APPENDIX 21

Forecast cost escalation rates
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Forecast cost escalation rates

Final report

Energex

Supporting documentation for Energex's AER submission

4 March 2014

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Executive summary

Overview

Energex is approaching its distribution determination process for the period covering 1 July 2015 to 30 June 2020. As part of this process, Energex has engaged PricewaterhouseCoopers (PwC) to determine appropriate cost escalation factors for a range of cost categories, specifically:

- labour and fixed-term contractors
- contractors (service delivery)
- non-system materials, including ancillary consumables used in the performance of maintenance, and operating and support activities
- non-system assets, including land, buildings, and motor vehicles
- occupancy expenditures, including rent and leases, utilities and maintenance
- transport costs, including vehicle maintenance, fuels and oils, insurance and registration
- land tax.

Approach

This report identifies and analyses expected movements in the drivers of capital, operating, and support expenditure, and develops cost escalation factors for each of the cost categories specified above. The analysis has drawn on Energex's historical financial data 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 Energex's regulatory submission to the Australian Energy Regulator (AER) for the period covering 2015 to 2020.

Table 1: Proposed escalation factors by cost category

Cost Category	Recommended escalation factor	Source
Employee and fixed term contractors	The Queensland Wage price index (WPI), subject to wage movement guidance provided in relevant Queensland Government policies or legislation.	Queensland Treasury and Trade (WPI)
Contractors (service provision)	Weighted index of the national WPI, Consumer Price Index (CPI) and a fixed component. *Escalation factor = 0.43(WPI) + 0.48(CPI) +0.09(Fixed)*	Commonwealth Treasury (WPI) Reserve Bank of Australia (CPI)
General materials	CPI	Reserve Bank of Australia (CPI)

Cost Category	Recommended escalation factor	Source
Building (capital expenditure)	Engineering Construction Price Index	Australian Construction Industry Forum (Construction Forecasting Council)
Land (capital expenditure)	Long run average growth rate in land value for Queensland (over the full series)	Australian Bureau of Statistics
Land tax	Long run average growth rate in land value for Queensland (over the full series)	Australian Bureau of Statistics
Occupancy expenditure – rent and leases – utilities (gas, water and electricity) – land and buildings maintenance and upkeep	Weighted index of expected rental increases, the long run average annual increase in the CPI – Utilities (Australia) series, and CPI. *Escalation factor = 0.50(Rent) + 0.21(CPI - Utilities)+ 0.29(CPI)*	Energex Australian Bureau of Statistics Reserve Bank of Australia (CPI)
Motor vehicles (capital expenditure)	CPI	Reserve Bank of Australia (CPI)
Transport costs – vehicle maintenance – fuel and oils – vehicle registration – insurance	Weighted index of the upper bound of the RBA's inflation target, WPI, the mid-point of expected registration increases and the long run growth rate of the CPI – Insurance (Australia) series. *Escalation factor = 0.49(Inflation) + 0.35(WPI) +0.09(Registration)+0.07 (CPI - Insurance)*	Reserve Bank of Australia (Inflation) Queensland Treasury and Trade (WPI) Australian Bureau of Statistics

Contents

1 Project overview

1.1 Background

The Australian Energy Regulator (AER) has regulatory oversight across the National Electricity Market (NEM)[1], in accordance with the National Electricity Laws and Rules. Under the National Electricity Rules (NER), regulated electricity network businesses must periodically apply to the AER to assess their revenue requirements to ensure it is appropriate given the business' efficient costs (including operating and maintenance expenditure and capital expenditure), while providing for a commercial return on capital.

Expenditure forecasts, based on reasonable and robust assumptions, form an integral part in the development of the regulatory submission, and the determination of the revenue requirement over the forward regulatory period.

Energex is approaching its distribution determination process for the period covering 1 July 2015 to 30 June 2020. As part of this process, Energex has engaged PricewaterhouseCoopers (PwC) to determine appropriate cost escalation factors for a range of expenditure items, specifically:

- labour and fixed term contractors
- contractors (service delivery)
- non-program of work materials, including ancillary consumables used in maintenance and operating activities
- non-system assets, including land, buildings, and motor vehicles
- occupancy expenditures, including rent and leases, utilities and maintenance
- transport costs, including vehicle maintenance, fuels and oils, insurance and registration
- land tax.

Our analysis does not consider expected movements in the prices of materials related to Energex's program of works. Escalation forecasts for these items have been considered as part of a separate assessment performed by Sinclair Knight Merz.

1.2 Cost escalation

Cost escalation is an important feature in the estimation of a regulated business' revenue requirement over the regulatory period, as it ensures that any input price movements are captured accurately. Where revenue requirements and the associated return on capital can be affected by unit price 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.

[1] The NEM encompasses Queensland, New South Wales, the Australian Capital Territory, Victoria, South Australia and Tasmania.

This can include the construction of a bespoke index for a particular category or categories of costs. Typically these types of indices are derived where a particular category of costs are sufficiently material to warrant this type of assessment. 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 to inform their determination processes. This index, which is not publicly available, has been applied by urban water businesses as part of informing their regulatory proposals.

Alternatively, where a particular cost item or set of cost items does not warrant this scale of detailed assessment, it is useful to draw on relevant publicly available indices for these purposes. In general, the consumer price index (CPI) is commonly applied as an escalation factor for adjusting unit prices, for some goods and services, over time. While noting that this measure reflects a 'basket of goods' and may not be entirely comparable to the nature of goods and services purchased by a business, particularly an electricity distribution 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.

This does not imply that CPI provides an appropriate escalation factor for all goods and services. Indeed, there are a range of other publicly available cost escalation measures which may better align to the movements in specific business costs, including producer price indices, wage price indices or a product specific index (such as construction price index). It may also be appropriate to construct a weighted index, tailored in line with specific mix of input components, for the purpose of escalating costs over time.

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 Key project deliverables

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

1.3.1 Approach

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 Energex'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 the AER and other 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 along with related indices developed by other third-parties. Where appropriate, the construction of composite or weighted indices combining publicly available indices have 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.

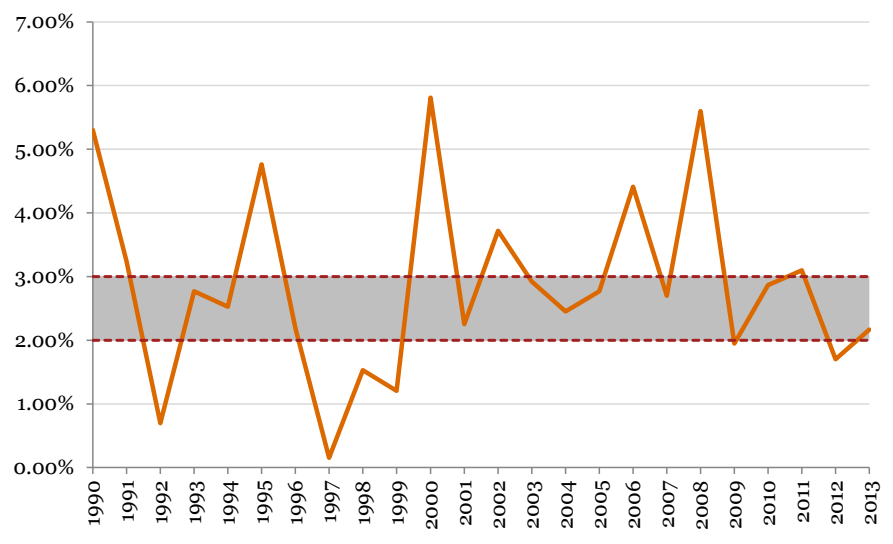
Box 1: Forecasting using estimates of the consumer price index (CPI)

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).[2] 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.

[2] 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.



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.

Recent developments regarding CPI forecasts

There are multiple factors which may affect future movements in inflation over the forward period, including:

- movements in the exchange rates, which are expected to result in higher 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.

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

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

1.3.2 Report structure

This report is structured as follows

- Chapter 2 – Employee and fixed-term contractor costs
- Chapter 3 – Contractors (service delivery)
- Chapter 4 – General materials
- Chapter 5 – Buildings
- Chapter 6 – Land
- Chapter 7 – Land Tax
- Chapter 8 – Occupancy expenditure
- Chapter 9 – Motor vehicles
- Chapter 10 – Transport costs
- Chapter 11 – Summary.

1.4 Limitations

Energex introduced a new finance system around 2008. This has limited the extent of historical cost data that could be readily provided as part of this review and hence the extent of any assessment of movements in actual input prices relative to a particular escalation factor.

In some instances, current system reporting did not readily and easily distinguish input price movements as separate from changes in total expenditure that relate to change in the quantity of goods and services purchased. Accordingly, for certain cost categories, this assessment has been based on industry best-practice among regulated businesses and informed by broader market and economic trends where appropriate.

Lastly, this assessment does not assess the efficiency or prudency of Energex's current expenditure levels.

2 Employee and fixed term contractors costs

We recommend that Energex escalate its annual labour and fixed term contractor costs using the wage price index, subject to wage movement guidance provided in relevant Queensland Government policies or legislation, such as the Queensland Government Owned Corporation Wages Policy.

2.1 Overview

Energex's employee and fixed term contractors includes all Energex employees, together with any fixed term contractors whose conditions of employment are in accordance with Energex's Union Collective Agreement (EUCA).

The EUCA governs a number of employment conditions including working hours, allowances, non-salary benefits, and annual wage increases. The current EUCA covers the period 2011 to 2014, and Energex is due to commence negotiations with stakeholders shortly to develop the EUCA for the period 2015 to 2018.

As a government owned corporation, Energex's UCA is required to comply with relevant State Government legislation, such as the Queensland Government Owned Corporation (GOC) Wages Policy.

2.2 Historical movements in labour and fixed term contractor costs

The total value of annual salaries, exclusive of overtime payments, paid to Energex employees and fixed term contractors as at 30 June of each financial year over the period 2007/08 to 2012/13 is presented in Table 2.

Table 2: Total salary cost and FTE workforce at 30 June, 2007/08 to 2012/13[4]

	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13
Total salaries	$267.5m	$298.8m	$323.5m	$353.9m	$366.9m	$339.3m
Total FTE	3,457	3,702	3,797	3,921	3,896	3,494

Also presented is the total number of full time equivalent (FTE) employees and fixed term contractors employed at 30 June of each financial year. Total salary costs include mandatory employee superannuation contributions as a percentage of base annual salary per employee, but exclude any payments made by Energex in recognition of voluntary employee superannuation contributions.

[4] Energex data, PwC analysis.

Energex has advised that mandatory employee superannuation payments are expected to increase from 9.25 per cent to 12 per cent of base salary per employee over the coming regulatory period in line with the then Commonwealth Government's decision announced in the 2010 Federal Budget.[5]

Total annual salary costs as at 30 June, inclusive of mandatory superannuation payments and exclusive of overtime payments, increased by $71.7m between 2007/08 and 2012/13. Total FTEs also increased, with significant growth between 2007/08 and 2010/11 associated with the capital program undertaken following the 2004 Electricity Distribution and Service Delivery Review. This program has required Energex to compete nationally for labour, which may be a factor influencing average annual salary increases over the period.

The nominal compound annual growth rate in the total value of annual salaries as at 30 June over the period was 4.6 per cent, equal to a real growth rate of 2.3 per cent (applying CPI – All Groups (Australia) as published by the Australian Bureau of Statistics (ABS)[6] as the measure of inflation).

2.3 *Alternative approaches for the escalation of labour and fixed-term contractors*

2.3.1 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.

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5 Australian Government (2010), *Budget measures: budget paper no. 2: 2010–11*. Available at http://www.aph.gov.au/Budget/2010-11/content/bp2/download/bp2.pdf

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

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 is 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.

2.3.2 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 3.

Table 3: Application of alternative labour escalation factors, regulatory review

Business	Regulator	Proposed approach	Approved approach
Aurora Energy *(2012/13 to 2016/17 regulatory period)*	AER	• CPI, with an efficiency factor of 3 per cent. • This efficiency factor was assumed to have been a result of inherent productivity gains, and is in line with Aurora's stated aim to minimise impacts of price increases on customers. • While the AER accepted the originally proposed approach, Aurora amended its labour cost escalation approach in its revised regulatory submission to reflect the recently finalised enterprise agreement and the labour price index developed by Deloitte Access Economics for the AER.[7]	• The AER was not satisfied that the labour cost escalators proposed by Aurora in its revised regulatory submission were reasonable. • The AER decided that labour costs would be escalated by CPI including the efficiency factor. • It deemed that Aurora's removal of the efficiency factor was not permitted, and hence adjusted the unit rates for the purposes of developing capital and operating expenditure forecasts.[8]

7 Aurora Energy (2012) *Aurora Energy Revised Regulatory Proposal 2012-2017*. Available at: http://www.aer.gov.au/sites/default/files/Aurora%20Energy%20-%20Revised%20Regulatory%20Proposal%202012%20-%202017.pdf.

8 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

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 the overall Queensland LPI, and the electricity, gas and water (EGW) industries for NSW, Queensland, Victoria, South Australia, ACT and Australia.[9] 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. [10]
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.[11] • While Ergon Energy disputed the use of these rates in their revised regulatory submission, the AER upheld their draft decision in the final determination.[12]

[9] 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.

[10] 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 .

[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

Business	Regulator	Proposed approach	Approved approach
Victorian Distribution Network Service Providers[13] *(2011/12 to 2014/15 regulatory period)*	AER	• Forecast labour escalation rates based on AWOTE data.	• The AER did not accept the methodologies used by the Victorian DNSPs in developing real labour cost escalators for their submissions. The AER considered the use of the LPI to be more appropriate for generating cost escalation rates for labour.[14]
Powerlink *(2012/13 to 2016/17 regulatory period)*	AER	• Labour growth rate based on Powerlink's enterprise bargaining agreement (EBA) for the period of the agreement, with rates calculated form AWOTE data applied thereafter.	• The proposed approach was not accepted on the basis that the AWOTE series incorporated earnings increases associated with wage inflation and increased worker productivity. The AER does not consider that businesses should be compensated for labour cost increases driven by increased productivity.[15] • The AER engaged an external consultant to develop a forecast of labour cost escalation based on LPI adjusted for worker productivity.

2.3.3 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. 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 businesses should be compensated.

[13] The Victorian Distribution Network Service Providers include Powercor, CitiPower, Jemena Electricity Networks, SP AusNet and United Energy Distribution.

[14] Australian Energy Regulator (2010) *Victorian electricity distribution network providers distribution determination*, Final Decision. Available at: http://www.aer.gov.au/sites/default/files/Victorian%20distribution%20determination%20final%20decision%202011-2015%20%2829%20October%202010%29_1.pdf.

[15] Australian Energy Regulator (2012) *Powerlink Transmission Determination 2012-13 to 2016-17*. Available at http://www.aer.gov.au/sites/default/files/Powerlink%20-%20Final%20decision%20-%20April%202012.pdf

The AER has consistently preferred the use 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 WPI is its preferred approach for assessing labour price changes over the forecast period.[16]

The AER has also tended to reject the application of wage inflation rates specified in EBAs and UCAs in cases where it did not consider such rates to be appropriate. For example, in Ergon Energy's 2010 to 2015 regulatory proposal Ergon Energy proposed to use the UCA escalation rates for the first year in its regulatory period. This approach was not approved by the AER, who noted that the UCA came into effect prior to the global financial crisis and therefore did not reflect the related impacts and uncertainty on the labour market, and also that the outcomes of specific wage negotiations did not necessarily reflect efficient labour costs for the industry as a whole.[17]

2.4 Market trends

2.4.1 Historical movements in wage price indices

Figure 1 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 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 0.65. Both series experienced a period of growth between 2002 and 2009, and declined 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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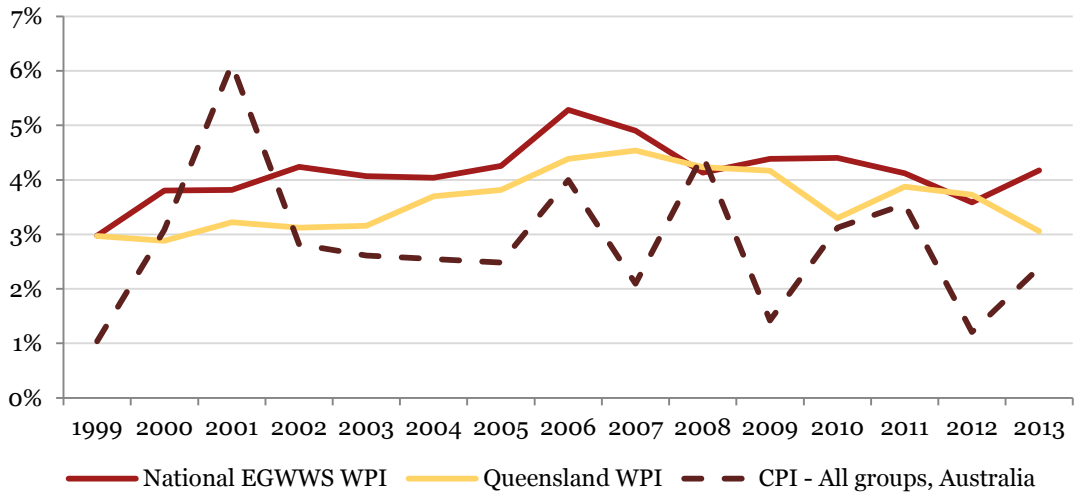
[16] Australian Energy Regulator (2013) *Better Regulation Expenditure Forecast Assessment Guideline for Electricity Distribution*. Available at: http://www.aer.gov.au/sites/default/files/Expenditure%20Forecast%20Assessment%20Guideline%20-%20Distribution%20-%20FINAL.pdf.

[17] Australian Energy Regulatory (2010) *Queensland distribution determination, 2010-11 to 2014-15, Final Decision*. Page 406. Available at*: http://www.aer.gov.au/sites/default/files/Queensland%20distribution%20decision%20-%20May%202010.pdf*

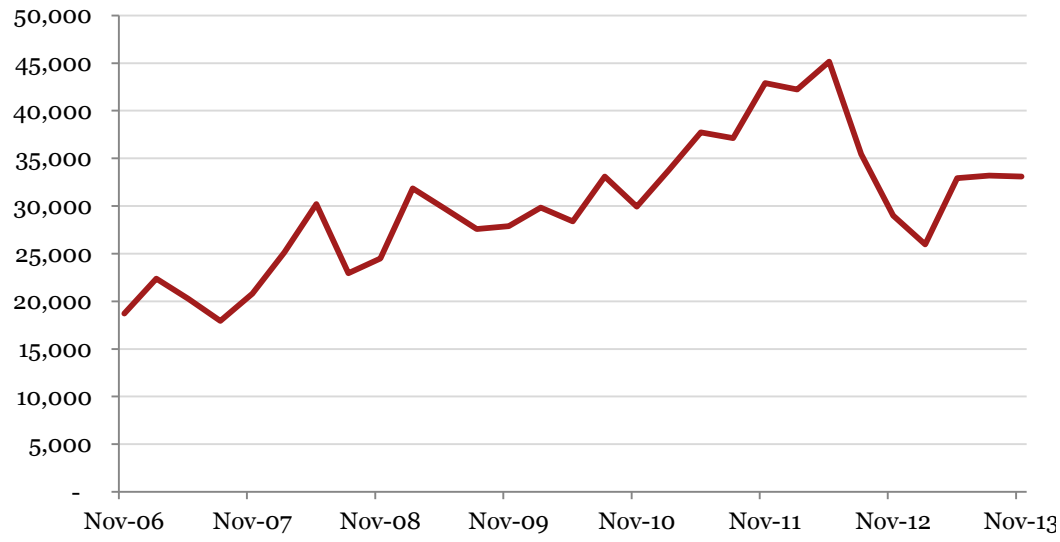
Figure 1: Comparison of historic inflation to national EGWWS industry and Queensland WPI, 1999 to 2013[18]



2.4.2 Labour demand

Demand for labour within the Queensland EGWWS industry grew steadily between November 2006 and May 2012, with total employment more than doubling over the period. In particular, employment grew by 59.0 per cent between May 2010 and May 2012, an average quarterly increase of 6.0 per cent. Total employment declined sharply between May 2012 and February 2013 (by 42.5 per cent, or 19,175 employees), though has recently shown signs of recovery with an increase in employment in May 2013 maintained through to November (Figure 2).

