OXFORD ECONOMICS AUSTRALIA

Regional Economic Transition Analysis – Worker Transitions in Central QLD

Final report

December 2025

Disclaimer

To discuss the report further please contact:

Emily Dabbs

Head of Macroeconomic Consulting, ANZ

edabbs@oxfordeconomics.com

Level 6, 95 Pitt St Sydney, Sydney, 2000, NSW

Tel: +61 424 389 909

EXECUTIVE SUMMARY

KEY FINDINGS

There are an estimated 12,400 fossil fuel workers in Central QLD, representing 10% of the workforce.

- Fossil fuel workers are heavily concentrated in the coal mining industry, with major employers including Coronado Global Resources, Glencore and Anglo American.
- The majority of these workers are in key specialist roles with machinery operators & drivers and technicians & trade workers accounting for 80% of the fossil fuel workforce.
- Fossil fuel workers are more likely to be male and closer to retirement age than the non-fossil fuel workforce.

Almost all fossil fuel workers will be able to transition into new roles without having to significantly upskill or reskill.

- Around 3950 fossil fuel jobs are expected to be lost by 2035, with 2,380 workers likely to retire by 2035, leaving approximately 1,210 workers who are likely to undergo a workforce transition into a new role.
- An estimated 88% of these workers are likely to be able to transition to similar roles in other industries with minimal transition support needs.
- Around 12% of workers are likely to move into roles with similar skills requirements with some training required to focus on reskilling their specialist skill sets.
- A handful of workers are likely to require significant retraining to capture growth roles.

VET training capacity is well aligned to support workers, but HE support is more challenging.

- Reskilling and retraining support through VET or HE is likely to be needed for the majority of the 150 workers pursuing a skill adjacent or growth role pathway.
- Apprenticeship completions through VET have been increasing, particularly in engineering & related technologies, architecture & building, and food, hospitality and personal services.
- The higher education sector has invested in resources to help the region adapt to the net-zero transition and create clear education-to-job pipelines, but workers may need to travel to access training.

Differences in skills and wages present significant barriers to workforce transitions, exacerbated by the age structure of some specific roles.

- Relatively high wages combined with lower levels of skills & qualifications create barriers for role movements, with competition from new graduates also contributing.
- There are limited regional barriers facing fossil fuel workers with sufficient job availability to absorb the workforce across industrial based roles.
- The older age structure of some specialist roles is likely to create challenges for workforce transitions for this cohort, and combined with lower levels of skills increases the risk of long-term unemployment.

State-level economic diversification and retraining initiatives provide broad support for fossil fuel workers.

- Economic diversification strategies have focused on the opportunities available to the region from global decarbonisation through the $200 million Regional Economic Futures Fund and the Central Queensland Regional Transformation Strategy.
- Training efforts are broad-based and do not tend to be specific to workers who are likely to transition, with training being prioritised in renewable generation, transmission and hydrogen production.
- The Regional Workforce Transition Plan sets out place-specific strategies for coal regions, with on-the-ground support such as linking workers to training, jobs, and support services.

Targeted measures are needed to ensure transitioning workers can effectively access and benefit from these opportunities.

- The Queensland Energy Workers' Charter provides support for Government-owned fossil fuel generation workers and workers at associated mines, with only indirect support for export-oriented mining employees, contractors and other fossil fuel workers.
- Workers in the sector not covered by the Queensland Energy Workers' Charter could be covered by the proposed Regional Workforce Transition Plan (RWTP) for support.
- Given the concentrated nature of workers (the majority are based in 15 mines within the region), place-based rollout of programs could potentially reduce the inconvenience for workers to access support services.

INTRODUCTION

NZEA has engaged Oxford Economics to support evidence-based action in transition-affected regions.

Project Overview

The Net Zero Economy Authority (NZEA) commissioned this project to understand opportunities presented by the net zero transition for regional communities. There are a number of regions central to Australia's energy system and industrial base that face disproportionate exposure to structural shifts as emissions-intensive activities decline. The Hunter, Central Queensland and Latrobe Valley were prioritised for this project due to the size and complexity of their region and economies, but the analytical framework can be deployed in other regions. These regions also present opportunities to lead in clean energy generation, advanced manufacturing, and resource-based value-adding, provided that the right policy, investment and workforce conditions are in place. The project seeks to inform strategic planning and intervention by forecasting how regional economies will evolve under different decarbonisation scenarios.

