

CELEBRATING
OUR CENTENARY

Australian engineering vacancies report

Trends to June 2019

July 2019



Australian engineering vacancies report

Author: Sybilla Grady

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Engineers Australia
11 National Circuit, Barton ACT 2600
Tel: 02 6270 6555
Email: publicaffairs@engineersaustralia.org.au

www.engineersaustralia.org.au

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Key Points

- The last 12 months have seen a downward trend for Australian vacancies with negative growth of -6.3% over the last year.
- Engineering vacancies contracted by 5.1% over the same period.
- The internet vacancy index (IVI) is lower than it was a year ago but remains higher than it was five years ago.
- Over 4,000 engineering jobs were advertised across Australia in the month of June. This represents an annual change of -6.7% in line with the decrease in internet vacancy advertisements overall. This is a monthly change of -2.1%, which is slightly higher than the drop in IVI vacancy growth overall.
- NSW continues to maintain the highest number of engineering vacancies in Australia.
- Victoria, Queensland and Western Australia also continue to record higher numbers of engineering vacancies than SA, Tasmania and the territories.
- Civil engineering vacancies continue to dominate the Australian engineering employment landscape.
- Industrial/Mechanical/Production engineering vacancies as well as Mining and ICT engineers are the next in demand for engineering occupations nationwide.

Introduction

This report investigates trends in engineering employment in Australia through analysis of engineering vacancies data from January 2006 to June 2019. The original data is produced by the Department of Employment, Skills, Small and Family Business (the Department) and was released on 24 July 2019.

The Department produces a monthly Internet Vacancy Index (IVI) based on new advertisements on CareerOne, Seek and JobSearch. Duplicate advertisements are removed and data is seasonally adjusted, trended and indexed to 100 from January 2006.

Job vacancies provide a valuable gauge of the Australian labour market. The Beveridge Curve¹ provides the theoretical underpinning for analysis of the relationship between unemployment and vacancy levels.

This report 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.

This report will include Australian, state and territory trends as well as trends in a range of specific engineering occupations.

¹ The Beveridge Curve depicts the relationship between the unemployment and job vacancy rates. See <https://www.abs.gov.au/Ausstats/abs@.nsf/7d12b0f6763c78caca257061001cc588/f30e7cb8e821cccca2583b90076c5fa!OpenDocument> for further information.

This report will include trends in the following engineering occupations:

- 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.
- 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.

In some occupations where the numbers are too small to provide meaningful analysis, particular occupations may be excluded.

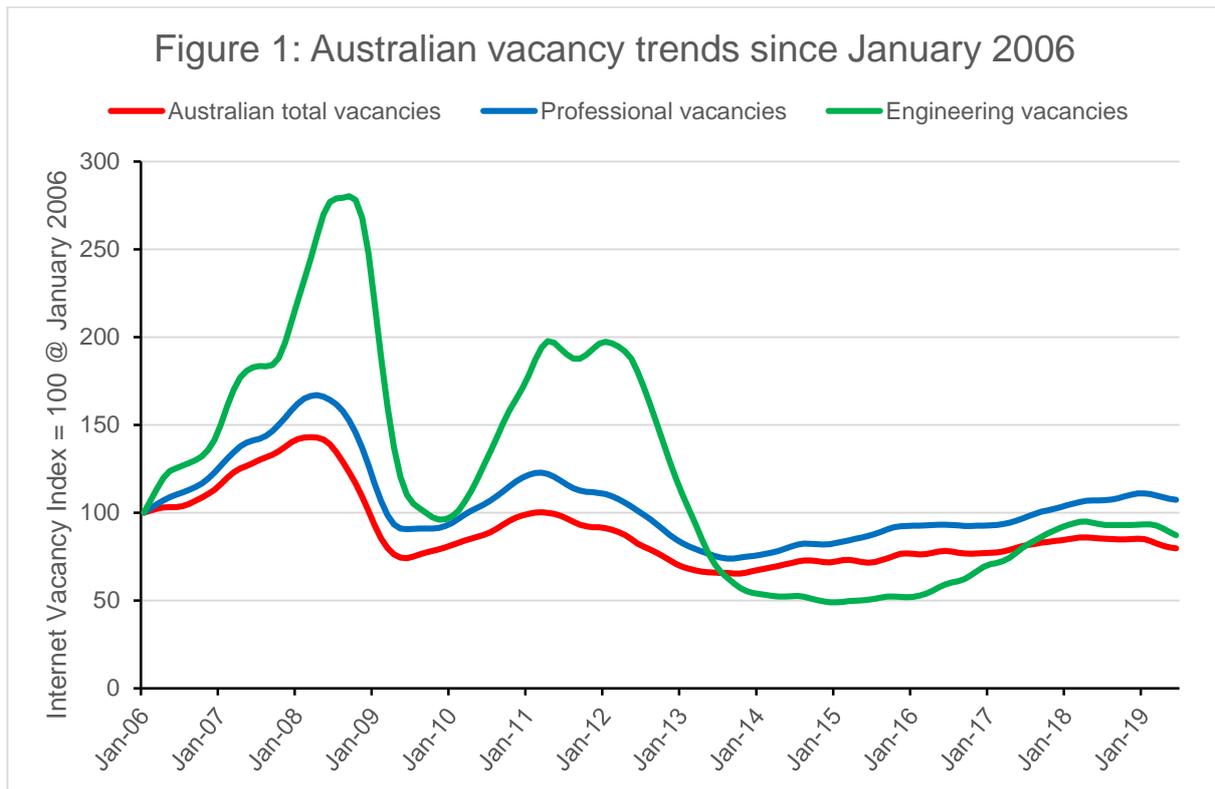
Australia

Over the last 12-18 months, after a period of trending below growth for total vacancies, engineering vacancies are now growing at a faster rate, but still not as fast as professional vacancies.

Whilst engineering vacancies have remained higher than general vacancies overall in 2019, recent months have seen a slight decline in vacancy numbers consistent with the decline in internet vacancies listed overall.

Engineering vacancies comprised 2.4% of all Australian vacancies advertised over the last year since July 2018. Of the 170,273 vacancies advertised in the month of June, 4,047 of those were for engineers.

Figure 1 shows the changes to the Australian labour force, comparing all engineering vacancies, professional vacancies and the total number of advertised vacancies in Australia since January 2006.



