Reimagining Diversity in Clean Energy Careers

Opportunities to power Australia's energy transition through a diverse, equitable and inclusive clean energy workforce

December 2024

The Next Economy

Acknowledgement of Country

The Next Economy acknowledges the Traditional Custodians of the land and sea in the regions where we work. We pay our respects to their Elders, past and present, and offer our solidarity and support to First Nations groups across the country working towards economic sovereignty and justice.

The First Nations Clean Energy Network (FNCEN) has recently developed a report titled Powering First Nations Jobs in Clean Energy. This report identifies pathways and options to support generational wealth building for First Nations people through improving access to training, employment and developing supportive career pathways into the clean energy sector. For further information visit www.firstnationscleanenergy.org.au/powering_first_nations_jobs_in_clean_energy

The Next Economy appreciates the leadership of First Nations organisations like FNCEN and others around Australia who are working tirelessly to show us what good development looks like.

About The Next Economy

The Next Economy (TNE) works with regions, government, industry and civil society leaders to build climate-safe, regenerative and socially just economies.

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Acknowledgement

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Executive Summary

Australia is firmly in the implementation phase of the transition to net zero – driving the need for a bigger, skilled and inclusive clean energy workforce.

- Australia has the solutions, resources and expertise to reach net zero. Recent progress shows momentum in clean energy sector development, with construction, and further commitment of renewable energy projects rapidly increasing across Australia's regions. However, there is an imperative to do more and rapidly.

- In 2023, nearly 40 per cent of Australia's total electricity supply came from renewables. According to AEMO's 2024 Integrated System Plan, Australia will need an estimated six times more renewable energy generation and storage than we currently have – including over 10,000 kilometres of transmission lines – to meet the Federal Government's net zero by 2050 target.

- The rapid expansion of clean energy and concurrent industry growth is driving demand for hundreds of thousands of workers with diverse skills, especially amid an infrastructure construction boom peaking in the next five years.

- The clean energy sector, and the networks that support it, face significant worker shortages. This is due to rising demand and competition, the nature and pace of development and limited access to training and support services to regional communities in Renewable Energy Zones. While challenging, these shortages present an opportunity to reimagine workforce development in Australia.

Our economy can work better for all Australians, including by removing barriers to workforce participation for people from marginalised groups.

- Systemic barriers including limited access to education, geographic location, and socio-economic inequality continue to limit workforce opportunities for many people traditionally excluded from patterns of economic growth.

- Addressing challenges and barriers across Australia's workforce is vital to enabling people from marginalised groups to access meaningful employment and feel supported.

- Despite outperforming other energy sectors in some areas, research shows the clean energy sector has room to improve on diversity, equity, and inclusion (DEI) in its workforce.

- As a cornerstone of Australia's economic and social transformation, the clean energy sector has an important role to play. However, the scale, complexity and pace of the task ahead means there is a risk development will continue to leave people behind.

The clean energy transition provides an opportunity to reimagine diversity, equity, and inclusion (DEI) in Australia's workforce - to benefit workers, employers, and regional economies.

- The clean energy workforce shortage is an opportunity for industry and government to address inequality, justice and socio-economic disadvantage through an inclusive and equitable workforce development approach.

- Done well, embedding DEI in workforce development can help deliver a faster, fairer and more inclusive transition to net zero. It can boost innovation, retention and productivity while creating a more sustainable and resilient clean energy sector. More so, it can drive broader economic and social benefits by fostering participation, reducing reliance on social services and improving worker health and wellbeing.

- There are many examples of companies and organisations across the Australian economy already embedding DEI practices in the workforce. This includes within the clean energy sector itself, with strong examples of place-based initiatives and research that particularly support women and First Nations people.

- Current efforts are important but not yet sufficient to tackle broader systemic barriers as well as improve outcomes for a wider group of people, including those with disabilities, people who have been formerly incarcerated, refugees, migrants, youth, and LGBTIQ people.

Reimagining diversity in the clean energy workforce requires inclusive, practical solutions. The task is significant, but there is strong will and valuable initiatives Australia can build on.

- Direct engagement with learners, workers, and those with lived experience of marginalisation is crucial to understanding barriers, identifying opportunities, and creating effective solutions for inclusion in the clean energy workforce.

- In our engagement, stakeholders from across industry, civil society, training and education areas have clearly expressed a desire to enhance DEI in the workforce and collaborate on tailored solutions across housing, transport, health, education, training, and childcare. Such support services are just as important as meaningful work itself.

- This Reimagining Diversity in Clean Energy Careers report, part of the Inclusive Clean Energy Workforce project, explores factors affecting DEI in the clean energy workforce developed through research, interviews and workshops, showcasing real-life initiatives to inspire action and inclusive workforce development.

To drive meaningful and strategic action among all stakeholders, three key Opportunity Areas have been identified, each with a strong focus on putting people at the centre:

Core principle	**Put people at the centre of all workforce development efforts:** A people-centered approach prioritises individual needs, aspirations, and leadership in the design and implementation of programs. For example, by involving diverse community stakeholders in decision-making, we can create pathways and policies that adapt to local needs and support individuals from marginalised groups to thrive in the sector.
Opportunity Area 1	**Foster a thriving workforce development ecosystem:** An effective workforce development ecosystem connects diverse stakeholders. It creates the conditions necessary for collaboration and supports transformative workforce development that better serves individuals and regional economies. For example, connecting employers, service providers, and potential employees from marginalised backgrounds, partnerships can effectively address systemic barriers to employment while increasing the size of the clean energy workforce.
Opportunity Area 2	**Strengthen inclusive career development pathways:** Inclusive career pathways provide equitable access and opportunities for all learners and workers to achieve their career goals, regardless of their identity, background, or circumstances. For example, programs that help learners and workers see clean energy careers as both desirable and achievable can build their confidence and capacity to navigate their own unique career pathways.
Opportunity Area 3	**Create supportive and inclusive workplaces:** Providing an equal right to work for all people requires work environments where employees from diverse backgrounds feel welcomed, valued, and supported. Inclusive workplaces respect individuals' rights and provide accessible resources, actively reducing barriers to ensure that every employee can contribute to their greatest potential. Together, these measures can provide stable and meaningful employment that nurtures the individual potential of all employees.

These Opportunity Areas invite innovation and strategic exploration to address the challenges people from marginalised groups face within the clean energy sector's workforce development ecosystem. In Section 3, strategies to support and accelerate equitable, inclusive workforce development are included for each Opportunity Area alongside case studies of ongoing efforts showing transformative change is possible and achievable.

Contents

1. Introduction

Australia stands at a pivotal moment in its journey to decarbonise, with the energy transition now firmly in the implementation phase. Recent momentum is encouraging, with nearly 40 per cent of Australia's energy supply coming from renewables in 2023.[1] Still, the scale and pace of clean energy development needs to increase significantly if Australia is to realise its renewable energy target of 82 per cent by 2030.

This transformational growth is driving demand for hundreds of thousands of skilled workers, particularly during the current infrastructure and construction boom expected to peak over the next five years.[2] However, the clean energy sector faces significant workforce shortages, exacerbated by a number of challenges including limited talent pipelines, competition for skills, and systemic barriers particularly in regional areas critical to renewable energy development. The task is big and complex. At the same time, it presents an opportunity to address worker shortages by reimagining workforce development in ways that promote diversity, equity, inclusion (DEI) for more Australians.

The clean energy sector has a unique chance to power Australia's transition while building a diverse and inclusive workforce that benefits more Australians and future generations. The sector has room to improve when it comes to DEI in the workforce. Similarly, across Australia's workforce, marginalised groups, including but not limited to First Nations people, women, people with disabilities, and LGBTIQ communities, continue to face barriers to employment and career advancement. Coupled with the existing challenges within the clean energy sector, such as the nature of infrastructure development and limited learning and training opportunities, it is currently even harder for people from marginalised groups to access and participate in meaningful employment in the space.

The workforce shortage is an opportunity to address inequality, justice and socio-economic disadvantage through an inclusive and equitable workforce development approach. Source: Depositphotos

A key positive step towards Australia achieving a 'fast but fair'[3] transition towards net zero lies in building a shared understanding of the imperative, benefits, barriers and opportunities to power the energy transition through a diverse, equitable and inclusive clean energy workforce. Our research and engagement suggests embedding DEI in workforce development strategies has the potential to accelerate the clean energy transition while driving innovation, boosting productivity, and delivering broader economic and social benefits (as shown in the figure, below).

Economy
Boosts the economy by increasing workforce participation and productivity, reducing reliance on social services and promoting social equity.

Businesses
Benefits businesses by expanding their talent pool, improving retention and satisfaction, fostering innovation, enhancing community representation, strengthening organisational culture, and driving financial growth while reducing turnover costs.

Communities
Provides better outcomes through the delivery of projects and services that have been informed by people with diverse skills and perspectives. It can also increase overall income within a community and reduce labour shortages in various sectors.

Individuals
Supports individual wellbeing by enhancing a sense of belonging, increasing social and financial independence, and improving health and social outcomes through respectful dignified processes.

Workforce diversity, equity and inclusion...

Figure 1. Fostering greater diversity, equity and inclusion (DEI) in the workforce can i mprove outcomes for individuals and communities, as well as generate benefits for businesses and the economy.

There are already excellent examples of initiatives and research across Australia, within and outside of the clean energy sector, showing what is possible and beneficial. For example, place-based initiatives such as the partnership between engineering, procurement and construction contractor Beon Energy Solutions and the local Wiradjuri community in New South Wales have already shown promise in employing over 30 First Nations people and women in the construction phase of the Avonlie solar farm project[4]; and, other case studies are illustrated in this report.

More needs to be done to address broader systemic barriers to inclusive workforce development to ensure all Australians have access to the benefits of clean energy development. The rapid expansion of Australia's clean energy network risks leaving marginalised communities behind, despite ongoing efforts. To seize this moment, workforce development has an opportunity to go beyond traditional boundaries, encompassing a broader range of programs, activities, and stakeholders aimed at building skills, improving opportunities, and fostering regional economic growth.

Enhancing DEI in the clean energy workforce is a shared responsibility. Governments, industry, employers, educators, community organisations, non-profits, and social support groups all have vital roles to play. The *Reimagining Diversity in Clean Energy Careers* report aims to (1) explore factors affecting diversity, equity and inclusion (DEI) in the clean energy workforce and (2) identify priority actions and corresponding strategies to expand DEI by engaging those facing systemic barriers to meaningful employment. It is a resource to support stakeholders to take a broader view of what DEI in the workplace can look like – and inspire action that leads workforce development that benefits everyone.

Grounded in research, interviews, and workshops with stakeholders from government, social services, employment organisations and the clean energy sector, the report showcases real-life examples of initiatives that bring DEI practices to life.

Research for this report was undertaken in parallel with the First Nations Clean Energy Network's Powering First Nations Jobs in Clean Energy project. Therefore, this report does not specifically address opportunities unique to enhancing First Nations leadership and participation. However, findings on inclusive workforce development apply broadly to all marginalised groups in Australia's workforce, including the clean energy sector.

There are a range of real life examples that bring DEI practices to life, highlighting what can be achieved through inclusive workforce development in the clean energy sector.
Source: The Next Economy / Doug Ruuska

Powering First Nations jobs in clean energy

The clean energy transformation is an opportunity to increase participation of First Nations People within the workforce across Australia.

The recent Powering First Nations Jobs in Clean Energy report (cover pictured, right), developed by the First Nations Clean Energy Network (FNCEN), is a detailed resource that identifies pathways and options for First Nations Peoples to be supported to enter the clean energy sector workforce and access quality job opportunities and career pathways as they emerge.

The report outlines an action plan to invest consistent, long-term funding in job-readiness and business support programs led and/or codesigned, and for, First Nations Peoples. Targeted investment and policies can support the scaling of efforts underway by many organisations already implementing partnerships and employment pathway programs tailored to First Nations People.

To find out more visit: www.firstnationscleanenergy.org.au/jobs_pathway_initiative

Embedding DEI in workforce development strategies can drive innovation, foster the potential of individuals and deliver broader economic and social benefits. Source: Depositphotos

2. Context

Current challenges to workforce development

Workforce shortages in the clean energy sector exist today. They are shaped by various factors, from the nature of site-based infrastructure development to systemic issues such as a lack of fit-for-purpose education and training. At the same time, systemic, cultural, and broader factors significantly affect the participation of people from marginalised groups in Australia's workforce. While some challenges are unique to specific groups, many are cross-cutting and consistently hinder meaningful participation.

This intersection can exacerbate difficulties for people from marginalised groups in accessing, thriving, and advancing within the clean energy sector, deepening existing inequities unless addressed through comprehensive, targeted efforts to foster equity, accessibility, and inclusion. This section offers an overview of the current operating environment for workforce development in the clean energy sector. It also highlights the context for creating opportunities to enhance meaningful workforce participation and improving diversity, equity, and inclusion across the sector. Many of the challenges – alongside potential opportunities and strategies to address them – are explored further in Section 3.

Challenges to inclusive workforce development in the clean energy sector

- Nature and pace of clean energy development
- Compounding workforce development challenges
- Limited awareness of clean energy careers
- Fit for purpose education and training pathways
- Workforce culture and organisation capacity

Broad factors that impact workforce participation of marginalised groups

- Discrimination and unconscious bias in program and pathway design, recruitment, hiring processes and workplaces
- Awareness of opportunities in the sector and the value of the sector more broadly
- Visibility of career pathways, role models and mentors
- Affordability, appropriateness and accessibility of education and training
- 'Wrap-around' and employment support services
- Complexity of qualification recognition and licensing
- Availability of local economic and social infrastructure
- Sector awareness and capacity to drive DEI
- Workplace culture, job conditions and arrangements

Figure 2. Workforce development challenges in the clean energy sector, combined with broader factors that affect participation of marginalised groups in meaningful work, can further hinder inclusive participation and workforce diversity in the clean energy sector.

Explainer: Australia's clean energy workforce

For the purpose of this project, the clean energy sector refers to the activities and developments that support renewable energy production, distribution and storage. This includes the development of transmission lines, utility scale solar farms, onshore and offshore wind farms, and pumped hydro projects.

The clean energy workforce includes jobs in planning and design, construction and installation, as well as operation and maintenance for these types of projects. Clean energy workforce employers include but are not limited to renewable energy developers, transmission developers, engineering, planning and design consultancies, construction companies, electricians and trade contractors, civil works companies, machine operators, and other contractors.

The clean energy sector encompasses a wide range of skills and job opportunities, with diverse pathways into employment. Some roles require new skills in-line with emerging technologies and applications, while others leverage transferable skills found in the existing workforce such as electricians and electrical trades, project managers, civil workers and engineers.
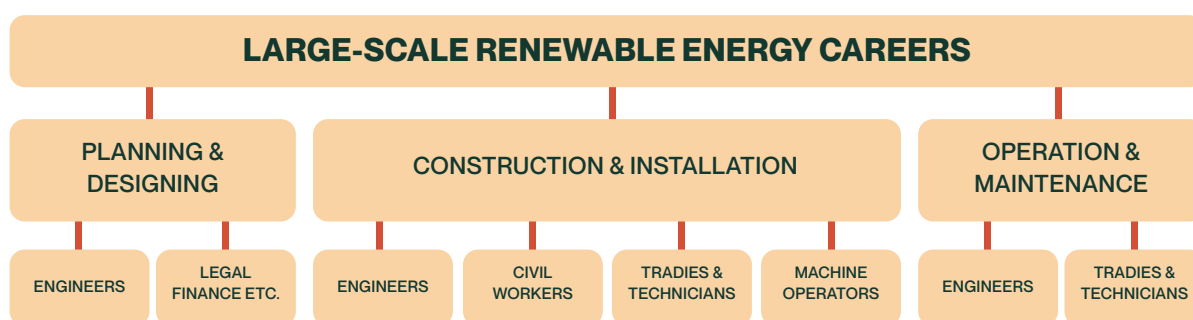
LARGE-SCALE RENEWABLE ENERGY CAREERS

PLANNING & DESIGNING		CONSTRUCTION & INSTALLATION				OPERATION & MAINTENANCE	
ENGINEERS	LEGAL FINANCE ETC.	ENGINEERS	CIVIL WORKERS	TRADIES & TECHNICIANS	MACHINE OPERATORS	ENGINEERS	TRADIES & TECHNICIANS

Figure 3. Diagram of direct jobs in large scale renewable energy projects. Source: Clean Energy Council.[5]

The demand for workers for the clean energy transition extends beyond the jobs in large-scale renewable energy projects as listed above. In addition to the development and operations of the 'supply side' of the clean energy system, workers will also be needed to service the 'demand side', such as residential solar, electrification, energy system management and production of hydrogen.