Oxford Economics was engaged to deliver a structured, scenario-led analysis across three core domains. These include forward-looking forecasts of industry and labour market change, an assessment of each region's comparative advantages and investment potential, and a detailed examination of transition pathways for fossil fuel and related workers. The analytical framework integrates AEMO's 2025 transition scenarios with regional planning assumptions, closure timelines, and infrastructure settings to ensure alignment with real-world transition drivers. Regional priorities and economic exposures have been informed by the NZEA's own statistical framework, which identifies both downside risks and economic opportunities across Australia's key regions.[1] The analytical framework used within this project can be deployed across other NZEA priority regions beyond the Hunter, Central Queensland and Latrobe Valley.

The project aims to generate region-specific insights that can support practical decision-making across multiple levels of government. By quantifying the scale and timing of industrial change, identifying investment barriers, and mapping reskilling needs, the work creates an evidence base that links long-term economic modelling with near-term policy and program levers. This enables a more coordinated approach to managing transition risk while positioning each region to attract and retain high-value activity.

This work provides a foundation for coordinated, place-based action across governments, industry and communities. Outputs will support the NZEA's role in shaping policy, allocating resources, and engaging stakeholders on transition risks and opportunities. By identifying emerging demand for labour and skills, sectoral growth trajectories, and enablers of investment readiness, the project aims to assist in sequencing investment, workforce support and infrastructure development. Ultimately, the analysis will help ensure that transition efforts are locally grounded, forward-looking, and capable of delivering resilient and inclusive economic outcomes.

Project Components

The project was structured into three core analytical components to align with NZEA's transition objectives. Each stream was applied consistently across the Hunter, Central Queensland, and Latrobe Valley regions. Separate reports were developed for each component in each region to ensure depth, comparability, and regional specificity. In addition, a summary report has been developed synthesizing the key insights across all three project components.

Regional Economic Forecasts

This stream provides scenario-based projections of industry composition, employment, and skills demand across 5, 10, and 25 years. These forecasts are based on AEMO's 2025 transition scenarios and represent regional futures based on current trends and industrial structures within the region. Outputs include identification of sectors likely to decline, grow, or emerge, the timing of major structural shifts, and profiles of key workforce cohorts.

Regional Investment Analysis

Focusing on each region's strategic position, this stream identifies comparative economic advantages, evaluates barriers to investment, and highlights opportunities to attract net zero aligned industries. It also outlines region-specific enablers such as infrastructure, workforce capability, and resource availability that could support long-term industrial development beyond what is identified in the *Regional Economic Forecasts* report.

Worker Transition Analysis

Centred on transition-affected workers, this stream delivers occupational pathway mapping, retraining requirements, and an assessment of local training system capacity. It also provides targeted support strategies to address cohort-specific barriers and enable workforce mobility within the regional economy. The analysis considers both the likely future economic structure of the region as identified in the *Regional Economic Forecasts* report and opportunities identified in the *Regional Investment Analysis* report.

This report identifies the potential training needs of Central Queensland based on the fossil fuel workforce transitions expected over the coming decade.

Purpose of this Report

This report provides an assessment of potential workforce transition pathways for fossil fuel workers in the region. It forms part of the Net Zero Economy Authority's (NZEA) worker transition stream and supports its broader mandate to support workers and communities in adapting to the changes under the net zero transition. The focus is on analysing various worker transitions pathways available to the region's fossil fuel workers, and developing evidence-based advice to support these workers as they transition to different roles over the next 5 and 10 years.

The report draws on a wide range of data and inputs to develop the evidence base underpinning potential transition pathways available to fossil fuel workers in the region. Key inputs to this work are the labour market forecasts for the region from the *Regional Economic Forecasts* report under the *Step Change* scenario. This is supplemented with detailed labour market information on the current fossil fuel workers, job mobility information from Seek's candidate dataset, and skills and qualifications analysis developed by Oxford Economics. The forecasts produced within the *Regional Economics Forecasts* report are underpinned by the Australian Energy Market Operator's (AEMO's) energy transition scenarios* and do not include any crowding-in investment from the areas identified in the *Regional Investment Analysis* report.