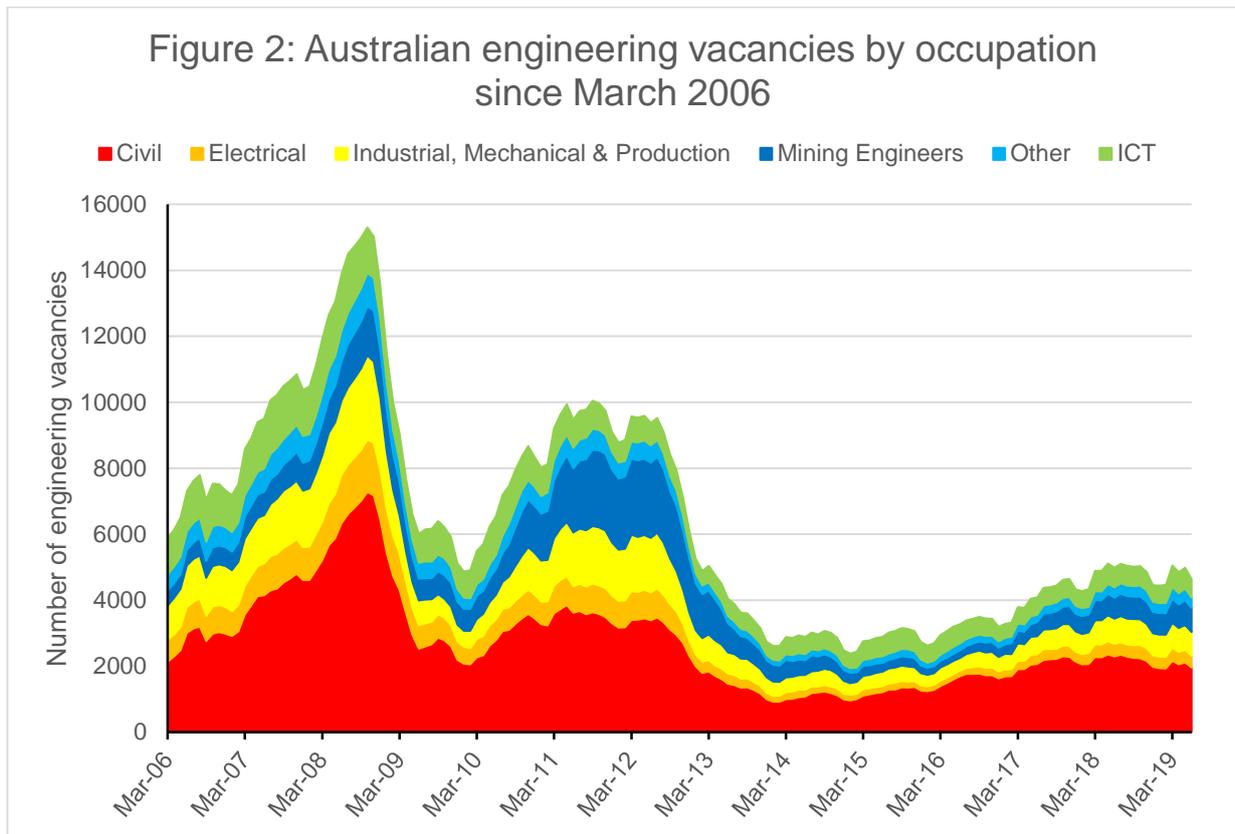
Engineering vacancies fared reasonably well by comparison to the broader job market after the 2007-2008 Global Financial Crisis (GFC) with a period of recovery in 2010 peaking in April 2011 with 9,175 engineering vacancies recorded. However, that peak has not been met or exceeded since. The lowest number of engineering vacancies recorded over the last decade was January 2015, with just 2,274 engineering jobs advertised.

Average annual growth for engineering vacancies in Australia has contracted by -5.1% which is lower than overall vacancy growth declining by more than 6%. Over the last three months, the drop in engineering vacancies has been slightly more significant than for general vacancies. Total vacancy growth retreated by 2.9% compared with a contraction of 4.6% for engineering. Whilst growth has been weak, engineering vacancies have fared better than the job market overall.

Australian engineering vacancies by occupation

Civil engineering vacancies have consistently dominated the Australian engineering employment landscape since IVI data records began and the last year is no exception.

The table below shows the number of Australian engineering vacancies by occupation since March 2006.



Civil engineering vacancies have regularly advertised between 1,900–2,350 positions per month Australia wide.

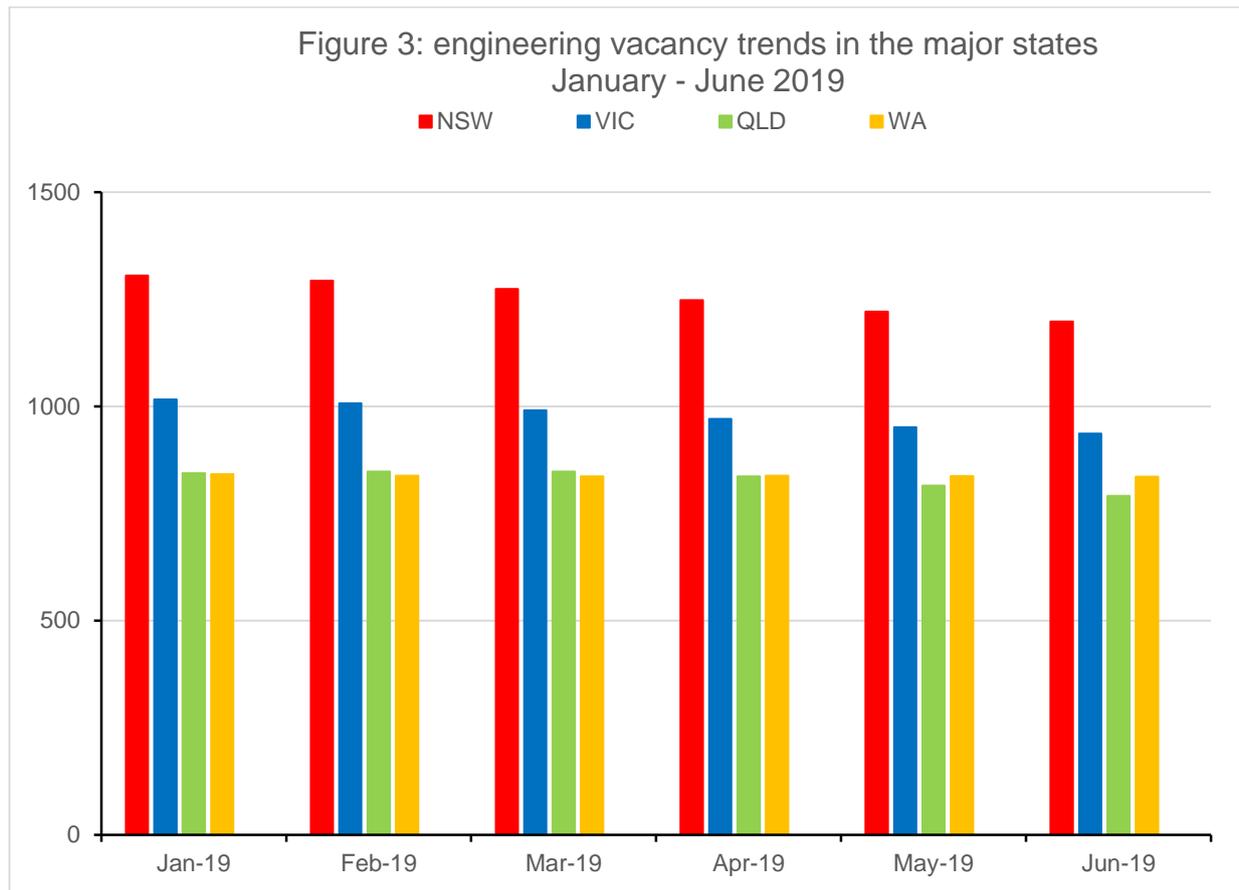
Industrial/Mechanical/Production engineering vacancies as well as Mining and ICT engineering vacancies have consistently advertised between 500–800 positions per month nationwide.

