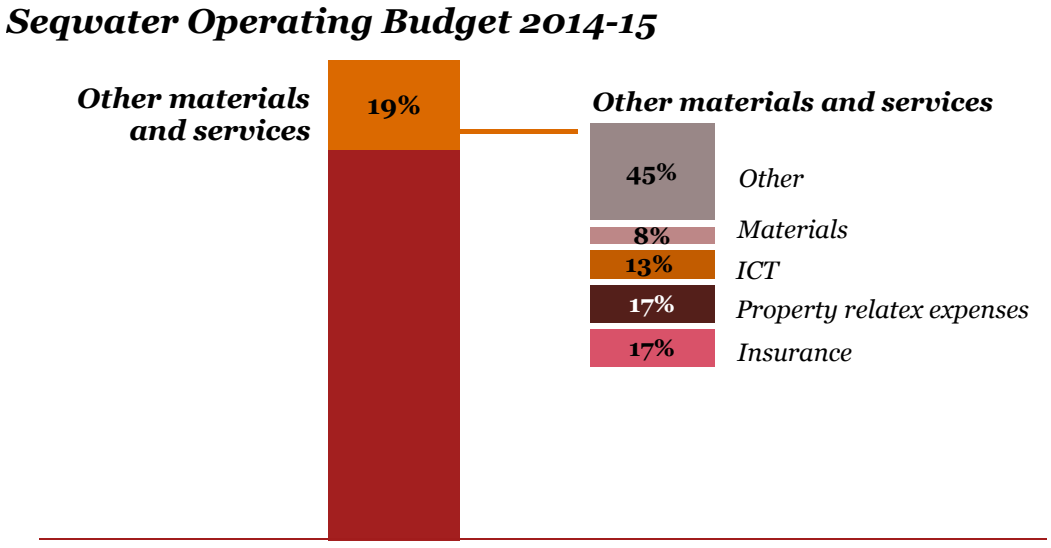
- insurance
- property related expenses (e.g. rent, cleaning, repairs and maintenance, rates)
- ICT
- utilities
- materials (e.g. protective items, uniforms, office consumables)

Given the heterogeneous nature of the 'other materials and services' category, there are likely to be a wide range of factors that will influence future price movements to varying degrees.

6.1.1 Estimated other materials and services costs

Other materials and services account for approximately 19 per cent of Seqwater's forecast operating expenses in 2014/15. The major categories comprising other materials and services are outlined in Figure 14.

Figure 14: Major cost components of other materials and services expenditure[73]



[73] Seqwater data, PwC analysis

6.2 *Alternative approaches for the escalation of materials and services costs*

6.2.1 Review of current regulatory precedent

Table 14 summarises recent decisions of Australian regulators relating to the escalation of materials and services costs.

Table 14: Application of alternative materials and services escalation factors – regulatory review

Business	Regulator	Proposed approach	Approved approach
Queensland Urban Utilities *(2013/14 to 2014/15 regulatory period)*	QCA	• QUU's escalated costs associated with sludge handling, chemicals and other materials and services at the rate of general inflation. • This was based on advice from PwC that noted no suitable industry forecasts were available to escalate these expenditure items.	• The QCA accepted and applied QUU's suggested cost escalation factors in its final report.
Gold Coast Water *(2013/14 to 2014/15 regulatory period)*	QCA	• Gold Coast Water proposed escalating materials and services costs at 2.5%, being the mid-point of the RBA medium-term inflation target range. • This category included contractors used for maintenance and materials used by internal and external staff.	• The QCA accepted the materials and services budget submitted by Gold Coast Water, including the suggested escalation factors.
SunWater (2012/13 to 2016/17 regulatory period)	QCA	• SunWater escalated other direct costs (such as insurance, rates, land tax etc) at the general rate of inflation, equal to 2.5%. • Non-direct and overhead costs were also escalated in line with inflation.	• In conducting its review for the QCA, Deloitte noted that SunWater's approach to escalating non-direct costs was conservative given the expected upward pressure on costs from a rapidly expanding resources sector. • In accepting SunWater's approach, the Authority noted that the nature of the costs is primarily generated by administrative and management functions.
Seqwater *(2013/14 to 2016/17 regulatory period)*	QCA	• Seqwater proposed to escalate other direct costs (i.e. direct costs not classified as labour or contractors and materials) and non-direct costs at the general rate of inflation, equal to 2.5%.	• The QCA considered Seqwater's approach to be reasonable, noting that costs are primarily generated by administrative and management functions, which are likely to be restrained over the regulatory period.

6.2.2 Summary findings

In the absence of a specific industry index suitable for escalating other materials and services costs, Queensland water businesses have opted to use expected growth in the CPI as an escalation factor.

This approach has been accepted by the QCA in its price reviews, with the Authority noting in the cases of SunWater and Seqwater that costs are primarily generated by administrative and management functions, which are likely to be restrained out to 2016/17.

6.3 Discussion

Items classified in the other materials and services category reflect a variety of goods and services that support Seqwater's operating activities. This includes insurance costs, property related expenses, ICT expenses, fleet maintenance, utilities and general materials.

