

Wage Price Index forecasts

Prepared for the Australian
Energy Regulator

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Dear George and Toby

Report on wage price index forecasts

I enclose Deloitte Access Economics' report on the Wage Price Index (WPI) for Australia, Victoria, South Australia, the Northern Territory and the Australian Capital Territory prepared for the Australian Energy Regulator.

This report has been drafted on the basis of the forecasts that underpin the June 2020 quarter *Business Outlook* and *Investment Monitor* publications that rely on the March 2020 quarter Australian Bureau of Statistics (ABS) National Accounts and WPI release.

The Australian economy has been affected by the spread of COVID-19 from March 2020. The resulting impacts on supply and demand across the economy make it more difficult than usual to forecast key variables such as growth in wages. As such, forecasts included in this report should be treated with caution amid a backdrop of heightened uncertainty around the economic outlook.

Yours sincerely



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Glossary

AAWI	Average Annualised Wage Increase
ABS	Australian Bureau of Statistics
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AENA	Average Earnings National Accounts
AER	Australian Energy Regulator
ANZSIC	Australia and New Zealand Standard Industry Classification
AWE	Average Weekly Earnings
AWOTE	Average Weekly Ordinary Time Earnings
COAG	Council of Australian Governments
CoE	Compensation of Employees
CPI	Consumer Price Index
DAE	Deloitte Access Economics
EBA	Enterprise Bargaining Agreement
EEBTUM	Employee Earnings, Benefits and Trade Union Membership
EEH	Employee Earnings and Hours
GDP	Gross Domestic Product
GSP	Gross State Product
ICRC	Independent Competition and Regulatory Commission
LNG	Liquefied Natural Gas
MW	Megawatt
NEM	National Electricity Market
PV	Photovoltaics
RBA	Reserve Bank of Australia
SFD	State Final Demand
WPI	Wage Price Index

Executive Summary

Australian wage growth forecast to slow amid the impact of COVID-19

The Wage Price Index (WPI) grew by 0.5% in the March quarter of 2020, to be 2.2% higher for the year. This represents a slight moderation over the past year. In response to COVID-19, businesses have sought to manage costs by drawing upon government assistance programs, reducing staff numbers, reducing staff hours, trimming wage gains, introducing temporary wage cuts or freezes, decreasing wages on an ongoing basis, or withdrawing bonus payments. The Commonwealth Government has also deferred pay increases for public servants by 6 months. This combination of factors is expected to weigh heavily on the pace of wage gains through 2020.

Job losses in the Australian economy from March 2020 have been concentrated in industries most affected by government restrictions, such as accommodation and food services and entertainment and recreation (which tend to be relatively lower paid industries). The impact of these compositional changes will appear in Average Weekly Earnings (AWE) and the national accounts measure of wages, but will have little to no impact on the WPI (which excludes changes in the price of wages and salaries resulting from changes in the composition of the labour market). The WPI also excludes changes in price-determining characteristics such as the number of hours worked, which has fallen in recent months. Adding to this, the large decline in part-time employment relative to full-time employment will affect AWE, but will not directly affect Average Weekly Ordinary Time Earnings (AWOTE) or the WPI.

Wage gains are expected to slow in 2020-21 and 2021-22 as COVID-19 weighs on the Australian economy. Wages gains are forecast to pick-up from 2021-22, supported by a number of key drivers:

- Effective control of COVID-19 infections in Australia and other countries that facilitates an easing of current restrictions
- Spending from governments to support aggregate demand
- A sustained lift in consumer and business confidence
- An acceleration in Consumer Price Index (CPI) inflation
- An increase in award wages and the minimum wage.

However, there are a number of structural and cyclical factors that may limit the pace of wage gains in the coming years:

- The current recession, high levels of household debt and increased uncertainty around the economic outlook may prompt employees to prioritise job security rather than wage increases. Employees may have also lowered their growth expectations following an extended phase of slow wage gains.
- Many employers have responded to the current downturn in the economy by tightly controlling costs. Even as the economy begins to recover it is possible that employers remain cautious about adding to their wage bill amid concerns over the economic outlook.
- Analysis conducted by the Reserve Bank of Australia (RBA) found that workers are now less likely to voluntarily change jobs compared to the mid-2000s. Wage growth is typically lower for workers who do not change employer.
- The minimum superannuation guarantee is legislated to increase from the current 9.5% to 10% on 1 July 2021, before increasing by 0.5 percentage points each year to an eventual 12% from 1 July 2025. Unlike some other – broader – measures of labour costs, the WPI does not directly include non-wage costs such as superannuation. Although the statutory incidence of higher superannuation contributions is borne by employers, over time a proportion of the costs are expected to be passed from employers to employees via slower

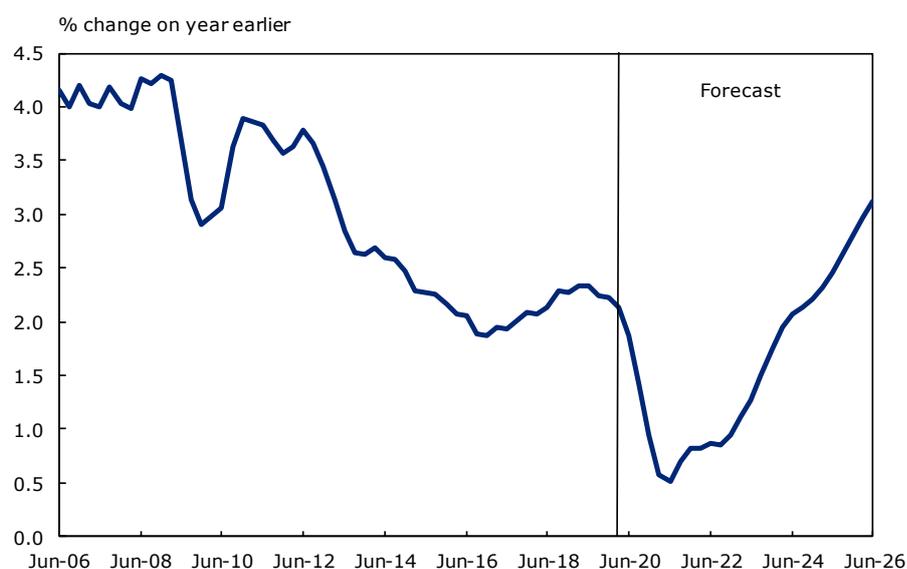
wage growth than would otherwise be the case. This is discussed further in Deloitte Access Economics note on the impact of changes to the superannuation guarantee on forecast labour price growth.¹

- Trends such as automation of work processes, an increase in contract work, and competitive pressures from the internationalisation of services trade have all combined to restrain workers’ bargaining power. It is possible that these trends are making workers feel less secure about their future employment and less likely to push for larger pay rises.
- The returns to technological developments, which are increasingly focussed on intangible capital goods such as software and IT, tend to be highly concentrated in a few firms across a small number of industries. Firms that are unable to innovate and take advantage of new technologies are often choosing to control costs as a way of remaining competitive. This cost-control approach can sit at odds with paying higher wages to employees.

Deloitte Access Economics forecasts nominal wage growth to slow to 0.9% in 2020-21 and 0.8% in 2021-22 amid the impact of COVID-19. The pace of wage gains is then expected to gradually recover, growing by 1.0% in 2022-23, 1.8% in 2023-24, before reaching 2.9% in 2025-26.

The acceleration in the pace of wage gains will occur gradually from 2022-23 alongside growth in the Australian economy. The stronger economy will see employment gains absorb spare capacity in the labour market and add to broader prices in the economy, placing upwards pressure on wages. In the long-term, the increasing retirement among baby boomers will restrain growth in the number of potential workers, handing employees back some bargaining power in wage negotiations and contributing to higher wage outcomes.

Chart i National WPI forecasts



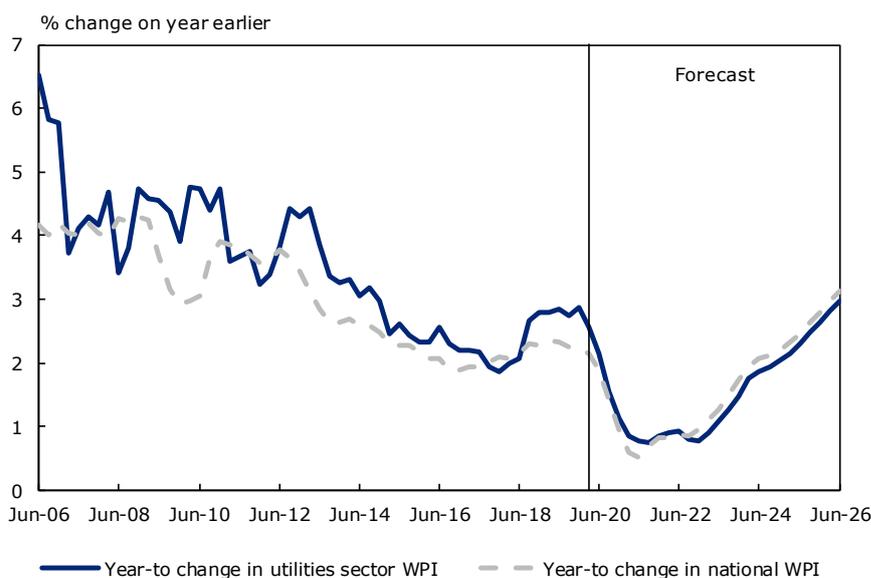
Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

Utilities wage growth to fall but remain above all industry wage growth through 2020

Australian utilities industry wages grew by 0.3% in the March quarter of 2020 to be 2.7% higher for the year. Wage gains in the utilities industry have accelerated from a low in mid-2018 but are expected to slow amid the impact of COVID-19.

¹ Provided to the AER on 24 July 2020

Chart ii National utilities industry WPI forecasts



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

The relative strength of utilities wages over the past two years has not been driven by an improvement in the pace of growth in utilities industry output, which has remained below the growth in the wider economy since 2008-09. Measures of the level of utilities labour productivity (which makes workers more valuable to businesses) have fallen from 2015-16 and remain more than two fifths below the peak seen in 2000-01. Conditions remain subdued in a number of industries that traditionally compete with the utilities industry for labour, with output falling in both the manufacturing and construction industries in 2018-19 and further falls expected in 2019-20.

There are a number of potential explanations for the recent outperformance of utilities wages:

- Utilities employment grew by 3.4% in 2018-19 and is estimated to grow by 1.2% in 2019-20, above the 2.4% and 0.2% gains across all industries. This has helped to absorb spare capacity in the utilities industry and place upwards pressure on wage gains.
- Record levels of infrastructure investment have seen activity shift away from housing construction towards civil infrastructure construction. It is possible that there is a greater degree of substitutability between the skills required for civil construction and those used in the utilities industry, compared with housing construction and the utilities industry. This would add upwards pressure to wage gains in the utilities industry.
- Conditions in the mining industry have improved in recent years. Growth in output has increased from a low of 1.3% in 2016-17 to an estimated 3.8% in 2019-20. The mining industry traditionally competes with utilities for labour, meaning that strength in the mining industry is likely to add upwards pressure to utilities wages.
- The outperformance of wage gains in the utilities industry relative to the wider economy may reflect factors that are difficult to observe. For example, it is possible that wages have increased because requisite skills have lifted, but – if so – then better skilled workers have yet to boost industry output.

Utilities industry wages are expected to be negatively affected by COVID-19. However, the impact will be more significant for industries that are most affected by restrictions such as the arts, tourism, retail and education. This will see utilities wages continue to outperform wages across the wider economy through 2020 and much of 2021.

The utilities WPI is forecast to grow by 2.6% in 2019-20 before slowing to 1.1% growth in 2020-21, above the 0.9% gain in wages across the Australian economy. This slowdown is primarily driven by the impact of COVID-19. Utilities wages are expected to reach a trough of 0.8% growth

in 2021-22 before beginning to recover. Utilities wages are forecast to grow at a slower rate than wages across the wider Australian economy over the medium-term. This reflects the fact that utilities output is forecast to grow at a slower rate than the all industry average, while conditions in competitor industries will place limited upwards pressure on utilities wages. This is expected to outweigh the impact of unobserved changes in skills requirements in the long-term.

All states and territories to experience weaker wage growth, but some variation being driven by the effectiveness of measures to control COVID-19 and state-specific labour market factors

Wage growth for the utilities industry in **Victoria** was 3.3% in the year ending March 2020.

- The Victorian utilities industry WPI has steadily increased relative to the national utilities industry WPI over the past decade. This reflects the strength of the Victorian economy relative to other Australian states and territories, faster growth in the Victorian utilities industry compared to the national utilities industry, as well as robust conditions in the Victorian construction industry – which competes with the utilities industry for workers
- Victorian utilities industry wage growth is expected to slow to 0.5% in 2020-21 as COVID-19 weighs heavily on output across the Victorian economy. Wage gains in the Victorian utilities industry are then expected to accelerate, reaching 2.7% growth in 2025-26.

Deloitte Access Economics estimates that the **South Australian** utilities WPI grew by 2.2% in the year to March 2020.

- Utilities wage growth in South Australia has been lower than the national utilities industry for the past five years. Conditions in the South Australian utilities industry have been affected by the closure of automotive manufacturing and more challenging conditions for other manufacturers (which reduced industrial demand for electricity), the relatively rapid uptake of rooftop photovoltaics (PV) (which reduced demand for grid-supplied electricity), and low rates of population growth (which weighs on new electricity connections).
- South Australia utilities wage growth is forecast to moderate from 2.3% in 2019-20 to 1.0% in 2020-21 amid the impact of COVID-19. Wage growth is forecast to accelerate from a trough in 2021-22, reaching 2.5% by 2025-26.

Deloitte Access Economics estimates that the **Northern Territory** utilities WPI grew by 2.5% in the year ending March 2020.

- Northern Territory utilities industry WPI increased relative to the national utilities industry WPI between 2009 and 2017, coinciding with relatively stronger economic conditions in the territory. Since 2017, weaker economic activity in the Northern Territory has placed downward pressure on relative wages.
- Northern Territory utilities wages are forecast to grow by 2.7% in 2019-20 before falling to 1.4% in 2020-21 alongside the slowdown in national utilities wage growth. Wage gains are expected to reach a low of 0.7% in 2022-23 before accelerating as the utilities industry recovers from the effects of COVID-19.

Deloitte Access Economics estimates that the **Australian Capital Territory** utilities WPI grew by 2.6% over the year to March 2020.

- Utilities WPI in the Australian Capital Territory is expected to increase slightly relative to national utilities WPI. This is driven primarily by the effectiveness of measures to contain COVID-19 and the subsequent easing of earlier restrictions.
- Australian Capital Territory utilities wages are forecast to grow by 2.7% in 2019-20 before falling to 1.2% in 2020-21 alongside the slowdown in national utilities wage growth. Wage gains are expected to reach a low of 0.9% in 2021-22 before accelerating as the utilities industry rebounds from COVID-19 related effects.

Australia's economy to enter recession in 2020

The outbreak of COVID-19 and measures to contain the spread of the virus have weighed heavily on the Australian economy in 2020. The Australian economy contracted by 0.3% in the March quarter of 2020 and a more significant contraction is expected in the June quarter.

Containment measures have slowed the spread of COVID-19 in Australia but have led to large falls in employment. The number of Australians employed fell by around 872,000 in April and May, followed by an increase of approximately 211,000 in June. Employment fell most sharply for younger people and those in industries that were most affected by government restrictions such as arts and recreation, and accommodation and food services. The labour force participation rate also fell to the lowest level seen since 2001. Many people who remained employed saw significant reductions in the number of hours worked, with a 6% fall in the number of hours worked in the Australian economy over the year to June 2020.

As the Australian economy begins to reopen and recover from the impact of COVID-19 restrictions, reducing unemployment will be a key challenge. Some of the weakness in the labour market is expected to be temporary, but unemployment tends to rise faster than it falls. As such, it may take several years before labour market conditions return to pre COVID-19 levels.

The Commonwealth Government has announced \$162 billion in additional spending in 2019-20 and 2020-21 since March 2020. The centrepiece of the government response has been the JobKeeper and JobSeeker payments. The Government has announced a tapering of these payments from 28 September 2020 to 28 March 2021. Government stimulus measures have successfully protected many jobs and businesses that would otherwise have been lost since March 2020. It is estimated that the unemployment rate is 5 percentage points lower than would have otherwise been the case, preventing the loss of some 700,000 jobs.

The Government's forecasts assume a significant scaling back of eligible employees and business participants from approximately 3.5 million currently to between 1.1 - 1.4 million during the period from September 2020 to March 2021. It is likely that much of this improvement is due to businesses and employees no longer needing support, but there is also likely to be some degree of business failure and ongoing unemployment.

The pace of the recovery in Australia's economy will owe much to the degree of improvement in the confidence of consumers and businesses. According to the ANZ Roy-Morgan survey, consumer confidence fell to almost half century lows in late March. And although confidence has improved in recent months it remains well below its longer-term average. The NAB Business Survey shows that business confidence remains around the levels seen during the 1990s recession.

Overall, real Gross Domestic Product (GDP) is expected to fall by 0.1% in 2019-20 and a further 0.4% in 2020-21 amid the impact of continued COVID-19 restrictions and subdued confidence from consumers and businesses. The Australian economy is then expected to grow by 5.3% in 2021-22 and 4.0% in 2022-23 as the negative effects of COVID-19 on the labour market begin to fade and government stimulus measures support economic activity.

Utilities output to fall as COVID-19 weighs on demand and structural changes continue

Utilities industry output growth was weaker than growth in the broader Australian economy ahead of the outbreak of COVID-19. Utilities industry output decreased by 1.2% in the year to March 2020 compared to a 1.7% increase in output across all industries. This continues a long-running trend that has seen the utilities industry underperform growth in the wider economy from 2008-09 to 2019-20. This has largely been due to a 9% decline in National Electricity Market (NEM) electricity consumption over the same period.

There have been three key drivers of this decline in grid consumption:

- An increasing share of households and businesses have adopted rooftop PV, battery storage, and other small scale technologies to generate their own electricity.

- Elevated retail electricity prices have contributed to households and businesses actively modifying their behaviour to reduce electricity use where possible.
- The trend towards more energy efficient appliances, machinery and buildings.

The NEM is currently undergoing a transition from a centralised system of large fossil fuel generators towards a system that includes increasing numbers of smaller scale and more widely distributed renewable energy generators. According to the AER, fossil fuel generators produce around three quarters of electricity in the NEM, but more than one quarter of coal generators are scheduled to be retired within the next 15 years. And more than 93% of new generation investment since 2012-13 has been in wind and solar capacity. Households are also adopting rooftop solar PV, batteries, electric vehicles and demand response. This transition creates a series of challenges for the NEM in ensuring the stability and reliability of electricity supply.

The outbreak of COVID-19 has had a profound effect on the utilities industry. As electricity, gas, water and waste services are essential services, steps were taken to ensure their provision through the COVID-19 lockdown. In March 2020 the AER instructed retailers to offer hardship arrangements to all residential and small business customers experiencing financial stress, introduced a moratorium on disconnections, waived certain fees and charges, as well as deferred the referral of customers to debt collectors. Several state governments have also announced COVID-19 support packages that include support measures.

COVID-19 containment measures have resulted in an increase in residential electricity use and a fall in industrial and commercial electricity use. Operational demand fell by 2% in the second quarter of 2020 compared to the same period a year earlier, with the largest reductions occurring in Queensland and New South Wales.

Average wholesale electricity prices in the NEM fell to five-year lows in the second quarter of 2020. This was primarily driven by lower-priced offers, lower gas and coal prices, increased rainfall and hydroelectric output, and new renewable energy supply. Electricity futures contract prices remain at comparatively low levels, suggesting that prices will remain subdued for some time.

The electricity industry faces a number of negative risks over the medium term:

- The transition from a centralised fossil fuel led generation mix to a more decentralised and varied generation mix may produce costs for businesses and consumers in the NEM.
- Continued uncertainty around energy policy settings means greater risk for private investors.
- An acceleration in the uptake of distributed energy resources such as rooftop PV and battery storage systems will weigh on NEM electricity demand.
- Further pressure on the manufacturing industry may see additional industrial electricity users choose to close local operations and move offshore.

There are also a number of upside risks, that may support growth:

- An acceleration in the uptake of electric vehicles will increase NEM electricity demand. According to the Australian Energy Market Operator (AEMO) this will depend on government policies, electric vehicle costs relative to non-electric vehicles, other transport alternatives (e.g. public transport), commercial demand, access to charging infrastructure and the availability of car models in Australia.
- There is also the potential for higher demand from the business sector. This includes demand from traditional manufacturing, mining (particularly the gas and coal mining sub-industries), desalination plants and other services-based businesses (such as the transport industry).

The eastern Australian gas market has changed markedly in recent years. The commencement of liquefied natural gas (LNG) production in Queensland in 2015 led to concerns about domestic gas supply amid moratoriums on gas development and higher prices in Asian markets (incentivising export). Australian production rose sharply in 2019 following the commencement of production in

Western Australia and the Northern Territory. Demand for LNG in Asia was also weaker than expected and uncontracted supply was made available to the Australian market. According to AEMO, the supply of gas from existing and committed developments is expected to meet demand from eastern and south-eastern Australia until 2023.

The easing of supply concerns and the March 2020 collapse in the oil price have weighed heavily on gas prices. Wholesale spot gas prices in the first quarter of 2020 reached their lowest levels in four years. Gas consumption in the NEM is expected to remain relatively flat over the coming years. This is primarily due to the outlook for LNG exports, which account more than 70% of total consumption. The long-term outlook for gas-powered generation has also softened amid lower forecasts for electricity demand, the uptake of renewable energy generation and greater connection between regions.

Utilities industry output is expected to fall by 1.6% in 2019-20, compared to a 0.1% decline in the Australian economy. However, the utilities industry is less exposed to the negative impacts of COVID-19 than many other industries. As a result, the contraction in utilities industry output in 2020-21 is expected to be relatively modest compared to the contraction in the Australian economy. Utilities industry output is set to improve as the economy recovers from the impact of COVID-19, growing by 2.3% in 2021-22 before moderating thereafter.

Table i State WPI forecasts, all industries

Financial year changes in nominal Wage Price Index forecasts

Annual % change	History		Forecast						
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	
National	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9	
Victoria	2.7	2.5	0.5	0.8	1.2	1.8	2.2	2.8	
South Australia	2.2	2.3	0.9	0.6	0.8	1.6	2.1	2.7	
Northern Territory	2.1	2.5	1.4	1.1	1.0	1.9	2.4	2.9	
Australian Capital Territory	2.1	2.3	1.4	1.1	1.2	2.0	2.4	3.0	

Financial year changes in real Wage Price Index forecasts

Annual % change	History		Forecast						
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	
National	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7	
Victoria	1.0	0.8	-0.4	-0.6	-0.5	-0.3	0.1	0.7	
South Australia	0.6	0.7	0.2	-0.8	-0.9	-0.5	-0.1	0.5	
Northern Territory	1.1	2.1	1.2	0.0	-0.6	-0.2	0.2	0.7	
Australian Capital Territory	0.0	1.0	0.7	-0.2	-0.4	-0.1	0.2	0.7	

Note: annual % change refers to the year-average change.

Source: ABS, Deloitte Access Economics.

Table ii Key variables, Australia

Annual % change	History		Forecast						
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	
Output	2.0	-0.1	-0.4	5.3	4.0	2.6	2.3	2.3	
Consumer price index	1.6	1.3	0.7	1.3	1.7	2.1	2.2	2.2	
Wage Price index	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9	
Ave. weekly earnings	2.7	2.7	1.5	0.5	0.7	1.8	2.1	2.4	
Ave. weekly ordinary time earnings	2.7	3.1	1.2	1.2	1.3	2.2	2.9	3.1	

Source: ABS, Deloitte Access Economics.

Table iii Economic variables, Australia

Annual % change (unless noted)	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Consumption								
Private sector	2.0	-0.9	-0.1	3.5	1.8	2.1	2.5	2.8
Public sector	4.5	6.0	6.5	2.4	-0.8	-0.9	1.2	1.7
Private sector investment								
Non-business housing	0.0	-10.7	-14.0	16.5	21.8	3.5	-3.8	-3.7
Non-business real estate	-15.4	-0.7	-18.5	15.4	20.9	3.8	-2.8	-2.5
Non-residential building	-1.6	-5.3	-29.1	18.2	39.8	10.6	2.8	0.4
Engineering construction	-10.2	-7.9	-5.0	9.7	9.2	6.1	2.3	-0.1
Machinery and equipment	4.6	-9.3	-1.1	20.1	17.6	9.5	4.3	2.0
IP and livestock	3.0	0.1	-0.3	1.1	20.6	14.8	10.4	7.7
Public investment								
General Government	5.5	5.5	9.2	3.0	3.2	3.2	2.3	1.7
Public enterprises	-0.6	-4.4	-3.0	4.2	5.0	4.1	2.4	1.0
Domestic final demand								
Private sector	0.9	-2.5	-2.7	5.9	6.3	3.6	2.3	2.2
Public sector	4.4	5.4	6.4	2.6	0.1	0.0	1.4	1.7
Gross national expenditure								
	1.6	-0.6	-0.6	5.3	4.8	2.7	2.1	2.0
International trade								
Exports	4.0	-3.1	0.5	12.2	5.0	5.4	4.5	4.6
Imports	0.3	-5.6	1.0	12.9	8.8	5.9	3.9	3.7
Net (% additon to growth)	1.3	-1.1	1.1	-0.2	-0.9	0.2	0.2	0.3
Total output (GDP)								
	2.0	-0.1	-0.4	5.3	4.0	2.6	2.3	2.3
Non farm output								
	2.3	0.1	-0.5	5.3	4.0	2.6	2.3	2.3
Employment								
	2.4	0.2	-1.3	2.5	2.6	2.4	1.8	1.3
Unemployment rate (%)								
	5.1	5.6	8.2	7.2	6.1	5.3	5.3	5.3

Source: ABS, Deloitte Access Economics. All variables (except for population, employment and unemployment) expressed in inflation-adjusted terms.

