

**Submission to the Department of Employment's
Consultation on Skilled Migration Occupation Lists**

by

Jim Oakley

Author of

*The Deliberate and Sustained Oversupply of the Engineering Labour Market by the
Australian Federal Government: 2012-13 onwards*

<http://www.engineeroversupply.weebly.com>

engineeroversupply@yahoo.com

November 2017

Introductory Comments

This submission presents publicly available information which demonstrates that the engineering labour market in Australia is hugely oversupplied. The oversupply has continued for nearly five years. **There is no evidence to the contrary.**

The evidence about the engineering labour market covered in this submission includes:

- Over-representation in the skilled migration program
- Net supply and demand for engineers
- Internet vacancies
- Permanent and 457 visas
- Skilled migration index to vacancy index
- Applicants per vacancy
- View of Federal Government departments about engineering oversupply
- Graduate outcomes
- Age profile of the engineering workforce.

The evidence contained in this submission **never** appears in the submissions of vested interests such as Engineers Australia and the Australian Council of Engineering Deans. They avoid this information completely. On page 26 of this submission I have documented the numerous problems with Engineers Australia's previous two submissions to the review of the Skilled Occupation List.

The Department of Employment (DoE) has indicated it proposes no change to the status of any occupation on the Medium and Long-term Skilled Occupation List (MLTSSL), because the Government "has prioritized continuity and stability" following the "changes to the skilled migration occupation lists in April and July 2017". The changes to the skilled migration program alluded to focused almost entirely on the 457 visa program and the Short-term Skilled Occupation List (STSOL), rather than on the MLTSSL. No engineering occupations are listed on the STSOL because there is no shortage of engineers. For five years, engineering occupations have been swamped through continual oversupply via the MLTSSL (and its predecessor, the Skilled Occupation List (SOL)), and the Government has effectively made no changes to the status of engineering occupations on the MLTSSL.

This deliberate and sustained oversupply of the engineering labour market has entrenched unemployment, underemployment and displacement from the profession for tens of thousands of Australian and migrant engineers. For many, there will only be an opportunity to be absorbed back into the engineering workforce when engineering migration is halted.

The very concept of the MLTSSL is flawed. In the 2016 SOL review, the MLTSSL (then SOL) was intended to address the skills needs of the Australian economy 5 to 10 years into the future. Apart from the fact that it is impossible to predict the labour market requirements for individual occupations (and even professions) more than two years in advance, migrants can be brought into the country within 3-6 months of applying for a visa, and even more quickly if the Government wishes. There is no basis for bringing in migrant engineers now into a disastrous job market with the aim of addressing skills needs in 5-10 years' time. I have addressed the flaws in the Government's 'stockpiling theory' here:

<http://engineeroversupply.weebly.com/corruption.html>

Currently there are three versions of the MLTSSL in the legislation. One for independent, family, and State and Territory nominated migrants; one for migrants seeking subclass 457 visas (temporary employer visas); and one for migrants seeking subclass 186 visas (permanent employer visas). The consultation documents do not mention these three versions.

On behalf of the citizens of this country, the Department of Employment should maintain its integrity and make recommendations for inclusion or exclusion from the two lists based on rational criteria and the concept of a 'fair go' for Australians and recent migrants. It should not make the unethical recommendation to continue to swamp the engineering labour market via listing of engineering occupations on the MLTSSL (the 'no change' recommendation). In my view, engaging in unethical behavior and corrupting the skilled migration program are the established roles of the Department of Immigration and Border Protection (DIBP). The Department of Employment should keep it that way.

Over-Representation in the Skilled Migration Program

The Government's skilled migration program has been distorted so that engineers, accountants and ICT professionals make up a wildly disproportionate percentage of the program. The MLTSSL includes occupations in Skill Levels 1,2 and 3. The STSOL includes occupations in Skill Levels 1-6. Definitions of Skill Levels 1-3 are as follows:

Skill level 1: Bachelor degree of higher qualification

Skill level 2: Advanced diploma or diploma

Skill level 3: Certificate IV or III (including at least two years on-the-job training).

The Australian Labour Force Survey estimates that the workforce size for ANZSCO Minor Group '233 Engineering Professionals' is 146,000. The same survey estimates that the workforce size for occupations with Skill Level 1,2 or 3 is at least 6,890,000 (May 2017). This means engineering occupations constitute just **2.1%** of the workforce with Skill Levels 1, 2 or 3. This is an overestimate, since the 2016 Census indicates that only 106,000 people claim to have an occupation in '233 Engineering Professionals'. The table below demonstrates how engineering is over-represented in the skilled migration program. Data in the table are from 2015-16, since permanent visa data for 2016-17 are not currently available.

	Permanent visa	457 visa	Total
Engineering	6,867	1,095	7,962
Total skilled migration program	60,735	45,395	106,130
<i>Engineering as percent of total (%)</i>	11.3	2.4	7.5

Despite making up less than 2.1% of the workforce with Skill Levels 1, 2 or 3, engineering occupations represent 7.5% of the total skilled migration program and 11.3% of the permanent visa component of the skilled migration program. It is the misuse of the MLTSSL that has contributed to the huge annual intake of engineers on permanent visas. This occurs year after year.

Annual Net Supply and Demand for Engineers in Australia

Source	Comment	Per Annum	Data Source
Supply			
Immigration (permanent and 457 visa)	Excluding subclass 485 visas	7,962	Department of Immigration and Border Protection
Australian graduates	10,736 per annum Bachelor and higher degrees. At least 75% are available for full-time employment.	8,052	Department of Education & Training
International graduates	7,625 per annum. Assume only 30% get work visas.	2,288	Department of Education & Training
Unemployed engineers	Assume 5% unemployment rate	5,250	Census 2016
Displaced engineers		Not available	
Total supply		23,552	
Demand			
Growth in workforce	13,700 over five years	2,740	Department of Employment
Retirements*	Assume 50% of people aged over 55 retire in the next five years.	1,687	Census 2016
Voluntary departures from engineering		Not available	
Total demand		4,427	

Notes

- Supply numbers are based on 2015 or 2015-16 data. It is highly likely that 2017 supply data will be greater.
- The total for international graduates assumes only 30% are granted work visas. The actual percentage is likely to be higher. The Government does not release this data.
- According to the 2016 Census, engineers aged 55 and over represent 16% of the workforce. Assume 50% of these people retire in the next five years. Based on Census data, this is an overestimate.

*Note that redundancies do not create demand because the vacated position no longer exists by definition.

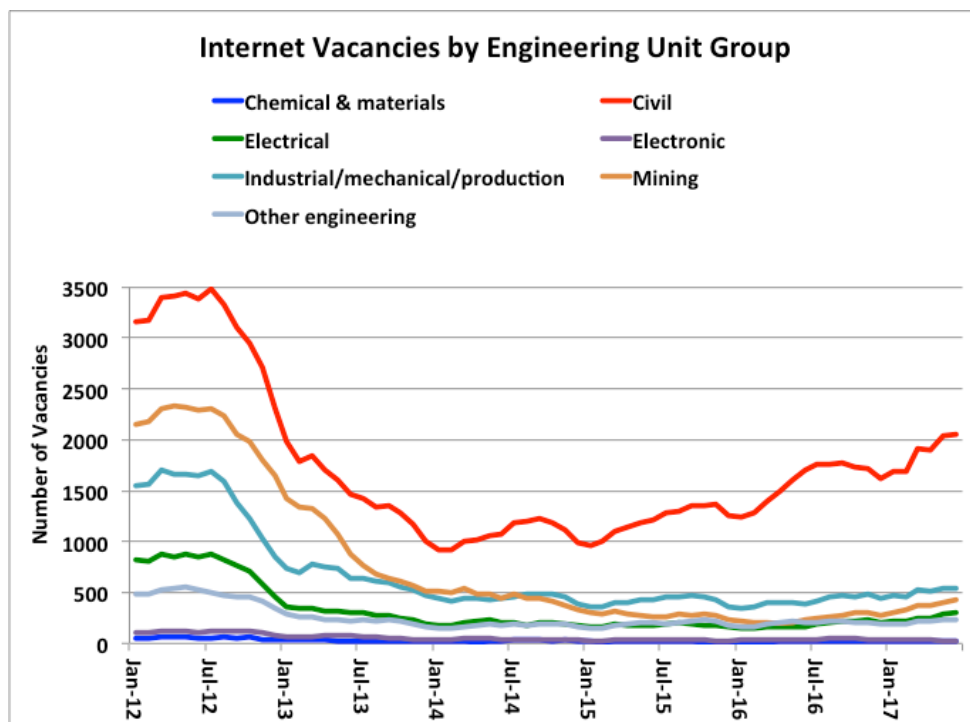
Without accounting for supply from unemployed and displaced engineers or from graduate engineers, and considering only the supply from immigration, it can be seen that with current immigration levels, the supply of migrant engineers would exceed labour market demand by

80% (or 3,535 engineers) each year over the next five years. In reality, there are many thousands of unemployed and displaced Australian engineers seeking engineering positions as well. Add to that more than 10,000 new graduate engineers per annum seeking work, and it can be seen that the oversupply of engineers will remain at disastrous levels.

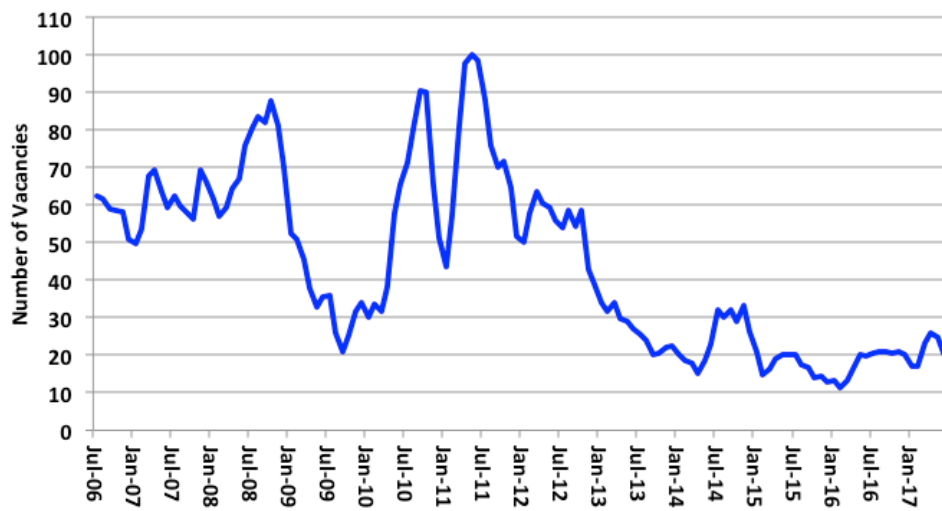
Graduates are, of course, not interchangeable with experienced engineers in the engineering workforce. However, if the entire annual demand for 4,427 engineers were only for graduates, then the annual supply of Australian graduates available for full-time work (excluding international graduates) would be **82%** greater than demand.

