Attachment 7.8A

BIS Oxford Economics Input cost escalation forecasts to 2025/2026

SA revised Final Plan July 2021 – June 2026
January 2021

Australian Gas Networks

BIS OXFORD ECONOMICS

INPUT COST ESCALATION FORECASTS TO 2025/26

PREPARED BY BIS OXFORD ECONOMICS FOR AUSTRALIAN GAS NETWORKS

FINAL

JANUARY 2021

BIS Oxford Economics

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1. EXECUTIVE SUMMARY

BIS Oxford Economics was engaged by Australian Gas Networks (AGN) to provide price forecasts of labour and materials that are relevant to the South Australian gas distribution industry for the period 2021/22 to 2025/26 (FY22 to FY26), which is AGN's next regulatory period. Forecasts for wage and other input (materials) cost escalation will be used by Australian Gas Networks to develop the real price changes over its upcoming regulatory period, which, in turn, will be used by the business to construct its operating and capital expenditure forecasts.

For **gas network related labour**, BIS Oxford Economics expects total wage costs for both the South Australian Electricity, Gas, Water and Waste Services (EGWWS or 'Utilities') sector — expressed in Wage Price Index (WPI) terms — will average 2.4% per annum over the five-year period from FY22 (2021/22) to FY26 (2025/26), slightly below the Australian EGWWS WPI average of 2.5% over the same period. In real terms, the South Australian EGWWS WPI is forecast to average 0.5% p.a. over the five years to FY26.

Note that these forecasts include the impact of the proposed increases to the Superannuation Guarantee (SG) over the forecast period. We anticipate that the Australian EGWWS WPI will be, on average, -0.3% lower each year, than if the SG increases did not proceed. RBA research shows that employees tend to receive lower wages due to the imposition of a SG increase. In effect some of the employees' wage increase (which they would have received in the absence of the SG increase) is replaced with the extra superannuation contribution. This means that although the 'statutory' incidence of the higher superannuation contributions are borne by employers, over time a proportion of these higher SG costs are passed from employers to employees via lower wage growth. Section 4.3 includes a discussion of SG increases, how they apply to the WPI (and other wage measures) and the assumptions underpinning the impacts of the WPI forecasts in this document. Excluding the -0.3% annual impact of the SG increases, the forecast real growth in Australian EGWWS WPI would be 0.9%, slightly below the 1.0% p.a. averaged over the past decade.

During the current COVID-19 crisis, the EGWWS sector has fared much better than just about all other sectors, along with the Mining, Finance and Insurance sectors. Surveys have shown that employment and wages have hardly suffered since the start of the crisis in February/March 2020. Indeed, recent ABS data showed the EGWWS sector actually increased employment in the 3 months to May 2020 – by +24.5% compared to February levels (in seasonally adjusted terms) for Australia, although some of this increase was unwound over the 3 months to August (when employment slipped back -8.6%). This shows a healthy level of ongoing labour demand in what is an essential service. Meanwhile, EGWWS WPI growth in the June quarter was 0.6% in quarterly % change terms (q/q) – in original terms (i.e. not seasonally adjusted) – to be 2.5% higher than the June quarter 2019, i.e. year-on-year (y/y), well above the All Industries average of 0% q/q (original terms) and 1.8% y/y. This strong out-performance continued in the September quarter, with the EGWWS WPI increasing by 0.6% q/q to be 2.1% y/y – much higher than the 0.4% q/q (in original terms) and 1.4% y/y for the All Industries WPI.

Over the forecast period, EGWWS WPI growth is expected to remain higher than the All Industries WPI average, with the Australian All Industries WPI forecast to average 2.0% over the five years to FY26. This means that the Australian EGWWS WPI is expected to be 0.5% higher than the All Industries average. Note that the impact of the SG Increases on the All Industries WPI is assumed to be -0.4% in each of the five years to FY26, slightly higher than the impact on EGWWS wages. Excluding the SG increase impacts, the difference vis-a-vis the EGWWS and All Industries WPI would be 0.4%, which is in line with historical differences.

Utilities wages are forecast to increase by more than the national average over the forecast period because of the following factors:

- 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

- strong union presence in the utilities sector will ensure outcomes for collective agreements, which cover 65% of the workforce, remain above the wage increases for the national 'all industry' average. In addition, with the higher proportion of employees on EBAs, compared to the national average (38%), and EBAs wage rises normally higher than individual agreements, this means higher overall wage rises in the EGWWS sector.

- increases in individual agreements (or non-EBA wages) are expected to strengthen from the current weak pace as the labour market tightens and labour productivity growth builds from around FY23.

- demand for skilled labour will pick up and strengthen with the high levels of utilities investment from FY22 to FY26, with investment levels expected to remain elevated over the medium term. This will also be a key driver of wages going forward.

- 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. These sectors tend to be highly cyclical, with weaker employment suffered during downturns impacting on wages growth in particular, such as is now occurring in the wake of the COVID-19 impacts. The EGWWS sector is not impacted in the same way due to its obligation to provide essential services and thus retain skilled labour.

Although we expect the overall labour market to weaken further over the next year, we subsequently expect an acceleration of employment growth through FY23, which will outpace population and labour force growth and see the unemployment rate drop back appreciably. Hence, we expect to again witness the re-emergence of skilled labour shortages and competition for scarce labour particularly from the mining and construction sectors, which will push up wage demands in the utilities sector. Mining investment is now picking up and is forecast to see significant increases over the next 3 years to FY24, before easing. Meanwhile, there is similar strong growth coming through in the Construction sector, which, after a short-term set-back due to COVID-19, we expect to see solid increases across all segments of the overall construction sector (residential construction, non-residential building and civil engineering & infrastructure construction) over FY23 to FY25, leading to strong labour demand in that sector, particularly from 2024 when activity surpasses the 2018 levels.

A key problem is that the TAFE (technical and further education) systems across the country have simply not been training enough workers. BIS Oxford Economics research shows this is being compounded by new graduates in the trades stream in particular not increasing fast enough to replace retiring workers, with some numbers actually falling. Despite government announcements that they are moving to address the TAFE system, it is unlikely that these issues will be addressed within the next 5 years. Added to this is that skilled immigration has been suspended. When it does return, it is likely to be a slow ramp-up, meaning that the skill shortages will persist and won't be easily solved by migration.

With strong competition for similarly skilled labour from the mining and construction industries, firms in the utilities sector will need to raise wages to attract and retain workers. In other words, the mobility of workers between the EGWWS, mining and construction industries means that demand for workers in

those industries will influence employment, the unemployment rate and hence spare capacity in the EGWWS labour market. Businesses will find they must 'meet the market' on remuneration in order to attract and retain staff and we expect wages under both individual arrangements and collective agreements to increase markedly over the FY24 to FY26 period.

The ABS does not provide WPI data for the Utilities sector in South Australia, providing state utilities data only for NSW, Victoria and Queensland (the latter since early 2019 only). These three states collectively account for 73% of total Australian utilities employment, with South Australia accounting for 8% (and Western Australia 14%). Historical data and forecasts of WPI for the EGWWS sector in South Australia is therefore based on national EGWWS WPI forecasts, as well as movements in the 'unknown residual' for the utilities wage price index and recent differences in outcomes in collective bargaining in South Australia compared to the national average for the utilities sector.

Wages in the South Australia utilities sector are expected to move in line with the national utilities sector average over AGNs' upcoming regulatory period (see table 5.3 and 1.1). However, over the next five years, utilities wage increases are expected to be slightly lower than the national average – due to relative weaker utilities construction and weaker labour markets in South Australia. South Australian EGWWS WPI growth is forecast to average 2.4% per annum in nominal terms over the five years to FY26 inclusive (i.e. over AGNs' next regulatory period) – or 0.5% in real (inflation adjusted) terms (see Table 1.1). This WPI forecast includes the SG Increase impacts of -0.3% in each of the 5 years from FY22 to FY26 inclusive.

South Australian EGWWS WPI growth is forecast to decline sharply over FY21 to 1.8% (in nominal terms), from an estimated 2.6% in FY20, due to the impact of the COVID-19 outbreak on wages. However, a marked pick-up in economic growth in the state from around FY24 is expected to see employment growth accelerate and the labour market tighten. A key element of the ongoing strength in the South Australian economy is the large amounts of defence-related expenditure in South Australia over the forecast period (and beyond), including the manufacture of naval ships, submarines and army vehicles. This will also increase the demand for skilled labour and see the defence manufacturing sector also compete with the utilities sector for similarly skilled workers, many of which will have transferable skills across the utilities, construction, mining and manufacturing sectors. With strong competition for similarly skilled labour from the mining, construction and defence manufacturing industries, firms in the utilities sector will need to raise wages to attract and retain workers. This is expected to be accompanied by increases in utilities related construction in the state, mining-related investment and construction activity generally, particularly over FY24 to FY26. The overall strengthening in the labour market, and particularly in the Construction and Mining sectors – which are key competitors to the utilities sector in terms of 'similarly' skilled workers - is expected to result in utilities WPI growth accelerating over the 2024 to 2025 period, and subsequently remain elevated over FY26.

Widespread wage freezes and very modest wage increases will see **All Industries WPI** growth weaken over FY21. Some upside is expected to come from an increase in the National Minimum Wage (NMW), which was awarded by the Fair Work Commission at its Annual Wage Review in June 2020 – to be paid to workers in different industry sectors on a staggered timetable over 2020/21. Given the current circumstances, the FWC only awarded a 1.75% increase – down from the 3.1% to 3.5% increases of the past 3 years, but which the FWC deemed prudent to provide the poorer paid workers with an adequate wage. Although only 13% of full-time workers (a much higher proportion for part-time workers) rely on the annual increase in the minimum wage as their primary wage-payment mechanism, a significant proportion of workers are also indirectly influenced by the NMW increase, as it usually flows onto industry awards. Furthermore, some industries that are less affected by the COVID-19 impacts will also receive some pay rises over FY21. Overall, our forecast is for the All Industries WPI to increase by 1.1% in FY21.

As the economy and employment rebounds through FY22, growth in the All Industries WPI is also expected to exhibit a modest recovery, rising to 1.4%. Part of the rebound will be driven by deferred pay increases from 2020 and early 2021. We also expect a higher increase in the NMW in July 2021 to underpin higher increases. As the economy continues to strengthen over FY23 to FY25, we expect to see a marked improvement in the labour market, with labour demand increasing and the unemployment rate falling to around 5% by early FY25. We expect to see skill shortages manifest in some areas of the economy. The tightening labour market will see wage pressures increase, with the All industries WPI forecast to gradually rise to 2.5% in FY26.

In real terms (inflation-adjusted using RBA CPI forecasts), the average annual increase is forecast to be 0.1% (see Summary Table 1.1 below). Note that these wage forecasts for the All Industries wages include the impacts of the SG increase. At the national All Industries level, we estimate the impacts will be -0.4% for each year of the SG increase. See section 4.3 for the assumptions underpinning this estimate. If you exclude the -0.4% impact of the SG increase, the rate of real increase becomes 0.5%, which is only slightly below average movements of the past decade.

Table 1.1 Summary – Labour Cost Escalation Forecasts: South Australia & Australia - including Impact of Proposed Superannuation Guarantee Increases (financial years)

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

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	5 yr Avg (f)
	Actuals						Forecasts	Next Regulatory Period					
NOMINAL PRICE CHANGES													
1. Gas Network-Related Labour													
EGWWS WPI - South Australia (a)	**2.9**	**2.0**	**1.9**	**2.0**	**2.5**	**2.6**	**1.8**	**1.8**	**2.0**	**2.5**	**2.8**	**2.9**	**2.4**
EGWWS WPI - Australia (b)	2.8	2.4	2.2	2.0	2.8	2.7	1.9	1.9	2.1	2.5	2.9	2.9	2.5
2. Contractor Labour Cost Escalation													
Construction WPI - South Australia (c)	**1.9**	**1.4**	**1.4**	**1.6**	**1.8**	**1.5**	**1.0**	**1.2**	**1.6**	**2.1**	**2.6**	**2.8**	**2.1**
Construction WPI - Australia (b)	2.1	1.6	1.7	1.9	1.9	1.5	0.9	1.3	1.7	2.3	2.7	2.9	2.2
3. Australian Wages													
All Industries - WPI (d)	2.4	2.1	2.0	2.1	2.3	2.1	1.1	1.3	1.6	2.1	2.4	2.5	2.0
Consumer Price Index (headline) (e)	1.7	1.4	1.7	1.9	1.6	1.3	0.9	1.1	1.8	2.1	2.1	2.1	1.9
REAL PRICE CHANGES (g)													
1. Gas Network-Related Labour													
EGWWS WPI - South Australia (a)	**1.1**	**0.7**	**0.2**	**0.1**	**0.9**	**1.3**	**0.9**	**0.6**	**0.2**	**0.3**	**0.7**	**0.7**	**0.5**
EGWWS WPI - Australia (b)	1.1	1.0	0.5	0.0	1.1	1.3	1.0	0.8	0.3	0.4	0.7	0.8	0.6
2. Contractor Labour Cost Escalation													
Construction WPI - South Australia (c)	**0.2**	**0.0**	**-0.3**	**-0.4**	**0.1**	**0.2**	**0.1**	**0.1**	**-0.2**	**0.0**	**0.5**	**0.6**	**0.2**
Construction WPI - Australia (b)	0.4	0.2	0.0	-0.1	0.2	0.2	0.0	0.2	-0.1	0.1	0.6	0.7	0.3
3. Australian Wages													
All Industries - WPI (d)	0.7	0.7	0.2	0.1	0.7	0.8	0.2	0.2	-0.2	0.0	0.3	0.4	0.1

Sources: BIS Oxford Economics, ABS

(a) Electricity, Gas, Water and Waste Services (EGWWS) Wage Price Index (WPI) for South Australia.
(b) Australian sector wage forecasts provided for comparison.
(c) Construction Sector WPI for South Australia.
(d) Australian All Industries WPI provided for comparison.
(e) Reserve Bank of Australia forecasts to December 2022. Beyond that, we have used a 10-year arithmetic average of RBA forecasts and the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range, which is the method currently preferred by the AER.
(f) Average Annual Growth Rate for 2021/22 to 2025/26 inclusive, ie for next regulatory period.
(g) Real price changes are calculated by deducting the inflation rate from nominal price changes.

Given service providers outsourced labour is mostly supplied by firms in the construction industry, we proxy Australian Gas Networks' **external labour cost escalation** by wages growth (as measured by the WPI) in the South Australian construction industry. Our research has shown that construction activity (ie 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 year. Hence, our wage forecasts are based on BIS Oxford Economics forecasts of construction activity by state (which

includes residential and non-residential building, plus engineering construction) as well as predicted movements in the construction wages at the national level.

Construction wages at the national and South Australian level have weakened dramatically since 2011/12 and are well below the robust increases during the construction boom. While collective agreements in the sector have maintained their relative high increases over the past 4 years – between 3% and 5% – wages growth in the individual agreements segment have been very weak. Construction employees in the individual agreements segment account for around 61% of construction employees, dominating the method of pay-setting within the sector. Wages growth has slowly improved from their lows of 2016, despite weaker engineering construction activity (at the Australian level).

The improvement in construction wages growth was effectively reversed in FY20 as the decline in overall construction activity and related-COVID uncertainty saw a sharp weakening in wages growth, with the Australian Construction WPI actually declining -0.5% (q/q) in the June quarter 2020 (the first decline since the WPI's inception in 1997). It then rebounded 0.6% in the September quarter 2020, but the upshot is that construction wages growth in FY21 (in year average terms) will remain quite weak at 0.9% for Australia and 1.0% for South Australia. Construction wages are forecast to gradually improve from FY22 as construction activity recovers. We expect some deferred increases from 2020 will be provided in 2021, which will boost wages growth in FY22.

Australian construction wages are expected to pick up over FY23 and strengthen appreciably over FY24 to FY26, particularly as construction activity levels surpass the previous highs of FY18 (in 2024) and skills shortages begin to manifest. The increases in construction activity from FY22 will be driven by the recovery in residential building activity which is expected to rise out of its trough from FY23, while higher levels of non-dwelling building and rising engineering construction will also underpin higher wages due to strong labour demand and expected widespread skill shortages in the construction industry. Engineering construction will be driven by a new wave of mining investment and a plethora of publicly funded transport infrastructure projects (particularly in the eastern states of the nation).

Our forecast is for the Australian Construction WPI to average 2.2% over the five-year period to 2025/26 at the national level, with South Australian construction wages growth to be slightly slower at 2.1% – or 0.2% per annum on average in real (inflation adjusted) terms (see Table 1.1). While this is a marked improvement on the past five years, it is still well down on the 4.3% annual national average (nominal terms) of the decade to 2011/12. Note that these wage forecasts for the Construction WPI include the impacts of the SG increase. In the construction industry sector, we estimate the impacts will be -0.3% for each year of the SG increase. See section 4.3 for the assumptions underpinning this estimate.

Nominal prices for most of the **gas network related materials** are forecast to increase on average over the five-year period to FY26, with the main exception being steel pipe and tube. After adjusting for the inflation, aluminium is expected to achieve the strongest real price growth over the forecast regulatory period (FY22 to FY26), at an average of 2.5% per annum followed by polyethylene pipe (1.6% pa), with concrete forecast to achieve real price growth of 0.2%. On the other hand, some materials are expected to see negative or no real price growth. This includes general materials, steel pipe prices and the gas and fuel engineering construction IPD (implicit price deflator).

Given the variety of supply and demand drivers affecting prices of these commodities, each will be discussed in the relevant sections of report that follow. The year-by-year forecasts are shown in table 1.2.

As well as individual supply and demand drivers, consumers of these commodities in Australia are also affected by movements in the exchange rate. Specifically, movements in the Australian dollar

(A$) against the US dollar (US$) can have significant effects on the domestic price of minerals and metals, as most globally traded commodities are priced in US$ terms. We used consensus forecasts to drive the outlook for these commodities where available. For exchange rates, these were only available for the near term. We therefore held rates constant over the longer term, at the last forecast point. Overall, the exchange rate is predicted by the large range of forecasters supplying forecasts to the Consensus Economics survey to drift up from around US74 cents currently (December 2020) to over US76 cents by December 2022.

Table 1.2 Summary – Gas Network Materials and General Materials

Gas Network and Non-gas Network Related Materials	Annual Financial Year Growth											
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	5 yr Avg (h)
	Actual					Forecast	Next Regulatory period					2022-2026
Nominal Price Changes												
PE Pipe Price Index - A$ index (a)	1.1	-3.7	3.5	4.7	-10.6	-4.5	5.7	3.4	2.8	2.8	2.8	**3.5**
Concrete (b)	-0.4	1.7	2.4	1.7	-1.0	0.9	2.7	1.8	2.2	1.6	2.0	**2.1**
Gas & Fuel Construction Price Index (c)	-1.1	-1.4	4.5	6.4	1.5	1.6	0.1	1.5	2.8	2.4	2.1	**1.8**
Steel Pipe and Tube PPI (d)	-1.7	5.9	-5.7	6.6	-2.2	1.7	-3.9	-0.5	2.1	0.9	0.6	**-0.2**
Aluminium (e)	-5.6	10.9	17.1	-2.5	-7.0	-4.5	1.4	0.3	2.7	9.8	7.6	**4.3**
General Materials	1.4	1.7	1.9	1.6	1.3	0.9	1.1	1.8	2.1	2.1	2.1	**1.9**
Exchange rate, A$, (period avg) (f)	*0.73*	*0.75*	*0.78*	*0.72*	*0.67*	*0.73*	*0.76*	*0.76*	*0.76*	*0.76*	*0.76*	*0.76*
Consumer Price Index (Headline) (g)	1.4	1.7	1.9	1.6	1.3	0.9	1.1	1.8	2.1	2.1	2.1	*1.9*
Real Price Changes												
PE Pipe Price Index - A$ index (a)	-0.3	-5.5	1.5	3.1	-11.9	-5.5	4.6	1.6	0.7	0.7	0.7	**1.6**
Concrete (b)	-1.8	0.0	0.5	0.0	-2.3	0.0	1.5	0.0	0.1	-0.5	-0.1	**0.2**
Gas & Fuel Construction Price Index (c)	-2.4	-3.1	2.6	4.7	0.1	0.7	-1.1	-0.3	0.7	0.2	0.0	**-0.1**
Steel Pipe and Tube PPI	-3.0	4.2	-7.6	4.9	-3.5	0.7	-5.0	-2.3	0.0	-1.2	-1.6	**-2.0**
Aluminium (e)	-7.0	9.2	15.2	-4.1	-8.3	-5.4	0.2	-1.5	0.6	7.7	5.5	**2.5**
General Materials	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**

Sources: BIS Oxford Economics, ABS, Consensus Economics

(a) PE (Polyethylene) prices are proxied using Manufacturing Wages, General Materials inflation and Thermoplastic Resin prices. Thermoplastic Resin is primarily driven by Crude Oil. Crude oil price forecasts are sourced from the latest available Consensus Economics 'Energy & Metal Consensus Forecasts' (EMCF) publication. US$ prices adjusted by using exchange rate above (see footnote (f)).

(b) Producer price index (PPI) for concrete, cement and sand: Adelaide. Forecasts based on BIS Oxford Economics (BISOE) modelling and construction and other macroeconomic forecasts.

