



ENGINEERS
AUSTRALIA

Australian Engineering Employment Vacancies

January to June 2021

July 2021



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Introduction

A year into the global pandemic and the only certainty is the lingering uncertainty. Multiple states and territories have had restrictions imposed and interstate borders continue to close as governments and the community battle the pandemic. Having adjusted to this new-normal, the economic recovery is expected to continue, albeit at uneven rates, depending on how individual states manage future outbreaks. The Reserve Bank of Australia forecast scenario is for gross domestic product (GDP) to grow by 4.75% over 2021.¹ Broadly, the unemployment rate decreased to 5.5% in April with a further decline expected by the end of the year.² Australia has further benefited from an increase in commodity prices with resource and energy (R&E) exports reaching a record \$290 billion in 2019-20 and are forecast to be \$256 billion in 2020-21.³ With vacancies for engineers trending above pre-pandemic levels, the outlook remains positive.

The engineering profession has adapted to many of the challenges faced during the pandemic which is reflected in the continued rise in vacancies. The Commonwealth's 2021-22 budget provided several standout items for engineers which will support the continued growth of the profession⁴. The highlights include:

- \$15.2 billion of new infrastructure spending.
- \$1.2 billion for a Digital Economy Strategy.
- More than \$100 million for developing a digitally skilled workforce and visa reforms for skilled migrants.
- New patenting system and R&D tax incentives to encourage STEM innovation.

With the Australian Government's vaccination program now being rolled out, greater certainty is expected over the coming months which should contribute to further growth to the economy and greater employment opportunities.

Summary

- Stimulus measures by the Commonwealth and state Governments, designed to boost the economy and pave the way out of the pandemic, have had a positive effect on opportunities for engineers.
- The first half of 2021 has seen a 44% increase in engineering vacancies across Australia.
- Civil engineers, industrial, mechanical and production engineers, mining engineers and ICT support and test engineers were the most sought after during the last six months.
- New South Wales fared the best with a six-monthly growth rate in engineering vacancies of 40%. It is noted that the effect of the mid-2021 COVID-19 Delta variant outbreak in NSW and associated societal and industry shutdowns to protect the community is not yet known and is not reflected in the statistics available in this report.
- NSW's leading performance was followed by Queensland at 38% and the Australian Capital Territory at 37%.
- Vacancies in Western Australia are at a high level not seen since late 2012, at the tail end of the mining boom.
- The outlook for all states and territories remains positive, contingent on the continued successful handling of future COVID-19 outbreaks and the vaccine rollout.

¹'Statement by Philip Lowe, Governor: Monetary Policy Decision (June)' *Reserve Bank of Australia* (accessed 20 July 2021) <<https://www.rba.gov.au/media-releases/2021/mr-21-09.html>>

² *ibid*

³'Australia's resources and energy exports are forecast at \$256 billion in 2020-21, despite the COVID-19 global economic downturn' *Australian Government, Department of Industry, Science, Energy and Resources* (accessed 22 July 2021) <<https://www.industry.gov.au/news/australias-resources-and-energy-exports-are-forecast-at-256-billion-in-2020-21-despite-the-covid-19-global-economic-downturn>>

⁴'Federal Budget 2021-22: Engineers Australia's expert analysis and review of the Federal Budget' *Engineers Australia* (accessed 20 July 2021) <<https://engineersaustralia.org.au/Government-And-Policy/Federal-Budget>>

Data source and content

This report investigates trends in engineering employment in Australia through analysis of engineering vacancies data. The original data is produced by the Department of Employment, Skills, Small and Family Business (the Department) and was released in July 2021 for data up to 30 June 2021.

The Department produces a monthly Internet Vacancy Index (IVI) through the Labour Market Information Portal (LMIP) based on new advertisements on CareerOne, Seek and JobSearch. Duplicate advertisements are removed, and data has been indexed to 100 to analyse trends over the last 12 months. Job vacancies provide a valuable gauge of the Australian labour market. The Beveridge Curve provides the theoretical underpinning for analysis of the relationship between unemployment and vacancy levels. In general, as vacancies increase, unemployment falls and as vacancies fall unemployment increases.

This should not be read as a report on specific job numbers but rather as a valuable analysis of vacancy trends which provides a broad indication of the direction of the engineering labour market. It includes Australian, state and territory trends as well as trends in a range of specific engineering occupations.

The following engineering occupations are included:

- Civil engineering professionals (unit group 2332). This includes civil engineers, geotechnical engineers, quantity surveyors, structural engineers and transport engineers.
- Chemical and materials engineers (unit group 2331). This includes chemical engineers and materials engineers.
- Electrical engineers (unit group 2333). This includes electrical engineers only.
- Electronics engineers (unit group 2334). This includes electronics engineers only.
- Engineering managers (unit group 1332). This includes engineering managers only.
- Information and Communication Technologies (ICT) support and test engineers (unit group 2632). This includes ICT quality assurance engineers; ICT support engineers and ICT systems test engineers. It must be noted that for this occupation it can be hard to gauge how many of these occupations are engineering specific, so some caution should be taken with numbers for this occupation.
- Industrial, mechanical and production engineers (unit group 2335). This includes industrial engineers, mechanical engineers and production or plant engineers.
- Mining engineers (unit group 2336). This includes mining engineers and petroleum engineers.
- Other engineering professionals (unit group 2339). This includes aeronautical engineers, agricultural engineers, biomedical engineers, engineering technologists, environmental engineers, naval architects and engineering professionals not elsewhere classified.
- Telecommunications engineers (unit group 2633). This includes telecommunications engineers and telecommunications network engineers.

