Queensland

2025 Workforce Plan
State & Territory Report

Powering Skills Organisation Ltd

Executive Summary

Project pipeline and workforce analysis

- The energy project pipeline has seen more than a ten-fold increase over the past decade.
- Yet, most energy trades remain in shortage.
- The number of online job listings for these trade roles is reaching unprecedented levels.
- There are 13,000 energy apprentices, however, 18,000 are the projected need (40% higher).
- Workforce demand is forecast at 84,900 by 2030, exceeding the supply of 73,500.

Stakeholder insights

- Workforce and skills shortages are widespread.
- Supporting apprenticeships – addressing barriers for small and medium sized enterprises and boosting retention.
- Post-trade upskilling is becoming essential.
- The need to modernise and simplify training packages.
- Training infrastructure needs expansion.
- Other workforce challenges: Complex migration pathways, low foundation skills and attraction and retention issues.

PSO strategic response

A national strategic response is detailed in the 2025 Workforce Plan to address workforce challenges across all states and territories.

Introduction

Powering Skills Organisation (PSO) is the Jobs and Skills Council (JSC) for the Australian energy, gas, and renewables sector.

One of the missions of JSCs is to represent the voice of their respective industry and the training sector to the Federal Government.

One of the primary ways JSCs achieve this is through developing of an annual Workforce Plan (WFP).

For 2025, in addition to the national edition of the WFP (poweringskills.com.au/workforce-plan-2025), PSO has opted to produce a series of standalone documents tailored to different audiences and stakeholders.

A key component of these documents includes this set of smaller reports focusing on individual states and territories, incorporating data analysis and stakeholder insights gathered throughout the 2025 WFP process.

PSO has provided this jurisdictional analysis for two reasons. Firstly, it addresses to stakeholder feedback from the 2024 WFP, which highlighted that this level of detail would be valuable for informing local and state organisations. Secondly, it reflects the scale and diversity of Australia's energy landscape, policy environment, and workforce – factors that warrant more tailored and nuanced analysis at this level.

It is important to note that a structured strategic response to solve the workforce challenges identified through each state and territory-level document – which includes associated policy proposals and training product development solutions – has been designed at the national level, rather than tailored individually for each state or territory.

As a result, these smaller reports do not provide state-specific strategies (although they do include some stakeholder-suggested solutions). The national response aims to address the shared and significant challenges identified across different regions. As such, this document should be read in conjunction with the main WFP, which presents the overarching strategic response and a national-level analysis of workforce issues.

PSO is pleased to present this document as part of the of 2025 edition of the WFP findings for the energy, gas, and renewables sector in for this jurisdiction.

Queensland

This section begins with a quantitative summary of the energy workforce in Queensland, covering the factors driving workforce demand, existing occupational shortages, and medium-term projections for both workforce demand and supply. It concludes with a qualitative overview of the workforce insights gathered from Phase 1 and Phase 2 of PSO's stakeholder engagement process for the 2025 Workforce Plan.

Overview
Drivers of demand

- Queensland is experiencing rapid growth in its state infrastructure project pipeline, driving increasing demand for workers across the entire economy.
- Over the past decade, a surge in projects has emerged, encompassing both major energy infrastructure and other critical infrastructure simultaneously.
- As shown in Figure 1, the energy project pipeline has grown from half a billion dollars to almost $7 billion over the past ten years – representing more than a ten-fold increase. This includes projects related to generation, transmission, and distribution.
- In parallel, Figure 2 highlights the rise of other major infrastructure projects, which have more than doubled from around $11 billion in 2015 to roughly $24 billion by the end of 2024. This includes investments in key sectors such as transport, healthcare, and education.
- All of these projects require a workforce of highly skilled and qualified energy workers to ensure successful and safe delivery.

Figure 1: Major energy projects, Queensland

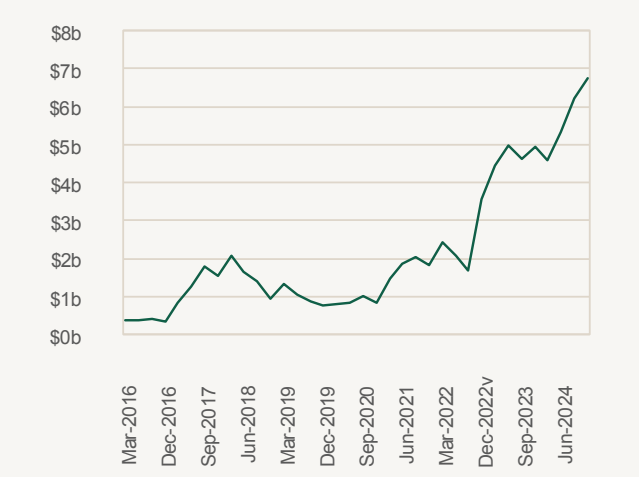
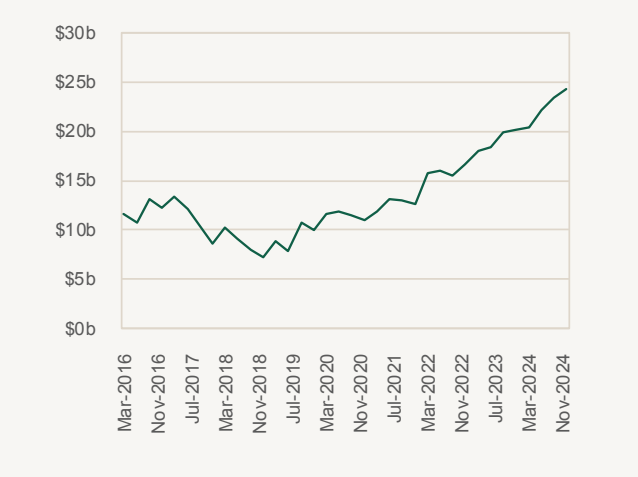


