Submission to the Department of Jobs and Small Business'

Consultation on Skilled Migration Occupation Lists

by

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

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June 2018

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Executive Summary

Over the last five years, the engineering profession in Australia has been deliberately subjected to what is probably the greatest oversupply of any profession ever recorded in Australian labour market history. This submission documents the evidence for this, and provides a formal, systematic analysis of the current demand and supply for engineers in Australia. The specific focus of this submission is ANZSCO Minor Group '233 Engineering Professionals', which contains 21 engineering occupations classified into seven Unit Groups.

Last year the Department of Jobs and Small Business (DJSB) was given the ongoing responsibility of making recommendations to the Department of Home Affairs (DHA) about which occupations should be included on, or excluded from, the three skilled migration occupation lists (SMOLs). One of these lists is the Medium and Long-term Strategic Skills List (MLTSSL), which is the primary list for the permanent skilled migration program, and the only list relevant to the engineering occupations considered in this submission.

The DJSB has described the methodology it uses to assess occupations for inclusion or exclusion from the SMOLs in it methodology paper. In its submission guidelines it has provided advice on what it considers to be 'best practice' for the compilation of submissions it receives during the consultation process.

It is evident from methodology paper and submission guidelines that the DJSB has pre-determined the outcome of its 'consultation' process. The scoring system in the methodology does not include the numbers of permanent visa grants or internet vacancies for occupations, thereby eliminating consideration of the two datasets which are among the most robust and statistically reliable indicators of supply and demand respectively. In 2016-17, permanent visa grants were 60% of the total number of skilled visa grants made to migrant engineers. The methodology's scoring system uses an ad-hoc grouping of parameters which have no ability to provide a clear picture of supply and demand.

The DJSB has never informed those who participate in the consultation process that there are in fact five different versions of the MLTSSL, each of which covers different visa subclasses. Two of these lists are associated with employer-nominated visas, and another is primarily for points-tested skilled migrants. The remaining two are used for regional migration and training visas and have much smaller numbers of visa grants. Despite the significant difference in the labour market impacts of different visa subclasses, DJSB only makes recommendations about one 'generic' version of the MLTSSL. The DHA ultimately decides which occupations are included on, or excluded from, each of the five different versions of the MLTSSL.

The submission guidelines deliberately steer the focus away from the version of the MLTSSL which is not driven by labour market demand, ie. the one that appears in legislative instrument IMMI 18/051 and covers visa subclasses 189, 190, 485 and 489. All of these except the subclass 485 visa are for points-tested skilled migrants. In 2016-17, this version of the MLTSSL was responsible for 82% of the visa grants for engineers in the permanent skilled migration program, and 52% of all primary visa grants in the overall permanent skilled migration program.

One of the ways the guidelines shift the focus away from this 'population-booster' version of the MLTSSL is by insisting that any data more than six months old will be considered as 'background' information only. This approach diminishes insights from data collected only

once per year (which is most of it), and from broader trends which are only evident when longer periods of time are fully considered.

In this submission, a wide variety of evidence about the engineering labour market is considered within the framework of a systematic examination of current demand and supply. The best available data have been used, and nearly all of it is sourced or derived from official Federal Government data. The findings of this submission are as follows:

1) There is a massive imbalance of supply over demand in the Australian engineering labour market. All Unit Groups are oversupplied.
2) The most oversupplied Unit Groups are '2331 Chemical and Materials Engineers' and '2334 Electronics Engineers'.
3) The least oversupplied Unit Groups are '2336 Mining Engineers' and '2332 Civil Engineering Professionals'.
4) Australian engineering graduates are being produced at rates far in excess of engineering labour market demand.
5) There is no justification for allowing international graduates to have access to the Australian engineering labour market. All international engineering graduates are surplus to requirements, now and into the foreseeable future. They should not be granted visas.
6) Engineering employers have used employer-nominated visas responsibly during the extremely difficult labour market conditions of the last five years. These visas are the subclass 457 visa (now replaced by the subclass 482 visa), and the subclass 186 visa.
7) The demand for experienced engineers can easily be met through the re-employment of unemployed and displaced Australian engineers, combined with migrant engineers admitted on employer-nominated visas. This is the approach the Government has used with Unit Grooup '2336 Mining Engineers' over the last two years, and in that time this Unit Group has moved from being one of the most oversupplied to one of the least oversupplied.
8) Points-tested visa subclasses 189 and 190 are the visas primarily responsible for causing the oversupply of the Australian engineering labour market over the last five years.
9) There is no current or foreseeable labour market justification for allowing points-tested skilled migrants to have access to the Australian engineering labour market.
10) The deliberate and sustained oversupply of the Australian engineering labour market must stop. The simplest way to do this is to remove all engineering occupations from the version of the MLTSSL (in legislative instrument IMMI 18/051) which is associated with the subclass 189, 190, 485 and 489 visas. It is from this version of the MLTSSL (or its equivalent) that Unit Group '2336 Mining Engineers' was removed two years ago, to good effect.
11) Access of international students to the subclass 476 visa must also end.

Over the last five years the 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 into the engineering workforce when engineering migration is substantially reduced by removing all engineering occupations from the version of the MLTSSL in legislative instrument IMMI 18/051.

Acronyms

ABS	Australian Bureau of Statistics
ACED	Australian Council of Engineering Deans
ASCED	Australian Standard Classification of Education
ANZSCO	Australian and New Zealand Standard Classification of Occupations
AusIMM	Australasian Institute of Mining and Metallurgy
DET	Department of Education and Training
DHA	Department of Home Affairs
DIBP	Department of Immigration and Border Protection (now absorbed into the Department of Home Affairs)
DJSB	Department of Jobs and Small Business (formerly the Department of Employment)
FOI	Freedom of Information
MCA	Minerals Council of Australia
MLTSSL	Medium and Long-term Strategic Skills List
SMOL	Skilled Migration Occupation Lists
SOL	Skilled Occupation List
TSS	Temporary Skills Shortage visa (subclass 482 visa)

1. Introductory Comments

This submission documents the overwhelming evidence that the engineering labour market in Australia is massively oversupplied. The oversupply is now into its sixth year. **There is no evidence to the contrary**.

The first part of this submission provides background information to aid the understanding of the discussion about the oversupply of the engineering labour market. The discussion then moves on to separately review demand and then supply in detail, followed by an examination of the evidence for the imbalance of demand and supply. The submission then focuses on the primary cause of the oversupply, and identifies how it can be stopped.

The evidence about the engineering labour market contained in this submission is presented in a coherent framework of demand and supply, and includes:

- View of two Federal Government departments about no shortage/oversupply of engineers
- Internet vacancies
- Occupational replacement rate
- Occupational growth rate predictions
- Unemployment rate
- Annual number of Australian engineering bachelor graduates
- Number of permanent visas issued to migrant engineers
- Number of temporary visas issued to migrant engineers
- Occupational ceilings
- Over-representation of engineers in the skilled migration program
- Age profile of the engineering workforce
- Unemployment rate of older engineers
- Tables of demand versus supply
- Results from interviews with 500 engineers
- Subclass 457 visa grants versus vacancies
- Subclass 457 visa grants versus subclass 186 visa grants
- Number of applicants per vacancy
- Permanent visa grants per vacancy versus job applications per vacancy
- Labour market outcomes for migrant engineers
- Size of the engineering workforce.

All but two of these items of evidence are sourced or derived from data held by the Federal Government.

This submission specifically refers only to the seven Unit Groups and 21 occupations in ANZSCO Minor Group '233 Engineering Professionals' (see Appendix 1).

2. Background Information

2a. Medium and Long-term Strategic Skills List (MLTSSL)

Engineering occupations are listed only on the Medium and Long-term Strategic Skills List (MLTSSL), rather than on either of the other two skilled migration occupation lists (SMOLs) – the other two being the Short-term Skilled Occupation List and the Regional Occupation list.

The MLTSSL was, prior to March 2017, known as the Skilled Occupation List (SOL).

In late 2015 when the composition of the SOL was being reviewed for the 2016-17 financial year, the Government stated that "'Medium to long term' means 2-10 years" (Birrell 2018).

In late 2016, when the SOL was being reviewed for the 2017-18 financial year, the phrase 'medium to long-term' was defined by the Government as a period of 5-10 years from the present (Oakley 2017).

On 19 March 2018 I asked DJSB to clearly define "short-term, medium-term, and long-term in relation to the skilled migration occupation lists". No such definition has been published. Some definitions have been published in relation to the subclass 482 temporary skills shortage (TSS) visa, which indicate that 'medium term' refers to four years. In this submission I assume that 'long-term' still means ten years.

The concept of the MLTSSL is flawed. Apart from the fact that it 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 quickly after applying for a visa. For example, 90% of applications for the Subclass 482 (Temporary Skills Shortage) visa are processed by the Government within three weeks. There is no basis for bringing in migrant engineers now into a disastrous job market with the aim of addressing skills needs in 4-10 years' time. I have addressed the flaws in the Government's 'stockpiling theory' here:

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

Currently there are five versions of the MLTSSL in the legislation, as follows:

Legislative Instrument IMMI 18/043 contains the MLTSSL for the Regional Sponsored Migration Scheme. It covers the subclass 187 permanent visa.

IMMI 18/048 contains the MLTSSL for the employer-nominated Temporary Skills Shortage (subclass 482) visa.

IMMI 18/049 contains the MLTSSL for the Employer Nominated Scheme. It covers the subclass 186 visa.

IMMI 18/050 contains the MLTSSL for the subclass 407 training visa.

IMMI 18/051 contains the MLTSSL for independent, family-nominated, and State and Territory Government-nominated migrants. It covers the following visas: subclass 189, 190, 485 and 489.

All 21 engineering occupations in the ANZSCO Minor Group '233 Engineering Professionals' are on either four or five different versions of the MLTSSL.

On 20 April 2018, the DJSB advised me by email that it only makes recommendations about the composition of the three SMOLs, of which the MLTSSL is one. DJSB also advised that how the recommendations of the DJSB are applied to the different visa classes is up to the Department of Home Affairs (DHA). This is a ludicrous situation: DJSB makes recommendations about one 'generic' version of the MLTSSL, and then DHA determines which of the five legislated versions of the MLTSSL the recommendations apply to. Given the very disparate nature of the different visa classes and the different impacts they have on the labour market, there is no way DHA can make a legitimate assessment based on recommendations for one generic MLTSSL.

2b. Methodology used by DJSB for determining the composition of the SMOLs

As discussed in detail in Appendix 2, the draft methodology used by DJSB to make its initial recommendations about the composition of the SMOLs is also deeply flawed. DJSB uses a weighted points-based scoring system applied to a variety of factors to determine whether or not occupations should be included in the SMOLs. Most of the factors relate to labour market supply and demand, but they are an ad-hoc collection of parameters which do not systematically address the issue of supply and demand for occupations. In addition to this, the points-based system used by DJSB excludes two key datasets:

- the internet vacancy dataset, which captures the vast majority of advertised jobs, particularly for skilled occupations. This dataset, including changes to the dataset over time, represents the single most reliable indicator of labour market demand for an occupation.
- the permanent visa dataset, which encompasses the entire population of permanent visas granted for skilled occupations each year. Permanent visa data are crucial for understanding labour market supply, particularly for professions such as engineering where the majority of migrants are admitted on permanent residence visas.

As documented in Appendix 2, apart from the failings mentioned above, the methodology and scoring system used by DJSB are not transparent, and it is impossible for an observer to understand the reasoning on which the DJSB has based its recommendations.

2c. Submission guidelines

Another component of the DJSBs' process for determining its recommendations to DHA about the composition of the SMOLs is its consultation with stakeholders. For most stakeholders, this occurs through submissions. As discussed in Appendix 3, the DJSB detailed guidelines document on 'best practice' for submissions deliberately steers the focus away from the version of the MLTSSL which is not driven by labour market demand, ie. the one that appears in IMMI 18/051 and covers visa subclasses 189, 190, 485 and 489. In 2016-17, this version of the MLTSSL was responsible for 82% of the visa grants for engineers in the permanent skilled migration program, and 52% of all primary visa grants in the overall permanent skilled migration program.

Coupled with this, the submission guidelines state that any data presented in submissions that is older than six months will be considered only as "background" information. If this requirement were applied to the Department's own methodology, the methodology would be invalidated because much of the data it uses are collected at a frequency of once every 12 months or longer.

3. Demand and Supply for Engineers was in Balance in 2012-13

The two phases of the resources boom generated an increasing demand for engineers, which could only be met by an increased supply through immigration. Evidence from two Federal Government departments indicated that the engineering labour market was approximately in balance in 2012-13, at which time the second phase of the resources boom was well into its decline.

3a. The view of the Department of Education and Training

Each year up to and including 2017, the Department of Education and Training, and its predecessor organisations, identified occupations on the SOL (now MLTSSL) which were in an emerging state of oversupply. These occupations were 'flagged' for future removal from the list. Table 1 below indicates the years in which engineering Unit Groups were flagged. Most Unit Groups were flagged from 2011-12 onwards, but still remained on the SOL 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 SOL/MLTSSL was, and still is, controlled by the Department of Immigration and Border Protection (DIBP, now DHA), and this is the likely reason that engineering occupations were not removed from the SOL.