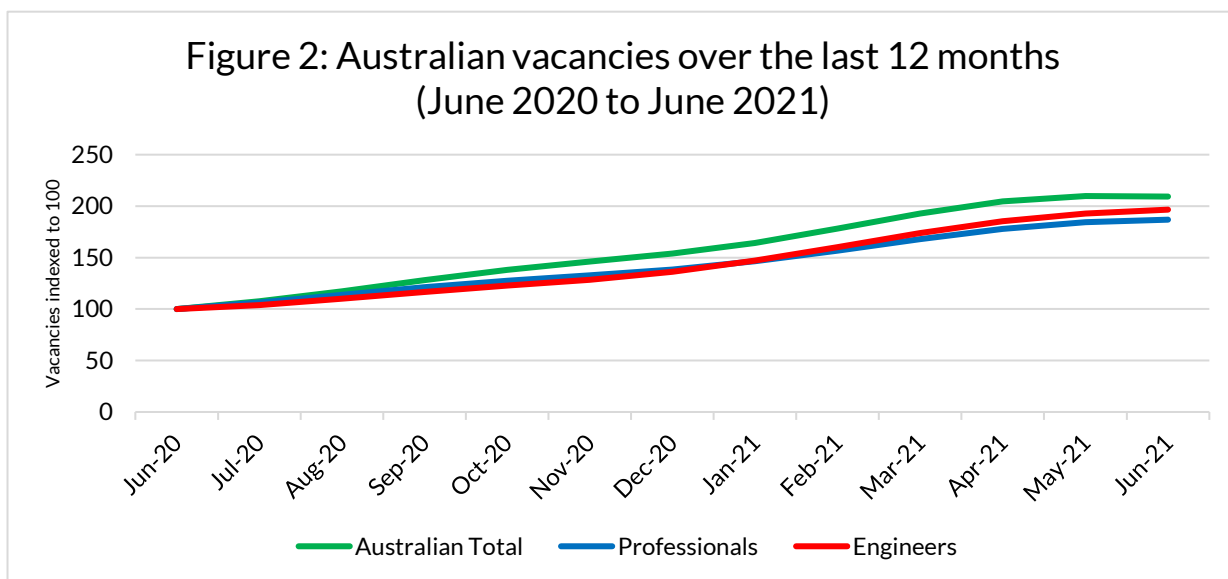
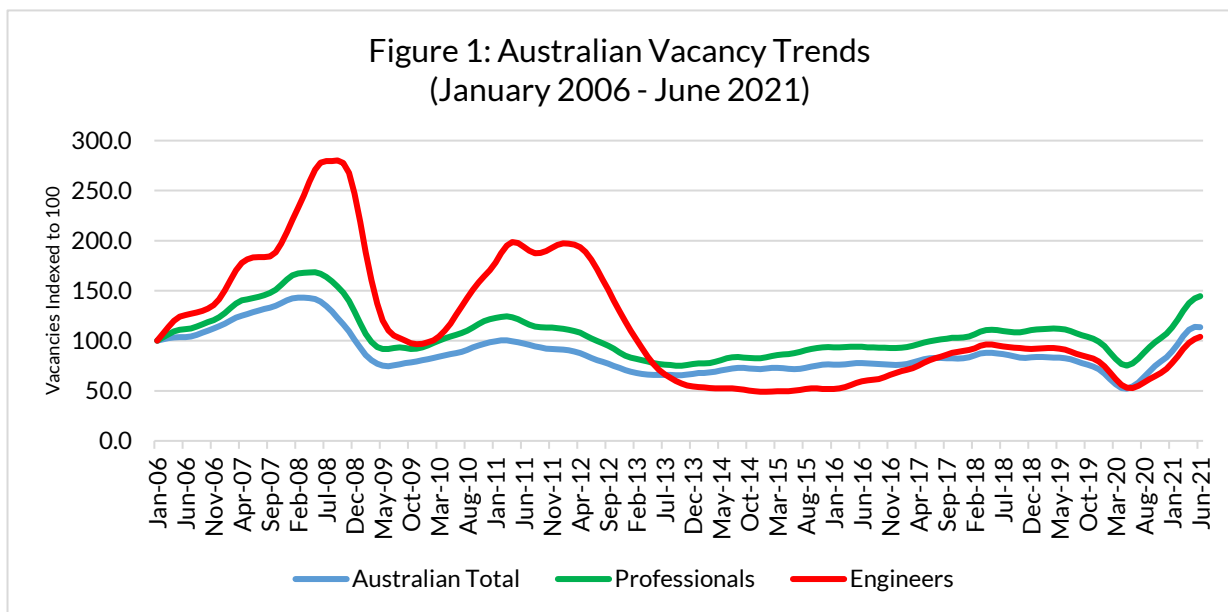
Some occupations, where the numbers are too small to provide meaningful analysis, may be excluded. Growth rates are calculated based on the engineering trend.