Items are allocated to the other materials and services category on the basis that they do not form part of the major cost categories (e.g. employee expenses, electricity etc.), and do not comprise a large enough share of total operating costs to warrant being placed in a separate category. As a result, this category tends to include expenses that are not necessarily closely related in terms of the underlying drivers of price movements.

Given the heterogeneous nature of the category, it is inherently difficult to apply an escalation factor based on a specific index that aligns with actual price increases in any given year. While a weighted average comprising multiple indices may be developed in certain cases, it is less suitable in instances where there are a large number of items included in a category, and no single item captures a significant share of total expenditure.

While CPI and the basket of goods which it represents may not, in a given year, align directly with Seqwater's other materials and services expenses, it is likely to provide the most accurate forecast given the lack of suitable alternatives. This approach has been accepted by the QCA in a number of recent reviews.

Accordingly, we propose that CPI be used for the purposes of forecasting unit price movements in general materials over the regulatory period and out to 2027/28.

6.3.1 Other materials and services escalation factors

The following escalation factors are proposed for other materials and services costs. Forecasts of CPI for 2013/14 and 2014/15 are based on current forecasts published by the RBA.[74]

Table 15: Forecast other materials and services escalation rates

Escalation Factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19 to 2027-28
Nominal growth rate (%)	3.00%	3.00%	2.50%	2.50%	2.50%	2.50%
Real growth rate (%)	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

[74] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia (May 2014) for June 2014. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.5 and 3.5 per cent. For the purposes of developing real estimates, the mid-point of this range has been applied. For all remaining years, the mid-point of the RBA inflation target (2 to 3 per cent) has been applied. RBA estimates of inflation are published in its Statement on Monetary Policy, available at http://www.rba.gov.au/publications/smp/index.html

7 Capital Expenditure

We recommend that Seqwater escalate its capital expenditure in line with the Australian Construction Industry Forum's Engineering Construction Price Index to 2022/23, and in line with CPI over the remainder of the forecast period.

7.1 Overview

Seqwater is currently in the process of developing its capital program as part of its submission to the QCA for the 2015/16 to 2017/18 regulatory review. Capital project appraisals have been carried out over a number of preceding years and as such cost estimates need to be rebased to 2013/14 dollars. Future capital expenditure will also require escalation factors to be developed out to 2027/28.

This section examines the different approaches that have been adopted in recent regulatory submissions for capital expenditure with a view to recommending an appropriate escalation factor for Seqwater's capital program.

7.2 Alternative approaches for the escalation of capital expenditure

7.2.1 Current indices and data sources

A number of industry price indices have been used by regulated entities to escalate capital expenditure forecasts. These include:

- producer price indices for the construction sector
- engineering construction activity implicit price deflator
- Construction Forecasting Council Engineering Construction Price Index

Construction sector producer price indices

The ABS produces a number of producer price indices for the construction sector, including:

- building construction
- house construction
- other residential building construction
- non-residential building construction
- road and bridge construction.

In previous reviews[75], the QCA has examined long term movements in the building construction, non-residential construction and road and bridge construction price indices when evaluating construction cost escalation rates for water businesses. While noting a number of limitations in using these indices to estimate construction price movements in the water sector, the QCA stated using these indices was a reasonable approach given the limited information available on disaggregated cost indices.

Engineering construction activity implicit price deflator

The ABS produces estimates of engineering construction activity in Australia, compiled from the Engineering Construction Survey. An implicit price deflator can be derived from the series to provide an estimate of price changes over time. In reviewing irrigation prices for SunWater and Seqwater in 2012 and 2013 respectively, the QCA examined the Queensland Engineering Construction Activity Implicit Price Deflator to provide additional insights into civil construction cost movements.

Construction Forecasting Council Engineering Construction Price Index

The Engineering Construction Price Index is released by the Australian Construction Industry Forum's (ACIF's) Construction Forecasting Council in May and November each year. [76] The index is based on data from seven construction types (including road, bridge, electricity and pipeline, water and sewerage, telecommunications and mining) and eight states and territories.

The forecast incorporates data available up to the end of the month prior to the forecast and relies on the ABS engineering construction activity and building activities data series.[77] It also incorporates short term (quarterly for one year) and long term (annually for ten years) macroeconomic projections. Individual forecasts are developed for residential, non-residential and engineering construction activity.

7.2.2 Review of current regulatory precedent

Queensland – Queensland Competition Authority

The QCA has stated that a range of options are available for the indexing of capital expenditure. While industry input indices should provide a more accurate estimate of price movements, they may be subject to step changes over short periods, and would be expected to rise and fall with market conditions.[78]

Table 16 summarises recent reviews of the QCA relating to capital cost escalation methodologies used by south east Queensland retail water businesses.

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[75] See *Final Report SunWater Irrigation Price Review 2012-2017* and *Final Report Seqwater Irrigation Price Review 2013-17*.