Figure 2: All major infrastructure projects, QLD



Source: ABS (2024). Engineering Construction Activity, Australia. Note: Value of work yet to be done. Energy projects = Generation, transmission and distribution projects

Policies, programs, and plans

The Queensland Government has signaled development of a new five-year **Energy Roadmap.**

To support this approach, the Queensland Government has announced:

- $400 million for maintenance of Queensland's government-owned generators in 2024-25.[1]
- Discontinuing the Pioneer-Burdekin Pumped Hydro project while investing $50 million into the Mt Rawdon Pumped Hydro project through CleanCo to progress the project towards a final investment decision.[2]
- $134 million for Government Owned Corporation (GOC), CS Energy, to develop a 400-megawatt Brigalow Gas Peaker Project at Kogan Creek.[3]
- Energy GOC's CleanCo and Stanwell are progressing two new gas-fired generation projects at Swanbank and Gatton.[4]

In April 2025, the government announced that the Queensland Productivity Commission will be tasked with reviewing the state's emissions reduction targets. This review is expected to provide a basis for potential revisions or the removal of existing targets. The Commission is currently being established, and no timeline for the review has been announced.[5]

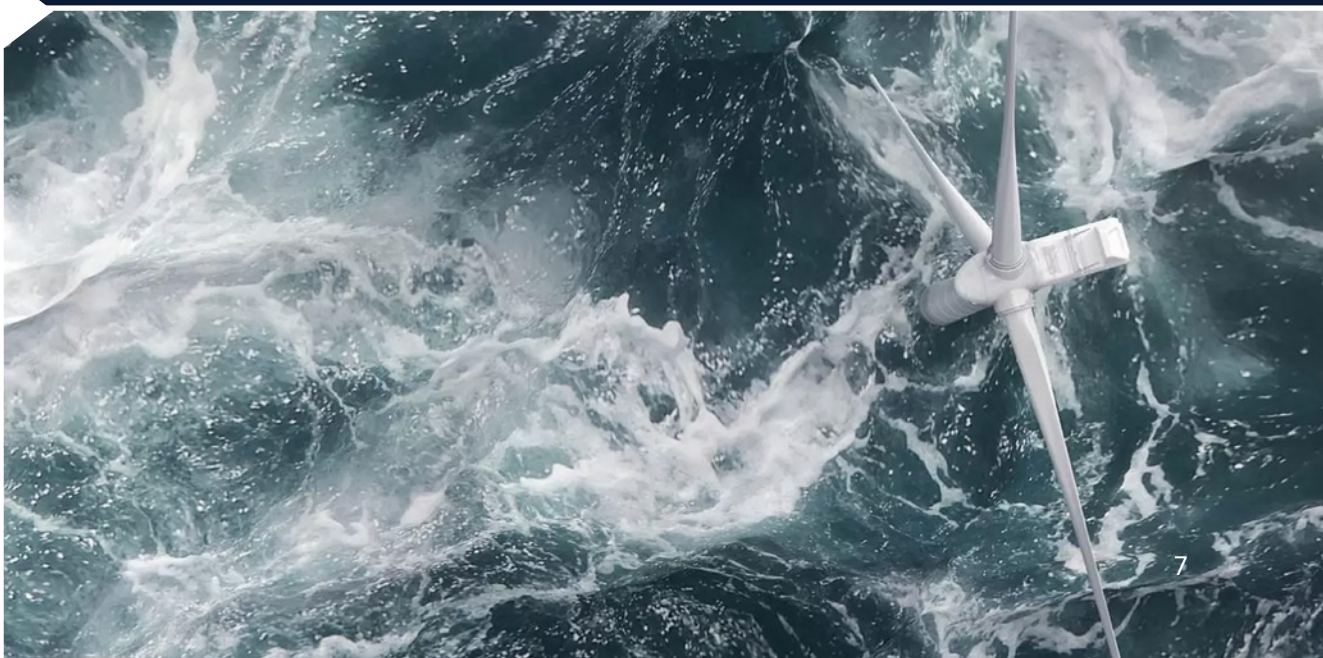
As part of the review of energy policy settings in Queensland, the Queensland Government has directed that all development applications for wind farms and large-scale solar farms in Queensland will be subject to impact assessment and assessed by the State Assessment and Referral Agency in Queensland Government. This will require public notification, giving local communities a chance to participate in the development assessment process.

As a result of these factors, PSO assume projected infrastructure expenditure and associated employment figures are likely to be revised. Further changes are expected with the release of the government's first budget in June and the introduction of the new **Energy Roadmap.**

1 MEDIA STATEMENT: Energy Roadmap to deliver affordable, reliable and sustainable electricity - Ministerial Media Statements
2 MEDIA STATEMENT: Energy Roadmap to deliver affordable, reliable and sustainable electricity - Ministerial Media Statements
3 MEDIA STATEMENT: Energy Roadmap to deliver affordable, reliable and sustainable electricity - Ministerial Media Statements
4 MEDIA STATEMENT: Energy Roadmap to deliver affordable, reliable and sustainable electricity - Ministerial Media Statements
5 https://www.abc.net.au/news/2025-04-08/qld-productivity-commission-lnp-emissions-reduction-targets/105148146

