Report on expected wage changes to 2022/23

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Prepared by BIS Shrapnel for ElectraNet

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BIS Shrapnel
BUSINESS RESEARCH AND FORECASTING

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

Job Numbers: E6549

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SUMMARY

- BIS Shrapnel was engaged by ElectraNet to provide wage forecasts relevant to electricity network businesses in South Australia. Forecasts of labour prices will be used by ElectraNet to estimate their real price changes over their next regulatory control period. These estimates will be used by ElectraNet to develop their operating and capital expenditure forecasts, which, in turn, will be included in their revenue proposal to the Australian Energy Regulator later this year. Although the next regulatory control period is 1 July 2018 to 30 June 2023, BIS Shrapnel was asked to provide seven year forecasts covering financial years 2016/17 to 2022/23 inclusive to allow for escalation over the full outlook period.
- Overall, BIS Shrapnel expects total growth in wage costs for the Australian Electricity, Gas, Water and Waste Services (EGWWS or 'Utilities) sector — expressed in wage price index or WPI) will average 3.8% per annum (0.6% higher than the national 'All Industries' WPI average of 3.2% per annum) over the seven years to 2022/23.
- We are forecasting changes in Average Weekly Ordinary Time Earnings (for full-time adult employees) to average 4.2% per annum over the seven years to 2022/23, 0.1% higher than the national 'All Industries' average of 4.1% per annum over the same seven year period. Our average weekly ordinary time earnings forecasts are higher due to compositional effects. Apprentices, trainees and numbers of new staff have increased markedly over recent years, across the electricity, gas and water sector generally. Given slower growth in employment numbers over the next decade, it is likely that there will be overall up skilling of the existing workforce, which will see a commensurate movement by much of the workforce into higher grades (i.e. on higher pay), resulting in higher earnings per employee.
- The utilities wage forecasts for South Australia are expected to ease over the next two years although it is expected to stay above the national average reflecting relatively higher EBA outcomes achieved in current agreements of major players of the South Australian utilities industry. We expect wages growth to pick up pace from 2017/18 due to increased demand for labour from the states' utilities sector as utilities-related engineering construction ramps up again. Construction work done is expected to lift considerably from late this decade as the surplus in generation capacity is slowly eroded through continued population growth and industrial activity, placing greater demands on electricity supply.
- The combination of high levels of utility engineering construction and overall construction in the state means increased competition for 'similarly' skilled labour and wage pressures in the South Australian utilities sector over the three years to 2023.Overall, South Australia utilities WPI growth is forecast to average 3.6% per annum (0.2% lower than the national utilities average of 3.8%) over the five years from 2018/19 to 2022/23 inclusive (i.e. over ElectraNet's next regulatory period).
- We are forecasting South Australian construction wages to increase by 3.5% p.a. over 2018/19 to 2022/23 which is 0.1% below the national average of 3.6% over the same period.
- We have also adjusted the nominal wage forecasts to calculate 'real' wage forecasts using the RBA CPI (consumer price index) projections. The Reserve Bank's CPI forecasts normally cover the next 2½ years. Thereafter, we have used the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range. This method is preferred by the Australian Energy Regulator. Note that our real escalators are recommended to ElectraNet for adoption as real escalators can be derived using alternative inflation forecasts. For simplicity, we have used an inflation forecast that is consistent with the AER's approach adopted in their recent revenue determinations.

Table I: Summary of Wage Forecasts
(% change, year average, year-ended June)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average (h)
	Actuals					Forecasts		Next Revenue Determination Period					
NOMINAL WAGE CHANGES													
Electricity, Gas, Water and Waste Services Wages													
South Australia - WPI (a)	**3.7**	**3.9**	**3.5**	**3.1**	**3.0**	**2.7**	**2.8**	**2.9**	**3.3**	**3.6**	**4.0**	**4.1**	**3.6**
Australia - WPI (b)	3.5	4.2	3.2	2.8	2.4	2.6	2.9	3.2	3.5	3.9	4.2	4.3	3.8
Construction Wages													
South Australia - WPI (a)	**3.9**	**2.9**	**2.2**	**1.6**	**0.7**	**0.9**	**1.5**	**2.1**	**3.0**	**3.8**	**4.2**	**4.3**	**3.5**
Australia - WPI (b)	4.1	3.3	3.0	2.1	1.6	1.7	2.0	2.3	3.1	4.0	4.5	4.3	3.6
Australian Wages (a)													
All Industries - AWE (c)	4.1	4.3	2.7	1.3	1.7	2.3	2.8	2.5	3.0	4.0	4.5	4.5	3.7
All Industries - AWOTE (d)	4.3	4.6	3.0	2.4	1.9	2.6	3.3	3.4	3.3	4.1	4.7	4.8	4.1
All Industries - WPI (e)	3.6	3.3	2.6	2.4	2.1	2.1	2.6	2.4	2.8	3.4	3.7	3.8	3.2
Consumer Price Index (headline) (f)	2.3	2.3	2.7	1.7	1.4	1.7	2.0	2.2	2.5	2.5	2.5	2.5	2.4
REAL WAGE CHANGES (g)													
Electricity, Gas, Water and Waste Services Wages													
South Australia - WPI (a)	**1.4**	**1.6**	**0.8**	**1.4**	**1.6**	**1.0**	**0.8**	**0.7**	**0.8**	**1.1**	**1.5**	**1.6**	**1.2**
Australia - WPI (b)	1.2	2.0	0.5	1.1	1.0	0.9	0.9	0.9	1.0	1.4	1.7	1.8	1.4
Construction Wages													
South Australia - WPI (a)	**1.6**	**0.6**	**-0.5**	**-0.2**	**-0.6**	**-0.8**	**-0.5**	**-0.2**	**0.5**	**1.3**	**1.7**	**1.8**	**1.0**
Australia - WPI (b)	1.8	1.0	0.3	0.4	0.2	0.0	0.0	0.0	0.6	1.5	2.0	1.8	1.2
Australian Wages (a)													
All Industries - AWE (c)	1.8	2.0	0.0	-0.4	0.3	0.6	0.8	0.3	0.5	1.5	2.0	2.0	1.2
All Industries - AWOTE(d)	2.0	2.3	0.3	0.7	0.5	0.9	1.4	1.2	0.8	1.6	2.2	2.3	1.6
All Industries - WPI (e)	1.3	1.0	-0.1	0.7	0.7	0.4	0.7	0.2	0.3	0.9	1.2	1.3	0.8

(a) Wage price index. Total time hourly rates of pay excluding bonuses.

(b) Australian wages provided for comparison.

(c) Average Weekly Total Earnings for adult persons (includes overtime but excludes bonuses).
Measures average gross weekly earnings associated with employee jobs in Australia.

(d) Average Weekly Ordinary Time Earnings for full-time adult persons.

(e) Wage price index. Ordinary time hourly rates of pay excluding bonuses.

(f) Reserve Bank of Australia forecasts to December 2018. Beyond that, we use the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range as preferred by the AER.

(g) Real price changes are calculated by deducting the inflation rate from nominal price changes.

(h) Average for the next revenue determination period i.e. from 2018/19 to 2022/23 inclusive.

1. INTRODUCTION, OUTLINE OF REPORT & DATA SOURCES

BIS Shrapnel was engaged by ElectraNet to provide wage forecasts relevant to electricity network businesses in South Australia. Forecasts of labour prices will be used by ElectraNet to estimate their real price changes over their next regulatory control period. These estimates will be used by ElectraNet to develop their operating and capital expenditure forecasts, which, in turn, will be included in their initial revenue proposal to the Australian Energy Regulator later this year. Although the next regulatory control period is 1 July 2018 to 30 June 2023, BIS Shrapnel was asked to provide seven year forecasts covering financial years 2016/17 to 2022/23 inclusive to allow for escalation over the full outlook period.

In keeping with my instructions, I 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 A. I have been assisted in the preparation of this report by Richard Robinson, Associate Director Economics at BIS Shrapnel, and Husam El-Tarifi, Research Analyst at BIS Shrapnel. Curriculum vitas of all relevant personnel are attached in Appendix B. Notwithstanding the assistance from the other two economists, the opinions in this report are my own and I take full responsibility for them.

The Australian Bureau of Statistics is the primary data source for the consumer price index, wages, employment, real gross value added and investment (including engineering construction) data, and for a range of other economic variables shown in Tables 2.2 and 2.3. The most recent wages data is for the December 2016 quarter and the latest industry employment data is for the month of November 2016. The September 2016 quarter was the latest available data for real gross value added (at the Australian level only), investment and indeed most of the economic variables in Table 2.2. The detailed engineering construction data (by state and by category) have data up to September 2016 quarter. The latest data for Gross State Product and real gross value added for state industry sectors was 2015/16. Other inflation and interest rate data were sourced from the Reserve Bank of Australia while data and information concerning enterprise agreements were obtained from the Department of Employment.

Forecasts of the economic variables in this report were mostly sourced from BIS Shrapnel reports, including Economic Outlook, Long Term Forecasts: 2016 – 2031 Update report, Engineering Construction: 2015/16 to 2029/31 and Long Term Building Work Done Forecasts, along with other unpublished forecasts and from BIS Shrapnel internal research and modelling.

The structure of this report is as follows:

- The previous **Summary** section presents an overview of our wage forecasts and includes a summary table.
- **Section 2** provides a macroeconomic outlook for the world economy, Australia and South Australia. This section also has numerical forecasts of key economic variables plus a discussion of the drivers and logic underpinning the forecasts. Section 2 essentially provides a context for our Australian wage forecasts including wage forecasts by state and by industry.
- **Section 3** discusses BIS Shrapnel's model of wage determinations and provides forecasts of national ('all industries') wages and CPI inflation. This section also includes the Reserve Bank of Australia projections of CPI inflation, which is used to deflate the nominal wage forecasts included in this report.

- **Section 4** has wage forecasts for the Electricity, Gas, Water and Waste Services (EGWWS) sector at the Australia level and for South Australia as measured by the WPI (wage price index).
- **Section 5** presents construction wage forecasts both at the Australia and South Australia level.
- **Appendices,** which includes CVS of project key personnel.

2. OVERVIEW OF THE MACROECONOMIC OUTLOOK

2.1 World economy: current state of play and outlook

Many advanced economies are still in protracted recovery from their GFC induced economic downturns. However, the United States is the key for global growth going forward. Output or US GDP is now 11% higher than its pre-crisis level and employment is now 6.5 million higher than its pre-crisis peak with many indicators suggesting that the US economy is near its full employment level. With inflation heading back towards 2%, we expect the Fed to continue to slowly raise rates back to its neutral level of around 3.5%.

We expect the US economy to gradually pick up pace over the next two years as business investment slowly comes through – capacity utilisation, although picking up, still remains below long-run average levels. Nonetheless, stronger growth is forecast over 2019 to 2021 driven by President Trump's proposed fiscal stimulus. Because of long lead times in getting major infrastructure projects 'shovel-ready', we don't expect Trump's fiscal stimulus to start materially influencing GDP growth much before 2019.

As for the other advanced economies, stimulatory monetary policy and improvements in competitiveness stemming from falling unit labour costs will support growth in the Euro-area. Japan is expected to benefit from ongoing monetary and fiscal stimulus, including a delay in a sales tax hike in response to ongoing weakness in private demand growth. Meanwhile, China, while slowing, is still the world's largest economy and will continue to make significant contributions to growth. India and ASEAN-5 (Indonesia, Philippines, Malaysia, Thailand and Vietnam) GDP growth is expected to pick up pace over the next two years while Russia and Brazil are expected to recover from their recessions and start adding to world growth from 2017.

Overall, we expect world growth to return to its long-run average growth of 3.6% in 2017. Stronger growth is forecast over 2018 to 2021 driven by US fiscal stimulus, a recovery in the Euro-zone economies, India maintaining its strong growth momentum and Chinese economic growth sustaining solid growth although easing.

Over the next five (calendar) years (2017-21 inclusive), world GDP growth is forecast to average 3.8% p.a. It is forecast to average 3.6% p.a. in the five years to 2026, although the composition of growth between countries and regions will be different to the next five years. Australia's trading partner growth (weighted by export proportions) will grow at a faster rate of 4.0% p.a. over the next five years, due to the high weights of China, east Asia and India in Australia's export mix.

Over the longer projection period, world GDP growth will gradually decelerate as the key 'emerging' economies (such as China, Brazil, India) mature toward becoming 'advanced' economies. As part of this process, the middle class in these economies will grow and their economies will transition from investment-driven to consumer demand-driven. Population growth will also slow appreciably, and this will contribute to lower 'potential' growth. In China, the 'one-child' policy of the past decades will realise a sharp slowing in population growth. However, the recent cessation of this policy provides some longer term upside to China's potential GDP growth from the mid-2030s. Nonetheless, longer term world GDP and Australia's trading partner growth are projected to gradually ease to around 3.3% in the late 2020s.

US economic expansion to continue despite rises in interest rates ….

The United States economy has made steady progress since the end of global financial crisis in 2009. Consistent improvements in the job market pushed the unemployment rate to 5% towards the end of 2015. This allowed the Federal Reserve to raise the cash rate to 0.25% in December 2015 – the first rise in 10 years. More rate rises were expected last year. However, uncertainty surrounding global events including panic in equity markets at the beginning of calendar year 2016 coupled with the unlikely Brexit vote and a slowing Chinese economy made the Fed sit on its hands.

The job market, despite stuttering over April and May, was back on solid footing in the second half of last year. In January of this year, another 227,000 jobs were added to the US economy. This has kept the unemployment rate steady at 4.8% — a level that many commentators believe is close to the longer-run normal level of the unemployment rate (i.e. the natural rate). As a result, we expect the US Federal Reserve to resume rate rises and gradually raise rates over the next few years.

