Labour Cost Escalation Forecasts to 2017/18
– Australia and South Australia

Prepared by BIS Shrapnel for ElectraNet
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BIS Shrapnel welcomes any feedback concerning the forecasts or methodology used in this report as well as any suggestions for future improvement.

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SUMMARY

- BIS Shrapnel was engaged by ElectraNet to provide an expert opinion regarding the outlook for a range of labour cost escalators relevant to electricity networks (in both the operational and capital enhancement aspects) in South Australia over the five year period from 2013/14 to 2017/18 inclusive. Table 1a presents a summary of the annual escalation (in year average terms) for the relevant escalators in both nominal and real terms. The latter is adjusted for the RBA's/Commonwealth Treasury forecasts of CPI inflation which is projected to average 2.5 per cent over the five years to 2017/18.

- The report provides both AWOTE (Average Weekly Ordinary Time Earnings) and LPI (Labour Price Index) escalators for network-related labour (electricity, gas and water (EGW)) – which include a range of skilled labour involved in construction, maintenance, design and operation of the electricity networks. As around 80 per cent of employees in the EGW sector receive their pay increases via collective agreements, which run for around three years, the industrial relations strength of unions in the sector and recent inflation outcomes and inflationary expectations are key influences for wages. EGW wages are forecast to strengthen over the three years to 2013/14 as the demand for labour in the EGW sector, construction, mining and manufacturing sectors (the latter three sectors compete with EGW for similarly skilled labour) all pick-up as the economy and investment recover solidly.

- BIS Shrapnel considers the labour price index (LPI) to be a measure of *underlying* wage inflation in the economy or in a specific industry, as the LPI only measures changes in the *price* of labour, or wage rates, for specific occupations or job classifications, which are then aggregated into a measure of the collective variations in wage *rates* made to the current occupants of the *same* set of specific jobs. The LPI therefore reflects pure price changes, but does not measure variations in the quality or quantity of work performed ie it holds labour composition effects as fixed. The LPI also does not reliably measure the changes in total labour costs which a particular enterprise or organisation incurs, because the LPI does not reflect the changes in the skill levels of employees within an enterprise or industry. As skills are acquired, employees will be promoted to a higher grade or job classification, and with this promotion will move onto a higher base pay. So the change in the cost of labour over, say a year, includes increases in the base pay rates (which the LPI measures) and the higher average base pay level. The AWOTE captures both these elements, while the LPI only captures the first element. Basically, promoting employees to a higher occupation does not necessarily show up in the LPI, but the employer's total wages bill (and average unit labour costs) is higher, as is AWOTE.

- AWOTE is a better measure of the change in overall costs per employee, because it takes into account movements of employees to higher grades, changes in compositional effects from entry/exits of higher skilled/lower skilled (ie higher paid/lower paid) workers in an enterprise or industry, and also the payments *above* base rates of pay, such as bonuses, incentives, penalty rates and other allowances that are a *normal* part of an employee's earnings over the quarter or year. With regard to the latter, many enterprises in the utilities (and other industry) sectors(s) regularly include bonuses or incentive payments which are linked to a range of objectives, such as up skilling, additional training, productivity targets, safety targets, etc. These 'extra' payments — or changes in the quantum of payments — are not included in changes in the LPI, but can make a material difference to an enterprise's overall labour costs.

- Despite the limitations of the LPI, the Australian Energy Regulator in its recent electricity transmission revenue determinations has preferred the LPI, largely because of the volatility of AWOTE caused by 'significant' compositional problems with AWOTE. Although BIS Shrapnel believes AWOTE is a better measure of the change in overall costs per employee, in this report we provide (for comparison purposes) forecasts of both the LPI and AWOTE.

- The AER in its recent electricity transmission determinations has also stated that labour cost forecasts for the Utilities sector most reasonably reflects a realistic expectation of labour costs for all internal network-related labour of Transmission Network Service Providers. In other words, the AER accepts that the ABS labour price statistics for the Utilities sector reflects both specialised electricity network-related labour and general (or administrative) labour. We agree with the AER and have therefore used wages growth in the Electricity, Gas and Water Supply (EGW or 'Utilities') sector for South Australia as the escalator for ElectraNet's internal electricity network-related labour.

- Overall, BIS Shrapnel expects growth in total labour costs in the electricity, gas and water ('utilities') sector for total Australia — expressed in AWOTE terms — will average 5.7 per cent per annum (0.5 percentage points higher than the national 'All Industries' average of 5.2 per cent per annum) over the five years from 2013/14 to 2017/18 inclusive. Underlying wages growth in the utilities sector — expressed in LPI terms — is forecast to average 4.9 per cent per annum over the five years to 2017/18, 0.6 percentage points higher than the national all industries LPI average of 4.3 per cent per annum. The faster wages growth expected in the electricity, gas and water sector over the next seven years is in line with historical movements in AWOTE and the LPI over the past decade (see table 4.5).

- Utilities wages growth in South Australia is forecast to average 5.8 per cent per annum (in AWOTE terms) over the five years from 2013/14 to 2017/18, slightly faster than the national average of 5.7 per cent per annum (see table 4.7). The faster wage growth in the South Australian utilities sector is due to ongoing shortages of skilled workers relevant to the utilities sector in the state, high levels of utilities and total engineering construction which will be underpinned by the $27 billion expansion of the Olympic Dam mine, strong intrastate demand for similarly skilled labour and interstate relativities.

- As most contractor labour is assumed to undertake construction or maintenance related projects, they would be classified to the construction sector. Accordingly, the escalator which BIS Shrapnel used for ElectraNet's external 'construction-related' labour is Construction sector wages growth. Our research has shown that construction activity (ie work done in the sector) normally has a strong influence on construction wages. BIS Shrapnel's forecasts of construction activity by state (which includes residential and non-residential building, plus engineering construction) were used to derive the wages forecasts.

- In 2010/11, construction activity in South Australia declined as a range of publicly funded construction projects reached completion. However, this decline in activity will be short-lived as the expansion of the Olympic Dam mine is expected to begin in late 2012. The size of this project will overshadow construction activity across the other sectors and lead total construction activity to record exceptionally strong growth over 2012/13 and 2013/14 and stabilise at these high levels over the three years to 2017/18. This heightened level of activity will see wages growth in LPI and AWOTE terms increase over the three years to 2013/14, with LPI growth expected to peak at 5.8 per cent in 2013/14 and AWOTE growth peak at 6.9 per cent in the same year before wages growth moderates over the following years.

- Despite the easing in wages growth, construction LPI growth in South Australia over the five years to 2017/18 will average 5.1 per cent per annum slightly higher than the national average of 5 per cent per annum. In AWOTE terms, construction wages over 2013/14 to 2017/18 is expected to be 6 per cent, marginally higher than the national average of 5.9 per cent per annum.
- The AER in its recent revenue determinations has argued that labour price increases due to productivity growth do not increase labour costs and as a result an adjustment is required to wages to develop labour costs. In addition, the AER has stated that the LPI adjusted for productivity provides a more realistic expectation of labour cost changes than does AWOTE adjusted for productivity. The AER has subsequently applied — without amendment — the Utilities industry productivity forecasts (developed by its consultant Deloitte Access Economics) to its LPI forecasts to derive productivity adjusted real labour cost escalators for the utilities sector.
- We disagree with the AER. BIS Shrapnel believes that the 'unadjusted' industry labour productivity cannot be applied to the LPI. The LPI is an underlying measure of wage inflation and does not incorporate effects of changes to skill levels and improved productivity (ie workforce compositional productivity effects), while the AWOTE measure does.
- The upshot is that in deriving productivity adjusted measure of labour costs, we believe that the AWOTE is the only choice which is logical. However, the LPI can be adjusted for productivity as long as the productivity measure excludes workforce compositional and up-skilling effects which we believe is positive and significant for the Utilities sector. We believe workforce composition productivity to be between 0.5 to 1.0 per cent on average over the medium term, based on the observed difference between the rate of growth in AWOTE and the LPI. Assuming difference between AWOTE and LPI is largely due to workforce compositional effects, then one can assume workforce compositional effects is roughly equal to this difference. Over the decade to 2011, this difference averaged 0.9 per cent per annum at the national utilities level (see table 4.4), suggesting the average workforce composition productivity was 0.9 per cent per annum for the national utilities sector.[1] Over ElectraNet's next regulatory period, our expectation is that workforce compositional productivity will remain positive and significant. Our forecast is for workforce composition productivity (proxied by the difference between growth in AWOTE and LPI) to average 0.8 per cent per annum at the national utilities industry and 0.7 per cent per annum for the South Australia utilities sector (see table 4.7). We have included this in table 1b.
- Notwithstanding the above, we believe that DAE's productivity forecasts provided to the AER in November 2011 which the AER adopted without amendment are too optimistic. We consider that productivity growth in the Utilities sector will remain weak over the next six years. Going forward, we believe demand and output growth will be constrained in this sector for three key reasons: (1) Higher utilities prices (including the imposition of a carbon tax) will keep demand muted, (2) population growth will be slower over the next five years and (3) with the government introducing a price of carbon, we do not expect a significant jump in energy intensive projects, such as aluminium smelters. This will further contain demand for energy in the future. In addition, we assume moderate and fairly stable growth in employment in the utilities sector in Australia and the states over the next six years. The combination of muted output and moderate employment growth means productivity growth will remain weak for the utilities sector at the national as well as the state level over most of the current decade.

[1] Data for South Australia is not available as the ABS does not publish the LPI for South Australian EGW sector.

Table 1a: Summary – Labour Cost Escalation Forecasts

(per cent change, year average, year ended June)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	5 yr Avg (e)
	Actuals		Forecasts							
NOMINAL PRICE CHANGES										
1. Electricity Network Related Labour										
EGW AWOTE -South Australia (a)	**5.2**	**7.8**	**7.8**	**4.9**	**5.7**	**6.0**	**5.6**	**5.9**	**5.9**	**5.8**
EGW LPI - South Australia (a)	4.3	4.3	4.2	4.6	5.2	5.0	4.8	5.0	5.3	5.1
EGW AWOTE - Australia (b)	7.4	9.7	4.6	5.5	5.6	5.9	5.4	5.7	5.7	5.7
EGW LPI - Australia (b)	4.4	4.3	4.1	4.8	5.1	4.9	4.6	4.8	5.1	4.9
2. Contractor Escalation										
Construction AWOTE - South Australia (c)	**10.9**	**5.4**	**10.3**	**5.3**	**6.9**	**6.4**	**4.9**	**5.7**	**6.1**	**6.0**
Construction LPI - South Australia (c)	2.6	3.3	3.5	4.2	5.8	5.1	4.4	5.0	5.5	5.1
Construction AWOTE - Australia (b)	7.7	5.0	5.0	5.7	7.0	6.2	4.8	5.7	6.0	5.9
Construction LPI - Australia (b)	3.3	4.0	4.3	5.1	5.6	4.9	4.3	4.9	5.4	5.0
Consumer Price Index (headline) (d)	2.3	3.1	2.6	2.9	2.7	2.5	2.5	2.5	2.5	2.5
REAL PRICE CHANGES (f)										
Electricity Network Related Labour										
EGW AWOTE - South Australia (a)	**2.8**	**4.7**	**5.2**	**2.0**	**3.0**	**3.5**	**3.1**	**3.4**	**3.4**	**3.3**
EGW LPI - South Australia (a)	2.0	1.2	1.6	1.7	2.5	2.5	2.3	2.5	2.8	2.5
EGW AWOTE - Australia (b)	5.0	6.6	2.0	2.6	2.9	3.4	2.9	3.2	3.2	3.1
EGW LPI - Australia (b)	2.0	1.2	1.5	1.9	2.4	2.4	2.1	2.3	2.6	2.4
2. Contractor Escalation										
Construction AWOTE - South Australia (c)	**8.6**	**2.3**	**7.7**	**2.4**	**4.2**	**3.9**	**2.4**	**3.2**	**3.6**	**3.5**
Construction LPI - South Australia (c)	0.2	0.2	0.9	1.3	3.1	2.6	1.9	2.5	3.0	2.6
Construction AWOTE - Australia (b)	5.3	1.9	2.4	2.8	4.3	3.7	2.3	3.2	3.5	3.4
Construction LPI - Australia (b)	0.9	0.9	1.7	2.2	2.9	2.4	1.8	2.4	2.9	2.5

(a) Electricity, Gas & Water (EGW) Average Weekly Ordinary Time Earnings (AWOTE) for Labour Price Index (LPI) for South Australia.
Note South Australia LPI for 2009/10 amd 2010/11 is estimated.
(b) Australian sector wage forecasts provided for comparison.
(c) Construction Sector AWOTE and LPI for South Australia.
(d) Headline CPI forecasts based on Reserve Bank of Australia forecasts to 2012/13 and then Commonwealth Treasury medium term projections.
(e) Average Annual Growth Rate for 2013/14 to 2017/18 inclusive ie for next regulatory period.
(f) Real price changes are calculated by deducting the inflation rate from nominal price changes. The difference between some real price changes in the summary table and those in the chapter tables is due to rounding errors.

Table 1b: Summary – Labour Cost Escalation Forecasts Adjusted for Productivity

(per cent change, year average, year ended June)

	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	5 yr Avg (e)
	Actuals		Forecasts							
PRODUCTIVITY GROWTH (f)										
EGW - South Australia	**5.9**	**-4.5**	**4.3**	**-1.9**	**-4.5**	**-3.9**	**1.0**	**-0.9**	**-2.4**	**-2.1**
EGW - Australia	5.8	-11.8	-4.2	0.3	-1.6	-2.3	0.9	-1.2	-2.4	-1.3
Construction - South Australia	**-5.2**	**-3.5**	**-3.1**	**8.0**	**10.6**	**6.3**	**-2.9**	**-0.2**	**-1.7**	**2.4**
Construction - Australia	0.3	3.2	3.0	1.3	1.5	-1.5	-0.8	0.6	-0.7	-0.2
WORKFORCE COMPOSITIONAL PRODUCTIVITY GROWTH (g)										
EGW - South Australia	**0.9**	**3.5**	**3.6**	**0.3**	**0.5**	**1.0**	**0.9**	**0.9**	**0.6**	**0.8**
EGW - Australia	3.0	5.4	0.5	0.7	0.5	1.0	0.8	0.9	0.6	0.8
Construction - South Australia	**8.4**	**2.1**	**6.8**	**1.1**	**1.2**	**1.3**	**0.5**	**0.7**	**0.6**	**0.9**
Construction - Australia	4.4	1.0	0.7	0.5	1.4	1.3	0.5	0.8	0.6	0.9
PRODUCTIVITY GROWTH ADJUSTED FOR WORKFORCE COMPOSITIONAL PRODUCTIVITY GROWTH (j)										
EGW - South Australia	**5.0**	**-8.0**	**0.7**	**-2.2**	**-5.0**	**-4.9**	**0.1**	**-1.8**	**-3.0**	**-2.9**
EGW - Australia	2.8	-17.2	-4.7	-0.4	-2.2	-3.3	0.1	-2.0	-3.0	-2.1
Construction - South Australia	**-13.6**	**-5.5**	**-9.8**	**7.0**	**9.4**	**5.0**	**-3.4**	**-0.9**	**-2.3**	**1.6**
Construction - Australia	-4.1	2.1	2.3	0.8	0.1	-2.8	-1.3	-0.2	-1.3	-1.1
NOMINAL PRICE CHANGES ADJUSTED FOR PRODUCTIVITY (h,i)										
1. Electricity Network-Related Labour										
EGW AWOTE - South Australia (a)	**-0.7**	**12.3**	**3.5**	**6.8**	**10.2**	**9.8**	**4.6**	**6.8**	**8.3**	**8.0**
EGW LPI Adjusted for WCP - South Australia (a,l)	**-0.7**	**12.3**	**3.5**	**6.8**	**10.2**	**9.8**	**4.6**	**6.8**	**8.3**	**8.0**
EGW AWOTE - Australia (b)	1.6	21.5	8.8	5.2	7.3	8.2	4.5	6.8	8.1	7.0
EGW LPI Adjusted for WCP - Australia (b,l)	1.6	21.5	8.8	5.2	7.3	8.2	4.5	6.8	8.1	7.0
2. Contractor Escalator										
Construction AWOTE - South Australia (c)	**16.1**	**8.9**	**13.4**	**-2.8**	**-3.7**	**0.0**	**7.8**	**5.9**	**7.8**	**3.6**
Construction LPI Adjusted for WCP - South Australia (c,l)	**16.1**	**8.9**	**13.4**	**-2.8**	**-3.7**	**0.0**	**7.8**	**5.9**	**7.8**	**3.6**
Construction AWOTE - Australia (b)	7.3	1.9	2.0	4.4	5.5	7.7	5.6	5.1	6.7	6.1
Construction LPI Adjusted for WCP - Australia (b,l)	7.3	1.9	2.0	4.4	5.5	7.7	5.6	5.1	6.7	6.1
Consumer Price Index (headline) (d)	2.3	3.1	2.6	2.9	2.7	2.5	2.5	2.5	2.5	**2.5**
REAL PRICE CHANGES ADJUSTED FOR PRODUCTIVITY (i,k)										
1. Electricity Network Related Labour										
EGW AWOTE - South Australia (a)	**-3.0**	**9.3**	**0.9**	**3.9**	**7.5**	**7.3**	**2.1**	**4.3**	**5.8**	**5.4**
EGW LPI Adjusted for WCP - South Australia (a,l)	**-3.0**	**9.3**	**0.9**	**3.9**	**7.5**	**7.3**	**2.1**	**4.3**	**5.8**	**5.4**
EGW AWOTE - Australia (b)	-0.8	18.4	6.2	2.3	4.6	5.7	2.0	4.3	5.6	4.5
EGW LPI Adjusted for WCP - Australia (b,l)	-0.8	18.4	6.2	2.3	4.6	5.7	2.0	4.3	5.6	4.5
2. Contractor Escalator										
Construction AWOTE - South Australia (c)	**13.8**	**5.8**	**10.8**	**-5.7**	**-6.4**	**-2.5**	**5.3**	**3.4**	**5.3**	**1.1**
Construction LPI Adjusted for WCP - South Australia (c,l)	**13.8**	**5.8**	**10.8**	**-5.7**	**-6.4**	**-2.5**	**5.3**	**3.4**	**5.3**	**1.1**
Construction AWOTE - Australia (b)	5.0	-1.2	-0.6	1.5	2.8	5.2	3.1	2.6	4.2	3.6
Construction LPI Adjusted for WCP - Australia (b,l)	5.0	-1.2	-0.6	1.5	2.8	5.2	3.1	2.6	4.2	3.6

(a) Electricity, Gas & Water (EGW) Average Weekly Ordinary Time Earnings (AWOTE) and Labour Price Index (LPI) for South Australia
Note South Australia LPI for 2009/10 amd 2010/11 is estimated.
(b) Australian sector wage forecasts provided for comparison.
(c) Construction Sector AWOTE and LPI for South Australia.
(d) Headline CPI forecasts based on Reserve Bank of Australia forecasts to 2012/13 and then Commonwealth Treasury medium term projections.
(e) Average Annual Growth Rate for 2013/14 to 2017/18 inclusive ie for next regulatory period.
(f) Productivity is output (real Gross Value Added) divided by Total Employment.
(g) Measures the impact of changes in workforce composition on labour productivity. This is proxied by the difference between AWOTE and LPI.
(h) Calculated by deducting productivity growth from nominal wage escalators.
(i) The difference between some wage escalators in the summary table and those in the chapter tables is due to rounding errors.
(j) Calculated by deducting workforce compositional productivity growth from industry productivity growth.
(k) Calculated by deducting productivity growth from real wage escalators. These are identical to nominal price changes adjusted for productivity less the inflation rate.
(l) Excludes workforce compositional productivity growth. This series is calculated by deducting 'productivity growth adjusted for WCP growth' from nominal and real LPI.

1. INTRODUCTION, OUTLINE OF REPORT & DATA SOURCES

In December 2011, BIS Shrapnel was engaged by ElectraNet Pty Limited to provide an expert opinion regarding the outlook for a range of labour cost escalators relevant to operating and capital expenditure of electricity networks in South Australia over the seven year period from 2011/12 to 2017/18. The labour escalator forecasts and reports were used by ElectraNet in the preparation of its cost estimates. This, in turn, were used as key inputs into ElectraNet's operating and capital expenditure forecasts included in ElectraNet's regulatory submission to the Australian Energy Regulator (AER) in May 2012.

In keeping with my instructions, I, Richard Robinson, Associate Director (Economics) of BIS Shrapnel confirm that I have undertaken this engagement having regard to the Guidelines for Expert Witnesses in Proceedings in the Federal Court of Australia and the requisite statement to this effect is included in Appendix D. I have been assisted in the preparation of this report by Kishti Sen, an Economist at BIS Shrapnel and Daniel Gradwell Research Analyst at BIS Shrapnel. Curriculum vitas of all relevant personnel are attached in Appendix E.

Notwithstanding the assistance from the other two economists, the opinions in this report are my own and I take full responsibility for them. A brief description of the material upon which I have relied for the preparation of this report follows. A full list of the ABS data and other information sources used in the preparation of this document and the forecasts contained within can be found in Appendix F.

The Australian Bureau of Statistics (ABS) is the primary data source for the consumer price index, wages, employment, real gross value added (GVA) and investment (including engineering construction) data, and for a range of other economic variables shown in table 2.1. The December quarter, 2011 was the latest available data for wages, industry employment, national industry GVA and indeed most of the economic variables in table 2.1. The detailed engineering construction data (by state and by category) have data only up to September quarter 2011. The latest data for Gross State Product (GSP) and real gross value added for state industry sectors was 2010/11 (annual data only is available). Other inflation and interest rates data were sourced from the Reserve Bank of Australia. Other data and information concerning enterprise agreements and skills shortages was obtained from the Department of Education, Employment and Workplace Relations (DEEWR).

Forecasts of the economic variables in this report were mostly sourced from BIS Shrapnel reports, including *Economic Outlook, Long Term Forecasts: 2011 – 2026 January 2012 Update Report, Engineering Construction: 2011/12 to 2025/26* and *Long Term Building Work Done Forecasts*, plus other unpublished forecasts and from BIS Shrapnel internal research.

The structure of this report is as follows:

- The **Summary** section presents an overview of the outlook for the labour cost escalators and summary tables.
- **Section 2** provides an overview of the macroeconomic outlook for Australia and South Australia, including a brief commentary of the logic and key drivers, plus forecasts of key economic variables.
- **Section 3** briefly discusses BIS Shrapnel's model of wage determination and provides forecasts for national ('all industries') wages and CPI inflation. The Reserve Bank of Australia and Treasury medium-term projections of CPI inflation are also provided in this section. This is used to deflate the nominal escalators provided in the report.
- **Section 4** provides an outlook for ElectraNet's 'electricity transmission network-related labour' cost escalation, including productivity adjusted wage escalators. This is based on

forecasts of wages growth for the Electricity, Gas and Water Supply sector for Australia and South Australia. This section also analyses and provides forecasts of wages in industries which compete with the utilities sector for similar types of skilled labour, namely Mining, Construction and Manufacturing.

- **Section 5** provides an outlook for labour costs in ElectraNet's external construction contracts.
- **Section 6** provides an analysis of the forecasting record of Deloitte Access Economics — the AER's preferred consultant for utilities wage forecasts,.
- **Appendices** which include a note on different wage measures and a description of BIS Shrapnel's wage model.

2. MACROECONOMIC OVERVIEW — AUSTRALIA AND SOUTH AUSTRALIA

2.1 Key Points

- We expect the Australian economy to continue to perform well over the next 7 years. This is based on a view that the European and US economies will 'muddle through', and that robust growth in China will continue to feed through to non-Japan Asia and to Australia. The mining investment boom will remain the dominant growth driver over the next few years, supported by a dwelling building upswing, solid household spending, an eventual broadening in business investment and a return to healthy employment growth. Our forecast is for GDP growth to average 3.5 per cent per annum over the next 7 years. We believe there is no danger of recession in Australia. The worst outcome would be that the Australian economy would stay soft for another 6 to 12 months.
- From 2011/12 to 2017/18 inclusive, South Australia's gross state product (GSP) growth is forecast to average 2.5 per cent per annum, compared to 2.6 per cent for the past decade, while state final demand (SFD) — which is the sum of consumption and investment spending by the household, business and government sectors — is forecast to average 3.2 per cent per annum (compared to 3.6 per cent over the past decade).
- However, in 2011/12, overall growth in SFD will remain weak while GSP growth is also expected to slow on the back of the weaker construction activity, slower growth in public spending and exports, and from the impact of the high A$ on the state's manufacturing sector. Then in 2012/13, work is expected to proceed on the first stage of the $27 billion Olympic Dam copper-uranium-gold expansion, and this will significantly lift investment and construction activity in the state. A number of smaller copper, iron ore, uranium and mineral sands mines will also be constructed over the next few years, but the key project will be Olympic Dam. After the initial boost to activity in 2012/13, the next major boost to investment and construction activity is expected over 2014/15 to 2017/18, when the expanded concentrator/refining facilities and transport, electricity and water infrastructure are built.
- Partially offsetting the Olympic Dam boost will be weak dwelling construction over the next four years due to the current oversupply (although a strong upturn is predicted from 2015/16) and the high Australian dollar, which is impacting on the key industries in the state such as agriculture and fishing, manufacturing and education sectors. With the A$ likely to stay above US$1.00 over the next two to three years, this negative will continue to constrain overall growth prospects over the medium term.

2.2 The Australian economy

2.2.1 Current State of Play

Despite slowing in the December quarter, the Australian economy performed well in 2011, with GDP increasing 2.2 per cent in year-on-year terms. This was particularly impressive considering the many headwinds, including severe flooding early in the year, the ongoing European sovereign debt crisis, the winding down of the Australian Government's building stimulus package, and the Australian dollar spending much of the year above parity against the US dollar. However, growth was far from uniform across industries and states. A significant driver of the growth over the year was the increase in mining-related engineering construction, particularly in Western Australia. Household spending also accelerated. However, a lot of this increased activity was met by increased imports. At the same time, the high Australian dollar and negative confidence effects due to events in Europe weighed heavily on most other trade-exposed sectors, especially manufacturing, tourism and education industries. Many non-trade-

exposed industries were also held back by tight funding markets, low demand, high uncertainty, and a general lack of confidence.

But employment growth remains anaemic. Employment growth was very weak during 2011, with employment finishing the year where it started. Admittedly, a lot of the apparent weakness in employment over 2011 reflects the unwinding of the stronger-than-expected employment growth through 2010.

Markets spooked by overseas problems, delaying a pick-up in growth

Over the second half of 2011, local and overseas share markets experienced sharp falls as US and European debt and equity markets finally reacted to the combination of European sovereign debt difficulties, the politics of expanding the ability of the US to take on debt, the downgrade of US government securities, and weak US and European growth.

- These problems are serious - for the countries in debt and the banks that financed them. But Australia has little direct exposure. A large part of the problem for Europe is the inflexibility of fixed exchange rates in the Euro zone.
- For the US and much of Europe, this will be a long hard haul. Still absorbing excess capacity created during the boom, they won't have strong investment to drive growth. We think it will take a decade to claw back the unemployment rate.

But this is nothing like the situation which led to the GFC. This is just the next stage in the unwinding of the pre-GFC boom. And market gyrations will gradually settle down, learning to live with what we expect will remain largely unresolved problems.

Australia has been caught in the financial market contagion, with sharp falls in the share markets, declines in commodity prices and the threat of higher spreads on our overseas borrowings. Equity markets are experiencing enormous volatility. Many think that this will be GFC phase 2 and are again battening down for an anticipated recession. Confidence is again taking a hammering, delaying the next phase of recovery from the current soft patch in the economy as households and businesses (outside the resource sector) stay in precautionary savings mode.

Don't confuse what’s happening overseas with what's happening in Australia

Australia doesn't have these problems. Australia didn't have a financial crisis. The major banks are strong. Australia didn't overinvest in the boom which preceded the GFC, but is under-investing now, which means we will run into capacity constraints within two years of reasonable growth.

Meanwhile, resource companies have just committed to a second major phase of investment projects, sufficient to underwrite solid growth over the next five years. As long as China remains strong, we’ll be supplying the resources to help them grow.

Nevertheless, the Australian economy remains soft but fundamentally sound

The economy has been soft since the beginning of 2011. Precautionary savings by households and businesses is constraining demand and hence growth. Confidence is weak.

Consumers are keeping their powder dry, and have significantly increased their savings over the past four years, back to levels last seen in the 1980s, as households tried to reduce their leverage in case the economy really turned down. Over the past year, the household saving rate has tracked sideways. The fact that household consumption growth has gradually increased, such that it is moving largely in line with income growth, suggests that households are now more comfortable with their financial position. Households are still delaying long-term

commitments such as investment in housing. Nevertheless, private consumption expenditure remains solid. But much of that expenditure is leaking into imports, including overseas holidays. However, the growth in savings is a strength, not a weakness. But we will only gradually loosen the purse strings, with consumption likely to grow in line with income, rather than being financed by increased debt.

Residential property and housing construction have been a casualty of the combination of uncertainty and higher interest rates. All the talk of 'overvalued housing markets' compared with overseas has spooked owner-occupiers and housing investors alike. Without the prospect of capital gain, let alone facing the spectre of capital loss, they are waiting. In some states, particularly NSW, the shortage of housing has become critical. The next stage is an upswing in both property and construction markets, but currently they remain weak.

The strength of Asia, in particular China, continues to prop up the Australian economy, by providing strong demand for resource and mineral exports. This has prompted significant investment in resource related projects, particularly in Western Australia and Queensland, although this strength has been slow to flow through to the remainder of the economy.