Renewables activity outlook

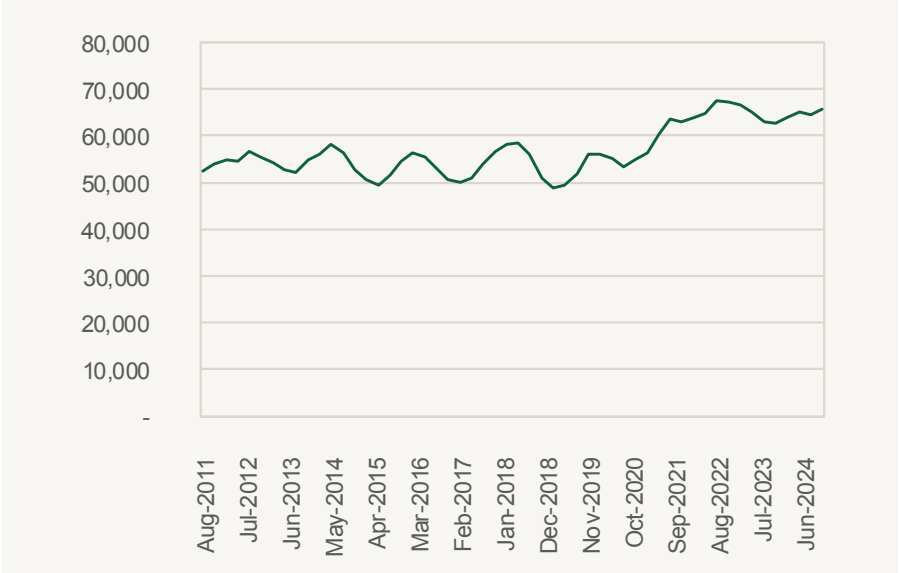
Following the change of government in Queensland in October 2024, the Queensland Government has committed to reviewing energy policy settings to ensure they are guided by engineering and economics and provide a credible pathway toward net zero by 2050. Queensland's energy policy will focus on delivering an affordable, reliable and sustainable energy future.



Energy trades workforce

- The figure below shows the size of the energy trades workforce in Queensland over the last 15 years.
- At the close of 2024 around 65,000 workers were in this workforce.
- This workforce has grown by around 25% since 2010, where 52,500 workers were recorded.
- This indicates some impressive growth in this workforce over the past 15 years, however, as will be shown below, severe shortages still plague these trades due to extremely high demand.

Figure 3: Energy trades employment, Queensland



Source: ABS (2024) Labour Force Survey.

Note: Energy trades = Electricians, Airconditioning and Refrigeration Mechanics, Electrical Distribution and Transmission Trades Workers, Electrical Engineers, Electrical Engineering Draftspersons and Technicians, Electronics Trades Workers

Energy trade shortages

- The growing demand for projects has outpaced the current supply of workers leading to substantial shortages in key energy trades across Queensland in 2024 (see Table 1).
- Over the past decade, many of these trades have faced annual shortages throughout the state, impacting both metropolitan and regional areas.
- As shown, only one occupation – Electrical Engineering Draftspersons – is not experiencing shortages in the state.
- It's also important to note that the trades facing shortages in Queensland are similarly in short supply across Australia.

Table 1: Energy trades, current shortages, 2024

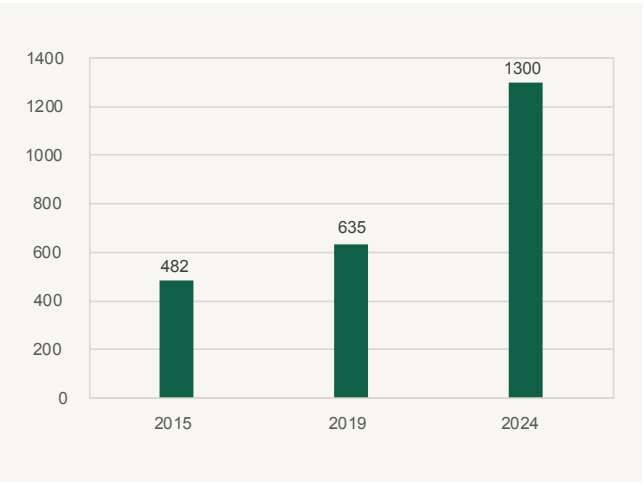
Energy Trade	QLD	Australia
Electrician	Shortage	Shortage
Airconditioning and Refrigeration Mechanic	Shortage	Shortage
Electrical Distribution and Transmission Trades Workers	Shortage	Shortage
Electrical Engineers	Shortage	Shortage
Electrical Engineering Draftspersons and Technicians	No Shortage	No shortage
Electronics Trades Workers	Shortage	Shortage

Source: Jobs and Skills Australia (2024) Occupation Shortage List

Growing number of job listings for energy trades

- Due to these shortages combined with rising demand, the number of online job listings for energy trade roles in Queensland is reaching unprecedented levels.
- The figure below illustrates the growing number of online job vacancies for six critical energy occupations over the past 10 years.
- As shown, online job listings for these roles hit record highs last year – nearly doubling the number from five years ago and tripling those from ten years ago.
- This trend is also evident across Australia, as the demand for energy workers intensifies nationwide.
- This serves as a clear indication of the increasing pressure to expand the energy trades workforce, as well as the strain on the existing workforce to deliver projects and manage growing work pipelines.

Figure 4: Online advertisements, Energy trades, QLD



Source: Jobs and Skills Australia (2024) Internet Vacancy Index.

Note: Average per month. Energy Trades Workers = Electricians, Airconditioning and Refrigeration Mechanics, Electrical Distribution and Transmission Trades Workers, Electrical Engineers, Electrical Engineering Draftspersons and Technicians, Electronics Trades Workers

Energy trade apprentices

- The apprenticeship system is the primary source of workforce growth for energy trades in Australia, including in Queensland.
- This is because many of these trades are licensed occupations, typically awarded through the VET sector (e.g. Electricians), and there is a very low level of overseas migration into these roles.
- As shown in Figure 5 below, a positive sign for the future of the energy trades workforce is that a record number of apprentices are currently training to join the sector and meet the growing demand.
- Currently, there are around 13,000 energy apprentices in training – over 50% more than five years ago, with a similar trend observed across Australia.
- While this growth is a welcome and positive development, even more apprentices will be needed to help the sector achieve the state's net-zero goals and deliver the pipeline of major projects.
- A key factor in the flow of energy apprenticeships is the completion rate of apprentices currently in training. Naturally, the higher the completion rate, the better the industry will be able to meet its skill needs.
- As shown in Figure 6 below, the completion rate for energy apprenticeships in Queensland is currently 67%, which is higher than the overall trades average of 55%. However, this rate remains relatively low, with about three out of ten apprentices in the state not completing their training.
- Increasing the number of apprentices while also improving their completion rates are critical challenges the sector must address to ensure a sufficient supply of qualified tradespeople in the future.