Table 2.1: World Economic Growth Annual Per Cent Change

Year Ended December	Real GDP/GNP								
	OECD[1][4]	US	Japan	Euro area[2][4]	China	India	Other East Asia[3][4]	World GDP[4]	Trading Partners[4,5]
2002	1.7	1.8	0.3	1.0	9.1	3.9	5.6	2.9	2.9
2003	2.1	2.8	1.7	0.8	10.0	7.9	4.5	4.0	3.3
2004	3.3	3.8	2.4	2.1	10.1	7.8	5.8	5.4	4.2
2005	2.8	3.3	1.3	1.8	11.3	9.3	5.0	4.9	4.0
2006	3.1	2.7	1.7	3.4	12.7	9.3	5.6	5.5	4.6
2007	2.7	1.8	2.2	3.1	14.2	9.8	6.0	5.7	5.1
2008	0.2	-0.3	-1.0	0.4	9.6	3.9	3.2	3.1	2.0
2009	-3.5	-2.8	-5.5	-4.3	9.2	8.5	0.7	0.0	0.9
2010	3.0	2.5	4.7	1.9	10.6	10.3	7.9	5.4	6.5
2011	1.8	1.6	-0.5	1.5	9.5	6.6	4.3	4.2	3.9
2012	1.3	2.2	1.7	-0.8	7.9	5.6	4.3	3.4	3.8
2013	1.2	1.7	1.4	-0.5	7.8	6.6	4.0	3.4	4.1
2014	1.8	2.4	0.0	0.9	7.3	7.2	4.0	3.4	3.6
2015	2.1	2.6	0.5	1.7	6.9	7.6	3.4	3.3	3.5
2016	1.8	1.7	0.6	1.6	6.6	7.6	3.5	3.2	3.8
Forecast									
2017	2.0	2.3	0.9	1.5	6.4	7.7	4.0	3.6	4.0
2018	2.2	2.5	0.9	1.8	6.1	7.5	4.2	3.7	4.0
2019	2.2	2.6	1.0	1.8	5.9	7.7	3.9	3.7	3.9
2020	2.4	2.8	0.9	1.9	5.7	7.5	4.2	3.9	4.0
2021	2.6	2.9	1.1	2.2	5.7	7.5	4.5	4.0	4.2
Average Growth Rates									
2002-2006	2.6	2.9	1.5	1.8	10.6	7.6	4.6	4.6	3.8
2007-2011	0.8	0.6	0.0	0.5	10.6	7.8	4.7	3.7	3.7
2012-2016	1.7	2.1	0.8	0.6	7.3	6.9	4.0	3.3	3.8
Forecasts									
2017-2021	2.3	2.6	1.0	1.8	6.0	7.6	4.2	3.8	4.0
2022-2026	2.4	2.6	1.2	2.0	4.9	6.5	4.2	3.6	3.6

Source: OECD, IMF, National Government Sources, BIS Shrapnel

(1) Organisation for Economic Co-operation and Development: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States.
(2) Euro area: Austria, Belgium, Cyprus, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal, Slovakia, Slovenia, Spain.
(3) Other East Asia: Indonesia, South Korea, Malaysia, Philippines, Singapore, Taiwan, Thailand, Vietnam.
(4) OECD, Euro area, Other East Asia, World GDP and Trading Partner Countries are estimates.
(5) Trading partner countries include China, Japan, Hong Kong, United States, New Zealand, India, the Euro Area and Other East Asia.

Better labour market conditions should help support a faster pace of household spending growth. Additional jobs and potentially faster wage growth would bolster household incomes. This means consumers will have more money to spend on other goods and services, broadening the economic recovery. In addition, increases in house values and stock market prices, along with reductions in debt in recent years, have pushed households' net wealth higher, which should support more spending.

Meanwhile, low interest rates and easing in mortgage credit standards will continue to support expansions in housing demand and residential building. With mortgage interest rates at close to their all-time lows, housing affordability has remained favourable despite moderate growth in house prices over the past year.

A somewhat worrisome development in recent quarters has been the weakening in business fixed investment. Over the past two years, real outlays in non-residential structures category – which constitutes roughly one quarter of total business fixed investment — have fallen sharply, as investment in oil wells and other drilling and mining structures followed the steep drop in oil prices. The decline in the number of drilling rigs in operation has been so pronounced that investment in drilling and mining structures last year was 62% lower than its peak in 2014. That said, expenditures on mining exploration, shafts & wells appears to have bottomed as the number of oil and gas rigs in operation edged up in the December 2016 quarter. This pushed mining investment 1.4% higher last quarter.

Meanwhile business investment on equipment (notwithstanding the small rise in the December 2016 quarter) has been weak since the December 2015 quarter possibly reflecting still spare capacity. As the recovery gains momentum and as capacity tightens, we expect business managers to gradually loosen purse strings and invest again.

Overall, we forecast US real GDP growth at 2.3% and 2.5% in 2017 and 2018 respectively (see Table 2.1).

Trump's fiscal stimulus will boost the US economy from 2019

President Trump plans to invest nearly one trillion dollars on public infrastructure over a 10-year period. In addition, he promised to provide large tax cuts to businesses and income tax payers across all income groups. We believe Trump's fiscal stimulus measures especially those relating to large civil infrastructure projects will boost growth from 2019 given the long lead times in getting projects from the planning stages to commencement. Passing of legislation, notably complex tax reforms, will also take time. We are forecasting the US economy to pick up pace over 2019 to 2021 to average 2.8% growth per annum over this three-year period with growth tempered by rising interest rates to ward off inflationary pressures from an expansionary fiscal policy.

This tightening cycle also presents a risk for the international economy - emerging economies potentially facing the risk of large capital outflows as investors rebalance portfolios and shift balances to the higher returns on offer in advanced economies. Emerging economies may need to raise rates (higher than what would be typically warranted by domestic circumstances) to prevent the destabilisation of capital outflows and falling asset prices and weaker confidence. On the other hand, weaker growth prospects in China and other emerging market economies have contributed to an appreciation of the US dollar. Exchange rate adjustments, in turn, should facilitate some rebalancing of global growth, dampening net exports and growth in the United States and strengthening them in other countries.

China's growth to ease

In China, GDP growth has moderated in recent years from pre-GFC rates of around 10%, partly reflecting the authorities' efforts to rebalance the economy towards household consumption. We forecast GDP growth to average around 6% from 2017 to 2021. The economy is expected to be supported by strong fundamental drivers such as increasing consumer spending, particularly as incomes rise in lower income and rural households.

However, while the rate of China's economic growth is slowing, it is still expected to remain at solid levels over the medium term. Authorities have implemented targeted stimulus measures and ongoing medium-term economic reforms aimed at reorienting growth towards domestic consumption and away from investment and exports. This process will be protracted and challenging and could involve some volatility along the adjustment path while authorities formulate and implement structural reform policies. Despite the slowing in economic growth, China's demand for raw materials including iron ore, copper, LNG and food remains high.

Next decade, we expect China's growth to moderate even further. Most of the economic reform measures announced by the Third Plenum will help rebalance the Chinese economy, as the Beijing government tries to shift to a consumer-driven economy from an investment-led economy.

Downside risks to the Chinese economy exist with the unregulated shadow banking industry, impact of banking reforms and from some uncertainty around the implementation of the government's agenda under the Third Plenum (the third plenary session of a newly elected Central Committee of the government). Concerns over the property market are also present with the residential building sector expected to be weighed down by inventory overhang, particularly in the lower tier cities.

Europe still struggling for growth

The Euro area economies (with the exception of Germany) are struggling from a lack of competitiveness. This is due to the imbalance in cost structures exacerbated by a fixed exchange rate system, which is impeding the necessary adjustments. Within the Euro area, Germany is undervalued while the other countries are overvalued although they are slowly converging to Germany's status. Hence, the lack of growth and high unemployment across the Euro zone, while conditions in Germany are more favourable. Debt is of concern.

Quantitative easing can help boost demand. But the key concerns are supply side issues. The main problem moving forward is that there remains a cost imbalance between Germany and the rest of the Euro zone countries. Germany is undervalued in the Euro, with relatively strong growth. Growth in the other countries remains impeded by the cost imbalance.

Without loosening the fiscal purse strings, Europe is likely to continue on its current track of extremely low growth over the medium-term. However, we are pessimistic toward the likelihood of an attitude shift away from austerity and toward stimulatory measures. In the absence of new stimulus, we maintain our position that Europe will 'muddle through' the next few years, hindered by persistent competitive differences, high unemployment, and slow to evolve policies. Overall, we are forecasting Euro zone growth to average just 1.8% per annum over the 2017 to 2021 period.

Euro area challenges are not restricted to the short and medium-term however. The region will continue to suffer from problems inherent to common currency areas, including the absence of flexible exchange rates and fiscal integration. Coupled with slow to adjust labour markets; constrained fiscal spending; a rapidly ageing and low labour force growth; we expect the euro area, as well as other non-euro area European countries, to experience historically low levels of growth over the long term.

Japan pursuing quantitative easing but demographics a long-term problem

Japan is another economy pursuing quantitative easing stimulus measures in an attempt to ward off deflationary pressures and revive growth, which has been faltering since the 1990s. Nonetheless, private consumption has remained subdued since the increase in consumption tax in early 2014. This led the Japanese government to postpone the next scheduled increase in consumption tax from April 2017 to October 2019. We are forecasting growth to pick up pace to 1% in 2019.

Demographics are working to slow economic activity as fertility rates remain low and the working age population (and overall population) continues to decline. This highlights the need for businesses to invest and focus on productivity improvements in order to grow the economy going forward. The other major problem facing the country is the size of public debt, which now exceeds 220% of GDP. The current government aims to achieve surplus by 2020 but will require a combination of stronger economic growth and inflation along with higher taxation revenues and contained spending to start to reel in the debt problem particularly as the population ages and welfare/social support payments are projected to rise. Overall, we expect the long-run rate of GDP growth in Japan to settle within the 1.1% to 1.3% band.

India's economy expected to maintain strong growth

After an adjustment to the method for GDP calculation, the Indian economy was the fastest growing major economy in 2016 with growth of 7.6%. Agriculture is set for another strong year boosted by above average monsoon rainfall in 2016. Meanwhile, industrial production is gaining momentum with increased output of capital and consumer goods.

The outlook for Indian economic growth reflects the policy direction of the new government, as well as an improvement in standards of governance. Moreover, institutional reforms to speed up the implementation of large scale projects are expected to underpin India's economic growth. Certain business friendly reforms, if implemented, could accelerate India's growth potential in the longer term including improved allocation of resources through more efficient capital markets.

BIS Shrapnel sees a further pickup in Indian growth over 2017 to 7.7% as supply side reforms help ease input costs and speed up the approvals and acquisitions process for infrastructure projects. Lower inflationary pressures should allow the Reserve Bank of India the opportunity to maintain accommodative monetary conditions, which should allow business investment to gain momentum, working in unison with structural reforms to improve business confidence, lead to higher inflows of foreign direct investment and the revival of stalled infrastructure projects.

Overall, emerging economies will assume the leadership mantle in driving world growth over the medium to long term, resulting in a substantial increase in their share of world GDP.

2.2 Australia – current state of play and broad economic outlook

We shouldn't underestimate the magnitude of structural change which is impacting the Australian economy. The transition from an economy dominated by a decade-long mining boom to broad-based growth will be slow and difficult and still has a few years to run, particularly as the economy still needs to absorb further falls in mining investment. The process is underway, with the 28% decline in the Australian dollar over the past four years now starting to benefit the dollar-exposed sectors and regions. It will take time, but will eventually broaden through the economy. Growth will remain soft for another three years until non-mining business investment builds momentum to drive stronger growth from late this decade.

GDP growth over the next two years will remain in the narrow band around the 2.6% it averaged over the past four years. The pattern of growth will continue – weak growth in domestic demand, with a healthy contribution from net exports (strong resource exports, weak imports) – although some features with this weak domestic demand will change as the different cycles run their course:

- Dwellings investment, a key driver of growth over the past three years, will peak within a year and then decline for three years,
- Public investment started to recover in 2015/16 (after 5 years of decline), and will rise strongly over the next two years before plateauing,
- Mining investment is now well into the third year of an expected 5-year decline, with further significant declines to come over the next 18 months. This will see mining construction fall around 75% from the 2013/14 peak,
- Non-mining business investment is only slowly picking up, and after an expected stalling in 2018/19, is expected to strengthen from late decade.

With falling mining investment and subdued non-mining investment, the economy will stay soft for another few years before growth recovers. Fortunately, there is little risk of recession. The negative shock will be largely offset by growth in resources production, further strong growth in inbound tourism and students from overseas, residential investment (in the near-term) and rising public investment, the latter funded partly by asset sales. Consumer spending will also underpin growth – households still have a healthy buffer of savings from which to draw to maintain modest growth in spending, and help offset weak wages and employment growth.

However, the recovery in non-mining business investment remains elusive. Much of the private sector remains in survival mode. The problem for non-mining sectors is not interest rates. There are plenty of funds available at relatively cheap rates. And it's not about confidence. The problem is weak growth, weak profits and excess capacity. In that environment, it would be foolhardy for businesses to invest ahead of requirements, straining cash flows and locking in additional costs before they had the revenue to support them. Business just isn't ready to invest yet.

Boosted by the lower dollar, trade-exposed industries have been the first to experience growth in demand and profits. Already, tourism and education services have experienced a strong upturn. More will follow, including agriculture, business services, and even mining and manufacturing. These sectors will be the first to invest. That recovery in revenue and profits will broaden to sectors providing inputs to the trade-exposed industries until they too, start to invest, eventually resulting in a broadly based recovery in non-mining growth, profits and investment by late this decade.