Table 2.1: Australia – Key Economic Indicators, Financial Years

Year Ended June	2007	2008	2009	2010	2011	Forecasts 2012	2013	2014	2015	2016	2017	2018
Selected Expenditure Categories												
Private Investment												
– Dwellings	-0.2	1.9	-1.5	1.2	3.0	-2.8	3.9	8.4	-4.3	2.4	10.4	1.9
– New Non-Dwelling Construction (+)	13.0	6.3	12.5	-9.5	8.8	26.8	8.7	12.0	2.1	-5.0	3.5	4.7
– New Non-Dwelling Building (+)	10.5	11.6	-4.4	-14.3	-4.2	6.0	3.0	13.0	6.5	-2.6	10.1	7.2
– New Engineering Construction (+)	15.5	1.3	30.3	-5.9	17.5	38.2	11.1	11.6	0.4	-6.0	0.7	3.5
Total New Private Investment (+)	**5.2**	**9.0**	**1.2**	**-3.0**	**3.6**	**12.4**	**9.1**	**10.8**	**-0.2**	**3.3**	**10.3**	**4.5**
New Public Investment (+)	**4.7**	**10.4**	**2.8**	**29.0**	**5.8**	**-6.8**	**-3.6**	**-2.7**	**2.8**	**7.3**	**9.1**	**2.0**
Gross National Expenditure (GNE)	**4.9**	**6.0**	**0.3**	**2.4**	**3.8**	**4.7**	**4.3**	**4.8**	**1.5**	**4.1**	**6.0**	**3.5**
GDP	**3.8**	**3.8**	**1.4**	**2.3**	**2.0**	**3.1**	**3.5**	**3.8**	**2.6**	**3.7**	**4.3**	**3.4**
Inflation and Wages												
CPI (Yr Avg)- RBA/Treasury forecasts (*)	2.9	3.4	3.1	2.3	3.1	2.6	2.9	2.7	2.5	2.5	2.5	2.5
Labour Price Index (Jun on Jun)	4.0	4.2	3.8	3.1	3.8	3.9	4.3	4.5	3.9	4.0	4.4	4.6
Labour Price Index (Yr Avg)	3.9	4.1	4.1	3.1	3.8	3.7	4.1	4.4	4.3	3.7	4.2	4.6
Average Weekly Earnings (Yr Avg)	3.6	4.9	5.5	5.6	4.2	4.6	4.7	5.4	5.5	4.3	5.1	5.6
Employment												
– Employment Growth (Yr Avg)	3.1	3.0	1.6	1.4	2.9	0.6	1.9	2.9	1.0	1.5	2.8	2.8
– Employment Growth (May on May) (%)	3.3	2.7	0.9	2.2	2.3	0.6	2.6	2.6	0.3	2.5	2.9	2.1
– Unemployment Rate (May) (%)	4.3	4.3	5.8	5.2	5.0	5.3	4.7	4.3	5.5	5.0	4.3	4.3
Labour Productivity Growth												
– Total	0.7	0.7	-0.3	1.0	-0.9	2.5	1.6	0.9	1.6	2.2	1.4	0.6
– Non-farm	1.2	0.6	-0.6	1.0	-1.0	2.6	1.7	0.9	1.8	2.1	1.5	0.8
Exchange Rates												
– US$ per A$ (Yr Avg)	0.79	0.90	0.75	0.88	0.99	1.04	1.04	1.07	0.96	0.89	0.97	0.99

Source: BIS Shrapnel, ABS and RBA

+Expenditure on new assets (or construction work done). Excludes sales (or purchases) of second hand assets.

*Forecasts to 2013 from RBA, followed by Treasury long-term forecasts

Further, the positive impact of the resources sector on the Australian dollar is placing increasing pressure on trade exposed industries. On the back of relatively high interest rates and strong commodity prices, the Australian dollar has been trading mostly above the $US1 mark since late March 2011. This has hurt industries such as manufacturing and particularly tourism which have become less competitive as a result. Consequently business investment in these sectors has remained weak.

Apart from Resources, private investment remains flat, below the level required to underwrite even moderate growth, setting the scene for future capacity constraints. Business remains in cost containment mode rather than going for growth.

The RBA recently cut interest rates twice in succession for the first time since the onset of the GFC in 2008/09. Fears of slowing economic growth in China and increasingly turbulent markets in Europe, coupled with weaker domestic results (particularly in employment), have led to a lower inflationary outlook, meaning there has been room to cut rates. The continuing perception of a 'market crisis' is delaying the improvement in confidence that will drive a pick-up in spending and growth.

There is no danger of recession here. The worst outcome would be that the Australian economy would stay soft for another 6 to 12 months, before subsequently strengthening.

2.2.2 Outlook for the Australian economy

Australia's relative strength reflects our close ties to emerging Asia and the resulting minerals boom, the fact that Australia did not have a financial crisis, plus an effective and independent monetary policy, and a strong fiscal position going into the GFC. Although there are risks, particularly related to a European sovereign debt-induced meltdown, we are forecasting GDP growth around 3.5 per cent for calendar 2012. Furthermore, under almost all downside scenarios, we think there are sufficient mitigating factors to ensure that Australia will maintain growth in excess of 2 per cent.

Beyond the current external crisis, the medium term outlook is positive overall. Private investment will recover gradually and build momentum two to three years from now. Business investment in particular is expected to rise sharply over the next five years and be a key driver of growth, led initially by the minerals investment boom. Although consumers remain risk averse and budget conscious, due to uncertainty over a range of political and economic issues, they have built up a significant savings buffer which provides households with latent spending power. Eventually, confidence will return and households will lift spending and make a larger contribution to growth, including a moderate recovery in dwellings investment. These drivers will filter through to the rest of the economy to produce a more broadly-based upswing.

Meanwhile, based on the assumptions that Europe will 'muddle through' their sovereign debt problems (with only a minor recession there this year) and that Asian economic growth will remain solid, external demand and prices for Australia's exports will remain firm**.** We forecast real GDP to grow by an average of 3.5 per cent per annum over the three years to 2013/14. We expect rising interest rates to cause a mild downturn in 2014/15 before the economy rebounds quickly and builds momentum thereafter.

Europe to 'muddle through', US to recover slowly, China and Asia remain strong

Europe is in for a tough long haul as it is addresses both the immediate sovereign debt crises and long-standing competitive disparities in the currency union. On the other hand, though fragile, the United States is finding traction that is expected to broaden throughout the economy and gain strength over the medium term. The BRIC countries (Brazil, Russia, India and China) will assume

a greater leadership role in world growth. China in particular will experience robust growth from rising domestic demand and continue to drive the minerals boom in Australia through high commodity prices.

In Europe, we are assuming policy makers will muddle through the sovereign debt crisis without an outright collapse in the Euro, but also not achieve a long lasting solution. This is likely to manifest in a series of 'mini-crises' with markets in the driver's seat while policy makers repeatedly respond in a reactionary way until a market-satisfying solution for the immediate crisis is achieved at the 11th hour. We expect more peripheral countries to enter or go more deeply into recession in 2012 while also dragging more competitive nations and trading partners, including France and Germany, either close to or into recession. Although recession will help restore competitiveness to peripheral economies, it will not be a defining moment. Our view is that regional differences in competitiveness are more deeply ingrained than a single recession can fix. Over the next five years, we expect the euro zone to experience low growth, with less-competitive nations continuing to drag on more competitive nations.

The United States, on the other hand, remains a sign of hope on the international stage. There continues to be upbeat, if not strong, data from the United States that indicate they are finding their footing. Indicators of spending, production and business investment and the job market have shown signs of improvement. All things considered, we expect the US economy to continue with tentative, mild growth in 2012, before gaining momentum over the remainder of the forecast period.

Ironically, weak international conditions could not have come at a better time for China. Falling demand overseas is easing inflation pressures, providing increased space for policy stimulus. This in turn will allow China to manage more sustainable growth over the coming years. Yes, exports to Europe and the United States have been one of the key drivers of the Chinese economy, but household demand has been quietly building in the background. If lower activity in Europe spills over to China in the form of falling exports as we have forecast, conventional methods such as cutting bank reserve requirements and interest rates may be all that is required. If conditions were to deteriorate more, as a creditor nation, China's central government has plenty of fire power to paper over any cracks that could appear.

This is not to say that China is bullet proof. There are potential weaknesses in the property markets, state government debts and the state banks, with inflation being a persistent thorn. Certainly, a collapse of the euro and subsequent recession in the United States remain as downside risks. However, our forecast is for China to achieve a sustainable growth path, averaging just below 8 per cent over the next five years.

Overall, BIS Shrapnel expects world growth over the next five years to outpace the previous five year period. The driver of this growth is the ever larger share of world GDP that China, India and Asia now are expected to represent through the forecast period. BIS Shrapnel estimates that China presently represents 17 per cent of world GDP, slightly higher than the entire euro zone. That is more than double its share from the year 2000, and is forecast to increase to more than 20 per cent by 2016 while the euro-zone and the United States continue to lose world GDP share. In short, China and Asia, and hence the world, is in transition. China is shifting from an export-dependent country to an economy motivated by increasingly robust household demand, rising urbanisation and continuing expenditure on infrastructure underwriting development, with a long-term requirement for commodities, the purchasing power to acquire them and, in doing so, emerging as the dominant driver of world growth.

Diminished demand for commodities in Europe will be more than offset by the US and the developing world's (China and later India) continued demand for commodities, maintaining historically high commodities prices over most of the forecast horizon. As the majority of

Australia's exports now go to Asian markets, the strong performance of the Chinese and Indian economies as well as Japan's reconstruction following the earthquake will support Australia's external demand well into the medium term. This factor, plus Australia's healthy fundamentals (including the top AAA credit rating from international credit agencies), and the continuation of relatively higher interest rates compared to overseas, means that the Australian dollar is forecast to remain high over the next three years.

Minerals investment boom and housing upswing to be key domestic drivers

Investment in the resources sector has already picked up strongly. There is more to come. Meanwhile, commodity prices remain at historically high levels (despite weakening in the second half of 2011), supported by China's strong demand for steel making raw materials (ie iron-ore and coking coal), and high oil prices. This has locked in another round of mining-related projects over the next five years. The current round of mining investment is expected to peak in 2014/15, with the main impetus to growth seen over 2011/12 to 2013/14. We are not expecting a major setback to commodity prices (such as occurred in the GFC of 2008/09) – demand is expected to remain solid with a recovery in developed world demand over the long term taking up the baton from a moderation in the super hot growth experienced by the developing world, particularly China. However, we are seeing a significant world supply response to current prices and this will see prices begin to weaken significantly at some stage, probably around mid-decade.

Driven largely by investment in the mining industry, annual non-dwelling construction investment is forecast to increase by just over 50 per cent between June 2011 and June 2014, with the bulk of the increase occurring in engineering construction. Although a rising proportion of mining investment inputs are being imported, this investment has, and will continue to, provided a significant boost to activity in the engineering construction sector. The construction boom has generated a significant volume of downstream activity for many manufacturing and services firms. As a result, activity and incomes for firms and individuals assisting with this investment will benefit hugely. This, combined with the distribution of taxes and royalties paid by the mining companies, helps spread the benefits of the minerals boom more widely.

But it won't all be plain sailing. The high dollar is eroding the competitiveness of the export and import-competing sectors, with imports taking a larger share of the domestic market at the expense of local manufacturers and tradeable services (such as tourism and education) while non-commodity exporters continue to suffer lower revenues and profits. Ultimately, investment will be affected in trade-exposed sectors, while some operations will close down and/or relocate overseas, in many cases meaning a permanent loss of industry. This process has already begun.

Over 2012, the positive spill over from mining-related activity, increased household spending, and a recovery in dwelling investment, will steadily erode the current spare capacity in much of the economy. We forecast this to lead to a gradual but broad increase in business investment through 2012/13 and beyond, provided firms are able to get the funding to do so.

An extended period of low dwelling investment and continued population growth means that there is now a nationwide dwelling shortage approaching 140,000 dwellings — close to the current annual levels of dwelling building — with around two-thirds of that shortage being in New South Wales. This pent-up excess demand, combined with the recent lowering in housing interest rates, means that we are forecasting residential investment to increase from the middle of this year. However, the recovery in dwelling investment will not be sufficient to reduce the dwelling shortage before interest rate increases stifle the recovery around the middle of the decade.

Partly offsetting growth in private demand will be declining public investment — as the post-GFC schools, housing and hospitals building programs wind down — and slower growth in government recurrent spending and employment. The desire to return the budget to surplus

also means that broadly-based income tax cuts are off the agenda until mid-decade (apart from tax cuts in mid-2012 to compensate households for the Carbon Tax). The lack of tax cuts will help restrain consumer spending.

We expect the strong outlook for activity to gradually translate through to a pick up in employment through 2012, with the unemployment rate forecast to dip below 5 per cent by the end of the 2012. We expect to see the recovery in labour demand first in increased average hours, before employment really picks up. The strengthening in overall investment and exports as new capacity comes on line, together with the rise in residential building, is expected to lead to a marked strengthening in employment over 2012/13 and 2013/14, in turn leading to stronger consumer spending. As stronger employment growth flows through in 2012/13, confidence and expenditure will rise. This will lead to a broadening of spending and investment beyond the Mining-related parts of the economy. While the annual average of jobs growth through 2011/12 is expected to be only 0.6 per cent, this is forecast to rise to 1.9 per cent in 2012/13 and 2.9 per cent in 2013/14, while at the same time unemployment levels decrease even further below 5 per cent and toward 4 per cent.

The extent to which consumers choose to loosen their purse strings will determine the speed at which wage and price pressures build over the next 18 months. Consumers have built up a considerable savings buffer, but they will be constrained in their ability to run up debt levels by the watchfulness of the RBA to any signs of excessive demand on the part of households. The RBA knows there is a major phase of mining investment gathering momentum, which is insensitive to interest rates, and will be accompanied both by strong growth in mining incomes and strong resources investment underpinned by profitable commodity prices. With the unemployment rate already hovering around 5 per cent, the economy does not have sufficient capacity to accommodate a strong pick-up in demand from households and the additional demand on labour, materials and capital that would generate. The RBA position is to use interest rates to make room for the minerals boom. Housing activity and non-mining domestically produced tradeables, both export and import-competing, will be the collateral damage.

With underlying inflation now appearing to have troughed we expect the RBA to start lifting the cash rate once we're through the current soft patch. However, with the current market turmoil, debt and other problems overseas, and budget conscious households adopting a cautious approach to spending, the next rate rise is not expected until the fourth quarter of 2012. Nonetheless, as the economic upswing gains momentum and moves towards full employment over the next two years, we expect the RBA will get on the front-foot and move official rates to more restrictive settings.

An aggressive series of interest rate rises through 2013/14 will dampen consumer spending and send housing activity into a controlled downturn through 2014/15. Generalised business investment will also moderate at the same time, with the overall slowdown in domestic spending and easing of inflationary pressures expected to see interest rates fall back. However, the impact on employment and demand will be modest, with the unemployment rate expected to peak at around 5 per cent in 2015.

The economy is expected to regain momentum from 2015/16, with a strong growth phase in both residential and non-residential building expected to drive growth. By mid-decade, these two markets will typically be characterized by tight supply and a considerable degree of pent-up demand, given building in both sectors will be constrained over the next few years by high interest rates and lingering finance constraints as the economy makes room for the mining investment boom. With growth in overall mining investment expected to ease over the second half of this decade (from its mid-decade highs), investment will switch to residential and non-

residential building. Another major round of private infrastructure and public investment is also expected, given restrained investment in these areas over the next few years will lead to a worsening of capacity constraints and bottlenecks in essential infrastructure.

Main Risk to Economy is Another Credit Crisis

The main risk to the Australian economy is that of a major credit crisis resulting from a worsening of the current European sovereign debt situation. As in 2008, the banks are again displaying reluctance to lend to each other, limiting the availability of credit and forcing up the price of borrowing. Further rescheduling of debt or defaults could escalate the problem for the financial system. Apart from debt, there remain unresolved issues relating to the competitiveness of countries in the Euro zone. The size of the European recession, and hence the extent of weakening of growth in the Western world, is still unknown.

Should these issues come to a head, Australia will be sheltered from the main impact:

- While Australia has an ongoing overseas borrowing requirement relating to rollover of debt and financing the Current Account deficit, Australia's banks are relatively unexposed to European debt. Given the perceived strength of the Australian economy, Australia is a favoured investment destination both for debt and equity funds.
- China’s strong financial position will cushion the Asian economy and minerals demand.
- Australia’s strong fiscal and monetary policy position would allow policy actions to mitigate any impacts on the economy.

Australia would come through a serious deterioration in Europe and the world economy relatively unscathed, perhaps with a delay in the strengthening of the economy but with minimal risk of any serious weakening.

2.3 The South Australian Economy: current state of play and outlook

South Australia’s key industries ie manufacturing, agriculture and education services are being weighed down by the high A$. This combined with the unwinding of Government’s building stimulus and low population growth means South Australian economy is barely growing at the moment.

Notwithstanding the current weakness, the South Australian economy is expected to perform well over the next seven years, although state output and expenditure (demand) growth will continue to lag their national equivalents (ie GDP and Domestic Demand). From 2011/12 to 2017/18 inclusive, gross state product (GSP) growth is forecast to average 2.5 per cent per annum, compared to 3.5 per cent for GDP growth, while state final demand (SFD) is forecast to average 3.2 per cent per annum compared to 4.1 per cent for Domestic Demand. Thereafter, stronger growth is expected as State output and exports increase markedly as production at the Olympic Dam expansion comes onstream.

The South Australian economy was buoyed by high levels of construction activity over 2008/09 and 2009/10 with total construction activity growing by 18 per cent and 21 per cent, respectively. Construction activity in these two years was boosted by an enormous increase in public sector construction, particularly in schools, roads, sewerage and water infrastructure projects, in particular the $1.8 billion Adelaide desalination plant (including the associated pipeline). Public sector construction activity fell sharply in 2010/11 as major projects were completed, but overall construction activity only suffered a small decline due to a large increase in private sector engineering construction, mainly in the telecommunications and mining and heavy industry segments.

State final demand slowed to 1.3 per cent in 2010/11 from 3.8 per cent in 2009/10 due to the weaker overall construction activity, weaker private equipment expenditure and slower growth in government consumption expenditure, although household consumption expenditure was marginally stronger. On the other hand, GSP strengthened to 2.3 per cent (from 1.2 per cent in 2009/10) due to a significant rebound in agricultural and mining exports from the state. Merchandise export volumes were up nearly 29 per cent in 2010/11. However, this export growth is not sustainable, and although we expect high levels of exports to continue in 2011/12, export growth will ease.

In 2011/12, we are forecasting total construction activity to suffer another decline as increased non-dwelling building is offset by falls in dwelling building and engineering construction activity. A round of major non-dwelling building projects are expected to get underway, including the new $2 billion Royal Adelaide hospital, Adelaide Oval upgrade and Adelaide Convention Centre. Overall growth in SFD will remain weak while GSP growth is also expected to slow on the back of the weaker construction activity, slower growth in public spending and exports, and from the impact of the high A$ on the state's manufacturing sector.

Then in 2012/13, work is expected to proceed on the first stage of the $27 billion Olympic Dam copper-uranium-gold expansion, and this will significantly lift investment and construction activity in the state. A number of smaller copper, iron ore, uranium and mineral sands mines will also be constructed over the next few years, but the key project will be Olympic Dam. The expansion will be staged over a number of years, and involve digging a huge open cut pit, constructing a new concentrator and expanded refining facilities, and building new transport, electricity and water infrastructure. Pre-stripping of the enormous amount of over-burden will take five years, which means there will be a delay before the associated production facilities and related infrastructure need to be constructed.

Indeed, after the initial boost to activity in 2012/13, the next major boost to investment and construction activity is expected over 2014/15 to 2017/18, when the expanded concentrator/ refining facilities and infrastructure are built. The first stage of the expanded production is set to come onstream in the sixth year (ie 2018/19 if the expansion begins in the second half of 2012, as currently anticipated), with further investment related to the second stage to be undertaken over the following five years.

South Australia will need these large public sector capital works projects and the Olympic Dam expansion to drive their economy forward and overcome a number of continuing structural negatives. A major structural weakness is low population growth, which feeds back into lower growth in demand for goods, services and housing.

Indeed, this low population growth means slow growth in the underlying demand for dwellings and, after a spurt of building last decade, we estimate there is now an excess of dwelling stock (ie an oversupply) in the state. This has seen dwelling commencements fall sharply over 2010/11 and again in 2011/12. Commencements are expected to show modest growth in 2012/13, before high interest rates again impact on housing in 2014/15. Thereafter, with the market back toward balance, housing construction is expected to bounce-back from 2015/16 (helped also by lower interest rates) and strengthen over 2016/17 before plateauing in 2017/18.

Another major negative weighing on the state currently is the high Australian dollar, which is impacting on the agriculture and fishing, manufacturing and education sectors—all key industries in the state. With the A$ likely to stay above US$1.00 over the next two to three years, this negative will continue to constrain overall growth prospects over the medium term.

The state's manufacturing sector has already suffered large declines in employment over the past three years, and with the motor vehicle sector industry under pressure and another large boost from major defence projects unlikely soon (the AWD Warships is now well underway), this key sector will only provide a modest increment to overall state output and little to employment growth.

On the other hand, the agricultural sector's near term prospects have been markedly enhanced by a greater availability of irrigation water, following flooding in the upstream areas of the Murray River over 2010/11 and again in 2011/12.

On the whole, the South Australian economy is positioned well for strong economic growth over the next seven years. The major issue is how the State Government can provide the infrastructure to make South Australia a better place to live and work, underwriting the coming phase of expansion, and how the economy deals with an already tight labour market and capacity constraints in order to get the work done that will deliver the next phase of growth.

Table 2.2: South Australia – Key Economic Indicators, Financial Years

	Annual Percentage Change											
Year Ended June	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
SA												
Total Construction Activity[(a)]	9.0	1.6	17.6	20.7	-1.0	-7.2	17.6	20.9	5.4	-3.2	-3.2	3.1
State Final Demand	3.7	3.0	2.5	3.8	1.3	0.3	5.0	5.3	1.5	2.4	3.5	4.2
Gross State Product (GSP)	**2.0**	**5.4**	**1.5**	**1.2**	**2.3**	**1.0**	**3.0**	**3.7**	**1.4**	**2.8**	**2.9**	**2.4**
Employment Growth	2.1	2.2	1.7	0.7	1.7	0.8	1.4	2.5	0.7	1.4	2.2	2.6
AUST												
Total Construction Activity[(a)]	5.7	6.5	9.0	3.2	5.8	10.2	5.3	8.1	0.1	-1.4	6.4	2.9
Australian Domestic Demand	4.5	5.8	0.9	2.3	3.3	4.5	4.3	4.9	1.7	3.8	6.0	3.7
Gross Domestic Product (GDP)	**3.8**	**3.8**	**1.4**	**2.3**	**2.0**	**3.1**	**3.5**	**3.8**	**2.6**	**3.7**	**4.3**	**3.4**
Employment Growth	3.1	3.0	1.6	1.4	2.9	0.6	1.9	2.9	1.0	1.5	2.8	2.8

Source: BIS Shrapnel and ABS

(a) Total Construction work done (constant prices), equals sum of new dwellings, building, alterations and additions activity over $10 000, non-residential building and engineering construction by private and public sectors.

3. OUTLOOK FOR AUSTRALIAN INFLATION AND ALL INDUSTRIES WAGES

The key determinants of nominal wages growth are consumer price inflation, productivity and the relative tightness of the labour market (ie the demand for labour compared to the supply of labour). Price inflation, in turn, is primarily determined by unit labour costs. Other factors which also influence price inflation include the exchange rate, the stage of the business cycle and the level of competition in markets generally.

BIS Shrapnel's model of wage determination is based on the analysis of past and future (expected) wage movements in three discrete segments of the workforce, based on the three main methods of setting pay and working conditions (see tables 3.1 and 3.2):

- Those dependent on awards rely on pay increases given in the annual National Wage case by Fair Work Australia (formerly by the Fair Pay Commission and Australian Industrial Relations Commission). Most of the wage increases in the National wage case over the past decade have been given as flat, fixed amount (ie dollar value) increases, rather than as a proportional increase although the most recent increase was given as a proportional increase. At the all industries level, 8.1 per cent of full-time employees (data excludes those in agriculture, forestry and fishing) have their pay rises determined by this method. In the electricity, gas and water sector, only 0.9 per cent of workers have their pay set by this method.

- Collective agreements negotiated under enterprise bargaining account for 41.9 per cent of full-time employees, but 80 per cent of electricity, gas and water employees' wage increases are determined by this method (note the new ANZSIC2006 classification added 'waste services' to the previous ANZSIC1993 electricity, gas and water supply classification. We have excluded the waste services component from our analysis in section 4).

- The remaining 50 per cent of all industries full-time employees have their pay set by individual arrangements, such as individual contracts or other salary arrangements (including incentive-based schemes), while the proportion for electricity, gas and water is currently estimated to be around 19 per cent.

Table 3.1: Wages Growth, All Industries, Australia, (by Workforce Segmented by Pay Setting Method)

	Year Average Percent Change														
							Forecast							Averages	
Year Ended June	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2001-11	2012-18
Proportion of Workforce by Pay setting Method (a)															
Awards Only	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%	8.1%
Collective Agreements	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%	41.9%
Individual Arrangements	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100.0%
AWOTE															
Awards Only	2.5	3.0	2.0	2.6	0.7	3.5	2.5	2.4	3.1	3.1	2.7	2.8	3.2	2.5	2.8
Collective Agreements	4.1	4.1	4.0	4.2	4.1	4.0	4.0	4.1	4.3	4.3	4.1	4.1	4.3	4.0	4.2
Individual Arrangements (b)	5.3	3.2	6.1	6.8	7.2	4.4	5.3	5.4	6.5	6.7	4.6	6.0	6.7	5.8	5.9
AWOTE (Persons)(c)	**4.6**	**3.6**	**4.9**	**5.5**	**5.6**	**4.2**	**4.6**	**4.7**	**5.4**	**5.5**	**4.3**	**5.1**	**5.6**	4.8	5.0
Labour Price Index															
Awards Only	2.5	3.0	2.0	2.6	0.7	3.5	2.5	2.4	3.1	3.1	2.7	2.8	3.2	2.5	2.8
Collective Agreements	4.1	4.1	4.0	4.2	4.1	4.0	4.0	4.1	4.3	4.3	4.1	4.1	4.3	4.0	4.2
Individual Arrangements (b)	4.3	4.0	4.7	4.2	2.6	3.7	3.7	4.4	4.7	4.5	3.6	4.5	5.1	3.7	4.4
Labour Price Index (Ord. Time)	**4.1**	**3.9**	**4.1**	**4.1**	**3.1**	**3.8**	**3.7**	**4.1**	**4.4**	**4.3**	**3.7**	**4.2**	**4.6**	3.7	4.2
Compositional Effects + Bonuses,etc	0.5	-0.3	0.8	1.3	2.5	0.4	0.9	0.6	1.0	1.2	0.6	0.9	1.0	1.1	0.9

Source: BIS Shrapnel, ABS, DEEWR

(a) Full-time Adult Persons
(b) Indiv Agreements picks up all the compositional effects and bonuses, incentives,etc plus all the standard errors of LPI and AWOTE estimates by ABS
(c) Full-time Adult Persons, excluding overtime

Table 3.2: Methods of Setting Pay, Industry, May 2010
Proportion of Full-Time Employees (%)

Industry (ANZSIC 2006)	Award Only	Collective Agreements	Individual Arrangements	All Methods of Pay Setting
Mining	1.8%	42.1%	56.1%	100.0%
Manufacturing	9.1%	29.3%	61.6%	100.0%
Electricity, Gas, Water & Waste Water Services	2.7%	67.7%	29.6%	100.0%
Construction	6.7%	26.3%	67.0%	100.0%
Wholesale trade	7.7%	11.3%	81.0%	100.0%
Retail trade	16.6%	20.7%	62.7%	100.0%
Accommodation and Food Services	31.7%	23.0%	45.3%	100.0%
Transport, Postal and Warehousing	3.9%	55.9%	40.2%	100.0%
Information Media and Telecommunications	3.6%	29.0%	67.4%	100.0%
Finance and Insurance Services	1.5%	39.9%	58.7%	100.0%
Rental, Hiring and Real Estate Services	13.1%	10.4%	76.5%	100.0%
Professional, Scientific ans Technical Services	2.2%	11.5%	86.3%	100.0%
Administrative and Support Services	15.9%	30.1%	54.1%	100.0%
Public Administration and Safety	1.2%	92.5%	6.3%	100.0%
Education and Training	2.9%	88.9%	8.1%	100.0%
Health Care and Social Assistance	12.3%	66.6%	21.1%	100.0%
Arts and Recreation Services	10.4%	40.1%	49.4%	100.0%
Other Services	15.7%	11.0%	73.3%	100.0%
All Industries 2010 Survey	**8.1%**	**41.9%**	**50.0%**	**100.0%**
Electricity, Gas and Water (2006)[1]	**0.9%**	**84.4%**	**14.7%**	**100.0%**
Electricity, Gas and Water (2010)[2]	**0.9%**	**80.0%**	**19.1%**	**100.0%**

Source: ABS

(1) Previous ANZSIC 1993 industry calssification, which was used for May 2006 survey (and all previous surveys). August 2008 was the first survey using new ANZSIC 2006 categories. Updated survey May 2010.
(2) EGW proportions for 2010 are estimated from the new ANZIC 2006 data.

In terms of the key influences on the different wage determination mechanisms of each discrete segment:

- Increases in the Federal Minimum Wage (on which a range of mostly lower paid awards are also based) granted by the Fair Work Australia (and by the Fair Pay Commission and the AIRC previously) each year are usually set in relation to recent increases in the CPI and with regard to the Fair Work Australia's view of both current and short-term future economic conditions. Fair Work Australia granted a 3.4 per cent ($19.40) increase in minimum wages, effective July 2011. The $19.40 per week increase lifted the Federal Minimum Wage to $589.30/week.

- Increases in collective agreements under enterprise bargaining are influenced by a combination of recent CPI increases, inflationary expectations, the recent profitability of relevant enterprises, current business conditions and the short-term economic outlook, and by the industrial relations 'strength' of relevant unions. Because the average duration of agreements now runs for two-to-three years, BIS Shrapnel bases its near-term forecasts on the strength of recent agreements, which have been 'formalised' over recent quarters. Thereafter, collective agreements are based on BIS Shrapnel's macroeconomic forecasts.

- Increases in individual agreements are primarily influenced by the strength of the labour market (especially the demand-supply balance of skilled labour), inflationary expectations, the recent profitability of relevant enterprises, current business conditions and the short-term economic outlook.