Figure 5: Energy apprentices, in-training, QLD

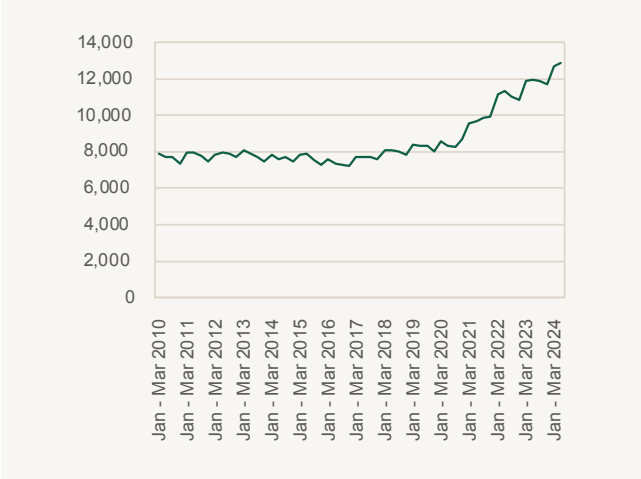
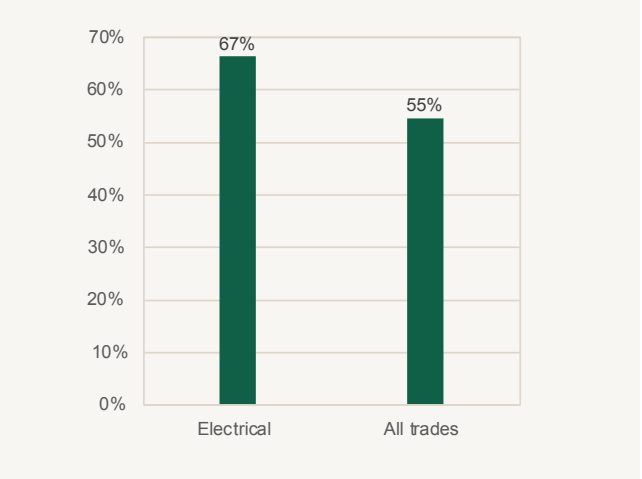


Figure 6: Apprentices, completion rates, QLD



Source (a): NCVER (2024) Apprentices and Trainees.

Note: Energy apprentices includes UEE, UET, UEP, UEG. (b) NCVER (2024). Completion rates. Electrical = Electrotecnology and telecommunications trades workers.

Diversity in the energy trades

- A significant workforce challenge facing the energy trades in Queensland, and across Australia, is workforce diversity.
  - » For instance, Jobs and Skills Australia reports that occupations dominated by one gender are more likely to face worker shortages – engaging all genders in the sector will help to grow the pool of prospective candidates.
- The figures below highlight current diversity metrics for women and First Nations people within the energy trades in Queensland.
- As shown in Figure 7, women make up just 3% of the energy trades workforce in Queensland, compared to 51% of the overall workforce across all occupations in the state's economy.
- Figure 8 reveals that 2.4% of people in the Queensland energy trades are First Nations individuals, which is below the state's overall average of 4.9% across all occupations.
- These metrics show similar underrepresentation at the national level as well.

Figure 7: Women in the workforce, Queensland

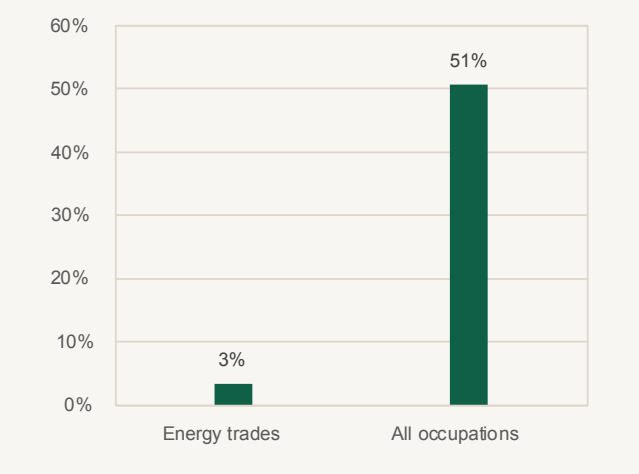
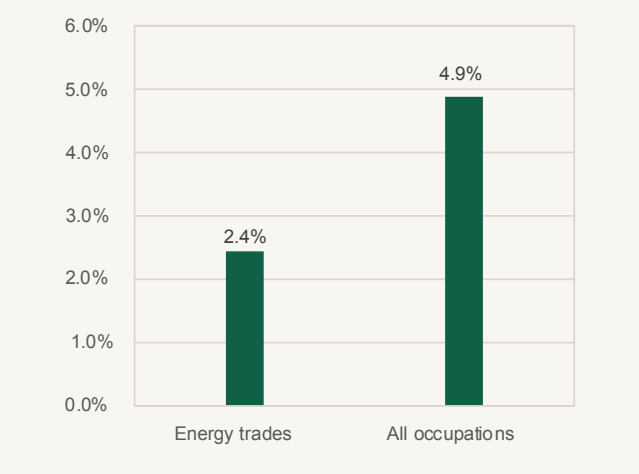


Figure 8: First Nations people in the workforce, Queensland



Source: ABS (2021). Census of Population and Housing. Energy trades = Electricians, Airconditioning and Refrigeration Mechanics, Electrical Distribution and Transmission Trades Workers, Electrical Engineers, Electrical Engineering Draftspersons and Technicians, Electronics Trades Workers