[76] Australian Construction Industry Forum (2013) *Total Engineering Price Index*. Accessed online at http://www.acif.com.au/forecasts/construction-aggregates (Requires subscription)

[77] The ABS's engineering construction activity data consists of estimates of activity in Australia by both public and private sector organisations. The estimates are compiled from the Engineering Construction Survey (ECS). Building activity data is developed from building approval details and responses to the ABS' quarterly Building Activity Survey provided by organisations engaged in building activity.

[78] Queensland Competition Authority (2013) *Final Report, SEQ Price Monitoring for 2012-13 Part B – Detailed Assessment*. Available at: http://www.qca.org.au/getattachment/ba92fecc-d488-44f8-8bb7-ad7ecda7bf65/SEQ-Interim-Price-Monitoring-for-2012-13-Draft-Rep.aspx

Table 16: Application of alternative capital expenditure escalation factors – regulatory review (QCA)

Business	Regulator	Proposed approach	Approved approach
Queensland Urban Utilities *(2012/13 review period)*	QCA	• QUU indexed capital costs by applying the Construction Forecasting Council Engineering Construction Price Index for Australia. • Escalation factors applied were 0.86%, 0.89% and 2.49% for 2012/13, 2013/14 and 2014/15 respectively.	• The QCA noted that the index includes data from construction types and geographic areas that are not directly relevant to QUU's water and sewerage business. • Given the conservative nature of the estimates, the QCA accepted the escalation factors, noting that any subsequent variations between forecast and actual costs can be taken into account in future reviews.[79]
Unitywater *(2011/12 review period)*	QCA	• Unitywater[80] escalated its capital expenditure costs according to data sourced from the Producer Price Index Road and Bridge series for Queensland, published by the Australian Bureau of Statistics (ABS). • It applied the 10 year to June 2011 compound growth rate, equal to 5.20%.	• The Authority noted that historical price pressures would not necessarily be sustained over the long term, and the index used by Unitywater may be affected by market conditions in the types of construction not directly relevant to the business's water and sewerage operations. • However the QCA referred to a previous Access Economics review into infrastructure charges that noted escalation rates for construction costs should be based on long run trends, rather than short run averages. • Based on this, the QCA considered the proposed indexation rate of 5.2% to be reasonable, though on the high side.[81]

[79] Queensland Competition Authority (2013) *Final Report, SEQ Price Monitoring for 2012-13 Part B – Detailed Assessment.* Available at: http://www.qca.org.au/getattachment/ba92fecc-d488-44f8-8bb7-ad7ecda7bf65/SEQ-Interim-Price-Monitoring-for-2012-13-Draft-Rep.aspx

[80] Queensland Competition Authority (2012) *Final Report. SEQ Interim Price Monitoring for 2011-12. Part B Detailed Assessment.* Available at: http://www.qca.org.au/getattachment/c618d45b-ecc7-4aad-a49d-ff184e3d263f/SEQ-Interim-Price-Monitoring-for-2011-12-Final-(1).aspx

[81] Queensland Competition Authority (2012) *Final Report. SEQ Interim Price Monitoring for 2011-12. Part B Detailed Assessment.* Available at: http://www.qca.org.au/getattachment/c618d45b-ecc7-4aad-a49d-ff184e3d263f/SEQ-Interim-Price-Monitoring-for-2011-12-Final-(1).aspx

Business	Regulator	Proposed approach	Approved approach
Allconnex *(2011/12 review period)*	QCA	• Similar to Unitywater, Allconnex escalated its capital expenditure according to the Queensland Road and Bridge Construction Index. • It applied the annual average increase over the period from December 1999 to December 2010, equal to 4.75 percent.[82]	• The Authority noted similar issues to the Unitywater methodology (discussed above). • However Allconnex's indexation was considered to be reasonable, with any variations between forecast and actual costs to be taken into account in future reviews.

In addition to the SEQ water businesses, the QCA is also responsible for the review of pricing practices undertaken by the Gladstone Area Water Board (GAWB). In GAWB's 2010 price review, GAWB proposed to escalate its capital expenditure according to the three year (2007 to 2009) average of the general Queensland construction industry index.[83] GAWB did not provide details of the publishers of this data.

In contrast to its determination for the SEQ water businesses, the QCA determined that GAWB's application of the construction index was not appropriate. The QCA considered that a three year average of construction price increases would not provide a reliable indication of cost escalation over the period 2012 to 2015. It noted that market conditions may now be markedly different from those in the period 2007 to 2009, and therefore proposed that the CPI be applied over the regulatory period. [84]

Victoria – Essential Services Commission

The Essential Services Commission (ESC) reviews water prices set by the three metropolitan retail water businesses in Melbourne (City West Water, South East Water and Yarra Valley Water) and Melbourne Water. In the 2009 Metropolitan Melbourne Water Price Review, the ESC determined that capital expenditure be escalated according to the CPI rather than a capital expenditure specific forecast of price escalation.[85] The ESC considered that while CPI and a construction index will diverge over the short term, over the medium to longer term CPI would provide the best measure of changes in input costs.

The ESC also noted that the use of CPI has the advantage of simplicity. If capital expenditure specific indices were used to escalate input prices, it would be necessary to identify escalators for different services and materials. CPI, however, represents a bundle of goods and services and is easily accessible.

