



Friday, 9 August 2024

Submission - National Skills Taxonomy Discussion Paper

The Clean Energy Council (CEC) welcomes the opportunity to make a submission in response to the *National Skills Taxonomy Discussion Paper* (the Paper).

The CEC is the peak body for the clean energy industry in Australia. We represent and work with around 1,000 businesses operating in Australia across renewable energy, energy storage, and renewable hydrogen.

Reaching the Australian Government's ambitious targets of 82% renewable electricity in the National Electricity Market (NEM) and a 43% reduction in greenhouse gas emissions by 2030, and net zero emissions by 2050, will require a substantial workforce transformation. Jobs and Skills Australia (JSA) has previously characterised the energy transition as constituting 'one of the most significant economic structural shifts since the Industrial Revolution'.¹ JSA's *The Clean Energy Generation* comprehensively documented the numerous workforce challenges that must be overcome to achieve this transformation. Many of these challenges are highly relevant to the development of a National Skills Taxonomy (NST). This submission will summarise the workforce issues the clean energy industry is experiencing to assist with the identification of potential use cases that may be enabled by an NST. It will also provide an overview of the CEC Clean Energy Required Training (CERT) projects, which aim to improve worker mobility in Victoria and Queensland by establishing agreed benchmarks for required qualifications for trades workers on clean energy projects.

Future workforce demand and barriers to attraction and retention

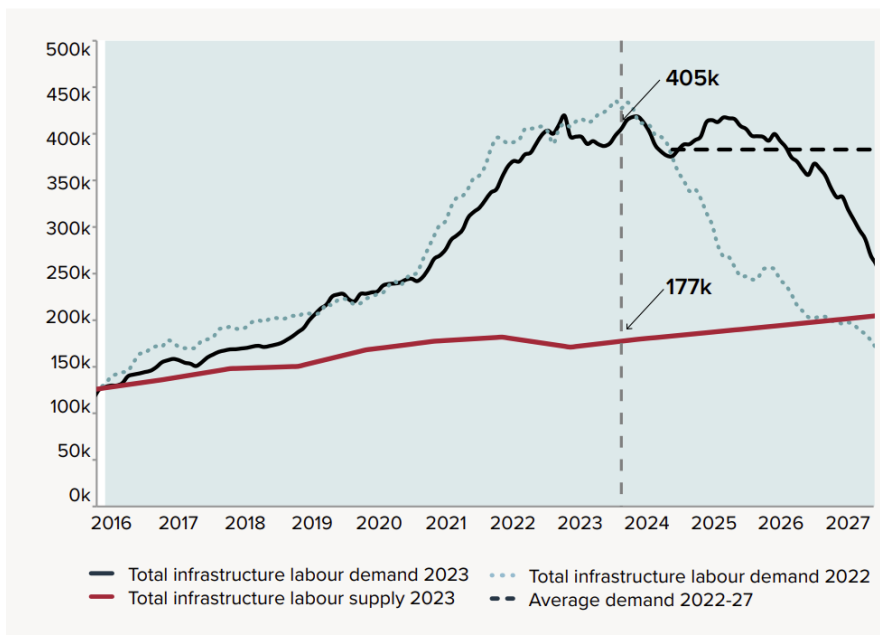
Significant macroeconomic considerations affecting future workforce supply and demand for the clean energy industry include:

- **Projections of rapid growth in renewable energy projects across solar, wind, storage and green hydrogen.** To achieve Australia's decarbonisation targets, the Australian Energy Market Operator has estimated we need to install an average of 6 gigawatts (GW) of utility-scale renewable generation capacity and 3 GW of rooftop solar to

¹ Jobs and Skills Australia. (2023a). *Towards a National Jobs and Skills Roadmap: Annual Jobs and Skills Report 2023*. Canberra, Australia. URL: <https://www.jobsandskills.gov.au/download/19298/towards-national-jobs-and-skills-roadmap/1968/2023-annual-jobs-and-skills-report/pdf>

the NEM each year to 2030.² For comparison, in 2014-15 the NEM included just under 28 GW of coal generation; the required renewable build is therefore equivalent to roughly a third of this historic capacity every year. This requires the renewables workforce to more than double to 2028-29, increasing from roughly 25 thousand workers to 55 thousand workers over this period. Most of this growth is in the utility-scale construction workforce, and approximately 70% of these jobs will be in regional and remote Australia.

- **Global competition for investment and skilled workers.** This is due to accelerating decarbonisation ambitions by countries across the globe and state-based industrial policy such as the United States’ Inflation Reduction Act (IRA) and the European Commission’s Green Deal Industrial Plan.
- **Historic low unemployment, and a record pipeline of infrastructure investment.** This will induce domestic competition for construction workers due to large-scale public infrastructure projects (Figure 1).