- These disparities begin earlier, during the apprenticeship stage, as illustrated by the figures below, which show the same diversity metrics for energy apprentices.
- Figure 9 indicates that approximately 7% of energy apprentices in Queensland are women, compared to 27% across all apprentices in the state.
- Around 4.8% of energy apprentices in Queensland are First Nations people, while 7.8% of all apprentices in the state identify as First Nations (Figure 10).
- It is noteworthy that the proportion of women and First Nations people in energy apprenticeships is higher than in the workforce, indicating that progress is being made in diversifying the energy trades (since apprentices often serve as leading indicators of workforce trends).
- Additionally, both women and First Nations people are represented in higher numbers in energy apprenticeships than ever before as of 2024 in Queensland (and across Australia).
- This indicates that the energy trades are becoming more diverse, but it will take time for these changes to fully take effect, and there is still significant potential for further diversification.

Figure 9: Women in apprenticeships, Queensland

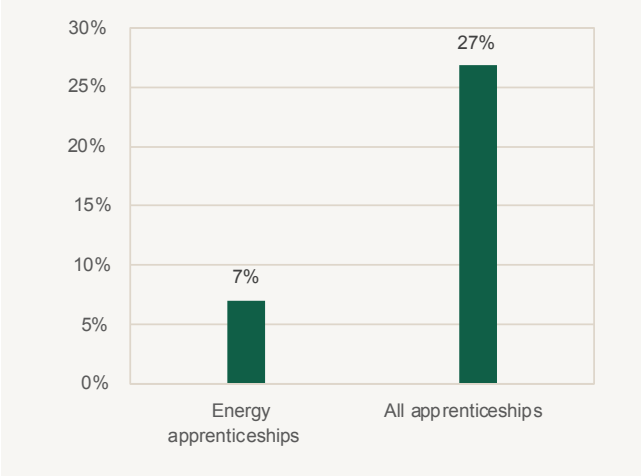
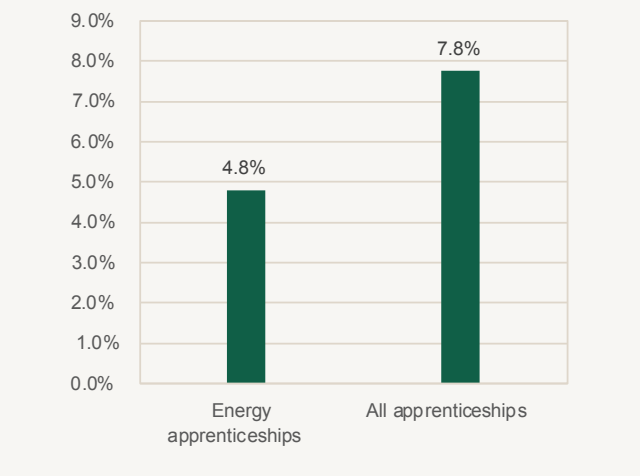


Figure 10: First Nations people in apprenticeships, Queensland

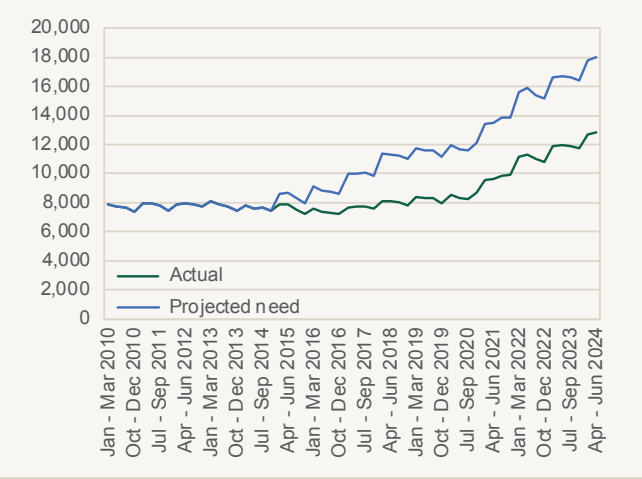


Source: NCVER (2024) Apprentices and Trainees. Note: Energy apprentices includes UEE, UET, UEP, UEG.

Energy apprentices and energy trade projections

- The apprenticeship system is the primary source of workforce supply and must be further expanded to meet the current and future demands of the sector.
- The figure below estimates the scale of growth required in the apprenticeship pipeline to start aligning with current and future demand patterns in Queensland.
- PSO predicts that apprentice numbers across Australia (including in Queensland) should have increased by approximately 40% above historical levels to adequately service growing demand by 2024.
- Whilst energy apprenticeships have grown significantly to around 13,000 over the last decade, a target of about 18,000 apprentices in training by 2024 is closer to what is needed to meet the state's expanding infrastructure and net zero goals.
- In other words, the state is still not on track to meet the projected need for apprentices. Queensland cannot afford to be complacent – there remains a shortage of energy apprentices both in the state (and across Australia) at present.
- However, certain initiatives from the Queensland Government (see Figure 11 below) demonstrate genuine models of change and influence are possible.

Figure 11: Energy apprentices, Queensland, in-training



Source: NCVER (2024) Apprentices and Trainees. Projected need is PSO analysis of customised data produced by Deloitte Access Economics for Jobs and Skills Australia (2023) The Clean Energy Generation: Workforce needs for a net zero economy.

- The figure below shows how a shortage of apprentices could lead to wider workforce shortages by 2030.
- Currently, there are approximately 65,000 energy trades workers in Queensland.
- Demand for workers is projected to rise to around 85,000 by 2030.
- However, based on current trends (and without significant intervention and workforce planning initiatives), an estimated 73,000 workers will be trained and available by that time, resulting in persistent shortages across these trades.
- This could have real world consequences for the state, including delays in the achievement of net-zero goals and shortfalls in critical infrastructure and services.