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82 Allconnex (2011) *Allconnex Water Price Monitoring Submission 2011-12*. Available at: http://www.qca.org.au/getattachment/92467ed8-8125-4496-9ce5-8a4e88989b91/Allconnex-Water-Submission-1.aspx

83 Gladstone Area Water Board (2010) *Expenditure proposals for the 2010 price review*. Accessed online at http://www.qca.org.au/getattachment/50efda4f-8b93-4006-ba7e-978302642d1c/Submission-2-Expenditure-Proposals.aspx

84 Queensland Competition Authority (2010) *Gladstone Area Water Board: Investigation of Pricing Practices*. Accessed online at http://www.qca.org.au/getattachment/478dc5a6-4981-459d-800f-018003607aa4/Final-Report-Gladstone-Area-Water-Board-Investigat.aspx

85 Essential Services Commission (2009) *Metropolitan Melbourne Water Price Review- Final Decision 2009*. Accessed online at http://www.esc.vic.gov.au/getattachment/f3f8deaa-d639-45e3-a5ec-af64c9654434/Final-Decision-Metropolitan-Water-Price-Review-200.pdf

New South Wales – Independent Pricing and Regulatory Tribunal

Under Section 12 of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act), IPART is required to review the determination of pricing for a number of water businesses, including Sydney Water and Hunter Water.

For the 2008 determination period, both Sydney Water and Hunter Water proposed two different approaches for escalating capital costs, as described below.

Table 17: NSW capital expenditure escalation methodologies

Regulator	Determination
Hunter Water	In Hunter Water's 2008 submission to IPART it proposed to escalate its capital expenditure using the Engineering Construction Cost Implicit Deflator forecast (4.8 percent for the period from 2009-10 to 2012-13), rather than inflation.[86] Hunter Water's proposed escalation rate was based on analysis undertaken by external consultants which found that construction costs had consistently been above CPI.
Sydney Water	In Sydney Water's 2008 submission to IPART it proposed to escalate its capital costs by 5 percent.[87] The request was based on an average annual increase in the construction cost index from 2002-03 to 2006-07 of 5.8 percent compared with CPI of 2.7 percent.

IPART undertook its own analysis of construction cost changes relative to CPI as part of its assessment of an appropriate index for capital costs. Its assessment concluded that although short term changes between movements in capital costs relative to CPI were considerable, the long term averages were similar. It also noted uncertainties in the domestic and global capital markets which could have negative impacts on construction activity. As a result, IPART did not support the use of the construction cost index, and determined that capital expenditure forecasts should be escalated using CPI.

Other regulated sectors – electricity

In previous regulatory determinations, including those for Energex and Ergon Energy in their 2010/11 to 2014/15 regulatory period, the AER indicated its preference for the use of the engineering construction price index based on the fact that forecasts are derived from ABS data and that they incorporate long-term macroeconomic forecasts (further detail is provided in Table 18).

86 Hunter Water Corporation (2008) *Submission to IPART on prices to apply from 1 July 2009*. Accessed online at http://www.ipart.nsw.gov.au/files/d4497a00-cada-42d3-b14a-9f240108cdf8/Revised_Submission_-_HWC_Price_Review_2008-2009_-_Hunter_Water_Corporation_-_John_OHearn_-_22_October_2008_-_WEBSITE_SUBMISSION.pdf

87 Independent Pricing and Regulatory Tribunal (2008) *Review of prices for Sydney Water Corporation's water, sewerage, stormwater and other services*. Accessed online at http://www.ipart.nsw.gov.au/Home/Industries/Water/Reviews/Metro_Pricing/Investigation_into_Prices_for_Water_Sewerage_and_Stormwater_services_provided_by_Sydney_Water_Corporation_-_From_1_July_2008/16_Jun_2008_-_Final_Determination_and_Report/Final_Report_and_Determination_-_Review_of_prices_for_Sydney_Water_Corporations_water_sewerage_stormwater_and_other_services_-_June_2008

Table 18: Previous AER determinations for Energex and Ergon Energy

Business	Regulator	Proposed approach	Approved approach
Ergon Energy *(2010/11 to 2014/15 regulatory period)*	AER	• For Ergon Energy's 2010/11 to 2014/15 regulatory period, it sought advice from SKM to develop forecast building costs escalators. SKM analysed ABS data and sought additional information from a range of organisations to determine a forecast for building costs. • SKM considered that insufficient publicly available historical or forecast data existed to derive a relevant escalator. In the absence of a reputable building cost escalation forecast, SKM considered it reasonable to assume that building costs will escalate at least in line with the rate of growth in construction costs as based on the ACIF engineering construction price index.[88]	• In the AER's draft determination it considered Ergon Energy's approach to apply the ACIF engineering construction price index forecasts as a proxy for a building cost escalator to be reasonable, particularly as the construction cost forecasts are derived from the ABS data. • In its final determination, the AER maintained its decision that use of the ACIF engineering construction price forecasts were appropriate, however updated these values to reflect the most recent nominal forecasts, which were then deflated using the Australia National State and Industry Outlook (ANSIO) CPI forecasts. [89]
Energex *(2010/11 to 2014/15 regulatory period)*	AER	• Energex proposed to apply construction cost escalation rates developed by KPMG and based upon ABS data to account for movements in building costs in its proposal for the 2010/11 to 2014/15 regulatory period. [90] • KPMG developed the rates based on ABS engineering construction activity data[91] over the period 1998 to 2008. It considered this to be an appropriate data source as it was also applied by Econtech to develop its construction cost forecasts for the ACIF Construction Forecasting Council, approved by the AER in its recent ACT and NSW final electricity distribution determinations.[92] [93]	• In considering Energex's proposed approach the AER noted that the ACIF forecasts also consider ABS building activity data[94] and macroeconomic projections when determining its construction cost forecasts. The AER therefore considered that the ACIF forecasts would more accurately reflect the volatility and uncertainty of economic conditions as it incorporates more historical data and macroeconomic projections. • The AER did not consider KPMG's construction cost escalation forecast to be reasonable, and determined that Energex should apply the construction cost index developed by the ACIF. [95]