Australia

The first half of 2021 has seen continued growth in vacancies across Australia. The trend shows pandemic-induced lockdowns, internal border restrictions and a reduction in some governmental stimuli have not had a negative impact on the engineering profession. Continuing infrastructure and manufacturing stimulus measures implemented by state and Commonwealth Governments are assisting in supporting upward trends

Engineering vacancies have trended similarly to other professions, although still not on par with the market overall and Professionals generally. Engineering vacancies are at levels not seen since late 2018. Although a rise in vacancies is a positive sign of demand for engineering skills and therefore employment prospects for engineers, a combination of an increase in demand and a reduction in skilled migration due to the closure of international borders has produced a skills shortage in some industries.

Figure 1 displays trends in Australian vacancies from January 2006 to March 2021 for total Australian vacancies across all levels and sectors, professional vacancies, and engineering vacancies. Figure 2 shows the same trend over the past 12 months.



12 MONTH GROWTH RATE CALCULATION +97% (June 2020 - June 2021)
 6 MONTH GROWTH CALCULATION +44% (January 2021 - June 2021)
 3 MONTH GROWTH CALCULATION +6% (April 2021 - June 2021)

Vacancies by engineering occupation

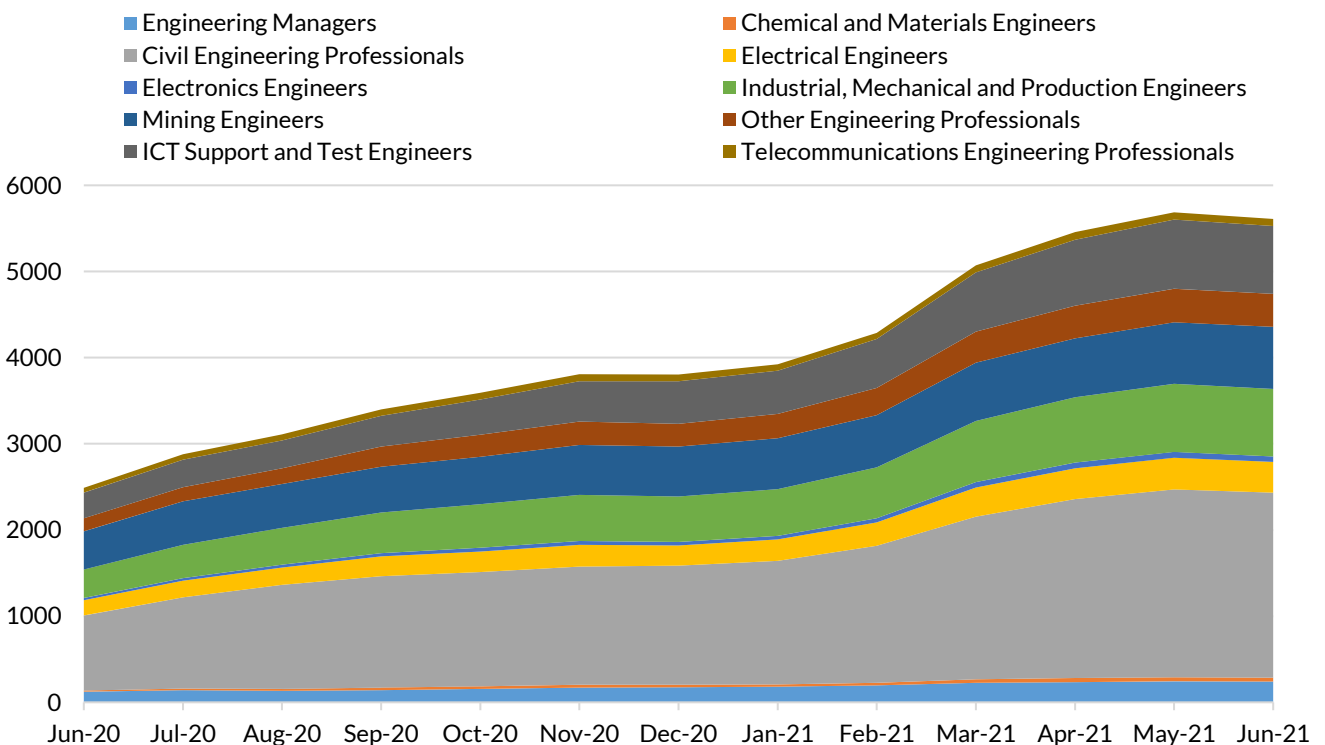
Civil engineers continued to be the most sought after during the first half of the year. This corresponds with infrastructure investment being made in response to COVID-19 including \$1 billion in federal funding for shovel ready projects⁵. Infrastructure Australia currently has 163 projects on the 2021 Infrastructure Priority List indicating that growth in demand for engineers in this industry is likely to continue.⁶

Heavy government investment in sovereign manufacturing capability through initiatives such as the modern manufacturing strategy has contributed to industrial, mechanical and production engineers having the next highest vacancy rates.⁷ This focus is expected to remain as governments and the community respond to the need to shift from heavy reliance on imported goods, in response to uncertain international travel permissions and international border closures.

Mining engineers had the next highest vacancy rates during the beginning of 2021. This was driven by new mining project investments and an increase in commodity prices combined with state border restrictions making Fly In Fly Out (FIFO) work less viable. Further analysis of the mining industry is provided under the section on Western Australia (p12).

As the year progressed, demand for ICT support and test engineers grew, making these skills the second most in demand for April and May. These engineers are sought after in both infrastructure and manufacturing and are likely to be in further demand during the second half of 2021.