Electrical, Engineering Managers and other engineering occupations have repeatedly advertised under 450 positions per month across Australian states and territories.

Electronics, chemical and materials engineering job advertisements have habitually advertised less than 100 jobs per month across Australia and have therefore been excluded from this graph due to lack of visibility.

The major states

The following graph shows that the status quo remains in terms of distribution of engineering vacancies across Australia’s major states, with NSW consistently maintaining the highest number of engineering vacancies. Victoria, Queensland and Western Australia also continue to record higher numbers of engineering vacancies than South Australia, Tasmania and the territories.



New South Wales

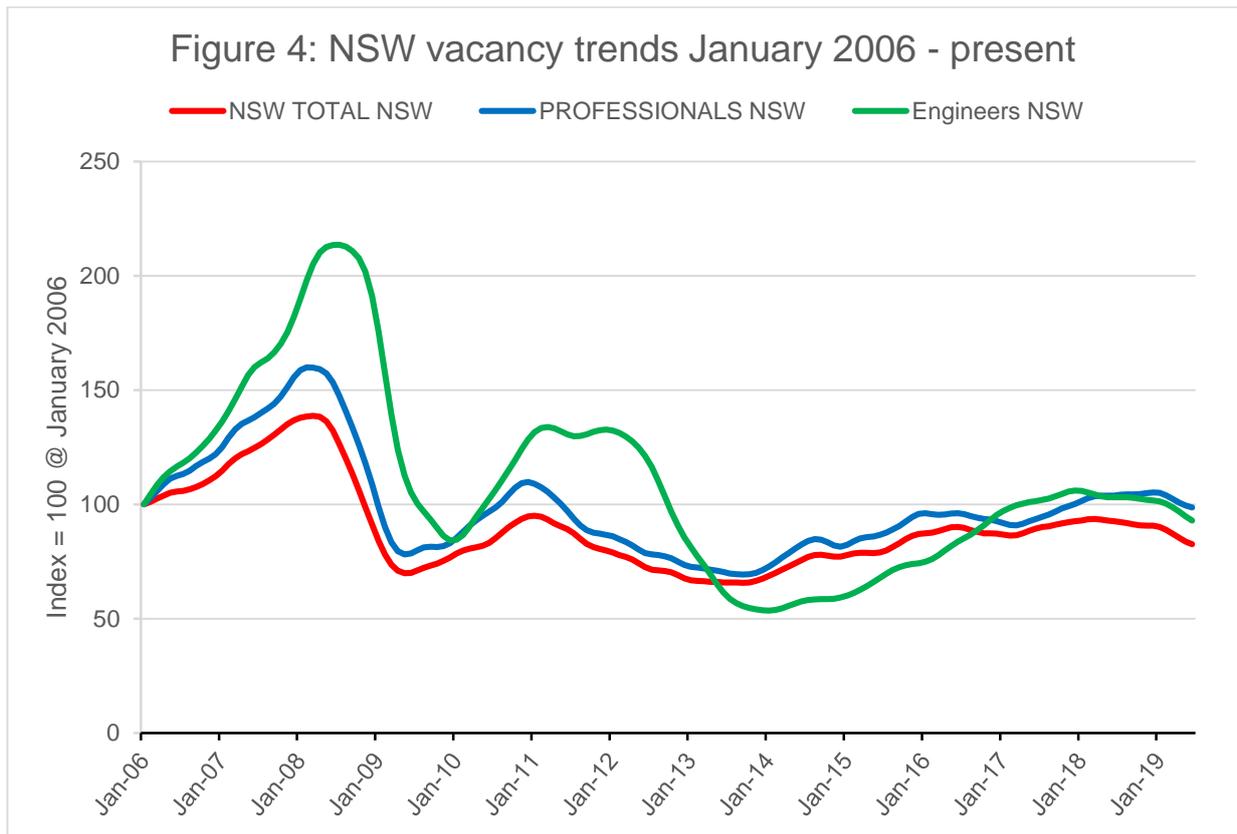
There has been considerable variability in engineering vacancy growth in NSW when compared with overall vacancy trends in Australia.

After a period where engineering vacancies were consistently below vacancies overall, engineering vacancy growth has been consistently higher than total growth in NSW since September 2016. For the last year it has been fairly consistent with professional vacancies.

Sydney has a strong pipeline of projects including the Western Sydney Aerotropolis. The state has committed to spend \$80 billion on new economic infrastructure over the next four years.

The spike in growth reflects the large state projects such as WestConnex, NorthConnex, North West Rail Link and South East Rail, Pacific Highway duplication, Parramatta Light Rail and other current projects.

The following chart shows professional vacancies, engineering vacancies and all vacancies in NSW since January 2006.



NSW has consistently recorded the greatest number of engineering vacancies in Australia. Of the 4,047 engineering vacancies advertised in the month of June, nearly 30% of these were listed in NSW.

However, since IVI records began, engineering vacancies have fluctuated considerably. The average growth rate for engineering vacancies over the last 12 months slowed by 8.5% and in the last three months recovered slightly to -4.8%.

Whilst the average growth rate has decreased and has been trending slightly lower than professional vacancies, engineering vacancies remain higher than NSW vacancies overall.