(c) Gas and Fuel Construction Price Index forecasts from BISOE modelling and construction and other macroeconomic forecasts

(d) Steel Pipe & Tube producer price index (PPI), modelled using latest EMCF price forecasts for iron ore and coking coal, converted to A$ (using above exchange rate); plus manufacturing wages, transport costs

(e) Aluminium price is London Metal Exchange (LME) price, converted to A$ (using above exchange rate). Forecasts from Consensus EMCF.

(f) Exchange rate forecasts sourced from latest available Consensus Economics 'Asia Pacific Consensus Forecasts' (APCF), which has forecasts covering the next 2 years, after which exchange rate is held steady.

(g) Reserve Bank of Australia forecasts to December 2022. Beyond that, we have used a 10-year arithmetic average of RBA forecasts and the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range, which is the method preferred by the AER.

(h) Average Annual Growth Rate for 2021/22 to 2025/26 inclusive, ie for next regulatory period.

2. INTRODUCTION

BIS Oxford Economics was engaged by Australian Gas Networks (AGN) to provide updated price forecasts of labour and other input costs relevant to gas distribution networks in South Australia from 2020/21 to 2025/26. Forecasts of wages and materials will be used by Australian Gas Networks to develop the real price changes over its upcoming regulatory period, which, in turn, will be used by the business to construct its operating and capital expenditure forecasts. Over the next regulatory period forecasts of both nominal and real price growth of the relevant inputs are provided. The forecasts in this report were finalised around mid-December 2020.

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. The data used in the projections is the latest available as at mid-December 2020 and includes the September quarter 2020 WPI, Consumer Price Index and producer price index data and releases. Other inflation and interest rate data were sourced from the Reserve Bank of Australia.

Forecasts of the economic variables in this report were mostly sourced from BIS Oxford Economics reports, including *Australian Macro Service*, *Long Term Forecasts: 2021 – 2035, Engineering Construction in Australia 2020-2035* and *Building in Australia 2020-2035*, along with other unpublished forecasts and from BIS Oxford Economics internal research and modelling.

The previous Summary section presents an overview of the outlook for the labour and other input costs including numerical forecasts which are presented in the summary table.

Section 3 provides a macroeconomic outlook for Australia and South Australia. This section also has forecasts of key economic variables plus a discussion of the drivers and logic underpinning the projections, to provide context for the labour market outlook.

Section 4 discusses BIS Oxford Economics' national wage and CPI projections and discusses the use of the Reserve Bank of Australia forecasts of the Consumer Price Index (CPI) for the deflation of nominal wages. Forecasts of the All Industries Wage Price Index are also provided in chapter 3. Not that most of the references to historical data and forecasts of wages in Sections 3 and 4 are in nominal terms unless specifically stated that the data/forecasts are in real (inflation adjusted) terms.

Sections 5 provides the forecasts and rationale of the wage projections for the Electricity, Gas, Water and Waste Services (EGWSS) and Construction sectors for Australia and South Australia, as measured by the Wage Price Index (WPI).

Section 6 provides forecasts for general materials and gas network related materials, including polyethylene pipe, concrete, steel and aluminium, plus a forecast for the Gas and Fuel engineering construction implicit price deflator (IPD), which measures the changes in construction costs of gas and fuel infrastructure and pipelines.

Appendices include an explanation of different wage measures.

3. MACROECONOMIC OUTLOOK

3.1 AUSTRALIA MACROECONOMIC FORECASTS

Coronavirus pandemic has created major global socioeconomic disruptions & uncertainty

COVID-19, the disease caused by SARS-CoV-2, was first identified in December 2019 and was recognised as an international pandemic by the World Health Organisation on 11 March 2020. The pandemic has led to major global socioeconomic disruptions, including national lockdowns, and has driven governments and central banks to rollout major stimulus packages. The unprecedented nature of both the pandemic and the response, and the speed at which governments and individuals are reacting, create a higher than normal level of uncertainty to the forecasts in this report. At the beginning of 2020, the Australian outlook had an expectation that economic conditions would gradually improve, but the COVID-19 outbreak and associated policy responses to limit its spread have caused a drastic re-evaluation of the outlook.

Deep Recession in 2020

The Australian economy is currently in recession. GDP shrank by 0.3% in the March quarter 2020, and COVID-19 related restrictions saw a much larger contraction in Q2. Australia recorded its largest quarterly fall in output on record in Q2, with GDP contracting by 7%. As expected, household consumption led the decline, subtracting 6.7% pts from growth in the quarter. The weakness was concentrated in services (down 17.6% q/q), which have borne the brunt of trading and travel restrictions; goods purchases fell only 2.8% q/q. Business and dwelling investment also dropped back. Easing of restrictions (notwithstanding Victoria's second lockdown) and a partial recovery in sentiment drove a sharp rebound in GDP in Q3, with the economy expanding by 3.3% q/q. But this only partially mitigates the very large contraction in H1 2020, with GDP still 4.2% below its level at the end of 2019. In Q3, household consumption made a very large contribution to growth, with relaxed trading restrictions and containment of COVID-19 cases allowing the release of pent-up demand. Policy support has helped spur a recovery in dwelling-related investment, leading to an upgrade in our outlook for this component. Elsewhere, business investment remains very subdued and net exports were a heavy drag.

Looking ahead, with Victoria rapidly catching up with the rest of the country, the easy wins from re-opening will come to an end in early 2021. As a result, growth momentum will slow and the recovery will become patchier. Public demand will continue to support growth, as will net exports; the relative strength in commodity shipments will see exports remain more resilient than imports. After an estimated -2.8% fall in 2020, we expect the economy to expand 2.9% in 2021, with GDP projected to return to pre-crisis levels by Q4 2021.

A successful vaccine to COVID-19 is likely to become widely available overseas over the first half of 2021 (with a delayed timeline for dissemination in Australia) and this will allow the lifting of restrictions and aid the normalisation of travel and trade over 2021/22.

While the government has announced substantial support to help firms stay in business and maintain employment, softening the blow for those affected, there was still a massive dislocation of labour in H1 2020, concentrated in casual employees and consumer-facing service sectors. Nevertheless, rising unemployment has weighed heavily on household consumption. The sharp reduction in household consumption and service exports has had flow-on effects on business investment.

Overall, in terms of financial years, Australian GDP declined -0.2% % in FY20 and is forecast to increase 0.7% in FY21, before recovering to 3.5% in FY22.

9

Discretionary consumption expenditure has plummeted, but recovery now underway

Household spending is one of the primary channels through which GDP is affected. Some components of retail spending have seen increases, while the largest hit to consumption in Q2 was to discretionary goods and services purchases, such as travel and other recreation activities. Household consumption increased sharply in Q3 (7.9% q/q), with relaxed trading conditions leading to very large increases in some components, most notably hotels, cafes & restaurants and health spending (49.7% q/q and 26% q/q, respectively). We expect further improvement will come in Q4 as the relaxation of the Victorian lockdown will provide another fillip for growth. The October retail sales data confirm this, with Victoria providing a strong boost, despite the Melbourne lockdown only being lifted at the very end of the month. Still, consumption still has a long recovery ahead. The Q2 surge in the savings rate has been only partially unwound (down 3.2 %pts to 18.9%) and the high savings rate suggests a degree of household caution that poses a headwind to growth in 2021. We expect consumption will contract by 6% in calendar 2020, recovering to 5.4% in 2021.

Figure 3.1 Australia Key Indicators
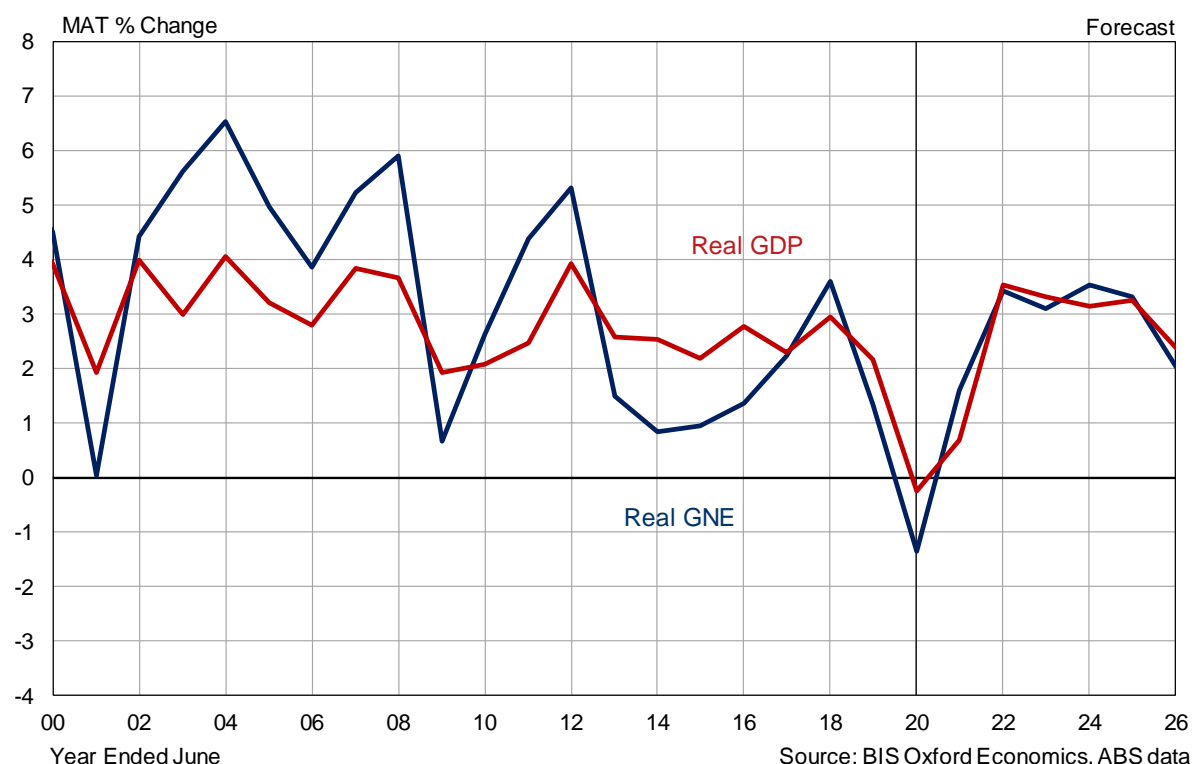
Government and RBA policies have supported household income and employment

The Federal and State Governments have announced a number of stimulus packages over the past 9 months, that are collectively valued at around 11% of GDP. The first two packages were aimed at shoring up business investment and cash flow and supporting displaced workers. For households, a range of additional payments for those already receiving government benefits were announced to assist cash flow.

The most substantial measure is the Federal JobKeeper program (the third package), which was expected to provide support payments to employers for up to 6 million workers (45% of total employment). This program provide wage subsidies to firms for full- and part-time workers, as well as casual employees with a tenure greater than 12 months. Payments are roughly equal to the minimum wage and must go to the employees in full. The program has been designed to support household

income and keep workers and firms attached through the crisis, to enable a relatively rapid recovery in activity once restrictions can be lifted. Further, it will mitigate the expected increase in the unemployment rate. Indeed, the labour market did not deteriorate as much as expected, peaking (so far) at 7.5% in July, and then gradually improving. Headline labour market indicators improved further in October and November, with employment increasing by 1.4% m/. and 0.7% m/m respectively and the unemployment rate improving to 6.8% in November, with the participation rate having largely recovered to its pre-crisis level. Employment and hours worked have both increased sharply and the degree of underemployment has improved. Overall, the labour market will end 2020 in much better condition than we had previously anticipated, but we expect that the recovery will only become more difficult from here. Government support has cushioned the initial shock, but labour demand is still weak. New and re-entrants to the labour force will be met with a weak demand environment, which will keep the unemployment rate elevated in 2021.

Monetary policy has also moved to provide support, but its effectiveness in dealing with the simultaneous supply and demand shocks is limited. The cash rate was cut to its lower bound (0.25%) in March 2020 with further easings bringing the cash rate below 0.1%. The RBA has also commenced asset purchases in an effort to to lower risk-free rates along the yield curve, lowering corporate borrowing costs (which are closely related to the 3-year yield). Further, they have established relatively generous term funding for banks, with further incentives to extend this credit to businesses, in particular, small- and medium sized enterprises. The RBA's response to the crisis has focused on providing ample liquidity to the banking system, with the explicit aim of providing cheap credit to business.

In terms of household income, the lift in social security payments and other government stimulus payments to households has helped prevent very large falls in household income, while lower interest payments and lower income taxes will see household disposable income cushioned to some extent over FY20 and FY21. Thereafter, household disposable income will experience slow growth during the subsequent recovery as wage rises will lag the recovery, as taxes rise and as interest payments on household debt rise in the absence of further interest rate cuts.

The **2020-21 Federal budget** was brought down in October, deploying a wide array of additional spending, tax cuts, and other supports to kick start the economy's recovery from the COVID-19 pandemic. Higher spending plans and lower revenue will see the deficit reach 11% of GDP in FY21. And with no tax rises scheduled, the Treasury is projecting that the government will not return to surplus before the end of the decade. Notwithstanding the pulling-forward of infrastructure projects and the announcement of road maintenance projects, there were few large spending announcements. Rather, the government is aiming to bolster business investment and hiring through a large increase in asset write-offs, wage subsidies for young workers and other tax relief measures. For households, legislated personal income tax cuts will be fast-tracked, but there was no change to social assistance policies; the economy will still face challenges when income support payments are tapered off in H1 2021.

Dwelling investment supported by government incentives

Our outlook for dwelling investment has improved. Dwelling-related investment made a positive contribution to GDP growth for the first time in over two years in Q3, buoyed by a return to more normal levels of market turnover. Easier monetary policy has flowed through to a pick-up in lending activity and we expect improved affordability will precede an increase in household formation rates. This boost to underlying demand has already translated to rising building approvals, which will start to come through to work done in H1 2021. Further, policy support boosted renovation activity in Q3, with this strength set to continue in the near term thanks to the HomeBuilder program. Our forecast is for dwelling investment to trough in Q2 2022, just 2.1% below its current level. As a result, dwelling investment will make a 0.21 %pts contribution to GDP growth in 2021, before the end of the

HomeBuilder scheme puts a drag on growth in 2022. In effect, various government support schemes have brought forward demand, which itself has been impacted by much slower population growth due to a halt to international migration. When the schemes end, demand and housing construction will weaken, before rebuilding from 2023 and strengthening thereafter.

Another headwind for business investment, although upside for Public demand

Business investment will also take a large step down, with the uncertainty around the outlook and the strain placed on business revenue leading to the deferral or cancellation of capital expenditure. However, the mining sector is expected to remain relatively insulated from this shock, although there are expected to be deferrals of coal, oil and LNG investments. The Federal Government's stimulus packages have aimed to assist businesses with cash flow and have made borrowing conditions significantly cheaper. Moreover, business investment has been incentivised through increased asset deductions. These measures will aid the speed of the eventual recovery. However, investment will be a low priority for most firms in the near term, and after declining by -2% in FY20 we expect business investment will fall a further -8% in FY21, before a modest pick-up ensues in FY22. Instant asset write-off concessions announced in the 2020-21 Budget will help shore up business investment; firms will be able to deduct the entire value of machinery & equipment and intellectual property investments made before June 2022.

The Federal Government stimulus announcements to date have centred around transfers to businesses and households. However, working to offset the pronounced weakness in private demand, public demand made a large, positive contribution to growth in Q2 (0.6% pts) and another (albeit smaller) contribution in Q3. Government consumption increased by 2.9% and 1.4% (q/q) in the June and September quarters, to be 7.8% higher than a year ago. The ongoing rollout of the NDIS continues to provide strong, underlying demand, while more recently, expenditure related to COVID-19 testing, treatment, containment and other support has boosted growth. The near-term outlook for public investment has been upgraded, with a number of infrastructure projects either brought-forward or fast-tracked in order to support economic activity. We expect the boost to growth from public demand will wane as the acute phase of the pandemic passes but expect it to remain strongly positive through 2020 and 2021.

COVID-19 outbreak has plunged the world into a recession

The global economy was showing signs of stabilisation toward the end of 2019. But the coronavirus outbreak has seen a number of advanced and emerging economies plunged into recession. Positive news on the development of a COVID-19 vaccine has improved the outlook for the global economy in 2021 and 2022, but serious risks remain about the very near-term outlook given the recent rise in cases. The US economy grew by 7.4% in Q3, but real time data point to slower mobility, cooler consumer spending, and softer employment – stark reminders that the road to recovery is still steep. After an anticipated 3.4% contraction in 2020, we forecast GDP growth of 4.3% in 2021. Oxford Economics is forecasting a -4% contraction for the US economy in 2020. Similarly, in the Eurozone, restrictions on the movement of citizens has seen large falls in consumer spending, business investment and industrial activity, and severe recessions are expected in 2020 in most countries. Although the eurozone economy saw a rebound in Q3, the tightening of restrictions since means we now expect GDP to fall in Q4, leading to weaker growth in 2021. We forecast eurozone GDP will contract 7.3% this year before a pick-up to 4.3% in 2021. Trade disruptions will also weigh on growth and considerable increases in unemployment rates are expected, which will constrain the economic recovery over 2021 and 2022.

The Chinese economy is a little ahead of others in the process toward recovery. Industrial activity is recovering and this is underpinning commodity demand. GDP growth is forecast grow by 2% in 2020, weighed down by lingering domestic weakness and softer global demand, but rebound to 7.8% in

2021. Neighbouring Asian economies will also slow markedly due to industry shutdowns, with supply chain disruption further complicating the path toward recovery.

Overall, global GDP growth is forecast to contract by -4.1% in calendar 2020 (in US$ terms) – worse than the -1.1% in 2009 in the aftermath of the GFC. But a relatively sharp recovery is expected in 2021, as restrictions are eased, with global GDP growth predicted to be 5.2%. Dissemination of a successful vaccine to COVID-19 is already proceeding in some countries as at late 2020, and the vaccine program will be rolled out over 2021. This will aid the normalisation of travel and trade and boost the global recovery.

Beyond the near-term disruptions, we expect global growth will gradually decelerate and return to its trend pace of around 3% by 2025. Australia's trading partner growth (weighted by export proportions) is forecast to grow at a faster pace over the next 5-20 years, due to the high weights of China, East Asia and India (all of which are expected to outpace the average pace of global growth) in Australia's export mix.

Table 3.1 Australia – Key Economic Indicators, Financial Years

Year Ended June	2015	2016	2017	2018	2019	2020	Forecasts 2021	2022	2023	2024	2025	2026
Total New Private Investment (+)	-2.8	-5.3	-2.0	3.8	-2.9	-3.7	-2.9	3.3	3.3	7.1	6.7	1.2
New Public Investment (+)	-7.6	8.1	8.6	11.4	4.7	2.4	7.7	9.1	4.2	-1.3	-2.9	-4.2
Gross National Expenditure (GNE)	1.0	1.4	2.2	3.6	1.3	-1.4	1.6	3.4	3.1	3.5	3.3	2.0
GDP	2.2	2.8	2.3	2.9	2.2	-0.2	0.7	3.5	3.3	3.1	3.3	2.4
Inflation and Wages												
CPI (Yr Avg) - RBA forecasts (*)	1.7	1.4	1.7	1.9	1.6	1.3	0.9	1.1	1.8	2.1	2.1	2.1
Wage Price Index (Yr Avg)(**)	2.4	2.1	2.0	2.1	2.3	2.1	1.1	1.3	1.6	2.1	2.4	2.5
Average Weekly Earnings (Yr Avg)(^)	2.4	1.9	2.0	2.4	2.7	3.9	3.4	1.6	1.9	2.5	2.7	3.0
Employment												
– Employment Growth (Yr Avg)	1.2	2.3	1.5	3.0	2.4	0.5	-0.1	1.6	2.0	2.4	2.9	2.2
– Employment Growth (May/May)	2.0	1.9	2.1	2.6	2.8	-5.7	6.2	1.5	2.1	2.6	2.9	1.5
– Unemployment Rate (May) (%)	5.9	5.7	5.6	5.4	5.2	7.1	7.2	6.3	5.7	5.1	4.8	4.9
Labour Productivity Growth												
– Total	1.0	0.5	0.8	-0.1	-0.2	-0.7	0.8	1.9	1.3	0.7	0.3	0.2
– Non-farm	1.0	0.7	0.6	0.1	0.1	-0.5	0.6	1.9	1.3	0.8	0.3	0.2

Source: BIS Oxford Economics, 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 2022 quarter. Beyond this, we've used the arithmetic mean the next 2 years and the the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range after 2022.

** Based on Ordinary Time Hourly Rates of Pay Excluding Bonuses. Includes impact of Superannuation Guarantee increases.

^ Average Weekly Ordinary Time Earnings for Full-Time Adult Persons. Includes impact of Superannuation Guarantee increases.

Net exports to detract from growth in FY21

Net exports made an important positive contribution to growth in FY20, adding 1.2% to GDP and offsetting the -1.4% decline in GNE. However, net exports are now expected to detract from GDP growth over FY21, with import volumes expected to outpace export volumes. Commodity demand, although weak, is still expected to be reasonably firm, with the gradual normalisation of industrial activity in China putting a floor under commodity shipments. Rural exports will also bounce back over FY21 with the end of the drought in the eastern states boosting grain, other crops and dairy exports.

