

QUEENSLAND'S CLEAN ENERGY WORKFORCE ROADMAP

Delivering the workforce for our energy transformation





Acknowledgement

The Queensland Government respectfully acknowledges the First Nations peoples in the state of Queensland, and acknowledges the cultural and spiritual connection that Aboriginal and Torres Strait Islander people have with the land and sea.

We respectfully acknowledge Aboriginal people and Torres Strait Islander people as two unique and diverse peoples, with their own rich and distinct cultures, resilience and strengths. We specifically acknowledge the unique history and cultural heritage of Aboriginal and Torres Strait Islander people as the First Peoples of Australia.

We pay our respects to Elders past and present. We are dedicated to the inclusion of cultural knowledge and values as critical factors in the development, implementation and evaluation of strategies and actions to support First Nations people.

Premier's Message

The Honourable Anastacia Palaszczuk MP

Queensland is well positioned to lead the clean energy revolution, taking advantage of our public assets and natural resources.

Last year, the Queensland Government released the *Queensland Energy and Jobs Plan (QEJP)*, focused on delivering more jobs and creating clean, reliable and affordable energy to provide power for generations.

Queensland's Clean Energy Workforce Roadmap, developed as an action from the QEJP and the *Good people. Good jobs: Queensland Workforce Strategy 2022-2032*, provides direction to further develop Queensland's highly skilled workforce to support the continued growth of the state's clean energy industry.

The Roadmap, in conjunction with the *Hydrogen Industry Workforce Development Roadmap 2022-2032*, is continuing to deliver the priorities of the Queensland Workforce Strategy and present practical actions for Queensland's clean energy workforce.

To realise Queensland's renewable energy targets of 70 per cent renewable energy by 2032 and 80 per cent by 2035, a strong and skilled workforce is required. Affordable, clean and secure energy has the potential to deliver thousands of jobs and drive the state's economic growth, with the integration of rooftop solar, batteries, and electric vehicles into our electricity network requiring significant updates to statewide distribution infrastructure.

The Queensland Government's vision through the Roadmap is to ensure a skilled workforce, ready to deliver Queensland's clean energy transformation across the state, and we are committed to ensuring the benefits of the energy transformation flow to our regional communities. In fact, Queensland's

regions will be at the forefront of opportunities from the energy transformation, with the majority of infrastructure investment and employment in regional areas.

By leveraging our natural resources and supporting our already highly skilled workforce, Queensland will be well prepared to harness the potential of a clean energy future.



The Hon. Anastacia Palaszczuk MP



Minister's Message

The Honourable Di Farmer MP

Queensland's shift towards cleaner energy offers new job opportunities for both our skilled workforce and students exploring future career options.

With our strong economy and job, career and lifestyle opportunities, Queensland is well-prepared for the energy transformation.

Last year, the Queensland Government released *Good people. Good jobs: Queensland Workforce Strategy 2022-2032* (Queensland Workforce Strategy), Queensland's first whole of government workforce strategy, with a clear commitment to ensure we have the critical skills to embrace future opportunities, including clean energy.

Queensland's Clean Energy Workforce Roadmap builds on the strong workforce foundations set out in the Queensland Workforce Strategy, the more than \$1.2 billion we invest annually to continue delivering high quality training and creating exciting career pathways for Queenslanders, and over \$50 million investment in clean energy skills and training infrastructure.

The Roadmap builds on the economy wide approach of the Queensland Workforce Strategy to ensure Queensland has the workforce to deliver the energy transformation, and local Queenslanders can benefit from this opportunity.

Already, Queensland is at the forefront of education and training for the clean energy sector. We proudly opened the Renewable Energy Training Facility and Hydrogen Centre of Excellence in 2022, and is scheduled to deliver a new Hydrogen and Renewable Energy Training Facility in Townsville by the end of 2023.

The \$30 million investment through this Roadmap will build on our strong skills and training base, to ensure there are the right pathways and support available in the right locations to deliver the clean energy workforce.

We know that Queensland's regions are critical for delivering the energy transformation. That is why we are investing in more regional training infrastructure and providing on-the-ground support to connect local people to industry opportunities.

The Roadmap and our plans recognise we will maximise our enormous opportunity by planning and working together across industry, government, employers, unions, educators, employees and community. The Roadmap acknowledges there are risks we will collectively manage and capitalise on. Transformation is likely to occur for different roles at different times and in different places. What is undeniable is that human capital is our key to success.

Enabling all Queenslanders to participate in the workforce is a key priority of the Queensland Workforce Strategy, and increasing workforce diversity is essential for building the clean energy workforce now and into the future.

I thank all the stakeholders throughout Queensland who contributed their insights into the Roadmap. We will remain agile and work with industry to adapt the Roadmap to changes in the environment. I look forward to further collaboration as we work together to usher in Queensland's energy transformation.



The Hon. Di Farmer MP



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Minister's Message

The Honourable Mick de Brenni MP

Queensland's Clean Energy Workforce Roadmap actively drives the vision set out by the *Queensland Energy and Jobs Plan (QEJP)* to deliver "clean, reliable, and affordable energy to power generations." Under the QEJP, Queensland is anticipating significant workforce growth over the next 13 years.

The creation of Queensland's SuperGrid through the QEJP will generate approximately 100,000 jobs by 2040, with 95 per cent of investment in regional Queensland. This jobs growth will not only usher in a substantial increase in employment opportunities across the state but will also stimulate the need for specialised skills and expertise across renewable energy technologies, infrastructure development, project management, and sustainable practice areas.

The Roadmap makes significant strides in addressing future workforce needs through comprehensive and targeted training and educational opportunities. The Roadmap builds on the activities of our publicly owned energy businesses who are leading the way to prepare their workforces for the clean energy transformation, including Stanwell's \$100 million Future Energy Innovation and Training Hub, Powerlink's \$90 million transmission training hubs, and Energy Queensland's investments in engineering scholarships and partnerships with TAFE Queensland to deliver trade training in electrotechnology.

The Roadmap also forms an integral part of the Queensland Government's strategic approach to ensure we attract the right people, talent and investment to deliver the renewable energy targets.