Note: Public infrastructure pipeline demand includes major public infrastructure projects, non-major public infrastructure projects, road maintenance projects and privately funded infrastructure for public use.

Source: Nous Group commissioned by Infrastructure Australia (2023).

Figure 1 | Demand and supply of public infrastructure workers.

² Australian Energy Market Operator Limited. (2024). *2024 Integrated System Plan*. Melbourne, Australia. URL: <https://aemo.com.au/-/media/files/major-publications/isp/2024/2024-integrated-system-plan-isp.pdf?la=en>

The clean energy industry is also experiencing current and worsening skills shortages in critical occupations. Some of the factors exacerbating these shortages include:

- **Visibility and mobility** – jobs in clean energy and pathways to work in the industry are poorly understood. One result of this is that most people working in clean energy did not start their career in the industry. A LinkedIn review of four clean energy occupations showed talent moving between diverse sectors including plastics, oil and gas, public safety, investment management, manufacturing, construction, mining and metals, automotive, recruitment, government, and health.³ Demand for talent is highest at the mid-career level of 8-10 years' experience. This suggests that previous experience in the sector is highly regarded. Alternatively, demonstrated experience in different sectors with skills overlap will become increasingly important as competition for workers intensifies. An NST would benefit both employers and workers by explicating the required skills to perform key roles, increasing the potential for cross-industry mobility.
- **Location** – the regional location of most jobs is a major impediment to attracting qualified graduates, who are typically attracted to metropolitan areas. There is also persistent uncertainty regarding the capacity and capability of regional communities to capitalise on the potential benefits an influx of clean energy jobs affords. Regional cities face several barriers to delivering higher training and education, including market barriers, such as trainer shortages and thin markets; location barriers, including distance, lack of infrastructure, resources, limited job opportunities, and training offerings mismatched with local demand; and student barriers, including language, literacy, numeracy and digital literacy.⁴
- **Training** – the clean energy industry is already experiencing a critical lack of training capacity, notably in electrical trainers. A slow and unwieldy VET system has been a brake on the development of relevant and meaningful qualifications for electrical and mechanical tradespeople in renewable energy. Australia's enduring STEM (science, technology, engineering, mathematics) crisis threatens clean energy project developments, which rely heavily on STEM-based skills.

³ Clean Energy Council. (2022). Skilling the Energy Transition. Melbourne, Australia. URL: https://assets.cleanenergycouncil.org.au/documents/CEC_Skilling-the-Energy-Transition-2022.pdf

⁴ Griffin, T. (2023). VET Delivery in Regional, Rural and Remote Australia: Barriers and Facilitators. National Centre for Vocational Education Research. URL: https://www.ncver.edu.au/_data/assets/pdf_file/0044/9677267/VET_delivery_in_regional_rural_and_remote_australia_barriers_and_facilitators.pdf

Other industry characteristics relevant to the design of an NST

Emerging occupations and data gaps

The clean energy industry has many new and emerging occupations that are not defined in the incumbent Australia and New Zealand Standard Classification of Occupations (ANZSCO). This will also occur as new technologies such as offshore wind, hydrogen electrolysis and direct air capture are deployed at scale in Australia. The inability of existing data structures to accommodate the emerging clean energy industry inhibits workforce planning. In turn, this prevents training and education providers from responding to the needs of emerging markets by developing new course content. It also prevents the inclusion of these occupations in the Core Skills Occupations List, which limits opportunities for skilled migration from markets with advanced or recent experience in these technologies. As noted in the Paper, an NST could offer industry more dynamic flexibility in identifying and accommodating emerging skill needs.

Role of skilled migration

Many project proponents in Australia are global organisations headquartered overseas. It is natural for emerging industries in Australia to utilise the skills of migrants from countries that are more established in that industry. The clean energy workforce has differing rates of utilisation of skilled migration across occupations. This is largely determined by the skill and education level of the job. Higher-skilled professionals, especially engineering occupations, have rates of skilled migration that exceed 50% (see Figure 2). However, JSA analysis also demonstrates that a high proportion of skilled migrants with electrical engineering qualifications are working in lower skilled jobs.⁵ This may be due to qualifications that are incommensurate with Australian standards. Conversely, trade occupations have a very low utilisation of workers born overseas, despite being in high demand. These cases demonstrate the potential benefits of increased transparency regarding the skills required to perform a job, skill-based recruiting, and the importance of a streamlined approach to skills recognition for overseas qualifications and competencies that could be facilitated by an NST.