Internet Vacancy Data to July 2017

Like job vacancies for other professions, most engineering job vacancies are created by individuals in the engineering workforce moving from one job to another. A minority of vacancies are filled by people who are unemployed, or who are displaced from their profession and who are trying to return to engineering. Vacancies nonetheless represent an *opportunity* for unemployed or displaced engineers to enter or re-enter the engineering workforce. As can be seen from the graphs below, in recent years the job opportunities for unemployed, underemployed and displaced engineers have fallen away to a fraction of what they were in 2011-12. For engineering, jobs advertised on Internet sites such as SEEK probably represent about 95% of all advertised engineering jobs. Internet vacancy data are collected by DoE each month.

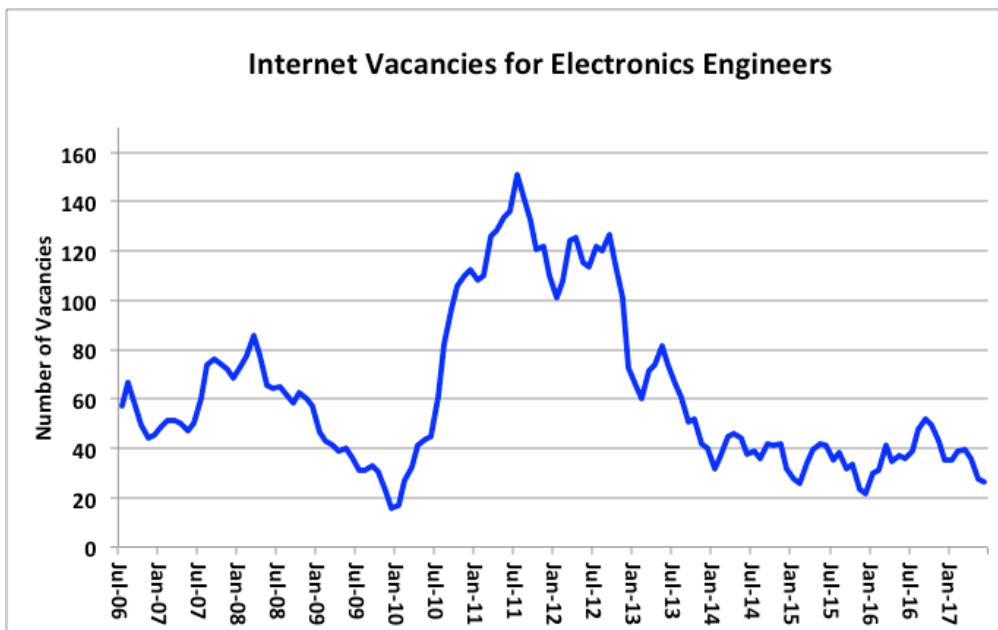
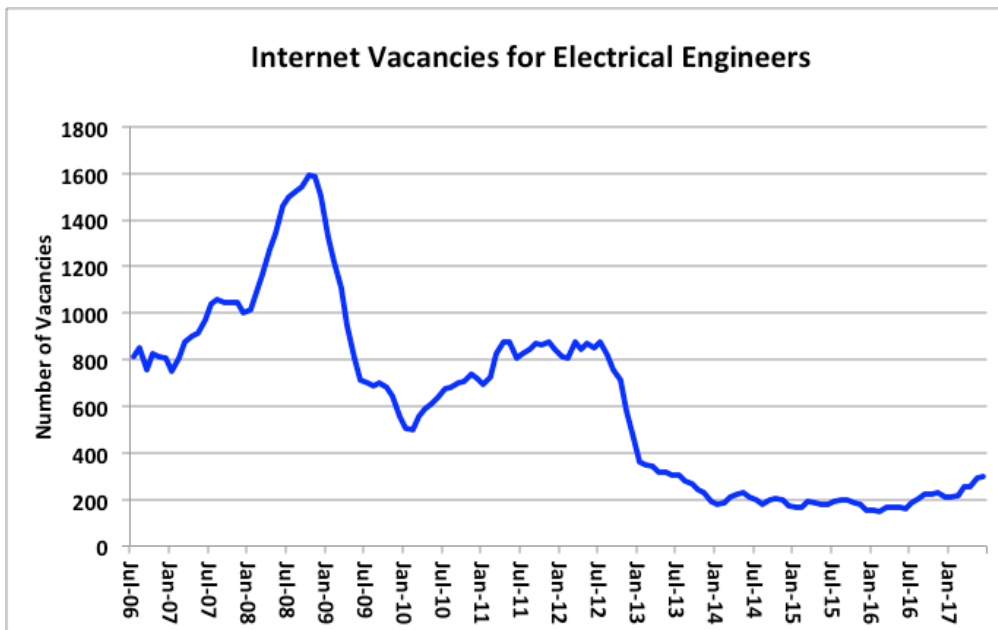


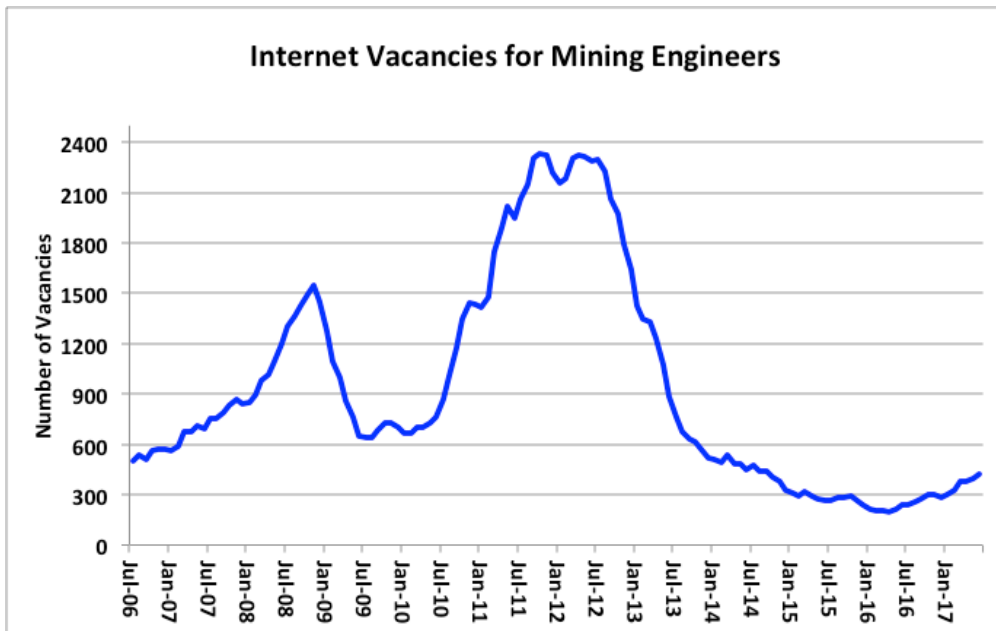
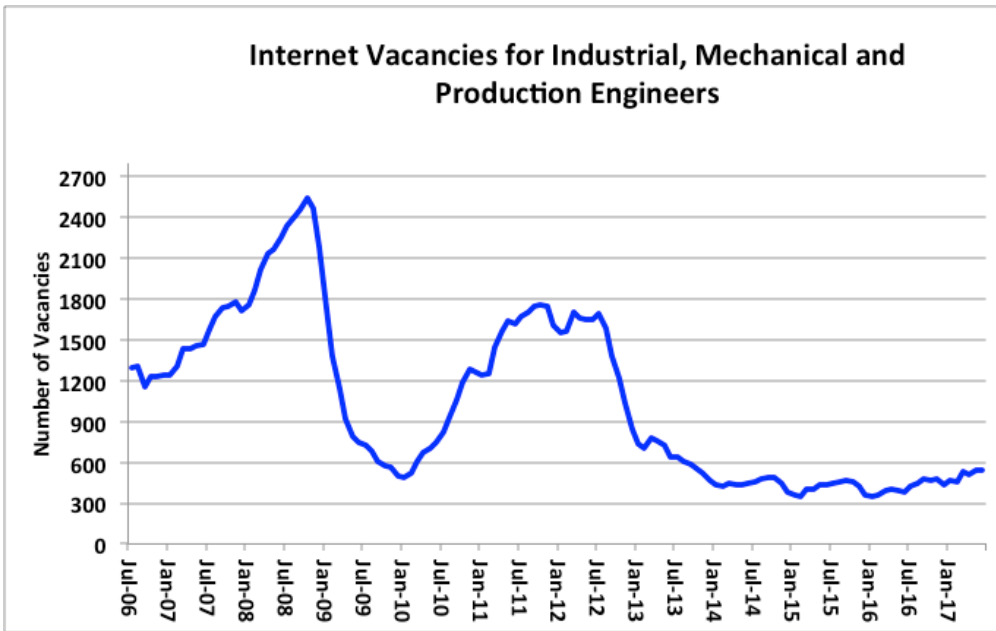
Internet Vacancies for Chemical and Materials Engineers