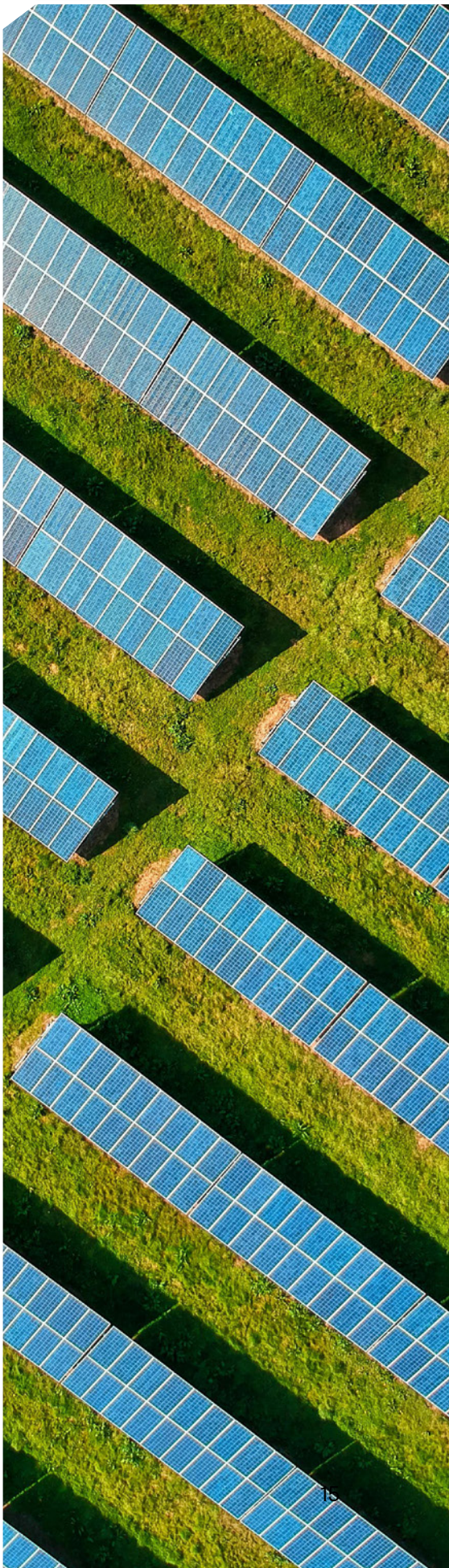
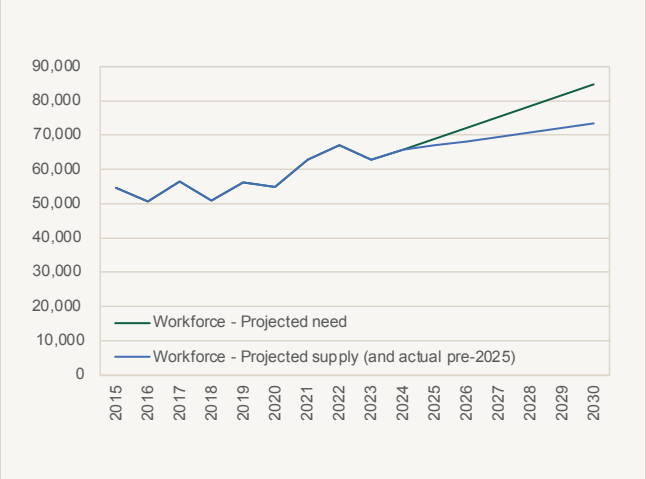