Sectors that provide goods and services to enable and accommodate the clean energy system and its supply chains – such as hospitality services, accommodation providers, retail workers, care workers, trainers and educators – will also need to scale and adapt. These sectors and workers are beyond the scope of this report; many of the insights and opportunities to enhance diversity and inclusion still apply.

The scale of the clean energy workforce opportunity

Australia is experiencing a boom in infrastructure construction expected to peak over the next five years. To realise Australia's 2030 renewable energy target of 82 per cent renewable energy supply, and net zero by 2050, an average of 22,000 to 59,000 additional workers per year will be required in the clean energy sector. This equates to more than 200,000 additional workers from now until 2030[6] to support the development and construction of clean energy generation and transmission infrastructure. Many of these jobs are in national shortage occupations such as electricians.

Modelling by the Institute for Sustainable Futures, shown in the figure below, shows the annual requirements for the most in-demand occupations across the electricity sector according to energy source (coal, gas, hydro, wind, solar) and transmission. After an initial period of high growth, demand for electricians stabilises around 2030 with an annual average demand of around 7,400 workers. The strongest growth is anticipated to be in wind and solar. Construction jobs are the most volatile with a drop off in coal production likely after 2032, signalling a switch to solar farm construction roles. Engineers and labourers will be most required in the early period to 2029 as construction intensifies. Following this, operations roles steadily increase.
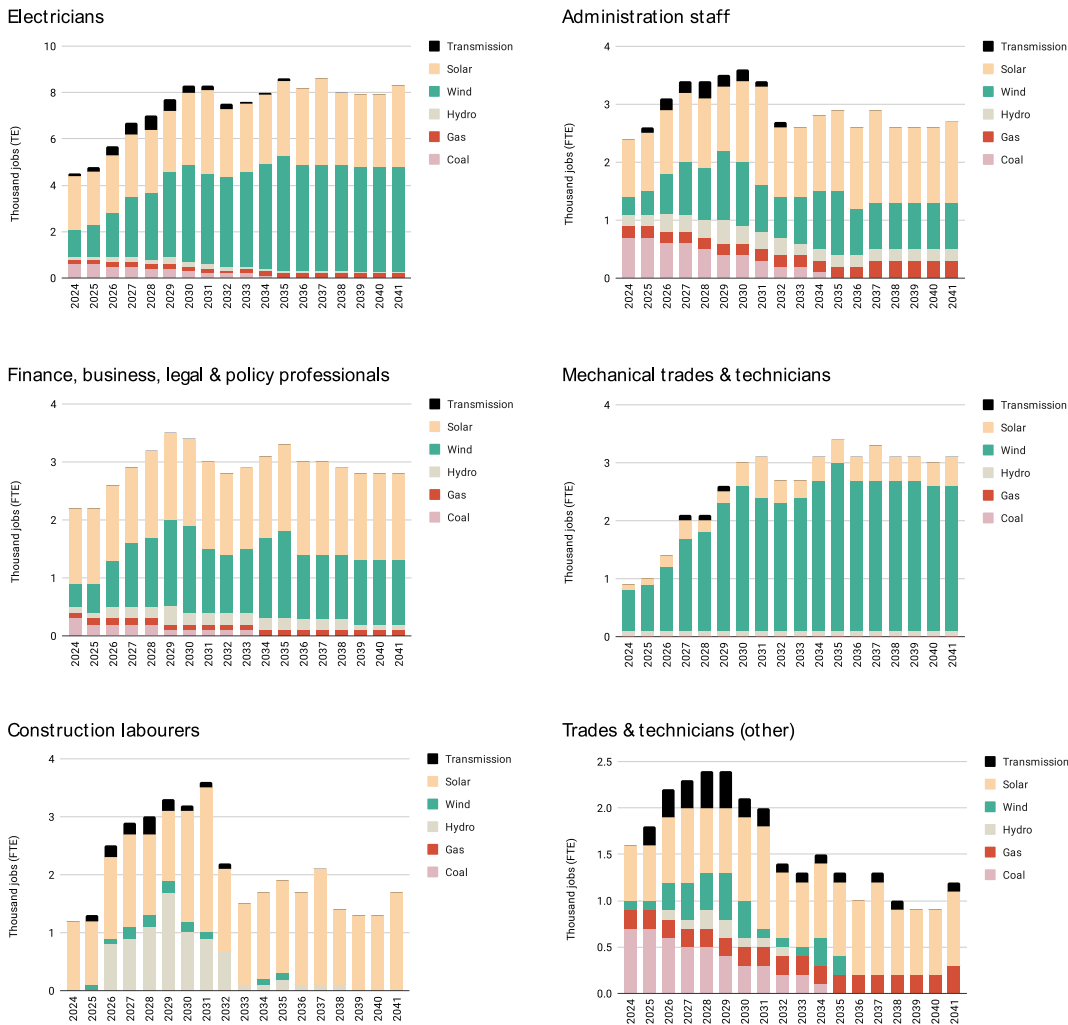

Figure 4. Modelling of in-demand occupations by year shows the scale of additional workers required in the clean energy sector in the coming years to meet net zero by 2050. Source: Institute for Sustainable Futures.[7]

Deep Dive: The scale of the skills demand in the Central West Orana Renewable Energy Zone

The Central West Orana Renewable Energy Zone (CWO REZ) – the first REZ to be declared in Australia located in New South Wales – has a target of 6 GW of network capacity by 2038. The region, including the city of Dubbo, is home to more than 85,000 people.

The largest employing occupations in the region are automotive and engineering trades workers, education professionals, other technicians and trades workers and skilled animal and horticultural workers. Based on the most likely scenario in AEMO's 2022 Integrated System Plan (Step Change), employment in the CWO REZ will need to grow from under 1,500 to peaks of 3,000 and almost 3,500 by 2029.[11]

• More than 500 electricians will be needed in 2027 and almost 700 in 2038.

• Mechanical trades and technicians will peak in 2029 just under 300 jobs.

• Construction labourers will peak at over 300 jobs in 2027.

The peak demand for renewable energy projects in the CWO REZ is two thirds of the existing workforce in common occupations. This competition for talent has been raised by the NSW Productivity and Equality Commission[12] as a constraint to renewable energy development, and poses a risk to the state reaching emission reduction targets.

Figure 5. The CWO REZ is approximately 20,000 square kilometres on the land of the Wiradjuri, Wailwan and Kamilaroi people in New South Wales. Source: EnergyCo[13]

Find out more about workforce projections and needs in the electricity sector: Workforce Projections, Institute of Sustainable Futures (prepared for Race for 2030)[8]; 2024 Workforce Plan, Powering Skills Organisation[9]; and the federal government's Occupation Shortage List.[10]

Explainer: Understanding diversity, equity, and inclusion (DEI)

The Diversity Council of Australia explains marginalisation as 'the inequality certain individuals face in society due to power imbalances built into our systems'.[14] The term does not refer to someone's identity, nor is it about individual failures of marginalised groups. It is about how the 'unequal power relations that are built into our systems (including, but not limited to; law, politics, economics, and society itself) create hurdles that maintain the status quo. That status quo being, holding back and disadvantaging some groups, or leaving them 'at the margins' (i.e. marginalised groups), while at the same time advantaging (i.e., privileging) 'dominant groups'.[15]

- **Marginalised:** 'Marginalised' and 'people from marginalised groups/backgrounds' are used to broadly refer to people who are long-term unemployed, people with disabilities, people who have been formerly incarcerated, refugees, migrants, youth, women and LGBTQI people (as a collective noun).

- **Diversity:** the composition of people in teams and organisations, and the range of human differences that make each individual unique, including but not limited to: race, gender, religion, sexual orientation, ethnicity, ability, age, language, political perspective, and education.[16]

- **Equity:** the fair treatment of all people, recognising we all have the same value and deserve a good life but we all start from a different place.[17] In the workplace it is the process of recognising advantages and barriers that create unequal starting places, and addressing and mitigating this imbalance by fostering norms, practices and policies to ensure resources, opportunities and outcomes are not predicted by identity.[18]

- **Inclusion:** involves creating a workplace culture that values and appreciates individual differences.[19] It is the act of making a person feel part of a team or workplace, so each member feels valued, respected and afforded the same rights and opportunities to participate and contribute fully and be able to reach their full potential.

- **Diversity, equity and inclusion (DEI):** are different but closely linked concepts. Understanding all three is crucial for fostering a diverse and inclusive workforce contributing a range of skills, knowledge, and experience.

The use of appropriate and inclusive language is always evolving as our collective understanding grows and changes over time. The Next Economy welcomes feedback on current practices.

Diversity in Australia's clean energy workforce

While figures vary,[20] the representation of people from diverse backgrounds in the clean energy workforce are far lower than they are within the total Australian population. A study by the Clean Energy Council in 2021[21] found certain groups had higher levels of participation in clean energy than other energy sectors including coal and gas. However, there remains significant room to improve, particularly in roles requiring a specialised skill set such as a trade.

	Australian clean energy workforce	Australian mining workforce	(%) of Australian Population (2021 Census)
Women	39%	21%[22]	50.7%
Aboriginal and Torres Strait Islanders	1.9%	3.8%[23]	3.2%
People with a disability	3%	7.9%[24]	21.4%
People born overseas	32%	n/a	29.5%
Under 30 years of age	13%	6.1% (24 and under)[25]	26%

Figure 6. A snapshot of diversity in the clean energy workforce in 2021[26] compared with the mining industry (dates and sources vary) against the Australian population (2021). The Clean Energy Council notes there is evidence to suggest these percentages within the clean energy workforce are actually lower and will be updated in 2025.

Landmark research and new initiatives, many of which are featured in this report, are paving the way for people from marginalised groups to enter meaningful employment and leadership roles across the clean energy workforce. For example, many clean energy companies have implemented policies and programs to enhance gender diversity and First Nations representation within their organisations. Additionally, in some regions, state government procurement contracts mandate targets for First Nations participation and local procurement/employment. While these actions are crucial steps towards increasing diversity, the impact across supply chains is limited and does not fully address broader systemic employment barriers for other marginalised groups let alone the compounding challenges within the clean energy sector.

It's important to acknowledge that breaking down barriers to workforce participation for marginalised groups is needed more broadly if Australia's economy is to deliver for all Australians.

3. Opportunities to build a diverse and inclusive workforce

Each Australian deserves access to the benefits of Australia's economy and in advancing our clean energy system. This includes the employment opportunities vital to support the sector's growing workforce needs, which is a unique opportunity for government and industry to address inequality and socio-economic disadvantages. The good news is, if done well, it can be a win for workers, a win for employers, and a win for regional economies.

A flexible, inclusive approach is essential to reimagining workforce development, building capacity, and addressing both supply and demand challenges. Supporting the participation of marginalised groups in the clean energy workforce requires tailored strategies based on the unique needs of marginalised groups, institutions, organisations, and regions. It involves collaboration across sectors, jurisdictions, and scales, while adapting to shifting dynamics and evolving workforce needs. Engaging directly with learners, workers, and those with lived experience puts people in the centre of workforce development efforts and is key to identifying barriers, opportunities, and delivering effective solutions that help marginalised groups thrive in the clean energy sector.

Three interconnected **Opportunity Areas** have emerged through the Inclusive Clean Energy Workforce project research and engagement process - each underpinned by a people-centered approach. All Opportunity Areas are spaces for innovation and strategic exploration to address challenges that people from marginalised groups face at the nexus of the clean energy sector's workforce development ecosystem. Within each Opportunity Area, **strategies** with the potential to support and accelerate equitable and inclusive workforce development have been identified. Alongside several case studies of what's already happening across the country, this chapter illustrates that change is not only possible, but achievable.
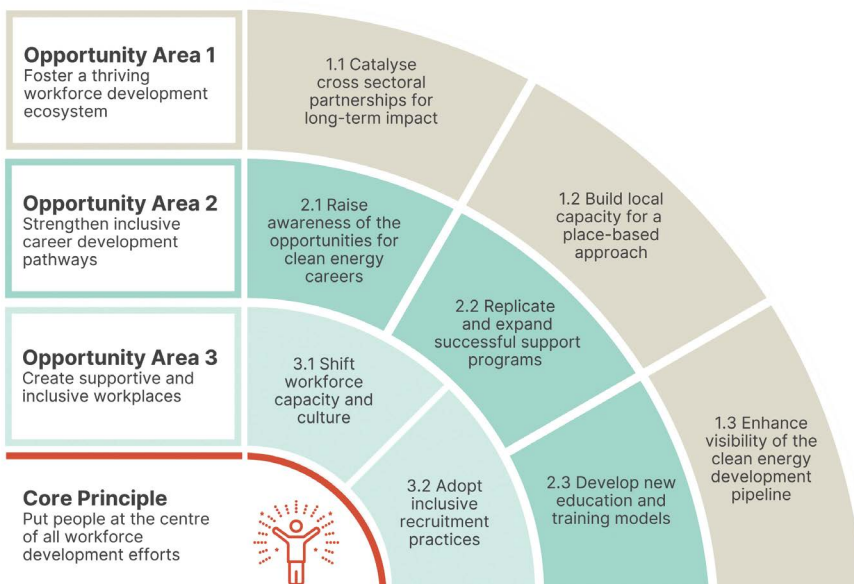

Opportunity Area 1
Foster a thriving workforce development ecosystem

Opportunity Area 2
Strengthen inclusive career development pathways

Opportunity Area 3
Create supportive and inclusive workplaces

Core Principle
Put people at the centre of all workforce development efforts

1.1 Catalyse cross sectoral partnerships for long-term impact

1.2 Build local capacity for a place-based approach

1.3 Enhance visibility of the clean energy development pipeline

2.1 Raise awareness of the opportunities for clean energy careers

2.2 Replicate and expand successful support programs

2.3 Develop new education and training models

3.1 Shift workforce capacity and culture

3.2 Adopt inclusive recruitment practices

Figure 7. Underpinned by a people-centered approach, the three Opportunities Areas are spaces to strategically promote equitable and inclusive workforce development.

Section 3 highlights real-life examples of initiatives that demonstrate DEI practices in action. See boxes labelled "Strategy in Action" and Appendix B for a list of other examples.

Core principle: Put people at the centre of all workforce development efforts

Transforming the clean energy workforce development ecosystem to be more inclusive of people who experience marginalisation requires more than just integrated coordination, collaborative partnerships, inclusive workplaces and an understanding of workforce and employer needs. A DEI clean energy workforce ecosystem that places people at the centre of all development efforts keeps individual needs, aspirations, perspectives, experience and leadership at the centre of systems change interventions, program design and implementation.

"System design starts not with available programs and specific policies but with people, recognizing that individuals' skill-building needs vary widely depending upon their lived experiences."[27]

- Growing Fairly

Underpinning all workforce development efforts, a people-centered approach means that communities and individuals – especially those from marginalised groups – 'are involved in decision making, alongside professionals, at many different levels'.[28] By listening to, amplifying and supporting the voices, leadership and direction of diverse groups and role models in the sector and workforce development discussions, the unique needs and contributions of different people can be highlighted. This approach also helps identify barriers that may prevent individuals and specific communities from accessing and entering the workforce.

A people-centered approach enables actors from different sectors to develop and offer meaningful pathways, inclusive processes, policies and programs that can adapt and 'flex to meet individual needs and reflect local and regional demand for skills.'[29] Importantly, putting people at the centre ensures individuals understand the collection of career pathways that are available to them and are supported to navigate their own journey as they progress through different educational and life experiences.

Connecting with community stakeholders from diverse backgrounds and life experiences, as well as people from diverse and often marginalised groups in the current workforce, can provide a coordinated experience with inclusive and equitable workforce development services. This enables individuals, especially those from marginalised backgrounds, to meaningfully work and thrive in the clean energy sector.

In Hay, NSW, local community members have come together with regional and state stakeholders, across multiple forums, to drive solutions that suit their unique context and long term aspirations. Source: The Next Economy.