Table 1 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)	✗	✗	✔	✔	✔	✔	✔
2332	Civil Engineering Professionals	✔	✔	✔	✔	✔	✔	✔
2333	Electrical Engineers	✗	✗	✗	✗	✗	✗	✗
2334	Electronics Engineers	✔	✔	✔	✔	✔	✔	✔
2335	Industrial, Mechanical and Production Engineers	✔	✔	✔	✔	✔	✔	✔
2336	Mining Engineers	✗	✗	✗	✗	✔	Note 2	Note 3
2339	Other Engineering Professionals	✔	✔	✔	✔	✔	✔	✔ Note 4

✔ = flagged ✗ = not flagged

Note 1: Only '233111 Chemical engineer' was 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 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.

3b. The view of the Department of Jobs and Small Business

The DJSB (formerly the Department of Employment) monitors the state of the labour market for a cross section of engineering occupations on an annual basis. For most of them, the department 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 DJSB it is only for structural engineers, senior and specialised roles. See Table 2 below.

Table 2 DJSB 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

Clearly, two Government departments have long held the view that engineering occupations are not in need of any further supplementation by immigration. Over the years it has been DHA (formerly 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.

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 were once again available for employer and State and Territory Government visa nominations.

DJSB has now taken on the role of assessing the state of the labour market for each occupation. By deliberately excluding data about the number of permanent visa grants and internet job vacancies, it has also effectively eliminated any real consideration of the current state of the labour market for professions such as engineering.

4. Demand for Engineers

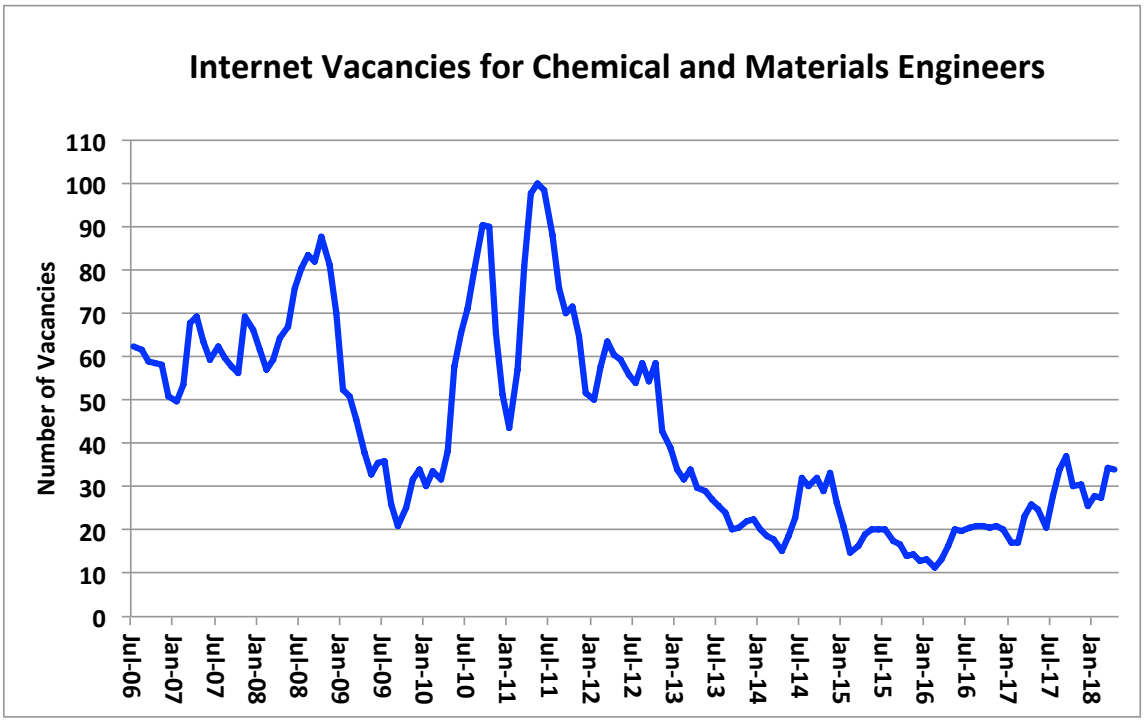
4a. Current and near-term demand and supply and its relevance to the MLTSSL

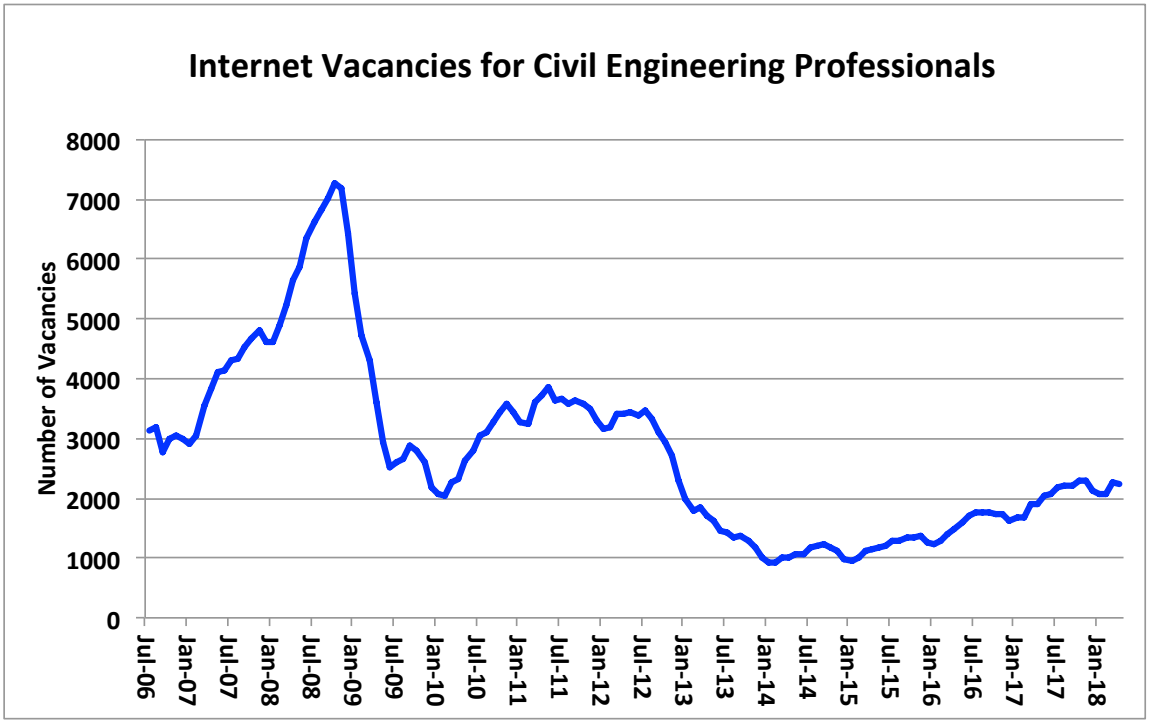
Although the MLTSSL identifies occupations supposedly required for Australia's skills needs in 4-10 years' time, the Government brings in migrants with these skills each year, at least four years in advance of any perceived need for their skills, and regardless of the state of the labour market. The impact that these migrants will have on the labour market now and in the near term is therefore a highly relevant consideration.

4b. Demand for engineers

Internet Job Vacancies

By far the best indicator of labour market demand for engineers is the three-month moving average internet vacancy data collected by DJSB. These data are collected monthly and are classified by ANZSCO Unit Group. Appendix 1 identifies the seven Unit Groups for ANZSCO Minor Group '233 Engineering Professionals'. The graphs below present the monthly internet job vacancy data to the end of April 2018 for the seven engineering Unit Groups.




Internet Vacancies for Civil Engineering Professionals
Number of Vacancies
8000
7000
6000
5000
4000
3000
2000
1000
0
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
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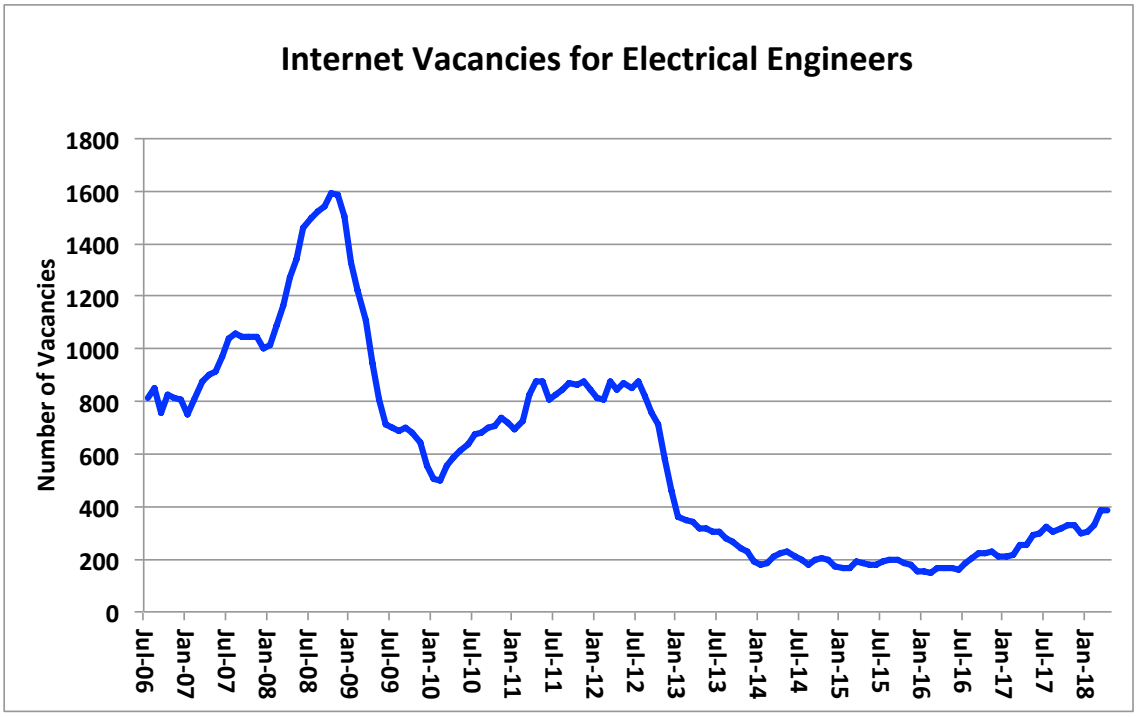
Jul-17
Jan-18


Internet Vacancies for Electrical Engineers
Number of Vacancies
1800
1600
1400
1200
1000
800
600
400
200
0
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
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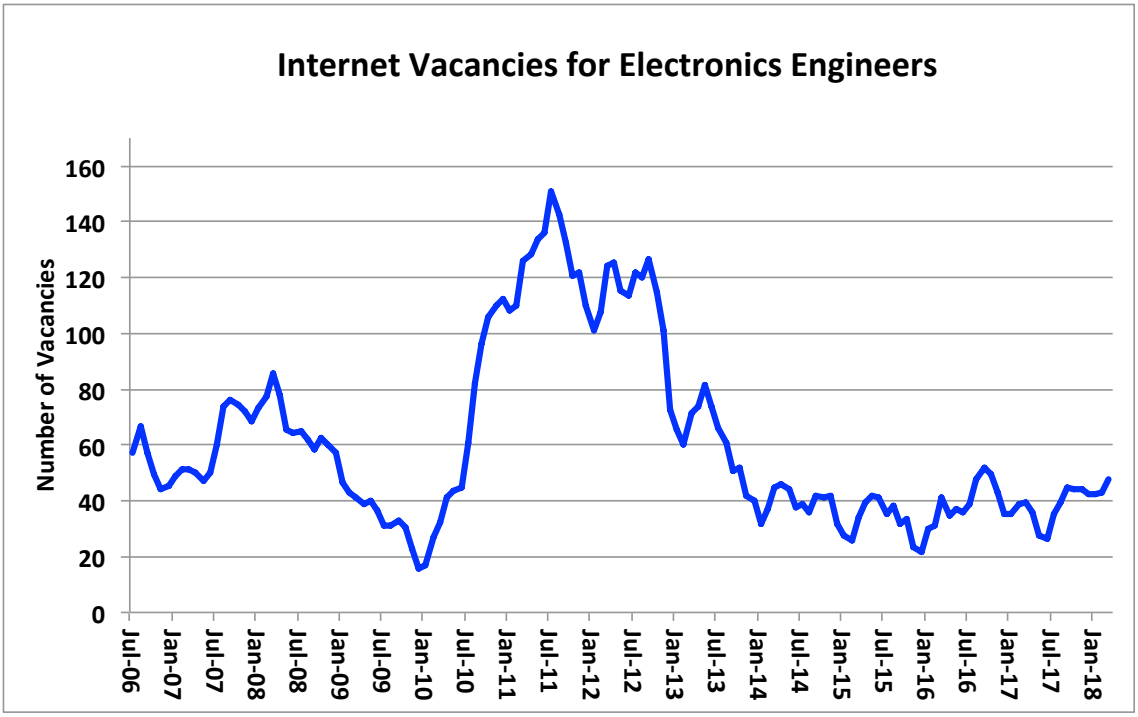
Jan-16
Jul-16
Jan-17
Jul-17
Jan-18