Table 2.2: Australia – Key Economic Indicators, Financial Years

Year Ended June						Forecasts						
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Private Investment												
– Dwellings	-5.9	-1.2	4.8	7.8	10.8	3.1	-4.8	-9.4	-3.6	2.7	5.6	0.2
– New Non-Dwelling Construction (+)	37.2	10.0	0.0	-12.3	-15.7	-14.8	-7.0	-4.9	2.9	5.3	7.3	3.0
– New Non-Dwelling Building (+)	9.8	6.7	3.3	5.1	0.3	-5.3	3.9	-1.3	-0.4	3.2	6.7	2.0
– New Engineering Construction (+)	53.9	11.5	-1.3	-19.5	-24.5	-21.7	-16.6	-8.9	6.9	7.6	8.0	4.1
Total New Private Investment (+)	**14.4**	**4.0**	**-0.8**	**-2.1**	**-4.6**	**-3.5**	**-2.9**	**-3.1**	**4.5**	**8.3**	**6.6**	**1.0**
New Public Investment (+)	**-4.3**	**-3.5**	**-4.3**	**-7.3**	**2.6**	**7.7**	**8.6**	**0.1**	**0.4**	**0.5**	**2.7**	**0.8**
Gross National Expenditure (GNE)	**4.9**	**1.5**	**1.0**	**1.3**	**1.3**	**1.7**	**1.6**	**1.2**	**3.4**	**4.0**	**3.7**	**2.3**
GDP	**3.6**	**2.6**	**2.6**	**2.4**	**2.7**	**2.5**	**2.7**	**2.0**	**2.8**	**3.0**	**3.4**	**2.7**
Inflation and Wages												
CPI (Yr Avg)- RBA forecasts (*)	2.3	2.3	2.7	1.7	1.4	1.7	2.0	2.2	2.5	2.5	2.5	2.5
Wage Price Index (Jun on Jun)(**)	3.7	2.9	2.6	2.3	2.1	2.3	2.5	2.5	3.1	3.5	3.7	3.8
Wage Price Index (Yr Avg)(**)	3.6	3.3	2.6	2.4	2.1	2.1	2.6	2.4	2.8	3.4	3.7	3.8
Average Weekly Earnings (Yr Avg)(^)	4.3	4.6	3.0	2.4	1.9	2.6	3.3	3.4	3.3	4.1	4.7	4.8
Employment												
– Employment Growth (Yr Avg)	1.2	1.2	0.5	1.2	2.2	1.0	1.0	0.7	1.3	2.1	2.0	1.2
– Employment Growth (May on May) (%)	1.7	0.8	0.5	1.9	1.7	0.9	0.8	0.7	1.8	2.2	1.7	0.9
– Unemployment Rate (May) (%)	5.2	5.6	5.8	5.8	5.6	5.8	6.0	6.1	5.7	5.1	5.0	5.3
Labour Productivity Growth												
– Total	2.4	1.3	2.1	1.2	0.5	1.5	1.7	1.3	1.5	0.8	1.4	1.5
– Non-farm	2.5	1.4	2.1	1.3	0.6	1.3	1.7	1.3	1.4	0.8	1.5	1.5

Source: BIS Shrapnel, ABS and RBA

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

*Headline CPI forecasts based on Reserve Bank of Australia's forecasts to December 2018 quarter. Beyond this, we've used the mid-point of Reserve Bank's 2 to 3 per cent inflation target range.

** Based on Ordinary Time Hourly Rates of Pay Excluding Bonuses.

^ Average Weekly Ordinary Time Earnings for Full-Time Adult Persons.

In the interim, we expect GDP growth of 2.5% in 2016/17, with quarterly growth expected to rebound over the near term after the -0.5% decline in GDP in the September quarter. Growth will be underpinned by further LNG capacity coming on stream, solid household spending and a pick-up in infrastructure investment. However, growth will again weaken in the subsequent two years as mining investment continues to fall, as residential building runs out of steam and parts of non-dwelling building plateau. The main contributor to domestic economic growth over the next two years will be rising public infrastructure investment. Accordingly, we expect employment growth to slow and households to react to slower jobs growth and weaker residential property prices by reeling in discretionary spending. Consequently, annual GDP growth is forecast to increase by 2.7% in 2017/18, before weakening sharply to 2.0% in 2018/19. Also contributing to slower growth in 2018/19 is a marked deceleration in export volumes once the current crop of LNG plants hit capacity.

Meanwhile,

- Soft growth in output, wages, employment and household incomes, will continue to contain underlying inflation, with headline CPI inflation higher over the next 18 months due to rising petrol prices and hikes in the tobacco excise,
- US cash rates have begun a long but gradual phase of rising world interest rates. However, given a large buffer, Australian cash rates will stay low until growth strengthens.

- The narrowing of the interest rate differential vis-à-vis US rates will tend to exert downward pressure on the Australian dollar, offsetting rising commodity prices. Accordingly, we expect the A$ to remain in a US71-76 cents band over the next four years, before rising Australian interest rates from late 2020 push the exchange rate above US80 cents.
- The phase of rising interest rates marks a sea change in investment logic away from the search for yield, with money flowing towards income growth opportunities.

The next round of infrastructure and mining projects, plus another cycle in dwellings building (we will still have a deficiency of housing stock in NSW at the end of the current cycle), will underpin stronger growth from the end of the decade. We should also see reasonable growth in government investment and dwellings building in the early 2020s. These combined factors are expected to result in annual average growth over the six years to 2026 rising back to around potential growth of 3%.

It should be noted that the forecasts prepared under the base case presented here assume that US President Donald Trump does not enact any of his more extreme trade protection policies. They do, however represent a material risk (see section 2.2.2).

2.2.1 Key risks to outlook

The most obvious downside to Australia's (and the global) economic outlook relates to any extreme trade policies enacted by US President Donald Trump. During the 2016 presidential campaign, Trump promised to significantly raise protection, abandon the Trans-Pacific Partnership (TPP) trade agreement (a regional trade agreement between the 12 Pacific Rim countries including Australia and the US), re-negotiate the North American Free Trade Agreement (NAFTA) and impose punitive measures against China and Mexico in particular. Australia has been a major beneficiary of the significant growth in trade between China and the US, and indeed, China and the rest of the world. Trump's threat to impose 45% tariffs on China, if enacted, would result in retaliatory action by China and an ugly trade war would ensue, which could potentially cause another global recession. This time, Australia would not be immune. However, the Republican Party has traditionally been in favour of free trade, while the business supporters of both Trump and the Republican Party are acutely aware that globalisation and (mostly) free trade has brought considerable benefit to both US businesses and the US economy. Assuming they have some influence on policy outcomes, an all-out assault on Chinese imports by Trump is considered unlikely, although there may be some token gestures and much 'huffing and puffing' by Trump himself. Nevertheless, while considered unlikely, Trumps' actions since his inauguration have raised the levels of uncertainty.

Conversely, an upside risk to Australia's economic growth also relates to Trump's election promises to dramatically cut taxes and raise Federal infrastructure spending. If fully (or mostly) enacted, this could raise US growth by more than forecast and, provided there were not material increases in protection by the US, lift global economic growth. The faster growth in the US would be accompanied by faster rate rises there, which would put extra downward pressure on the Australian dollar, which would enhance structural change in Australia.

The risk of a sharper slowdown in Chinese growth (and demand for Australian commodities) would put Australia in a particularly vulnerable position; given our commodity exports are significantly dependent on continued robust demand from China, as well as other Asian economies. However, this scenario is unlikely, with the general consensus being that Chinese growth will remain around 6% to 7% in the near-term, particularly given the willingness (and firepower) of authorities there to prevent a serious slowdown. That said, a key risk to the Chinese economy over the medium term is China's ability to contain its financial risks due to an

increasing share of overdue payments beyond 90 days, banks moving into the wholesale markets for funding hence putting pressures on liquidity, a proliferation of shadow credit products, increased lending to an oversupplied housing market, and a high level of corporate indebtedness. However, Chinese regulatory authorities remain adamant that these risks are under control given most borrowers' long-term viability remained sound.

There is a risk that our forecast recovery in non-mining business investment will take longer to come through, which means that the economy will stay softer for longer. If the recovery does not come through, we expect the Reserve Bank to keep interest rates at historically low levels even longer than our current forecast to support economic recovery. Conversely, there is an upside 'risk' that non-mining investment comes through sooner and stronger than anticipated, possibly via the tradeables sectors ramping up investment faster than we expect, which may then flow quickly onto other industries. Longer term, the main risk to Australia's growth prospects relate to the fundamental drivers of growth – lower population growth and a failure for labour productivity growth to maintain its long-term average. However, we expect Australia's relatively high level of income to continue to attract migrants. Furthermore, as the positive benefits of the terms of trade and increased labour supply of the past decade or two start to wane, we expect both governments and businesses to make a more concerted effort to invest in productivity – much as it occurred during the 1980s and 1990s.

2.3 The South Australian Economy: current conditions and outlook

Growth in the South Australian economy has lagged the national average since the turn of the decade, with Gross State Product and State Final Demand averaging 1.6 and 1.2% respectively over the past six years. Meanwhile, annual employment growth has averaged just 0.3% over the same period. This has resulted in weak household income growth and spending—private consumption expenditure (PCE) growth averaged 1.6%—while the state's unemployment rate has risen from 5.4% in 2009/10 to an average of 6.8% over calendar year 2016. The January 2017 unemployment rate was 6.4%, the second highest of all the state and territories (after Western Australia), and well above the national average of 5.7%.

While employment has declined in a number of industries over the past year there has been encouraging jobs growth in wholesale and retail trade, accommodation and food services (perhaps boosted by increases in tourism), public administration and defence, and most surprising of all, there has been strong jobs growth in professional, scientific and technical services and administrative and support services, despite the subdued outlook for investment and growth.

The economy continues to suffer from a lack of growth drivers. SA wore the cost of the mining boom—in terms of the negative impact on the state's non-mining trade-exposed industries from a high $A for several years—without seeing many benefits. We expect continued weakness until the benefits of a lower $A, provided it is sustained, manifest for the state's trade-exposed industries of agriculture, mining, manufacturing and, to a lesser extent, tourism and education. Population growth was only 0.8% in 2014/15 and we expect it to slow further as South Australians go interstate in search of job opportunities.

Growth is expected to remain muted over the next few years and continue to lag the national economy. The manufacturing sector faces further challenges. The 2017 closure of the GM Holden plant will have negative spill-over effects into other parts of the economy, while there are uncertainties over the future of the Arrium steelworks in Whyalla and further likely job cuts at the Australian Submarine Corporation. The state government has plans for a dedicated technology precinct at Tonsley Park to create a major tech start-up centre, but this will not provide much near term upside.

Some positive signs coming from private consumption and public investment, but housing and business investment to decline

After falling a cumulative 44% over the five years to 2014/15 (including a 19% drop in 2014/15), new public investment rebounded by 9% in 2015/16 and is forecast to rise a further 26% over the next two years, led by robust rises in road construction and telecommunications (NBN roll-out) spending, and major rail works, including the $570 million Adelaide-Tarcoola upgrade, $338m Torres Junction upgrade and the remainder of the $97m Gawler line revitalisation. Public non-residential building is also expected to rise further in 2016/17 due to a number of projects at the state's universities, defence facilities at the Edinburgh RAAF base and the $140 million Flinders Medical Centre expansion.

Note that most of the rise in public investment will come from Commonwealth funding (roads, rail, defence, universities, and telecommunications). The state government finances are constrained, with ongoing deficits and debt and a scarcity of public assets to provide revenue or to sell after most of the states' electricity and ports assets were privatised over the past two decades. State government finances are also likely to remain constrained with stamp duty revenue set to fall and payroll tax growth expected to remain weak in line with employment growth.

Despite the constrained government finances, government consumption expenditure increased strongly (+3.7%) in 2015/16, with overall 4.5% growth in public spending a key driver of State Final Demand growth of 1.4% in 2015/16. However, government consumption expenditure growth is expected to fall back over the next year, with growth in public sector employment to slow after strong rises in 2015/16.

After seeing decent growth of 4.2% in 2014/15, private investment fell -6.6% last financial year and declines are expected for the next three years to 2018/19. The sharp decline in 2015/16 was due to big declines in private non-dwelling building (due to steep falls in offices, warehouses and private hospital building), plant and equipment investment and 'intellectual property products' investment—the latter dragged down by large declines in oil and gas exploration and weak research and development expenditure. Dwelling investment and private engineering construction were also marginally weaker in 2015/16.

Another large fall in private non-dwelling building is expected in 2016/17, led by further declines in private hospital building, but a significant rebound is predicted in 2017/18 led by the $180 million Skycity Casino expansion, the $200 million Calvary Hospital, the $100m Adelaide Airport Terminal expansion and a recovery in offices and shops.

Further falls in private engineering construction are predicted for the next two years, largely caused by a collapse in mining investment, although this will be partially offset by increased telecommunication and electricity-related-construction—the latter mainly wind farms and network repairs and enhancements, following the severe damage from the late September storms. Equipment investment weakened in 2015/16 after a welcome rise in 2014/15, but we expect little growth in the next two years in this segment of business investment. Meanwhile, the residential building cycle is coming off the strong growth seen in the two years to 2014/15, and although another small increase is in prospect for the next year, declines are expected in the three years to 2019/20 as the state accumulates a significant oversupply of dwellings (see Table 2.3).

Table 2.3: Residential Stock Deficiency

	New dwellings required (year ended June)		Dwelling completions (year ended June)		Dwelling stock deficiency as at June ('000s)			
Year	**2016**	**2017**	**2016**	**2017f**	**2015**	**2016**	**2017f**	**2018f**
New South Wales	50,832	48,395	52,988	60,981	68.4	66.2	53.6	39.2
Victoria	60,537	56,699	59,052	66,876	8.4	9.9	-0.3	-8.2
Queensland	31,305	33,023	38,671	45,512	13.2	5.8	-6.7	-18.6
South Australia	7,668	7,384	10,018	10,639	-1.6	-3.9	-7.2	-9.4
Western Australia	16,006	15,283	32,487	23,616	11.5	-5.0	-13.3	-15.6
Tasmania	1,149	1,655	2,664	2,283	-5.1	-6.6	-7.2	-7.5
Northern Territory	381	543	1,865	1,497	-1.8	-3.3	-4.3	-4.3
A.C.T.	2,351	2,540	3,280	4,640	-6.8	-7.7	-9.8	-11.4
Australia	170,228	165,521	201,025	216,044	86.2	55.4	4.9	-35.7

f = forecast Source: BIS Shrapnel, ABS

Employment growth to improve this year, but decline again in FY18

Despite the weak labour market, household consumption expenditure has recorded healthy growth of 2.4 and 2.7% in 2014/15 and 2015/16. Employment growth picked up in the second half of calendar year 2016, increasing by 0.8% and 0.6% in the three months to August and November respectively. For 2016/17, BIS Shrapnel is forecasting employment growth to increase 1.2% (year-on-year), compared to 0.6% for the past two years. This is expected to underpin healthy household consumption growth of 2.3%. However, this improvement is expected to be short-lived.

The shut-down of Holden in late 2017 will see over 2,600 jobs lost directly at Holden itself, with several thousand more jobs likely to go at car component manufacturers affected by the closure of both Holden and Toyota (in Victoria) at the same time. There will also be flow-on effects to other suppliers, such as steel, aluminium, glass, plastics and other manufactured items, plus a range of service providers. The severity of the impacts will depend on the ability of car component manufacturers to diversify and transition to exporting.