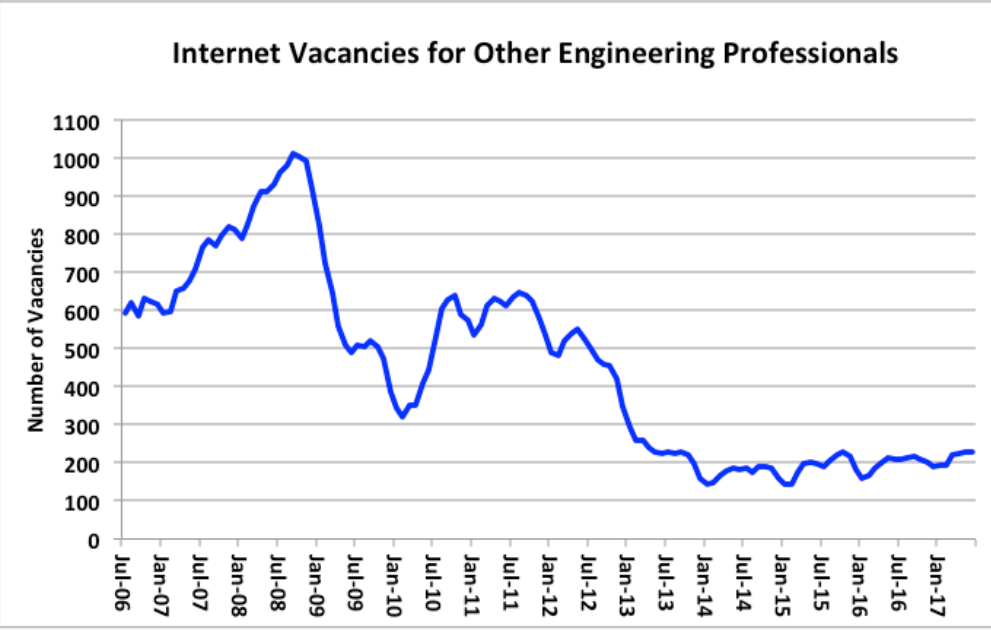


Internet Vacancies for Civil Engineering Professionals



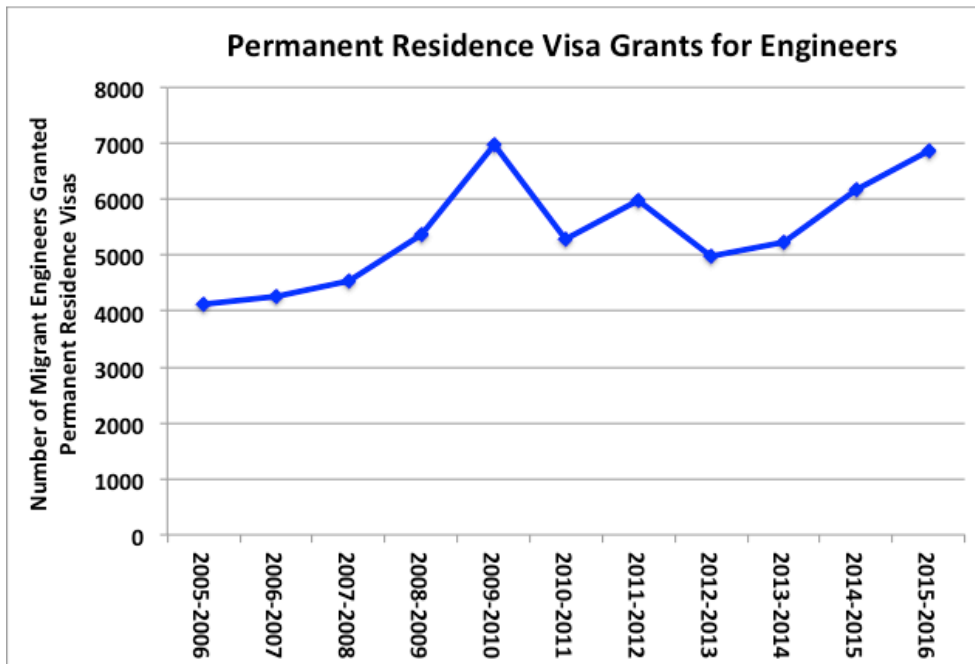
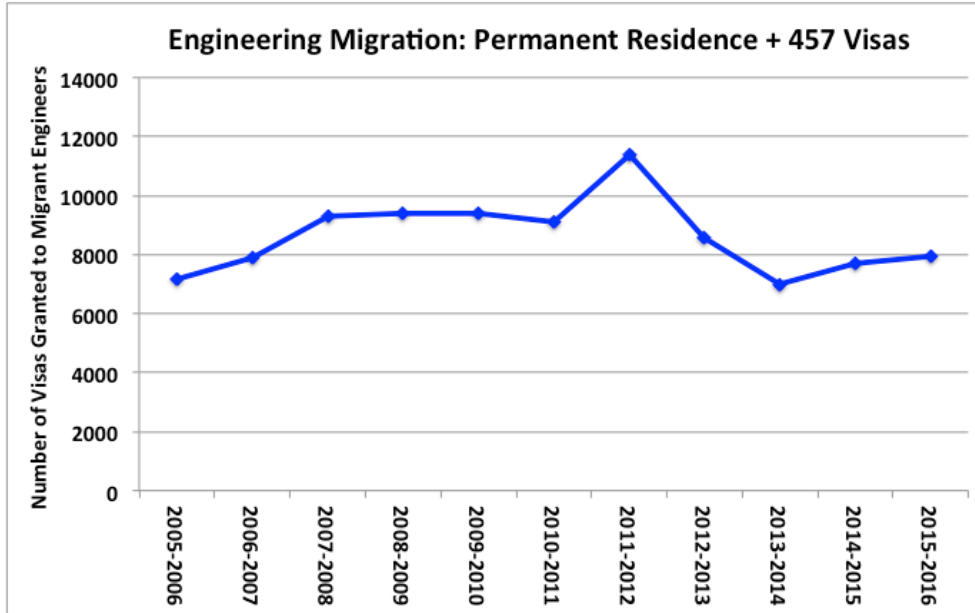


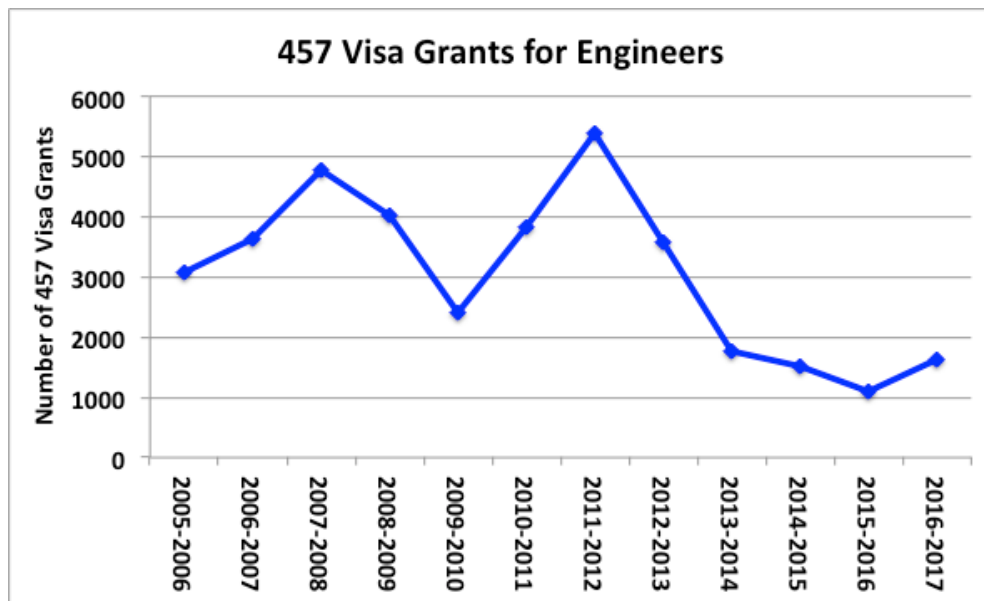
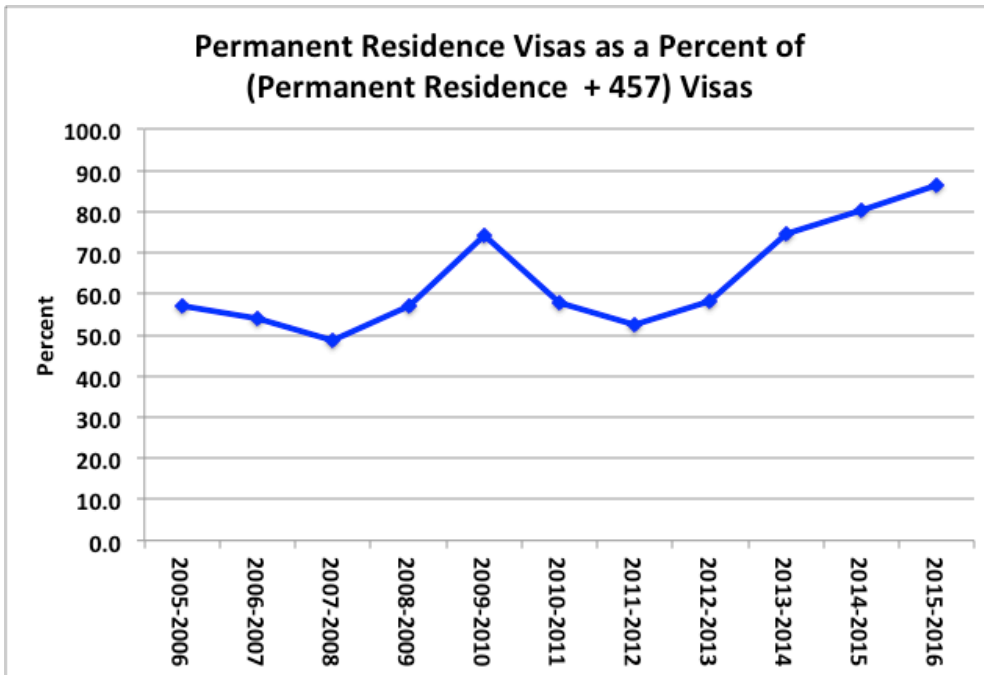




Temporary and Permanent Visa Data

Despite the huge excess of net supply over net demand for engineers each year, and the collapse in the number of job vacancies since 2012, the Federal Government has maintained engineering migration at resource-boom levels. Note that permanent visa data for 2016-17 are not publicly available at the present time. Graphs use data up to July 2016, except for the fourth graph for 457 visas, which uses data up to July 2017. Visa data are collected by DIBP.