Findings from this report will identify potential transition pathways available to fossil fuel workers in the region, and the policy levers available to support these transitions. The outputs are designed to help NZEA and its partners understand the potential pathways fossil fuel workers may transition to new roles as facilities close in the region, the types of support required to make these transitions, the magnitude of training required within the region's labour market, and the policy levers that could be implemented to improve worker transition outcomes. These findings are intended to be validated by NZEA with regional stakeholders.

The structure and methodology are consistent across all NZEA priority regions. While the specific pathways and magnitude of training varies by place, each report follows a shared framework to ensure comparability and provides a basis for validation with local communities. The analysis is forward-looking and designed to inform decision-making over the next 5 to 10 years.

Report Structure

The report is structured around four core analytical components: identification of the region's fossil fuel workforce, analysis of potential transition pathways, analysis of the education & training needs of fossil fuel workers in the region and identification of transition barriers & enablers facing these workers. Each of these analytical components are critical to informing a wholistic view of the policy levers required to support fossil fuel worker transitions in the region which is outlined in the final section of this report.

CENTRAL QUEENSLAND'S FOSSIL FUEL WORKFORCE: This section provides an overview of Central Queensland's fossil fuel workforce including characteristics of the workers and changes to future demand under the *Step Change* scenario as modelled in the *Regional Economic Forecasts* report.

POTENTIAL TRANSITION PATHWAYS: This section outlines the three core transition pathways available for Central Queensland's fossil fuel workers and provides an estimate of the training needs for these workers to support worker transitions.

EDUCATION & TRAINING ENVIRONMENT: This section assesses the current training capacity of Central Queensland and provides an estimate of the training needs for fossil fuel workers under the identified transition pathways.

TRANSITION BARRERS & ENABLERS: This section identifies the key barriers and enablers facing worker transitions including the regional capacity of the labour force, differences in role characteristics, demographic considerations, and current support programs and alternative support programs to be considered.

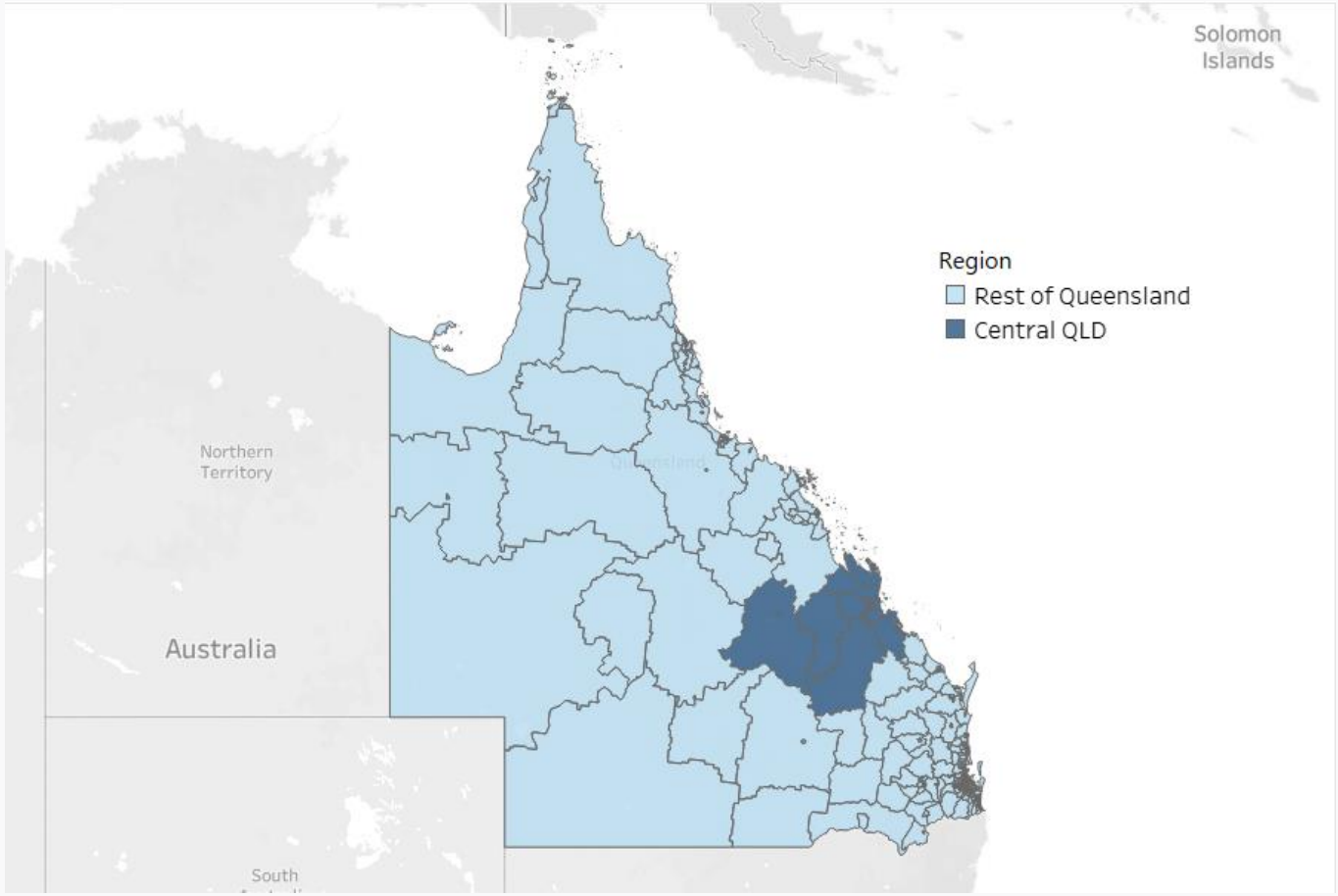
POLICY GAP ASSESSMENT: This section outlines the recommended policy levers that could be used to support fossil fuel worker transitions in Central Queensland.