Most of these manufacturers only export a small proportion of their output, and are heavily reliant on domestic car manufacturers for their sales. Some of these firms are part of global supply chains, which focus on, and locate close to, motor vehicle manufacturing. These firms are likely to close as Australian manufacturing operations end. Indeed, South Australian Minister for Manufacturing and Innovation said that around 20 car parts makers had indicated that they would close as Australian car manufactures closed.

Parts manufacturers may benefit from the lower exchange rate, which will help them to shift to an export focus. However, just like the Australian car manufacturing industry, car part makers face comparatively high production costs that make it difficult to compete with foreign operations. Additionally, there are well established component suppliers to overseas car manufacturing operations.

In addition, the downturn in housing and still weak business investment are also expected to result in weak employment outcomes in some sectors.

Arrium in strife, but defence contracts and tradeables pick-up offer hope

Arrium entered voluntary administration in April 2016, with the banking syndicate that has provided credit to the company rejecting a recapitalisation offer that was put forward by a US company, GSO. The company is heavily indebted, owing $2.8 billion to unsecured creditors, along with debt to trade creditors, employee obligations and the state government for clean-up liabilities.

Nevertheless, we expect that Whyalla will remain operational, with some form of rescue package being provided by the state and federal governments if required. A precedence for this was set last year, when the South Australian government underwrote a redevelopment of the Nyrstar Smelter in Port Pirie (the redevelopment was $500 million, with the state government underwriting $290 million). The support was provided as it was determined that the closure would cost the state government more than the company due to increased unemployment and other knock on effects. The banks also helped underwrite the deal, as they formed the view that the loss of jobs and knock-on effects would endanger a large book of loans, not only to suppliers, but also the mortgages of Nystar employees and those dependent on the smelter, and its employees' spending.

Given that there are more people employed at Whyalla than there were at Nyrstar, there is even more reason for the government (be it state or federal) and banks to step in. Additionally, the current political landscape would suggest a rescue would be initiated, with the Federal Minister for Innovation already indicating that Arrium would be able to get contracts linked to the next fleet of submarines. The Whyalla steelworks is already benefitting from the major Federally-funded rail upgrade, supplying the steel rail tracks.

In addition, the Commonwealth announced in mid-April that Adelaide would be the hub of a continuous naval shipbuilding industry, setting out plans worth $40 billion for the construction of naval patrol vessels and other boats to fill the gap before construction of frigates and submarines begin. The Minister for Defence announced plans to begin building 12 Offshore Patrol Vessels from 2018 (although after the initial vessels, the construction of the remainder would move to Western Australia). This is expected to avoid the so-called 'valleys of death' between projects which would see a loss of employment and workplace expertise, once current work on the Air Warfare Destroyers is completed around 2018. The offshore patrol vessels then fill the gap until the $35 million Future Frigate construction begins in Adelaide in 2020. The $500 million submarines project is expected to get under way within the next decade.

The submarine and other major defence building contracts may provide a boost to the economy, but the benefits are some years off. Meanwhile, the state's main hope is that non-mining business investment will benefit from a sustained lower $A.

There may be some encouraging signs that the tradeables sectors are improving. Merchandise exports from the state jumped almost 14% (in real or volume terms) in 2015/16, according to ABS data, and although we expect only moderate growth in export volumes in 2016/17, the strength of exports will eventually flow onto investment and other services sectors, as well as adding to GSP. Indeed, the boost from exports, coupled with only modest import growth drove a 1.9% increase in GSP in 2015/16.

Going forward, BIS Shrapnel is forecasting real State Final Demand to increase 1.6% in 2016/17— the same as the growth forecast for the Australian domestic demand — but South Australia's SFD growth is subsequently predicted to underperform the national average over the following two years, with an average increase of 1.3% compared to 1.5% average increase for Australia. GSP will largely track lower than SFD, increasing by 1% in 2016/17, before strengthening to 1.4% in 2017/18 but slowing to around 1% in 2018/19 (see Table 2.4).

Table 2.4: South Australia – Key Economic Indicators, Financial Years

Year Ended June	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
South Australia													
Total Construction Activity(*)	5.9	-1.8	7.9	-4.5	1.1	9.8	6.4	5.2	-2.7	-4.4	1.1	3.6	0.1
State Final Demand	1.8	1.8	0.0	0.8	2.4	1.2	1.6	1.4	1.3	2.8	3.2	4.0	2.4
Gross State Product (GSP)	**2.3**	**0.7**	**1.7**	**0.9**	**2.0**	**1.9**	**1.0**	**1.4**	**1.1**	**2.2**	**2.5**	**3.3**	**2.6**
Employment Growth (Year Average)	1.5	0.7	2.0	-1.5	1.2	0.1	1.2	-0.3	0.1	0.8	1.7	2.2	1.6
Australia													
Total Construction Activity(*)	6.9	14.5	5.3	0.8	-6.1	-4.6	-6.0	-3.8	-7.2	-1.5	2.2	5.5	1.9
Australian Domestic Demand	3.7	5.1	1.7	1.3	1.1	1.4	1.6	1.7	1.2	3.2	4.0	3.8	2.4
Gross Domestic Product (GDP)	2.4	3.6	2.6	2.6	2.4	2.7	2.5	2.7	2.0	2.8	3.0	3.4	2.7
Employment Growth (Year Average)	2.4	1.2	1.2	0.5	1.2	2.2	1.0	1.0	0.7	1.3	2.1	2.0	1.2

Source: BIS Shrapnel and ABS

* Total construction work done in constant 2013/14 prices as per the ABS Building Activity and Engineering Construction Activity in Australia surveys. Total construction is the sum of new dwelling building (includes alterations and additions activity greater than $10,000), new non-dwelling building and new engineering construction.

South Australian economy will be stronger next decade

The SA economy is expected to move into a solid upswing from the end of this decade, with SFD and GSP forecast to increase 2.8% and 2.2% respectively in 2019/20. Among the positive factors driving better growth:

- The major negative of the motor vehicle manufacturing shutdown and declining mining investment will have receded
- The expected low dollar—with the A$ to average US70 cents to US 75 cents for the next 3-4 years—will be boosting the tradeable sectors and starting to encourage investment
- The new defence projects will be ramping up
- The housing oversupply will have markedly diminished, and market fundamentals will be improving

By late decade/early next decade, not only will non-mining investment be improving, but it is likely to be joined by a new round of mining projects. By late decade, the investment climate for local resources projects is anticipated to have improved, due to a combination of factors. Over the next few years, the feasibility of new mining projects should improve based on current cost cutting efforts, slowly improving commodity prices and a sustained low A$, supported by stronger global growth and further urbanisation and industrialisation in Asia. The expected strengthening in demand will see commodity markets re-balance and prices rise later this decade as over-supply diminishes in a number of key commodities. Although mining investment is not as significant in SA as it is in other states (QLD, NT and WA), it can still provide a boost to the state's economy. We expect a number of minerals, oil and gas projects to commence construction as commodity prices recover.

Overall, we are projecting the stronger investment and employment outcomes to result in SFD averaging 2.7% per annum over the five years to 2024/25, easing to 2.3% in the second half of the decade. GSP growth is forecast to average 2.7% p.a. next decade. Employment growth is forecast to average 1.4% over the 2021-25 period, before slowing to 0.8% per annum over the second half of the 2020s—similar to population growth. This will see the state's unemployment rate decline from over 7% in 2019/20 to just above 5% by the late 2020s.

3. INFLATION AND WAGES

3.1 Inflation: current state of play and outlook

Consumer price inflation hasn't been a problem for over two years despite a 20% depreciation of the Australian dollar since June 2014. Underlying inflation has generally remained in the lower half of the Reserve Bank's 2 to 3% target range over calendar year 2015 and dipped below 2% in 2016. Increases in import prices have largely been offset by deflation in costs of intermediate inputs including freight costs. In addition, weak domestic demand has kept a lid on wages and non-tradeables inflation.

Where to from here? BIS Shrapnel inflation forecasts.

We believe price inflation is unlikely to be of concern over the short-term. Accordingly, we expect broadly based price pressures to remain contained over the next 12 to 18 months as weak wages growth provides a drag, although the headline rate will rise due to higher petrol prices as oil prices recover from their troughs. In addition, food inflation is expected to rise over the medium-term. Food inflation has averaged close to 3% p.a. over the past two decades, but had been very weak over the past two years (averaging only 0.6% p.a.), due to intense competition between the major supermarkets (Coles, Woolworths and 'new-comer' Aldi) and falling or weak global agricultural prices. These two influences are unsustainable—the supermarkets cannot keep cutting prices (and either their own margins or suppliers'), while world agricultural prices will pick up over the medium-term as global oversupply dissipates.

Underlying inflation is forecast to rise only slowly over the next 2 years to 2.4% by late 2017. However, we are forecasting headline inflation to pick up to 2.9% by late 2017, with tradeables inflation seeing a strong rebound. This will be largely due to rising petrol prices and other components of tradeables inflation (including food).

With oil prices now appearing to rise from their cyclical lows (Brent is around US$50 compared to low of US$29/barrel in mid-January), the anticipated recovery in oil prices over 2016/17 (to around US$58/barrel by mid-2017) will see petrol prices rise and add to tradeable and headline CPI inflation—estimated to add 0.5% back to the CPI over the next 18 months. There will also be indirect impacts via higher transport costs.

This increase in headline inflation will, however, be a one-off. A flatter global oil price, low global inflation and weak consumer demand will see headline inflation return back to around 2.3% by 2018/19, largely in line with underlying inflation. Meanwhile, underlying inflation is expected to ease over 2018/19, before picking up through 2019/20 and 2020/21 as demand strengthens, spare capacity diminishes and the unemployment rate falls back toward 5%.

Meanwhile, wage inflation is expected to remain subdued due to little improvement in the unemployment rate over the next 18 months, with only a gradual rise over the next two years with the WPI rising to 2.7% by December 2017, largely in response to the lift in the headline CPI rate over 2016/17. Wages growth is then expected to ease over 2018/19 as a lagged response to a weakening in economic growth, lower CPI and a rising unemployment rate. Stronger wages growth is anticipated in 2019/20 as economic growth strengthens and the unemployment rate falls.

Headline CPI inflation is forecast to average 2.5% per annum over the next five years to 2020/21, with underlying inflation slightly lower at 2.2%.

Table 3.1: Wages and Prices – Australia
Year Average Growth

Year Ended June	Average Weekly Ordinary Time Earnings[1]		Wage Price Index (All Industries)		CPI Headline Inflation (BIS Shrapnel forecasts)		Official Headline CPI [2]	
	$/week	%CH	Index	%CH	Index	%CH	Index	%CH
2000	765.4		71.7		69.4		69.4	
2001	804.2	5.1	74.2	3.5	73.6	6.0	73.6	6.0
2002	847.4	5.4	76.7	3.3	75.7	2.9	75.7	2.9
2003	890.0	5.0	79.3	3.5	78.0	3.0	78.0	3.0
2004	931.6	4.7	82.2	3.6	79.9	2.4	79.9	2.4
2005	972.9	4.4	85.3	3.7	81.8	2.4	81.8	2.4
2006	1 017.5	4.6	88.7	4.1	84.4	3.2	84.4	3.2
2007	1 054.1	3.6	92.2	3.9	86.9	3.0	86.9	3.0
2008	1 106.1	4.9	96.1	4.1	89.8	3.4	89.8	3.4
2009	1 166.5	5.5	100.0	4.1	92.6	3.1	92.6	3.1
2010	1 231.3	5.6	103.1	3.1	94.8	2.3	94.8	2.3
2011	1 282.5	4.2	107.0	3.8	97.7	3.1	97.7	3.1
2012	1 338.1	4.3	110.9	3.6	100.0	2.3	100.0	2.3
2013	1 400.3	4.6	114.6	3.3	102.3	2.3	102.3	2.3
2014	1 442.2	3.0	117.6	2.6	105.0	2.7	105.0	2.7
2015	1 477.3	2.4	120.4	2.4	106.8	1.7	106.8	1.7
2016	1 505.0	1.9	123.0	2.1	108.3	1.4	108.3	1.4
Forecasts								
2017	1 544.7	2.6	125.6	2.1	110.4	1.9	110.1	1.7
2018	1 596.3	3.3	128.9	2.6	113.3	2.7	112.3	2.0
2019	1 650.9	3.4	132.0	2.4	116.2	2.5	114.8	2.2
2020	1 705.8	3.3	135.7	2.8	119.2	2.6	117.7	2.5
2021	1 774.9	4.1	140.3	3.4	122.4	2.7	120.6	2.5
2022	1 858.7	4.7	145.6	3.7	126.1	3.0	123.7	2.5
2023	1 948.4	4.8	151.1	3.8	129.7	2.9	126.7	2.5
Compound Annual Growth Rates [3]								
1990-2000	3.9				2.1		2.1	
2000-2010	4.9		3.7		3.2		3.2	
2010-2016	3.4		3.0		2.2		2.2	
2016-2023	3.8		3.0		2.6		2.3	
2018-2023	4.1		3.2		2.7		2.4	

Source: BIS Shrapnel, ABS

(1) Earnings per person for full-time adults. Data is year ended May (available only mid month of quarter).

(2) Headline CPI forecasts based on Reserve Bank of Australia forecasts to December 2018 quarter. Beyond this, we've taken the mid-point of the RBA's 2-3% target range.

(3) CAGR (Compound Annual Growth Rates) for 2018-2023 is CAGR for 2018/19 to 2022/23 inclusive (ie next regulatory control period).

Inflation containment will remain a policy challenge beyond the medium-term.

Headline CPI inflation is forecast to average 2.7% per annum over the decade to 2030/31. This is slightly higher than the mid-point of the Reserve Bank's 2 to 3% target range and is based on the following logic:

- Tradeables inflation, which constitutes about 35% of the CPI, is forecast to increase by an average of just under 2% per annum contributing 0.7 to 0.8% to annual inflation.
- Non-tradeables inflation (comprising the remaining 65% of the basket) is assumed to increase by around 3% to 3.3% per annum contributing roughly 2% to headline inflation.

Taken together, we expect annual CPI inflation to increase by 2.7% per annum on average.

