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6 February 2012

Committee Secretary
Senate Education, Employment and Workplace Relations Committees
PO Box 6100
Parliament House
Canberra ACT 2600
Australia

For the consideration of the committee

Regarding : The shortage of engineering and related employment skills

Ausgrid submits the following, in reference to item c) in the terms of reference for the senate inquiry.

Ausgrid
Ausgrid is a state owned corporation in NSW. It is responsible for the construction, maintenance and operation of the electrical distribution network and assets in Sydney (CBD, south, east and northern suburbs), the Central Coast, Newcastle and Upper Hunter areas.

In performing these functions, Ausgrid employs over 600 staff with engineering degree qualifications and a similar quantity with paraprofessional qualifications. Ausgrid also employs approximately 2500 electrically trained staff (trade level training).

Ausgrid conducts significant amounts of vocational training for its own staff and for other organisations authorised to work on or near the electrical distribution network, via our enterprise RTO (registered training organisation).

Ausgrid also manages several development programs to meet organisational needs for engineering and related skills. These are

Apprenticeships – Electrical Fitter / Powerline Worker / Motor Vehicle Mechanic/
Vehicle Body Builder

These are apprenticeships in the traditional sense of 4 year indentures and a certified (trade) outcome

Traineeships – Electrical paraprofessional

The traineeship program is open to entry from trade qualified staff or direct entry from applicants able to demonstrate the LLN (language, literacy, & numeracy) skills to work at a para-professional level for engineering work. Trainees work full time at Ausgrid and receive tuition in core knowledge through TAFE. Participants graduate with an Advanced Diploma. This may take between 2-5 years depending on their starting situation.

Ausgrid has participated in developing an Electrical Supply Industry focused Advanced Diploma with the relevant skills council (EE-Oz) to align skills & competencies with the needs of the industry. This is part of the endorsed National Training Package and Ausgrid has commenced delivering this internally.

Cadetships – Electrical Engineering

This program targets students (school leavers or early tertiary study) performing at a high or elite level in maths & physics to participate in study for a bachelor (4 year) degree in electrical engineering.

Cadets are employed to study full time for the first three years and defer their final year to work in the business full time, returning to university in their fifth year to complete the degree. Cadets also spend other non-university semester periods during their cadetship working full time in the organisation. Graduates from this program generally progress into the graduate program (below) with 1 year advanced standing.

Graduate Program – Electrical Engineering

The graduate program targets final year undergraduates or graduates within 5 years of graduation. Participants are moved every 6 months over a two year period to experience various aspects of electrical engineering practice in the industry.

During the graduate program, participants are provided with training and development opportunities and encouraged to document their progress toward registration as a full professional.

Internship Program – Electrical Engineering

Ausgrid accepts a number of undergraduate students each year for 3-6 month paid internships in partnership with local universities and the Australian Power Institute (API).

Study Assistance

Ausgrid supports staff in developing knowledge & skills important and relevant to the organisation. Support extends to seminar/ lecture attendance & financial support with

regard to course fees. This includes post-trade and post graduate studies as appropriate.

History of engineering skills development at Ausgrid
(formerly Energy Australia / Sydney Electricity/ various County Councils)

For the much of the period of their existence, Ausgrid and its predecessor organisations have traditionally trained their own technical/engineering workforce. External recruitment of experienced engineers supplements the workforce, from time to time.

Industry pathways for the development of engineering students have been

apprenticeship	➔	post-trade qualifications (p/t study TAFE certs)	➔	engineering studies ➔ Engineer (p/t study BE at university)
traineeship	➔	engineering studies (p/t study BE at university)	➔	Engineer
cadetship	➔	graduate program	➔	Engineer
BE student	➔	graduate program	➔	Engineer

Of these groups it has been Ausgrid's experience that retention rates are very high among those choosing to progress from a vocational qualification to the engineering qualifications, as they have already made a long term commitment to be engaged in engineering work.

Ausgrid reinstated its engineering cadetship program in 2007, after it was discontinued in 1993. In the period from 1994 to 2007 a number of different scholarship models were used. Retention rates for those that complete the cadetship program are very high, and their engagement with the profession is frequently strong.

Ausgrids graduate program has existed in one form or another for several decades. Over the past decade the output of the program has supplied much of the engineering workforce requirements through a period of steady & then accelerated expansion.

Ausgrid is a participant organisation with the Australian Power Institute, and provides summer internships for students selected by this organisation to receive bursaries and undertake power engineering subjects with their relevant degree.

Commentary
Each of these forms of industry induction and training improve the engagement of engineering students with the profession, and thus retention rates.

Ausgrid benefits from these programs in having a healthy supply of industry trained electrical engineers, capable of operating with a high degree of independence and often able to assume leadership roles where required.

The learning outcome from this history is that development of engineering skills is recognised as being more successful where academic progress is accompanied with industry experience as early as possible. Most of the engineering qualifications in Australia require a minimum period of work experience (12 weeks) completed before graduation. Ausgrid's cadetship program provides approximately 80 weeks work experience.

Of course, the cost of these training outcomes is substantial, and it has to be acknowledged that small to medium sized enterprises do not necessarily have the resources to invest in programs of this nature at the risk of losing those graduates at the completion of their training.

In this aspect Ausgrid would suggest that initiatives be developed to increase

1. participation rates in advanced mathematics and science subjects at secondary school
2. vocational training in engineering trades
3. engagement of engineering students with industry

With regard to each point

1. Ausgrid sponsors and provides staff time to assist in the 'Science and Engineering Challenge' managed by Newcastle University, which promotes the physical sciences to 15-16 year old school children. Ausgrid suggests that the federal government also continue to support such initiatives and provide additional incentives for secondary school science & mathematics teaching.

2. Ausgrid suggests that federal government policies continue to support businesses and training organisations in delivering outcomes in engineering trades.

3. Ausgrid suggests programs be developed to increase the availability of internships for university engineering students with registered professional engineers and/or their employers. Internships should be for 6-12 month period during their studies.

It is suggested that programs allow for:

- registration of each agreement,
- commitments from organisations for minimum levels of training/ industry induction,
- necessary workplace insurances to be covered.

In the absence of such programs, Ausgrid and companies with comparable resources will continue to train and recruit to their workforce needs, however the capacity of SME’s to assist in the development of engineering skills will vary with their circumstances.