Opportunity Area 1: Foster a thriving workforce development ecosystem

Transforming the clean energy workforce development ecosystem to be more inclusive of people who experience marginalisation requires more than just integrated coordination, collaborative partnerships, inclusive workplaces and an understanding of workforce and employer needs. A DEI clean energy workforce ecosystem that places people at the centre of all development efforts keeps individual needs, aspirations, perspectives, experience and leadership at the centre of systems change interventions, program design and implementation.

"While necessary for the acceleration of the clean energy transition, a healthy workforce ecosystem is especially important to remove barriers for diverse and other underrepresented workers."

- National Clean Energy Workforce Alliance for the Interstate Renewable Energy Council (IREC)[30]

A thriving and effective workforce development ecosystem creates a comprehensive view of the diverse stakeholders involved in building strong regional economies through meeting local labour demand. It includes local, state, and national stakeholders, as well as consortia at all levels, working together on effective workforce development processes across scales and jurisdictions. These alliances and collaborations can work to develop resources, identify and disseminate best practices, provide technical assistance, scale and test initiatives, and reduce duplication of effort.

Connected and thriving workforce ecosystems adopt an integrated approach to workforce development - underpinned by effective programming and planning. This approach:

• helps to ensure workforce demand and supply are coordinated, education and training programs are aligned with job market demands, and opportunities for work are expanded across diverse populations, regions, and communities; and

• allows for the development of integrated and comprehensive strategies that remove systemic barriers to participation, provide wrap-around support services (like childcare and transportation), and create alternate opportunities for training and work readiness.

Embracing diversity, equity, and inclusion in workforce ecosystems helps to address many systemic barriers to employment that people from marginalised populations face, and has the potential to increase the volume of workers available to support Australia's energy transition. It can also lead to increased innovation and value creation, along with greater opportunities for fairness and representation.[31]

A thriving workforce development ecosystem that fosters an integrated approach to workforce development requires:

• incentives, programs and policies that catalyse cross sectoral partnerships for long-term impact;

• funding and resources that strengthen local capacity to lead a place-based approach; and

• effective programming and planning for greater visibility of the clean energy development pipeline.

The challenge: the nature and pace of clean energy development

To date, the nature of clean energy development has followed patterns of other periods of industrial development in Australia's history. This boom and bust pattern 'backs in' workforce characteristics that are temporal and mobile, often providing little enduring benefit for regional areas and communities in terms of social and economic development. It can also make it difficult to obtain and demonstrate long-term employment arrangements, such as for work visas and permits. A fly-in, fly-out (FIFO) workforce and/or short-term contract-based roles can act as a significant barrier to many, including people from marginalised groups, – they can lack flexibility and limit access to social and community infrastructure they need to thrive in work.

Section 2 highlights Australia's infrastructure boom, with worker demand peaking as multiple projects overlap over the next five years. This, and other characteristics of the nature and pace of clean energy development, is creating an environment where there is:

Coordination and development constraints	The development and approvals approach adopted by many state governments for Renewable Energy Zones (REZs) often means infrastructure projects are developed by the private sector on a project-by-project basis at the same time, with limited coordination and understanding of the cumulative impact for a region or workforce. The competitive process for project development, financing, and resourcing also hinders early collaboration on regional solutions. This often results in missed opportunities to address workforce limitations, develop local apprentice programs, and create employment pathways for marginalised groups in regional areas.[32]
Project delivery pathways driving specific workforce characteristics	Project delivery depends heavily on engineering, procurement and commissioning (EPC) contractors and Tier 1 construction companies that have the capability and capacity to quickly mobilise or scale their operations. The current project development pathway also relies on a construction workforce ready to break ground as soon as financial close is achieved and approvals are granted.
	Project details and timeframes are often not shared until finance has been secured and procurement contracts are in place. Uncertainty in contract timing and workforce needs hampers local businesses, community and training organisations from scaling operations and bringing on new workers in time for projects.
	Multiple developers and contractors working in this way within REZs create industry volatility and peak periods of construction and demand for workers.[33] This context often drives certain workforce characteristics such as mobile roles, FIFO workers, and contract-based positions.

Compounding regional workforce challenges	Despite local and state government efforts to drive regional economic benefits, there are existing workforce and infrastructure constraints such as limited access to local training, housing and healthcare, that limit workforce attraction to the regions. Significant influxes in workers is resulting in localised inflation as competition for housing, goods and services drives an increase in demand and prices.
	Many local governments located within REZs are navigating development and infrastructure projects of a scale and complexity not seen in their region for decades. They require new and specialised expertise and skills to manage the technical, legal and managerial elements of their responsibilities associated with new energy development – including regional workforce development.
Competition for talent beyond the sector	Alongside the rapid increase in demand for skilled workers within the clean energy sector, projects are also competing for workers with other industries, from infrastructure to other energy industries and even agriculture. Major infrastructure projects in cities or urban areas often require workers with the same skills where support services and training facilities exist and remuneration is often higher.
	In some instances, there is also a rise in demand for skilled workers that coincides with the clean energy sector's own growth over the next five years. For example, Australia's plans to build 1.2 million new homes and deliver an infrastructure pipeline valued at $230 billion within the same period.[34]
Limited existing social and economic infrastructure to support workers	The social and economic infrastructure required to support workforce and population growth in areas of clean energy development are often limited or non-existent. These include regional transport, child care and aged care services, health services and housing. Both are important for social cohesion and economic growth, but limited capacity of these in regional areas makes it difficult to attract and retain workers to 'live and work in place'. This can also act as a significant barrier to people from marginalised groups who may require particular services and support to be able to enter the workforce.
	For example, the lack of available housing has limited the number of essential workers taking up positions in many regional areas. Tight rental markets, increasing house prices and existing regional job vacancies[35] reduce the liveability of a region and its capacity to attract people to take up new jobs.

Insight: Cross-sectoral solutions to workforce shortages

One of the more unlikely sectors in competition with clean energy developers for workers is agriculture, such as general labourers in construction, maintenance, or land preparation. This is particularly the case in Renewable Energy Zones such as NSW Central-West Orana and South West that have a large agricultural industry.

In many regional areas, there is insufficient existing workforce capacity to meet the demands of both sectors, and agriculture faces similar challenges to workforce development as is playing out in the clean energy sector.

A 2020 federal government inquiry into how to expand the Australian agriculture sector[36] found several barriers to development related to workforce shortages that are strikingly similar to what the clean energy sector is facing now, including livability and desirability of regional areas, a seasonal and therefore irregular pattern to work, lack of awareness amongst young people of the potential careers, lack of technical knowledge in an increasingly technical sector, and a lack of pathways for more workers from marginalised groups to enter the sector.

Rather than competing for workforce, the similarities between the workforce constraints of the agriculture and clean energy sectors may offer a potential for collaboration that leads to uplift across both arenas. For example in Western NSW, Hay Shire Council is working with industry, education and training institutions, and community groups to explore opportunities for a regional workforce development hub that takes an integrated approach to developing a local future ready workforce with transferable skills, and employer network that can coordinate demand and services across sectors.

Many of the new transmission lines and renewable energy assets proposed for Australia's energy transition will be located in agricultural regions where there is already high demand for similar skills and trades. Pictured here are wind turbines located outside of Orange, NSW. Source: The Next Economy.

Key Strategies

1.1 Catalyse cross sectoral partnerships for long-term impact

Workforce development is a shared responsibility that requires sustained resources and ongoing action. Government, industry, employers, education providers, community-based organisations, non-profits, charitable foundations, and social support organisations all have important roles to play in removing barriers people from marginalised groups face, as well as fill the workforce gap with the talent the sector needs.

Greater collaboration between these stakeholders and employers is a key enabler to improving employment outcomes for marginalised people and creating a pipeline of appropriately skilled and supported employees at the scale and pace required. Strategic cross-sectoral collaborations and partnerships leverage the strengths of various stakeholders, ensure individuals receive the support they need to thrive in work, build pathways for individuals to enter employment, reduce workforce disruptions and facilitate opportunities for workers to transition seamlessly between jobs as clean energy projects evolve.

For the types of jobs and skills required to support the development of clean energy projects, timely collaboration provides an opportunity to create inclusive and equitable pathways for people from marginalised groups to live, work and thrive in regional areas.

Deep Dive: The role of 'wrap-around support' in enhancing workforce diversity, equity and inclusion

Services, programs and partnerships that provide 'wrap-around support' are important; not only to support people transition into work but to facilitate access to local services necessary to sustainably maintain and thrive at work. Employment support initiatives will differ by region, target group and individual. For many people, the early stages of looking for work, becoming work-ready and applying for a job, provides both the biggest barriers and the most opportunities for success.

Pre-employment support services address overlapping inequalities people can face in becoming ready for work. These programs support a person's development and transition into the workforce by providing job-specific skills training and psycho-social development - tailored to individual needs These early supports are essential to overcoming barriers and seizing opportunities for employment success.

Tailored support services include finding a job, home, connections to services, community groups and/or support networks, education, health, childcare and transport are provided and include post-relocation support. In some cases, these programs also support employers and staff to ensure workplaces are inclusive and have a greater capacity to engage and retain employees in an appropriate manner.

In Australia, wrap-around and pre-employment support programs are often under-resourced and considered unnecessary in a commercial landscape: markets help drive energy transitions but social good is not widely considered to be their primary goal.[37] In the clean energy sector, there are examples of organisations going beyond what is expected of them as commercial entities, including by working with other companies to their ability to employ and support people from underrepresented groups.

An effective workforce development ecosystem connects stakeholders and creates the conditions necessary for collaborative efforts and an intentional approach to transformative workforce development that aims to better serve individuals and regional economies. Each stakeholder has distinct missions and unique opportunities to take action, including:

Government (policy-makers and system architects)	Agencies across local, state, and federal governments can deliver programmatic and policy-related initiatives that promote interagency collaboration, incentivise an ecosystem-based approach to workforce development, manage timing and staging of development, align regulatory and licensing requirements across jurisdictions and support awareness raising of opportunities in the sector. They can also invest in new models of education and business to catalyse new initiatives and enterprises that focus on supporting specific marginalised groups into work.
Education providers	Education providers can partner with other stakeholders to attract and recruit people from marginalised groups of people, equip them with the skills they require and provide more stable pathways into meaningful careers. There are a range of national, state and regional providers of primary, secondary and tertiary education and training services across Australia that support workforce development and worker readiness. These include schools, public universities and TAFEs, private colleges, credentialing organisations, career centres, country university centres, training organisations, outreach organisations, work-integrated training initiatives and non-profits.
Employers	Employers can shift their internal practices and policies to become more safe, supportive and accessible places to work. They can build a focus on skills-based development and partner with nonprofits, community organisations and government to co-invest in education and pathway initiatives. Large employers play a crucial role in enhancing the capacity of small and medium enterprises across the value chain at local, state, and national levels. Supporting large employers to transition from 'hiring' to becoming active partners in developing a pipeline of workers and fostering an inclusive workforce can support this process.

Social sector organisations, community organisations, charitable foundations, non-profits and social businesses	These stakeholders can act as a conduit to community leaders and individuals with lived experience who can inform and advise on every aspect of workforce development, provide guidance on engaging their communities as well as serve as messengers within their communities to encourage participation in workforce development opportunities. There are a number of national, state and local social sector organisations, community-based groups, charitable foundations, non-profits and social businesses supporting people navigate systemic barriers to employment within the workforce development ecosystem. These organisations often act as the voice for the rights and needs of different groups of people, and provide bespoke wrap-around, development and employment support services to suit an individual's needs.
Peers and community networks	It is important when engaging with learners or workers from marginalised groups to also involve family and community support networks to foster the enabling environment directly around an individual navigating a career in clean energy. Peers, family and community members often provide the emotional and social support individuals require when working towards education, training and career goals. Peers are useful resources when seeking employment as they can share experiences, provide motivational and practical support and act as references. Family and community members not only act as a support network to help individuals sustain participation in work, alongside peers they are also an important protective factor in the face of lower or inadequate support from educators, support services and businesses.

Strategy in Action: Skilling people for enduring careers in rail

Energy Skills Queensland (ESQ) Skilling Department works with people from marginalised groups for the purpose of finding stable long-term employment outcomes. In one program, for example, they are providing people who have formerly been incarcerated practical, industry-specific training coupled with life skills that leads to employment in the relevant sector. Participants are taken through a seven to nine week program that begins with foundational literacy and life skills combined with holistic support services such as drug and alcohol counselling and housing referral. Following this base training, participants move quickly through a range of qualifications, gaining Rail Industry Worker (RIW) and Rail Safety Worker (RSW) cards or manual licence upgrades, which means former prisoners can meet industry entry requirements and have a clear pathway to employment.

The program partners with companies in the rail sector, giving participants guaranteed interviews or trial periods post-training. It also provides post-program mentoring, which is important to help former prisoners transition to working life. The program has an 85 per cent success rate and ESQ suggests there is a clear opportunity to transfer it into the clean energy sector.

People completing a practical assessment on a railway line for their Certificate II in Rail Infrastructure at LOCOshed North Queensland. Source: Energy Skills Queensland. Used with permission.

For more information visit Energy Skills Queensland: www.energyskillsqld.com.au

1.2 Build local capacity for a place-based approach

Regional communities and local stakeholders, where most clean energy jobs are located, play a crucial role in addressing workforce challenges and advancing diversity, equity, and inclusion. Local stakeholders are well-placed to identify local needs, promote equitable and inclusive workforce development, and lead inclusive regional workforce initiatives in partnership with state and national stakeholders. With sufficient capacity and effective resources, they can foster people-centered local workforce development ecosystems that contribute to place-based education and training initiatives, wrap-around support services, and workforce development partnerships tailored to the local context and demographics.

A place-based approach:

- Establishes arrangements and processes that create safe spaces for regional leaders and local stakeholders to collaborate as trusted partners in the workforce development ecosystem. It supports them in working with industry, social innovation organisations, and state and national governments to co-design initiatives that are contextually suitable, remove barriers to access, and support participation in the clean energy sector workforce.

- Enables partners to holistically consider the systemic challenges underrepresented groups sometimes face within a regional context, and foster innovative solutions to address these challenges. For example, regionally-led economic diversification activities utilise people with similar skill sets to smooth out peaks and troughs in clean energy workforce demand and create opportunities for enduring careers in the country, such co-located manufacturing and industry precincts.

A place-based approach involves bringing together a diverse range of local stakeholders, such as businesses, schools, community groups, and social services agencies, to develop a nuanced understanding of local demographics, identify regional needs, and highlight existing strengths, assets, and capacities.

Investment is required to support local leaders to develop the skills and resources they need to actively contribute to and lead place-based approaches. Resources are needed to help local government and community groups conduct feasibility studies, project scoping, and initiative design. These efforts build the case for appropriate local investment and development, and enable the delivery of inclusive workforce development initiatives, local support services, collaborative partnerships, and infrastructure.

As part of this project, we heard many examples of local investment unlocking greater capacity for regional-led solutions across Australia. For example:

- In the Cradle Coast Region in northwest Tasmania, developers are working together to address housing shortage as they understand it is a key constraint to renewable energy development.

- In Gladstone in Central Queensland, the economic roadmap process delivered by the local Council identified the lack of birthing facilities as a key barrier to retaining workers once they are married and looking to start families. Improving access to health services in Gladstone is seen as a core strategy to retain the workforce.

- In NSW's Riverina region, the Murrumbidgee Council has negotiated to improve health services through a community benefit agreement.

Stakeholders from different sectors across Gladstone have set directions for their future and are working together to manage the net zero transition. Pictured here is a representative of the Queensland Department of State Development and Infrastructure, explaining the history of Gladstone's industrial transitions to visiting philanthropists and investors.
Source: The Next Economy / William Debois.

Strategy in Action: Inclusive communities welcome migrant integration

Naracoorte is located in outback South Australia with a population of approximately 5,200 people. With a strong wine production industry, the community has had many migrants move into the town and call it home. The largest group has been the Hazara people from Afghanistan. The town is now home to more than 300 Afghan people.