APPENDICES: This section provides technical detail on the definitions, approaches and data sources used within the analysis of this report.

*The transition scenarios produced by Deloitte Access Economics as part of AEMO's Draft 2025, Inputs, Assumptions and Scenarios Report outline possible demographic, economic and decarbonisation pathways for Australia. These scenarios focus on the pace of the transition, particularly in the energy sector, to support AEMO's long-term energy consumption forecasts. While the forecasts do not explicitly capture the method of decarbonising, the net zero pathway constraint means that emissions-intensive industries are most affected.

The analysis in this report is focused on Central Queensland which is defined as the combination of seven working zones which cover a total of 33 SA2 regions.

Central Queensland map



Central Queensland Working Zone Listing

State	Working Zone Name
QLD	Banana
QLD	Rockhampton and surrounds
QLD	Biloela
QLD	Gladstone and surrounds
QLD	Central Highlands-East (Qld.)
QLD	Emerald and Central Highlands-West
QLD	Yeppoon and surrounds

Source: Net Zero Economy Authority, Australian Bureau of Statistics

Central Queensland SA2 listing

Banana

SA2 NAME	SA2 CODE
Banana	308041528

Biloela

SA2 NAME	SA2 CODE
Biloela	308041529

Central Highlands-East (Qld.)

SA2 NAME	SA2 CODE
Central Highlands - East	308011190

Yeppoon and surrounds

SA2 NAME	SA2 CODE
Rockhampton Surrounds - North	308031219
Shoalwater Bay	308031221
Yeppoon	308031223

Rockhampton and surrounds

SA2 NAME	SA2 CODE
Berserker	308031205
Bouldercombe	308031206
Emu Park	308031207
Frenchville - Mount Archer	308031208
Glenlee - Rockyview	308031209
Gracemere	308031210
Lakes Creek	308031211
Mount Morgan	308031212
Norman Gardens	308031213
Park Avenue	308031214
Parkhurst - Kawana	308031215
Rockhampton - West	308031216
Rockhampton City	308031217
Rockhampton Surrounds - East	308031218
Rockhampton Surrounds - West	308031220
The Range - Allenstown	308031222

Gladstone and surrounds

SA2 NAME	SA2 CODE
Boyne Island - Tannum Sands	308051531
Callemondah	308051532
Clinton - New Auckland	308051533
Gladstone	308051534
Gladstone Hinterland	308051535
Kin Kora - Sun Valley	308051536
South Trees	308051537
Telina - Toolooa	308051538
West Gladstone	308051539

Emerald and Central Highlands-West

SA2 NAME	SA2 CODE
Central Highlands - West	308011191
Emerald	308011192

CENTRAL QUEENSLAND'S FOSSIL FUEL WORKFORCE

Central QLD has 12,400 fossil fuel workers concentrated in specialised mining roles, indicating a need for alternate employment pathways as facilities close.