In forecasting annual tradeables inflation of close to 2%, we have assumed the following:

- We don't expect a rapid rise in the Australian dollar to mute tradeables inflation like it did last decade. In the 2000s, and in early this decade, tradeables inflation was significantly muted by a rising exchange rate. The Australian dollar rose from US 54 cents in 2000/01 to US$1.03 by 2011/12. We have a modest rise back to US 80 cents in the early 2020s and then a drift back to the long-term average of US 75 cents.
- We don't expect a significant downward pressure on world inflation from significant increases in manufacturing productivity and rapid technological advances, as occurred particularly in China from the late 1990s to early 2010s.
- There will be upward pressure on food prices from rising demand from a growing Asian middle class.
- Oil prices will continue to exhibit volatility but generally speaking, demand is likely to outweigh supply putting upward pressure on prices over the long term.
- The differing bottom-up assumptions gives us a baseline annual tradeables inflation forecast of close to 2% for the next decade.

On the other hand, non-tradeables inflation is forecast to increase by 3% to 3.3% per annum over the next decade, weaker than the 3.7% average achieved from 2001 to 2015 when relatively high wage inflation, lower than average productivity growth to 2009 and also large rises in utilities prices pushed non-tradeables inflation to well outside of the RBA's 2 to 3% target range.

Longer-term, tight labour markets will emerge once again given the ageing population and become a chronic problem for non-tradeables inflation. The large pool of unemployed labour that was a feature of the 1990s has gone. Moreover, skilled labour shortages will remain a problem for the foreseeable future. In addition, administrative charges including health price increases (which invariably rise faster than overall CPI) will place upward pressure on domestic services inflation. Indeed, by early next decade, both skilled and general labour shortages will begin to emerge due to demographic factors, in particular retirements of Australia's 'baby boomers' generation. Australia will continue to experience sustained labour shortages in the decade to 2030 (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.

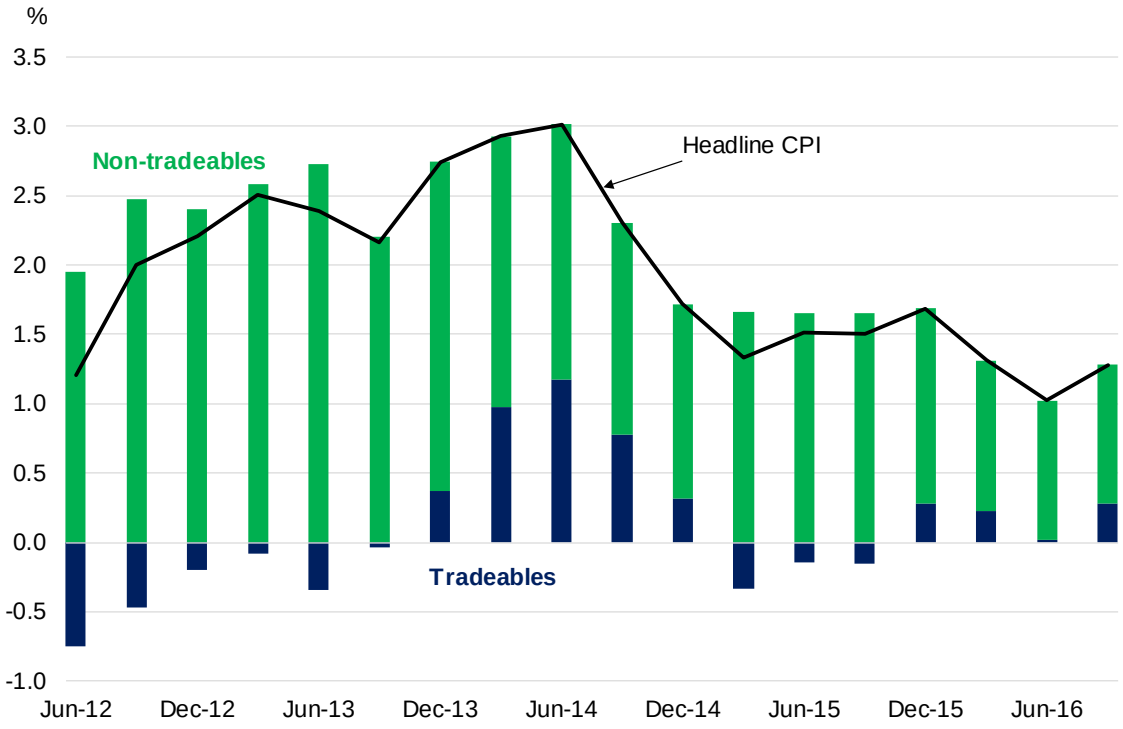
With more people retiring, the supply of labour is expected to increase at a slower rate through the coming decade. This will lead not only to skilled labour shortages, but total labour

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 the meantime, deflation is not a risk.

Chart 3.1 decomposes annual headline CPI into tradeables and non-tradeables inflation. As can be seen from the chart, the low inflation over the past two years has been driven by negative and smaller contribution from tradeables inflation as well as a step-down in the contribution from non-tradeables inflation.

Chart 3.1: Contribution to Annual Headline CPI Inflation (through-the-year)



Source: BIS Shrapnel, ABS

A key factor constraining tradeables inflation since the December 2014 quarter has been sharp falls in oil prices. Declines in oil prices directly contributed to lower petrol prices and indirectly put a lid on final retail prices via lower shipping and freight costs. Meanwhile, non-tradeables inflation has also been weaker recently due to soft wages growth, moderate inflation in rents and generally disinflation in utilities charges.

Looking ahead, we think factors which have acted to contain inflation will begin to reverse putting upward pressure on inflation. Inflationary pressure will come from two sources. Firstly and as discussed earlier, oil prices are coming out of the bottom of their cycle. The recovery in oil prices will be a source of inflationary pressure both directly and indirectly especially as the Australian dollar is also expected to remain around current levels of US 74 cents through to the end of calendar year 2017. This will see petrol prices rise and add to tradeable and headline CPI inflation – estimated to add 0.6% back to the CPI over the next 18 months. There will also be indirect impacts via higher transport costs.

Secondly, higher wage inflation will come through although that will take time. At present, wages are contained by excess capacity in the labour market — the labour market is weaker than it looks as the low unemployment rate is driven individuals leaving the labour market in response to softer employment opportunities (i.e. lower participation rate) — and weak profits by the non-mining business sector of the economy. The latter is limiting non-mining businesses' capacity to afford higher wage increments to staff. However, as non-mining businesses recovers, we will see a pick-up in employment and wages growth. Accordingly, unit labour costs will rise putting upward pressure on inflation.

All in all, we aren't worried about deflation and we believe the Reserve bank shouldn't be concerned either. Hence, we expect interest rates to be on hold unless the dollar appreciates significantly. A lower interest rate would be needed to bring the dollar down so the Australian economy remains competitive and to underwrite the transition to broadly based growth.

Reserve Bank of Australia CPI forecasts

To adjust the nominal escalators into reals, we have used the Reserve Bank's price inflation forecasts. This is the AER's preferred method. The RBA's November 2016 'Statement on Monetary Policy' projects the annual headline CPI rate at 1.5% through-the-year to December 2016 quarter, rising to 1.5% to 2.5% range through to December 2018. Beyond 2018, we have used annual CPI inflation at 2.5% which is in the middle of the RBA's target range of 2 to 3%. Again, this is the AER's preferred approach.

3.2 Australian All Industries Wages: current state of play and outlook

3.2.1 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 Wage Price Index (WPI) — a CPI-style measure of changes in wage and salary costs based on a weighted combination of a surveyed 'basket' of jobs. The WPI used in this report excludes bonuses. The WPI 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 WPI 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 wage 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 (ie 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% — since the 1980s or basically since the equal pay legislation was enacted through the 1970s.

The wage 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 WPI 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 WPI 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 wage 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 wage price index. However, the employer's total wages bill (and unit labour costs) would be higher.

3.2.2 Description of BIS Shrapnel's wage model

BIS Shrapnel's wage model (for both AWOTE and WPI) 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 3.2 and 3.3):

- 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 (i.e. dollar value) increases, rather than as a proportional increase. At the all industries level, 8.1% of all employees (data excludes those in agriculture, forestry and fishing) have their pay rises determined by this method. In the electricity, gas, water and waste services sector, only 2.7% of workers have their pay set by this method.
- Collective agreements negotiated under enterprise bargaining account for 41.9% of all employees, but 67.7% of electricity, gas, water and waste services 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, water and waste services is 30%.

Table 3.2: Methods of Setting Pay, Industry, May 2010
Proportion of Full-Time Adult 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 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%**

Source: ABS

Future wage changes are based on the key influences on the different wage determination mechanisms of each discrete segment. These are discussed next.

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% 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% in the March quarter and to 4.5% in the June quarter). It also reflected the strong economic conditions apparent around mid-2008 (the unemployment rate was just over 4%). 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 3.3, wage increases under 'individual arrangements' are calculated by deduction. Data from Department of Employment are used for wage increases under collective agreements.

3.2.3 Some Deficiencies in Econometric Models of Wage Determination for the EGWWS Sector

We believe that BIS Shrapnel's pay-setting method or bottom-up wage model 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 at both the national and industry sector level is superior to a methodology utilising purely econometric regression techniques, in particular linear regression models to forecast wages. This opinion is based on a number of factors including the following:

- 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, 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 overlaid with our expertise and knowledge of key influences.

3.2.4 Australian wages: current conditions and outlook

Wages growth remains at its slowest pace in two decades – and will remain soft

Falling terms of trade, spare capacity in the labour market, weak inflation and inflation expectations along with a flexible labour market have conspired to slow wages growth over recent years. Year average growth in 2015/16 was 2.1% for the WPI and 1.9% for Average Weekly Ordinary Time Earnings, both down from 2.4% in 2014/15. In through the year terms, wages growth at present is the lowest since 1998 (i.e. since the ABS started recording this data).

As Table 4.1 shows, many of the industry sectors that were the leaders of strong wages growth in the decade to 2011/12 are now at the other end of the spectrum. The end of the mining investment boom has seen wage rises in the mining, construction, professional services and transport sectors all fall back below the national average.

Low wages growth is both a product of and key cause of low underlying inflation. Low wages are keeping business costs down and thus muting price pressures, while a significant section of pay deals are being set in line with CPI inflation. The unemployment rate has fallen from 6.3% in July 2015 to 5.7% now. There is often a lagged response of wages to improvements in the labour market (i.e. unemployment rate), which may see wages gradually pick up from here, albeit modestly as plenty of spare capacity still exists due to weak demand and investment. The underemployment rate (i.e. the proportion of people working fewer hours than they would wish) also remains elevated suggesting significant latent capacity in the economy.

