Powering Skills Organisation Ltd

JSC Jobs and Skills Council Energy, Gas and Renewables An Australian Government Initiative

Workforce Plan 2024

# The New Power Generation:

## Challenges and Opportunities Within Australia's Energy Sector

**SUMMARY REPORT**

# Executive Summary

The global energy system is undergoing profound change. By 2030, solar and wind capacity will triple (according to the Australian Energy Market Operator), rooftop solar capacity will double and storage capacity will increase six times over. Jobs and Skills Australia predicts Australia will need 32,000 more Electricians in the next seven years and close to two million workers in building and engineering trades by 2050.[1]

The enormity of the transformation of this sector is well and truly underway, and there needs to be significant uplift in both the capacity and capability of our energy workforce to meet the transformation deadlines.

*The New Power Generation* is the second workforce plan prepared by Powering Skills Organisation (PSO). It provides a blueprint for responding to current, emerging and future workforce, skills and training needs within the energy sector. Not only does the findings build upon existing workforce and training intelligence published by our key partners within the government sector, but also draws upon the extensive stakeholder feedback PSO has received over the past six months.

Through preparing a workforce plan which accurately reflect the present experiences of government, employers and unions as they navigate this changing labour market – PSO looks forward to enacting a series of activities and projects designed to alleviate and overcome these challenges, create a more diverse and productive energy workforce force.

The two primary challenges identified for the energy sector for increasing the size and skills of the energy sector workforce:

- increasing the flow of people undergoing training in energy sector trades, and
- ensuring that the training system is fit for purpose and functioning as smoothly as possible to deliver new workers into the workforce – without compromising safety.

[1] Jobs and Skills Australia, *The Clean Energy Generation. Workforce needs for a net zero economy*, 2023.





The energy sector contains around

**241,600** workers.[2]

While accounting for around 2% of Australia's total workforce, it is a vital sector whose work underpins the entire labour market. Without energy, there is no labour market in Australia.

## Australia has a critical shortage of 17,400 electrical workers by 2030.

Shortfall of around
**17,400**
energy sector workers by 2030

**40%**
increase needed in the number of Electrician apprentices annually

**20,500**
Electrician apprentices needed each year

For the 10 industry sectors within the JSCs remit, the energy workforce has the lowest representation of women (16.5%) and second lowest representation of recent migrants (2.1%). First Nations peoples account for less than two percent of the workforce. It also has amongst the highest proportion of workers that work full-time, have a VET qualification, and are under 50 years of age.[3]

These are early indications of opportunities to increase the workforce's footprint through an increase in diversity. Addressing barriers to entry for people from diverse backgrounds, including women, First Nations peoples, migrant groups, people with disability and mature aged workers, is one of the key focus areas for PSO.

Analysis of historical skill shortage data shows that the lack of qualified and skilled workers is an entrenched problem for this labour market. Over the past 20 years, shortages have been commonplace for the two largest energy employing occupations. Since 2003, Electricians have been in shortage 12 times (including four of the last five years). Airconditioning and Refrigeration Mechanics is more dire, with employers unable to fill advertised vacancies for these roles for nearly a quarter of a century.[4]

On the back of historic shortages and an analogous workforce, Jobs and Skills Australia (JSA) forecast Australia will likely need 32,000 more Electricians in the next seven years and close to two million workers in building and engineering trades by 2050 to meet current emissions targets.[5] The workforce that JSA is forecasting will be required across the entire labour market including construction and manufacturing, not just those who are directly employed within the energy sector.

Building on the projection work undertaken by Jobs and Skills Australia, PSO has produced bespoke projections specifically for the energy sector. Through this process, PSO can forecast the anticipated shortfall across six critical energy occupations.

### The six critical energy occupations are:

- Electricians,
- Airconditioning and Refrigeration Mechanics,
- Electrical Distribution Trades Workers (e.g., linesworkers, cable jointers, rail signalling),
- Electrical Engineering Draftspersons and Technicians,
- Electronics Trades Workers (e.g., instrumentation and control workers) and
- Electrotechnology and Telecommunications Trades Workers not further defined (this is broad group of new and emerging occupations which aren't captured within present ANZSCO occupations).