Figure 3: National engineering occupation vacancy trends (June 2020 - June 2021)



⁵ "Infrastructure investment response to COVID-19" Australian Government Department of Infrastructure, Transport, Regional Development and Communications <https://investment.infrastructure.gov.au/infrastructure_investment/infrastructure_investment_response_covid-19/>

⁶ "Projects" Infrastructure Australia (accessed 20 July 2021) <<https://www.infrastructureaustralia.gov.au/projects>>

⁷ "Make it Happen: The Australian Government's Modern Manufacturing Strategy" Australian Government Department of Industry, Science, Energy and Resources (accessed 20 July 2021) <<https://www.industry.gov.au/data-and-publications/make-it-happen-the-australian-governments-modern-manufacturing-strategy/our-modern-manufacturing-strategy>>

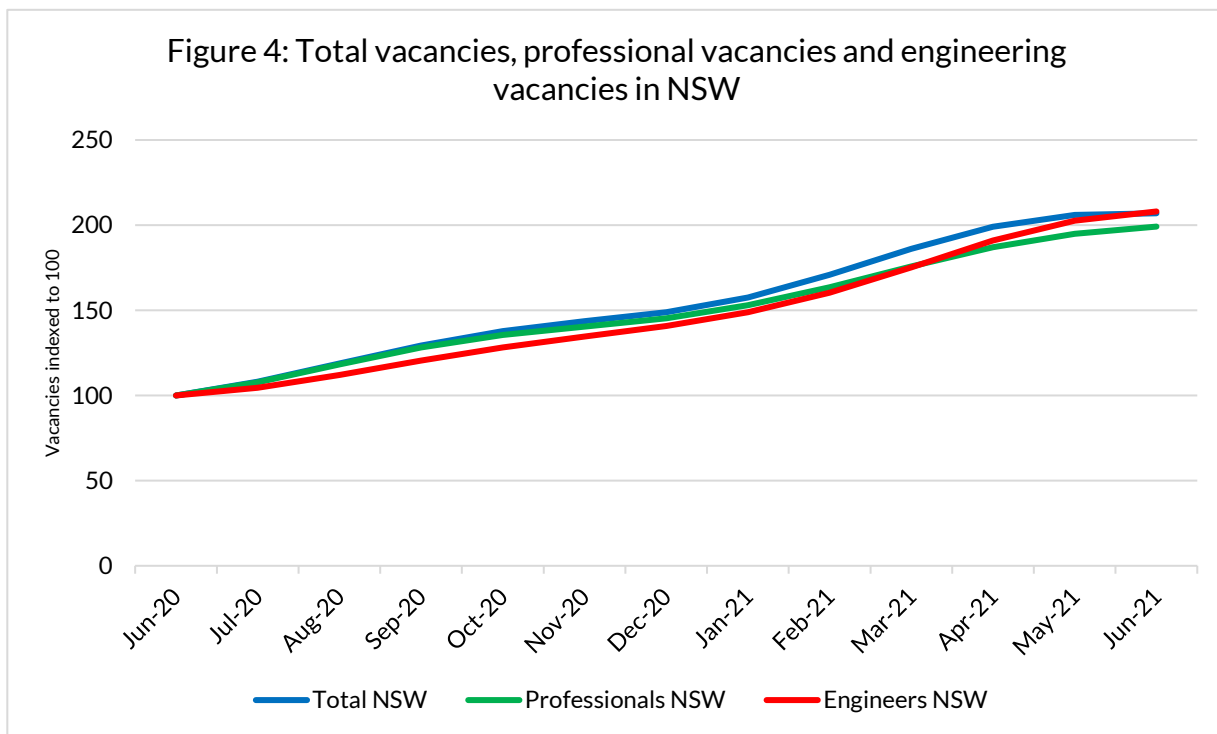
New South Wales

It is noted that the effect of the mid-2021 COVID-19 Delta variant outbreak in NSW and associated societal and industry shutdowns to protect the community is not yet known and is not reflected in the statistics available in this report.

NSW engineering vacancies followed Australian trends with continued growth during the first half of 2021. Unlike the Australian trend, NSW engineering vacancies have slightly exceeded the total for all vacancies across NSW and for professionals.

As with other jurisdictions, government support measures helped lessen the early damage of the pandemic. The NSW Government expects the state unemployment rate to ease to 6% by the end of the 2022 financial year.⁸ Similar to Australia wide trends, infrastructure spending will drive a large portion of the demand for engineering skills. Furthermore, the NSW Government is investing heavily in the health system, including in digital health initiatives. This will open opportunities for engineers and drive growth of many professions throughout the state.

State and public investment in NSW is forecast to contribute three quarters of a percentage point to the economy's growth which should assist in seeing the upward trend continue over the coming months.⁹ Lockdowns introduced in late June to combat the COVID-19 delta strain outbreak will potentially hinder this outlook over the second half of the year. The continued uncertainty is shown with only slight increases in vacancies towards June.