Chart 3.1: Australia – Wages and Prices

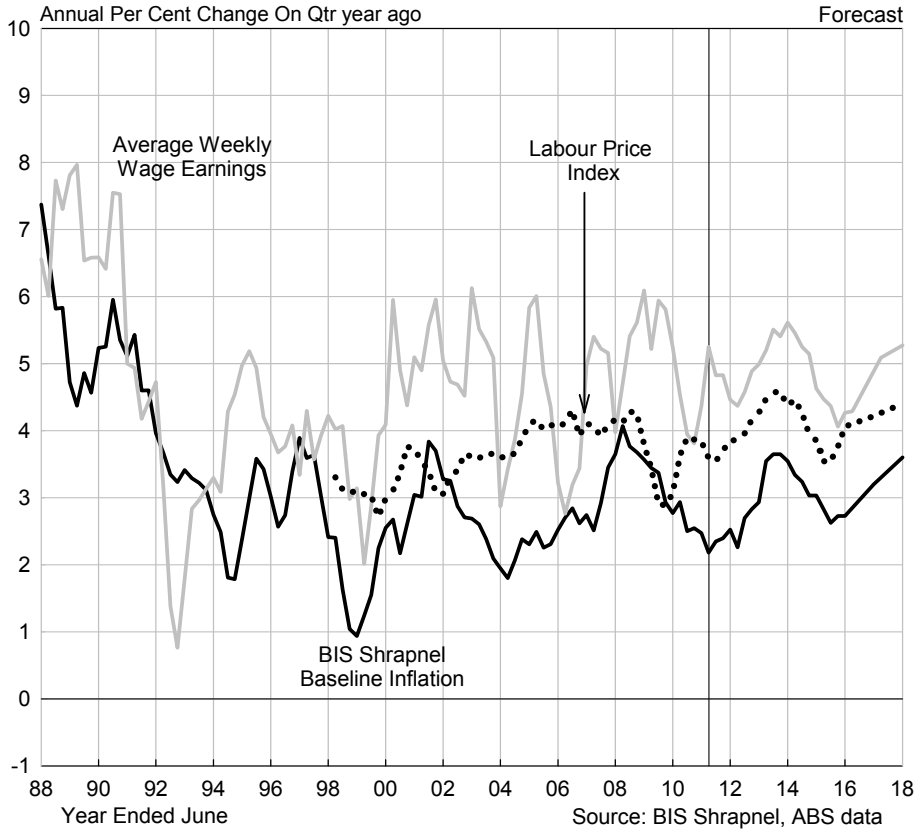
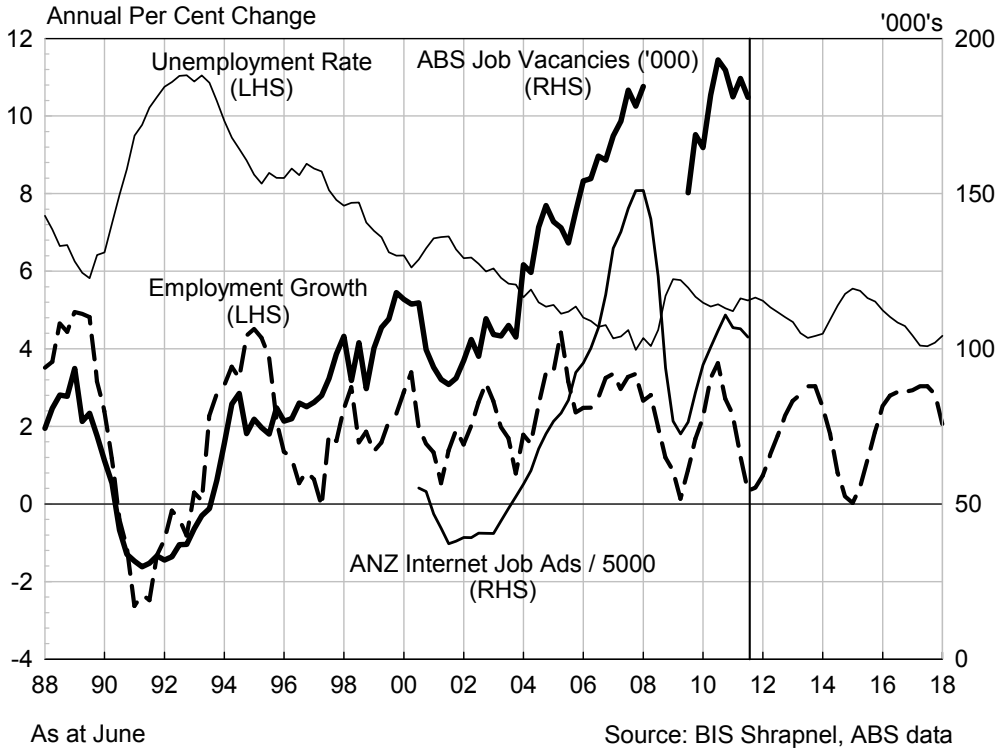


Chart 3.2: Employment and Unemployment



3.1 Outlook for Australian All Industries Wages

Wage pressures stabilising over 2011/12 – slow build in 2012 to precede strong growth

BIS Shrapnel believes that wage inflation over the next 18 months will be shaped by a moderation in wages growth for award-reliant workers, moderate growth in wages for those on enterprise bargaining and reasonably solid growth in wages for those on individual agreements, particularly skilled workers.

After receiving no increase in entitlement in 2009 — with the Fair Pay Commission citing as its reasons, the deterioration of economic conditions and the spurious link between minimum wage increases and higher unemployment — the 'normalisation' of trading conditions and the strength of competition for skilled workers saw Fair Work Australia grant a $26 increase in all modern award minimum weekly wages in 2010. Following the catch-up in 2010 and the 2010/11 Annual Wage Review, Fair Work Australia granted a 3.4 per cent ($19.40) increase in minimum wages, effective July 2011. The $19.40 per week increase is expected to lift award wages by 2.3 per cent in 2011/12.

Recent collective agreements data from the Department of Education, Employment and Workplace Relations (DEEWR) shows that average annualised wage increases (AAWIs) for All Industries lodged during 2010/11 were marginally higher (averaging 4.0 per cent) than the average in 2009/10, which in turn was the lowest since 2001/02. Given the easing in headline inflation and employment growth through 2011, we expect collective agreements to remain around the 2010/11 levels in 2011/12 before picking up later in 2012.

With respect to those on individual agreements, our expectation is that this segment will see overall growth rise slightly through 2011/12, but that there will be marked divergences between industries. Skilled labour shortages are re-emerging in the sectors which drove strong increases in individual agreements prior to the global financial crisis and this will hold up overall wages growth in this segment. However, trading conditions are currently sluggish for many businesses and we don't expect to see much of an improvement until the second half of 2012.

The upshot is that after easing through 2011, wages growth is forecast to pick up gradually through 2012 as economic and employment growth strengthen, and the unemployment rate gradually declines back below 5 per cent by late 2012. The LPI is expected to ease to 3.7 per cent in 2011/12, before rising to 4.1 percent in 2012/13. Meanwhile, AWOTE is expected to rise from 4.2 per cent in 2010/11 to average 4.6 per cent in 2011/12, and 4.7 per cent in 2012/13.

Medium to longer term outlook – wages growth higher as pressures persist

A broadening in employment, profits and investment is expected from mid-to-late 2012 as increased mining investment and incomes and lower interest rates stimulate wider economic activity, lifting confidence and spending and encouraging businesses to switch out of cost-containment mode. The acceleration in profits, rising price inflation through 2012/13 and widening skills shortages – with the unemployment rate pushing below 4.5 per cent by mid 2013 – will drive up wages growth during 2012/13 and particularly 2013/14. Wages growth (in year average terms) is expected to rise further and peak at 5.5 per cent for AWOTE in 2014/15 and 4.4 per cent for LPI in 2013/14.

This will see the RBA act to constrain economic growth and inflationary pressures during 2013 and 2014 by raising interest rates. As wage and price pressures build, the approach by the RBA will become increasingly aggressive and this will eventually undermine domestic demand. The mining investment boom will be largely unaffected and strong competition for workers will continue to underpin strong employment and wages growth in investment related sectors, but this will be offset by weakening profits and demand for labour elsewhere in the economy over 2014.

The higher interest rates are expected to cause a slowdown in economic and employment growth during 2014, and this will eventually feed through to wages growth in 2015, with wages growth in the individual arrangements and award segments slowing first. Wages growth is forecast to ease to 3.7 per cent in LPI terms in 2015/16, while AWOTE growth eases to 4.3 per cent at the same time. But with only a small rise expected in the unemployment rate to around 5.5 per cent in 2015 because of the deceleration in 'working population' and slower labour force growth, the ongoing tight labour market is expected to see wage pressures rise again in the second half of the decade, once the subsequent recovery resumes.

Indeed, by the middle of this decade, both skilled and general labour shortages will begin to emerge due to demographic factors, i.e. retirements and less hours worked per person (especially for older workers). Australia will continue to experience sustained labour shortages in the decade to 2022 (and beyond), and these shortages will become more significant as the workforce ages. As Australia's 'baby boomers' generation move into the 65+ age group, the growth of the 15-64 year old component of Australia's working age population (the overwhelming majority of Australia's workforce) will begin to slow.

With more people retiring, the supply of labour is expected to increase at a slower rate through the coming decade. This will lead not only to skilled labour shortages, but total labour shortages. Meanwhile, the demand for labour will continue to rise — particularly in periods of strong investment and economic growth. These sustained labour shortages will result in a long term upward bias in wage inflationary pressures.

In summary, for the seven years from 2011/12 to 2017/18 inclusive, the annual growth in the 'All Industries' LPI is forecast to average 4.2 per cent per annum, while AWOTE growth will average 5.0 per cent per annum.

3.2 Outlook for Consumer Price Inflation

Extreme weather events in Australia and high oil prices saw consumer prices shift higher in the first half of 2011. The CPI inflation rose 0.9 per cent in the June 2011 quarter to be 3.6 per cent higher through the year. Meanwhile, annual underlying inflation, which has been on a slow downward drift since the global financial crisis, increased only marginally to 2.3 per cent in the March 2011 quarter before rising to 2.9 per cent in June 2011.

However, the main measures of CPI inflation all eased in the September and December quarters, with the easing in inflationary pressures reflecting both the lagged effects of the weakening in the economy — particularly consumer spending — and the strength of the dollar over the past year (notwithstanding the falls in the dollar in August and September). The underlying inflation rate was only 0.4 per cent for the September 2011 quarter rising to 0.6 per cent for the December quarter, with the through-the-year rate easing back to 2.6 per cent for both the September and December quarters, 2011.

Headline inflation to ease further over next six months, but underlying CPI to remain around 2.5 per cent

Headline CPI was lifted over 3 per cent over 2011 by the high outcomes in the March and June quarters of 2011, when the extreme weather events and high oil prices pushed up fruit and vegetable prices and fuel prices. However, as these large one-off spikes drop out, the headline CPI is forecast to ease back to 2.0 per cent by the June quarter 2012. Meanwhile, we expect the underlying CPI inflation measure to stabilize at around current levels, before rising from the second half of 2012. At that time, the headline CPI rate will again jump back above 3 per cent as the carbon tax kicks in from July 2012 and pushes up energy and some other prices.

Table 3.3: Wages and Prices – Australia
Year Average Growth

Year Ended June	Average Weekly Ordinary Time Earnings[1] $/week	%CH	Labour Price Index All Industries 2011/12=100	%CH	CPI Headline Inflation (BIS Shrapnel forecasts) 2011/12=100	%CH	Official Headline CPI[2] 2011/12=100	%CH
2000	765.4		64.6		69.2		69.2	
2001	804.2	5.1	66.8	3.5	73.3	6.0	73.4	6.0
2002	847.4	5.4	69.1	3.3	75.4	2.9	75.5	2.9
2003	890.0	5.0	71.4	3.5	77.7	3.1	77.8	3.1
2004	931.6	4.7	74.0	3.6	79.5	2.4	79.6	2.4
2005	972.9	4.4	76.8	3.7	81.5	2.4	81.6	2.4
2006	1 017.5	4.6	79.9	4.1	84.1	3.2	84.2	3.2
2007	1 054.1	3.6	83.1	3.9	86.5	2.9	86.6	2.9
2008	1 106.1	4.9	86.5	4.1	89.5	3.4	89.6	3.4
2009	1 166.5	5.5	90.1	4.1	92.3	3.1	92.4	3.1
2010	1 231.3	5.6	92.9	3.1	94.4	2.3	94.5	2.3
2011	1 282.5	4.2	96.4	3.8	97.3	3.1	97.5	3.1
Forecasts								
2012	1 341.6	4.6	100.0	3.7	100.0	2.7	100.0	2.6
2013	1 404.8	4.7	104.1	4.1	103.1	3.1	102.9	2.9
2014	1 480.9	5.4	108.7	4.4	106.6	3.4	105.7	2.7
2015	1 563.0	5.5	113.4	4.3	110.2	3.4	108.3	2.5
2016	1 630.3	4.3	117.6	3.7	113.1	2.6	111.0	2.5
2017	1 713.2	5.1	122.6	4.2	116.3	2.9	113.8	2.5
2018	1 808.7	5.6	128.2	4.6	120.4	3.5	116.6	2.5
Compound Annual Growth Rates [3]								
1990-2000	3.8				2.2		2.2	
2000-2010	4.9		3.7		3.2		3.2	
2006-2011	4.7		3.8		3.0		3.0	
2011-2018	5.0		4.2		3.1		2.6	
2013-2018	5.2		4.3		3.1		2.5	

Source: BIS Shrapnel, ABS

(1) Earnings per person for full-time adults. Data is year ended May (available only mid month of quarter).
(2) RBA Forecasts to June 2014. Beyond June 2014, Commonwealth Treasury's forecasts are used.
(3) e.g. CAGR (Compound Annual Growth Rates) for 2013-2018 is CAGR for 2013/14 to 2017/18 inclusive (ie next regulatory period).

Soft economic conditions and upstream price and cost price pressures will mute prices

Overall, the year-average increase in the headline CPI in 2011/12 is expected to be 2.7 per cent, while underlying inflation will average 2.4 per cent. The relative stability of the underlying CPI measures over 2011/12 is expected to be the outcome of several opposing forces. Factors acting to mute prices in the near-term include:

- Upstream costs such as input costs, producer prices and wages growth have softened recently and are likely to remain fairly benign into 2012.
- Modest growth in the domestic economy (ie domestic demand) is likely to persist through the remainder of 2011/12, with households and businesses only gradually loosening the purse strings. The economy is unlikely to jump back into a boom, even with the stimulus provided by the November and December interest rate cuts by the Reserve Bank. The relative weakness in large sections of the economy means less demand inflationary pressures. It also means employment growth will remain weak, and although we expect a pick-up in employment growth in the first half of 2012, the unemployment rate will remain above 5 per cent, with the relatively weak labour market muting wage pressures.
- A cyclical rise in productivity (as GDP growth outpaces employment growth) will help reduce unit labour costs.
- The strength of the Australian dollar will continue to mute import and tradeables prices.
- Continuing weakness in consumer spending volumes and the strength of the dollar is also likely to elicit further discounting by retailers and some household service providers in the near term.
- Food price growth is expected to remain constrained due to recent declines in some global agricultural prices and favourable rural conditions in Australia (boosting local supply).

But utilities, rents, housing costs, health, education and fuel will add to price pressures

There are, however, some areas of the economy where supply constraints or other institutional factors will conspire to keep certain prices elevated over 2011/12 and beyond:

Utilities prices jumped 7.2 per cent on average in the September quarter, and in the December quarter, 2011 were 10.1 per cent higher than the December quarter 2010. Recently, large increases in utilities charges (comprising electricity, gas & other household fuels and water & sewerage costs) have had a significant impact on overall inflation. A move towards cost-based pricing, the need to replace and expand infrastructure to meet demand (particularly peak demand loads), and rising input costs has seen utilities inflation move to a higher plane. We believe utilities prices will continue to grow strongly in the near-term as a significant 'catch-up' still exists for the below-average price increases and under-investment in infrastructure during much of the 1990s. In fact, regulators in most states have already approved significant price increases for electricity, which have been implemented from 1 July 2011. These include: Queensland 5.8 per cent, New South Wales 9.6 per cent to 13.1 per cent, Tasmania 8.5 per cent and South Australia over 12 per cent, while further double-digit increases are expected in Western Australia.

Further incremental rises through 2011/12 are expected to push overall electricity price growth to June 2012 closer to 11 per cent. The imposition of the carbon tax in July 2012/13 will then lift utilities growth over 17 per cent through 2012/13 (over 20 per cent for electricity).

Health, education and insurance are expected to maintain their high price growth.

Fuel prices jumped 13 per cent in the first half of 2011 as tensions in Libya pushed oil prices over US$100/barrel. Prices subsequently eased over the second half of 2011, but oil prices are again around US$100 on the back of Middle East tensions. Assuming these tensions will ease, prices will fall back by mid 2012. However, we expect oil prices to rise back over US$100/barrel by the end of 2012 and then climb higher over 2013 and 2014 on the back of a stronger demand from China, Asia and the US, which will feed into higher fuel prices locally.

Rents and new dwelling purchase costs (the latter related to the cost of building and purchasing new dwellings by owner-occupiers, excluding land costs) are expected to rise through 2011/12 and especially 2012/13.

Rents have been increasing due to a significant deficiency of residential stock, with vacancy rates at near the lowest levels in over a decade across Australia. Dwelling construction in most major capital cities has now fallen to a level where not enough is being built to satisfy underlying demand for dwellings. We believe annual rental inflation will remain elevated over the next two years due to the persistent deficiency of residential stock.

Implementation of a price on carbon to provide one-off boost to electricity prices . . . but overall CPI impact likely to be muted

The Federal Government recently passed legislation to introduce a carbon price (tax) in an effort to reduce carbon pollution and contribute towards the global initiatives to mitigate climate change caused by greenhouse gas emissions. By imposing a carbon price the government also hopes to facilitate the transition to a low-(carbon) emissions economy, ie generate investment in low emission technologies such as renewable technologies. The initial price of $23 per tonne of CO2-e emissions will commence on 1 July 2012.

The imposition of the initial (fixed) carbon price will lead to a ‘one-off’ lift in some of the expenditure classes of the CPI. The Commonwealth Treasury projects that under a $23 carbon price, electricity prices will increase by an extra 10 per cent in 2012/13, gas prices by 9 per cent while food prices are expected to rise by less than 0.5 per cent. Overall, the CPI impact in 2012/13 is estimated at 0.7 per cent, significantly lower than the introduction of GST which increased CPI by around 2.5 per cent through-the-year to June quarter 2001.

In dollar terms, the Treasury projects that household expenditure, on average, is expected to increase by $3.30 per week due to higher electricity prices and by $1.50 per week due to higher gas prices. Most items in consumer budgets will increase by less than 1 per cent such as food where households are expected on average to spend only an additional $0.80 per week.

Some second-round impacts of the carbon price could also occur, if these higher relative prices cause consumers and businesses to reassess their beliefs on underlying aggregate inflationary pressure, and therefore change their wage and price setting behaviours. This change in behaviour would have consequences for the medium-term trend of inflation. However, the CPI impact of the carbon tax is likely to be quarantined, and offset in wage formation.

Stable exchange rate over next 2-3 years means less deflationary impact

Over most of the past decade, the steady rise in the Australian dollar – from an average of US$0.52 in 2001/02 to US$0.99 in 2011/12 - has been a key factor in keeping overall inflation mostly within the Reserve Bank’s target band of 2-3 per cent (except over 2008/09, when the exchange rate fell from an average of US$0.94 in June quarter 2008 to US$0.66 in the March quarter 2009, before again resuming its upward path). The dollar rose from an average of US$0.52 in 2001/02. An appreciating currency limits the rise in import prices, which is then partially passed on by retailers to help hold down ‘tradeables’ inflation. Tradeables inflation constitutes around 42 per cent of the CPI, but includes the volatile automotive fuel and fruit and vegetable sub-categories.

The Australian dollar is influenced by two key factors: interest rates in Australia compared to overseas (particularly US interest rates) and commodity prices. Rising commodity prices and relatively high domestic interest rates will continue to support the A$ over the next two to three years. However, we don't expect to see a further significant appreciation. Declines in commodity prices and cuts to local interest rates over the second half of 2011 saw the Australian dollar fall from an average US$1.06 (77.5 on the Trade Weighted Index [TWI]) in the June quarter, 2011 to US$1.01 (74.8 TWI) in the December quarter 2011. Commodity prices are expected to remain around current levels over the first half of 2012 (assuming no significant deterioration in Europe), before increasing through 2012/13 and 2013/14 as overseas demand recovers (particularly China, Asia and, eventually, the US). Prices are expected to peak around mid-decade, before declining in response to increased supply coming on-stream from the current mining investment boom (both in Australia and overseas). However, some agricultural prices are likely to rise further over the medium term in response to ongoing supply fluctuations and particularly as increasing global populations and rising average incomes through Asia drive up demand for food.

Meanwhile, local interest rates are predicted to rise in 2013 and 2014. A considerable overhang in capacity is keeping inflationary pressures at bay in the US, but firming demand should see the US Federal Reserve start to lift interest rates by late 2013. Rising US interest rates will narrow the interest rates differential between Australia and the US which will also weigh down on the attractiveness of the A$ from 2014. Overall, BIS Shrapnel is forecasting the exchange rate to average US$1.03 in 2011/12, before rising to US$1.04 in 2012/13 and US$1.06 in 2013/14. We then expect the exchange rate to depreciate to below US$1.00 by the end of 2014 (and average US$0.94 in 2014/15) – although the currency will continue to be volatile in a US$0.95 to US$1.10 band over the next two-to-three years.

These modest rises forecast for the currency will only partially offset rising inflation overseas over 2012/13 and 2013/14. Then, in 2014/15, BIS Shrapnel is forecasting a 12 per cent depreciation in the exchange rate, falling from an average of US$1.06 in 2013/14 to US$0.94. This will push up tradeables inflation. The decline in the exchange rate is expected to be the result of a number of factors – Australian interest rates are expected to decline as the economy softens, while at the same time better economic conditions overseas will see US and European interest rates finally begin to rise, lessening the relative attractiveness of Australian rates. Adding the weakness of the A$ will be the projected weakening in commodity prices. Overall, the end result will see underlying tradeables inflation (ie excluding fuel, fruit and vegetables) increase over the three years to 2014/15 at a faster rate than the six years to June 2008 and over 2009/10 and 2010/11, although still mostly below an annual rate of 2 per cent per annum.

Lower fuel, fruit and vegetable prices will help keep overall tradeables inflation muted over 2011/12, as the flood and cyclone inspired price spikes reverse and as global oil prices decline back below US$100/barrel – assuming the unrest in the Middle East subsides. However, fruit and vegetable prices are likely to return to their year-to-year volatility over subsequent years, while global oil prices are expected to increase over the medium term as global demand increases in line with economic recovery overseas, but new supply is constrained – pushing up local petrol prices. Higher fruit and vegetable and fuel prices will add to the headline inflation rate over the medium term.

Inflation to rise toward 3.5 per cent over 2012/13 and 2013/14, before easing in 2014/15

Aggregate CPI inflation will also be pushed up by rising non-tradeables inflation, largely as a result of faster growth in wages and the persistence of high rates of inflation in rents, utilities, health, education, child care services and other housing costs. From the second half of this year, employment growth will follow the recovery (albeit sluggish) in demand and output, with

accelerating growth in employment over 2012 producing a decline in the unemployment rate, falling below 5 per cent by the end of 2012. The strengthening in employment growth and the economy generally will result in rising incomes and demand, which, combined with the shrinking of spare capacity, will add to demand inflationary pressures during 2013 and 2014. Wages growth is also expected to pick up over these two years, with continuing weak productivity growth also adding to the rise in unit labour costs and non-tradeables inflation.

By late 2013/early 2014, the economy is expected to approach full capacity constraints, with the unemployment rate predicted to fall below 4,5 per cent and towards 4.0 per cent. Inflationary pressures, therefore, will be broad-based, but labour shortages will be the key constraint on the economy and the RBA will take an increasingly aggressive approach to reducing demand pressures through 2013. The efforts of the RBA are expected to successfully rein in growth in domestic demand from the first half of 2014, but wage and price pressure will be sticky downward, because both wages and, to a lesser extent, price inflation tend to lag the strength of growth in demand and output. In 2014/15, we expect non-tradeables inflation to ease through the year as the domestic economy and employment soften, but weaker non-tradeables inflation will be partially offset by higher tradeables inflation caused mainly by the depreciation of the A$.

We believe inflation containment will remain a policy challenge well into the medium term. Tight labour markets will emerge once again in the medium term to become a chronic problem for inflation. The large pool of unemployed that was a feature of the 1990s has gone. Moreover, skilled labour shortages will remain a problem for the foreseeable future, particularly given anecdotal evidence of a re-emergence of skilled labour shortages so early into the post-GFC recovery. Inflation will act as the main ‘safety valve’ on Australia’s constrained economy.

Whenever the unemployment rate starts to track below 5 per cent there will be the potential for a demand-driven rise in wages growth and inflation. Pressures may moderate from time to time, but it would take another full-blown recession and a sharp fall in employment to really see inflationary pressures be significantly subdued.

In summary, BIS Shrapnel is forecasting year-average headline CPI inflation to average 2.5 per cent in calendar 2012, 3.4 per cent in 2013 – including the effects of the carbon tax (or 2.7 per cent excluding the carbon tax effects) – 3.4 per cent in 2014 and 3 per cent in 2015. Over the six years from 2012 to June 2017 inclusive, the annual rate of inflation is forecast to average 3.1 per cent per annum.

3.2.1 Reserve Bank of Australia CPI forecasts

The Reserve Bank and the Federal Treasury provide the ‘official’ view of CPI forecasts. The RBA’s February ‘Statement on Monetary Policy’ projects the headline CPI rate at 1.75 per cent in the June quarter 2012, before rising to 3 per cent in the December quarter 2013. According to the RBA, headline CPI inflation (including the carbon price) is then expected to rise to 3.25 per cent by June 2013 before falling to 2.5 per cent by December 2013. Inflation is expected to remain within 2.5 to 3 per cent band through the year to June 2014 (RBA current forecasts only extend to June 2014).

The Federal Treasury in the 2011/12 Budget Papers (released in May 2011) projected CPI inflation at 2.75 per cent in 2011/12 and 3 per cent in 2012/13. For the budget forward estimate period ie 2013/14 and 2014/15 financial years, the Federal Treasury forecast CPI inflation at 2.5 per cent. Over the longer term, we have used this same mid-point of the RBA’s inflation target range of 2-3 per cent over the cycle.

4. ELECTRANET'S INTERNAL ELECTRICITY NETWORK RELATED LABOUR COST ESCALATION

4.1 Key points

- The AER in its recent electricity transmission determinations has stated that labour cost forecasts for the Utilities sector most reasonably reflects a realistic expectation of labour costs for all internal network-related labour of Transmission Network Service Providers.[2] In other words, the AER accepts that the ABS labour price statistics for the Utilities sector reflects both specialised electricity network related labour and general (or administrative) labour. We agree with the AER and have therefore used wages growth in the Electricity, Gas and Water Supply (EGW or 'Utilities') sector for South Australia as the escalator for ElectraNet's internal electricity network related labour.
- The AER in its recent electricity transmission determinations has also accepted the use of agreed collective workplace agreements as an appropriate measure of future labour costs for the term of those agreements. BIS notes that ElectraNet has in place such an agreement for its internal workforce for the period to 30 June 2015, which provides the most accurate reflection of expected labour costs for that period.Overall, BIS Shrapnel expects growth in total labour costs in the electricity, gas and water ('utilities') sector for total Australia — expressed in AWOTE terms — will average 5.7 per cent per annum (0.5 percentage points higher than the national 'All Industries' average of 5.2 per cent per annum) over the five years from 2013/14 to 2017/18 inclusive. Underlying wages growth in the utilities sector — expressed in LPI terms — is forecast to average 4.9 per cent per annum over the five years to 2017/18, 0.6 percentage points higher than the national all industries LPI average of 4.3 per cent per annum. The faster wages growth expected in the electricity, gas and water sector over the next seven years is in line with historical movements in AWOTE and the LPI over the past decade (see table 4.5).
- The continued stronger wages growth in the Australian and South Australia utilities' sectors is due to:
  - Sustained strong demand for skilled labour in the utilities sector, due to continued high levels of capital and maintenance expenditure in the utilities sector, related to major network upgrades and refurbishment and the need for new capacity in the electricity, gas and water sectors to cater for population and economic growth over the long term.
  - Heightened competition from the Mining, Construction and (to a lesser extent) Manufacturing sectors for similar skilled labour as those sought in the utilities sector, driven in particular by the resources investment boom, which is expected to ramp up substantially over the next five years and remain at high levels over the following five to 10 years.
  - Relatively stronger unions continuing to win above average enterprise bargaining agreements in what is an essential services sector. Collective agreements dominate the pay setting in the utilities sector (covering around 80 per cent of employees in the Electricity, Gas and Water sector).
- Utilities wages growth in South Australia is forecast to average 5.8 per cent per annum (in AWOTE terms) over the five years from 2013/14 to 2017/18, slightly faster than the national average of 5.7 per cent per annum (see table 4.7). The faster wage growth in the South Australian utilities sector is due to ongoing shortages of skilled workers relevant to the

[2] AER Draft Decision, Powerlink Transmission Determination 2012/13 to 2016/17 p.60.

utilities sector in the state, high levels of utilities and total engineering construction which will be underpinned by the $27 billion expansion of the Olympic Dam mine, strong intrastate demand for similarly skilled labour and interstate relativities.

4.2 Key Drivers of Sustained Strong Growth in Underlying Wages Growth (Labour Price Index) in the National Utilities Sector

Wages growth in the electricity, gas and water sector is invariably higher than the total Australian national (all industry) average. The labour price index growth has consistently been above the national average since the index's inception in 1997. Although it was the same as the national average in 2007/08, it averaged 0.8 percentage points higher than the national average over the decade to 2010/11 (see table 4.5). While growth in average weekly ordinary time earnings (AWOTE) of the electricity, gas and water sector has displayed considerably more volatility (mainly related to compositional effects) over the past two decades, AWOTE growth in the sector has also usually been higher than the national average over the past two decades (see tables 4.2 and 4.5).