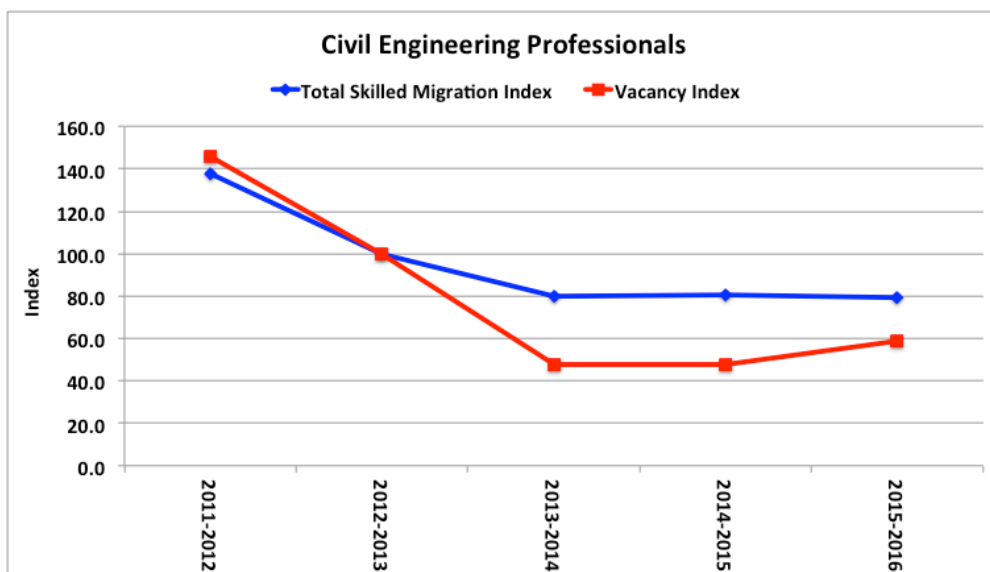
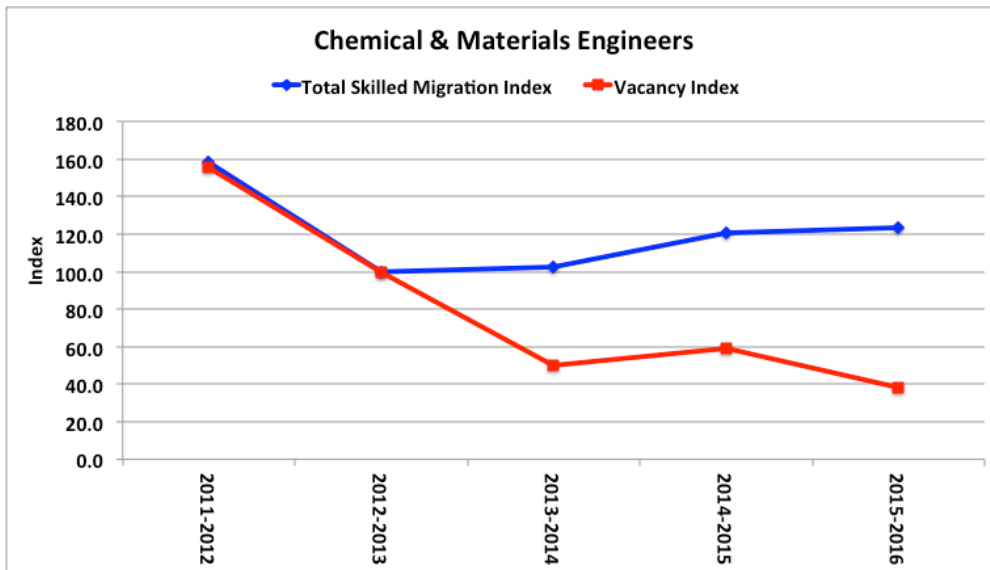


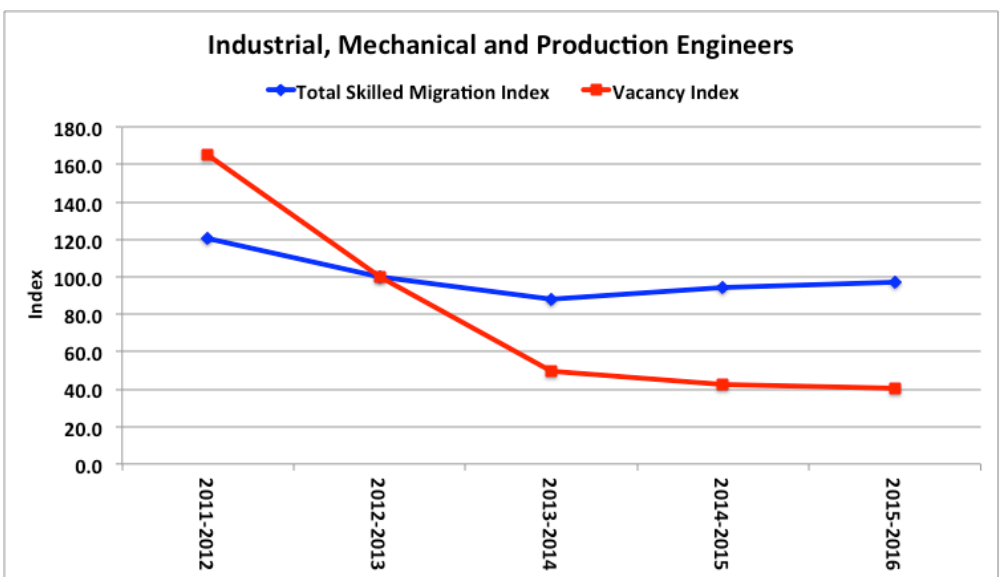
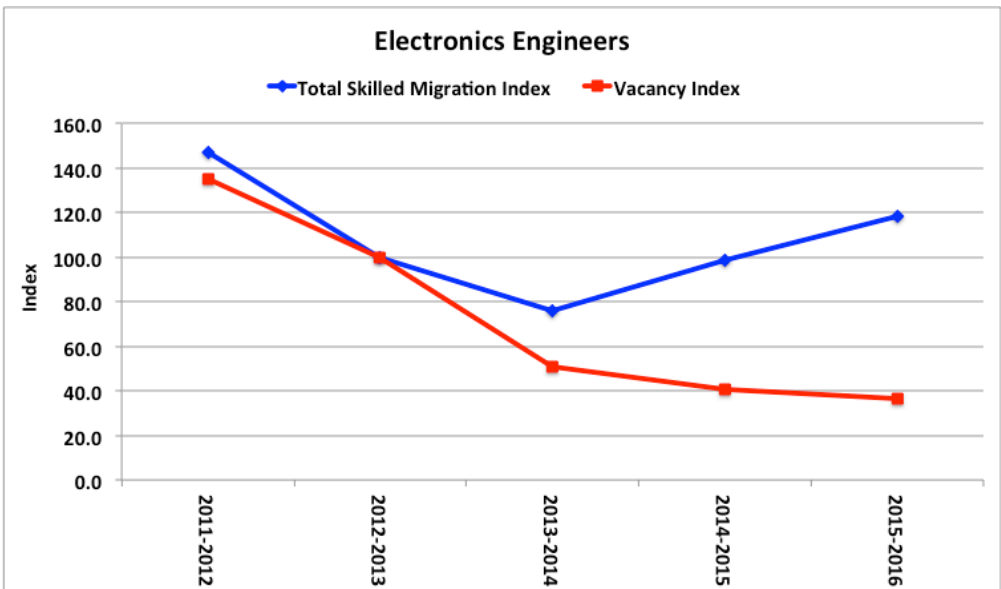
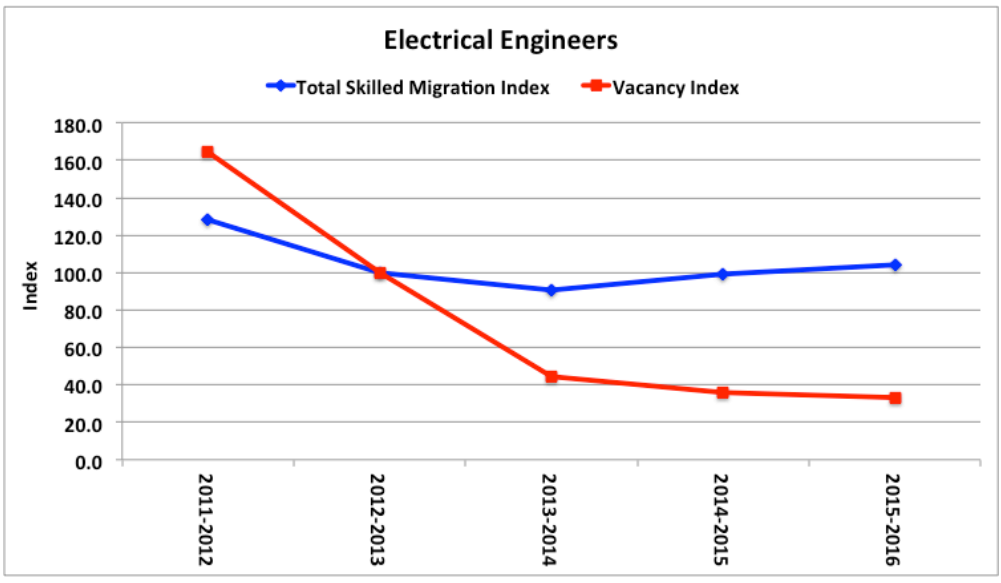