Internet Vacancies for Electronics Engineers
Number of Vacancies
160
140
120
100
80
60
40
20
0
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
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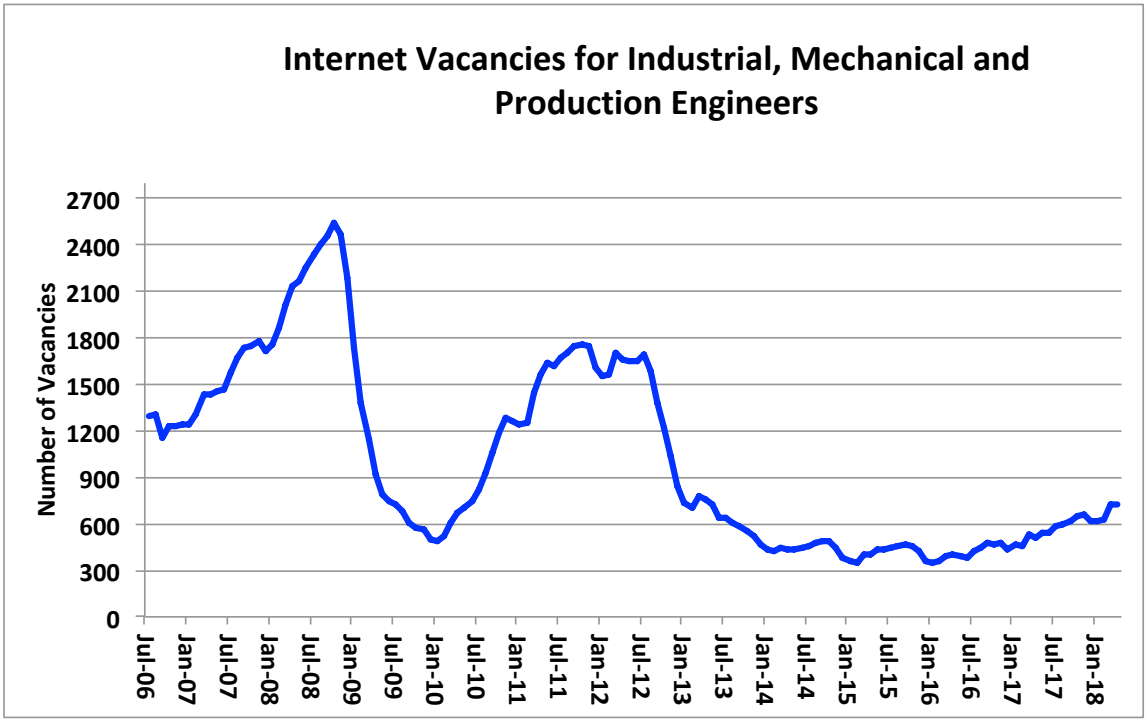
Jul-16
Jan-17
Jul-17
Jan-18


Internet Vacancies for Industrial, Mechanical and Production Engineers
Number of Vacancies
2700
2400
2100
1800
1500
1200
900
600
300
0
Jul-06
Jan-07
Jul-07
Jan-08
Jul-08
Jan-09
Jul-09
Jan-10
Jul-10
Jan-11
Jul-11
Jan-12
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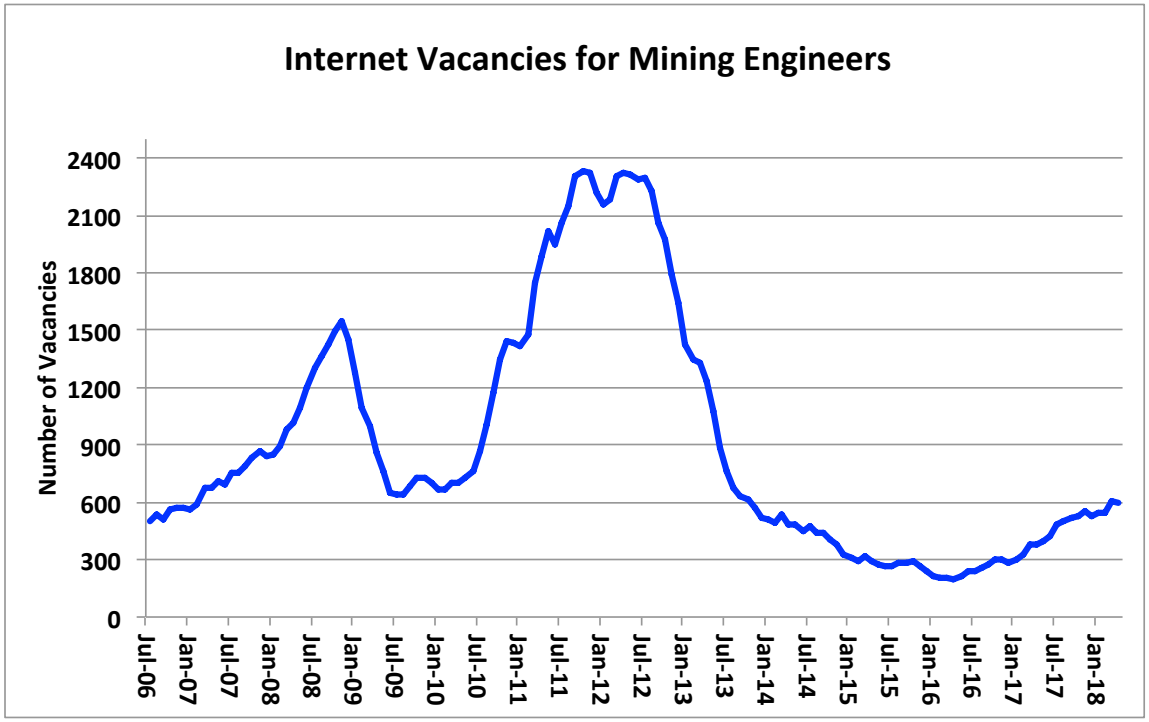
Jul-16
Jan-17
Jul-17
Jan-18



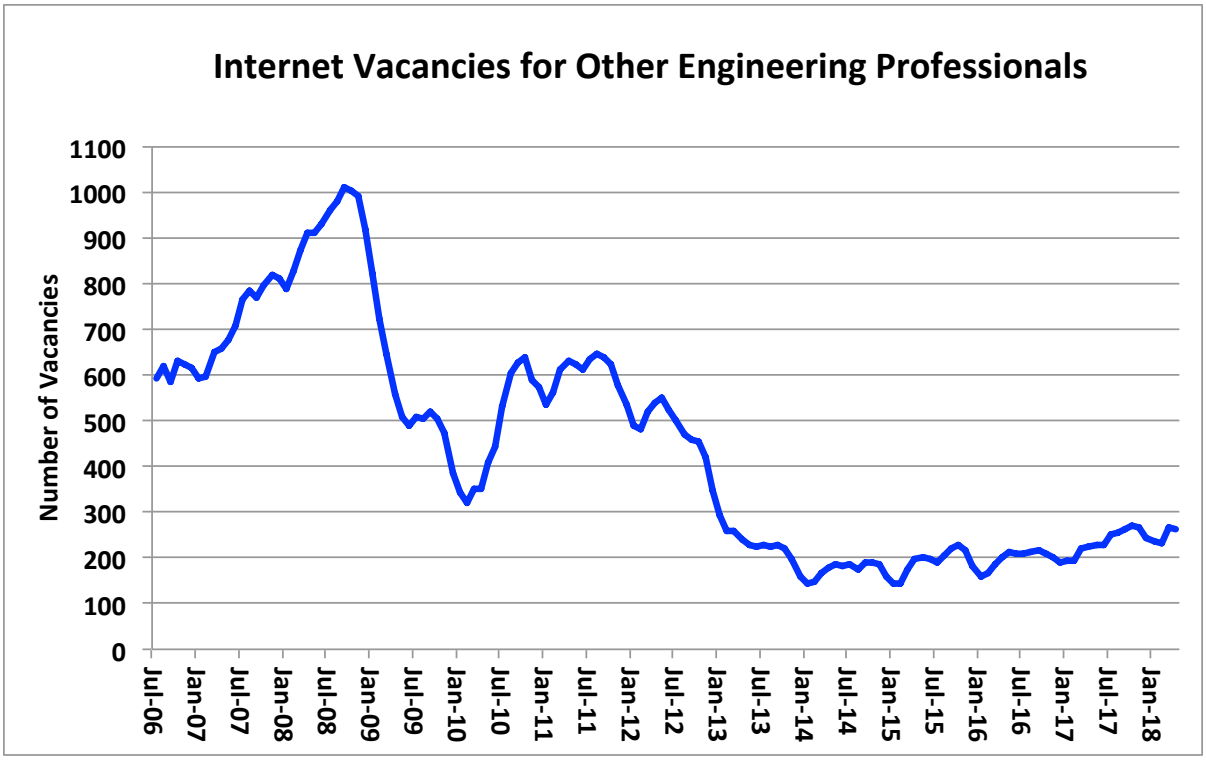


Table 3 below shows the annual number of advertised internet job vacancies for all engineering occupations in ANZSCO Minor Group 233. The demand has improved since 2014-15, but nearly 70% of this is due to an increase in the number of vacancies for civil engineering professionals.

Table 3 Annual number of internet job vacancies for engineering professionals

2012-13	2013-14	2014-15	2015-16	2016-17	2017-18*
71,623	32,088	27,962	29,430	37,356	40,416
100%	44.8%	39.0%	41.1%	52.2%	56.4%

* To end of April 2018

Appendix 4 contains a table showing annual vacancies for the seven engineering Unit Groups, expressed as a percentage of 2012-13 levels.

Note that most vacancies are created by 'shuffling' in the labour market, ie. employed individuals moving from their current job to a vacant position. Only a minority of vacancies represent newly created positions. Vacancies nonetheless represent an *opportunity* for unemployed and displaced engineers to re-enter the engineering labour market. The trend in vacancies is an important indicator of changes in the labour market, and therefore it is also an important indicator of changes in the relative level of opportunity that exists for engineers to rejoin their profession. 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.

Vacancies **do not** represent the number newly created positions, and they **do not** represent the number of jobs that need to be filled by migrants.

Replacement Rate to Maintain Workforce Size

A document released in 2018 by the Government under the Freedom of Information Act states that DIBP (now DHA) considers the "consensus as to the standard replacement rate in any given occupation" is six percent of the employed workforce per annum (DIBP 2017). This percentage is used in this submission. The replacement rate for an occupation represents the number of new workers that are required to maintain the same workforce size each year, taking into account that individuals leave the occupation due to retirement or other reasons. The replacement rate does no cover those people who have been retrenched, since those positions have been made redundant and no longer exist by definition.

The correct workforce size to use for ANZSCO Minor Group '233 Engineering Professionals' is that determined by the Australian Census in September 2016. This is by far the most accurate estimate available because it covered 95% of the population and is largely free of sampling errors (see Appendix 7 for a discussion of the size of the engineering workforce). According to the 2016 Census, there were 105,765 people in the workforce covered by ANZSCO Minor Group '233 Engineering Professionals'. As discussed in Appendix 7, the size of the workforce has remained approximately constant since then.

Based on this workforce size, replacement of engineers leaving engineering occupations requires 105,765 x 0.06 = 6,346 new engineers.

Growth Rate of Engineering Workforce

The DJSB regularly estimates the size of the workforce five years into the future based on Unit Groups. The last time it did this was May 2017 (DJSB 2017a). It anticipates an increase in the size of the engineering workforce of 9.4% over five years, or approximately 1.8% per year. Based on the Census workforce size, and using the same overall percentage increases as DJSB,

the estimated increase in the engineering workforce over five years is 9,942, or 1,988 per year.

Total Annual Demand for Engineers
Based on the above, the current, near- and medium-term annual demand for engineers is shown in the table below, based on 2018 data.

Table 4 Total annual demand for engineering professionals

Annual additions required to replace those leaving the profession	6,346
Annual growth of the profession	1,988
Total demand for engineers	8,344

5. Supply of Engineers

5a. Supply of engineers

Unemployed Engineers

Engineers Australia has reported that, according to the 2016 Census, the unemployment rate of engineers was 6% (Engineers Australia 2018). In this submission a rate of 5% is used. This means that there are 105,765 x 0.05 = 5,288 unemployed engineers.

Displaced Engineers

Displaced engineers are those who are working in other occupations but who are trying to return to the engineering workforce. The number of people in this situation is not known. Given the crash in the engineering labour market after the second phase of the resources boom, the extensive number of retrenchments from 2013 onwards, and the very subdued employment market over the last five years, the number of displaced engineers is likely to be at least as high as the number of unemployed engineers.

Graduate Engineers

The latest data from the Department of Education and Training (DET) are for course completions in 2016 (DET 2017). For the field of Engineering & Related Technologies (which consists almost entirely of disciplines related to ANZSCO Minor Group '233 Engineering Professionals'), the number of bachelor degree completions for Australian citizens and permanent residents (ie. 'domestic' students) was 7,741. Another 2,925 domestic students completed engineering qualifications higher than a bachelor degree. With this latter group, it is not possible to know how many would be seeking their first engineering job after graduation, or how many were already practising engineers who were upgrading their qualifications. To be conservative, only the bachelor degree numbers are used in the supply data in this submission.

For international students at Australian universities, the total number of bachelor and higher degree completions in Engineering & Related Technologies was 8,702. These graduates can only work in Australia with an appropriate visa (see Tables 5 and 6 below, in conjunction with Appendix 5).