The Queensland Government is committed to supporting affected energy workers at Queensland's publicly owned coal-fired power stations through the energy transformation with a \$150 million Job Security Guarantee and tripartite Energy Workers' Charter.

We are also appointing a Queensland Renewable Energy Jobs Advocate to provide advice to Government and champion future secure jobs in the renewable energy sector.

By aligning training programs, educational initiatives, and workforce development efforts under these state initiatives, Queensland can effectively harness the potential of its workforce to contribute to the growth and success of the clean energy sector.



The Hon. Mick de Brenni MP

OUR STRONG FOUNDATION

This \$30M Roadmap is built on a solid foundation of investment in our people and the clean energy workforce.



\$1.2B

annual Queensland Government investment in skills and training

\$150M

Job Security Guarantee to support affected energy workers at Queensland's publicly owned coal-fired power stations and associated mines

\$90M

under the *Queensland Energy and Jobs Plan* to develop two new *SuperGrid Training Centre and Transmission Hubs*

>\$70M

in workforce actions under the *Good people. Good jobs: Queensland Workforce Strategy 2022-2032*

>\$50M

in state-of-the-art hydrogen and renewable energy training facilities across the state

\$100M

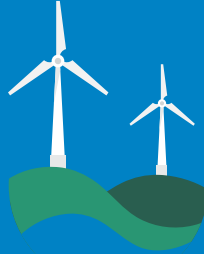
for Stanwell to build the *Future Energy Innovation and Training Hub*

OUR APPROACH



Build our future workforce

Providing real world learning opportunities to students and delivering high quality training to build the pipeline of skilled and capable clean energy workers.



Partner with industry to mobilise our existing talent

Empowering Queensland's highly skilled workforce to access opportunities within the clean energy industry; building a diverse, inclusive clean energy workforce.



Prepare our regions for growth

Workforce planning and coordination for the regions; building supply chain capability and supporting small business.

VISION ➤ A skilled, ready workforce delivering Queensland's clean energy transformation across the state

FUTURE ENERGY JOBS GUIDE

The key occupations that will deliver Queensland's clean energy transformation are presented in the Queensland Government's *Future Energy Jobs Guide* (Jobs Guide).

The Jobs Guide is designed to assist school leavers and existing skilled workers to explore career opportunities in the clean energy sector and identify the education and training pathways to get there.

The Jobs Guide has been developed in partnership with stakeholders, including industry, education and training providers and worker representatives, to reflect industry needs and real world job opportunities.



Executive Summary

Queensland's workers are central to delivering Queensland's energy transformation. From the electricians, engineers, technicians and construction workers needed to get clean energy infrastructure up and running, to the science and technology professional and corporate roles that are working alongside, there are opportunities for Queenslanders across the state to be a part of this journey.

The Queensland Government is committed to ensuring Queensland's clean energy sector has the skilled workers to continue to grow, and that Queenslanders benefit from the new clean energy job opportunities.

Queensland's Clean Energy Workforce Roadmap (the Roadmap) is an initial **\$30 million investment** in the clean energy workforce. The Roadmap is part of a suite of strategies to position Queensland at the forefront of clean energy development and to deliver clean, reliable and affordable power for generations.

It leverages the over **\$1.2 billion** that the Queensland Government invests annually in skills and training to support Queenslanders to be a part of current and future workforce opportunities, including in the clean energy sector.

The Roadmap builds upon the *Good people. Good jobs: Queensland Workforce Strategy 2022-2032* (Queensland Workforce Strategy) and its investment of over \$70 million in workforce actions to ensure Queensland has a ready workforce to support growth, strengthen our communities and keep Queensland at the forefront of new economic opportunities.

The roll out of the *Queensland Energy and Jobs Plan* (QEJP) and *Queensland SuperGrid Infrastructure Blueprint* (Infrastructure Blueprint) is projected to support around **100,000 jobs** in clean energy infrastructure and green growth opportunities. The majority of these will be in regional areas.

The clean energy sector needs technically skilled workers, particularly engineers and electricians to design, install and operate renewable energy systems. It needs construction workers, and trades people and technicians to operate and maintain large scale wind, solar and battery assets as well as installers for home and business rooftop solar and batteries. The sector also needs highly skilled

corporate professionals for community liaison, commercial trading and project management roles, just to name a few. The range of emerging technologies in the renewable energy sector means that new specialist jobs will be created such as battery engineers and chemists, circular energy system designers, re-manufacturing technicians and energy traders.

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Collaboration and partnerships are essential to meeting our clean energy workforce needs.

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The Roadmap identifies three key themes to create a pathway for government, industry, unions and the broader community to support the development of the clean energy workforce:

- ▶ Build our future workforce
- ▶ Partner with industry to mobilise our existing talent
- ▶ Prepare our regions for growth

The Roadmap builds on the economy wide approach of the Queensland Workforce Strategy to ensure there is a ready workforce to deliver Queensland's clean energy transformation

The **Queensland Workforce Strategy** is the Queensland Government's 10-year plan for a strong, skilled and diverse workforce ready to seize today's jobs, adapt to future opportunities and keep Queensland at the forefront of new economic opportunities, many of which will be driven by global decarbonisation.

The **Queensland Energy and Jobs Plan**, released in 2022, outlines Queensland's pathway to a clean, reliable and affordable energy system to provide power for generations. Queensland needs the right skills in the right locations to achieve this vision.



Queensland is at the forefront of new economic opportunities from the global shift to decarbonisation, with particular strengths in renewable energy, critical minerals, renewable hydrogen, battery technology and manufacturing, circular economy and bioeconomy. The Roadmap forms part of a number of initiatives that are working together to ensure Queenslanders can benefit from these opportunities, and there is the skilled and capable workforce to enable new industry growth.