The current fossil fuel workforce in the Central QLD

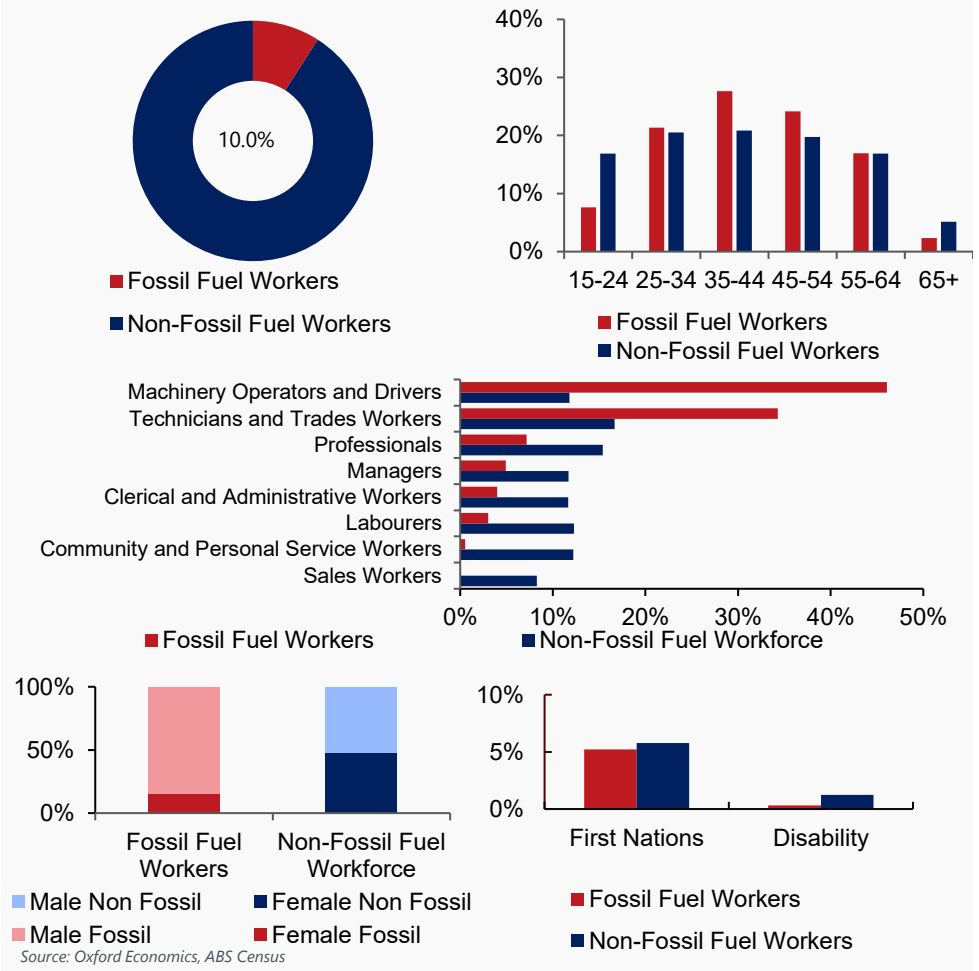
Central QLD is estimated to employ 12,400 fossil fuel workers as of 2024, representing 10.0% of the region's total workforce. The fossil fuel workforce is heavily concentrated in coal mining, with 95.7% of fossil fuel workers employed by this industry. Major employers include Coronado Global Resources[2], Glencore[3] and Anglo American[4], who employ an estimated 2,500, 2,100 and 2,000 employees respectively. The Oaky Creek coal mine is anticipated to close in 2028, impacting approximately 300 roles. However, greenfield sites may provide avenues for continued fossil fuel employment. Whitehaven Blackwater has proposed the Blackwater South[5] coal mine, which could be operational by 2032 and employ 1,200 workers.