Migrant Engineers

Permanent visa grant data for ANZSCO Minor Group '233 Engineering Professionals' are shown in Table 5. This information was previously not publicly available, and was obtained under Freedom of Information (FOI) Request FA18-02-00737.

Table 5 Permanent visa grants to migrant engineers in ANZSCO Minor Group 233

Visa Subclass	2012-13	2013-14	2014-15	2015-16	2016-17
186	557	999	1049	588	436
187	96	153	103	74	60
189	1127	2410	3561	5089	5502
190	606	882	955	719	682
887[a]	n/a	n/a	n/a	n/a	n/a
Total	2386	4444	5668	6470	6680

[a] Occupations are not recorded for this visa subclass

Temporary visa grant data for ANZSCO Minor Group '233 Engineering Professionals' are shown in Table 6. This information was previously not publicly available, and was obtained under Freedom of Information (FOI) Request FA18-02-00796.

Table 6 Temporary visa grants to migrant engineers in ANZSCO Minor Group 233

Visa Subclass	2012-13	2013-14	2014-15	2015-16	2016-17
444[a]	n/a	n/a	n/a	n/a	n/a
457	3583	1776	1527	1097	1618
476	500	1122	862	1061	1697
485[b]	<5	1218	1255	1179	745
485[c]	1794	490	<5	0	0
489	163	206	412	398	381
Total	6040	4812	4056	3735	4441

[a] The DHA refused to release data for this visa subclass when requested to do so under the Freedom of Information Act, on the basis that the information is no longer available. Having decided to no longer collect occupation data for this visa class, the DHA advised that it had also deleted all previous occupation data.

[b] Graduate work stream

[c] Post-study work stream

Information released in 2018 by DHA under the Freedom of Information Act is available at the following link:

https://www.homeaffairs.gov.au/about/access-accountability/freedom-of-information-foi/log/2018

The nature of the skilled migration visas listed in Tables 5 and 6 is described in Appendix 5. See also:

https://engineeroversupply.weebly.com/visa_maps.html

Total Annual Supply of Engineers
Using the above data, the total annual supply of engineers is summarised in Table 7.

Table 7 Total annual supply of engineering professionals

Unemployed engineers	5,288
Displaced engineers	Unknown
Graduate Australian engineers	7,741
Migrants granted permanent visas	6,680
Migrants granted temporary visas	4,441
Total supply of engineers	24,150

The supply of experienced engineers versus the supply of graduate engineers is discussed in Section 6a of this submission.

5b. Comments on supply data

Subclass 189 Visa
It can be seen from Table 5 that the largest influx of migrant engineers by far comes from the subclass 189 visa. This permanent residence visa is for independent, points-tested migrants. The detailed demographics of migrants granted this visa are not known at this stage, but it is known that many are international graduates from Australian universities. They may be transferring direct from their student visa to the subclass 189 visa, or they may be transferring from the subclass 457, 476 or 485 visas.

There are four points-tested visas in the skilled migration program: subclasses 189, 190, 489 and 887. In 2016-17, subclass 189 visa grants made up about 84% of the total number of points-tested visa grants. About half of points-tested engineering migrants are off-shore applicants (Birrell, Healy & Kinnaird 2016), meaning that much of the other half is likely to be made up of international graduates in Australia.

The SkillSelect program run by DHA is used to select migrants for the subclass 189, 190 and 489 visas, plus a couple of business visas. The subclass 189 visa and the family-nominated component of the subclass 489 visa are subject to occupational ceilings to limit the number of migrants that can be granted these visas. The way that the occupational ceilings are calculated is as follows (DIBP 2017):

- DHA determines the size of the workforce for Unit Groups using the ABS Labour Force Survey (LFS) data
- Six percent of this number – which is the standard replacement rate for occupations – becomes the occupational ceiling.
- The minimum ceiling for all Unit Groups is set at 1000.

For the 2017-18 year, the occupational ceilings for the seven engineering Unit Groups amount to 9516, meaning it is based on a workforce size of 158,600 for ANZSCO Minor Group '233 Engineering Professionals'. This is an absurdly high number. It is higher than the yearly average LFS number of 131,000 in 2015-16, and the yearly average number of 146,000 in 2016-17. And it is much higher than the far more accurate value for the size of the engineering workforce of just under 106,000 determined during the 2016 Census (see Appendix 7 for a discussion of the size of the engineering workforce).

While the occupational ceilings for engineering Unit Groups are not always reached, over the last several years they have been approached for some Unit Groups. In effect, as far as the Government is concerned, it is acceptable for the entire workforce replacement rates for engineering occupations to be satisfied through the subclass 189 visa, regardless of the number of migrant engineers brought in on other visas for those occupations, and regardless of the number of unemployed and displaced Australian engineers in those occupations who are also trying to find a suitable place in their profession.

Huge numbers of migrant engineers have entered the Australian engineering labour market via the subclass 189 visa, and the Government has allowed the labour market to be swamped for five years because of the demand from foreign nationals who are either in the country on temporary visas, or offshore with no visa at all. For this visa subclass, which is governed by one version of the MLTSSL, the concept of addressing the skills needs of the economy in 4-10 years' time has been abandoned in favour of catering to the demand from potential migrants (Birrell 2018). This is yet another example of how the skilled migration program is utterly corrupt.

The requirement of a minimum occupation ceiling of 1000 visa grants disproportionately affects Unit Groups which have a small workforce. This is demonstrated in Table 8.

Table 8 Workforce size and occupational ceilings for engineering Unit Groups

Unit Group	Workforce size according to 2016 Census	Occupational ceiling for 2017-18	Occupational ceiling as percent of workforce
2331 Chemical and materials engineers	2,949	1000	33.9%
2332 Civil engineering professionals	35,888	3296	9.2%
2333 Electrical engineers	13,804	1042	7.5%
2334 Electronics engineers	4,637	1000	21.6%
2335 Industrial, mechanical & production engineers	21,375	2178	10.2%
2336 Mining engineers	6,641	Not available for subclass 189 visa grants	
2339 Other engineering professionals	20,471	1000	4.9%

5c. Other evidence about supply

Over-Representation of Engineers in the Skilled Migration Program

The Government's permanent skilled migration program has been distorted so that engineers make up a disproportionate percentage of the program. The MLTSSL includes occupations in Skill Levels 1,2 and 3. 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 DJSB occupation projections (DJSB 2017a) (which are based on the ABS' Australian Labour Force Survey) estimated that the workforce size for ANZSCO Minor Group '233 Engineering Professionals' was 146,000 in May 2017. The same survey estimated that the workforce size for occupations with Skill Level 1,2 or 3 was at least 6,890,000 at the same date. 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' (see Appendix 7). Table 9 demonstrates how engineering is over-represented in the permanent skilled migration program. Data are for primary applicants in 2016-17.

Table 9 Migrant engineers as a percentage of the permanent skilled migration program in 2016-17 (with 457 visa data shown for comparison)

	Permanent visas	457 visa
Engineering	6,680	1,618
Total skilled migration program	58,051	46,480
Engineering as percent of total (%)	11.5	3.5

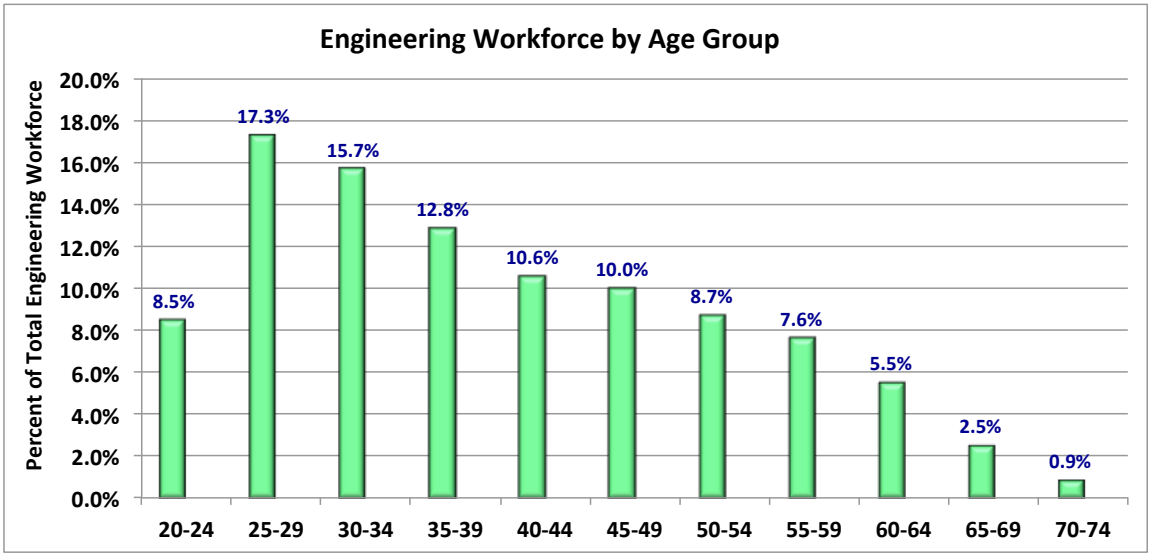
Despite making up just 2.1% of the workforce with Skill Levels 1, 2 or 3, engineering occupations represent 11.8% of the permanent visa component of the skilled migration program. It is the misuse of the subclass 189 and 190 visas that has contributed to the huge annual intake of engineers on permanent visas. This occurs year after year.

5d. Other issues related to the supply of engineers

In its November 2016 submission to the Government's review of the SOL for 2017-18, the Australian Council of Engineering Deans stated:

> "(4) The engineering industry is facing a generational replacement issue with an ageing workforce. Many engineers are reaching retirement age and the replacements will come from a blend of young graduates and experienced skilled engineers from overseas. Engineers Australia are currently developing a workforce development strategy to address this real concern." (ACED 2016).

Data from the 2016 Census shows that the engineering profession is definitely not "facing a generational replacement issue with an ageing workforce". On the contrary, 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.



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

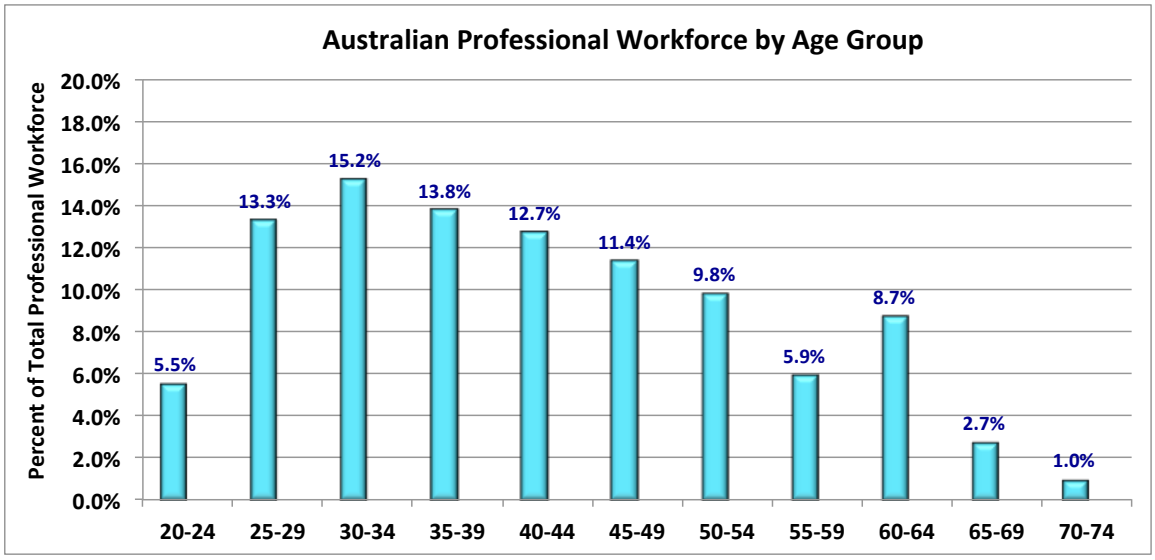


Table 10 below shows the percentage of engineering professionals, and the percentage of all professionals, who are over the ages of 50 and 55 respectively. In both cases, the percentage of the workforce over these ages is 10% lower for engineering professionals than for all professionals.

Table 10 Percentage of workforce aged over 50 and over 55 for engineering professionals and all professionals

ANZSCO Category	Percent aged over 50	Percent aged over 55
233 Engineering Professionals	25.2	16.5
2 Professionals	28.1	18.3

In what still remains a very difficult engineering labour market, 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 (AusIMM 2016)(see graph below).

Despite a significant pickup in the mining industry, the 2017 data from the AusIMM member survey (AusIMM 2017) 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. The concept of bringing in "experienced skilled engineers from overseas" now to help address a "generational replacement issue" could, in my view, only be suggested by someone completely divorced from the realities of the engineering labour market in Australia over the last five years.

6. Supply versus Demand

6a. Quantification of demand and supply for ANZSCO Minor Group '233 Engineering Professionals'

Table 11 documents the demand and supply of engineering professionals based on the information in Tables 4 and 8.