Migration has helped to stabilise the previously declining population in the town. The Naracoorte community supports migrants through local community groups such as Rotary, local church groups, and volunteer groups that meet to socialise with and support new arrivals to settle in the town through social interactions and connections. Over time, community groups and businesses have also adapted to welcome migrants and provide opportunities for them to participate in the community.[39,40]

1.3 Enhance visibility of the clean energy development pipeline

To enable cohesive and inclusive workforce development planning as well as adequately plan the social and physical infrastructure required to support the clean energy rollout, greater visibility of a region's development pipeline is essential. Many councils, regional development organisations, business associations, local training providers, contractors, social services and community organisations are calling out for information to clearly understand the resource requirements for each project over the projected development timeframe.

Greater visibility of project development phases, timeframes and workforce needs help stakeholders understand, plan and manage demand for essential local services as well as reduce the likelihood of workforce shortages in critical trades. Pipeline clarity provides insights into where training investment needs to be focused, and can also increase business confidence, attract people to work in the sector, as well as motivate local businesses and contractors to scale-up operations and invest in the training and development of new people.

If done early and cohesively, regional workforce planning can link local voices together with industry, individuals, and relevant services, and encourage the development of place-based strategies to enhance inclusive workforce participation at the regional scale.[41] Visibility of a region's development pipeline provides greater opportunity to establish or expand place-based employment supports and cross sectoral partnerships that are contextually suitable based on the real needs and skills of a region.

Strategy in Action: Using open data to help develop regions in Italy

In Italy, an open data initiative, **OpenCoesione**, has made data publicly available on infrastructure spending across all regions, including for renewable energy projects. The data is published on an easy to use portal where users can filter for project type, level of investment, location, and project status. The portal has details of more than one million projects that have received EU and national funding, and students are encouraged to use the data in national competitions.[42]

To find out more visit
https://opencoesione.gov.it/en/

Strategy in Action: Facilitating engagement and coordination across Gladstone

The **Gladstone Engineering Alliance (GEA)** is an independent, member-driven organisation founded in 2003 to connect engineering, manufacturing, construction and energy supply chain businesses with upcoming development opportunities. GEA operates the 'Gladstone Connects Supplier Platform' to facilitate early engagement between proponents and local Suppliers. This platform helps local businesses anticipate future demands for new skills from large-scale projects and plan for the necessary capital and expertise to upgrade their operations and systems accordingly. Additionally, GEA provides insights into the upcoming requirements of large-scale procurement processes, helping small businesses prepare the resources and capabilities needed to participate.

The Gladstone Engineering Alliance connects business members with industry opportunities - crucial in strengthening the regions' industry supply chains. Source: The Next Economy.

To find out more visit: https://gea.asn.au

Opportunity Area 2: Strengthen inclusive career development pathways

Inclusive and equitable career pathways provide equal access and opportunities for all learners and workers to achieve their career goals, regardless of their identity, background, or circumstances. Career pathway programs are sociocultural structures[43] influenced by various psychosocial factors such as worldview, identity, values, self-efficacy, self-worth, belonging, and empowerment.

There is no one-size-fits-all solution for creating inclusive pathways into higher education and training. Interventions are most effective when they are tailored to the institution's profile and the target group. Broadening access and participation requires removing systemic barriers and providing localised support that is sensitive to the context, responsive to community perspectives, and leverages local strengths and competencies.

Promoting greater participation in career development pathways involves:

- Raising awareness of the opportunities for clean energy careers: Engaging educators, families, communities and individuals around opportunities in the sector; removing barriers and motivating potential learners to take up related subjects, training and education.

- Replicating and expanding successful support programs: Providing support to the learner as they navigate their own development pathways.

- Developing new education and training models: Expanding the range of opportunities to participate in education and training.

At all points, role models and mentors are crucial in breaking down perceptions of exclusion and inspiring long-term career aspirations. Ongoing support that addresses practical barriers helps learners and workers see clean energy careers as both desirable and achievable, building their confidence and capacity to navigate their own unique career pathways.
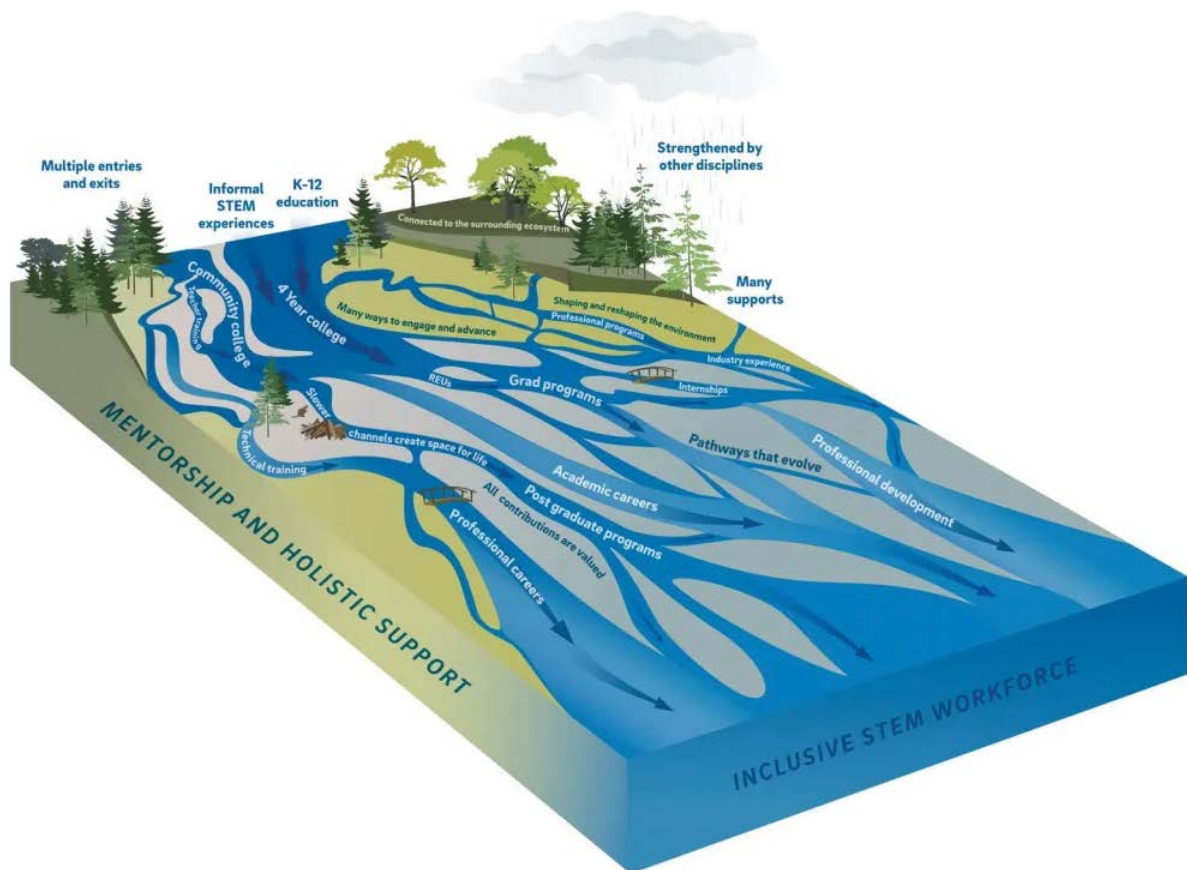
Figure 8. A 'braided river system' is a contemporary analogy for thinking about STEM-related career pathways like a collection of paths that change and adapt to the contours of the context and needs of an individual. It encourages holistic thinking about learning ecosystems and career development. Credit: Jennifer Matthews. Source: Eos[44]

The challenge: awareness, education and training pathways

Pathways into many of the professions and jobs required by the clean energy sector begins with supporting educators, families and communities to inspire learners and prospective workers to take up related subjects, training and education.

The clean energy sector is rapidly growing and complex, spanning diverse fields in wind, solar, geothermal, hydropower, bio-energy as well as incorporating different roles through the various phases of feasibility, planning, construction and operations. Visibility of these jobs are low to date, with limited exposure to clean energy jobs and those working in the sector - including role models, people in leadership and teaching positions - in education and training activities. As a result, clean energy jobs and pathways to work in the sector are poorly understood by learners and prospective workers, as well as educators, policymakers, and businesses.[45]

Australia's STEM (Science, Technology, Engineering, and Mathematics) crisis has been an enduring issue for innovation and technology-driven sectors.[46] A 2023 Jobs and Skills Australia report[47] noted low levels of student participation – even lower for marginalised populations – in STEM subjects because "it wasn't related to their desired career" or existing interests and skills. This links back to a limited awareness among young people, families, communities, schools and social support organisations around how clean energy jobs utilise STEM skills, and how the contributions of a career in clean energy may or may not align with existing interests, culture and values.

A survey of young people in the UK found that young people had a "limited understanding of how [the transition to] Net Zero will impact industries, jobs and their own lives". Focus groups carried out by Y Australia validated these findings for the Australian context.[48] This is not unique to young people, with limited awareness of career opportunities in clean energy across the general population, including marginalised communities, as cited by the Clean Energy Council.[49]

Students participate in a hands-on Clean Water Workshop as part of the Youth Outreach program at Engineers without Borders Australia. Source: Engineers without Borders Australia. Used with permission.

Most skills and jobs in the clean energy sector require a level of vocational training or higher education. Over the past decade, the number of people from marginalised backgrounds entering vocational training and higher education has risen, yet a range of interrelated socio-economic and cultural factors continue to exclude some people from starting their journey to employment in the clean energy workforce, and limit the pipeline of potential workers from marginalised groups and diverse backgrounds. These include:

Education, knowledge and participation	Schools often lack programs integrating STEM with real-world applications in clean energy often due to resource constraints, the STEM curriculum and a declining STEM educated teaching workforce.[50] This makes it harder for young people to connect such skills with their aspirations. In higher education, there are limited numbers of experienced trainers and educators in the system with knowledge of clean energy technology and development processes. Further, outreach efforts and industry engagement programs are fairly limited. As a result, learners, parents, and educators are unaware of opportunities.
Location of training and education opportunities	Across many of the interviews carried out, it was consistently noted that of the limited courses relevant to the sector that do exist, many are located outside of the regions where renewable energy development is occurring.[51] Relevant study often requires individuals to travel or relocate to different regions for training and employment, posing significant cultural, familial, social and personal cost implications for many. This puts extra strain on individuals who may not have the financial resources to travel, nor the capacity to leave their support networks for an extended period.
Access to higher education and barriers to effective participation	Mismatches between institutional expectations and processes and individual capabilities, opportunities and resources can create barriers that drive underrepresentation in higher education studies.[52] These include university entry requirements that put weight on previous academic achievements; visa restrictions; enrolment and course completion requirements, which can place situational pressure and penalties on people less prepared for university study; and the efficacy and appropriateness of student support programs. Course content, design and delivery can also impact accessibility for some people, as it can be culturally insensitive and less likely to represent the experiences of people from marginalised backgrounds. Other barriers are often experienced in relation to assessment processes, staff capabilities and the physical campus environment.

An at-capacity apprenticeship system	A recommendation was made at the International Labour Conference in 2023[53] to promote and support greater diversity, equity and inclusion in the development of apprenticeships. While there is widespread recognition of the critical role apprentices play in the transition to clean energy, in Australia the apprenticeship system is currently at capacity and limiting the pipeline of work-ready candidates. Underfunding, inadequate facilities, and lack of teachers are cited as reasons for there being little capacity in the system for new apprentices. In Melbourne, for example, people can wait up to 18 months to get into training.[54] In Queensland, there were 1800 applicants for just 185 apprenticeship positions in 2024.[55]
Employment services	Employment support services have a significant focus on supporting people into low-skilled, short-term jobs and programs, this can often be in lieu of building viable and enduring careers. Research shows that around 44 per cent of job seekers from marginalised backgrounds supported through employment services retain their employment for less than 12 weeks following commencement.[56]

Deep Dive: Complexity of qualification recognition and licensing

Skills shortages have been exacerbated by a visa system that is at capacity and still recovering from administrative strains following border closures for the COVID-19 pandemic. In 2022, for example, there was a backlog of 13,806 applications for temporary skilled migration and 57,906 for permanent settlement of skilled migrants.[57]

Safety requirements for trades and site workers necessitate the need for licensing, yet the complexity of the licensing process can be a hindrance to attracting more people into clean energy careers. For example, there are different occupational licensing requirements for electricians across states, which makes travelling for a job difficult.[58] For people arriving to Australia from overseas, visa conditions (bridging visas, for example) often impose restrictions regarding access to licensing, impacting an individual's ability to enter work here even with appropriate skills and expertise.

More broadly, many refugees and migrants with qualifications from overseas institutions are required to navigate complex and expensive processes to have their existing qualifications recognised in Australia. Analysis of the 2021 census data shows that more than 70 per cent of migrants who arrived from 2015 to 2019 did not have their overseas qualifications recognised.[59] A recent report reveals nearly half of the newly arrived migrant workforce is employed in roles below their skill level – and closing this gap could boost Australia's GDP by an estimated $9 billion annually, on average, over the next decade.[60]

Strategy in Action: Pilot expansion of an industry-led mentorship program

The apprenticeship pathway can often be complicated particularly for people from marginalised groups who face more complex barriers than the general population. Fewer than 60 per cent of electrical apprentices complete their studies,[61] and this rate is lower for those from non-English speaking backgrounds, apprentices with a disability, and people who experience multiple forms of marginalisation: for example, 42 percent of people with a disability complete their apprenticeship, 40 percent of people from CALD backgrounds with a disability, and 30 percent of First Nations people with a disability.[62] Most apprentices drop out in their first year.[63]

To improve apprenticeship completion rates, the **Electrical Trades Union (ETU)** is proposing to pilot an industry-led apprentice mentoring program that engages field officers with industry experience.[64] This program aims to provide tailored support through the provision of mentorship delivered by people with knowledge and capability in inclusive career development. With significantly higher completion rates for apprentices - attributed to the provision of mentorship and pastoral care throughout their training[65] - Group Training Organisations (GTOs) could also enhance this program.

For more information visit ETU: www.etunational.asn.au

Key Strategies

2.1 Raise awareness of the opportunities for clean energy careers

To grow the pipeline of people attracted to working in the sector in the future, it is important to build awareness of the career opportunities in clean energy, capture the imagination of people on the impact that a clean energy career can have in the world, and break down barriers associated with transitions into higher education, training and the workforce. Positive and early engagement in STEM, trades and climate education, alongside opportunities to solve real world problems, can influence subject and career choice. Interventions and resources aimed at encouraging young people into STEM, trades and clean energy careers need to be prioritised to engage, inspire and attract students in the upper primary and early secondary school years. More broadly, encouraging learners to view clean energy careers as desirable and possible can be achieved via:

- school outreach programs and roadshow-type activities
- student camps and summer/winter schools,
- parent and teacher education,
- transition support programs,

- industry mentors and champions,
- media campaigns and gamified experiences,
- new subjects embedded in mainstream curriculum, and
- real-world school-based challenges and projects.

There are multiple pathways into a clean energy career, but early engagement in STEM, and opportunities to understand the impact the sector can have in the world, are crucial to inspiring people to pursue a career in the sector. Source: Depositphotos

Strategy in Action: Inspiring the next generation of students

In October 2023, as part of Transform Expo in Gippsland, Victoria, students came together with industry, education providers, non-profits, and local people to learn about career opportunities in the clean energy sector and transition across the region. The two-day event was put on by **Friends of the Earth** and **Voices of the Valley** in partnership with Bank Australia and provided different ways for people to learn and be immersed in the region's potential.[66]

For more information visit Transform Expo: www.facebook.com/transformgippsland/

A marketing banner for the Clean Energy Council's Careers for Net Zero Roadshow Campaign in 2023. Source: Careers for Net Zero. Used with permission.

Similarly, the **Clean Energy Council** hosted The Careers for Net Zero Fair in October 2023 as part of its inaugural All Energy Conference, and kicked off a campaign to promote jobs in clean energy and help people understand the opportunities and pathways into employment. Activities included profiling several individuals from different disciplines relating to the clean energy transition; developing a website and platform to share information and resources; and delivering a regional roadshow of events to engage learners and emerging talent with the opportunities in the clean energy sector.

