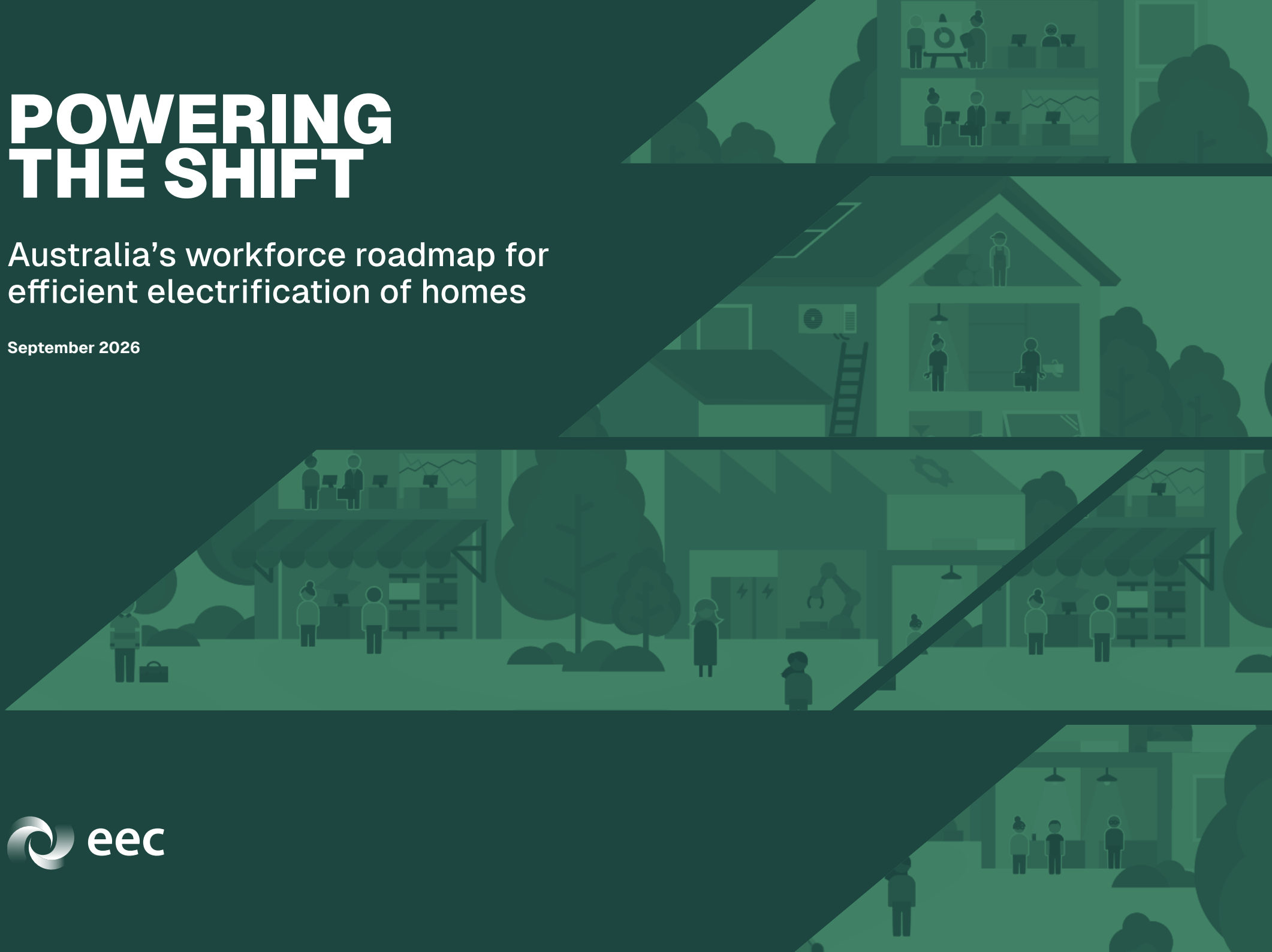
POWERING THE SHIFT

Australia's workforce roadmap for efficient electrification of homes

September 2026



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The **Energy Efficiency Council** (EEC) developed this roadmap to turn stakeholder enthusiasm for the efficient electrification of homes and the related concern about having the workforce to deliver it into a clear set of skills priorities. The roadmap does not provide an exhaustive account of every element of the workforce and skills landscape for this area. Rather, it serves as a practical tool to align stakeholders around a shared vision and generate momentum for near- to mid-term opportunities for progress. Its purpose is to highlight the most immediate, actionable opportunities that can deliver meaningful improvements to the workforce responsible for efficiently electrifying Australia's housing stock. While challenges in this area are complex and often difficult to define, the roadmap is designed to cut through decision paralysis by identifying clear, stakeholder-supported pathways forward, enabling tangible steps toward workforce reform and growth.