The occupational makeup of the fossil fuel workforce differs significantly from the wider Central QLD workforce, which may increase challenges for workforce transitions. Machinery operators & drivers and technicians & trade workers account for 80.4% of fossil fuel workers, but make up only 28.5% of Central QLD's non-fossil fuel workforce. Employment is highly concentrated in miners, making up 32.0% of all fossil fuel workers.* While some workers may be able to transition into machinery operators & drivers and technician & trades worker roles outside of the fossil fuel sector, the concentration of workers in these roles suggests that pathways into alternate occupations may be required.

Central Queensland's fossil fuel workforce is more likely to be made up of prime working-age people (73.1% vs 61.1%) and men (84.5% vs 51.9%) compared to the non-fossil fuel workforce. The age difference is predominantly driven by fewer 15-24-year-olds in fossil fuel jobs, which reflects the higher skill level required, often linked to greater qualifications and experience, and less workplace flexibility. The concentration of prime age workers indicates most will still be in the workforce by 2035 and potentially require transition support as facilities close. The higher share of men is partly due to the large number of machinery operators & drivers and technicians & trades workers in the industry, which are male-dominated occupations. However, even within these jobs, fossil fuel workers are more likely to be male.

Workers who identify as needing assistance with core activities are underrepresented in the fossil fuel industry. Only 0.3% of workers identify as having a disability compared to 1.2% of the region's workers. First Nations people are also underrepresented in the fossil fuel workforce, accounting for 5.2% of fossil fuel workers compared to 5.8% of non-fossil fuel workers. While persons who identify as needing assistance and First Nations persons do not make up a disproportionately large share of the fossil fuel workforce, targeted support measures may still be required for these groups.

Central QLD fossil fuel worker profile



Source: Oxford Economics, ABS Census

**Miners are a 6-digit ANZSCO occupation within the machinery operators & drivers 1-digit ANZSCO group.*

Fossil fuel workforce demand is set to decline noticeably due to mine closures, reversing the growth seen over the past decade.

Outlook for fossil fuel worker employment in the Central Queensland

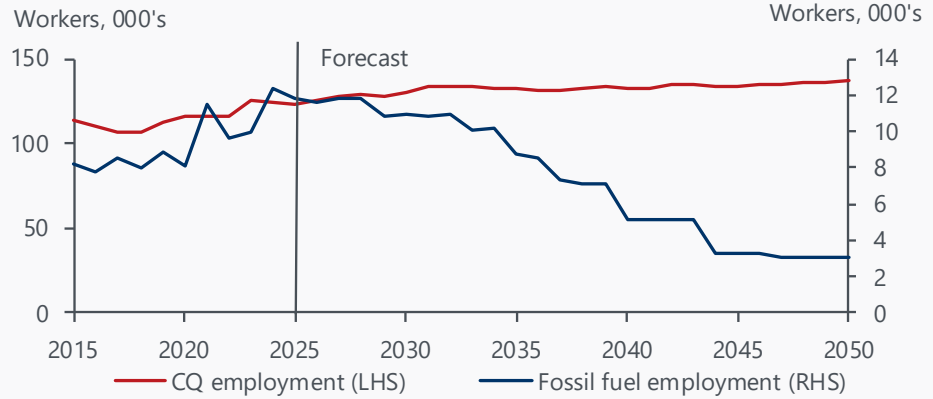
Fossil fuel employment in Central Queensland has remained strong in the last decade, growing at 4.9% p.a. to 2024, which is much higher than the regional's overall workforce growth of 0.9% p.a. over the same period. However, despite continued steady increase in regional employment, jobs in the fossil fuel industry are projected to decline significantly in the near future, mainly due to mine closures and falling global demand. As a result, the proportion of fossil fuel workers within the total workforce is estimated to fall from 9.5% in 2025 to 6.7% in 2035.