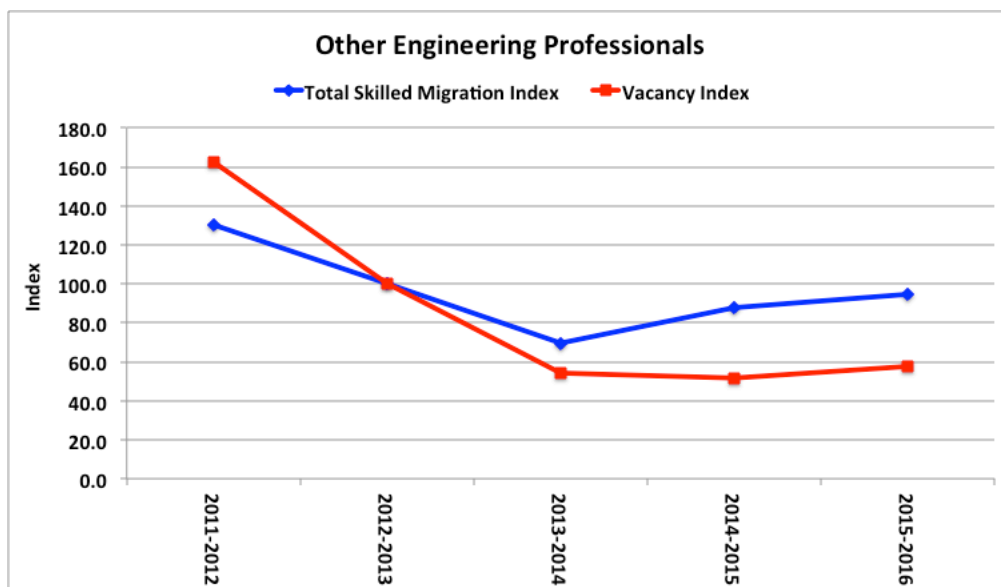
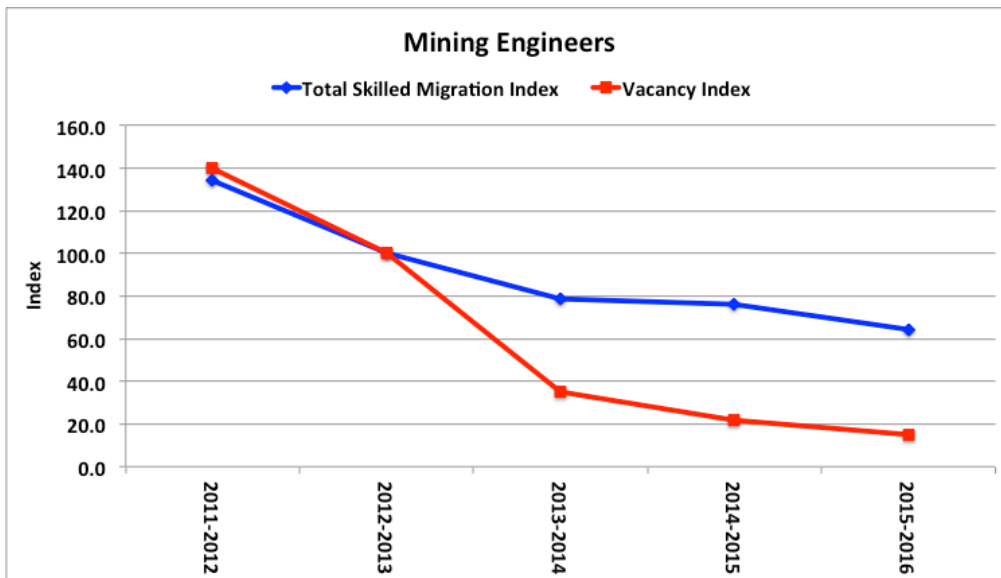
Skilled Migration Index Compared with Vacancy Index

The Skilled Migration Index is derived from the total number of visas granted to migrant engineers each year (DIBP data). The Vacancy Index is derived from the internet vacancy data collected by DoE.

With reference to the graphs below, each index is set to a value of 100 in 2012-13. According to DoE, there was no shortage of engineers in most of the monitored engineering Unit Groups in 2012-13. If the ratio of migrant engineers to job vacancies had remained in balance since 2012-13, the blue and red lines in the graphs below would be overlapping. However, there is significant divergence between the lines after 2012-13 because the Skilled Migration Index exceeds the Vacancy Index in every case.





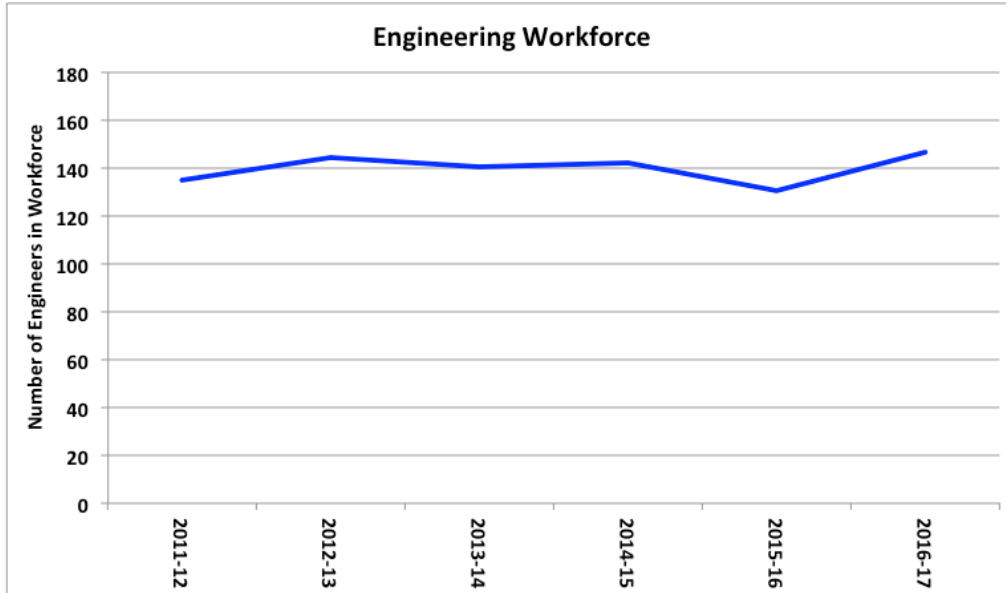


Ratio of migrant engineers to vacancies

ANZSCO Code	Unit Group	Ratio in 2012-13	Ratio in 2015-16
2331	Chemical and Materials Engineers	1.00	3.23
2332	Civil Engineering Professionals	1.00	1.35
2333	Electrical Engineers	1.00	3.14
2334	Electronics Engineers	1.00	3.26
2335	Industrial, Mechanical and Production Engineers	1.00	2.40
2336	Mining Engineers	1.00	4.28
2339	Other Engineering Professionals	1.00	1.65

Size of the Engineering Workforce

The Australian Labour Force Survey (ALFS) documents the number of employed engineers who have an occupation in the ANZSCO Minor Group '233 Engineering Professionals' as their main job. The average annual workforce size for '233 Engineering Professionals' is plotted in the graph below, and it can be seen that between 2011-12 and 2016-17 the average workforce size remained almost constant.



The ALFS overestimates the size of the engineering workforce compared with the 2016 Census because the ALFS is subject to errors due to its very small sample sizes. In contrast, the Census captures virtually the entire population. Census data for the size of the workforce for '233 Engineering Professionals' is shown below.

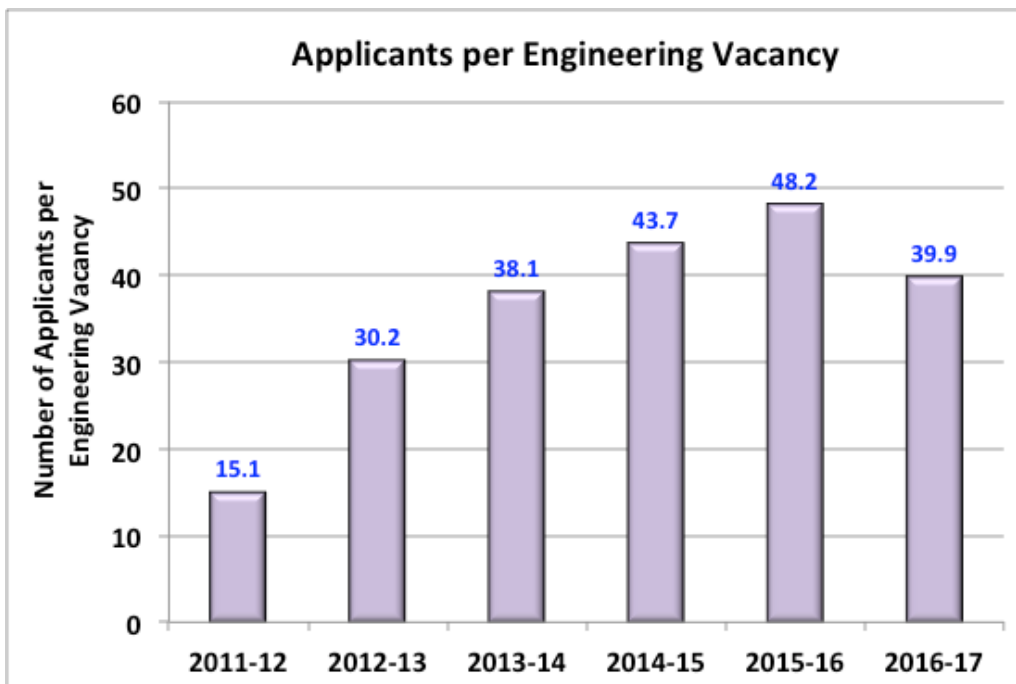
2011 Census
106,453

2016 Census
105,763

Again, the Census data demonstrate that the size of the engineering workforce has remained virtually constant between 2011 and 2016.

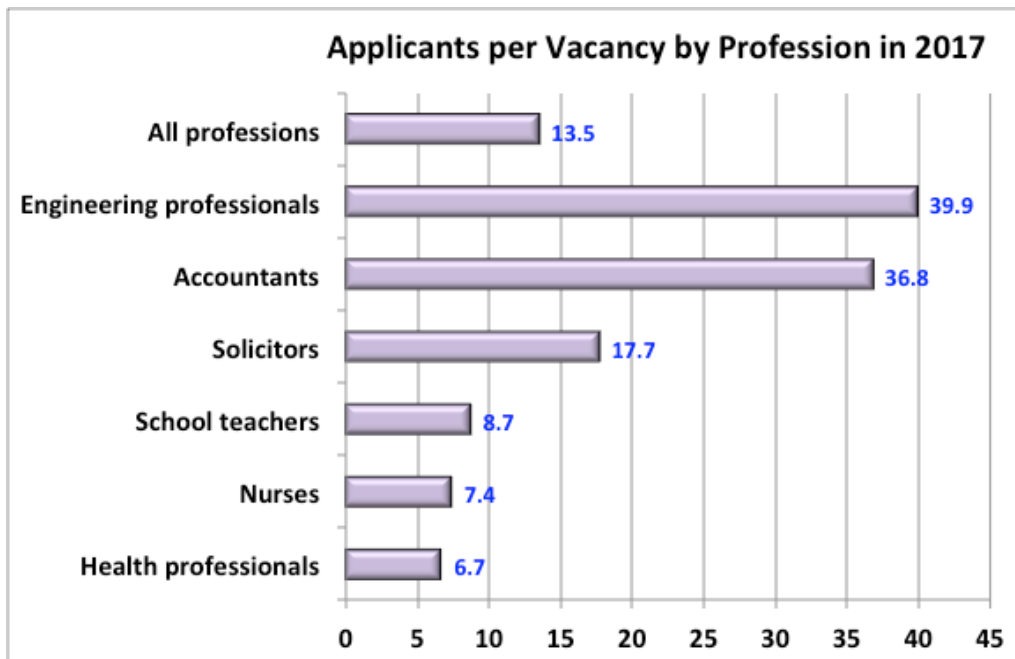
Applicants per Engineering Vacancy

Despite the constant size of the engineering workforce, between 2011-12 and 2015-16 the number of applicants per engineering job vacancy more than tripled, reaching a peak of 48.2 in 2015-16. This is the highest value ever recorded by DoE, which collects the data. The number reduced to 39.9 in 2016-17 due to increased employment opportunities for civil engineering professionals (according to DoE), but this was still the highest value for any profession or trade monitored by DoE in that year. Some individual engineering occupations had even greater values; for example, there were 65.9 applicants per vacancy for mechanical engineers.