12 MONTH GROWTH RATE CALCULATION +108% (June 2020 - June 2021)
 6 MONTH GROWTH CALCULATION +40% (January 2021 - June 2021)
 3 MONTH GROWTH CALCULATION +9% (April 2021 - June 2021)

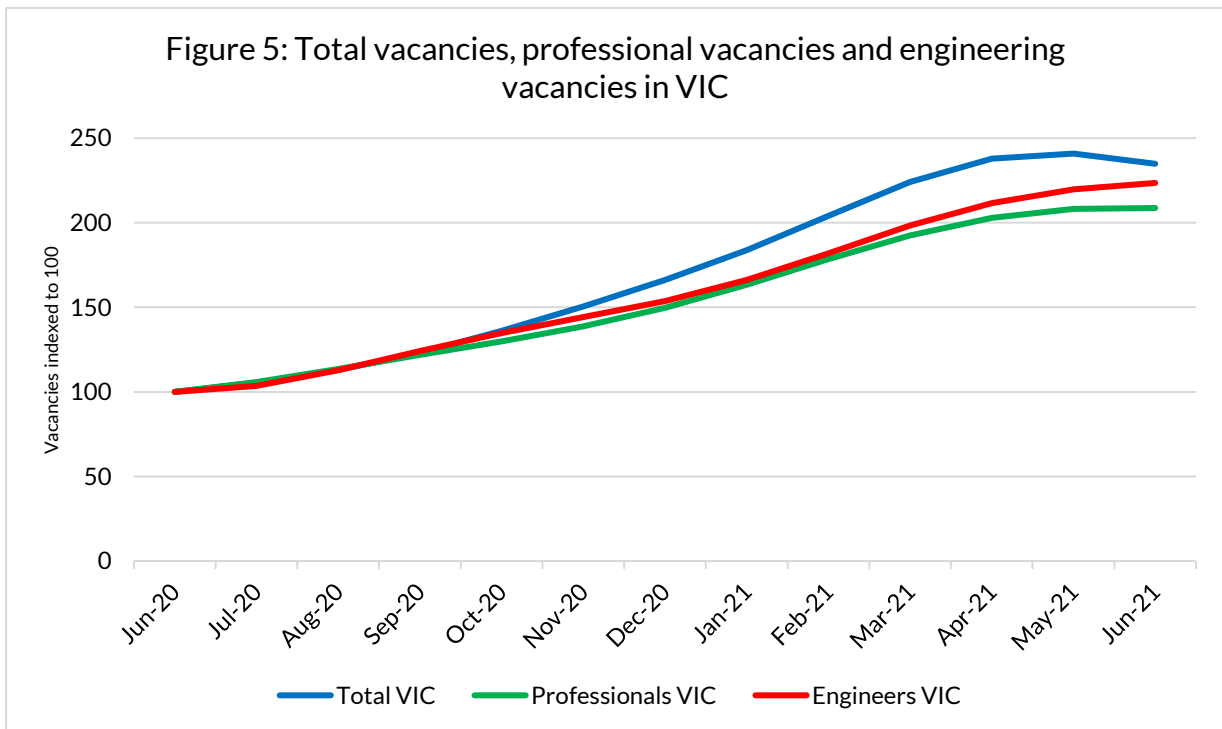
⁸ 'Economic Outlook' NSW Government Treasury (accessed 20 July 2021) <<https://www.treasury.nsw.gov.au/nsw-economy/about-nsw-economy/economic-outlook>>
⁹ ibid

Victoria

Despite long-term restrictions affecting Victoria for much of 2020, vacancies for engineers continued to rise during the first half of 2021. In keeping with national trends, the continued rise has plateaued in June which can be attributed to the delta strain emerging in Victoria resulting in further restrictions to curb the outbreak.

The Victorian Government invested heavily to support the economy through the pandemic, which positively impacted the engineering profession. As seen in other states, significant investment was made in infrastructure and digital skills, which are seen as essential to continued economic recovery. The Victorian Government is also capitalising on the state’s strengths in research and development to assist in creating new jobs.¹⁰

With the Victorian Government implementing a suppression strategy to try and curb the delta strain outbreak, in the form of circuit-breaker lockdowns, the outlook remains positive moving into the second half of 2021.