The table below shows the number of engineering vacancies advertised in NSW for selected occupations over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Civil Engineering Professionals	726	718	654
ICT Support and Test Engineers	245	248	233
Industrial, Mechanical and Production Engineers	221	229	213
Electrical Engineers	131	132	131
Other Engineering Professionals	104	119	109
Mining Engineers	91	91	87

Engineering Managers	77	74	67
Telecommunications Engineering Professionals	27	27	23
Electronics Engineers	12	13	12
Chemical and Materials Engineers	8	7	8

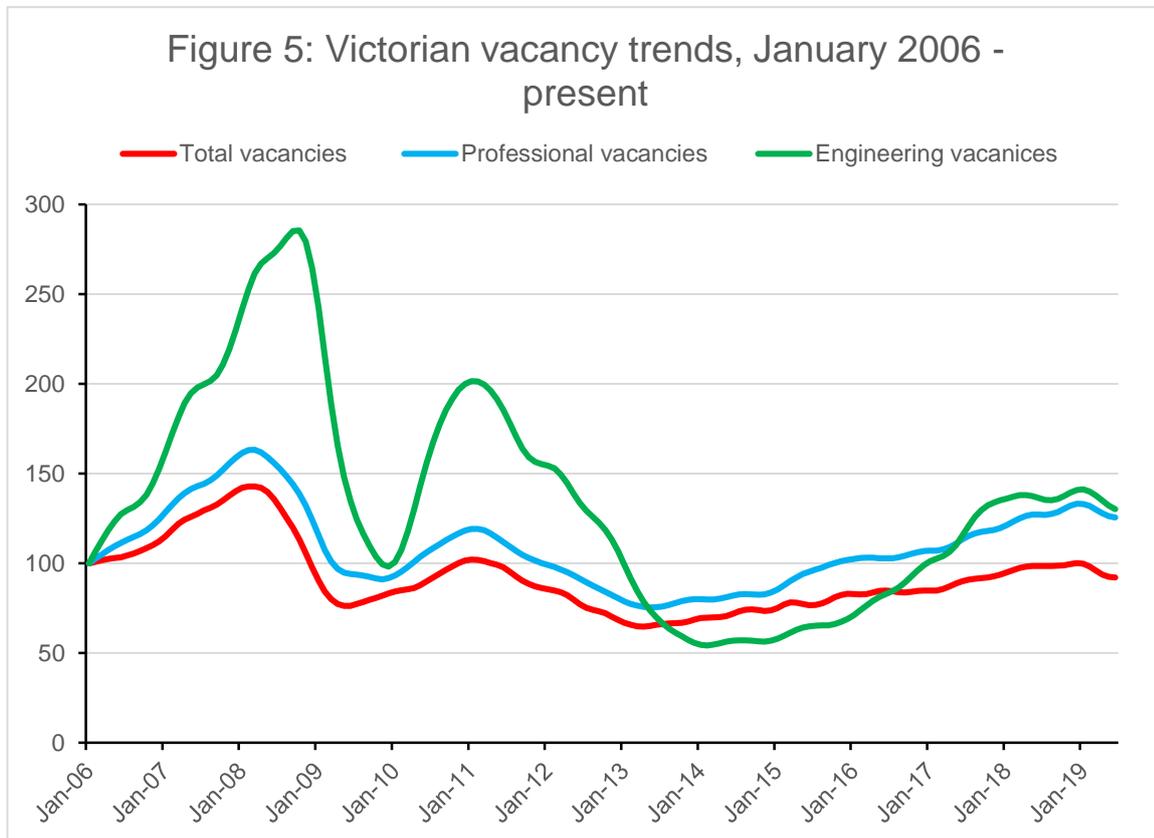
The vast majority of engineering vacancies in NSW in the second quarter of 2019 were in civil engineering. The second highest number of engineering vacancies recorded across the state were in ICT support and test engineering and the third highest numbers recorded in mechanical, production and industrial engineering.

In NSW, engineering management, electronics, mining and telecommunications engineering vacancies, all consistently recorded less than 100 vacancies in the first six months of 2019. The engineering occupation with the least vacancies recorded over this period in NSW was chemical and materials engineering.

Victoria

Victoria continues to be the state advertising the second largest number of engineering vacancies. Over 23% of Australian engineering vacancies in the last 12 months, were advertised in Victoria.

The below graph shows vacancy trends in Victoria since January 2006.



On average, engineering vacancies have exceeded the number of vacancies listed for professional and Victorian vacancies overall.

After a period where engineering vacancies fell below total and professional vacancies, growth has since increased steadily and remains higher for engineering than for all vacancies. The relatively steep rise in vacancies over the past few years reflects a period of high spending on infrastructure after an earlier period of relative inaction. Looking forward, the current government recently announced an ambitious \$107 billion infrastructure agenda.

Projects such as the CityLink Tulla Widening, Fast Rail to Geelong, North East Link and Monash Freeway upgrades have contributed to greater stability for engineering jobs in the state.

Despite this, engineering vacancy growth over the last 12 months has contracted by 3.2% and a 4.5% in the last three months. Since mid-2017, Engineering vacancies have been consistently higher than all Victorian vacancies and this trend continues.

The table below shows the number of engineering vacancies advertised in VIC by selected occupations over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Civil Engineering Professionals	592	610	573
Industrial, Mechanical and Production Engineers	165	172	159
ICT Support and Test Engineers	151	150	133
Other Engineering Professionals	99	99	87
Electrical Engineers	82	84	84
Engineering Managers	61	58	55
Mining Engineers	26	31	29
Telecommunications Engineering Professionals	27	28	25
Chemical and Materials Engineers	13	12	8
Electronics Engineers	9	9	7

As in NSW, the vast majority of engineering vacancies in Victoria in the second quarter of 2019 were in civil engineering. In contrast to NSW, the second highest number of engineering vacancies were recorded for mechanical, industrial and production engineering positions. The engineering vocation recording the third highest number of internet vacancy listings in the Q2 2019 was ICT support and test engineering.