Figure 2: Queensland EGWWS industry employment, November 2006 to November 2013[19]



[18] Australian Bureau of Statistics (2013) *Wage Price Index – September 2013 Cat. No. 6345.0 Tables 2a and 9a*. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6345.0Sep%202013?OpenDocument

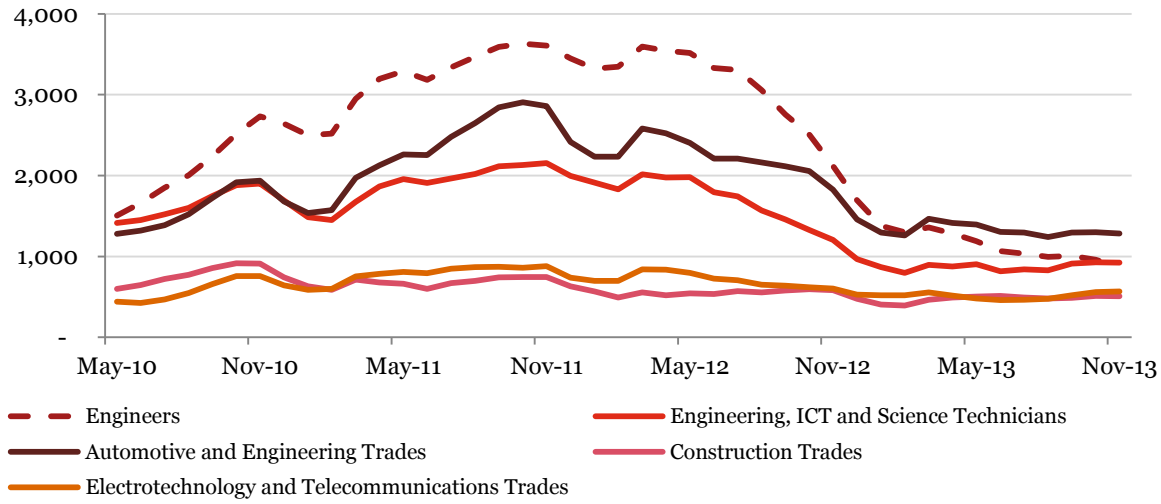
[19] Department of Employment (2013) *Labour Economics Office (LEO) Reports – Queensland*. Available at http://lmip.gov.au/default.aspx?LMIP/Publications/LabourEconomicsOfficeLEOReports/Queensland

The number of vacant positions recorded within related occupations moved in line with industry employment over the same period (Figure 3). The number of vacant Engineers, Automotive and Engineering Trades, and Electrotechnology and Telecommunications Trades positions each at least doubled between May 2010 and June 2012, 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 2. 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. The number of vacancies have increased slightly within the Engineering, ICT and Science Technicians; and Electrotechnology and Telecommunications Trades occupations.

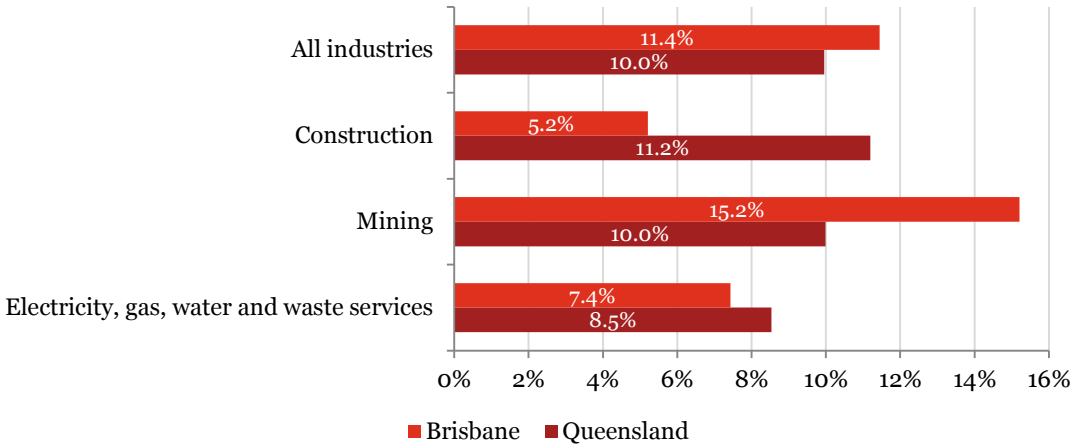
Figure 3: Growth in the number of Queensland EGWWS related vacancies, May 2010 to November 2013[20]



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

Demand for labour is forecast to increase over the period 2012 to 2017 (Figure 4), with EGWWS employment projected to grow both in Brisbane and Queensland, though at lower levels than overall employment.[21]

Figure 4: Projected employment growth by industry, November 2012 to November 2017[22]



While Energex may face increased competition for labour from the construction and mining industries which are both anticipated to grow at faster rates state-wide than the EGWWS industry, Energex has advised that their ability to attract and retain labour does not tend to be influenced by these sectors. This is related to employee preferences, which based on discussions with Energex, suggest that their workers enjoy being located within, or close to metropolitan areas.

2.4.3 Projections of the wage price index

Queensland Treasury and Trade (QTT) develop forecasts of the wage price index as part of its annual budgeting processes. The current forecast, published in the 2013/14 Economic Performance and Outlook budget paper, covers the period from 2014/15 to 2016/17, and is provided in Table 4.

Table 4: QTT forecast movements in the Queensland WPI, 2013/14 to 2016/17[23]

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

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

[22] 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 29,000. This suggests state-wide growth in EGWWS industry employment over the five year period could be up to 22.8 per cent (35,600/29,000).

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

In its 2013/14 Economic Performance and Outlook budget paper, 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. [24]

2.5 Discussion

Overall our analysis suggests that moderate increases in real wages within the Queensland EGWWS industry are likely to continue over the 2015/16 to 2019/20 regulatory period.

Competition for labour within the EGWWS sector is growing, as observed through recent strong growth in employment, together with modest increases in the number of vacant positions in related occupations. Industry-wide employment growth is also projected to continue at a moderate pace over the period to 2017 in both Brisbane and Queensland.

The AER has indicated a preference that forecasts of labour cost escalation be developed according to movements in wages as measured by the WPI. As discussed above, a key strength of the WPI is its ability to measure the pure 'price effect' of wage increases. As the quantity and quality of labour inputs are held constant, the index does not reflect wage movements driven by changes to workforce composition or productivity.

It is therefore recommended that Energex escalate its labour and fixed term contractor costs according to the WPI.

QTT develops a publicly available forecast of state-wide WPI over the period between 2014/15 and 2016/17. In general, historical movements in Queensland's state-wide WPI have moved in a similar fashion to the National EGWWS WPI and accordingly QTT's forecasts are deemed to provide an appropriate estimate of future wage movements within the EGWWS industry over the forward period.

Although no forecast of wage movements out to 2020 is publicly available, we consider that the long term trend for real wage increases within the EGWWS sector is likely to continue past 2016/17, and that a 3.5 per cent escalation factor will provide a reasonable reflection of broader labour market trends over this period.

We acknowledge that Energex's UCA, and therefore its actual labour and fixed term contractor costs, will ultimately be guided by the Queensland GOC Wage Policy. However, this policy may be subject to change over the coming regulatory period and may not reflect movements in wages incurred by an efficient firm operating in a competitive manner.

Moreover, in the past the AER has not accepted labour cost escalation forecasts simply on the basis that they are contained within a firm's UCA or EBA. Accordingly, WPI is deemed to provide a more appropriate method to forecast labour costs, though it may be appropriate to take into consideration any relevant State Government policies, to the extent that these affect any annual changes in Energex wage price movements.

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

We do not consider that Energex is required to distinguish between employees and fixed term contractors 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 there is no distinction made in the skills required or the activities undertaken between the two groups, and that the employment conditions of both are governed by the same policy.

2.5.1 Employee and fixed term contractor escalation forecast

The following escalation factors are proposed for employee and fixed term contractors, subject to the conditions specified in the Queensland GOC Wage Policy. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[25]

Table 5: Forecast labour and fixed term contractor escalation rates

Escalation factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Nominal growth rate	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Real growth rate	0.24%	0.73%	0.98%	0.98%	0.98%	0.98%	0.98%

[25] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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 Energex escalate its Contractor (service delivery) costs in line with a weighted index comprising CPI, WPI and a fixed component.

3.1 Overview

Energex outsources elements of its operations to third-party providers on a contract basis, including installation and maintenance of overhead service lines, vegetation management, streetlight services and distribution works.

For the purposes of determining an appropriate escalation factor for these services, Energex provided a summary of the escalation clauses contained within 40 individual contracts across its 12 largest service categories. This information outlined the proportion of contracted prices linked to specific costs or escalation factors, together with 2012/13 expenditure for each contract. From this data set, we removed two service contracts which expired either during, or soon after, 2012/13. Energex also provided eight complete contracts which provide more detail on the specific non-labour indices used in escalation clauses.

The remaining 38 contracts represent around 50 per cent of total 2012/13 service contractor expenditure. The escalation parameters contained within these contracts provide a reasonable indication of likely price escalation across Energex's total service contractor expenditure. While the specific details of Energex's contractors are confidential, the distribution of estimated expenditure in 2012/13 by service category is presented below.

Table 6: Estimated 2012/13 Energex service contractor costs[26]

Service	2012/13 value
Provision of vegetation management services	$50.3m
Civil works	$39.0m
Distribution works	$36.5m
Installation and maintenance of overhead service lines	$17.5m
Substation design and construct services	$15.4m
Facilities management, maintenance and services work	$12.1
[redacted]	[redacted]
Professional services - Engineering	$9.8m
Recruitment and labour hire services	$9.4m
Customer and metering services	$8.6m
[redacted]	[redacted]
Traffic control and work site security services	$5.0m
Total	**$222.8m**

[26] Energex data, PwC analysis.

In general, movements in contracted prices are based on escalation clauses specified in legal agreements between Energex 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 materials, plant and equipment and fuels) inputs – and this is weighted in line with each component's contribution to the total contracted price.

In certain cases, the prices of contracted services may not directly reflect input costs, and may simply be escalated by a constant factor. In others, contracted prices are calculated on a 'lump sum' basis and are renegotiated as required.

Input cost categories, the indices to which they are tied, and the average proportion of contracted prices represented by each cost type are outlined below.

Table 7: Proportion of price variations attributed to individual indices[27]

Cost component	Measures of price movements	Average proportion[28]
Labour	EBA	43.4%
	PPI – Engineering design and engineering consulting services[29]	
	Results of the ACEA salaries and benefits survey	
	Non-specified measure of labour price movements	
General costs (including overheads, fuel, transport and non-specified costs)	CPI – All groups (Australia)	47.8%
	CPI – All groups (Brisbane)	
	CPI – Automotive fuel (Australia)	
	CPI – Transport (Australia)	
	CPI – Transport (Brisbane)	
	PPI - Transport equipment manufacturing[30]	
Fixed		8.8%

[27] Energex data, PwC analysis.

[28] The proportions of some index weightings are based on a range. This is reflective of the fact that the contract included numerous different services types, each with their own alternative escalation factor/weighted index.

[29] We have allocated PPI – Engineering design and engineering consulting services to labour, as we consider movements in labour costs to be the primary driver of this index.

[30] We have allocated PPI – Transport equipment manufacturing to general costs, as we consider this index to reflect movements in the prices of a range of inputs.

To calculate the proportion that each cost component contributes to total contract prices on average, we:

- Calculated the weighted average proportion of contracted service prices attributed to each individual escalation factor.
    - In cases where multiple services are offered under the same contract, which each allocate different proportions of price to one escalation factor, we took the mid-point of the range. If the sum of these mid-points was more than 100 per cent, we proportionately adjusted each to ensure the total allocation per contract equals 100 per cent.
    - We assumed the prices of services calculated on a 'lump sum' basis will move in line with the average movement across all contracts. For these contracts, we applied the weighted average proportion allocated to WPI, CPI, PPI and fixed components across all contracts.
    - One distribution works contract contains a constant annual price increase of 3 per cent. This is deemed to provide a proxy measure of general inflation, and hence this contract price was tied to CPI for the purposes of this assessment.
    - Energex advised that movements in the price of recruitment and labour hire contract services are linked to movements in labour costs, and to allocate 100 per cent of the price of these services to labour related indices.
    - One professional services – engineering contract states prices are linked to movements in labour and general costs. Energex advised it is appropriate to link 80 per cent of these prices to labour indices, and 20 per cent to CPI.
    - The proportion of contracted service prices attributed to each individual escalation factor was weighted according to the 2012/13 expenditure per contract.
- Grouped the escalation factors according to the relevant cost component (e.g. a contracted firm's EBA and the ACEA salaries and benefits survey both reflect movements in labour costs).
- Summed the weighted average proportion of contracted prices allocated to each escalation factor within each cost category.

The escalation clauses specified in these service contracts are heavily weighted towards movements in labour costs, which represent up to 100 per cent of the weighted index specified in individual escalation clauses. Movements in labour costs are linked to the relevant contractor's EBA arrangements, increases in salaries as measured by the Australian Consulting Engineers' Association Salaries and Benefits Survey, the PPI – Engineering design and engineering consulting services series published by the ABS, or other measures of labour price movements.

The weighted indices of the service contracts also include other measures which seek to reflect the non-labour cost components of providing contracted services. These measures generally reflect movements in a smaller proportion of total costs and include:

- CPI – All groups (Australia)
- CPI – All groups (Brisbane)
- CPI – Transport (Australia)
- CPI – Transport (Brisbane)

- CPI – Automotive fuel (Australia)
- PPI – Transport equipment manufacturing (Australia).

Across these six alternative indices, no one escalation measure tends to be used across all contracts. Though across the summary data provided, escalation clauses appear to align the nature of the cost component to an index that reflects that type of expenditure. For example:

- for transport costs many of the escalation clauses include a specific transport-related measure such as PPI – Transport and equipment (Australia); CPI – Transport (Australia); and CPI – Transport (Brisbane))
- for general costs, like overheads, a broader CPI measure is used.

Some of the sample contracts also include a fixed component, such that any movements in the individual cost drivers are not applied to the whole of the cost, and hence part of the contract price remains fixed throughout its duration.

Energex's procurement arrangements to ensure value for money, and probity and accountability in procurement outcomes. In line with these objectives, while escalation clauses are used to guide annual price adjustments in contract services, Energex has typically negotiated a maximum annual increase in the price of contracted services, thereby limiting the extent of any annual variation in contract price where this exceeds the cap. These caps include a constant maximum price increase of 3 per cent, CPI plus 2 per cent, or CPI less 0.45 per cent.

While Energex will seek to negotiate these types of caps in future contracts, the actual cap may be subject to broader market considerations and movements in key input components.

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

3.2.1 Current indices and data sources

Energex's sample contracts show a range of both labour and non-labour indices used for the purposes of escalating costs over time. While labour costs are linked to the relevant contractors EBA, non-labour are generally tied to a measure of either the producer price index (PPI) or the consumer price index (CPI). An overview of the PPI and CPI is provided below.

Producer price index

The producer price index measures prices of all products that are used or produced by establishments classified to a specific industry. Producer price indices include all transactions occurring within an industry and between that industry and other industries.

Producer price indices are constructed as either output or input measures. The output producer price indices relate to products produced by establishments classified to a specific industry, while input producer price indices relate to products used by establishments of specific industries.

Consumer price index

The consumer price index measures changes in the price of a 'basket' of goods and services which account for a high proportion of household expenditure. The prices of this basket of goods are combined into an overall index value based on the relative importance of each item.

The frequency of price collection by item varies as necessary to obtain reliable price measures. Prices of some items may vary many times each quarter and so require frequent

price observations to obtain a reliable measure of the average price for the quarter. Prices for items which do not fluctuate often are measured quarterly.

3.2.2 Review of current regulatory precedent

Table 8 summarises recent decisions of the AER and the Queensland Competition Authority (QCA) relating to the escalation of contractor (service delivery) costs.

Table 8: 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 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.[31]
Sunwater *(2012/13 to 2016/17 regulatory period)*	QCA	• 4 per cent, calculated based on 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 contractors 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.[32]

[31] 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

[32] Queensland Competition Authority (2012). *Sunwater Irrigation Price Review: 2012-17 (Volume 1): Final Report*. Available at: http://www.qca.org.au/files/W-QCA-SunWaterFinalReport-Volume1-0412.pdf.

Business	Regulator	Proposed approach	Approved approach
Seqwater *(2012/13 to 2016/17 regulatory period)*	QCA	• Seqwater proposed to escalate contractor costs at the same rate as SunWater (4 per cent). It cited alignment with the same regulatory period as SunWater, and consistencies of the 4 per cent rate with the Qld Building Construction Index, the Qld Non-residential Building Construction Index and the Qld Road and Bridge Index.	• QCA did not accept the 4 per cent escalation rate, as estimates of contractor costs had been reduced since publishing the SunWater report. While the QCA agreed with Seqwater's assumption that overall construction costs would increase over the next five years, it recommended Seqwater use the most recent forecast data available. • The QCA subsequently determined a cost escalation of 3.6 per cent per annum for each of the four years in the regulatory period. [33]

3.2.3 Summary findings

Our review of regulatory precedent found limited instances where a regulator specifically considered the appropriateness of escalation factors for contracted services more broadly. Instead, in many instances, regulators have considered specific cost components which are reflected in contractor services individually – such as labour and network (or capital) materials price movements.

Regulatory precedent in relation to wage price movements is discussed in detail in Chapter 2. This review found that the AER has indicated a preference for the use of WPI for the purposes of estimating wage growth over time.

For non-labour price movements, the regulatory precedent is less clear. Where regulators have sought to assess escalation factors for (capital) materials, these tend to relate to movements in specific capital inputs. For example, in the Envestra regulatory proposal for the period between 2013 and 2017, the business proposed that real growth in its network materials is linked with forecast growth in polyethylene pipe.[34] This proposed approach however was not approved by the AER, which determined that CPI was a more appropriate method for escalating network material costs.[35]

As described in Table 8, measures of CPI and PPI have also been used to estimate forecast movements in contractor services more broadly, though generally these have related more closely to construction related activities.

[33] Queensland Competition Authority (2013). *Seqwater Irrigation Price Review 2013-17 (Volume 1): Final Report*. Available at: http://www.qca.org.au/files/W-QCA-SeqwaterIPR-201317-Vol1-0513.pdf.

[34] Australian Energy Regulator (2013) *Access arrangement draft decision: Envestra 2013-15 (Part 3 Appendices)*. Available at: http://www.aer.gov.au/node/4777.

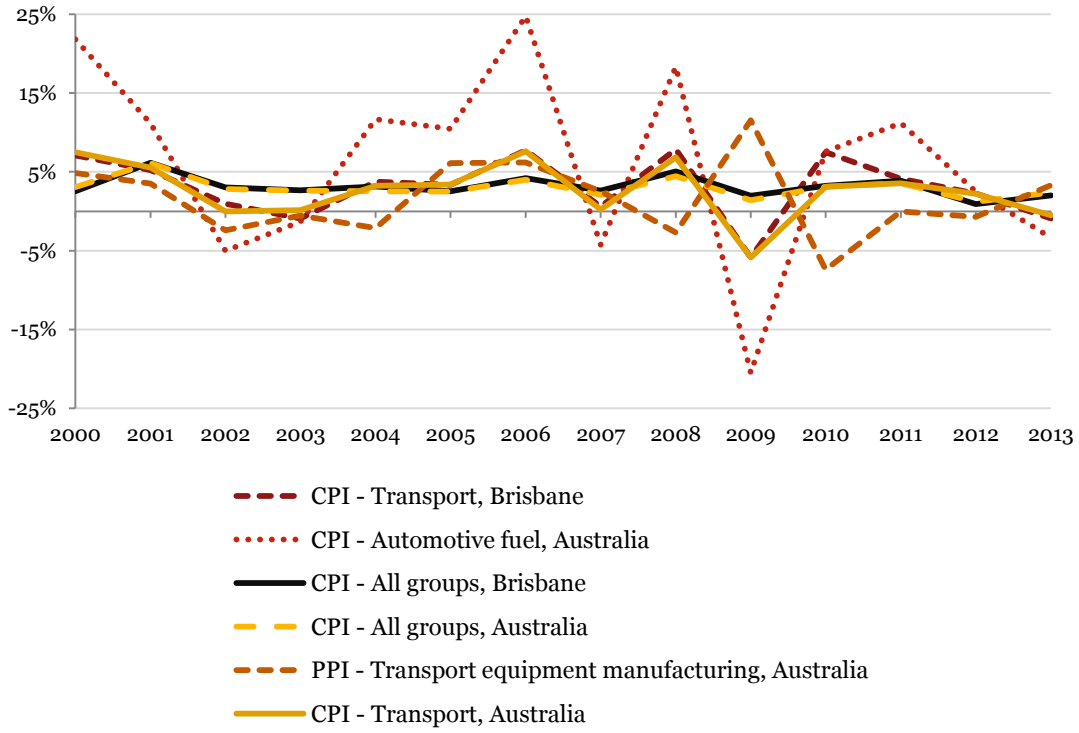
[35] Australian Energy Regulator (2013) *Access arrangement final decision: Envestra Ltd 2013-17 (Part 3 Appendices)*. Available at: http://www.aer.gov.au/sites/default/files/Envestra%20-%20Final%20Decision%20-%20Part%203_0.pdf.

3.3 Market trends

There is limited historical or time series data regarding movements in Energex's contractor services to inform a detailed assessment of how the business' expenditure compares to alternative escalation factors. Accordingly, this section reviews movement in the range of publicly available indices that were specified in contractor cost escalation summary data and in doing so seeks to identify how each of these indices vary over time.

As presented in Figure 5, annual movements in most of the alternative measures of CPI and PPI were largely consistent. In particular, the movements of the CPI – All groups (Brisbane) series very closely follow movements in CPI – All groups (Australia). The only exception was CPI – Automotive fuel (Australia), which recorded significant annual variations.

Figure 5: Annual movements in contract price escalation indices, 1999/2000 to 2012/13[36] [37]



[36] 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

[37] Australian Bureau of Statistics (2014) *Producer Price Index, Australia, Dec 2013. Series no. 6427.0.* Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6427.0Dec%202013?OpenDocument

Indeed, looking at compound growth rates for all six indices over the period between 1999/00 and 2012/13 highlights that for many categories price movements are consistent with CPI (both CPI – All groups (Brisbane) and CPI – All groups (Australia)) (Table 9). Fuel prices, as represented by CPI – Automotive fuel (Australia), are the most significant exception having grown at a higher rate than CPI over the 13 year period.