Meanwhile, with Gross National Expenditure (i.e. domestic demand and stock changes) fell -1.4% in FY20, leading to a big fall in merchandise imports. The goods trade balance contracted sharply in Q3, with an improvement in domestic demand and earlier drawdown of inventories boosting imports. Goods exports fell, compounding the strength in imports; the fall was concentrated in rural goods. Some of these products are facing severe uncertainty having been subjected to import restrictions in China. Overall, mining exports continue to be supported by the industrial recovery in China; steel-making inputs (iron ore and metallurgical coal) have not been subject to disruption. The services trade balance took a leg down in Q3 due to further disruption to education exports. Trade will make a small contribution to growth in 2020 before becoming a drag in 2021, while simmering trade tensions present further downside risk to the outlook.

Services trade has fallen markedly, with tourism and education exports severely curtailed. Australian outbound travel will all but ceased in Q2, weighing heavily on services imports. However, services exports will fare better than services imports. Education exports were worth $37.6 billion in FY19, or almost 39% of overall services exports (compared to only $461m for outbound education import 'debits'). Although still impacted, education exports will suffer less and recover quicker than 'tourism' flows – partly because of online teaching and partly because many overseas students returned before travel restrictions. On the other hand, tourism exports (including 'business travel') were worth $25.3 bn in FY19 (26% of overall services exports), compared to $50.6 billion for outbound services 'imports' – which accounted for almost 50% of overall services imports. As such, the import side of services will suffer far more than the export side in the near-term. And even after travel restrictions are lifted, tourism flows are unlikely to recover back to their previous levels for a number of years, keeping services debits relatively weaker than services exports.

GDP to lift in FY22 and remain buoyant over FY23 and FY24.

Assuming trade and travel restrictions are lifted through FY21, with a 'return to normalisation' aided by the widespread dissemination of a vaccine over the second half of 2021, we expect economic growth to bounce back in FY22, both in Australia and overseas. However, an early return to the previous path or levels previously expected (pre-coronavirus) is unlikely. Nevertheless, we expect household spending to bounce back strongly as pent-up demand is released and as employment growth recovers markedly. However, employment levels are not expected to return to the pre-coronavirus levels until mid-2022, and this will restrain consumer spending somewhat. Business investment is also forecast to lift over FY23 to FY25 as deferred investment is undertaken. However, some sectors, such as hotel construction and other tourism-related investment, will take longer to recover. Dwelling investment is forecast to build and strengthen over FY24 and FY25. Meanwhile, public investment is expected to strengthen as a large pipeline of transport infrastructure and social and institutional buildings projects come through, although government recurrent expenditure is expected to weaken over the medium term.

Overall, we are forecasting GNE to increase by 3.4% in FY22 – although this bounceback depends crucially on the rebound in household spending (the largest component of GNE/GDP) - and around 3.1% over FY23 and 3.5% in FY24, before easing to (a still healthy) 3.3% in FY25. GDP is forecast to rise 3.5% in FY22, with net exports adding slightly to growth as a healthy increase in exports outpaces import growth, with services imports still restrained. GDP is then forecast to increase 3.3% in FY23, 3.1% in FY24 and 3.3% in FY25.

Inflation and interest rates to remain low over the next 3 years, before gradually rising

A lack of inflation and continuing slack in the labour market is expected to keep the RBA on hold for a long time, with the cash rate forecast to remain at between 0.1% to 0.25% until early-2024, before rising to 1.0% by late 2025 as wages and CPI inflation rise back toward historical averages, and the unemployment rate falls toward 5%. Meanwhile, the near 1% rise in the cash rate in Australia means

the benchmark housing variable rate will rise over 5% by late 2025, which will be enough to slow consumer spending and impact housing and business investment over FY26 and FY27, with annual GDP growth easing to around 2.4% in FY26.

3.2 OUTLOOK FOR THE SOUTH AUSTRALIAN ECONOMY

South Australia's economic growth was severely impacted by the onset of the COVID-19 virus in FY20, which added to the weakness that was emerging in the latter half of calendar 2019. State final demand (SFD), Gross State Product (GSP) and employment growth all declined sharply over the March and June quarters of 2020, further dragging down the overall FY20 outcomes. However, compared to other states, South Australia's economy was relatively insulated from the impact of the pandemic, with the state's tourism, international education and service sectors constituting a smaller proportion of the SA economy, compared to the larger eastern states. Coupled with this, the health outcomes have been better than in the larger states.

Accordingly, the SA economy has fared much better than the other larger states (except Western Australia), as reflected in the better quarterly growth outcomes in the June and September quarters of 2020 – June quarter SFD declined -6.3% (+1.2% better than national domestic demand), while the September quarter increased +6.7% (+2.2% better than the national average). Early indicators suggest further growth in the December quarters and, assuming mild growth in the March 2020 and June 2020 quarters, we expect overall SFD growth to be 2.5% in FY21 – well above the 1.1% prediction for Australian domestic demand. Growth this financial year is being driven by a rebound in household spending, rising residential investment and strong government spending growth, especially public investment, partially offset by falling business investment. GSP declined -1.4% in FY20, largely due to the -2.1% fall in SFD, but we now expect the strong rebound in SFD to drive a 2.2% rebound in FY21 GSP.

Table 3.2 South Australia – Key Economic Indicators, Financial Years

Year Ended June	2015	2016	2017	2018	2019	2020	Forecast 2021	2022	2023	2024	2025	2026
South Australia												
Total Construction Activity(*)	-9.1	-1.3	3.7	19.5	0.1	-4.9	3.6	1.0	-1.1	5.8	2.5	0.2
State Final Demand	1.6	1.1	3.6	4.2	1.5	-2.1	2.5	2.3	2.1	3.1	2.7	2.0
Gross State Product (GSP)(**)	**1.1**	**0.5**	**1.5**	**2.4**	**1.1**	**-1.4**	**2.2**	**2.2**	**2.5**	**2.7**	**2.8**	**2.0**
Employment Growth (Year Avg)	0.5	0.5	1.3	2.2	1.5	-0.5	0.7	1.6	1.5	2.1	2.3	1.5
Australia												
Total Construction Activity(*)	-7.1	-5.1	-3.3	12.2	-9.1	-4.0	1.2	4.0	2.2	4.4	3.5	-1.9
Australian Domestic Demand	0.7	1.4	2.2	3.5	1.6	-1.0	1.1	3.4	3.1	3.5	3.3	2.1
Gross Domestic Product (GDP)	2.2	2.8	2.3	2.9	2.2	-0.2	0.7	3.5	3.3	3.1	3.3	2.4
Employment Growth (Year Avg)	1.2	2.3	1.5	3.0	2.4	0.5	-0.1	1.6	2.0	2.4	2.9	2.2

Source: BIS Oxford Economics and ABS

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

The labour market has also recovered markedly, with November 2020 employment less than 4,000 below (-0.5%) the pre-COVID March 2020 level and the state unemployment rate improving from 8.8% earlier this year to 6.2% in November – although this apparently low aberration is likely to reverse in coming months as the employment recovery softens and more people enter the workforce

over the first half of 2021. Nevertheless, we expect employment growth to average 0.7% over FY21 and the unemployment rate to average around 7%, similar to the national rate. This good result will boost consumer confidence and support household spending in FY21 and into FY22.

The state's economic growth is also being supported by robust government spending. Public investment is forecast to jump 10% in FY21 and then plateau at these elevated levels over FY22 to FY24, before falling sharply over FY25 and FY26 as a number of major projects are completed. Part of this strength is related to a large program of defence projects, including patrol boats, submarines, military vehicles and the newly-founded Space Agency. Also contributing will be a range of projects in transport, water, electricity and telecommunications infrastructure, along with health, education and other social and institutional buildings. Meanwhile, recurrent government consumption expenditure will ease and then decline from its current strength, as NDIS and COVID-related spending is cut back and the government looks to reduce its budget deficit over the medium-term.

Residential investment is currently another beneficiary of government attempts to offset the COVID recession, with Commonwealth and state government incentives – plus low interest rates – driving a very strong rebound in the residential property market in the September quarter and expected to see increased dwelling building activity in FY21. However, the incentives have effectively brought forward demand, and with the incentives to end during FY22, we expect to see weaker dwelling building outcomes over FY22 and FY23, with demand also impacted by lower population growth in the wake of a lack of international immigration. Residential investment is expected to recover from FY24, with a pick-up in population growth – after international migration inflows resume – boosting underlying demand.

Business investment declined -5% in FY20 and a similar decline is anticipated in FY21. However, a range of investment incentives, coupled with some major building projects, private electricity and telecommunications spending and rising mining investment, are expected to underpin solid increases in business investment over FY22 to FY26. Note that the major $2.4 billion Olympic Dam 'Brownfield' expansion is now not expected to proceed within the forecast period.

After the -3.6% decline in overall investment spending in FY20 (including both private and public investment), we are forecasting total investment to increase in each of the next 6 years (including FY21). This is expected to be a key driver of increased employment, which will support growth in household spending, although weak wages growth will constrain spending growth. The strength of jobs growth in the face of weak population growth will also see the unemployment rate fall markedly over the next five years, which will lead to skills shortages and wage pressures.

It is also important to acknowledge the contribution of the state and federal government commitments to defence projects will support the state's economy. Now recognised as the 'Defence State', South Australia will benefit from aviation, systems, maritime and land defence projects, with the largest boost to the state's manufacturing sector and flow-on effects to employment and consumer spending. Headquarters of major aerospace, land and maritime defence companies are located in the state and numerous large projects will be based in South Australia over the coming decades. There is now a continuous timeline to construct surface warships and submarines for decades to come. However, it is important to recognise that this economic boost essentially comes mostly from taxpayers in other states, given that South Australia only accounts for 6% of the national economy (% of GDP).

The Commonwealth government announced 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 have seen a loss of

employment and workplace expertise, once the work on the Air Warfare Destroyers finished in late 2019.

The last of the navy's three air warfare destroyers were finished in 2019, while construction of 12 offshore patrol vessels officially began in Adelaide in November 2018. The offshore patrol vessels then fill the gap until the $35 billion Future Frigate construction begins in Adelaide in 2020. The frigate program will directly contribute to more than 2,000 jobs, and maintenance through the vessels' lives will be worth another $400 million. There is also a $50 billion contract to build 12 new submarines in Adelaide, which is expected to create 2,800 jobs (1,100 direct and 1,700 indirect jobs), but not get underway until 2023. The subs project may represent an expansion of the overall defence manufacturing programme, in terms of requiring extra workers and resources, until the frigates work starts winding down. Shipbuilding projects will have beneficial flow on effects, particularly to local steel manufacturers.

South Australia will also be the base for a number of land defence vehicle and aviation projects. For example, a $1 billion program to modernise the Army's fleet of M113 armoured personnel carriers will be based in South Australia, and South Australian manufacturers will also be part of the supply chain for the army's LAND 400 program to build land combat vehicles. South Australia will also benefit from 30 years of sustainment and upgrade work on the fleet of P-8A Poseidon maritime surveillance aircraft, which will be based at the RAAF Base in Adelaide.

Figure 3.2. South Australia Timeline of Maritime Defence Projects

Source: BIS Oxford Economics
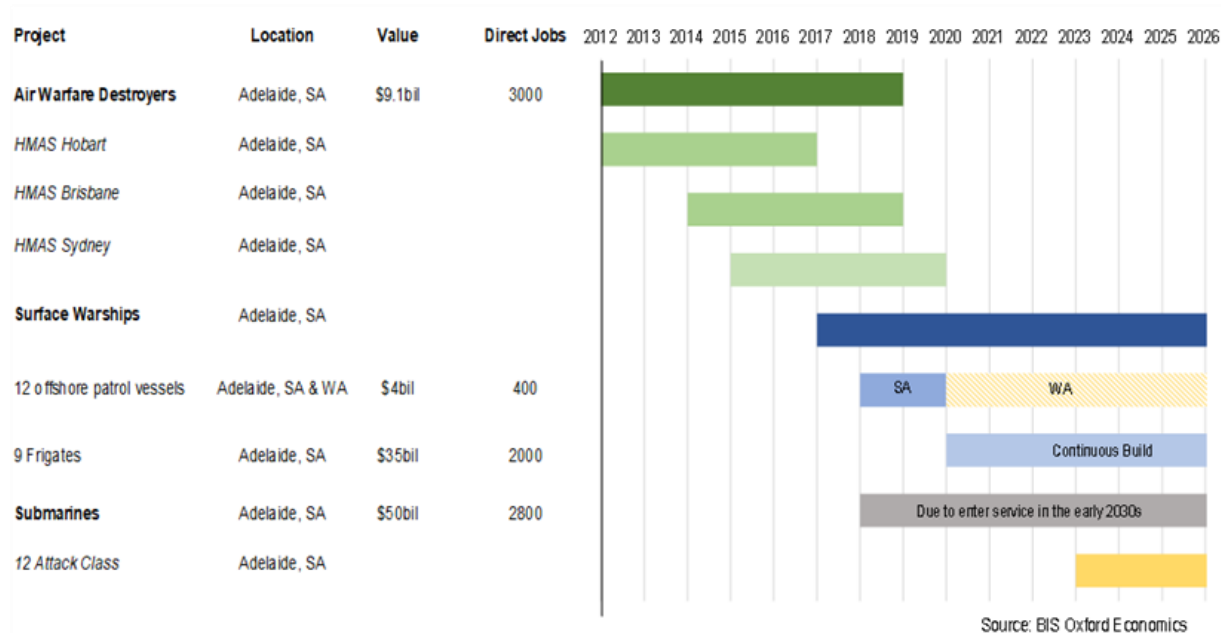
Meanwhile, the manufacturing, agriculture, mining and other tradeable sectors (including education and tourism) will also benefit from a forecast sustained 'competitive' AUD of US$0.75 to US$0.79 over the next six years to 2026. However, the recent surge in the A$ is of concern, particularly if the A$ surges above US$0.80 and stays elevated. This is a key risk to the overall outlook.

Overall, SFD is forecast to ease from 2.5% in FY21 to 2.1% in FY23, as investment growth and government spending weaken, before solid growth in dwelling and business investment combine to lift SFD to 3.1% and 2.7% in FY24 and FY25 respectively. The declines in public and dwelling investment, along with slower business investment growth, are then expected to result in SFD slowing

to 2.0% in FY26. GSP growth is forecast to gradually accelerate from 2.2% in FY21 and FY22 to 2.8% in FY25, before slowing to 2.0% in FY26, in line with the slowing in SFD.

4. WAGES AND INFLATION OUTLOOK

4.1 CPI OUTLOOK

Limited Inflationary Pressures in Recent years, with Deflation in the June quarter 2020

Consumer price inflation has been subdued for the past six years, with annual (through-the-year) headline CPI inflation up to the March quarter ranging between 1.0% and 2.2% and averaging 1.7%. Meanwhile, underlying inflation fell below the Reserve Bank's target 2-3% band in March 2016 and has stayed there.

Over the past year, the CPI rose from a low of 1.3% in the March quarter 2019 to 2.2% in the March quarter 2020. However, the upward momentum in price and wage inflation over 2019/early 2020 has effectively been reversed by the current economic slump. The CPI declined sharply in the June quarter 2020, falling -1.9% in the quarter (q/q) and -0.3% through the year (i.e. compared to June quarter 2019) – this deflation a rare phenomenon in Australia.

Driving the CPI down in the June quarter was substantial declines in fuel prices, with the slump in global oil prices over January to May collectively slicing around 0.9% off the headline rate in the March and June quarters 2020 (with the 19% fall in fuel prices slicing off -0.7% in the June quarter alone). The CPI was also brought down in the June quarter by temporary measures enacted by the government to soften the impact of the COVID restrictions on households, with the price of childcare plunging -95% and pre-school and primary education declining -3.7%. Rents fell -1.3% as the government and banks acted to defer rents for many tenants, while urban transport fares fell -2.0% and medical and hospital services declined -0.3% (they normally increase by around 4% each June quarter). Some other services also saw weakness in price growth. On the other hand, food and some tradeable goods prices increased, buoyed by healthy demand, drought and high global meat prices and by the depreciation of the A$ over the 2 years to the June quarter pushing up the prices of imports and overseas holidays and travel. The A$ had declined from US78 cents in December 2017 (and US72cents in December 2018) to an average of US66 cents in the March and June quarters, 2020.

Headline CPI inflation rebounded 1.6% in the September quarter (to 0.7% y/y), as a number of the deflationary pressures of the June quarter were effectively reversed, most notably fuel, child-care and education costs. On the other hand, food prices fell, as demand softened, the previously drought-affected prices eased back and the appreciation of the A$ from US66 cents to US72 cents made food and other imported goods cheaper.

Recession to mute price and wage inflation over next 2-3 years

Price inflation is expected to remain subdued over the medium term. The sharp increase in unemployment coupled with many firms struggling to generate near-term cashflow will keep wage growth weak and put further downward pressure on headline inflation. Subdued consumer demand and restrictions on some activities will also weigh on prices. In addition, increases in residential property rents (which constitute 7% of the CPI basket), are likely to stay low over short-to-medium term, until currently oversupplied markets become more balanced. Meanwhile, costs related to 'new dwelling purchases by owner occupiers' (which constitutes 7.9% of the CPI basket) will similarly be constrained, until property markets and building costs recover.

On the other hand, there will be some upward price pressures. Fuel prices are expected to rise over the medium term as global oil markets recover. Also putting upward pressure on the headline rate will be further planned increases in tobacco excise duty. Tobacco excise duties are legislated to increase by 12.5% each year on September 1 of each year from 2017 through to September 1, 2020. This,

combined with the bi-annual indexation of the tobacco excise to average weekly ordinary time earnings and aligning the tax treatment of roll your own tobacco and cigarettes, will add significantly to headline CPI – around 0.25% points to the annual rate in 2020.

Food prices are also expected to continue adding to inflation in the near term. The drought, higher food import prices (from the lower $A) and strong demand at supermarkets combined to push up food prices by 4.1% over the year to June 2020, reversing a key factor which has muted prices over recent years – food accounts for over 10% of CPI basket (excluding meals out and takeaway food). Food inflation averaged close to 3% p.a. over the past two decades but had been very weak over the five years to FY19 (averaging only 1.2% p.a.), due to intense competition between the major supermarkets and falling or weak global agricultural prices. The supermarkets cannot keep cutting prices (and either their own margins or suppliers' margins), while world agricultural prices will pick up over the medium term as global oversupply dissipates.

But overall, inflation will remain below the RBA's target range for some time. Headline CPI inflation averaged 1.3% in FY20 and our forecasts (and those from the Reserve bank) predict headline inflation to average between 1.0% to 1.3% over FY21 and FY22, before picking up to 1.7% in FY23. Meanwhile, underlying (or core) inflation – which excludes the extreme price movements, such as the 'usual' petrol price volatility - is expected to move lower in the near-term, from an average of 1.4% in FY20 to 1.0% in FY21 and FY22, before gradually picking up in line with the headline rate.

Underlying and headline CPI inflation are subsequently expected to gradually pick up over FY23 to FY25 as economic growth increases, profits, employment and wage growth strengthen, the unemployment rate declines and inflationary pressures re-build. Wages growth will accelerate as the unemployment rate declines back toward and below 6%, which is expected to occur in the second half of 2022, with the rate expected to edge below 5% during 2025. The recovery in the global economy will also see global inflationary pressures rebuild and manufacturing costs and prices increase over the medium to longer-term. The rise in the A$ toward US79 cents in FY25 will provide some offsetting pressures between FY23 and FY26, but fuel prices will add to the CPI. Global oil prices are projected to increase over the next 5 years, with Brent crude oil price forecast to gradually rise from around US$44/barrel in the (current) December quarter 2020 (and US$29/brl in the June quarter) to US$70/brl by early 2025 (note that this price is still lower than the recent high of over US$75/brl in September quarter 2018). Although the gradual rise in the A$ back toward US$0.79 over the same period will partially mute some of the increase in local fuel prices, the near trebling of oil prices will add to the CPI over the next few years.

Overall, underlying inflation is forecast to rise to 2.3% in FY24 and 2.4% in FY25. Headline CPI inflation is forecast to increase slightly faster largely due to fuel prices. The expected softening in the economy around mid-decade will see price and wage pressures weaken over FY26 and FY27, with the CPI pushing back below 2.3%, before again rising to 2.5% over the latter years of the 2020s.

CPI inflation projected to average close to 2.5% over the long term

Headline CPI inflation is expected to sit close to the mid-point of the RBA's 2-3% target band in the long run based on the following:

- Tradeables inflation, which constitutes around one-third of the CPI basket, is forecast to increase by an average of around 1.0% - 1.5% per annum contributing around 0.4% to annual inflation. Limited movements in the A$, steady (but subdued) increases in global manufacturing costs and some commodity and food price increases underpin this projection.

- Non-tradeables inflation (comprising the remaining two-thirds of the basket) is assumed to increase by around 2.5% to 3% per annum contributing roughly 2% to headline inflation. The main driver of this is the projected acceleration in wage growth.

4.1.1 RBA CPI Forecasts are Used to Calculate Real Wages

To calculate real wage increases, we deflate nominal wages growth by deducting expected inflation over a 10-year period, using the CPI forecasts from the Reserve Bank of Australia (RBA). The RBA's November 2020 'Statement on Monetary Policy' forecast the headline CPI rate at "1/2 per cent" in the December quarter 2020 and 2 ¼ per cent in the June quarter 2021 – giving an average of 0.9% for FY21. The RBA then forecasts headline CPI to ease to 1% in December 2021 and pick up slightly to at 1.25% in the June 2022 quarter (giving a year average of 1.1% for FY22), before rising to 1.5% in the December quarter 2022. Assuming a further rise over calendar 2023 to the mid-point of the RBA's target range by December 2023, this implies a year average CPI rate of 1.8% for FY23.