Chart 3.2: Australia – Wages and Prices

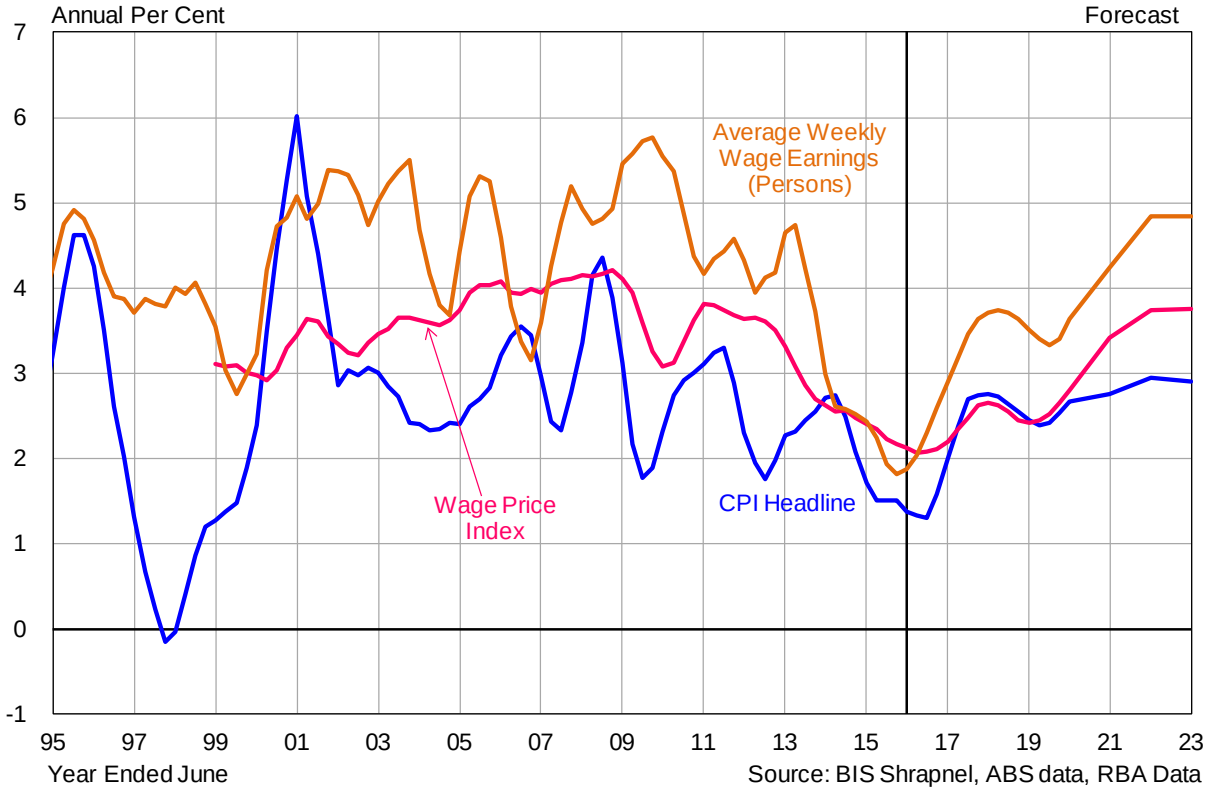


Chart 3.3: Employment and Unemployment

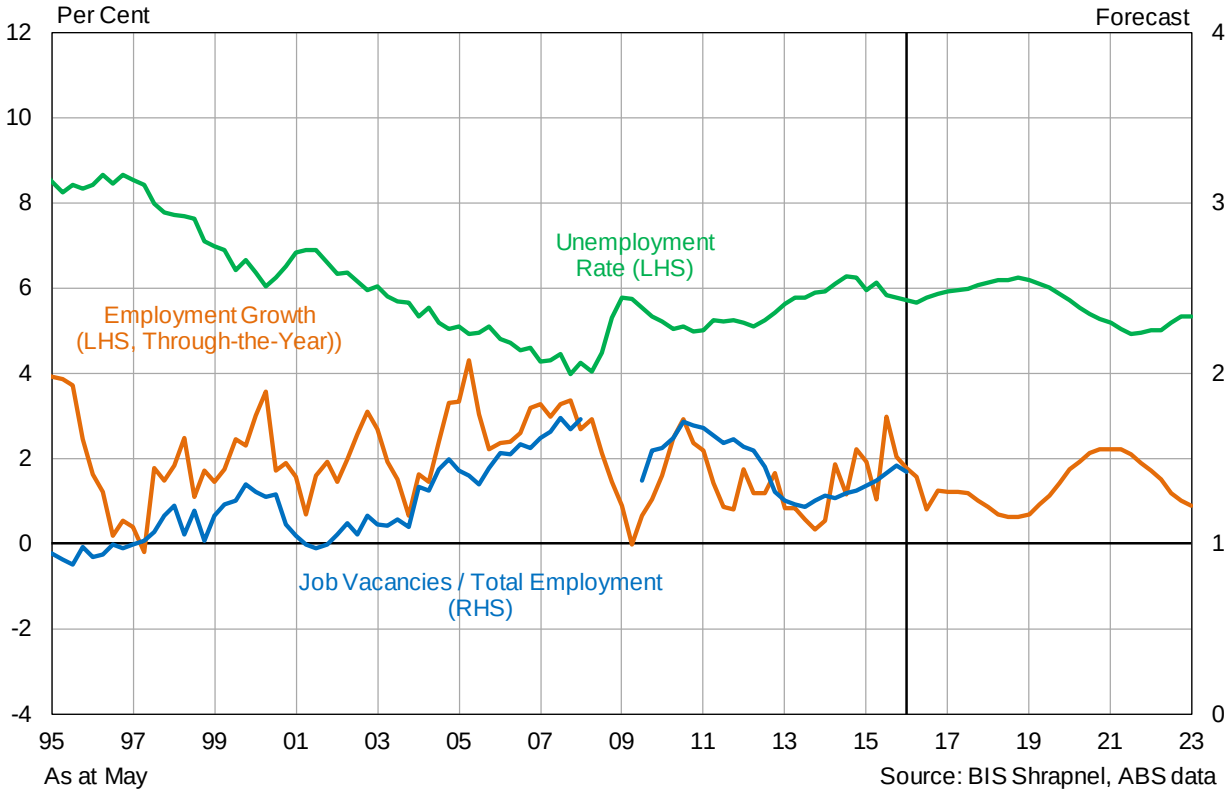


Table 3.3: Wages Growth: All Industries, Australia (by Workforce Segmented by Pay Setting Method)

Year Ended June	% of Workforce in 2010	Year Average Per Cent Change													
							Forecast							Average	Average
		2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2017-23	2019-23
Wage Price Index															
Awards Only	8.1%	3.4	2.9	2.6	3.0	2.5	2.4	2.7	2.7	2.6	2.7	2.9	3.1	2.7	2.8
Collective Agreements	41.9%	3.8	3.6	3.5	3.3	3.2	3.1	3.0	3.0	3.0	3.1	3.3	3.5	3.1	3.2
Individual Arrangements	50.0%	3.5	3.1	1.9	1.5	1.1	1.2	2.2	1.9	2.7	3.9	4.3	4.1	2.9	3.4
Wage Price Index (a)	**100%**	**3.6**	**3.3**	**2.6**	**2.4**	**2.1**	**2.1**	**2.6**	**2.4**	**2.8**	**3.4**	**3.7**	**3.8**	**3.0**	**3.2**
Compositional Effects + Bonuses,etc		0.7	1.3	0.4	0.0	-0.2	0.5	0.7	1.0	0.5	0.6	1.0	1.1	0.8	0.8
AWOTE (a)	**100%**	**4.3**	**4.6**	**3.0**	**2.4**	**1.9**	**2.6**	**3.3**	**3.4**	**3.3**	**4.1**	**4.7**	**4.8**	**3.8**	**4.1**

(a) Full-time Adult Persons, ordinary time earnings and excludes bonuses.
(b) Average Weekly Ordinary Time Earnings for Full-time Adult Persons (excludes overtime but includes bonuses).

WPI inflation is expected to remain subdued due to little improvement in the unemployment rate over the next 18 to 24 months. Only a gradual rise over the next two years is forecast with the WPI expected to rise by 2.6% by June 2018, largely in response to the lift in the headline CPI over 2016/17. Wages growth is then expected to ease over 2018/19 as a lagged response to a weakening in economic growth, lower CPI and a rising unemployment rate. Stronger wages growth is anticipated in 2019/20 as economic growth strengthens and the unemployment rate falls.

Indeed, a broadening in employment, profits and investment is expected from early next decade as the next set of economic drivers, in particular non-mining business investment, comes through. The increase in profits combined with rising price inflation next decade will push up wages growth over 2019/20 to 2022/23. There is usually a lag of at least a year for wages to follow (push up) due to a strengthening in employment and falls in unemployment (and conversely downward wage pressure responding to weaker economic conditions). Wages growth (in year average terms) is expected to rise further and peak at 3.8% for WPI (4.8% for AWOTE) in 2022/23 – which would be the strongest result in WPI terms in a decade (see Table 3.3).

Longer-term, both skilled and general labour shortages will begin to emerge due to demographic factors, in particular retirements of Australia's 'baby boomers' generation. Australia will continue to experience sustained labour shortages in the 10 years to 2031 (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 cohort 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.

4. WAGE FORECASTS FOR THE ELECTRICITY, GAS, WATER AND WASTE SERVICES SECTOR

In this section, we provide an outlook for the WPI (wage price index) for the EGWWS (electricity, gas, water and waste services) sector at the national level. In addition, we provide a discussion and forecasts of the WPI for the South Australian EGWWS industry.

At the national level, wages growth in the EGWWS sector is invariably higher than the total Australian national (all industry) average. The wage price index growth has consistently been above the national average since the index's inception in 1997 and averaged 0.6% higher over the decade to 2013 (see Tables 4.1, 4.5 and Chart 4.1). While growth in average weekly ordinary time earnings (AWOTE) of the electricity, gas, water and waste services sector has displayed considerably more volatility over the past two decades (mainly related to compositional effects), AWOTE growth in the sector has also usually been higher than the national average over the past six years (see Tables 4.2 and 4.5).

To a large extent, this has been underpinned by strong capital works program in the utilities sector since the beginning of the last decade (resulting in robust employment growth over the same period), strong competition from the mining and construction workers for similarly skilled labour and the powerful influence of unions in the utilities sector.

In addition, 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. Further, 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 EGWWS sector is not impacted in the same way due to its obligation to provide essential services and the need to retain skilled labour.

4.1 Strong union presence in the utilities sector will ensure collective agreements remain above the all industry average

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 powerful utilities unions such as the Communications, Electrical and Plumbing Union (CEPU) and Australian Services Union (ASU), which have a history of achieving high wage outcomes for the sector. Other unions active in the sector include the Australian Workers Union (AWU).

The key elements of the utilities wage forecast are set out in Table 4.3. This 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 generally be higher than the all industries average. Over the past five years, the outcomes from collective agreements have been 0.1% higher, on average, than the all industries average, at 3.6% compared to 3.5%. We expect this trend to continue over the outlook period, with collective agreements achieving average increases of 3.6% for the utilities sector, compared to 3.1% for all industries.

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

Sector	% of Total Employment Jun'16	Annual Per Cent Change (year-on-year)[1]										Five-Year YE Jun Average
		Jun'08	Jun'09	Jun'10	Jun'11	Jun'12	Jun'13	Jun'14	Jun'15	Mar'16	Jun'16	
Private		4.3	4.0	2.7	3.8	3.7	3.4	2.6	2.3	2.1	2.0	2.8
Public		4.0	4.2	4.2	3.8	3.2	3.2	2.8	2.6	2.6	2.5	2.9
Industry												
Mining	1.9%	5.8	5.7	3.6	4.3	4.4	4.5	2.8	2.3	1.8	1.6	3.1
Manufacturing	7.4%	4.5	3.5	2.3	3.7	3.8	3.2	2.9	2.7	2.5	2.4	3.0
Electricity, Gas, Water and Waste Services	**1.2%**	**4.2**	**4.5**	**4.3**	**4.2**	**3.5**	**4.2**	**3.3**	**2.8**	**2.4**	**2.4**	**3.2**
Construction	9.0%	4.7	4.7	3.3	4.0	4.1	3.3	3.0	2.1	1.6	1.6	2.8
Wholesale Trade	3.1%	3.6	4.1	2.3	3.8	4.4	4.4	2.2	2.2	1.9	1.9	3.0
Retail Trade	10.7%	4.0	4.5	3.8	3.5	3.6	3.4	2.5	2.4	2.1	2.2	2.8
Accommodation and Food Services	6.9%	2.9	3.0	2.2	3.3	3.4	2.5	2.3	2.6	2.3	2.3	2.6
Transport, Postal and Warehousing	5.3%	4.0	4.5	3.8	3.4	3.5	3.5	2.5	2.4	2.2	2.2	2.8
Information Media and Telecommunications	1.7%	3.8	3.1	2.2	3.0	3.7	2.9	2.4	2.5	2.3	2.2	2.7
Finance and Insurance Services	3.6%	4.0	4.0	2.6	4.4	4.0	3.2	2.7	2.7	2.7	2.6	3.0
Rental, Hiring and Real Estate services	1.9%	4.3	3.5	2.6	3.0	3.8	2.8	2.7	2.3	1.8	1.6	2.6
Professional, Scientific and Technical Services	8.5%	4.4	5.2	3.1	4.3	4.5	3.5	1.9	1.9	1.6	1.6	2.7
Administration and Support Services	3.6%	4.6	4.2	2.2	3.7	3.3	3.3	2.5	1.9	1.5	1.4	2.5
Public Administration and Safety	6.3%	4.2	4.3	3.9	3.7	3.1	3.5	2.9	2.2	2.2	2.2	2.7
Education	7.7%	4.0	4.4	4.0	4.1	3.7	2.8	2.9	3.0	2.7	2.7	3.0
Health Care and Social Assistance	12.7%	3.8	3.8	4.0	3.6	2.9	3.3	2.9	2.7	2.5	2.5	2.9
Arts and Recreation Services	1.9%	4.0	3.7	3.0	3.2	3.7	2.9	2.7	3.0	2.4	2.4	2.9
Other Services	3.9%	3.9	3.4	2.3	3.2	4.2	3.2	2.4	2.2	2.2	2.2	2.8
State/Territory												
New South Wales	31.9%	3.9	3.8	3.2	3.7	3.6	3.1	2.5	2.3	2.1	2.1	2.7
Victoria	25.5%	3.9	3.9	2.8	3.8	3.5	3.3	2.7	2.7	2.5	2.3	2.9
Queensland	19.7%	4.2	4.2	3.3	4.0	3.7	3.0	2.7	2.4	2.0	2.0	2.7
South Australia	6.8%	4.8	3.9	2.8	3.5	3.4	3.3	3.3	2.5	2.3	2.3	3.0
Western Australia	11.2%	5.8	5.2	3.3	4.0	4.3	4.0	2.8	2.2	1.9	1.9	3.0
Tasmania	2.0%	3.8	4.3	3.7	3.4	3.4	3.2	2.3	2.5	2.3	2.2	2.7
Northern Territory	1.1%	3.8	4.5	3.4	3.9	3.8	3.3	2.7	2.6	2.3	2.2	2.9
Australian Capital Territory (ACT)	1.8%	4.2	3.9	3.5	3.7	3.3	3.7	2.4	1.7	1.7	1.7	2.6
Total All[2]	100%	4.1	4.1	3.1	3.8	3.6	3.3	2.6	2.4	2.2	2.1	2.8

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 Jun'16	Average Weekly Earnings[1]											Five-Year YE Jun Average
		$ / Week Jun'16	Annual Percent Change (year-on-year)										
			Jun '06	Jun '07	Jun '08	Jun'09	Jun'10	Jun'11	Jun'12	Jun'13	Jun'14	Jun'15	Jun'16	
Mining	1.9%	2 597	4.5	6.5	8.1	7.3	7.2	6.5	6.2	6.8	4.2	1.5	1.7	4.1
Manufacturing	7.4%	1 364	4.4	4.7	4.2	5.3	1.8	2.8	2.3	3.9	4.8	4.3	1.0	3.3
Electricity, gas, water and waste services	1.2%	**1 734**	**1.9**	**3.7**	**2.7**	**6.1**	**7.6**	**9.1**	**2.5**	**6.1**	**2.0**	**0.7**	**3.5**	3.0
Construction	9.0%	1 503	1.9	4.9	9.2	7.8	7.7	5.0	3.5	4.3	2.1	2.2	1.4	2.7
Wholesale trade	3.1%	1 457	6.3	3.7	3.8	5.9	2.2	3.9	11.3	4.6	0.5	0.3	0.9	3.5
Retail trade	10.7%	1 115	6.9	3.4	5.6	2.7	5.5	0.9	3.2	4.0	2.5	4.0	4.2	3.6
Accommodation and food services	6.9%	1 070	4.9	8.2	3.8	2.5	4.5	3.5	3.7	5.5	3.9	-0.1	2.3	3.1
Transport, postal and warehousing	5.3%	1 550	2.3	0.6	0.5	4.5	5.3	8.9	7.0	5.9	1.8	2.8	5.2	4.5
Information media and telecommunications	1.7%	1 807	4.3	6.3	7.7	4.3	5.4	4.6	3.0	4.8	1.7	1.0	4.2	3.0
Finance and insurance	3.6%	1 823	5.0	3.4	3.8	2.8	4.6	6.1	2.0	4.3	1.1	4.3	4.6	3.3
Rental hiring and real estate services	1.9%	1 369	7.3	2.4	8.6	6.5	3.8	-2.1	0.4	6.6	-1.1	-1.7	5.7	2.0
Professional, scientific and technical services	8.5%	1 746	7.3	2.5	7.8	5.8	5.6	4.5	4.3	3.2	3.8	2.7	-1.1	2.6
Administration and support services	3.6%	1 283	6.4	1.6	7.2	7.1	7.4	-0.1	-1.9	7.9	1.7	-1.5	-0.4	1.2
Public administration and defence	6.3%	1 571	4.2	3.7	3.7	5.4	6.7	5.7	3.2	4.7	3.5	0.9	1.8	2.8
Education and training	7.7%	1 641	3.8	3.7	3.0	4.6	5.6	4.8	4.6	3.8	3.3	2.7	2.4	3.3
Health and social assistance	12.7%	1 441	2.0	3.6	4.4	4.7	6.2	2.5	2.8	5.3	3.9	2.4	2.5	3.4
Arts and recreational services	1.9%	1 368	-0.9	-0.6	6.4	7.2	4.1	5.6	3.5	5.5	4.6	-1.0	3.6	3.2
Other services	3.9%	1 185	5.7	2.0	3.3	6.8	3.1	3.6	2.7	4.2	-0.4	0.8	5.5	2.5
Total All Industries[2]	100%	1 516	4.6	3.6	4.9	5.5	5.6	4.2	4.3	4.6	3.0	2.4	1.9	3.2

(1) Average weekly ordinary time earnings for full-time adult persons. Source: BIS Shrapnel, ABS
(2) Excludes Agriculture, Forestry and Fishing sector

BIS Shrapnel analysis shows collective agreements in the EGWWS sector have been on average around 1.5% higher than CPI inflation over the decade to 2010 (excluding the effects of GST introduction in 2000/01). In the five years to 2010 when the labour market was very tight, collective agreements were on average 1.7% above the CPI. Given the strength of unions in the sector and a still strong demand for skilled labour over the next four years (and possibly beyond) than for most of the 2000s, collective agreements are forecast to remain around 1.3% above the 'official' CPI over the forecast period.