The average number of applicants per vacancy for Australian professions was 13.5. The data for some other professions are shown in the chart below.

The reason that the number of applicants per engineering vacancy has soared since 2011-12, despite the constant size of the engineering workforce, is because of the significantly increased size of the cohort of engineers who are either unemployed, underemployed or displaced from the profession. The end of the second stage of the resources boom saw a major collapse in the number of job vacancies for engineers, and poor employment conditions have continued since 2013. Yet engineering immigration has remained at resource boom levels. During the same period from 2011, the number of Australian and international engineering graduates seeking places in the Australian engineering workforce has increased by at least 20%.



The View of Federal Government Departments

Each year up to and including 2017, the Department of Education and Training (DE&T), and its predecessor organisations, identified occupations on the MLTSSL (formerly SOL) which were in an emerging state of oversupply. These occupations were 'flagged' for future removal from the MLTSSL. The table below indicates the years in which engineering Unit Groups were flagged. Most Unit Groups were flagged year after year, but still remained on the MLTSSL despite the ever increasing number of applicants per engineering vacancy, and the despite the increasing ratio of migrant engineers to vacancies. The ultimate composition of the MLTSSL was, and still is, controlled by the DIBP, and this is the likely reason that engineering occupations were not removed from the MLTSSL.

Engineering Unit Groups flagged on the SOL/MLTSSL

ANZSCO Code	Unit Group	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
2331	Chemical and Materials Engineers (Note 1)	X	X	✓	✓	✓	✓	✓
2332	Civil Engineering Professionals	✓	✓	✓	✓	✓	✓	✓
2333	Electrical Engineers	X	X	X	X	X	X	X
2334	Electronics Engineers	✓	✓	✓	✓	✓	✓	✓
2335	Industrial, Mechanical and Production Engineers	✓	✓	✓	✓	✓	✓	✓
2336	Mining Engineers	X	X	X	X	✓	Note 2	Note 3
2339	Other Engineering Professionals	✓	✓	✓	✓	✓	✓	✓ Note 4

✓ = flagged X = not flagged

Note 1: Only '233111 Chemical engineer' has been flagged for removal

Note 2: '2336 Mining Engineers' was removed from the SOL for 2016-17

Note 3: '2336 Mining Engineers' was not listed on the MLTSSL for independent and family nominated migrants, and for State and Territory Government nominations. However, this Unit Group was listed on the MLTSSL for employer nominations for permanent and temporary visas.

Note 4: One occupation in this Unit Group, namely '233999 Engineering professionals (not elsewhere classified)' was not listed on the MLTSSL for independent and family nominated migrants, and for State and Territory Government nominations. However, this occupation was listed on the MLTSSL for employer nominations for permanent and temporary visas.

The DoE monitors the state of the labour market for a cross section of engineering occupations on an annual basis. For most of them, DoE has concluded that there has been no shortage of engineers since 2011-12. For civil engineering professionals, for the last two years there has been some identified recruitment difficulty, but according to DoE it is only for structural engineers, senior and specialised roles. See the table below.

DoE labour market ratings for engineers for the six years to 2016-17

ANZSCO Code	Occupation	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
2332-11,12,14,15	Civil engineering professionals	S	NS	NS	NS	RD	RD
233311	Electrical engineer	S	NS	NS	NS	NS	NS
233512	Mechanical engineer	S	NS	NS	NS	NS	NS
233611	Mining engineer (ex. Petroleum)	S	S	NS	NS	NS	NS

S = shortage

NS = no shortage

RD = recruitment difficulty

In April 2017, changes to the skilled occupation lists (including the MLTSSL) resulted in six of the most heavily oversupplied engineering occupations being excluded from employer and State and Territory Government visa nominations. These occupations were:

- 233111 Chemical engineer
- 233112 Materials engineer
- 233411 Electronics engineer
- 233511 Industrial engineer
- 233513 Production or plant engineer
- 233612 Petroleum engineer.

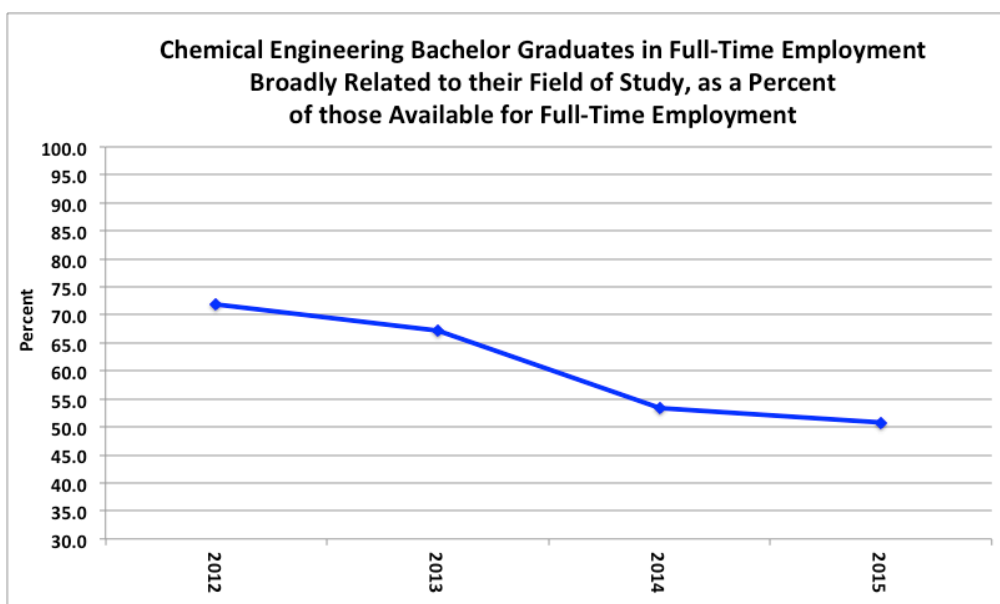
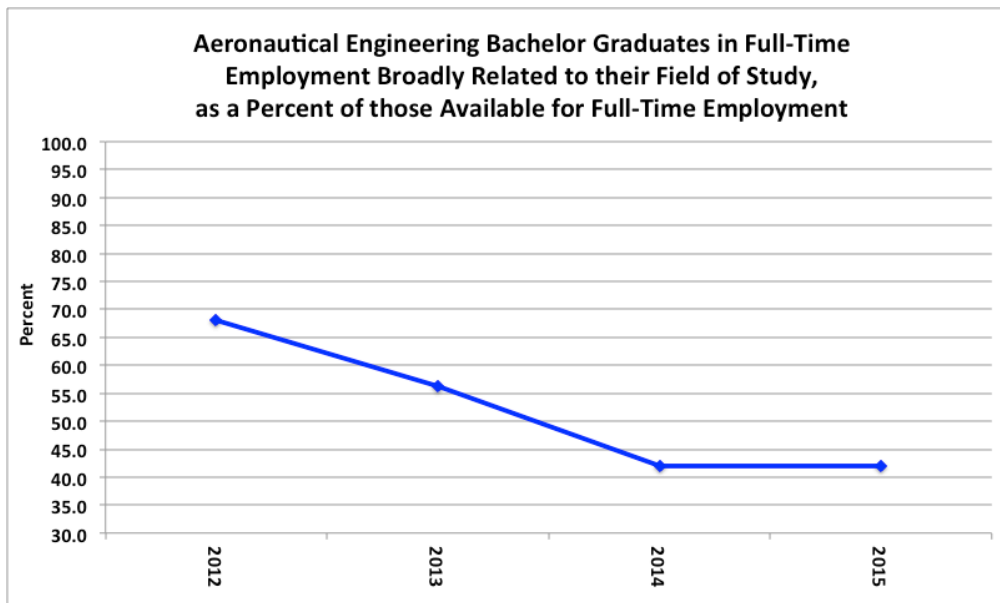
This was a small acknowledgment by the Government of the huge oversupply in these occupations. However, following the April changes, DIBP allowed a highly selective, opaque process of lobbying and submissions to occur by vested interests. The general public was excluded. For engineering, the result was that these six engineering occupations are once again available for employer and State and Territory Government visa nominations. Furthermore, these six, plus one other, were exempted from labour market testing for 457 visas until November 2017. This has now been reversed, and once again all 21 engineering occupations required labour market testing.