For more information visit Careers for Net Zero, www.careersfornetzero.org.au

Strategy in Action: Sparking interest and raising awareness through school outreach programs

There are many great examples of emerging initiatives to encourage more people, including people from marginalised communities, to undertake training and pursue a career in STEM:

The Youth Outreach program run by **Engineers Without Borders Australia** mobilises university students and industry professionals to deliver thematic hands-on workshops that explore real-life challenges in schools across Australia, from the Torres Strait to Melbourne, in both metro and regional areas. The organisation aims to nurture the next generation of engineers with a strong focus on embracing diversity and engaging Indigenous and female students, and those from low socio economic backgrounds. The program showcases the many career opportunities available that embrace human-centred engineering and related STEM vocations.

For more information visit Engineers without Borders Australia: www.ewb.org.au/project/youth-outreach/

Students with their handmade water filter they built at a Youth Outreach water workshop. Source: Engineers without Borders Australia. Used with permission.

The Hepburn Energy School Program is an initiative of **Hepburn Energy**, the first community-owned wind farm located in Victoria. It forms a key part of the local net zero emissions program Hepburn Z-NET. It features several activity streams working with students, teachers and schools to build awareness on wind energy and renewables more broadly, reduce school emissions and grow climate change literacy. Hepburn Energy initially developed the curriculum in partnership with environmental organisation CERES and was supported by Hepburn Shire Council. It consists of an excursion program to the community wind farm and learning materials tailor-made to teach students about renewables, climate science and sustainable practices. Not only do these initiatives provide immediate benefits to schools and communities, they indirectly build awareness and understanding of jobs in the sector.

For more information visit Hepburn Energy: www.hepburnenergy.coop/community-schools-curriculum/

2.2 Replicate and expand successful support programs

Many national, state, and regional programs have demonstrated practical and effective approaches to support people from marginalised groups to transition into and remain in work, driving greater diversity in various sectors. These programs are typically operated by social sector organisations and social enterprises, which have trusted relationships with the communities they serve and possess the necessary capabilities, service models, and processes to provide tailored support.

Locally-based, social sector organisations, in particular, can support people on-the-ground and bring disparate resources in the workforce development ecosystem together to meet the individual needs of specific candidates and groups of employers. Limited resources, funding constraints and a lack of awareness of these initiatives limit the ability of organisations to scale efforts and expand their impact into new and emerging sectors, such as clean energy.

The federal government has a role in assisting state and local governments in identifying, replicating, and scaling pre-employment and wrap-around support programs in regions hosting clean energy development. Additionally, industry can identify and develop strategic partnerships that connect businesses across the supply chain with organisations experienced in providing contextually appropriate and socially relevant support.
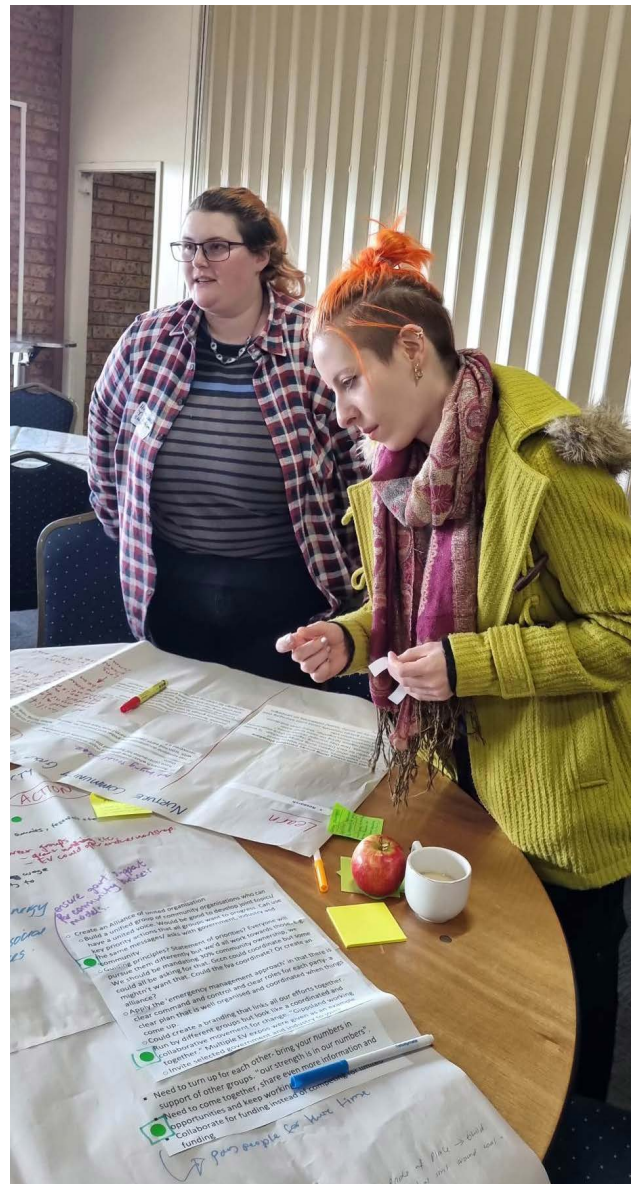
Young community leaders in the Latrobe Valley workshopping a range of community priorities for a just transition in the region. Source: The Next Economy.

Actions that can support existing successful programs and initiatives to expand and scale to serve the clean energy workforce include:

Incentivise partnerships	Encourage collaboration between industry and the social sector at a national, state and regional level on workforce-development efforts focused on a set of specific demographics, sectors, inputs, and outcomes. For example: Melton City Council in western Melbourne set suppliers targets of ten per cent employment for local people experiencing unemployment. One successful tenderer partnered with the Brotherhood of St Laurence to offer pre-employment training and mentoring – a year on they have reached their target[67]
Collaborate on national programs	Facilitate the scaling of initiatives and enterprises proven to support specific groups of people into work across jurisdictions, leveraging resources and the skills of partners from both the social and clean energy sectors.
Strengthen the capacity of social sector organisations	Identify, resource and support social sector and community organisations to be active participants in the workforce development ecosystem at a regional, state and national level. Support initiatives that build greater awareness and understanding of the clean energy sector, including workforce opportunities. Provide regional investment to support nonprofits, community organisations and social enterprises to expand existing and develop new programs and initiatives to serve the clean energy market.
Convene local and regional forums that bring all stakeholders together	Coordinate place-based opportunities for stakeholders to connect and learn from each other. Clean energy sector stakeholders can learn about organisations providing wrap-around and pre-employment support within REZs, and social sector organisations and community groups can learn about the clean energy development process and workforce needs. Additionally, these spaces provide an opportunity for social sector organisations and community groups to share insights and provide input into local considerations regarding DEI in sector development at all levels.

Strategy in Action: Geospatial engineering careers for neurodivergent adults

Australia Spatial Analytics (ASA) is a work-integrated, non-profit social enterprise (WISE) that provides professional data services to clients and geospatial and digital engineering careers for young neurodivergent adults. Eighty per cent of the ASA staff identify as neurodivergent; 75 per cent are under 30 years old.

ASA highlights that neurodivergent individuals have an important role to play in the digital technology ecosystem and can use unique cognitive talents, such as speed, precision and intense focus, to excel as digital professionals in the geospatial and digital engineering professions.

In 2022, international company **Acciona** engaged ASA to deliver as-built designs for multiple critical infrastructure projects in Australia.[68] Due to the skills shortage in Australia, Acciona needed to think differently to help with project resources. The ASA team was able to provide Acciona with accurate drawings to meet tight deadlines. Through the partnerships ten analysts were trained in digital engineering skills.

To find out more visit Australian Spatial Analytics: www.asanalytics.com.au and
Acciona: www.acciona.com.au

Jobs in clean energy sector vary – from onsite construction works and management to offsite and remote spatial planning and development activities. Source: Depositphotos

Strategy in Action: A worker bus initiative, overcoming barriers of getting to and from work

The towns of Robinvale-Euston are located on the Murray River in north-west Victoria and over the river in NSW. The region is located within the Murray-Darling food bowl and has a strong agricultural industry producing a variety of dryland and irrigated products.

The Worker's Bus Initiative was a 5-month pilot project held in 2024, between **Robinvale Euston Workforce Network (REWN)** and **Swan Hill Rural City Council (SHRCC)**. The initiative aimed to improve employment outcomes for young people and adults experiencing chronic unemployment or underemployment in the region by addressing transportation barriers - such as requiring a license and vehicle to travel to and from work as well as the significant cost of fuel. The initiative offered two daily bus runs with several stops at various industrial businesses across the two townships, with 23 people using its services regularly over the trial period. At the start of the pilot initiative, REWN delivered an industry tour that included representatives from local employment support organisations visiting local industrial sites and interacting with potential employers. The tour resulted in several positive employment outcomes, including job offers and training opportunities.

The REWN in partnership with Sunraysia Mallee Ethnic Communities Council and SHRCC also established the Robinvale Euston Language Cafe which has had 45 participants, of which 28 have either been referred to full time employment, part time employment, training or other services.

Getting to and from worksites is a barrier faced by many. The Robinvale Euston Workforce Network (REWN) Worker's Bus Initiative identified this and brought together resources to help residents commute to work, and in doing so connect with other support services and local community networks.

For more information visit Robinvale Euston Workforce Network: www.tinyurl.com/REWNetwork

2.3 Develop new education and training models

Just as the shift from an agrarian to an industrial economy led to universal school education in Australia, the clean energy sector demands new innovative, equitable and inclusive approaches to education and training to meet employer needs.

As covered above, people from marginalised groups often face systemic barriers to participation in more traditional education and training models (e.g. tertiary study or apprenticeships) due to factors such as program costs, visa restrictions, discrimination, complex application processes, location, class timing, coursework relevance, and psychosocial and physical restrictions.

As lifelong learning and transferable skills become an increasing necessity, educational structures and career development models need to adapt to create easier access to education and training, to increase the 'pipeline' of workers from diverse groups and backgrounds.

Efforts to adapt education models may include integrating activities into the curriculum that:

• make subjects and content more relevant and linked to personal values and ideals;

• applies work-integrated learning;

• subsidises apprenticeships for adult learners;

• offers virtual or hybrid delivery modes; and

• increases the cultural competency of educators and institutions to work with and accommodate people from diverse backgrounds.

Additionally, to unlock capacity of skilled and experienced refugees and migrants to work in the clean energy sector, there are opportunities to shift the current arrangements in place for licensing across states[69] as well as processes and requirements for recognition of overseas qualifications.

A host of organisations and training providers are striving to shift the education and training system in Australia through new models and approaches. New models and approaches to shift the education and training system include:

Work Integration Social Enterprises (WISE)	Uniquely positioned to leverage cross sector partnerships to create employment opportunities for marginalised people, WISE focus on employment of marginalised people through direct employment or by providing specialised support to transition people to external employment opportunities provided by others. WISE are effective at promoting equity and inclusion being people-centred, adaptive and understanding of individual integrated and complex needs.[70]
Decentralised, hybrid training models	To consider the implications that local training may have on economic, cultural and other types of equity and inclusive participation. Hybrid models of delivery can remove some of the barriers that geographic factors and social arrangements, such as being away from family and caregiving responsibilities, can sometimes have on participation of different groups. Hybrid models offer the flexibility to undertake coursework remotely and online, and provide opportunities for in-person training at different stages.

Regionally located higher education centres in REZs	To improve access to higher education and training for clean energy careers, the Country Universities Centre (CUC) model provides dedicated learning spaces in regions without universities. These community-owned centres support marginalised groups, including regional, low-socio economic, culturally diverse, and Aboriginal and Torres Strait Islander peoples. Locating CUCs in REZ service towns means clean energy industry expertise can be leveraged with professionals as trainers and facilities available for hands-on learning. This allows for local training, reduced travel, and keeps students connected to support networks. Partnerships with industry can also advance workforce skill development.
Streamlined, standardised qualification recognition processes	To reduce work barriers for migrants, it's essential to streamline skills and qualification assessments, ensuring those with comparable qualifications can integrate more easily into the workforce. Additionally, managing work restrictions for refugee visa holders more effectively can help them participate in the sector. Standardising licensing requirements across states, particularly for electrical qualifications, can enhance worker mobility and simplify the complex pathways skilled migrants currently face.
Accelerating workforce integration	Similar to other sectors,[71] bridging programs can significantly speed up the entry of skilled professionals with overseas qualifications into the Australian workforce. These programs combine classroom learning with work-integrated experiences, to provide a comprehensive approach to skill development and accelerate getting people into the workforce. Designing accelerated pathways that offer online coursework and microcredentials allows individuals to train quickly and efficiently while maintaining paid employment, reducing the time away from income generating activities and facilitating a smoother transition into the workforce.
Enhanced education and training system	Attracting and motivating experienced individuals from diverse backgrounds to become vocational education trainers (VET) provides an alternative pathway for people from marginalised backgrounds to use critical skills and expertise, an opportunity for individuals to identify and share similar lived experiences with role models and mentors, and can even go some way in filling the gaps in available educators within the formal training system. Providing incentives can help draw these professionals into teaching roles.
Cross sector co-design of clean energy curricula	Fostering collaboration between educators and employers helps to create inclusive curriculum and coursework ensures that training programs are relevant and effective - keeps learners engaged in study and training, and critically, supports them to be industry-ready. Cross sector partnerships also create opportunities to develop meaningful applied-learning opportunities that bridges the gap between education and practical industry needs.

Strategy in Action: A regionally located higher education centre providing bespoke support for university study

Uni Hub, Upper Spencer Gulf is a non-profit, community-owned initiative, based in South Australia, that brings tertiary education opportunities directly to communities. The region is upskilling cohorts of learners who are more likely to stay and fill local workforce needs. By offering flexible, cohort-based programs alongside individualised support, UniHub bridges the gap between regional students and higher education, addressing skill shortages in industries critical to the region's economy.

One of the key strengths of the Uni Hub model is its place-based approach to education. Recognising that successful workforce development requires deep integration with the local community, Uni Hub works closely with regional industries, schools, and tertiary providers to ensure that the courses offered align with local demand. This place-based, community-led approach fosters an ecosystem that nurtures regional talent and contributes to building a competitive, self-reliant economy.

Place-based models like Uni Hub often find it difficult to source funding. Despite this, Uni Hub SA offers students in the region a place to study, technology resources, and tutorial support. They also provide tailored support for students if required, and can refer them to specialised support at the partner universities when needed. This helps to address some of the challenges that people from marginalised groups face in remote areas.

For more information visit Uni Hub: www.unihubsg.org

As part of its Outreach service, Uni Hub travels across the region to promote opportunities to pursue higher education in the region, with local and bespoke support. Source: Uni Hub Upper Spencer Gulf. Used with permission.

Strategy in Action: Thinking outside the box

There are many great examples of new education and training models in action, such as:

- **Work Integration Social Enterprises (WISE):** In Far North Queensland infrastructure service provider Ventia has worked with a social enterprise to develop a program that trains and employs individuals – in particular First Nations people and former refugees – to equip them with the skills they need to work in the growing telecommunications industry and boost their capacity to meet demands of a major project with NBN Co. This model has the potential to support training and skill development at the pace and scale that the clean energy sector requires.

- **Decentralised, hybrid training models:** In South Australia, mobile vans are travelling to remote work sites to ensure that apprentices meet the hands-on skills requirements of their qualification.[72] This model could be expanded to target focused populations, for example by taking mobile training hubs to locations where there are large populations of recently arrived refugees, or providing transport services as part of a course offering or on-the-job training activities.[73]

In 2023, community members presented at a government and industry forum on the opportunity for young people, First Nations people, migrants and people from culturally and linguistically diverse backgrounds to be meaningful and active participants in the transition occurring across the Latrobe Valley, Victoria. Source: The Next Economy.

Opportunity Area 3: Create supportive and inclusive workplaces

All people have the right to work on an equal basis with others, and in a work environment that is open, inclusive and accessible to everyone, irrespective of their background or identity. Creating and maintaining a safe, inclusive and healthy workplace is critical to preventing physical and psychological harm. It is also a legal requirement.[74]

Safe, supportive and inclusive workplaces:

• Foster an environment where employees from all backgrounds and experiences feel welcomed, valued and supported with stable and meaningful employment that support an individual's potential;

• Respect all individuals and their human rights regardless of gender, age, heritage and cultural background, skills, experience, work styles and ideas. Recognise the complex multiple identity dimensions of employees and take active steps to reduce compounded disadvantages and barriers; and

• Are accessible, where every employee has the access to the processes, infrastructure, technology, and information they need to participate fully in the workplace.[75]

Employers known to be inclusive have employees who are empowered to bring their true self to work, and tend to attract greater numbers of highly skilled, diverse and capable talent. Studies show that inclusive organisations perform better: they are more profitable,[76] five times more likely to be innovative, and four times more likely to provide good customer service.[77] In the context of the growing clean energy industry with concerns around skills shortages, creating safe and inclusive workplaces is critical for expanding the talent pool.[78]

People looking at industrial products produced at a manufacturing plant in Gladstone. Source: The Next Economy.