Table iv Wages and prices, Australia

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Consumer price index (CPI)								
	1.6	1.3	0.7	1.3	1.7	2.1	2.2	2.2
Wage price index (WPI)								
Nominal	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
Real	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
Average weekly earnings (AWE)								
Nominal	2.7	2.7	1.5	0.5	0.7	1.8	2.1	2.4
Real	1.0	1.4	0.9	-0.8	-1.0	-0.3	-0.1	0.2
Average weekly ordinary time earnings (AWOTE)								
Nominal	2.7	3.1	1.2	1.2	1.3	2.2	2.9	3.1
Real	1.0	1.8	0.5	-0.1	-0.4	0.1	0.7	0.9
Unit labour costs								
Nominal	1.8	2.5	0.7	-0.6	0.6	2.8	2.9	2.4
Real	0.2	1.1	0.1	-1.9	-1.1	0.7	0.7	0.2

Source: ABS, Deloitte Access Economics.

Table v Industry wages, Australia

Financial year changes in nominal national industry sector WPI

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
All industries	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
Utilities	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7

Financial year changes in real national industry sector WPI

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
All industries	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
Utilities	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5

Source: ABS, Deloitte Access Economics.

Table vi State utilities industry nominal wages

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
National	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7
Victoria	3.1	3.0	0.5	0.5	0.9	1.6	2.0	2.7
South Australia*	2.0	2.3	1.0	0.4	0.5	1.3	1.9	2.5
Northern Territory*	2.2	2.7	1.4	0.9	0.7	1.6	2.2	2.7
Australian Capital Territory*	2.3	2.7	1.2	0.9	1.1	1.8	2.2	2.8

*Historical data estimated using Deloitte Access Economics' wage price model. Unavailable from the ABS.

Note: Victorian WPI growth in 2021-22 is equal to the forecast change in WPI from the average of the first six months of 2021 to the average WPI over the twelve months of 2021-22. This adjusted has been applied to account for the transition towards a new regulatory period commencing 1 July 2021.

Source: ABS, Deloitte Access Economics.

Table vii State utilities industry real wages

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
National	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5
Victoria	1.3	1.4	-0.5	-0.3	-0.7	-0.6	-0.1	0.5
South Australia*	0.5	0.7	0.4	-0.9	-1.1	-0.8	-0.3	0.3
Northern Territory*	1.3	2.3	1.2	-0.2	-0.9	-0.5	0.0	0.4
Australian Capital Territory*	0.2	1.3	0.5	-0.4	-0.6	-0.3	0.0	0.6

*Historical data estimated using Deloitte Access Economics' wage price model. Unavailable from the ABS.

Note: Victorian WPI growth in 2021-22 is equal to the forecast change in WPI from the average of the first six months of 2021 to the average WPI over the twelve months of 2021-22. This adjusted has been applied to account for the transition towards a new regulatory period commencing 1 July 2021.

Source: ABS, Deloitte Access Economics.

1 Background

The Australian Energy Regulator (AER) commissioned Deloitte Access Economics to provide forecasts for wage price growth for the electricity, gas, water and waste services (utilities) industry to 2025-26 for the following jurisdictions:

- Australia
- Victoria
- South Australia
- Northern Territory
- Australian Capital Territory.

Specifically, the AER has requested:

- Annual Wage Price Index (WPI) forecasts for Australia and relevant states.
- A brief analysis of the key influences on the forecast changes in the WPI, including:
 - An overview of the national and state economic outlook, including a discussion of the outlook for the utilities industry.
 - An analysis of the national and state outlook for wages for all industries and the utilities industry.
 - A discussion of the key drivers for wage growth including inflationary trends, productivity trends, Enterprise Bargaining data, and relevant cyclical factors.
- A description of the methodology and assumptions used to forecast WPI.
- An analysis of how the legislated changes to the superannuation guarantee will affect forecast labour price growth.

For the states and territories covered in this report, the Australian Bureau of Statistics (ABS) only releases WPI estimates in the utilities industry for Victoria. For those states and territories where the ABS does not release WPI estimates, Deloitte Access Economics uses a range of related data to estimate the utilities industry WPI.

A detailed methodology description can be found in Appendix B.

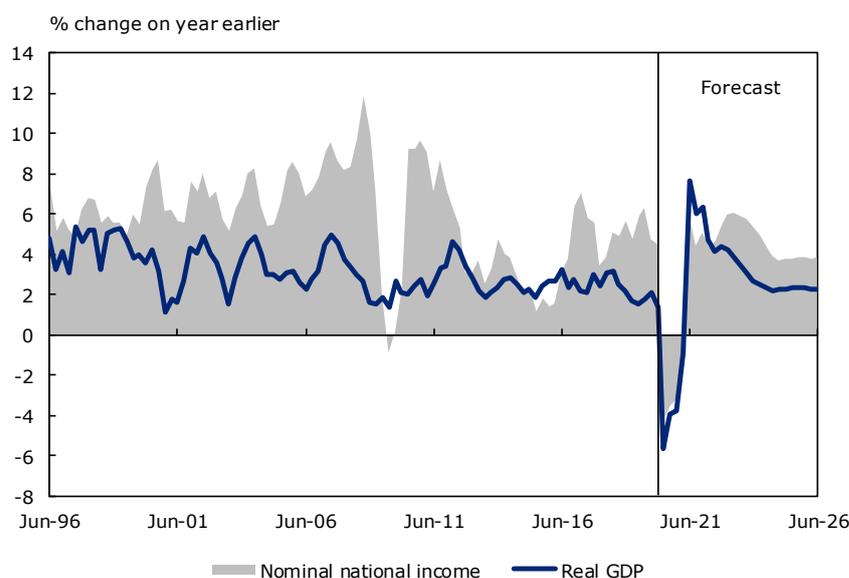
2 Australia

2.1 Economic outlook

2.1.1 Overview

The outbreak of COVID-19 and measures to contain the spread of the virus have weighed heavily on the Australian economy in 2020. The Australian economy contracted by 0.3% in the March quarter of 2020 and a more significant contraction is expected in the June quarter.

Chart 2.1 Australian production and national income growth



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

The acceleration in the number of COVID-19 cases in Australia in March led to a series of containment measures imposed at all levels of government. These included travel restrictions, business closures, restrictions on public gatherings, as well as encouraging people to stay at home as much as possible. Some jurisdictions have gradually eased restrictions as COVID-19 case numbers improve, but the spike in Victorian cases in early July has led to the re-introduction of many earlier containment measures. Some level of restriction on activity is likely to remain in place until a vaccine or effective anti-viral treatments are available.

Containment measures have slowed the spread of COVID-19 in Australia but have led to large falls in employment. The number of Australians employed fell by around 872,000 in April and May, followed by an increase of approximately 211,000 in June. Employment fell most sharply for younger people and those in industries that were most affected by government restrictions such as arts and recreation, and accommodation and food services. The labour force participation rate also fell to the lowest level seen since 2001. Many people who remained employed saw significant reductions in the number of hours worked, with a 6% fall in the number of hours worked in the Australian economy over the year to June 2020.

As the Australian economy begins to reopen and recover from the impact of COVID-19 restrictions, reducing unemployment will be a key challenge. Some of the weakness in the labour market is expected to be temporary, but unemployment tends to rise faster than it falls. As such, it may take several years before labour market conditions return to pre COVID-19 levels.

Some of the negative impacts on the Australian economy will also be long-lived, such as the relative shortfalls on two key drivers of economic production: labour and capital. In terms of labour, the closure of international borders means that Australia will receive fewer international migrants (who are typically young adults with above-average skills) and the Australian population will be smaller than it otherwise would have been. Adding to this, many of those who have lost their jobs are unable to be immediately re-employed (due to COVID-19 restrictions in their industry). And the longer that people stay unemployed, the more likely they are to remain unemployed.

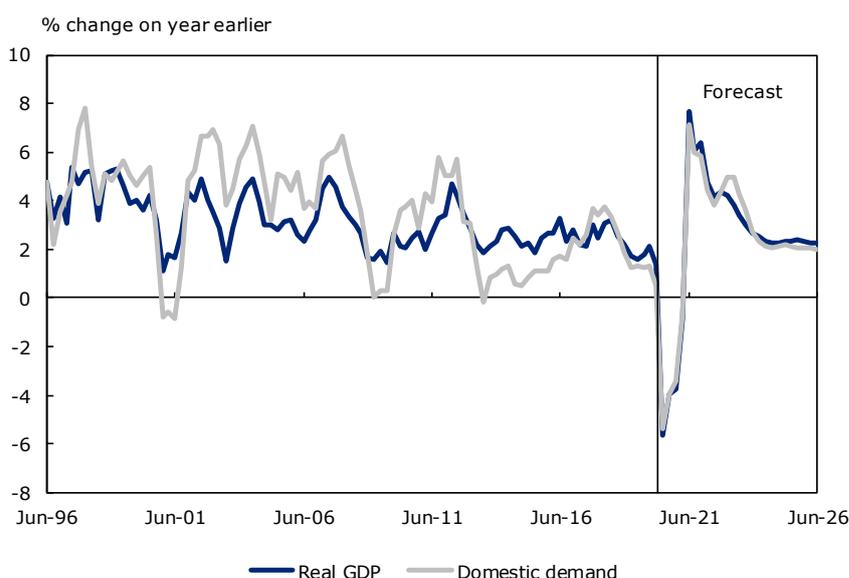
In terms of capital, there has been less investment in the Australian economy during 2020 than would otherwise have been expected. That means there are fewer inputs to production such as computers, trucks, factories and other capital equipment. Some businesses will also have gone bust, and some of their existing equipment won't be used or used as well as it could be, while relationships with suppliers have been severed. The introduction of physical distancing and other health-related measures has also limited productivity in some industries. Private businesses investment is forecast to fall by 15% in 2020, reaching its lowest point as a share of the economy in almost two decades

The Commonwealth Government has announced \$162 billion in additional spending in 2019-20 and 2020-21 since March 2020. The centrepiece of the government response has been the JobKeeper and JobSeeker payments. The Government has announced a tapering of these payments from 28 September 2020 to 28 March 2021. Government stimulus measures have successfully protected many jobs and businesses that would otherwise have been lost since March 2020. It is estimated that the unemployment rate is 5 percentage points lower than would have otherwise been the case, preventing the loss of some 700,000 jobs.

The Government's forecasts assume a significant scaling back of eligible employees and business participants from approximately 3.5 million currently to between 1.1 – 1.4 million during the period from September 2020 to March 2021. It is likely that much of this improvement is due to businesses and employees no longer needing support, but there is also likely to be some degree of business failure and ongoing unemployment.

COVID-19 is expected to have a similar impact on both Australia's economy and domestic demand (see Chart 2.2). The eventual recovery in demand will underpin the improvement in the Australian economy. However, the extent of the recovery in demand will depend on the degree of improvement in the confidence of consumers and businesses.

Chart 2.2 Domestic demand and GDP

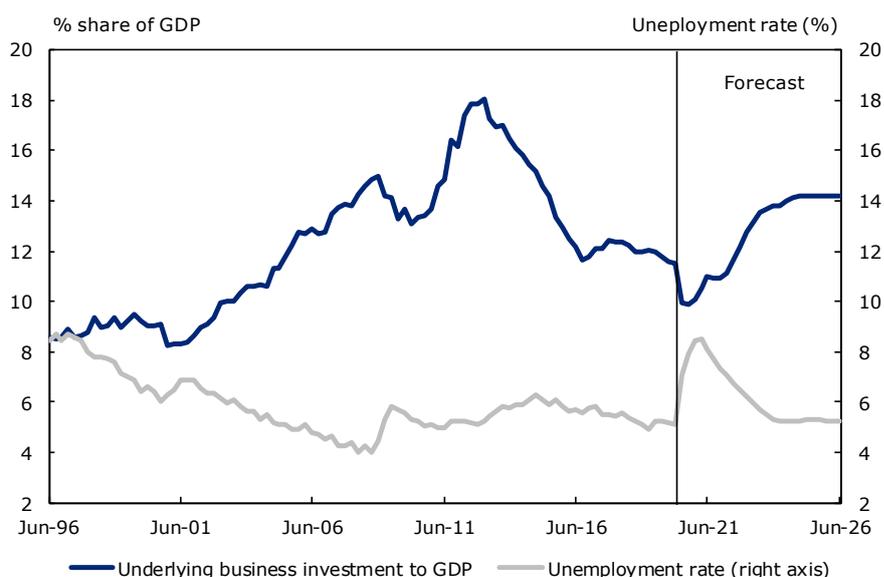


Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

According to the ANZ Roy-Morgan survey, consumer confidence fell to almost half century lows in late March. And although confidence has improved in recent months it remains well below its longer-term average. Sentiment towards the future economic outlook is one third below the pre-COVID peak among those surveyed.

The NAB Business Survey shows that business confidence remains around the levels seen during the 1990s recession. Subdued business confidence will have important implications for hiring and investment decisions. This can be seen in Chart 2.3 which shows the demand for labour (mirrored in the unemployment rate) and the demand for capital (as seen in new business investment spending). The halt in economic activity means that unemployment is rising sharply at the same time as business investment is falling sharply.

Chart 2.3 Business investment as a share of GDP and the unemployment rate



Source: ABS, Deloitte Access Economics.

The Australian economy is not expected to return to the size it was in late 2019 until mid-2021. That suggests that the COVID-19 recession will be the largest experienced by the Australian economy since the Great Depression of the 1930s.

Overall, real GDP is expected to fall by 0.1% in 2019-20 and a further 0.4% in 2020-21 amid the impact of continued COVID-19 restrictions and subdued confidence from consumers and businesses. The Australian economy is then expected to grow by 5.3% in 2021-22 and 4.0% in 2022-23 as the negative effects of COVID-19 on the labour market begin to fade and government stimulus measures support economic activity.

2.1.2 Utilities

The 'utilities' industry is the broad term applying to the electricity, gas, water and waste services industry, which is Division D of the Australian and New Zealand Standard Industrial Classification (ANZSIC). The industry covers activity in the provision of electricity, gas through mains systems, water, drainage and sewage services.

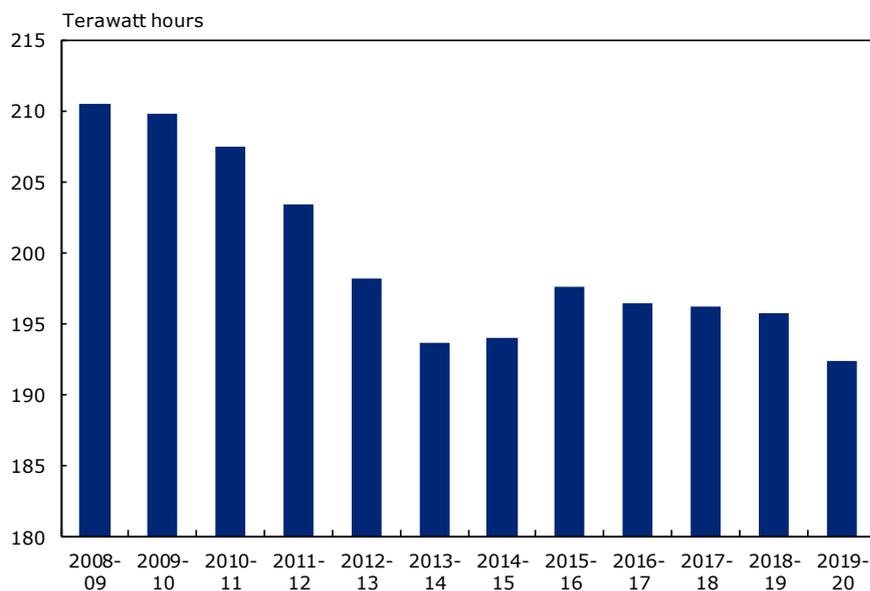
Utilities industry output fell by 0.3% in the March quarter of 2020, in line with the contraction in the broader Australian economy. Activity fell in the electricity supply (-0.3%) and water supply and waste services (-3.9%) sub-industries, which together account for more than 95% of industry output. Elsewhere, output in the gas supply sub-industry grew by 2.2% in the March quarter of 2020.

Utilities industry output growth was weaker than growth in the broader Australian economy ahead of the outbreak of COVID-19. Utilities industry output decreased by 1.2% in the year to March 2020 compared to a 1.7% increase in output across all industries. This continues a long-running trend that has seen the utilities industry underperform growth in the wider economy from 2008-09 to 2019-20. This has largely been due to a 9% decline in NEM electricity consumption over the same period.

There have been three key drivers of this decline in grid consumption:

- An increasing share of households and businesses have adopted rooftop PV, battery storage, and other small scale technologies to generate their own electricity.
- Elevated retail electricity prices have contributed to households and businesses actively modifying their behaviour to reduce electricity use where possible.
- The trend towards more energy efficient appliances, machinery and buildings.

Chart 2.4 Electricity consumption in the NEM



Source: AEMO annual electricity consumption

The NEM is currently undergoing a transition from a centralised system of large fossil fuel generators towards a system that includes increasing numbers of smaller scale and more widely distributed renewable energy generators. According to the AER, fossil fuel generators (mostly coal) produce around three quarters of electricity in the NEM, but more than one quarter of coal generators are scheduled to be retired within the next 15 years. And more than 93% of new generation investment since 2012-13 has been in wind and solar capacity. Households are also adopting rooftop solar PV, batteries, electric vehicles and demand response.

This transition creates a series of challenges for the NEM. There is demand for greater firming capacity (battery storage, fast-response generation, etc.) to reduce supply volatility, as well as ways to manage periods of low inertia, weak system strength, erratic frequency shifts and voltage instability that may occur.²

The outbreak of COVID-19 has had a profound effect on the utilities industry. As electricity, gas, water and waste services are essential services, steps were taken to ensure their provision through the COVID-19 lockdown. In March 2020 the AER instructed retailers to offer hardship

² Australian Energy Regulator, *State of the Energy Market 2020*, <<https://www.aer.gov.au/system/files/State%20of%20the%20energy%20market%202020%20-%20Full%20report%20A4.pdf>> .

arrangements to all residential and small business customers experiencing financial stress, introduced a moratorium on disconnections, waived certain fees and charges, as well as deferred the referral of customers to debt collectors. Several state governments have also announced COVID-19 support packages that include support measures.

COVID-19 has led to an increase in the number of customers facing economic hardship and difficulty paying utility bills. This increases the risk of financial stress among retailers. The risk has been recognised by the Australian Energy Market Commission (AEMC), which is considering a proposal for electricity retailers to be able to put some network charges on hold if they have a large number of customers facing hardship due to COVID-19. This would help to avoid instances where smaller retailers fail and customers get rolled onto the Retailer of Last Resort (typically a 'big 3' retailer), which would weaken market competition.

COVID-19 containment measures have resulted in an increase in residential electricity use and a fall in industrial and commercial electricity use. Operational demand fell by 2% in the second quarter of 2020 compared to the same period a year earlier, with the largest reductions occurring in Queensland and New South Wales.

Average wholesale electricity prices in the NEM fell to five-year lows in the second quarter of 2020. This was primarily driven by lower-priced offers, lower gas and coal prices, increased rainfall and hydroelectric output, and new renewable energy supply. Electricity futures contract prices remain at comparatively low levels, suggesting that prices will remain subdued for some time.

The electricity industry faces a number of negative risks over the medium term:

- The transition from a centralised fossil fuel led generation mix to a more decentralised and varied generation mix may produce costs for businesses and consumers in the NEM.
- Continued uncertainty around energy policy settings means greater risk for private investors.
- An acceleration in the uptake of distributed energy resources such as rooftop PV and battery storage systems will weigh on NEM electricity demand.
- Further pressure on the manufacturing industry may see additional industrial electricity users choose to close local operations and move offshore.

There are also a number of upside risks, that may support growth:

- An acceleration in the uptake of electric vehicles will increase NEM electricity demand. According to AEMO this will depend on government policies, electric vehicle costs relative to non-electric vehicles, other transport alternatives (e.g. public transport), commercial demand, access to charging infrastructure and the availability of car models in Australia.
- There is also the potential for higher demand from the business sector. This includes demand from traditional manufacturing, mining (particularly the gas and coal mining sub-industries), desalination plants and other services-based businesses (such as the transport industry).

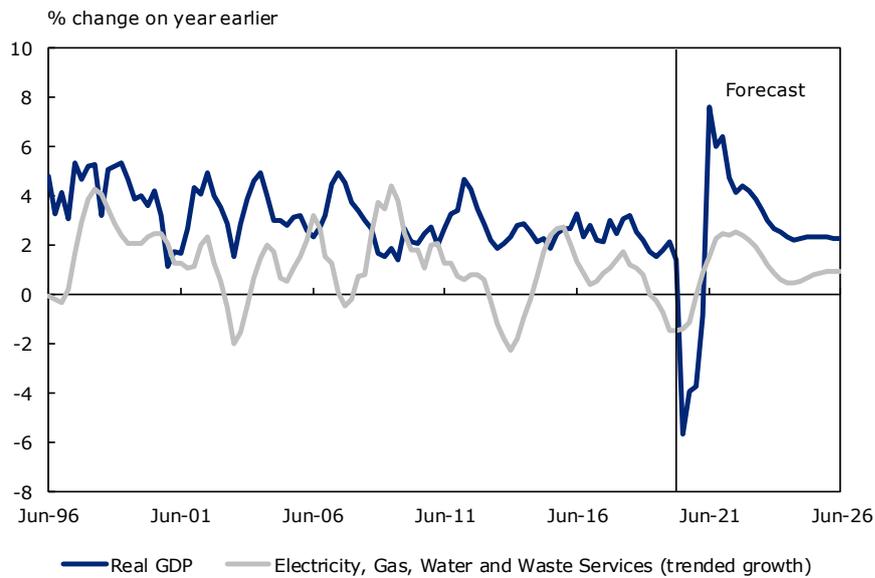
The eastern Australian gas market has changed markedly in recent years. The commencement of LNG production in Queensland in 2015 led to concerns about domestic gas supply amid moratoriums on gas development and higher prices in Asian markets (incentivising export). Australian production rose sharply in 2019 following the commencement of production in Western Australia and the Northern Territory. Demand for LNG in Asia was also weaker than expected and uncontracted supply was made available to the Australian market. According to the AEMO 2020 Gas Statement of Opportunities, the supply of gas from existing and committed developments is expected to meet demand from eastern and south-eastern Australia until 2023.

The easing of supply concerns and the March 2020 collapse in the oil price have weighed heavily on gas prices. Wholesale spot gas prices in the first quarter of 2020 reached their lowest levels in four years. Gas consumption in the NEM is expected to remain relatively flat over the coming years. This is primarily due to the outlook for LNG exports, which account more than 70% of total consumption. The long-term outlook for gas-powered generation has also softened amid lower

forecasts for electricity demand, the uptake of renewable energy generation and greater connection between regions.

Utilities industry output is expected to fall by 1.6% in 2019-20, compared to a 0.1% decline in the Australian economy. However, the utilities industry is less exposed to the negative impacts of COVID-19 than many other industries. As a result, the contraction in utilities industry output in 2020-21 is expected to be relatively modest compared to the contraction in the Australian economy. Utilities industry output is set to improve as the economy recovers from the impact of COVID-19, growing by 2.3% in 2021-22 before moderating thereafter.

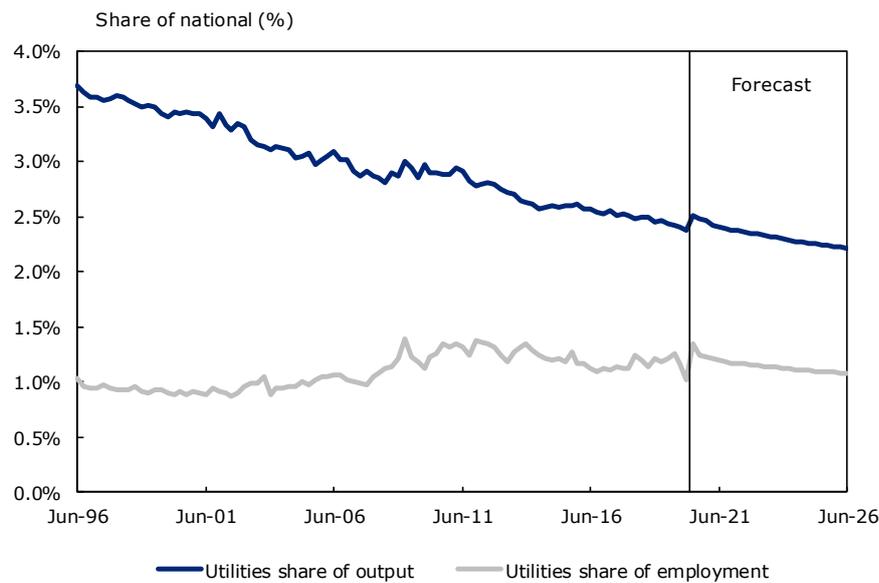
Chart 2.5 Utilities industry output and GDP



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

The utilities industry is forecast to grow as a share of national output and employment in 2020-21 as other industries experience relatively large downturns in activity. From 2022-23 to the end of the forecast period (2025-26), growth in utilities industry output is forecast to remain weaker than growth in the Australian economy (see Chart 2.5). As a result, the utilities industry is forecast to fall as a share of national output and employment over time (see Chart 2.6).