88 Australian Energy Regulator. 2009. *Queensland Draft Determination Decision – Appendices – 2010-15*. Available at: http://www.aer.gov.au/sites/default/files/QLD%20draft%20decision%20-%20appendices.pdf.

89 Australian Energy Regulator (2012) *Final Distribution Determination Aurora Energy Pty Ltd 2012–13 to 2016–17*. Available at http://www.aer.gov.au/sites/default/files/Final%20distribution%20determination%20for%20Aurora%20Energy.pdf

90 Energex (2009), *Regulatory proposal*, Accessed online at https://www.energex.com.au/__data/assets/pdf_file/0020/26705/ENERGEX_s_Regulatory_Proposal_2010-2015.pdf

91 ABS, Engineering Construction Activity, Cat No. 8762.0. Available at: http://www.abs.gov.au/ausstats/abs@.nsf/mf/8762.0

92 AER (2009) *Australian Capital Territory distribution determination 2009-10 to 2013-14*. Accessed online at http://www.aer.gov.au/sites/default/files/AER%20Final%20decision%20-%20ACT%20determination%202009-10%20to%202013-14%20-%20April%202009.pdf

93 AER (2009) *New South Wales distribution determination 2009-10 to 2013-14*. Accessed online at http://www.aer.gov.au/sites/default/files/NSW%20DNSPs%20final%20decision%2028%20April%202009_1.pdf

7.2.3 Summary findings

There have been a number of different approaches proposed by regulated entities in Australia to escalate capital expenditure, with no single approach universally accepted by Australian regulators.

In recent south east Queensland water retail price reviews, entities have escalated capital expenditure based on ACIF engineering construction price index forecasts, as well as historical averages of the Queensland road and bridge index. Where ACIF forecasts have been applied, the QCA has noted that data is based on geographies and construction types that are not necessarily relevant to the business, however the approach was accepted given estimates were conservative.

The AER has also indicated its preference for the use of ACIF forecasts, as they are derived from ABS data and incorporate long-term macroeconomic forecasts.

Where historical movements in the road and bridge index have been applied, the QCA has noted that historical price pressures may not be sustained over the long term, and the index may be affected by market conditions not relevant to the capital costs incurred by a water and sewerage business. Nonetheless the methodology was still accepted, with the Authority noting that any variations between forecasted and actual costs would be taken into account in future reviews.

Regulators in Victoria and New South Wales have elected to apply CPI when escalating capital costs in recent reviews, noting that although there are short term deviations between inflation and construction costs, over the medium to longer term averages are similar.

7.3 Market trends

7.3.1 Historical movements in construction price indices

Figure 15 compares movements in the building construction, non-residential building construction and road and bridge price indices for Queensland. The three indices have followed a similar trend over the past decade, growing at over 5 per cent a year to 2008 before moderating following the global financial crisis.

All three groups experienced growth well above inflation between 2003 and 2008. The building construction index averaged 7.9 per cent growth over this period, while the non-residential index averaged 9.0 per cent and the road and bridge index 6.9 per cent. Price growth moderated from 2008 onwards, with the building construction index remaining flat and the non-residential construction index falling. The road and bridge index grew moderately between 2008 and 2013, averaging 2.6 per cent annually.

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94 ABS, *Building Activity*, Cat No. 8762.0

95 Australian Energy Regulator (2012) *Final Distribution Determination Aurora Energy Pty Ltd 2012–13 to 2016–17*. Available at http://www.aer.gov.au/sites/default/files/Final%20distribution%20determination%20for%20Aurora%20Energy.pdf

Figure 15: Comparison of historical inflation to construction price indices, 2003 to 2013 (year to June)[96]