Building literacy and alignment in workforce DEI across the sector can:

• Shift the capacity of the system to be inclusive and equitable,

• Transform workplace culture, and,

• Drive inclusive practices that benefit all employees (not just those needing workplace adjustments or support).

The challenge: workforce culture and organisational capacity

Insight: Workplace culture and discrimination in Australia

Data suggests discrimination in Australian workplaces is common. For example, in 2020, nearly one-in-two people with a disability reported they had experienced unfair treatment at work,[79] and in 2023 around 18 percent of people had experienced discrimination because of their skin colour, ethnic origin or religion.[80] People with multiple forms of marginalised identities were even more likely to be discriminated against.

Bullying and harassment has been widely reported in the energy sector more broadly,[81] with toxic workplace cultures reported to be driving away young apprentices in record numbers.[82]

To find out more about workplace discrimination laws and workers rights in Australia, visit www.humanrights.gov.au/education/employers

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Teams and organisations that include people from people from marginalised backgrounds and diverse experiences can bring a lot of benefits into an organisation in the clean energy sector, as well as add significant value to the goods and services they contribute to. In contrast, poor workforce culture and biases, unconscious or otherwise, can reduce the attractiveness of the sector as a good place to work and limit the pool of potential candidates.

"Fragmented alignment to diversity and inclusion targets means companies are missing out on the opportunity to make meaningful use of 'hidden talent"

- Karina Davis, Jobsbank CEO

Currently, gaps in awareness around the imperative for workforce diversity, as well as misconceptions about the abilities of people from marginalised groups, exist across the clean energy sector and its supply chains. Interviews with stakeholders and low participation rates of people from marginalised backgrounds[83] indicate that the clean energy sector has challenges in appropriately recruiting, supporting, and retaining staff from marginalised backgrounds in meaningful employment that fosters an individual's

potential. This is not unique to the clean energy sector. For example, some companies across different industries may immediately reject a person with a disability based on incorrect assumptions around their abilities and/or accommodations, or a candidate with a criminal record, even if their conviction is not related to a job's requirements. Unless directly relevant to the particular job, it is unlawful in Australia to discriminate against someone based on their criminal record.[84]

DEI practices in clean energy developments across Australia are primarily driven through social procurement initiatives that set diversity targets. Achieving these targets often relies on the goodwill of the development company and contractors. While incentives exist for employing people from marginalised groups, there is minimal support for businesses to become more inclusive workplaces.

Interviews with stakeholders indicate a willingness to be more inclusive and a need for companies to strengthen internal expertise to effectively support diverse employees and people from marginalised groups.

Insight: Unlocking the potential of people who have been formerly incarcerated

Stable employment and housing are important factors in helping people who have been formerly incarcerated to reintegrate and rebuild their lives. Approximately 17,000 people leave prison in Australia each quarter, many of whom are skilled, have previous work experience, and are ready to work.[85] About one-third of people leaving prison have organised paid employment to begin within two weeks of release, while nearly half of people preparing to leave prison expect to be homeless.[86] Some of the key barriers to employment for people with experience of incarceration include:

- **A lack of understanding and flexibility in employment practices by employers.** People with a criminal past may be perceived as unskilled, untrustworthy or unreliable, before any attempt has been made to get to know them or give them an opportunity to prove themselves.

- **Police check processes.** While necessary for some jobs, many organisations use them to immediately discount people from job opportunities. This does not provide people leaving prison the opportunity to show how their behaviour has changed or what they are capable of. It also doesn't consider the circumstances that may have led to the crime or how these have been controlled/eliminated to prevent reoffending.

- **Parole conditions.** For some people leaving prison, moving to a new environment is a condition of their parole. Others are happy to move to a new community if they are able to access employment, housing, transport, and appropriate social support (e.g. drug and alcohol support).

Within the prison environment there are a number of training opportunities to prepare people for life and work post release. Employment organisations, such as Reboot Australia, Work Restart and Outcare work with people in custody to provide access to mentoring, training and work experience and work with companies to meet their staffing needs. Programs like these can prevent re-offending, which can in turn help break intergenerational patterns of unemployment, homelessness, and incarceration.

At the time of leaving custody, people have been through a thorough parole process that dictates the support needed to avoid re-offending. Both short- and long-term jobs provide valuable opportunities to get back into the rhythm of working and gain experience for future jobs following a period of incarceration.

Compassionate employers, who are willing to give people leaving prison an opportunity and work with service providers, are important enablers of inclusive workforces. Education within industry can encourage more compassionate employers by breaking the stigma of employing people with a criminal record, showing that it is not as complicated as it may seem and provides benefits for all involved.

Compassionate employers who partner with support service providers, give people who have formerly been incarcerated an opportunity to engage in meaningful work.
Source: Depositphotos

Insight: Navigating employment pathways for refugees and displaced people

On average, 12,000–15,000 refugees arrive in Australia each year.[87] Only six percent of refugees at working age find work within six months of arriving in the country. Within two years of arriving, one-in-four will have found employment.[88]

Refugees are often highly motivated to build a new life for themselves and their families. Finding secure and meaningful employment is essential to building these foundations. People arriving as refugees come from a variety of backgrounds: many have skills and experience from their home country that can be used in Australia.

Companies may consider that it is difficult or risky to employ people on a refugee visa, as they will need to understand and accommodate both legal and practical conditions. Temporary visas are normally valid for a minimum three-year term: during this time, visa holders are generally eligible to work. Permanent visa holders are also eligible to work.[89] The majority of temporary visas are eventually converted to permanent visas, but there is a significant time delay in this process, placing temporary visa holders in limbo.[90] Even with appropriate visas, many highly experienced and qualified individuals go into low skilled and low paying jobs for which they are significantly over-qualified for.

Organisations such as Deakin CREATE, Jesuit Refugee Services and Humans Like Us work to correct misunderstandings and perceived difficulties while supporting employees to hire skilled and experienced refugees. Government and non-government programs and organisations like these provide key support services for refugees, such as finding a home, connecting with community, seeking employment and accessing language classes, counselling services, training and education. While under-resourced, many of these organisations are embedded in the community and have strong networks with other organisations to provide wrap-around support for individuals. Some organisations have developed partnerships with local industry and businesses to build supported pathways for refugees into employment. At a regional level, several communities have developed their own programs to welcome refugees into the region, building the support and services they need.

Key Strategies

3.1 Shift workforce capacity and culture

Coordinated support systems are crucial for improving employment outcomes for people from marginalised backgrounds in the clean energy sector. However, positive employment outcomes ultimately depend on inclusive, discrimination-free workplaces that can attract and retain talent.

Practical measures that can shift the capacity and culture of workplaces in the clean energy sector include:

Drive inclusive and flexible employment practices across the whole value chain	Promoting inclusive recruitment and employment practices across the clean energy value chain, and providing workers with access to contracts that provide flexible work hours, training, mentoring, and other conditions enable meaningful workforce participation.
Build organisational and staff capacity	Providing training on unconscious bias, cultural competence, and anti-discrimination principles helps employees recognise and manage their biases, as well as the flow-on impact on decision making and workplace interactions.[91] Embedding DEI training in staff onboarding and development programs leads to improvements in equity for staff, inclusive workplace culture, and psychological safety. See the "Strategy in action" below for an example from Reboot Australia.
Improve organisational and sectoral understanding on the value of DEI	Highlighting the economic and social benefits of hiring people from marginalised groups – such as high retention rates – can motivate employers to embrace diversity. Business leaders have important roles to play: leaders can model how to foster a culture of respect and inclusiveness, drive the implementation of policies, programs and practices that address systemic discrimination, showcase role models, and drive cultural change within workplaces and the clean energy workforce more broadly.
Support flexible work hours and other workplace adjustments	Providing and normalising workplace adjustments, such as offering true flexibility in work hours and arrangements, including remote or part-time roles, ensures that diverse workers feel included and valued — which contributes to job satisfaction and retention.[92]

Centre the knowledge of people with lived experience in policy and program development	Involving a diverse range of staff, particularly those from marginalised groups, in policy development, and ensuring strong support for reporting misconduct, fosters a respectful workplace culture.[93] Consulting with existing, diverse staff about how to improve retention and career development ensures career growth is accessible to all. Implementing clear anti-discrimination and inclusion policies also creates a more welcoming work environment for everyone.
Provide internal career development support	Integrating career development plans into HR systems, such as annual performance reviews, and consulting diverse staff on retention and development, ensures career growth is accessible to all. Designing supported off-ramps and clear career pathways helps employees prepare for transitions and future opportunities.

Strategy in Action: Throughcare support for successful career pathways

Reboot Australia is a social enterprise that works with the mining, construction, and resource industries to provide information and employment opportunities to previously incarcerated people. Reboot provides throughcare support that individuals need to successfully reintegrate and achieve successful employment post-release. This includes mentoring, industry relevant education, job readiness support, employer training, employment brokering, and connections to other support services.

Reboot's reintegration traineeship is led by industry needs. It works with employers to outline training and personnel requirements and co-create a unique traineeship with direct employment outcomes. Mentoring is provided throughout for each candidate and employer. Training costs are covered through Workforce Australia.

Visit Reboot Australia for more information: www.rebootaustralia.com

There are many other great examples of initiatives that are supporting workforce culture change, such as:

• **Business leader coalitions:** For example, the Champions of Change Coalition - a globally recognised program promoting gender equality, more and diverse women in leadership, and respectful and inclusive workplaces.

• **Employee-led support groups:** Employee Resource Groups (ERGs)[94] is an example, which serves as a resource for career development support and mentoring to individuals with similar backgrounds. Depending on their mandate, support groups can also serve to increase the cultural awareness and competency of staff within an organisation.

• **HR and business development programs:** For example, Jobsbank works with small and medium enterprises (SMEs) to help employers modify roles and work approaches, reducing barriers for diverse cohorts to remain employed.

3.2 Adopt inclusive recruitment practices

Inclusive recruitment practices value and recognise the need for diversity in the workforce, minimise bias, and ensure all applicants have an equal chance to perform their best in the process. Inclusive recruitment practices start when a job description is written and carry through to onboarding.[95]

Actions that businesses can take to foster more inclusive hiring practices include:

Signal a commitment to being an inclusive place to work	Use inclusive website communications; demonstrate diversity in business leadership teams; and make internal policies regarding diversity, inclusion and equal employment opportunities publicly available.
Be clear about the purpose of a role, the prior skills required and what skills can be learnt.	Leading practice suggests that job advertisements are more inclusive when they effectively communicate the purpose and priorities of the role and focus on skills and competencies rather than credentials, job titles, or past experience.[96] This ensures that people from diverse backgrounds have a chance to demonstrate their capabilities in alignment with job outcomes. Other considerations include: being transparent about key pieces of information relating to the role, such as clearly stating salary bands, and specifying cultural knowledge and general practice skills when appropriate; and avoiding exclusionary language, such as gendered, racist, ableist, or ageist terms.
Expand sourcing channels	Exploring a variety of hiring platforms, events and partnerships can expand outreach and potential engagement with people from marginalised groups. This may involve actively seeking out candidates on niche job boards, attending networking events or activities for people of specific demographics, and exploring partnerships with different employment and recruitment organisations.
Assess all candidates consistently and with reasonable adjustments	De-identifying applications removes information that is not relevant to an applicant's fitness for the role, minimising unconscious bias and potential discrimination. Measures that ensure everyone is given an equal opportunity through screening and recruitment processes include having a diverse selection panel that is used for all interviews, training interview panels on unconscious bias, and using the same predetermined questions for all candidates.
Set up every new hire for success	Making people feel welcome and building a sense of belonging is a critical component of inclusion.[97] Connecting with new hires between the time they accept a role and their first day of work, providing clear instructions on what to expect on the first day, providing onboarding information in multiple formats, clearly outlining expectations of the timeframe to absorb information, and assigning a mentor or peer can help the new hire settle in.
Build a national community of practice for DEI in clean energy	Work with other professionals, companies and organisations, alongside government and social sector representatives, to share knowledge about equitable and inclusive recruitment and workforce approaches.

Strategy in Action: Helping businesses adopt inclusive employment and social procurement practices

Jobsbank believes that support needs to be established for workplaces to become fairer and more inclusive if the number of people engaged in the clean energy workforce is to be increased.

Jobsbank, based in Victoria, provides support to SMEs across the entire hiring journey. The organisation connects multiple organisations to create an ecosystem of support for employees from marginalised backgrounds. Jobsbank helps businesses and governments rethink how people from marginalised groups are valued, and to better understand how investment in supportive workplaces reduces pressure on social services while tackling workforce shortages. Jobsbank supports employers to design workplaces and work arrangements that support individuals to enter and sustain employment, looking at work flexibility, reporting structures, and social environments to ensure employees do not face additional barriers within the workplace.

Jobsbank connects with organisations that focus on supporting individuals, and devises contextually, culturally, and socially relevant programs that meet workers where they are.

To find out more, visit JobsBank: www.jobsbank.org.au

Social procurement is when organisations use their buying power to generate social value, either through the direct purchasing of goods and services or indirectly through requirements in contracts that seek to promote social and sustainable outcomes.
Source: Depositphotos

4. Going forward

Our economy needs to work for more Australians.

The scale of the workforce demand in the clean energy sector is a significant economic opportunity, with workforce shortages and tight labour markets often driving full employment and wage growth (even in isolated areas). Work is essential not only for economic development but also for personal development - offering satisfaction, self-reliance and a sense of empowerment.

The opportunity for work and a career in the clean energy sector lies out of reach for thousands of people in Australia because of where they live, their race, education, culture and background; and, often as a result of being systemically excluded from the workforce, due to barriers put in place by programs, policies, actors and sectors that make up the system.

Diversity, equity and inclusion is a core part of workforce development. However it is not a big part of the conversation or focus in Australia. Efforts to understand why there is a lack of diversity and where the gaps and barriers are, have been emerging across the sector over recent years, with several initiatives and partnerships demonstrating how to provide more inclusive and equitable pathways into clean energy jobs for current and future workers. While these are important, they fall short of addressing broader systemic barriers to inclusive workforce development and meaningful employment that increases workforce diversity and provides outcomes for people from a range of marginalised groups across Australia.

There is a risk that the scale and pace of expansion of the clean energy network required, and the workforce required to support this development will, despite existing efforts, continue to leave people from marginalised communities behind.

For Australia to seize this opportunity, it is important to expand the boundaries and definition of workforce development to include a larger set of activities, programs and actors - all designed to improve skills and opportunities of potential workers and drive regional economic development, not just those with workforce mandates or focus.

Enhancing diversity, equity and inclusion in the clean energy workforce is a shared responsibility. Governments, industry, employers, education providers, community-based organisations, non-profits, charitable foundations, and social support organisations all have important roles to play.

By taking an integrated and people-centered approach; fostering a thriving workforce development ecosystem; strengthening inclusive career development pathways; and, creating supportive and inclusive workplaces - stakeholders can reimagine DEI in the clean energy workforce, create opportunities for meaningful employment and address both supply and demand workforce challenges.

The clean energy sector has an opportunity to power Australia's energy transition through a diverse, equitable and inclusive clean energy workforce in a way that shapes a positive future for generations to come.

Reimagining diversity, equity, and inclusion in the clean energy sector's workforce requires leadership from industry and all levels of government. This leadership is essential to advance the conversation and develop the necessary policies, programs, and resources to inspire and mobilise coordinated action.

Citations

1   Clean Energy Council. (2024). Clean Energy Australia report. <https://cleanenergycouncil.org.au/news-resources/clean-energy-australia-report>.