Table 4.1: Labour Price Index Growth by Industry Sector and by State

Sector	% of Total Employment Nov 2011	Jun '06	Jun'07	Jun'08	Jun'09	Jun'10	Dec'10	Mar'11	Jun'11	Sep'11	Dec'11	Five-Year Average
Private		4.0	3.9	4.4	3.6	2.7	3.9	4.0	3.9	3.7	3.8	3.8
Public		4.3	4.2	3.9	4.4	4.0	4.0	3.6	3.7	3.3	3.2	3.9
Industry												
Mining	2.1%	5.9	5.5	6.7	4.2	3.8	4.5	4.6	4.1	4.1	3.6	4.6
Manufacturing	8.3%	3.9	4.1	4.6	2.5	2.6	3.7	3.9	4.1	3.6	3.8	3.6
Electricity, Gas, Water and Waste Services	1.4%	6.4	4.0	3.5	4.7	4.7	4.8	3.7	3.7	3.6	3.2	4.2
Construction	9.1%	5.9	4.2	4.7	4.5	2.9	3.9	4.4	4.0	3.9	4.0	4.2
Wholesale Trade	3.9%	3.7	3.7	4.6	3.3	1.7	3.5	4.4	4.8	4.4	4.4	3.6
Retail Trade	10.6%	3.4	3.1	4.5	3.5	2.8	3.3	3.3	3.3	3.0	3.0	3.6
Accommodation and Food Services	6.8%	3.3	3.0	2.3	3.4	2.0	3.5	3.3	3.0	3.1	3.8	3.1
Transport, Postal and Warehousing	5.1%	4.2	4.1	3.9	4.4	3.2	2.8	3.6	4.0	3.7	3.4	3.8
Information Media and Telecommunications	1.8%	2.8	3.6	3.9	3.0	2.0	3.0	3.5	3.2	3.8	4.2	3.2
Finance and Insurance Services	3.7%	4.0	4.3	3.6	3.2	3.1	4.4	4.3	4.5	3.8	4.0	3.8
Rental, Hiring and Real Estate services	1.7%	3.9	3.0	4.1	3.6	2.5	2.9	3.0	3.6	3.6	4.0	3.5
Professional, Scientific and Technical Services	7.6%	4.3	4.3	5.1	5.1	2.9	4.6	4.7	4.0	4.2	4.7	4.3
Administration and Support Services	3.5%	3.3	3.6	4.9	2.9	2.5	4.0	3.8	3.7	3.2	3.0	3.7
Public Administration and Safety	6.5%	4.2	4.3	3.9	4.5	3.7	4.0	3.6	3.4	2.8	2.9	3.9
Education	7.5%	4.4	4.1	4.0	4.5	3.9	4.4	3.9	3.8	3.9	3.6	4.1
Health Care and Social Assistance	11.8%	4.5	4.3	3.6	3.9	4.0	3.6	3.3	3.6	3.2	3.0	3.6
Arts and Recreation Services	1.8%	3.0	4.4	3.4	3.9	2.8	3.1	3.1	3.4	3.3	4.2	3.8
Other Services	3.9%	3.2	4.0	3.3	3.3	2.3	3.1	3.0	3.6	4.6	4.4	3.5
State/Territory												
New South Wales	31.5	3.9	3.8	4.0	3.6	3.1	3.8	3.8	3.7	3.6	3.8	3.7
Victoria	25.0	3.7	3.6	4.2	3.4	2.7	3.7	3.9	4.1	3.5	3.5	3.6
Queensland	20.5	4.7	4.6	3.9	4.1	3.3	4.2	3.9	3.9	3.8	3.6	3.9
South Australia	7.2	3.7	4.3	4.6	3.7	2.9	3.9	3.6	3.3	3.4	3.3	3.7
Western Australia	10.9	4.6	5.2	5.6	4.6	3.4	4.0	4.1	3.8	4.0	4.0	4.5
Tasmania	2.1	4.1	4.5	3.6	4.2	3.6	3.4	3.5	3.5	3.9	3.6	3.8
Northern Territory	1.1	3.9	4.3	4.2	3.8	3.4	3.8	4.1	3.9	3.9	4.3	4.0
Australian Capital Territory (ACT)	1.8	3.8	4.3	4.0	4.1	3.0	3.7	3.7	3.5	3.0	3.0	3.7
Total All[2]	100	4.2	4.0	4.2	3.8	3.1	3.9	3.9	3.8	3.6	3.7	3.8

Source: BIS Shrapnel, ABS

(1) Measures changes in the price of labour. Ordinary hourly rates of pay (excludes overtime and bonuses)
(2) Excludes Agriculture, Forestry & Fishing

Table 4.2: Australia
AWOTE Growth by Industry Sector

Industry Sector	% of Total Employment Nov 2011	Average Weekly Earnings[1]											
		$ / Week Nov'11	Annual Percent Change										Five-Year Average
			May '07	May '08	May'09	May'10	Aug'10	Nov'10	Feb'11	May'11	Aug'11	Nov'11	
Mining	2.1%	2 185	5.8	9.5	6.4	6.4	8.2	6.8	5.9	5.2	4.5	5.2	6.8
Manufacturing	8.3%	1 192	4.5	4.1	4.5	1.5	2.2	1.7	3.2	4.1	2.8	4.2	3.5
Electricity, gas, water and waste services	1.4%	1 508	4.2	2.2	7.0	9.5	10.7	9.1	9.5	7.2	3.8	3.2	5.7
Construction	9.1%	1 368	8.0	7.1	9.0	6.8	6.4	4.4	5.6	3.8	5.4	5.3	7.3
Wholesale trade	3.9%	1 339	5.9	3.9	4.8	0.8	2.9	2.5	0.9	9.3	11.9	11.7	5.1
Retail trade	10.6%	979	4.0	2.5	4.8	6.3	2.9	1.4	0.7	-1.2	3.1	3.6	3.9
Accommodation and food services	6.8%	957	8.9	0.1	3.5	4.5	3.9	3.4	3.5	3.3	5.0	3.5	4.1
Transport, postal and warehousing	5.1%	1 289	-0.5	1.8	3.4	7.5	11.5	10.3	7.3	6.6	6.1	4.9	4.8
Information media and telecommunications	1.8%	1 543	10.8	4.2	5.2	5.6	5.5	4.2	4.2	4.5	4.9	2.2	5.2
Finance and insurance	3.7%	1 548	3.7	4.9	1.4	7.5	7.5	8.8	5.3	2.9	2.3	-0.1	3.7
Rental hiring and real estate services	1.7%	1 217	3.9	7.7	6.4	1.8	-3.7	-2.6	-0.1	-1.9	-0.1	0.9	3.5
Professional, scientific and technical services	7.6%	1 581	5.0	6.5	5.6	7.1	6.4	5.8	2.9	3.0	2.8	2.8	5.5
Administration and support services	3.5%	1 152	4.5	7.7	6.4	7.3	2.9	1.3	-0.9	-3.5	-2.8	-4.8	3.9
Public administration and defence	6.5%	1 403	3.5	3.8	6.0	7.2	8.5	5.8	4.6	3.9	2.5	2.4	4.9
Education and training	7.5%	1 407	4.4	2.3	5.3	5.6	5.6	5.2	4.2	4.4	4.3	4.2	4.3
Health and social assistance	11.8%	1 269	6.5	2.5	7.0	2.9	-0.1	2.2	2.2	5.8	6.9	4.6	4.9
Arts and recreational services	1.8%	1 202	6.9	2.3	5.3	2.2	6.3	4.5	5.7	5.9	5.5	5.0	5.7
Other services	3.9%	1 051	1.9	2.5	7.0	0.5	2.0	4.9	6.4	1.3	1.9	1.1	3.9
Total All Industries[2]	100%	1 330	5.0	3.7	10.5	5.2	4.5	3.9	3.8	4.4	5.3	4.3	5.0

1) Full Time Adult Ordinary Time earnings for persons
2) Excludes Agriculture, Forestry and Fishing sector

Source: BIS Shrapnel, ABS

LPI is an underlying wage inflation measure, while AWOTE measures changes in average labour costs

We begin our analysis of labour cost escalation in the utilities sector by first considering the two main wage inflation measures – the labour price index (LPI) and Average Weekly Ordinary Time Earnings (AWOTE). BIS Shrapnel considers the labour price index (LPI) to be a measure of *underlying* wage inflation in the economy or in a specific industry, as the LPI only measures changes in the *price* of labour, or wage rates, for specific occupations or job classifications, which are then aggregated into a measure of the collective variations in wage *rates* made to the current occupants of the *same* set of specific jobs.

The LPI, therefore, reflects pure price changes, but does not measure variations in the quality or quantity of work performed. The LPI also does not reliably measure the changes in total labour costs which a particular enterprise or organisation incurs, because the LPI does not reflect the changes in the skill levels of employees within an enterprise or industry. As skills are acquired, employees will be promoted to a higher grade or job classification, and with this promotion will move onto a higher base pay. So the change in the cost of labour over, say a year, includes increases in the base pay rates (which the LPI measures) and the higher average base pay level. The AWOTE captures both these elements, while the LPI only captures the first element. Basically, promoting employees to a higher occupation does not necessarily show up in the LPI, but the employer's total wages bill (and average unit labour costs) is higher, as is AWOTE. The AWOTE measure also includes bonuses, incentives, penalty rates and other allowances, which are also part of an enterprises total wage bill (a more detailed description of the wage measures can be found in Appendix A).

Another problem with the use of the LPI is that it is only available from the ABS for two states — NSW and Victoria — which is a problem in using it as a labour cost escalator for other states not covered.

Chart 4.1: AWOTE & LPI
Total Australia (All Industries) and Electricity, Gas and Water

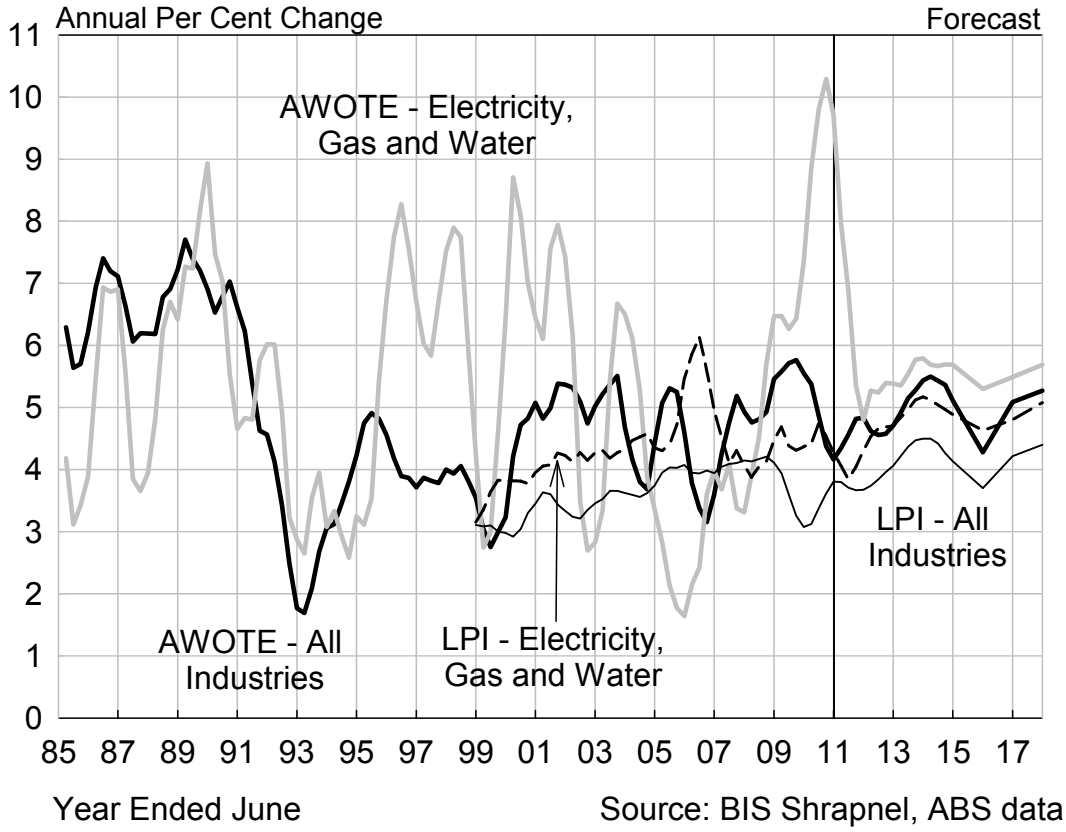


Table 4.3: Federal Wage Agreements – Collective Agreements by Industry
(Average Annualised Wage Increase)

Selected Industry (ANZSIC 2006)	Collective Agreements									
	Average Annualised Wage Increase[1]									Average
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2003-2011
Electricity, Gas, Water and Waste Services	**4.2**	**4.3**	**4.2**	**4.4**	**4.5**	**4.7**	**4.8**	**4.8**	**4.4**	**4.5**
Agriculture, Forestry and Fishing	3.4	3.3	3.0	3.0	2.9	3.0	3.7	3.7	3.7	3.3
Mining	3.2	3.3	3.6	3.7	4.0	4.3	4.4	4.3	4.2	3.9
Manufacturing	4.1	4.1	4.1	4.2	4.3	4.2	4.1	3.9	3.8	4.1
Construction	4.1	4.3	4.4	4.9	4.9	4.6	5.3	5.4	4.8	4.7
Wholesale Trade	3.8	3.9	4.0	3.7	3.6	3.8	4.1	4.0	3.7	3.8
Retail trade	3.2	3.2	3.4	3.5	3.5	3.5	3.6	3.5	3.4	3.4
Accommodation and Food Services	2.8	2.8	3.2	3.3	3.4	3.2	3.6	3.9	3.9	3.3
Transport , Postal and Warehousing	3.6	3.6	3.7	3.7	3.9	4.0	4.2	4.2	4.0	3.9
Information Media and Telecommunications	4.0	4.2	4.1	3.6	3.2	3.3	3.7	3.8	3.4	3.7
Financial and Insurance Services	4.1	4.2	4.1	4.1	4.1	3.8	4.0	3.6	3.7	4.0
Rental, Hiring and Real Estate Services	3.8	4.1	4.1	3.8	4.8	4.5	3.4	3.7	3.9	4.0
Professional, Scientific and Technical Services	3.8	4.1	4.1	3.8	4.0	4.0	4.5	4.3	4.0	4.1
Administrative and Support Services	3.8	4.1	4.1	3.8	3.6	3.6	3.8	3.7	3.6	3.8
Public Administration and Safety	4.4	4.4	4.3	4.0	4.1	4.2	4.3	3.9	3.7	4.1
Health Care and Social Assistance	3.9	4.0	4.1	4.0	4.0	4.0	4.1	4.0	4.0	4.0
Education and Training	3.9	4.5	4.7	4.9	4.8	4.9	4.4	4.6	4.6	4.6
Arts and Recreation Services	3.7	3.5	3.8	3.5	3.8	4.0	4.1	3.5	3.5	3.7
Other Services	4.5	4.4	4.0	4.0	4.1	4.0	3.9	3.7	3.6	4.0
ALL INDUSTRIES	3.8	3.9	4.0	4.1	4.1	4.0	4.2	4.1	4.0	4.0

[1]Current agreements in June of each year. Source: Department of Education, Employment & Workplace Relations (DEEWR)

Despite the limitations of the LPI, the AER has preferentially used the LPI as the escalator for labour costs in recent decisions,[3] largely because of the volatility of AWOTE caused by perceived 'significant' compositional problems with AWOTE, although we would argue the bonuses, incentives etc. also add markedly to volatility through the cycle.

While BIS Shrapnel considers that AWOTE is a superior measure for labour costs in the circumstances, LPI forecasts are also provided for electricity network related-labour and labour costs in ElectraNet's external construction contracts.

In the next part of this section, we will consider the key drivers of the sustained strong growth in underlying wages growth (ie the LPI measure) in the national utilities sector, and draw comparisons with the all industries average and (in section 4.6) with competitor industries competing with the utilities sector for labour with similar skills (ie Mining, Construction and Manufacturing sectors). The key drivers will essentially boost utilities wages growth measured in both LPI and AWOTE terms, but we will also consider the quantum of the combined up skilling effects, compositional effects, bonuses, incentives, etc over the cycle separately in section 4.3.

Utilities wages growth will remain well above 'all industries' average

The electricity, gas and water sector is a largely capital intensive industry whose employees have higher skill, productivity and commensurately higher wage levels than most other sectors. With many of the particular skills relevant to the electricity, gas and water sector expected to remain in relatively high demand, wage increases are expected to remain higher in this industry than the national average over the next seven years.

In addition, the overall national average tends to be dragged down by the lower wage and lower skilled sectors such as the Retail Trade, Wholesale Trade, Accommodation, Cafés and Restaurants, and, in some periods, also Manufacturing and Construction (see tables 4.1 and 4.2). These sectors tend to be highly cyclical, with weaker employment suffered during downturns impacting on wages growth in particular. The EGW sector is not impacted in the same way due to its obligation to provide essential services and hence retain skilled labour.

Demand for skilled labour — and therefore wages growth — to remain strong within the utilities sector, due to sustained high levels of utilities investment

Employment growth in the utilities sector over the past decade (2001/02 to 2010/11 inclusive) averaged 6.5 per cent per annum, the second fastest growth among the 18 main industry sectors behind the Mining sector (10.1 per cent per annum), with Construction employment growth third at 4.4 per cent per annum.

This strong growth in utilities employment since 2002 has been associated with a pick-up in infrastructure and maintenance work as well as an ongoing reversal in the sharp losses in employment seen through the 1990s. Privatisation and rationalisation were the drivers of the job cuts in the 1990s, but in some cases the desire to be streamlined left only a 'skeleton' crew in-house for routine operations and emergency disruptions, while capital and maintenance works (both minor and major) tended to be contracted out. Capital expenditure in the utilities sector during the 1990s was also relatively low, and this may also have contributed to weaker employment.

The emergence of skilled labour shortages across many industry sectors over the 2000s encouraged utilities businesses to boost their in-house response capabilities, while increasing competition within the sector has shifted the business focus towards customer service in order to enhance product differentiation with an accompanying increase in employment not directly related to the provision of electricity, gas and water services. The entrance of new players in

[3] For example, see AER Draft Decision, Powerlink's Revenue Proposal 2012/13 to 2016/17 p.57.

Table 4.4: Electricity, Gas & Water Supply Wage Forecasts – Australia

	Year Average Percent Change																			
												Forecast							Averages	
Year Ended June	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2001-11	2012-18
Proportion of Workforce by Pay setting Method (a)																				
Awards Only	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%	0.9%
Collective Agreements	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Individual Arrangements	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
AWOTE																				
Awards Only	2.0	1.7	2.3	2.2	2.4	2.1	2.4	1.7	2.1	0.6	2.9	2.1	2.1	2.6	2.6	2.3	2.4	2.7	2.0	2.4
Collective Agreements	3.8	3.9	4.2	4.3	4.2	4.6	4.5	4.7	4.8	4.9	4.5	4.5	4.6	5.0	4.9	4.7	4.7	4.9	4.4	4.8
Individual Arrangements (b)	28.1	30.8	-3.3	19.3	0.1	-11.9	1.9	-3.6	18.4	22.9	35.3	5.7	9.4	8.4	9.7	8.3	9.1	8.6	12.5	8.5
AWOTE (Persons)(c)	6.4	**7.4**	**2.8**	**6.5**	**3.4**	**1.6**	**4.0**	**3.3**	**6.5**	**7.4**	**9.7**	**4.6**	**5.5**	**5.6**	**5.9**	**5.4**	**5.7**	**5.7**	**5.4**	**5.5**
Labour Price Index																				
Awards Only	2.0	1.7	2.3	2.2	2.4	2.1	2.4	1.7	2.1	0.6	2.9	2.1	2.1	2.6	2.6	2.3	2.4	2.7	2.0	2.4
Collective Agreements	3.8	3.9	4.2	4.3	4.2	4.6	4.5	4.7	4.8	4.9	4.5	4.5	4.6	5.0	4.9	4.7	4.7	4.9	4.4	4.8
Individual Arrangements (b)	4.9	5.8	5.0	5.1	5.3	8.4	6.6	3.3	4.3	4.1	4.1	3.8	6.0	6.0	5.4	5.0	5.5	6.1	5.2	5.4
Labour Price Index (Ord. Time)	**3.9**	**4.2**	**4.3**	**4.3**	**4.4**	**5.5**	**5.0**	**4.1**	**4.5**	**4.4**	**4.3**	**4.1**	**4.8**	**5.1**	**4.9**	**4.6**	**4.8**	**5.1**	**4.4**	**4.8**
Compositional Effects + Bonuses,etc	2.5	3.2	-1.4	2.2	-1.0	-3.8	-1.0	-0.8	2.0	3.0	5.4	0.5	0.7	0.5	1.0	0.8	0.9	0.6	0.9	0.7

(a) Full-time Adult Persons.

Source: BIS Shrapnel, ABS, DEEWR

(b) Because of relatively small workforce (and therefore small sample size) in EGW, Indiv Agreements picks up all the standard errors of LPI and AWOTE estimates by ABS

(c) Full-time Adult Persons, excluding overtime

the sector (such as new businesses related to renewable energy provision, new private electricity and gas businesses, etc) has also exacerbated this situation as it has increased demand for all occupations within this sector.

The strong growth in employment growth in the Utilities, Mining and Construction sectors, and the associated sustained strong demand for skilled labour, contributed to above average wages growth in all three sectors. At the same time, the overall labour market tightened considerably during the 2000s, with the unemployment rate falling from around 7 per cent in 2001 to 5 per cent by 2005, and to 4.0 per cent in early 2008 (see table 2.1). This saw skilled labour shortages worsen and employers in these sectors bid up wages (see table 4.11).

The GFC and associated slowing in the economy over 2008/09 subsequently reduced labour market and wage pressures, but the unemployment rate only rose to a peak of 5.9 per cent in mid 2009 and has now fallen back to around 5 per cent. With the next phase of the resources investment boom now ramping up and utilities across Australia in the midst of a major investment phase itself, skilled labour shortages are already emerging. Job vacancies in the Utilities, Mining and Construction sectors have risen sharply since 2009 back towards (or above) the tight 2007/08 levels.

With the economy recovering, employment growth outpacing population and labour force growth and the unemployment rate now around 5 per cent and expected to fall to 4.3 per cent within two years, we expect to again witness the re-emergence of skilled labour shortages and competition for scarce labour from 2011/12, particularly from the construction and the mining sectors, will push up wage demands in the utilities sector.[4]

We expect wages growth in the electricity, gas and water sector to remain above the national average over the medium term, given the relatively high levels of job vacancies in the sector and the current levels of skills shortages being reported. Increased demand for labour will continue in the sector over the next seven years at least.

We believe investment in the sector, particularly engineering construction, has been the key driver of employment growth in the sector over the past decade. Charts 4.4 and 4.5 illustrate this relationship, and shows employment has a stronger relationship with utilities engineering construction rather than utilities output. We expect employment growth to remain elevated for the utilities sector. Our forecast is for utilities investment to be higher (relative to history) over the next six years (see Chart 4.3).

Electricity, gas and water utilities in virtually every state across Australia have embarked on major network refurbishment, extension and augmentation programs. This is due to the need to replace ageing infrastructure to maintain supply capability and to ensure reliability of the network, especially during peak periods. The latter is typically more maintenance type of work and is generally more labour intensive. Given the recent trend towards consolidating work in-house (rather than out-sourcing), we expect the need for regular maintenance work will continue to boost overall employment in the Utilities sector.

Added to this is our expectation that a number of peak, intermediate and base load power stations will be built over the next decade (with gas fuelled generation expected to dominate), along with new renewable generation facilities, while local reticulation construction will continue to be driven by new housing and industrial and commercial demand.

We expect further growth in electricity, gas and water employment over the next six to seven years, although the rate of growth is forecast to be slower than in recent years. Partly underpinning this outlook for further employment growth is the relatively higher levels of utilities-

[4] This is recognised by the utilities sector. See *Powerlink Queensland Revenue Proposal 2013 – 2017* submitted to the AER, May 2010, pages 9 and 10.

related infrastructure construction expected to occur over the next few years. Submissions to the Australian Energy Regulator (AER) and to other state based equivalents (such as the Victorian Essential Services Commission) from a number of utilities in each state have consistently reported that they expect to increase employment over the next five to six years.[5]

More importantly, electricity, gas and water supplies are essential services where reliability of supply is paramount. Accordingly, this requires adequate skilled labour to maintain reliability of supply, which points to the need to offer high wages to attract and retain skilled labour in this sector.

Above average EBA outcomes in utilities sector will also keep wages growth elevated

The key elements of the utilities wage forecast are set out in table 4.4. Table 4.4 shows that collective bargaining dominates the pay setting arrangements in the utilities sector, while the relative absence of workers relying on (often) low-increase awards (set in the National Wage Case) means the overall average for total utilities wages will invariably be higher than the all industries average. Table 4.3 shows that the utilities sector has consistently had higher wage increase under collective agreements than the all industries average. Over the past 5 years, the outcomes from collective agreements have been 0.5 percentage points higher, on average, than the all industries average. We expect this trend to continue over the next decade, with the all industries average to also continue to be dragged down by the retail and hospitality industries.

The analysis in Table 4.4 also shows that pay outcomes in the individual arrangements segment of the utilities sector is also usually higher than the all industries average, although – as explained in Appendix A – some incentives and compositional effects emanating from those employees under collective agreements may be ending up in the individual arrangements segment calculated in both AWOTE and the LPI in table 4.4.

With regard to the proportions of employees now under collective agreements, we now estimate that the proportion of employees under collective bargaining in the electricity, gas and water supply sector has fallen from 84.4 per cent in 2006 (the last survey conducted under the ANZSIC1993 industry classification) to around 80 per cent now. The August 2008 survey saw the industries classified under the new ANZSIC2006 classifications, with a further small drift to individual arrangements apparent in the most recent survey in May 2010. Under the new industry groupings, 'Waste Services' has been added to electricity, gas and water supply services, plus a miniscule part of the old construction sector. Our analysis of the new proportions and relevant employment numbers for these separate sectors suggests some movement from collective bargaining to individual arrangement in the 'pure' utilities sector ie electricity, gas and water sector (assuming no change in employees dependent on award increases).

A comparison of wage movements in the 'old' electricity, gas and water supply (EGW) sector compared to the 'new' electricity, gas and water supply and waste services (EGWWS) sector shows the addition of waste services drags down measured LPI wages growth by 0.1 percentage points per annum on average in the combined EGWWS compared to EGW over 1998/99 to 2008/09, with AWOTE growth in EGWWS 0.6 percentage points lower on average compared to EGW over the same 11 year period. This result is not surprising given lower skill level and lower demand for workers in the waste services sector.[6] A comparison of EGW and EGWWS wages and employment growth is provided in Appendix B.

[5] See Powerlink Queensland Revenue Proposal 2013 – 2017 submitted to the AER, May 2010, p.90. Ergon Energy Regulatory Proposal 2011 – 2015 submitted to the AER, July 2009, p.49 and SP AusNet, Electricity Transmission Revised Revenue Proposal 2009 –2014 submitted to the AER, October 2007 p.138.

[6] Given the objective of this section of the report is to provide forecasts of the change in electricity network-related labour costs and that EGW is more representative of their skill levels and labour demand then EGWWS, we have deliberately excluded the waste services component from our forecasts and back data.

Increases in collective agreements under enterprise bargaining are influenced by a combination of recent CPI increases, inflationary expectations, the recent profitability of relevant enterprises, current business conditions and the short-term economic outlook, and by the industrial relations 'strength' of relevant unions. Because the average duration of agreements runs for two-to-three years, BIS Shrapnel bases its near-term forecasts of EBA wages on the strength of recent agreements, which have been 'formalised' (ie an agreement has been 'reached' or 'approved') over recent quarters.

Data from the Department of Education, Employment and Workplace Relations quarterly report, *Trends in Federal Enterprise Bargaining,* shows that average outcomes of agreements accelerated increased through 2008/09, with the year average of the 'formalised' agreements rising to 5.0 per cent in 2008/09, compared to 4.8 per cent in 2007/08. Growth in formalised agreements slowed to an average of 4.3 per cent in calendar 2010, with the latest DEEWR report (June 2011) suggesting a pick up, albeit slight, in wages growth in the sector. We expect wages to pick up further during 2012 given the tightness in the labour market and the high enterprise agreement outcomes in the construction sector in 2010/11 which will influence negotiations in the EGW sector.

Furthermore, given the average duration of enterprise agreements in the utilities sector is close to 3 years, these high outcomes in 2008/09 will influence the overall EBA average over 2009/10 to 2011/12 (ie it will tend to push up the overall average), with the average for 'current operating' agreements to remain around current levels over the next two years.

With economic conditions continuing to improve, we expect some pick up in the pace of formalised agreements over the next three years toward and above 5 per cent per annum. Subsequently, wages growth in the collective agreements component will rise about 5 per cent over the 2012/13 and 2013/14 before easing over 2014/15 and 2015/16 following the slowing in economic growth.

Note that the latest collective agreements data for EGW from the DEEWR is now classified under the ANZSIC2006 category which includes Waste Services. The DEEWR has also back cast their data under the new classifications to the September quarter 2006. Although this is only a short time frame for comparison, it shows that AAWIs under the 'old' EGW classification were on average 0.1 per cent to 0.2 per cent higher per annum on average compared to the newly combined EGWWS sector.

Despite the relative weakness of the economy over 2008/09 and 2009/10, wages remained elevated in the utilities sector due to the comparative strength of demand for skilled labour, and particularly because of the strength of unions in what is an essential service sector. The industrial relations reality is that there are relatively powerful utilities unions such as the Communications, Electrical and Plumbing Union (CEPU) and Australian Services Union (ASU), which have a history of achieving higher wage outcomes for the sector, compared to the national average – although as already noted, the all industries average is dragged down by weak EBA outcomes in the retail and hospitality sectors (see table 4.3). Other unions active in the sector include the Australian Workers Union (AWU).

BIS Shrapnel analysis shows collective agreements in the EGW sector have been on average around 1.5 percentage points higher than CPI inflation over the decade to June 2011 (excluding the effects of GST introduction in 2000/01). In the five years to 2011 when the labour market was very tight, collective agreements were on average 1.6 percentage points above the CPI. Given the strength of unions in the sector and a tighter labour market over the next decade than for most of the 2000s, collective agreements are forecast to remain around 1.6 percentage points above our forecast CPI in the forecast period.

Table 4.5: Average Weekly Ordinary Time Earnings and Labour Price Index
Total Australia and Electricity, Gas & Water
(Year Average Growth)

Year Ended June	Average Weekly Ordinary Time Earnings (1)				Labour Price Index (2)			
	All Industries		Electricity, Gas and Water		All Industries		Electricity, Gas and Water	
	$	%CH	$	%CH	Index	%CH	Index	%CH
1990	521.0	6.9	559.2	8.9				
1991	555.4	6.6	585.2	4.7				
1992	580.8	4.6	620.5	6.0				
1993	591.0	1.8	638.3	2.9				
1994	609.1	3.1	657.9	3.1				
1995	634.9	4.2	679.3	3.2				
1996	663.8	4.6	725.0	6.7				
1997	688.5	3.7	773.6	6.7				
1998	716.0	4.0	831.8	7.5	67.5		79.2	
1999	741.4	3.5	867.1	4.2	69.6	3.1	81.7	3.2
2000	765.4	3.2	922.8	6.4	64.6	3.0	59.7	3.8
2001	804.2	5.1	982.3	6.4	66.9	3.5	62.0	3.9
2002	847.4	5.4	1,055.3	7.4	69.1	3.3	64.6	4.2
2003	890.0	5.0	1,085.1	2.8	71.5	3.5	67.4	4.3
2004	931.6	4.7	1,155.7	6.5	74.1	3.6	70.3	4.3
2005	972.9	4.4	1,194.5	3.4	76.8	3.7	73.4	4.4
2006	1 017.5	4.6	1,214.1	1.6	80.0	4.1	77.4	5.5
2007	1 054.1	3.6	1,262.4	4.0	83.1	3.9	81.2	5.0
2008	1 106.1	4.9	1,304.2	3.3	86.6	4.1	84.5	4.1
2009	1 166.5	5.5	1,388.6	6.5	90.1	4.1	88.3	4.5
2010	1 231.3	5.6	1,490.7	7.4	92.9	3.1	92.2	4.4
2011	1 282.5	4.2	1,635.4	9.7	96.4	3.8	96.1	4.3
Forecasts								
2012	1 341.6	4.6	1,711.2	4.6	100.0	3.7	100.0	4.1
2013	1 404.8	4.7	1,805.3	5.5	104.2	4.1	104.8	4.8
2014	1 480.9	5.4	1,907.1	5.6	108.8	4.4	110.2	5.1
2015	1 563.0	5.5	2,019.3	5.9	113.4	4.3	115.6	4.9
2016	1 630.3	4.3	2,129.1	5.4	117.7	3.7	121.0	4.6
2017	1 713.2	5.1	2,249.7	5.7	122.6	4.2	126.8	4.8
2018	1 808.7	5.6	2,378.7	5.7	128.3	4.6	133.3	5.1
Compound Annual Growth Rates (3)								
1990-2000	3.9		5.1					
2000-2010	4.9		4.9		3.7		4.4	
2006-2011	4.7		6.1		3.8		4.4	
2011-2018	5.0		5.5		4.2		4.8	
2013-2018	5.2		5.7		4.3		4.9	

Source: BIS Shrapnel, ABS

(1) Earnings per person for full-time adults. Data is year ended May (available only mid month of quarter).
(2) Ordinary time hours excluding bonuses.
(3) e.g. CAGR (Compound Annual Growth Rates) for 2013-2018 is CAGR for 2013/14 to 2017/18 inclusive (ie next regulatory period).

