9th March 2012

Committee Secretary
Senate Education, Employment and Workplace Relations Committees
Parliament House
Canberra, ACT, 2600

via e-mail to: *eewr.sen@aph.gov.au*

Submission to the Senate Education, Employment and Workplace Relations Committees inquiry on *The shortage of engineering and related employment skills.*

The Energy Networks Association (ENA) welcomes the opportunity to submit our input to the Senate Committee Inquiry on "The shortage of engineering and related employment skills"
and appreciates the extension of time to prepare this response in consultation with our membership.

The ENA is the peak national body for Australia's energy networks which provide the vital link between gas and electricity producers and consumers. ENA represents gas distribution and electricity transmission and distribution network businesses on economic, technical and safety regulation and national energy policy issues.
Energy network businesses deliver electricity and gas to over 13.5 million customers, employ more than 40 000 people and contribute approximately 1.25 percent to Australia's gross domestic product. Energy is delivered across Australia through approximately 48 000 kilometres of transmission lines, 800 000 kilometres of electricity distribution lines and 81 000 kilometres of gas distribution pipelines. Energy network businesses are valued at approximately $60 billion and annually undertake an average investment of approximately $6 billion in network operations, reinforcement, expansions and green-field extensions.

ENA members have a vital interest in addressing the evident and increasing shortage of engineering and related employment skills in the energy supply industry sector as we see both threats and opportunities emerging from the changes our industry will undergo as we respond to climate change, integrate renewable energy sources and evolve our people, infrastructure and systems toward to the construction and operation of "smart networks". Our success in meeting these challenges will rely on greater numbers of more skilled workers with new and different skills in addition to the more traditional needs of our industry.

Our industry feels strongly about strengthening the role of industry by ensuring that skills that provide a tangible benefit to enterprise are developed. The alignment of skills development outcomes with the current and future demands of our industry is necessary to ensure that the full potential productivity benefits of training are realised.

As many of the management and employees in our industry are members of Engineers Australia, our sector has already provided contributions to comments already submitted – the ENA supports these views.

Also, as many ENA member companies are also members and supporters to the Australian Power Institute (API) our sector has had yet another opportunity to provide input and the ENA endorses the API submission to this Inquiry.

The ENA also supports the views expressed by Mr Colin Hackney and Mr Lewis Potterton. As long standing and active members of a number of ENA committees and various industry fora they have the respect of our industry and we believe their individual submissions reflect the views of many across our sector.

Whilst our involvement in this issue to date is somewhat on the periphery as we continue to struggle with the foreseeable challenges, our recent involvement with APESMA in the preparation of the ANET "Scoping Our Future" Report and the ANET response to the Inquiry in the form of the "Realising An Innovation Economy Report" has given us confidence that our sector is not alone in our concerns and that efforts are being made to address these. We applaud and endorse the work of ANET.

We have recently taken the first step in establishing a closer relationship with ANET and more-so with APESMA and look forward to working with them and other stakeholders to develop a clearer and more detailed picture of the issue as it relates to the energy supply sector. We are also keen to better understand how cross sectoral interactions and competition for resources will affect our ability to attract, train, develop and retain the technical and engineering staff that we need to continue to supply the energy that powers the Australian economy.

More specifically, we offer the following comments from the perspective of the energy supply industry, on the issues outlined in the Inquiry Terms of Reference:

As regulated monopoly businesses, ENA member companies providing energy (electric and/or gas) transmission and distribution services operate under a system in which their allowable expenditure is assigned over a five year regulatory period on the basis of approved plans to build, operate and maintain energy supply infrastructure in (1) Greenfield sites (building new infrastructure to meet the increases in and movement of population and the increase in demand for energy) and (2) Brownfield sites (upgrading/replacing ageing or failed infrastructure). This leads to the problem that if there are often insufficient resources to fulfil the capital program the planned and as such approved project work is not completed and the businesses may be penalized at the end of the regulatory period. Aside from the financial impact on the businesses (and ultimately on energy consumers) there is a likelihood of reduced supply capacity and / or reliability for consumers – this impacts on their lives, businesses and the overall economy. As we do not compromise on the safety of our workers or the community, a shortage of resources has consequences on the ability to minimise costs and maximize efficiency through planning work and allocating the most appropriate resources to the most appropriate task. Recent emergency events such as floods and cyclones have further stressed our ability to complete the planned work on time and to budget – the indicators are that climate change will continue to challenge us in these areas.