2   Rutovitz, J., Gerrard, E., Lara, H., and Briggs, C. (2024). The Australian Electricity Workforce for the 2024 Integrated System Plan: Projections to 2050. Prepared for RACE for 2030. <https://racefor2030.com.au/project/australian-electricity-workforce-for-the-2024-integrated-system-plan/>.

3   Briggs, C., Atherton, A., Gill, J., Langdon, R., Rutovitz, J., & Nagrath, K. (2022a). Building a 'Fair and Fast' energy transition? Renewable energy employment, skill shortages and social licence in regional areas. Renewable and Sustainable Energy Transition, Vol. 2, 100039, ISSN 2667-095X. <https://doi.org/10.1016/j.rset.2022.100039>.

4   Commonwealth of Australia. (2024c). Appendix A - First Nations Clean Energy Strategy: Case Study Pack. Accessed 10 December 2024. <https://www.energy.gov.au/sites/default/files/2024-12/Appendix%20A%20-%20First%20Nations%20Clean%20Energy%20Strategy%20Case%20Study%20Pack.pdf>.

5   Clean Energy Council, Electrical Trades Union, National Electrical and Communications Association, Master Electricians Australia, Smart Energy Council, Rewiring Australia. (2022). Tomorrow's Trades to Power Australia's Future. Skills Shortfall Policy Document – Jobs Summit Position Paper. <https://www.etunational.asn.au/wp-content/uploads/2022/08/Draft-4-Trade-Summit-Policy-Document971.pdf>.

6   Above n. 2

7   Above n. 2

8   Above n. 2

9   Powering Skills Organisation. (2024). Workforce Plan 2024: The New Power Generation: Challenges and Opportunities Within Australia's Energy Sector. <https://poweringskills.com.au/wp-content/uploads/2024/10/Workforce-Plan-Report_2024_Version-14-August-2024_with-appendix.pdf>.

10   Commonwealth of Australia. (2024a). Occupation shortage list. Accessed 25 October 2024. <https://www.jobsandskills.gov.au/data/occupation-shortages-analysis/occupation-shortage-list>.

11   Rutovitz, J., Langdon, R., Mey, F., Briggs, C. (2023). The Australian Electricity Workforce for the 2022 Integrated System Plan: Projections to 2050. Revision 1. Prepared by the Institute for Sustainable Futures for RACE for 2030. <https://www.uts.edu.au/sites/default/files/2022-11/ISP2022_Workforce_v1.pdf>.

12   New South Wales (NSW) Productivity and Equality Commission. (2024). Ensuring a cost-effective transition: Achieving Net Zero. Paper 1. NSW Government. <https://www.productivity.nsw.gov.au/sites/default/files/2024-11/NSW-Productivity-and-Equality-Commission-Achieving-net-zero-paper-1-Ensuring-a-cost-effective-transition.pdf>.

13   EnergyCo. (2024). Central-West Orana Renewable Energy Zone. Accessed 20 October 2024. <https://www.energyco.nsw.gov.au/cwo-rez>.

14   Diversity Council Australia. (2024b). Why we use the term 'marginalised'. Accessed 20 October 2024. <www.dca.org.au/news/blog/why-we-use-the-term-marginalised>.

15   Above n. 14

16   Diversity Council Australia (n.d.-b). What is Diversity & Inclusion? <www.dca.org.au/resources/di-planning/what-is-diversity-inclusion-intersectionality>.

17   Australian Human Rights Commission (n.d-a). Let's talk about equality and equity. <https://humanrights.gov.au/lets-talk-about-equality-and-equity>.

18   McKinsey & Company. (2022). What is diversity, equity, and inclusion? <https://www.mckinsey.com/featured-insights/mckinsey-explainers/what-is-diversity-equity-and-inclusion>.

19   QCOSS. (2024). Diversity, Equity, Inclusion and Belonging Guide: Developing inclusive and equitable workplaces in Queensland's community services sector. <https://www.qcoss.org.au/wp-content/uploads/2024/02/Diversity-Equity-Inclusion-and-Belonging-Guide.pdf>.

20   Jobs and Skills Australia (2023b). Clean Energy Capacity Study. Australian Government. <https://www.jobsandskills.gov.au/research/studies/clean-energy-capacity-study>.

21   Clean Energy Council. (2021). Empowering Everyone: Diversity In The Australian Clean Energy Sector. <https://cleanenergycouncil.org.au/news-resources/empowering-everyone-diversity-in-the-australian-clean-energy-sector>.

22 Workplace Gender Equality Agency. (2024). WGEA Data Explorer. Accessed 10 December 2024. <https://www.wgea.gov.au/Data-Explorer>.

23 Australian Bureau of Statistics. (2017). Special Article: The 2016 Census of Population and Housing, Australian Bureau of Statistics Annual Report 2016-17. Accessed 10 December 2024. <https://www.abs.gov.au/ausstats/abs@.nsf/lookup/by%20subject/1001.0~2016-17~main%20features~the%202016%20census%20of%20population%20and%20housing~10009>.

24 Australian Bureau of Statistics. (2024b). Data Download - Table 9.1: Employed persons aged 15-64 years, living in households, disability status, by employment characteristics: Estimate. Disability, Ageing and Carers, Australia: Summary of Findings. Accessed 10 December 2024. <https://www.abs.gov.au/statistics/health/disability/disability-ageing-and-carers-australia-summary-findings/latest-release>.

25 Minerals Council of Australia. (2022). Industry of Choice Framework: Inclusion & Diversity. Accessed 10 December 2024. <https://minerals.org.au/wp-content/uploads/2022/12/Industry-of-Choice-Framework.pdf>.

26 Above n. 21

27 Goldsmith, S., and Coleman, K. M. (2022). Growing fairly : how to build opportunity and equity in workforce development. Brookings Institution Press.

28 Curtis, C., Vanstone, C., Rayment, M. and Stewart-Weeks, M. (2021). Social R&D: A new way to accelerate progress on tough social challenges. White paper prepared for The Australian Centre of Social Innovation (TACSI). <https://www.tacsi.org.au/our-work/project/social-r-and-d-white-paper>.

29 Above n. 27

30 Interstate Renewable Energy Council (IREC). (2024). 14th Annual National Solar Jobs Census: Tracking the growth of the solar and storage workforce nationwide and by state. <https://irecusa.org/census-demographics-and-diversity>.

31 Altman, E.J., Schwartz, J. Kiron, D., Jones, R., and Kearns-Manolatos, D. (2021). Workforce Ecosystems: A New Strategic Approach to the Future of Work. MIT Sloan Management Review and Deloitte. <https://sloanreview.mit.edu/projects/workforce-ecosystems-a-new-strategic-approach-to-the-future-of-work/>.

32 ICEW stakeholder interviews. Conducted by The Next Economy. November 2023 - October 2024.

33 Above n. 3.

34 Infrastructure Australia. (2023). Infrastructure Market Capacity 2023. <https://www.infrastructureaustralia.gov.au/listing/media-release/infrastructure-market-capacity-2023-0>.

35 Regional Australia Institute, REIA, Master Builders Australia. (2024). National Regional Housing Summit 2024: Summit Outcomes and Recommendations. <https://masterbuilders.com.au/national-regional-housing-summit-outcomes-and-recommendations/>.

36 Commonwealth of Australia. (2020). Chapter 7: Education and Workforce Issues. Growing Australia: Inquiry into growing Australian agriculture to $100 billion by 2030. House of Representatives Standing Committee on Agriculture and Water Resources. <https://parlinfo.aph.gov.au/parlInfo/download/committees/reportrep/024453/toc_pdf/GrowingAustralia.pdf;fileType=application%2Fpdf>.

37 International Renewable Energy Agency (IRENA). (2024). Renewable energy and jobs: Annual review 2024. <https://www.irena.org/Publications/2024/Oct/Renewable-energy-and-jobs-Annual-review-2024>.

38 Commonwealth of Australia. (2023). Working Future: The Australian Government's White Paper on Jobs and Opportunities. <https://treasury.gov.au/employment-whitepaper/final-report>.

39 Nardelli, M. (2024). Strangers in a Country Town. University of South Australia. <www.unisa.edu.au/enterprise-magazine-home/Issue-1-2015/Strangers-in-a-country-town>.

40 ABC. (2024). Back Roads: Naracoorte, SA. Series 10. Broadcast 16 January 2024. <https://iview.abc.net.au/show/back-roads/series/10/video/RF2327V002S00>.

41 Above n. 38

42 Open Stories. (2021). OpenCoesione: Making EU Funds Expenditure More Transparent. <https://www.ogpstories.org/opencoesione-making-eu-funds-expenditure-more-transparent/>..

43 Kerka. S. (2004). Career Development of Diverse Populations. Australian Journal of Career Development, 13(2). <https://www.acer.org/files/AJCD_CareersForum.pdf>.

44 Batchelor, R.L., Ali, H., Garner-Vandy, K.G., Gold, A.U., MacKinnon, J.A., and Asher, P.M. (2021). Reimagining STEM Workforce Development as a Braided River. Eos. <https://eos.org/opinions/reimagining-stem-workforce-development-as-a-braided-river>.

45 Clean Energy Council. (2023). Submission – Clean Energy Capacity Study. <https://cleanenergycouncil.org.au/news-resources/clean-energy-capacity-study>.

46 Clean Energy Council. (2022). Skilling the Energy Transition. <https://cleanenergycouncil.org.au/news-resources/skilling-the-energy-transition>.

47 Jobs and Skills Australia (2023a). The Clean Energy Generation: workforce needs for a net zero economy. Australian Government. <https://www.jobsandskills.gov.au/publications/the-clean-energy-generation>.

48 Y Careers. (2024). Beyond the Green Dream: navigating the realities of green jobs for young people. Report prepared by Social Ventures Australia Consulting in collaboration with YLab. <https://ymca.org.au/wp-content/uploads/2024/09/Beyond-the-Green-Dream-Navigating-the-realities-of-Green-Jobs-for-young-people.pdf>.

49 Above n. 46.

50 Timms, M., Moyle, K., Weldon, P. & Mitchell, P. (2018). Challenges in STEM learning in Australian schools. Policy Insights Issue 7. Camberwell, VIC: ACER. <https://research.acer.edu.au/policyinsights/7/>.

51 McKenzie, S. & Dawson, E. (2024). Charged Up: Strategies for Addressing the Skill Shortage in Electrical Trades for the Clean Energy Transition. A Centre for New Industry report for the Electrical Trades Union. <https://percapita.org.au/our_work/charged-up/>.

52 Institute for Social Science Research. (2023). Drivers of underrepresentation in Australian higher education. The University of Queensland, Brisbane. <https://espace.library.uq.edu.au/view/UQ:4489ca8>.

53 International Labour Organization. (2023). Matters arising out of the work of the 111th Session (2023) of the International Labour Conference. Plan of action for the implementation of the Quality Apprenticeships Recommendation, 2023 (No. 208).

54 Above n. 47;
Electrical Trades Union. (2024a). New Energy Workforce Strategy: Submission to the Consultation on the New Energy Workforce Strategy Discussion Paper. <https://www.etunational.asn.au/wp-content/uploads/2024/10/20240912-ETU-NEWS-submission.pdf>.

55 Electrical Trades Union. (2024a). New Energy Workforce Strategy: Submission to the Consultation on the New Energy Workforce Strategy Discussion Paper. <https://www.etunational.asn.au/wp-content/uploads/2024/10/20240912-ETU-NEWS-submission.pdf>.

56 Above n. 38

57 SBS News. (2022). Skilled workers prioritised amid backlog of almost one million visa applications. <https://www.sbs.com.au/news/article/skilled-workers-prioritised-amid-backlog-of-almost-one-million-visa-applications/xi6uoobic>..

58 Above n. 46

59 Committee for Economic Development of Australia (CEDA). (2024). Making better use of migrants' skills. <https://www.ceda.com.au/researchandpolicies/research/population/making-better-use-of-migrants-skills>.

60 Settlement Services International (SSI). (2024). Billion Dollar Benefits: The economic impact of unlocking the skills of potential migrants in Australia. Report prepared by Deloitte Access Economics. <https://www.ssi.org.au/wp-content/uploads/2024/06/DAE_SSI_Skills_Mismatch_Report_19062024_WEB.pdf>.

61 National Centre for Vocational Education Research (NCVER). (2024). Completion and attrition rates for apprentices and trainees 2023. <https://www.ncver.edu.au/research-and-statistics/publications/all-publications/completion-and-attrition-rates-for-apprentices-and-trainees-2023>.

62 Australian Institute of Health and Welfare. (2024). VET completion. <https://www.aihw.gov.au/australias-disability-strategy/outcomes/education-and-learning/vet-completion>.

63 Above n. 51;
Electrical Trades Union. (2024b). Submission: Strategic Review of the Apprenticeship Incentive System. <https://www.etunational.asn.au/wp-content/uploads/2024/05/ETU-Submission-Apprentice-Incentive-Review.pdf>.

64 Above n. 55;
Electrical Trades Union. (2024b). Submission: Strategic Review of the Apprenticeship Incentive System. <https://www.etunational.asn.au/wp-content/uploads/2024/05/ETU-Submission-Apprentice-Incentive-Review.pdf>.

65 O'Dwyer, L. & Korbel, P. (2019), Completion rates for group training organisations and direct employers: how do they compare? National Centre for Vocational Education Research, Adelaide. <https://www.ncver.edu.au/research-and-statistics/publications/all-publications/completion-rates-for-group-training-organisations-and-direct-employers-how-do-they-compare>.

66 Friends of the Earth (2023). Transform Expo shines a light on future renewable energy careers for Gippsland. The National Tribune, 11 October 2023. <https://www.nationaltribune.com.au/transform-expo-shines-a-light-on-future-renewable-energy-careers-for-gippsland/>.

67 Above n. 51

68 Acciona. (2022). ACCIONA Engages Young People With Autism to Deliver As-Builts and Social Good. <https://www.acciona.com.au/updates/news/acciona-engages-young-people-with-autism-to-deliver-as-builts-and-social-good/?_adin=02021864894>.

69 Above n. 55

70 Barraket, J., Qian, J, and Riseley, E. (2019). Social Enterprise: A people-centred approach to employment services. Westpac Foundation and the Centre for Social Impact Swinburne. <https://www.csi.edu.au/research/social-enterprise-a-people-centred-approach-to-employment-services/>.

71 Australian Skilled Migration (ASM). (n.d). Nurses Bridging Program. <https://www.australianskilledmigration.com.au/nurses-bridging-program/>.

72 Above n. 32.

73 Our Place. (2023). The Worker's Bus Initiative: Industry tour and bus initiative leads to employment outcomes in Robinvale. <https://ourplace.org.au/industry-tour-and-bus-initiative-in-robinvale/>.

74 Fair Work Act 2009 (Cth).

75 Australian Human Rights Commission (n.d-b). Creating an accessible and inclusive workplace. <https://humanrights.gov.au/our-work/disability-rights/creating-accessible-and-inclusive-workplace>.

76 Above n. 18

77 Diversity Council Australia. (n.d.-a). Inclusion@Work Index. <https://www.dca.org.au/inclusion-work-index-hub>.

78 Above n. 21

79 Australian Bureau of Statistics. (2020a). Experience of discrimination: Valuing diversity, belonging and culture. Accessed 20 November 2024. <https://www.abs.gov.au/statistics/measuring-what-matters/measuring-what-matters-themes-and-indicators/cohesive/experience-discrimination>; Australian Bureau of Statistics. (2020b). Disability and the labour force. Accessed 20 November 2024. <https://www.abs.gov.au/articles/disability-and-labour-force>.

80 O'Donnell, J. (2023). Mapping Social Cohesion 2023. Scanlon Foundation Research Institute. <https://scanloninstitute.org.au/mapping-social-cohesion-2023>.

81 Potter, R.E., Dollard, M.F., & Tucket, M.R. (2016). Bullying & harassment in Australian workplaces: Results from the Australian Workplace Barometer Project 2014/2015. Published by Safe Work Australia. <https://www.safeworkaustralia.gov.au/system/files/documents/1705/bullying-and-harassment-in-australian-workplaces-australian-workplace-barometer-results.pdf>.

82 Above n. 51

83 Above n. 21

84 Australian Human Rights Commission Act 1986 (Cth).

85 Australian Bureau of Statistics (2024a), Corrective Services, Australia, September Quarter 2024. Accessed 28 November 2024. <https://www.abs.gov.au/statistics/people/crime-and-justice/corrective-services-australia/latest-release>.