Table 4.6: AWOTE Persons by State - Electricity, Gas and Water Supply (Year Average Growth)

Year Ended	NSW		VIC		QLD		SA		WA		TAS		NT		ACT		AUSTRALIA	
	Year Avg		Year Avg		Year Avg		Year Avg		Year Avg		Year Avg		Year Avg		Year Avg		Year Avg	
May	$	A%Ch	$	A%Ch	$	A%Ch	$	A%Ch	$	A%Ch	$	A%Ch	$	A%Ch	$	A%Ch	$	A%Ch
1985	423.1		420.5		429.0		393.1		404.1		400.2		455.5		394.2		417.9	
1986	437.4	3.4	438.4	4.3	448.6	4.6	407.4	3.7	426.5	5.5	419.9	4.9	484.4	6.4	433.9	10.1	434.1	3.9
1987	470.6	7.6	468.1	6.8	479.9	7.0	433.4	6.4	441.5	3.5	438.5	4.4	513.1	5.9	434.0	0.0	464.1	6.9
1988	484.3	2.9	492.3	5.2	491.1	2.3	460.2	6.2	460.6	4.3	461.7	5.3	507.2	-1.1	440.2	1.4	482.4	3.9
1989	517.5	6.8	516.0	4.8	536.6	9.2	483.6	5.1	500.4	8.6	495.1	7.2	513.1	1.2	498.5	13.3	513.4	6.4
1990	547.0	5.7	597.5	15.8	551.7	2.8	517.1	6.9	546.9	9.3	506.0	2.2	613.1	19.5	549.3	10.2	559.2	8.9
1991	575.9	5.3	623.1	4.3	565.3	2.5	558.1	7.9	565.3	3.4	550.8	8.9	614.6	0.2	558.2	1.6	585.2	4.7
1992	622.3	8.1	657.8	5.6	584.8	3.4	577.9	3.5	598.9	6.0	565.5	2.7	641.1	4.3	604.6	8.3	620.5	6.0
1993	630.8	1.4	698.3	6.2	597.6	2.2	584.5	1.1	613.0	2.3	604.8	6.9	664.1	3.6	599.3	-0.9	638.3	2.9
1994	657.1	4.2	711.2	1.9	619.0	3.6	616.5	5.5	624.3	1.9	661.4	9.4	666.5	0.4	612.2	2.1	657.9	3.1
1995	672.8	2.4	722.7	1.6	651.3	5.2	644.0	4.5	673.2	7.8	695.2	5.1	699.8	5.0	636.8	4.0	679.3	3.2
1996	739.5	9.9	751.1	3.9	694.1	6.6	654.1	1.6	725.6	7.8	714.1	2.7	701.2	0.2	711.8	11.8	725.0	6.7
1997	787.3	6.5	803.5	7.0	746.4	7.5	720.6	10.2	777.5	7.2	724.1	1.4	731.4	4.3	758.2	6.5	773.6	6.7
1998	851.1	8.1	873.7	8.7	777.9	4.2	793.1	10.1	836.5	7.6	790.3	9.1	771.5	5.5	812.3	7.1	831.8	7.5
1999	883.1	3.8	892.0	2.1	820.0	5.4	816.9	3.0	880.7	5.3	889.5	12.5	803.9	4.2	884.0	8.8	867.1	4.2
2000	938.3	6.2	975.5	9.4	883.0	7.7	862.7	5.6	932.8	5.9	880.3	-1.0	1054.0	31.1	931.4	5.4	922.8	6.4
2001	995.3	6.1	1048.1	7.4	925.8	4.8	905.5	5.0	992.7	6.4	979.2	11.2	968.4	-8.1	989.6	6.2	982.3	6.4
2002	1095.3	10.0	1112.9	6.2	978.3	5.7	956.1	5.6	1065.3	7.3	1042.0	6.4	1004.1	3.7	1048.7	6.0	1055.3	7.4
2003	1099.8	0.4	1150.4	3.4	1018.0	4.1	1030.2	7.7	1121.5	5.3	1074.9	3.2	997.9	-0.6	1081.8	3.2	1085.1	2.8
2004	1196.8	8.8	1140.2	-0.9	1151.4	13.1	1071.5	4.0	1163.6	3.8	1137.4	5.8	1003.5	0.6	1174.2	8.5	1155.7	6.5
2005	1197.5	0.1	1180.2	3.5	1268.1	10.1	1070.3	-0.1	1194.4	2.6	1182.4	4.0	1069.7	6.6	1221.1	4.0	1194.5	3.4
2006	1224.4	2.2	1200.2	1.7	1218.3	-3.9	1090.9	1.9	1300.9	8.9	1263.6	6.9	1175.3	9.9	1157.1	-5.2	1214.1	1.6
2007	1289.8	5.3	1238.5	3.2	1226.9	0.7	1160.2	6.3	1389.4	6.8	1285.8	1.8	1286.4	9.5	1244.9	7.6	1262.4	4.0
2008	1336.5	3.6	1245.5	0.6	1259.8	2.7	1211.2	4.4	1478.5	6.4	1290.1	0.3	1339.8	4.1	1374.5	10.4	1304.2	3.3
2009	1396.3	4.5	1329.9	6.8	1346.7	6.9	1230.1	1.6	1617.9	9.4	1367.9	6.0	1392.1	3.9	1422.6	3.5	1388.6	6.5
2010	1269.6	-9.1	1517.1	14.1	1409.0	4.6	1293.7	5.2	1717.9	6.2	1364.5	-0.3	n.p.		n.p.		1490.7	7.4
2011	1459.9	15.0	1797.1	18.5	1564.0	11.0	1395.1	7.8	1871.9	9.0	n.p.		n.p.		n.p.		1635.4	9.7
Forecast																		
2012							1504.1	7.8									1711.1	4.6
2013							1577.2	4.9									1805.2	5.5
2014							1667.4	5.7									1907.0	5.6
2015							1767.2	6.0									2019.3	5.9
2016							1866.8	5.6									2129.1	5.4
2017							1976.3	5.9									2249.7	5.7
2018							2093.6	5.9									2378.7	5.7
Compound Annual Average Growth Rates																		
1985-2011	4.9		5.7		5.1		5.0		6.1		5.0		4.8		5.5		5.4	
1990-2000	5.5		5.0		4.8		5.3		5.5		5.7		5.6		5.4		5.1	
2000-2010	3.1		4.5		4.8		4.1		6.3		4.5		3.1		4.8		4.9	
2006-2011	3.6		8.4		5.1		5.0		7.5		n.a.		n.a.		n.a.		6.1	
2011-2018							6.0										5.5	
2013-2018							5.8										5.7	

n.p.: AWOTE data not published after November 2009. Compound annual growth rates for NT and ACT are therefore 1985-2009, 2000-2009, and 2005-2009.

n.a.: Not available.

Source: BIS Shrapnel, ABS

Chart 4.2: Total Engineering Construction
Australia & South Australia

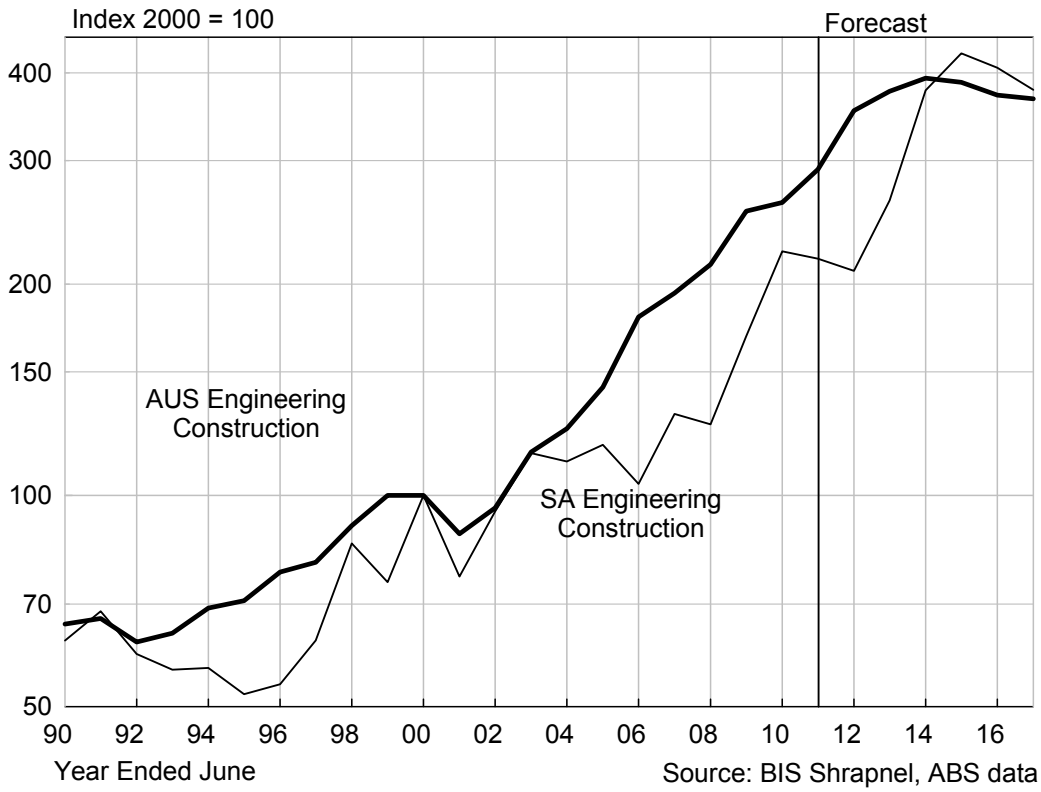


Chart 4.3: Utilities Engineering Construction
Australia & South Australia

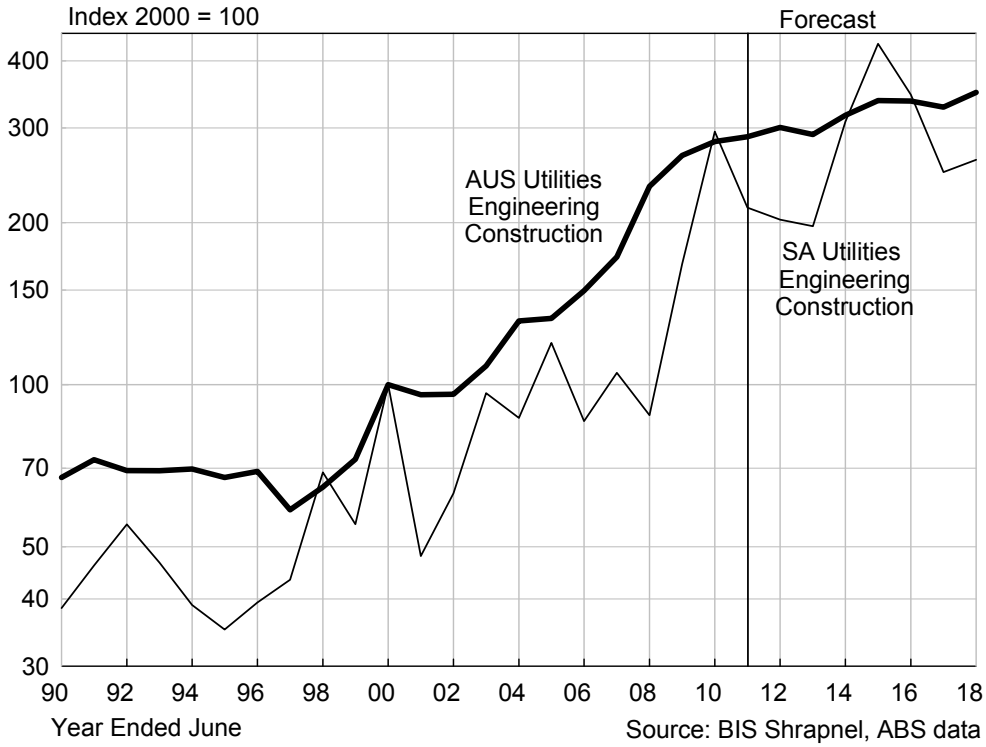


Chart 4.4: South Australia – Utilities Employment, Output and Investment

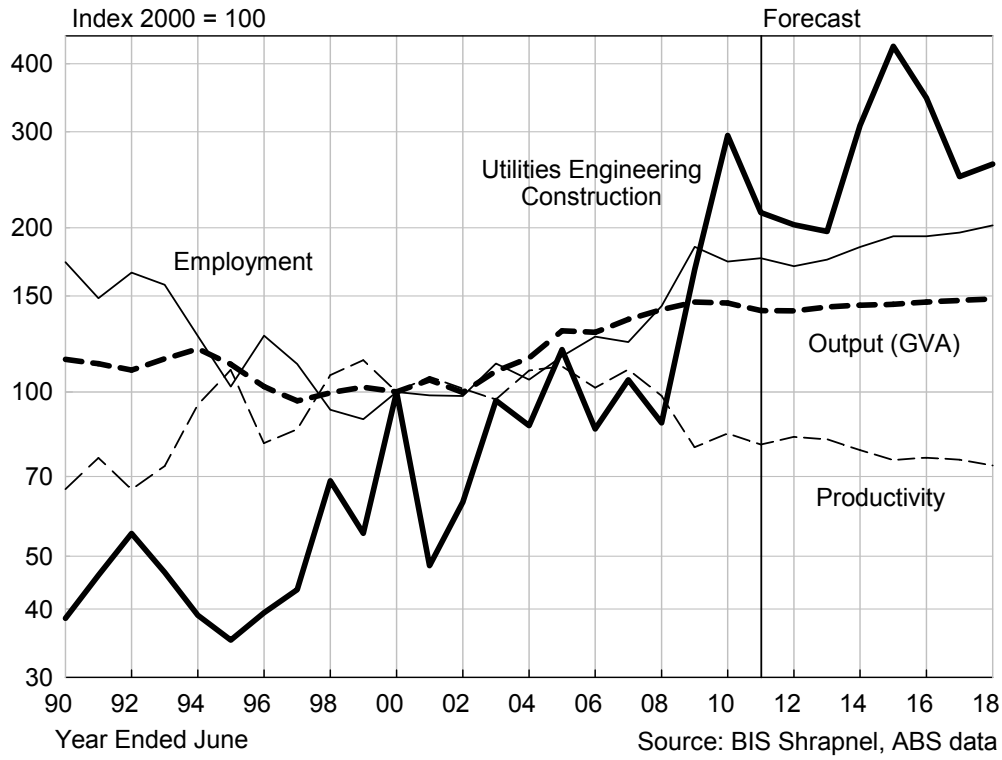
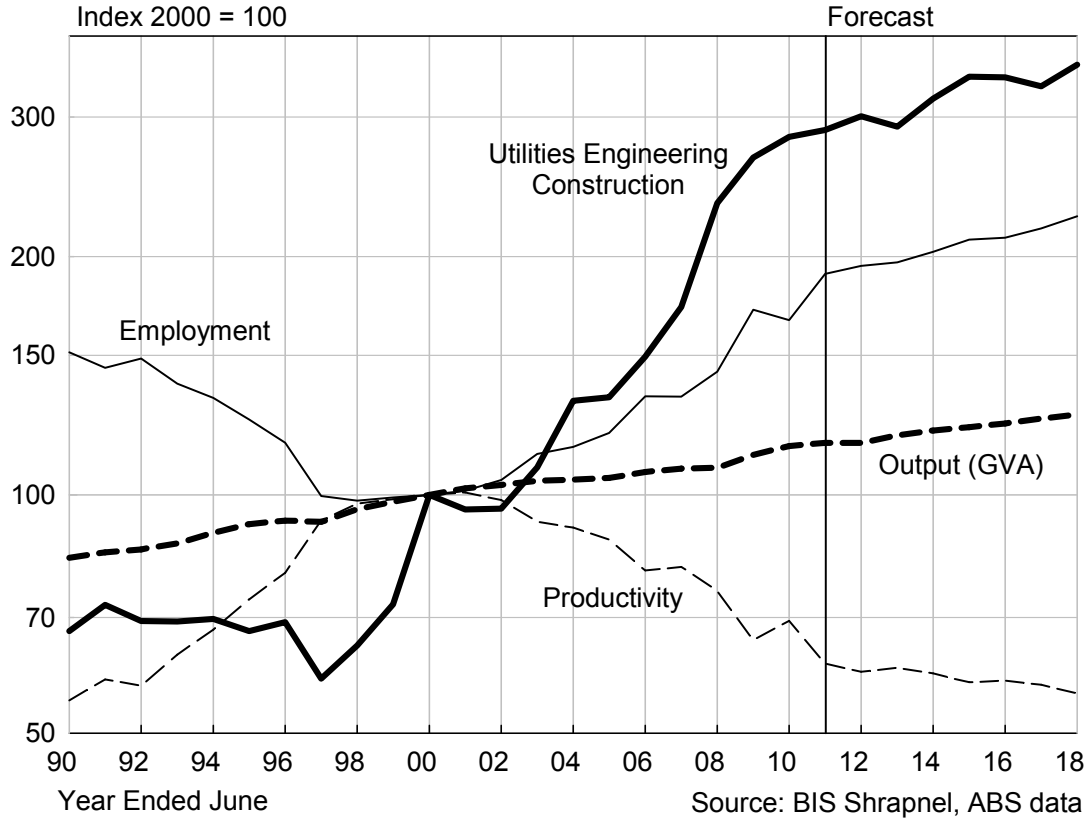


Chart 4.5: Australia – Utilities Employment, Output and Investment



Increases in individual agreements (or non-EBA wages) are primarily influenced by the strength of the labour market (especially the demand-supply balance of skilled labour), inflationary expectations, the recent profitability of relevant enterprises (which influences bonuses and incentives, etc), current business conditions and the short-term economic outlook.

Although the recent downturn saw some easing in overall skilled labour shortages for some professions relevant to the utilities sector, the DEEWR "Skills Shortage Lists" and Clarius Index still revealed ongoing shortages of key professionals and tradepersons in the utilities sector (see section 4.4). These shortages are expected to continue over the next seven years and probably longer given the large capital works and maintenance programs planned in most states' utilities.

With economic conditions improving and skilled labour demand recovering, we expect higher wages growth in the segment to come through, as employers bid up wages for skilled labour in scarce supply. Businesses will find they must 'meet the market' on remuneration in order to attract and retain staff and we expect wages under individual arrangements to accelerate rapidly from 2012/13.

Two other factors which will act to push up wages growth attributable to the individual arrangements segment — that is the compositional effects — include the upskilling of the workforce and, later in the period, the ageing of the workforce. Apprentices, trainees and numbers of new staff have increased markedly over recent years, across the electricity, gas and water sector generally.[7] Given slower growth in utilities employment over the next decade, it is likely that there will be overall upskilling of the existing workforce, which will see a commensurate movement by much of the workforce into higher grades (ie on higher pay), although the 'base' movement — the nominal increase in EBA's — will not reflect this, so this upgrading will end up as compositional increases in the individual arrangements segment. A related aspect is ageing profile, which will particularly affect the 'professionals' on non-EBA's, who tend to be older and more experienced.

Indeed, the strengthening of non-EBA wages from 2012/13 and the compositional effects from the overall upskilling is expected to result in much stronger growth in individual arrangements over the next decade, compared to the last 10 years. All the compositional effects from the upskilling of the workforce will fall into the individual arrangements wage setting residual. This is because the electricity, gas and water sector has a relatively small workforce and the individual arrangements segment picks up the standard errors of LPI and AWOTE estimates by the ABS.

Increased competition from Mining and Construction for similarly skilled workers to push up utilities wages

After pausing briefly in 2009/10 due to the GFC, mining-related investment increased significantly in 2010/11 and this next phase is now ramping up and will see a substantial increase over the next four years before easing over the second half of this decade, but remaining at very high levels (see section 4.4). Mining sector investment is dominated by investment in 'buildings and structures', with new capital expenditure in this category (for total Australia) measuring $37.2 billion in 2010/11 compared to almost $10 billion for 'equipment, plant and machinery. Mining investment in buildings and structures is, in turn, dominated by engineering construction and BIS Shrapnel's forecasts of 'Mining and Heavy Industry' engineering construction for total Australia are predicting a near doubling (in constant 2009/10 prices) of Mining and Heavy Industry engineering construction by 2014/15 from 2009/10 levels. Similar increases are also predicted for associated infrastructure, including railways, harbours, other transport infrastructure, energy (electricity and gas, including pipelines) and water. And these forecasts may prove to be conservative!

[7] In recent years, some utilities such as ActewAGL Distribution have significantly increased their apprentice intake in response to the skills shortage to ensure that it can deliver on its proposed capital and operating expenditure. See ActewAGL Distribution's 2009 – 2014 Determination submitted to the AER in June 2008, p.57.

This huge increase in engineering construction activity is expected to be undertaken by both internal Mining sector labour and by outsourced contracts to the construction sector. Employment of skilled labour in these two sectors will need to increase significantly, with the increased demand for skilled labour — where there are already shortages emerging — expected to push up wages in these sectors as they compete for a limited supply of skilled workers.

The upshot is that the Utilities sector will need to also push up utilities wages growth in order to retain (and increase) workers, whose skills will be in strong demand from the Mining and Construction sectors.

4.3 Overall Growth in Labour Costs (AWOTE Growth)

While BIS Shrapnel believes the labour price index reflects movements in the *underlying price* of labour, the LPI does not fully capture movements in total labour *costs* per employee. As we pointed out in section 4.2, average weekly ordinary time earnings (AWOTE) is a better measure of the change in overall costs per employee, because it takes into account movements of employees to higher grades, changes in compositional effects from entry/exits of higher skilled/lower skilled (ie higher paid/lower paid) workers in an enterprise or industry, and also the payments *above* base rates of pay, such as bonuses, incentives, penalty rates and other allowances that are a *normal* part of an employees earnings over the quarter or year.

With regard to the latter, many enterprises in the utilities (and other industry) sectors(s) regularly include bonuses or incentive payments which are linked to a range of objectives, such as upskilling, additional training, productivity targets, safety targets, etc. These 'extra' payments — or changes in the quantum of payments — are not included in changes in the LPI, but can make a material difference to an enterprise's overall labour costs.

In table 4.4, the bottom line shows the calculation for the collective upskilling effects, compositional effects, bonuses, incentives, other allowances, etc — which is simply growth in AWOTE minus the growth in the LPI. Given its volatility over the past decade, it makes more sense to take a longer term view of changes and use a period average (or an average 'over an entire economic cycle') to assess the overall upskilling and compositional effects, bonuses, incentives and other allowances. Over the past decade, these effects have added 0.9 percentage points on average in total labour costs growth (AWOTE) compared to LPI growth over the period.

Over the forecast period, we expect compositional effects (including bonuses and incentives) to add 0.7 percentage points on average to the AWOTE wage measure (compared to LPI growth) over the seven years to 2017/18, with those effects appearing to boost wages growth numbers in the individual arrangements segment.

We have included year-to-year movements for AWOTE in the electricity, gas and water sector over the seven years to 2017/18, which are presented in table 4.4. We have made an *indicative* allowance in AWOTE movements for compositional changes of employment within the sector through the cycle. A detailed analysis of the future structure of occupations within the sector would be required to accurately model compositional effects each year, but detailed information on the employment plans of *all* the utilities in Australia would be required. Such an analysis is outside the scope of this study. However, given our forecasts of Australian employment in the utilities sector is for relatively stable employment growth over the period from 2012/13 to 2017/18 (see table 4.8), we do not expect any large positive or negative compositional effects in any one year.

4.4 Outlook for utilities wages growth in South Australia

With regard to wage pressures in the electricity, gas and water sectors in each state, the current demand for labour across virtually all states is quite strong. Employment growth in the sector has been particularly robust over recent years Australia-wide, with strong growth

occurring in the South Australian utilities sector over the five years to 2010/11 (see table 4.8). Further growth in employment in the sector is expected in most states over the seven years, with continued strong demand for labour maintaining relatively high wage pressures within each state's utilities sector.

Table 4.6 shows the history of wage movements in the electricity, gas and water sector by state from 1985 to 2011 for Average Weekly Ordinary Time Earnings (AWOTE) for full-time adult persons. Table 4.6 shows that long term wages growth in the utilities sector across the states has been fairly uniform — most of the states are close to the 4.9 per cent annual average over the previous decade, except for Western Australia, which has averaged 6.3 per cent. It is likely that the wide year-to-year divergences between states are mostly due to compositional effects.

Over the next seven years, we have assumed that the historical uniformity of wages growth in the utilities sector across the states will continue, with AWOTE growth in Western Australia expected to 'come back to the pack' in the short term, before again outpacing the other states as the resource investment boom regathers momentum. The mining boom has been a key factor driving higher growth in wages in that state over recent years.

Although South Australia will not directly affected by the reconstruction efforts following the December 2010/early 2011 floods or the number of large LNG production 'trains' to be constructed over the next four to five years in WA and Queensland, wage rates in the EGW and construction sector in South Australia are still likely to be indirectly affected by the higher national demand for labour in these two sectors and associated increased wage pressures across the states. Accordingly, the South Australian Utilities sector will need to offer competitive wages to retain its existing workforce and attract new recruits. Our forecasts assume that wages growth in the South Australian electricity, gas and water sector will average 5.8 per cent per annum over the next seven years to 2017/18, 0.1 percentage points higher than the Australian utilities AWOTE average.

Four key reasons underpin our forecast of stronger wages growth in the South Australian utilities sector relative to the national average:

a) Shortage of skilled workers

The emerging mining boom, ramping up in construction and rising utilities infrastructure activity has already seen skilled shortages being reported. The 'Skills Shortage List' lists released in December 2011 by the Department of Education, Employment and Workplace Relations shows that all states are currently experiencing shortages of skilled labour for engineers, other professionals and tradespeople who are in high demand by the electricity, gas and water sector — and who are also keenly sought in the mining, construction and manufacturing sectors. In South Australia, the DEEWR report shows shortages and recruitment difficulties are being reported for:

- construction project managers
- electrical engineers and electrical engineering draftspersons and technicians
- civil engineers, mining engineers and structural engineers
- quantity surveyors
- construction estimators
- electricians and electrical line workers.

Other surveys also indicate that skills shortages are already beginning to emerge in a number of professions. The 'Clarius Skills Index' — a quarterly index compiled by the Clarius Group (an employment services provider) and KPMG Econtech — reported in its December quarter 2011

report that despite a soft labour market, there was an extreme shortage of engineers and construction managers over the last quarter.

The shortage of skilled workers required by the Utilities sector across Australia and in South Australia will put significant upward pressure on labour costs for entities operating in the EGW sector.

b) High Levels of Utilities and Total Engineering Construction

Charts 4.2 and 4.3 compare engineering construction work done for Australia and South Australia in total engineering construction and utilities construction (the latter includes electricity generation, transmission and supply, water storage and supply, sewerage and drainage and pipelines construction). The charts show that South Australia has mostly lagged national growth in activity from 2002/03 to 2007/08, but grew rapidly over 2008/09 and 2009/10 as a boost in federal funding (under the economic stimulus plan) drove a surge in publically funded construction. While South Australian total engineering construction declined in 2010/11 (as some major public sector projects reached completion), we expect engineering construction in South Australia to move to a higher plane over the next seven years.

A key project underpinning these sustained increases is the $27 billion expansion of the Olympic Dam copper-gold-uranium mine. With all government approvals in place, our forecasts assume that the BHP Billiton's Board will sanction the planned expansion of the Olympic Dam mine creating in South Australia the world's biggest open-pit mine. We have timed the development to commence in late 2012 (ie in the 2012/13 financial year and continue through to 2025/26). Initially, the mine expansion will involve removing a 350 metre deep layer of sedimentary materials over an area of more than four square kilometres to expose the upper surface of the ore reserve. The mine expansion will underwrite more than one fifth of annual total engineering construction during the construction phase and is expected to create an additional 6,000 new jobs during periods of construction as well as an additional 4,000 full-time equivalents following construction (ie during the operational phase).

High levels of utilities engineering construction are also projected in South Australia over the next seven years surpassing the recent peak in 2009/10 which was boosted by construction of the desalination plant. In particular, electricity construction is expected to experience strong growth over the medium term as energy demand in South Australia is expected to increase over the next 7 years, with the level of peak load demand in particular to push higher, although 'average' demand loads will experience only modest growth. Supporting the growth in electricity construction will be the industry investment cycle where major network refurbishment, extension and augmentation programs are being planned by operators that are directed at improving reliability levels and addressing ageing asset profiles. Utilities infrastructure required to support the expansion of the Olympic Dam mine will also add to growth and these include:

- A desalination plant on Upper Spencer Gulf to supply additional water through a 320 kilometre pipeline to Olympic Dam
- A new gas-fired power station supplied by a pipeline from Moomba
- A new 270 kilometre electricity transmission line from Port Augusta

Overall, the average level of utilities construction over the next seven years will be well above the average of the last seven years. These strong growth periods and high levels of utilities and overall engineering construction for South Australia compared to Australia are expected to add to pressures to raise utilities wages growth in the state above the national average over the next seven years.

c) Strong Intrastate Demand for Similarly Skilled Labour

South Australia is forecast to experience relatively strong demand for skilled workers in the mining, construction and manufacturing sectors over the 2011/12 to 2017/18 period. As previously mentioned, these sectors are the main competitors to the utilities sector for workers with similarly desired skills, particularly tradespersons. To compete with these other industry sectors within the state, the utilities sector may need to offer higher wage increases to attract and retain the necessary labour.

In particular, the state utilities sector will face intense competition from the Olympic Dam project, both directly and indirectly – with the latter involving the boost to construction activity and to local manufacturers of inputs and materials for the project – also competing for similarly skilled workers to the utilities sector. The Olympic Dam project is expected to push growth in South Australia's mining and heavy industry construction above the Australian average in the second half of the forecast period (see chart 4.6).

d) Interstate Relativities

The South Australian utilities sector has the lowest AWOTE of all the states (see table 5.6). While this has been partly justified in the past by South Australia's lower cost of living (particularly housing), the increased competition across the states for workers with skills relevant to the utilities sector means that the South Australian utilities sector may have to offer increased wages to compete with other states' utilities sectors, let alone other South Australian industries. A relevant example (or precedent) could be Queensland. Average wages in the Queensland utilities sector were lower than the South Australian equivalent in 2002/03 (see table 4.6), but then experienced substantial rises over 2003/04 and 2004/05 as competition for skilled workers from other sectors increased – particularly from the construction and resources sectors in Queensland.

In summary, over the seven years to 2017/18, South Australian utilities AWOTE growth is forecast to average 5.7 per cent per annum, slightly faster than the national utilities average of 5.5 per cent per annum. The forecast is based on movements in the underlying wage growth plus an addition for up skilling, compositional effects, bonuses, incentives, etc. See Section 4.3 for a discussion of these effects. A discussion of the underlying drivers is provided below.

The ABS does not provide LPI data for the Utilities sector in South Australia, providing their state utilities LPI data only for NSW (since September quarter 2008) and Victoria. These two states collectively account for almost 54 per cent of total Australian utilities employment, with Queensland accounting for just over 22 per cent, then Western Australia and South Australia at 11.4 per cent and 7.4 per cent respectively.[8] Forecasts of LPI for the EGW sector in South Australia therefore is based on national EGW LPI forecasts, growth in South Australia's AWOTE for the Utilities sector as well as movements in the 'unknown residual' for the utilities labour price index.

LPI growth in both NSW and Victoria was below the national average in 2009/10 and 2010/11, with the rest of Australia (ROA) residual estimated to have increased 5.4 per cent in 2009/10 and 4.6 per cent in 2010/11.

Utilities LPI growth in South Australia is forecast to be around the national utilities LPI over the next two years after which we are forecasting faster growth in South Australian utilities LPI. As the accompanying charts show, overall engineering construction and mining investment (as proxied by 'Mining and Heavy Industry Engineering Construction') are forecast to accelerate from 2011/12 and outpace their Australian equivalents. At the same time, utilities-related engineering construction (water supply, sewerage and drainage, electricity supply and pipelines) in South Australia is also set to jump to high levels and be sustained at historically high levels over the forecast period.