Table 9: Compound annual growth rates, CPI and PPI, 1999/00 to 2012/13 [38] [39]

Index	CAGR
CPI – Transport, Brisbane	3.0%
CPI – Transport, Australia	2.6%
CPI – Automotive fuel, Australia	5.4%
CPI – All groups, Brisbane	3.1%
CPI – All groups, Australia	3.0%
PPI – Transport equipment manufacturing, Australia	1.5%

While CPI – Automotive fuel (Australia) has grown at a higher rate than other non-labour indices specified in escalation clauses over the period between 1999/00 and 2012/13, this index is only specified in two of the sample complete contracts reviewed. Moreover, even within these contracts, the weighted index specified in the escalation clause places a low weighting on this index (for one contract CPI – Automotive fuel (Australia) reflected 2 per cent of the weighted index, while for another the index reflected 10 per cent of the weighted index).

It is also the case that both these contracts included PPI – Transport equipment (Australia) in their escalation clause for contracted services. The relatively high average annual increase in fuel costs may therefore be offset somewhat by the more modest increases in PPI – Transport equipment (Australia).

3.4 Discussion

Contractor (service delivery) costs are underpinned by movements in the costs of labour and the key inputs associated with delivering particular services. It is therefore appropriate that any escalation rate for this cost category should capture price movements for both these inputs.

[38] 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

[39] Australian Bureau of Statistics (2014) *Producer Price Index, Australia, Dec 2013. Series no. 6427.0*. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6427.0Dec%202013?OpenDocument

3.4.1 Labour price movements

Across all contracts contained within the summary data provided, labour costs comprised the largest proportion of total costs. Energex's contractors encompass a variety of service providers from different sectors, from the provision of meter reading services to tree and vegetation maintenance services. Accordingly, while the sample escalation clauses apply a range of labour price movement measures, over time a broader, economy-wide measure of wage growth, such as WPI, is expected to provide a reasonable method for forecasting wage growth over the forward regulatory period. This approach is also consistent with previous regulatory determinations by the AER with respect to the appropriate escalation factor for labour price movements.

Though, reflecting the fact that many of the businesses contracting with Energex operate nationally, with head offices based outside Queensland, a national estimate WPI has been used, which is based on forecasts published by the Commonwealth Treasury.[40]

3.4.2 Non-labour price movements

For non-labour price movements, both CPI and PPI measures have been applied for the purposes of escalating inputs associated with performing contracted services. Our review of the alternative measures of CPI and PPI applied in Energex's contractor escalation clauses indicated that general movements in the majority of indices were consistent with CPI. While noting that fuel movements, as reflected in movements in CPI-Automotive fuel (Australia), grew at a higher rate than CPI, these costs reflected both a small proportion of any individual contract cost, and were also not present in all the sample contracts.

In absence of any evidence to suggest that the non-labour components of Energex's contracted services are growing at a rate higher than CPI, this measure is proposed on the basis that it provides an appropriate indication of likely growth in these cost components over the forward regulatory period. CPI was also consistently referenced across the sample contracts and while some contracts referenced individual components of CPI (transport costs etc.), these items are factored into the calculation of general price inflation.

3.4.3 Weighted index for contractor (service delivery)

The proposed weighted index comprising WPI and CPI, and will retain a fixed component. As labour price movements tend to reflect the largest individual cost category across the data reviewed, this index will have the greater weighting at 43.4 per cent. As described above, this weighting reflects the average proportion of total costs attributed to labour price movements across the individual contracts, taking the mid-point of any ranges and rounding to the nearest five per cent.

A similar approach has been taken to calculate the average proportion of contracted prices which reflect general costs we have tied to CPI, and the average proportion which remains fixed. On average, 47.8 per cent of contracted services prices reflect the costs of general inputs which are linked to CPI, and 8.8 per cent is fixed.

3.4.4 Annual contract price variations

As discussed above, Energex has negotiated limits to the total annual price increase in many of its service contracts, and has advised that it will seek to incorporate similar clauses in future contract negotiations. Hence, should escalation clauses specified in the contract rise by more than the specified cap, Energex will not incur the full annual price adjustment as specified in the escalation clause.

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[40] Commonwealth Treasury prepares various short-term forecasts as part of their budgeting process. These forecasts have been sourced from the Mid-Year Economic and Fiscal Outlook (2013-14). This source is available online at: http://www.budget.gov.au/2013-14/content/myefo/html/01_part_1.htm.

Accordingly, in the instances that the weighted index estimate exceeds existing contractually agreed caps, the lower estimate should be applied. We have applied an annual 3 per cent cap to contractor price escalation, as Energex advised this is the average price increase across the current regulatory period as approved by the AER, and is the most common price cap within the contract summary data provided by Energex.

The weighted index is forecast to be below the 3 per cent cap across the period from 2013/14 to 2019/20. We have therefore applied the calculated weighted index as the nominal escalation factor over this time period.

3.4.5 Contractor (service provision) cost escalation factors

The weighted index has been developed applying forecasts of the national WPI, presented in the Commonwealth Treasury's Mid-Year Economic and Fiscal Outlook (2013/14). [41] We have held the series constant at 4.0% annual growth from 2017/18 onwards. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[42]

Table 10: Contractor (service provision) escalation forecast

Escalation factor	Weight	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
WPI	43.4%	2.75%	2.75%	4.00%	4.00%	4.00%	4.00%	4.00%
CPI	47.8%	3.25%	2.75%	2.50%	2.50%	2.50%	2.50%	2.50%
Fixed	8.8%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Weighted index	-	3.29%	3.05%	2.93%	2.93%	2.93%	2.93%	2.93%
Nominal growth rate	**-**	**2.75%**	**2.51%**	**2.93%**	**2.93%**	**2.93%**	**2.93%**	**2.93%**
Real growth rate	**-**	**-0.49%**	**-0.24%**	**0.42%**	**0.42%**	**0.42%**	**0.42%**	**0.42%**

[41] Commonwealth Treasury prepares various short-term forecasts as part of their budgeting process. These forecasts have been sourced from the Mid-Year Economic and Fiscal Outlook (2013-14). This source is available online at: http://www.budget.gov.au/2013-14/content/myefo/html/01_part_1.htm.

[42] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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 General materials

It is recommended that Energex escalate its general material expenditure in line with CPI.

4.1 Overview

This section reviews Energex's expenditure on ancillary materials applied in non-program of work activities. This expenditure is divided between four sub-categories:

- non-program of work store-issued – items used in operating activities booked out of inventory
- direct purchases – items used in operating activities not stocked in inventory
- work wear – clothing
- office consumables – stationery, magazines, journals subscription and non-subscriptions.

This section reviews financial information for non-program of work store-issued expenditure, which includes quantities purchased along with total expenditure over the period from 2007/08 to 2012/13. While total expenditure data is available for the other three cost sub-categories for the period between 2010/11 and 2012/13, quantity data is not available, limiting further detailed analysis regarding input cost movements for these subcategories. Accordingly, this section reviews historical movements in store-issued material costs as part of determining an appropriate escalation factor for this cost category.

While noting this review has focused on one sub-category of costs, non-program of work store-issued expenditure has comprised around 40 per cent of total non-program of work general materials expenditure over the last three financial years, and therefore is expected to provide a reasonable reflection of likely input cost movements for this cost category as a whole. Moreover, many of the expenditure items, such as work wear, tools and equipment, and ancillaries are comparable to the types of items captured in the other three sub-categories of non-program of work general materials expenditure.

4.2 Historical movements in material costs

Energex's non-program of work store-issued material comprises around 1,500 unique product codes for items required to support the business' operating activities. This includes:

- work wear, including shirts, gloves, trousers, boots, coveralls and jackets
- tools and equipment, which include power boards, cable cutters, power tool battery packs, bags, ladders, wrenches, drills and tape
- ancillaries, such as radios, cloths, filters, signs, markers, solvents, hand cleansers and repellents.

Of all annual items purchased, there is no one item that reflects a significant proportion (more than 6 per cent) of total expenditure in any one year. It is also the case that while in one year, an item may reflect up to 6 per cent of total expenditure, expenditure on this store item in other years, as a proportion of total expenditure, may be negligible or zero. It is therefore not possible to link movements in input prices to a specific item, or group of items.

In light of the heterogeneous nature, actual material costs have been assessed taking into consideration the average annual variation of each of the individual store item prices. This is based on the following:

- A simple average of input price movements, across all store-issued items, derived by averaging the total annual variation across all input prices.

- A weighted average of input price movements, based on expenditure on a particular store-issued item as a proportion of the business's total annual expenditure on store-issued items per year. This seeks to remove instances where items reflecting a small proportion of total business expenditure influence movements in unit prices (particularly, where there are large variations in unit prices over time).

These average annual values and weighted average growth rates over the five year period are provided in Table 11.

Table 11: Annual average movements in general material input costs, non-weighted and weighted as a proportion of total expenditure (%)[43]

Financial year	Average annual % change (all inputs)	Weighted average annual % change (all inputs)
2008/09	4.80%	0.42%
2009/10	3.56%	1.41%
2010/11	1.22%	0.11%
2011/12	3.56%	0.45%
2012/13	1.31%	0.11%

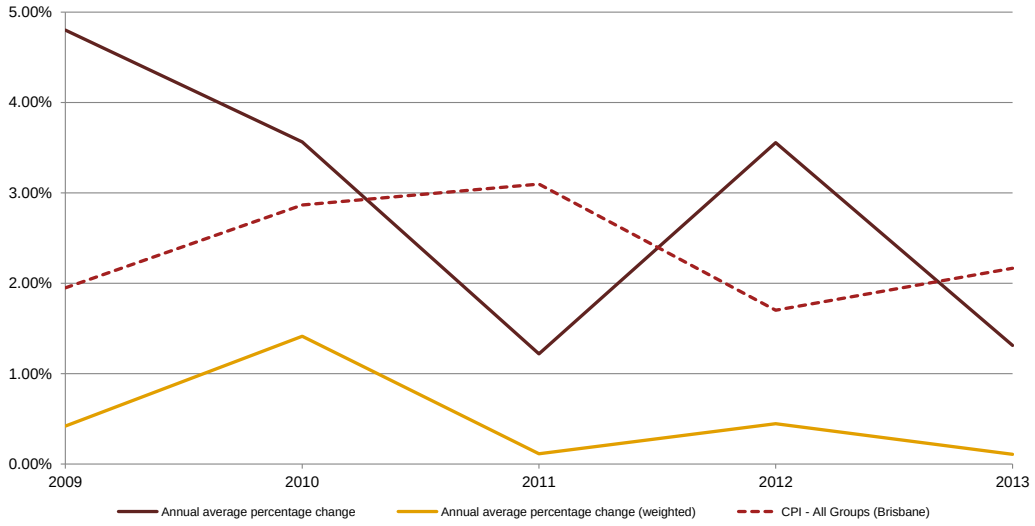
As presented in Table 11, Energex's expenditure on store-issued goods can be highly variable, with significant year-on-year variations over the five year period for which data is available. The weighted average of input price movements, by comparison, is less variable.

Averaging annual movements can also provide useful information regarding how prices have moved over time. This annual movements in prices averaged around 0.5 per cent per annum.

[43] Energex data, PwC analysis.

Figure 6 compares movements in Energex's general material input prices relative to movements in CPI – All Groups (Brisbane).

Figure 6: Movements in materials input prices relative to CPI, 2009 to 2013[44]



Over the period between 2009 and 2013, there was no clear relationship between actual input price movements and the historical CPI series. This is likely to reflect the fact that many of the goods and services captured in the CPI 'basket of goods' do not directly relate to the activities of Energex – particularly for the business' more significant purchases such as materials associated with maintaining network infrastructure.

However, average input price movements over the five year period was around 0.5 per cent (based on the weighted average), and 2.89 per cent (based on the simple average). These average variations are consistent with movements in general inflation (as measured by CPI), which averaged around 2.36 per cent over the period between 2009 and 2013. Energex's average price movements also stayed within the RBA's inflation target band of 2 to 3 per cent, which the RBA seeks to maintain over the medium term.

4.3 Discussion

General materials reflect a variety goods and products required to support Energex's operating activities. This expenditure is associated with purchasing office supplies and consumables, such as stationery, magazines and journals. It is also associated with purchasing tools and equipment, work wear and ancillaries.

The heterogeneous nature of the goods purchased along with significant annual variations in purchased quantities, means that there it may not be possible to find a publicly-available index which reliably aligns with actual expenditure in any year, and therefore likely future expenditure.

It is also common for weighted indices to be used for the purposes of forecasting price movements. However, with over 1,000 different stock items in the store-issued sub-cost category alone, and with no single stock item reflecting more than 6 per cent of total expenditure, there is limited basis by which to develop, and robustly define, a weighted index.

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[44] Australian Bureau of Statistics (2014) *Consumer Price Index, Australia, Dec 2013. ABS cat no. 6401.0 Table 5.* Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

While CPI and the basket of goods which it represents may not, in a given year, align directly with the Energex's annual purchases, on average over the five year period from 2009 to 2013, it provided a reasonable measure of actual movements in unit prices faced by Energex.

Accordingly, we propose that CPI be used for the purposes of forecasting unit price movements in general materials over the 2015 to 2020 regulatory period.

4.3.1 General materials cost escalation factors

The following escalation factors are proposed for general materials, based on current forecasts of national inflation published by the RBA.[45]

Table 12: Forecast of the consumer price index

Escalation Factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Nominal growth rate	3.25%	2.75%	2.50%	2.50%	2.50%	2.50%	2.50%
Real growth rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

[45] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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

5 Buildings

We recommend Energex escalate its building capital expenditure in line with the Construction Forecasting Council's Construction (Engineering) Index.

5.1 Overview

Energex's non-system capital expenditure includes purchases associated with the construction of office buildings and the redevelopment of field offices and depots.

The business' building capital expenditure varies annually, reflecting the specific requirements of the business in terms of planned development activities and broader business requirements, such as ensuring staff accommodation supports the effective operation of the business.

In light of the nature of this expenditure – being subject to the specific business requirements – this assessment has not considered the business' historical expenditure. Rather this assessment draws on relevant regulatory precedent and best-practice to determine the appropriate escalation factors for this category of costs.

5.2 Alternative approaches for the escalation of building costs

5.2.1 Distribution sector

Across the regulated distribution sector, there is general consensus in relation to the use of escalation factors for the purposes of forecasting movements in building costs, via the use of the engineering construction price index which is published by the Australian Construction Industry Forum (ACIF) Construction Forecasting Council (CFC).

Revised estimates for the index are published biannually, in April and September and include a 10 year forecast. 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.[46] 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.

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 13.

[46] 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.

Table 13: 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 CFC's engineering construction price index.[47]	• In the AER's draft determination it considered Ergon Energy's approach to apply the CFC's 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 CFC's 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. [48]
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. [49] • KPMG developed the rates based on ABS engineering construction activity data[50] 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 CFC, approved by the AER in its recent ACT and NSW final electricity distribution determinations.[51] [52]	• In considering Energex's proposed approach the AER noted that the CFC forecasts also consider ABS building activity data[53] and macroeconomic projections when determining its construction cost forecasts. The AER therefore considered that the CFC 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 CFC. [54]

47 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.

48 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

49 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

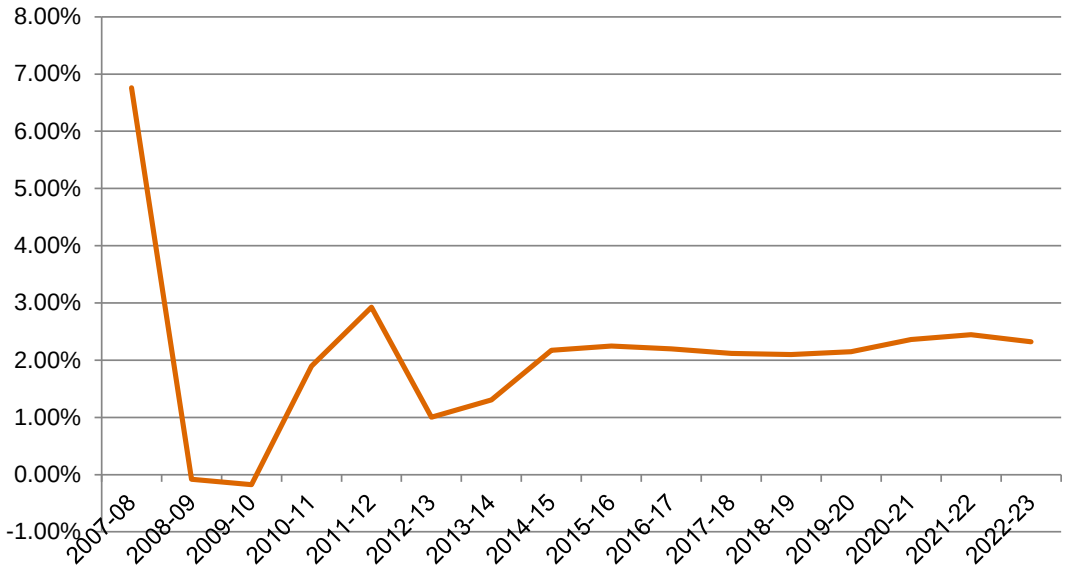
50 ABS, Engineering Construction Activity, Cat No. 8762.0

51 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

52 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

Figure 7 below shows the historical and forecast movements in the CFC engineering construction index over the period from 2007/08 to 2022/23, based on the most recent forecasts (November 2013).

Figure 7: CFC Engineering construction price index, real values, 2007/08 to 2022/23[55]



5.2.2 Other regulated sectors

While the CFC engineering construction price index has been preferred by the AER in the past, in other regulated sectors alternative escalation factors have been derived based on CPI, and the Queensland Road and Bridge Construction Index, both published by the ABS. These examples are described in further detail below.

Queensland – Queensland Competition Authority

In the QCA's SEQ Interim Price Monitoring for 2011-12 (Part B – Detailed Assessment) the QCA considered the proposed cost escalation indices used by the three south east Queensland (SEQ) water retailers for escalating capital costs, detailed below.

Table 14: SEQ capital expenditure escalation methodologies

Retailer	Determination
UnityWater	Unitywater escalated its capital expenditure according to data sourced from the Queensland Road and Bridge Construction Index, published by the Australian Bureau of Statistics (ABS). It applied the 10 year to June 2011 compound growth rate, equal to 5.20%.

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

54 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

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

Retailer	Determination
Allconnex	Allconnex also 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.[56]
Queensland Urban Utilities (QUU)	QUU indexed its capital costs according to the CFC's engineering construction price index for Australia. [57]

In considering the appropriateness of these escalation parameters for Allconnex and Unitywater, the QCA noted that there are a range of options for indexing asset values, and while industry input indices may provide a more accurate estimate, they may be highly variable over short periods. The QCA also considered that historical cost pressures would not necessarily be sustained over the long term.

In general, however, while the QCA noted that the use of the Road and Bridge Construction price index used by Unitywater and Allconnex may be affected by market conditions that are not directly relevant to the water industry, the index was considered to be reasonable and that any variations observed between forecast and actual cost increases could be taken into account in future reviews.

The QCA also noted that the Engineering Construction Price index includes data for the multiple construction types, across all states and territories. The QCA considered that although this index would therefore include data not directly to QUU, the overall magnitude of escalation proposed by QUU was conservative and therefore approved use of the index.

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.[58] 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.

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 2008/09 to 2012/13 regulatory period, Sydney Water and Hunter Water proposed two different approaches for escalating capital costs, as described below.

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56 Allconnex (2011) *Allconnex Water Price Monitoring Submission 2011-12*. Accessed online at http://www.qca.org.au/files/W-Allconnex-Submission-201112InterimPriceMon-1011.pdf

57 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/files/W-QCA-FinalReport-SEQInterimPriceMon1112-PartB-0312.pdf

58 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

Table 15: NSW capital expenditure escalation methodologies

Business	Determination
Hunter Water	Hunter Water 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.[59] 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	Sydney Water proposed to escalate its capital costs by 5 percent.[60] 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.

5.3 Discussion

The AER has generally applied a consistent approach with the treatment of escalation factors for the purpose of forecasting construction costs – that is, the use of the CFC's engineering construction price index.

Alternative approaches have been proposed by other regulated businesses (and approved by state regulators), however, many of these approaches do not align directly with the specific nature of Energex's expenditure. It is also the case that forecasts for these alternative approaches may not always be publicly available, or would require detailed econometric modelling in order to derive a forecast.

While the CFC engineering construction price index is based on seven construction types (road, bridge, electricity and pipeline, water and sewerage, telecommunications and mining) and uses data from eight states and territories – which may not directly align with the composition of Energex's actual expenditure – it is a measure which has been developed based on ABS construction data along with macroeconomic modelling regarding broader economic growth that is publicly available. The measure is also regularly reviewed to reflect recent developments. This, along with its general acceptance by the AER, indicates that it would provide an appropriate escalation factor for the purpose of forecasting building capital expenditure over the forecast regulatory period.