- ▶ *Hydrogen Industry Workforce Development Roadmap 2022-2032*
- ▶ *Queensland New Industry Development Strategy*
- ▶ *Queensland Resources Industry Development Plan*
- ▶ *Queensland Critical Minerals Strategy*
- ▶ *Zero Emission Vehicle Strategy 2022-2032 and Zero Emission Vehicle Action Plan 2022-2024*
- ▶ *Advanced Manufacturing 10-Year Roadmap and Action Plan*

Delivering for Queensland's regions



Queensland's energy transformation is driving investment in Queensland's regions and creating jobs, with 95 per cent of investment and 70 per cent of jobs projected in the *Queensland Energy and Jobs Plan* to be in regional areas.



The Queensland Government is committed to ensuring regional communities and workers are partners in the energy transformation and benefit from the new opportunities that this brings.



To maximise the benefits for regional communities, a holistic approach is required that considers workforce priorities in the context of regional attraction and retention of workers, social infrastructure and housing, and changing industry profiles.

Queensland's regions are the powerhouse of the Queensland economy and support Queensland's strong mining, resource, energy and manufacturing sectors. Queensland's energy transformation will continue to build on these strengths, with the skills and experience of existing workers essential for planning, constructing, operating and maintaining clean energy infrastructure.

The Queensland Government is ensuring regional communities are a part of the energy transformation through a range of existing initiatives:

- ▶ **Over \$50 million investment in clean energy skills and training infrastructure** - including a hydrogen and renewable energy training facility at the Bohle Trade Training TAFE in Townsville, a new Hydrogen Training Centre of Excellence at the Beenleigh Plumbing Industry Climate Action Centre, the Pinkenba Renewable Energy Training Facility, and facility upgrade at Gladstone State High School to prepare students for jobs in the hydrogen industry.
- ▶ **Regional Economic Futures Fund** – a \$200 million program to support communities in seizing industry development opportunities presented by global decarbonisation.
- ▶ **Draft Regional Energy Transformation Partnerships Framework** – to maximise the local benefits from clean energy driven by the *Queensland Energy and Jobs Plan*.
- ▶ **Queensland Renewable Energy Zones (REZ) Assessment and Regional Energy Reference Groups** – to maximise local opportunities and manage impacts on regional communities, including potential implications for infrastructure, transport, housing and accommodation and social infrastructure.
- ▶ **Manufacturing Hubs** – to provide a place for local manufacturing businesses to receive expert advice and support to transition to advanced manufacturing, including clean energy opportunities.
- ▶ **Regional Jobs Committees** – provide local stakeholders with opportunities to work together to align regional skills and workforce development with their local clean energy industry opportunities and employer needs.

The clean energy workforce opportunity across Queensland

Queensland's pipeline of renewable energy infrastructure projects is driving demand for skilled workers across the state. The energy transformation will support around 100,000 jobs by 2040, with the majority of employment opportunities in regional areas.

OUR STRONG BASE AND PIPELINE OF SKILLED WORKERS:

- ▶ Over **45,400** Queensland students enrolled in energy and/or construction related vocational training courses.
- ▶ Over **19,200** students studying an engineering related higher education qualification in 2021.
- ▶ Over **34,000** Queenslanders currently working in electricity, gas and waste service.
- ▶ Over **275,000** Queenslanders currently working in construction.



The Queensland Government has outlined the optimal infrastructure pathway in the Queensland SuperGrid Infrastructure Blueprint, and the co-ordination of renewable energy development in the draft Queensland Renewable Energy Zone Roadmap.

64,000

direct and indirect jobs across construction, manufacturing and operations to 2040

Queensland Energy and Jobs Plan

36,000

more jobs in green growth opportunities, including renewable hydrogen, battery manufacturing, resource mining and metal refining

Queensland Energy and Jobs Plan

UP TO 26,700

additional construction workers from the early 2020s to 2050 could be required to realise Queensland's renewables boom

Construction Skills Queensland

Occupations to deliver Queensland's energy transformation

A wide range of skills and occupations are needed to deliver Queensland's energy transformation. Queensland is well placed to supply these, with many of the clean energy roles using the current skills and experience of the state's existing workforce. Some new skills will also be required as the technology and processes continue to evolve.



There will be a high demand for construction labour to build Queensland's SuperGrid, and ongoing operation and maintenance roles will grow as renewable energy generation and storage increases.



Electrical trade, engineering, construction roles, and technician workers will be in high demand.



Other occupations, such as science professionals and corporate roles, are essential for Queensland's energy transformation.



Many of the occupations needed by Queensland's clean energy sector will be in high demand for other industries across the state and will also play a vital role in delivering energy transformation projects across Australia and globally.







Building our future workforce

The school students of today will play a significant role in the clean energy workforce. The Queensland Government recognises that partnerships between schools and industry are essential to ensure students can investigate clean energy career options, prepare for the workforce, and identify local work opportunities.

High quality, responsive training in the right locations is also essential for Queensland's energy transformation, with VET qualified electrical, construction and mechanical trades needed for the construction, installation, operation and maintenance of all clean energy projects across the state.

Supporting student engagement with industry

Connecting school students to industry and fostering an interest in careers within the clean energy sector is essential to building the pipeline of skilled and capable workers. Direct industry engagement provides school students with an opportunity to experience the exciting and varied career opportunities which exist within Queensland's clean energy industry. It also supports tangible school to workforce pathways and the delivery of real-world industry-relevant content into student learning.

To achieve this, the Queensland Government will establish a **Renewable Energy Gateway to Industry Schools Program** (GISP), expanding on the success of GISP across other industry sectors to engage students in clean energy related learning opportunities, career information and training pathways. Building on this, **an online resource** will also be developed to enable all schools to build stronger connections to the clean energy sector and equip students with industry relevant foundational skills.

The Queensland Government is working to ensure schools and industry are better connected, and that student learning reflects the skills needs of industry. The *Strategy for STEM in Queensland State Schools* and the appointment of **Regional School Industry Partnership managers** will strengthen school and industry partnerships and support school to work transitions. These initiatives will be leveraged to strengthen the clean energy industry connection into schools. It is equally important that higher education continues to reflect the evolving needs of industry to ensure university graduates are well positioned to be a part of Queensland's energy transformation.

Continued collaboration across government, industry and the education system (including between schools, training and higher education providers) will be essential to connect students to the high-quality training required for Queensland's clean energy workforce.