Expected inflation for the next 10 years is derived by using the geometric mean of RBA forecasts for the next three years, with the 2.5% mid-point of the RBA's inflation target band (i.e. 2 to 3%) used for the remaining 7 years – to give an average of 2.1% for FY24 to FY26. This methodology has been adopted by the AER (Australian Energy Regulator) in their recent revenue decisions. For example, see Transgrid Draft Determination 2018-23, Attachment 3, page 142.

We are aware that the AER has issued a Draft position paper "Regulatory Treatment of Inflation", released in October 2020. The main changes for the expected inflation projection are to reduce the length of the geometric average from 10 to 5 years and have a 'glide-path' from the latest RBA forecast to the 2.5% mid-point by year 5 of the forecast period. However, we have not adopted the proposals put forward by the AER in this paper in the forecasts in this report, because the proposals put forward by the AER are still effectively a draft position, with the final position yet to be finalised. The AER has requested feedback from stakeholders, so it's possible that there could be some amendments to the 'positions' proposed in the draft paper.

4.2 NATIONAL WAGES

The key determinants of nominal wages growth are consumer price inflation, productivity, the relative tightness of the labour market (i.e. the demand for labour compared to the supply of labour), and compositional (structural) changes in the labour market following the end of the mining investment boom.

Low wages growth over recent years

Wages growth has slowed markedly over the past 5 years, primarily due to weaker demand for labour, caused by both cyclical and structural factors. Among the underlying structural changes causing this unspectacular wage growth are increasing market flexibility and casualisation of the work force (what is commonly coined the 'gig-economy'), falling union membership, slower productivity growth and the effects of lower inflation expectations.

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 upward price pressures, while a significant section of pay deals are being set in line with CPI inflation – especially for employees on awards.

The unemployment rate and underemployment rate are key indicators of the amount of slack in the labour market. The unemployment rate was just above 5% over the two years to the March quarter 2020, before the COVID impacts. Historically this rate was seen as close to the NAIRU, (the Non-Accelerating Inflationary Rate of Unemployment or the `natural rate of unemployment'), but our latest research suggests that the natural rate has declined in recent years, as a result of falling rates of unionisation and increasing casualisation. In addition, the relatively high underemployment rate suggested spare capacity in the labour market. The high underutilisation rate – the sum of unemployment and underemployment – reflects considerable slack in the labour market, which limits the bargaining power of workers and reduces pressure on wages.

Fig. 4.1 Australia: Wages and Prices (includes SG Increases Impact)

Annual Per Cent   Forecast

Source: BIS Oxford Economics, ABS, RBA
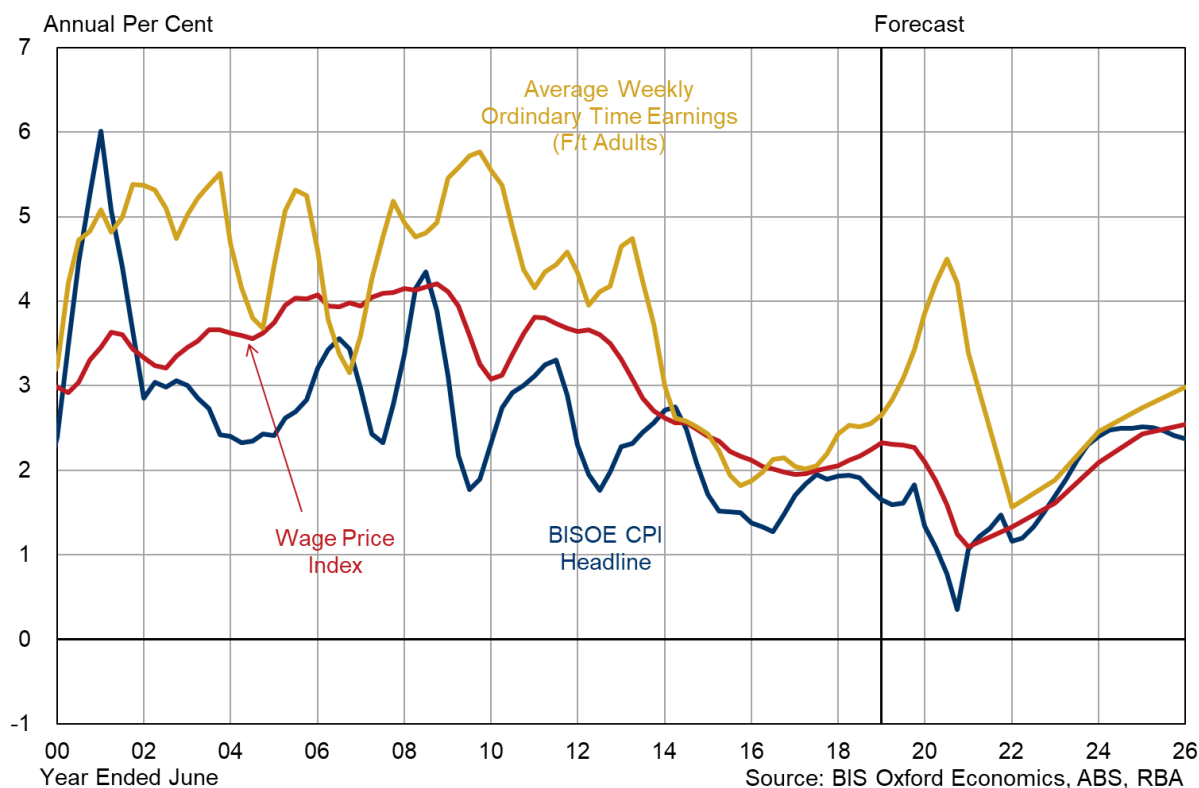
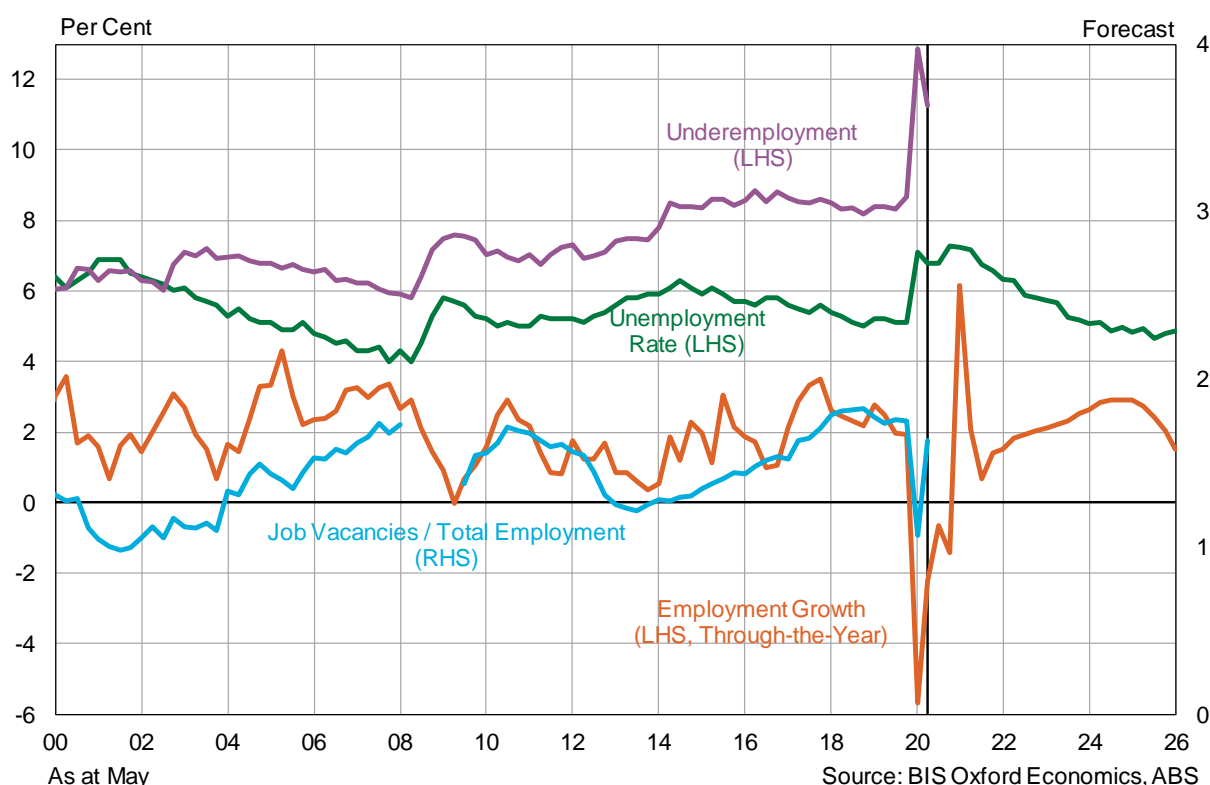**Wages growth to remain weak over next 2 years, before rising**

Wages growth in terms of the wage price index (WPI) and average weekly earnings measures had been showing signs of improvement over 2018-2019, although the improvement in WPI appeared to have stalled in the second half of calendar 2019 and the March quarter 2020 at 2.2% in terms of annual increases. These increases may have been helped by higher increases in the minimum wage decisions and collective bargaining outcomes over the past 3 years, with increases in the dominant 'individual arrangements' segment also improving.

However, the impact of COVID-19 pandemic has seen employment plummet and dramatically lift the unemployment and underemployment rates. This has reversed the nascent improvement in wages that had been building. There has been a severe dislocation in labour markets around the country. While conditions have recovered markedly since the May lows, employment is 136,000 below its February level, while the unemployment rate was 6.8% in November 2020. Yet these numbers still hide the full extent of the devastation. Until now, recipients of JobSeeker have not had to look for work, and as a result many of the people who have lost their jobs have officially exited the labour force – once these people re-enter the labour force the unemployment rate will increase further. While the government's JobKeeper program has been very effective at keeping people in their job there is a large cohort of employees working zero hours, which is boosting the underemployment rate. The government has announced JobKeeper will extend through Q1 2021, albeit at a tapered and tiered rate from Q4 2020.

The sharp deterioration in economic conditions over the June quarter saw the All Industries WPI rise only 0.2% in the June quarter (seasonally adjusted, or 0% in original terms), with the annual rate of

increase sliding to 1.8% (June 2020 compared to June quarter 2019), while the average for FY20 slowed to 2.1%. Wages slowed further in the September quarter, rising 0.1% q/q (seasonally adjusted or 0.4% in original terms), to be 1.4% higher than the September quarter 2019. Widespread wage freezes and very modest wage increases will see WPI growth weaken over FY21. AWOTE (average weekly ordinary time earnings – for full time adults) are also likely to show weaker growth, but compositional effects in these measures may mask the true picture. The National Accounts average earnings measure is more likely to reflect the actual fall in overall wage incomes and take-home pay, as this will take account the lower hours worked, moreso than the WPI, which is an index based on a basket of different occupations, but does not take account of average earnings per week. Appendix A has a discussion of the various wage measures.

Fig. 4.2 Australia: Employment and Unemployment

Some upside is expected to come from an increase in the National Minimum Wage (NMW), which was awarded by the Fair Work Commission at its Annual Wage Review in June 2020 – to be paid to workers in different industry sectors on a staggered timetable over 2020/21. Given the current circumstances, the FWC only awarded a 1.75% increase – down from the 3.1% to 3.5% increases of the past 3 years, but which the FWC deemed prudent to provide the poorer paid workers with an adequate wage. Although only 13% of full-time workers (a much higher proportion for part-time workers) rely on the annual increase in the minimum wage as their primary wage-payment mechanism, a significant proportion of workers are also indirectly influenced by the NMW increase, as it usually flows onto industry awards. Furthermore, some industries that are less affected by the COVID-19 impacts will also receive some pay rises over FY21. Overall, our forecast is for the All Industries WPI to increase by 1.1% in FY21.

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Table 4.1 Wages and Prices Growth – Australia

Year Ended June	Average Weekly Ordinary Time Earnings[1]			Wage Price Index (All Industries)			Official Headline CPI [2]	
	Nominal $/week	%CH	Real AWOTE %CH	Nominal Index	%CH	Real WPI %CH	Index	%CH
2002	847	5.4	2.5	76.7	3.3	0.5	75.7	2.9
2003	890	5.0	2.0	79.3	3.5	0.5	78.0	3.0
2004	932	4.7	2.3	82.2	3.6	1.2	79.9	2.4
2005	973	4.4	2.0	85.3	3.7	1.3	81.8	2.4
2006	1,018	4.6	1.4	88.7	4.1	0.9	84.4	3.2
2007	1,054	3.6	0.6	92.2	3.9	1.0	86.9	3.0
2008	1,106	4.9	1.6	96.1	4.1	0.8	89.8	3.4
2009	1,166	5.5	2.3	100.0	4.1	1.0	92.6	3.1
2010	1,231	5.6	3.2	103.1	3.1	0.8	94.8	2.3
2011	1,283	4.2	1.0	107.0	3.8	0.7	97.7	3.1
2012	1,338	4.3	2.0	110.9	3.6	1.3	100.0	2.3
2013	1,400	4.6	2.4	114.6	3.3	1.0	102.3	2.3
2014	1,442	3.0	0.3	117.6	2.6	-0.1	105.0	2.7
2015	1,477	2.4	0.7	120.4	2.4	0.7	106.8	1.7
2016	1,505	1.9	0.5	123.0	2.1	0.7	108.3	1.4
2017	1,536	2.0	0.3	125.4	2.0	0.2	110.2	1.7
2018	1,573	2.4	0.5	127.9	2.1	0.1	112.3	1.9
2019	1,615	2.7	1.0	130.9	2.3	0.7	114.1	1.6
2020	1,677	3.9	2.5	133.7	2.1	0.8	115.7	1.3
Forecasts								
2021	1,734	3.4	2.5	135.1	1.1	0.2	116.7	0.9
2022	1,761	1.6	0.4	136.9	1.3	0.2	118.0	1.1
2023	1,794	1.9	0.1	139.1	1.6	-0.2	120.1	1.8
2024	1,838	2.5	0.3	142.0	2.1	0.0	122.7	2.1
2025	1,889	2.7	0.6	145.5	2.4	0.3	125.3	2.1
2026	1,945	3.0	0.9	149.2	2.5	0.4	128.0	2.1
Compound Annual Growth Rates [3]								
2001-2010	4.8		2.0	3.7		0.9	2.8	
2010-2020	3.1		1.1	2.6		0.6	2.0	
2020-2026	2.5		0.8	1.8		0.1	1.7	
2021-2026	2.3		0.5	2.0		0.1	1.9	

Source: BIS Oxford Economics, ABS

(1) Average Weekly Ordinary Time Earnings 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 the December 2021 quarter. Beyond this, we've taken the
  'geometric mean of the 'official' inflation forecasts over the next 10 years, which
  includes RBA forecasts to December quarter, 2020 and then 2.5% (mid-point of
  RBA's '2-3% target' range) beyond then.
(3) CAGR (Compound Annual Growth Rates) for 2021-2026 is CAGR for
   2021/22 to 2025/26 inclusive (ie next Revenue Determination period).

As the economy and employment rebounds through FY22, growth in the All Industries WPI is also expected to exhibit a modest recovery, rising to 1.3%. Part of the rebound will be driven by deferred pay increases from 2020 and early 2021. We also expect a higher increase in the NMW in July 2021 to underpin higher increases. As the economy continues to strengthen over FY23 to FY25, we expect to see a marked improvement in the labour market, with labour demand increasing and the

unemployment rate falling to around 5% by early FY25. We expect to see skill shortages manifest in some areas of the economy. The tightening labour market will see wage pressures increase, and the All industries WPI is forecast to gradually rise to 2.5% in FY26. Note that the forecasts of the All Industries WPI over the 5 years from FY22 to FY26 include the impact of the SG increase. We have assumed that the All Industries WPI is -0.4% lower in each of those 5 years, than if the SG Increase did not go ahead (see section 4.4 for key assumptions underpinning this impact). In the absence of the SG Impact, the All Industries WPI would have been 2.9% in FY26.

Forecasts for All industries wages are detailed in Table 4.1. Overall, using RBA CPI forecasts, real (inflation-adjusted) WPI growth for the Australian All Industries WPI is forecast to average 0.1% per annum over the period from FY22 to FY26. This forecast includes the -0.4% impact on the All Industries WPI over the first 4 years of that 5-year period. Excluding the SG Increase impact, rate of real increase would be slightly below the average of the past decade.

4.3 SUPERANNUATION GUARANTEE INCREASES & THEIR IMPACT ON LABOUR COSTS

In light of the proposed increases to the Superannuation Guarantee, BIS Oxford Economics researched the treatment of superannuation contributions in regard to how the ABS measures labour costs. The Superannuation Guarantee is proposed to increase from the current 9.5% in the early-to-mid 2020s, rising 0.5% in July each year from July 2021 to 12% in July 2025.

To summarise, the Superannuation Guarantee Charge (SGC) is **not** included in the regular wage measure preferred by the Australian Energy Regulator – the Wage Price Index (WPI). The SGC is in effect **a labour 'on-cost'**. In terms of escalating wage costs over the regulatory period, the SGC therefore needs to be **added** to the forecast increases in the WPI. The exception to this rule would be where an employer already pays a superannuation amount higher than the legislated minimum (currently 9.5%), and chooses not to increase the super % until that proportion reaches the legislated minimum.

The basic WPI measures "ordinary time payments", with the broader measure – total hourly rates of pay - including only overtime payments in addition to ordinary hourly rates of pay. The ABS description of the Wage Price Index categorically states that:

"The following are specifically excluded from ordinary time payments:

- Employer contributions to superannuation funds"[1]

Six other types of irregular payments are also listed as being excluded from ordinary time earnings, such as severance, termination and redundancy payments; leave loading; etc.

In discerning the relationship between superannuation contributions and measures of wages and earnings we must first make some distinctions in the way the ABS considers superannuation contributions. Firstly, we note that the ABS recognises three distinct categories of labour costs in-line with the International Labour Organisation (ILO) International Standard Classification of Labour Costs, and most of these components are measured by the Major Labour Cost survey (cat. 6348.0):

> 1. Employee earnings – made up of wages and salaries, fringe benefits and termination payments.
>
> 2. Items of a social security nature that provides a future or contingent benefit to employees – made up of superannuation contributions and worker' compensation.

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[1] ABS catalogue #6351.0.55.001 'Wage Price Index – Concepts, Sources and Methods, 2012', page 24.

3. Taxes associated with employment – includes payroll tax and fringe benefits tax.

Secondly, the ABS recognises the concept of employer "on-costs", or equivalently "non-wage labour costs". These are considered additional costs employers incur beyond direct payments for work done by employees.

Employer on-costs are generally considered as involuntary outlays as they are primarily imposed by statutory requirements or under collective bargaining agreements. Employers have the obligation to pay the minimum amount of Superannuation Guarantee (SG) to employees. The Superannuation Guarantee Charge (SGC) was introduced from 1 July 1992 and increased both the coverage and minimum contribution levels.

In the September quarter 2004, the ABS expanded the scope of its Wage Cost Index (WCI), which was a predecessor of the Wage Price Index (WPI). Prior to the expanded scope, the WCI focussed exclusively on wage and salary rates. The series was renamed to the Labour Price Index (LPI), to reflect the inclusion of four separate non-wage indexes being recorded:

1. Employer contributions to superannuation

2. Workers' compensation

3. Annual leave and Public holidays

4. Payroll tax

The ABS discontinued the non-wage and labour price indexes in the September quarter 2012 and this resulted in what we now know as the WPI.

Therefore, we can categorically conclude that WPI in its current form, does not measure employer contributions to superannuation, and therefore will not be directly influenced by any changes to the Superannuation Guarantee.

As for **Average Weekly Earnings** (AWE), earnings in this context are "broadly defined as current and regular payments in cash to employees for work done" (ABS 2018). Through to 2007, AWE excluded amounts salary sacrificed and this is now considered as a form of wages and salaries in cash. In this context we can conclude, similarly with WPI, that AWE does not include superannuation contributions and will not measure any changes to the Superannuation Guarantee.

Assumptions regarding Superannuation Guarantee Increases & Their Impact on Forecasts Wage Increases and Labour Costs

The superannuation guarantee (SG) as it is currently legislated, has the contributions from employers increasing from the current 9.5% by 0.5% on 1st July each year from 2021 to 1st July 2025. This means that it will increase in each of the 5 years of the next regulatory period of Australian Gas Networks (i.e. over FY22 to FY26).

As discussed above, the SG increases are not included in the wage price index, but will impact the quantum of the WPI increases in each year from FY22 to FY26 (i.e. 2021/22 to 2025/26). This is based on the notion that a proportion of the costs associated with SG increases will be ultimately borne by employees, via lower wage growth than would be the case if there was no SG increase. The Reserve Bank of Australia has estimated that around 80% of the increase in non-cash benefits, such as superannuation, are passed on to employees in the form of lower wage increases. This is referred to as the 'economic incidence' of the SG increase, whereas the 'statutory incidence' of the whole 0.5% annual SG increase falls on the employers. However, the proportion of the cost borne by employees would differ according to the form of pay-setting method and other intrinsic factors. Those

employees who have their pay rises set under collective bargaining **and** who belong to a strong union with considerable industrial power are expected to ultimately receive a much higher proportion of their pay increase than those who receive their pay increase via the annual minimum wage increase (set by the Fair Work Commission) and those employees on 'individual arrangements'.