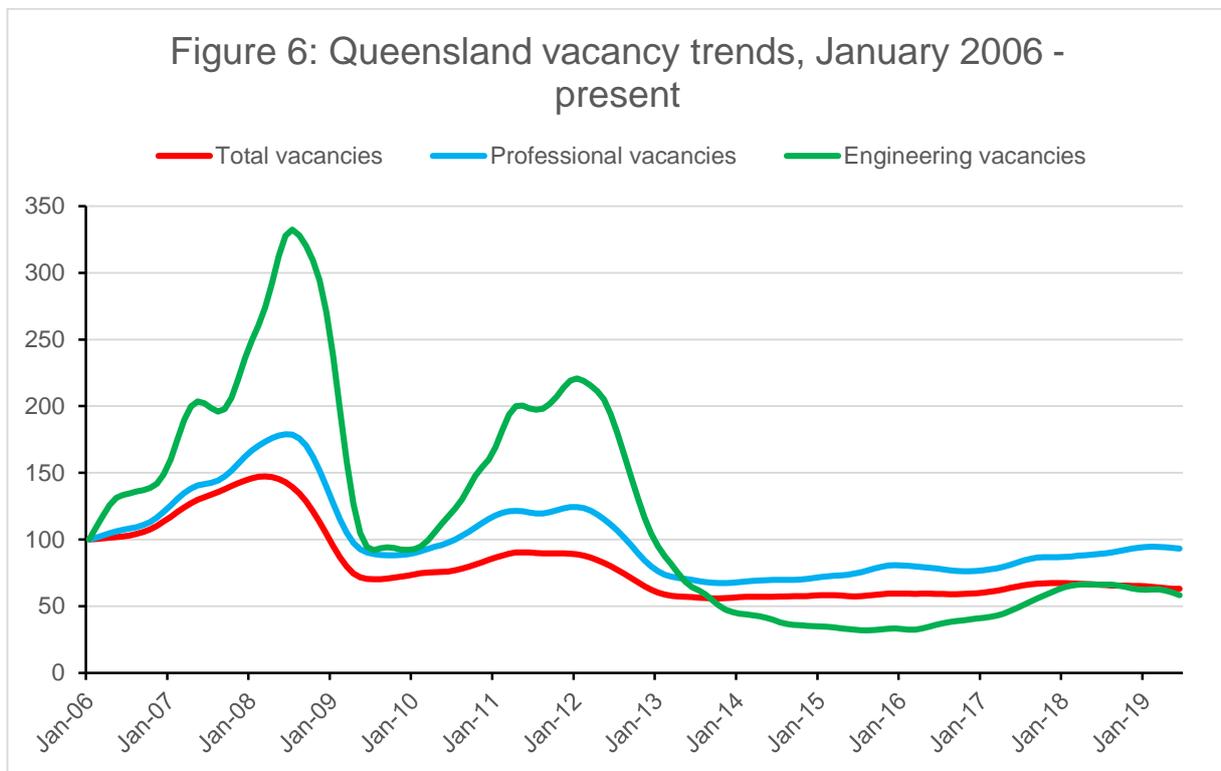
These top three occupations consistently recorded over 100 vacancies each month in 2019. All others recorded less than 100 vacancies per month.

The engineering occupation with the least vacancies recorded over this period in Victoria was electronics engineering.

Queensland

After an extended period where growth in engineering vacancies was below other vacancies, in the last 12 months, engineering vacancies have been on par with growth in vacancies overall for Queensland. However, growth in engineering vacancies remains slower than for professional vacancies.

The table below shows vacancy trends in Queensland over the last decade.



The average growth rate of engineering vacancies in Queensland narrowed by 10% in the last 12 months but the last three months have demonstrated a slight recovery with the average growth rate from April recorded at -5%.

Since July 2018, nearly 20% of engineering vacancies in Australia, were advertised in Queensland.

The recent upturn in engineering vacancies is due to significant projects across the state with ten-year work programs to improve the Bruce and Warrego highways as well as Cross River Rail and others.

The Queensland government has committed \$49.5 billion on infrastructure investment over the next four years with a focus on Queensland’s regions.

The table below shows the number of engineering vacancies advertised in QLD by occupation over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Civil Engineering Professionals	346	363	338
Mining Engineers	208	208	192
Industrial, Mechanical and Production Engineers	149	151	131
ICT Support and Test Engineers	104	104	84
Electrical Engineers	78	72	62
Other Engineering Professionals	63	70	58
Engineering Managers	39	38	38
Telecommunications Engineering Professionals	12	14	14
Electronics Engineers	9	7	8
Chemical and Materials Engineers	12	7	5

As with NSW and VIC, most engineering vacancies in QLD are seeking civil engineering professionals. Mining engineering was the engineering occupation with the second highest demand, followed by those vacancies listed in the fields of industrial, mechanical and production engineering.

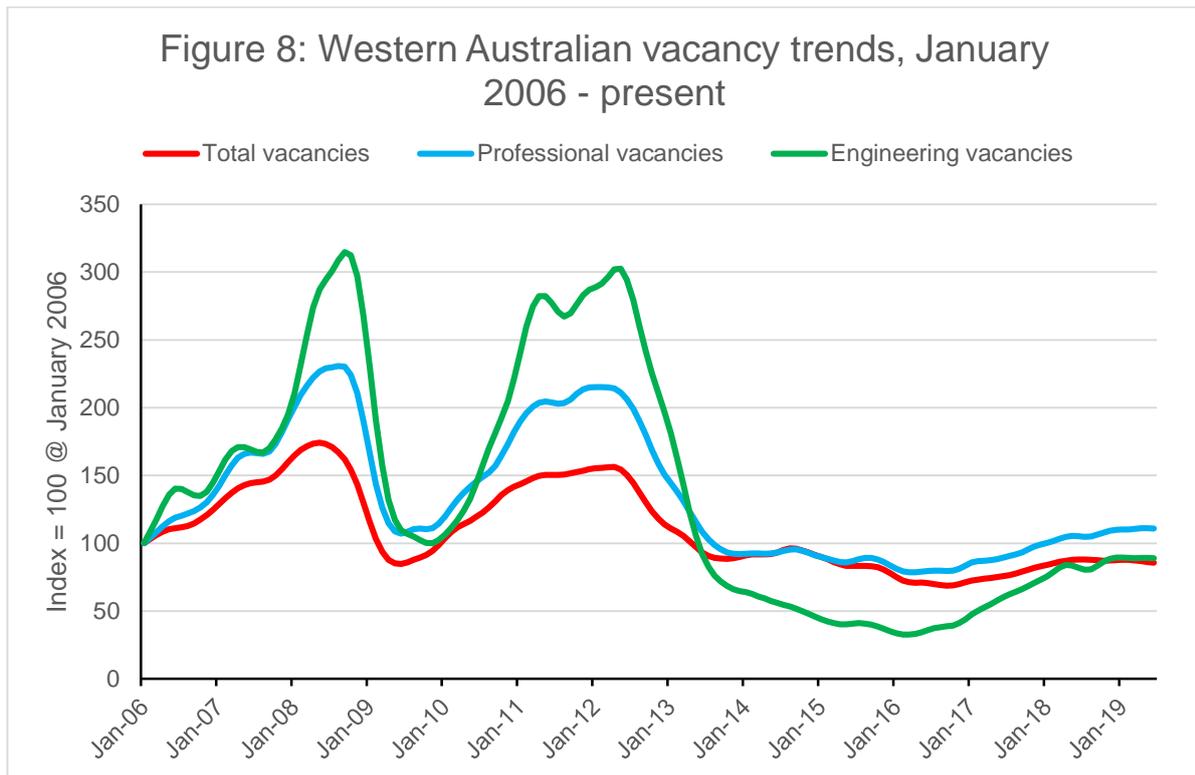
The remaining engineering vacancies by occupation all recorded less than 100 job advertisements each month for the second quarter of 2019. The lowest number of engineering vacancies in QLD were for electronics engineers, closely followed by chemical and materials engineers.