Chart 2.6 Utilities share of national output and employment



Source: ABS, Deloitte Access Economics.

2.2 The outlook for wages

2.2.1 All industries

The WPI grew by 0.5% in the March quarter of 2020, to be 2.2% higher in the year. This represents a slight moderation over the past year. In response to COVID-19, businesses have sought to manage costs by drawing upon government assistance programs, reducing staff numbers, reducing staff hours, trimming wage gains, introducing temporary wage cuts or freezes, reducing wages on an ongoing basis, or withdrawing bonus payments. The Commonwealth Government has deferred pay increases for public servants by 6 months. There have also been reports of wages cuts among senior staff, but these appear to be temporary and relatively isolated. This combination of factors is expected to weigh heavily on the pace of wage gains through 2020.

Job losses in the Australian economy from March 2020 have been concentrated in industries most affected by government restrictions such as accommodation and food services and entertainment and recreation (that tend to be relatively lower paid industries). The impact of these compositional changes will appear in Average Weekly Earnings (AWE) and the national accounts measure of wages, but will have little to no impact on the WPI (which excludes changes in the price of wages and salaries resulting from changes in the composition of the labour market). The WPI also excludes changes in price-determining characteristics such as the number of hours worked, which has fallen in recent months. Adding to this, the large decline in part-time employment relative to full-time employment will affect AWE, but will not directly affect Average Weekly Ordinary Time Earnings (AWOTE) or the WPI.

The Fair Work Commission announced a 1.75% increase in the minimum wage from 1 July 2020 for those in frontline health care and social assistance positions, as well as those in teaching and child care and other essential services. The construction, manufacturing and many other industries will receive the increase from 1 November 2020, while those in the accommodation and food services, arts and recreation, aviation, retail and tourism industries (the industries hardest hit by COVID-19) will receive the increase from 1 February 2021. Wage tribunals typically withhold wage increases during recessions. Wages are both income to workers and a cost to business, and there is a risk that increasing wages too quickly during a recession leads to lower employment than would otherwise be the case.

Wage gains are expected to slow in 2020-21 and 2021-22 as COVID-19 weighs on the Australian economy. Growth in wages is forecast to pick-up from 2021-22 and will be supported by a number of key drivers:

- Effective control of COVID-19 infections in Australia and other countries that facilitates an easing of current restrictions
- Spending from governments to support aggregate demand
- A sustained lift in consumer and business confidence
- An acceleration in Consumer Price Index (CPI) inflation
- An increase in award wages and the minimum wage.

However, there are a number of structural and cyclical factors that may limit the pace of wage gains in the coming years:

- The current recession, high levels of household debt and increased uncertainty around the economic outlook may prompt employees to prioritise job security rather than wage increases. Employees may have also lowered their growth expectations following an extended phase of slow wage gains.
- Many employers have responded to the current downturn in the economy by tightly controlling costs. Even as the economy begins to recover it is possible that employers remain cautious about adding to their wage bill amid concerns over the economic outlook.
- Analysis conducted by the Reserve Bank of Australia (RBA) found that workers are now less likely to voluntarily change jobs compared to the mid-2000s. Wage growth is typically lower for workers who do not change employer.
- The minimum superannuation guarantee is legislated to increase from the current 9.5% to 10% on 1 July 2021, before increasing by 0.5 percentage points each year to an eventual 12% from 1 July 2025. Unlike some other – broader – measures of labour costs, the WPI does not directly include non-wage costs such as superannuation. Although the statutory incidence of higher superannuation contributions is borne by employers, over time a proportion of the costs are expected to be passed from employers to employees via slower wage growth than would otherwise be the case. This is discussed further in Deloitte Access Economics note on the impact of changes to the superannuation guarantee on forecast labour price growth.³
- Trends such as automation of work processes, an increase in contract work, and competitive pressures from the internationalisation of services trade have all combined to restrain workers' bargaining power. It is possible that these trends are making workers feel less secure about their future employment and less likely to push for larger pay rises.
- The returns to technological developments, which are increasingly focussed on intangible capital goods such as software and IT, tend to be highly concentrated in a few firms across a small number of industries. Firms that are unable to innovate and take advantage of new technologies are often choosing to control costs as a way of remaining competitive. This cost-control approach can sit at odds with paying higher wages to employees.

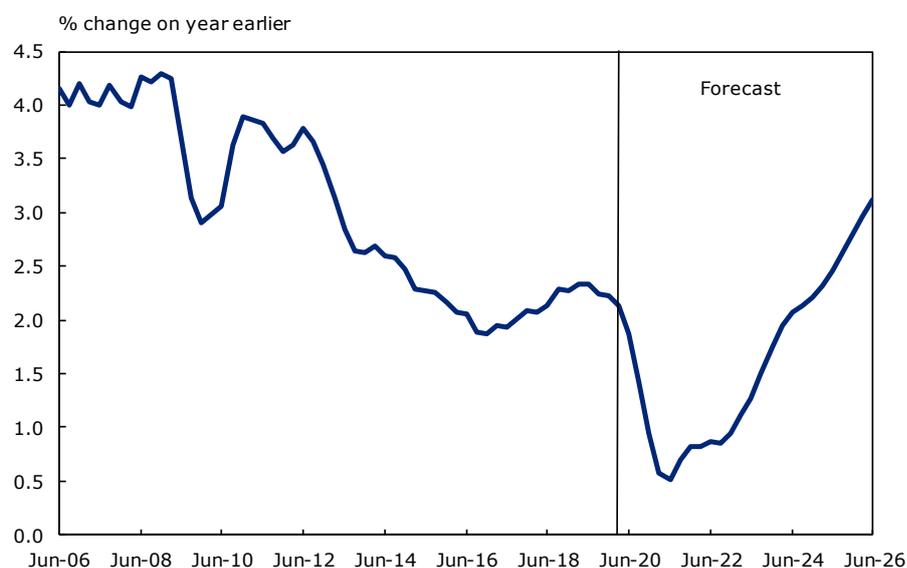
Looking ahead, Deloitte Access Economics forecasts nominal wage growth to slow to 0.9% in 2020-21 and 0.8% in 2021-22 amid the impact of COVID-19. The pace of wage gains is then expected to gradually recover, growing by 1.0% in 2022-23, 1.8% in 2023-24, before reaching 2.9% in 2025-26.

The acceleration in the pace of wage gains will occur gradually from 2022-23 amid growth in the Australian economy. The stronger Australian economy will see employment gains absorb spare capacity in the labour market and add to broader prices in the economy, placing upwards pressure on wages. In the long-term, the increasing retirement among baby boomers will restrain growth in

³ Provided to the AER on 24 July 2020

the number of potential workers, handing employees back some bargaining power in wage negotiations and contributing to higher wage outcomes.

Chart 2.7 National WPI forecasts



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

Table 2.1 National wage forecasts

Financial year nominal wages forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Wage price index	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
Average weekly earnings	2.7	2.7	1.5	0.5	0.7	1.8	2.1	2.4
Ordinary time earnings	2.7	3.1	1.2	1.2	1.3	2.2	2.9	3.1
Unit labour costs	1.8	2.5	0.7	-0.6	0.6	2.8	2.9	2.4

Financial year real wages forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Wage price index	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
Average weekly earnings	1.0	1.4	0.9	-0.8	-1.0	-0.3	-0.1	0.2
Ordinary time earnings	1.0	1.8	0.5	-0.1	-0.4	0.1	0.7	0.9
Unit labour costs	0.2	1.1	0.1	-1.9	-1.1	0.7	0.7	0.2

Source: ABS, Deloitte Access Economics.

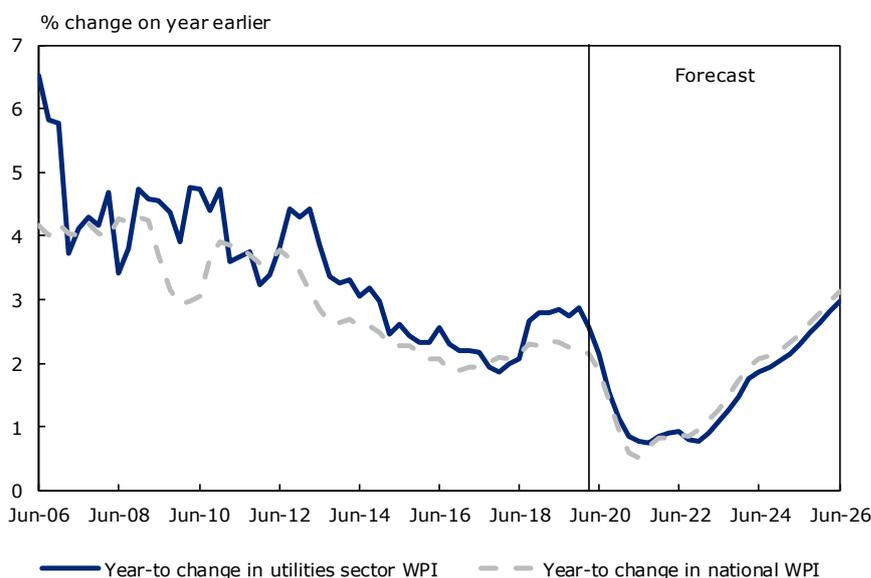
2.2.2 Utilities industry wages

Utilities industry wages grew by 0.3% in the March quarter of 2020 to be 2.7% higher for the year. Wage gains have accelerated from a low in mid-2018 but are expected to slow amid the impact of COVID-19.

The improvement in utilities wage gains has been strongest in the private sector. Private sector utilities wages grew by 3.0% in the year ending March 2020, up from a low of 1.9% in mid-2018. Public sector wages grew by 2.5% in the year ending March 2020, up from a low of 2.1%. The relative strength of private sector wage gains likely reflects the fact that almost five times as many utilities employees work in the private sector than the public sector, and that public sector wages are more affected by trends in Enterprise Bargaining Agreements (EBAs) (where agreements can run for multiple years before being re-negotiated).

Wage gains in the utilities industry have outperformed wages in the wider Australian economy for much of the past decade (see Chart 2.8). Utilities industry wage gains fell below the national average from late 2017 to mid-2018. Since then utilities wages have recovered to grow at rates above the national average.

Chart 2.8 National utilities industry Wage Price Index forecasts



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

The acceleration in utilities industry wages has not been driven by an improvement in the pace of growth in utilities industry output, which has remained below the growth in the wider economy since 2008-09. Measures of the level of utilities labour productivity (which makes workers more valuable to businesses) have fallen from 2015-16 and remain more than two fifths below the peak seen in 2000-01. Conditions remain subdued in a number of industries that traditionally compete with the utilities industry for labour, with output falling in both the manufacturing and construction industries in 2018-19 and further falls expected in 2019-20.

There are a number of potential explanations for the recent outperformance of utilities wages:

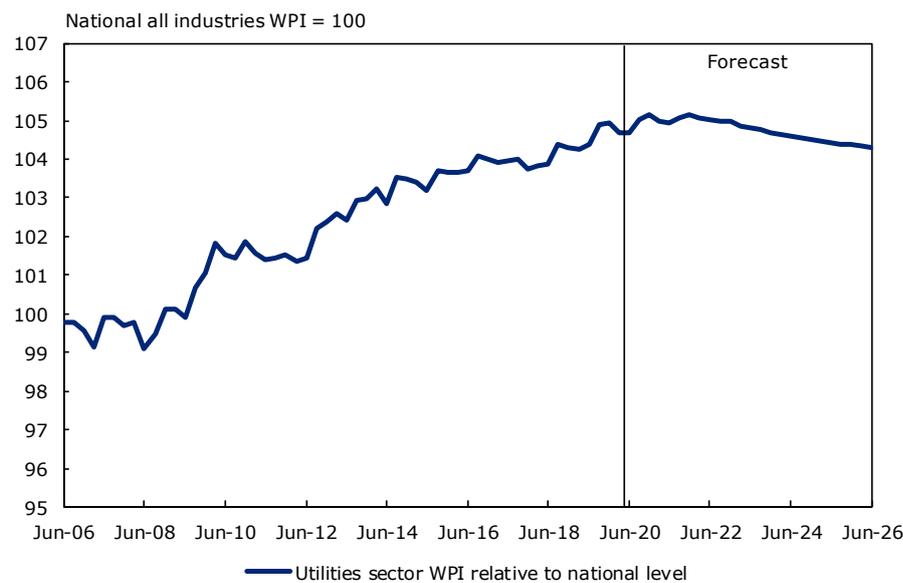
- Utilities employment grew by 3.4% in 2018-19 and is estimated to grow by 1.2% in 2019-20, above the 2.4% and 0.2% gains across all industries. This has helped to absorb spare capacity in the utilities industry and place upwards pressure on wage gains.
- Record levels of infrastructure investment have seen activity shift away from housing construction towards civil infrastructure construction. It is possible that there is a greater degree of substitutability between the skills required for civil construction and those used in the utilities industry, compared with housing construction and the utilities industry. This would add upwards pressure to wage gains in the utilities industry.
- Conditions in the mining industry have improved in recent years. Growth in output has increased from a low of 1.3% in 2016-17 to an estimated 3.8% in 2019-20. The mining industry traditionally competes with utilities for labour, meaning that strength in the mining industry is likely to add upwards pressure to utilities wages.
- The outperformance of wage gains in the utilities industry relative to the wider economy may reflect factors that are difficult to observe. For example, it is possible that wages have increased because requisite skills have lifted, but – if so – then better skilled workers have yet to boost industry output.

Utilities industry wages are expected to be negatively affected by COVID-19. However, the impact will be more significant for industries that are most affected by restrictions such as the arts,

tourism, retail and education. This will see utilities wages continue to outperform wages across the wider economy through 2020 and much of 2021.

The utilities WPI is forecast to grow by 2.6% in 2019-20 before slowing to 1.1% growth in 2020-21, above the 0.9% gain in wages across the Australian economy. This slowdown is primarily driven by the impact of COVID-19 on output. Utilities wages are expected to reach a trough of 0.8% growth in 2021-22 before accelerating. Utilities wages are forecast to grow at a slower rate than wages across the wider Australian economy over the medium-term. This reflects the fact that utilities output is forecast to grow at a slower rate than the all industry average, while conditions in competitor industries will place limited upwards pressure on utilities wages. This is expected to outweigh the impact of unobserved changes in skills requirements in the long-term.

Chart 2.9 Utilities Wage Price Index relative to National Wage Price Index



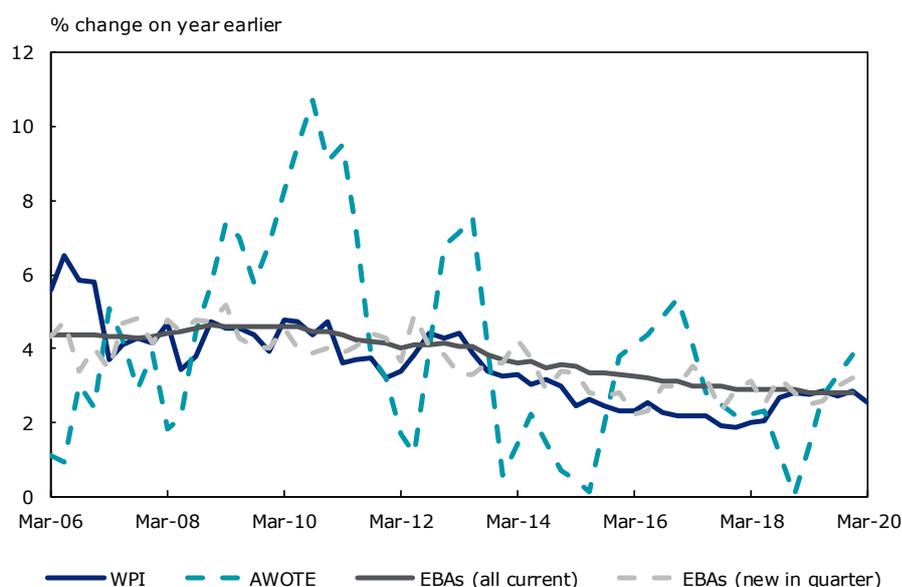
Source: ABS, Deloitte Access Economics.

2.2.2.2 Comparison with results from other wage growth measures

Chart 2.10 shows that, despite volatility in AWOTE, the downward trend in utilities WPI from 2006 to 2018 has been mirrored by several other wage growth measures that are produced on a regular basis.

These include EBAs sourced from the *Trends in Federal Enterprise Bargaining* publication produced by the Attorney-General's Department.

Chart 2.10 Measures of utilities industry wage growth



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
 Source: ABS, Attorney-General's Department

The AWOTE series fluctuates considerably and is consequently limited in its use in forecasting wage growth. In the latest AWE publication released in November 2019, the ABS indicated that the biannual survey was “designed to provide estimates of the level of average earnings at a point in time and, while not designed for movements in earnings, the frequency of collection supports a time series of these level estimates”. Data on the average level of earnings is useful for comparing what an individual earns relative to the average. It is therefore used in the Deloitte Access Economics wage price model as an indicator only.

The utilities EBA data provides a good partial indicator of the future trend growth in the utilities WPI measure. Deloitte Access Economics considers EBA data in forecasting WPI, but it is not the primary driver.

As at the December quarter of 2019, there were 378 EBAs active in the utilities industry, covering some 52,100 employees. Wages in ‘all current EBAs’ grew at 2.8% for the utilities industry in the December quarter of 2018, below the 2.9% gain seen a year earlier. The average annualised wage increase (AAWI) in the utilities industry was above the 2.6% gain seen across all industries.

A total of 35 new EBAs, covering 3,400 employees, were lodged in the December quarter of 2019. The AAWI for new EBAs in December 2019 was 3.2%, the highest value observed since September 2018. The average duration was also 3.4 years, above the 2.8 years seen a year earlier. This will place upwards pressure on the AAWI for all current EBAs.

2.2.3 Labour productivity

Labour productivity measures the number of units of output an individual employee can produce in a given time period. The more units of output each worker can produce, the fewer workers are required to create a given level of industry output.

In this report, Deloitte Access Economics provides estimates of labour productivity at the national, state and industry level. The methodology used is presented in Appendix B.2.2.

Australian labour productivity is expected to fall in 2019-20 as businesses retain many employees despite COVID-19 restrictions limiting output. There is also expected to a temporary loss in productivity as employees adjust to work-from-home arrangements. Labour productivity growth is projected to recover through 2020-21 and 2021-22 as the forecast growth in output outpaces the forecast growth in employment.

Labour productivity in the utilities industry has largely grown at a slower rate than productivity across the wider economy over the last two decades. Growth in utilities industry labour productivity fell by an average annual rate of 2.4% from 1998-99 to 2018-19.

Growth in utilities industry multifactor productivity (a measure of productivity that captures the difference in the growth of outputs and inputs such as capital and labour) has been weak for much of the past two decades. Analysis from the Productivity Commission found that falling multifactor productivity growth was due to an increase in the ratio of peak to average electricity demand (which lowered rates of capacity utilisation), investment in capital assets (which temporarily increased inputs prior to growth in output), undergrounding electricity cabling (which raised costs and quality of service but not the volume of output) and a policy shift in favour of cleaner energy generation (which were initially higher-cost forms of generation).

Labour productivity in the utilities industry is forecast to fall by 0.4% in 2019-20, compared to a 0.3% fall across all industries. This is primarily due to the relatively modest slowdown in utilities employment relative to employment across all industries. Utilities labour productivity is forecast to grow by 1.0% in 2020-21 and 2.8% in 2021-22 as the industry output recovers from the effects of COVID-19. Utilities industry labour productivity is expected to closely track productivity in the wider economy over the medium term.

Table 2.2 Australian labour productivity forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
All industries	-0.4	-0.3	1.0	2.8	1.3	0.3	0.5	1.0
Utilities	-0.5	-0.4	1.0	2.8	1.3	0.3	0.5	1.0

Source: ABS, Deloitte Access Economics.

2.2.4 Summary results

Table 2.3 National industry wage forecasts

Financial year changes in nominal national industry sector WPI

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
All industries	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
Utilities	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7

Financial year changes in real national industry sector WPI

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
All industries	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
Utilities	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5

Financial year changes in labour productivity forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
All industries	-0.4	-0.3	1.0	2.8	1.3	0.3	0.5	1.0
Utilities	-0.5	-0.4	1.0	2.8	1.3	0.3	0.5	1.0

Source: ABS, Deloitte Access Economics.

3 Victoria

3.1 Economic outlook

3.1.1 Overview

The Victorian economy experienced strong growth momentum prior to the outbreak of COVID-19. The state's economy was supported by high rates of population growth, low interest rates and strong public sector investment. The introduction of COVID-19 restrictions from March 2020 has weighed heavily on migration, international student commencements, as well as overall economic activity. The July 2020 spike in COVID-19 infections has also led to the reintroduction of tight containment measures in Victoria.

Victoria currently has the strongest COVID-19 restrictions of any Australian jurisdiction, with the prospect of further restrictions if case numbers continue to rise. Victoria is likely to see severe downturn in hard hit industries including the arts, tourism, retail and education. Given that Victoria accounts for one quarter of the national economy, this poses a risk for growth in the wider Australian economy.

The short-term outlook is particularly weak as Victorians reduce consumption amid a rapidly changing and uncertain COVID-19 outbreak. Households have stopped spending on a range of goods and services including clothing and footwear, hospitality and accommodation. The large increases in spending at supermarkets were not enough to offset these declines elsewhere.

In line with the rapid decline in economic activity, the labour market has also suffered. The number of people employed has fallen by almost 170,000 from March 2020 to June 2020. And the subsequent re-introduction of earlier containment measures suggests that labour market conditions will deteriorate further in coming months. The extension of the JobKeeper payment from September 2020 to March 2021 (albeit at lower rates and with tighter eligibility criteria) will support the state's economy, but unemployment is still likely to rise through 2020.

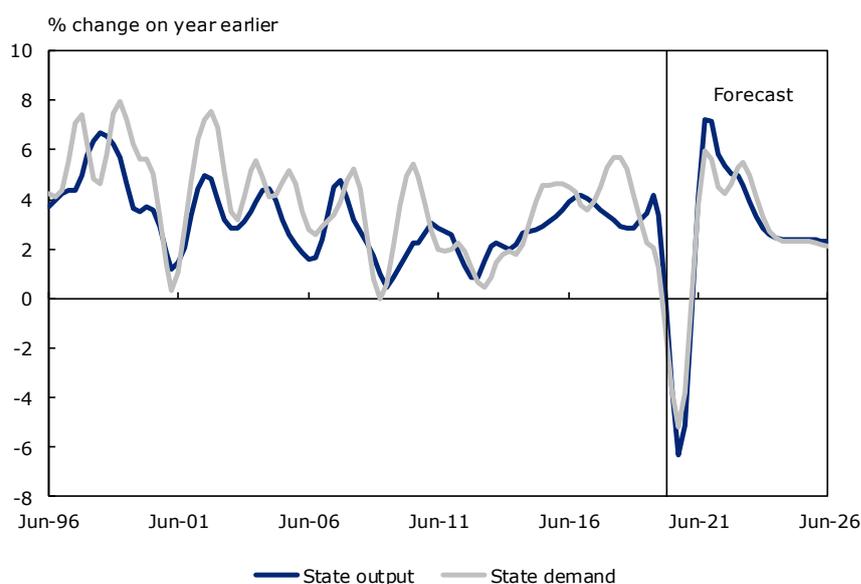
There were some initial signs of weakness in Victoria's construction industry prior to the outbreak of COVID-19. Construction is likely to suffer a severe setback over the coming year amid heightened levels of economic uncertainty and a forecast slowdown in population growth. This is particularly notable for office buildings and apartments in the Melbourne CBD.

Strong population growth has been a key driver of the Victorian economy over recent years. The Victorian population has grown at an average annual rate of 2.1% in the decade to 2019, compared to 1.5% growth in the wider Australian population. More than three fifths of the increase in the Victorian population over this period has been due to international and interstate migration. With international borders closed to non-residents and the recent re-imposition of state border closures, Victorian population growth is expected to slow sharply in 2020. This will have wide-ranging effects on the state's economy, weighing notably on consumption and residential construction.