59 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

60 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/files/e98cb902-55e9-4aec-b9e5-9f7f00f77b15/Final_Report_and_Determination_-_Review_of_prices_for_Sydney_Water_Corporations_water_sewerage_stormwater_and_other_services_-_Richard_Warner_-_16_June_2008_-_Website_Document.pdf

5.3.1 Building escalation factor

The following escalation factors are proposed for construction costs (Table 16). These forecasts reflect the most recent forecasts published by the ACIF, which are provided in real terms only. Forecasts of CPI used to calculate nominal growth rates are based on current forecasts published by the RBA.[61]

Table 16: Forecast of the CFC engineering construction price index

Escalation factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Nominal growth rate	4.59%	4.98%	4.81%	4.76%	4.67%	4.65%	4.70%
Real growth rate	1.30%	2.17%	2.25%	2.20%	2.12%	2.10%	2.15%

We note that these escalation parameters are designed to be applied to a profile of future real building expenditure, which has already considered specific characteristics of individual sites, such as size, location, and intended purpose, likely to influence final purchase prices. These escalation factors are then intended to escalate these real estimates of purchase prices to nominal values.

They are not intended to be applied as escalation factors to 'base year' expenditure, increasing the total value of expenditure from one year to the next. Energex's annual building expenditure varies significantly and it would not be appropriate to forecast the current year's expenditure simply by escalating expenditure of the previous year. We recommend that Energex develop detailed forecasts of building expenditure in real values considering specific aspects of each site, and apply these escalation factors to bring the real estimates to nominal values.

[61] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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 Land

We recommend that Energex escalate its land costs at a rate equal to the long run average growth rate of the value of Queensland land, as published by the ABS. We recommend that Energex categorise its land and apply individual growth rates to residential, commercial, rural and other land.

6.1 Overview

Energex's land portfolio consists of sites used for office accommodation and vehicle parking; warehouses, hubs and depots; and easements for major high voltage lines. This chapter seeks to identify an appropriate escalation rate with which to forecast increases in the purchase price of these sites.

6.2 Historical movements in land costs

Energex has provided details of land purchased over the period 2009/10 to 2012/13. Outlined in Table 17, the land purchased consists of eight sites, primarily for commercial purposes.

Table 17: Energex land purchases, 2009/10 to 2012/13[62]

Site	Year purchased	Area (m^2)	Nominal cost
Eagle Farm new distribution centre	2009/10	52,700	$17,198,048
Larapinta depot	2009/10	42,891	$12,830,413
Geebung redevelopment	2010/11	4,450	$1,906,935
Narangba depot	2010/11	16,832	$4,489,049
Lytton depot	2010/11	13,900	$4,711,460
Yandina depot	2011/12	18,000	$4,409,214
Gympie land acquisition	2012/13	20,197	$1,693,051
Berrinba land acquisition	2012/13	22,520	$5,170,280

The small sample size limits the conclusions we are able to draw from the data. Moreover, the purchase prices of these sites reflect a range of factors, such as their specific location, quality or intended purpose. Hence, historical expenditure associated with land acquisitions are not expected to inform Energex's future land expenditure.

[62] Energex data, PwC analysis.

6.3 Alternative approaches for the escalation of land costs

6.3.1 Current indices and data sources

Land value

The ABS publishes annually the value, in nominal prices at 30 June, of the following land categories dating back to 1989, by state and Australian total:

- residential
- commercial
- rural
- other
- total.

Valuations of residential land are provided by the Reserve Bank of Australia (RBA) and include both metropolitan and non-metropolitan areas. The sales data is based on contract dates, giving an accurate indication of market prices at the time. Estimates of commercial, rural and other land categories are sourced from each state government's Valuer-General. In Queensland, the Valuer-General operates as part of the Department of Natural Resources and Mines.

6.3.2 Review of current regulatory precedent

Table 18 summarises the AER's recent decisions relating to escalation of land costs.

Table 18: Application of alternative land escalation factors - regulatory review

Business	Regulator	Proposed approach	Approved approach
Energex *(2010/11 to 2014/15 regulatory period)*	AER	• Energex engaged KPMG to develop real land cost escalation factors. KPMG weighted the results of simple moving average analysis, with results of structural time series analysis based on: – ABS annual historical land value data – Historical Queensland gross state product (GSP) data – Econtech's Queensland GSP forecasts • KPMG recommended a point estimate of 2 per cent annual real cost escalation over the regulatory period.[63]	• The AER tested the reasonableness of the proposed escalation rates, with reference to the full series (1989–2008) of ABS Queensland land value data. The AER calculated the average real growth rate per land category, which indicated that Energex's 2% escalation rate was conservative. • The AER accepted Energex's proposed real land escalator of 2 per cent, though noted that the methodology used to derive it may not necessarily continue to provide reasonable estimates in the future.[64]

[63] 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

Business	Regulator	Proposed approach	Approved approach
ElectraNet *(2012/13 to 2017/18 regulatory period)*	AER	• ElectraNet proposed to escalate land costs at a rate equal to the long-term increase in land values published by the ABS. However, rather than applying individual rates to different land categories, it proposed to apply the long term increase in the 'total land' category.[65]	• The AER did not consider that the application of a single escalation rate to all forecast land and easement expenditure was appropriate, as it would overstate some future land expenditure and understate others. • It noted that the data was available to develop escalation factors based on land categories, and therefore rejected ElectraNet's proposed land value escalation rate. • It replaced the 'total land' escalation factor with individual rates corresponding to the different categories of land. The AER's rates were: – Residential: 10.7% – Commercial: 8.1% – Rural: 7.8% – Other: 7.7%[66]

64 Australian Energy Regulator (2009) Queensland Draft distribution determination 2010-11 to 2014-15 - Appendices. Accessed online at http://www.aer.gov.au/sites/default/files/QLD%20draft%20distribution%20determination%20decision%202010-11%20to%202014-15%20-%20appendices%5B1%5D.pdf

65 Electranet (2012) Transmission Network Revenue Proposal 1 July 2013 – 30 June 2018. Accessed online at: http://www.aer.gov.au/sites/default/files/ElectraNet%20Revenue%20Proposal%20.pdf

66 Australian Energy Regulator (2012) ElectraNet Transmission determination 2013-14 to 2017-18 Draft decision. Accessed online at http://www.aer.gov.au/sites/default/files/ElectraNet%202013%20-%20AER%20-%20draft%20decision%20-%2030%20November%202012.pdf

Business	Regulator	Proposed approach	Approved approach
Powerlink *(2012/13 to 2016/17 regulatory period)*	AER	• Powerlink engaged Urbis to generate estimates of land value escalators. Urbis did so using trend analysis and accounting for relationships between the real economy, development cycles and the property market.	• In its draft determination, the AER was not satisfied that the proposed escalation rates reflected a realistic expectation of growth in land values in Queensland, as they were significantly higher than the long-term average growth rate of ABS land values for Queensland. • The AER noted that ABS data reflects the full business cycle and long term trend of the property market and avoids the uncertainties of using economic variables. • Powerlink provided revised forecasts of land cost escalation factors, more aligned with the growth in land values published by the ABS which were accepted by the AER. These rates were: – Rural: 3% - 10% – Urban: 4% - 11% [67]
NSW DNSPs *(2009/10 to 2013/14 regulatory period)*	AER	• The New South Wales DNSPs (Country Energy, Energy Australia and Integral Energy) obtained advice from CEG on forecast movements for land prices in the state. CEG based its average real annual escalation forecasts on estimates supplied by BIS Shrapnel. CEG forecast 4.1% per annum for both Sydney CBD B Grade and non-CBD B Grade properties	• The AER noted that CEG did not outline a transparent methodology to derive its average land value escalators. In addition, CEG's recommended average annual land escalators were based on estimates provided by BIS Shrapnel, which also did not provide a clear methodology used to derive estimates. • The AER again compared the proposed rates to the full ABS land value data set.[68] The AER derived an equal weighted average rate based on NSW land types deflated by CPI to calculate a real growth rate. • On the basis that they were consistent with the long run increase in state-wide land prices, the AER accepted cost escalation rates proposed by the NSW DNSPs. [69]

[67] Australian Energy Regulator (2012) *Powerlink Transmission Determination 2012-13 to 2016-17.* Accessed online at http://www.aer.gov.au/sites/default/files/Powerlink%20-%20Final%20decision%20-%20April%202012.pdf

[68] ABS, *Australian System of National Accounts, 2006-07,* ABS Cat No. 5204.0

Business	Regulator	Proposed approach	Approved approach
Transend *(2009/10 to 2013/14 regulatory period)*	AER	• Transend engaged an independent property valuer, Brothers & Newton, to forecast land cost escalation rates in Tasmania. Brothers & Newton's methodology consisted of a review of: – Current and forecast economic conditions – Past trends in property values, and – Potential impacts associated with proposed large scale developments. • Brothers & Newton developed land cost escalation rates for three regions within Tasmania, combined by Transend into a single weighted average series of 3.5% - 5.1%. [70]	• The AER compared the rates proposed by Transend to the long term land value data published by the ABS, again noting that it considered the use of a long-term historical average as a reasonable forecast due to long-term data being less exposed to business cycle fluctuations. • It found the ABS data to be broadly consistent with Transend's average forecast growth rate for its proposed land escalation rates, and on this basis accepted Transend's proposed land escalation rates. [71]

6.3.3 Summary findings

The AER has been very consistent in its determinations regarding the escalation of land costs. In each of the determinations outlined above, it relied upon land value data published by the ABS. It has either calculated escalation rates directly from this data set, or assessed the reasonableness of proposed escalation factors through comparison to this index.

[69] AER (2008), *New South Wales draft distribution determination 2009-10 to 2013-14*. Available at http://www.aer.gov.au/sites/default/files/AER%20Draft%20decision%20-%20NSW%20Draft%20determination%202009-10%20to%202013-14%20-%20November%202008.pdf

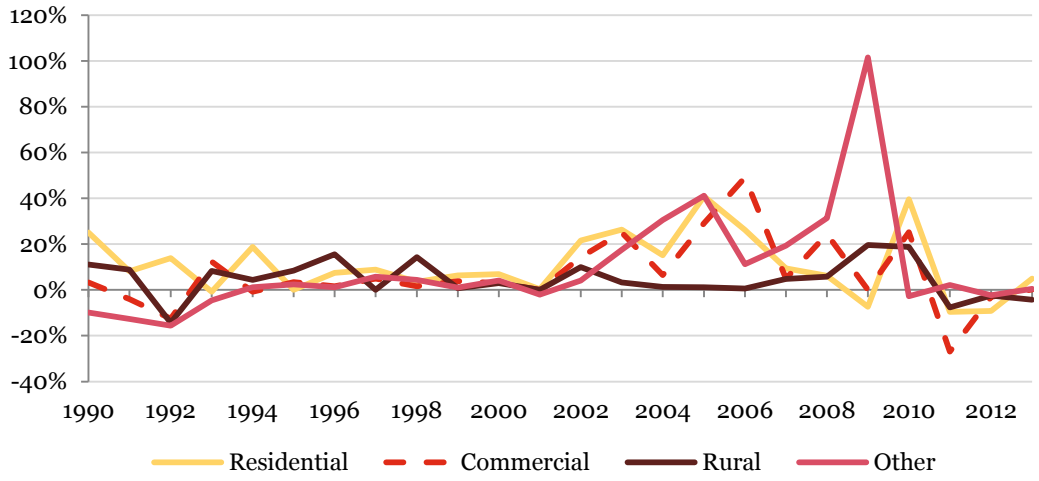
[70] Transend (2008) *Appendix 13 Brothers & newton, Escalation Forecasts for Land Values in Tasmania, April 2008*. Available at http://www.aer.gov.au/sites/default/files/Appendix%2013%20Brothers%20%26%20Newton,%20Escalation%20Forecasts%20for%20land%20values%20in%20Tasmania,%20April%202008.pdf

[71] Australian Energy Regulator (2008) *Transend transmission determination 2009-10 to 2013-14 Draft decision*. Available at http://www.aer.gov.au/sites/default/files/Draft%20decision%20-%20Transend%20electricity%20transmission%20determination%20%2821%20November%202008%29.pdf

6.4 Market trends

Figure 8 presents the annual movements in the value of each land category in Queensland, as published by the ABS.

Figure 8: Annual increase in Qld land value, 1989/90 to 2012/13[72]



Queensland land values fluctuated significantly over the past two decades, across all land categories. Commercial land was particularly volatile, with annual movements ranging from a maximum annual increase of 49 per cent to a maximum annual decrease of 27 per cent. On average however, the value of each land category grew strongly over the period. The compound annual growth rate of each land category is presented in Table 19.

Table 19: Compound annual growth rate, Qld land categories 1990 - 2013[73]

Land category	Compound annual growth rate
Residential	10.15%
Commercial	5.87%
Rural	4.33%
Other	7.62%
Total	**8.98%**

We acknowledge that the limited data set available to us makes it difficult to assess the degree to which movements in Queensland land values are reflected in Energex actual land expenditure. However, the volatility in the growth of Queensland land values, including the significant variation in annual movements in commercial land values between 2008 and 2013, suggests that fluctuations in Energex land expenditure are not inconsistent with trends observed in the value of state-wide land overall.

[72] Australian Bureau of Statistics (2013) *Australian System of National Accounts, 2012-13, ABS Cat No. 5204.0 Table 61*. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/5204.02012-13?OpenDocument

[73] Ibid.

6.5 Discussion

The AER has been consistent in its application of the long run growth rates in land value data published by the ABS to escalate land costs. Where regulated businesses have proposed alternative rates, they have been evaluated by the AER through comparison to the ABS data. The AER has also been consistent in its application of different escalation factors for each land category: commercial, residential, rural or other.

As Energex operates, and would be likely to purchase the majority of its land, in South East Queensland, movements in land costs incurred by Energex could differ materially from movements in state-wide land values. However, given the relatively limited historical data on which to calculate actual land cost escalation, we are unable to assess the degree to which state-wide land escalation rates align with movements in Energex land costs. We note however, that if sufficient information were available to develop an appropriate forecasting model, it is likely the AER would evaluate any proposed rates against state-wide ABS data.

As such, given the established regulatory precedent for escalation of land costs according to the long run growth rate in state-wide land values, we recommend that Energex escalate its costs according to the long run average growth rates of Queensland land, published by the ABS and presented in Table 19. We recommend that Energex categorise its land in accordance with the ABS, and apply the appropriate rate to forecast future land costs.

6.5.1 Land escalation factors

The following escalation factors are proposed for land expenditure. These forecasts reflect the long run nominal compound annual growth rates (1990 to 2013) of ABS land value data, consistent with the approach applied by the AER for previous regulatory determinations. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[74]

Table 20: Forecast increases in Queensland land values

Land category	Escalation factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Residential	Nominal	10.15%	10.15%	10.15%	10.15%	10.15%	10.15%	10.15%
	Real	6.68%	7.20%	7.46%	7.46%	7.46%	7.46%	7.46%
Commercial	Nominal	5.87%	5.87%	5.87%	5.87%	5.87%	5.87%	5.87%
	Real	2.54%	3.04%	3.29%	3.29%	3.29%	3.29%	3.29%
Rural	Nominal	4.33%	4.33%	4.33%	4.33%	4.33%	4.33%	4.33%
	Real	1.05%	1.54%	1.79%	1.79%	1.79%	1.79%	1.79%
Other	Nominal	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%
	Real	4.23%	4.74%	5.00%	5.00%	5.00%	5.00%	5.00%

Similar to building expenditure, these escalation parameters are designed to be applied to a profile of future real land expenditure, which has already considered specific characteristics of individual sites. These escalation factors are then intended to escalate real estimates of purchase prices to nominal values.

[74] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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 Land tax

We recommend that Energex escalate its land tax expenditure according to the long run average growth rate in the value of Queensland land. We recommend that Energex categorise its land and apply growth rates specific to the residential, commercial, rural and other categories.

7.1 Overview

The Queensland government levies a tax on the owners of freehold land (land not leased from the government) in Queensland as at midnight on 30 June each year. The rates of land tax applicable to Energex, as a company, are outlined below. Tax is paid on the combined value of all land owned.

Table 21: Rates of land tax[75]

Taxable value	Rate of tax
$0 to $349,999	$0
$350,000 to $2,249,999	$1,450 plus 1.7 cents for each dollar more than $350,000
$2,250,000 to $4,999,999	$33,750 plus 1.5 cents for each dollar more than $2,250,000
$5,000,000 and over	$75,000 plus 2.0 cents for each dollar more than $5,000,000

7.2 Historical movements in land costs

Energex's 2010/11 and 2011/12 land tax expenditures are presented below.

Table 22: Energex land tax expenditure[76]

Year	Value of land	Land tax
2010/11	$286.1m	$5.7m
2011/12	$281.8m	$5.6m

Energex's total land tax expenditure reduced by $0.1m between 2010/11 and 2011/12, in line with a reduction in the total value of land owned by the company of $4.3m.

The escalation of land tax costs is complicated by the fact that the total tax liability is dependent on the value of land. Should the total value of land increase above a threshold level, the marginal rate of tax will change. In addition, the tax free threshold of $349,999 also ensures that total tax payable will not move proportionately with movements in total land value.

[75] Queensland Government (2014) *Land tax in Queensland*. Available at https://www.osr.qld.gov.au/land-tax/index.shtml

[76] Energex data, PwC analysis.

However, the total value of land owned by Energex, at close to $300m, is significantly greater than the highest $5m threshold, after which value the marginal tax rate is held constant. As such, the average tax rate will not vary significantly for moderate changes in the total value of land. Assuming changes in Energex's total land value are driven only by revaluations of existing land, rather than disposals or acquisitions of sites, escalation of the previous year's land tax expenditure by the escalation in land values will closely approximate the current years' land tax expenditure.

7.3 Discussion

Escalation of land tax expenditure by the change in land values will provide a close estimate of future land tax liabilities, assuming no disposals or acquisitions of land. We did not identify any alternative escalation methodologies or regulatory precedent as part of our review.

As such, the same escalation rate should be applied to land tax as the value of land, and we therefore recommend that Energex escalate its land tax expenditure according to the long run average increase in Queensland land categories based on ABS land valuations, and presented in Table 19. We note that land valuations published by the ABS are likely to be consistent with valuations of land for the purposes of calculating land tax, as the Department of Natural Resources and Mines provides valuations for both.

Should Energex acquire or dispose of land sites, calculation of land tax must be updated accordingly. Escalation of the previous year's land tax expenditure must be adjusted by the movement in tax payable associated with the increase or decrease in total land value.

7.3.1 Land tax escalation factors

The following escalation factors are proposed for land tax payments. These forecasts reflect the long run nominal compound annual growth rates (1990 to 2013) of ABS land value data, consistent with the approach applied by the AER for the escalation of land expenditure. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[77]

Table 23: Forecast land tax escalation factors

Land category	Escalation factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Residential	Nominal	10.15%	10.15%	10.15%	10.15%	10.15%	10.15%	10.15%
	Real	6.68%	7.20%	7.46%	7.46%	7.46%	7.46%	7.46%
Commercial	Nominal	5.87%	5.87%	5.87%	5.87%	5.87%	5.87%	5.87%
	Real	2.54%	3.04%	3.29%	3.29%	3.29%	3.29%	3.29%
Rural	Nominal	4.33%	4.33%	4.33%	4.33%	4.33%	4.33%	4.33%
	Real	1.05%	1.54%	1.79%	1.79%	1.79%	1.79%	1.79%
Other	Nominal	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%	7.62%
	Real	4.23%	4.74%	5.00%	5.00%	5.00%	5.00%	5.00%

[77] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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

8 Occupancy expenditure

We recommend that Energex escalate its occupancy expenditure in line with a weighted index comprising forecast rent increases, the long run average of the CPI – Utilities (Australia) series, and forecast CPI.

8.1 Overview

This chapter reviews Energex's occupancy expenditure, which includes the following cost sub-categories:

- rent and leases – these are the costs associated with leasing all building and land for delivering networks services
- utilities – this cost sub-category encompasses costs associated with water, gas and electricity along with rate payments to local councils
- land and building maintenance – these costs include repairs and maintenance, cleaning, security and building waste services.

The review of occupancy expenditure draws on Energex's financial data for each of the cost sub-categories over the period from 2009 to 2013.

8.2 Historical movements in occupancy costs

Energex's occupancy costs include the maintenance incurred on all buildings and land, as well as rent and lease costs for commercial property. The cost of gas, water, electricity and rates associated with Energex's premises are also grouped under occupancy expenditure.

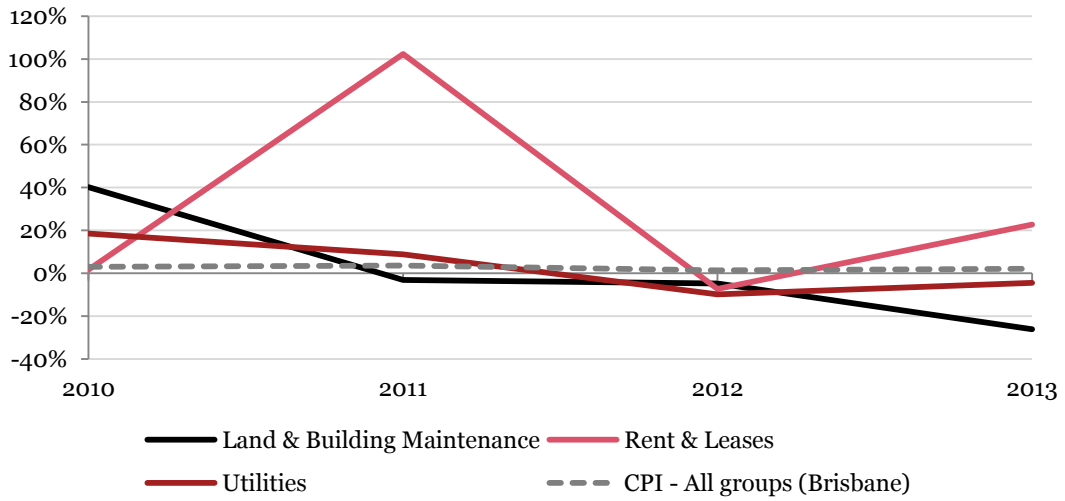
Table 24 presents total occupancy expenditure across the three cost sub-categories over the period from 2009 to 2013.