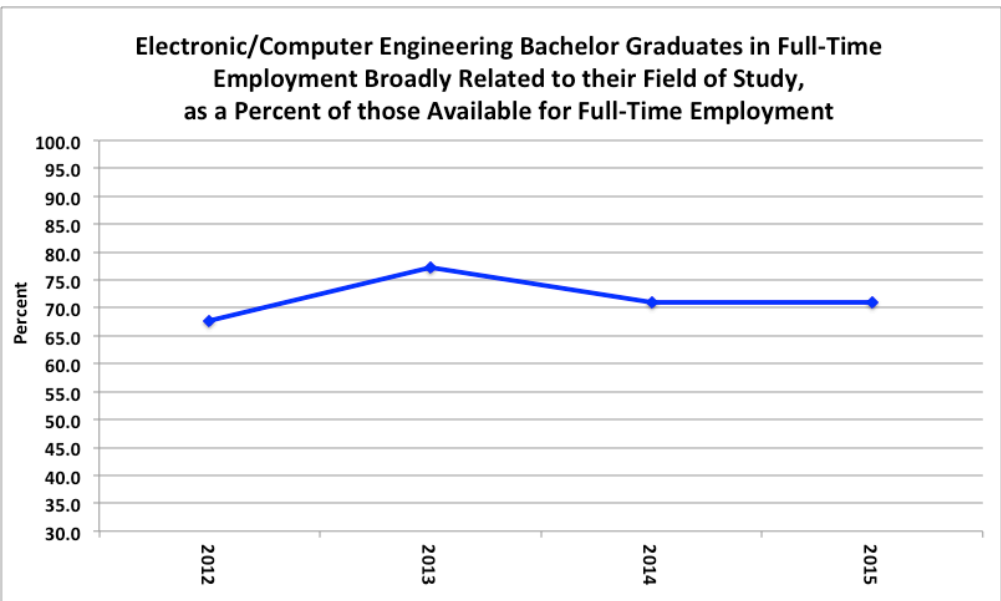
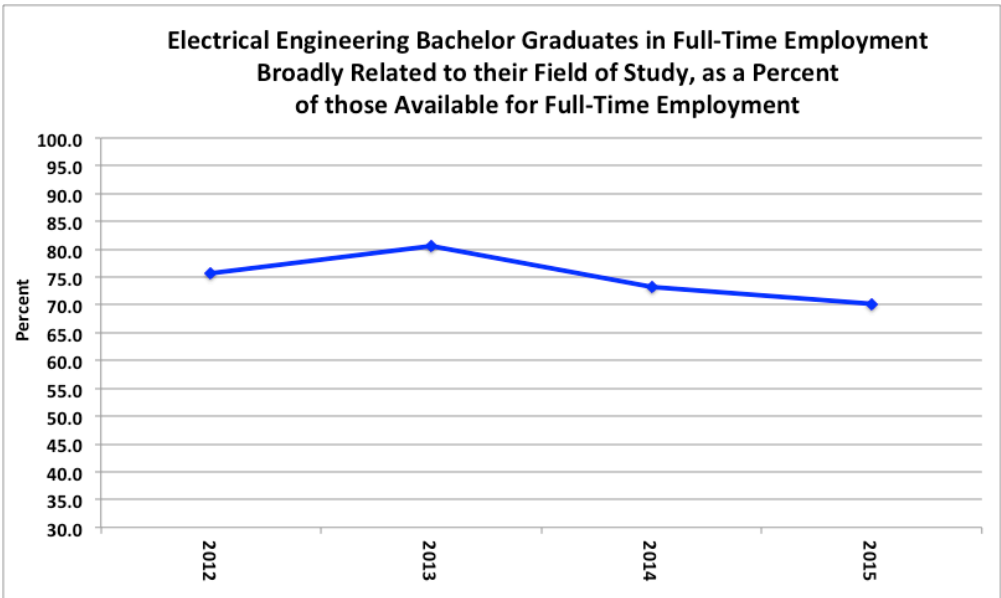
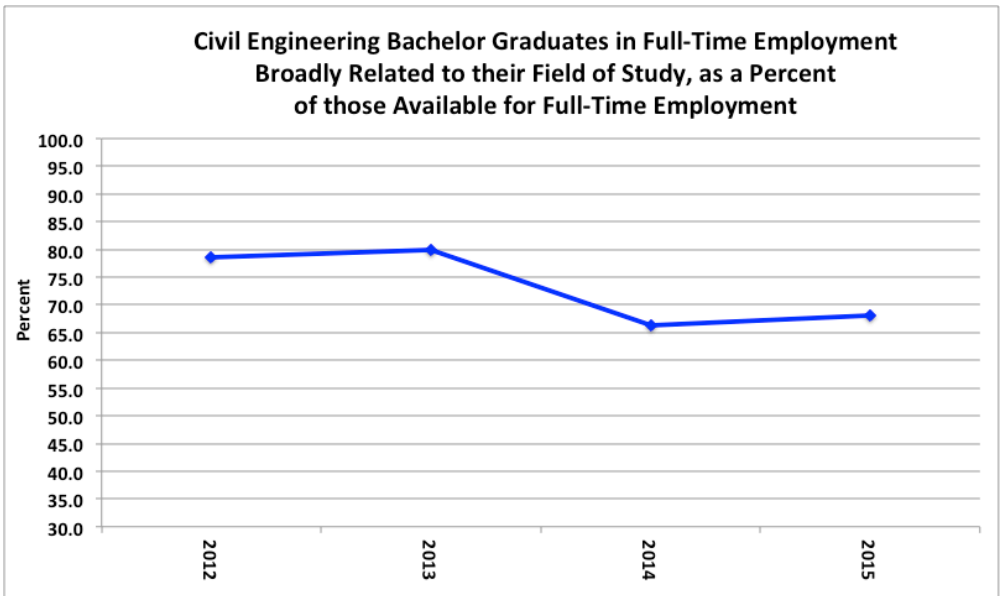
Clearly, two Government departments have long held the view that engineering occupations are not in need of any further supplementation by immigration. It is DIBP which has deliberately tried to divorce the listing of occupations on the MLTSSL from the state of the labour market, and in doing so has caused harm to tens of thousands of Australian and migrant engineers.

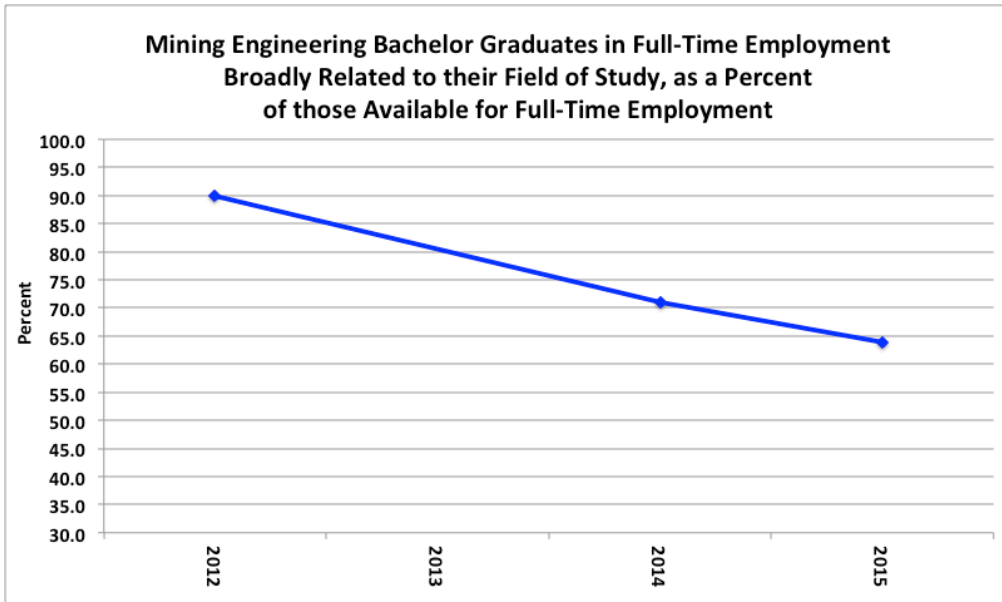
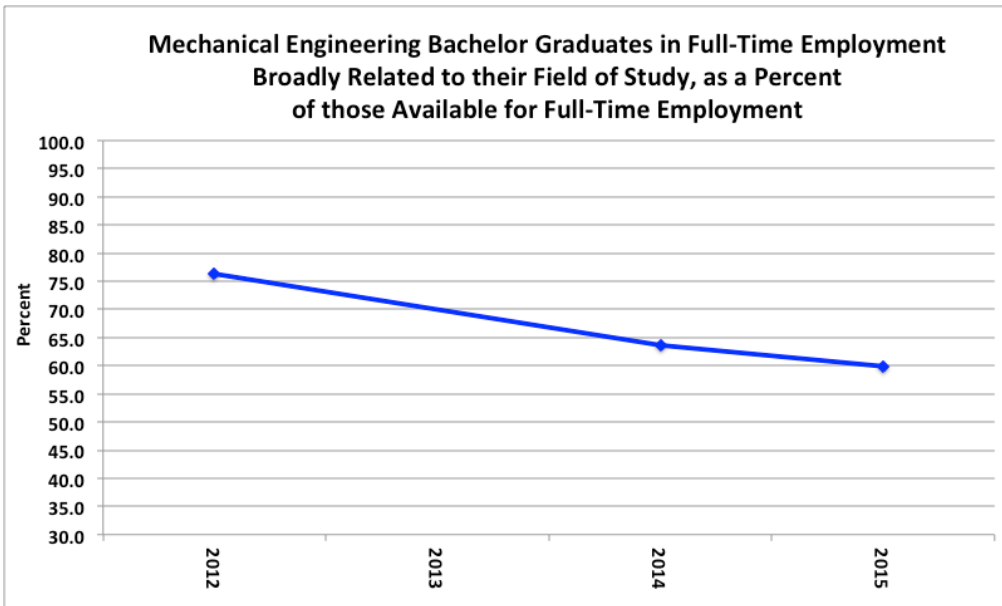
Graduate Careers Australia Survey Data

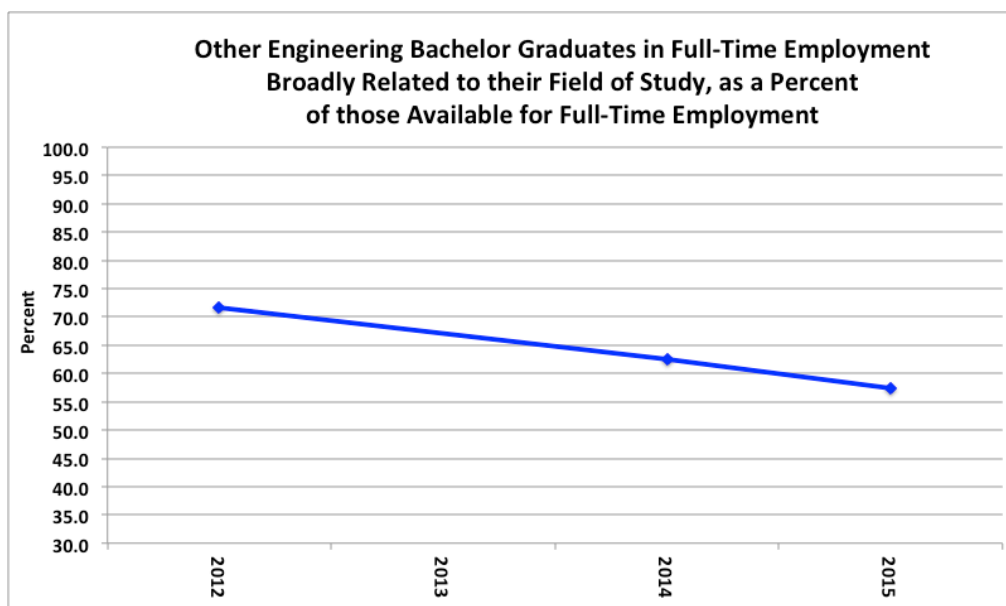
The Graduate Destinations Report was compiled by Graduate Careers Australia (GCA) until 2016, using data from the previous year. The report was funded by DE&T. The graphs below have been compiled from this report, and represent the proportion of engineering discipline bachelor graduates in full time employment in an engineering, scientific, technical or management role as a percentage of all bachelor graduates in that discipline available for full-time employment. The graphs are for Australian graduates (citizens and permanent residents), and not for international students who graduate from Australian universities.