⁵ Jobs and Skills Australia. (2023b). The Clean Energy Generation. Canberra, Australia. URL: https://www.jobsandskills.gov.au/sites/default/files/2023-10/The%20Clean%20Energy%20Generation_0.pdf

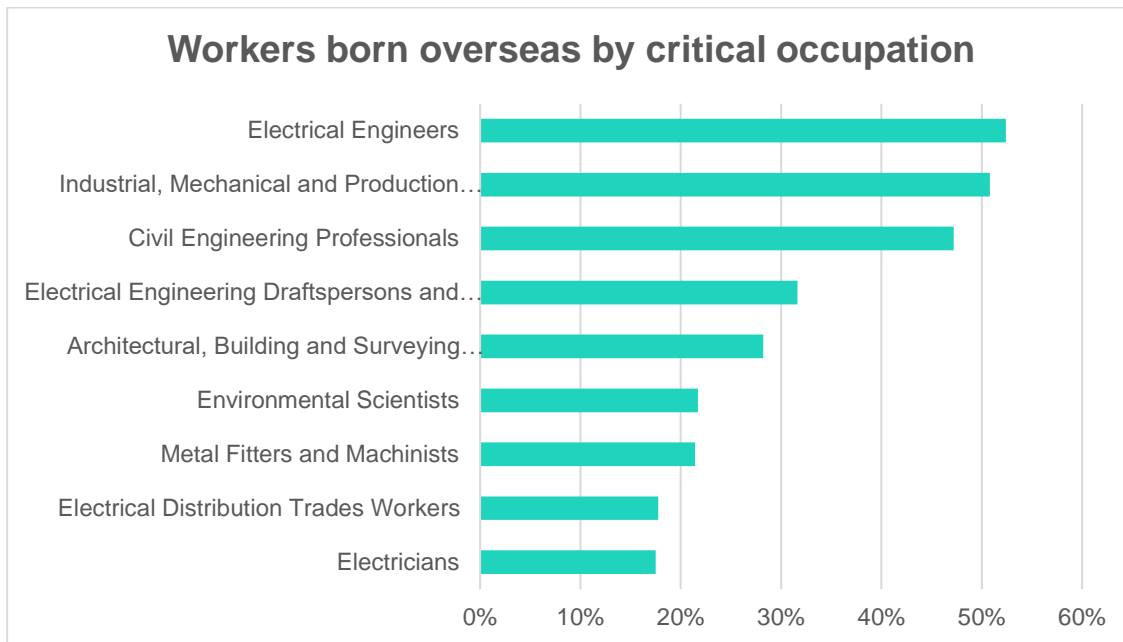


Figure 2 | Source: ABS Census of Population and Housing 2021. Includes nine critical occupations relevant to both the clean energy supply and enabling segments of JSA's taxonomy. Average rate across all occupations is 30.7%.

Clean Energy Council project overview

The CEC has commenced Clean Energy Required Training (CERT) projects in Victoria and Queensland relevant to the development of an NST. The CERT projects aim to improve worker mobility for the clean energy industry. They will establish consistent, industry-agreed benchmarks on the qualifications required for trade workers employed in the construction, commissioning and operations of onshore wind, solar and battery projects in each state.

This information will be published via a digital platform including a worker passport solution. It will enable workers and prospective workers to identify career pathways relevant to their existing skills, upload qualifications for independent verification, and identify relevant employment and/or professional development opportunities in the industry. This information will inform a training matrix that underpins a digital platform to track worker competencies.

The objectives of the CERT projects are to:

- Develop and benchmark the skills and training required across trade occupations for clean energy projects so that industry can communicate with workers, RTOs, government, and employment services about their training needs.

- Increase the pool of qualified and experienced workers, including under-represented or marginalised labour groups, the long-term unemployed, and workers transitioning out of the thermal energy sector, available to clean energy developers and contractors.
- Enable individual workers to establish career development pathways and move between clean energy projects more efficiently and seamlessly because they understand what skills and training are required for specific occupations and what opportunities exist.

The outcomes of these projects are:

- Improved training participation, by clarifying demand to the TAFE and training sector and aligning delivery with industry requirements. It would also provide governments with the evidence-base to make data-driven decisions regarding training investment.
- Improved productivity for industry, by increasing efficiency for project owners and contractors in attracting and employing job-ready workers, reducing time-to-competency and overheads from unnecessary in-house training.
- Improved outcomes for workers, by clarifying, harmonising, and tracking worker qualifications. This will empower the workforce through clear progression pathways.

Once deployed in 2025, we envisage the digital solution will provide a valuable mechanism through which industry can identify future training needs including core competencies, transferable skills, and new skill requirements in emerging technologies.

An NST could assist industry members to structure workforce planning around skill needs and identify synergies with other industries, supporting faster accreditation processes and workforce development strategies including for the trainer workforce.

We welcome the development of the NST and thank JSA for the opportunity to provide feedback on the workforce challenges affecting the clean energy industry. We believe the NST could be an asset in remedying some of these challenges.

Yours sincerely,



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