While the recommendations will evolve over time, the roadmap provides a unifying reference point - bringing together diverse stakeholders to identify common goals in a complex and rapidly changing landscape.

Acknowledgement of Country

This report was produced on the lands of the Wurundjeri people of the Kulin nation.

Acknowledgement

Powering Skills Organisation Ltd

The EEC thanks the **Powering Skills Organisation** (PSO) for funding this work. PSO is one of ten Jobs and Skills Councils (JSCs) established by the Federal Government to address skills shortages and training structures in different sectors. PSO works across the energy sector, focusing on electricity, renewables and gas.

Note

This document reflects the collective input of a diverse cross-section of stakeholders. Stakeholders who contributed feedback to this project are not assumed to endorse its final outputs in whole or in part. This work represents industry feedback obtained through consultation and independently analysed, collated and presented by the EEC. The EEC thanks the many industry experts who generously shared their time and expertise in shaping this roadmap.

INTRODUCTION

As Australian households embrace clean energy technologies, ranging from efficient electric appliances to rooftop solar and batteries, the demand for skilled workers who can deliver them will accelerate sharply. To ensure there are enough skilled workers, a range of actions will be required across industry and government. This is not a one-dimensional labour market issue; it requires action to increase workforce supply, lift evolving skills, and strengthen the conditions that determine whether workforce capacity and capability can respond at the pace required.

Energy performance upgrades, often referred to as 'energy retrofits'[1] are a critical piece in the race to net zero and the electrification and energy efficiency puzzle. They include thermal performance improvements, appliance replacements, solar and battery installations, the deployment of home energy management systems. Collectively, these measures are among the most cost-effective pathways to reducing residential emissions. They also play a critical role in strengthening energy security by lowering peak demand, reducing household exposure to volatile energy prices, and improving the resilience of homes to heatwaves and extreme weather, while delivering co-benefits for household energy affordability and health.

DEFINING THE WORKFORCE FOR EFFICIENT RESIDENTIAL ELECTRIFICATION

Our understanding of the retrofit workforce is based on residential energy efficiency workforce mapping[2] undertaken by the Institute for Sustainable Futures for the EEC in 2025. This mapping identified 27 occupations critical to delivering efficient electrification solutions to Australia's existing housing stock. For the purposes of the roadmap, the EEC identified two additional occupations, bringing the total to 29.[3] These roles span multiple Jobs and Skills Councils (JSCs).

The residential energy retrofit workforce encompasses all those involved in performing energy retrofits. This includes:

- Trades and technical roles: electricians, plumbers, air conditioning and refrigeration technicians, glaziers, insulation installers, builders, labourers.
- Energy and building professionals: energy assessors, retrofit coordinators, building performance experts, project managers.
- Support and enabling roles: compliance officers, auditors, trainers, safety inspectors, administrators, and customer engagement specialists.
- Adjacent roles in manufacturing and distribution: ensuring supply of efficient technologies such as heat pumps, induction cooktops, solar PV, and batteries.[4]

1 For the purposes of this document, the term retrofit may be used as shorthand for residential energy retrofits.
2 EEC and ISF, **Residential energy upgrades workforce mapping report**, 2025.
3 See Appendix 2.
4 Adjacent roles are not explored for the purposes of this work.

WHY DEVELOPING THIS WORKFORCE MATTERS

Efficiently electrifying Australian homes presents both major opportunities and significant risks for Australia's workforce. New industries and technologies will generate jobs across construction, manufacturing, services and professional sectors, supporting the broader energy transition. However, without robust workforce pipelines, skill shortages (particularly in critical trades such as electrical and building services) risk delaying home energy retrofits at scale. This would not only increase costs and slow progress towards Australia's 2050 emissions targets but also undermine energy security by delaying improvements to building performance, worsening peak electricity demand, and increasing exposure to volatile energy prices. The transition is creating a dual challenge of workforce shortage and skills transformation, and both must be addressed together if reform is to be enduring, efficient and effective.