The graphs show that since 2012 or 2013, the percentage of bachelor graduates working full-time in an engineering, scientific, technical or management role has declined significantly.









Graduate engineer Employment Outcomes 2015

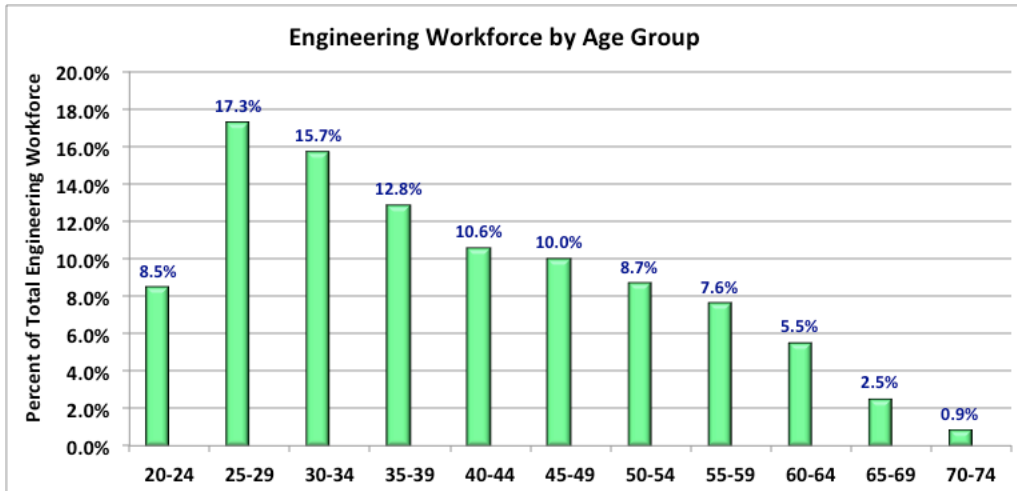
Engineering discipline	% Working in broadly relevant job
Aeronautical	42.0
Chemical	50.8
Civil	68.0
Electrical	70.2
Electronic/computer	71.0
Mechanical	59.9
Mining	63.9
Other engineering	57.4

In 2016, the DE&T stopped funding GCA, and instead started funding The Social Research Centre. This Centre produced its first Graduates Outcome Survey (GOS) in late 2016. Unfortunately, this survey does not allow outcomes for Australian domestic graduates to be determined, because results for Australian and international students are combined. Furthermore, four measures of the relationship between graduates' field of study and their subsequent employment have been reduced to just one measure in the new GOS. Less detail is now available: in engineering, for example, data is no longer available for individual engineering disciplines, but only for one broad 'engineering' group. And the response rate from students for the GOS is only two-thirds of that for the GDS.

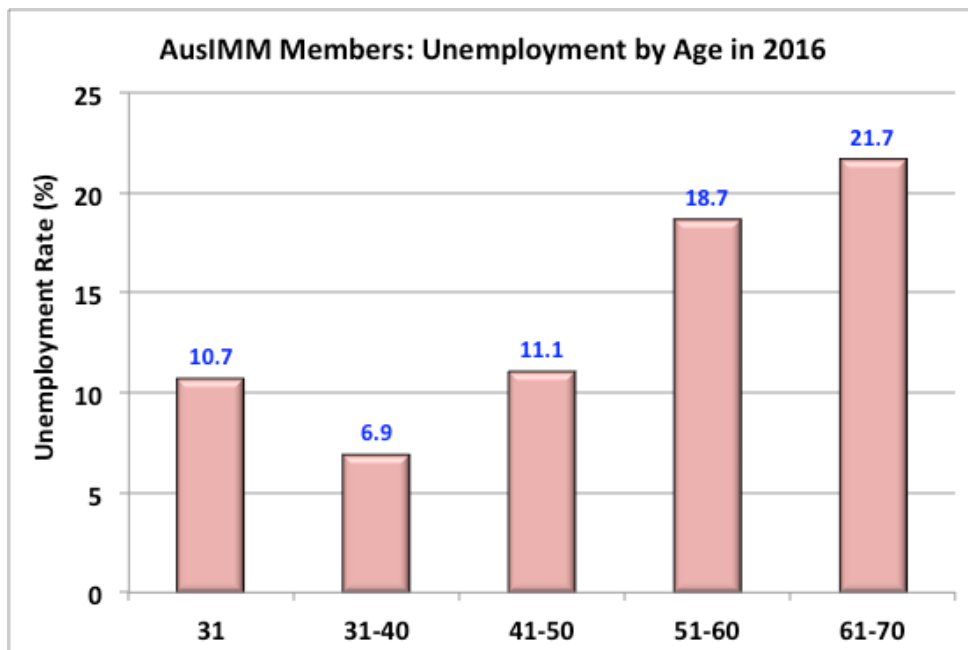
The effect of the changes to the annual graduate survey is to help hide the poor outcomes for so many Australian graduates, who have to compete for a limited number of jobs with a huge cohort of international students.

Age Profile of the Engineering Workforce

The age profile of the Australian engineering workforce is weighted towards younger ages. 54% of the workforce is aged under 40, according to the 2016 Census. See the graph below. This reflects the huge number of migrants and recent graduates that are, and have been, available in the market. The Government's migration schemes (eg. the points testing system) strongly favour those under 40, and this influences the age of migrant engineers.

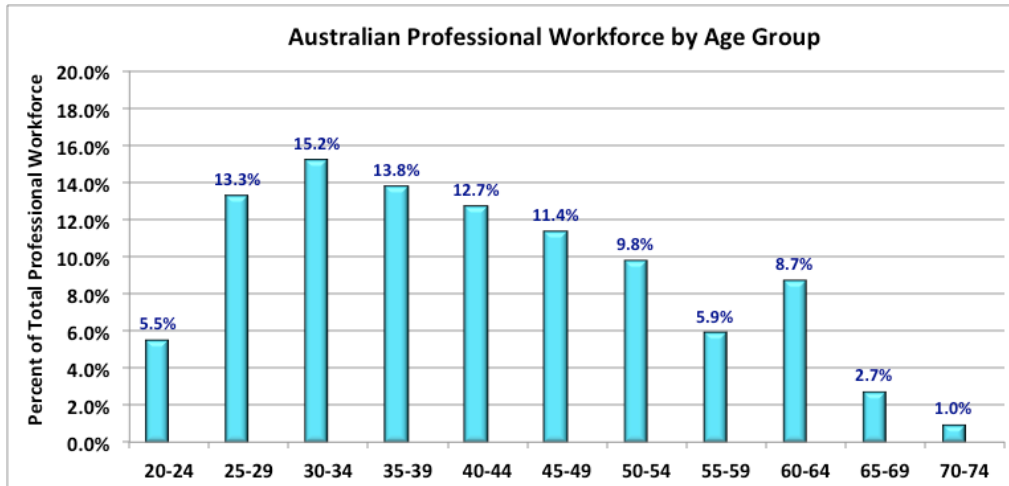


At the same time, engineers over 45 suffer from unemployment at rates that are disproportionately high in relation to their representation in the workforce. Data from the 2016 annual survey of members by the Australasian Institute of Mining and Metallurgy (AusIMM) illustrates this (see graph below).



Despite a significant pickup in the mining industry, the 2017 data from the AusIMM member survey indicates that the number of engineers unemployed for longer than 12 months continues to grow. Fifty-three percent of those who were unemployed had been unemployed for longer than 12 months, and 73% of this long-term unemployed cohort were aged 45 or older. Halting engineering immigration will mean employers will be more likely to consider those engineers who are unemployed or displaced from their profession.

The age profile for all Australian professionals is shown below, based on the 2016 Census.



The two tables below show the percentage of engineering professionals, and the percentage of all professionals, who are over the ages of 50 and 55 respectively. In both cases, the percentage of the workforce over these ages is 10% lower for engineering professionals than for all professionals.

ANZSCO Category	Percent aged over 50
233 Engineering Professionals	25.2
2 Professionals	28.1

ANZSCO Category	Percent aged over 55
233 Engineering Professionals	16.5
2 Professionals	18.3

The data presented here refute the claims of vested interest Engineers Australia that Australia needs more migrant engineers because of the number of engineers who will retire in the next five or so years. Their other claim, that Australia will need to import experienced migrant engineers is also wrong given the difficulty that engineers over the age of 45 have in finding appropriate positions in the engineering workforce.

Engineers Australia’s Previous Submissions

Author’s opinions of the shortcomings of Engineers Australia’s submissions to the last two SOL reviews, and evidence to support those opinions

Shortcoming of Submissions	Evidence
Contradictory	Statements about 457 visas compared with statements made about this visa by Engineers Australia in other documents
Superficial/ill-informed	<p>Emphasis on demand rather than the supply:demand ratio</p> <p>Statement that engineers on 457 visas are evidence of excess demand</p>
Selective/obfuscating	<p>Did not mention DoE engineering workforce projections</p> <p>Did not mention DoE engineering vacancy data</p> <p>Did not mention DoE statistics about number of applicants per engineering vacancy</p> <p>Did not explain how it derived its engineering unemployment statistics</p> <p>Ignored or downplayed four groups of engineers trying to re-enter the profession</p> <p>Did not mention DE&T data showing that the percentage of engineers aged 55 and older is lower than the average for professionals in Australia</p>
Self-interested	<p>Failed to properly consider the interests of those engineers who have become unemployed or displaced as part of the ‘adjustment’ of the labour market</p> <p>Overstated the foreseeable demand for engineers</p> <p>Overstated the potential number of future engineering retirements</p> <p>Recommended ‘top ups’ of thousands of migrant engineers via listing of engineering occupations on the SOL, regardless of poor current market conditions and the subdued market outlook for the foreseeable future.</p>