Table 11 Annual demand and supply for ANZSCO Minor Group '233 Engineering Professionals'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	6,346	DHA
Annual growth of the workforce	1,988	DJSB
Total demand for engineers	**8,344**	
Annual Supply		
Unemployed engineers	5,288	2016 Census
Displaced engineers	Unknown	
Graduate Australian engineers	7,741	DET
Migrants granted permanent visas	6,680	DHA
Migrants granted temporary visas	4,441	DHA
Total supply of engineers	**24,150**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Graduate Engineers

Graduates are a distinct component of the engineering labour force. They supply only a relatively minor component of total demand for engineers. Table 11 shows that the number of Australian domestic bachelor graduates is about 93% of total demand; the inclusion of graduates with higher degrees who are seeking their first engineering job would increase this percentage. Based on these numbers, the graduate engineering labour market is heavily oversupplied.

Added to these numbers are migrant graduate engineers who may constitute as much as 50% of the grants for the subclass 189 permanent visa, and a proportion of the grants for the subclass 190 permanent visa. Migrant engineers are also admitted through the subclass 476 and subclass 485 (Graduate Work Stream) temporary visa programs. Migrant graduate

engineers are granted visas based on their specific occupational qualifications. They are all surplus to labour market requirements.

Experienced Engineers
The number of unemployed and displaced Australian experienced engineers is likely to exceed the total annual demand for engineers. Added to this are visa grants for the employer-nominated subclass 186 permanent visa (436 engineers) and the employer-nominated subclass 457 temporary visa (1618 engineers), which amount to another 2054 migrant engineers available to meet annual labour market demand. Migrants in other visa subclasses are simply not needed. Those that are unable to obtain engineering jobs will not be available to help meet any projected skills needs of the economy in 4-10 years' time, because employers do not want engineers who have not worked in their profession for such a lengthy period.

6b. Quantification of demand and supply for ANZSCO engineering Unit Groups

Appendix 6 contains an assessment of demand and supply for each of the seven engineering Unit Groups (see Appendix 1 for definitions). Table 12 documents some relevant parameters for each. To be conservative, and with the exception of '2336 Mining Engineers', the graduate supply data in Appendix 6 use 2015 data for four year bachelor degrees only, as reported by ACED (2017). The total supply of graduates in Appendix 6 is therefore 5,163 rather than 7,741.

Table 12 Measures of oversupply for engineering Unit Groups

Unit Group	Overall ratio of supply to demand	Australian graduate engineers as percent of total demand (%)	Unemployed engineers plus employer-nominated migrant engineers as percent of total demand (%)*
2331 Chemical and materials engineers	7.2	259	>97.8
2332 Civil engineering professionals	1.7	56	>65.1
2333 Electrical engineers	2.8	78	>104
2334 Electronics engineers	5.3	78	>117
2335 Industrial, mechanical & production engineers	4.2	108	>155
2336 Mining engineers	1.6	39	>84
2339 Other engineering professionals	1.8	25**	>87

*Does not include displaced engineers, ie. engineers who want to work in their engineering occupation but who are currently working in another occupation, usually lower-skilled and lower paid. This group is probably at least equivalent in number to unemployed engineers.
**This is known to be an underestimate.

Table 13 documents the Unit groups in order of oversupply, with a rank of 1 indicating the greatest oversupply. All Unit Groups are oversupplied.

Table 13 Most oversupplied engineering Unit Groups

Oversupply Ranking*	Unit Group
1	2331 Chemical and materials engineers
2	2334 Electronics engineers
3	2335 Industrial, mechanical & production engineers
4	2333 Electrical engineers
5	2339 Other engineering professionals
6	2336 Mining engineers
7	2332 Civil engineering professionals

*A rank of 1 indicates the greatest oversupply, and a rank of 7 the least oversupply.

6c. Qualitative assessment of conditions in the engineering workforce

Recently, career coach Ray Pavri interviewed 500 engineers from a variety of disciplines, industries and locations for 45 minutes each (Pavri 2018). His article relating the findings was (surprisingly) reproduced on the website of Engineers Australia. Pavri concluded that "These are tough times for engineers especially those within the mining, oil & gas, manufacturing, coal-fired power generation, transmission and distribution industries."

Pavri heard accounts of "people suffering from bullying in the workplace, safety issues in regional Australia getting low attention with those complaining shown the door, the suffering of depression, low self-esteem increasing, the questioning about whether engineering is the right field for them, what path engineers could take given the market looks dreadful with few choices, to being employed but hating every minute of work therein with no choices to make a move, with employers having a "could not care attitude" paying zero to very low salary increases – and the stories continue."

Pavri noted that "This does not even include new migrants and those unemployed and who face ageism issues. I am talking about those employed and who are facing tough, tough conditions".

What Ray Pavri has described are experiences of employed engineers working in industries that have been in a state of downturn for the last five years. As shown by the vacancy data

(see Section 4b and Appendix 4 in this submission), opportunities for engineers to change companies and to move into a better environment are significantly fewer than they were in 2012-13, and competition for each job is greater (see Section 6e). It is the inability of engineers to leave unsatisfactory work environments that perpetuates the lack of change in those environments.

What Pavri hasn't mentioned is the dichotomy that exists, where a significant cohort of those who are employed experience pressure from employers to work unpaid overtime, while another, smaller cohort remains underemployed. In the engineering project environment, the number of engineers working as contractors has jumped from about 30% up to 80-90%, because staff positions in companies are difficult to obtain. The use of casual contracts is prevalent.

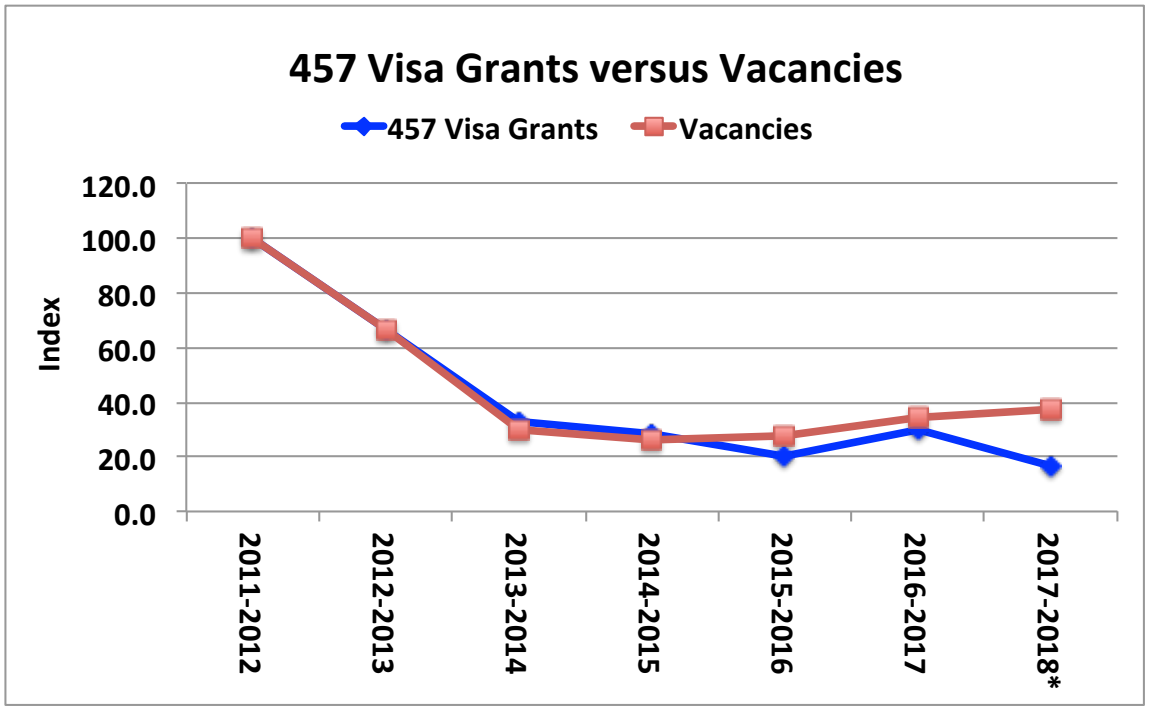
6d. Employer-nominated visas

In an engineering employment market which completely favours employers, it is worth examining how employers have used the employer-nominated visa program, which covers three visa subclasses. The two main ones for engineering are discussed here: the 457 visa (replaced by the subclass 482 TSS visa in March 2018) and the subclass 186 permanent residence visa (see Appendix 5 for descriptions of these visas).

Subclass 457 Visa

The graph below shows that for ANZSCO Minor Group '233 Engineering Professionals', the decline in the labour market (as evidenced by the decline in vacancies) after the second phase of the resources boom has been closely matched by the decline in the number of grants for the employer-nominated subclass 457 visa.

In 2017-18, the relative number of visa grants was reduced. This may be due to the greater reluctance of some employers to use this visa given the substantial changes which occurred in the lead-up to the introduction of the subclass 482 visa, and the further changes which were implemented when the 482 visa became operational.

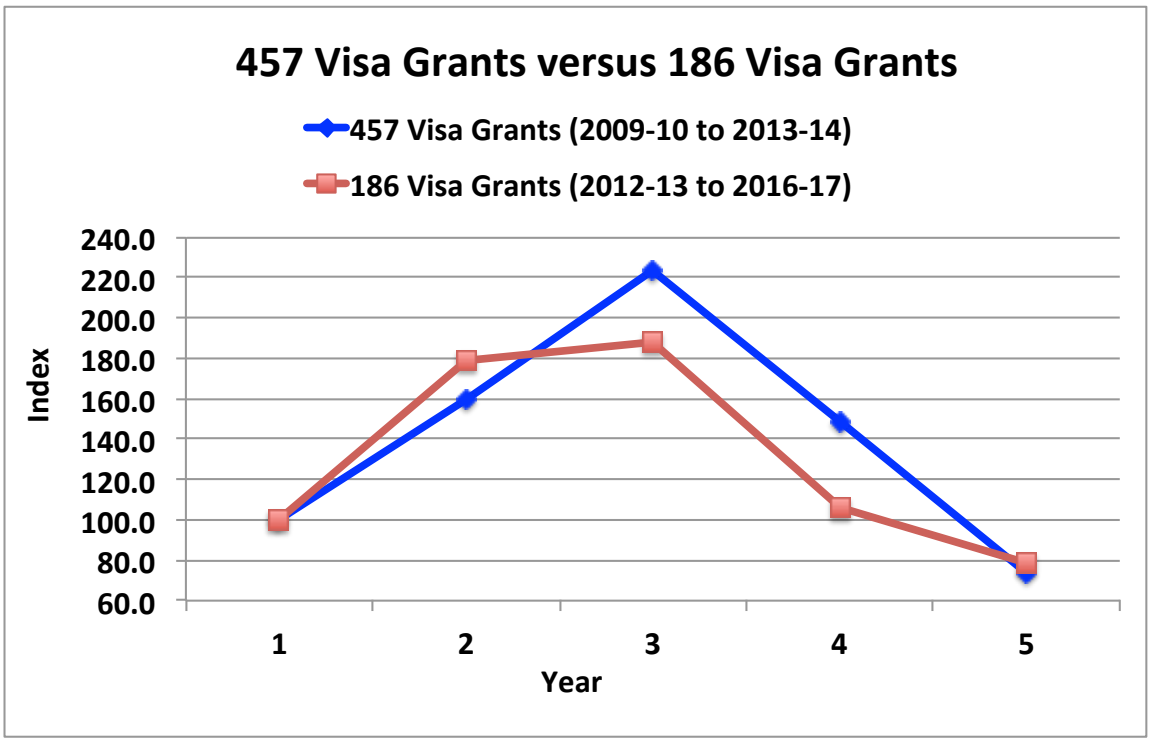


* 2017-18 data to end of March 2018

Subclass 186 Visa

This visa subclass can be granted through two main pathways: 1) the direct entry stream, where the migrant has never worked in Australia; and 2) the temporary residence transition scheme, where migrant holds a subclass 457 or (from March 2018) a subclass 482 visa, and wishes to transfer to the subclass 186 permanent residence visa.

The 457 visa was able to be granted for up to four years, and during this time those engineers working on the visa could be sponsored by their employer for a subclass 186 visa after two years. The subclass 186 visa processing time was, and is, around 12 months. The graph below plots subclass 457 visa grants from 2009-10 to 2013-14 against subclass 186 visa grants from 2012-13 to 2016-17, ie. with a three year delay imposed between the 457 visa grants and the 186 visa grants.