12 MONTH GROWTH RATE CALCULATION +124% (June 2020 - June 2021)

6 MONTH GROWTH CALCULATION +35% (January 2021 - June 2021)

3 MONTH GROWTH CALCULATION +6% (April 2021 - June 2021)

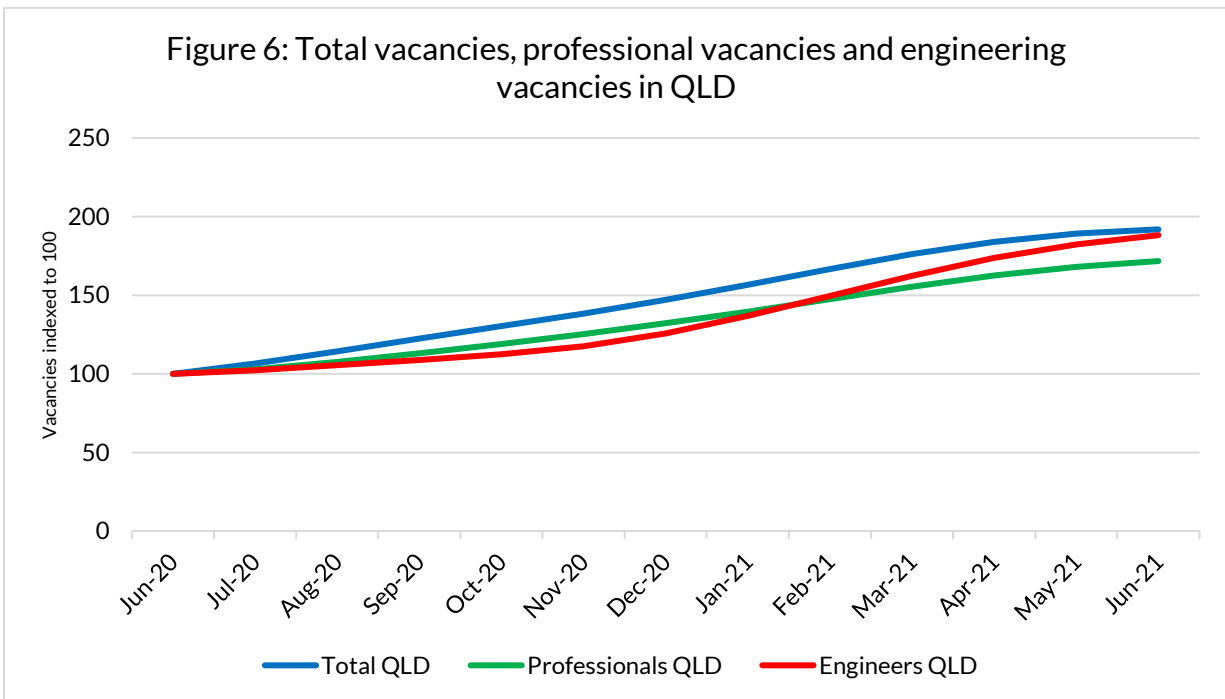
¹⁰ 'Victorian Budget 2020/21: Putting people first' Victorian Government (accessed 21 July 2021) <<https://s3-ap-southeast-2.amazonaws.com/budgetfiles202021.budget.vic.gov.au/2020-21+State+Budget+-+Budget+Overview.pdf>>

Queensland

Engineering vacancies in Queensland mirrored Australian trends with steady growth experienced over the six months from January 2021. The engineering profession has seen a strong upward trend in vacancies surpassing those for professionals more broadly.

During the 2020-21 financial year, the Queensland Government looked to support 46,000 jobs through investment in infrastructure. More than half of the capital spend was for locations outside greater Brisbane. As with other jurisdictions the pandemic has put a spotlight on health facilities with the Queensland Government committing to hospital upgrades and the development of satellite hospitals. In addition, an investment fund is available to support small and medium businesses with significant growth potential. Fortunately, during the first half of 2021 the state managed to limit the need for state-wide lockdowns, managing any potential outbreaks with isolated restrictions.

In keeping with other jurisdictions, the stimulus measures are opening new opportunities in the market with vacancy growth over the past three months remaining steady at 8%.



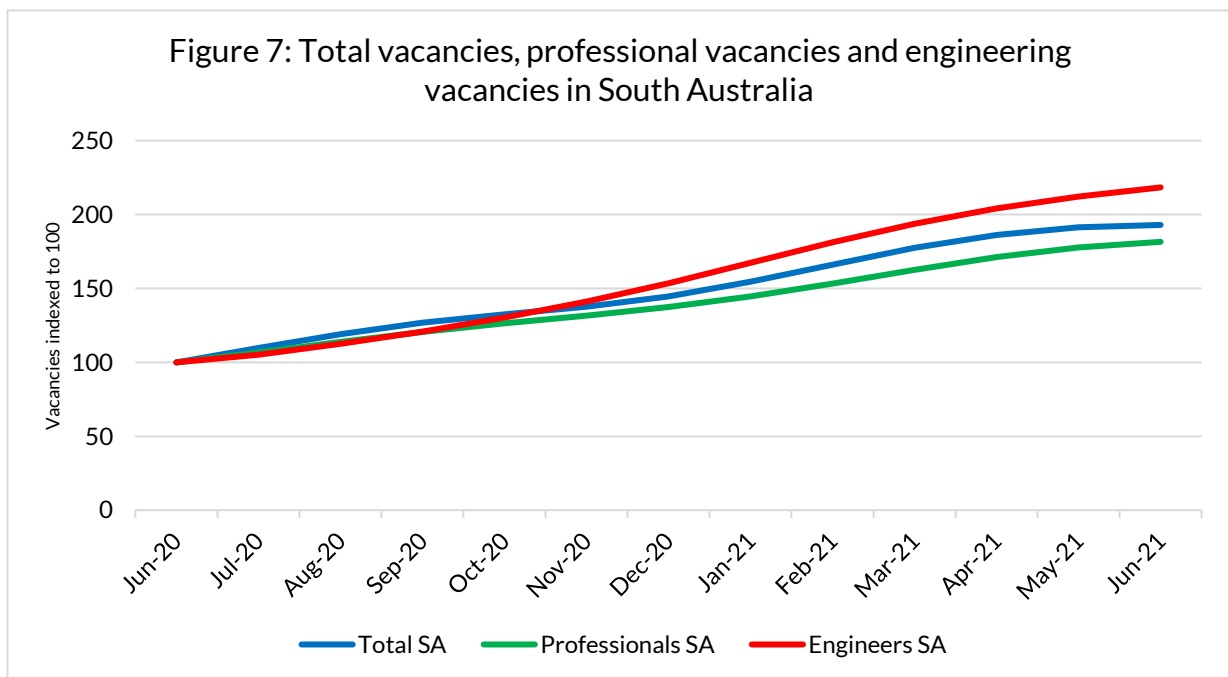
12 MONTH GROWTH RATE CALCULATION +88% (June 2020 - June 2021)
 6 MONTH GROWTH CALCULATION +38% (January 2021 - June 2021)
 3 MONTH GROWTH CALCULATION +8% (April 2021 - June 2021)

South Australia

Engineering vacancy figures in South Australian remained slightly more robust than other states with vacancies trending above both professionals broadly and the South Australian total. The last six months has seen a 31% increase in vacancies with the most demand being for electrical engineers, civil engineers and industrial, mechanical and production engineers.