In terms of overall wage costs, **the full 0.5% for the SG increases each year should be added to the forecast WPI increases each year** for internal wages and also external wages, to arrive at the total percentage increase in labour costs. This is in line with advice from Deloitte Access Economics (DAE) to the AER in their Superannuation Guarantee paper, that "…taking into account the uncertainty regarding how individual NSPs will respond to changes in the minimum superannuation guarantee, it is recommended that the full 0.5 percentage point annual increase to the superannuation guarantee be added to forecast WPI growth" (page 5 of DAE impact of *Changes to the Superannuation Guarantee on Forecast Labour Price Growth,* July 2020).

In deriving the WPI forecasts, we have made the following assumptions when applying a 'discount' to the WPI in the All Industries and specific industry WPI forecasts:

1. The key underlying assumption assumes that around 80% of the economic incidence of the Superannuation Guarantee (SG) increases are passed on to employees, with employers only paying for 20% of the cost of the SG increases. This is in line with RBA research. This applies to the All Industries wages. This means that All Industries WPI growth is equivalent to 80% less than it would be in the 'alternative' case, where no SG increase occurred. In the context of a 0.5% increase each year, the impact on All Industries WPI is -0.4%.

2. The impact on employees is assumed to be evenly spread in each year, rather than unevenly spread over time. This implies wages are negotiated prior to the SG increase and spread evenly over the whole year . We acknowledge this is a simplified assumption, given that often the economic incidence is not spread evenly across years, with the ultimate impacts often going beyond the period of SG increases.

3. The incidence of the SG increase differs across the three different segments of pay methods. Those 13.1% of employees (full-time adults) who receive their annual pay rise via the Minimum wage case by the Fair Work Commission are assumed to receive 80% less, with those who receive payments via individual arrangements also receiving 80% less. At the All Industries level, it assumed that the average of the 38.4% of employees who rely on collective bargaining also receive 80% less. However, this %age for those on collective bargains or EBAs will markedly differ across industry sectors.

4. For employees in the EGWWS sector, the base assumption is that those 64.6% of employees on EBAs will receive 50% less, with employers paying the other 50%. **This is a conservative assumption** - given the strength of the unions covering the EGWWS sector, it is likely that EBAs will not be reduced by as much as 50% to cover the increase in the SG. Overall, the impact on the whole EGWWS WPI will be -0.32% for each of the 5 years from FY22 to FY26 inclusive.

5. In the Construction sector, we are assuming that the discount to wages negotiated by the construction unions covering that industry will be only 25% - half that of EGWWS sector. Overall, the impact on the whole Construction WPI will be -0.32% for each of the 5 years from FY22 to FY26 inclusive.

4.4 ALTERNATIVE SCENARIO – SUPERANNUATION GUARANTEE INCREASES ARE DEFERRED

The scenario which the AER has effectively adopted is to assume that the SG increases as currently legislated proceed under the proposed timetable of increases, i.e. the first 0.5% increases the

minimum superannuation guarantee occurs on 1st July starting 1 July 2021 and is increased 0.5% each 1 July until 1st July 2025 inclusive. This is effectively the 'base' scenario which is presented in this document and the associated forecasts.

However, there is a plausible 'alternative' scenario, whereby the proposed SG increases are again deferred. There is a reasonably high probability that the proposed increases in the Superannuation Guarantee Charge (SGC) will again be deferred, as they were in the second half of last decade. BISOE believes there will be considerable pressure from businesses, state and local governments to push out the 'legislated' start of the SGC increases at least 3 years, to say July 2024, given the impacts of COVID-19 on the economy and their perceived ability to pay. It should be remembered that the Commonwealth government decided to defer the original timetable of the SGC increases (then due to occur from the second half of the 2010s) because of the perceived weakness of the economy in 2014/15. The economy is much, much weaker now. However, as there is considerable uncertainty surrounding both the actual timing and quantum of the SGC increases, in the forecasts in the table below, we have assumed that the SG increases are pushed out beyond FY26.

Table 4.2 Alternative Scenario: SG Increases are Deferred beyond FY26 – Labour Cost Escalation Forecasts: South Australia & Australia, Financial Years

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

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	5 yr Avg (f)
	Actuals						Forecasts	Next Regulatory Period					
NOMINAL PRICE CHANGES													
1. Gas Network-Related Labour													
EGWWS WPI - South Australia (a)	**2.9**	**2.0**	**1.9**	**2.0**	**2.5**	**2.6**	**1.8**	**2.1**	**2.3**	**2.8**	**3.1**	**3.2**	**2.7**
EGWWS WPI - Australia (b)	2.8	2.4	2.2	2.0	2.8	2.7	1.9	2.2	2.4	2.8	3.2	3.2	2.8
EGWWS AWOTE - Australia (b)	0.7	3.5	4.3	2.3	1.3	2.9	2.3	2.5	2.6	3.0	3.3	3.5	3.0
2. Contractor Labour Cost Escalation													
Construction WPI - South Australia (c)	**1.9**	**1.4**	**1.4**	**1.6**	**1.8**	**1.5**	**1.0**	**1.6**	**1.9**	**2.4**	**2.9**	**3.1**	**2.4**
Construction WPI - Australia (b)	2.1	1.6	1.7	1.9	1.9	1.5	0.9	1.6	2.0	2.6	3.0	3.2	2.5
Construction AWOTE - Australia (b)	2.2	1.4	2.2	1.0	-0.6	7.2	3.7	2.4	2.4	3.0	3.3	3.4	2.9
3. Australian Wages													
All Industries - WPI (d)	2.4	2.1	2.0	2.1	2.3	2.1	1.1	1.7	2.0	2.5	2.8	2.9	2.4
All Industries - AWOTE (d)	2.4	1.9	2.0	2.4	2.7	3.9	3.4	2.0	2.3	2.9	3.1	3.4	2.7
Consumer Price Index (headline) (e)	1.7	1.4	1.7	1.9	1.6	1.3	0.9	1.1	1.8	2.1	2.1	2.1	1.9
REAL PRICE CHANGES (g)													
1. Gas Network-Related Labour													
EGWWS WPI - South Australia (a)	**1.1**	**0.7**	**0.2**	**0.1**	**0.9**	**1.3**	**0.9**	**0.9**	**0.5**	**0.6**	**1.0**	**1.0**	**0.8**
EGWWS WPI - Australia (b)	1.1	1.0	0.5	0.0	1.1	1.3	1.0	1.1	0.6	0.7	1.0	1.1	0.9
EGWWS AWOTE - Australia (b)	-1.0	2.2	2.6	0.4	-0.3	1.6	1.4	1.4	0.9	0.9	1.2	1.3	1.1
2. Contractor Labour Cost Escalation													
Construction WPI - South Australia (c)	**0.2**	**0.0**	**-0.3**	**-0.4**	**0.1**	**0.2**	**0.1**	**0.4**	**0.1**	**0.3**	**0.8**	**1.0**	**0.5**
Construction WPI - Australia (b)	0.4	0.2	0.0	-0.1	0.2	0.2	0.0	0.5	0.2	0.5	0.9	1.1	0.6
Construction AWOTE - Australia (b)	0.5	0.0	0.5	-0.9	-2.2	5.9	2.8	1.3	0.6	0.9	1.2	1.3	1.1
3. Australian Wages													
All Industries - WPI (d)	0.7	0.7	0.2	0.1	0.7	0.8	0.2	0.6	0.2	0.4	0.7	0.8	0.5
All Industries - AWOTE (d)	0.7	0.5	0.3	0.5	1.0	2.5	2.5	0.8	0.5	0.7	1.0	1.3	0.9

Sources: BIS Oxford Economics, ABS

(a) Electricity, Gas, Water and Waste Services (EGWWS) Average Weekly Ordinary Time Earnings (AWOTE) and Wage Price Index (WPI) for South Australia.
(b) Australian sector wage forecasts provided for comparison.
(c) Construction Sector WPI for South Australia.
(d) Australian All Industries AWOTE and WPI provided for comparison.
(e) Reserve Bank of Australia forecasts to December 2022. Beyond that, we have used a 10-year arithmetic average of RBA forecasts and the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range, which is the method currently preferred by the AER.
(f) Average Annual Growth Rate for 2021/22 to 2025/26 inclusive, ie for next regulatory period.
(g) Real price changes are calculated by deducting the inflation rate from nominal price changes.

5. INDUSTRY WAGE FORECASTS - UTILITIES & CONSTRUCTION: AUSTRALIA & SOUTH AUSTRALIA

5.1 CHOICE OF THE WAGE PRICE INDEX AS THE MEASURE OF LABOUR COSTS

The WPI (wage price index) for the EGWWS (Electricity, Gas, Water & Waste Services or 'Utilities') sector in South Australia is used as a proxy for all of AGN's gas network related labour costs. Network labour costs includes all internal labour (i.e. all head office staff including professional and admin employees plus field employees) as well as any external labour hired to provide field services such as 'asset management' services. Businesses providing these field services are usually classified to the utilities sector. Hence, including their labour costs as part of AGN's opex 'network' labour and escalating it with the WPI for the state utilities sector will be consistent with the AER's framework. That being said, some of AGN's internal staff may be involved in project delivery such as replacement and/or augmentation capital projects. Their labour cost can be included in the capex calculations.

BISOE chose to use the Wage Price Index (WPI) as the key measure of labour costs for the forecasts of Electricity, Gas, Water and Waste Services. The key motivations for this are:

(a) Greater data availability: the EGWWS WPI is available at the national level and for the key states (NSW, Victoria and Queensland), both on quarterly and annual basis. Average Weekly Earnings (AWE) and Average Weekly Ordinary Time (AWOTE) are not available by industry by state, and at the national level are only published every 6 months; and

 (b) The Australian Energy Regulator (AER) prefers the WPI as it has less volatility than AWOTE and is a better measure of underlying trends.

5.2 NATIONAL & SOUTH AUSTRALIA EGWWS WPI FORECASTS

Utilities wage growth is forecast to continue to outpace the national 'all industries' average over the forecast period.

The national (Australia-wide) EGWWS wage price index growth has consistently been above the national (all industries) average since the index's inception in 1997 and averaged 0.6% higher over the past two decades (see Table 5.1 and Fig 5.1). Over these two decades, the average growth in the real (inflation adjusted) WPI was 1.3%. Since the collapse in wages growth following the end of the mining boom, the EGWWS WPI has continued to outpace the all industries average, increasing by an average of 2.5% over the past 6 years to FY20 inclusive, 0.3% higher than the 2.2% national average.

Over the next six years to FY26 inclusive, the EGWWS WPI at the Australian level is forecast to average 2.4% p.a., 0.6% above the All Industries average. Over the 5-year period from FY22 to FY26 inclusive (AGN's next regulatory period) the Australian EGWWS WPI is forecast to average 2.5%. which will be 0.5% above the All industries average. In real terms, the Australian EGWWS WPI is forecast to average 0.6% p.a. over the five years to FY26. Note that these forecasts include the impact of the SG increase, which is expected to see the EGWWS WPI be -0.3% lower over FY22 to FY26 than if the SG increase did not proceed on the current proposed timetable. Excluding the SG increase impact, the overall real average would be just under the 1.0% p.a. averaged over the past decade. In terms of the historical difference vis-à-vis the All Industries average over the past decade,

excluding the impacts of the SG increase (which is assumed to be 0.1% higher for the All Industries WPI) the difference is in line with the 0.4% difference of the past decade.

Table 5.1 Total Australia (All Industries) and Electricity, Gas, Water and Waste Services Average Weekly Ordinary Time Earnings and Wage Price Index (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		
	Nominal $/week	%CH	Real AWOTE %CH	Nominal $/week	%CH	Real AWOTE %CH	Nominal Index	%CH	Real WPI %CH	Nominal Index	%CH	Real WPI %CH
2002	847	5.4	2.5	981	6.8	3.9	76.7	3.3	0.5	73.8	4.2	1.4
2003	890	5.0	2.0	1,001	2.1	-0.9	79.3	3.5	0.5	76.8	4.1	1.1
2004	932	4.7	2.3	1,057	5.5	3.1	82.2	3.6	1.2	79.9	4.1	1.7
2005	973	4.4	2.0	1,091	3.2	0.8	85.3	3.7	1.3	83.3	4.3	1.8
2006	1 018	4.6	1.4	1,111	1.9	-1.3	88.7	4.1	0.9	87.6	5.2	2.0
2007	1 054	3.6	0.6	1,152	3.7	0.7	92.2	3.9	1.0	91.8	4.8	1.8
2008	1 106	4.9	1.6	1,183	2.7	-0.7	96.1	4.1	0.8	95.7	4.2	0.8
2009	1 166	5.5	2.3	1,255	6.1	3.0	100.0	4.1	1.0	100.0	4.5	1.4
2010	1 231	5.6	3.2	1,351	7.6	5.3	103.1	3.1	0.8	104.4	4.3	2.0
2011	1 283	4.2	1.0	1,474	9.1	6.0	107.0	3.8	0.7	108.7	4.2	1.1
2012	1 338	4.3	2.0	1,510	2.5	0.1	110.9	3.6	1.3	112.5	3.5	1.2
2013	1 400	4.6	2.4	1,602	6.1	3.9	114.6	3.3	1.0	117.3	4.2	1.9
2014	1 442	3.0	0.3	1,635	2.0	-0.7	117.6	2.6	-0.1	121.1	3.2	0.4
2015	1 477	2.4	0.7	1,646	0.7	-1.0	120.4	2.4	0.7	124.5	2.8	1.1
2016	1 505	1.9	0.5	1,704	3.5	2.2	123.0	2.1	0.7	127.5	2.4	1.0
2017	1 536	2.0	0.3	1,777	4.3	2.6	125.4	2.0	0.2	130.3	2.2	0.5
2018	1 573	2.4	0.5	1,818	2.3	0.4	127.9	2.1	0.1	132.9	2.0	0.0
2019	1 615	2.7	1.0	1,842	1.3	-0.3	130.9	2.3	0.7	136.6	2.8	1.1
2020	1 677	3.9	2.5	1,896	2.9	1.6	133.7	2.1	0.8	140.2	2.7	1.3
Forecasts												
2021	1 735	3.4	2.0	1,940	2.3	0.8	135.2	1.1	-0.3	142.8	1.9	0.4
2022	1 763	1.6	0.3	1,982	2.2	0.9	137.0	1.4	0.0	145.6	1.9	0.6
2023	1 799	2.1	0.3	2,029	2.4	0.6	139.4	1.8	0.0	148.8	2.2	0.4
2024	1 847	2.6	0.5	2,087	2.8	0.7	142.6	2.3	0.1	152.7	2.7	0.5
2025	1 899	2.8	0.7	2,151	3.1	0.9	146.2	2.5	0.3	157.2	2.9	0.8
2026	1 956	3.0	0.8	2 219	3.2	1.0	149.9	2.5	0.3	161.8	2.9	0.7
2027	2 018	3.1	1.0	2 291	3.2	1.0	153.9	2.7	0.5	166.7	3.0	0.9
Compound Annual Growth Rates (3)												
2001-2010	4.8		2.0	4.4		1.5	3.7		0.9	4.4		1.6
2010-2020	3.1		1.1	3.4		1.4	2.6		0.6	3.0		1.0
2020-2027	2.7		0.8	2.7		0.8	2.0		0.1	2.5		0.6
2022-2027	2.7		0.6	2.9		0.8	2.4		0.3	2.8		0.7

Source: BIS Oxford Economics, ABS

(1) Earnings per person for full-time adults. Data is year ended May (available only in November and May).

(2) Ordinary time hours excluding bonuses.

(3) CAGR (Compound Annual Growth Rates) for 2022-2027 is the average annual growth for 2022/23 to 2026/27 inclusive i.e. next regulatory period.

BIS Oxford Economics regards the WPI to be a measure of the *underlying* wages growth in the utilities sector for total Australia. In terms of total wage costs total wage costs — expressed in Average Weekly Ordinary Time Earnings (AWOTE) — BIS Oxford Economics expects EGWWS AWOTE to average 2.7% per annum over the five years to FY26, 0.2% higher than the EGWWS WPI. 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.

During the current COVID-19 crisis, the EGWWS sector has fared much better than just about all other sectors, along with the Mining, Finance and Insurance sectors. Surveys have shown that employment and wages growth have hardly suffered over recent months. Indeed, recent ABS data showed the EGWWS sector actually increased employment in the 3 months to May 2020 – by +24.5% compared to February levels (in seasonally adjusted terms) for Australia, although some of this increase was unwound over the 3 months to August (when employment slipped back -8.6%).This shows a healthy level of ongoing labour demand in what is an essential service. Meanwhile, Australian EGWWS WPI growth in the June quarter was 0.6% q/q in original terms (2.5% y/y), well above the All industries average of 0% q/q in original terms (1.8%y/y). This strong out-performance continued in the September quarter, with the EGWWS WPI increasing by 0.6% q/q to be 2.1% y/y – much higher than the 0.4% q/q (in original terms) and 1.4% y/y for the All Industries WPI.

Wages growth in the EGWWS sector is invariably higher than the total Australian national (all industry) average.

To a large extent, higher relative wages growth been underpinned by strong capital works program in the utilities sector over the past two decades (and particularly up to 2013 - 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. These sectors tend to be highly cyclical, with weaker employment suffered during downturns (such as the current COVID-19 inspired downturn) 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.

Strong Union presence in the utilities industry and higher collective agreements outcomes pushes utilities wages above the All Industry average.

Trade unions are typically able to negotiate higher-than-average wage outcomes for their members through collective bargaining, resulting in stronger wage growth than the all-industry average. Across the EGWWS sector, there are a number of 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).

As at May 2018, 64.6% of full-time non-managerial employees in the EGWWS industry have their wages set by collective agreements, considerably higher than the national average of 38.4%. Over the past 10 years, a higher proportion of workers on collective agreements is associated with higher wage growth, with a correlation coefficient of +0.6 (see Figure 5.2). As we expect that the EGWWS industry will continue to have higher levels of unionisation than the national average, we expect that unions in the EGWWS industry will continue to be able to negotiate for higher wages for a substantial proportion of EGWWS employees, resulting in EGWWS wages growing faster than the national average.

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 level of total utilities wages (in A$ terms) will generally be higher than the all industries average. Over the outlook period, we expect collective agreements in the EGWWs sector to achieve average increases of 3.0%, compared to 2.6% for all industries.

Figure 5.1 Wage Price Index - Australia All Industries, Electricity, Gas, Water & Waste Services, and Construction (includes SG increases impacts)
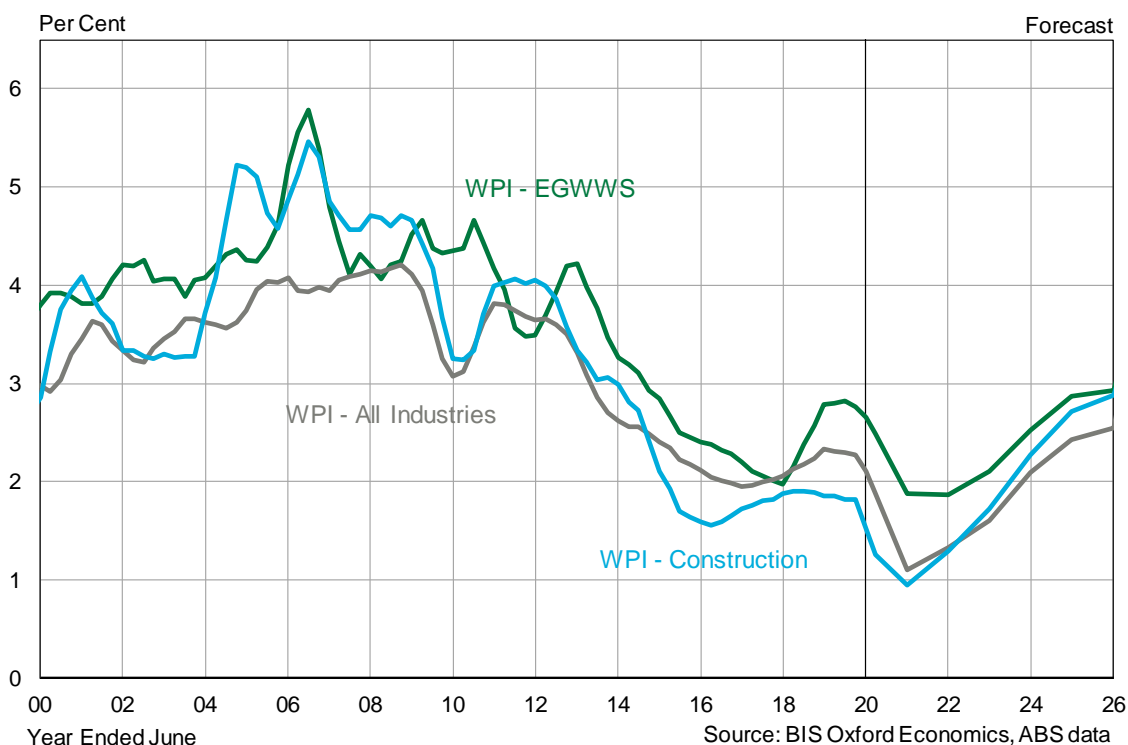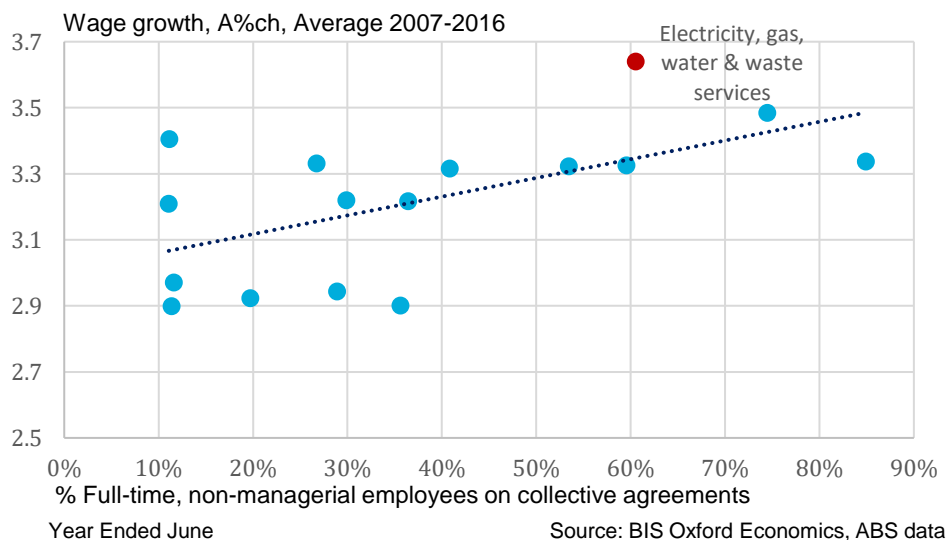

Per Cent   Forecast

WPI - EGWWS

WPI - All Industries

WPI - Construction

Year Ended June   Source: BIS Oxford Economics, ABS data

Figure 5.2 Average wage growth and unionisation rates by industry, 2007-2016

Wage growth, A%ch, Average 2007-2016

Electricity, gas, water & waste services

% Full-time, non-managerial employees on collective agreements

Year Ended June   Source: BIS Oxford Economics, ABS data

BIS Oxford Economics analysis shows collective agreements in the EGWWS sector were on average around 1.5% higher than CPI inflation over the 15 years to FY2014 (excluding the effects of GST introduction in 2000/01). In the six years to FY20, collective agreements were on average 1.4% above the CPI. Given the strength of unions in the sector and a still strong demand for skilled labour, collective agreements are forecast to remain around 1.1% above the 'official' CPI over the forecast period (this excludes SG increase impacts), which is lower than previous periods.