ACTIONS

- 1.1 Establish a Renewable Energy Gateway to Industry Schools Program targeting over 30 schools and 2000 students across Queensland.
 - 1.2 Develop online resources for Queensland teachers to deliver clean energy content, with an emphasis on career pathways.
 - 1.3 Energex and Ergon Energy Network will increase their apprentice intake by 10 percent each year out to 2030, as part of the *Queensland Energy and Jobs Plan*.
 - 1.4 Tripartite approach including industry, unions, and government, working closely with the higher education sector, to identify clean energy professional and paraprofessional skills gaps and address these in higher education delivery for the clean energy sector.
 - 1.5 Connect clean energy industry with schools to participate in activities under the *Strategy for STEM in Queensland State Schools*.
 - 1.6 Strengthen school to industry partnerships in the clean energy sector through Regional School Industry Partnership managers.
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School to energy industry engagement

The Queensland energy industry and education providers are working together to deliver innovative models of school to industry engagement. For example:

- ▶ Ergon Energy Network and Energex, as part of Energy Queensland, have partnered with TAFE Queensland to give eligible Year 11 and 12 students the opportunity to complete a Certificate II in Electrotechnology (Career Start) (UEE22020) in 2024 and power-up their career in Queensland's clean energy industry. Students will gain real-world site experience in the Ergon Energy Network and Energex depots, with enrolments available in Roma, Chinchilla, Kingaroy, Warwick and Ipswich.
- ▶ Energy Queensland also offers 100 engineering scholarships worth \$20,000 a year for students studying engineering at a Queensland university, through its Future of Energy Engineering Scholarship program. The program provides a range of support and career opportunities through scholarship payments, vacation work and pathways to assist students to apply to Energy Queensland's graduate program.
- ▶ The Australian Industry Trades College Energy Academy is an industry driven program for high school students wishing to pursue a career in the electrical industry. Year 10 students from Brisbane and Year 10 and Year 11 students from the Sunshine Coast are eligible for the program that provides a combination of unique education, industry-driven training and technical expertise. The offerings are broad, ranging from renewables and sustainability to refrigeration and electrical fitting. Students will be exposed to real-world projects, travelling around Southeast Queensland to see large scale energy projects and initiatives, and have up to a year's head start on a school-based apprenticeship or traineeship by year 12.
- ▶ The Queensland Government's Gateway to Industry Schools Program (GISP) includes a dedicated hydrogen program that connects Queensland school students to industry partners to help students gain valuable skills and experience relevant to the clean energy sector, and explore career opportunities before they leave the classroom. Across Queensland, 32 schools have signed Memorandums of Understanding to be a part of the program and over 2,000 school students will be engaged between November 2022 and January 2026.

For more information on the Gateway to Industry Schools Program, visit <https://desbt.qld.gov.au/training/employers/gateway-schools>



Delivering high quality, responsive training for clean energy skills

Building on our strong record of investment in skills and training, the Queensland Government will investigate opportunities for renewable energy related training under the **Queensland VET Strategy and National Skills Agreement**.

Jobs Queensland will also continue to work with industry to explore the suitability of **higher-level apprenticeships and traineeships** to prepare students for clean energy roles.

Ensuring there are trainers with relevant skills and experience in clean energy is essential for skilling Queensland's workforce. Queensland will leverage opportunities under the national *VET Workforce Blueprint*, which aims to support and grow a quality VET workforce, to build a **pipeline of clean energy trainers**.

To attain the skills needed to drive the energy transformation, Queenslanders need access to state-of-the-art training infrastructure. The Queensland Government owned Stanwell Corporation is investing in a **Future Energy Innovation and Training Hub**, near Rockhampton, which includes a skills academy. Up to \$10 million will be invested by government to **uplift state owned training infrastructure** to support the skills needs of the clean energy workforce. This builds on the Queensland Government's existing

investment of over \$50 million for renewable energy and hydrogen training facilities.

Building Queensland's SuperGrid requires significant transmission infrastructure. Ensuring there is the workforce capability and capacity to deliver these projects is a priority. Under the QEJP, Powerlink is delivering two new transmission and training hubs for critical skills to deliver the SuperGrid. A new **transmission industry working group** will be established to continue to develop a coordinated response to address transmission training needs.

While Queensland works with other jurisdictions on VET reform and training product review and development at a national level, the Queensland Government's **VET Emerging Industries (VEI)** initiative provides an agile and responsive approach to developing training for Queensland as new technology and skills needs emerge. The VEI initiative will be expanded to continue to meet the skills needs of industry, **with an additional \$5 million over 3 years** for clean energy industry training solutions that could include a mixture of accredited training, skill sets, micro-credentials and workforce development initiatives.

STANWELL FUTURE ENERGY INNOVATION AND TRAINING HUB

To begin the transformation of Stanwell Power Station in Rockhampton to a Clean Energy Hub, publicly owned energy company Stanwell Corporation will build the Future Energy Innovation and Training Hub (FEITH) valued at up to \$100 million.

The hub will provide the sandbox to test out innovative new energy technology including wind, solar, hydrogen and battery storage.

It will also provide a real-life, hands-on training environment for Queensland energy employees to develop the skills needed to work on renewable energy technologies.

The project is proposed to be delivered in phases, starting with the establishment of common infrastructure and civil works in late 2023.



ACTIONS

- 2.1** Stanwell to build the Future Energy Innovation and Training Hub to provide hands on-training with new and emerging clean energy technologies.
 - 2.2** Invest up to \$10 million to uplift state owned training infrastructure to support the skills needs of the clean energy workforce.
 - 2.3** Expand the VET Emerging Industries initiative to develop renewable energy industry training solutions.
 - 2.4** Jobs Queensland to engage with industry and unions to investigate the suitability of clean energy related higher-level apprenticeships and traineeships in the energy sector.
 - 2.5** Establish an industry working group to develop a coordinated response to transmission line training.
 - 2.6** Connect the clean energy industry to the Queensland XR Hub for the development of innovative immersive training solutions.
 - 2.7** Investigate opportunities for renewable energy related training under the Queensland VET Strategy and National Skills Agreement.
 - 2.8** Investigate expansion of Higher-Level Skills program under Queensland VET Strategy including to support more students and workers to access funding for upskilling or reskilling to enter the clean energy industry.
 - 2.9** Leverage opportunities under the national VET Workforce Blueprint to support clean energy workers to move into training roles.
 - 2.10** Government to work with the new Energy Industry Council and Renewable Energy Jobs Advocate once appointed to understand further priorities for growing the clean energy workforce in Queensland.
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SuperGrid Training Centre and Transmission Hubs

The *Queensland Energy and Jobs Plan* sets out a plan to deliver the Queensland SuperGrid to enable the reliable generation, storage and transport of cleaner electricity across the state. Building Queensland's SuperGrid will require a skilled workforce with specific capabilities to work on the high voltage transmission network that forms the backbone of Queensland's future energy system.