In response to the pandemic and major bushfire events, the government’s key aim was building confidence and creating jobs with a focus on projects that can be completed or significantly completed within two years.¹¹ This will be achieved through state economic stimulus such as capital upgrades to government buildings to improve energy efficiency and record investment in infrastructure spending, amongst other initiatives.

The investment made, combined with the government’s management of outbreaks, has provided stability to the economy and accelerated opportunities for engineers. As the vaccination program continues to be rolled out, and with new strains of COVID-19 causing new levels of uncertainty, maintaining investment and facilitating new opportunities for business will be essential to continued growth in employment.



12 MONTH GROWTH RATE CALCULATION +118% (June 2020 - June 2021)

6 MONTH GROWTH CALCULATION +31% (January 2021 – June 2021)

3 MONTH GROWTH CALCULATION +7% (April 2021 -June 2021)

¹¹ 'State Budget 2021: Overview' Government of South Australia (accessed 22 July 2021)
 <https://www.treasury.sa.gov.au/_data/assets/pdf_file/0005/311459/State-Budget-Overview-2020-21-FA.pdf>

Western Australia

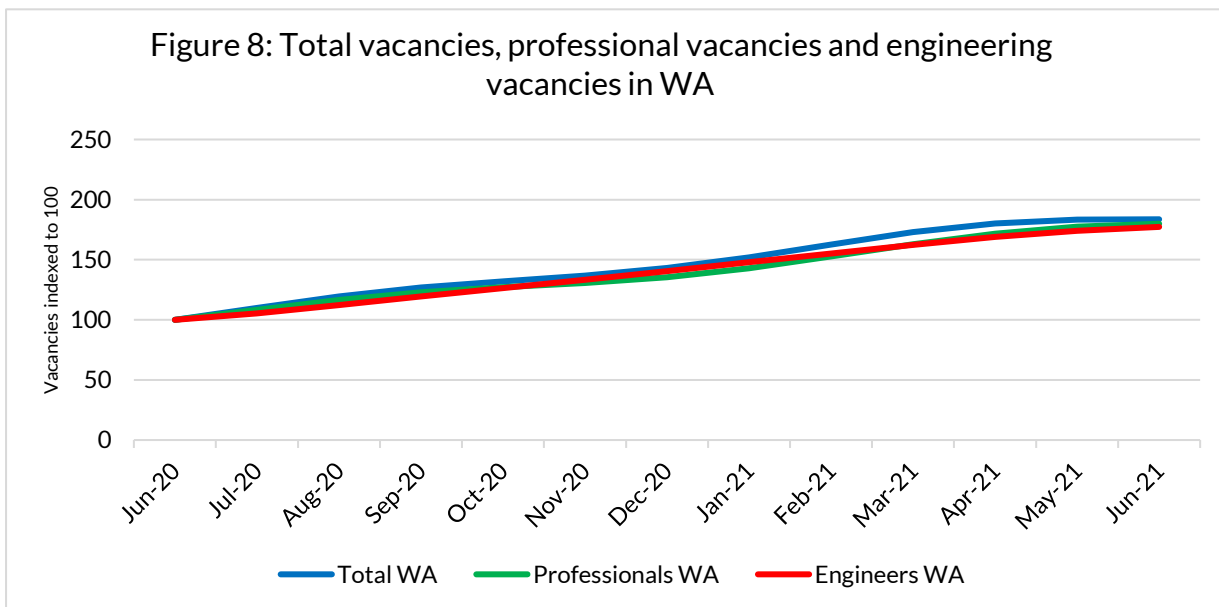
Western Australia has benefited from both government stimulus measures in Western Australia and an increase in commodity prices driven by global pandemic economic stimulus spending. Demand for engineers has increased during the first half of 2021, however, is lagging overall compared to other states.

Vacancies in Western Australia are at a level not seen since 2012. Due to a combination of new construction projects nearing completion requiring operational workforces, new mining project investment and existing operations benefiting from commodity price increases, there is a rise in demand for engineering skills. Over the past 12-months there has been a 100% increase in demand for civil engineers, a 110% increase in demand for industrial, mechanical and production engineers and a 77% increase in demand for mining engineers.

Supply of these skills is hindered by competition for similar labour in other states and between current projects magnified by a decline in interstate and international migration due to boarder restrictions. An emerging cautious approach to changing jobs sentiment throughout the workforce, caused by the unsettling economic environment brought about by the pandemic and concerns about Australia’s relationship with China, is further reducing the pool of potential candidates.

Mining is a significant industry for Western Australia, contributing \$135.3 billion to Western Australia’s gross state product (GSP).¹² Without a significant boost to candidate availability, many commercially viable mineral deposits will remain locked away in the ground because suitable expertise in developing these projects is unavailable. Adding to the risk of lost opportunities, a lag in supply may result in mining salaries growing faster than other sectors. This will increase the all-in cost of mining while putting other economic sectors at risk as labour migrates to the mining sector, attracted by higher wages not able to be matched by other industries.