ENA members have suggested that one impact of the long-term outsourcing of engineering activities by government on skills development and retention in both the private and public sectors has been the loss of indigenous capability within organizations and within Australia. Often graduates new to the organization do not come fully skilled and the loss of expertise and knowledge from within organisations has a devastating affect on their development. Our industry has, in the past relied on a mentor culture and on Subject Matter Experts (SMEs) but in many companies they no longer exist or are not available to assist with their expertise due to the need for them to complete less advanced work no longer able to be allocated to non-existent junior staff. Also the existing SME's do not get the chance to keep their skills current so their future role will diminish and with it any incentive for others to see this as a career development opportunity.

In ENA members' view we need to "over train" and "'over employ" so that engineering and paraprofessional specialists can gain a significant level of skill to then be available to the training system to

give back that knowledge. Capacity within the training system is at an all time low, with many businesses bearing the load which distracts them from their main focus of supplying energy. As an example of this load, one ENA member organization has seen the need to bring two Advanced Diploma level qualifications "in house" as these qualifications are no longer being offered anywhere in their State by educational institutions.

On the question of options to address the skill shortage for engineers and related trades, and the effectiveness and efficiency of relevant policies, both past and present - ENA members believe that before we can suggest options, we need to understand the nature and magnitude of the problem. In this regard we offer the following observations:

- There is an existing shortage of training providers that can cope with the volume of training required at the post trade level for the power industry. Additionally, there is a shortage of SMEs available in the register training organizations (RTOs) to deliver the relevant training and very limited or no funding to develop, evolve or maintain training resources in the first instance.

- Universities offer courses, that depending on intake numbers, where the entry level benchmark is scaled up or down. This leads to a possible introduction of "unfairness" to the selection process and perhaps impacts adversely on the type, motivation and quality of candidate (and therefore graduate).

- Subjects at high school level do not appear to have a clear focus on the minimum skill set required for study in areas of value to the energy supply industry – in our view more should be done to promote mathematics, science and technology subjects. Also, more needs to be done "contextually" so that students understand the nature of the engineering profession and to demonstrate what engineering contributes to the community and the economy. The old Engineers Australia 'slogan' that "engineers make things happen" could be resurrected as a starting point.

- Having attracted the attention of the next generation of engineers we need to provide career development pathways – in our experience, cadetships have proven to be an effective means of ensuring that prospective engineers receive the necessary theory along with the opportunity to apply this in 'the real world' as they learn. Not only does this approach keep the student interested but it ensures that they are a valuable asset on the day they graduate.

Obviously no single stakeholder group can achieve all that it is needed so we recommend that, as a first and critical step, clear policies must be developed to ensure that efforts are correctly directed at solving the problem and that all programs, funding and effort is sustainable over the longer term. The success of these platform policies will hinge on the level of commitment of the community, the schools' system, tertiary institutions, industry and governments. A key part of this could be a closer partnership between tertiary institutions and industry at both an enterprise and whole-of-sector level to provide the work experience needed for individuals to obtain both the initial qualification and professional proficiency.

Just as there are funds available for apprenticeships, industry stakeholders could also be financially assisted as well as required/encouraged to engage or sponsor students to undertake academic training courses, either as school leavers, mature age students or education advancement opportunities for existing employees with more basic technically qualifications. These students would, in return for the opportunity, work within the sponsor company on relevant tasks during semester and other breaks.