Western Australia

Engineering vacancy growth in Western Australia strengthened by 8.7% in the last year and for the most part performed similarly to vacancies overall. The average growth for engineering vacancies over the last three months has plateaued.

Major projects such as the Outback Way, Elizabeth Quay transformation, Perth City Link and increased government investment in Western Australian infrastructure may see further growth in demand for engineers in the second half of 2019.

The following table provides a visual snapshot of engineering vacancy trends in WA over the last ten years.



The period of prolonged decline in growth of engineering vacancies in WA was longer than in other states but in the last six months some recovery has seen engineering vacancies mirror overall vacancies in WA. Growth in engineering vacancies remains slower than for professional vacancies.

17% of all Australian engineering vacancies in the last year, have been advertised in WA.

The table below shows the number of engineering vacancies advertised in WA by selected occupations over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Mining Engineers	343	366	377
Civil Engineering Professionals	243	272	251
Industrial, Mechanical and Production Engineers	126	142	145
Electrical Engineers	54	52	47
ICT Support and Test Engineers	34	35	32
Other Engineering Professionals	35	33	31
Engineering Managers	18	20	24

Telecommunications Engineering Professionals	8	9	8
Electronics Engineers	9	7	6
Chemical and Materials Engineers	6	5	6

The highest number of engineering vacancies by occupation in WA continue to be listed in mining engineering, followed by listed advertisements for civil engineering professionals, then industrial, mechanical and production engineering roles.

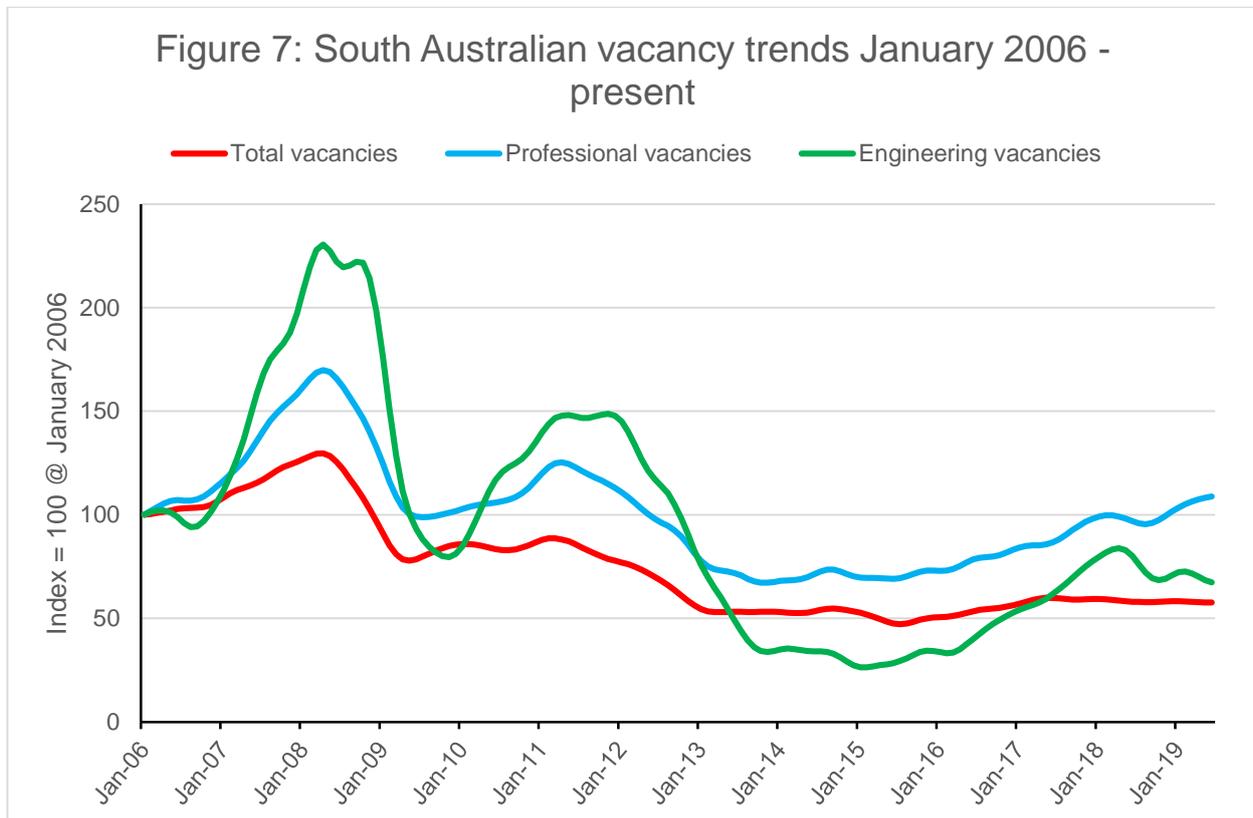
All other advertised engineering roles recorded less than 100 positions each month over the last three months. As with most other states, chemical and materials engineering vacancies had the least listings over the last three months, closely followed by vacancies listed for electronics engineers.

South Australia

Overall the last 12 months has a reduced growth rate for the total number of South Australian vacancies. The annual growth rate for engineering vacancies have fallen to -15% in the last year but have shown some recovery to -5% in the last three months.

Budget measures to support North South Corridor and South Australian Rural Roads project should provide for some further growth during construction.

The figure below shows engineering vacancies compared with total vacancies and professional vacancies since January 2006.



As with other states, engineering vacancies experienced a decline in growth for a prolonged period between 2013 and 2017. However, since then, engineering vacancy growth in South Australia has exceeded total vacancy growth but remains slower than for professional vacancies.

Four percent of engineering jobs advertised over the last 12 months, were listed in South Australia.

The table below shows the number of engineering vacancies advertised in SA by selected occupations over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Civil Engineering Professionals	69	68	59
Industrial, Mechanical and Production Engineers	33	34	38
Mining Engineers	29	33	29
Electrical Engineers	23	22	24
ICT Support and Test Engineers	29	23	16
Other Engineering Professionals	13	18	16
Engineering Managers	14	13	10
Telecommunications Engineering Professionals	4	5	3
Electronics Engineers	5	3	3
Chemical and Materials Engineers	2	2	1

As with the other major states, the highest number of engineering vacancies by occupation in SA were listed for civil engineers, closely followed by listed advertisements for industrial, mechanical and production engineers. The third highest engineering sector for engineering vacancies was mining engineering.

