

Electrical Engineering Associate Professionals	New South Wales (NSW)
ASCO Code: 3123	June 2007
Labour market rating	Shortage
Comment: <i>There is a shortage of associates with experience in commissioning and testing electrical equipment in industries such as manufacturing, rail transport and energy resources.</i>	

Occupational demand

Labour Force Survey data for Australia indicate that employment of electrical engineering associates was flat in the ten years to May 2007 and it is likely that the trend was similar in NSW. The consensus of industry contacts was that demand for this occupation over the past decade has been adversely affected by changes in drafting technology which has made the drafting process more efficient and has allowed other engineering professionals to more readily modify drawings. Shorter-term changes in demand for electrical engineering associates depend largely on activity in the electricity, manufacturing and construction industries. Activity in these industries has been mixed over the past year. Employment in the electricity, gas and water industry was flat in 2006-07. The Construction Forecasting Council (CFC) estimates that the value of non-residential construction in NSW grew by only 3.0 per cent over the same period (in nominal dollars) following growth of 13.4 per cent in 2005-06. However, the Australian Industry Group / Price-Waterhouse Coopers *Survey of Manufacturing* shows that manufacturing production in NSW increased in the June quarter 2007, which was the fourth consecutive quarterly increase in production following three quarters of decline from December 2005.

Occupational supply

There is a number of diploma courses which would be an entry path to this occupation or, depending on the modules taken by the student, to the closely related occupation of electronic engineering associate. DEEWR estimates that completions in TAFE diplomas in electrical, electronics and telecommunications engineering were stable at about 350 persons a year from 2002 to 2006. This represents a training rate (course completions as a percentage of the employed workforce) of 4.7 per cent based on an estimated combined workforce of electrical engineering associates and electronic engineering associates of 7000. Net immigration of electrical engineering associates to NSW from overseas averaged 12 persons a year over the five years to 2005-06 which indicates that this is a minor supply source relative to diploma course completions.

Employer and industry comments/current labour market

The DEEWR survey of recently-advertised vacancies for electrical engineering associates found that 75 per cent of positions were filled within six weeks of advertising. The surveyed vacancies fell into two broad categories: those for electrical engineering drafters and those for associates engaged in commissioning, testing and repairing industrial equipment. Almost all employers seeking electrical engineering drafters filled their vacancies within the survey period, although positions in manufacturing generally attracted fewer suitable applicants than those in the electrical power and building services industries. Shortages were more evident for associates with experience in commissioning and testing electrical equipment, with the majority of employers unable to fill such vacancies or having considerable difficulty in doing so. Positions requiring these skills proved hard to fill across a number of industries including manufacturing, rail transport and energy resources.

Labour market outlook

Demand for electrical engineering associates should remain firm over the short term. The CFC expects the value of non-residential construction in NSW to increase by about 23 per cent in 2007-08, while the June quarter 2007 *Survey of Manufacturing* pointed to an improved outlook for manufacturing production over the next year. No significant increase in supply from course completions is expected over the short-term and therefore shortages in a number of industry sectors are likely to continue in 2007-08.

Electrical Engineering Associate Professionals		Victoria
ASCO Code: 3123	March 2007	
Labour market rating	Recruitment Difficulty	
Comment: <i>Recruitment difficulties restricted to vacancies requiring specific knowledge and experience.</i>		

Occupational demand

Demand for electrical engineering associate professionals in Victoria is largely determined by the level of activity in the electricity generation and distribution industries. According to the Australian Bureau of Agricultural and Resource Economics (ABARE), except for wood and crude oil and NGL, all Victorian primary fuels production increased in 2004-05. Victoria's energy consumption across all industries fell by an estimated 3.16 per cent in 2004-05, to 1407.4 petajoules. DEEWR Skilled Vacancies Index data suggest demand for electrical engineering associate professionals has declined since 2004.

Occupational supply

Australian Bureau of Statistics Education and work figures suggest approximately one third of employed electrical engineering associates have Certificate III or IV qualifications. DEEWR estimates the percentage of persons in Victoria who have completed a traineeship relating to electrical engineering increased by almost 30 per cent from 2004-05 to 2005-06. Supply to the profession from net immigration has increased. Net immigration to Victoria during 2005-06 was approximately 32 electrical engineering associate professionals.

Employer and industry comments/current labour market

The Survey of Employers who Recently Advertised (SERA) found slightly more than 40 per cent of electrical engineering associate professional vacancies were filled. The average number of suitable applicants per vacancy was 1.7 and the average number of unsuitable applicants per vacancy was 11.4. Employers deemed candidates unsuitable if they did not have particular skills and experience. Many employers were seeking applicants with a minimum five years industry experience and most generally required applicants to have experience with AutoCAD computer software. According to employers, background in the same industry as the employer was also a necessity for some vacancies.

The majority of employers stated there is low turnover of existing employees, caused by employers working to retain quality employees and high employee job satisfaction. Nonetheless, the Victorian electrical engineering employment sector is affected by people being drawn to businesses located in the booming mining states

Labour market outlook

The relatively balanced labour market for electrical engineering associate professionals in Victoria is expected to continue over the next six months, with recruitment difficulties persisting for vacancies requiring specific knowledge and experience.