Under the *Queensland Energy and Jobs Plan*, the Queensland Government is investing \$90 million and will work with Powerlink, the Queensland Government Owned Corporation responsible for managing the state's transmission network, to establish new SuperGrid Training Centre and Transmission Hubs to upskill energy workers in a range of areas, including high voltage (HV) technical training.

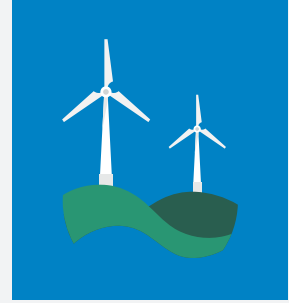
In 2023, Powerlink opened an interim SuperGrid Training Centre and Transmission Hub in Gladstone in May and Townsville in August. Construction of the permanent facility in Gladstone is expected to commence in 2024, with construction of the permanent Townsville facility to follow. The permanent facilities will upskill hundreds of energy workers each year to support the delivery of the SuperGrid. Both hub sites will have innovative indoor HV Substation equipment simulating real world environment to complement on-the-job training.

This builds on the Queensland Government's investment of more than **\$50 million** in state-of-the-art hydrogen and renewable energy training facilities, including:

- ▶ **\$20 million** for Stage 2 upgrades to the industry led Queensland Apprenticeships Centre, featuring a new Hydrogen Training Centre of Excellence at Beenleigh
- ▶ **\$17 million** to build the Pinkenba Renewable Energy Training Facility
- ▶ **\$12.45 million** to build a hydrogen and renewable energy training facility for training in renewable energy such as hydrogen, solar and wind at the Bohle Trade Training TAFE in Townsville
- ▶ **\$2 million** to upgrade facilities at Gladstone State High School to prepare students for jobs in the hydrogen industry.

An additional **\$40 million** is being invested to deliver the Eagle Farm Robotics and Advanced Manufacturing Centre project that will provide for specialist trade training, including facilities for advanced manufacturing and robotics, process instrumentation, telecommunications and renewable technologies training.





Partnering with industry to mobilise our existing talent

Queensland's highly skilled and capable workforce gives us a competitive edge when it comes to delivering the energy transformation and driving the development of the clean energy industry.

Queensland's energy transformation also provides an important opportunity to build a more diverse and inclusive workforce in industries that typically have a lower representation of diverse cohorts, including women, First Nations people, people with a disability, LGBTIQ+ and culturally and linguistically diverse communities.

The Roadmap complements the Queensland Government's commitment to support affected energy workers at Queensland's publicly owned coalfired power stations through the energy transformation with a \$150 million Job Security Guarantee and tripartite Energy Workers' Charter. The Queensland Government is also appointing a Queensland Renewable Energy Jobs Advocate to provide advice to Government and champion future secure jobs in the renewable energy sector.

Leveraging Queensland's strong existing workforce

Existing energy workers, along with workers from the resources, manufacturing and construction sectors, have skills and experience that are transferable to clean energy roles. Enabling workers to access opportunities to transfer to clean energy roles is essential to ensuring Queensland's regional communities benefit from the energy transformation.

Existing workers, and communities, will be provided with on-ground support through **Mobile Regional Energy Jobs Hubs** in Queensland REZ regions to connect local workers with industry and relevant training providers, and support small businesses to access clean energy opportunities.

It is anticipated that workers will have the skills and capability to work across a number of roles and projects in the clean energy sector. A **digital energy skills passport app** will be made available to all workers to enable more efficient movement between roles, by clarifying and tracking worker competencies and training. Queensland's energy government owned

corporations will work collaboratively to **support workers to access opportunities across clean energy projects.**

As the clean energy sector advances, it is essential that workers have up to date skills and training for new processes, technology and safety requirements. **Industry Skills Advisors and Industry Workforce Advisors** play a pivotal role in advocating for Queensland's clean energy workforce priorities, working with the Jobs and Skills Councils to inform national VET reform agendas and training product development.

The Queensland Government will continue to leverage its networks to **work collaboratively** across all tiers of government, industry, unions, education and training providers, peak bodies, and other relevant skills and training representatives. This approach will support existing workers to access clean energy opportunities, as part of future workforce solutions

THE CONSTRUCTION JOBS OPPORTUNITY

The roll out of the QEJP will see increased demand for construction workers, with Construction Skills Queensland (CSQ) predicting up to 26,700 workers from the early 2020s to 2050 being required to realise Queensland's renewables boom.

CSQ, in partnership with the Queensland Government, is supporting industry to prepare for clean energy demand, including through training in courses like *Certificate IV in Electrical - Renewable Energy* and *Diploma of Project Management Certificate IV in Building and Construction Estimating*.

ACTIONS

- 3.1** Pilot Mobile Regional Energy Jobs Hubs, facilitated by Regional Project Coordinators, within the Queensland REZ regions.
 - 3.2** Implement a digital energy skills passport app to enable workers to move more efficiently between roles.
 - 3.3** Industry Skills Advisors and Industry Workforce Advisors to continue to identify and advocate for clean energy industry workforce priorities.
 - 3.4** Establish the Energy Workforce Roundtable under the Ministerial Energy Council to collaboratively develop workforce solutions.
 - 3.5** Energy government owned corporations (GOCs) to investigate options to enable worker mobility and job experience across GOC-led clean energy projects.
 - 3.6** The Queensland Government to continue to work collaboratively with the Commonwealth Government on locally focused employment and workforce initiatives.
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Queensland's world-first commitment to workers in traditional power generation regions

Alongside release of the *Queensland Energy and Jobs Plan*, the Queensland Government, publicly owned energy businesses and unions signed a landmark agreement to support affected energy workers - the Queensland Energy Workers' Charter. This Charter is a commitment to engage with and support affected workers in Queensland's publicly owned coal-fired power stations as Queensland's energy system transforms.