On a more positive note, infrastructure investment is expected to remain strong as governments increase spending and fast-track developments to stimulate economic activity. Developments will generate jobs during the construction period, support suppliers and contractors, as well as deliver improvements to productivity in the long term.

Deloitte Access Economics forecasts Victorian output to increase by 0.8% in 2019-20 and fall by 1.6% in 2020-21. Output growth is projected to recover strongly from COVID-19 in 2021-22, growing by 6.0%, with gains moderating to 2.4% by 2025-26.

Chart 3.1 Output and demand (change on year earlier), Victoria



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

Table 3.1 : Victoria economic forecasts

Annual % change (unless noted)	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Consumption								
Private sector	2.8	-1.0	-0.4	3.8	2.2	2.5	2.9	3.1
Public sector	5.5	6.8	6.4	2.2	-0.8	-0.9	1.2	1.8
Private sector investment								
Dwelling investment	5.0	-4.4	-17.8	12.4	20.6	3.0	-4.4	-4.3
Non-residential building	15.1	-3.0	-21.8	13.7	26.0	10.1	3.3	0.5
Engineering construction	20.1	-5.8	-8.0	12.0	10.1	7.5	3.4	0.5
Machinery and equipment	6.0	-16.7	4.7	23.9	25.4	12.9	5.7	2.6
IP and livestock	6.0	1.3	-2.4	-1.2	19.8	16.1	11.4	8.1
Public investment								
General Government	0.1	2.7	14.5	0.7	2.4	3.2	2.1	1.5
Public enterprises	3.0	-3.5	-5.1	1.5	3.0	2.4	1.3	1.0
Real final demand	3.6	-0.4	-1.0	4.8	5.2	3.1	2.3	2.2
Private sector	3.4	-2.2	-3.6	5.8	6.9	4.1	2.6	2.4
Public sector	4.5	5.6	7.3	1.9	-0.1	-0.1	1.4	1.7
Gross State output	3.0	0.8	-1.6	6.0	4.7	2.7	2.4	2.4
Employment	3.4	0.9	-0.7	2.5	2.7	2.5	1.8	1.4
Unemployment rate (%)	4.7	5.4	8.1	7.1	5.9	5.2	5.1	5.1

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms.
Source: ABS, Deloitte Access Economics.

3.1.1 Utilities

The COVID-19 pandemic has also affected the utilities industry in Victoria. Measures to contain the spread of the virus have led to weaker labour market conditions and placed many households under financial pressure. In May 2020, The Victorian Essential Services Commission reported a 43% monthly increase in calls to energy retailers from customers about payment assistance.⁴

Overall Victorian operational demand in the NEM was relatively flat in the second quarter of 2020 from the previous quarter. There was a fall in commercial load during this period due to restricted business activity amid the impact of COVID-19 restrictions, but this was largely offset by increased residential load as more people stayed at home. The increase in people staying at home led to some falls in demand due to increased usage of rooftop PV but this was mostly offset by increased heating requirements.

Compared to other jurisdictions, COVID-19 had a relatively small effect on Victorian residential electricity demand. AEMO estimated that compared to the pre-COVID-19 control model, weekday operational demand in April reduced by 1%, with the largest decrease during the morning. This is partly due to Victoria having a high proportion of gas heating systems compared to electric heating systems.⁵

Looking ahead, the performance of the utilities industry depends largely on the effectiveness of efforts to control the spread of COVID-19. Further spreading of the disease, lockdowns and movement restrictions could mean more residential demand, although this will depend on the weather and heating requirements over spring and summer. The economic hardship faced by Victorians could also mean they struggle to make payments, potentially putting pressure on the revenues of energy retailers. In the longer term there could be a shift to a lower level of commercial demand (and permanently higher residential demand) if work-from-home arrangements remain in place.

Recent gas supply forecasts for Victoria predict that committed supply is forecast to reduce by 37% from 2022 to 2024, with several gas fields forecast to cease production between mid-2023 and mid-2024.⁶ This means that gas supply restrictions may be necessary from 2024 if there is no investment in additional supply, removal of pipeline constraints, or investment in an LNG import terminal.

In March 2020, the Victorian Government announced that the ban on conventional gas exploration and development of Victorian onshore gas fields will be lifted from July 2021. However, with the time required for exploration and development of potential projects, the size and impact on supply from these onshore fields remains uncertain.

AGL has recently proposed the development of a floating LNG import terminal at Crib Point in Victoria. Should the project gain the required approval, AGL expects that the import terminal should be operational by the beginning of 2022, potentially assisting in alleviating future supply concerns.

⁴ Essential Services Commission, *Victorian Energy Market Update: June 2020* (30 June 2020) <https://www.esc.vic.gov.au/sites/default/files/documents/FINAL%20-%20Victorian%20Energy%20Market%20Update%20-%20June%202020_1.pdf>

⁵ AEMO, *Quarterly Energy Dynamics Q2 2020* (27 July 2020) <<https://aemo.com.au/-/media/files/major-publications/qed/2020/qed-q2-2020.pdf?la=en&hash=D1A82334D16E915FCB1B628640A05223>>

⁶ AEMO, *Victorian Gas Planning Report Update March 2020* <https://www.aemo.com.au/-/media/files/gas/national_planning_and_forecasting/vgpr/2020/2020-vgpr-update.pdf?la=en>

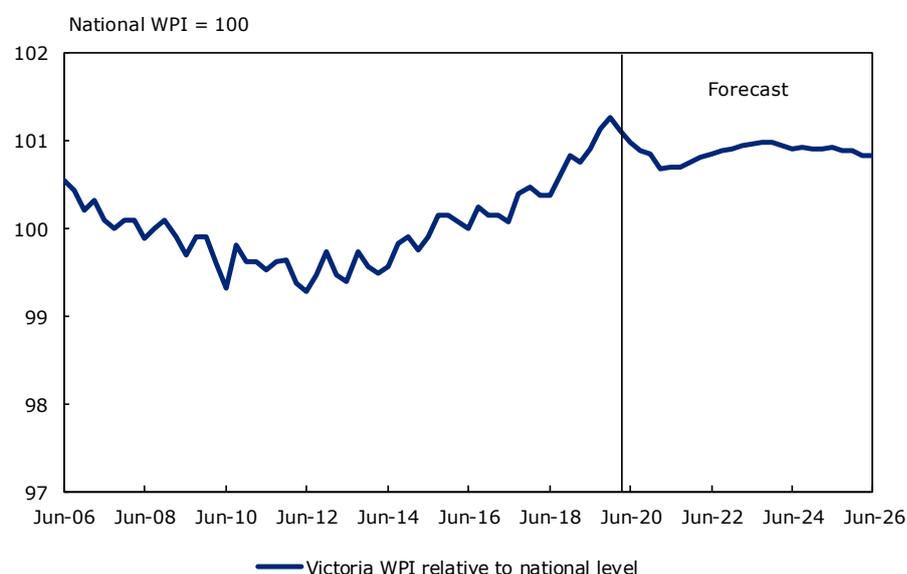
3.2 Outlook for wages

3.2.1 All industries

The Victorian WPI grew by 2.7% in the year ending March 2020, in line with the 2.7% gain in 2019. There was little change in wages in the first quarter as social distancing and other restrictions only came into effect in late March.

Victorian wages are forecast to decline relative to national wages (Chart 3.2). This reflects the fact that Victoria is experiencing high COVID-19 case numbers and the re-introduction of strict measures to control the spread of the virus. COVID-19 will also weigh particularly hard on key drivers of the Victorian economy such as population growth and international education. Over the medium term, Victorian wages will rise relative to the national average as international and state border restrictions are eased and the state benefits from record levels of public infrastructure investment.

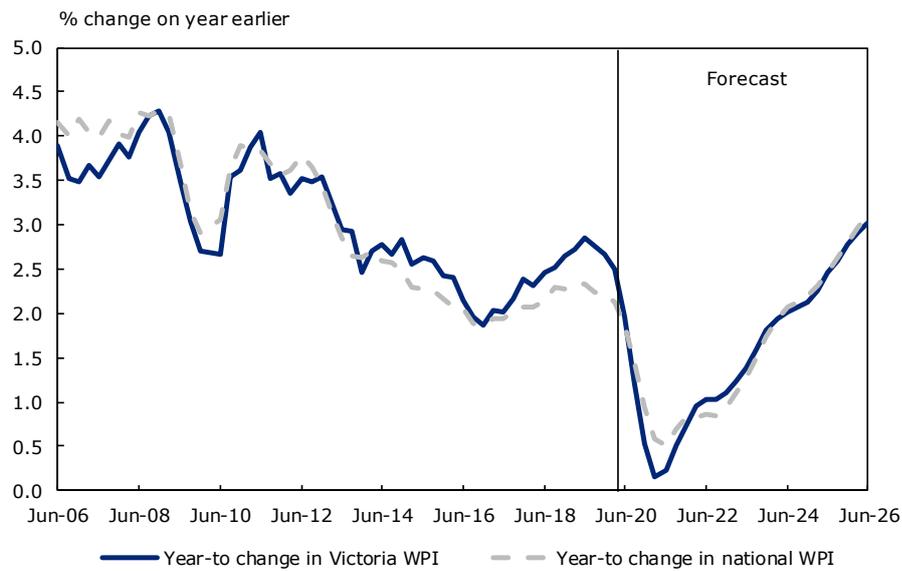
Chart 3.2 Victoria WPI relative to national WPI



Source: ABS, Deloitte Access Economics.

The pace of wage growth is expected to decline sharply in 2020 amid the impact of COVID-19. Wages will fall slightly more in Victoria compared to the national average following the July 2020 Melbourne outbreak and the state’s exposure to hard-hit industries. Wage growth in Victoria is forecast recover beginning in 2021, as economic growth rebounds and eventually lifts wages. However, it will take until the end of the forecast period for the pace of wage gains to reach pre-COVID-19 levels.

Chart 3.3 Victoria general WPI growth



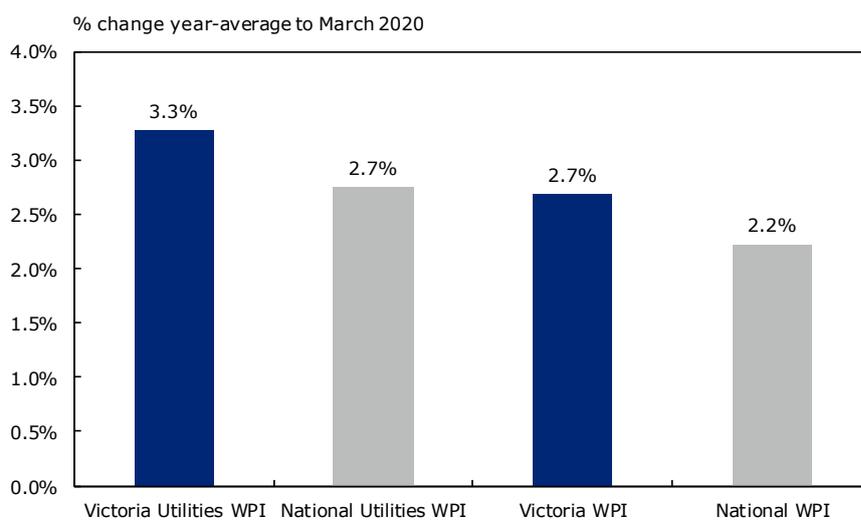
Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
 Source: ABS, Deloitte Access Economics.

3.2.2 Utilities industry wages

Victoria is Australia’s second most populous state and comprises a substantial share of national utilities output. Therefore, Victorian and national utilities industry wages often follow similar trends. However, at the state level there may be greater volatility in utilities output, particularly over the short term.

Wages in the Victorian utilities industry grew by 3.3% in the year to March 2020 (see Chart 3.4). This is above the national average for the utilities industry of 2.7% and remains above the Victorian all industry average of 2.7%.

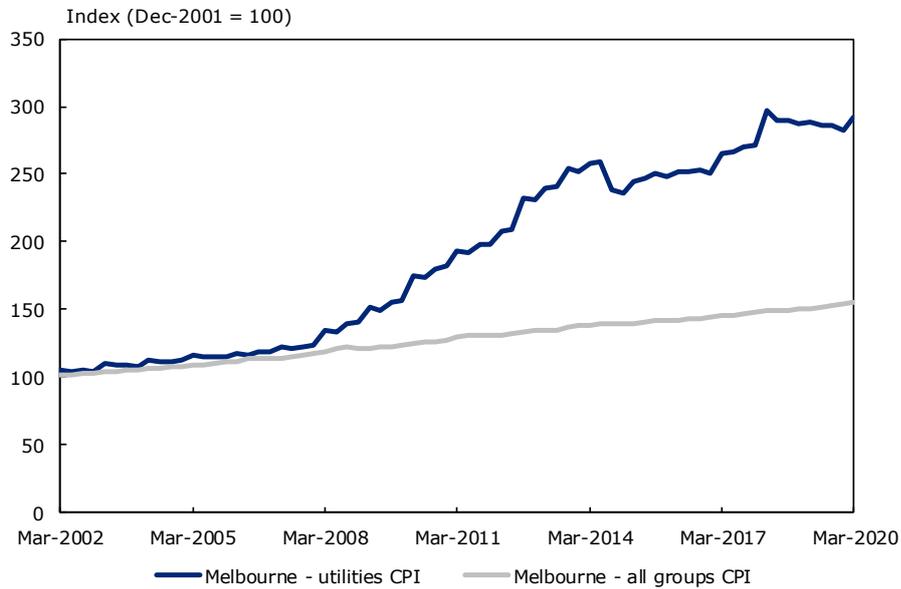
Chart 3.4 Comparative WPI annual growth rates in year to March 2020



Source: ABS, Deloitte Access Economics.

Utilities prices increased substantially between 2008 and 2014 but have remained relatively flat since 2018 (see Chart 3.5). Over the year to March 2020, the utilities CPI fell by 0.7% compared to a 1.9% increase across all groups. Utilities CPI remains well above the CPI for all groups following an 80% increase over the past decade, compared to 24% growth in the broader Melbourne CPI.

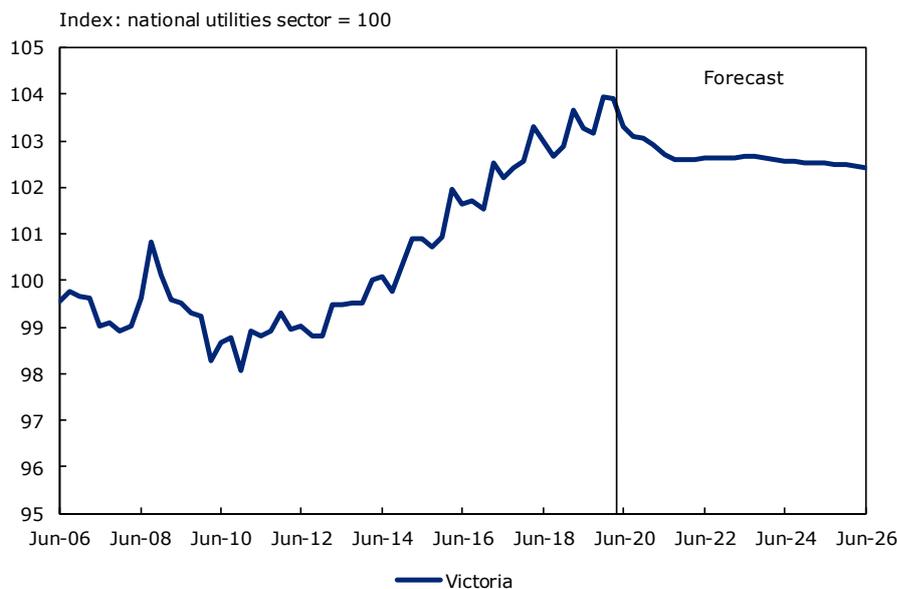
Chart 3.5 Melbourne utility prices



Source: ABS

The Victorian utilities industry WPI has steadily increased relative to the national utilities industry WPI over the past decade. This reflects the strength of the Victorian economy relative to other Australian states and territories, faster growth in the Victorian utilities industry compared to the national utilities industry, as well as robust conditions in the Victorian construction industry – which competes with the utilities industry for workers (Chart 3.6).

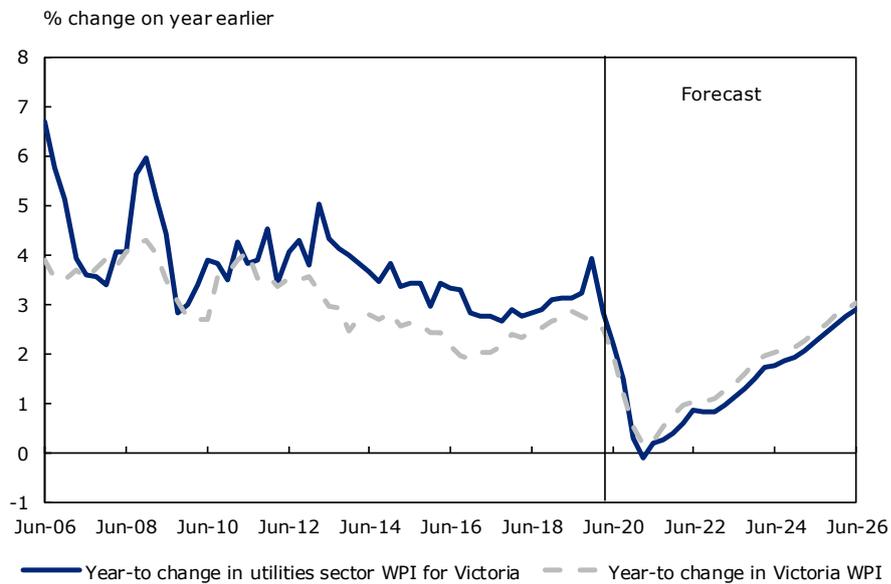
Chart 3.6 Victoria utilities WPI relative to national utilities WPI



Source: ABS, Deloitte Access Economics.

Wage growth in the Victorian utilities industry is expected to slow to 0.5% in 2020-21 as COVID-19 weighs heavily on output across the Victorian economy. From 2021-22 onwards wage gains are then expected to accelerate, reaching 2.7% growth in 2025-26 for the Victorian utilities industries. This is slightly below the 2.8% increase forecast for the Victorian economy in 2025-26, reflecting forecasts for more modest growth in the utilities industry compared to the all industry average.

Chart 3.7 Victoria utilities general WPI growth



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

3.2.2.2 Comparison with EBA outcomes

There were 99 current EBAs in the utilities industry in the December quarter of 2019, covering around 8,000 employees, with an AAWI of 3.2%. Chart 3.8 shows the utilities industry WPI and the outcomes in state EBAs for the industry. The chart shows:

- There has been a small decline over time in the AAWI for current EBAs, from 3.8% in March 2015 to 3.2% in December 2019.
- The AAWI for new utilities industry EBAs in Victoria has been rather volatile. In the latest December quarter there were 13 agreements signed covering around 1,400 workers with an AAWI of 3.2%.

Chart 3.8 Comparative measures of wage growth in the Victorian utilities industry



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Attorney-General's Department

3.2.3 Labour productivity

Victorian utilities and all industry labour productivity fell in 2018-19 and further falls are forecast in 2019-20. Productivity growth has been weak in recent years as growth in output was offset by growth in employment.

COVID-19 has generated declines in both output and employment from the final two quarters of 2019-20. Victoria is expected to see a larger negative impact on productivity from COVID-19 compared to the national economy. This is due to the re-introduction of earlier restrictions amid the July 2020 outbreak, as well as the state's exposure to relatively hard-hit industries.

Labour productivity for the Victorian utilities industry is forecast to return to moderate growth in 2020-21 as weak employment growth offsets the impact of COVID-19 on output. Labour productivity growth is forecast to accelerate in 2021-22 as output recovers from COVID-19 before eventually returning to longer run trends.

Table 3.2 : Victoria and national labour productivity forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Victoria - All industries	-0.3	-0.1	-0.9	3.5	1.9	0.3	0.6	1.0
Victoria - Utilities	-0.5	-0.3	0.4	3.0	1.5	0.3	0.5	1.0
National - All industries	-0.4	-0.3	1.0	2.8	1.3	0.3	0.5	1.0
National - Utilities	-0.5	-0.4	1.0	2.8	1.3	0.3	0.5	1.0

Source: ABS, Deloitte Access Economics.

Note: Productivity forecasts at the state level should be interpreted with care. Quarterly State Final Demand data is used to estimate quarterly GSP, which may not fully capture the impact of interstate trade. This can lead to some volatile movements in the first forecast year for state productivity.

3.2.4 Summary results

Table 3.3 : Victoria and national wage forecasts

Financial year changes in Victoria and national nominal Wage Price aggregates								
Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Victoria - All industries	2.7	2.5	0.5	0.8	1.2	1.8	2.2	2.8
Victoria - Utilities	3.1	3.0	0.5	0.5	0.9	1.6	2.0	2.7
National - All industries	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
National - Utilities	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7

Financial year changes in Victoria and national real Wage Price aggregates								
Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Victoria - All industries	1.0	0.8	-0.4	-0.6	-0.5	-0.3	0.1	0.7
Victoria - Utilities	1.3	1.4	-0.5	-0.9	-0.7	-0.6	-0.1	0.5
National - All industries	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
National - Utilities	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5

Note: Victorian utilities WPI growth in 2021-22 is equal to the forecast change in WPI from the average of the first six months of 2021 to the average WPI over the twelve months of 2021-22. This adjusted has been applied to account for the transition towards a new regulatory period commencing 1 July 2021.

Source: ABS, Deloitte Access Economics.

4 South Australia

4.1 Economic outlook

4.1.1 Overview

South Australian State Final Demand grew by 0.1% in the year to March 2020, below the 2.5% seen a year earlier. Growth in South Australia has been impacted by COVID-19, which has weighed particularly hard on consumer spending, investment, exports and construction in the state. Conditions in the state are not expected to improve until the virus is contained in neighbouring Victoria, consumer confidence is restored, and international borders reopen.

The number of people employed in South Australia has fallen by 37,000 from March 2020 to June 2020. The unemployment rate has increased from an early 2020 low of 5.7% to 8.8% in June 2020. Wage growth also remains low, with the WPI increasing 2.3% over the year to March 2020.

Private consumption in South Australia is expected to fall by 4.0% in 2020, compared to the 3.2% decline at the national level. COVID-19 has weighed heavily on consumer confidence, while the negative impact on retail activity in South Australia is compounded by the relatively weak pace of population growth. Private consumption growth is expected to remain subdued until effective antivirals or a vaccine is developed, and people feel confident enough to move around the economy and spend.

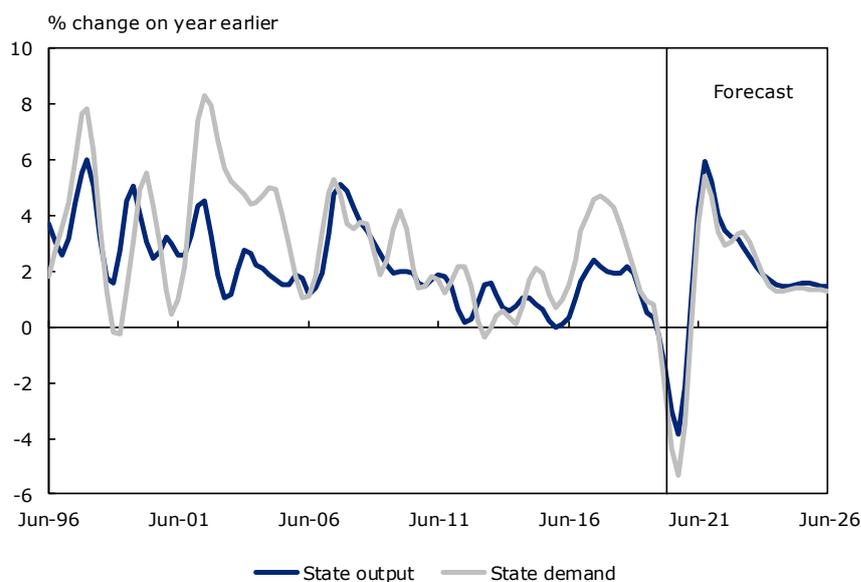
South Australian population growth has remained below the national average over recent decades. The state's population is estimated to have grown at an average annual rate of 0.7% over the last thirty years, below the 1.4% growth in the wider Australian population. In large part this is due to younger South Australians moving interstate for employment. COVID-19 border restrictions are set to limit this outflow of South Australians in the short term. Further, Melbourne and Sydney (traditional destinations for South Australia's young people) have experienced higher COVID-19 case numbers and tougher lockdown restrictions, which have reduced available employment opportunities. Over the medium term, this could see more young people stay in South Australia.

South Australian exports are expected to fall in 2020. COVID-19 has weighed on demand for goods exports such as food and wine, which have already faced challenges from drought and bushfires in recent years. Adding to this, border restrictions have limited services export such as international education and tourism.

Government infrastructure investment is likely to support growth in the South Australian economy in coming years. In March 2020, the South Australian Government announced that \$120 million worth of new infrastructure projects will be fast tracked to support jobs growth and local businesses. Further, \$12.9 billion worth of road, school and hospital infrastructure projects will be built over the next four years. The state government forecasts that the infrastructure spending will support 80,000 jobs in the state.