Electrical Engineering Associate Professionals		Queensland
ASCO Code: 3123-11, 3123-13	March 2007	
Labour market rating	Shortage	
Comment:		

Occupational demand

Electrical engineering associate professionals are involved in the planning, design, selection, installation, commissioning and maintenance of electrical equipment and systems. People employed in these occupations frequently work in a team with engineers, technologists, other engineering associates and tradespeople. Demand for electrical engineering associate professionals mainly depends on activity levels in the electricity generation and supply, construction and manufacturing sectors. With continuing advances in technology, work in this area increasingly requires higher-level qualifications or experience, with the ability to continuously upgrade workforce skills to remain competitive. Queensland is currently experiencing elevated levels of demand for electrical engineering associate professionals as infrastructure development advances at a pace to meet the State's population growth and business continues to invest in new capacity.

Occupational supply

Electrical engineering associate professionals include the two specific occupations of electrical engineering associate and electrical engineering technician. Formal training for technicians is available through a two year full time Diploma or Advanced Diploma course in Electrical Engineering or Electrical and Electronic Engineering delivered through Queensland's vocational education system. Training provider contacts reported that these courses are intended for school leavers and non-electrical tradespersons. Education options for electrical engineering associates include Associate Degree in Engineering courses offered by Central Queensland University and the University of Southern Queensland, with students undertaking a major or specialisation in an electrical engineering-related stream. Labour Force Survey data for electrical engineering associate professionals indicate overall growth in these occupations over the last two years. Direct international migration to Queensland may be a significant supply factor for these occupations, given their overall size, with immigration data showing a net permanent and long term gain to the State of 33 self-identified electrical engineering associate professionals in 2005-06.

Employer and industry comments/current labour market

Less than 20 per cent of the vacancies for electrical engineering associates in this year's survey were filled within six weeks of advertising. Two thirds of the applicants were considered unsuitable because they did not possess all of the skills required for the position, did not have any or enough experience, or lacked a required qualification. Some employers were seeking workers with specific skills and experience in addition to a formal qualification to meet their particular needs. Industry and employer contacts said that graduates who have completed the Advanced Diploma in recent years either gained employment in their field of interest quickly or continued their studies, with some combining both work and further study. Contacts reported that recruitment difficulties are more severe in regional areas and that repeated advertising is needed to recruit to these locations. Some employers remarked that ongoing developments in the mining sector have been a major driver of recent growth in demand for these occupations.

Labour market outlook

High levels of activity in infrastructure development, commercial building and the mineral resources sector have lifted demand for electrical engineering associate professionals in Queensland. The supply of new associate professionals from education and training, and from interstate and overseas migration, presently falls well short of meeting demand. The present State-wide shortage is therefore expected to continue through 2007.

Electrical Engineering Associate Professionals		South Australia
ASCO Code: 3123	March 2007	
Labour market rating	Shortage	
Comment		

Occupational demand

In 2006, there were approximately 600 electrical engineering associates employed in South Australia. ABS Census data show that over 30 per cent were employed in the manufacturing industry in 2001. Other major employing industries include the electricity, gas and water supply industry (18 per cent), construction industry (16 per cent) and property and business services (11 per cent). Although business levels in the State's manufacturing sector are currently subdued, the State has experienced a considerable increase in electricity related engineering construction activity. According to the ABS, there was a sharp increase in the value of electricity generation, transmission and pipelines construction in the four quarters to the September quarter 2006. The value of work yet to be done also increased during this period suggesting that engineering construction activity levels will remain high in the short to medium term. DEEWR's Skilled Vacancies Index data show that the number of newspaper vacancies for electrical engineering associates has remained steady over the past three years.

Occupational supply

The major source of supply into this occupation is through completion of trade training. According to the 2001 ABS Census, around 61 per cent of electrical engineering associates have Certificate III (trade) or IV as their highest qualification. Another major source of supply is graduates of the Advanced Diploma of Electrical Engineering offered by SA TAFE. Approximately 40 per cent of students are tradespeople seeking to upgrade their qualifications. Most tradespeople only complete the minimum modules required to obtain a Diploma in Engineering and therefore do not undertake further studies to acquire the Advanced Diploma. Around half of students that are non-tradespersons do not complete their studies. An average of nine persons per annum completed the Advanced Diploma in the period 2002 to 2005, but in 2006 there were three completions. The number of commencements has also fallen sharply in the last two years. In addition to supply to the occupation from formal training, there was a net inflow from overseas migration of seven electrical engineering associates in 2005-06. Although a small number, this represents a significant increase on previous years.

Employer and industry comments/current labour market

A survey of employers who had recently advertised for electrical engineering associates indicated that 18 per cent of vacancies were filled within six weeks. It therefore appears that significant recruitment difficulties exist. Employers reported less difficulty attracting graduates than in recruiting experienced personnel. On average, employers received around seven applicants per vacancy, but most of these were deemed unsuitable. The main reasons given by employers for rejecting unsuitable applicants were lack of experience and relevant qualifications. A number of employers reported receiving applications from overseas but these applicants were deemed unsuitable due to poor English language skills. Employers cited growth in demand as the major factor contributing to current skill shortages. There was also concern that graduates and some experienced personnel may chase higher paying jobs in the mining industry and therefore exacerbate shortages in other industries in the State.