Table 24: Energex actual occupancy expenditure, 2008/09 to 2012/13[78]

Cost category	2008/09	2009/10	2010/11	2011/12	2012/13	Average % of total costs[79]
Land & Building Maintenance ($'000)	$7,531.5	$10,554.6	$10,223.8	$9,730.8	$7,195.5	29%
Rent & Leases ($'000)	$10,002.5	$10,163.8	$20,561.2	$19,052.9	$23,392.6	50%
Utilities ($'000)	$5,627.6	$6,667.9	$7,261.8	$6,552.1	$6,256.6	21%
Total Occupancy ($'000)	**$23,161.6**	**$27,386.3**	**$38,046.8**	**$35,335.8**	**$36,844.7**	

A view of each total annual variation in cost, by sub-category, compared to CPI is presented in Figure 9.

Figure 9: Annual movements in Energex occupancy expenditure, 2010 to 2013[80]



[78] Energex data, PwC analysis.

[79] Based on a five year average over the period from 2009 to 2013.

[80] Energex data, PwC analysis.

As quantity data related to properties leased or maintained, or the volume of utility usage is not available, a more detailed review of historic unit price movements was not possible. However, as can be seen in Figure 9, the most significant movements in total occupancy expenditure over the last five years were associated with rent and lease expenditure. These costs reflect around half of the business' total occupancy expenditure and the significant jump in total expenditure for this cost sub-category was associated with the business moving its offices to new sites at Newstead and Mount Gravatt, while maintaining existing leases at Energex's offices on Charlotte Street and Elizabeth Street in Brisbane City.

Some occupancy expenditure sub-categories have actually declined in recent years. Most notably, these include land and building maintenance which has recorded an annual decline in total expenditure since 2011.

8.3 Alternative approaches for the escalation of occupancy costs

8.3.1 Current indices

Occupancy expenditure as it relates to Energex's business operations reflects a range of cost sub-categories as described above. With the exception of a generalised CPI measure, such as CPI - All Groups, which reflects a basket of goods, there is no single index that is likely to accurately capture the specific movements in these costs.

However, by breaking down occupancy expenditure into its individual components, it is possible to identify CPI measures which are more closely related to these types of costs. These include:

- CPI – Property rates and charges (Australia)
- CPI – Rents (Australia)
- CPI – Utilities (Australia)
- CPI – Maintenance and Repairs of the dwelling (Australia)

Movements in these indices are reviewed in further detail below.

8.3.2 Review of current regulatory precedent

Table 25 provides an overview of relevant regulatory decisions and precedent related to movements in occupancy related expenditure items.

In general it was not possible to identify instances where a regulator specifically considered escalation rates with respect to occupancy expenditure as a whole. Rather, where these matters were considered by a regulator, it was in respect to individual components of these costs – such as 'premises' and movements in electricity costs.

Table 25: Regulatory review – Occupancy expenditure

Business	Regulator	Proposed approach	Approved approach
SP AusNet *(2014/15 to 2016/17 regulatory period)*	AER	• The AER is currently reviewing SP AusNet's regulatory submission for the period 2014/15 to 2016/17. • SP AusNet engaged SKM to forecast real cost escalation rates for this regulatory period. SKM developed rates in line with SP AusNet's existing asset classification framework, which include a 'premises' asset category. SKM did not detail the specific costs attributed to this asset category, though noted that it did not expect any real increases in prices over the regulatory period.[81]	• SP AusNet's proposed approach was accepted by the AER in its draft decision. • SP AusNet has subsequently submitted its revised regulatory proposal with the same methodology, however the AER final decision is not expected to be released until later in 2014.[82]
SunWater *(2012/13 to 2016/17 regulatory period)*	QCA	• While it does not consider occupancy costs as a whole, SunWater proposed to escalate its electricity costs for the 2012-2017 period in line with the Benchmark Retail Cost Index (BRCI). While it initially submitted an escalation rate of 2.5% (in line with CPI), GHD recommended that it use the BRCI, which increased at significantly higher rates than CPI for this period. BRCI annual escalation rates were proposed between 6.6% and 10.5% for the five year period (while CPI was 2.5 per cent).	• The QCA did not accept this proposal, as short run expected cost increases such as the threat of the carbon tax were taken as having a significant and sustained impact on electricity costs which was deemed to be unrealistic. • The QCA instead decided on an escalator based on the BRCI and a weighted average of certain forward looking known AER decisions. This resulted in an annual electricity escalation factor of 7.41%.[83]

81 SP AusNet (2013) Electricity Transmission Revenue Proposal. Appendix 4F: SKM Annual Material Cost Escalators 2014/15 to 16/17. Accessed online at http://www.aer.gov.au/sites/default/files/SKM%20-%20Appendix%204F%20-%20Annual%20material%20cost%20escalators%20-%2028%20February%202013.pdf.

82 SP AusNet (2013) *Transmission Revenue Reset (TRR). Appendix H: Annual Real Material Cost Escalation Forecast 2014/15 – 16/17- Sinclair Knight Mercer (SKM).* Accessed online at http://www.aer.gov.au/sites/default/files/SKM%20-%20Appendix%20H%20-%20Annual%20real%20material%20cost%20escalation%20forecast%202014-14%20to%202016-17%20-%2011%20October%202013.pdf

83 Queensland Competition Authority (2012) *SunWater Irrigation Price Review: 2012-17 (Volume 1).* Accessed online at http://www.qca.org.au/files/W-QCA-SunWaterFinalReport-Volume1-0412.pdf

8.3.3 Summary findings

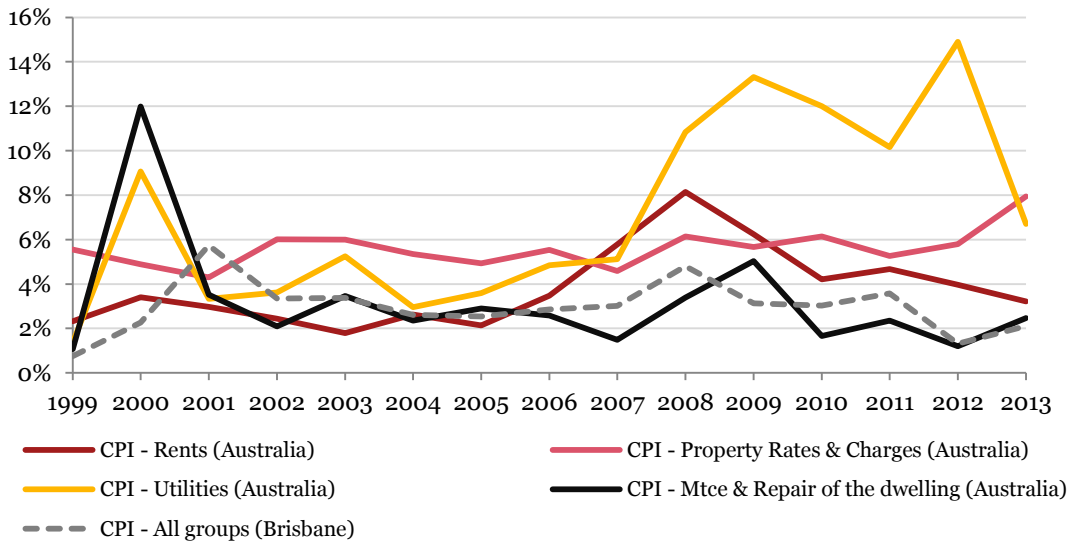
The review of regulatory precedent provides limited guidance with respect to use of alternative escalation factors and their acceptability by regulators in general, or the AER specifically.

Accordingly, the remainder of this chapter reviews movements in a range of alternative indices associated with each of the sub-categories of occupancy expenditure and assesses their appropriateness within the context of Energex's general expenditure practices and any future factors that might influence movements in input prices moving forward.

8.4 Market trends

To determine the appropriateness of a specific index, it is generally useful to compare historical movements in unit prices against a specific index. This is used to identify specific links between actual business expenditure and broader price movements. However, as it is not possible to identify unit prices for the sub-categories of Energex's occupancy expenditure, this section has reviewed a number of indices which reflect these types of costs (Figure 10).

Figure 10: Annual movements in occupancy related indices, 1998/99 to 2012/13[84]



As can be seen, CPI measures linked to Energex's occupancy expenditure sub-categories have tended to grow at a higher rate than CPI (All Groups) over time. This is discussed in further detail, by cost sub-category, below.

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

8.4.1 Rent and leases

Energex's rent and lease costs are associated with leasing their office buildings and associated depots and reflect around 50 per cent of total occupancy expenditure. Energex has recently relocated to a new purpose built office building in Newstead, part of which it sub-leases to SPARQ Solutions. It has also recently brought together some of the business' south-side operations into a single office at Mount Gravatt, and continues to lease some of its previous corporate office on Charlotte Street, Brisbane.

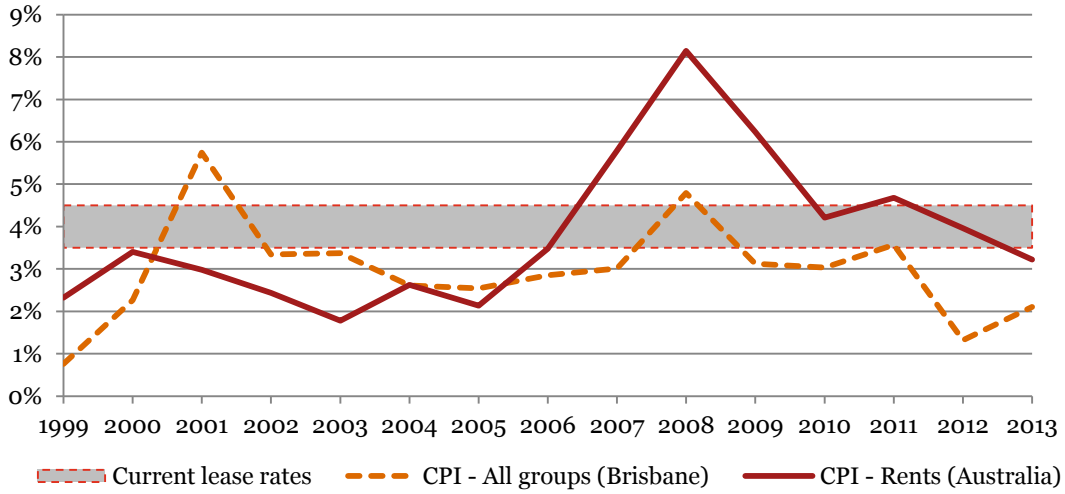
Energex has advised that the majority of its rent and lease expenditure is associated with its current corporate offices, together with its Northern and Southern metro offices. The rental agreements for each office are set for a period of between 7 and 15 years and, and include annual escalation rates.

Of the four major rental contracts reviewed, all of which are located within Brisbane metropolitan areas, annual escalation rates were set above CPI. Examples of clauses from these contracts are specified below:

- Greater of CPI or 3.75 per cent, with a market review in a later year of the contract
- 4.5 per cent
- Greater of market review or 3.5 per cent
- 3.75 per cent.[85]

As these clauses suggest, lease expenditure of these buildings is expected to increase above inflation over the coming regulatory period, consistent with historic movements in Australian rents, as measured by the ABS series CPI – Rents (Figure 11).

Figure 11: Annual movements CPI – Rents compared to CPI – All Groups, 1998/99 to 2012/13[86]



[85] Due to the market sensitive nature of these contracts, escalation clauses by agreement have not been provided.

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

CPI – Rents (Australia) is a weighted average of the eight capital cities. Over a 5-year timeframe rent prices have grown by significantly more (4.46 per cent), than CPI (2.35 per cent) on an annual basis. While the comparative compound growth rates over a 15-year period are more similar, there is still a notable difference in annual movements between the two indexes (Table 26).

Table 26: Nominal compound growth rates of rent prices and CPI[87]

Escalation factor	2007/08 - 2012/13 (5 years)	1997/98 - 2012/13 (15 years)
CPI – All groups (Brisbane)	2.35%	3.03%
CPI – Rents	4.46%	3.81%

We note that as CPI – Rents (Australia) reflects movements in rental prices nationwide and focuses on residential housing rents,[88] it may not provide a suitable base on which to develop forecasts of prudent and efficient movements in Energex's rental expenditure. Energex's rent and lease expenditure is primarily related to commercial and industrial property in Brisbane, though there are limited publicly available indices which measure movements in the rents of such properties.

We consider that commercial rents in the Brisbane CBD are likely to grow at rates higher than inflation over the coming regulatory period, but that rent increases outside this area may be more limited. Research suggests the number of CBD and metro office tenancy enquiries (considered to be a leading indicator of deal activity) increased 29 per cent during 2013 in Sydney, Melbourne and Brisbane,[89] and that tenant demand for newly constructed or current generation office space is strong within the Brisbane fringe market. [90] However, tenants outside the metropolitan remain relatively cautious, and a lack of competitive pressure has ensured commercial rents in these areas have remained relatively stable recently.[91]

8.4.2 Utilities

Energex's utilities encompass costs associated with water, electricity and gas services along with property and land rates payable to local councils. The ABS publishes a range of CPI measures associated with these specific costs including:

- CPI – Utilities (Australia)
- CPI – Gas and other household fuels (Australia)
- CPI – Property rates and charges (Australia)

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87 Ibid

88 Australian Bureau of Statistics (2011) *Consumer Price Index: Concepts, Sources and Methods – Price Collection*. Avaaileblhttp://www.abs.gov.au/ausstats/abs@.nsf/Latestproducts/6461.0Main%20Features102011?opendocument&tabname=Summary&prodno=6461.0&issue=2011&num=&view=

89 Colliers International (2014) *2014 Property Outlook*. Accessed online at http://www.colliers.com.au/Services/Owners_and_Investors/Property_Research_and_Investment_Property_Advice/2014_Property_Outlook.aspx

90 Knight Frank (2013) *Brisbane Fringe Office Market Brief*. Accessed online at http://my.knightfrank.com.au/research-reports/brisbane-fringe-office-market-brief.aspx

91 Knight Frank (2013) *Brisbane Industrial Market Overview*. Accessed online at http://my.knightfrank.com/research-reports/brisbane-industrial-market-overview.aspx

- CPI – Electricity (Australia)
- CPI – Water and sewerage (Australia).

Figure 12 compares the movements in these indices to CPI – All groups (Brisbane). Over the period from 1999, the annual nominal growth movements for these utility-related prices can be seen to be growing at substantially higher rates than CPI – All Groups (Brisbane). This is particularly so during the period from 2007/08 to present, where movements in the utilities, gas and electricity CPI measure accelerated rapidly and with high levels of volatility.

Figure 12: Annual movements in alternative CPI measures, 1998/99 to 2012/13[92]

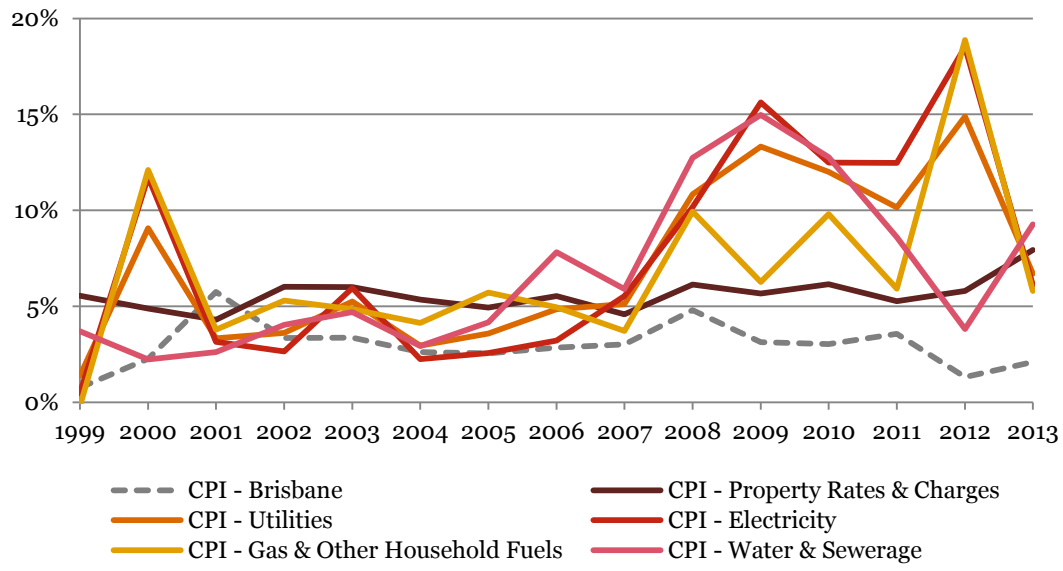


Table 27 and Figure 13 show the disparity in compound growth rates over a range of timeframes.

Table 27: Nominal compound growth rates of utilities prices and CPI[93]

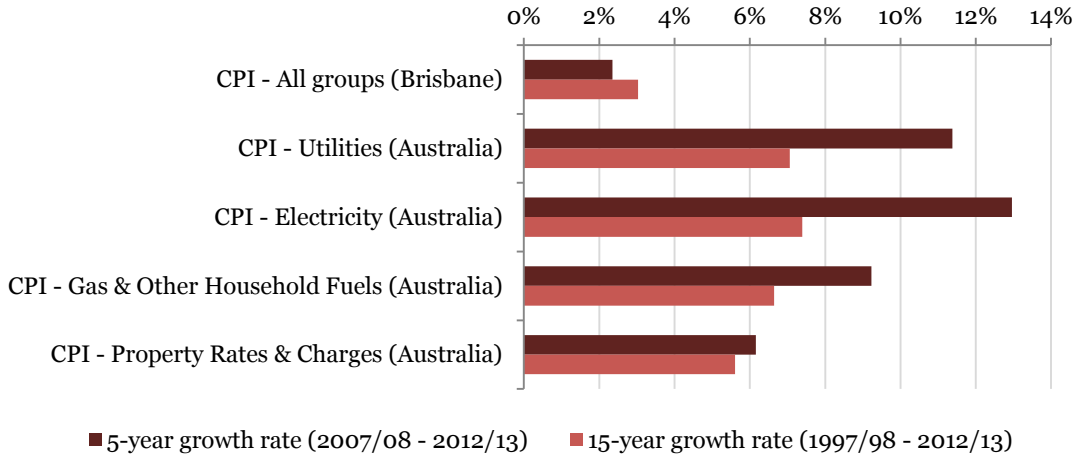
Escalation factor	2007/08 - 2012/13 (5 years)	1997/98 - 2012/13 (15 years)	1992/93 - 2012/13 (20 years)
CPI – All groups (Brisbane)	2.35%	3.03%	2.83%
CPI – Utilities (Australia)	11.38%	7.06%	5.36%
CPI – Electricity (Australia)	12.96%	7.39%	5.42%
CPI – Gas & Other Household Fuels (Australia)	9.23%	6.65%	5.29%

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

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

Escalation factor	2007/08 - 2012/13 (5 years)	1997/98 - 2012/13 (15 years)	1992/93 - 2012/13 (20 years)
CPI – Property Rates & Charges (Australia)	6.16%	5.60%	*No index data*
CPI – Water & Sewerage (Australia)	9.48%	6.45%	*No index data*

Figure 13: Nominal compound annual growth rates in utilities-related indexes and CPI[94]



Between 2007/08 and 2012/13, movements in utilities services have grown at significantly higher rates (ranging between 6.16 per cent and 12.96 per cent annual growth) compared to CPI – All groups (Brisbane) which grew at 2.35 per cent per annum. This trend softens slightly over the 15-year period from 1997/98 to 2012/13, but the five utility indexes still show higher annual growth levels than CPI – All groups (Brisbane) over this longer timeframe.

Rates

Within occupancy expenditure, rates payments have averaged around 12 per cent of total occupancy expenditure over the period since 2009.

Movements in CPI – Property Rates & Charges (Australia), while still exhibiting higher annual growth than CPI – All groups (Brisbane) for almost every year since 1999, are relatively stable when compared to the movements of electricity, gas and utilities.

Electricity, gas and water

Electricity, gas and water expenditure have averaged around 9 per cent of total occupancy expenditure over the period from 2009.

It is acknowledged that prices across these utilities services have grown significantly in recent years, and may continue to increase over the coming regulatory period. However, the extent to which prices will continue to grow at similar rates into the future is less clear. In particular:

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

- Electricity prices have grown substantially in recent years, and are forecast to continue to grow at levels notably higher than inflation through 2017, based on rising costs of production and increases in more expensive renewable energy sources.[95] In contrast however, the Australian Energy Market Operator (AEMO) considers real increases in Queensland electricity prices over the coming regulatory period to be unlikely. [96]

- Nominal gas prices have also been increasing at comparatively high rates, and are predicted to continue to rise in the short to medium term.[97] Increasing demand, together with the introduction of upstream trade and lower domestic gas prices than internationally all suggest the price of gas will continue to grow at a rate above inflation.