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 Oxford Economics 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 be weaker over the next 2-3 years than the last 5 years, when EBAs averaged around 2.9%. EBAs are expected to average around 2.5% 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.

We believe investment in the sector, particularly engineering construction, has been the key driver of employment growth in the sector over the past two decades. Figures 5.5 and 5.6 illustrate this relationship, and shows employment has a stronger relationship with utilities engineering construction rather than utilities output.

Wage increases under Individual agreements and EBAs will strengthen from FY24 due to stronger demand for skilled labour from the Mining and Construction sectors.

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 are estimated to have slowed appreciably over the three years to FY18, although we believe there were compositional effects that negatively impacted the estimation for this segment. Nevertheless, some of this reflected the general weakness in the economy and the full-time labour market at that time. However, we estimate that wage increases in the individual agreements segment rebounded in FY19 to around 2.7% and remained strong through most of FY20 as skilled labour shortages began to manifest. Indeed, the vacancies data from the ABS showed a marked increase in job vacancies in the utilities sector over the three years to February 2020, with vacancies also lifting significantly in the Mining and Construction sectors over the two years to early 2020, until COVID-19 impacted the Construction sector. Skilled labour pressures had building over those years: an August 2018 survey by the Australian Industry Group found that 3 in 4 employers reported an increasing shortage of technicians and trade workers, and employees with STEM skills. These are essential workers in the utilities sector.

Although we expect the overall labour market to remain weak over the next year, we subsequently expect an acceleration of employment growth through FY23, which will outpace population and labour force growth and see the unemployment rate drop back appreciably. Hence, we expect to again witness the re-emergence of skilled labour shortages and competition for scarce labour particularly from the mining and construction sectors, which will push up wage demands in the utilities sector. Mining investment is now picking up and is forecast to see significant increases over the next 3 years

to FY24, before easing (see figure 5.3). Meanwhile, there is similar strong growth coming through in in the Construction sector, which, after a short-term set-back due to COVID-19, we expect to see solid increases across all segments of the overall construction sector (residential construction, non-residential building and civil engineering & infrastructure construction) over FY23 to FY25, leading to strong labour demand in that sector, particularly from 2024 when activity surpasses the 2018 levels (see figure 5.4).

A key problem is that the TAFE (technical and further education) systems across the country have simply not been training enough workers. BIS Oxford Economics research shows this is being compounded by new graduates in the trades stream in particular not increasing fast enough to replace retiring workers, with some numbers actually falling. Despite government announcements that they are moving to address the TAFE system, it is unlikely that these issues will be addressed within the next 5 years. Added to this is that skilled immigration has been suspended. When it does return, it is likely to be a slow ramp-up, meaning that the skill shortages will persist and won't be easily or quickly solved by migration.

With strong competition for similarly skilled labour from the mining and construction industries, firms in the utilities sector will need to raise wages to attract and retain workers. In other words, the mobility of workers between the EGWWS, mining and construction industries means that demand for workers in those industries will influence employment, the unemployment rate and hence spare capacity in the EGWWS labour market. Businesses will find they must 'meet the market' on remuneration in order to attract and retain staff and we expect wages under both individual arrangements and collective agreements to increase markedly over the FY24 to FY26 period.

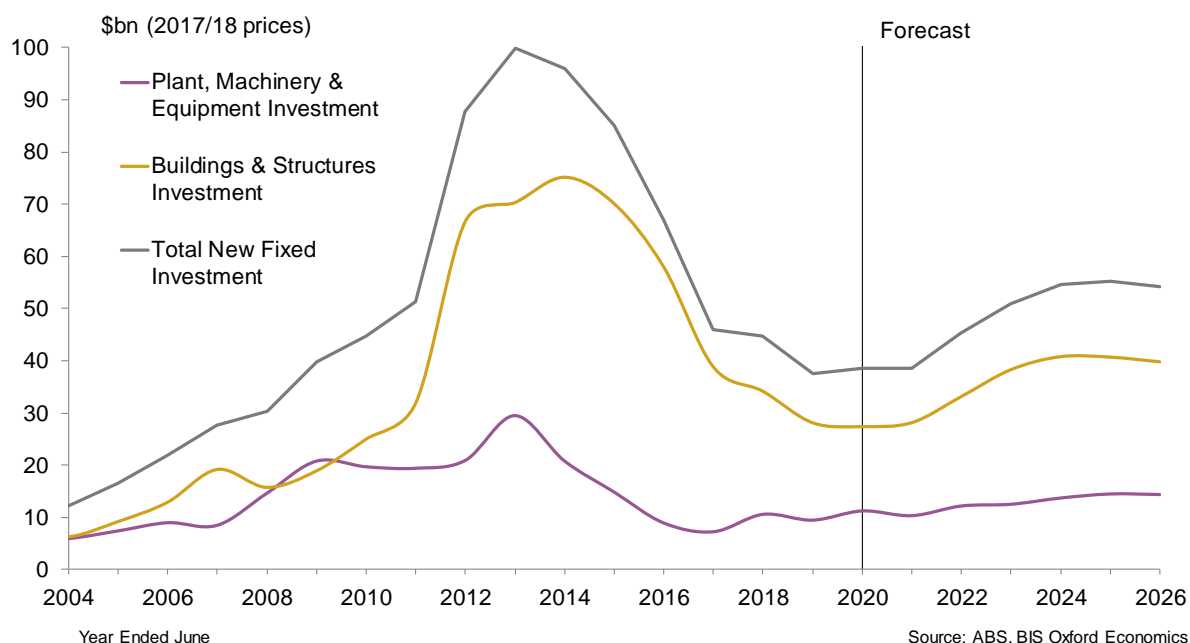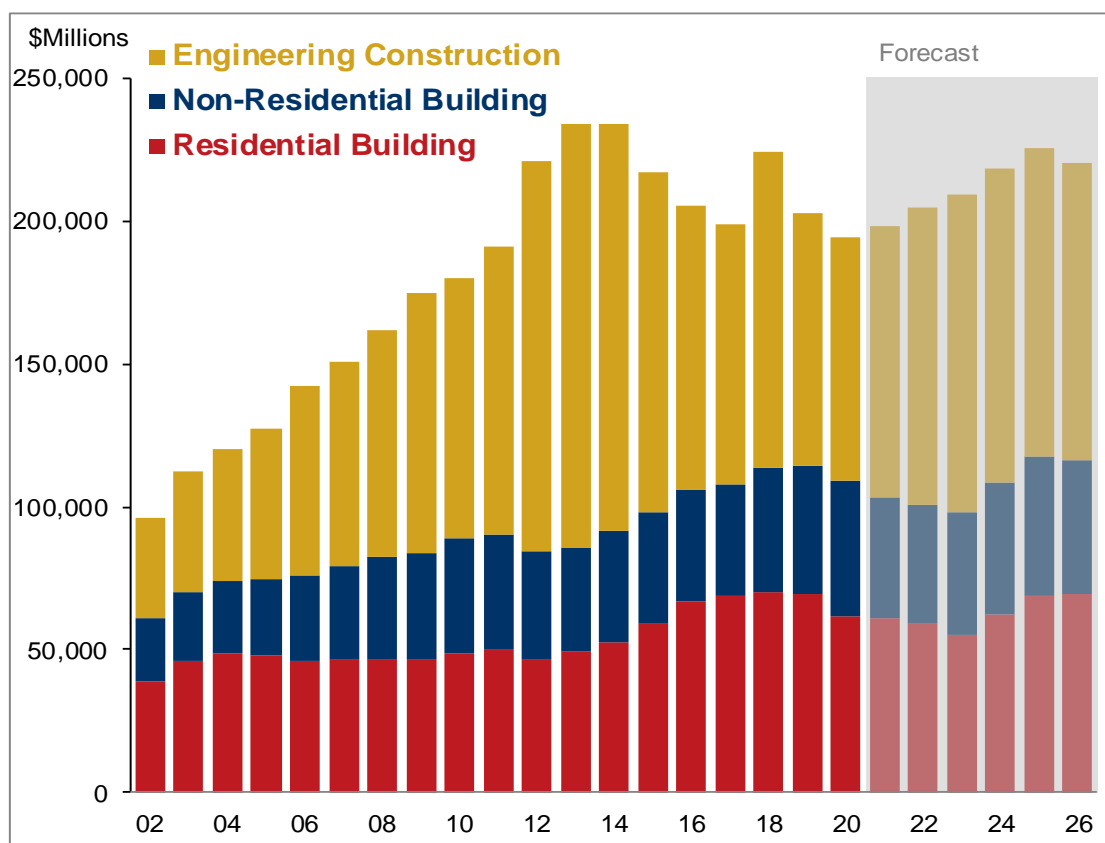**Figure 5.3 Australia – Mining Investment**

Source: ABS, BIS Oxford Economics

Figure 5.4 Australia – Construction Activity (real work done)

EGWWS sector has high levels of productivity, compared to the national average, which underpins higher wages.

The EGWWS sector has one of the highest levels of sectoral productivity – as measured by real Gross Value Added (GVA) per employed person – among the 18 industry sectors, with only Mining and Finance & Insurance Services having higher productivity. Utilities' productivity is more than double the national average according to ABS data for Australia and well above the average for South Australia (see figure 5.7). High productivity levels and commensurate skill levels are the key reasons why wage levels are much higher in the utilities sector than most other industries (in terms of average weekly earnings measures – see table 5.1).

However, over the past 18 years, the growth in productivity in the sector has not been a driver of higher wages growth in the utilities sector. Productivity suffered a steep decline over 2001 to 2014 due to a combination of strong employment growth (mainly due to rising investment, as previously discussed) and weak growth in GVA, both in Australia and South Australia (see figure 5.5 and 5.6). Meanwhile, utilities wages growth was relatively strong over this same period. In effect, there is no clear relationship between wages growth and the traditional productivity measures (i.e. GVA/Employment) in the utilities sector. Low productivity is set to continue in part because GVA (output) growth is expected to remain low, with low output a function of low demand caused both by high prices and energy-saving (and water-saving) measures. However, employment levels are expected to remain relatively stable due to the need to maintain a skilled workforce to ensure reliability and undertake capital works to cater for population and economic growth and for capital replacement.

5.2.1 Outlook for utilities wages growth and productivity in South Australia

The ABS do not provide WPI data for the Utilities sector in South Australia, providing state utilities data only for NSW, Victoria and Queensland (the latter since early 2016 only). These three states collectively account for over 73% of total Australian utilities employment, with Western Australia accounting for 14%, and South Australia for 8%. Historical data and forecasts of WPI for the EGWWS sector in South Australia is therefore based on national EGWWS WPI forecasts, as well as movements in the 'unknown residual' for the utilities wage price index and recent differences in outcomes in collective bargaining in South Australia compared to the national average for the utilities sector.

Wages in the South Australia utilities sector are expected to move in line with the national utilities sector average over AGNs' upcoming regulatory period (see table 5.3 and 1.1). However, over the next five years, utilities wage increases are expected to be slightly lower than the national average – due to relative weaker utilities construction and weaker labour markets in South Australia. South Australian EGWWS WPI growth is forecast to average 2.4% per annum in nominal terms over the five years to FY26 inclusive (i.e. over AGNs' next regulatory period) – or 0.5% in real (inflation adjusted) terms (see Table 1.1 and Table 5.3). This WPI forecast includes the SG Increase impacts of -0.3% in each of the 5 years from FY22 to FY26 inclusive. The South Australian forecasts are detailed in table 5.3.

South Australian EGWWS WPI growth is forecast to decline sharply over FY21 to 1.8% (in nominal terms), from an estimated 2.6% in FY20, due to the impact of the COVID-19 outbreak on wages. However, a marked pick-up in economic growth in the state from around FY22 is expected to see employment growth and the labour market tighten (see section 2.2). A key element of the ongoing strength in the South Australian economy is the large amounts of defence-related expenditure in South Australia over the forecast period (and beyond), including the manufacture of naval ships, submarines and army vehicles. This will also increase the demand for skilled labour and see the defence manufacturing sector also compete with the utilities sector for similarly skilled workers, many of which will have transferable skills across the utilities, construction, mining and manufacturing sectors. With strong competition for similarly skilled labour from the mining, construction and defence manufacturing industries, firms in the utilities sector will need to raise wages to attract and retain workers. This is expected to be accompanied by increases in utilities related construction in the state, mining-related investment and construction activity generally (figure 5.6). The overall strengthening in the labour market, and particularly in the Construction and Mining sectors – which are key competitors to the utilities sector in terms of 'similarly' skilled workers - is expected to result in utilities WPI growth accelerating over the 2024 to 2025 period, and subsequently remain elevated over FY26.

Table 5.2 below and figures 5.6 and 5.7 show our forecasts for utilities labour productivity in South Australia. As discussed in the previous section, BISOE uses the conventional measure of labour productivity – as measured by real Gross Value Added (GVA) per employed person – as there is not a feasible, easily measured alternative. Similar to Australia, low productivity is set to continue in part because utilities GVA (output) growth is expected to remain low, with low output a function of low demand caused both by high prices and energy-saving (and water-saving) measures. However, employment levels are expected to remain relatively stable due to the need to maintain a skilled workforce to ensure reliability and undertake capital works to cater for population and economic growth and for capital replacement. Overall, labour productivity in the EGWWS sector in South Australia is forecast to average 0.1% p.a. over the five years to 2025/26 (see table 5.2).

Figure 5.5 Australia – Utilities Employment, Output, Investment & Productivity

Index 2000 = 100

Forecast

- Utilities Engineering Construction
- Employment
- Output (GVA)
- Productivity

Year Ended June

Source: BIS Oxford Economics, ABS data
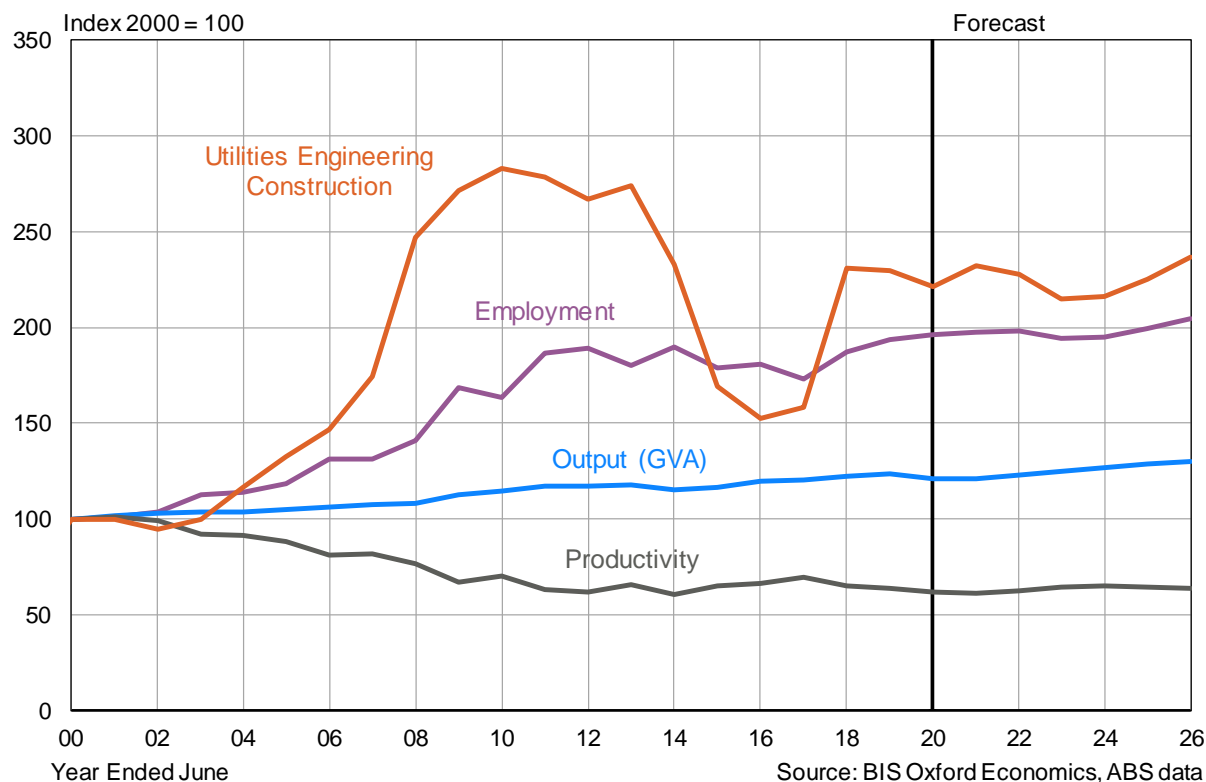
Figure 5.6 South Australia – Utilities Employment, Output, Investment & Productivity

Index 2000 = 100

Forecast

- Utilities Engineering Construction
- Employment
- Output (GVA)
- Productivity

Year Ended June

Source: BIS Oxford Economics, ABS data
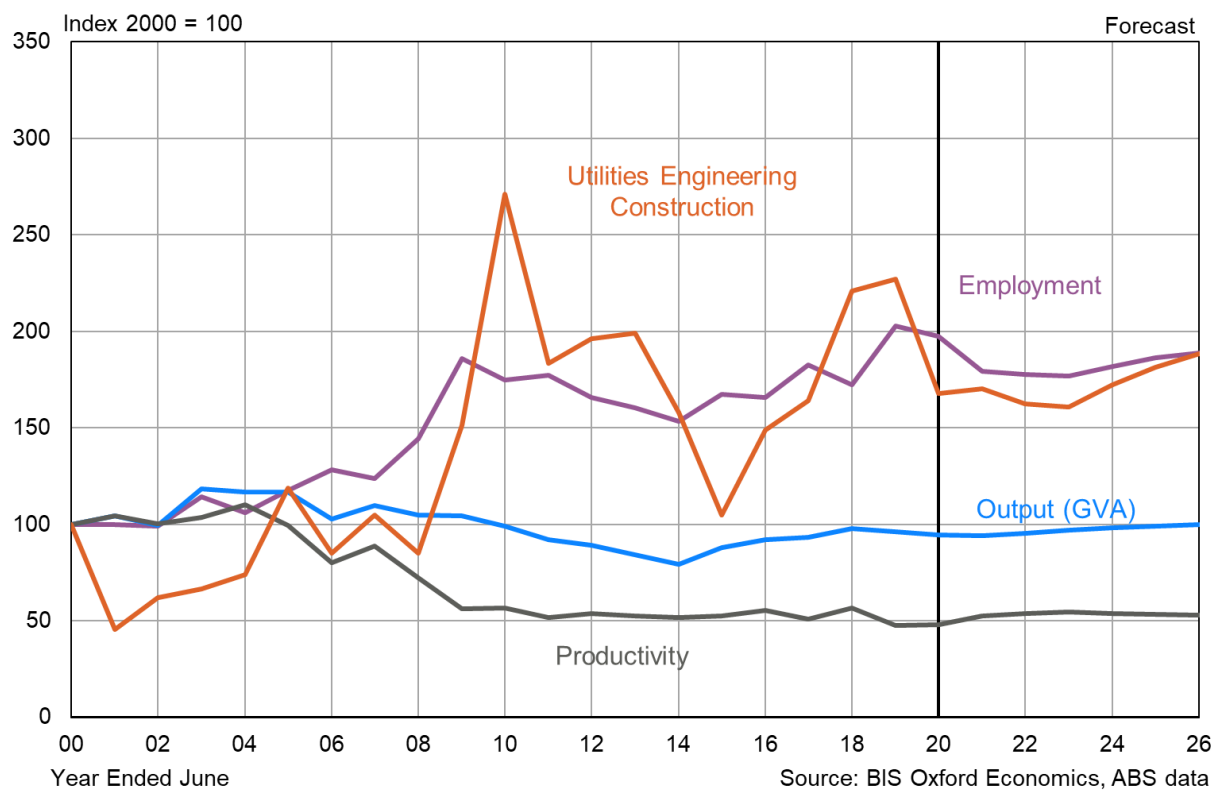
Figure 5.7 Utilities Productivity in Australia and South Australia