The Charter is backed up by a \$150 million Job Security Guarantee that ensures workers in Queensland's publicly owned coal-fired power stations and associated mines have a secure future, choices, and clear employment pathways.

Queensland is preparing to enshrine the Job Security Guarantee in legislation. An Energy Industry Council will be established to support implementation of the Job Security Guarantee, with the same tripartite representation as the Charter.

The Council will provide advice to government on:

- ▶ how the energy transformation will impact affected energy workers and their communities, and
- ▶ opportunities for employment, workforce development, education and training in the renewable energy industry for affected energy workers and their communities;
- ▶ the skills and training needed to build and deliver workforce capacity and capability for the future of the energy industry.

An Interim Energy Industry Council has been established, while legislation is being prepared to formally establish the Council.

Other commitments from Government to support the broader community transformation include the draft Regional Energy Transformation Partnerships Framework, the Queensland New Industry Development Strategy and from the Federal Government, a new National Net Zero Authority which will support workers in emissions-intensive sectors to access new employment, skills and support.



Building a diverse and inclusive clean energy workforce

The Queensland Workforce Strategy highlights that engaging historically underrepresented community groups, while working with industry to encourage the implementation of flexible and inclusive workplace environments, is essential to enhancing industry diversity and meeting skills and labour demand.

Equal by 30 is a commitment by public and private sector organisations to work towards equal pay, equal leadership, and equal opportunities for women in the clean energy sector by 2030. The Queensland Government endorses the principles of the campaign and is exploring options to be the first Australian state or territory government to become an official signatory.

The Queensland Government is committed to ensuring First Nations communities also benefit from Queensland's energy transformation, with increased workforce participation being a key focus of this commitment. Building on the Queensland Government's *Paving the Way: First Nations Training Strategy*, First Nations groups and communities will be encouraged to design and lead projects that support community members to enter or continue a renewable energy pathway through the **Indigenous Workforce and Skills Development Grants**.

Skilled migration, in addition to Queensland students and existing workers, will be needed to meet the

significant demand for skills and labour to deliver Queensland's energy transformation. This includes attracting international talent to fill the undersupply of critical roles, and better utilisation of the skills and experience of current onshore migrants.

The Queensland Government will attract international talent by establishing **priority processing for qualified energy workers** applying for a skilled state nominated visa. This will be supported by **promotional material** that highlights visa pathways for energy workers seeking opportunities in Queensland.

Onshore migrants with engineering qualifications will have the opportunity to gain work-ready skills and Australian workplace experience through Engineers Australia's **Global Engineering Talent Pilot Program (GETPP)** - designed to help participants overcome some of the challenges to entering engineering roles in Australia.

Queensland's energy industry can further develop an inclusive culture that is attractive to diverse community groups, through initiatives such as implementing flexible working arrangements where feasible and ensuring wrap around support services are available to workers.

SKILLING QUEENSLANDERS FOR WORK

The Queensland Government is supporting workforce diversity and inclusion through initiatives such as Skilling Queenslanders for Work which assists priority cohorts to gain skills, qualifications, and experience to enter and stay in the workforce. Tailored, local community based support is offered to young people; mature-age job seekers; Aboriginal and Torres Strait Islander people; people with disability; women re-entering the workforce; Australian Defence Force veterans; recently released prisoners; and people from culturally and linguistically diverse backgrounds.

ACTIONS

- 4.1** Endorse the Equal by 30 campaign principles to work towards equal pay, leadership, and opportunities for women in the clean energy sector, and explore options for the Queensland Government to become an official signatory to the campaign.
 - 4.2** Migration Queensland to establish priority processing for the State Nominated Skilled Migration program for energy workers with an occupation on the Offshore Queensland Skilled Occupation Lists.
 - 4.3** Develop promotional materials highlighting visa pathways for energy workers to Queensland (such as Temporary Worker (Short Stay Specialist) (Subclass 400) and Temporary Skill Shortage (Subclass 482) visas.
 - 4.4** Co-fund up to 20 places in Engineers Australia Global Engineering Talent Pilot Program for clean energy related positions.
 - 4.5** Support First Nations designed and led projects that address clean energy workforce needs through the Queensland Government's Indigenous Workforce and Skills Development Grants.
 - 4.6** Support skilled migrants in Queensland REZ regions to be able to access opportunities in the clean energy sector through the Queensland Government's Diverse Queensland Workforce Hubs.
 - 4.7** Promote and share resources to assist the clean energy industry to build diversity in the workplace.
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Supporting skilled migrants

Skilled Workforce Attraction Office

The Queensland Government is committed to enabling an inclusive and diverse workforce, by ensuring individuals from culturally diverse backgrounds are supported to participate in Queensland's growing clean energy industry.

Skilled migrants have an important role in meeting the significant global demand for skills driven by energy transformation activity. The Queensland Government recognises the significant competition for skills and the important role migrants have in developing a diverse and inclusive workforce. In response, the Queensland Government is establishing the Skilled Workforce Attraction Office (SWAO) as an action of the Queensland Workforce Strategy. The Office will strengthen the Queensland Government's skilled migration policy, advocacy and attraction activities, including helping attract a skilled and a talented workforce to meet Queensland's labour market needs across the state.