It has also been noted by ENA members that 'para-professionals' are an under-recognised and under-catered for group that, in the energy supply sector, provide a valuable contribution to the industry and also provide a pathway for tradesman seeking to advance, at least in part or fully, to engineering qualifications. Recognition of the role of 'para-professional' as a transitional mechanism to extend beyond trade qualifications as far as the individual can or desires under a degree of financial and vocational security deserves more attention in our view.

We note that infrastructure, particularly in the energy supply sector, tends to be built in peaks and troughs and the resource demand also moves from State to State across jurisdictional and business 'borders'. A possible solution to the problem of a moving resource need (as recently evidenced by the construction of the National Broadband Network – an operation that will continue to demonstrate the challenges associated with location for many years to come) would be to (1) establish national registers of major projects (by type, resource need, location etc.) and of resources and then (2) establish and maintain a link between the two – ideally the information would be publicly available to all stakeholders. Similarly the data possibly available from such a system (subject to commercial confidentiality and privacy constraints) would also be invaluable in monitoring the trends in skills needs and resource geographic movements, and hence in planning for future recruitment, training and funding.

On the issue of options for infrastructure delivery using alternative procurement models which aim to foster collaboration and achieve effective community outcomes, including skills development and retention, we suggest that the recent experience of the ENA and our members working with governments, training organizations, trade unions and employees to develop and implement the first stages of the Energy Supply Industry Skills Passport has shown that this can be done for trades and associated skills, and that it is used and is of value in (1) providing a basis for the national harmonization of a growing list of training modules and qualifications, (2) simplifying and centralizing the recording of an individual's skills, qualifications and accreditations, (3) facilitating greater worker mobility, (4) streamlining induction and refresher training and (5) simplifying resource procurement processes. By design, there is no limit to the scope of the ESI Passport and we suggest that it could be used as is or as a model to assist in addressing skills and resource shortages in our sector as a first step. Whilst the ESI Passport has an initial trade focus there is no reason why it cannot be used or duplicated for engineering and para-professional personnel.

It would seem, at least currently, that one of the factors contributing to a lack of engineers and associated staff in the energy sector is the lure of high salaries offered by the mining industry and we anticipate a similar drain on our resources as the construction of the NBN accelerates to planned levels. Whilst this is a current problem it has been suggested that it is a short term problem as there are motivators other than money. In this respect we suggest that more work is needed to identify the reasons why we have a problem retaining engineering talent – if it transpires that the only motivator is money the solution, albeit expensive for energy consumers as translated into energy bills, is straightforward. If not, at least we will have a better definition of the problem(s) to be addressed and perhaps a clearer picture of the priorities.

It has been suggested by one ENA member that addressing the attraction and retention issues may be as simple as working toward a situation where engineers are sufficiently rewarded and recognised for their work as engineers as their preferred vocation so that they do not see the need to move to other disciplines or professions, for which they may be less suited, to obtain financial security and career and personal development.

On the question of opportunities to provide incentives to the private sector through the procurement process to undertake skills development, we suggest that dealing with a lack of resources to provide the training, experience and ongoing support of engineers and associated personnel must precede any discussion on incentives – there is no point or value in incentivising a better outcome where there is no capacity to enable the achievement of the outcome.

As a suggestion of a positive next step from the perspective of the energy supply industry, we would like to take this opportunity to recognise the value to the gas industry members of the ENA of the "Survey of Employers' Recruitment Experiences in the Gas Supply Industry" published in July 2011 by DEEWR and to ask for broader support and assistance in conducting a similar exercise for the electricity supply sector.

Information of this type will, we believe, assist us in advancing our understanding of our challenges, constraints and opportunities and therefore provide a foundation for more effective and efficient action.

Thank you again for the opportunity to comment – if you wish to discuss the issues raised in this submission or require any further information, please contact Mark Amos on [redacted] or by email to [redacted]

Mark Amos
Director Energy Infrastructure Policy
Energy Networks Association