[8] ABS, Labour Force, 6202.0

This means there will be stronger demand for utilities, mining and construction labour, leading to more intense pressures for skilled labour and pushing wages growth above the national utilities average from the middle of this decade (see table 4.7).

Overall, utilities LPI wages growth in South Australia is forecast to average 5.1 per cent per annum over the five years from 2013/14 to 2017/18 inclusive ie 0.2 percentage points above the national average of 4.9 per cent per annum over the same period (see table 4.7).

Chart 4.6: Mining and Heavy Industry Engineering Construction Australia and South Australia

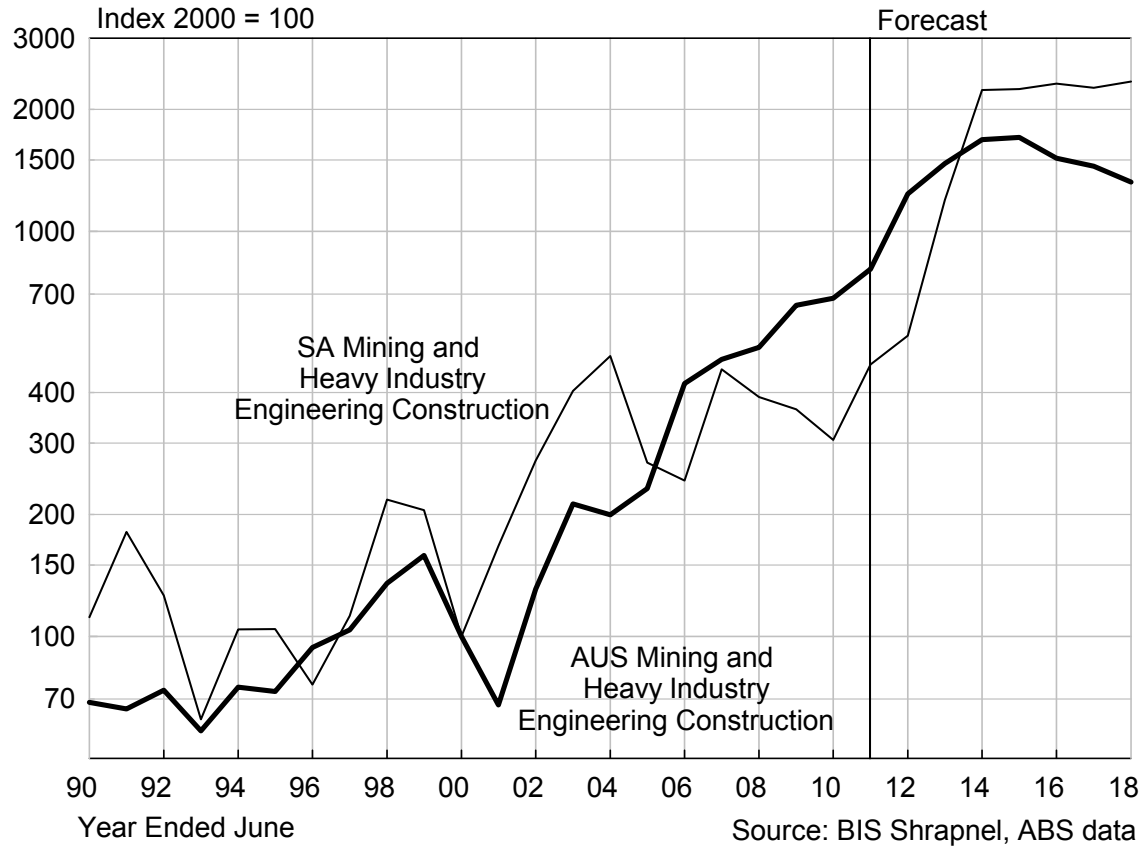


Table 4.7: Electricity, Gas and Water – South Australia and Australia Nominal Wages

	South Australia - Nominal				Australia- Nominal			
Year Ended June	AWOTE (1)		LPI (2)		AWOTE (1)		LPI (2)	
	$	A% CH	Index	A% CH	$	A% CH	Index	A% CH
2000	862.7				922.8		59.6	
2001	905.5	5.0			982.3	6.4	62.0	3.9
2002	956.1	5.6			1,055.3	7.4	64.6	4.2
2003	1,030.2	7.7			1,085.1	2.8	67.3	4.3
2004	1,071.5	4.0			1,155.7	6.5	70.3	4.3
2005	1,070.3	-0.1			1,194.5	3.4	73.3	4.4
2006	1,090.9	1.9			1,214.1	1.6	77.3	5.5
2007	1,160.2	6.3			1,262.4	4.0	81.2	5.0
2008	1,211.2	4.4			1,304.2	3.3	84.5	4.1
2009	1,230.1	1.6	88.2		1,388.6	6.5	88.2	4.5
2010	1,293.7	5.2	92.0	4.3	1,490.7	7.4	92.1	4.4
2011	1,395.1	7.8	95.9	4.3	1,635.4	9.7	96.0	4.3
Forecasts								
2012	1,504.1	7.8	100.0	4.2	1,711.1	4.6	100.0	4.1
2013	1,577.2	4.9	104.6	4.6	1,805.2	5.5	104.8	4.8
2014	1,667.4	5.7	110.1	5.2	1,907.0	5.6	110.2	5.1
2015	1,767.2	6.0	115.5	5.0	2,019.3	5.9	115.6	4.9
2016	1,866.8	5.6	121.1	4.8	2,129.1	5.4	121.0	4.6
2017	1,976.3	5.9	127.1	5.0	2,249.7	5.7	126.8	4.8
2018	2,093.6	5.9	133.8	5.3	2,378.7	5.7	133.3	5.1
Long Term Averages								
2000-2010	4.1				4.9		4.4	
2006-2011	5.0				6.1		4.4	
2011-2018	6.0		4.9		5.5		4.8	
2013-2018	5.8		5.1		5.7		4.9	

(1) Earnings of persons. Data is year ended May. Source: BIS Shrapnel, ABS

(2) South Australia LPI for 2009 to 2011 is estimated, as ABS data is not available.

Ordinary time hours excluding bonuses.

4.5 Productivity Adjustments

The AER in its recent revenue determinations has argued that labour price increases due to productivity growth do not increase labour costs and as a result an adjustment is required to wages to develop labour costs.[9] In addition, the AER has stated that the LPI adjusted for productivity provides a more realistic expectation of labour cost changes than does AWOTE adjusted for productivity. The AER has subsequently applied — without amendment — the Utilities industry productivity forecasts (developed by its consultant Deloitte Access Economics) to its LPI forecasts to derive productivity adjusted real labour cost escalators for the utilities sector.

We disagree with the AER. BIS Shrapnel believes that the 'unadjusted' industry labour productivity cannot be applied to the LPI. The LPI is an underlying measure of wage inflation and does not incorporate effects of changes to skill levels and improved productivity (ie workforce compositional productivity effects), while the AWOTE measure does.

Despite acknowledging that the LPI does not capture the workforce composition productivity effects and the need to find a 'matching' productivity measure (ie one that excludes the workforce composition productivity) to adjust the LPI, the AER chose not to make any adjustments for workforce composition productivity. In other words, the AER effectively assumed that workforce compositional productivity for the utilities sector is close to zero and is therefore insignificant.

We believe workforce composition productivity to be between 0.5 to 1.0 per cent on average over the medium term, based on the observed difference between the rate of growth in AWOTE and the LPI. Assuming the difference between AWOTE and LPI is largely due to workforce compositional effects, then one can assume workforce compositional effects is roughly equal to this difference. Over the decade to 2011, this difference averaged 0.9 per cent per annum at the national utilities level (see table 4.4), suggesting the average workforce composition productivity was 0.9 per cent per annum for the national utilities sector.[10]

Over ElectraNet's next regulatory period, our expectation is that workforce compositional productivity will remain positive and significant. Our forecast is for workforce composition productivity (proxied by the difference between growth in AWOTE and LPI) to average 0.8 per cent per annum at the national utilities industry level and 0.7 per cent per annum for the South Australia utilities sector (see table 4.7). As previously discussed in section 4.4, the upskilling and movements of workers into higher grades will drive this positive compositional effect on both wages (i.e. AWOTE less LPI) *and* productivity. Hence, by applying the DAE productivity forecasts, the AER is over-correcting for productivity because DAE has underestimated the workforce composition productivity component. On our forecasts of AWOTE less LPI, DAE is overcorrecting by 0.7 per cent per annum for South Australia utilities sector. This, in turn, is producing a downward biased measure of actual labour costs that electricity network operators in the state.

Recent research by Synergies Economic Consulting also revealed that workforce compositional effects have had a significant effect on Transmission Network Service Providers (TNSP) real labour costs. For example, Synergies Economic Consulting estimate that around 17 per cent of Powerlink's (a TNSP) labour cost growth over the past two years was due to changes in the composition of workforce between the employee categories. Synergies estimate that compositional shifts raised Powerlink's average wage by 2.7 per cent from 2008/09 to 2010/11.[11]

[9] For example, see AER Draft Decision, *Powerlink Revenue Proposal* 2012/13 to 2016/17, p. 51.
[10] The LPI for South Australia's EGW sector is not published. Hence, similar data for South Australia is not available.
[11] Powerlink Revised Revenue Proposal for 2012/13 to 2016/17, p.35.

The upshot is that in deriving productivity adjusted measure of labour costs, we believe that the AWOTE is the only choice which is logical. However, the LPI can be adjusted for productivity as long as the productivity measure excludes workforce compositional and up skilling effects which we believe is positive and significant for the Utilities sector.

Notwithstanding the above, we believe that AER's utilities sector labour productivity forecasts (proposed by DAE) are too optimistic, with the upward bias in DAE's productivity forecasts provide a compelling case for the DAE's productivity forecasts to be rejected by the AER.

4.5.1 Deloitte Access Economics' productivity growth forecasts are too optimistic

Not only do we reject the application of a labour productivity adjustment to the utilities LPI (as discussed above), we also believe that the quantum of the Deloitte Access Economics (DAE) productivity growth over the forecast period is grossly exaggerated. DAE did not provide specific forecasts of output, employment or productivity in its August 2011 report for the AER, so we have calculated their productivity forecasts as the difference between the productivity-adjusted wages growth and unadjusted wages growth. We are surprised DAE does not provide their output and employment forecasts which underpin productivity forecasts and assumptions, which are key assumptions to their unit labour cost forecasts.

Deloitte Access Economics numerical forecasts of labour productivity growth, as presented to the AER in November 2011, show that future productivity growth will be strong in the utilities sector at the Australian level. This is in contrast to the observed productivity growth for the industry over the previous decade. Over the five years from 2012/13 to 2016/17 inclusive, Deloitte Access Economics expects the average productivity growth in the national utilities industry to be 1.6 per cent per annum. This compares with an average productivity growth of -3.6 per cent per cent per annum for Australia over the previous decade (see table 4.8).

Even discounting for the observed volatility in the utilities labour productivity growth, we view Deloitte Access Economics' forecasts of productivity growth as too optimistic.

According to DAE, the sanguine productivity outlook is based on easing of drought conditions on the east coast as well as an unwinding of factors which they believe weighed down the productivity performance of the utilities sector over the previous decade. Deloitte Access Economics lists the negative factors for the industry as follows:[12] [13]

- *Capital investment – the downswing in employment in the sector had arguably gone too far, requiring a degree of catch up (meaning that, in effect, relative productivity in the period 1997 to 2002 may have been unsustainably high). Spending on maintenance has lifted, and so too has spending on some new infrastructure (albeit with the latter still falling short of future requirements). That increased spending has added to employment without adding to output, hence weighing on measured productivity.*
- *A compositional switch in the sector away from water to electricity and gas has also worked to lower measured average productivity in the sector.*
- *Within the water sector, a series of droughts in a number of States also ate into measured productivity levels.*
- *Industry sources suggest that a reduction in outsourcing in recent years may also have raised employment without raising output.*
- *The reform momentum of earlier years faltered.*

[12] Deloitte Access Economics, 'Forecast Growth in Labour Costs: Queensland and South Australia, December 2010, p.48.
[13] Deloitte Access Economics, 'Forecast Growth in Labour Costs: Queensland and Tasmania, August 2011, p.52.

However, DAE provides little discussion or evidence to support the claims that most of the negative factors from the last decade will actually reverse over the next six years. With reference to the first point above, DAE basically agrees with our assessment (and that of most of the utilities in their submissions to the AER over recent years) that spending on new infrastructure is still well short of future requirements, and that high levels of infrastructure spending will continue over the next few years. This suggests that these higher levels will continue to "add to employment without adding to output"…and hence continue to "weigh down on measured productivity". It should also be noted that a significant portion of the recent and future infrastructure spending is related to network enhancement and maintenance for reliability, rather than for increasing capacity (ie future output). It should also be noted that some of the increase in employment in the sector was due to the need to perform a range of office functions such as the need to deliver services to meet the National Electricity Market Rules, codes and State Legislative obligations in relation to energy security, reliability and safety. This significant proportion of the workforce would not be directly contributing to the increase in output for the sector.

With reference to the second point above, there is no evidence or discussion provided that a compositional switch back to water will occur over the next few years, let alone act to raise measured productivity in the overall sector. The output of the water sector may increase over the medium term compared to the drought-affected 2000s (given the construction of desalination plants around Australia), but given sharp rises in water prices and slower population growth, growth in water (and sewerage-related) demand and output is unlikely to be rapid, and significantly outpace the electricity and gas sub-sectors.

With reference to the fourth point above, no evidence or discussion has been provided to suggest there will be a reversal of the trend away from outsourcing, and therefore performing more work in-house.[14] Indeed, our discussions with several utilities suggest that the major reason for the increase in employment in the sector over the past decade was to have less reliance on outsourced services, particularly maintenance and regular system enhancement capital programs. Having invested heavily in hiring and training these increased numbers of employees, the utilities are unlikely to shed labour and increase outsourcing over the next few years.

With reference to the last DAE point above, most of the easy reforms in terms of manning practices and enterprise bargained productivity enhancements occurred in the deregulation period of the 1990s – in effect, "all the low hanging fruit has been plucked". There are few reforms left which will significantly lift productivity in the utilities sector, and so we are unlikely to see a pick-up in "reform momentum" over the next few years.

Overall, there is not a compelling case to believe there will be strong growth in labour productivity in the utilities sector over the next few years.

4.5.2 Deloitte Access Economics application of long-term averages to generate productivity forecasts has previously been rejected by the AER

In their August 2011 report to the AER, Deloitte Access Economics argued that *"because so many factors can influence productivity, it is often best measured over an entire economic cycle."*[15] Given that no further information is provided by DAE on its underlying methodology, one can assume that DAE has applied an economic cycle methodology as opposed to an annual methodology to generate their productivity forecasts — a methodology that the AER rejected for application to AWOTE.

[14] In fact in recent years, some utilities such as ActewAGL Distribution have significantly increased their apprentice intake in response to the skills shortage to ensure that it can deliver on its proposed capital and operating expenditure. See ActewAGL Distribution's 2009 – 2014 Determination submitted to the AER in June 2008, p.57.
[15] Deloitte Access Economics, 'Forecast growth in labour costs: Queensland and Tasmania, 15 August 2011.

The AER in their Final decision on Envestra's Access Arrangement for South Australian gas distribution network, stated that

> *Real cost escalation forecasts require detailed estimates of annual input cost changes. Averaging the forecasts necessarily deviates from the expected costs at any point in time, and therefore reduces the efficiency of the forecast.*
>
> *For this reason, the AER considers the application of six year average rates produces forecasts that are neither made on a reasonable basis, nor the best forecasts possible in the circumstances.*[16]

The AER should be consistent in the application of long-term averages to generate forecasts. Given the AER's acceptance of DAE's over-the-cycle methodology (which is tantamount to long-term average rates), we believe the AER should also allow the application of average 'over-the-cycle' rates to AWOTE.

We agree with use of over the cycle methodology, as highlighted in section 4.3. The utilities sector is a small sector and is therefore prone to sampling variability in labour force and wages samples by the ABS. To smooth the volatility in the utilities data, we support the consistent use of long term averages or over the cycle methodology.

4.5.3 BIS Shrapnel's View of Productivity

BIS Shrapnel considers that labour productivity growth in the Utilities sector – as measured by output/employment - will remain weak over the next six years. Going forward, we believe demand and output growth will be constrained in this sector for three key reasons:

- Higher utilities prices (including the imposition of a carbon tax from 1 July 2012) will keep demand muted.
- Population growth will be slower over next five years, compared to the last five years Population and growth in households are key drivers of energy and water use in the utilities sector, so even if per capita growth remained at similar levels to the past five years, aggregate demand (ie including population) would be slower.
- Moreover, with the government introducing a price of carbon, we do not expect a significant jump in energy intensive projects such as aluminium smelters. This will further contain demand for energy in the future.

We expect moderate and fairly stable growth in employment in the utilities sector in Australia and the states beyond 2011. This is based on continuing high levels of utilities capital expenditure and particularly engineering construction. The combination of muted output and moderate employment growth means productivity growth will remain weak for the utilities sector at the national as well as state level over most of this decade (see table 4.8). At the Australian level, productivity growth in the utilities sector is expected to decline by an average of -1.3 per cent per annum over the five years from 2013/14 to 2017/18 inclusive. A similar pattern occurs in South Australia, with the average growth over the five years to 2017/18 forecast at -2.1 per cent per annum (see table 4.8).

Notwithstanding the above, we don't believe that the application of the 'classic' output/employment productivity measure is the 'correct' productivity measure for an electricity network business such as ElectraNet, or even for many other electricity, gas or water distribution businesses for that matter.

[16] AER, Final decision, June 2011, p. 230.

Table 4.8: Electricity, Gas, Water and Waste Services
Output, Employment and Productivity: Australia and South Australia

Year Ended June	Australia						South Australia					
	Gross Value Added (1)		Employment		Productivity $/employee		Gross Value Added (1)		Employment		Productivity $/employee	
	$m	%CH	'000	%CH	('000)	%CH	$m	%CH	'000	%CH	('000)	%CH
1990	20678	4.8	120.4		171.7		1899	5.8	11.1	0.0	171.4	0.0
1991	21009	1.6	115.1	-4.4	182.5	6.3	1862	-1.9	9.5	-14.1	195.6	14.1
1992	21189	0.9	118.3	2.8	179.2	-1.9	1814	-2.6	10.6	11.4	171.1	-12.5
1993	21560	1.8	109.9	-7.1	196.2	9.5	1903	4.9	10.1	-5.0	189.0	10.5
1994	22243	3.2	105.5	-4.1	210.9	7.5	1984	4.3	8.1	-19.4	244.6	29.4
1995	22808	2.5	99.0	-6.1	230.4	9.2	1858	-6.4	6.6	-19.2	283.6	15.9
1996	23038	1.0	92.5	-6.5	249.0	8.1	1691	-9.0	8.1	24.0	208.1	-26.6
1997	22954	-0.4	79.2	-14.4	289.6	16.3	1592	-5.9	7.2	-11.2	220.7	6.1
1998	23817	3.8	78.2	-1.3	304.5	5.1	1648	3.5	5.9	-17.6	277.4	25.7
1999	24336	2.2	78.9	0.9	308.3	1.2	1688	2.4	5.7	-3.8	295.5	6.5
2000	24841	2.1	79.5	0.8	312.3	1.3	1654	-2.0	6.4	12.1	258.3	-12.6
2001	25309	1.9	80.5	1.2	314.4	0.7	1740	5.2	6.3	-1.4	275.5	6.7
2002	25550	1.0	83.1	3.2	307.5	-2.2	1649	-5.2	6.3	-0.3	261.9	-5.0
2003	25871	1.3	89.6	7.8	288.9	-6.1	1807	9.6	7.2	14.7	250.2	-4.5
2004	25956	0.3	91.5	2.1	283.8	-1.8	1908	5.6	6.7	-6.6	282.7	13.0
2005	26096	0.5	95.2	4.1	274.0	-3.5	2142	12.3	7.4	10.3	287.8	1.8
2006	26546	1.7	106.0	11.2	250.5	-8.6	2128	-0.7	8.1	8.7	263.0	-8.6
2007	26798	0.9	105.8	-0.1	253.3	1.1	2248	5.6	7.9	-2.2	284.1	8.0
2008	26866	0.3	113.8	7.5	236.1	-6.8	2340	4.1	9.2	16.4	254.1	-10.6
2009	27894	3.8	136.3	19.8	204.7	-13.3	2419	3.4	11.8	28.3	204.7	-19.5
2010	28623	2.6	132.2	-3.0	216.5	5.8	2406	-0.5	11.1	-6.0	216.7	5.9
2011	28893	0.9	151.3	14.4	191.0	-11.8	2331	-3.1	11.3	1.5	206.9	-4.5
Forecasts												
2012	28344	-1.9	154.9	2.4	183.0	-4.2	2283	-2.0	10.6	-6.1	215.8	4.3
2013	28713	1.3	156.4	1.0	183.6	0.3	2302	0.8	10.9	2.8	211.7	-1.9
2014	29114	1.4	161.3	3.1	180.5	-1.6	2320	0.8	11.5	5.5	202.2	-4.5
2015	29464	1.2	167.1	3.6	176.4	-2.3	2333	0.6	12.0	4.6	194.4	-3.9
2016	29906	1.5	168.1	0.6	177.9	0.9	2356	1.0	12.0	0.0	196.3	1.0
2017	30354	1.5	172.6	2.7	175.9	-1.2	2370	0.6	12.2	1.5	194.6	-0.9
2018	30688	1.1	178.8	3.6	171.6	-2.4	2415	1.9	12.7	4.4	189.9	-2.4
	Compound Annual Growth Rates (2)						Compound Annual Growth Rates (2)					
1990-2000	1.9		-4.1		6.2		-1.4		-5.3		4.2	
2000-2010	1.4		5.2		-3.6		3.8		5.7		-1.7	
2006-2011	1.7		7.4		-5.3		1.8		6.9		-4.7	
2011-2018	0.9		2.4		-1.5		0.5		1.7		-1.2	
2013-2018	1.3		2.7		-1.3		1.0		3.2		-2.1	

Source: BIS Shrapnel, ABS

(1) Gross Value Added (GVA) in constant 2008/09 prices is the output measure.
(2) e.g. CAGR for 2013-2018 is CAGR for 2013/14 to 2017/18 inclusive.

Table 4.9: Electricity, Gas, Water – Australia
Nominal and Real Wages Growth Adjusted for Productivity

	Nominal				Real (3)				Nominal Adjusted Productivity (4)			Real Adjusted Productivity (3,4)		
Year	AWOTE (1)		LPI (2)		AWOTE (1)		LPI (2)		AWOTE (1)	LPI (2)	LPI (5)	AWOTE (1)	LPI (2)	LPI (5)
Ended	$	A% CH	Index	A% CH	$	A% CH	Index	A% CH	A% CH	A% CH	A% CH	A% CH	A% CH	A% CH
2000	922.8		59.6		1,332.8		86.1							
2001	982.3	6.4	62.0	3.9	1,338.7	0.4	84.5	-1.9	5.8	3.3	5.8	-0.2	-2.6	-0.2
2002	1,055.3	7.4	64.6	4.2	1,398.3	4.4	85.6	1.3	9.6	6.4	9.6	6.6	3.5	6.6
2003	1,085.1	2.8	67.3	4.3	1,394.7	-0.3	86.6	1.1	8.9	10.3	8.9	5.8	7.2	5.8
2004	1,155.7	6.5	70.3	4.3	1,451.2	4.1	88.2	1.9	8.3	6.1	8.3	5.8	3.7	5.8
2005	1,194.5	3.4	73.3	4.4	1,464.3	0.9	89.9	1.9	6.8	7.8	6.8	4.4	5.3	4.4
2006	1,214.1	1.6	77.3	5.5	1,442.2	-1.5	91.9	2.2	10.2	14.0	10.2	7.1	10.8	7.1
2007	1,262.4	4.0	81.2	5.0	1,457.1	1.0	93.7	2.0	2.9	3.9	2.9	-0.1	0.9	-0.1
2008	1,304.2	3.3	84.5	4.1	1,455.9	-0.1	94.3	0.7	10.1	10.8	10.1	6.7	7.4	6.7
2009	1,388.6	6.5	88.2	4.5	1,503.0	3.2	95.5	1.3	19.8	17.8	19.8	16.6	14.6	16.6
2010	1,490.7	7.4	92.1	4.4	1,576.8	4.9	97.4	2.0	1.6	-1.4	1.6	-0.9	-3.8	-0.9
2011	1,635.4	9.7	96.0	4.3	1,677.9	6.4	98.5	1.1	21.5	16.0	21.5	18.2	12.9	18.2
Forecasts														
2012	1,711.1	4.6	100.0	4.1	1,711.1	2.0	100.0	1.5	8.8	8.3	8.8	6.2	5.7	6.2
2013	1,805.2	5.5	104.8	4.8	1,754.4	2.5	101.9	1.9	5.2	4.5	5.2	2.2	1.6	2.2
2014	1,907.0	5.6	110.2	5.1	1,804.6	2.9	104.3	2.4	7.3	6.8	7.3	4.5	4.0	4.5
2015	2,019.3	5.9	115.6	4.9	1,864.2	3.3	106.7	2.3	8.2	7.2	8.2	5.6	4.7	5.6
2016	2,129.1	5.4	121.0	4.6	1,917.6	2.9	109.0	2.1	4.5	3.7	4.5	2.0	1.2	2.0
2017	2,249.7	5.7	126.8	4.8	1,976.8	3.1	111.4	2.2	6.8	6.0	6.8	4.3	3.4	4.3
2018	2,378.7	5.7	133.3	5.1	2,039.2	3.2	114.3	2.6	8.1	7.5	8.1	5.6	5.0	5.6
Long Term Averages														
2000-2010	4.9		4.4		1.7		1.2		8.4	7.9	8.4	5.2	4.7	5.2
2006-2011	6.1		4.4		3.1		1.4		11.2	9.4	11.2	8.1	6.4	8.1
2011-2018	5.5		4.8		2.8		2.1		7.0	6.3	7.0	4.3	3.6	4.3
2013-2018	5.7		4.9		3.1		2.3		7.0	6.3	7.0	4.4	3.7	4.4

(1) Earnings of persons. Data is year ended May. Source: BIS Shrapnel, ABS (Catalogue 6302, 6345)
(2) Ordinary time hours excluding bonuses.
(3) Deflated by RBA/Treasury CPI projections
(4) Productivity is output (real GVA) divided by employment in the Electricity, Gas, Water and Waste Services sector.
(5) Excludes workforce compositional productivity

Table 4.10: Electricity, Gas, Water – South Australia
Nominal and Real Wages Growth Adjusted for Productivity

	Nominal				Real (3)				Nominal Adjusted Productivity (4)			Real Adjusted Productivity (3,4)		
Year	AWOTE (1)		LPI (2)		AWOTE (1)		LPI (2)		AWOTE (1)	LPI (2)	LPI (5)	AWOTE (1)	LPI (2)	LPI (5)
Ended	$	A% CH	Index	A% CH	$	A% CH	Index	A% CH	A% CH	A% CH	A% CH	A% CH	A% CH	A% CH
2000	862.7				1,246.0									
2001	905.5	5.0			1,234.1	-1.0			-1.7			-7.6		
2002	956.1	5.6			1,266.9	2.7			10.6			7.6		
2003	1,030.2	7.7			1,324.1	4.5			12.2			9.0		
2004	1,071.5	4.0			1,345.5	1.6			-9.0			-11.4		
2005	1,070.3	-0.1			1,312.0	-2.5			-1.9		-1.9	-4.3		-4.3
2006	1,090.9	1.9			1,295.9	-1.2			10.5		10.5	7.4		7.4
2007	1,160.2	6.3			1,339.0	3.3			-1.7		-1.7	-4.7		-4.7
2008	1,211.2	4.4			1,352.0	1.0			15.0		15.0	11.5		11.5
2009	1,230.1	1.6	88.2		1,331.5	-1.5	95.5		21.0		21.0	17.9		17.9
2010	1,293.7	5.2	92.0	4.3	1,368.5	2.8	97.3	1.9	-0.7	-1.6	-0.7	-3.1	-4.0	-3.1
2011	1,395.1	7.8	95.9	4.3	1,431.4	4.6	98.4	1.2	12.3	8.8	12.3	9.1	5.7	9.1
Forecasts														
2012	1,504.1	7.8	100.0	4.2	1,504.1	5.1	100.0	1.5	3.5	-0.2	3.5	0.8	-2.8	0.8
2013	1,577.2	4.9	104.5	4.6	1,532.8	1.9	101.6	1.6	6.8	6.5	6.8	3.8	3.5	3.8
2014	1,667.4	5.7	110.0	5.2	1,577.8	2.9	104.1	2.5	10.2	9.7	10.2	7.4	6.9	7.4
2015	1,767.2	6.0	115.5	5.0	1,631.4	3.4	106.6	2.4	9.8	8.8	9.8	7.3	6.3	7.3
2016	1,866.8	5.6	121.0	4.8	1,681.4	3.1	108.9	2.2	4.6	3.8	4.6	2.1	1.2	2.1
2017	1,976.3	5.9	127.0	5.0	1,736.6	3.3	111.6	2.4	6.8	5.8	6.8	4.2	3.3	4.2
2018	2,093.6	5.9	133.7	5.3	1,794.7	3.3	114.6	2.8	8.3	7.7	8.3	5.8	5.2	5.8
Long Term Averages														
2000-2010	4.1				0.9				5.4	n.a.		2.2	n.a.	
2006-2011	5.0				2.0				9.2	n.a.	9.2	6.2	n.a.	6.2
2011-2018	6.0		4.9		3.3		2.2		7.1	6.0	7.1	4.5	3.4	4.5
2013-2018	5.8		5.1		3.2		2.4		8.0	7.2	8.0	5.3	4.6	5.3

(1) Earnings of persons. Data is year ended May. Source: BIS Shrapnel, ABS (Catalogue 6302, 6345)
(2) Queensland LPI for 2009 to 2011 is estimated, as ABS data is not available. Ordinary time hours excluding bonuses.
(3) Deflated by RBA/Treasury CPI projections
(4) Productivity is output (real GVA) divided by employment in the Electricity, Gas, Water and Waste Services sector.
(5) Excludes workforce compositional productivity.

This classic productivity measure is more applicable to most of the 'market' sectors where to achieve high productivity, businesses *aim* to run their operations at maximum capacity where all inputs (such as labour and capital) are fully utilised and the highest production (output) of goods and services is achieved.

However, most of the 'businesses' in the utilities cannot run at maximum capacity all the time – 'maximum' (or high) utilisation is only achieved at peak times during the summer and winter peaks (ie only a few days per year) and then only for a few hours on those days. There are also large daily fluctuations in demand. Furthermore, the *aim* of utilities distribution businesses is maximum reliability. Accordingly, a significant proportion of the work undertaken by the utilities' workforces involve replacing and refurbishing old assets to maintain maximum reliability, rather than adding new capacity. This also means that the utilities sector does not conform to 'normal market' investment/output relationships.

In conclusion we believe in the absence of a reasonable productivity measure, no productivity adjustment is warranted.

4.6 Competitor Industry Wages Growth

This section analyses and forecasts underlying wages (LPI) growth in the industries that compete with the utilities sector for similarly skilled labour.

4.6.1 Construction Wages

The forecasts and rationale for Australian and South Australia construction sector wages growth is set out in section 5. The forecasts are also shown in tables 5.1 and 5.2.