As well as increases in CPI, increases in collective agreements under enterprise bargaining are also influenced by a combination of inflationary expectations, the recent profitability of relevant enterprises, current business conditions and the short-term economic outlook, and, as mentioned, 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 Enterprise Bargaining Agreement (EBA) wages on the strength of recent agreements, which have been 'formalised' or 'lodged' (i.e. an agreement has been 'reached' or 'approved') over recent quarters.

We expect EBA outcomes to show modest growth over the next two years but remain above inflation and the 'all industries' average given that the demand for skilled labour remains strong and particularly given the recent high enterprise agreement outcomes in the construction sector. This will influence negotiations in the EGWWS sector, as some skills can be transferable. A mild recovery in EBA outcomes will occur over subsequent years as the labour market begins to tighten, unemployment falls and business profitability improves. However, forecast growth in wage agreements of around 3.7% per annum remains below that experienced over much of the past decade.

4.2 Demand for skilled labour also a key driver of utilities wages

Employment growth in the utilities sector over the 2003/04 to 2013/14 inclusive averaged 5.4% per annum, the second fastest growth among the 18 main industry sectors behind the Mining sector (11% per annum), with Health and Social Assistance employment growth third at 4.1% per annum.

We believe investment in the sector, particularly engineering construction, has been the key driver of employment growth in the sector over the past decade. Chart 4.2 illustrates this relationship, and shows employment has a stronger relationship with utilities engineering construction rather than utilities output.

Table 4.3: Electricity, Gas, Water and Waste Services Forecasts – Australia

Year Ended June	% of Workforce in 2010	Year Average Per Cent Change (a)															
									Forecast							Average	Average
		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2017-23	2019-23
Wage Price Index																	
Awards Only	2.7%	0.7	3.2	3.4	2.9	2.6	3.0	2.5	2.4	2.7	2.7	2.6	2.7	2.9	3.1	2.7	2.8
Collective Agreements	67.7%	4.6	4.2	4.1	3.9	3.6	3.3	3.2	3.3	3.4	3.5	3.5	3.7	4.0	4.2	3.7	3.8
Individual Arrangements	29.6%	4.2	4.1	2.1	5.0	2.4	1.7	0.5	1.2	2.5	2.5	3.4	4.6	4.9	4.6	3.4	4.0
Wage Price Index (Ord. Time)	**100%**	**4.3**	**4.2**	**3.5**	**4.2**	**3.3**	**2.8**	**2.4**	**2.6**	**2.9**	**3.2**	**3.5**	**3.9**	**4.2**	**4.3**	**3.5**	**3.8**
Compositional Effects + Bonuses,etc		3.2	4.9	-1.0	1.9	-1.2	-2.2	1.1	0.8	0.9	0.6	0.3	0.2	0.5	0.5	0.5	0.4
AWOTE (Persons)(a)	**100%**	**7.6**	**9.1**	**2.5**	**6.1**	**2.0**	**0.7**	**3.5**	**3.4**	**3.8**	**3.8**	**3.8**	**4.1**	**4.7**	**4.8**	**4.1**	**4.2**

(a) Full-time Adult Persons

(a) Full-time Adult Persons, excluding overtime

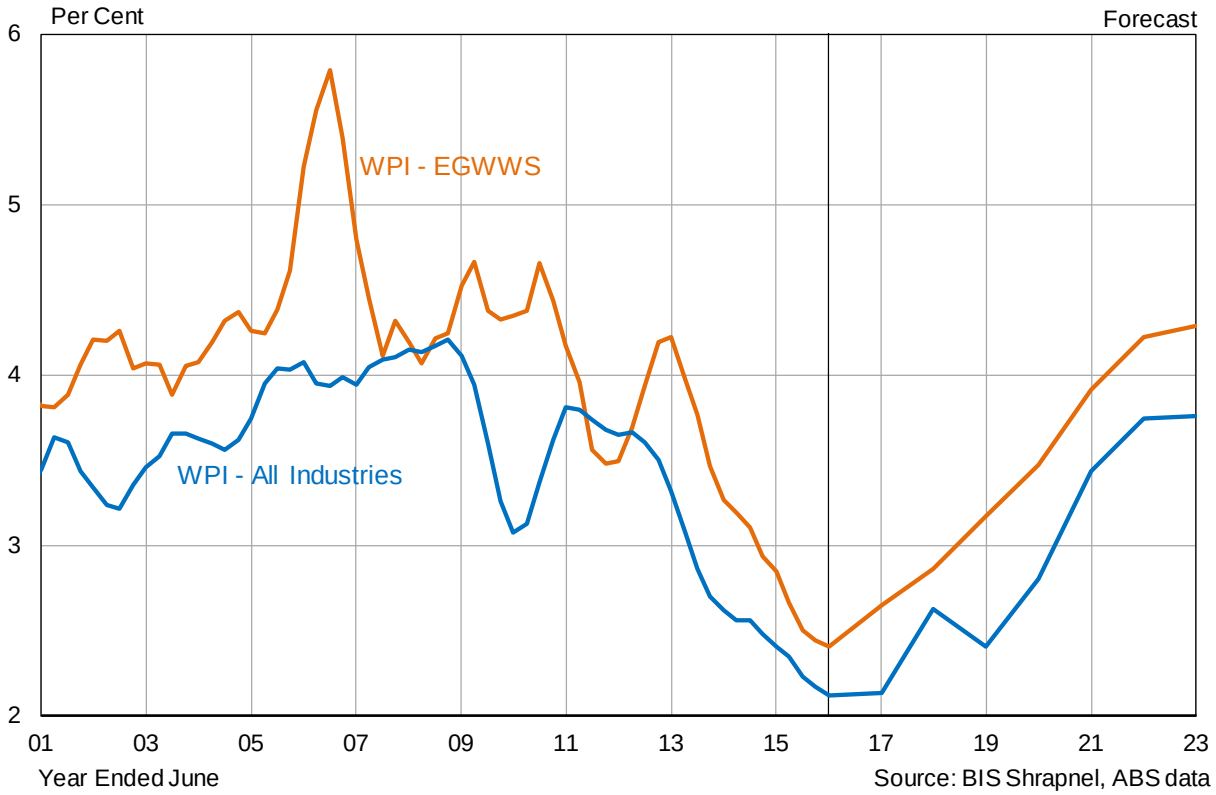
Table 4.4: Federal Wage Agreements – Collective Agreements by Industry (Average Annualised Wage Increase)

Selected Industry (ANZSIC 2006)	Collective Agreements Average Annualised Wage Increase[1]											Average
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2005-2015
Electricity, Gas, Water and Waste Services	**4.3**	**4.3**	**4.3**	**4.6**	**4.6**	**4.5**	**4.2**	**4.1**	**3.7**	**3.6**	**3.3**	**4.1**
Agriculture, Forestry and Fishing	2.8	3.0	2.9	3.4	3.7	3.3	3.5	3.5	3.5	3.1	2.9	3.2
Mining	3.6	3.7	3.9	4.2	4.2	4.1	4.2	4.4	4.3	4.0	3.2	4.0
Manufacturing	4.2	4.1	4.1	4.0	3.9	3.7	3.7	3.8	3.6	3.3	3.0	3.8
Construction	4.5	4.7	4.7	4.6	5.1	5.2	4.5	5.0	5.0	4.9	4.0	4.7
Wholesale Trade	4.1	3.5	3.6	4.0	4.0	3.7	3.6	3.6	3.6	3.2	3.0	3.6
Retail trade	3.5	3.5	3.4	3.4	3.4	3.4	3.4	3.2	3.2	3.0	3.4	3.4
Accommodation and Food Services	3.3	3.4	3.2	3.4	3.9	3.7	3.7	3.5	3.3	3.0	2.9	3.4
Transport , Postal and Warehousing	3.9	3.8	3.9	4.0	4.1	3.8	3.6	3.7	3.7	3.5	3.3	3.8
Information Media and Telecommunications	3.1	3.1	3.2	3.6	3.6	3.4	3.3	3.4	3.4	3.3	2.8	3.3
Financial and Insurance Services	4.2	4.1	3.7	3.8	3.6	3.4	3.4	3.1	3.1	3.1	3.0	3.5
Rental, Hiring and Real Estate Services	4.4	4.5	4.6	4.3	3.5	3.7	3.8	4.2	4.2	4.1	3.4	4.1
Professional, Scientific and Technical Services	4.0	3.7	3.9	4.3	4.2	4.1	4.0	4.0	4.0	3.9	3.5	4.0
Administrative and Support Services	3.5	3.4	3.5	3.6	3.5	3.6	3.6	4.1	4.0	3.9	3.6	3.7
Public Administration and Safety	4.4	4.0	4.0	4.1	3.9	3.6	3.5	3.6	3.5	3.5	3.2	3.7
Health Care and Social Assistance	3.9	4.1	3.9	3.9	4.0	3.8	3.8	3.2	3.0	3.1	3.1	3.6
Education and Training	5.0	4.5	4.8	4.2	4.3	4.3	4.4	3.9	3.5	3.7	3.7	4.2
Arts and Recreation Services	3.8	3.6	3.8	4.0	3.8	3.3	3.2	3.3	3.2	3.3	3.2	3.5
Other Services	3.4	3.7	3.8	3.6	3.6	3.5	3.6	4.0	3.6	3.2	2.9	3.6
ALL INDUSTRIES	4.2	4.0	4.0	3.9	3.9	3.9	3.8	3.6	3.5	3.4	3.3	3.8

(1) Current agreements in December of each year.

Source: Department of Employment

Chart 4.1: Wage Price Index
Total Australia (All Industries) and Electricity, Gas, Water and Waste Services



As well as the pick-up in infrastructure work, this strong growth in utilities employment has also been associated with 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 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 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 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% in 2001 to 5% by 2005, and to 4% in early 2008. This saw skilled labour shortages worsen and employers in these sectors bid up wages.

That being said, the global financial crisis and the subsequent slowing in the economy over 2008/09 reduced labour demand resulting in excess capacity. This, in turn, has kept a lid on wage pressures.

Chart 4.2: Australia – Utilities Employment, Output and Investment

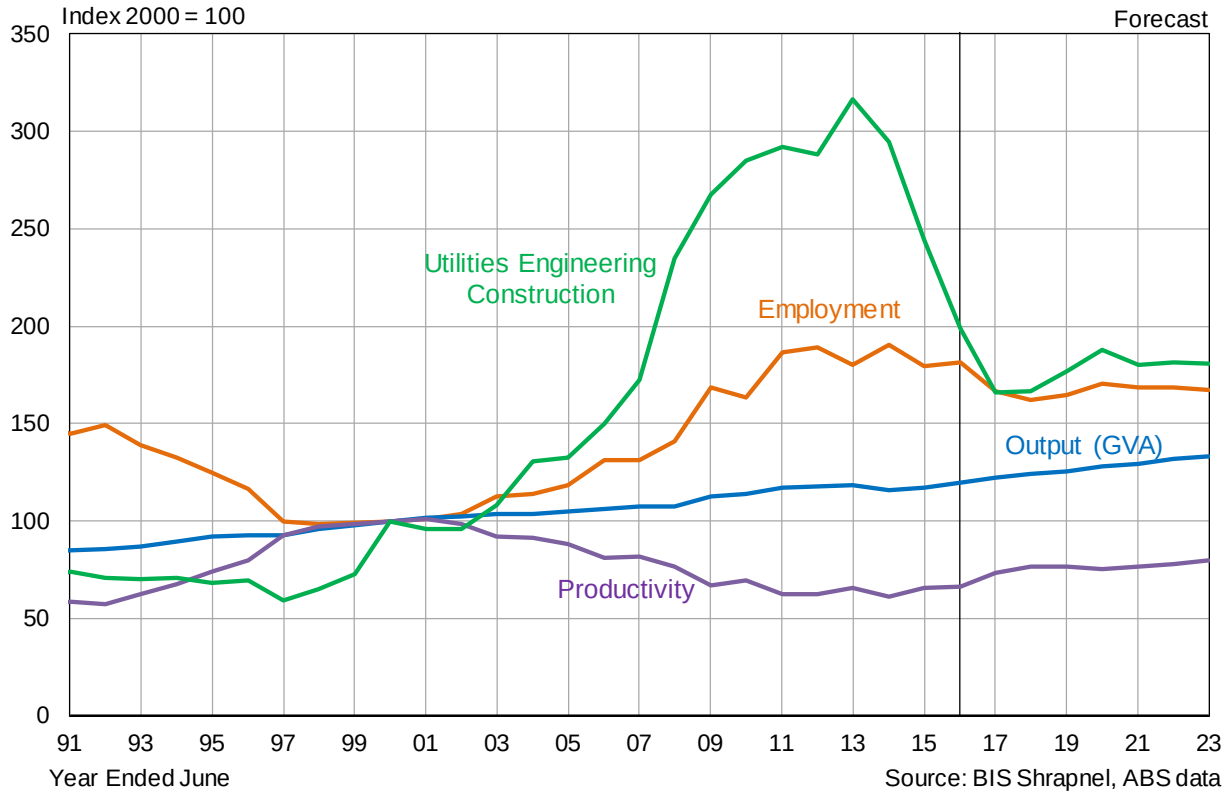


Table 4.5: Average Weekly Ordinary Time Earnings and Wage Price Index
Total Australia and Electricity, Gas, Water and Waste Services Sector
(Year Average Growth)