Attracting and retaining engineers from migrant backgrounds

Significant investment in infrastructure projects, including those associated with renewable energy, has resulted in increased demand for qualified engineering and technical workforce in Queensland. Amongst the responses to meet this demand is to maximise employment opportunities for migrants with engineering qualifications and experience who are already in Australia. Through the Queensland Workforce Strategy, the Queensland Government has committed to partnering with industry to harness the existing skills of the onshore migrant workforce, particularly to address skills shortages in high demand sectors. One such partnership is between Engineers Australia, Consult Australia and the Queensland Government. This partnership has developed the *Attracting and Retaining Engineers from Migrant Backgrounds: Guide for Employers*. The guide provides practical advice and information to tap into the pool of international skills and knowledge of people from migrant backgrounds with engineering qualifications. It also provides information to employers regarding approaches in attracting and retaining skilled migrant and refugee engineers, supporting businesses to access the workforce they need and support the growth of industries such as Queensland's clean energy industry.





Preparing our regions for growth

Employment and supply chain opportunities at a regional level will continue to evolve with the roll out of clean energy projects and infrastructure. A coordinated approach to supporting the regions to prepare and plan for the renewable energy infrastructure build and to participate in the clean energy supply chain is essential to maximising local benefits from the energy transformation.

Small business also needs support to prepare for and access the supply chain opportunities associated with the clean energy sector, including procurement opportunities.

Workforce planning for the regions

The roll out of the QEJP and Infrastructure Blueprint is projected to support around 100,000 jobs in clean energy infrastructure and green growth opportunities, with the majority in regional areas.

There will be high demand across multiple industries for the occupations needed by the clean energy sector, so workforce planning will be critical.

The Queensland Government will work with regional stakeholders to deliver a **regional skills supply and demand analysis** connected to the pipeline of projects to improve understanding of current workforce capacity and capability to support workforce planning. This will further inform regional workforce solutions, including skills and training pathways.

Current constraints around the collection and categorisation of clean energy workforce data makes it difficult to get a clear picture of the size and composition of the sector's workforce. Industry is calling for a better understanding of clean energy workforce skills and capabilities to allow them to plan ahead and ensure their workforce is ready for future opportunities.

To meet the immediate needs of Queensland's clean energy industry, Energy Skills Queensland will develop the **Energy Data Warehouse** to provide

industry with short and long term workforce data insights and bespoke reporting options.

At a national scale, the Australian Government is progressing a number of initiatives to better capture clean energy workforce data, including the Jobs and Skills Australia Clean Energy Capacity Study. The Queensland Government will continue to lead input into this work in collaboration with other states and territories.

Skills mapping provides a detailed understanding of the current workforce capabilities and the potential transferability of skills to new roles, or skills gaps.

In addition to the skills supply and demand mapping for the Queensland REZ regions that will be completed as an action of the Roadmap, **skills mapping for the manufacturing sector** will also be delivered to support workers and local businesses to access clean energy opportunities.

Collaboration across levels of government and industry will be key to improving data collection and analysis to provide the evidence base to support workforce planning, inform training product development and delivery, and ensure industry workforce needs are met.

ANTICIPATING FUTURE SKILLS

Jobs Queensland’s Anticipating Future Skills (AFS) provides baseline employment projections for regions, industries, occupations and qualifications, as well as projections for three scenarios - digitisation post-COVID, changing skills profile and global headwinds.

Although not specific to clean energy, AFS can be used to support workforce planning, identify regional jobs growth and inform future career decisions. For more information, visit <https://jobsqueensland.qld.gov.au/anticipating-future-skills/>

Jobs Queensland’s Workforce Planning Connect also supports employers to plan for the future to access the skills and workforce they need. For more information, visit <https://jobsqueensland.qld.gov.au/workforce-planning-connect/>

ACTIONS

- 5.1 Deliver region specific future energy resources, including skills supply and demand analysis and jobs opportunity guides aligned with Queensland REZ regions.
 - 5.2 Government to partner with Construction Skills Queensland (CSQ) to map construction workforce needs in Queensland REZ regions.
 - 5.3 Co-fund an industry led Energy Data Warehouse to be developed by Energy Skills Queensland.
 - 5.4 Undertake skills mapping to support the manufacturing workforce to enter the clean energy industry and to inform training product development and delivery.
 - 5.5 Lead and contribute to policy reform at a national level to address data limitations and build a better understanding of the clean energy workforce.
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CopperString 2032 and Townsville training hub

Powerlink is delivering Copperstring 2032, a new high voltage transmission line to connect the North West Minerals Province and Mount Isa to the Queensland SuperGrid. The project will support 800 jobs with construction to begin in 2024. Powerlink has also opened a new SuperGrid Training Centre and Transmission Hub in Townsville where workers will be trained in the specialist high voltage skills required to build, operate and maintain the northernmost reaches of Australia's electricity network.



Building supply chain capability and supporting small business

Manufacturing of renewable energy components and batteries presents a key opportunity to boost local economies and shore up the supply chain. To support small businesses within the manufacturing sector to engage with these opportunities, a **dedicated Manufacturing Skills Queensland (MSQ) Renewables Project Officer** will be appointed to work directly with local manufacturing businesses across the state to build workforce capacity and capability.

Small businesses are often time poor and lack the resources to readily identify new clean energy related opportunities and investigate associated upskilling requirements. Government will work with the MSQ Renewables Project Officer, Regional Project Coordinators, Business Chamber Queensland and the Queensland Small Business Commissioner to ensure **small businesses benefit from opportunities in the clean energy supply chain.**

There is also opportunity for Queensland's small businesses to be a part of the clean energy workforce solution. The Queensland Government's **Private Sector Pathways Program (PSPP)** aims to solve industry challenges with solutions generated by proven innovative Queensland small to medium enterprises. **Through the PSPP**, eligible businesses will be supported to develop innovative solutions to the workforce challenges faced by the clean energy industry. This complements existing measures to support business to attract and retain workers, like Business Chamber Queensland's Workforce Evolve program, a Queensland Government funded e-learning program designed to help employers think differently about who they hire and how to retain them in the future.

MANUFACTURING SKILLS QUEENSLAND

Manufacturing Skills Queensland (MSQ) is an independent not for profit industry body supported by the Queensland Government - aiming to build a sustainably skilled workforce for a future proofed manufacturing industry. MSQ's work involves identifying and supporting industry with the necessary skills, opportunities and information to build a globally competitive manufacturing sector.