'000$/Employed

Forecast

- Utilities - SA
- Utilities - Australia
- Total - SA
- Total - Australia

Year Ended June

Source: BIS Oxford Economics, Haver Analytics
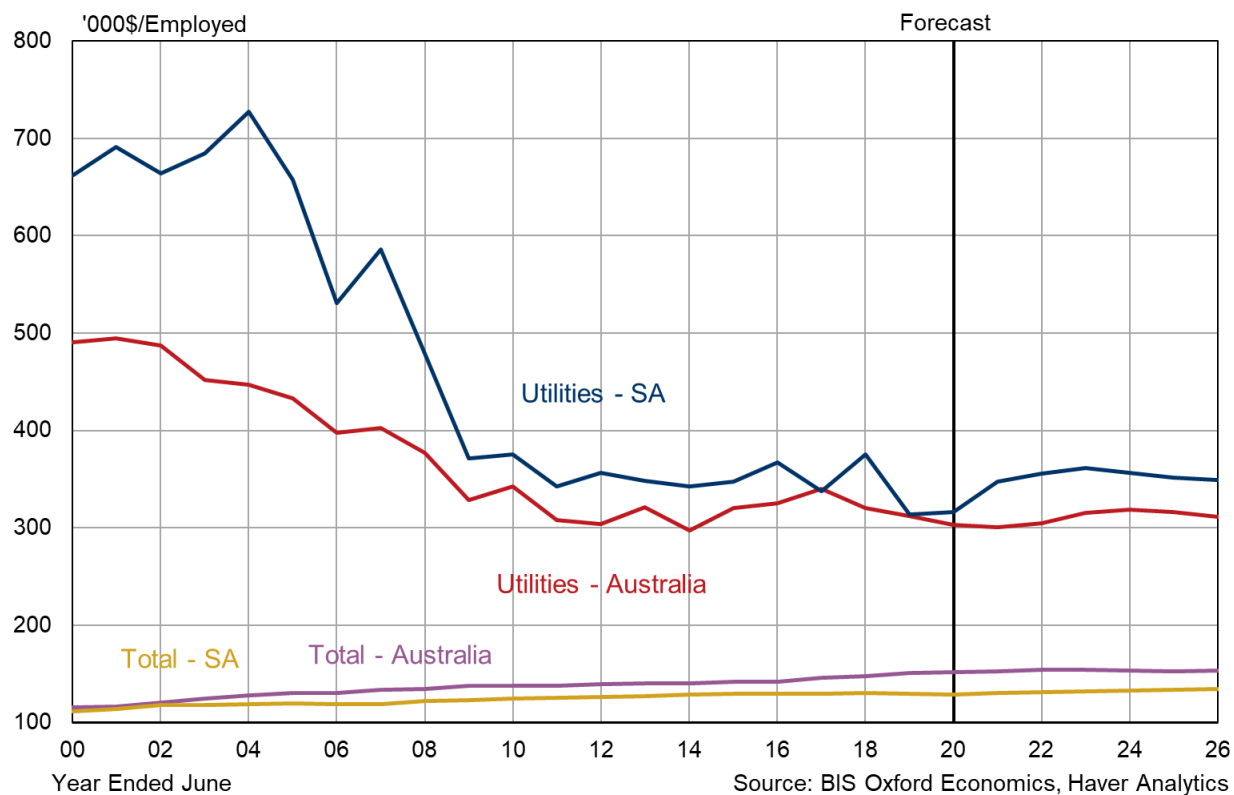
Table 5.2. Utilities Productivity – South Australia

South Australia - Electricity, Gas, Water & Waste Services						
Year Ended June	Gross Value Added		Employment		Productivity $/employee	
	$m (real)	%CH	'000	%CH	('000)	%CH
2009	4344	-0.3	11.7	28.6	371.3	-22.5
2010	4131	-4.9	11.0	-6.0	375.5	1.1
2011	3828	-7.3	11.2	1.6	342.6	-8.8
2012	3721	-2.8	10.5	-6.5	356.1	3.9
2013	3515	-5.5	10.1	-3.3	348.0	-2.3
2014	3308	-5.9	9.7	-4.5	342.8	-1.5
2015	3667	10.9	10.6	9.3	347.6	1.4
2016	3836	4.6	10.5	-0.9	367.1	5.6
2017	3878	1.1	11.5	10.0	337.2	-8.1
2018	4069	4.9	10.9	-5.7	375.0	11.2
2019	4009	-1.5	12.8	17.7	313.8	-16.3
2020	3935	-1.8	12.5	-2.5	316.1	0.7
Forecasts						
2021	3928	-0.2	11.3	-9.3	347.7	10.0
2022	3976	1.2	11.2	-1.0	355.5	2.2
2023	4034	1.5	11.2	-0.3	361.7	1.8
2024	4085	1.3	11.5	2.7	356.7	-1.4
2025	4126	1.0	11.7	2.4	351.8	-1.4
2026	4155	0.7	11.9	1.4	349.4	-0.7
Compound Annual Growth Rates						
1990-2000	-1.3		-5.5		4.5	
2000-2010	-0.1		5.7		-5.5	
2010-2020	-0.5		1.4		-1.9	
2020-2026	0.9		-0.8		1.7	
2021-2026	1.1		1.0		0.1	

Source: BIS Oxford Economics, ABS data

Table 5.3. South Australia: Electricity, Gas, Water & Waste Services, Construction and All Industries Wage Price Indices

Year Ended June	EGWWS Wage Price Index			Construction Wage Price Index		
	South Australia (a)			South Australia (b)		
	Nominal Index	%CH	Real growth %CH (c)	Nominal Index	%CH	Real growth %CH (c)
2009	100.0			100.0		
2010	104.8	4.8	2.5	102.7	2.7	0.4
2011	109.0	4.0	0.8	106.2	3.4	0.3
2012	112.8	3.5	1.2	110.4	3.9	1.6
2013	117.8	4.5	2.2	113.6	2.9	0.6
2014	121.9	3.5	0.8	116.3	2.4	-0.3
2015	125.4	2.9	1.1	118.6	1.9	0.2
2016	128.0	2.0	0.7	120.2	1.4	0.0
2017	130.4	1.9	0.2	122.0	1.4	-0.3
2018	133.1	2.0	0.1	123.9	1.6	-0.4
2019	136.4	2.5	0.9	126.0	1.8	0.1
2020	140.0	2.6	1.3	127.9	1.5	0.2
Forecasts						
2021	142.6	1.8	0.9	129.2	1.0	0.1
2022	145.1	1.8	0.6	130.8	1.2	0.1
2023	147.9	2.0	0.2	132.9	1.6	-0.2
2024	151.6	2.5	0.3	135.7	2.1	0.0
2025	155.9	2.8	0.7	139.2	2.6	0.5
2026	160.3	2.9	0.7	143.1	2.8	0.6
Compound Annual Growth Rates						
2010-2020	2.9		0.9	2.2		0.2
2020-2026	2.3		0.6	1.9		0.2
2021-2026	2.4		0.5	2.1		0.2

Source: BIS Oxford Economics, ABS

(a) historical data unavailable from ABS, so estimated from Australian WPI, less NSW, Victorian & Qld data (only states that are published for EGWWS WPI), with the residual further adjusted for differences in movements in collective agreements for South Australia compared to Australia.

(b) historical WPI data unavailable for South Australia, so estimated from Australian Construction WPI, less NSW, Vic, Qld and WA Construction WPI (the only states published by ABS for Construction WPI),with adjustments for collective agreements and construction activity.

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

5.3 CONSTRUCTION WAGES

This section provides forecasts of AGN's external or 'out-sourced' labour escalation where there is a significant proportion of out-sourced labour which is contracted to perform construction-type activities in the capital expenditure budget. Accordingly, we proxy AGN's external labour cost escalation by wages growth (as measured by the WPI) in the state's construction industry.

Our research has shown that construction activity (ie 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 year. Hence, our wage forecasts are based on BIS Oxford Economics forecasts of construction activity by state (which includes residential and non-residential building, plus engineering construction) as well as predicted movements in the construction wages at the national level. Forecasts of overall construction activity in Australia and South Australia are detailed in Table 2.2 and figure 5.4. The Construction sector wage forecasts for Australia are set out in Table 1.1, while the South Australian Construction WPI forecasts are set out in Tables 1.1 and 5.3.

Our forecast is for the Australian Construction WPI to average 2.2% over the five-year period to 2025/26 at the national level, with South Australian construction wages growth to be slower at 2.1% – or 0.2% per annum on average in real (inflation adjusted) terms (see Table 1.1 and Table 5.3). While this is a marked improvement on the past five years, it is still well down on the 4.3% annual national average (nominal terms) of the decade to 2011/12. Note that these wage forecasts for the Construction WPI include the impacts of the SG increase. In the construction industry sector, we estimate the impacts will be -0.3% for each year of the SG increase. See section 4.3 for the assumptions underpinning this estimate.

Similar to the utilities WPI data, the ABS does not provide WPI data for the Construction sector in South Australia, providing state Construction WPI data only for NSW, Victoria, Queensland and Western Australia. These four states collectively account for almost 90% of total Australian construction employment, with South Australia accounting for around 6%. Historical data and forecasts of WPI for the Construction sector in South Australia are therefore based on national Construction WPI forecasts, as well as movements in the 'unknown residual' for the Construction wage price index and recent differences in outcomes in collective bargaining in South Australia compared to the national average for the Construction sector; plus relative movements in overall construction activity at the state level, compared to the national average.

Construction wages at the national and South Australian level have weakened dramatically since 2011/12 and are well below the robust increases during the construction boom. While collective agreements in the sector have maintained their relative high increases over the past 4 years – between 3% and 5% – wages growth in the individual agreements segment have been very weak. Construction employees in the individual agreements segment account for around 61% of construction employees, dominating the method of pay-setting within the sector. Wages growth has slowly improved from their lows of 2016, despite weaker engineering construction activity (at the Australian level).

The improvement in construction wages growth was effectively reversed in FY20 as the decline in overall construction activity and related-COVID uncertainty saw a sharp weakening in wages growth, with the Australian Construction WPI actually declining -0.5% (q/q) in the June quarter 2020 (the first decline since the WPI's inception in 1997). It then rebounded 0.6% in the September quarter 2020, but the upshot is that construction wages growth in FY21 (in year average terms) will remain quite weak at 0.9% for Australia and 1.0% for South Australia. Construction wages are forecast to gradually

improve from FY22 as construction activity recovers. We expect some deferred increases from 2020 will be provided in 2021, which will boost wages growth in FY22.

Australian construction wages are expected to pick up over FY23 and strengthen appreciably over FY24 to FY26, particularly as construction activity levels surpass the previous highs of FY18 (in 2024) and skills shortages begin to manifest. The increases in construction activity from FY22 will be driven by the recovery in residential building activity which is expected to rise out of its trough from FY23, while higher levels of non-dwelling building and rising engineering construction will also underpin higher wages due to strong labour demand and expected widespread skill shortages in the construction industry. Engineering construction will be driven by a new wave of mining investment and a plethora of publicly funded transport infrastructure projects (particularly in the eastern states of the nation).

6. GAS NETWORK RELATED MATERIALS

Table 6.1: Gas Network Related Materials and General Materials Summary

Gas Network Related Materials	Annual Financial Year Growth											5 yr Avg (g)
	Actual					Forecast						
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2022-2026
Nominal Price Changes												
PE (Polyethylene) - import price US$/t (a)	1,346	1,316	1,405	1,366	1,096	1,114	1,235	1,295	1,332	1,370	1,409	
A%ch	-12.4	-2.2	6.7	-2.8	-19.8	1.6	10.9	4.9	2.9	2.9	2.8	4.9
PE (Polyethylene) - import price A$/t (a)	1,848	1,745	1,812	1,910	1,634	1,524	1,631	1,695	1,743	1,793	1,844	
A%ch	0.7	-5.6	3.9	5.4	-14.5	-6.7	7.0	3.9	2.9	2.9	2.8	3.9
PE Pipe Price Index - A$ index (a)	113.7	109.5	113.3	118.6	106.1	101.3	107.0	110.7	113.8	117.0	120.3	
A%ch	1.1	-3.7	3.5	4.7	-10.6	-4.5	5.7	3.4	2.8	2.8	2.8	3.5
Crude Oil (Brent) - US$/brl	43.5	50.0	63.7	68.7	51.6	44.9	53.0	55.4	58.0	61.1	63.1	
A%ch	-41.1	14.9	27.3	7.9	-24.9	-13.0	17.9	4.5	4.7	5.3	3.2	7.1
Crude Oil (Brent)- A$/brl	59.8	66.3	82.2	96.1	76.9	61.5	70.0	72.5	75.9	80.0	82.5	
A%ch	-32.3	10.9	23.9	16.9	-19.9	-20.1	13.8	3.6	4.7	5.3	3.2	6.1
Concrete (b)	101	102	105	107	106	107	109	111	114	116	118	
A%ch	-0.4	1.7	2.4	1.7	-1.0	0.9	2.7	1.8	2.2	1.6	2.0	2.1
Gas & Fuel Construction Price Index (c)	168	166	174	185	187	190	190	193	199	203	208	
A%ch	-1.1	-1.4	4.5	6.4	1.5	1.6	0.1	1.5	2.8	2.4	2.1	1.8
Steel (d) - HRC China Domestic US$/t	333	469	625	578	515	526	530	521	514	501	486	
A%ch	-25.9	40.8	33.2	-7.4	-10.9	2.2	0.6	-1.7	-1.2	-2.6	-3.1	-1.6
Steel (d) - HRC China Domestic A$/t	457	622	806	808	768	720	700	681	673	656	636	
A%ch	-14.8	35.9	29.6	0.3	-5.0	-6.2	-2.8	-2.6	-1.2	-2.6	-3.1	-2.5
Steel Pipe and Tube PPI	99.3	105.2	99.2	105.7	103.5	105.2	101.0	100.5	102.6	103.6	104.2	
A%ch	-1.7	5.9	-5.7	6.6	-2.2	1.7	-3.9	-0.5	2.1	0.9	0.6	-0.2
Aluminium (e) US$/t	1543	1773	2133	1920	1675	1742	1829	1852	1901	2087	2246	
A%ch	-17.9	14.9	20.3	-10.0	-12.7	4.0	5.0	1.2	2.7	9.8	7.6	5.3
Aluminium A$/t	2119	2350	2751	2683	2496	2384	2416	2424	2489	2732	2940	
A%ch	-5.6	10.9	17.1	-2.5	-7.0	-4.5	1.4	0.3	2.7	9.8	7.6	4.3
Exchange rate, AUD, (period avg)	*0.728*	*0.754*	*0.775*	*0.715*	*0.671*	*0.731*	*0.757*	*0.764*	*0.764*	*0.764*	*0.764*	*0.763*
A%ch (inverted)	*13.0*	*-3.6*	*-2.8*	*7.7*	*6.2*	*-8.9*	*-3.6*	*-0.9*	*0.0*	*0.0*	*0.0*	*-0.9*
Consumer Price Index (Headline) [f]	1.4	1.7	1.9	1.6	1.3	0.9	1.1	1.8	2.1	2.1	2.1	**1.9**
Real Price Changes												
PE Pipe Price Index - A$ index (a)	-0.3	-5.5	1.5	3.1	-11.9	-5.5	4.6	1.6	0.7	0.7	0.7	**1.6**
Concrete (b)	-1.8	0.0	0.5	0.0	-2.3	0.0	1.5	0.0	0.1	-0.5	-0.1	**0.2**
Gas & Fuel Construction Price Index (c)	-2.4	-3.1	2.6	4.7	0.1	0.7	-1.1	-0.3	0.7	0.2	0.0	**-0.1**
Steel (d) - HRC	-16.2	34.2	27.7	-1.3	-6.4	-7.1	-4.0	-4.4	-3.3	-4.7	-5.2	**-4.3**
Steel Pipe and Tube PPI	-3.0	4.2	-7.6	4.9	-3.5	0.7	-5.0	-2.3	0.0	-1.2	-1.6	**-2.0**
Aluminium (e)	-7.0	9.2	15.2	-4.1	-8.3	-5.4	0.2	-1.5	0.6	7.7	5.5	**2.5**

Sources: BIS Oxford Economics, ABS, Consensus Economics

(a) PE (Polyethylene) prices are proxied using Manufacturing Wages, General Materials inflation and Thermoplastic Resin prices. Thermoplastic Resin is primarily driven by Crude Oil. Crude oil price forecasts are sourced from the latest available Consensus Economics 'Energy & Metal Consensus Forecasts' (EMCF) publication. US$ prices adjusted by using exchange rate above (see footnote (f)).

(b) Producer price index (PPI) for concrete, cement and sand: Adelaide. Forecasts based on BIS Oxford Economics (BISOE) modelling and construction and other macroeconomic forecasts.

(c) Gas and Fuel Construction Price Index forecasts from BISOE modelling and construction and other macroeconomic forecasts

(d) Steel Pipe & Tube producer price index (PPI), modelled using latest EMCF price forecasts for iron ore and coking coal, converted to A$ (using above exchange rate); plus manufacturing wages, transport costs

(e) Aluminium price is London Metal Exchange (LME) price, converted to A$ (using above exchange rate). Forecasts from Consensus EMCF.

(f) Exchange rate forecasts sourced from latest available Consensus Economics 'Asia Pacific Consensus Forecasts' (APCF), which has forecasts covering the next 2 years, after which exchange rate is held steady.

(g) Reserve Bank of Australia forecasts to December 2021. Beyond that, we have used a 10-year arithmetic average of RBA forecasts and the mid-point of the Reserve Bank's 2 to 3 per cent inflation target range, which is the method preferred by the AER.

(h) Average Annual Growth Rate for 2021/22 to 2025/26 inclusive, ie for next regulatory period.

Nominal prices for most of the **gas network related materials** are forecast to increase on average over the five-year period to FY26, with the main exception being steel pipe and tube. After adjusting for the inflation, aluminium is expected to achieve the strongest real price growth over the forecast regulatory period (FY22 to FY26), at an average of 2.5% per annum followed by polyethylene pipe (1.6% pa), with concrete forecast to achieve real price growth of 0.2%. On the other hand, some materials are expected to see negative or no real price growth. This includes general materials, steel pipe prices and the gas and fuel engineering construction IPD (implicit price deflator).

Given the variety of supply and demand drivers affecting prices of these commodities, each will be discussed in the relevant sections of report that follow. The year-by-year forecasts are shown in table 6.1.

As well as individual supply and demand drivers, consumers of these commodities in Australia are also affected by movements in the exchange rate. Specifically, movements in the Australian dollar (A$) against the US dollar (US$) can have significant effects on the domestic price of minerals and metals, as most globally traded commodities are priced in US$ terms. We used consensus forecasts to drive the outlook for these commodities where available. For exchange rates, these were only available for the near term. We therefore held rates constant over the longer term, at the last forecast point. Overall, the exchange rate is predicted by the large range of forecasters supplying forecasts to the Consensus Economics survey to drift up from around US74 cents currently (December 2020) to over US76 cents by December 2022.

6.1 ALUMINIUM PRICES

Aluminium price forecasts are global price forecasts – the London Metal Exchange Aluminium price - sourced from the latest *Consensus Economics 'Energy & Metals Consensus Forecasts'* (EMCF) publication. This publication provides aluminium price forecasts measured in US$ per metric tonne from a range of forecasters. The latest available publication is November 2020, where 29 separate forecasters supplied aluminium price forecasts out to 2029 – the average of all the forecasters is used here. The AER has shown a preference for accepting a range of forecasts from different forecasters, and then taking an average. The Consensus Economics E&MCF provides that for a range of global energy and metals commodities. Quarterly forecasts are provided for two financial years, followed by calendar year forecasts for the next three years. Long term forecasts are provided by a five-year average.

These US$ forecasts were converted into A$ terms using consensus forecasts of exchange rates. Exchange rate forecasts are only available for the next two years from the *Consensus Economics Asia Pacific Consensus Forecasts* (APCF) publication. The US$/A$ exchange rate is then held constant at the last APCF forecast point over the longer term. Overall**,** the exchange rate is predicted by the large range of forecasters supplying forecasts to the Consensus Economics survey to drift up from around US74 cents currently (December 2020) to over US76 cents by December 2022.

6.2 STEEL PRICES

For steel prices, we forecast the 'steel pipe and tube producer price index' (PPI) from ABS (catalogue #6427.0), as these types of steel products are more relevant to gas networks. The ABS' steel pipe price index does not have consensus forecasts available. Therefore, we constructed a forecasting model where the consensus forecasts of iron ore and coking coal are used to drive the outlook, with these two commodity price forecasts sourced from the latest Consensus Economics EMCF publication.