- Water and sewerage nominal prices have been increasing at an average of 9.5% since 2009, showing significant levels of real growth in the past five years. South East Queensland water prices are anticipated to continue to increase at high rates, with compound annual growth rates of between 2.5 per cent and 20.7 per cent forecast across the region between 2015/16 and 2017/18. The Queensland government has committed to addressing the price of water however, and is set to review bulk water prices again in 2015.[98]

In addition, the proposal by the current Commonwealth Government to repeal the carbon price in coming years adds further uncertainty to future utilities price movements.

8.4.3 Property Maintenance and upkeep

The price movements of property maintenance and upkeep, represented by CPI - Maintenance and repair of the Dwelling (Australia) in Figure 14, are relatively close to that of CPI – All groups (Brisbane). While the two indexes do not follow one another exactly, their growth rates generally fall within the same range.

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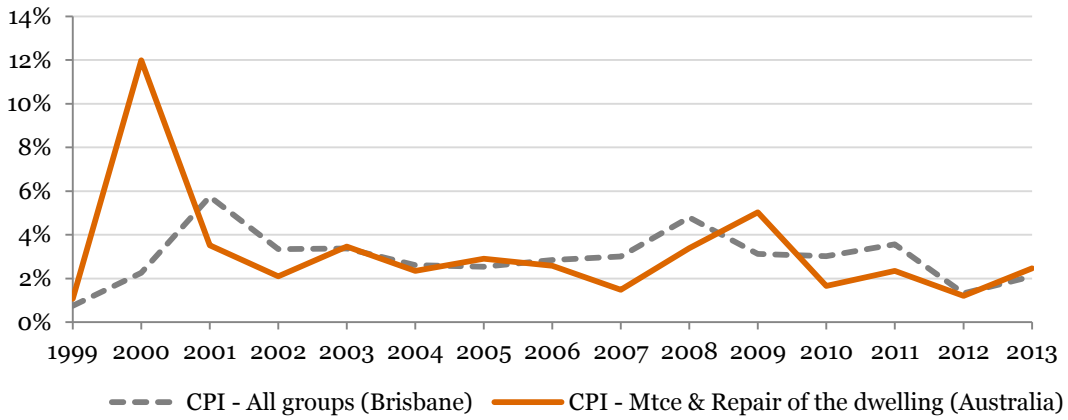
[95] Ibisworld (2013) *Business Environment Profiles: Electricity Service Price*. Accessed online at http://clients1.ibisworld.com.au/reports/au/bed/default.aspx?entid=292

[96] 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

[97] Ibisworld (2013) *Industry Outlook: Gas Supply*. Accessed online at http://clients1.ibisworld.com.au/reports/au/industry/industryoutlook.aspx?entid=301

[98] Queensland Department of Energy and Water Supply (2013) *Bulk water prices*. Accessed online at http://www.dews.qld.gov.au/policies-initiatives/water-sector-reform/water-pricing/bulk-water-prices

Figure 14: Annual movements in maintenance and upkeep prices, 1998/99-2012/13[99]



As shown in Table 28, over a five year period, the Maintenance and Repair of the Dwelling Index grew at a 2.53 per cent compound annual rate, while CPI (Brisbane) increased at 2.35 per cent per year. Over the 15-year period from 1997/98 to 2012/13 growth rates are also similar, with CPI – All groups (Brisbane) increasing at 3.03 per cent and CPI - Maintenance & Repair (Australia) increasing at 3.14 per cent.

Table 28: Nominal compound growth rates of dwelling maintenance and repair prices and CPI[100]

Escalation factor	2007/08 - 2012/13 (5 years)	1997/98 - 2012/13 (15 years)
CPI – All groups (Brisbane)	2.35%	3.03%
CPI – Maintenance & Repair of the Dwelling (Australia)	2.53%	3.14%

As annual historical growth rates are quite similar for the two indexes, CPI could be considered as an acceptable cost escalation factor for maintenance and upkeep costs.

8.5 Discussion

While the individual CPI indices (Rent, Utilities, Property Rates & Charges, and Maintenance & Repair of the Dwelling) may be suitable escalation factors for future cost estimates, with minimal historical data we are unable to determine how accurately these track to Energex's actual expenditure. As such, the discussion will rely on a review of the previously mentioned publicly available indexes, as well as the limited sources of available regulatory precedents.

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

[100] Australian Bureau of Statistics (2014) *Consumer Price Index, Australia, Dec 2013. Cat No. 6401.0 Table No. 5 and 7*. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

The AER has previously stated in a draft decision in response to a submission by SP AusNet:

> *"Any estimate that uses real cost escalation for only one, or some, materials as a proxy for the entire basket of network materials cost escalation, is not arrived at on a reasonable basis and does not represent the best forecast or estimate possible in the circumstances. This is because while the real cost of some items will increase, others will decrease. Adjusting only for real cost increases, and not decreases, produces upwardly biased cost forecasts. In order to establish that compensation for network materials real cost escalation is necessary, there must be evidence the entire basket of network costs has been increasing by more than CPI. Consequently, even if there is evidence the price of some materials will increase more than CPI this does not necessitate that SP AusNet's network materials costs will increase by more than CPI."*[101]

Hence it can be assumed that a cost basket such as occupancy costs could not be escalated at a single rate unless the components of the basket are seen to be demonstrably increasing at the same rate. Since it is not the case for rent, utilities, and maintenance and upkeep, it may be appropriate for these sub-categories to be escalated at separate rates.

8.5.1 Rent and leases

Our analysis suggests that demand and hence likely rental price movements for commercial rental properties varies across the Brisbane region.

Demand for newly constructed, current generation properties in metropolitan areas is forecast to drive relatively strong growth in rents over the coming regulatory period, and hence real growth in rents. [redacted]

However, lower demand for commercial properties in regional areas is likely to limit growth in rents. Indeed, rent increases outside the CBD and nearby metropolitan areas are expected to be more limited over the regulatory period, and hence more likely to be in line with general price inflation.

In light of these differences, a composite index for rental costs has been developed, based on the mix of Energex's metropolitan and non-metropolitan leases:

- The escalation factor for Energex's metropolitan leases has been derived using the escalation factors specified in the four major rental agreements provided by Energex and weighted in accordance with total rental expenditure for each premise.

- Energex's remaining rental expenditure is escalated in line with the estimates of CPI, based on the assumption that this expenditure largely represents buildings located outside the CBD and metropolitan areas.

These two measures of rental price movements have then been combined to calculate an average rental escalation rate for all rental agreements, weighted according to the proportion of total rental expenditure, presented below.

[101] Australian Energy Regulator (2012) *Access arrangement draft decision SPI Networks (Gas) Pty Ltd 2013–17* (Part 3 – Appendices). Accessed online at http://www.aer.gov.au/node/4810

Table 29: Estimated weighted average rental expenditure escalation rate, 2013/14 to 2019/20

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Weighted average rate	3.60%	3.49%	3.44%	3.44%	3.44%	3.44%	3.42%

8.5.2 Utilities

Utilities prices, as measured by the CPI – Utilities (Australia) series, have risen above the rate of general inflation over the past two decades, with particularly strong increases observed over the last five years. We expect real price increases to continue over the coming regulatory period, though anticipate they will be more moderate.

Analysts consider 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.[102] However, the Australian Energy Market Operator suggests real price rises over the coming regulatory period are unlikely, citing the decreasing costs of electricity distribution.[103]

Bulk water prices across South East Queensland are currently anticipated to increase by up to 20.7 per cent per year over the period 2015/16 to 2017/18, though the government has committed to addressing bulk water costs. It anticipates that the consolidation of bulk water functions into a single bulk water entity will allow for better planning and decision-making, which may be reflected in lower bulk water prices following the next review in 2015. [104]

The decision to repeal the carbon price in coming years adds further uncertainty to projections of utility price movements. Recent analyses of future price movements are likely to have incorporated the effects of the carbon price, such that they may now overestimate future price movements.

We are not aware of publicly available forecasts of utilities price increases appropriate to Energex. However, the factors outlined above suggest that, although real annual utilities price increases are likely, they may not reach the same levels as observed over the period 2007/08 to 2012/13.

The AER considers it prudent to apply the long run average growth rate of price movements in uncertain conditions, as this approach takes into consideration price movements over the full business cycle.[105] As such, in the absence of publicly available forecasts of utilities price movements, we consider the growth rate in the CPI – Utilities (Australia) series over the period 1992/93 to 2012/13 to be an appropriate escalation factor.

By incorporating utilities price movements observed over a 20 year period, this rate provides a more conservative estimate of future price increases than average increases estimated over shorter periods of time. It reflects movements in each of Energex's utilities cost components, and is relatively consistent with other, non-publicly available, forecasts of utilities prices we have reviewed which anticipate real price increases over the period 2015/16 to 2019/20.

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

[103] 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

[104] Queensland Department of Energy and Water Supply (2013) *Bulk water prices*. Accessed online at http://www.dews.qld.gov.au/policies-initiatives/water-sector-reform/water-pricing/bulk-water-prices

[105] Australian Energy Regulator (2011) *Powerlink Transmission Determination 2011-12 to 2016-17*. Available at http://www.aer.gov.au/sites/default/files/Powerlink%20draft%20decision.pdf

8.5.3 Other occupancy expenditure sub-categories

While the individual CPI indices (Property Rates & Charges, and Maintenance & Repair of the Dwelling) may be suitable escalation factors, with limited historical data it is not possible to determine how accurately these track to Energex's actual expenditure.[106]

There are also limited instances where regulators, including the AER, have specifically reviewed the cost escalation factors for occupancy expenditure and approved an approach where CPI sub-categories were applied to occupancy expenditure items.

On this basis, it is reasonable to assume that the use of the previously approved application of CPI to escalate similar ('premises') costs for the five year regulatory period for SP AusNet (albeit in a draft decision) is appropriate.

8.5.4 Weighted index for occupancy expenditure

Overall, we consider that expected real increases in rent and utilities expenditure will drive total occupancy cost increases above inflation over the coming regulatory period. We propose that total occupancy costs be escalated by a weighted average escalation rate which reflects the proportion of total occupancy costs represented by individual cost components.

Rental expenditure is escalated by the rates outlined in Table 29. Utilities expenditure is escalated at the long run average of the CPI – Utilities (Australia) series presented in Table 27, while utilities, and land and building maintenance costs are escalated at CPI. Each rate is weighted according to the proportion of total occupancy expenditure represented by each cost category in Table 24.

8.5.5 Occupancy expenditure escalation factors

Table 30 presents the proposed occupancy expenditure escalation rates. Both the estimated rental expenditure escalation rates and CPI are weighted at 50 per cent. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[107]

Table 30: Occupancy expenditure escalation factors

Escalation factor	Weight	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Rent	50%	3.60%	3.49%	3.44%	3.44%	3.44%	3.44%	3.42%
Utilities	21%	5.36%	5.36%	5.36%	5.36%	5.36%	5.36%	5.36%
CPI	29%	3.25%	2.75%	2.50%	2.50%	2.50%	2.50%	2.50%
Weighted index	-	3.87%	3.67%	3.57%	3.57%	3.57%	3.57%	3.56%
Nominal growth rate	**-**	**3.87%**	**3.67%**	**3.57%**	**3.57%**	**3.57%**	**3.57%**	**3.56%**
Real growth rate	**-**	**0.60%**	**0.89%**	**1.04%**	**1.04%**	**1.04%**	**1.04%**	**1.03%**

[106] Australian Bureau of Statistics (2013) *Consumer Price Index, Australia, Dec 2013. Cat No. 6401.0 Table No. 7.* Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

[107] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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

9 Motor vehicles

We recommend that Energex escalate its motor vehicle expenditure in line with CPI.

9.1 Overview

This chapter examines Energex's expenditure on the purchase of motor vehicles, including light, medium and heavy vehicles. Energex currently purchases it vehicles outright, rather than entering into lease agreements.

9.2 Historical movements in motor vehicle costs

Historical movements in motor vehicle costs were assessed using Energex's motor vehicle expenditure data for its full fleet during the period from 2008/09 to 2012/13. This data included total expenditure by sub-category of vehicle costs (e.g. earthmoving, forklifts, heavy truck etc.) and also the number of these goods purchased. For the purposes of analysing movements in costs, vehicles were divided into three categories – heavy vehicles, light vehicles and plant vehicles. Table 31 summarises the vehicle types included in each vehicle category, along with the proportion of total motor vehicle expenditure each represents.

Table 31: Historical nominal compound growth rates of average vehicle prices, by vehicle category[108]

Vehicle category	Vehicle types included	Proportion of total vehicle expenditure
Heavy vehicles	Earthmoving, forklifts, heavy and medium trucks (excluding elevated work platforms) and trailers.	24%
Light vehicles	Light vehicles 3.5 to 4.5T GVM (excluding elevated work platforms), and all other light vehicles.	53%
Plant	Lifter / borers and elevated work platforms.	23%

[108] Energex data, PwC analysis.

Table 32 presents movements in average prices for each category (combining heavy and plant vehicles) of the three high-level categories over the period between 2008/09 and 2012/13. This table includes:

- average vehicle unit prices, by high-level category
- yearly movements in average prices, by vehicle category
- compound annual growth rate, by vehicle type.

Table 32: Average expenditure per vehicle by high level category and nominal yearly growth, 2008/09 – 2012/13[109]

Prices	Financial year				
Vehicle category	**2008/09**	**2009/10**	**2010/11**	**2011/12**	**2012/13**
Light vehicles	*$38,946*	*$36,250*	*$38,250*	*$41,366*	*$39,664*
Yearly price movement		-6.9%	5.5%	8.2%	-4.1%
CAGR					0.5%
Heavy and Plant vehicles	*$137,337*	*$106,049*	*$148,6851*	*$132,852*	*$96,431*
Yearly price movement		-22.8%	40.2%	-10.6%	-27.4%
CAGR					8.5%

Looking at annual movements in average unit prices, the data shows a high degree of variability across the different vehicle types. These are discussed separately below.

9.2.1 Light vehicles

This data provides a comprehensive indication of movement in average unit prices. Across all the sub-categories of light vehicles, which are similar in terms of vehicle specification and unit prices, there was annual time-series data available to assess movements in average unit costs over time.

While there was a high degree of annual variations over the period 2008/09 to 2012/13, it can be seen that, on average, unit prices for light vehicles experienced minimal nominal price growth (growing at a compound annual rate of 0.5 per cent) over the five year period, and in fact appear to demonstrate a slight decline in real prices.

[109] Energex data, PwC analysis.

9.2.2 Heavy and plant vehicles

The average unit prices and hence any associated annual variations for heavy and plant vehicles are somewhat misleading.

Energex's heavy or plant vehicles categories comprise a number sub-categories of vehicles that group different vehicle types together (with different specifications, and hence purchase prices). This means that any variations in average unit prices may reflect differences in the type of vehicle purchased, rather than any variation in unit prices per se.

Across the five year period, there are also limited instances where the same vehicle type has been purchased annually (or at least in the first year of the period and the last year of the period to allow for changes in unit prices over time to be assessed). This means that across some sub-categories of vehicles there is no clear time series from which to derive annual variations in unit prices. Differences in the composition of vehicles types purchased in a particular year also affect average unit prices.

This suggests that the constant average growth rate generated based on average unit prices for heavy vehicles and plant vehicles overall may significantly misrepresent actual price movements.

Indeed, assessing compound annual growth rates of average unit prices for certain sub-categories of vehicles where unit price data could be identified in the first and last year of the period showed mixed results. For example:

- average unit prices for forklifts, heavy trucks, and custom trailers fell by between 9 per cent and 28 per cent annually over the period 2008/09 and 2012/13
- average unit prices for medium trucks, 2 drum cable trailers and lifter borers increased by between 3 per cent and 9 per cent annually over the same period

The inconsistent nature of this purchasing data makes the development of appropriate escalation factors difficult. We also do not have a view of Energex's expected vehicle purchases or requirements over the next five years, which will be the primary determinant of vehicle prices due to cost variation between categories. There is also no guarantee that past price movements will be indicative of future conditions, as Energex may face different pricing conditions in the next five years. Historical changes may also have been a result of step changes in prices, which may not continue over the forward regulatory period.

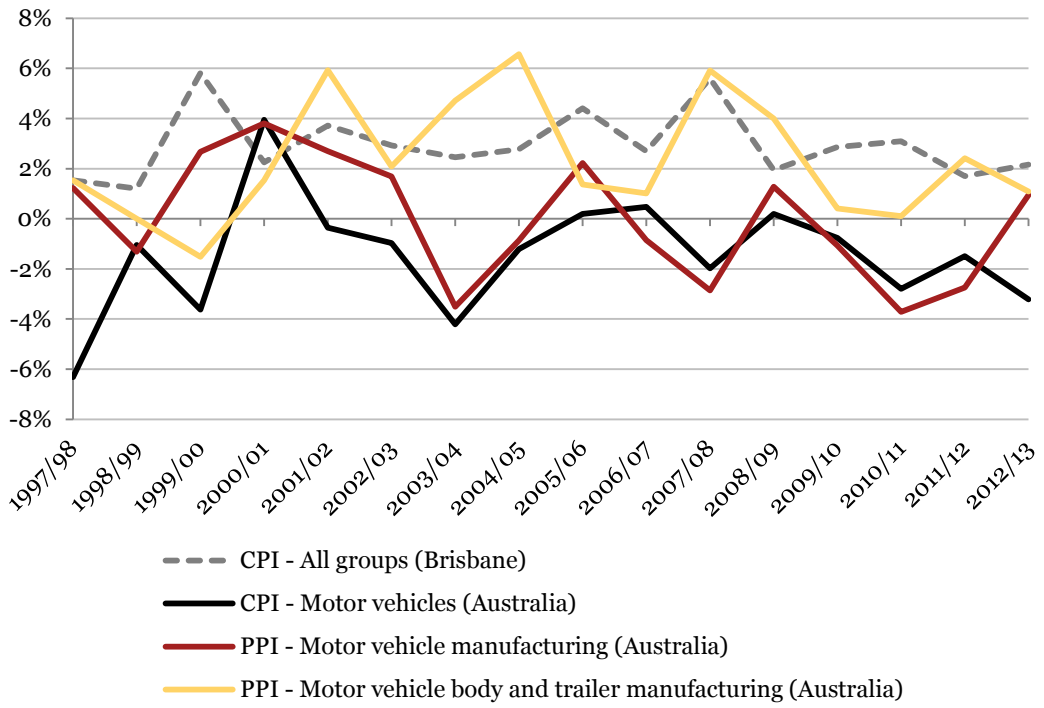
9.3 Alternative approaches for the escalation of motor vehicle costs

9.3.1 Current indices

The ABS publishes several PPIs (see Section 3.2.1 for a discussion of PPI and CPI measures) data sets related to motor vehicle pricing, including the Motor Vehicle Manufacturing Index and the Transport Equipment Manufacturing Index. The ABS also publishes CPI data sets such as CPI - All Groups (Brisbane), along with specific product indexes such as CPI - Motor Vehicles (Australia).

Annual movements in motor vehicle prices, as measured by the specific consumer price index, together with the movements in prices of inputs to the motor vehicle industry are presented in Figure 15. CPI – All groups (Brisbane) is also presented for comparative purposes.[110]

Figure 15: Annual movements in vehicle related indices



Annual movements in both CPI – Motor Vehicles (Australia) and PPI – Motor vehicle manufacturing (Australia) have been below CPI – All groups (Brisbane) since the early 2000s. Annual increases in the PPI – Motor vehicle body and trailer manufacturing (Australia) series have been higher, though with a compound growth rate over the period of 2.35 per cent, still grew at a slower rate than general inflation (with a constant average growth rate of 3.03 per cent).

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

9.3.2 Review of current regulatory precedent

The purchase of motor vehicles is given relatively limited discussion in regulatory determinations, given the comparatively small proportion of total costs it represents. A discussion of the available regulatory precedent is provided below.

Table 33: Application of alternative motor vehicle escalation factors - regulatory review

Business	Regulator	Proposed approach	Approved approach
Energex *(2010/11 to 2014/15 regulatory period)*	AER	• Energex proposed to escalate motor vehicle costs at CPI, which it noted was 2.45%, based on the RBA's short term inflation forecasts.[111]	• The AER accepted the proposal to escalate costs according to CPI, but judged that its own CPI rate of 2.52% was a more accurate representation of annual inflation.[112]
Powerlink *(2012/13 to 2016/17 regulatory period)*	AER	• Powerlink submitted motor vehicle cost escalation rates as a component of non-network capital expenditure, escalated at between 2.7% and 3.7% annually	• The AER accepted this submission, based on the acceptance of the overall proposed capital expenditure figures. [113]

9.3.3 Summary findings

The AER relied upon the CPI estimates in its previous vehicle cost escalation determinations for both transmission and distribution businesses. The only submission which was not directly associated with CPI was based on a growth rate that was not significantly different to CPI.

9.4 *Market trends*

Both motor vehicle production costs and prices have grown at a rate less than general inflation over the past 15 years. Yet, accurately defining future price movements for these goods is complex as the industry is entering a period of uncertainty – with changes in domestic production capacity, exchange rate volatility and also increased competitive pressures.