To align residential housing with the Australian Energy Market Operator (AEMO) Step Change scenario, Australia will need to electrify approximately 2.4 million homes and improve residential energy efficiency by 25 per cent by 2035.[5]

The Built Environment Sector Plan is one of six sector plans under the Federal Government's Net Zero Plan and sets out the pathway for the built environment to reach net zero emissions by 2050. Electrification "wherever possible" is identified as a priority area for action.[6] Early action in the built environment is critical, as relevant technologies are mature and ready for deployment at scale, unlike some harder-to-abate sectors that require longer timeframes to adjust.

In addition, while housing represents a long-lived infrastructure challenge, it is predominantly privately owned. Achieving efficient electrification therefore depends on the decisions of millions of households, each facing different financial, informational, and practical barriers. Reducing friction and making home energy retrofits as simple as possible, in line with these targets and plans, will be critical to achieving the required scale and pace of change.

For the workforce, the challenge is considerable. For example, modelling suggests that Australia will need around 42,000 more electricians by 2030[7] to satisfy energy workforce demand (including demand in residential retrofit), and 85,000 by 2050 (a 27 per cent increase on current projected supply).[8] Other trades are experiencing similar acute shortages. Alleviating these shortages will require not only recruiting and training new entrants but also improving productivity by making better use of the existing workforce, which may in turn require a range of reforms.

Strengthening workforce productivity through increasing skills capability and adaptability can ease marginal pressure on labour demand, while improving safety outcomes, living wages and broader economic conditions.

It is critical that the benefits of this transition are widely shared. Every disengaged worker represents a lost opportunity. The roadmap emphasises inclusivity, ensuring that people facing barriers to participation (including those in regional and remote areas, women, First Nations individuals and workers from transitioning industries) can access pathways into secure, rewarding jobs in the residential retrofit sector, should they desire to do so.

5 EEC, **Efficient, Electric Homes: Market Acceleration Plan**, 2025.
6 Australian Treasury, **Net Zero - Built Environment Sector Plan**, 2025.
7 PSO, **High Load, Short Supply: Bridging the gap to 2030**, 2025.
8 PSO, **Productivity and Skills: Exploring their unique relationship in the energy sector**, May 2026.

The roadmap outlines sixteen recommended actions across four key areas to accelerate the retrofit of Australian homes, supporting a transition to efficient, electric, and net zero-compatible housing. The recommendations were developed through extensive consultation with a diverse cross-section of skills organisations and industry stakeholders.

HOW THE RECOMMENDED ACTIONS IN THIS ROADMAP WERE FORMULATED

To develop the roadmap, the EEC conducted 17 one-on-one interviews with industry stakeholders to identify what they viewed as the "lowest-hanging fruit" and "shovel-ready" opportunities for strengthening the energy retrofit workforce, including in relation to the roles outlined above. The EEC synthesised insights from these interviews and undertook desktop research to confirm the validity and underlying rationale of the suggested actions.

Using this evidence base, the EEC developed a preliminary "straw person" set of recommended actions, which was circulated to stakeholders for feedback. Stakeholders were invited to provide input in writing and through an online industry workshop held in January 2026. This feedback informed the development of the final roadmap and report.

WANT TO LEARN MORE?

Read the companion report to the roadmap for background on this work, including greater detail about recommended actions and information about stakeholder composition and the consultation process.

THE ENERGY RETROFIT WORKFORCE

1. Airconditioning and refrigeration mechanic
2. Architect
3. Bankers and financiers
4. Builder
5. Building and construction labourer
6. Building Designer
7. Building Inspector/Certifier
8. Building Supervisor
9. Database Administrator
10. Electrical Engineer
11. Electrical engineering draftspersons and technicians
12. Electrician
13. Energy Assessor
14. Energy retailers
15. Glazier
16. Insulation installer
17. Interior designer
18. Mechanical engineer
19. Mechanical engineering technicians and draftspersons
20. Plasterer
21. Plumber
22. Product designer
23. Program administrator
24. Property manager
25. Property valuer
26. Real estate agent
27. Retail salesperson
28. Handyperson
29. Gasfitter

1. CENTRALISING COORDINATION AND PARTNERSHIP

Centralised coordination and partnership are critical to ensure workforce and skills development activities are as aligned as possible across jurisdictions, supporting consistent, high-quality residential energy retrofit outcomes nationwide.