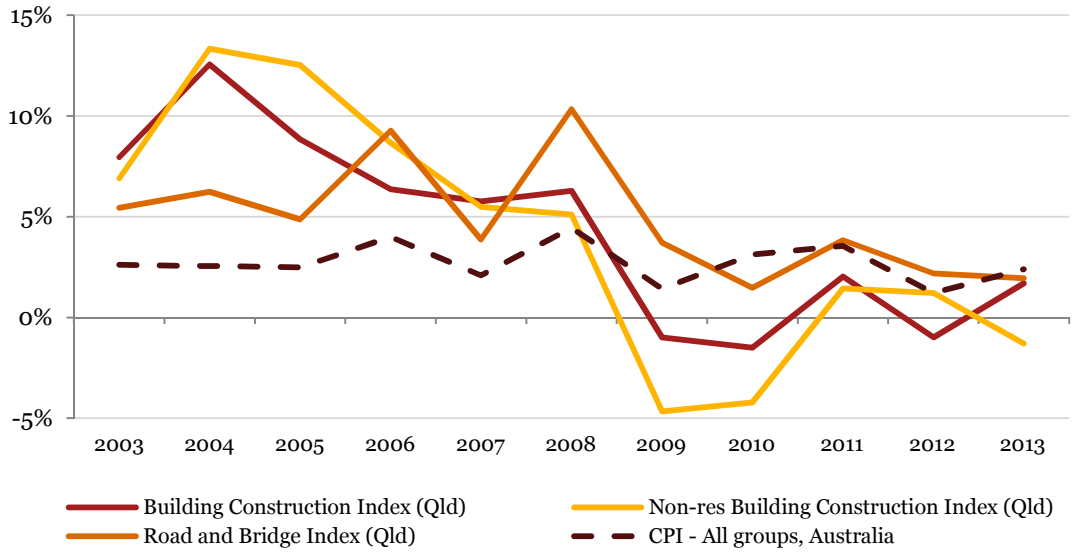


Figure 16 compares movements in the engineering construction activity implicit price deflator (IPD) with general inflation. Similar to the construction producer price indices, the engineering construction activity IPD grew well above inflation over the first half of the decade, before moderating substantially from 2008 onwards.

Figure 16: Comparison of historical inflation to Queensland engineering construction activity implicit price deflator, 2003 to 2013 (year to June)[97]

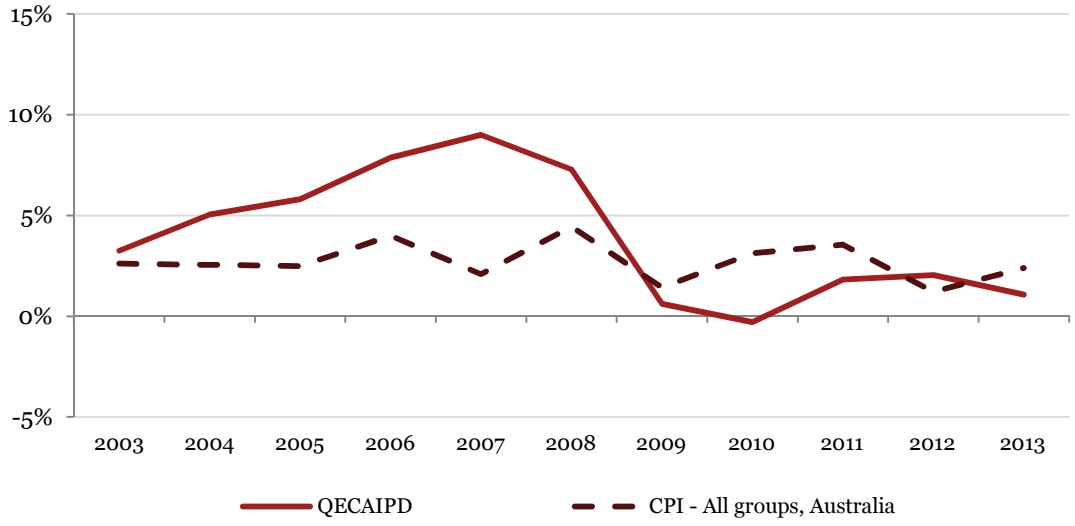


Table 19 summarises recent price movements in the construction producer price indices and engineering construction activity IPD.

[96] Australian Bureau of Statistics (2013) *Producer Price Indexes – December 2013*. Cat. No. 6427.0 Table 17

[97] Australian Bureau of Statistics (2013) *Engineering Construction Activity, Australia, Dec 2013*. Cat. No. 8762.0, Tables 2 and 4

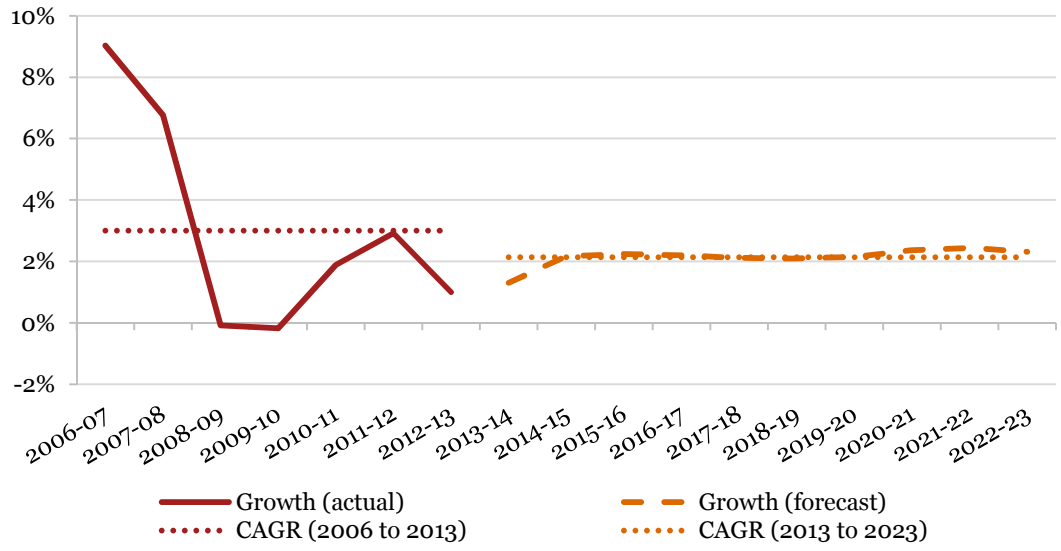
Table 19: Comparison of price growth across various construction price indices