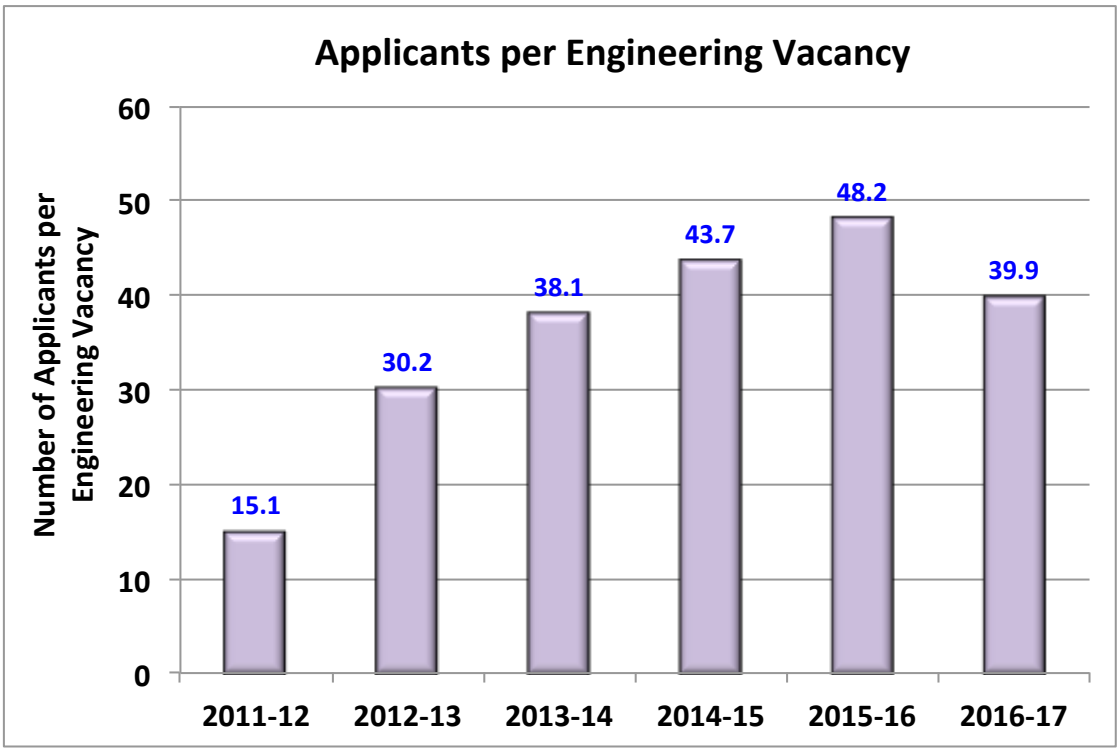
As can be seen, there is a reasonably close correlation between the two curves, indicating that it is the migrant engineers transitioning from the 457 visa who dominate the subclass 186 visa grants, rather than migrant engineers coming in through the direct entry scheme. Although the two curves are plotted with a common index, the number of subclass 186 visa grants in 2012-13 to 2016-17 was on average just 22% of the number of subclass 457 visas granted three years before.

The conclusion from this analysis is that the subclass 457 and 186 visas have been used responsibly by employers. From Tables 5 and 6 it can be calculated that employer-nominated visas represent only 7.4% of permanent visas granted to migrant engineers, and 36.4% of temporary visas granted to migrant engineers.

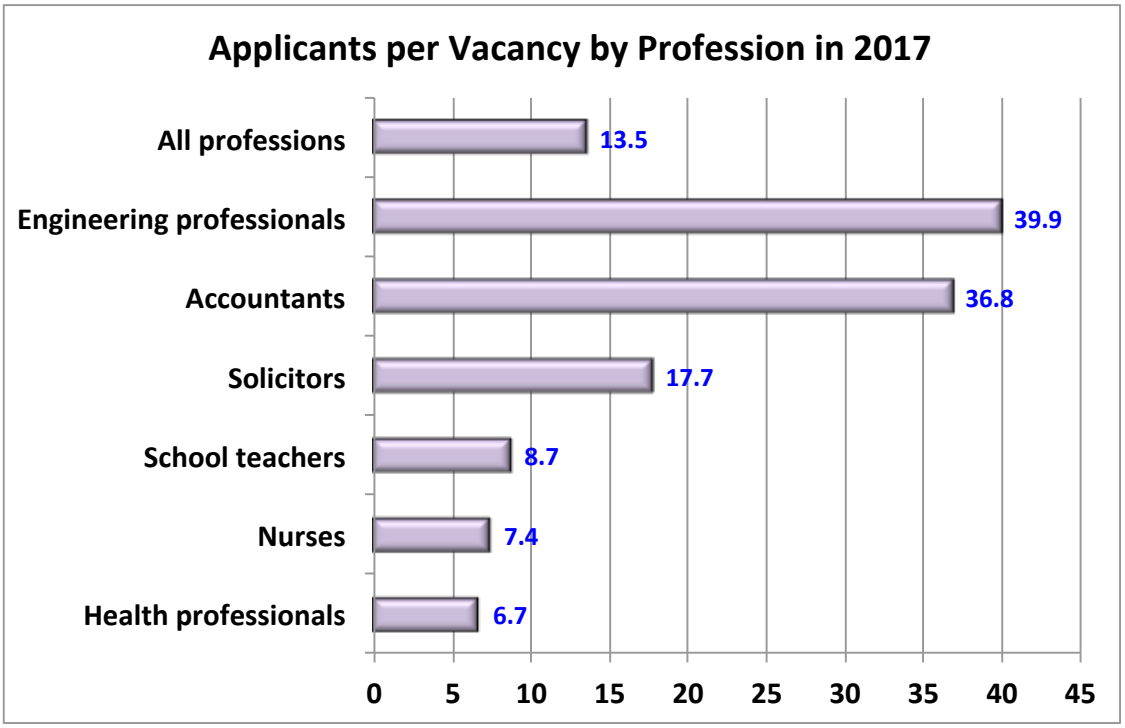
6e. Applicants per engineering vacancy

Another piece of evidence indicating an excess of supply over demand for engineers is the number of applicants per engineering vacancy.

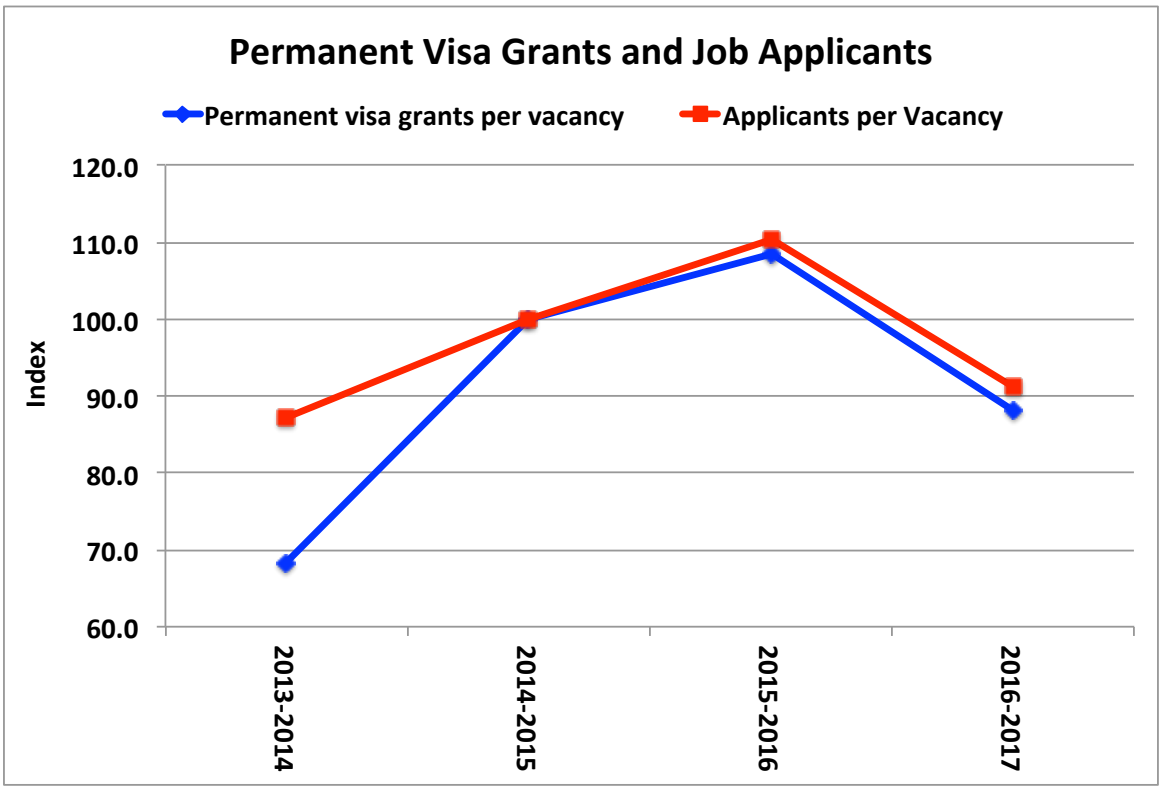
Despite the constant size of the engineering workforce, between 2011-12 and 2015-16 the number of applicants per engineering job vacancy more than tripled, reaching a peak of 48.2 in 2015-16. This is the highest value ever recorded by DJSB, which collects the data. The number reduced to 39.9 in 2016-17 due to increased employment opportunities for civil engineering professionals (DJSB 2017b), but this was still the highest value for any profession or trade monitored by DJSB 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 data shown here present good reasons why the focus of the DJSB on data which are no more than six months old is misguided. Trends over several years can also provide insights into what is happening at present. Consider the graph below. It shows permanent visa grants per vacancy and applicants per vacancy, both indexed at 100 in 2014-15. Assuming relatively constant background levels of unemployment, displacement and underemployment, it can be seen that the shape of the Applicants per Vacancy curve is closely correlated with the shape of the Permanent Visa Grants per Vacancy curve over the last few years. This strongly suggests that the number of permanent visa grants for engineers is influencing the number of applicants per vacancy (because visa grants precede job applications). This again implicates the subclass 189 and 190 visas in the oversupply of the engineering labour market.



6f. Migrant outcomes

Recent analysis of 2016 Census data by Bob Birrell (2018) showed that for migrants aged 25-34 years who arrived in Australia between 2011 and 2016, and who have bachelor or higher degrees in Engineering & Related Technologies, only 32% of the 35,632 individuals had a professional occupation. Outcomes were significantly worse for those who had migrated from non-English speaking countries, and these people represented 92% of the overall cohort.

Given that the skilled migration lists allow migrants to obtain visas on the basis of their very specific occupational qualifications and experience, and their supposed benefit to the Australian economy up to ten years in the future, these data represent a monumental failure of immigration policy. As Table 11 demonstrates, the situation has not improved since the 2016 Census date.

7. Causes and Solutions

Table 11 and the tables in Appendix 6 demonstrate that there is a massive current oversupply of the engineering labour market, with some engineering Unit Groups more severely affected than others (Table 13). The oversupply began after 2012-13, and has been maintained by the Government since then. The analysis in Section 6d of this submission indicates that over the last five years, engineering employers have been responsible in their use of employer-nominated visas.

With the exception of '2332 Civil Engineering Professionals', for all Unit Groups the number of unemployed engineers plus those granted employer-nominated visas (ie. subclass 186, 187 and 457 visas) either exceeded or approached the total demand for engineers in the Unit Group. To this can be added displaced engineers, whose exact numbers are unknown but are likely to be as substantial as those for unemployed engineers. There is no need to bring in any migrants into the engineering labour market beyond those granted employer-nominated visas.

Table 12 illustrates how the annual supply of Australian engineering bachelor graduates constitutes an enormous percentage of the total annual demand for engineers. In Section 5d the graph shows that engineers aged from 20-24 constitute just 8.5% of the workforce, and those aged from 25-29 constitute 17.3% of the workforce. Most bachelor graduates finish their four-year degree at or before age 22. A realistic estimate of the number of graduates in the engineering workforce (ie. in their first year of work) is 5% of the workforce. The number of Australian engineering graduates being produced each year exceeds this by more than 40%. As a consequence, there is no labour market justification for granting skilled migration visas to any international graduates, regardless of whether they have graduated from an Australian or overseas university. This includes the subclass 476 visa which is not associated with any MLTSSL.

The visas that are causing most of the oversupply are the three main points-tested skilled migration visas, ie. the subclass 189, 190 and 489 visas. Subclass 189 visa grants constitute about 84% of the total number of points-tested visas. Added to these is the subclass 485 (Graduate Work Stream) visa. These four visas are all associated with one version of the MLTSSL, which is the one documented in legislative instrument IMMI 18/051.

The deliberate and sustained oversupply of the Australian engineering labour market must stop. The simplest way to do this is to remove all engineering occupations from the version of the MLTSSL (in IMMI 18/051) which is associated with the subclass 189, 190, 485 and 489 visas. Access to the subclass 476 visa must also end.

It is noteworthy that '2336 Mining Engineers' was removed from this version of the MLTSSL (or its equivalent) two years ago. Since then, this Unit Group has moved from being one of the most oversupplied to one of the least oversupplied.