Figure 12: Energy trades workforce, Queensland

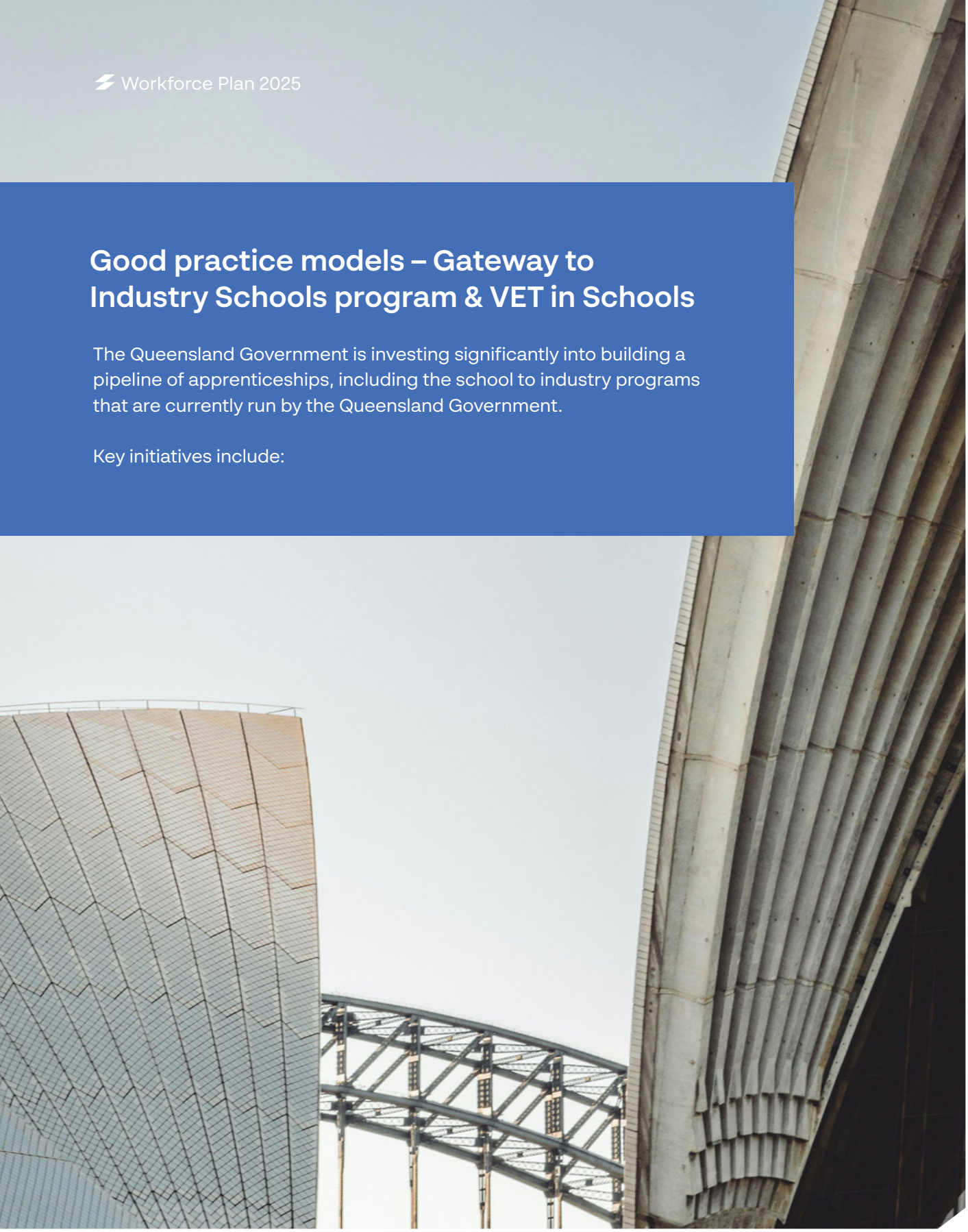


Source: PSO (2025). Energy Trades Workers includes Electricians, Airconditioning and Refrigeration Mechanics, Electrical Distribution and Transmission Trades Workers, Electrical Engineers, Electrical Engineering Draftspersons and Technicians, Electronics Trades Workers. PSO analysis of customised data produced by Deloitte Access Economics for Jobs and Skills Australia (2023) The Clean Energy Generation: Workforce needs for a net zero economy.

Good practice models – Gateway to Industry Schools program & VET in Schools

The Queensland Government is investing significantly into building a pipeline of apprenticeships, including the school to industry programs that are currently run by the Queensland Government.

Key initiatives include:



1 https://desbt.qld.gov.au/training/employers/gateway-schools
2 https://desbt.qld.gov.au/training/training-careers/incentives/vetis
3 https://tafeqld.edu.au/employers/partnerships/energy-queensland-partnership-program

Gateway to Industry Schools (GISP) program, Department of Trade, Employment and Training

- The GISP fosters collaboration between schools and industry, helping young people develop the knowledge, skills, and attributes needed to succeed in Queensland's economy.
- The program creates opportunities for industry and the education sector to work together to achieve positive outcomes for students, local communities, and businesses.
- Students involved in the program gain access to diverse learning experiences that support informed career decisions and smooth transitions into the workforce.[6]

VET in Schools (VETiS), Department of Trade, Employment and Training

- The VETiS program covers training fees for VET courses that are aligned to jobs and skills in demand, putting secondary school students on a path to employment and further VET opportunities.
- In this way, the VETiS program aligns with successful programs such as GISP, school-based apprenticeships and traineeships, and Trade Tasters—programs that also focus on supporting student onto employment pathways.[7]

Pre-apprenticeship program/cadetship, Energy Queensland & TAFE Queensland

- Building on the successful pilot of the cadetship program in Ipswich, Darling Downs, and South West Queensland, TAFE Queensland, Ergon Energy Network, and Energex have expanded the initiative to include regional and remote areas across Queensland.
- Eligible Year 11 and 12 students now have the opportunity to undertake a Certificate II in Electrotechnology (Career Start) (UEE22020) cadetship, helping them launch careers in Queensland's rapidly evolving energy sector.[8]

Stakeholder Insights

Based on Phase 1 and Phase 2 of PSO's Workforce Plan 2025 stakeholder engagement process the following workforce insights have been generated in relation to Queensland and its energy industry workforce. Where appropriate, these include both workforce challenges and potential solutions to active workforce issues. It also assumed that many national / overarching issues generated through Phase 1 and Phase 2 also apply to this jurisdiction.

Workforce and skills shortages are widespread

- Most stakeholders highlight a current shortage of energy workers, and all share concerns about future access to skilled labor.
- Ongoing workforce shortages are seen as risks to both safety and business expansion.
- Recent political changes (especially at the state level) and unclear policy direction are contributing to uncertainty around workforce development and apprentice opportunities.

Supporting apprenticeships – addressing barriers for SMEs and boosting retention

- Small and medium enterprises struggle to afford apprentice wages and supervision and are losing near-qualified apprentices to larger companies (via poaching). With greater resources, large companies should take more responsibility for apprentice recruitment.
- Delays in TAFE training, affordability for SMEs, and trainer shortages are limiting apprentice enrolments and progression.
- Apprenticeship dropout rates are high due to lack of support, engagement, and relevant on-the-job experience.
- Low literacy and numeracy levels are compounding the issue.
- More financial incentives are needed for apprentice completion, SME support, apprentice wages, and supervision.

Post-trade upskilling is becoming essential

- There's a critical need for future-focused upskilling that includes new technologies, digital literacy, renewable energy, and soft skills.
- Ongoing professional development (like the broader use of continuing professional development) and competency validation are also growing as a license alone no longer ensures job suitability.
- However, current funding is limited to apprenticeships, with little support for post-trade upskilling.
- Affordable post-trade training, along with upskilling frameworks and incentives, are required to support businesses.

The need to modernise and simplify training packages

- Training and training packages are widely seen as outdated, inconsistent, and not aligned with industry needs.
- There's a call for more flexible, relevant, and streamlined training modules.
- Compliance processes are overly complex.
- National training systems are too slow to adapt; updates and modernisation are urgently needed.