4.6.2 Mining Wages

The mining investment boom over the second half of the 2000s resulted in rapid employment growth in the mining sector, strong demand for labour — particularly skilled labour — and an escalation in wages growth. Rapidly rising commodity prices and high profits also fuelled the escalation in mining wages. Over the 2005/06 to 2010/11 period, mining sector wages growth in AWOTE terms averaged 7.1 per cent per annum and 5.1 per cent per annum in LPI terms, at the Australian level.

Wages growth in the mining sector in LPI terms slowed sharply in 2009/10 in a lagged response to the downturn in resource exports and output in 2008/09 and delays to the commencement of new investment projects, caused by the global financial crisis. Meanwhile, mining AWOTE growth in 2009/10 remained high (7.2 per cent) due to compositional effects — the cut backs in mining employment impacted disproportionately on lower paid workers, boosting the overall average wage. Employment growth has since bounced back and mining LPI growth picked-up to 4.3 per cent in 2010/11. AWOTE growth, meanwhile, eased to 6.5 per cent. Beyond 2010/11, both AWOTE and LPI growth is forecast to grow solidly over 2011/12 to 2013/14 before easing — but still exhibiting relatively high growth (compared to 'all industries' Australian average) in the second half of this decade.

Driving the high wages growth this decade will be strong demand for labour, and particularly skilled labour, as a result of the mining investment boom projected to occur over the forecast period. Projections for continued strong economic growth in China and India — with their long term programs of industrialisation and urbanisation, which are metals and energy intensive — plus ongoing growth throughout other parts of Asia and, by mid-decade, a sustained recovery in the US and European economies, will all combine to underpin healthy demand for minerals and energy. Commodity prices have already rebounded from the slump of 2008/09, and further price rises are forecast over the next few years. Prices over the next seven years are expected to be well above historical averages, both in real and nominal terms.

Table 4.11: Wages Growth in Competitor Industries – Australia
All Industries, EGW, Mining, Manufacturing and Construction
(Year Average Growth)

Year Ended June	Labour Price Index (1)									
	All Industries		Electricity, Gas and Water		Construction		Mining		Manufacturing	
	$	%CH	$	%CH	Index	%CH	Index	%CH	Index	%CH
2000	64.6		59.6		61.1		60.4		65.7	
2001	66.9	3.5	62.0	3.9	63.6	4.1	62.3	3.1	67.8	3.2
2002	69.1	3.3	64.6	4.2	65.7	3.3	64.5	3.5	70.0	3.3
2003	71.5	3.5	67.3	4.3	67.9	3.3	66.8	3.6	72.6	3.7
2004	74.1	3.6	70.3	4.3	70.4	3.7	68.7	2.9	75.0	3.2
2005	76.8	3.7	73.3	4.4	74.1	5.2	71.5	4.1	77.8	3.8
2006	80.0	4.1	77.3	5.5	77.7	4.9	75.1	5.0	80.9	4.0
2007	83.1	3.9	81.2	5.0	81.5	4.9	79.6	6.0	83.9	3.7
2008	86.6	4.1	84.5	4.1	85.3	4.7	84.2	5.8	87.6	4.5
2009	90.1	4.1	88.2	4.5	89.3	4.7	89.0	5.7	90.7	3.5
2010	92.9	3.1	92.1	4.4	92.2	3.3	92.2	3.6	92.9	2.3
2011	96.4	3.8	96.0	4.3	95.9	4.0	96.2	4.3	96.3	3.7
Forecasts										
2012	100.0	3.7	100.0	4.1	100.0	4.3	100.0	4.0	100.0	3.8
2013	104.1	4.1	104.8	4.8	105.1	5.1	105.5	5.5	103.9	3.9
2014	108.6	4.4	110.2	5.1	111.0	5.6	112.2	6.3	108.3	4.2
2015	113.3	4.3	115.6	4.9	116.4	4.9	118.6	5.7	112.3	3.7
2016	117.6	3.7	121.0	4.6	121.5	4.3	124.8	5.2	116.4	3.7
2017	122.5	4.2	126.8	4.8	127.4	4.9	131.6	5.5	121.3	4.2
2018	128.2	4.6	133.3	5.1	134.3	5.4	139.5	6.0	126.9	4.6
Long Term Averages										
2000-2010	3.7		4.4		4.2		4.3		3.5	
2006-2011	3.8		4.4		4.3		5.1		3.5	
2011-2018	4.1		4.8		4.9		5.5		4.0	

(1) Ordinary time hours excluding bonuses. Source: BIS Shrapnel, ABS (Catalogue 6345)

The strong outlook has locked-in another round of mining related projects over the next five years. The capital intensive nature of mining means not only that labour costs are usually a low proportion of total costs, but that the mining sector has a requirement for more highly skilled labour. Relatively high prices also mean that the mining sector can afford to offer higher wages.

Overall, mining sector wages in LPI terms are forecast to average 5.7 per cent per annum over the five years from 2013/14 to 2017/18 at the Australian level (see table 4.11), higher than the electricity, gas and water sector, adding to pressure for higher wages in the utilities sector across Australia.

4.6.3 Manufacturing Wages

Growth in manufacturing has lagged the growth in all industries wages over the last decade, both in AWOTE and LPI terms, at the Australian level. Employment and output growth have been weak overall, with the manufacturing sector one of the sectors hardest hit by the global financial crisis.

Future prospects for the manufacturing sector will be shaped by three factors: the outlook for export markets which in turn is directly correlated with the prospects for the global economy; the strength of domestic demand for goods, in particular the performance of the construction sector; and the level of the A$.

The key drivers of growth are expected to be the resumption of the upswing in domestic dwelling construction, supplying inputs to the booming mining sector, a higher plane of privately funded engineering construction and the continued recovery in business investment at home and overseas. In turn, this will boost demand for construction materials, housing fit-out goods,

machinery and equipment as well as releasing a considerable amount of pent-up demand for consumer and capital goods. However, higher interest rates over 2013/14 are expected to affect dwelling building and consumer demand, and cause manufacturing output growth to slow in 2013/14 and 2014/15, before picking up from 2015/16. The major negative for Manufacturing will be the very high A$ (averaging close to US$1 over the next five years) which will impact heavily on competitiveness and lead to a further 'hollowing out' of industry.

Overall, only modest growth in output is expected over the next two years, before growth eases over 2013/14 and 2014/15 due to the expected rise in interest rates in 2013/14. Growth in output and employment is subsequently expected to strengthen over 2015/16 to 2017/18, boosted by a rebound in dwelling and non-dwelling building activity and (initially) a lower dollar.

Overall, manufacturing sector wages growth in LPI terms is forecast to average 4 per cent per annum over the six years from 2013 to 2018 inclusive at the Australian level (see table 4.11). The slower wage growth compared to the All Industries average is in line with historical trends over the past decade. Note that wages growth in the overall manufacturing sector does not weaken significantly, despite further declines in manufacturing employment over the next few years, because most of the employment losses are expected to be in the lower wage segments of manufacturing such as Textiles, Leather, Clothing and Footwear Manufacturing; Furniture and Other Manufacturing; Wood Products Manufacturing; and Printing. Average wages per employee in the first two subdivisions are around two-thirds of the overall manufacturing average, while average wages in the latter two subdivisions are 85 per cent and 83 per cent of the overall manufacturing average respectively.

5. CONTRACTOR ESCALATION

This section provides forecasts of ElectraNet's 'construction-related' labour escalation, which is predominantly related to the costs of construction related labour, covering outsourced contractor labour.

As contractor labour is assumed to undertake construction or maintenance related projects, they would be classified to the construction sector. Accordingly, the escalator used for contractor labour is Construction sector wages growth both in LPI and AWOTE terms.

Our research has shown that construction activity (ie work done in the sector) normally has a strong influence on construction wages. BIS Shrapnel's forecasts of construction activity by state (which includes residential and non-residential building, plus engineering construction) were used to derive the wages forecasts.

5.1 Construction Sector Wages Growth in South Australia

Much like the other states and territories, wages within the South Australian construction sector tracks total construction activity, although changes in wages tend to lag construction (in work done terms) by around one or two years. Recently, construction activity within South Australia has shown very strong growth with work done averaging around 19 per cent growth over 2008/09 and 2009/10. Much of this growth has occurred as the GFC saw both state and federal governments increase infrastructure spending to combat an expected fall in private investment. Subsequently, engineering and non-dwelling construction recorded exceptionally strong growth as road infrastructure saw significant investment, while public housing and construction work within the education sector saw growth increase in non-dwelling building. These increases in construction activity saw South Australian construction wages growth in AWOTE terms increase by 10.9 per cent in 2009/10, after compositional effects in 2008/09 saw average construction wages fall by 1.2 per cent.

In 2010/11, construction activity declined as a range of publicly funded construction projects reached completion. However, this decline in activity will be short-lived as the expansion of the Olympic Dam mine is expected to begin in late 2012. The size of this project will overshadow construction activity across the other sectors and lead total construction activity to record exceptionally strong growth over 2012/13 and 2013/14 and stabilise at these high levels over the three years to 2017/18. This heightened level of activity will see wages growth in LPI and AWOTE terms increase strongly over the three years to 2013/14, with LPI growth expected to peak at 5.8 per cent in 2013/14 and AWOTE growth peaking at 6.9 per cent in the same year before wages growth moderates over the following years.

Despite the easing in wages growth, LPI growth over the five years to 2017/18 will average 5.1 per cent per annum slightly higher than the national average of 5 per cent per annum. In AWOTE terms, construction wages over 2013/14 to 2017/18 is expected to be 6 per cent, marginally higher than the national average of 5.9 per cent per annum.

Chart 5.1: Total Construction – Queensland
Value of Work Done, Constant 2008/09 Prices

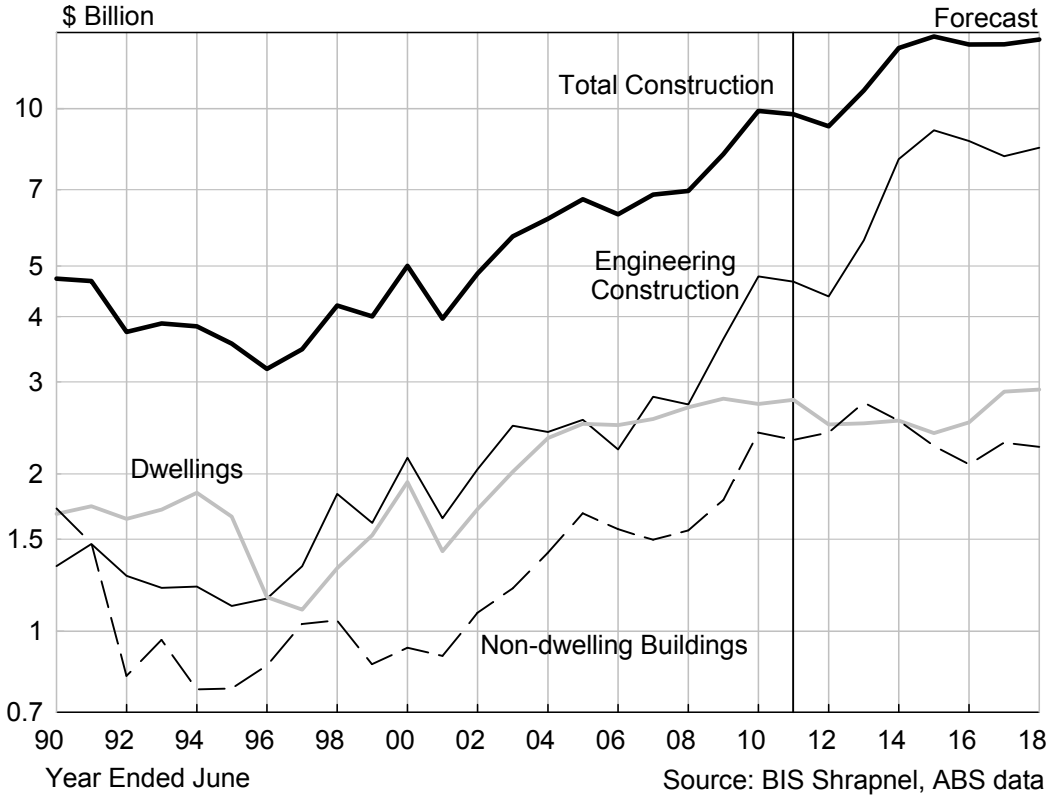


Table 5.1: Construction Wages Growth – Australia and South Australia
Nominal Wages

Year Ended June	South Australia - Nominal				Australia - Nominal			
	AWOTE (1)		LPI (2)		AWOTE (1)		LPI (2)	
	$	A% CH	Index	A% CH	$	A% CH	Index	A% CH
2000	648.5				722.1		61.1	
2001	732.3	12.9	68.0		730.5	1.2	63.6	4.1
2002	694.8	-5.1	69.9	2.8	769.6	5.3	65.7	3.3
2003	618.9	-10.9	73.7	5.4	832.3	8.2	67.9	3.3
2004	700.5	13.2	78.0	5.8	875.2	5.1	70.4	3.7
2005	860.2	22.8	80.3	2.9	924.6	5.7	74.1	5.2
2006	855.3	-0.6	82.5	2.8	941.8	1.9	77.7	4.9
2007	915.7	7.1	84.1	2.0	987.8	4.9	81.5	4.9
2008	976.5	6.6	88.5	5.2	1,078.2	9.2	85.3	4.7
2009	965.2	-1.2	91.1	3.0	1,162.0	7.8	89.3	4.7
2010	1,070.7	10.9	93.4	2.6	1,250.9	7.7	92.2	3.3
2011	1,128.5	5.4	96.5	3.3	1,313.7	5.0	95.9	4.0
Forecasts								
2012	1,244.8	10.3	100.0	3.5	1,379.8	5.0	100.0	4.3
2013	1,310.4	5.3	104.2	4.2	1,458.1	5.7	105.2	5.1
2014	1,401.1	6.9	110.2	5.8	1,559.8	7.0	111.1	5.6
2015	1,490.4	6.4	115.8	5.1	1,656.1	6.2	116.5	4.9
2016	1,563.9	4.9	120.9	4.4	1,736.2	4.8	121.5	4.3
2017	1,653.0	5.7	126.9	5.0	1,835.1	5.7	127.4	4.9
2018	1,754.4	6.1	133.9	5.5	1,945.8	6.0	134.3	5.4
Long Term Averages								
2000-2010	5.1		n.a.		5.6		4.2	
2006-2011	5.7		3.2		6.9		4.3	
2011-2018	6.5		4.8		5.8		4.9	
2013-2018	6.0		5.1		5.9		5.0	

(1) Earnings of persons. Data is year ended May. Source: BIS Shrapnel, ABS
(2) Ordinary time hours excluding bonuses.

5.2 Productivity-Adjusted Wage Forecasts for Construction

Historically, annual productivity changes in the construction industry (at the Australian level) have been quite volatile although – on average – it remained in the positive territory over the 1990s and in the previous decade. More recently (ie since 2007/08), productivity growth in the construction industry has been negative due to faster pace growth in employment relative to output.

Going forward, at the Australian level, productivity growth in the construction sector is forecast to decrease by an average of 0.2 per cent per annum over the five years from 2013/14 to 2017/18 inclusive (see table 1b). In contrast, productivity growth in the South Australian construction sector is forecast to increase by an average of 2.3 per cent per year over the five years to 2017/18 due to stronger output growth in the state driven principally by the capital intensive construction of Olympic Dam. Our forecasts of construction sector wages growth at the South Australia level together with output, employment and productivity projections for South Australia are presented in tables 5.1 and 5.3.

The stronger labour productivity performance predicted for South Australia over the five years to 2017/18 means that the productivity-adjusted construction labour costs to businesses operating in that state will be lower over the forecast period. The end result is that once nominal AWOTE is adjusted for CPI inflation and productivity movements, the real productivity adjusted AWOTE for construction is forecast to average 1 per cent per annum over the five years from 2013/14 to 2017/18 inclusive for the South Australian construction sector (see table 5.2).

Table 5.2: Construction Wages Growth Adjusted for Productivity – South Australia

	Nominal				Real (3)				Nominal Adjusted Productivity (4)			Real Adjusted Productivity (3,4)		
Year End June	AWOTE (1)		LPI (2)		AWOTE (1)		LPI (2)		AWOTE (1)	LPI (2)	LPI (5)	AWOTE (1)	LPI (2)	LPI (5)
	$	A% CH	Index	A% CH	$	A% CH	Index	A% CH	A% CH	A% CH	A% CH	A% CH	A% CH	A% CH
2000	648.5				936.6									
2001	732.3	12.9	68.0		998.0	6.6	92.7		16.4			10.0		
2002	694.8	-5.1	69.9	2.8	920.6	-7.8	92.7	-0.1	-7.0	0.9		-9.7	-0.1	
2003	618.9	-10.9	73.7	5.4	795.5	-13.6	94.8	2.2	-26.2	-9.9		-28.9	2.2	
2004	700.5	13.2	78.0	5.8	879.7	10.6	98.0	3.4	12.1	4.8		9.5	3.4	
2005	860.2	22.8	80.3	2.9	1,054.4	19.9	98.4	0.4	25.5	5.6	25.5	22.6	0.4	22.6
2006	855.3	-0.6	82.5	2.8	1,016.0	-3.6	98.0	-0.4	-3.2	0.2	-3.2	-6.3	-0.4	-6.3
2007	915.7	7.1	84.1	2.0	1,056.9	4.0	97.1	-0.9	7.3	2.2	7.3	4.3	-0.9	4.3
2008	976.5	6.6	88.5	5.2	1,090.1	3.1	98.8	1.7	0.0	-1.5	0.0	-3.5	1.7	-3.5
2009	965.2	-1.2	91.2	3.0	1,044.8	-4.2	98.7	-0.1	0.5	4.7	0.5	-2.5	-0.1	-2.5
2010	1 070.7	10.9	93.5	2.6	1,132.5	8.4	98.9	0.2	16.1	7.8	16.1	13.6	0.2	13.6
2011	1 128.5	5.4	96.6	3.3	1,157.9	2.2	99.1	0.2	8.9	6.8	8.9	5.7	0.2	5.7
Forecasts														
2012	1 244.8	10.3	100.0	3.5	1,244.8	7.5	100.0	0.9	13.4	6.6	13.4	10.6	0.9	10.6
2013	1 310.4	5.3	104.2	4.2	1,273.5	2.3	101.3	1.3	-2.8	-3.8	-2.8	-5.7	1.3	-5.7
2014	1 401.1	6.9	110.2	5.8	1,325.8	4.1	104.3	3.0	-3.7	-4.8	-3.7	-6.5	3.0	-6.5
2015	1,490.4	6.4	115.8	5.1	1,375.9	3.8	106.9	2.5	0.0	-1.3	0.0	-2.6	2.5	-2.6
2016	1,563.9	4.9	120.9	4.4	1,408.6	2.4	108.9	1.9	7.8	7.4	7.8	5.3	1.9	5.3
2017	1,653.0	5.7	126.9	5.0	1,452.5	3.1	111.5	2.4	5.9	5.2	5.9	3.3	2.4	3.3
2018	1,754.4	6.1	133.9	5.5	1,504.0	3.5	114.8	3.0	7.8	7.2	7.8	5.2	3.0	5.2
Long Term Averages														
2000-2010	5.1		n.a.		1.9		n.a.		4.1	1.6		0.9	0.7	
2006-2011	5.7		3.2		2.6		0.2		4.9	3.4	4.9	1.9	0.1	1.9
2011-2018	6.5		4.8		3.8		2.1		4.1	2.3	4.1	1.4	2.1	1.4
2013-2018	6.0		5.1		3.4		2.5		3.6	2.7	3.6	1.0	2.5	1.0

(1) Earnings of persons. Data is year ended May. Source: BIS Shrapnel, ABS (Catalogue 5206, 6291, 6302, 6345)
(2) Ordinary time hours excluding bonuses. Source: BIS Shrapnel, ABS
(3) Deflated by RBA/Treasury CPI projections
(4) Productivity is output (real GVA) divided by employment in the Construction sector.
(5) Excludes workforce compositional productivity effects.

Table 5.3: Construction
Output, Employment and Productivity: South Australia

Year Ended June	South Australia					
	Gross Value Added		Employment		Productivity $/employee	
	$m	%CH	'000	%CH	('000)	%CH
1989						
1990	2646		37.3		70.9	
1991	2493	-5.8	39.3	5.3	63.5	-10.5
1992	2179	-12.6	41.5	5.5	52.6	-17.2
1993	2410	10.6	38.4	-7.3	62.7	19.3
1994	2386	-1.0	36.0	-6.2	66.2	5.5
1995	2484	4.1	36.5	1.3	68.0	2.8
1996	2517	1.3	35.0	-4.2	72.0	5.7
1997	2744	9.0	35.5	1.6	77.2	7.3
1998	2897	5.6	36.3	2.1	79.8	3.4
1999	3070	6.0	37.1	2.3	82.7	3.6
2000	3409	11.0	45.5	22.5	75.0	-9.3
2001	2992	-12.2	41.3	-9.1	72.4	-3.4
2002	3334	11.4	45.2	9.3	73.8	1.9
2003	3959	18.7	46.5	3.0	85.1	15.3
2004	4174	5.4	48.5	4.3	86.0	1.1
2005	4348	4.2	52.0	7.1	83.6	-2.7
2006	4441	2.1	51.7	-0.5	85.8	2.6
2007	4746	6.9	55.4	7.1	85.6	-0.2
2008	5106	7.6	55.9	0.9	91.4	6.7
2009	5521	8.1	61.5	10.0	89.8	-1.7
2010	5644	2.2	66.3	7.9	85.1	-5.2
2011	5997	6.3	73.0	10.1	82.2	-3.5
Forecasts						
2012	5458	-9.0	68.5	-6.1	79.7	-3.1
2013	6309	15.6	73.3	7.0	86.1	8.0
2014	7312	15.9	76.8	4.8	95.2	10.6
2015	7713	5.5	76.2	-0.8	101.2	6.3
2016	7578	-1.7	77.1	1.2	98.3	-2.9
2017	7865	3.8	80.2	4.0	98.1	-0.2
2018	8220	4.5	85.3	6.3	96.4	-1.7
	Compound Annual Growth Rates					
1990-2000	2.6		2.0		0.6	
2000-2010	5.2		3.8		1.3	
2006-2011	6.2		7.1		-0.9	
2011-2018	4.6		2.2		2.3	
2013-2018	5.4		3.1		2.3	

Source: BIS Shrapnel, ABS data (Catalogue 5206, 6291)

6. REVIEW OF DELOITTE ACCESS ECONOMICS PAST FORECASTING RECORD

The AER in its recent Draft decision on Powerlink Revenue Proposal stated that *"in light of the underlying macroeconomic outlook"* . . . "*the AER considers the labour cost forecasts prepared by Deloitte Access Economics reasonably reflect a realistic expectation of labour costs over the next regulatory period.*"

In this section we review the forecasting record of the utilities wage model of the AER's consultant for utilities wage forecasts, Deloitte Access Economics (DAE, previously known as Access Economics').[17] The main conclusions we can draw from our analysis is:

- Over the medium-to-long term (ie beyond the first two years of the forecast period), DAE has consistently forecast — in each of its successive projections provided to the AER — that utilities wages growth will ease back and its growth will fall below the 'All Industries' average. This easing has not been borne out in actual growth as utilities wages growth has consistently remained above (or equal to) the 'All Industries' average.
- DAEs utilities wages forecasts are too pessimistic, particularly in relation to the All Industries average.

Review of DAE individual sets of forecasts

In 2006, DAE expected utilities wages growth to remain above 'All Industries' wages growth over the short-term (next two years i.e. over 2006/07 to 2008/09) before collapsing to well below the 'All Industries' average in 2009/10 (see chart 6.1). Utilities wages growth was then expected to remain below the 'All Industries' average for the rest of the forecast period. Overall, wages growth in the utilities sector was forecast to average 0.8 percentage points lower (per annum) than 'All Industries' wages growth over the seven years to 2015/16.

DAE projected collapse in utilities wages growth in 2009/10 as well its forecast for the subsequent year failed to materialise as utilities wages growth has remained above the 'All Industries' average over 2009/10 and 2010/11 (see chart 6.1).

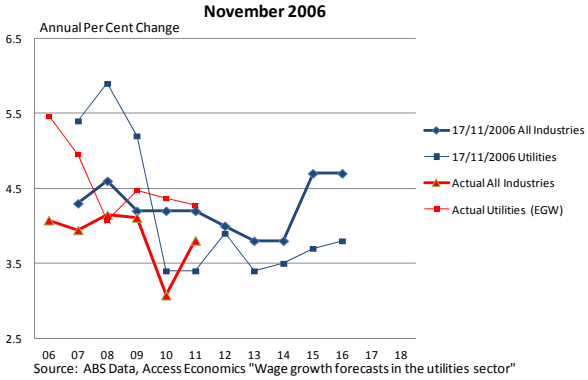
DAE updated their wage forecasts in April 2007. While the shape of the forecast curves changed in April 2007, the underlying story remained unchanged (see chart 6.2). DAE once again expected utilities wage inflation to remain higher than the Australia 'All Industries' average over the short-term but fall below the national average for the rest of the forecast horizon. In addition, DAE projected a bigger difference between 'All Industries' and the utilities sector wages growth.

Once again, as can be seen in chart 6.2, DAE easing and 'drop off' in utilities wages growth was not borne out as utilities wages growth remained above the 'All Industries' average.

The AER then used forecasts provided by Econtech, before reverting back to DAE in 2009. DAE September 2009 wage forecasts (covering the 2008/09 to 2017/18 period) tell a similar story to their 2006 and 2007 projections, but the orders of magnitude were a little different, see chart 9.3. DAE expected utilities wages growth to fall to the 'All Industries' level in 2009/10 and then, dip below the national average over the next two years before converging to the 'All Industries' average in 2012/13. Beyond 2012/13, DAE expected utilities wages growth to be close to but lower than the 'All Industries' average for the rest of the forecast period i.e. through to 2017/18. DAE more recent forecasts tell a similar story, see charts 6.4 to 6.6.

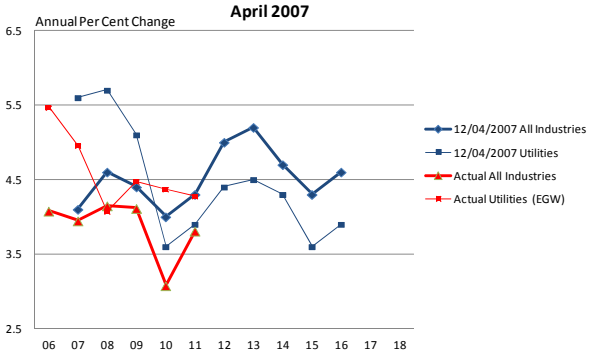
[17] To the best of our knowledge, DAE first set of utilities wage forecasts used by the AER were dated November 2006. Accordingly, we trace DAE utilities wage forecasts since November 2006 and compare them with actual outcomes.

Chart 6.1: Access Economics LPI Forecasts
November 2006



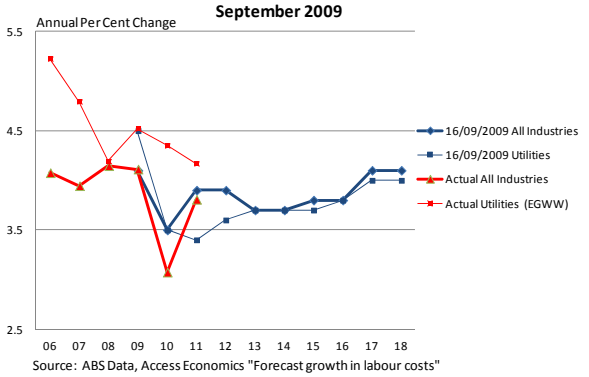
Source: ABS Data, Access Economics "Wage growth forecasts in the utilities sector"

Chart 6.2 Access Economics LPI Forecasts
April 2007



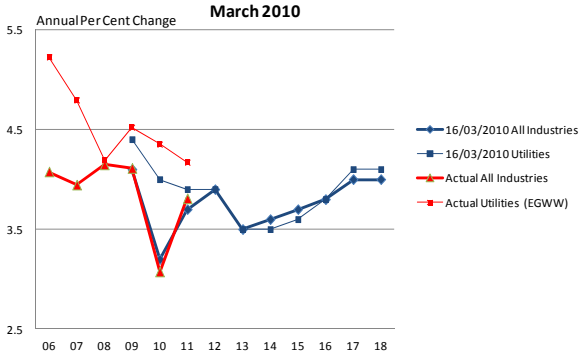
Source: ABS Data, Access Economics "Labour Cost Indices for the energy sector"

Chart 6.3 Access Economics LPI Forecasts
September 2009



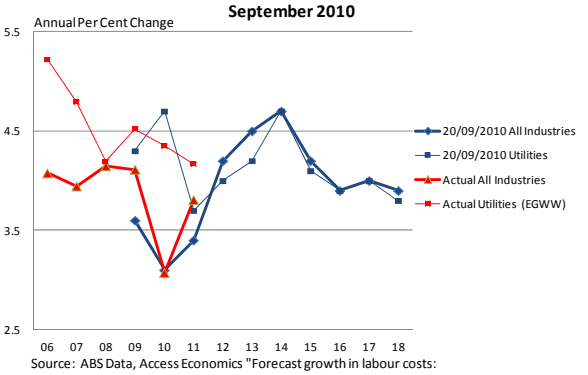
Source: ABS Data, Access Economics "Forecast growth in labour costs"

Chart 6.4 Access Economics LPI Forecasts
March 2010



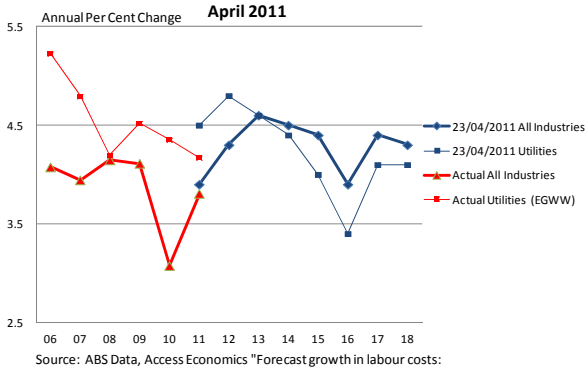
Source: ABS Data, Access Economics "Forecast growth in labour costs: March 2010 report"

Chart 6.5 Access Economics LPI Forecasts
September 2010



Source: ABS Data, Access Economics "Forecast growth in labour costs: update of March 2010 report"

Chart 6.6 Access Economics LPI Forecasts
April 2011



Source: ABS Data, Access Economics "Forecast growth in labour costs: update for December 2010 report"

To date utilities sector wages growth (measured by the LPI) has been above or equal to the national average since the index began in 1997. DAE, however, has consistently viewed higher utilities wage escalation (i.e. relative to the 'All Industries' average) as not sustainable. As a result, DAE has consistently projected utilities wage inflation to fall below the national 'All Industries' average within two years (on average) and remain lower than the national average for the rest of the forecast period i.e. over the medium-to-long-term. This is the consistent theme in all of DAE forecasts. However, whenever it becomes apparent that this expected 'drop-off' in utilities wages would fail to materialise (given stronger utilities wage inflation relative to the 'All Industries' average), the 'drop-off' in utilities wages growth were simply delayed.