86 Australian Institute of Health and Welfare. (2023). The health of people in Australia's prisons 2022. <https://aihw.gov.au/reports/prisoners/the-health-of-people-in-australias-prisons-2022/contents/about>.

87 Asylum Seekers Resource Centre (ASRC). (2022). Get the facts: How many refugees make Australia their home each year? <https://asylumseekerscentre.org.au/australia-refugee-intake/>.

88 Smart, D., De Maio, J., Rioseco, P., & Edwards, B. (2017). English skills, engagement in education, and entrance into employment of recently arrived humanitarian migrants (Building a New Life in Australia Research Summary). Melbourne: Australian Institute of Family Studies. <https://apo.org.au/node/261996>.

89 Humans Like Us. (n.d). Common Visas. <https://www.humanslikeus.org/visas>.

90 Refugee Council of Australia. (2023). Family reunion still out of reach for refugees granted permanent visas. <https://www.refugeecouncil.org.au/family-reunion-still-out-of-reach-for-refugees-granted-permanent-visas>.

91 Diversity Council Australia. (2023). Cognitive Bias | Unconscious Bias Training That Works. Diversity Australia Blog. <https://www.diversityaustralia.com.au/cognitive-bias-unconscious-bias-training-that-works/>.

92 Above n. 32.

93 Diversity Council Australia. (2024a). Unconscious Bias in the Workplace: 7 Strategies to Overcome This DE&I Killer! <https://www.diversityaustralia.com.au/unconscious-bias-in-the-workplace/>.

94 Diversity Council Australia (n.d.-c). ERGs, Networks & Affinity Groups. <https://www.dca.org.au/resources/di-planning/ergs-networks-affinity-groups>.

95 Diversity Council Australia (n.d.-d). ERGs, Inclusive Recruitment. <https://www.dca.org.au/resources/di-planning/inclusive-recruitment>.

96 Banerjee, P. (2024). Building a More Adaptable, Inclusive, and Competitive Workforce: The Case for Skills-Based Organizations. <https://www.linkedin.com/pulse/building-more-adaptable-inclusive-competitive-case-papiya-banerjee-albrf/>.

97 Above n. 19

Appendix A: References

Accenture. (2023). Skilling Australian industry for the energy transition. Australian Industry Energy Transitions Initiative, February 2023. <https://arena.gov.au/assets/2023/02/skilling-australian-industry-for-the-energy-transition-accenture-report-for-australian-industry-eti-phase-3.pdf>.

Australian Council of Social Service (ACOSS). (2024). Fair, Fast and Inclusive Climate Change Action: Blueprint Framework. <https://www.fairfastclimateaction.org.au/resources>.

American Enterprise Institute (AEI). (2018). Work, Skills, and Community: Restoring Opportunity for the Working Class. American Enterprise Institute. <https://www.aei.org/research-products/report/work-skills-and-community-restoring-opportunity-for-the-working-class/>.

Australian Disability Network. (2024). Disability Statistics. Accessed 20 October 2024 <https://australiandisabilitynetwork.org.au/resources/disability-statistics/>.

Bridges, D., Krivokapic-Skoko, B., Bamberry, L., Jenkins, S., & Wulff, E. (2019). 'A Trade of One's Own': Regional NSW stakeholder findings – The barriers and proposed solutions for women in non-traditional male dominated trades. Charles Sturt University. <https://researchoutput.csu.edu.au/en/publications/a-trade-of-ones-own-regional-nsw-stakeholder-findings-the-barrier>.

Briggs, C., Gill, J., Atherton, A., Langdon, R., Jazbec, M., Walker, T., Youren, M., Tjondro, M., Rutovitz, J., Cunningham, R., Wright, S. and Nagrath, K., (2022b). Employment, Skills and Supply Chains: Renewable Energy in NSW – Final Report. Prepared for NSW Department of Planning, Industry and Environment on behalf of the Renewable Energy Sector Board by UTS Institute for Sustainable Futures and SGS Economics and Planning. <https://www.energy.nsw.gov.au/sites/default/files/2022-09/employment-skills-and-supply-chains-renewable-energy-in-nsw-final-report.pdf>.

Campbell, P., Joyce, A., Crosbie, J., and Wilson, E. (2024). Connecting Pathways to Employment with the Work Integration Social Enterprise (WISE) model: Final report. Swinburne University of Technology. <https://assets.csi.edu.au/assets/research/SF016_SC-Social-Impact-Project-Report_FINAL.pdf>.

Clean Energy Council. (n.d). Clean Energy Careers Guide. Accessed 20 October 2024. <https://cleanenergycouncil.org.au/working-in-clean-energy/careers-guide>.

Climate Council. (2016). Renewable Energy Jobs: Future Growth in Australia. <https://www.climatecouncil.org.au/uploads/7b40d7bbefbdd94979ce4de2fad52414.pdf>.

Climate Council. (2021). Smart Solutions to Supercharge QLD. <https://www.climatecouncil.org.au/wp-content/uploads/2021/05/Smart-Solutions-to-Supercharge-QLD_Final.pdf>.

Commonwealth of Australia. (2024b). State Of The Energy Market 2024. Australian Energy Regulator, Australian Government. <https://www.aer.gov.au/publications/reports/performance/state-energy-market-2024>.

Cotton, C. (2009). Breaking down the barriers: strategies to assist apprentices with a learning disability. National Centre for Vocational Education Research. <https://www.ncver.edu.au/research-and-statistics/publications/all-publications/breaking-down-the-barriers-strategies-to-assist-apprentices-with-a-learning-disability>.

CS Energy (n.d). Chinchilla Battery: Fast Facts. <https://www.csenergy.com.au/what-we-do/firming-and-storage/chinchilla-battery>.

Cunningham, I. & Bell, J. (2021). Broadening Indigenous participation in STEM Reimagining Pathways Project. Engineers without Borders, Australia. <https://ewb.org.au/blog/2021/08/18/pathways-to-possibility-for-first-nations-students/>.

Davidson, B., Henthorne, T., Ilakkuvan, K., Perlstein, L., Witham, K. & Wyner, J. (2019). The Workforce Playbook: a community college guide to delivering excellent career and technical education. The Aspen Institute. <https://www.aspeninstitute.org/wp-content/uploads/2023/08/The-Workforce-Playbook-1.pdf>.

d'Almada Remedios, L., Kaabel, A., and O'Leary, J. (2022). Inclusive Recruitment: How to Tap into Australia's Overlooked and Underleveraged Talent. Diversity Council of Australia. <https://www.dca.org.au/research/inclusive-recruitment-work>.

Egan, R., Cordoba, S., David, C., Kuyii, B., Boz, T. & Ballantyne, P. (2023). Wraparound Service Co-Design: Supporting Sustainable Employment of Ethnically & Culturally Diverse Communities. RMIT alongside Ability Works, Afri-Aus Care, Jobsbank, Bakhtar Community Organisation and the Friends of Refugees. <https://jobsbank.org.au/wp-content/uploads/2023/07/RMIT_Final-Report_March2023.pdf>.

Energy Australia. (n.d). Tallawarra Power Station. <https://www.energyaustralia.com.au/about-us/what-we-do/generating-energy/tallawarra-power-station>.

Ingold, J., Knox, A., Lee, QY. (2024) Accessing hidden talent to improve organisational outcomes. Good Work Research Group. www.goodworkresearchgroup.com>.

Interstate Renewable Energy Council (IREC). (2023). Cultivating a Diverse and Skilled Talent Pipeline for the Equitable Transition. <https://irecusa.org/wp-content/uploads/2023/02/Alliance-Report-2.23-Interactive-compressed.pdf>.

Jobs and Skills Australia (2023c). Vocational education and training in regional, rural and remote Australia. Australian Government. <https://www.jobsandskills.gov.au/publications/vocational-education-and-training-regional-rural-and-remote-australia>.

Latrobe Valley Authority. (2022). Gippsland Energy Skills Mapping Report. Prepared by Federation University. <https://cpagency.org.au/empowering-tomorrows-workforce-learnings-from-gippsland-and-victoria/>.

Martin, C., Reeve, R., McCausland, R., Baldry, E., Burton, P., White, R. and Thomas, S. (2021) Exiting prison with complex support needs: the role of housing assistance, AHURI Final Report No. 36., Australian Housing and Urban Research Institute Limited, Melbourne.

Melbourne Apprenticeship Disability Network (MADN). (2022). Review DAAWS to strengthen Australian apprenticeships for people with a disability. <https://www.aph.gov.au/DocumentStore.ashx?id=89555058-5946-49a3-8ac7-792b2d27f34a>.

National Electrical and Communications Association. (2023). Submission to Jobs and Skills Australia (JSA) Industry Capacity Study Discussion Paper. <https://www.jobsandskills.gov.au/sites/default/files/2023-09/21.%20National%20Electrical%20and%20Communications%20Association.pdf>.

New South Wales (NSW) Government. (2024). Draft NSW 2030 Renewable Energy Workforce Plan. NSW Department of Education and Training. <https://education.nsw.gov.au/about-us/strategies-and-reports/nsw-2030-renewable-energy-workforce-plan>.

The State of Queensland. (2024). Queensland Renewable Energy Procurement Policy: Creating local jobs. Department of Energy and Climate. <https://www.epw.qld.gov.au/__data/assets/pdf_file/0027/52677/renewable-energy-procurement-policy.pdf>.

The State of Tasmania. (2023). Energising Tasmania Final Report. <https://www.skills.tas.gov.au/__data/assets/pdf_file/0006/435768/Energising_Tasmania_Final_Report_-_April_2023.PDF>.

The State of Victoria. (2024). Victorian Energy Jobs Plan Consultation Paper. Department of Energy, Environment and Climate Action. <https://engage.vic.gov.au/vejp>.

The State of Victoria. (2023). Clean Economy Workforce Development Strategy 2023–2033. <https://www.vic.gov.au/clean-economy-workforce-development-strategy-2023-2033>.

US Office of Energy Efficiency & Renewable Energy (2024). How Much Power is 1 Gigawatt?. <https://www.energy.gov/eere/articles/how-much-power-1-gigawatt>.

Victorian Equal Opportunity & Human Rights Commission. (n.d). Recruitment and designated roles. <https://www.humanrights.vic.gov.au/for-individuals/recruitment-and-designated-roles/>.

Victorian Trades Hall Council. (2020). Transition from Crisis: Victorian Trades Hall Council's Just Transition & Economic Recovery Strategy. Opportunities for Victoria Workers. <https://www.weareunion.org.au/climatejustice>.

Appendix B: List of case studies and examples

The programs and initiatives below are non-exhaustive and listed as a means to illustrate the breadth of work being done to improve diversity across the clean energy and adjacent sectors. Inclusion does not represent an endorsement of their work.

Women

• **Women in Renewables:** Clean Energy Council, https://cleanenergycouncil.org.au/working-in-clean-energy/diversity-in-renewables

• **Training Fund Authority:** ACT Government, https://www.trainingfund.com.au/women-in-trade

• **Workplace Readiness Program (and others)**: Tradeswomen Australia, https://tradeswomenaus.com/employers/trainings/workplace-diversity-project/

• **Mas Achieve (mentoring for women in trades):** MAS Experience, https://masnational.com.au/mas-mentoring/mas-achieve/

• Apprenticeships for women: Solar Victoria, https://www.solar.vic.gov.au/solar-apprenticeships-women

First Nations people

• **Clean Energy Jobs Pathway Initiative:** First Nations Clean Energy Council, https://www.firstnationscleanenergy.org.au/jobs_pathway_initiative

• **First Nations Renewable Energy Guidelines (including regional-specific guides):** NSW Government, https://www.energy.nsw.gov.au/nsw-plans-and-progress/major-state-projects/electricity-infrastructure-roadmap/first-nations

• **First Nations Clean Energy Strategy:** Australian Government, https://www.energy.gov.au/energy-and-climate-change-ministerial-council/working-groups/first-nations-engagement-working-group/first-nations-clean-energy-strategy

• **Purarrka Indigenous Mining Academy:**, Ngarda Civil and Mining, https://www.aboriginalminingacademy.org.au/

• **Young Indigenous Women's STEM Academy:** CSIRO, https://www.csiro.au/en/education/programs/yiwsa-program

Youth and Young people

• **Careers for Net Zero:** Clean Energy Council, https://careersfornetzero.org.au/

• **Gateway to Industry Schools Program:** Energy Skills Queensland, https://desbt.qld.gov.au/training/employers/gateway-schools

• **Start Your Future program:** TAFE NSW, https://education.nsw.gov.au/schooling/students/career-and-study-pathways/educational-pathways-program/program-initiatives/tafe-nsw-yes

• **Grow Our Own (GOO):** (Riverina): https://growourown.org.au/about-us/

Refugees

- **Employment Pathways:** Asylum Seekers Resource Centre (VIC), https://asrc.org.au/our-work/employment-pathways/

- **NSW Growing Regions of Welcome (GROW):** NSW Government, https://multicultural.nsw.gov.au/grow/

- **Asylum Seeker VET program:** Victoria Government, https://www.vic.gov.au/asylum-seeker-vet-program

- **Support for migrants and refugees:** Queensland Government, https://desbt.qld.gov.au/training/training-careers/support/migrants-refugees

- **Career Seekers:** https://careerseekers.org.au/

- **Language, Literacy and Numeracy support:** TAFE NSW, https://www.tafensw.edu.au/course-areas/foundation-skills-english-language-and-auslan/literacy-and-numeracy-foundation-skills

People with a disability

- **Employment Assistance Fund:** Federal Government, https://www.jobaccess.gov.au/employment-assistance-fund-eaf

- **Disability Enterprise Evolve Program:** Whitebox, https://whiteboxenterprises.com.au/innovate/disability-enterprise-evolve-program/

- **Disability Support Services:** TAFE NSW, https://www.tafensw.edu.au/student-services/disability-services

- **Real Futures:** https://realfutures.net/about-us/programs/

People who have been formerly incarcerated

- **ReVive prison program:** Yalagan Group Training, https://yalagangroup.com/revive-program

- **Reboot Australia:** https://www.rebootaustralia.com/

- **Outcare:** https://outcare.com.au/

- **Second Chance Jobs:** Vacro, https://www.vacro.org.au/second-chance-jobs

Other pre-employment support initiatives

- **Pre-employment Program:** TAFE Queensland, https://tafeqld.edu.au/information-for/upskillers/pre-employment-program

- **Skilling Queenslanders for Work:** Queensland Government, https://desbt.qld.gov.au/training/training-careers/incentives/sqw

- **Launch into Work:** Federal Government, https://www.dewr.gov.au/launch-work

- **Employment Readiness Programs:** Afri-Aus Care, https://afri-auscare.org/community-programs/

Apprentice programs

- **New Energy Apprentice Support Program:** Federal Government, https://www.apprenticeships.gov.au/support-and-resources/new-energy-apprenticeships-program

- **Disability Australian Apprentice Wage Support:** Federal Government, https://www.apprenticeships.gov.au/support-and-resources/financial-support-employers#disability-australian-apprentice-wage-support-daaws-3

- **Australian Skills Guarantee:** Federal Government, https://www.dewr.gov.au/download/14762/australian-skills-guarantee-consultation/31033/australian-skills-guarantee-discussion-paper/pdf

- **Australian School-based Apprenticeship:** https://www.apprenticeships.gov.au/about-apprenticeships

Appendix C: Stakeholders engaged

The Next Economy thanks the organisations and individuals who shared their insights and directly contributed to the development of this report. This includes (but is not limited to) the following organisations:

Asylum Seeker Resource Centre

Australian Centre for Social Services (ACOSS)

BEON Energy

Clean Energy Council

Community Power Agency

Deakin Create

Electrical Trades Union

Energy Skills Queensland

Engineers without Borders Australia

First Nations Clean Energy Network

Friends of the Earth

Gladstone Engineering Alliance

Hepburn Energy

Institute for Sustainable Futures, University of Technology

Jesuit Refugee Services

Jobsbank

Multicultural Leadership Initiative

Reboot Australia

Regional Australia Institute

Robinvale Euston Workers Network

Someva Renewables

The Energy Charter

Tilt Renewables

Uni Hub Spencer Gulf

The Next Economy