Labour market outlook

The level of engineering construction activity is likely to increase over the next few years due to a number of large projects including the possible expansion of the Olympic Dam mine and the Air Warfare Destroyers project. As a consequence, demand for electrical engineering associates is expected to grow and current shortages are likely to continue.

Electrical Engineering Associate Professionals		Tasmania
ASCO Code: 3123	February 2007	
Labour market rating	Shortage	
Comment		

Occupational demand

There were 103 electrical engineering associates employed in Tasmania at the time of the 2001 ABS Census. Approximately 40 per cent of those work in the electricity supply industry and about 15 percent work in consultancy services. Demand for electrical engineering associates is linked to factors such as economic growth, construction activity and infrastructure developments. Industry sources report that the small number of people in the occupation indicates that demand is currently low.

Occupational supply

Supply of electrical engineering associates comes predominately through the Tasmanian TAFE system. TAFE offer a Diploma of Electrical Engineering at their Launceston campus, with specialisations in control systems and power systems engineering. Sources from TAFE indicate that the number of commencements has been declining in recent years, as has the number of students completing the course. It was suggested that this may be because people interested in an engineering career are tending to enrol in university rather than TAFE. A high number of students dropping out of the course, either because they start a job or find that the course is too academically demanding, has resulted in low numbers of completions, with just one person completing the course in 2006.

Employer and industry comments/current labour market

Few vacancies for electrical engineering associates were identified in the lead up to this report. Employers were ideally seeking degree qualified electrical engineers and advertisements attracted only a small number of applicants, although some vacancies were successfully filled. Despite the low number of advertised vacancies, employers and industry sources surveyed, agreed that electrical engineering associates are currently in shortage. However, it was also noted by several contacts that the small number of people working in the occupation shows that demand is low. A small increase in supply would therefore be sufficient to put the occupation in balance. Some employers of electrical engineering associate professionals, reported that they generally recruit people who may have a trade background, and then pay for them to complete the relevant training on the mainland. This is because the TAFE course available in Tasmania does not meet their particular business needs. Other industry sources commented that there is potential wastage from the occupation with people moving on to University studies and becoming professional electrical engineers. However, the numbers doing this are likely to be very small.

Labour market outlook

Employer and industry comments suggest that electrical engineering associates are in shortage in Tasmania.

Electrical Engineering Associate Professionals		Northern Territory
ASCO Code: 3123	January 2007	
Labour market rating	Shortage	
Comment:		

Occupational demand

ABS Census data show that there were 87 electrical engineering associates employed in the NT in 2001. The value of building work done increased strongly in 2004, 2005 and into 2006, reaching the highest level (in chain volume measure terms) since the construction boom peak in 1998 and 1999 (ABS Building Activity; 8752.0; September Quarter 2006). Major engineering works (such as the Wickham Point LNG plant construction and the Alcan G3 refinery expansion) have had a large impact on the NT economy and the number of mining and resource projects underway in the NT has increased. The resource and construction led economic boom in the NT is likely to have created increased demand for electrical engineering associates.

Occupational supply

There are no local training courses available at the diploma level specifically in electrical engineering. Employers do however recruit from related courses available at Charles Darwin University (such as the Diploma in Building Design and Drafting). Students are typically recruited prior to the completion of their course. This is due to the strong competition for quality students and employers can influence and train them in the electrical engineering area.

Employer and industry comments/current labour market

Employers who had recently advertised for electrical engineering associates struggled to fill their vacancies, with a fill rate of just 25 percent being achieved. Employers were often able to attract a suitable applicant, however few were able to secure them in a role due to the applicant receiving a better offer elsewhere (often from their existing employer). Although employers would have liked to be able to increase the number of associates working for them (due to increased demand), just retaining existing numbers has proven difficult.

Vacancies are typically advertised on-line and posted with agencies to source applicants. The majority of applicants tend to be from non-English speaking background countries (for example India or Pakistan) and were not considered suitable. Employers would consider sponsoring overseas applicants, however the requirement for strong English and communication skills and an understanding of Australian regulations tended to make them unsuitable. Employers claimed it was hard to attract any interstate applicants due to high demand also existing elsewhere in Australia.

A high turnover of associates is an issue for employers. Retaining interstate recruits is difficult and employers do not expect to retain employees for more than two years before they return interstate. Employers claim that recruitment agencies have adopted headhunting techniques to source applicants for clients locally and this has increased wage pressures and created some churn in positions. Construction industry and government employers have lost associates to the mining industry with increased demand coming from this sector. Employers suggest that there is more demand than can be catered for and this has led them to be more selective and less aggressive when bidding for tenders.

Labour market outlook

Employers commented that the strong demand for electrical engineering associates would remain next year due to the amount of infrastructure work still to be undertaken. Attracting new supply is likely to remain difficult and the occupation is likely to remain in shortage over the coming year.