Steel pipe prices are tied to various factors including exchange rates, manufacturing wages, transport and energy costs. Domestic construction activity also has an influence on prices, with price pressures

increasing during upswings and booms, and decreasing during down turns. Most prominently however, steel is tied to the price of its raw materials: iron ore and coking coal.

Steel pipe prices have seesawed in the previous five years, tracking the volatility in iron and coal prices. Higher input prices saw the index grow 5.9% in FY17, before falling -5.7% in FY18 and then rebounding by 6.6% in FY19 as iron ore prices gained strength back. The latest financial year of data has seen another drop (FY20 -2.2%), driven by the drop in coal prices, slowed growth in manufacturing costs and weaker inflationary pressures (despite the unusual strength in iron ore prices which has persisted into the first half of FY21).

Consensus forecasts indicate that iron ore prices will begin to see substantial losses in the second half of FY21. However, on an annual basis, prices are anticipated to rise in FY21 due to the heightened growth in the first quarter of the financial year. As such, we forecast steel pipe to grow by a small margin in FY21 (1.8%) in-line with the economic recovery and iron prices. Subsequent years will see the pipe index begin to fall (averaging annual growth of -2.3% over FY22 and FY23) as iron ore sees a significant and prolonged period of price loss. In-fact, Consensus forecasts indicate that iron ore prices will drop -21.7% in FY22, -12.7% in FY23 and a further 4.4% in FY24.

Consensus forecasts indicate a relatively weak outlook for the two input commodities: coal and iron ore. Therefore, growth in pipe prices is expected to stay fairly muted over the forecast period – falling below inflation, on average, over the forecast period.

6.3 POLYETHYLENE PIPE

To forecast polyethylene pipe prices we considered a weighted mix of three key drivers: Underlying polyethylene (PE) prices, manufacturing wages, and transport/overheads.

PE prices are strongly linked to crude oil prices. Thus, we used the latest Consensus Economics EMCF forecasts of crude oil prices and exchange rates to drive prices for this component over the outlook period. Manufacturing wages were driven by the BIS Oxford Economics wage model, and the transport and overheads inputs were indexed to CPI inflation.

Oil markets have been decimated by the current crisis, with opposing demand and supply shocks sending prices into a freefall over March and April. Benchmark Brent Oil prices bottomed out in April, sliding down to USD$18/bbl as a result of the crisis, worsened by the failure for OPEC+ to come to agreement on production cuts in March of the current year.

Prices have now bounced back, aided by small recoveries in demand (particularly in China) as lockdown restrictions have been lifted and supply has shot down following succesful compliance with the drastic cuts to production that the OPEC+ agreed on in April – as such, the Brent benchmark rose to $USD40.7/bbl in September (although still a -35.7% decline since January prices). We expect Brent oil prices to continue this rise as demand continues to 'restart' and the sustained low prices force out higher cost supply (such as shale oil production in the US), Consensus forecasts indicating that prices will move above $USD50 in the September quarter of 2021.

The weakness in oil has driven down PE import prices in the latest financial year (-14.5% FY20), and we anticipate this pattern to continue into FY21 with import prices falling down a further 7.4%. Although, we note, this is driven by a combination of the lower oil prices and the forecast strength of the Australian dollar (as per Consensus). The weak inflationary pressures from the outbreak of COVID-19 have limited transport/overhead costs, while the dual relationship between inflation and wage growth indicates that manufacturing wages will also be constrained in the short-term. As such, the PE pipe index is expected to fall -5.1% in FY21 (in addition to the fall of -10.6% in FY20).

Subsequent years will see a recovery in the PE pipe index, growing at an average of 3.7% between FY22-26. Consensus forecasts oil markets to see sustained growth throughout the remainder of the

forecast period (i.e. to FY26), growing at an average rate of 7.1% between FY22-26, while will maintain heightened import prices throughout the same period (4.2% average annual growth). Furthermore, the strength in PE pipe prices will be driven by the economic recovery driving up inflation and wage growth in the medium-term.

Figure 6.1: Polyethylene Pipe Price

Source: BIS Oxford Economics, ABS
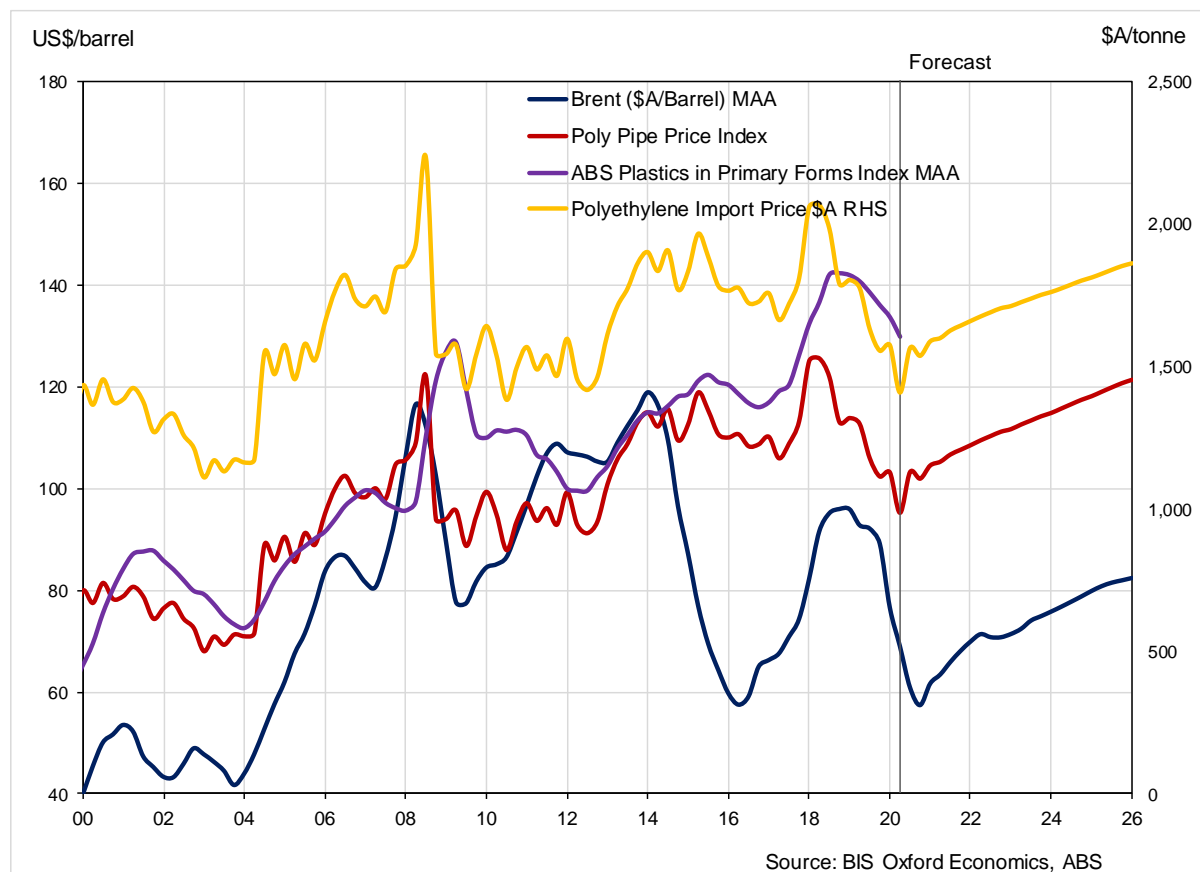
6.4 CONCRETE PRICES

Our forecasts of concrete, cement, and sand prices are heavily influenced by our regional building and construction work done outlooks.

Adelaide region Concrete, Cement and Sand prices lifted strongly post-GFC, on the back of a strong upswing in construction activity. Price growth eventually slowed and went negative in 2013 after construction activity retreated. Thereafter, price growth has remained somewhat subdued, even as residential building activity boomed through FY18 and began contracting in FY19.

The Adelaide construction industry is set to enter a growth phase – with total construction work done moving up 3.6% in FY21 and another 1% in FY22, before a brief decline in FY23. The economic uncertainty is expected to keep price growth near inflation in FY21 (anticipate real price growth of 0.0%), but rising demand and suppliers playing 'catch-up' with prices should lead to stronger growth in FY22 (2.7%).

Historically, cement and concrete prices have stayed relatively strong – persisting through economic downturns or troughs in the construction cycle. As such, we anticipate price growth in the remainder of the forecast period to sit fairly steady, growing at an average of 1.9% between FY23-26. This is despite the drop in building activity in FY23, where the significant growth in national construction activity should put a floor underneath the fall in Adelaide prices.

Figure 6.2: Adelaide Concrete, Cement & Sand Prices

Source: BIS Oxford Economics, ABS
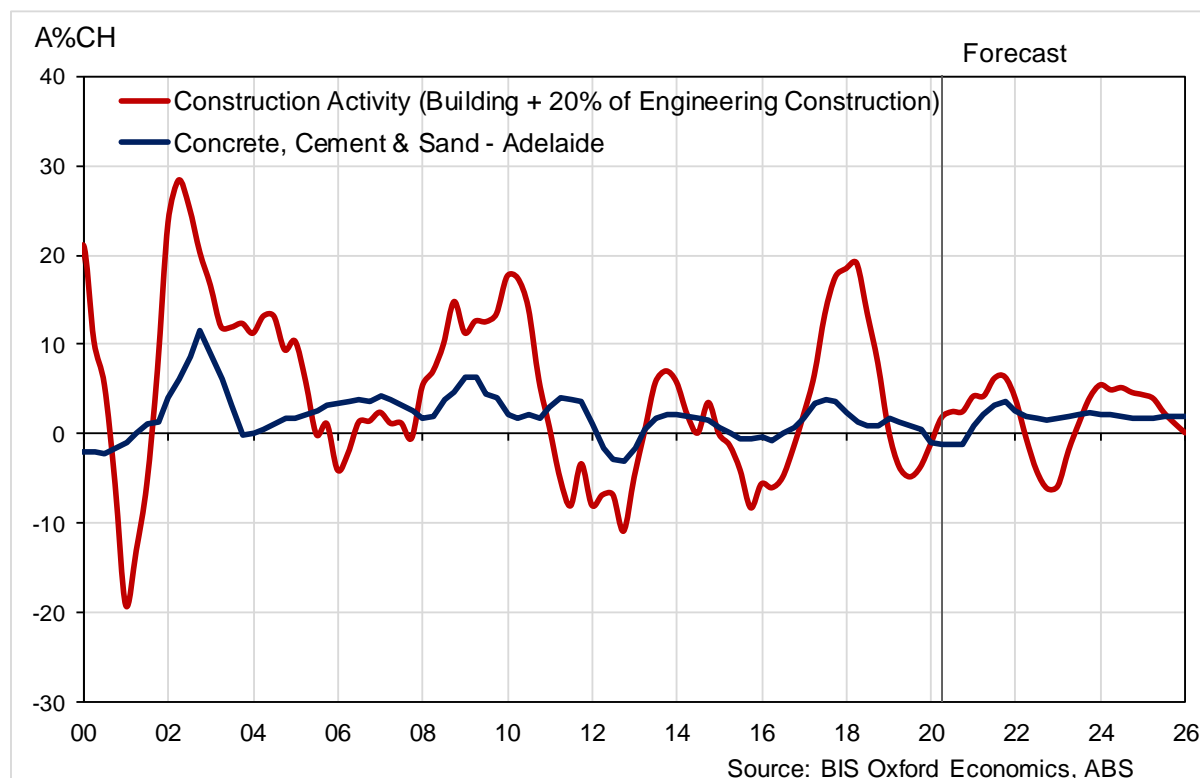
6.5 GAS AND FUEL CONSTRUCTION PRICE INDEX

Utilities including gas network businesses often outsource a proportion of their capital works (or even maintenance) to the construction sector. We will therefore include an escalator for totally outsourced contracts, which may be a 'turn-key' project or similar, and involves the contractor providing both labour and materials. In effect, the escalator here would be a combined index of labour and materials.

The gas and fuel engineering construction implicit price deflator (IPD) measures cost growth relevant to the gas pipeline engineering construction sector. It is a combined index of materials and labour, and is one of six unpublished IPD's (obtained under a special ABS subscription service) which make up the total engineering construction price deflator. Only total Australia IPDs are available for these unpublished IPDs – state breakdowns are unavailable. Growth in this index is driven by construction and manufacturing wages, steel pipe prices and general engineering construction costs.

Overall, gas and fuel engineering construction costs are expected to see mild growth in the short to medium-term, which will give way to stronger price pressures in the back half of the forecast period. Generally, the price index is linked to the overall engineering construction costs, with departures from the trend linked to volatility in the price of steel pipes and tubes. Growth in gas and fuel construction costs peaked at FY19 (6.4%) but has then slowed down in the latest financial year of data (1.5%) driven by weak price and wage pressures.

We anticipate that FY21 will see a divergence between overall engineering costs (0.6%) and gas & fuel costs (1.7%) driven by the spike in steel pipe prices (once again owing to the significant growth in iron ore prices despite the global economic crisis). The subsequent crash in steel prices will send the gas & fuel IPD towards 0% growth in FY22, whereas the engineering construction IPD will begin to gain momentum following the pick-up in national work done.

The remainder of the forecast period will see the IPD sit near inflation, averaging annual growth of 2.2% between FY23-26. The individual components of the index are discussed below.

Figure 6.3: Australia Gas & Fuel IPD

Source: BIS Oxford Economics, ABS
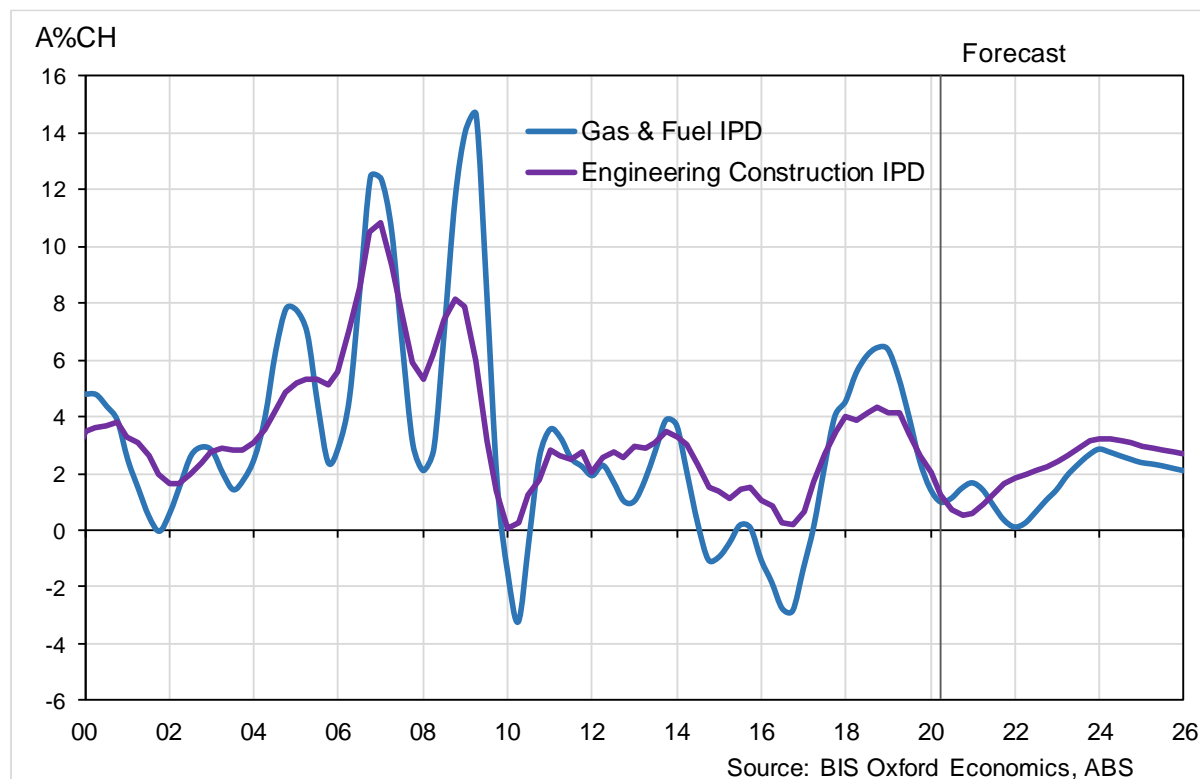
Engineering construction expected to falter in weaker economic conditions, before a strong recovery owing to the high levels of investment in the sector

The expected recovery of the IPD has been temporary derailed by the outbreak of COVID-19, with growth expected to stagger at an average annual growth rate of 1.2% between FY21-FY22. The expected fall-off in price growth is quite mild relative to the other sectors, reflecting the demand pressure from the next wave of public infrastructure and mining investment. In fact, we expect strong gains after the wider economy starts to rebound from COVID-19 – domestically, pushing up wages and cement prices and internationally, pushing up oil and steel prices. The IPD is thus forecast to grow at an average annual growth rate of 2.8% between FY23-FY26, peaking at 3.2% in FY24.

Steel pipes and tubes prices set to tumble following the upcoming drop in iron ore price

Steel pipes and tubing form the second largest component of the gas and fuel IPD and can be attributed to 30 per cent of the index's movement. The series is predominantly driven by international steel prices (in A$ terms), and also includes the cost of manufacturing the pipe and tube products. This component has been tied to the consensus outlook for coal and iron ore products and the movements are explained more in-depth in the section above.

6.6 GENERAL MATERIALS COSTS

The general materials include a range of items used in most businesses and organisations, such as stationary, office furniture, electricity, water, fuel, rent, etc. Across the range of items, the average price increase would be similar to consumer price inflation. Accordingly, the appropriate cost escalator for general materials will be the Consumer Price Index (CPI). The CPI has been frequently used by

the AER to allow for general material prices. This means that the real (after inflation) escalator would then be zero.

APPENDIX 1: A NOTE ON DIFFERENT WAGE MEASURES & WAGE MODELS

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 Oxford Economics forecasts.

- Average Weekly Earnings (AWE) — represents average total gross earnings (before tax) of all employees (including full-time and part-time workers). They include weekly ordinary time earnings plus over-time payments.

- 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 Oxford Economics 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 (i.e. trends in wage-setting behaviour in the labour market). Another compositional problem with using the 'all persons' AWOTE is variations in the proportion of male and female employees (particularly as average female AWOTE is lower than average male AWOTE). However, in practice, the data shows only minor differences in the AWOTE growth rates between male and females (or males and all persons) — between -0.2 and +0.2 per cent — since the 1980s or basically since the equal pay legislation was enacted through the 1970s.

The 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.

BIS Oxford Economics Wage Growth Model

BIS Oxford Economics' model of wage determination is based on the analysis of expected future wage movements in the three main methods of setting pay, as each discrete pay setting method has its own influences and drivers. The main pay setting categories and their key determinants are:

• Employees under awards have their pay determined by Fair Work Australia in the annual National Wage case. When determining pay increases, Fair Work Australia aim to maintain the standard of living of those employed on awards by providing a safety net of fair minimum wages. Hence, they focus on the overall performance of the domestic economy, taking into account productivity, business competitiveness, inflation and employment growth. This means that increases in the Federal Minimum Wage are usually based on recent CPI growth along with Fair Work Australia's view on short term future conditions for the Australian economy. From 1 July 2019, the minimum wage was increased by 3.1%. This followed rises of 3.5%, 3.3% and 2.4% respectively in July 1 of 2018, 2017 and 2016. At the all industries level, 13% of all non-managerial full-time employees (data excludes those in agriculture, forestry and fishing) have their pay rises determined by this method, but only 1.5% of Electricity, Gas, Water & Waste Services' (EGWWS) employees.

• For employees under collective agreements (representing 38% of all employees; 64.5% of EGWWS), their pay is determined through enterprise bargaining, and wage increases are influenced through a combination of recent CPI, inflationary expectations, profitability levels of relevant enterprises, business conditions, and the short-term economic outlook. Workers' unions can also play a significant part in negotiations, especially unions with a good position in industrial relations through strong membership. With the average duration of these agreements currently two to three years, BIS Oxford Economics use the most recent agreements formalised in recent quarters as a basis for our near-term forecasts. Beyond that, collective agreements are based on our expectations of economic conditions.

• The remaining 48% of employees (or 33.9% of EGWWS employees) have their pay set by individual arrangements, whether it be individual contracts or some other form of salary agreement, which may include incentive-based schemes. Similar to the minimum wage and collective agreements, inflation and inflationary expectations have a strong influence on agreements, as well as the strength of the labour market. Individual arrangements are skewed towards more skilled workers, so the balance between demand and supply in skilled labour can be an important influence

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

The limitation of this methodology is that because individual arrangements are calculated as a residual, all of the compositional effects in terms of AWOTE (ie from more or less lower-paid workers being employed in the relevant year) plus all (or most) of the bonuses and incentives from those

under award or collective agreements end up in the individual arrangements residual, which distorts the pay increases in this segment. However, the methodology works well for the WPI, particularly at the all industries level, although some compositional problems occur at the sectoral level, particularly for sectors with a relatively small employment base (such as electricity, gas, water and waste services).

The 'bottom-up' approach to wage forecasting is complemented by a more formalised 'top-down' macroeconomic modelling framework – to ensure an overall macroeconomic consistency with output, employment, productivity and price variables. The top-down macroeconomic modelling methodology becomes more relevant beyond the next 2-3 years.

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