The South Australian economy is forecast to contract by 1.4% in 2019-20 before growing by 0.3% in 2020-21. The South Australian economy is expected to grow at a faster rate than the national average in 2020-21. This reflects the state's relative success in controlling the spread of COVID-19 and fewer South Australians migrating to other jurisdictions. Over the longer run, the South Australian economy will continue to grow at rates below the national average.

Chart 4.1 Output and demand (change on year earlier), South Australia



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

Table 4.1 South Australian output and demand forecasts

Annual % change (unless noted)	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Consumption								
Private sector	1.4	-1.6	-1.1	2.6	1.0	1.3	1.7	2.0
Public sector	3.5	3.1	5.7	1.6	-1.6	-1.7	0.4	0.9
Private sector investment								
Dwelling investment	1.1	-4.9	-14.9	13.8	20.3	1.2	-5.9	-4.7
Non-residential building	8.5	-16.9	-19.9	14.1	20.7	8.5	2.4	-0.5
Engineering construction	6.0	-26.5	-6.2	14.0	9.5	6.9	2.4	-0.6
Machinery and equipment	-3.6	-5.8	-7.7	27.7	20.0	11.5	4.5	1.2
IP and livestock	4.1	-0.4	-3.9	-3.2	21.7	14.9	10.7	7.4
Public investment								
General Government	-6.7	10.9	4.7	2.4	1.9	2.3	1.6	1.0
Public enterprises	7.4	-30.2	27.9	2.0	3.5	3.3	1.9	0.7
Real final demand	1.7	-1.7	-1.0	3.9	3.3	1.8	1.3	1.3
Private sector	1.6	-3.1	-3.7	4.7	4.9	2.8	1.6	1.5
Public sector	2.2	2.3	6.4	1.8	-0.9	-0.9	0.6	0.9
Gross State output	1.4	-1.4	0.3	4.4	3.0	1.8	1.5	1.5
Employment	1.1	-0.8	-1.3	1.4	1.5	1.5	0.9	0.4
Unemployment rate (%)	5.6	6.8	9.3	8.2	6.9	6.1	6.2	6.2

Note: All variables (except for jobs and unemployment) expressed in inflation adjusted terms.

Source: ABS, Deloitte Access Economics.

4.1.2 Utilities

The South Australian utilities industry has been affected by COVID-19. Measures to contain the spread of the virus have led to weaker labour market conditions and placed many households under financial pressure. Adding to this, South Australia's utilities industry is undergoing a relatively fast transition from a centralised system of large fossil fuel generators towards a system that includes increasing numbers of smaller scale and more widely distributed renewable energy generators.

Renewable energy generation has been a significant focus of the South Australian Government in recent years. This had led to substantial funding for the development of renewable energy generation projects. According to AEMO, there are 10,700 megawatts (MW) of new generation projects currently proposed or committed in South Australia – almost three quarters of which relate to large-scale solar, wind or water projects.

The state continues to push ahead with its target of reaching 100% renewable energy generation by 2030. In 2019, South Australia passed the 50% mark. In addition, South Australia is developing its own hydrogen strategy to make use of the \$370 million available for hydrogen projects backed by the Council of Australian Governments (COAG) Energy Council.

South Australia recorded an increase in operational demand in the second quarter of 2020. This was largely due to the state's relatively low proportion of commercial load, high proportion of electric heating (versus gas), and colder than average temperatures. Despite this, the state recorded its lowest quarterly average wholesale electricity prices in five years. This was partly due to lower gas prices and the continued increase in generation from rooftop PV and new, large-scale, renewable projects.

Demand for grid-supplied electricity is expected to remain modest over the medium term. Growth in new connections will continue to be outweighed by the increased uptake of energy efficient appliances and rooftop PV.

A severe storm on 31 January damaged transmission towers in Victoria, leading to loss of the Heywood interconnector between South Australia and Victoria for 18 days. South Australia currently has two interconnectors (to Victoria), the Heywood interconnector and Murraylink. The loss of the Heywood interconnector impacted the ability of the state to export or import electricity and required it to provide its own frequency control ancillary services, which Murraylink cannot provide. The South Australian Government has granted major project status to a new \$1.5 billion interconnector between South Australia and New South Wales.

AEMO's 2020 Gas Statement of Opportunities forecasts that maximum daily demand will increase in the medium to long term in all states except South Australia. This is due to expectations of weak population growth, low commercial demand and low industrial demand.

4.2 Outlook for wages

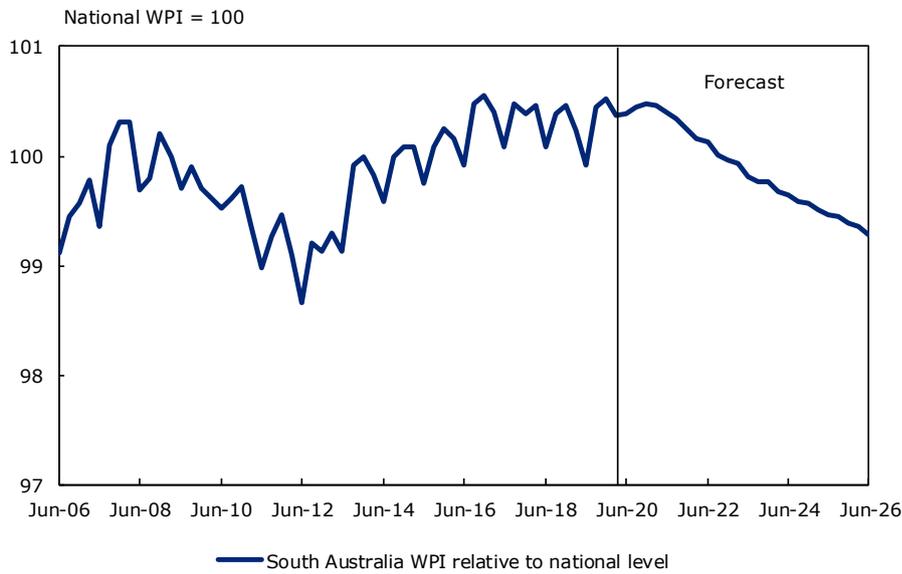
4.2.1 All industries

Wage growth in South Australian was 2.3% in the year ending March 2020. Wage growth in South Australia is slightly above the national rate and reflects the state's effectiveness in controlling the spread of COVID-19 and subsequent easing of earlier restrictions.

Private sector wages are growing at a faster rate than public sector wages in South Australia. Private sector wage gains have lifted from a low of 2.0% in late 2018 to 2.5% in the year ending March 2020, while public sector wages have fallen from a high of 2.4% to 1.7% over the same period. This has occurred despite strong growth in public sector employment relative to private sector employment in the year to May 2020. In part, this may be due to the South Australian Government's ongoing efforts to reduce expenditure on public sector salaries and wages. The 2018-19 state budget forecast a 5.1% decline in real employee expenses from 2018-19 to 2022-23, despite an increase in employment of teachers and nurses.

The South Australian WPI is expected to continue to moderate relative to the national WPI over the forecast period (see Chart 4.2). South Australia has been relatively successful in containing the spread of COVID-19, but this means that the state’s economy has less scope to rebound strongly following COVID-19. States that are most exposed to international travel and strict lockdowns, such as Victoria and New South Wales, will grow at faster rates than South Australia from 2021-22. As a result, relative wage gains will fall in South Australia.

Chart 4.2 South Australia WPI relative to national WPI

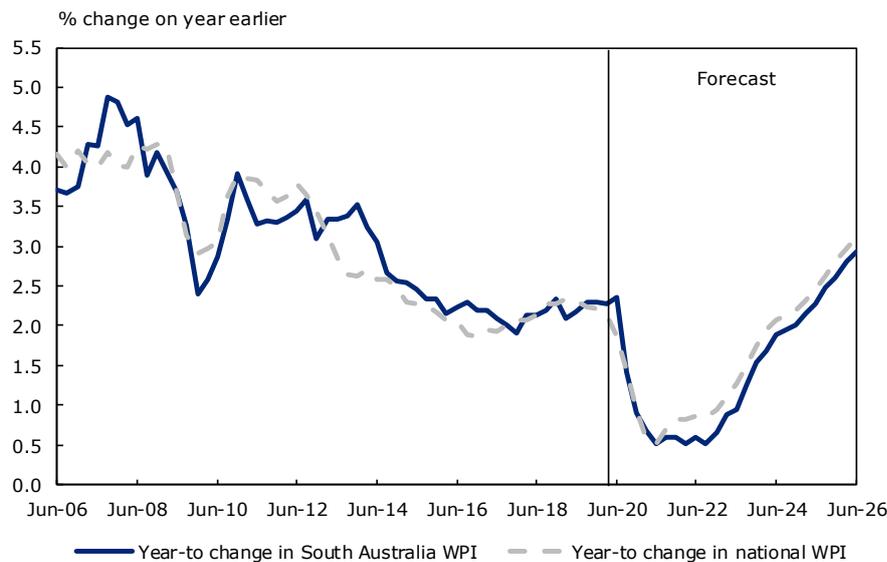


Source: ABS, Deloitte Access Economics.

Wages gains in South Australia are forecast to fall from 2.3% in 2019-20 to 0.9% in 2020-21 amid the impact of COVID-19 on the state’s economy. Wage growth is forecast to accelerate from 2022-23, supported by the improvement in labour market conditions and government stimulus efforts (including naval shipbuilding and infrastructure investment).

South Australia also has an older workforce compared to the national average. As retirements increase over coming years, workers will be handed back greater power in wage negotiations with employers. This is expected to occur gradually over the medium to long-term.

Chart 4.3 South Australia general WPI growth

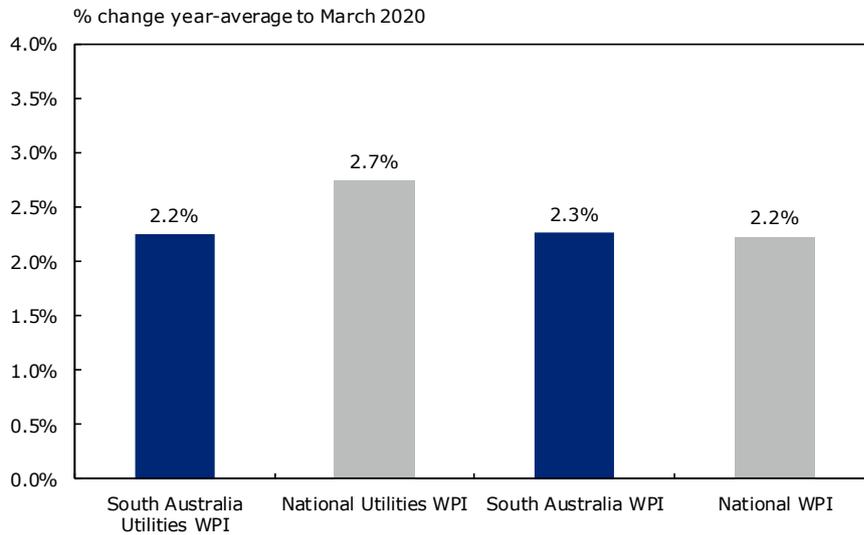


Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

4.2.2 Utilities industry wages

The South Australian utilities WPI grew by 2.2% in the year ending March 2020. This is below the 2.7% growth seen in the national utilities WPI and reflects weaker conditions in the wider South Australian economy. South Australian wages across all industries grew by 2.3% over the same period.

Chart 4.4 Comparative WPI annual growth rates in the year to March 2020

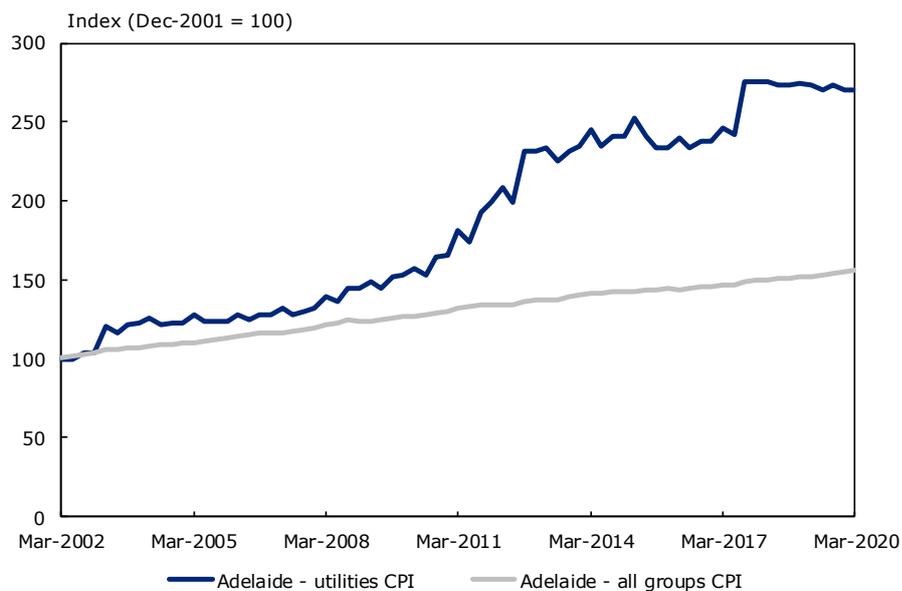


*Historical data estimated using Deloitte Access Economics' wage price model. Unavailable from the ABS.

Source: ABS, Deloitte Access Economics.

South Australian utilities prices have moderated since March 2017 (see Chart 4.5). Further falls are expected in coming years, with the AEMC forecasting that annual residential electricity bills will decrease in 1.5% between 2018-19 to 2021-22. This decrease is driven by large decreases in wholesale and environmental costs, which will more than offset a rise in transmission costs.

Chart 4.5 Adelaide utilities prices

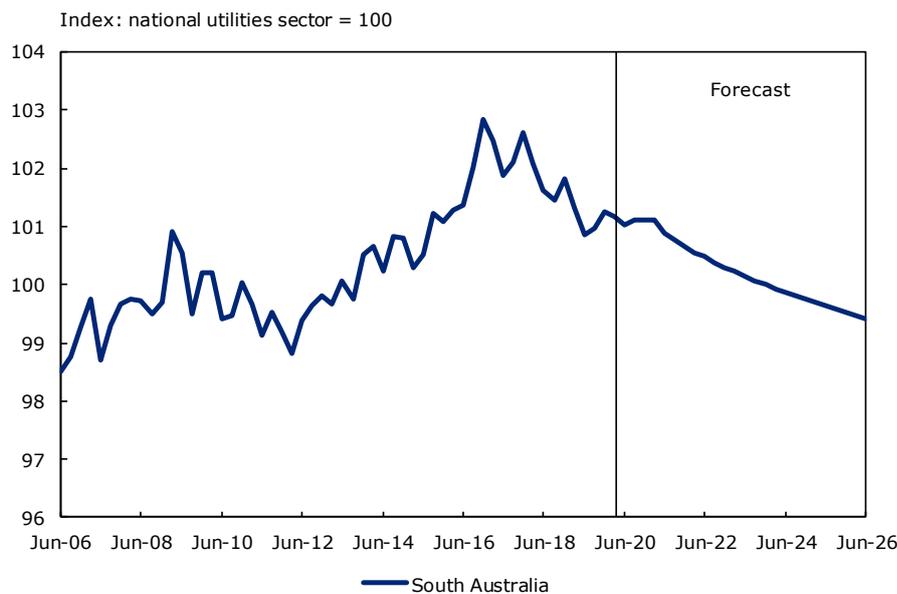


Source: ABS.

Utilities wage growth in the state has been lower than the national utilities industry for the past five years. Conditions in the South Australian utilities industry have been affected by the closure of automotive manufacturing and more challenging conditions for other manufacturers (which reduced industrial demand for electricity), as well as the relatively rapid uptake of rooftop PV (which reduced demand for grid-supplied electricity).

The slow growth in the South Australian economy relative to the Australian economy has also contributed to weaker wage outcomes in the state’s utilities industry. A key driver of comparatively slow economic growth in South Australia has been low rates of population growth, which weighs on residential electricity demand. This has been a long-running trend placing downward pressure on South Australian utilities output and wages.

Chart 4.6 Relative utilities WPI forecast for South Australia

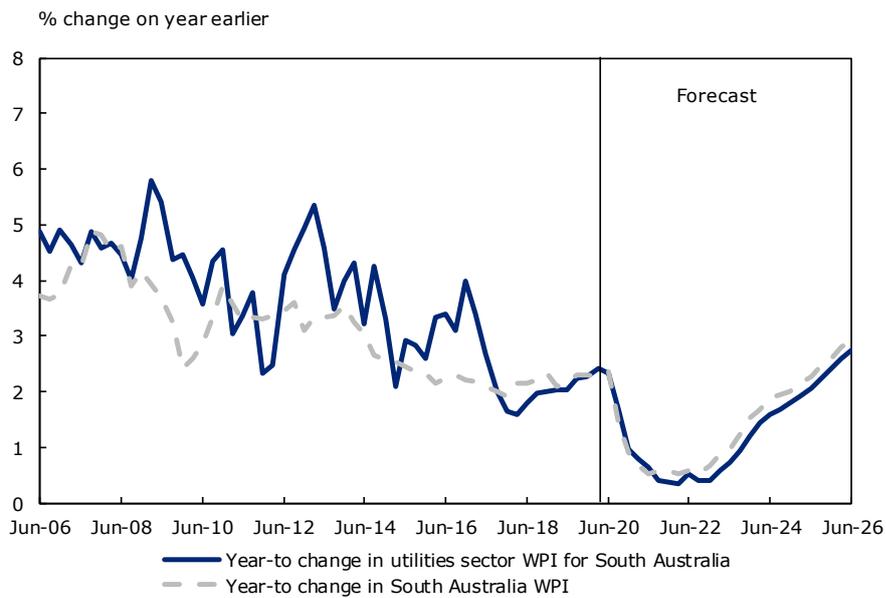


Source: ABS, Deloitte Access Economics.

Growth in the renewable energy industry will continue to drive South Australia’s utilities activity. Renewable energy projects require employees with different skills compared with the skills required in traditional utilities industries. The demand for workers with specific skills is expected to place upward pressure on wages in the utilities industry. However, this may be partly offset by lower operational employment requirements at some renewable energy generators compared to non-renewable generators.

The South Australian utilities WPI is forecast to moderate from 2.3% growth in 2019-20 to 1.0% in 2020-21 amid the impact of COVID-19. South Australian utilities wage growth is forecast to accelerate from a trough in 2021-22, reaching 2.5% by 2025-26. Utilities wage growth is forecast to grow at a slower pace than wages in the wider South Australian economy from 2021-22, reflecting the outlook for slower growth in utilities output relative to output from all industries.

Chart 4.7 South Australian utilities WPI forecast comparison



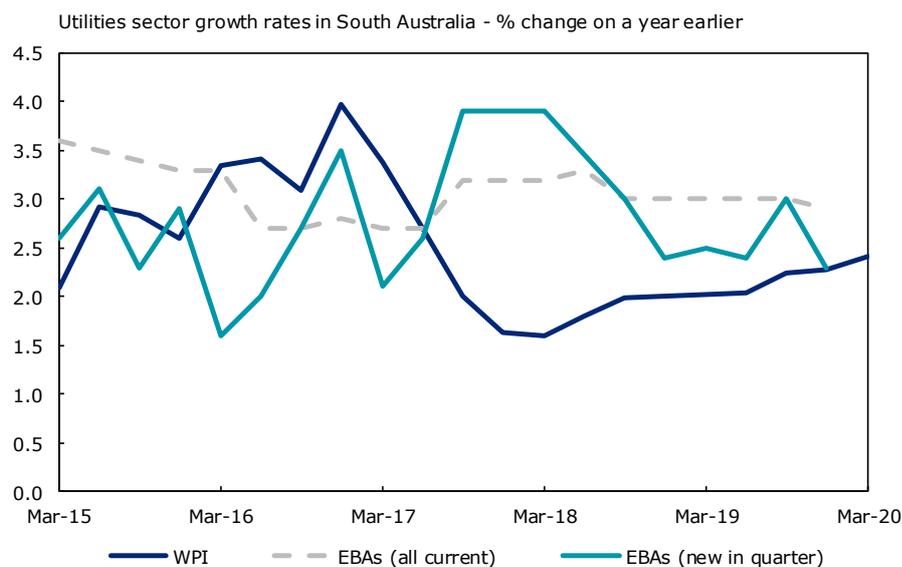
Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

4.2.2.2 Comparison with EBA outcomes

In December 2019, there were four new EBAs negotiated in the utilities industry in South Australia, with an average annual wage increase of 2.9% and covering 700 people. Chart 4.8 shows that:

- The AAWI for current EBAs in the utilities industry has fallen from a peak of 3.3% in June 2018 to 2.9% in December 2019.
- South Australian utilities WPI growth has been below the AAWI for both new and current EBAs since mid-2017.

Chart 4.8 Comparative measures of wage growth in the South Australian utilities industry



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Attorney-General's Department.

4.2.3 Labour productivity

Labour productivity for South Australia's utilities industry declined by 0.5% in 2018-19 and is forecast to decline by a further 0.5% in 2019-20. This is partly due to continued weak growth in utilities output relative to employment, but is also partly due to the impact of COVID-19.

Looking ahead, labour productivity is set to return to positive growth from 2020-21 as the impact of COVID-19 fades and economic activity begins to recover. The improvement in labour productivity will be relatively modest in the utilities industry compared to the wider state economy, reflecting the larger gains in output forecast in other industries. Labour productivity in South Australia's utilities industry is projected to grow in-line with Australian utilities industry productivity over the long-term.

Table 4.2 South Australia and national labour productivity forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
South Australia - All industries	0.3	-0.6	1.6	2.9	1.5	0.4	0.6	1.1
South Australia - Utilities	-0.5	-0.5	1.0	2.8	1.3	0.3	0.5	1.0
National - All industries	-0.4	-0.3	1.0	2.8	1.3	0.3	0.5	1.0
National - Utilities	-0.5	-0.4	1.0	2.8	1.3	0.3	0.5	1.0

Note: Productivity forecasts at the state level should be interpreted with care. Quarterly State Final Demand data is used to estimate quarterly GSP, which may not fully capture the impact of interstate trade. This can lead to some volatile movements in the first forecast year for state productivity.

Source: ABS, Deloitte Access Economics.

4.2.4 Summary results

Table 4.3 South Australia and national wage forecasts

Financial year changes in South Australia and national nominal Wage Price aggregates

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
South Australia - All industries	2.2	2.3	0.9	0.6	0.8	1.6	2.1	2.7
South Australia - Utilities*	2.0	2.3	1.0	0.4	0.5	1.3	1.9	2.5
National - All industries	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
National - Utilities	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7

Financial year changes in South Australia and national real Wage Price aggregates

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
South Australia - All industries	0.6	0.7	0.2	-0.8	-0.9	-0.5	-0.1	0.5
South Australia - Utilities*	0.5	0.7	0.4	-0.9	-1.1	-0.8	-0.3	0.3
National - All industries	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
National - Utilities	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5

*Historical data estimated using Deloitte Access Economics' wage price model. Unavailable from the ABS.

Source: ABS, Deloitte Access Economics.

5 Northern Territory

5.1 Economic outlook

Growth in the Northern Territory economy was weak prior to the outbreak of COVID-19. State final demand contracted by 7% in the year ending March 2020, following a 15% contraction a year earlier. This was primarily due to the end of construction at the \$45 billion Ichthys LNG development. Engineering construction fell sharply, weighing heavily on employment and broader economic activity in the Northern Territory.

COVID-19 restrictions have limited economic activity and resulted in the loss of jobs and income. But the Northern Territory has limited the virus spread with relatively few cases recorded. As a result, the territory experienced the smallest contraction in employment over April and May of any state or territory. The high proportion of government jobs in the territory has also assisted in minimising job losses.

LNG exports have emerged as a key driver of economic activity for the Northern Territory. While the completion of the Ichthys project had a major drag on domestic activity, it came with a substantial boost to export growth as the project moved from construction to production. Northern Territory goods exports are forecast to grow by almost two fifths in 2020.

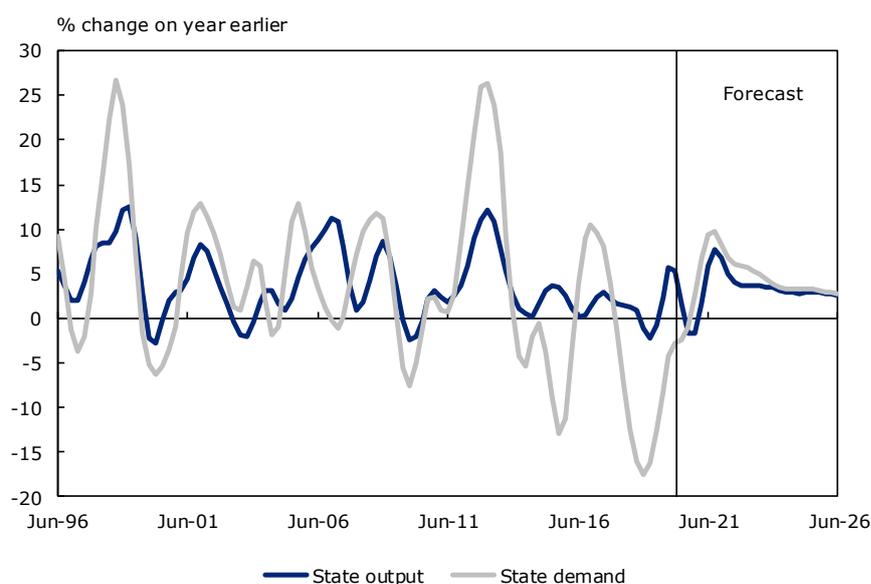
The impact of COVID-19 on global industrial activity and the recent sharp falls in LNG prices may weigh on future growth in the value of LNG exports. Global industrial production has fallen in 2020, which also weighs on demand for energy inputs such as LNG. Adding to this, the majority of Australia's LNG is sold on long-term contracts that are linked to the price of oil. The early 2020 collapse in the oil price has seen gas contract prices fall. A number of LNG projects remain in planning in the Northern Territory and the weaker outlook for prices, as well as additions to global supply, are likely to weigh on the prospects of new investment in Australian LNG capacity.