[111] Energex (2009) *Regulatory Proposal for the period July 2010 – June 2015*. Accessed online at http://www.aer.gov.au/sites/default/files/Energex%27s%20Regulatory%20Proposal%202010-15.pdf

[112] Australian Energy Regulator (2010) Queensland distribution determination: 2010–11 to 2014–15. Accessed online at: http://www.aer.gov.au/sites/default/files/Queensland%20distribution%20decision.pdf

[113] Australian Energy Regulator (2012) *Powerlink Transmission determination 2012–13 to 2016–17*. Accessed online at: http://www.aer.gov.au/sites/default/files/Powerlink%20-%20Final%20decision%20-%20April%202012.pdf

Australian motor vehicle manufacturers – Holden, Ford and Toyota – have recently announced that they will cease manufacturing in Australia, thereby effectively ending domestic motor vehicle production in Australia. While these changes may reduce supply, it is not expected that this will lead to growth in motor vehicles prices, and may even support a reduction in the price of imported motor vehicles. In particular, the Australian Government has announced that it will review existing motor vehicle tariffs currently applied to imported vehicles, with the potential for them to be removed.[114] Any removal of tariffs is expected to reduce prices for imported motor vehicles.

The production costs of motor vehicles, and hence their prices, are driven in part by the costs of key parts and materials which can reflect up to around 70 per cent of total revenues.[115] In the case of heavy vehicles, these costs tend to link to movements in commodity prices.[116] Existing data regarding commodity price movements suggest price growth in these goods will remain subdued and below general inflation rates over the short to medium term; the World Bank anticipates iron ore prices to increase by just 1 per cent annually over the period 2014 to 2020.[117] With costs associated with the production of motor vehicles remaining low, it is therefore not expected that this will be a contributing factor in price growth in motor vehicles over the forward regulatory period.

Lastly, while it is also acknowledged that subdued growth in motor vehicles prices in recent years can be attributed to the stronger Australian dollar, there is limited evidence to suggest that a weaker Australian dollar will drive real growth in prices for motor vehicles over the short to medium term. Indeed, broader competitive pressures along with changes in tariffs for imported vehicles and an expectation of lower production costs are likely to offset any price effect associated with exchange rates movements.

9.5 Discussion

The nature of vehicle expenditure by Energex – which tends to reflect more one-off purchases – affects the assessment of unit price movements over time, and hence the ability to derive clear conclusions regarding movements in the prices of these goods. While the unit prices of some vehicles, such as heavy or plant vehicles, may grow at a rate higher than CPI, there was insufficient evidence to suggest that this was consistently the case across all of Energex's vehicle types.

Accordingly, it is proposed that all vehicle unit prices be escalated by CPI. This approach is proposed on the basis that without sufficient evidence to support an alternative approach, CPI provides the most appropriate method to account for movements in these costs over time. It is also the case that CPI captures exchange rate movements, which drive price inflation.

Alternative measure of price movements, such as PPI – Motor vehicle manufacturing and PPI – Motor vehicle body and trailer manufacturing are not considered to provide appropriate measures of unit price movements on the basis that they may underestimate price growth over the forward regulatory period, and because publicly available forecasts of the indices do not exist.

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114 Hutchen, Gareth (2014) Australia's car tariffs among world's lowest. Available at: http://www.smh.com.au/federal-politics/political-news/australias-car-tariffs-among-worlds-lowest-20140212-32iem.html.

115 IBISWorld (2013) *Global Heavy Duty Truck Manufacturing*. October 2013.

116 IBISWorld (2013) *Global Heavy Duty Truck Manufacturing*. October 2013.

117 World Bank (2014) *World Bank Commodities Price Forecast*. Available at http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21574907~menuPK:7859231~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html

Considering motor vehicles prices more broadly, there is also limited evidence to suggest these prices will rise considerably over the regulatory period. Indeed with the unit prices of Energex's light vehicles (which reflected around 50 per cent of total expenditure) increasing at a lower rate that CPI, this may also offset greater unit price variations in other vehicles types.

Applying CPI is also likely to be more readily accepted by the AER, which has previously accepted the use of CPI, or a rate that was not that dissimilar to CPI.

9.5.1 Motor vehicle escalation factors

The following CPI escalation factors are recommended for motor vehicle costs, based on current forecasts published by the RBA.[118]

Table 34: Forecast of the consumer price index

Escalation Factor	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
Nominal growth rate	3.25%	2.75%	2.50%	2.50%	2.50%	2.50%	2.50%
Real growth rate	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

[118] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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

10 Transport costs

We recommend that Energex escalate its transport expenditure in line with a weighted index comprising WPI, the upper bound of the RBA's inflation target, the mid-point of expected registration increases and the long run growth rate of the CPI – Insurance (Australia) series.

10.1 Overview

Our review of Energex's transport costs has focused on the following four sub-categories, which are considered by Energex to represent the majority of its annual transport expenditure:

- vehicle maintenance
- fuel and oils
- vehicle registration
- insurance costs.

Other minor costs associated with transport expenditure are not considered in the analysis, such as management fees and vehicle rebuilds, which constitute less than 2.5 per cent of total transport costs.

Historical expenditure relating to vehicle maintenance, fuel, registration, and accidents and damages is considered as part of determining an appropriate escalation factor for this cost category. Energex utilises a self-insurance scheme, whereby it directly pays expenses incurred as a result of damage or accident to motor vehicles. Accordingly, information regarding insurance premiums paid by the business is not available. Instead, the use of accident and damage costs has been assumed to represent this expenditure sub-category.

Total 2012/13 expenditure in each of the four sub-categories, along with its proportion of total expenditure is summarised in Table 35.

Table 35: Energex transport expenditure, by sub-category[119]

Cost sub-category	Nature of costs	2012/13 expenditure	Proportion of total expenditure 2008/09 to 2012/13
Fuel	Fuel costs	$8,521,466	49.0%
Maintenance	Scheduled and unscheduled maintenance	$7,193,281	34.9%
Registration	Vehicle registration costs	$1,645,076	8.9%
Insurance	Accident and damage costs	$1,340,586	7.2%
Total		**$18,700,409**	**100%**

[119] Energex data, PwC analysis.

10.2 Historical movements in transport costs

Energex's transport costs include maintenance, registration, fuel, and damage costs incurred for around 2,100 vehicles across its fleet which are used to move goods and equipment, transport staff and contractors, and construct and maintain infrastructure.

Using expenditure data for each of these cost sub-categories, annual movements in per vehicle costs have been assessed over the period between 2007/08 and 2012/13.

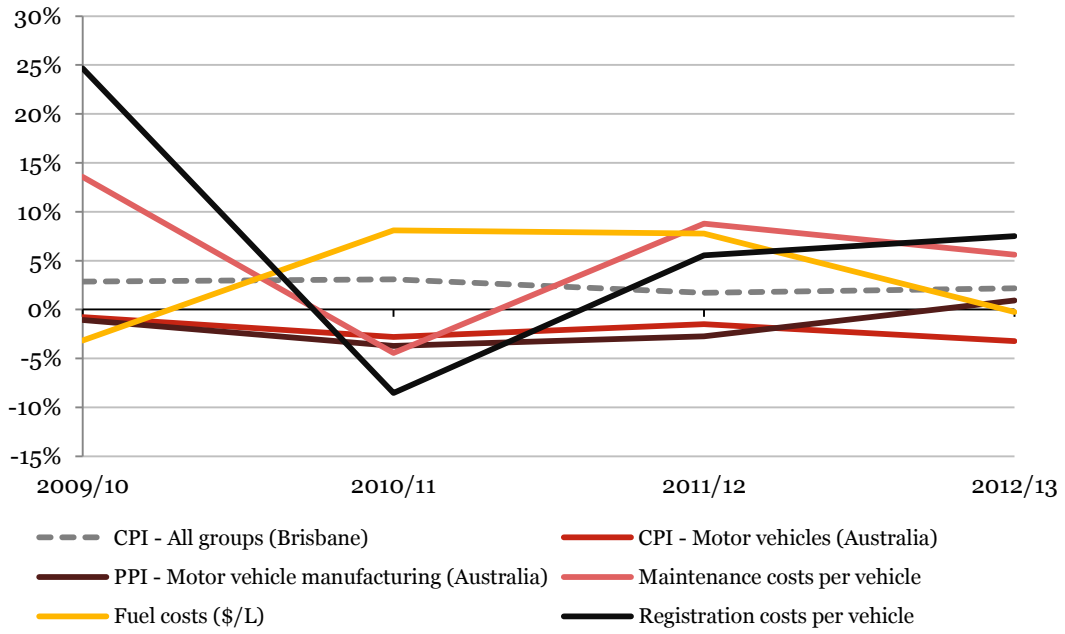
The estimates of average unit costs per vehicle for registration, maintenance and accident/damage were derived by:

- taking annual expenditure per vehicle type per cost category, and dividing this by the number of vehicles of that type to derive an average cost per vehicle type per cost category (there are approximately 13 different vehicle types)
- each of these average costs per vehicle type per cost category were then weighted based on the total number of each vehicle type to derive an average unit price per vehicle.

For fuel, the cost per litre was calculated for each vehicle type, and weighted against the proportion of each vehicle type within the total fleet, generating a weighted cost per litre of fuel.

A view of each sub-category's annual nominal cost growth, compared against CPI for the 2007/08 to 2012/13 period is presented in Figure 16.[120]

Figure 16: Annual movements in Energex average transport unit costs, 2008/09 to 2012/13[121]



[120] Reserve Bank of Australia (2013) *Consumer Price Index – G2 (All groups)* – Indexed to September 2013. Accessed online at: http://www.rba.gov.au/statistics/by-subject.html

[121] Energex data, PwC analysis.

Movements in each of these unit price measures are assessed further in Section 10.4.

10.3 Alternative approaches for the escalation of transport costs

10.3.1 Current indices

The ABS publishes a range of indices including CPI and PPI measures that relate specifically to movements in transport costs more broadly (see Section 3.2.1 for a discussion of CPI and PPI measures).

However, for the purpose of this assessment, a review of product specific indices for each of the individual cost sub-categories has been considered. This is set out in further detail in Section 10.4.

10.3.2 Review of current regulatory precedent

A review of the limited regulatory precedent regarding escalation of transport costs is provided below.

Table 36: Application of alternative transport costs escalation factors - regulatory review

Business	Regulator	Proposed approach	Approved approach
SP AusNet *(2014/15 to 2016/17 regulatory period)*	AER	• The AER is currently reviewing SP AusNet's regulatory submission for the period 2014/15 to 2016/17. • In its revenue proposal for the 2014/15 to 2016/17 regulatory period, SP AusNet noted that given the broad nature of transport related costs, such as fuel, oil, freight and general transport expenditure, it was appropriate to assume that they would increase at the same rate as CPI. As such, SP AusNet did not apply a real escalation rate to transport related components of forecast operating expenditure.[122]	• SP AusNet's proposed approach was accepted by the AER in its draft decision. • SP AusNet has subsequently submitted its revised regulatory proposal with the same methodology, however the AER is not expected to release its final decision until later in 2014.[123]

[122] SP AusNet (2013) *Electricity Transmission Revenue Proposal 2014/15 – 2016/17*. Accessed online at http://www.aer.gov.au/sites/default/files/SP%20AusNet%202014-17%20revenue%20proposal%20p.pdf

[123] SP AusNet (2013) *Transmission Revenue Reset (TRR). Appendix H: Annual Real Material Cost Escalation Forecast 2014/15 – 16/17- Sinclair Knight Mercer (SKM)*. Accessed online at http://www.aer.gov.au/sites/default/files/SKM%20-%20Appendix%20H%20-%20Annual%20real%20material%20cost%20escalation%20forecast%202014-14%20to%202016-17%20-%2011%20October%202013.pdf

10.3.3 Summary findings

There is very little publicly available data regarding transport-specific cost escalation information. As seen with SP AusNet's initial submission, such costs can be assumed to have been bundled together in broad categories or not considered individually during other AER submissions.

10.4 Market trends

The distinct nature of each of the sub-categories of transport expenditure suggests that each aspect may be suited to unique escalation factors, provided that appropriate indices exist. This is explored further below.

10.4.1 Fuel

Energex purchases its fuel under the Queensland Government Standing Offer Agreement 370. Under this agreement, the fuel prices paid by Energex at Caltex, BP, or Shell service stations are calculated as follows:

- Caltex –Fixed weekly state-wide price based on the Caltex Reference Price (CRP) or a discount off the pump price, whichever is lower
- BP –Fixed weekly state-wide price based on the Weekly Escalator Price (WEP) or a discount off the pump price, whichever is lower
- Shell – Fixed state-wide discount off pump price.

The CRP and WEP are weekly prices fixed from Sunday to Saturday. The agreement indicates that the price variation formula in the agreement should ensure that fuel prices align with movements in the competitive oil market over time.[124]

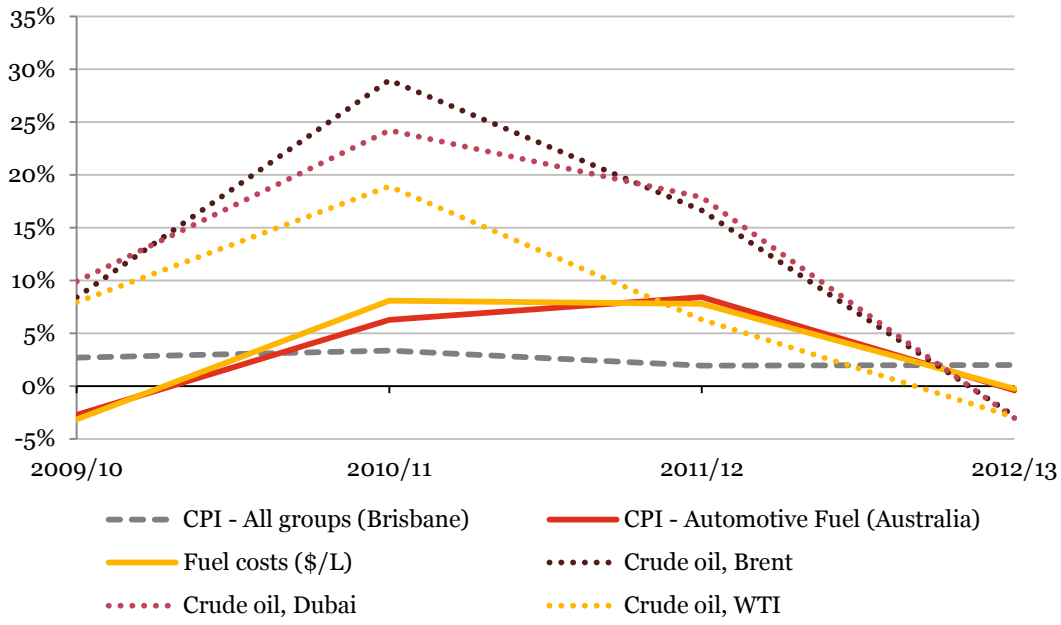
Figure 17 compares movements in Energex's average fuel price per litre to movements in the average annual rate of:

- CPI – All groups (Brisbane)
- CPI – Automotive Fuel (Australia).

The graph also includes movements in the annual average Brent, Dubai and West Texas crude oil prices.

[124] Queensland Government Chief Procurement Office (2013) *Card fuel and associated services: Standing offer agreement – Buyers guide.*

Figure 17: Movements in annual average fuel costs and related indices, 2008/09 to 2012/13[125] [126]



Movements in the annual average fuel price per litre paid by Energex over the period 2008/09 to 2012/13 closely matched movements in fuel prices nationwide, as measured by the CPI – Automotive Fuel (Australia). By comparison, general price inflation as measured by CPI – All groups (Brisbane) was more stable over the period. Energex's fuel costs also trended relatively consistently with the annual average Dubai oil price, though with less volatile annual movements.

The fuel price would not necessarily be expected to align perfectly with movements in international oil prices however, as the price of oil reflects only one component of the total cost of fuel. Additional costs, such as refining, freight, federal excises and GST each contribute to total costs, such that a movement in the price of oil would have a smaller proportionate effect on the price of fuel. From this limited data set, our analysis suggests that a 10 per cent movement in the annual average Dubai oil price is associated with a 3 per cent movement in Energex's annual average fuel cost per litre.[127]

The compound annual growth rates of annual average fuel costs per litre and index values are presented below. Although Energex's annual average fuel cost per litre and the national fuel price index fluctuated more significantly than Brisbane general price inflation, these variations were smoothed over the period, and were consistent with the RBA's inflation target range over the period, though were closer to the upper limit of this band.

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[125] Australian Bureau of Statistics (2013) *Consumer Price Index, Australia, Dec 2013. Cat No. 6401.0 Table No. 5 and 7.* Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

[126] World Bank (2013) Overview of commodity markets. Accessed online at http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,,contentMDK:21574907~menuPK:7859231~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html.

[127] Calculated as the coefficient in the regression of the log of Energex's annual average fuel cost per litre on the log of the annual average Dubai oil price. This coefficient is interpreted as the percentage movement in Energex's average fuel cost per litre for a percentage movement in the annual average Dubai oil price.

Table 37: Compound annual growth rates for annual average historical fuel cost per litre and related indices, 2008/09 to 2012/13[128]

Index / cost category	Compound annual growth rate (2008/09 – 2012/13)
Energex fuel cost per litre	2.99%
CPI - Automotive fuel (Australia)	2.77%
CPI – All groups (Brisbane)	2.35%

10.4.2 Maintenance

Maintenance costs represent 35 per cent of Energex's 2012/13 transport expenditure. Total maintenance costs varied significantly over the period 2008/09 to 2012/13, with annual movements ranging from -3.3 per cent to 14.1 per cent.

Table 38: Annual total vehicle maintenance expenditure 2008/09 to 2012/13[129]

	2008/09	2009/10	2010/11	2011/12	2012/13
Total maintenance costs	$5,358,993	$6,032,323	$5,831,576	$6,306,493	$7,193,281
Movement		12.6%	-3.3%	8.1%	14.1%

These large movements in total annual costs are driven by the wide variation in maintenance costs per vehicle category. Average maintenance costs in 2012/13 ranged from an average of $1,158 per Forklift to $8,526 per Medium EWP unit.

Total unit price movements over the five year period between 2008/09 and 2012/13 were also highly variable across the fleet; maintenance costs per Forklift decreased by 10.1 per cent over 2008/09 to 2012/13, the same period in which maintenance costs per Heavy Elevated Work Platform (EWP) unit increased by 11.8 per cent.

Table 39: Average maintenance expenditure and cost growth rates[130]

Category	2012/13 cost per vehicle	CAGR 2008/09 – 2012/13
Light Cars	$1,941.87	7.2%
Tools of Trade Light	$1,471.16	6.7%
Light Commercial	$3,313.19	4.8%
Medium EWP Units	$8,526.60	5.8%
Other Medium	$3,852.29	0.6%

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

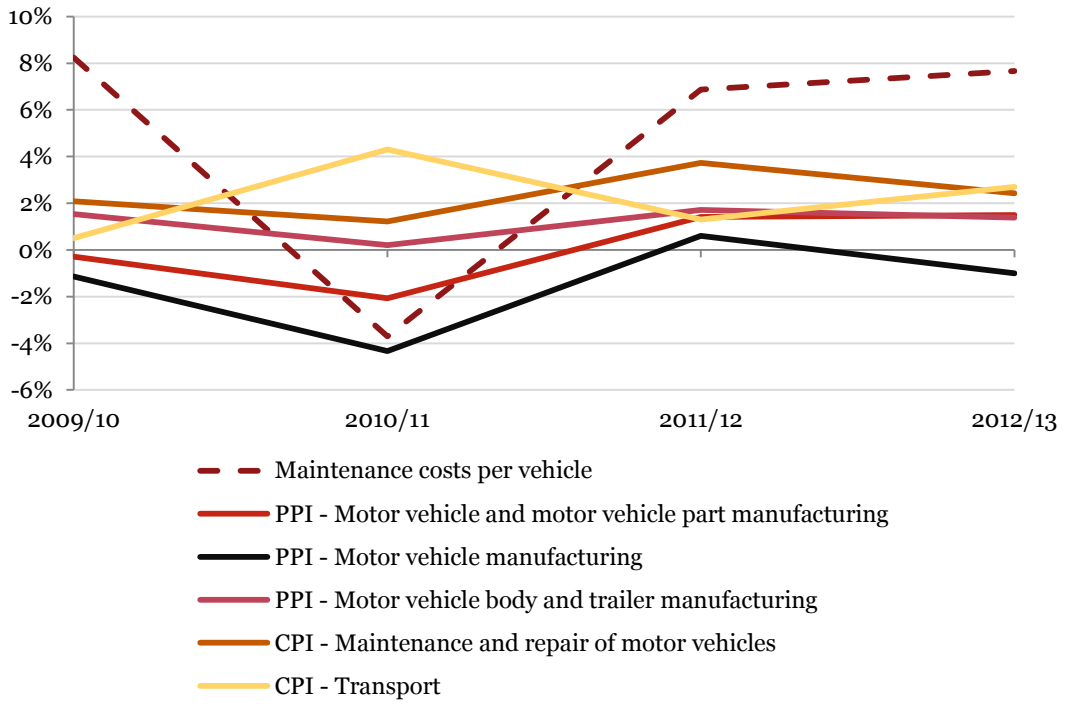
[129] Energex data, PwC analysis.

[130] Energex data, PwC analysis.