Job vacancy listings for engineers are expected to continue to rise, particularly in mining, with many new projects underway.¹³ Opportunities for Western Australia’s future battery and critical minerals industries is also a focus of the government which includes developing capability in all stages of the supply chain.¹⁴ Handling of future COVID-19 outbreaks and the vaccination uptake rate will be key to support growth over the next six months.



12 MONTH GROWTH RATE CALCULATION +77% (June 2020 - June 2021)
 6 MONTH GROWTH CALCULATION +20% (January 2021 – June 2021)
 3 MONTH GROWTH CALCULATION +5% (April 2021 -June 2021)

¹² ‘Western Australia’s Economy and International Trade’ *Western Australian Government* (accessed 22 July 2021) <<https://www.wa.gov.au/government/publications/western-australias-economy-and-international-trade>>

¹³ Major Resource Projects: March 2021 *Chamber of Minerals and Energy WA* (accessed 22 July 2021) <https://www.cmewa.com.au/wp-content/uploads/2021/04/MajorResourceProjectsA4_2021.pdf>

¹⁴ ‘Strategy Update: Western Australia’s Future Battery and Critical Minerals Industries (November 2020 – November 2022) (accessed 22 July 2021) <https://www.wa.gov.au/sites/default/files/2020-11/Future%20Battery%20and%20Critical%20Minerals%20Industries%20Strategy%20Update%202020_0.pdf>

Tasmania and the territories

The number of engineering vacancies recorded in Tasmania, the Northern Territory and the Australian Capital Territory is low. Therefore, trend analysis for these jurisdictions has been combined and compared to the Australian total (see figure 9).

In line with other Australian jurisdictions, Tasmania and the territories have used stimulus measures to support recovery through investing in local jobs, infrastructure and developing new and existing industries. All three locations have been able to limit the need for major restrictions or snap lockdowns, however the new delta strain outbreak seen in June has put pressure on some of these markets.

Tasmania

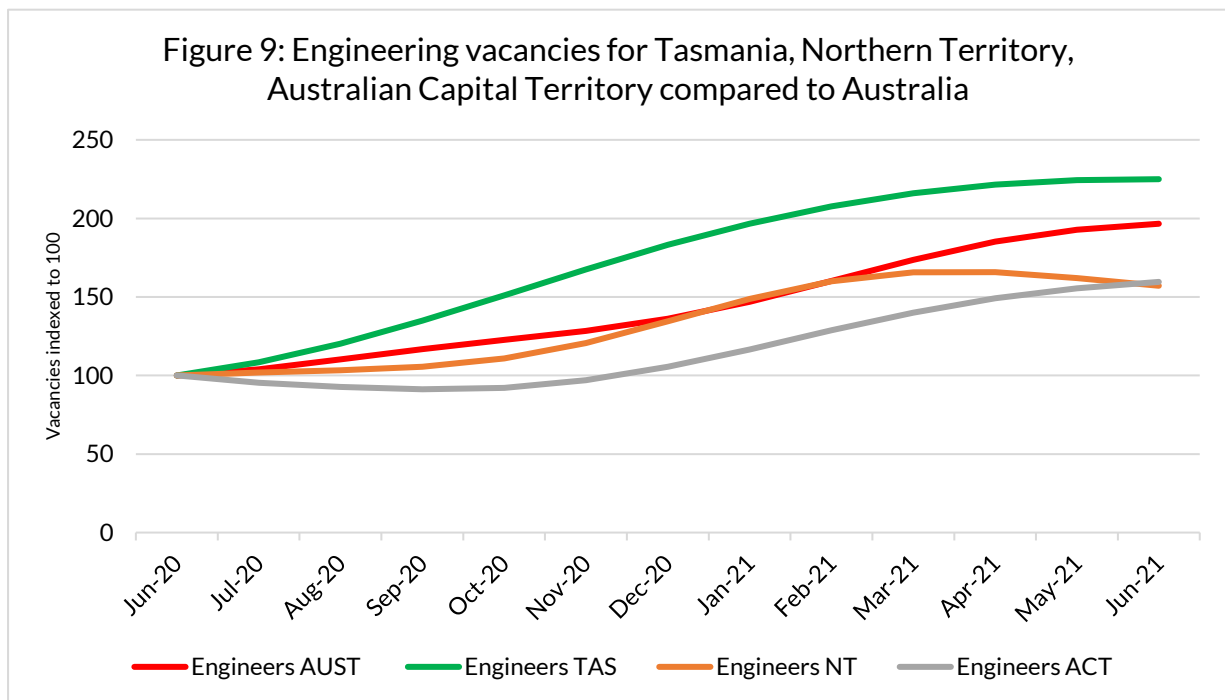
Tasmanian engineering vacancies were reasonably stable, growing by 14% over the last six months. However, this has dropped off over the last three, with only a 2% increase.

Northern Territory

Over the last 12 months, the Northern Territory has experienced growth in vacancies of just over 50%. The second quarter of 2021 has not been as favourable, with a decrease of 5%, the only decrease seen in any Australian jurisdiction.

Australian Capital Territory

The Australian Capital Territory experienced steady growth, albeit lower than Tasmania and the Northern Territory up until May 2021. The previous six months saw a 37% increase in vacancies, a trend that is likely to continue.





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