No.	Recommended action
1.1	Convene a national industry leadership group for residential energy retrofits.

Establish a national industry leadership group to bring together existing workforce and training initiatives relevant to residential electrification, particularly retrofit, avoiding duplication and breaking down silos across trades and government ecosystems. The group should first undertake a gap analysis and stocktake of current activity, then focus on identifying practical, industry-led solutions to streamline home retrofit installations, better utilise the existing workforce, and support nationally aligned government action, including through proactive recommendations to Ministerial Councils.

2. GROWING AND EMPOWERING THE TRADES WORKFORCE

Trades are central to Australia's residential retrofit workforce: most critical technologies to enhance the energy performance of homes cannot be deployed without them.

No.	Recommended action
2.1	Align government procurement with skills development objectives.

Governments should lead by example by embedding apprenticeship and trainee requirements into procurement processes. This could include:

- Extending the coverage of the Australian Skills Guarantee (ASG) to include all federally funded renewable energy and transmission projects.
- Using Group Training Organisation (GTO) models and structured industrial release arrangements, where appropriate, to provide apprentices with diverse on-the-job experience across major infrastructure and energy projects - supporting future mobility into residential retrofit, new-build, and other clean economy roles.
- Setting clear targets for First Nations apprentices and trainees in projects in Renewable Energy Zones (REZs).[9] Targets should also be considered for women and mature aged apprentices.
- Prioritising support for early-stage apprentices, where interventions are most likely to expand the overall workforce pipeline.
- Considering requirements for other in-demand skills on large projects, including those that may sit outside traditional qualification frameworks.

No.	Recommended action
2.2	Support the VET sector with targeted funding to improve capability and address productivity and capacity challenges.

The Federal Government should consider allocating targeted support to strengthen the VET sector's capacity to grow trade numbers and better support apprentices. This could include:

- Increasing training places and funding for Registered training organisations (RTOs)to invest in training infrastructure and expand delivery.
- Supporting mobile trade school models to improve access in regional areas.

9 Aligned with First Nations Clean Energy Network (FNCEN), **Powering First Nations Jobs in Clean Energy**, June 2024.

- Extending the Clean Energy Capital Investment Fund beyond its initial term as a recurrent, ongoing program to reflect the continuing and growing need to train the workforce in clean energy technologies.
- Leveraging technology to increase class sizes and support remote learning.
- Making trainer pathways more accessible.

No.	Recommended action
2.3	Expand entry pathways to trades, particularly for underrepresented groups.

The workforce cannot grow at the scale and pace required if large segments of the population are excluded, particularly women and First Nations peoples. Despite shortages, women hold fewer than 4% of hands-on trade roles in the clean energy sector[10] and represent only 7.8% of apprentices.[11] The employment gap for First Nations Australians has remained unchanged over the last three decades.[12] High dropout rates, especially in the first year, affect apprentices regardless of background. Pre-apprenticeship programs and well-structured entry pathways can help by giving people the chance to explore trades and better understand the work, improving retention and completion and creating opportunities to introduce VET pathways to diverse audiences.

Key actions include:

- Expanding Certificate II entry programs to target women, First Nations peoples, and other underrepresented groups, with a focus on critical occupations for residential electrification such as HVAC technicians, electricians, and plumbers.
- Offering First Nations employment and training pathways in regional and remote housing energy retrofit and micro-grid programs.
- Invest in industry-aligned career mentoring in schools.
- Develop a national strategy to support career influencers and promote trades pathways.
- Offering First Nations employment and training pathways in regional and remote housing energy retrofit and micro-grid programs.[13]
- Invest in industry-aligned career mentoring in schools.

10 Powering Skills Organisation, **Shifting Currents Elevating Diversity in Energy Careers, Research Brief**, November 2024.
11 Apprentice Support Australia, **Boosting women apprentices in male-dominated trades**.
12 Powering Skills Organisation, **A Bright Future Growing the First Nations Clean Energy Workforce: research brief**, March 2025.
13 Aligned with First Nations Clean Energy Network (FNCEN), **Powering First Nations Jobs in Clean Energy**, June 2024.