Index	CAGR		
	2003-2008	2008 - 2013	2003 - 2013
Building Construction, Qld	7.9%	0.0%	3.9%
Non-residential building construction, Qld	9.0%	-1.5%	3.6%
Road and Bridge, Qld	6.9%	2.6%	4.7%
QECAIPD	7.0%	1.0%	4.0%
CPI – All groups, Australia	3.1%	2.3%	2.7%

7.3.2 Engineering construction price index forecasts

Figure 17 shows historical growth and forecasts to 2023 for the ACIF engineering construction price index (real terms). The index has followed a similar trend to the construction producer price indices and engineering construction activity IPD, growing strongly prior to the financial crisis and then moderating after 2008. Growth is forecast to remain low and stable out to 2023, averaging 2.1 per cent over the decade.

Figure 17: Engineering construction price index, historical and forecast (2006/07 to 2022/23)[98]



[98] Australian Construction Industry Forum (2014) Engineering Construction Index. Accessed online at http://www.acif.com.au/forecasts/construction-aggregates (Requires subscription)

7.4 Discussion

In general, there is no universal approach to escalating capital costs which is consistently applied to regulated water businesses in Australia.

For example, in Victoria and New South Wales, while some water businesses have proposed to apply a construction specific escalation rate to their capital expenditure, both the ESC and IPART have determined that CPI is a more appropriate measure of capital expenditure escalation. These determinations were based on the ease of applying CPI, together with the similarities between CPI and capital escalation rates over the long term.

By comparison, while the QCA recommended that GAWB apply CPI for escalating capital related costs, more recently it has tacitly accepted the use of capital specific escalation factors for Queensland water businesses. In accepting the use of a capital specific escalation factor by the SEQ water retailers, as well as SunWater and Seqwater, the QCA acknowledged that indices may be affected by market conditions that are not directly relevant to the water industry. However, the Authority considered it to be appropriate as any variations observed between forecast and actual cost increases could be taken into account in future reviews.

The QCA acknowledged that the Engineering Construction Price Index is based on data from seven construction types (including road, bridge, electricity and pipeline, water and sewerage, telecommunications and mining) and eight states and territories, so to some extent may reflect factors which are not directly relevant to water businesses. However, we consider that this issue would be magnified by the application of CPI, which specifically monitors movements in household expenditure. Indeed, the QCA accepted the use of the Engineering Construction Price Index in its 2011/12 and 2012/13 Interim Price Monitoring determinations for QUU.

In addition, the ACIF index is a measure which has been developed based on ABS construction data and incorporates macroeconomic forecasts. The measure is regularly reviewed to reflect recent developments. This, along with its general acceptance by both the QCA and the AER, indicates that it would provide an appropriate escalation factor for the purpose of forecasting building capital expenditure over the forecast regulatory period, as well as rebasing capital expenditure estimates developed in previous years.

We note that given its broad nature, there may be some inconsistencies between price changes forecast by the Engineering Construction Price Index and costs incurred by Seqwater, however these are not expected to be material in nature.

7.4.1 Capital expenditure escalation factors

The following escalation factors are proposed for capital expenditure (Table 20). Historical data and forecasts are based off the most recent ACIF release (November 2013), which provides data in real terms only. Historical CPI data are used to convert historical real data to nominal values (based on the CPI – All Groups, Australia series). For future years, forecasts of CPI are used to calculate nominal growth rates. These estimates are based on current forecasts published by the RBA.[99]

The engineering price index is also included, which we have rebased to 2013/14. We recommend this be used to rebase capital expenditure forecasts from prior years into 2013/14 dollars. As current forecasts are available to 2022/23, we recommend applying CPI over the remainder of the forecast period (2023/24 to 2027/28).