Category	2012/13 cost per vehicle	CAGR 2008/09 – 2012/13
Heavy Elevated Work Platform Units	$8,251.84	11.8%
Other Heavy	$8,486.36	3.8%
Trailers	$1,279.41	0.1%
Forklifts	$1,158.24	-10.1%
Earthmoving	$4,664.32	-7.2%
Miscellaneous	$1,656.68	7.7%

This variability highlights the complexity in identifying an index that will align to the movements in Energex's total vehicle maintenance costs. Figure 18 shows that movements in per vehicle maintenance costs were significantly more variable than any related nationwide ABS index over the period. The four indices generally fluctuated between annual movements of -4 per cent to 4 per cent, while maintenance costs reached annual increases of over 8 per cent.

Figure 18: Movements in vehicle maintenance costs and related indices, 2008/09 to 2012/13[131]



Comparison of compound annual growth rates of each series confirms these results. Despite the annual decrease of 4 per cent in 2010/11, maintenance costs per vehicle grew at an average rate of 4.7 per cent over the period, suggesting that real growth in costs over the

[131] Australian Bureau of Statistics (2013) *Producer Price Index, Australia, Dec 2013. Cat No. 6417.0*. Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

coming regulatory period is likely. In contrast, no ABS index increased at a rate above inflation over the past five years, as seen in Table 40.

Table 40: Compound annual growth rates, maintenance costs per vehicle and related indices[132] [133]

Category	CAGR 2008/09 – 2012/13
PPI - Motor vehicle and motor vehicle part manufacturing	0.1%
PPI - Motor vehicle manufacturing	-1.7%
PPI - Motor vehicle body and trailer manufacturing	1.0%
CPI - Maintenance and repair of motor vehicles	2.4%
Maintenance cost per vehicle	4.7%

One of the core components of vehicle maintenance costs is the price of labour, as it comprises around 42% of total costs for companies in the motor vehicle repair and maintenance industry.[134] Labour prices have generally moved at a higher rate than CPI indexes since 2008/09, and are potentially a driving factor in the real growth of maintenance expenditure observed for Energex in the period from 2008/09 to 2012/13.

Consequently, due to the relationship between maintenance costs movements and labour costs, it may be appropriate to link the escalation of maintenance expenditure to a labour-based price index, such as the WPI.

10.4.3 Registration

Variation in total registration costs is also driven by the composition of vehicles being registered in any year. Similar to maintenance costs, registration costs across Energex's fleet vary significantly by vehicle type, but also over time within one vehicle category.

Table 41: Average registration expenditure and cost growth rates[135]

Category	2012/13 cost per vehicle	CAGR 2008/09 – 2012/13
Light Cars	$694	5.6%
Tools of Trade Light	$672	4.3%
Light Commercial	$890	4.3%
Medium EWP Units	$657	-4.2%
Other Medium	$1,841	14.0%

[132] Ibid.

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

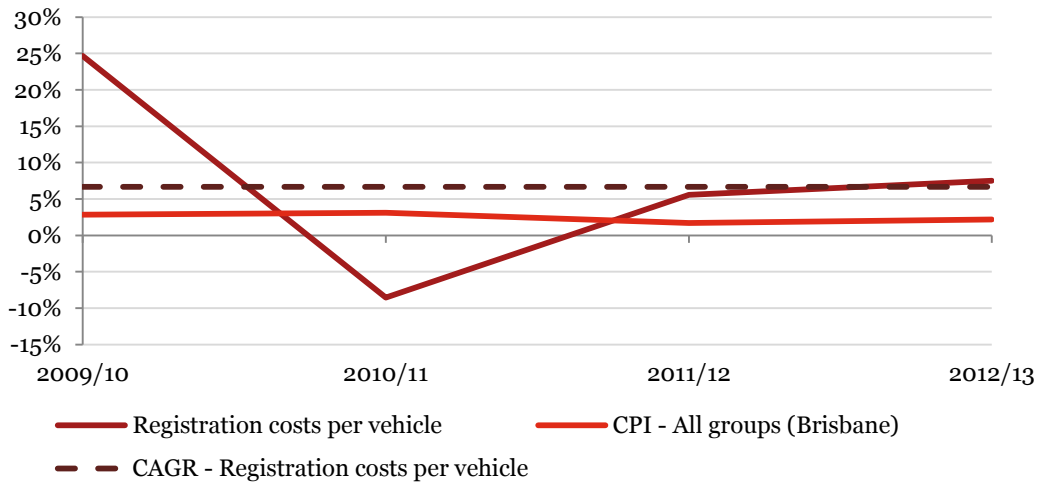
[134] Ibisworld (2013) *Motor Vehicle Engine and Parts Repair and Maintenance in Australia*. Accessed online at http://clients1.ibisworld.com.au/reports/au/industry/default.aspx?entid=442

[135] Energex data, PwC analysis.

Category	2012/13 cost per vehicle	CAGR 2008/09 – 2012/13
Heavy EWP Units	$642	1.9%
Other Heavy	$2,527	9.3%
Trailers	$407	8.7%
Forklifts	$11	22.5%
Earthmoving	$200	11.2%
Miscellaneous	$93	14.8%

While there is no obvious index by which to escalate vehicle registration costs, a comparison of nominal historical costs to CPI – All groups (Brisbane) is provided in Figure 19. Registration is also comparatively small with regards to total transport expenditure when compared to total maintenance and fuel costs, and there is minimal information around regulatory decisions for this category directly.

Figure 19: Movements in vehicle registration costs and CPI – All groups (Brisbane), 2008/09 to 2012/13[136]



The Department of Transport and Main Roads determines fees and charges each year based on the Queensland Government's indexation policy (GIP). In 2013/14 increases in registration costs are limited to 3.5 per cent for light vehicles according to this policy, and 2.5 per cent for motor vehicles with a gross vehicle mass of more than 4.5 tonnes.[137] This corresponds with the split between light (equal to or less than 4.5 tonnes) and heavy and plant vehicles (greater than 4.5 tonnes) for Energex's fleet data.

The government indexation policy is set annually at the time of the state budget and is evaluated in accordance with broader revenue requirements. As this figure is assessed on an annual basis, there is difficulty in accurately predicting growth trends for future years. In the

[136] Australian Bureau of Statistics (2013) *Consumer Price Index, Australia, Dec 2013. Cat No. 6401.0 Table No. 5.* Available at http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/6401.0Dec%202013?OpenDocument

[137] Queensland Government (2013) *Transport Legislation (Fees) Amendment Regulation (No. 1) 2013.* Accessed online at https://www.legislation.qld.gov.au/LEGISLTN/SLS/RIS_EN/2013/13SL075E.pdf

absence of a forward looking price forecast, it is suggested that the 2013/14 GIP growth rates could be adjusted to accommodate for fleet vehicle type breakdown and applied throughout the next regulatory period.

As the proportion of total registration expenditure is made up of 47.0 per cent light vehicles and 53.0 per cent heavy and plant vehicles, a midpoint of the projected GIP increase between light and heavy vehicles (3.0 per cent) could be an appropriate escalation factor for registration costs.

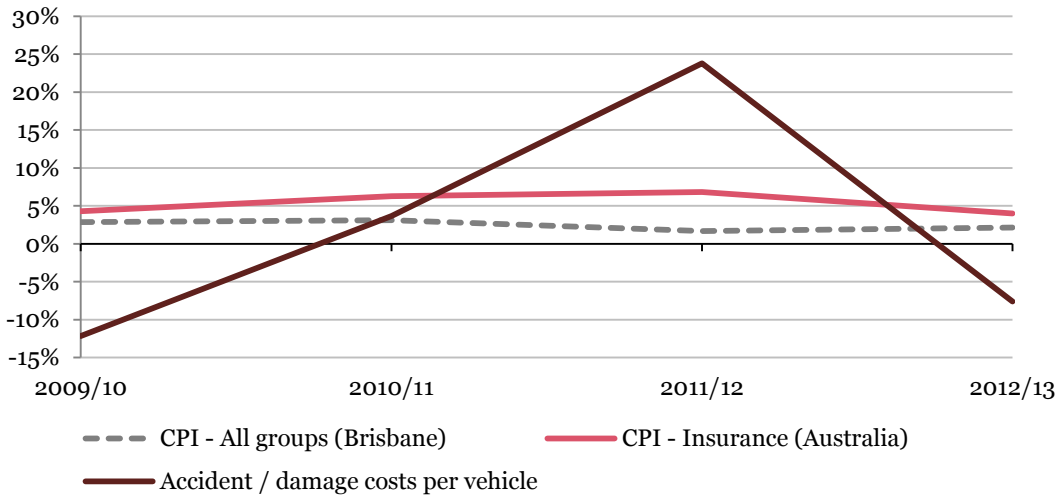
10.4.4 Insurance

Energex employs a self-insurance mechanism, whereby it pays directly any expenses incurred as a result of damage or accident to its motor vehicle fleet, rather than holding a policy with an external insurance provider. As insurance cost information is not directly available in the case of self-insurance, accident and damage costs have been used as a proxy for movements in the insurance expense category.

The self-insurance scheme employed by Energex is highly vulnerable to large variances in year-on-year costs, depending on the severity and frequency of accident and damage expenses incurred. In contrast, if Energex held an external policy with an insurance provider its premiums would be relatively stable in price, with less significant fluctuations in excess payments dependent on accident and damage costs.

While the expenditure risk is higher under such a system, Energex may benefit in years where there are relatively few accidents and repair costs are minimal. Conversely, if facing years with multiple accidents and repair requirements of high severity, the costs incurred will be significant. These high variations in annual damage and accident expenditure appear to have been the case for Energex, which has recorded significant fluctuations in cost movements over the period between 2008/09, as can be seen in Figure 20.

Figure 20: Movements in vehicle damage and accident costs and related indices, 2008/09 to 2012/13[138]



The compound annual growth rate for accident and damage costs (as seen in Table 42) is relatively low for the period between 2008/09 and 2012/13. However, this cost movement may understate certain elements of self-insurance costs. For instance, vehicles subject to

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

high levels of damage caused by an accident may be considered irreparable and are subsequently 'written off', with the cost of replacing these vehicles not being reflected within the accident and damage expenditure data.

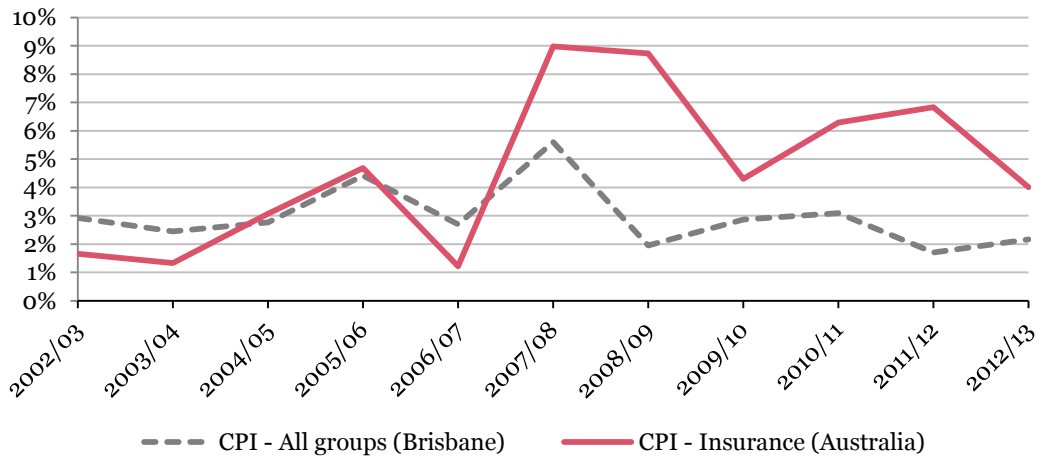
Table 42: Compound average growth rates for maintenance costs and CPI indexes between 2008/09 and 2012/13[139]

Category	CAGR 2008/09 – 2012/13
CPI – All groups (Brisbane)	2.35%
CPI – Insurance (Australia)	5.35%
Energex damage and accident costs	1.02%

The small sample size of historical expenditure movements may also not sufficiently represent the potential movements in unit price costs associated with insurance. For example, while average growth in accident and damage costs between 2008/09 and 2012/13 were relatively small, in years prior to this period they may have grown at a much higher rate.

Consequently, a better measure for accident and damage costs may be an index more closely aligned to movements in insurance premiums, such as CPI – Insurance (Australia). As seen in Figure 21, movements in insurance premium prices have moved at a higher rate than CPI over the past 10 years.

Figure 21: Movements in CPI – All groups (Brisbane) and CPI – Insurance (Australia) between 2002/03 and 2012/13[140]



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

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

This is supported by Table 43, where it can be seen that the compound average growth rate over this period was 4.91 per cent for CPI – Insurance (Australia), compared to 2.96 per cent for CPI – All groups (Brisbane).

Table 43: Compound average growth rates for CPI indexes between 2002/03 and 2012/13[141]

Category	CAGR 2002/03 – 2012/13
CPI – All groups (Brisbane)	2.96%
CPI – Insurance (Australia)	4.91%

10.5 Discussion

In light of the historical price movement in the cost sub-categories of transport costs, it is considered that the application of a single indexation factors may accurately capture the potential movements over the forward regulatory period. Consideration of a specific escalation factor for each cost sub-category is therefore provided below and used to inform the development of a weighted index for this cost category.

10.5.1 Fuel

Although annual average fuel costs varied more significantly than general price inflation, over the medium term average growth in fuel costs matched relatively closely movements in general prices and were within the RBA's target inflation range, though toward the upper limit. We therefore consider that, over the coming regulatory period, forecasts of the upper limit of general inflation will provide an appropriate estimate of fuel cost escalation.

In addition, while there is limited directly relevant regulatory precedent regarding fuel escalation factors, the draft acceptance of CPI for the escalation of fuel and oil costs (bundled with a wider array of costs) by the AER in SP AusNet's initial submission suggests that the AER supports the use of general inflation to escalate fuel costs.

For future regulatory determination process, it may be appropriate to link the escalation of fuel costs with movements in international oil prices, provided there is sufficient information to establish the relationship between the two.

However, current information does not support the robust estimation of the relationship between movements in the international oil price and movements in Energex's fuel prices, as it is based on a relatively limited data set.

10.5.2 Maintenance

Maintenance costs are a significant part of Energex's transport expenditure, but high variability in actual cost data suggests that basing future escalation rates on historical movements is unrealistic. The short time frame of available actual cost movements also presents issues with the use of historical cost data, as it may not be reflective of longer term trends.

Wage prices form a significant part of the input costs associated with the maintenance of motor vehicles from an industry perspective. Within the motor vehicle maintenance and

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

repair industry, wages form 42% of the total cost to operate, suggesting this is one of the major driving factors for maintenance costs. Subsequently, it is advised that Energex use WPI to escalate maintenance costs for the upcoming regulatory period. Further discussion regarding WPI and its appropriateness as a measure of wage growth in provided in Chapter 2.

10.5.3 Registration

While there is little publicly available information in terms of long term forecasting for vehicle registration prices, the relevant legislation is believed to provide the most accurate reflection of price movements. According to the Queensland Government's indexation policy (GIP), the increase in vehicle registration costs will increase by 3.5 per cent for light vehicles and 2.5 per cent for heavy vehicles. While this is updated on a year-by-year basis, the growth rate provided by the GIP represents the best available data on which to base an escalation factor over the forward regulatory period.

As Energex's fleet is comprised of approximately half light vehicles and half heavy vehicles (heavy and plant), a 3.0 per cent annual price increase is considered appropriate for registration costs. This is calculated based on a weighted average of the 3.5 per cent and 2.5 per cent increases for light and heavy vehicles respectively, as set out in the GIP.

10.5.4 Insurance

As Energex's damage and accident expenditure is highly variable under a self-insurance scheme, it is extremely difficult to predict future cost movements. While the data for the 2008/09 to 2012/13 period indicates a relatively low level of cost growth, this does not take into account the value of vehicles which are purchased to replace irreparable units. Hence the costs associated with the accident and damage category, and the funds required to be set aside by Energex for self-insurance, are likely to be materially higher than the expenditure figures shown in the data provided.

As the available data shows a short timeframe of accident and damage expenditure, the historical data is not considered to be a solid base from which to forecast future movements in costs. In the absence of any suitable forward looking series, it is recommended that this expenditure category be escalated according to the ten-year historical compound average nominal growth rate of CPI – Insurance (Australia), which is equal to 4.91 per cent. This series appears to be the most relevant publicly available price index. While it is not directly aligned with Energex's cost mechanism, the general market factors influencing the movement of insurance prices is likely to be related to the changes in expenditure for Energex's self-insurance, in the longer term.

10.5.5 Weighted index

It is recommended that the transport costs category be escalated using a weighted index, based on the sub-category proportion of total transport 2012/13 expenditure. The weighted index can be seen in Table 44, with the proposed escalation factors being slightly above CPI forecasts for this period.

10.5.6 Transport cost escalation factors

The weighted index has been developed applying forecasts of the Queensland WPI, presented in Queensland Treasury and Trade's 2013/14 Economic Performance and Outlook budget paper. We have held the series constant at 3.5 per cent annual growth from 2017/18 onwards. Forecasts of CPI used to calculate real growth rates are based on current forecasts published by the RBA.[142]

Table 44: Transport costs weighted escalation forecast[143] [144]

Escalation factor	Weight	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20
CPI (upper limit)	49%	3.25%	3.25%	3.00%	3.00%	3.00%	3.00%	3.00%
WPI	35%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%	3.50%
Registration	9%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%
CPI – Insurance (Australia)	7%	4.91%	4.91%	4.91%	4.91%	4.91%	4.91%	4.91%
Weighted index		**3.43%**	**3.43%**	**3.31%**	**3.31%**	**3.31%**	**3.31%**	**3.31%**
Nominal growth rate		3.43%	3.43%	3.31%	3.31%	3.31%	3.31%	3.31%
Real growth rate		0.18%	0.66%	0.79%	0.79%	0.79%	0.79%	0.79%

[142] The CPI estimate for 2014/15 is based on estimates published by the Reserve Bank of Australia. The RBA has estimated CPI for the year ending June 2015 to grow at between 2.25 and 3.25 per cent. For the purposes of developing real estimates, the mid-points of this range have 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

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

[144] Queensland Treasury and Trade (2013) *Economic Performance and Outlook*. Available at http://budget.qld.gov.au/budget-papers/2013-14/bp2-2-2013-14.pdf

11 Summary

Energex has engaged PwC to review its cost escalation practices in preparation for the upcoming regulatory submission. This report has presented PwC's recommended escalation rates for each cost category, as summarised below.

Table 45: Proposed escalation factors by cost category

Cost Category	Recommended escalation factor	Source
Employee and fixed term contractors	The Queensland Wage price index (WPI), subject to wage movement guidance provided in relevant Queensland Government policies or legislation.	Queensland Treasury and Trade (WPI)
Contractors (service provision)	Weighted index of the national WPI, Consumer Price Index (CPI) and a fixed component. *Escalation factor = 0.43(WPI) + 0.48(CPI) +0.09(Fixed)*	Commonwealth Treasury (WPI) Reserve Bank of Australia (CPI)
General materials	CPI	Reserve Bank of Australia (CPI)
Building (capital expenditure)	Engineering Construction Price Index	Australian Construction Industry Forum (Construction Forecasting Council)
Land (capital expenditure)	Long run average growth rate in land value for Queensland (over the full series)	Australian Bureau of Statistics
Land tax	Long run average growth rate in land value for Queensland (over the full series)	Australian Bureau of Statistics
Occupancy expenditure – rent and leases – utilities (gas, water and electricity) – land and buildings maintenance and upkeep	Weighted index of expected rental increases, the long run average annual increase in the CPI – Utilities (Australia) series, and CPI. *Escalation factor = 0.50(Rent) + 0.21(CPI - Utilities)+ 0.29(CPI)*	Energex Australian Bureau of Statistics Reserve Bank of Australia (CPI)
Motor vehicles (capital expenditure)	CPI	Reserve Bank of Australia (CPI)
Transport costs – vehicle maintenance – fuel and oils – vehicle registration – insurance	Weighted index of the upper bound of the RBA's inflation target, WPI, the mid-point of expected registration increases and the long run growth rate of the CPI – Insurance (Australia) series. *Escalation factor = 0.49(Inflation) + 0.35(WPI) +0.09(Registration)+0.07(CPI – Insurance)*	Reserve Bank of Australia (Inflation) Queensland Treasury and Trade (WPI) Australian Bureau of Statistics

To ensure the ongoing applicability of the specific indices and escalation methodologies outlined in this report, we recommend that Energex 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.

This suggests there may be merit in the incorporation of a true-up mechanism or option for an annual adjustment, as part of Energex's regulatory proposal. Such mechanisms, common in commercial agreements, seek to address the complexity of forecasting future prices where there is significant uncertainty.

For example, fuel prices can be subject to significant variability and while these costs appeared to move in line with CPI - Automotive fuel (Australia), it was not possible to identify any publicly available index (with forecasts) for either this measure or an alternative index. While the use of the upper limit CPI estimate of RBA's target range is believed to provide a reasonable proxy for these prices movements, in the instance that actual fuel prices increase at a greater rate in the forward regulatory period, a true-up mechanism, based on the actual movements in publicly available indices, could provide a way of incorporating these adjustment into calculation of the business' future revenue requirement, and address this uncertainty somewhat.

It is acknowledged that such an approach may increase the administrative costs of this process, and result in a greater role for the regulator (now required to review proposals for a true up). However, it may address the inherent risk associated with accurately forecasting price movements, which despite the best procurement practices, can be affected by a range of exogenous economic and market factors that are not always possible to anticipate.

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