For example, over the current sample, the first year in which utilities wages growth was forecast to be lower than 'All Industries' wages growth was 2009/10. When this did not eventuate, the 'drop-off' was delayed to 2010/11. DAE predicted another delay in utilities wages 'drop-off' in September 2010 when utilities wages growth was expected to fall below the national 'All Industries' average in 2011/12. Seven months later (in April 2011) the 'drop-off' was delayed once again to the 2013/14 financial year. The sequential shifting of utilities wages slow-down can be seen in Chart 6.7. The timing of the expected drop in wages growth is pushed further along as it becomes increasingly evident that such a weakening in the sector is unlikely.

Overall, we believe that DAE is too pessimistic on wages growth in the utilities sector, and that DAE does not appear to have had regard to evidence that their pessimism is unfounded. Deloitte Access Economics argument as to why utilities wages will eventually fall below the national average revolves around the eventual easing of wage growth in competing industries (such as mining and construction). According to DAE, this will limit the necessity for the utilities sector to increase wage growth to attract skilled labour, and make it difficult for utilities wage growth to exceed 'All Industries' wage growth over the medium-to-long-term. We believe the opposite of their argument as more likely.

As per the discussion in Section 4.7, BIS Shrapnel believes that strong demand for skilled labour in the mining, construction, and parts of the manufacturing sector, combined with a tight general labour market, will result in strong wages growth across all of these industries. The utilities sector will be forced to follow suit, in order to attract the necessary quantity of skilled labour. A deeper discussion of the outlook for utilities sector wages can be found in Section 4.

A comparison of the forecasting records of BIS Shrapnel and DAE indicates that BIS Shrapnel's record is superior to DAEs, although both forecasters over-estimated the utilities' LPI for 2006/07 and 2007/08 in their March/April 2007 reports for the regulator and relevant utility at the time. Excluding this early same mistake by both forecasters, Table 6.1 shows that:

a) BIS Shrapnel has correctly forecast that the utilities LPI has stayed above the All Industries LPI over the relevant forecasting periods, while DAE has incorrectly (and repeatedly) forecast that utilities LPI growth would fall below the All Industries LPI beyond the first year or two of the forecast period;

b) BIS Shrapnel has been closer than DAE with its utilities LPI forecast to the actual for the relevant forecast periods, particularly over recent years;

c) DAE has consistently underestimated utilities LPI growth, particularly in the later years of the relevant forecast period.

Chart 6.7: Access Economics LPI Forecasts

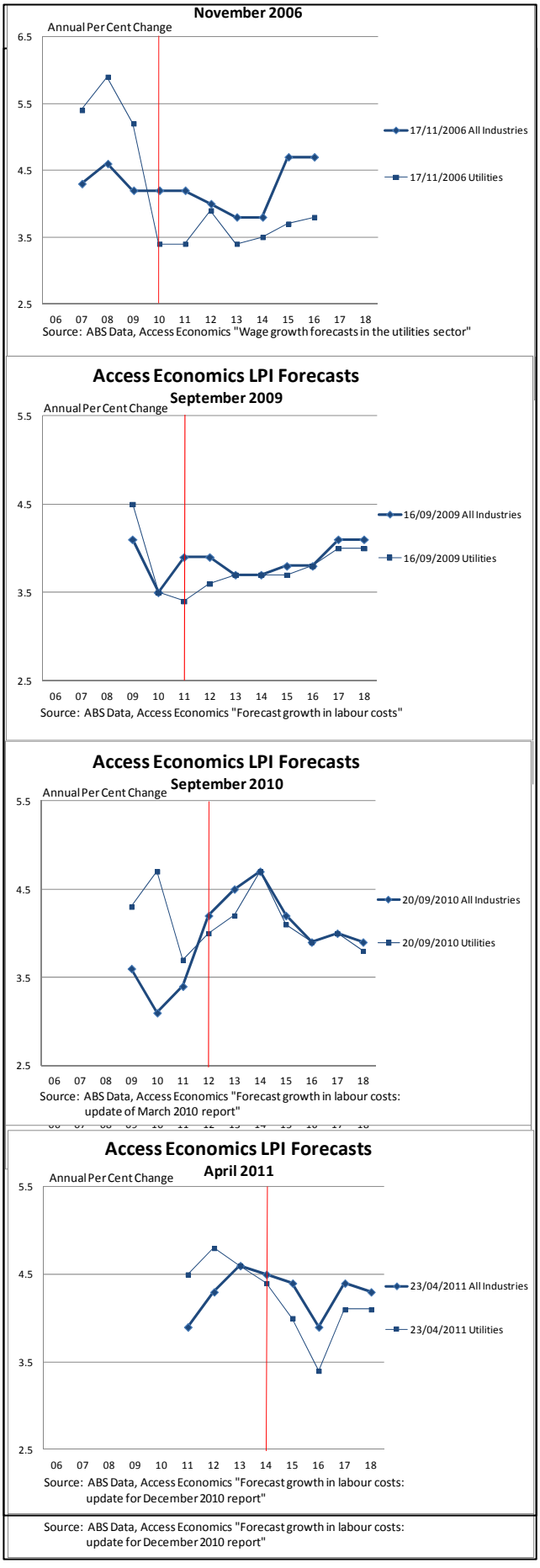
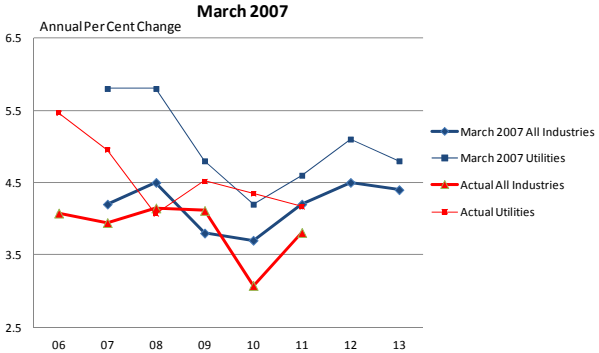
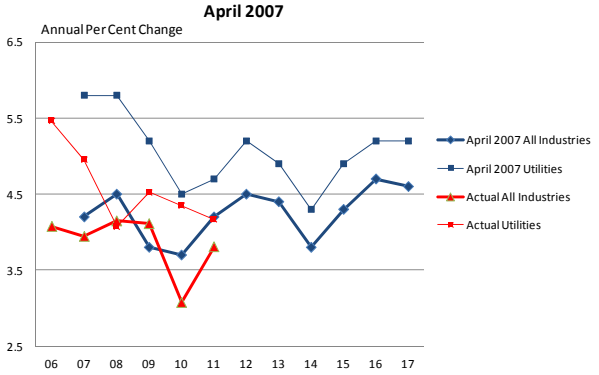


Chart 6.8: BIS Shrapnel LPI Forecasts
March 2007



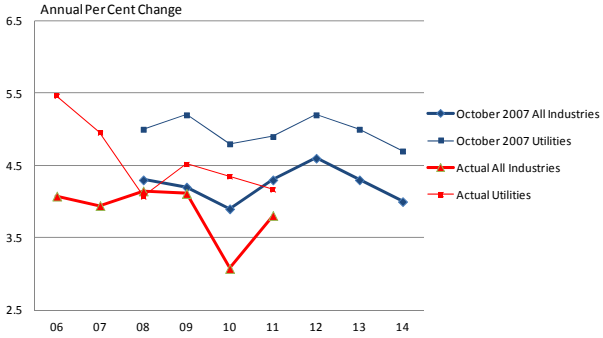
Source: ABS Data, BIS Shrapnel "Outlook for wages to 2012/13: Electricity, Gas and Water Sector Australia and Victoria"

Chart 6.9: BIS Shrapnel LPI Forecasts
April 2007



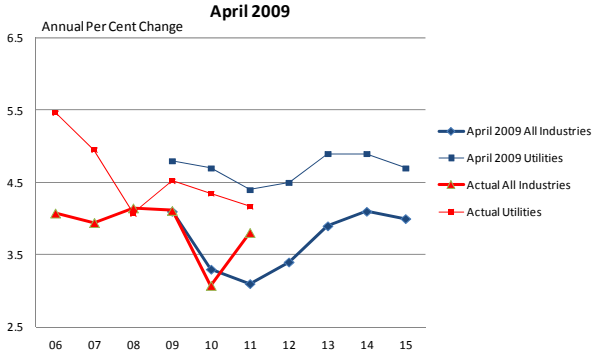
Source: ABS Data, BIS Shrapnel "Outlook for Labour Markets and Costs to 2016/17: Electricity, Gas and Water Sector"

Chart 6.10: BIS Shrapnel LPI Forecasts
October 2007



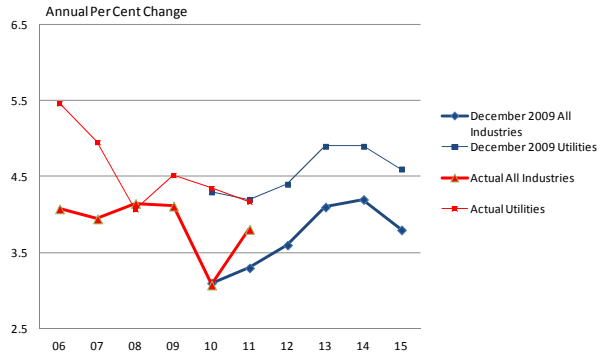
Source: ABS Data, BIS Shrapnel "Outlook for Wages and Construction Costs to 2013/14: Electricity, Gas and Water Sector"

Chart 6.11: BIS Shrapnel LPI Forecasts
April 2009



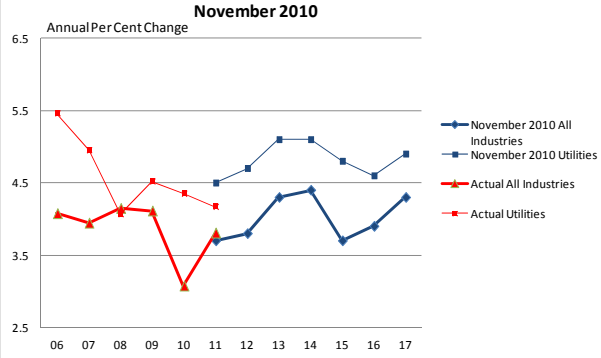
Source: ABS Data, BIS Shrapnel "Outlook for Wages, Contract Services and Customer Connections Expenditure to 2014/15: South Australia"

Chart 6.12: BIS Shrapnel LPI Forecasts
December 2009



Source: ABS Data, BIS Shrapnel "Update of Wages Outlook for the Electricity, Gas and Water Sector in New South Wales"

Chart 6.13: BIS Shrapnel LPI Forecasts
November 2010



Source: ABS Data, BIS Shrapnel "Labour Cost Escalation Forecasts to 2016/17- Australia and Queensland"

Table 6.1 Comparison of DAE and BIS Shrapnel Forecasts

Labour Price Index for Australia			2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	Annual Average Difference
March 2007	BIS Forecasts	Utilities		5.8	5.8	5.2	4.5	4.7	
		All Industries		4.2	4.5	3.8	3.7	4.2	
	Actual	Utilities		5.0	4.1	4.5	4.3	4.2	
		All Industries		3.9	4.1	4.1	3.1	3.8	
	Difference	Utilities		0.8	1.7	0.7	0.2	0.5	0.8
		All Industries		0.3	0.4	-0.3	0.6	0.4	0.3
October 2007	BIS Forecasts	Utilities			5.0	5.2	4.8	4.9	
		All Industries			4.3	4.2	3.9	4.3	
	Actual	Utilities			4.1	4.5	4.3	4.2	
		All Industries			4.1	4.1	3.1	3.8	
	Difference	Utilities			0.9	0.7	0.5	0.7	0.7
		All Industries			0.2	0.1	0.8	0.5	0.4
April 2009	BIS Forecasts	Utilities				4.8	4.7	4.4	
		All Industries				4.1	3.3	3.1	
	Actual	Utilities				4.5	4.3	4.2	
		All Industries				4.1	3.1	3.8	
	Difference	Utilities				0.3	0.4	0.2	0.3
		All Industries				0.0	0.2	-0.7	-0.2
December 2009	BIS Forecasts	Utilities					4.3	4.2	
		All Industries					3.1	3.3	
	Actual	Utilities					4.3	4.2	
		All Industries					3.1	3.8	
	Difference	Utilities					0.0	0.0	0.0
		All Industries					0.0	-0.5	-0.2
November 2006	Access Economics Forecasts	Utilities		5.4	5.9	5.2	3.4	3.4	
		All Industries		4.3	4.6	4.2	4.2	4.2	
	Actual	Utilities		5.0	4.1	4.5	4.3	4.2	
		All Industries		3.9	4.1	4.1	3.1	3.8	
	Difference	Utilities		0.4	1.8	0.7	-0.9	-0.8	0.2
		All Industries		0.4	0.5	0.1	1.1	0.4	0.5
April 2007	Access Economics Forecasts	Utilities		5.6	5.7	5.1	3.6	3.9	
		All Industries		4.1	4.6	4.4	4.0	4.3	
	Actual	Utilities		5.0	4.1	4.5	4.3	4.2	
		All Industries		3.9	4.1	4.1	3.1	3.8	
	Difference	Utilities		0.6	1.6	0.6	-0.7	-0.3	0.4
		All Industries		0.2	0.5	0.3	0.9	0.5	0.5
September 2009	Access Economics Forecasts	Utilities				4.5	3.5	3.4	
		All Industries				4.1	3.5	3.9	
	Actual	Utilities				4.5	4.3	4.2	
		All Industries				4.1	3.1	3.8	
	Difference	Utilities				0.0	-0.8	-0.8	-0.5
		All Industries				0.0	0.4	0.1	0.2
March 2010	Access Economics Forecasts	Utilities					4.0	3.9	
		All Industries					3.2	3.7	
	Actual	Utilities					4.3	4.2	
		All Industries					3.1	3.8	
	Difference	Utilities					-0.3	-0.3	-0.3
		All Industries					0.1	-0.1	0.0
September 2010	Access Economics Forecasts	Utilities					4.7	3.7	
		All Industries					3.1	3.4	
	Actual	Utilities					4.3	4.2	
		All Industries					3.1	3.8	
	Difference	Utilities					0.4	-0.5	-0.1
		All Industries					0.0	-0.4	-0.2

APPENDIX A: A NOTE ON DIFFERENT WAGE MEASURES AND BIS SHRAPNEL'S WAGE MODEL

Several different measures of wages growth are referred to in this report, each differing slightly both in terms of their construction and appropriateness for measuring different aspects of labour costs. The following provides a brief summary of the main measures, what they are used for and why.

The main wage measures are:

- Average Weekly Ordinary Time Earnings (AWOTE) — earnings gained from working the standard number of hours per week. It includes agreed base rates of pay, over-award payments, penalty rates and other allowances, commissions and retainers; bonuses and incentive payments (including profit share schemes), leave pay and salary payments made to directors. AWOTE excludes overtime payments, termination payments and other payments not related to the reference period. The AWOTE measures used in this report refer to full-time adult AWOTE, and are sourced from the Australian Bureau of Statistics (ABS) catalogue number 6302.0, with BIS Shrapnel forecasts.
- The Labour Price Index (LPI) — a CPI-style measure of changes in wage and salary costs based on a weighted combination of a surveyed 'basket' of jobs. The LPI used in this report excludes bonuses. The LPI also excludes the effect of changes in the quality or quantity of work performed and most importantly, the compositional effects of shifts within the labour market, such as shifts between sectors and within firms. The LPI figures quoted in this report are sourced from ABS catalogue number 6345.0, with BIS Shrapnel forecasts.

Each measure provides a slightly different gauge of labour costs. However, the main distinction between average earnings measures and the labour price index relate to the influence of compositional shifts in employment. The compositional effects include changes in the distribution of occupations within the same industry and across industries, and the distribution of employment between industries. For example, a large fall in the number of lower paid employees, or in employment in an industry with lower average wages, will increase average weekly earnings (all else being equal). While this is a true reflection of the average cost of labour to businesses, it is not necessarily the best measure of ongoing wage inflation (i.e. trends in wage-setting behaviour in the labour market). Another compositional problem with using the 'all persons' AWOTE is variations in the proportion of male and female employees (particularly as average female AWOTE is lower than average male AWOTE). However, in practice, the data shows only minor differences in the AWOTE growth rates between male and females (or males and all persons) — between -0.2 and +0.2 per cent — since the 1980s or basically since the equal pay legislation was enacted through the 1970s.

The labour price index was specifically designed to get around these compositional problems. It uses a weighted average of wage inflation across a range of closely specified jobs. As it measures the collective variations in wage *rates* made to the current occupants of the *same* set of specified jobs, the LPI reflects pure price changes, and does not measure variations in quality or quantity of work performed. However, like the CPI (Consumer Price Index), the weights are fixed in a base year, so that the further away from that base and the more the composition of the labour market changes over time, the more 'out of date' the measure becomes.

Importantly, the LPI does not reflect changes in the skill levels of employees within industries or for the overall workforce, and will therefore understate (or overstate) wage inflation if the overall skill levels increase (or decrease). The labour price index is also likely to understate true wage inflationary pressures as it does not capture situations where promotions are given in order to

achieve a higher salary for a given individual, often to retain them in a tight labour market. Average weekly earnings would be boosted by employers promoting employees (with an associated wage increase), but promoting employees to a higher occupation category would not necessarily show up in the labour price index. However, the employer's total wages bill (and unit labour costs) would be higher.

For this reason, BIS Shrapnel prefers using AWOTE as the measure that best reflects the increase in wage cost changes for business and the public sector across the economy. On the other hand, labour price index can be used as a measure of *underlying* wage inflation in the economy.

Description of BIS Shrapnel's wage model

BIS Shrapnel's wage model (for both AWOTE and LPI) is based on the analysis of past and future (expected) wage movements in three discrete segments of the workforce, based on the three main methods of setting pay and working conditions (see tables 3.1 and 3.2):

- Those dependent on awards rely on pay increases given in the annual National Wage case by Fair Work Australia (formerly by the Fair Pay Commission and the Australian Industrial Relations Commission). Most of the wage increases in the National wage case over the past decade have been given as flat, fixed amount (ie dollar value) increases, rather than as a proportional increase. At the all industries level, 8.1% of full-time employees (data excludes those in agriculture, forestry and fishing) have their pay rises determined by this method. In the electricity, gas and water sector, only 0.9% of workers have their pay set by this method.
- Collective agreements negotiated under enterprise bargaining account for 41.9% of all employees, but 80% of electricity, gas and water employees' wage increases are determined by this method.
- The remaining 50% of all industries employees have their pay set by individual arrangements, such as individual contracts or other salary arrangements (including incentive-based schemes), while the proportion for electricity, gas and water is 19%.

Future movements of forecasts of wage inflation are based on the key influences on the different wage determination mechanisms of each discrete segment ie:

- increases in the Federal Minimum Wage (on which a range of mostly lower paid awards are also based) granted by Fair Work Australia (and by the Fair Pay Commission and the AIRC previously) each year are usually set in relation to recent increases in the CPI and with regard to the wage-setting body's view of both current and short-term future economic conditions. For instance, the $21.66 increase granted by the Fair Pay Commission in its decision in mid-2008 (effective October 2008) amounted to a 4.1 per cent increase for those on the Federal Minimum Wage of $522/week. This reflected the marked acceleration in the CPI in the first half of 2008 (to 4.2 per cent in the March quarter and to 4.5 per cent in the June quarter). It also reflected the strong economic conditions apparent around mid-2008 (the unemployment rate was just over 4 per cent). Conversely, the Fair Pay Commission gave no increase in its July 2009 decision, citing as its reasons, the deterioration of economic conditions and what we believe is a spurious link between minimum wage increases and higher unemployment.
- increases in collective agreements under enterprise bargaining are influenced by a combination of recent CPI increases, inflationary expectations, the recent profitability of relevant enterprises, current business conditions and the short-term economic outlook, and by the industrial relations 'strength' of relevant unions. Because the average duration of

agreements now runs for two-to-three years, BIS Shrapnel bases its near-term forecasts on the strength of recent agreements, which have been 'formalised' over recent quarters. Thereafter, collective agreements are based on BIS Shrapnel's macroeconomic forecasts.

- increases in individual agreements are primarily influenced by the strength of the labour market (especially the demand-supply balance of skilled labour), inflationary expectations, the recent profitability of relevant enterprises, current business conditions and the short-term economic outlook.

Note in table 3.1, wage increases under 'individual arrangements' are calculated by deduction. Data from DEEWR (Department of Education, Employment and Workforce Relations) are used for wage increases under collective agreements..

The limitation of this methodology is that because individual arrangements are calculated as a residual, all of the compositional effects in terms of AWOTE (ie from more or less lower-paid workers being employed in the relevant year) plus all (or most) of the bonuses and incentives from those under award or collective agreements end up in the individual arrangements residual, which distorts the pay increases in this segment. However, the methodology works well for the LPI, particularly at the all industries level, although some compositional problems occur at the sectoral level, particularly for sectors with a relatively small employment base (such as electricity, gas and water supply).

Some Deficiencies in Econometric Models of Wage Determination for the EGW Sector

We believe that BIS Shrapnel's institution-based wage model for the EGW sector better approximates the underlying (actual) data generating process than a straight application of an econometric model. As a result, we strongly believe our model of wage determination for the EGW or utilities sector is superior to methodology utilising purely econometric regression techniques, in particular linear regression models to forecast wages. This opinion is based on a number of factors, some of which are described below:

- the evolution of the wage determination system from the 1980s and particularly during the 1990s in the utilities sector means that econometric equations struggle with the changes in the relative importance of different factors influencing wages growth that have occurred over the past two-to-three decades. As such, we believe that an econometric equation would struggle to properly model the present complexity of the wage determination processes in this sector.
- BIS Shrapnel's model of wage determination does take account of the present complexity of the wage determination process, both at the national (all industries) level and at the industry sector level. Our methodology and explanation of the macroeconomic influences are, we believe, clear and transparent. We use small sector mathematical models to derive forecasts for discrete segments, rather than an over-riding, overall macroeconomic model.
- BIS Shrapnel believes the use of univariate or multi-equation time series econometric modelling is not the best method for forecasting wages growth in the utilities sector. This is because many regression equations include lagged dependent variables, and econometric models that include lagged dependant variables tend to miss turning points in the cycle, often producing results we know to be spurious. Indeed, the models performed no better (or worse) than a combination of a large range of 'mini' sectoral models and our expertise and knowledge of key influences.

APPENDIX B: ELECTRICITY, GAS AND WATER SUPPLY (EGW) VERSUS ELECTRICITY, GAS, WATER AND WASTE SERVICES (EGWWS)

Potential Impact of the Recent Change to ABS Industry Classification ie Adding Waste Services to EGW

The reclassification of the industry sectors by the ABS has seen 'waste services' added to the EGW sector. Wages data classified under the new ANZSIC 2006 industry classification first became available in November 2009 — providing August 2009 for AWOTE and September quarter 2009 for LPI. Up to the June quarter 2009, industry wages data was still classified under the previous ANZSIC 1993 industry classification. Industry employment data has been classified under the new ANZSIC 2006 code since February 2009, while output (Gross Value Added) was reclassified from the September quarter 2009 (released early December 2009). All historical data (for wages, GVA, etc) was also reclassified.

The inclusion of the waste services sub-sector has led to lower wage growth outcomes for the combined EGW and Waste Services sector. Hence, it is not an accurate indicator for the mostly higher skilled (and more highly demanded) occupations in the EGW sector. Using a comparison of the historical wages and employment data of EGW versus EGW and Waste Services at the national (Australian) level, annual growth in the combined EGWWS sector is 0.1% *less* on average than the EGW sector over the period from 1998/99 to 2008/09, and 0.6% less on average over the same period for AWOTE. The overall wages growth average has also been dragged down by the fact that employment growth in the lower paid waste services sub-sector has outstripped growth in the higher paid EGW sector over the eleven years to November 2008 — 4.8% per annum for waste services compared to 3.8% per annum for EGW.

The problem for ElectraNet and indeed all the electricity and gas utilities dealing with the Australian Energy Regulator (AER), is that the inclusion of waste services understates the growth in labour costs, both historically and going forward. Under the national electricity rules, the AER is supposed to deliver a ruling on labour and other cost escalators pertinent to the electricity and gas utilities. Accordingly, we believe that the AER should use the wages escalator for EGW services rather than the labour costs growth for the EGWWS industry.

Table B–1: EGW V. EGWWS

Year	AWOTE					LPI					EMPLOYMENT				
Ended	EGW		EGWWS		Difference	EGW		EGWWS		Difference	EGW		EGWWS		Difference
June	$/week	%CH	$/week	%CH	%CH	2004=100	%CH	2009=100	%CH	%CH	'000	%CH	'000	%CH	%CH
1998	832	7.5	796	6.3	1.2	79		64			64.5	-2.9	78.4	-2.5	-0.5
1999	867	4.2	827	3.9	0.3	82	3.2	66	3.0	0.2	64.8	0.6	78.9	0.6	-0.1
2000	923	6.4	867	4.8	1.6	85	3.8	68	3.8	0.0	64.2	-0.9	79.5	0.8	-1.7
2001	982	6.4	918	6.0	0.5	88	3.9	71	3.8	0.2	65.4	1.9	80.5	1.2	0.7
2002	1 055	7.4	981	6.8	0.6	92	4.2	74	4.2	0.0	67.5	3.1	83.1	3.2	-0.1
2003	1 085	2.8	1 001	2.1	0.8	96	4.3	77	4.1	0.1	72.8	7.9	89.6	7.8	0.1
2004	1 156	6.5	1 057	5.5	1.0	100	4.3	80	4.0	0.3	75.3	3.4	91.5	2.1	1.3
2005	1 195	3.4	1 091	3.2	0.2	104	4.4	83	4.3	0.1	76.7	1.9	95.2	4.1	-2.3
2006	1 214	1.6	1 111	1.9	-0.2	110	5.5	88	5.3	0.2	87.4	14.0	106.0	11.2	2.7
2007	1 262	4.0	1 152	3.7	0.3	115	5.0	92	4.8	0.1	85.1	-2.6	105.7	-0.3	-2.3
2008	1 304	3.3	1 183	2.7	0.6	120	4.1	96	4.1	-0.1	89.9	5.6	113.1	7.0	-1.4
2009	1 389	6.5	1 255	6.1	0.3	126	4.5	100	4.4	0.1	na	na	134.8	19.2	na
Average Growth Rates															
1998-09		4.8		4.2	0.6		4.3		4.2	0.1		3.8		4.6	-0.3

Source: BIS Shrapnel, ABS data

APPENDIX C: TERMS OF REFERENCE

[To be provided by ElectraNet.]

APPENDIX D: STATEMENT OF COMPLIANCE WITH EXPERT WITNESS GUIDELINES

This report has been prepared in a manner consistent with the requirements set out in the Federal Court Guidelines for Expert Witnesses where relevant. In preparing this report I have made all the enquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from this report.

APPENDIX E: CURRICULUM VITAES OF KEY PERSONNEL

Richard Robinson, B.Comm (Hons),
Senior Economist
Associate Director - Economics

Richard Robinson has been employed with BIS Shrapnel since 1986.

Richard is the company's principal economic forecaster, being largely responsible for the short term economic forecasts presented at BIS Shrapnel's half yearly conferences in March and September. He contributes forecasts and analysis to the regular subscription services, *Economic Outlook* and *Long Term Forecasts*.

Richard regularly analyses and forecasts resources investment and civil engineering construction activity, and production of manufactures, consumer goods and commodities. In this work, he has developed considerable industry expertise in the construction, manufacturing, agriculture, services, commodity and resources sectors of the Australian and state economies.

Richard has also been involved in a wide range of consultancy and private client projects including formulating end-use sector demand models for forecasting product demand, project evaluation studies, cost-benefit analysis, assessments of individual property markets and analysing the consistency of escalators in contracts. Some other projects have included analysing and forecasting freight tonnages; a study of the repair and maintenance market; the preparation of economic arguments for the National Wage Case for a private industry group; regular analysis and detailed short and long term forecasts of economic variables in a number of overseas countries; and contributing discussion papers to CEDA (Committee for Economic Development of Australia).

Kishti Sen, B.A., M.Ec. (Hons), Ph.D.
Economist

Kishti joined BIS Shrapnel in 2007, where he works across both the Economics and Infrastructure and Mining units. Since joining the company, Kishti has worked on a number of projects, including contributing the analysis of inflation, wages, interest rates and the world economic outlook to BIS Shrapnel's annual *Long Term Forecasts* publication and analysis and forecasts to *Engineering Construction in Australia* and *Maintenance in Australia* reports.

In terms of private client projects, Kishti has undertaken analysis of inflation and wage trends at the state level for reports required in state wage cases, and provided a discussion of state economic trends. Kishti has also been involved in the design and implementation of econometric methodologies for private economic research projects.

Kishti holds a PhD in Economics from the University of Sydney and Bachelors Degree in Economics and Mathematics from Massey University. Prior to joining BIS Shrapnel, Kishti was Senior Economist (Policy & Research) at the Reserve Bank of Fiji.

Daniel Gradwell, B.Com (Hons, Economics)
Economic Analyst

Daniel joined BIS Shrapnel in 2010, having recently obtained his degree, and works across both the Economics and Infrastructure and Mining units. Daniel focused on trade and the current account deficit in the Economic department's recent *Long Term Forecasts* report, and is a contributor to the monthly *Economic Outlook* publication. Within the Infrastructure and Mining unit, Daniel contributed to the *Maintenance in Australia* report, where he forecasted construction and maintenance expenditure for both the gas and electricity industries.

Daniel achieved First Class Honours in Economics at the University of Otago, New Zealand.

APPENDIX F: LIST OF ABS & OTHER DATA SOURCES

The ABS data and other information sources used in the preparation of this document and the forecasts contained within are listed below. Separate files containing this information will be attached.

ABS Data

Australian Industry 81550_2009-10.pdf
AWE 63020_Nov 2011.pdf
BA 87520_Sep 2011.pdf
CAPEX 56250_Dec 2011.pdf
CPI 64010_Dec 2011.pdf
ECA 87620_Sep 2011.pdf
EEAH 63060_May 2010.pdf
Labour Force 62020_Nov 2011.pdf
LPI 63450_Dec 2011.pdf
National Accounts 52060_Dec 2011.pdf
State National Accounts 52200_2010-11.pdf

AER Documents

ActewAGL's Regulatory Proposal.pdf
Envestra Draft Decision –Qld.pdf
Ergon Energy's Regulatory Proposal 2010-15.pdf
Powerlink Revenue Proposal.pdf
SP AusNet Revised Proposal (12 October).pdf
Draft Decision Powerlink Revenue Proposal.pdf

BIS Shrapnel Documents (Confidential)

BIA – Report – 2011.pdf
ECA – Report – 2011.pdf
EO Bulletin February 2011.pdf
EO Buletin March 2011.pdf
LTF Report 2011 – February 2012 Update.pdf

Other Documents

Clarius Skills Index Dec 2011 Quarter.pdf
DEEWR Skills Shortage List_Australia Dec 2011.pdf
DEEWR Skills Shortage List_South Australia Dec 2011.pdf
DEEWR TrendsD10.pdf
DEEWR TrendsM11.pdf
RBA February 2012 Statement on Monetary Policy.pdf