PSO anticipates that there will be a shortfall of 17,400 energy sector workers in these six critical occupations by 2030. It is further anticipated this shortfall may more than double to 37,600 workers by 2050.

[2] ABS, *Labour Force, Detailed*, November 2023, four-quarter averages.
[3] ABS, *2021 Census of Population and Housing based on usual place of residence*.
[4] Jobs and Skills Australia, *Historical List of Skill Shortages 1986–2019*, unpublished.
[5] Jobs and Skills Australia, *The Clean Energy Generation. Workforce needs for a net zero economy*, 2023.

# The VET sector for energy workers

Most pathways into energy sector roles are through VET. As such, the energy sector has a critical dependency on a robust VET system. Many of the occupations are also licensed trades, which means formal qualifications are mandatory. For example, there is no scope to be an experienced but unqualified Electrician.

Training packages that are easier to navigate will help scale the energy trades workforce in future. One of PSO's four aims is to ensure training packages, products and policies are 'fit for purpose' and suited to the evolving needs of students, employers and training providers.

To date several critical issues have been identified. These include extensive use of prerequisite units; the use of weighting points; nested pathways; heavy duplication / overlap / complexity in qualification units; units in use across different training packages; and limited delivery of certain units and qualifications by training providers.

Strategies aimed at unblocking training package inefficiencies, while also maintaining high standards of safety and quality, are clearly part of the journey to boosting workforce participation and skills delivery in the energy sector. Examples of possible solutions include 'micro-credentialling', allowing qualified and licensed tradespeople to undertake training in a particular competency or skill, without the need to undertake an entire training package, helping to reduce duplication with the packages themselves and improve worker transitions between fields of work. Please note, PSO does not support the use of micro-credentials as part of the apprenticeship system.

Outside the efficient and cost-effective delivery of training, PSO is also concerned about the scale of non-completion across the sector. Presently, there is no definitive measure of an actual completion rate in Australia (that being, what percentage of VET students who commence a course complete it).

While exact figures are unknown, it is known that women have lower completion rates than males, and First Nations peoples have lower completion rates than non-Indigenous people. Of those apprentices that do exit, most do so in their first year. PSO is investigating these completion rates to understand the role that improving training package efficiency could play in improving completion rates, versus understanding systemic cultural issues in the sector that discourage people from completing their training. Both are considered important to resolve if Australia is to meet its demand for the energy workforce.

Rapid growth of the energy trades workforce is also dependent on rapid growth of capable VET trainers. While data from JSA shows VET trainers has been in shortage for the past two years, stakeholder commentary collected through the PSO Energy Pathways Roadshow indicated that shortages of energy VET trainers is a long-standing issue in Australia.

**Our Purpose** Empowering the energy sector to develop skills for a net zero future.

**Our Vision** Australians powering the nation.

## Next steps

Moving forward, PSO has outlined five strategic focus areas to boost both capacity (the number of workers) and capability (workers' skills) within the energy sector. This represents a maturing of our ADAPT focus areas initially debuted in the Year One Workforce Plan and these new focus areas represent the significant stakeholder engagement PSO has undertaken over the past year.

### Focus Area One - Alignment

A Alignment with the broader training environment. Identifying and responding to interactions with other JSCs and their workforce plans: emerging competition with other workforce sectors.

### Focus Area Two - Diversity

D Diversity in the workforce-in-training and workforce. Addressing barriers to entry for people from diverse backgrounds, including First Nations people, migrant groups, people with disability and people with low foundation skills.

### Focus Area Three - Access

A Access to training. Making sure the VET sector has sufficient capacity and capability to meet prospective trainee demand.

### Focus Area Four - Performance

P Performance of training delivery enhanced. Optimising the delivery of the four energy training packages by increasing the on-the-job training capability, removing inefficiencies and streamlining processes.

### Focus Area Five - Transition

T Transition pathways for net zero. Promoting clean energy career pathways and ensuring the training system equips workers to deliver a clean energy system.

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