No.	Recommended action
2.4	Embed practical, industry-aligned continued professional development (CPD) requirements into trade licensing.

To keep pace with rapid innovation and maintain a skilled workforce, states and territories should embed practical CPD requirements into core trade licensing, noting that this is already the case in some areas but not all. Key actions include:

- Developing CPD frameworks in consultation with industry, ensuring they are realistic, accessible, and responsive to changes in technology.
- Focusing CPD on enhancing worker competency and knowledge, while avoiding unnecessary burdens or profiteering.
- Streamlining accreditation by consolidating overlapping requirements into CPD modules rather than duplicating qualifications.

No.	Recommended action
2.5	Support career transitions for gasfitters.

With the electrification movement accelerating and gas being phased out in some jurisdictions, many skilled gasfitters risk displacement. Preparing them for emerging opportunities in refrigeration and related trades is critical to maintain a skilled, future-ready workforce and ensure a just transition. Key actions include:

- Developing retraining programs that leverage existing skills including fault-finding, complex problem-solving and handling regulated materials, helping to address shortages of refrigeration mechanics and support future heat pump servicing.
- Focusing support on jurisdictions with gas phase-out mandates, while extending opportunities nationwide to reflect broader electrification trends.

No.	Recommended action
2.6	Review and modernise the plumbing apprenticeship.

To ensure the plumbing apprenticeship meets current industry needs and prepares a future-ready workforce, industry should submit a case for change for consideration by BuildSkills to:

- Conduct a full review of the plumbing training package, incorporating innovations and lessons learned since the last review.
- Enable flexible competency choices, including optional gas units, to reflect declining gas work and the shift toward electrification, providing employers with the flexibility needed as the industry evolves.
- Consider integrating new industry units into national training products and explore other options for future-proofing the trade.

No.	Recommended action
2.7	Improve skills recognition pathways for skilled migrants already in Australia.

Australia's housing, clean energy, and electrification targets require maximising the availability of skilled workers. Currently, around 18,000 migrants with relevant construction skills are unable to fully apply their expertise due to barriers in skills recognition.[14] Without action, this represents a significant underutilisation of talent that could support residential retrofit, electrification, and other priority projects. The underlying roadmap report includes a range of industry suggestions for near- and mid-term actions to improve outcomes.

No.	Recommended action
2.8	Support women in trade and retrofit careers.

Women are underrepresented on trade and retrofit worksites making it essential to unlock this talent pool to address workforce shortages. Support should focus on recruitment, retention, and safe, equitable conditions. Key actions include:

- Supporting career pathways including targeted training, scholarships, mentoring, and leadership programs to support women progressing into management roles, recognising that "you can't be what you can't see."
- Enforcing zero-tolerance discrimination and harassment policies, with clear reporting, leadership accountability, and regulator support.
- Offering financial support for female apprentices and employers.
- Ensuring access to clean, appropriate toilets facilities, with practical flexibility for small or short-duration projects.
- Ensuring access to gender-appropriate personal protective equipment.

14 Master Builders Association NSW, **Skilled migrant workers underutilised despite construction industry shortages**, 2024.

3. ACHIEVING FULL PROFESSIONALISATION OF THE THERMAL PERFORMANCE WORKFORCE

Thermal performance is the foundation of a resilient, efficient electric home. Industry-led initiatives over the last several years have significantly advanced thermal performance workforce professionalisation, and with targeted support, this progress can be brought to full maturity.

No.	Recommended action
3.1	Support the professionalisation of Australia's insulation installation workforce by requiring trained installers and inspectors across retrofit initiatives and regulatory schemes.

The thermal performance of a home is critical to health, comfort, climate resilience, and affordability, while also ensuring efficient electric technologies like reverse-cycle air conditioners operate effectively. The insulation industry has made significant progress in professionalising the workforce, with new national training products set for release in late 2026. Governments can further support this progress by driving uptake for the new insulation installation Skill Set through:

- Requiring attainment for installers in all government retrofit programs and applicable regulations, including minimum rental standards; and
- Requiring attainment (as a minimum) for inspectors in all government program and regulatory audit regimes, noting an industry preference for a qualification is observed.