ACTIONS

- 6.1** Appoint a dedicated Renewables Project Officer for Manufacturing Skills Queensland (MSQ) to work with local manufacturing businesses to build workforce capacity and access clean energy supply chain opportunities.
- 6.2** Government to work with the MSQ Regional Project Officers, Regional Project Coordinators, Business Chamber Queensland and the Queensland Small Business Commissioner to assist small business to get ready for, find and access opportunities in the clean energy sector and related supply chains.
- 6.3** Explore opportunities through the Queensland Government's Private Sector Pathways Program (PSPP) to support small businesses address energy workforce challenges.

Small business activity

The clean energy transition presents a breadth of opportunities for small businesses, ranging from subcontractor operations to supply chain opportunities, including manufacturing. Several Queensland business are already engaging in the clean energy sector in new and innovative ways:

▶ **Redback technologies**

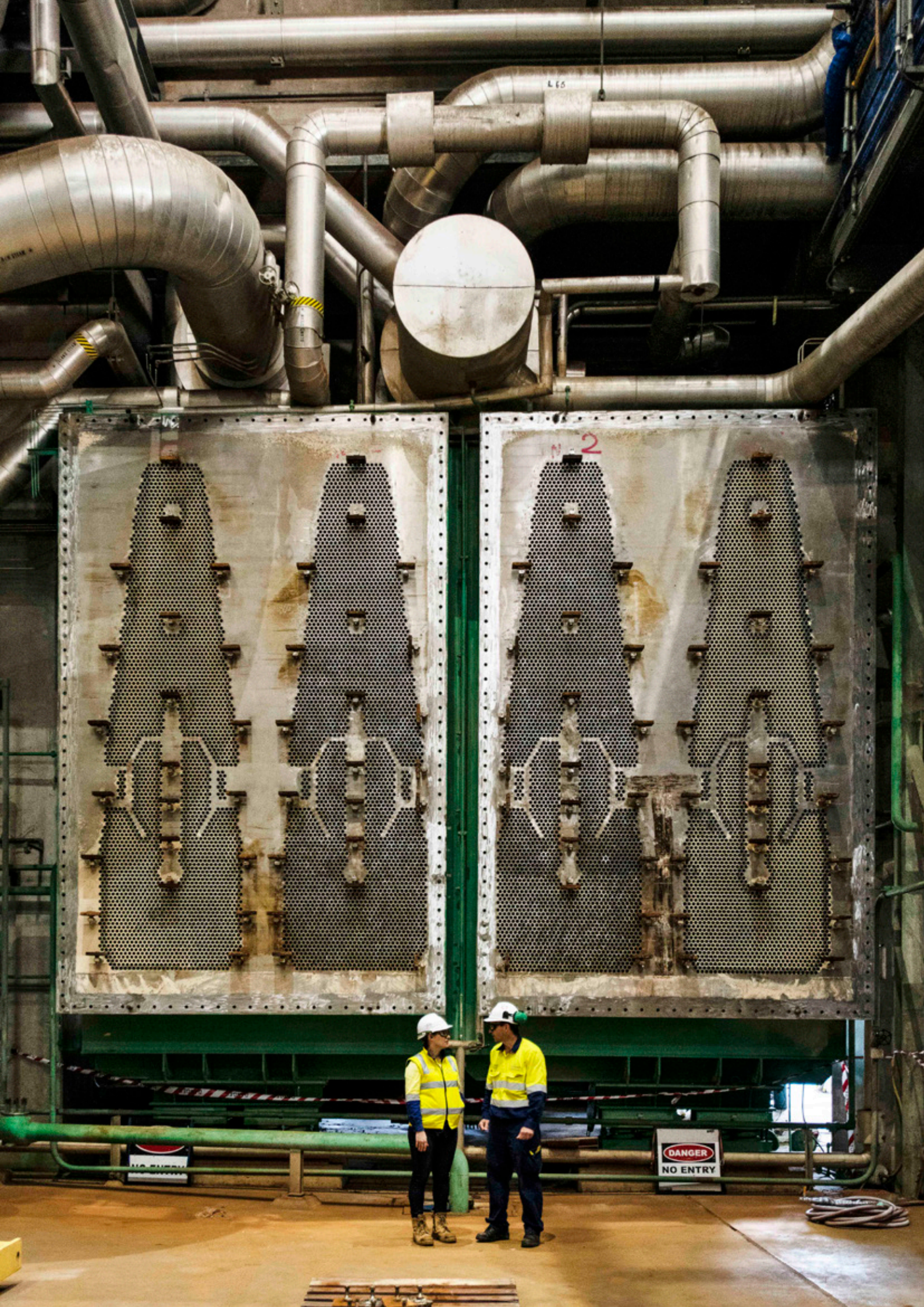
Founded by a handful of clean-tech enthusiasts in 2015, Brisbane based renewable energy innovator, Redback Technologies, specialises in integrated energy management and storage solutions that are engineered in Australia for Australian homes. Through their smart tech energy systems including smart solar inverters, battery storage systems, and energy efficiency data platform, Redback enables Australian households and businesses to affordably generate and monitor their own renewable energy.

▶ **FELINE – Advancing Lithium Batteries**

FELINE is a young business based on the Gold Coast focused on manufacturing advanced high performance Lithium-Ion batteries (LIB) for niche applications. The business advances LIB technologies by integrating smarter and safer components that impart higher performance while maintaining safety. In 2022 and 2021, Feline was invited by Global Australia to participate in showcasing Australia’s Globally Competitive Industry using Advanced Manufacturing.

The Queensland Government supports small businesses to grow and thrive through Grant and support programs that increase business capabilities, embrace innovation, and assist high-growth businesses to capitalise on opportunities.





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Implementation and Review

The Queensland Government will work collaboratively with stakeholders to deliver the actions and monitor progress towards the vision of the Roadmap.

The roll out of Queensland's energy transformation will continue to present new workforce opportunities and challenges. To ensure we stay on track to meet the clean energy sector's workforce needs, the Queensland Government will review the Roadmap's actions 2 years from the time of publication to ensure it remains fit for purpose and to consider any new actions that are required.