The spread of COVID-19 in Australia has acutely affected the tourism industry as well as associated industries such as retail and hospitality. While international tourism has fallen sharply, there remains a potential upside from increased domestic tourism. Australians who would otherwise have spent their holidays overseas may instead choose to travel to the Northern Territory, particularly as it remains a relatively safe destination with respect to COVID-19 case numbers.

Weak population growth has been a drag on economic activity over recent years. There has been very little international migration to the Northern Territory as well as net outflows of the local population to other states. However, what has been a drag on growth in the past could now mean the Northern Territory is less affected than other jurisdictions amid interstate and international border closures.

Deloitte Access Economics forecasts the Northern Territory economy will grow by 4.6% in 2019-20 amid the impact of rising LNG exports before growth moderates to 0.8% in 2020-21 as a result of the consequences of COVID-19. This is above the 0.4% forecast for the national economy. Northern Territory output is projected to accelerate to 5.7% in 2021-22, before moderating over the remainder of the forecast period to 2025-26.

Chart 5.1 Output and demand (change on year earlier), Northern Territory



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

Table 5.1 : Northern Territory economic forecasts

	History		Forecast						
	Annual % change (unless noted)	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Consumption									
Private sector		-2.5	-2.6	0.0	2.8	1.8	2.3	3.0	3.2
Public sector		-0.3	3.8	7.0	4.9	0.7	0.2	2.0	2.3
Private sector investment									
Dwelling investment		-3.1	-14.1	-13.5	20.0	16.7	0.6	-6.4	-6.1
Non-residential building		-72.4	-43.8	45.3	42.6	30.1	15.6	7.8	4.0
Engineering construction		-78.0	-43.7	69.6	41.2	24.9	15.5	8.0	4.1
Machinery and equipment		-0.9	5.7	-4.8	23.4	17.5	10.0	7.1	5.2
IP and livestock		6.3	-0.6	-14.5	13.4	30.6	17.5	12.8	9.9
Public investment									
General Government		7.0	-7.9	21.8	8.3	4.9	4.2	2.0	0.8
Public enterprises		-2.4	-19.2	-6.1	11.6	9.4	6.4	4.5	2.3
Real final demand		-16.5	-4.0	4.5	7.6	5.5	3.7	3.4	2.9
Private sector		-25.0	-7.5	1.6	9.1	8.4	5.7	4.2	3.5
Public sector		0.6	1.3	8.6	5.6	1.6	1.0	2.1	2.0
Gross State output		-1.5	4.6	0.8	5.7	3.7	3.3	2.9	2.7
Employment		-3.7	-0.5	1.0	0.2	0.5	2.6	2.1	1.6
Unemployment rate (%)		4.7	5.7	8.0	7.3	6.3	5.5	5.4	5.4

Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

5.1.2 Utilities

The Northern Territory electricity system has three separate networks — the Darwin–Katherine, Alice Springs and Tennant Creek systems — that are all owned by the Northern Territory Government. The networks are classified as a single distribution network for regulatory purposes, but do not connect to each other or the NEM. Therefore, the electricity market can have different dynamics than the other jurisdictions in the NEM.

While the overall effects from COVID-19 are still highly uncertain, the immediate effect is likely to be a reduction in consumption and demand. Like other jurisdictions there is expected to be a shift in demand away from commercial demand and towards residential demand. The magnitude of this shift is likely to depend on the spread of COVID-19. Currently the spread of the virus is relatively contained in the Northern Territory, raising the prospect of the resumption of work-from-work arrangements and previously suspended commercial activity.

The electricity generation, distribution and retail markets are undergoing a significant transformation in the Northern Territory. This is largely due to growth in distributed solar PV systems in both residential and commercial premises. The territory has a target to achieve 50% renewable energy by 2030, although AEMO recently found that it would be extremely challenging to source 50% of electricity consumption from renewable energy sources relying on solar PV and battery storage alone.⁷ Compared to other jurisdictions that benefit from a range of renewable energy sources (such as hydro and wind), the Northern Territory has a limited window during the day to capture and store solar energy and cannot rely on interconnectors to other jurisdictions.

AEMO noted that to achieve the 50% target the Northern Territory's electricity system will likely require a mix of other technologies. This potentially includes synchronous condensers, solar forecasting, or new fast-start thermal generation.

In April 2020 the Northern Territory Government announced a \$30 million investment in a large-scale battery for the Darwin-Katherine system. The battery is expected to become operational in the second half of 2022.⁸ The battery system is designed to increase the security and reliability of the power supply by managing the fluctuations from the increased uptake of solar energy by households and businesses.

The gas industry in the Northern Territory is largely export-oriented. Production is concentrated in offshore LNG plants and is historically separate from the eastern gas market. However, the commissioning of the Northern Gas Pipeline in January 2019 linked the Northern Territory gas fields (the Bonaparte Basin and the Amadeus Basin) with Queensland. This new gas supply from the Northern Territory has improved Australian domestic supply and put downward pressure on domestic spot prices.

5.2 Outlook for wages

5.2.1 All industries

The Northern Territory WPI grew by 2.3% in the year ending March 2020. The outbreak of COVID-19 had a negligible impact on wages in the first quarter as social distancing and other restrictions only came into effect in late March.

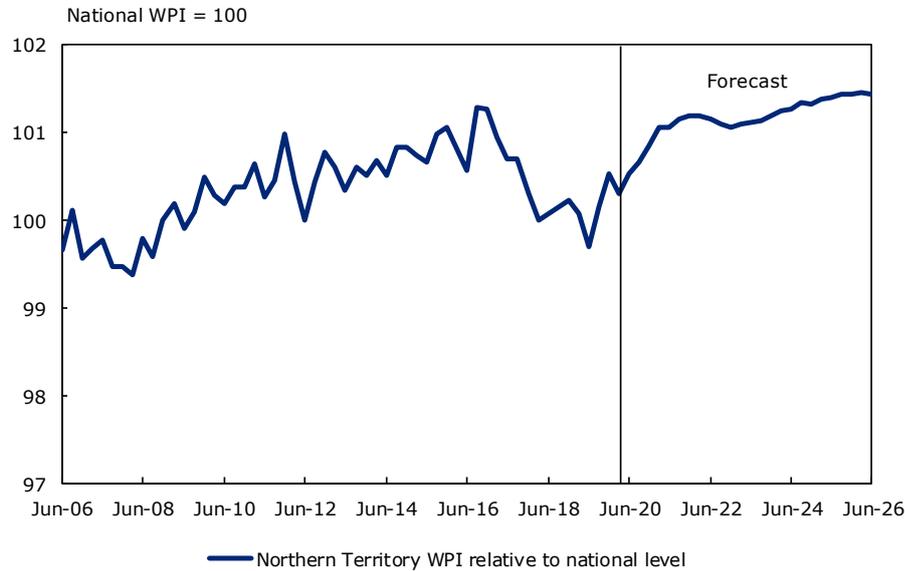
The Northern Territory saw an increase in relative wages from around 2008 through to 2017. This largely corresponded to a period of relative strength as construction on large resource projects boosted economic activity and wages (Chart 5.2). More recently, the end of construction at the Ichthys project has led to a fall in relative wages amid weaker economic growth in the territory.

⁷ Utilities Commission of the Northern Territory 2020, *Northern Territory Electricity Outlook Report 2018-19* <https://utilicom.nt.gov.au/__data/assets/pdf_file/0010/895357/2018-19-NT-Electricity-Outlook-Report.pdf>.

⁸ Northern Territory Government 2020, *More batteries, more renewables, more jobs* <<https://business.nt.gov.au/news/2020/more-batteries,-more-renewables,-more-local-jobs>>.

Looking ahead, wages are forecast to rise relative to the national level as the Northern Territory is expected to see a smaller negative impact from COVID-19 compared to other Australian jurisdictions. In part this is due to the effectiveness of measures to contain the spread of COVID-19 in the Northern Territory, as well as the reliance of other states and territories on hard-hit parts of the economy such as international education.

Chart 5.2 Northern Territory WPI relative to national WPI



Source: ABS, Deloitte Access Economics.

The pace of wage growth in the Northern Territory has historically tracked closely to the pace of wage growth in the national economy. This is expected to continue, with Northern Territory wage growth forecast to fall in 2020-21. Wages will fall slightly less in the Northern Territory compared to the national average as the outbreak of COVID-19 remains relatively contained in the territory. As the territory rebounds from the economic impact of COVID-19, wages will largely recover in line with the recovery in national wages. It is expected to take until the end the forecast period in 2025-26 for wage gains to return to pre-COVID-19 levels.

Chart 5.3 Northern Territory general WPI growth



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

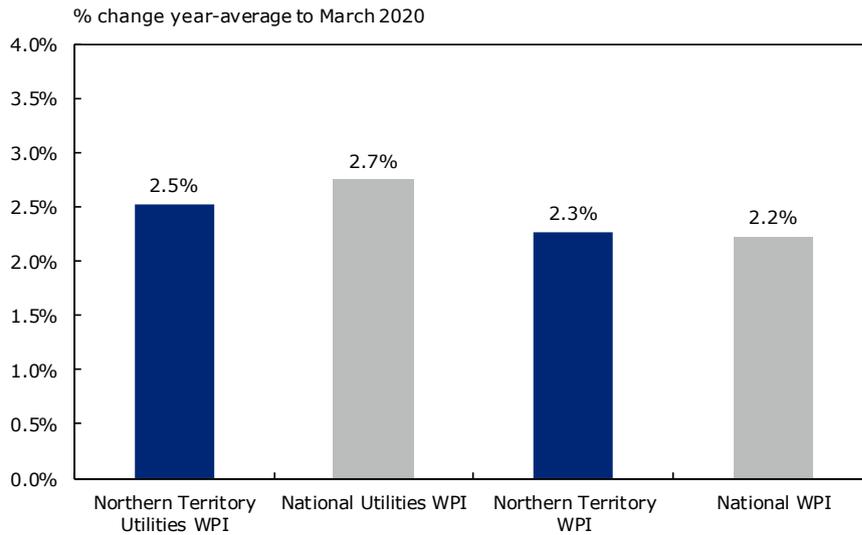
Source: ABS, Deloitte Access Economics.

5.2.2 Utilities industry wages

The Northern Territory comprises a relatively small share of national utilities output. Northern Territory and national utilities industry wages often follow similar trends. However, at the state level there may be greater volatility in utilities output, particularly over the short term.

Wages in the Northern Territory utilities industry grew by 2.5% in the year to March 2020 (see Chart 5.4). This is below the national average for the utilities industry of 2.7% but remains above the Northern Territory all industry average of 2.3%.

Chart 5.4 Comparative WPI annual growth in year to March 2020

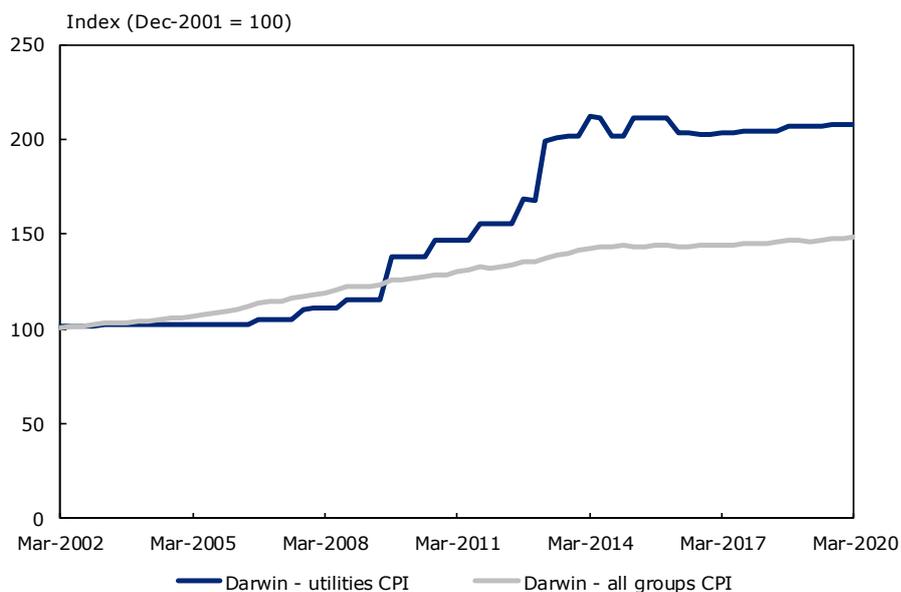


Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

Utilities prices in Darwin increased substantially between 2008 and 2014, but have remained relatively flat since then (see Chart 5.5). Over the year to March 2020, the utilities CPI increased by 0.7% in line with a 0.7% increase across all groups. Utilities CPI remains above the CPI for all groups following a 57% increase over the past decade, compared to 18% growth in the broader Darwin CPI.

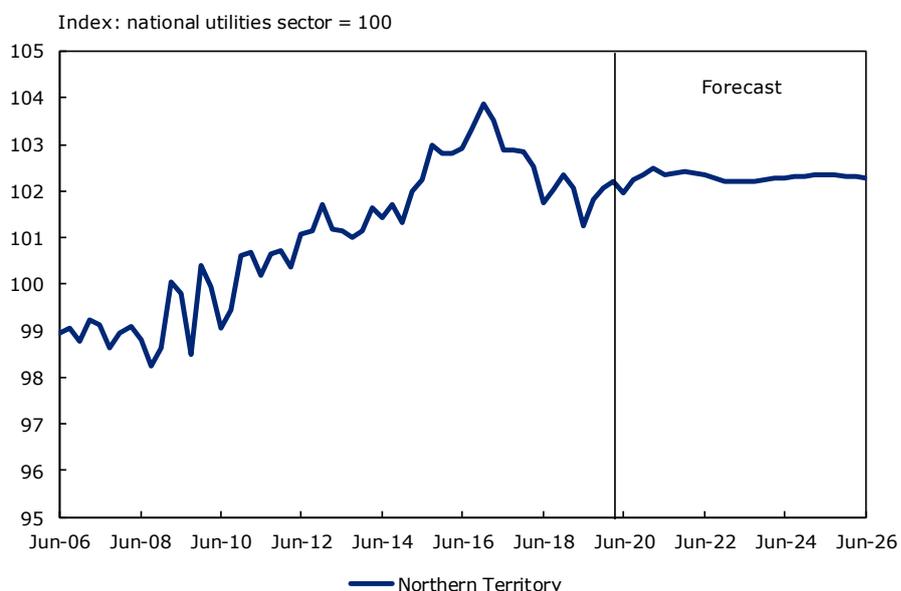
Chart 5.5 Darwin utility prices



Source: ABS

Northern Territory utilities industry WPI increased relative to the national utilities industry WPI between 2009 and 2017, coinciding with relatively stronger economic conditions in the territory. (see Chart 5.6). Since 2017, weaker economic activity in the Northern Territory has placed downward pressure on relative wages. Output from the utilities industry in the Northern Territory has also overperformed relative to the national level until 2017-18, contributing to increasing relative wages in the industry.

Chart 5.6 Northern Territory utilities WPI relative to national utilities WPI

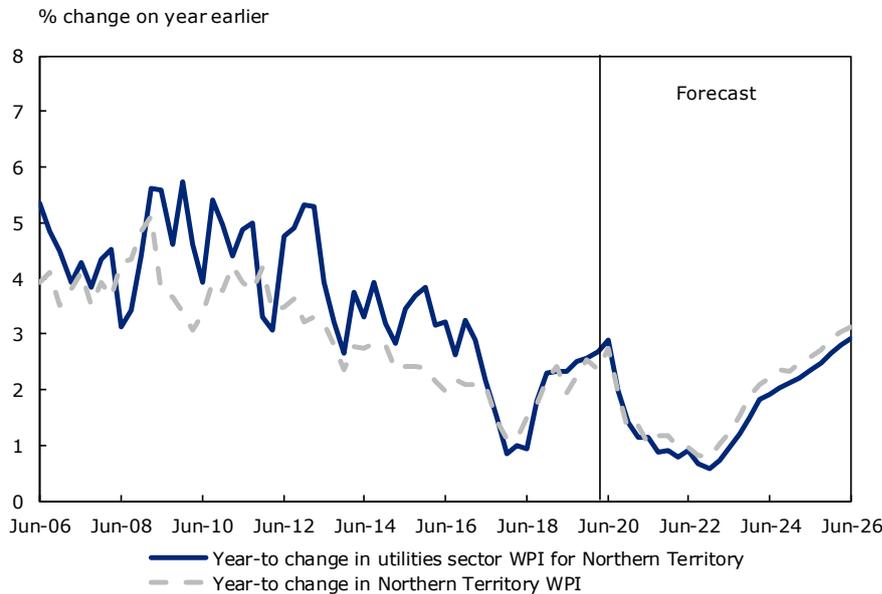


Source: ABS, Deloitte Access Economics.

Looking ahead, wages in the Northern Territory utilities industry are expected to maintain a similar growth rate to the territory all-industries average across the forecast period to 2025-26. This matches the historical trend where utilities industry and overall wages tend to show a high degree of correlation.

Northern Territory utilities wages are forecast to grow by 2.7% in 2019-20 before falling to 1.4% in 2020-21 alongside the slowdown in national utilities wage growth. Wage gains are expected to reach a low of 0.7% in 2022-23 before accelerating as the utilities industry rebounds from the effects of COVID-19.

Chart 5.7 Northern Territory utilities general WPI growth



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

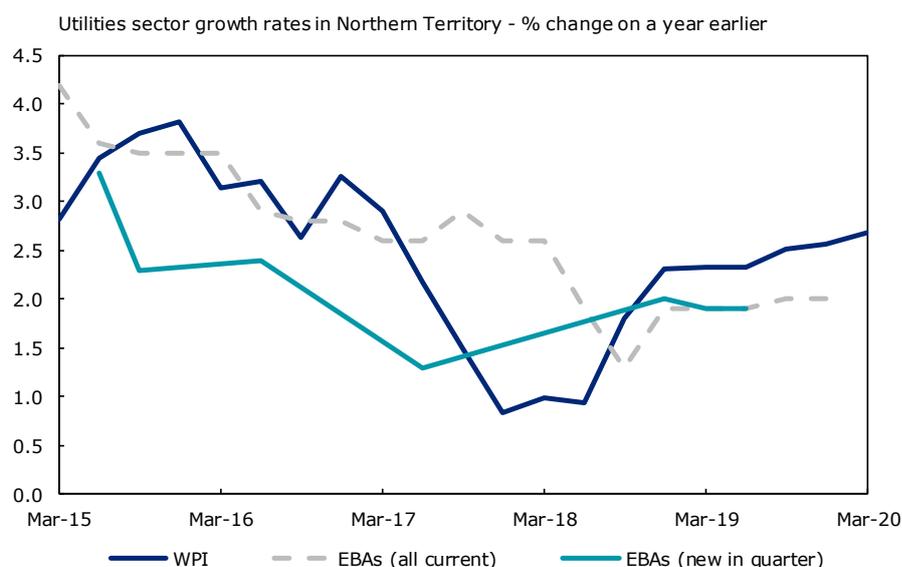
Source: ABS, Deloitte Access Economics.

5.2.2.2 Comparison with EBA outcomes

There were three current EBAs in the utilities industry in the December quarter of 2019, covering less than 100 employees, with an AAWI of 2.0%. Chart 5.8 shows the utilities industry WPI and the outcomes in state EBAs for the industry. The chart shows:

- The AAWI for current EBAs has declined from 4.2% in March 2015 to 2.0% in December 2019. There were no new EBAs lodged in the December quarter of 2019.
- The AAWI for new utilities industry EBAs in the Northern Territory has historically been below the AAWI for current EBAs. While in recent quarters they have converged, the small number of new agreements and employees covered makes it difficult to discern trends.

Chart 5.8 Comparative measures of wage growth in the Northern Territory utilities industry



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Attorney-General’s Department

5.2.3 Labour productivity

Labour productivity is forecast to increase by 5.1% in the Northern Territory in 2019-20, driven by the ramp-up of LNG exports (which requires relatively few labour inputs). Labour productivity is expected to decline in 2020-21 as COVID-19 weighs on output, before recovering in 2021-22. Labour productivity will then gradually return to longer term growth over the rest of the forecast period.

Labour productivity for the Northern Territory utilities industry is forecast to fall in 2019-20 as weakness in the territory economy weighs on utilities output growth. 2020-21 is expected to see a return to growth as subdued employment growth offsets weakness in the broader economy. 2021-22 is forecast to see a large increase as output recovers from COVID-19 before eventually returning to longer run trends.

Table 5.2 : Northern Territory and national labour productivity forecasts

Annual % change	History		Forecast						
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	
Northern Territory - All industries	2.4	5.1	-0.2	5.5	3.1	0.7	0.7	1.1	
Northern Territory - Utilities	-0.5	-0.2	0.9	2.9	1.4	0.3	0.5	1.0	
National - All industries	-0.4	-0.3	1.0	2.8	1.3	0.3	0.5	1.0	
National - Utilities	-0.5	-0.4	1.0	2.8	1.3	0.3	0.5	1.0	

Source: ABS, Deloitte Access Economics.

Note: Productivity forecasts at the state level should be interpreted with care. Quarterly State Final Demand data is used to estimate quarterly GSP, which may not fully capture the impact of interstate trade. This can lead to some volatile movements in the first forecast year for state productivity.

5.2.4 Summary results

Table 5.3 : Northern Territory and national wage forecasts

Financial year changes in Northern Territory and national nominal Wage Price aggregates								
Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Northern Territory - All industries	2.1	2.5	1.4	1.1	1.0	1.9	2.4	2.9
Northern Territory - Utilities*	2.2	2.7	1.4	0.9	0.7	1.6	2.2	2.7
National - All industries	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9
National - Utilities	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7

Financial year changes in Northern Territory and national real Wage Price aggregates								
Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Northern Territory - All industries	1.1	2.1	1.2	0.0	-0.6	-0.2	0.2	0.7
Northern Territory - Utilities*	1.3	2.3	1.2	-0.2	-0.9	-0.5	0.0	0.4
National - All industries	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7
National - Utilities	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5

Source: ABS, Deloitte Access Economics.

Note: Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavailable from the ABS.

6 Australian Capital Territory

6.1 Economic outlook

6.1.1 Overview

Prior to the outbreak of COVID-19, the Australian Capital Territory's economy had relatively strong growth momentum. The territory's final demand grew by 2.8% in the year ending March 2020, above the 1.1% gain seen in the national economy. Economic growth was supported by robust gains in population, growth in services exports such as education and tourism, as well as a resilient housing industry. A number of these drivers have been affected by COVID-19, but the territory has recorded relatively few infections and remains supported by a high share of public service employment.

Cafes, restaurants, pubs and other retail outlets were completely shut down during the first stage of lockdowns in the Australian Capital Territory. This disproportionately impacted women and young people in terms of hours worked and employment. However, the territory has suffered relatively few job losses and wage cuts compared to other states.

Approximately 40% of Australia's federal public servants live and work in Canberra. Public sector employment is traditionally stable and tends to fall by less than private sector employment during a downturn. Employment in the Australian Capital Territory has fallen by only 6,000 persons from March 2020 to June 2020. The unemployment rate is 5.1%, below the 7.4% national rate. The strength of the territory's labour market will support activity across the economy. There may also be further gains to public sector employment in coming months as government's look to refine and administer large economic support payments, as well as devise stimulus measures.

COVID-19 is expected to weigh on population growth in the territory. The territory's population is estimated to have grown at an average annual rate of 1.7% in the five years to 2019-20, above the 1.5% gain seen at the national level. This is expected to slow in coming months amid restrictions on international arrivals and migrants from interstate.