No.	Recommended action
3.2	Develop and implement a skills recognition mechanism for window installation.

There is a skills gap in the installation of window assemblies. Retrofit installations are often carried out by insufficiently skilled individuals, creating risks to quality, energy efficiency, and moisture management, with limited oversight. Recommended actions include:

- Supporting the development of a training and a skills recognition pathway for window assembly installation.
- Introducing a licensing requirement or mechanism that mandates evidence of completion of this training for retrofit and new builds.

No.	Recommended action
3.3	Develop and implement a skills recognition mechanism for draught proofing.

Draught proofing is a critical, cost-effective component of a home's thermal performance. Despite being subsidised in several government energy efficiency programs, no credential currently exists, and improper installation can affect ventilation and moisture control. Recommended actions include:

- Supporting the development of a training and a skills recognition pathway in draught proofing.
- Ensuring the pathway is affordable and accessible, with a low barrier to entry, as draught proofing is often carried out by handypersons and labourers.
- Driving demand to upskill this workforce through a mechanism requiring evidence of completion of this training and credentialing where governments incentivise this work.

4. SUPPORTING PROFESSIONALS TO DRIVE RESIDENTIAL ENERGY RETROFITS

Real estate agents, designers, administrators, salespeople and other professionals play a critical role in supporting home energy retrofits. They need the right skills and knowledge to provide effective advice.

No.	Recommended action
4.1	Upskill residential builders to better understand the value of energy efficient, high performing homes.

Energy retrofits are often part of major renovations, making builders (and their sales, design and administrative staff) critical influencers on retrofit decisions. To ensure builders and their clients understand the benefits of high energy performance, greater support should be directed to education. Reliable resources already exist and more are in development. Recommended action includes:

- Incentivising completion of targeted education modules for staff in construction businesses, and/or linking completion to compliance mechanisms, such as mandatory disclosure schemes where in place, or other regulatory requirements.

No.	Recommended action
4.2	Develop and implement training and skills recognition mechanisms for real estate industry professionals.

As interest in home energy performance grows and initiatives such as mandatory disclosure are rolled out, it is critical that the real estate industry understands the fundamentals of efficiency, energy ratings, and disclosure. Recommended actions include:

- Developing a training and a skills recognition pathway on selling the value of energy efficiency.
- Developing a training and a skills recognition pathway on understanding, communicating, and meeting disclosure requirements.
- Driving demand through mandatory disclosure at the point of sale and minimum efficiency standards for rental properties, ensuring training uptake is supported by regulatory drivers rather than relying solely on market trends or voluntary accreditation.

No.	Recommended action
4.3	Pilot a retrofit coordinator role for standalone residential homes.

Upgrading existing homes can be complex, particularly where multiple energy efficiency or electrification measures are required. Householders often struggle to identify appropriate upgrades, sequence works, coordinate trades, and access independent advice beyond that provided by product and service providers.

Pilot programs for retrofit coordinators could provide a single point of independent guidance, combining technical and project management expertise to support integrated and well-sequenced upgrades. Recommended actions include:

- Collaborating with governments, training institutions, and industry bodies to pilot retrofit coordinator roles for standalone homes, ensuring practical, equitable, and well-managed upgrade pathways.
- Linking the pilot to a clear demand driver, such as an incentive program, mandatory disclosure requirement, or other regulatory mechanism, to support uptake and ensure the workforce is fully utilised.

No.	Recommended action
4.4	Pilot a retrofit coordinator role for residential strata buildings.

Residential strata buildings face unique challenges in upgrading to modern efficiency and safety standards. Pilot programs for retrofit adviser or coordinator roles could help manage these complexities, supporting owners and councils in navigating older and established buildings where full compliance with modern standards may not always be achievable. These roles require a mix of technical, regulatory, and mediation skills to ensure upgrades are practical, integrated into maintenance plans, and supported by funded programs to increase access for households in apartments, who are often exempt or limited in their ability to access regulatory and financial support. Recommended actions include:

- Piloting retrofit coordinator roles in collaboration with local governments, not-for-profit providers, strata managers, and building management services.
- Funding pilots over longer timeframes to reflect slow decision-making cycles and complex technical pathways in strata buildings.
- Driving demand by embedding electrification and energy efficiency considerations into legislated maintenance planning requirements for residential strata buildings.

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