Year Ended June	Average Weekly Ordinary Time Earnings (1)				Wage Price Index (2)			
	All Industries		Electricity, Gas, Water and Waste Services		All Industries		Electricity, Gas, Water and Waste Services	
	$	%CH	$	%CH	Index	%CH	Index	%CH
1999	741.4	3.5	827.1	3.9	69.6	3.1	65.7	3.0
2000	765.4	3.2	866.8	4.8	71.7	3.0	68.2	3.8
2001	804.2	5.1	918.5	6.0	74.2	3.5	70.8	3.8
2002	847.4	5.4	981.0	6.8	76.7	3.3	73.8	4.2
2003	890.0	5.0	1,001.3	2.1	79.3	3.5	76.8	4.1
2004	931.6	4.7	1,056.7	5.5	82.2	3.6	79.9	4.1
2005	972.9	4.4	1,090.6	3.2	85.3	3.7	83.3	4.3
2006	1 017.5	4.6	1,110.9	1.9	88.7	4.1	87.6	5.2
2007	1 054.1	3.6	1,151.9	3.7	92.2	3.9	91.8	4.8
2008	1 106.1	4.9	1,182.8	2.7	96.1	4.1	95.7	4.2
2009	1 166.5	5.5	1,255.5	6.1	100.0	4.1	100.0	4.5
2010	1 231.3	5.6	1,350.8	7.6	103.1	3.1	104.4	4.3
2011	1 282.5	4.2	1,473.9	9.1	107.0	3.8	108.7	4.2
2012	1 338.1	4.3	1,510.0	2.5	110.9	3.6	112.5	3.5
2013	1 400.3	4.6	1,602.5	6.1	114.6	3.3	117.3	4.2
2014	1 442.2	3.0	1,635.0	2.0	117.6	2.6	121.1	3.3
2015	1 477.3	2.4	1,646.0	0.7	120.4	2.4	124.5	2.8
2016	1 505.0	1.9	1,704.4	3.5	123.0	2.1	127.5	2.4
Forecasts								
2017	1 544.7	2.6	1,762.7	3.4	125.6	2.1	130.9	2.6
2018	1 596.3	3.3	1,829.0	3.8	128.9	2.6	134.6	2.9
2019	1 650.9	3.4	1,897.9	3.8	132.0	2.4	138.9	3.2
2020	1 705.8	3.3	1,969.8	3.8	135.7	2.8	143.7	3.5
2021	1 774.9	4.1	2,050.9	4.1	140.3	3.4	149.4	3.9
2022	1 858.7	4.7	2,147.1	4.7	145.6	3.7	155.7	4.2
2023	1 948.4	4.8	2,250.7	4.8	151.1	3.8	162.3	4.3
Compound Annual Growth Rates (2)								
2000-2010	4.9		4.5		3.7		4.3	
2010-2016	3.4		4.0		3.0		3.4	
2016-2023	3.8		4.1		3.0		3.5	
2018-2023	4.1		4.2		3.2		3.8	

Source: BIS Shrapnel, ABS

(1) Earnings per person for full-time adults. Data is year ended May (available only mid month of quarter).

(2) CAGR (Compound Annual Growth Rates) for 2018-2023 is the annual growth for 2018/19 to 2022/23 inclusive i.e. for Icon Water's next regulatory control period.

However, with the economy expected to return to balanced and trend growth early next decade, employment growth will outpace population and labour force growth and the unemployment rate is expected to drop below 5% by early next decade. Hence, from early 2020s, we expect to again witness the re-emergence of skilled labour shortages and competition for scarce labour particularly from the construction sector, which will push up wage demands in the utilities sector.

Individual agreements will strengthen from their current weakness

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.

Wage growth from individual agreements rose by just 1.7% over the year to June 2015 and slowed to 0.9% last year, reflecting general weakness in the economy and the full-time labour market. However, this is expected to turn around from this year, albeit gradually. Stronger increases are expected from the beginning of next decade in line with a strengthening economy. 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 continue to rise through the middle of the next decade.

Utilities wage growth is forecast to continue to outpace national 'all industries' average

Overall, BIS Shrapnel expects total wage costs for the Australian Electricity, Gas, Water and Waste Services (EGWWS or 'Utilities) sector — expressed in WPI — to average of 3.8% p.a. (0.6% higher than the national 'All Industries' WPI average of 3.2% p.a.) over the seven years to 2022/23.

In terms of Average Weekly Ordinary Time Earnings (AWOTE), we are forecasting growth to average 4.2% p.a. over the seven years to 2022/23, 0.1% higher than the national 'All Industries' AWOTE average of 4.1% p.a. over the same seven-year period (see Table 4.5). Our AWOTE forecasts are higher due to compositional effects. Apprentices, trainees and numbers of new staff have increased markedly over recent years, across the electricity, gas and water sector generally. Given slower growth in employment numbers over the next decade, it is likely that there will be overall up skilling of the existing workforce, which will see a commensurate movement by much of the workforce into higher grades (i.e. on higher pay), resulting in higher earnings per employee.

4.3 Wage forecasts for the South Australian Utilities sector

The ABS does not provide WPI data for the Utilities sector in South Australia, providing state utilities 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. Forecasts of WPI for the EGWWS sector in South Australia therefore is based on national EGWWS WPI forecasts, as well as movements in the 'unknown residual' for the utilities wage price index.

The utilities wage forecasts for South Australia are expected to ease over the next two years although it is expected to stay above the national average reflecting relatively higher EBA outcomes achieved in current agreements of major players of the South Australian utilities industry. We expect wages growth to pick up pace from 2017/18 due to increased demand for labour from the states' utilities sector as utilities-related engineering construction ramps up again. Construction work done is expected to lift considerably from late this decade as the surplus in generation capacity is slowly eroded through continued population growth and industrial activity, placing greater demands on electricity supply.

The combination of high levels of utility engineering construction and overall construction in the state means increased competition for 'similarly' skilled labour and wage pressures in the South Australian utilities sector over the three years to 2023.

Overall, South Australia utilities WPI growth is forecast to average 3.6 per cent per annum (0.2 percentage points lower than the national utilities average of 3.8 per cent) over the five years from 2018/19 to 2022/23 inclusive (i.e. over ElectraNet's next regulatory period, see table 4.6).

Table 4.6: EGWWS WPI – South Australia versus Australia
Year Average Growth

Year Ended June	EGWWS Wage Price Index		EGWWS Wage Price Index		Consumer Price Index (^)	
	South Australia		Australia		Australia	
	Index	%CH	Index	%CH	Index	%CH
1999			65.7	3.0	67.8	1.3
2000			68.2	3.8	69.4	2.4
2001			70.8	3.8	73.6	6.0
2002			73.8	4.2	75.7	2.9
2003			76.8	4.1	78.0	3.0
2004			79.9	4.1	79.9	2.4
2005			83.3	4.3	81.8	2.4
2006			87.6	5.2	84.4	3.2
2007			91.8	4.8	86.9	3.0
2008			95.7	4.2	89.8	3.4
2009	100.0		100.0	4.5	92.6	3.1
2010	104.3	4.3	104.4	4.3	94.8	2.3
2011	108.7	4.2	108.7	4.2	97.7	3.1
2012	112.8	3.7	112.5	3.5	100.0	2.3
2013	117.2	3.9	117.3	4.2	102.3	2.3
2014	121.3	3.5	121.1	3.2	105.0	2.7
2015	125.0	3.1	124.5	2.8	106.8	1.7
2016	128.8	3.0	127.5	2.4	108.3	1.4
Forecasts						
2017	132.3	2.7	130.9	2.6	110.1	1.7
2018	136.0	2.8	134.6	2.9	112.3	2.0
2019	140.0	2.9	138.9	3.2	114.8	2.2
2020	144.6	3.3	143.7	3.5	117.7	2.5
2021	149.9	3.6	149.3	3.9	120.6	2.5
2022	155.9	4.0	155.6	4.2	123.7	2.5
2023	162.3	4.1	162.3	4.3	126.7	2.5
Compound Annual Growth Rates						
2000-2010			4.3		3.2	
2010-2016	4.3		4.1		2.2	
2016-2023	3.4		3.5		2.3	
2018-2023	3.6		3.8		2.4	

Source: BIS Shrapnel, ABS

(^) Headline CPI forecasts based on Reserve Bank of Australia forecasts to December 2018 quarter. Beyond this, we've taken the mid-point of the RBA's 2-3% target range.

5. CONSTRUCTION WAGE FORECASTS

Our research has shown that construction activity (i.e. work done in the sector) normally has a strong influence on construction wages, although changes in wages tend to lag construction (in work done terms) by around one to two years. Hence, our construction wage forecasts are based on BIS Shrapnel's own forecasts of construction activity (which includes residential and non-residential building, plus engineering construction).

Over much of the past decade, the construction sector has experienced a significant upswing as a mining-driven engineering construction boom was followed by a boom in residential building. This resulted in construction wage growth averaging 4.3% from 2004/05 to 2011/12. This is compared with a compound annual growth rate of 3.7% since 1998.

However, the mining boom peaked in 2012/13, dragging down overall engineering construction. Now, with the residential housing boom approaching its peak, and engineering construction expected to continue posting declines out to 2018/19, non-dwelling building is not expected to be strong enough to balance the negative contributions from these sectors. We therefore forecast construction gross value added to contract by an average of -3.0% per annum over the next three years to 2018/19. This will lead to the continuation of relatively weak wages growth over the next 3 years, with construction wages growth (in wage price index or WPI terms) averaging 2% per annum.

The outlook for construction activity is more positive from late this decade. A broadly based recovery is expected to help lift non-dwelling building and engineering construction activity, while the dwellings sub-sector also emerges from its downturn. This increase in demand for labour should drive faster growth in construction wages over much of the 2019/20 to 2022/23 period. We are forecasting average annual growth of 4% per annum over this period. South Australian construction wages is forecast to increase by 3.5% p.a. over 2018/19 to 2022/23 (0.1% below the national average of 3.6% over the same period, see Table 5.1).

Table 5.1: Construction Wages – South Australia v Australia
Year Average Growth

Year Ended December	Wage Price Index			
	South Australia		Australia	
	Index	%CH	Index	%CH
1999			66.6	3.4
2000			68.5	2.9
2001			71.3	4.1
2002	89.5		73.6	3.3
2003	94.3	5.4	76.1	3.3
2004	99.8	5.8	78.9	3.7
2005	102.7	2.9	83.0	5.2
2006	105.6	2.8	87.0	4.9
2007	107.6	2.0	91.3	4.9
2008	113.2	5.2	95.6	4.7
2009	116.7	3.0	100.0	4.7
2010	119.7	2.6	103.3	3.3
2011	123.7	3.4	107.4	4.0
2012	128.5	3.9	111.7	4.1
2013	132.3	2.9	115.5	3.3
2014	135.1	2.2	118.9	3.0
2015	137.2	1.6	121.4	2.1
2016	138.2	0.7	123.3	1.6
Forecasts				
2017	139.5	0.9	125.5	1.7
2018	141.6	1.5	127.9	2.0
2019	144.5	2.1	130.8	2.3
2020	148.8	3.0	134.8	3.1
2021	154.4	3.8	140.2	4.0
2022	160.9	4.2	146.5	4.5
2023	167.9	4.3	152.9	4.3
Compound Annual Growth Rates				
2000-2010			4.2	
2010-2016	2.4		3.0	
2016-2023	2.8		3.1	
2018-2023	3.5		3.6	

Source: BIS Shrapnel, ABS

APPENDIX A:

STATEMENT OF COMPLIANCE WITH EXPERT WITNESS GUIDELINES

I have read the Guidelines for Expert Witnesses in Proceedings of the Federal Court of Australia and confirm that I have made all inquiries 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 the Court from this report.

APPENDIX B:

CURRICULUM VITAES OF KEY PERSONNEL

Kishti Sen – Senior Economist

As a senior economist, Kishti monitors developments in the global and domestic economy and contributes to the analysis, modelling and production of economic forecasts at the global and Australia level. Kishti is also the lead author of BIS Shrapnel's monthly Economic Outlook Bulletin and annual Long Term Forecasts report.

Kishti has also managed a wide range of private client (bespoke) projects including economic evaluation and industry contribution studies, economic impact studies, forecasting product demand, researching and writing economic submissions for use in advocacy with the public sector, regulating agencies or in commercial negotiations.

Prior to joining BIS Shrapnel in 2007, Kishti was with the Reserve Bank of Fiji for 15 years where he held the position of Research Assistant/Research Analyst/Economist/Senior Economist and Senior Manager through internal rotations (to broaden professional experience) and staff promotions. As a senior economist, Kishti built and managed the bank's research and analytical work programme. In addition, he was a member of several high profile policy committees including the Macro Policy Committee — the think tank for fiscal policy — and the Monetary Policy Committee. The latter comprised a small group of senior bank staff who advised the Governor directly on interest-rate settings.

Kishti holds a PhD in Economics from the University of Sydney, a Master of Economics degree (with Honours) from the University of Sydney, a Post Graduate Diploma in Banking and Finance from the University of the South Pacific and a Bachelor of Arts degree with majors in Economics and Mathematics from Massey University (Palmerston North, New Zealand). He has special interest in macroeconomic forecasting, monetary policy, economic evaluation studies, econometric modelling and general macroeconomic consultancy.

Richard Robinson – Senior Economist and 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).

Richard holds a Bachelor's Degree in Commerce with Honours from the University of Wollongong.

Husam El-Tarifi – Research Analyst

Husam works across the Economics, the Infrastructure and Mining and the Asset Sales units at BIS Shrapnel where he regularly contributes to the firm's renowned reports and is particularly valued in working through large datasets.

Husam has worked on privately commissioned studies for the finance, infrastructure, not-for-profit, government, utilities and mining sectors. He has been involved in the construction of a wide variety of quantitative models and has also provided model audit and validation services.

Husam joined BIS Shrapnel in 2013 after obtaining his Bachelor of Economics degree with honours from the University of New South Wales.