As with the other states, chemical and materials engineering vacancies had the least listings over the last three months, but the second lowest listed vacancies were in the field of telecommunications engineering.

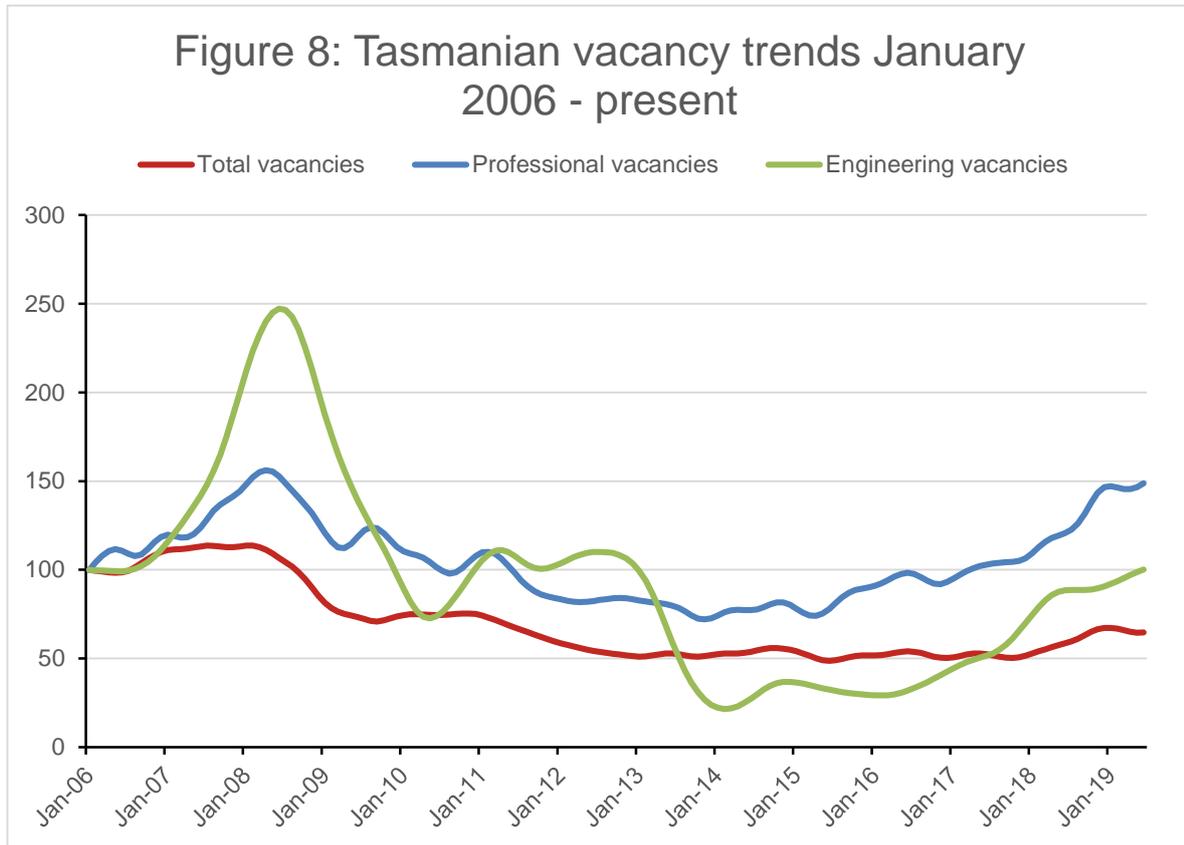
Tasmania and the territories

The following analysis of vacancy trends in Tasmania, the Northern Territory and the Australian Capital Territory, when expressed in trend terms, may fluctuate more than other states because the numbers are much smaller.

Tasmania

In Tasmania, vacancies were trending below professional vacancies and vacancies overall from mid-2013. However, since April 2017, engineering vacancies have been trending above the total vacancies and professional vacancies and this trend looks set to continue.

The below figure shows engineering vacancy trends since January 2006.



In the last year the vacancy growth rate has increased across professional, engineering and overall vacancies, with engineering vacancies showing an increase of 11%, which is slightly higher than for vacancies overall at 10%.

A strong project pipeline across the energy and road infrastructure sectors is likely to see the upward trend maintained.

In the last three months, total vacancies have declined by 1.9%, where engineering vacancies continue modest growth of 4%.

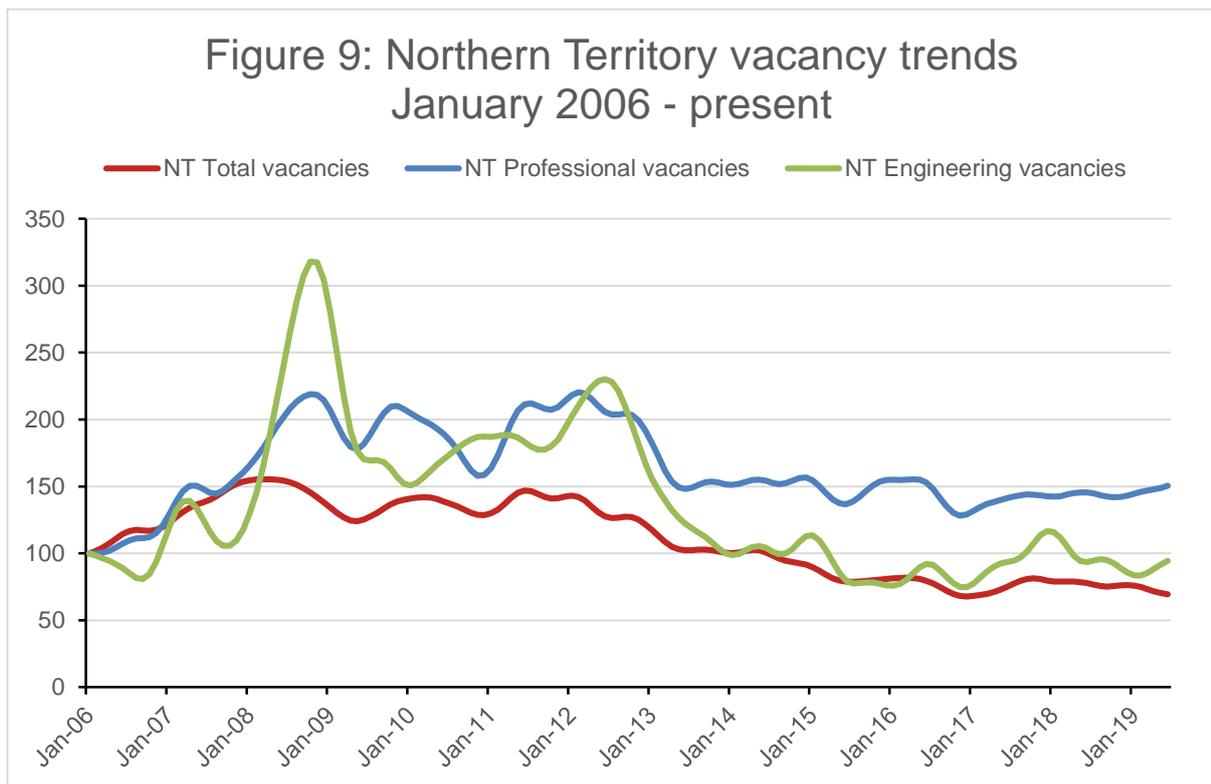
The table below shows the number of engineering vacancies advertised in Tasmania by selected occupations over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Civil Engineering Professionals	22	21	19
Industrial, Mechanical and Production Engineers	6	7	7