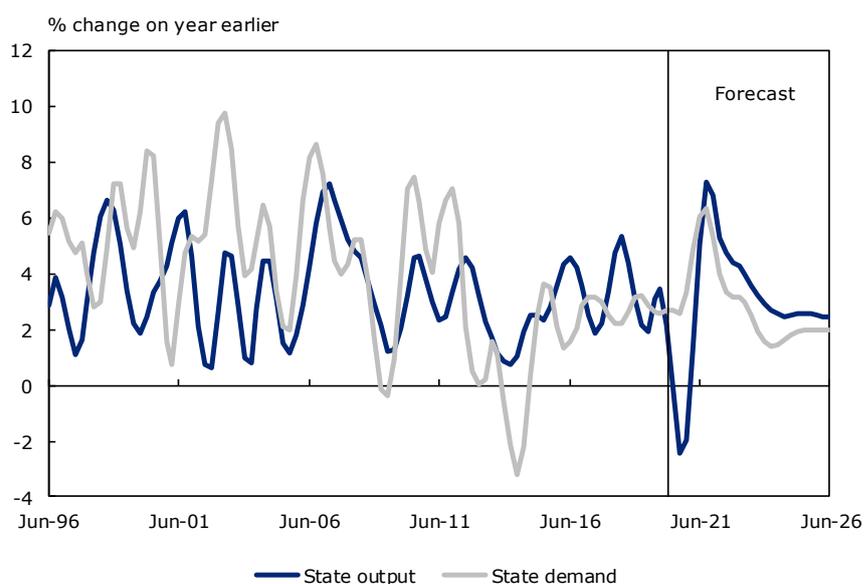
Services exports have grown in recent years and education is now the Australian Capital Territory's largest export. Despite the effectiveness of efforts to control COVID-19 in the territory, the July 2020 outbreak in Victoria has ended plans to bring small numbers of international students to Australia. This will weigh on employment, housing demand as well as consumption in the territory's economy.

Private consumption is expected to fall in the Australian Capital Territory in 2019-20 amid the impact of COVID-19. But falls will be modest compared to those seen in the wider Australian economy. This is largely driven by the strength of employment in the state as well as the presence of few COVID-19 cases that has allowed the easing of earlier restrictions.

Housing construction activity is expected to moderate from earlier highs in 2019-20 and 2020-21 as work wraps-up on a series of new suburbs developments. Engineering construction has also fallen following the end of construction of the \$675 million ACT light rail, but may be supported in coming years by work on the \$1.3 billion second stage. Commercial construction continues to be underpinned by a series of mixed-use developments, while work is expected to commence on the \$500 million Australian War Memorial redevelopment in 2020.

Overall, the Australian Capital Territory economy is forecast to grow by 1.9% in 2019-20 before slowing to 1.0% in 2020-21, above the 0.1% and 0.4% contractions expected for the Australian economy overall. Growth will be underpinned by public sector employment and the relative success in containing the spread of COVID-19, which has allowed an easing of restrictions in recent months. Growth in the territory's economy is forecast to accelerate to 5.7% in 2021-22 before slowing to 2.5% by 2025-26.

Chart 6.1 Output and demand (change on year earlier), Australian Capital Territory



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

Table 6.1 : Australian Capital Territory economic forecasts

Annual % change (unless noted)	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Consumption								
Private sector	2.3	-0.4	0.3	3.8	1.9	2.1	2.6	2.9
Public sector	4.8	4.5	9.0	3.8	0.0	-0.4	1.5	1.9
Private sector investment								
Dwelling investment	17.9	-1.2	-1.3	10.9	11.5	-2.4	-6.7	-4.5
Non-residential building	6.7	9.1	-26.7	12.7	34.3	12.6	3.7	0.6
Engineering construction	7.4	-2.3	-11.1	4.8	16.5	13.3	5.2	1.2
Machinery and equipment	4.0	-1.6	-15.0	25.7	25.2	14.7	7.0	3.1
IP and livestock	6.3	2.3	0.5	-7.2	15.5	15.5	11.2	7.9
Public investment								
General Government	-12.5	7.7	22.7	6.3	4.6	3.9	2.5	1.7
Public enterprises	-3.9	-4.8	-0.5	4.9	5.7	5.1	3.0	1.3
Real final demand	3.0	2.5	4.4	4.6	3.0	1.6	1.9	2.0
Private sector	3.7	0.1	-2.3	5.2	5.8	3.2	2.1	2.1
Public sector	2.4	4.8	10.6	4.1	0.6	0.2	1.7	1.9
Gross State output	3.0	1.9	1.0	5.7	4.1	2.9	2.5	2.5
Employment	-0.4	2.4	1.0	1.0	1.3	2.3	1.9	1.4
Unemployment rate (%)	3.6	3.3	5.7	5.3	4.7	4.1	4.2	4.2

Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.
Source: ABS, Deloitte Access Economics.

6.1.2 Utilities

The Australian Capital Territory’s utilities industry is influenced by both independent pricing tribunals and market forces. The supply of electricity and water and waste services are determined by the Independent Competition and Regulatory Commission (ICRC) for small customers in the territory. Natural gas prices are not regulated.

Output in the territory’s utilities industry has grown strongly in recent years. Output grew by 5.6% in 2018-19, following a 5.1% gain a year earlier. There are few large industrial users of electricity in the Australian Capital Territory, with much of the gain driven by household and commercial demand.

The Australian Capital Territory has sourced 100% of its electricity from renewable sources since late 2019. Renewable energy is generated by states in the NEM and supplied to the territory. Recently, the ACT government announced a renewable energy battery and storage facility to further strengthen reliability and stability of electricity supply in the territory.

6.2 Outlook for wages

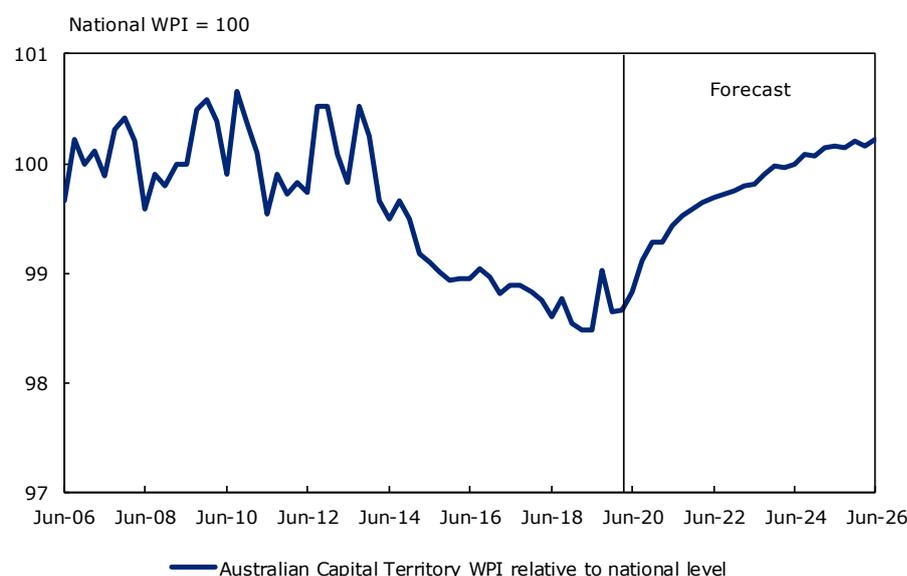
6.2.1 All industries

The Australian Capital Territory WPI grew by 2.3% in the year ending March 2020, slightly above the national figure of 2.2%. The pace of wage gains is expected to slow amid the impact of COVID-19.

The Australian Capital Territory’s labour market includes a relatively high proportion of public sector employees. And while there have been fewer job losses in the public sector compared to the private sector during COVID-19, many public servants have seen wage increases temporarily delayed for six months. This suggests that despite the relatively moderate falls in employment in the Australian Capital Territory, the pace of wage gains will slow in 2019-20 and 2020-21.

Wage gains in the Australian Capital Territory moderated relative to national wage gains from late 2013 to mid-2019. This was largely due to the tightening of labour markets in other jurisdictions as well as delays and weak outcomes for EBAs covering employees in the Australian Capital Territory. Relative wage gains have begun to improve in the territory and this is expected to continue in coming years, driven by the strength of the territory’s economy as well as expectations that public sector wage gains will recover sooner, and increase faster, than private sector wage gains in the near future.

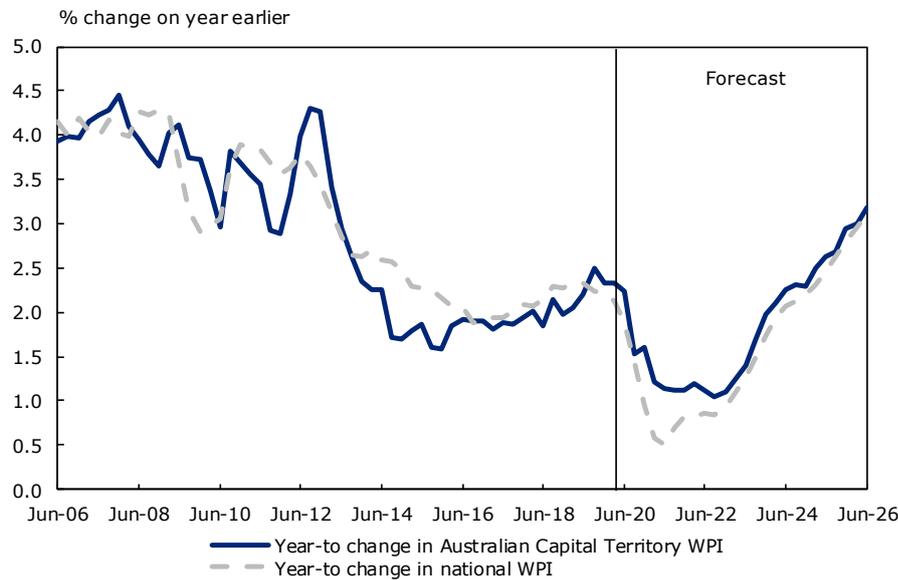
Chart 6.2 Australian Capital Territory WPI relative to national WPI



Source: ABS, Deloitte Access Economics.

The Australian Capital Territory WPI is forecast to grow by 2.3% in 2019-20 before slowing to 1.4% in 2020-21 and 1.1% in 2021-22 amid the impact of COVID-19. Wage gains are expected to accelerate thereafter, reaching 3.0% by 2025-26.

Chart 6.3 Australian Capital Territory general WPI growth



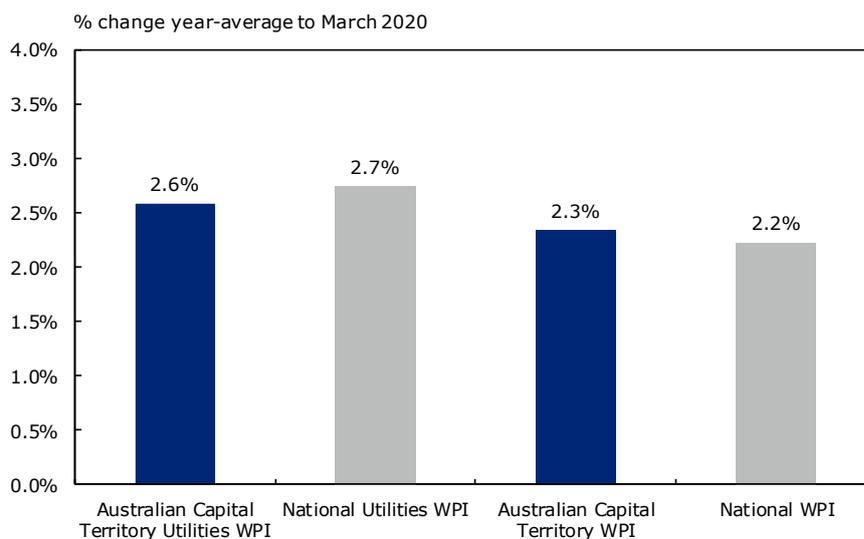
Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

6.2.2 Utilities industry wages

Deloitte Access Economics estimates that the Australian Capital Territory’s utilities industry WPI grew by 2.6% in the year ending March 2020, slightly below the national utilities WPI growth of 2.7%.

Chart 6.4 Comparative WPI annual growth in year to March 2020

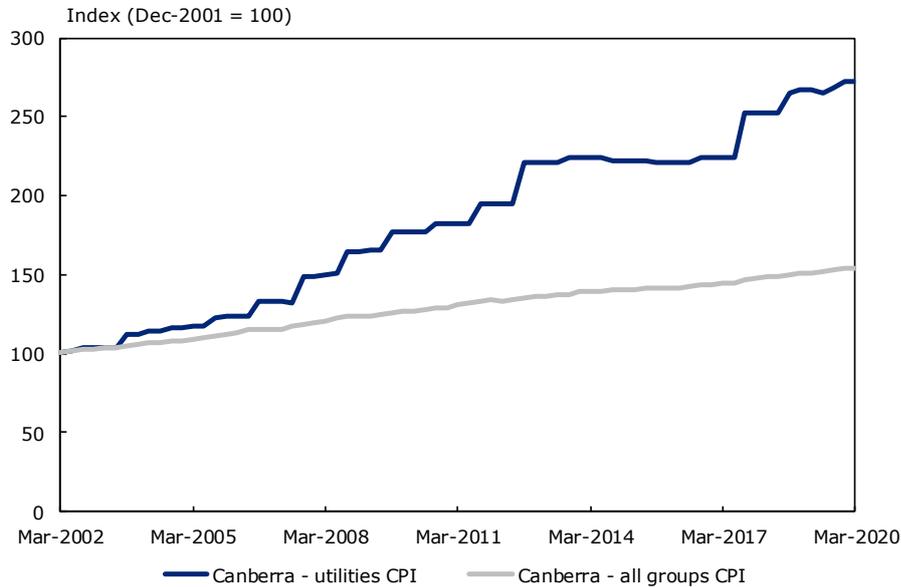


Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Deloitte Access Economics.

Utilities prices in the Australian Capital Territory moderated between 2012 and 2018, but have since increased – driven by rising electricity and gas prices (see Chart 6.5). The AEMC forecast that prices will fall by 7% from 2018-29 to 2021-22, as large falls in wholesale and environmental costs more than offset a rise in network costs.

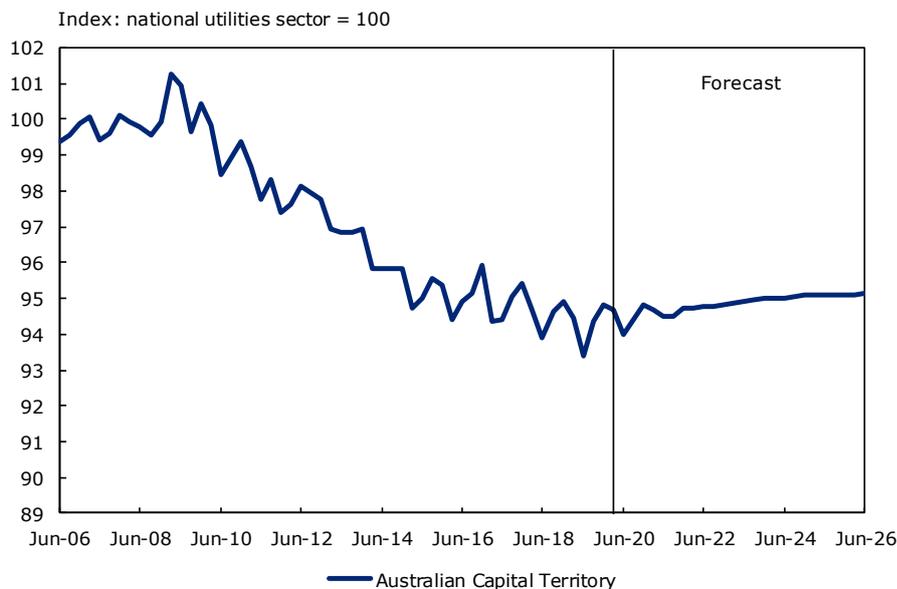
Chart 6.5 Canberra utility prices



Source: ABS

Utilities WPI in the territory is expected to grow relative to national utilities WPI over the coming years. This is driven primarily by higher utilities sector output amid easing COVID-19 restrictions, continued population gains and stronger commercial demand.

Chart 6.6 Australian Capital Territory utilities WPI relative to national utilities WPI

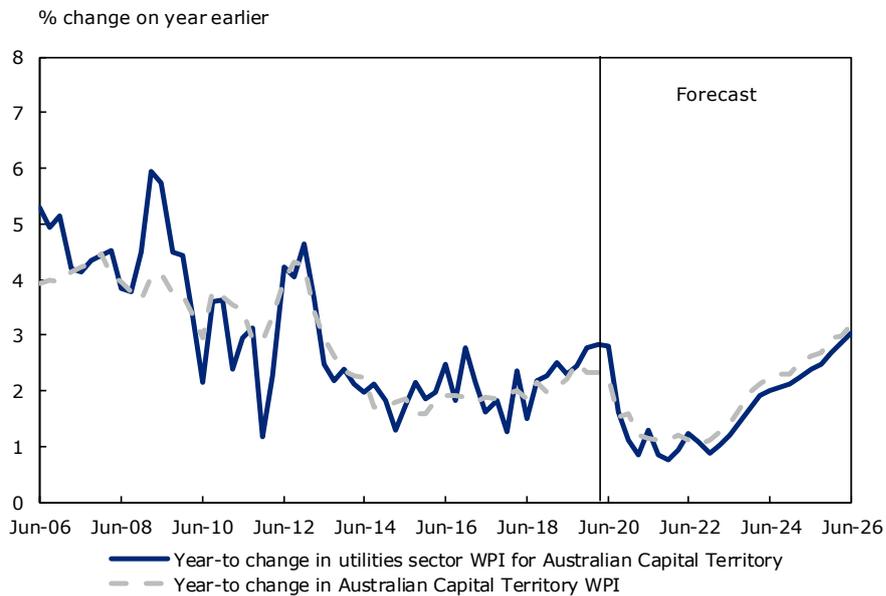


Source: ABS, Deloitte Access Economics.

Australian Capital Territory utilities wages are forecast to grow by 2.7% in 2019-20 before falling to 1.2% in 2020-21 alongside the slowdown in national utilities wage growth. Wage gains are

expected to reach a low of 0.9% in 2021-22 before accelerating as the utilities industry rebounds from the effects of COVID-19.

Chart 6.7 Australian Capital Territory utilities general WPI growth



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

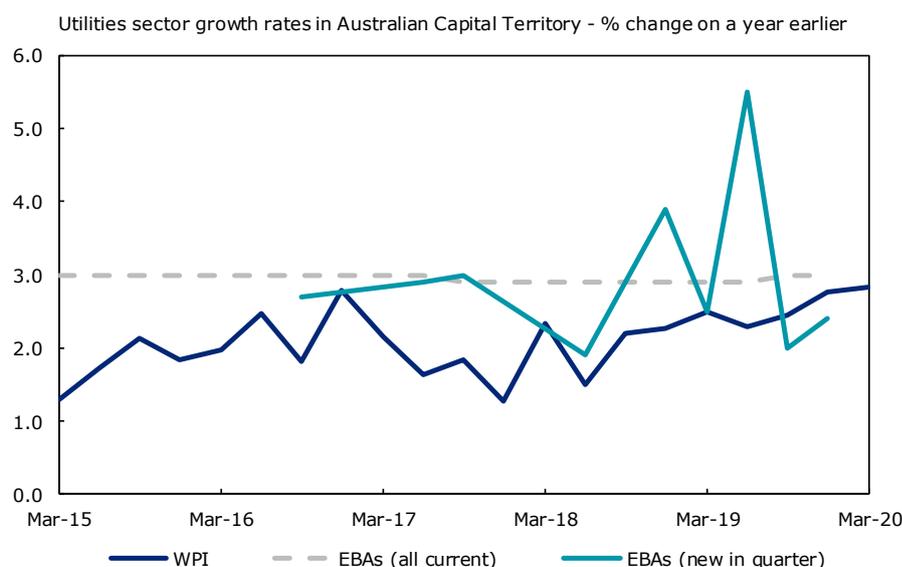
Source: ABS, Deloitte Access Economics.

6.2.2.2 Comparison with EBA outcomes

There were eight current EBAs in the utilities industry in the December quarter of 2019, covering 1,200 employees, with an AAWI of 3.0%. Chart 6.8 shows the utilities industry WPI and the outcomes in territory EBAs for the industry. The chart shows:

- The AAWI for current utilities industry EBAs has remained relatively flat at around 3.0% since late 2014.
- The AAWI for new utilities industry EBAs has fallen from a high of 5.5% in June 2019 to 2.4% in December 2019. There was only one EBA lodged in the December quarter of 2019, covering less than 100 employees.
- The AAWI for current utilities industry EBAs remains above the growth in utilities industry WPI.

Chart 6.8 Comparative measures of wage growth in the Australian Capital Territory utilities industry



Note: % change on year earlier refers to output growth between a quarter and the same quarter a year earlier.

Source: ABS, Attorney-General's Department

6.2.3 Labour productivity

Labour productivity grew by 3.5% in the Australian Capital Territory economy in 2018-19, but fell in the territory's utilities industry amid strong gains in employment that were not matched by increases in output.

Utilities industry labour productivity is forecast to decline by 0.4% in 2019-20, in-line with the decline in national utilities productivity. This is largely caused by reduced work hours and social distancing restrictions implemented during COVID-19 to reduce the spread of the virus. Labour productivity in the territory's utilities industry is expected to return to positive growth from 2020-21, increasing in-line with the national utilities industry.

Table 6.2 : Australian Capital Territory and national labour productivity forecasts

Annual % change	History		Forecast					
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Australian Capital Territory - All industries	3.5	-0.5	0.0	4.7	2.8	0.5	0.6	1.1
Australian Capital Territory - Utilities	-0.2	-0.4	0.8	3.0	1.5	0.3	0.5	1.0
National - All industries	-0.4	-0.3	1.0	2.8	1.3	0.3	0.5	1.0
National - Utilities	-0.5	-0.4	1.0	2.8	1.3	0.3	0.5	1.0

Source: ABS, Deloitte Access Economics.

Note: Productivity forecasts at the state level should be interpreted with care. Quarterly State Final Demand data is used to estimate quarterly GSP, which may not fully capture the impact of interstate trade. This can lead to some volatile movements in the first forecast year for state productivity.

6.2.4 Summary results

Table 6.3 : Australian Capital Territory and national wage forecasts

Financial year changes in Australian Capital Territory and national nominal Wage Price aggregates									
Annual % change	History		Forecast						
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	
Australian Capital Territory - All industries	2.1	2.3	1.4	1.1	1.2	2.0	2.4	3.0	
Australian Capital Territory - Utilities*	2.3	2.7	1.2	0.9	1.1	1.8	2.2	2.8	
National - All industries	2.3	2.1	0.9	0.8	1.0	1.8	2.3	2.9	
National - Utilities	2.8	2.6	1.1	0.8	0.9	1.6	2.1	2.7	

Financial year changes in Australian Capital Territory and national real Wage Price aggregates									
Annual % change	History		Forecast						
	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	
Australian Capital Territory - All industries	0.0	1.0	0.7	-0.2	-0.4	-0.1	0.2	0.7	
Australian Capital Territory - Utilities*	0.2	1.3	0.5	-0.4	-0.6	-0.3	0.0	0.6	
National - All industries	0.6	0.8	0.2	-0.5	-0.6	-0.3	0.1	0.7	
National - Utilities	1.1	1.2	0.4	-0.5	-0.8	-0.5	-0.1	0.5	

Source: ABS, Deloitte Access Economics.

Note: Historical data estimates using Deloitte Access Economics Wage Price Index forecasting model. Unavailable from the ABS.

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Appendix A – Technical notes on WPI data

The Australian Bureau of Statistics (ABS) publishes the Wage Price Index (WPI) nationally and for all state and territory jurisdictions. At the 1-digit industry level, WPI data are available for all industries nationally.

However, the WPI is not released for each industry by state. This is due to small sample sizes and reasons of confidentiality. This is particularly the case for smaller jurisdictions such as Tasmania, the Northern Territory and the Australian Capital Territory.

Table A.1 shows which data is available in time series for the WPI. These series are provided on the ANZSIC06 basis and have been provided from the September quarter 2008.

In some cases, where a specific WPI series is not available, a comparative series for Average Weekly Ordinary Time Earnings (AWOTE) can be obtained. However, all industry AWOTE estimates, by state, were discontinued at the end of 2011. Where AWOTE data is shown as being available, only estimates from May 2009 to November 2011 have been calculated by the ABS.⁹

Table A.1 ABS WPI data availability by industry

State	Utilities
New South Wales	Available*
Victoria	Available*
Queensland	Available*
South Australia	Not available*
Western Australia	Not available*
Tasmania	Not available
Northern Territory	Not available
Australian Capital Territory	Not available

*denotes AWOTE data available to November 2011.

Source: ABS

Where utilities industry WPI is not published, Deloitte Access Economics imputes the value based on a combination of:

- WPI for the national utilities industry, and for the relevant states, as well as relative movements in those industries with the states that do have an official estimated WPI
- Where previously published, AWOTE for the industry in question, and
- Data on EBAs.

There is no longer any officially released time series estimate for utilities industry WPI outside of New South Wales, Victoria and Queensland. Therefore, extreme care needs to be taken in analysing these series over time. For states other than New South Wales, Victoria and Queensland, the modelling used for this report implicitly assumes that overall state WPI growth, overall utilities

⁹ AWE/AWOTE measures are defined for the mid-month of quarter, so the initial AWE/AWOTE data here is from the May 2009 publication. The WPI data is referred to by the entire quarter.

industry wage movements, data for EBAs, as well as the data published for other states, can be used to create a reasonable estimate of the specific WPI series in history. However, there is no guarantee that the data used matches what the ABS data would show were it to be released. The ABS does estimate these values, but does not release them externally due to the small number of businesses that are included in the sample, and the possibility that individual results could be estimated from the data if it were to be released.