Table 20: Historical data and forecasts of the ACIF engineering construction price index[100]

	Nominal growth rate (%)	Real growth rate (%)	Price index (real)
2006/07	11.31%	9.02%	0.88
2007/08	11.51%	6.76%	0.93
2008/09	1.34%	-0.08%	0.93
2009/10	2.94%	-0.17%	0.93
2010/11	5.51%	1.89%	0.95
2011/12	4.17%	2.92%	0.98
2012/13	3.42%	1.00%	0.99
2013/14	4.34%	1.30%	1.00
2014/15	5.24%	2.17%	1.02
2015/16	4.80%	2.25%	1.04
2016/17	4.75%	2.20%	1.07
2017/18	4.67%	2.12%	1.09
2018/19	4.65%	2.10%	1.11
2019/20	4.70%	2.15%	1.14
2020/21	4.92%	2.36%	1.16
2021/22	5.01%	2.45%	1.19
2022/23	4.88%	2.32%	1.22
2023/24 - 2027/28	2.50%	0.00%	-

99 The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia (May 2014) for June 2014. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.5 and 3.5 per cent. For the purposes of developing real estimates, the mid-point of this range has been applied. For all remaining years, the mid-point of the RBA inflation target (2 to 3 per cent) has been applied. RBA estimates of inflation are published in its Statement on Monetary Policy, available at http://www.rba.gov.au/publications/smp/index.html

100 Australian Construction Industry Forum (2014) Engineering Construction Index. Accessed online at http://www.acif.com.au/forecasts/construction-aggregates (Requires subscription)

In addition to financial year escalators, Seqwater has requested that the ACIF index and cost escalators be reproduced for calendar years (see Table 21). The mid-point of each financial year data point has been used as a proxy for the index value at December of each year. As above, historical inflation data are used to convert real values to nominal values to 2013. For future years, estimates of forecasts of CPI produced by the RBA are used to convert real growth to nominal values.

Table 21: Estimated ACIF engineering construction price index growth (calendar years)[101]

	Nominal growth rate (%)	Real growth rate (%)	Price index (real)
2007	10.96%	7.84%	0.89
2008	7.05%	3.23%	0.92
2009	1.93%	-0.13%	0.92
2010	3.64%	0.86%	0.93
2011	5.48%	2.41%	0.95
2012	4.20%	1.95%	0.97
2013	3.93%	1.15%	0.98
2014	4.54%	1.74%	1.00
2015	5.02%	2.21%	1.02
2016	4.78%	2.22%	1.04
2017	4.71%	2.16%	1.07
2018	4.66%	2.11%	1.09
2019	4.68%	2.12%	1.11
2020	4.81%	2.26%	1.14
2021	4.96%	2.40%	1.17
2022	4.94%	2.38%	1.19
2023-2028	2.50%	0.00%	-

[101] PwC analysis based on Australian Construction Industry Forum (2014) Engineering Construction Index. Accessed online at http://www.acif.com.au/forecasts/construction-aggregates (Requires subscription)

8 Summary

Seqwater has engaged PwC to develop cost escalation factors by cost category for the purposes of informing Seqwater's regulatory submission to the Queensland Competition Authority (QCA) for the period covering 2014 to 2028. This report has presented PwC's recommended escalation rates for each cost category, as summarised below.

Table 22: Proposed escalation factors by cost category

Cost Category	Recommended escalation factor	Source
Employee and contract labour expenses	Seqwater Certified Agreement (CA) to 2015/16	Seqwater CA (2013 to 2016)
	Queensland wage price index (WPI) forecast over remainder of the forecast period (to 2027/28)	Queensland Treasury and Trade (WPI forecast to 2016/17, extrapolated over forecast period)
Contractors (service delivery)	Weighted index of the Queensland WPI forecast, CPI forecast and long run average of non-residential building construction index (Queensland). *Escalation factor = 0.38(WPI) + 0.15(CPI) + 0.46(NRBCI)*	Queensland Treasury and Trade (WPI forecast to 2016/17, extrapolated over forecast period) Reserve Bank of Australia (CPI) Australian Bureau of Statistics (NRBCI)
Electricity	Estimate of actual price growth in 2013/14 and 2014/15	Seqwater large contestable site contracts (growth in variable costs)
	Long run average annual growth in SKM MMA price index for Queensland industrial customers, medium scenario, over remainder of forecast period	QCA (growth in fixed network costs) SKM MMA (industrial electricity price index, Queensland)
Chemicals	CPI	Reserve Bank of Australia (CPI)
Other materials and services	CPI	Reserve Bank of Australia (CPI)
Capital expenditure	Engineering Construction Price Index to 2022/23	Australian Construction Industry Forum (Construction Forecasting Council)
	CPI over remainder of forecast period	Reserve Bank of Australia (CPI)

To ensure the ongoing applicability of the specific indices and escalation methodologies outlined in this report, we recommend that Seqwater continue to monitor actual price movements compared to those forecast, to determine if the methodologies recommended provide accurate forecasts of cost movements.

Accounting for uncertainty

Beyond the selection of an escalation factor, it is worthwhile acknowledging that a forecast provides an estimate of likely price movements, based on the best available data at a point in time. Accordingly, any forecast may not accurately predict unexpected macroeconomic or market trends which significantly alter movements in key inputs (e.g. significant fluctuations in exchange rates, interest rates, or changes in labour market dynamics).

There is, therefore, a degree of risk for business applying escalation factors in that unanticipated developments, which result in higher or lower unit price movement, can affect revenue outcomes.

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