Electrical Engineers	5	6	6
Mining Engineers	9	6	5
Other Engineering Professionals	6	7	5
ICT Support and Test Engineers	1	1	1
Engineering Managers	0	1	1
Telecommunications Engineering Professionals	1	1	0

Northern Territory

Over the last year, engineering vacancies in the Northern Territory have been trending above total vacancies across the Northern Territory but below professional vacancies



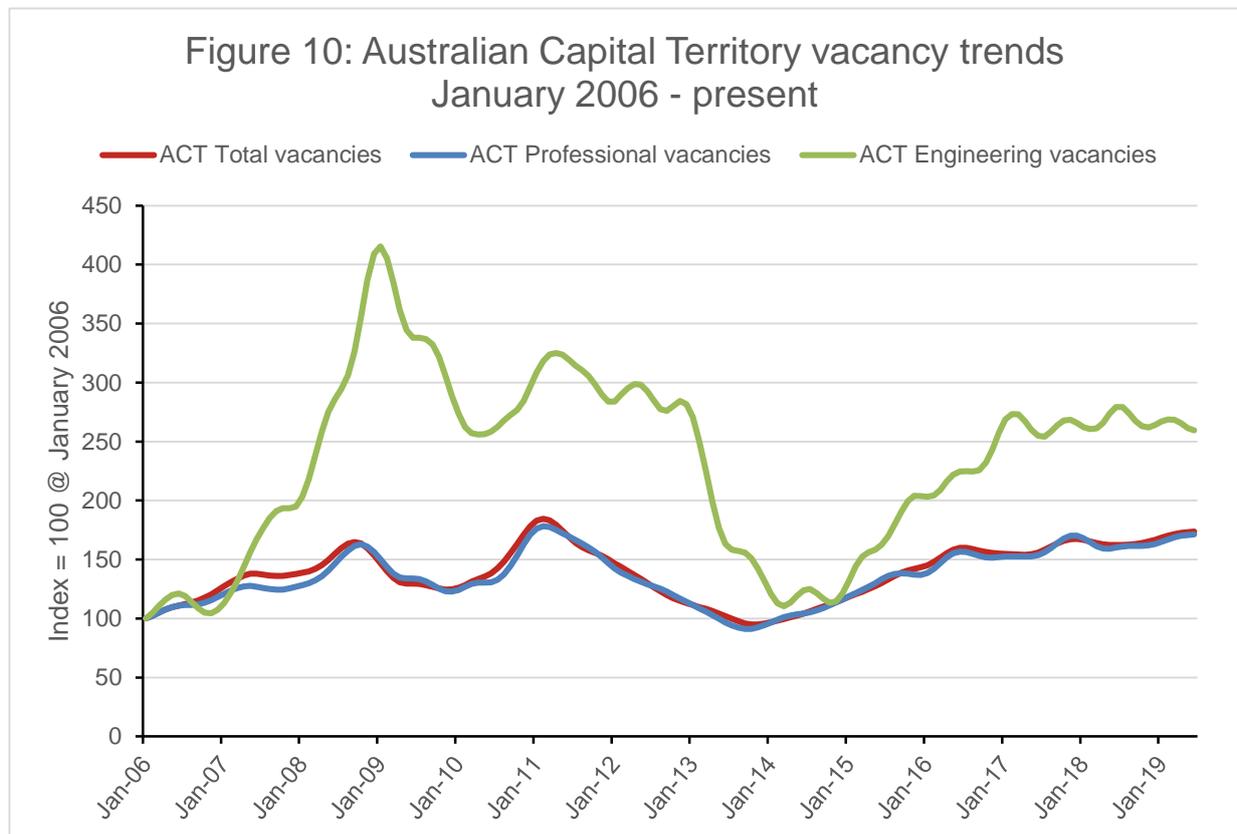
Recent proposals for major infrastructure investment currently in development or procurement including the Northern Gas Pipeline Project, Queensland Rail link and Marine Industry Park and other projects, facilitated by both the private and public sectors, may see the upward trend for engineering vacancies continue.

The table below shows the number of engineering vacancies advertised in the Northern Territory by occupation over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
Civil Engineering Professionals	22	21	19
Industrial, Mechanical and Production Engineers	6	7	7
Electrical Engineers	5	6	6
Mining Engineers	9	6	5
Other Engineering Professionals	6	7	5
ICT Support and Test Engineers	1	1	1
Engineering Managers	0	1	1
Telecommunications Engineering Professionals	1	1	0

Australian Capital Territory

Engineering vacancies in the ACT consistently trend higher than professional vacancies and vacancies overall. However, engineering vacancies have contracted by 6.6% in the last year and 2.8% in the last three months, where total and professional vacancies have both expanded by over 6% in the last year.



The new ACT agency, Major Projects Canberra, will focus on delivery of the ACT government pipeline of major projects such as the Canberra Hospital Spire and stage two of the later rail. The ACT government outlined infrastructure spending of \$787 million over the next four years.

The following graph shows the number of engineering vacancies advertised in the ACT by occupation over the last three months.

ANZSCO Title	April 2019	May 2019	June 2019
ICT Support and Test Engineers	72	70	58
Civil Engineering Professionals	40	44	45
Industrial, Mechanical and Production Engineers	13	10	9
Other Engineering Professionals	15	12	8
Engineering Managers	5	5	6
Electrical Engineers	4	4	5
Telecommunications Engineering Professionals	7	6	5
Electronics Engineers	3	3	3
Mining Engineers	2	2	1

Advertisements in the ACT over the last three months have been highest in ICT support and test engineering, with civil engineering professionals being the second most in demand engineering professionals.

There have been very few electronics and mining jobs advertised in the ACT in the last three months and no chemical and materials engineering jobs at all.



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