Overall AWOTE data itself is not consistent with the WPI data for Australia. As a result, where AWOTE data is used, rather than using raw AWOTE data to obtain a state by industry WPI, the model uses the deviations in the AWOTE growth from state AWOTE averages and applied a consistent ratio to the known state WPIs. For example, if the South Australia utilities industry AWOTE measure rose faster than the overall state AWOTE measure, then the estimated South Australia utilities industry WPI measure will rise faster than South Australia's overall WPI. Because the AWOTE data was far more volatile than WPI in later years, the deviations that this might imply are limited in the model. This is done by comparing the variations in published AWOTE and WPI measures within each state and adjusting the unknown deviations accordingly.

In addition to the AWOTE methodology (and in the most recent quarters, in place of it) we have also considered that trends from EBAs drive deviations in WPI growth rates.

In all cases where WPI data is not published, the estimated results are normalised to ensure that the totals for the states are consistent with the levels of the industry components.

Appendix B – Macroeconomic and wage forecasting methodology

This section presents a description of the methodology used to forecast the WPI.

The model used by Deloitte Access Economics to forecast the WPI by state and by industry has been created as a subsidiary component of the Deloitte Access Economics Macroeconomic (DAEM) model. Key aggregates, including overall wage movements, and projections for output and employment by state and for Australia, are used to drive WPI measures at more detailed levels.

B.1. Macroeconomic forecasting

The DAEM is a macro-econometric model of the Australian economy. It is made up of numerous accounting identities and behavioural equations which describe the aggregate actions of households, businesses, government and international entities. The formulation of these behavioural equations is based on mainstream economic theory. The model is best described as a small open economy model in which all foreign (world) prices and interest rates are taken as given (that is, they are exogenous to the model).

In the model, business sector factors of production (capital and labour) produce non-farm business sector output, which is non-farm Gross Domestic Product (GDP) less the service flow from housing and the value of government services. The level of business sector output is the sum of potential output and the output gap. Fluctuations in the output gap are driven by a number of cyclical factors, including fluctuations in interest rates, foreign output and the terms of trade.

Potential business sector output is the level of output that would exist if there were no temporary or cyclical influences. In constructing potential business sector output, considerable attention is paid to the population characteristics which influence labour participation, the growth rate of residual total factor productivity and the expected rate of capital deepening. The output gap is the gap between actual and potential business sector output. Negative output gaps imply the economy is operating below its potential, while positive gaps imply the economy is operating above its potential.

Model parameters are estimated using quarterly data extending from September 1974 to the most recent quarter for which data are available.

The DAEM forecasts all components of aggregate demand. To ensure consistency between aggregate expenditure and aggregate output, the model uses adjustment factors which trim individual expenditure components so that aggregate expenditure equals aggregate output.

B.1.1. Domestic production

Domestic production is divided into farm and non-farm. Non-farm production is further divided into household, general government and business sector production. Farm output is an exogenous input to the model.

The household sector produces housing rental services. This is the household sector's only output. The service flow is modelled as a fixed proportion of the housing capital stock.

Public sector production is limited to general government output, which comprises general government services (equal to the wage cost of the general government employees) and general government gross operating surplus (equal to the depreciation of general government capital).

All other non-farm production takes place in the business sector, which incorporates private and public enterprises. Business sector output is produced using capital and labour via a standard constant returns production technology. Business sector production is also influenced by the level of total factor productivity.

Imports are effectively intermediate goods in the DAEM. They are combined with domestically produced traded goods to produce gross national expenditure on traded goods. Higher domestic demand raises the demand for imports. The level of exports is determined by foreign demand conditions rather than domestic supply conditions. Just as stronger domestic demand raises the demand for imports, stronger foreign demand raises the demand for exports.

B.1.2. Labour market

The size of the labour force is forecast using exogenous assumptions about age specific population growth and labour force participation. There are two measures of employment in the model. There is the potential employment that underlies the estimate of potential output and actual employment. The output gap to a large extent reflects the gap between the actual and potential employment.

Potential employment is the actual labour force less the level of unemployed workers implied by the natural rate of unemployment, where the natural rate of unemployment is the level of unemployment that would exist in the absence of cyclical fluctuations. Actual employment is the actual labour force less the level of unemployed workers implied by the actual rate of unemployment.

Business sector employment is driven by a standard labour demand function that relies on labour productivity, real wages and business sector output growth.

B.1.3. Prices and wages

The model also includes a number of measures of prices, wages and price deflators. Price and wage inflation in DAEM are governed by the behavioural equations of the:

- business sector output gap
- real exchange rate
- import prices
- monetary policy reaction function, and
- average quarterly wages.

The way these equations interact is best observed through some examples.

A positive shift in domestic demand that raises the gap between actual and potential output (a positive output gap) will have a direct impact on price inflation by raising the underlying CPI. Wages respond with a lag to changes in underlying CPI inflation, with the long-term real wage tied to CPI inflation and labour productivity growth.

A positive output gap also has a direct and indirect effect on real interest rates via the monetary policy reaction function, with the typical reaction to a widening output gap and higher price inflation being higher nominal interest rates. Higher interest rates dampen domestic demand which narrows the output gap and relieves upward pressure on price and wage inflation. Over time this mechanism forces the output gap back to zero, interest rates to a neutral position and inflation to return to the Reserve Bank of Australia (RBA) target level.

A change in real wages that exceeded the change in labour productivity raises price inflation in the short term. Since wages increase by more than labour productivity this raises nominal unit labour costs, which in turn raises underlying CPI inflation. Wages in turn respond to changes in underlying CPI inflation. Over time wage inflation will equal price inflation (plus changes in productivity growth). In the long-term, price inflation is governed by the same mechanism at work in the output gap example above, which forces the CPI inflation rate to return to the RBA target level.

While the real exchange rate and import prices do not have an import role in the output gap and real wage scenarios, they are key players in the next foreign price shock example. Holding other things constant, higher world prices raise domestic import prices. Higher import prices have a direct impact on price inflation by raising the underlying CPI. Higher price inflation causes nominal

interest rates to rise via the monetary policy reaction function. Higher domestic interest rates and incomplete pass-through of world price changes to domestic prices causes the differential between domestic and world real interest rates to rise.

Ordinarily this would imply an appreciation of the real exchange rate but in the Australian case this is more than offset by a deterioration of the terms of trade due to higher import prices which causes a depreciation of the real exchange rate. Combined with incomplete price pass-through the nominal exchange rate appreciates in the short term, which partly offsets the rise in domestic import prices due to rising world price. Over time there is full pass-through of world prices to domestic prices, which eliminates the gap between domestic and foreign real interest rates and returns the terms of trade to its pre-price shock level. Just as in the domestic inflation example, wages respond with a lag to changes in underlying CPI inflation, with the long-term real wage tied to CPI and labour productivity growth.

B.1.4. Industry forecasts

Industry output and employment are forecast following the top down methodology set out above. Industry output is determined through the forecasts of industry final demand. Industry final demand can be thought of as the total value of goods and services that are produced by a specific industry.

For example, if commodity exports increase in response to international demand this will generate an increase in mining output, measured in real gross value added terms. Similarly, if construction investment increases in response to low interest rates, this will generate an increase in construction output.

Industry employment is linked to output through exogenously determined levels of productivity. Considering the mining example from above, if the increase in commodity exports generates a 2% increase in output for the next quarter with no changes to a productivity assumption of 100% mining employment will increase by 2%. A final adjustment is made for both output and employment so that their respective sums equal the national totals.

B.1.5. State forecasts

Gross State Product (GSP) is determined by distributing Gross Domestic Product based on state GSP and population relativities. GSP relativities are influenced by the gross value add of industry within each state. As with other demographic variables, population relativities are exogenously determined. Continuing with the mining example above, the increase in mining output will result in a more than proportionate increase in GSP for the mining intense states such as Western Australia, Queensland and the Northern Territory.

Industry output by state is driven by a combination of industry output at the national level, and a combination of state variables, including GSP, consumption and investment. Industry relativities between the states are also utilised. For example, Victoria has a relatively higher share of manufacturing output when compared to the national manufacturing share of total output. This means that if manufacturing output is forecast to decline nationally, a larger portion of that decline will be felt in Victoria.

The industry output forecasts are then normalised over several iterations, to ensure that state industry output adds to national, and each industry within a state adds to total state GSP.

B.2. WPI forecasts

The WPI measures quarterly changes over time in the price employers pay for labour due to market factors. The ABS notes that "to ensure that the quantity and quality of labour services are held constant, changes in the composition of the labour force, hours worked, or changes in characteristics of employees (e.g. work performance) are all excluded from the index."¹⁰

¹⁰ Australian Bureau of Statistics, *Labour Price Index: Concepts, Sources and Methods, 2012*, cat. no. 6351.0.55.001 (28 November 2012).

There are a number of factors to consider when forecasting WPI:

- WPI captures changes in underlying inflation
- WPI captures the bargaining power of workers
- WPI does not capture increases in workforce productivity that are due to changes in the skill composition of the workforce ('composition productivity effects')
- WPI does not capture increases in workforce productivity that are due to increases in the productivity of individual workers ('worker productivity effects')
- Due to the challenges of measuring productivity effects, a portion of productivity may creep into WPI
- Observed movements in WPI are related to movements in labour underutilisation (the sum of the unemployment rate and the underemployment rate).

B.2.1. State industry WPI forecasts

Deloitte Access Economics' forecasting of state industry WPIs involves estimation of the deviations between industry and state-specific wage measures and the broadest measures of wages in the Australian economy. The DAEM model sets the outlook for national and state WPIs. The remainder of the modelling determines how industry WPIs and state-industry WPIs are expected to move relative to the all-industry national and state WPI measures.

Modelling of specific state industry WPIs begins with the movements in the Australian WPI. This measure serves as an anchor to overall wage rates in every part of the economy, in part because it provides a measure of the wage rises that other employees are receiving, making it a common starting point for negotiations.

From the national index, the model adds in deviations from the average. Two key factors will drive these wage differentials:

- **Business cycle factors:** Deviations in industry (or state) performance from the national average. Faster growing industries and states will tend to see faster growth in wages and vice versa. In this model, the key factor is how fast the industry (or state) is growing relative both to the national average, as well as to historical averages. For example, while manufacturing growth in the future may be below the national average, if the gap is relatively less than has been seen in recent years, this is viewed as an out-performance by the sector and would see some upward pressure on wages. In this model the methodology is forward-looking, with forecast growth across the next six months (as well as the past twelve) used to determine the current performance of an industry.
- **Competition (relative wage) factors:** Depending on the nature of the industry, workers will have skills that are relatively more or less transferable to other industries where wages may be rising faster than in their own. Indeed, many workers will be performing effectively the same task (or same occupation – effectively their job description) across different industries (as their industry classification is determined by what their employer produces, rather than what they do). This will tend to limit the ability of wage rates to diverge. For example, if wage rates in mining rise higher, companies in the construction industry will be forced to pay higher wages to keep their staff. Similar factors operate across states – although they are likely to be less significant and react only to relatively larger discrepancies in wages. The modelling here will see wages in competitor industries tend to move more closely together – with industries that are benefiting from the two previous factors tending to be drawn back towards the average, and wages in otherwise slow growing industries boosted.

In addition to these two 'mechanical' factors, there is often the need to use judgement to determine movements in wages – particularly when other data is volatile and when factors not relevant to wage determination are having effects on broader output and employment measures.

Deloitte Access Economics also looks at developments in EBAs in the Attorney General's Trends in Federal Enterprise Bargaining reports, and takes account of these in its short term forecasting if they appear likely to have a material impact.

It is important to remember that the WPI for an industry is a composite measure and can, in certain situations, behave in the perverse manner. When there is a significant change in the occupational structure of an industry, movements in the WPI may not be reflective of movements in the wages of individual employees.

B.2.2. Labour productivity

In previous reports, Deloitte Access Economics has presented a productivity adjusted WPI forecast. This series has not been used in past determinations by the AER. Based on information provided by the ABS, Deloitte Access Economics no longer incorporates a productivity adjusted WPI forecast into reports prepared for the AER. The ABS has advised that the WPI does not incorporate labour productivity or compositional changes in the workforce.

The WPI is a measure of the price employers pay for labour due to market factors. In constructing the WPI, the ABS aims to ensure that the quantity and quality of labour services measured are held constant. The index excludes changes in the composition of the labour force and hours worked. The index also excludes characteristics of employees and as a result, is not intended to capture changes in labour productivity. Movements in these factors will result in changes to overall wages, but are not strictly measured by the WPI. However, due to the challenges of measuring or excluding productivity effects, an insubstantial portion of productivity may creep into WPI.

Labour productivity measures the number of units of output an individual employee can produce in a given time period. The more units of output each worker can produce, the fewer workers are required to create a given level of output.

The method used to estimate labour productivity differs across the four different levels, but there are three different values that are utilised to create these measures:

1. 'National' productivity = Gross Domestic Product / employed persons in Australia
2. 'State' productivity = Gross State Product / employed persons in that State
3. 'Industry' productivity = Gross Value Added / employed persons in that industry in Australia

These measures are combined as follows to give the four measures presented in the report and below.

National – All industries labour productivity is calculated as:

$$\text{Productivity} = \text{'National'}$$

New South Wales – All industries labour productivity is calculated as:

$$\text{Productivity} = \text{'State'}$$

National – Utilities labour productivity is calculated as:

$$\text{Productivity} = (\text{'National'} + k \times \text{'Industry'}) / (1 + k)$$

New South Wales – Utilities labour productivity is calculated as:

$$\text{Productivity} = (\text{'National'} + p \times \text{'State'} + k \times \text{'Industry'}) / (1 + p + k)$$

where p and k denote the relative weights.

Productivity measures for all states and industries are estimated using the same method as outlined above.

This method is adopted for the following reasons:

- This method relies on data that are available on a quarterly basis. This is not the case for industry-specific output at the state level, which is only available on an annual basis.
 - There is an exception in the case of GSP, with quarterly estimates of only State Final Demand (SFD) available. However, Deloitte Access Economics creates quarterly GSP estimates based on available SFD data, other published information on international trade and our own estimates of the remaining components of GSP.
- The method minimises the volatility in the underlying data by creating a composite productivity measure based on national, industry and (where appropriate) state-specific productivity movements.
 - The weights adopted reflect the volatility observed in the data, which is usually reflective of the size of the state or industry in question. Larger states have a larger value of 'p' in the equation above.
- The national measure is considered important given that trends in national labour productivity will be seen in industry-specific results. Forecasting productivity at the national level can also be more informative and reliable given volatility in industry level information.
- There is an additional risk associated with calculating a 'raw' productivity measure at the state by industry level (i.e. state by industry Gross Value Added (GVA) and annual average industry employment in a state). In the case of some industries the change in the simple measure of labour productivity may be driven by changes in the composition of the industry itself, rather than changes in underlying productivity. Within utilities there are significant differences in the labour productivity measures from the electricity, gas and waste components.

The employment measures for labour productivity used in the report are not adjusted for quality since they do not take into account the quality of the workforce based on experience and skills. Nor do these measures adjust for hours worked, either by distinguishing between full-time and part time employment, or by using an explicit hours worked measure of employment.

Appendix C – Different measures of wage growth

The ABS published an article in the October 2005 issue of Australian Labour Market Statistics (catalogue 6105.0) which discussed the comparative features and relative merits of the measures they produce.¹¹ The following reproduces part of that article, and then adds some observations.

C.1. Introduction

Statistics on employee remuneration are in demand from a wide range of users, including economic analysts, social researchers, policymakers, and employer and employee associations. The ABS publishes a number of measures relating to the remuneration of employees to meet the different needs of users. These measures include average weekly earnings, changes in the price of labour, and compensation of employees.

The variety of measures available can sometimes lead to misunderstanding and misapplication. The choice of measure will depend on what type of analysis is being undertaken. This section explores the differences between the various measures of employee remuneration.

C.2. Measures of employee remuneration

Three distinct measures of employee remuneration are discussed below: earnings; wage price index; and compensation of employees.

C.2.1. Earnings

Estimates of the level of earnings are produced from a number of surveys: the Survey of Average Weekly Earnings (AWE); the Survey of Employee Earnings and Hours (EEH); and the Survey of Employee Earnings, Benefits and Trade Union Membership (EEBTUM).

The AWE survey is one of the major sources of data on earnings, and is designed to provide a quarterly measure of the level of earnings. Three earnings series are produced from AWE:

- average weekly ordinary time earnings for full-time adults;
- average weekly total earnings for full-time adults; and
- average weekly total earnings for all employees.

While the AWE survey provides a frequent time series, data are only available for full-time adult employees and all employees, and can only be cross-classified by a small number of variables, such as sex, state, sector, and industry. The EEH and EEBTUM surveys provide additional detail, although on a less frequent basis. The EEH survey is run every two years and provides a large number of variables important in the analysis of weekly earnings, including: managerial/non-managerial status; state; sector; level of government; industry; occupation; employer size; sex; full-time/part-time status; adult/junior status; and type of employee (e.g. permanent/fixed-term contract or casual). The EEH survey therefore supplements AWE survey data by providing detailed information on the composition and distribution of employee earnings and hours.

The annual EEBTUM survey is a household survey, in contrast to the AWE and EEH surveys which are business surveys. The EEBTUM survey, which is conducted as a supplement to the monthly Labour Force Survey, collects weekly earnings data cross-classified by a range of socio-demographic information, including: sex; age; marital status; relationship in household;

¹¹ ABS 2005.

geographic region; school attendance; birthplace and year of arrival in Australia. The EEBTUM survey also collects details about the type of employment, including: occupation; industry; hours worked; full-time or part-time status; sector; size of workplace and leave entitlements.

While the EEH and EEBTUM surveys are run less frequently than the AWE survey, they are a valuable source of information as they enable detailed analysis of earnings levels.

C.2.2. Wage Price Index

Information collected on wages is used to produce a quarterly WPI, formerly the labour price index (LPI). The WPI is compiled from information collected from businesses on changes in wage and non-wage costs.

The WPI was first compiled for the September quarter 1997 and is the main ABS measure of changes in wages. The WPI measures quarterly changes over time in the cost to an employer of employing labour, and is unaffected by changes in the quality or quantity of work performed. The WPI does not include the superannuation guarantee levee.

The ABS publishes four WPIs each quarter. The headline WPI series is the index of total hourly rates of pay excluding bonuses. This series excludes bonus payments (which generally relate to the individual performance of the employee or to the organisation's performance), and so represents a pure price measure for combined ordinary time and overtime hourly rates of pay.

In the WPI, index numbers are compiled using information collected from a representative sample of employee jobs within a sample of employing organisations. Price-determining characteristics of the jobs are fixed to ensure that changes in these characteristics do not contribute toward index movements. The following are examples of changes in price-determining characteristics which are not reflected in index movements:

- changes in the nature of work performed (e.g. different tasks or responsibilities)
- changes in the quantity of work performed (e.g. the number of hours worked)
- changes in the characteristics of the job occupant (e.g. age, apprenticeship year, successful completion of training or a qualification, grade or level, experience, length of service, etc.)
- changes in the location where the work is performed.

Changes in the price of wages and salaries resulting from changes in the composition of the labour market are also excluded from index movements. To achieve this, a longitudinal survey methodology is used to measure a similar sample of jobs over time.

C.2.3. Compensation of employees

Compensation of employees (CoE) is a quarterly measure of the total remuneration paid to employees in return for work done and is published as part of the national accounts. CoE is a broader measure than earnings as it includes irregular payments (e.g. annual bonuses) and social contributions paid by the employer (e.g. severance, termination and redundancy payments; employer superannuation contributions; and workers compensation premiums). These payments are excluded from measures of earnings, which have a narrower focus.

A quarterly measure of the average CoE per employee, known as Average Earnings National Accounts (AENA), is produced by dividing the total CoE for the quarter by the total number of employees. The total number of employees is estimated using Labour Force Survey data, calculated as an average of the three months in each quarter. Some adjustments are made to this estimate of employment. Two measures of AENA are produced: average non-farm compensation per employee; and average compensation per employee. The average non-farm compensation per employee estimate is the key series, as it is a more stable estimate. This is because employee earnings in the agricultural industry can fluctuate due to seasonal effects.

C.3. Summary of the surveys and their key series

Table C.1 (found at the end of this chapter) provides a comparison of each of the surveys discussed. It outlines the key series produced, what each survey is designed to measure, the frequency and type of data source, the benefits and limitations of each survey, and the related publication.

C.3.1. Using the WPI measure

While Deloitte Access Economics views the WPI as the best measure for use in the context of this report, 'best measure' is not the same as 'perfect measure', and there are also drawbacks to using the WPI.

The WPI is published by state and by industry separately, but not by state and by industry. That is, the WPI for New South Wales is published, and the mining industry WPI is also published, however the New South Wales mining industry WPI is not. The latter data is only available by special request and, in the case of small sample sizes, the ABS does not release their estimates.

More series were previously available 'by state and by industry' for AWOTE from the ABS 6302.0 release. The ABS ceased producing this information 'by state and by industry' which eliminated one of the remaining arguments in favour of using AWOTE or AWE over the WPI measures.

A key reason was the high standard errors for these series. In the case of the AWE/AWOTE publication, sample selection is stratified across states and across industries, but not both. That means that as the businesses in the sample change from quarter to quarter (and about 8% of the 5,000 do each time) there is no guarantee that the state by industry samples can be readily compared. This led to questionable comparability of detailed AWE/AWOTE results from quarter to quarter as the changes may be driven by changes in the sample, rather than changes in wages.

The WPI, by contrast, suffers as little as possible from this problem because its sample follows specific 'jobs' over an extended period (at least five years). This limits the rotation problems that the AWE/AWOTE series suffered from.

It is possible to 'back out' reasonable estimates of WPI at the 'by state and by industry' level. Appendix A and Appendix B discuss how Deloitte Access Economics does that. The resultant series are rather less volatile than the matching ABS AWOTE series.

One drawback to using the WPI, is that it is sometimes relevant that the composition of the workforce is changing. That is particularly true in analysing the implications of wage developments for the Australian economy as a whole. For example, promotions are easier to get during a sustained expansion, reflecting the strength of cyclical demand rather than pure productivity. Other things equal, that adds to total incomes in the economy, but doesn't show up in the WPI (which does not 'recognise' that people at a certain seniority today are, on average, different to those who were at that level some years past).

C.3.2. EBAs and contract rates

Deloitte Access Economics' forecasts are developed using a more formal modelling approach rather than a more 'institution-based' approach.

The latter focuses on:

- increases in the **Federal Minimum Wage / Fair Pay Commission decisions**,
- increases in **collective agreements** under enterprise bargaining,
- increases in **individual agreements**.

That said, close attention to such institutional factors can assist in short term forecasting (as opposed to longer term forecasts), given that such decisions have lingering effects on wage outcomes.

Accordingly, Deloitte Access Economics notes developments in the Attorney General's Trends in Federal Enterprise Bargaining reports, and takes account of these in its short term forecasting if they appear likely to have a material impact.

Table C.1 National wage surveys

	AWE Survey	EEH Survey	EEBTUM Survey	WPI	CoE
Key series produced	Average weekly total earnings (AWTE) for full-time adult employees and all employees. Average weekly ordinary time earnings (AWOTE) for full-time adult employees.	Average weekly earnings for all employees. Average weekly earnings for full-time adult non-managerial employees.	Median and mean weekly earnings of full-time, part-time and all employees.	Wage Price index of total hourly rates of pay excluding bonuses.	Non-farm Average Earnings National Accounts (AENA).
Designed to measure	Level estimates of weekly earnings and the distribution of earnings.	Level estimates of weekly and hourly earnings and the distribution of earnings.	Level estimates of earnings and the distribution of earnings.	Changes in the price of labour.	Level estimates of average compensation of employees.
Frequency and basis of survey	Quarterly survey of businesses.	Biennial survey of businesses.	Annual survey of households.	Quarterly survey of businesses.	Quarterly national accounts series based on quarterly survey of businesses.
Benefits of the methodology	Quarterly time series. Original, seasonally adjusted and trend estimates available.	Provides detailed job information allowing analysis by industry, occupation, hourly rates etc. Source of distributional data (e.g. quartiles).	Provides detailed demographic and job information. Source of distributional data (e.g. medians).	Provides estimates of wage and non-wage inflation.	Broad measure of remuneration.
Limitations of the methodology	Few cross-classificatory items	Survey run infrequently (every two years)	Only provides AWE. Includes payments not related to the period of work performed (e.g. back-pay and pay in advance).	No level estimates of in-depth cross-classificatory items.	Few cross-classificatory items.
Publication description and ABS catalogue number	Average Weekly Earnings, Australia (cat. no. 6302.0)	Employee Earnings and Hours, Australia (cat. no. 6310.0)	Employee Earnings, Benefits and Trade Union Membership, Australia (cat. no. 6310.0)	Wage Price Index, Australia (cat. no. 6345.0)	Australian National Accounts: National Income Expenditure and Product (cat. no. 5206.0)

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