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Appendix 1

Engineering Occupations Included in this Submission

ANZSCO Classification (ABS 2013):
Major Group: 2 Professionals
Sub-Major Group: 23 Design, Engineering, Science and Transport Professionals
Minor Group: 233 Engineering Professionals

Unit Group		Occupation	
2331	Chemical and Materials Engineers		
		233111	Chemical engineer
		233112	Materials engineer
2332	Civil Engineering Professionals		
		233211	Civil engineer
		233212	Geotechnical engineer
		233213	Quantity surveyor
		233214	Structural engineer
		233215	Transport engineer
2333	Electrical Engineers		
		233311	Electrical engineer
2334	Electronics Engineers		
		233411	Electronics engineer
2335	Industrial, Mechanical and Production Engineers		
		233511	Industrial engineer
		233512	Mechanical engineer
		233513	Production or plant engineer
2336	Mining Engineers		
		233611	Mining engineer (excluding petroleum)
		233612	Petroleum engineer
2339	Other Engineering Professionals		
		233911	Aeronautical engineer
		233912	Agricultural engineer
		233913	Biomedical engineer
		233914	Engineering technologist
		233915	Environmental engineer
		233916	Naval architect
		233999	Engineering professionals nec (not elsewhere classified)

Appendix 2

Review Sent to the Department of Jobs and Small Business

Comments on the Methodology for Determining the Composition of the Skilled Migration Occupation Lists

Jim Oakley

May 2018

Background

In October 2017, the Department of Employment (now called the Department of Jobs and Small Business) issued a consultation paper containing the draft methodology it proposed to use to determine which occupations will be included and excluded from the skilled migration occupation lists (SMOLs) at each six-monthly review. In response to a call for submissions about the methodology, the Department received 69 responses from individuals and organisations:

https://docs.jobs.gov.au/documents/skilled-migration-list-review-methodology-consultation-october-2017

In April 2018 the Department posted online the version of the methodology to be used to generate the traffic light bulletin for its next review, to be concluded in June 2018. This version was exactly the same as the original draft. No external feedback had been taken into account. This was despite the Department's assurance in its consultation draft that it "will continue to refine the methodology":

https://www.jobs.gov.au/consultation-skilled-migration-occupation-lists

Having made a brief submission in October 2017, I feel that it is necessary to document more pointedly and in more detail the very significant shortcomings of the methodology. These shortcomings will potentially allow occupations which are clearly oversupplied to remain on the SMOLs when in fact they should be removed. This is consistent with the practice of the Federal Government, which uses the deliberate oversupply of several professions through migration as an easy means of helping to meet its massive annual skilled migration targets.

Labour Market Factors

The Department selected a range of labour market factors and datasets to use in its methodology. Four of them are discussed here, along with one prominent omission.

CSAM

The first of the factors and datasets listed in the consultation paper is the Continuous Survey of Australia's Migrants (CSAM), conducted for what is now the Department of Home Affairs. The publicly available survey data are available at the following link:

https://www.homeaffairs.gov.au/about/reports-publications/research-statistics/research/live-in-australia/continuous-survey-of-australias-migrants-csam

The CSAM data at the above link are of no use in the formulation of skilled migration occupation lists. There is nothing there that relates occupational groups or occupations using the ANZSCO classifications at the four- or six-digit level to the employment outcomes of migrants in the occupations for which their visas were granted. Skilled migrants are granted visas based on the perceived need for the skills specifically associated with their skilled occupations. Only employment outcomes related to migrants' specified occupations can inform the SMOLs.

In 2014, 19,936 migrants were invited to participate in the introductory CSAM survey, but only 9,038 chose to participate. Twelve months later, 7,397 completed the follow-up survey. These are the most recently published surveys. Even if survey data are available at the ANZSCO four- and six-digit level, the sample sizes necessarily become increasingly small, magnifying the sampling error which affects the accuracy of the results. The accuracy is also compounded by the non-response error.

In its consultation paper, the Department promised to "be transparent in our methodological approach". There is no transparency about how the CSAM can be used to inform the composition of the SMOLs.

Graduate Outcomes

Another dataset proposed to be used in the methodology is the graduate outcomes data from Graduate Careers Australia (GCA). However, graduate outcomes are no longer reported by GCA. Since 2016 this has been done by the Social Research Centre (SRC). In the publicly available datasets provided by the SRC, outcomes for international graduates and Australian domestic graduates are no longer reported separately. The datasets are combined. The range of outcome measures relating graduates' field of study to their subsequent employment in a related occupation has been reduced, and less detail is available about fields of study (particularly for the different engineering disciplines).

It may be possible for the Department to obtain data with a greater level of detail from the SRC. However, this is not publicly available and again raises issues about the transparency of the methodological approach.

Age Profile

Another factor to be used in the methodology is the age profile for individual occupations. It is not clear how or why this factor will be used in the preparation of the SMOLs. Points testing and individual visa requirements mean that most skilled migrants are under the age of 45. The huge annual influx of international graduates into the labour market via subclass 485 visas lowers the average and median ages of skilled occupations even further.

The Department proposes to use the Australian Labour Force Survey (ALFS) to obtain data about the median age of workers in each occupation. Unfortunately, this survey is plagued by large sampling errors. For example, it indicates the size of the ANZSCO '233 Engineering

Professionals' workforce was around 140,000 at the time of the 2016 Census, whereas the 2016 Census indicated the size of this workforce was about 105,000. The Census is not subject to sampling errors, as virtually the entire population is sampled. The occupational median age should be based on Census data supplemented by ALFS data. The Department's methodology makes no mention of using Census data for calculating median ages for occupations.

Permanent Visas
The most astonishing aspect of the methodology is the exclusion of permanent visa data. For a whole range of professions, including engineering, permanent visas account for the majority of visas issued to migrants seeking to work in these professions (not including the temporary subclass 485 visas issued to international graduates). Permanent visas in the skilled migration program include the subclass 186, 187, 189, 190, and 887 visas. All of these visas except the subclass 887 visa are awarded based on the presence of a migrant's occupation on one of the versions of the Medium and Long-term Strategic Skills List, which is used in conjunction with the Short-term Skilled Occupation List for the subclass 187 and 190 permanent visas. The permanent visa dataset is available to the Department, and should be utilised as one of the most important and reliable labour market factors.

Temporary Visas
The methodology does account for the number of temporary visas issued to migrants. The second point in the list of labour market factors is 'Reliance on Temporary Visa Holders'. There is no explanation about how this information will inform the recommendations for the SMOLs. If an occupation has a high number of temporary visa holders, what does it mean? Does it mean there is genuine demand for migrant skills? In the case of ICT professionals, it means that employers have used foreign labour at below-market salaries to fill vacancies via the subclass 457 (now subclass 482) visa route (Birrell, Healy & Kinnaird 2016). Once again, there is no transparency around how data about temporary visa holders will inform recommendations for the SMOLs.

Supply and Demand

Inherent in most of the labour market factors is a measure of supply and/or demand for occupations. This is the intent of the legislation. For example, in IMMI 18/051 (which covers permanent and temporary visas for independent, family-nominated, and State and Territory Government-nominated migrants), it states:

> "The amended occupation lists ensure that the entry of skilled foreign workers to Australia remains carefully calibrated to Australia's needs."

The concept of supply and demand needs to be kept in mind when considering the Department's nominations for primary and secondary factors.

Primary and Secondary Factors

The Department has classified the labour market factors into primary and secondary factors. Primary factors require that the dataset is:

> "sufficiently robust and statistically reliable; and available for most occupations".

Secondary factors are:

> "those where data is not available for all occupations or where analysis indicates the factor is less relevant from a labour market perspective."

These statements are contradictory. If secondary factors are those where data is not available for all occupations, then primary factors must by definition be for data which is available for all occupations. However, the criteria for primary factors are that robust and statistically reliable datasets only need to be available for most occupations.

Inexplicably, the Department has omitted from its *primary* factors the two datasets which are among the most robust and statistically reliable, and which are available for all occupations: the permanent visa dataset, and the internet vacancies dataset. The permanent visa dataset encompasses the entire population of permanent visas granted each year. The internet vacancy dataset samples the vast majority of the advertised jobs dataset, particularly for skilled occupations. These two datasets are critical to understanding supply and demand, and to ensuring "that the entry of skilled foreign workers to Australia remains carefully calibrated to Australia's needs".

In general, permanent visas granted each year to skilled migrants in a given occupation represent a major proportion of the total number of visas issued for that occupation. This is particularly true for occupations listed on the MLTSSL. Permanent visa data are crucial for understanding labour market supply. Internet vacancies, and changes to this dataset over time, represent the single most reliable indicator of labour market demand for an occupation.

Ratios for an occupation such as the number of permanent visas granted to the number of vacancies advertised, and the total number of visas granted to the number of vacancies advertised, are therefore very robust and extremely statistically reliable measures of the supply:demand ratio. Changes to these ratios are therefore among the most reliable indicators of oversupply or undersupply for an occupation, and can be used in conjunction with a suite of other metrics.

The exclusion of the permanent visa dataset and the internet vacancies dataset from the Department's methodology substantially diminishes the validity of the Department's recommendations, and strips the methodology of integrity.

Points Allocation and Scoring

The methodology provides no clarity around how points are allocated to each labour market factor, or the weightings the different factors are given in the scoring process. Once again, the Department has not lived up to its claim that "We will be transparent in our methodological approach".

For points-tested permanent skilled visas, the Department proposes to include a "long lead time" definition to account for those occupations which require a number of years for completion of qualifications. This encompasses most professional occupations. The Department provides no explanation how this is relevant. Skilled migrants can be brought in when there is a genuine need for their skills, and it typically takes 3-6 months to obtain a visa. Attempting to stockpile skilled migrants years in advance doesn't work if there are no jobs in their fields of expertise. This was recently demonstrated using data from the 2016 Census (Birrell 2018). Of migrants with bachelor or higher degrees in the 25-34 year age group who arrived in Australia between 2011 and 2016, only 35% were working in professional or managerial jobs.

Furthermore, the "long lead time" only represents the time it takes to train a graduate professional. Many professional job vacancies require years of professional experience in addition to academic qualifications, rendering the "long lead time" criterion irrelevant for all except graduate level vacancies.

Other Labour Market Evidence and Submissions

In this section it is stated that "New evidence provided to us that is based on a robust methodology which shows there is a shortage of suitably skilled workers in an occupation which cannot be met from the Australian labour market will have greater weight than other types of evidence".

Why should evidence that shows a shortage of suitably skilled workers have greater weight than similarly rigorous evidence that shows an oversupply of suitably skilled workers? This statement demonstrates the Department's bias, and further erodes its credibility in undertaking objective labour market analysis.

References

Birrell B, Healy E, Kinnaird B, 2016, *Immigration Overflow: Why it Matters*, The Australian Population Research Institute Research Report, December.

Birrell B, 2018, *Australia's Skilled Migration Program: Scarce Skills Not Required*, The Australian Population Research Institute Research Report, March.

Appendix 3

Review of the Submission Guidelines for the Consultation on the Skilled Migration Occupation Lists

At the end of May 2018, the DJSB published guidelines for organisations and individuals about the 'best practice' content for submissions made to DJSB as part of its consultation on the skilled migration occupation lists. The guidelines can be found at the link below:

https://docs.jobs.gov.au/documents/skilled-migration-occupation-list-submission-guidelines

The guidelines provide some useful advice on preparing a focused and relevant submission. From the perspective of a submission about the engineering labour market, the guidelines have several shortcomings which are documented here.

No Focus on the Most Significant Version of the MLTSSL

On page 1 of the guidelines, it says:

> "What we want to know from stakeholder submissions is something we might not understand purely from looking at national labour market data. This kind of information could go to:
>
> • Regional variations in the need for particular occupations.
>
> • Additional evidence on 'niche' or highly specialised skills within occupation categories.
>
> • A specific need for highly experienced workers within a particular occupation category, for example workers within 10 years' experience.
>
> • The experience and remuneration levels of highly skilled staff where there may be gaps in the local labour market."

All of the points listed above relate to potential skills needs for sub-groups within occupations. For permanent skilled migration in general, and for engineering in particular, it is the version of the MLTSSL which is available for points-tested skilled migrants, and which covers visa subclasses 189, 190 and 489, which is responsible for the majority of visa grants. This version of the MLTSSL is not driven by employer skills needs, and takes no account of niche skills gaps within occupations. It exists simply as a general 'booster' for immigration numbers. The guidelines do not address or encourage any consideration of this version of the MLTSSL.

There are more than 200 professional and trade occupations on the versions of the MLTSSL for employer-nominated visas, and this list is supposed to address skills needs in 4-10 years' time. It has proven impossible for the Government to predict occupational requirements in the medium-to-long term. The guidelines impose no requirements on employers or others to demonstrate the validity of their methodology for making predictions this far into the future.

Timescale of Data

On page 2, the guidelines say:

> "Data should be occupation specific, timely (preferably referring to the most recent 6 to 12-month period), accurate, and supportive of the arguments that the submitters are making in the submission."

Then on page 6 it is stated that:

> "Data collected in the six months prior to the submission will be more relevant to the decision making process. Data that are more than six months old will be considered as background information."

The requirement that data must be no more than six months old or it will be "considered as background information" is absurd. In fact it invalidates the Department's own methodology for determining the composition of the SMOLs (see Appendix 2 of this submission). Many of the factors used in the DJSB methodology are updated once per year or less frequently. For example, the latest data on skilled migrant employment outcomes are from 2015; projected employment growth is done every 18 months or so; graduate employment outcomes and DJSB national skill shortage research findings are only done annually.

This very narrow timescale downgrades the importance of major trends in labour market data, which may take place over years. It dismisses the impact of imbalances in supply and demand which have accumulated from previous years, and which show up in statistics such as the number of applicants per job vacancy (collected for some occupations by DJSB, but only once every 12 months) and unemployment rates.

Re-Analysis of Data Used in the SMOL Methodology.

On page three of the guidelines it is stated that:

> "Submissions using the same data sources as used in SMOL methodology, particularly those created by the Department (e.g. employment projections, Job Outlook data, the internet vacancy index and skill shortage research), are not necessary to provide as they are part of our labour market methodology."