Training infrastructure needs expansion

- Training infrastructure is currently meeting most demand but is rapidly becoming outdated and requires more capacity to meet future demand.
- Significant investment is needed to modernise equipment and expand facilities.
- New, industry-standard equipment and infrastructure upgrades are essential to support future workforce growth – particularly in the area of renewable energy.
- Improved training access in remote and regional areas was also identified. Possible solutions include mobile facilities which could be suited to local training gaps.

Other issues reported

- The VET-assess process is seen by many overseas electricians as costly, complex, and inaccessible, leading some to abandon migration; a more streamlined, employer-sponsored pathway would improve access and job assurance.
- Attracting new entrants is a greater challenge than completions, as awareness of career opportunities is often narrowly focused on the role of an electrician.
- Many potential electrical trade apprentices lack basic math skills, discouraging them from applying; targeted pre-apprenticeship programs focused on math could improve their readiness and entry into the trade.
- Mature-aged workers considering a switch to the electrical industry often find apprentice wages financially unviable; wage subsidies or grants for those over 35 could help attract this untapped talent pool.
- Female electricians often leave the industry within 2 – 5 years post-apprenticeship; better support is needed to help with their retention.
- More detailed data on workforce supply and demand is called for. It also reported that Energy Skills Queensland (ESQ) is currently analysing the electrical workforce's supply and demand by examining license types and regional requirements.
- ESQ is also incorporating ongoing professional development, such as expanded CPD, into its Worker App to support competency validation, as holding a licence alone no longer guarantees job suitability.
- Many electricians are rejected for jobs despite being qualified, as they lack the specific experience required (industrial vs. residential).

Methodology & Approach

Structure of 2025 Workforce Plan

The structure of the 2025 Workforce Plan (WFP) has been shaped by feedback on the 2024 WFP. The 2024 feedback process involved:

- An online feedback survey with 75 respondents.
- An in-person Technical Advisory Group meeting with 89 participants.
- Engagement with PSO's Strategic Industry Advisory Body (SIAB) (15+ members), PSO's Board of Directors, the Department of Employment and Workplace Relations, and Jobs and Skills Australia.
- Online meetings with State Government representatives in each jurisdiction.

The feedback identified several limitations and provided suggestions for improvement, focusing on the following key areas:

- Improving the structure and content, with a stronger emphasis on three core areas:
  - » Sub-sector analysis.
  - » State and territory analysis.
  - » Occupational analysis (including new and emerging occupations).
- Increasing engagement and starting it earlier.
- Providing clearer action plans, strategies, and recommendations to address identified issues.

As a result of this feedback, the 2025 WFP has the following:

- Three dedicated sections covering sub-sectors, state and territories, and occupational analysis – which includes these standalone sections on each state and territory.
- Earlier and more expansive stakeholder engagement, input and feedback processes.
- A clearer focus on action plans and strategic responses to identified issues.

Stakeholder methodology for 2025 Workforce Plan (WFP)

Two distinct phases were used to inform the development of the 2025 WFP.

Phase 1: January to April 2025 – Stakeholder engagement

Several engagement mechanisms were utilised:

- A survey, the 2025 Energy Workforce and Skills Survey, was developed and distributed.
  - 213 respondents received by April 4, 2025.
  - Distribution partners included the Electrical Trades Union, Master Electricians Australia, Engineers Australia and the Australian Pipelines and Gas Association.
- A steering committee for the 2025 WFP was established, based on Strategic Industry Advisory (SIAB) members.
  - Three primary meetings / roundtables were held, focusing on topics such as new and emerging occupations and skills, infrastructure projects, and employment data.
- Over 15 workshops were conducted with training and industry stakeholders across Australian states and territories.
  - Approximately 180 attendees participated in these workshops.
- A voluntary booking platform for one-on-one meetings with PSO regarding the 2025 WFP was made available.
  - Over 15 meetings were conducted by March 25, 2025.
- A preliminary overview of the findings was shared at the PSO Summit with over 200 attendees for feedback, and further discussions in two PSO Insights meetings, each attended by more than 100 participants, which included Q&A sessions on the initial findings.
- All inputs gathered were used to develop a consultation paper and a mature draft for further feedback in the next phase.

Phase 2: April to May 2025 – Stakeholder consultation

- A PSO 2025 Workforce Planning consultation paper was published on the PSO website for public comment, receiving responses from over 70 stakeholders.
- A workshop with PSO SIAB members was held to discuss key themes and explore potential solutions to identified issues, followed by an internal PSO workshop to prioritise actions and develop feasible solutions and policy recommendations.
- Draft sections for each state and territory were provided to the appropriate government representatives responsible for workforce and skills planning in their jurisdictions to gather feedback.

Analysis procedures for Phase 1 and Phase 2 of the 2025 Workforce Plan

- Full transcripts of workshops and steering committee meetings were created and then summarised to extract key points.
- These summaries were combined with free-text survey responses and consultation responses into a single integrated research asset.
- Over 2,000 comments were made available for further analysis.
- Thematic analysis was conducted on these comments to identify a cluster of key issues and opportunities for the industry's workforce.
- Artificial Intelligence (AI) tools were utilised to assist in summarising content and conducting the thematic analysis.
- The findings were first summarised at the national level, followed by breakdowns at the sub-sector, state and territory, and occupational levels, where sufficient data was available.
- These stakeholder insights then used to complement and enhance the analysis of available quantitative data and grey literature on relevant topics.

PSO strategic response and policy recommendations to identified issues

- Since the most pressing workforce issues are common across all states and territories, a unified strategic response has been developed in the 2025 Workforce Plan and Policy Paper, rather than separate responses for each jurisdiction.
- The Workforce Plan and Policy Paper will soon be available on the PSO website.

Powering Skills Organisation Ltd

2025 Workforce Plan

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