The Department's methodology is an ad-hoc collection of primary and secondary parameters which have no theme, and which address demand and supply in a relatively vague manner. The data created by the Department can be used in a much more rigorous and systematic evaluation of demand and supply, as the present submission has attempted to do. In such cases, it <u>is</u> necessary to provide these data as part of a coherent, evidence-based narrative.

Appendix 4

Annual Number of Internet Job Vacancies for ANZSCO Engineering Unit Groups, Expressed as a Percentage of 2012-13 Levels

2012-13	2013-14	2014-15	2015-16	2016-17	2017-18*
2331 Chemical and Materials Engineers					
100%	50.3%	59.5%	38.4%	51.4%	62.6%
2332 Civil Engineering Professionals					
100%	47.9%	47.8%	58.7%	76.6%	77.7%
2333 Electrical Engineers					
100%	44.4%	35.9%	33.2%	45.1%	53.4%
2334 Electronics Engineers					
100%	51.0%	40.6%	36.3%	43.4%	40.1%
2335 Industrial, Mechanical & Production Engineers					
100%	49.5%	42.4%	40.5%	47.7%	53.1%
2336 Mining Engineers					
100%	34.8%	21.9%	15.0%	20.0%	28.0%
2339 Other Engineering Professionals					
100%	54.4%	51.6%	57.3%	60.8%	61.3%

* To end of April 2018

Appendix 5

Description of Skilled Migration Visas

Visa Subclass	Duration	Description	Legislative Instrument for MLTSSL
186	Permanent	For skilled workers who have been nominated by an employer	IMMI 18/049
187	Permanent	For skilled workers who have been nominated by an employer for a job in regional Australia	IMMI 18/043
189	Permanent	For points-tested independent skilled workers	IMMI 18/051
190	Permanent	For points-tested skilled workers nominated by a State or Territory Government	IMMI 18/051
887	Permanent	For skilled workers who have already lived and worked in regional areas of Australia	Independent of MLTSSL
444	Temporary but no time limit	For New Zealand citizens only	Independent of MLTSSL
457	Temporary	For skilled workers who are sponsored by an employer	IMMI 18/048
476	Temporary	For engineering graduates from Australian and overseas universities	Independent of MLTSSL
485[a]	Temporary	For graduates from Australian tertiary education courses	IMMI 18/051
485[b]	Temporary	For graduates with a Bachelors degree or higher from Australian educational institutions	Independent of MLTSSL
489	Temporary	For points-tested skilled workers who have been nominated by family or by a State or Territory Government to work in regional areas	IMMI 18/051

[a] Graduate Work Stream [b] Post-study Work Stream

Appendix 6

Demand and Supply for Engineering Unit Groups

ANZSCO Unit Group
2331 Chemical and Materials Engineers

Table A6.1 Annual demand and supply for ANZSCO Unit Group '2331 Chemical and Materials Engineers'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	177	DHA
Annual growth of the workforce	9	DJSB
Total demand for engineers	**186**	
Annual Supply		
Unemployed engineers	147	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	481	ACED
Migrants granted permanent visas	610	DHA
Migrants granted temporary visas	94	DHA
Total supply of engineers	**1,332**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 2,949.

Graduate Australian engineers' data are only for four year bachelor degrees in 2015. Data are for ASCED code 0303 and split with '2336 Mining Engineers'. Data from ACED (2017). Data for ASCED codes 0300 and 0399 have been distributed proportionally to the other nine ASCED engineering codes, since some universities report all graduations to one or other of these two codes only, and ignore the other codes.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	7.2
Australian graduate engineers as percent of total demand:	259
Unemployed plus employer visas as percent of total demand:	>97.8

ANZSCO Unit Group
2332 Civil Engineering Professionals

Table A6.2 Annual demand and supply for ANZSCO Unit Group '2332 Civil Engineering Professionals'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	2,153	DHA
Annual growth of the workforce	1,479	DJSB
Total demand for engineers	**3,632**	
Annual Supply		
Unemployed engineers	1,794	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	2,020	ACED
Migrants granted permanent visas	1,619	DHA
Migrants granted temporary visas	829	DHA
Total supply of engineers	**6,262**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 35,888.

Graduate Australian engineers' data are only for four year bachelor degrees in 2015. Data are for ASCED Codes 0309 and 0311. Data from ACED (2017). Data for ASCED codes 0300 and 0399 have been distributed proportionally to the other nine ASCED engineering codes, since some universities report all graduations to one or other of these two codes only, and ignore the other codes.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	1.7
Australian graduate engineers as percent of total demand:	56
Unemployed plus employer visas as percent of total demand:	>65.1

ANZSCO Unit Group
2333 Electrical Engineers

Table A6.3 Annual demand and supply for ANZSCO Unit Group '2333 Electrical Engineers'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	828	DHA
Annual growth of the workforce	41	DJSB
Total demand for engineers	**869**	
Annual Supply		
Unemployed engineers	690	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	682	ACED
Migrants granted permanent visas	709	DHA
Migrants granted temporary visas	313	DHA
Total supply of engineers	**2,394**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 13,804.

Graduate Australian engineers' data are only for four year bachelor degrees in 2015. Data are for ASCED code 0313. Data are split between electrical and electronics graduates according to the relative workforce sizes. Data from ACED (2017). Data for ASCED codes 0300 and 0399 have been distributed proportionally to the other nine ASCED engineering codes, since some universities report all graduations to one or other of these two codes only, and ignore the other codes.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	2.8
Australian graduate engineers as percent of total demand:	78
Unemployed plus employer visas as percent of total demand:	>104

ANZSCO Unit Group
2334 Electronics Engineers

Table A6.4 Annual demand and supply for ANZSCO Unit Group '2334 Electronics Engineers'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	278	DHA
Annual growth of the workforce	14	DJSB
Total demand for engineers	**292**	
Annual Supply		
Unemployed engineers	232	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	229	ACED
Migrants granted permanent visas	906	DHA
Migrants granted temporary visas	172	DHA
Total supply of engineers	**1,539**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 4,637.

Graduate Australian engineers' data are only for four year bachelor degrees in 2015. Data are for ASCED code 0313. Data are split between electrical and electronics graduates according to the relative workforce sizes. Data from ACED (2017). Data for ASCED codes 0300 and 0399 have been distributed proportionally to the other nine ASCED engineering codes, since some universities report all graduations to one or other of these two codes only, and ignore the other codes.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	5.3
Australian graduate engineers as percent of total demand:	78
Unemployed plus employer visas as percent of total demand:	>117

ANZSCO Unit Group
2335 Industrial, Mechanical and Production Engineers

Table A6.5 Annual demand and supply for ANZSCO Unit Group '2335 Industrial, Mechanical and Production Engineers'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	1,283	DHA
Annual growth of the workforce	-227	DJSB
Total demand for engineers	**1,056**	
Annual Supply		
Unemployed engineers	1,069	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	1,140	ACED
Migrants granted permanent visas	1,557	DHA
Migrants granted temporary visas	721	DHA
Total supply of engineers	**4,487**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 21,375.

Graduate Australian engineers' data are only for four year bachelor degrees in 2015. Data are for ASCED codes 0301 and 0307. Data from ACED (2017). Data for ASCED codes 0300 and 0399 have been distributed proportionally to the other nine ASCED engineering codes, since some universities report all graduations to one or other of these two codes only, and ignore the other codes.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	4.2
Australian graduate engineers as percent of total demand:	108
Unemployed plus employer visas as percent of total demand:	>155

ANZSCO Unit Group
2336 Mining Engineers

Table A6.6 Annual demand and supply for ANZSCO Unit Group '2336 Mining Engineers'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	398	DHA
Annual growth of the workforce	117	DJSB
Total demand for engineers	**515**	
Annual Supply		
Unemployed engineers	332	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	200	MCA
Migrants granted permanent visas	156	DHA
Migrants granted temporary visas	118	DHA
Total supply of engineers	**806**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 6,641.

Graduate Australian engineers data are for ASCED code 030303. Data from Minerals Council of Australia on ABC News website, June 2018.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	1.6
Australian graduate engineers as percent of total demand:	39
Unemployed plus employer visas as percent of total demand:	>84

ANZSCO Unit Group
2339 Other Engineering Professionals

Table A6.7 Annual demand and supply for ANZSCO Unit Group '2339 Other Engineering Professionals'

Category	No. of Engineers	Source of Data
Annual Demand		
Annual additions required to replace those leaving the workforce	1,228	DHA
Annual growth of the workforce	446	DJSB
Total demand for engineers	**1,674**	
Annual Supply		
Unemployed engineers	1,023	2016 Census
Displaced engineers	Unknown	
Australian graduate engineers	411	ACED
Migrants granted permanent visas	1,074	DHA
Migrants granted temporary visas	474	DHA
Total supply of engineers	**2,982**	

Notes

Supply numbers are based on 2016-17 data. Demand numbers apply to both 2016-17 and 2017-18.

Workforce size based on 2016 Census is 20,471.

Graduate Australian engineers' data are only for four year bachelor degrees in 2015. Data are for ASCED codes 0315 and 0317 only. This does not capture a range of other disciplines in this ANZSCO category, so the value of 411 graduates is a significant underestimate. Data from ACED (2017). Data for ASCED codes 0300 and 0399 have been distributed proportionally to the other nine ASCED engineering codes, since some universities report all graduations to one or other of these two codes only, and ignore the other codes.

Visa grants presented by DHA as "<5" have been assigned a value of zero.

Unit group data are not available for the subclass 887 permanent visa and the subclass 476 temporary visa.

Overall ratio of supply to demand:	1.8
Australian graduate engineers as percent of total demand:	25
Unemployed plus employer visas as percent of total demand:	>87

Appendix 7

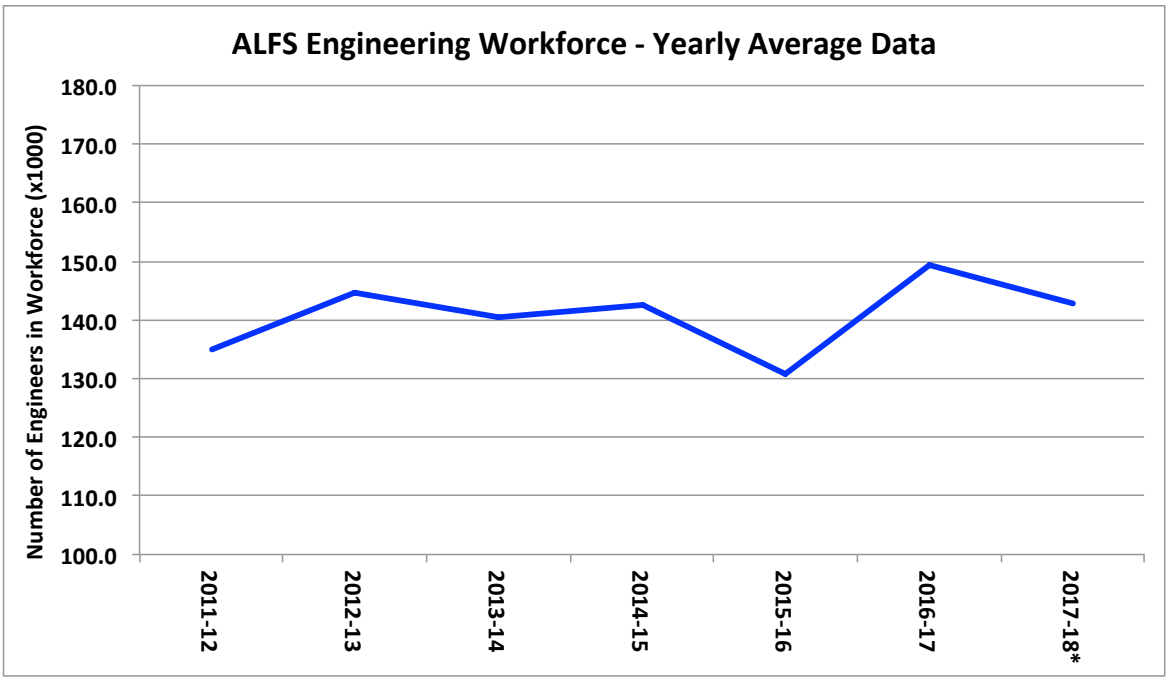
Size of the Engineering Workforce

Census data for the size of the workforce for '233 Engineering Professionals' is shown below.

2011 Census	2016 Census
106,453	105,763

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

The ABS quarterly Australian Labour Force Survey (ALFS)(ABS 2018) 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 2015-16 the average workforce size remained almost constant. The value for 2016-17 is the highest, but this is partly because the workforce size for May 2017 was originally reported as 136,500, but in a later dataset was changed to 144,900.



The ALFS overestimates the size of the engineering workforce compared with the 2016 Census because the ALFS is subject to sampling errors due to its very small sample sizes. According to the ABS, the ALFS sample covers about 0.32% of the Australian civilian population over the age of 15. In contrast, the Census captured 95% of the entire population. Furthermore, the ALFS data are seasonally adjusted and trended by the ABS, which changes the raw data.

In its explanatory notes, the ABS states:

“Estimates from the Labour Force Survey (LFS) are based on information collected from people in a sample of dwellings, rather than the entire population. Hence the estimates produced may differ from those that would have been produced if the entire population had been included in the survey. The most common measure of the likely difference (or 'sampling error') is the Standard Error (SE).” (ABS 2018).