The projected contraction of fossil fuel workforce in the next 10 years can largely be attributed to the expected closure or suspension of several key coal mines, including Meter Downs South (2027), Oaky Creek (2028), Kestrel (2032), Dawson Complex (2034), and Gregory Crinum (2035). Rising operational costs, increasing state royalties, and falling global demand are expected to drive further mine closures and place downward pressure on the region's fossil fuel workforce.

Central Queensland's fossil fuel workforce demand is projected to experience a sharp decline, falling by 29% by 2035. Currently, around 12,400 fossil fuel workers are employed in the regional fossil fuel industry as at 2024. However, it is estimated that approximately 3,590 jobs will be lost, leaving just 8,800 workers remaining in the sector by 2035. Drillers, miners and shot firers currently account for 34% of the fossil fuel workforce and are expected to decline by 28.2% by 2035. The decline in employment demand is expected to continue beyond 2035, resulting in fossil fuel sector contributing only a relatively minimal share to the region's total workforce by 2050.

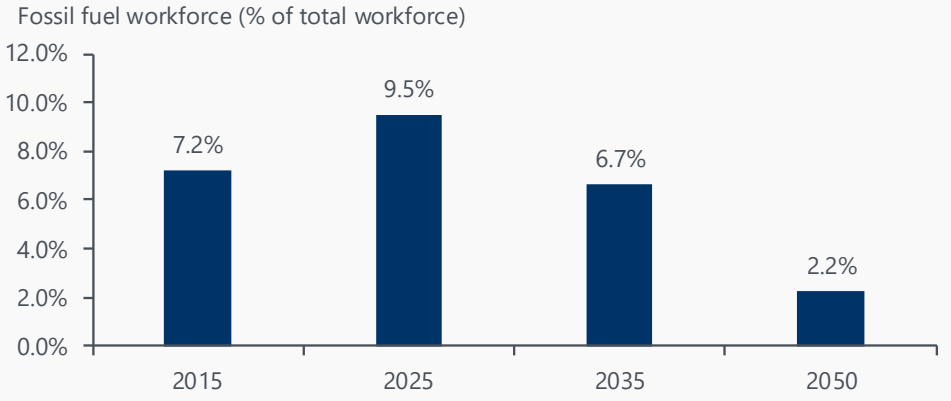
While the fossil fuel workforce in Central Queensland has a relatively high proportion of prime working-age people, this is mainly due to a smaller number of younger workers. There is also a significant proportion of workers in the older working-age group, with around 19% expected to retire by 2035. This natural attrition may potentially reduce the number of workers needing support through transition. Approximately 1,210 fossil fuel workers are likely to move into similar or skill adjacent roles within the region. While there is some transferability of skills, many workers are likely requiring reskilling or upskilling to adapt to new industries. In addition, some may face barriers related to job interest, wage expectations, and access to appropriate training opportunities.

Fossil fuel worker employment, 000's, 2015 - 2050



Source: Oxford Economics based on AEMO Step Change scenario, ABS labour force, ABS Census

Fossil fuel share of workforce, 2015 - 2050



Source: Oxford Economics based on AEMO Step Change scenario, ABS labour force, ABS Census

POTENTIAL TRANSITION PATHWAYS

We have estimated 1,210 fossil fuel workers are likely to undertake a workforce transition by 2035 based on the current make up of the workforce and changes to demand over time.

Method for quantifying the workforce transition need

3,590
fewer fossil fuel roles

Under the *Step Change Scenario* the expected loss of fossil fuel roles is 3,590 due to closures in fossil fuel generators and mines. Renewable projects provide some offset, but overall employment demand is lower.

2,380
workers likely to retire

Around a fifth of the current fossil fuel workforce is aged 55+. We assume that these workers exit the labour market in the 10 years to 2035, reducing the size of the workforce likely to undertake workforce transitions to 1,210.

1,210
workers likely to undertake a workforce transition

Most of the workers likely to undergo a transition into a new role are in key specialist roles (76%), followed by highly transferable roles (17%) and a small number of other specialist roles (7%).

Key specialist roles - 76%
Largest 10 roles with skills highly relevant to fossil fuel activities including drillers, miners & shot firers, metal fitters & machinists, electricians, other building & engineering technicians, truck drivers, structural steel & welding trades workers, production managers, other stationary plant operators, chemical, gas, petroleum & power generation plant operators,and earthmoving plant operators

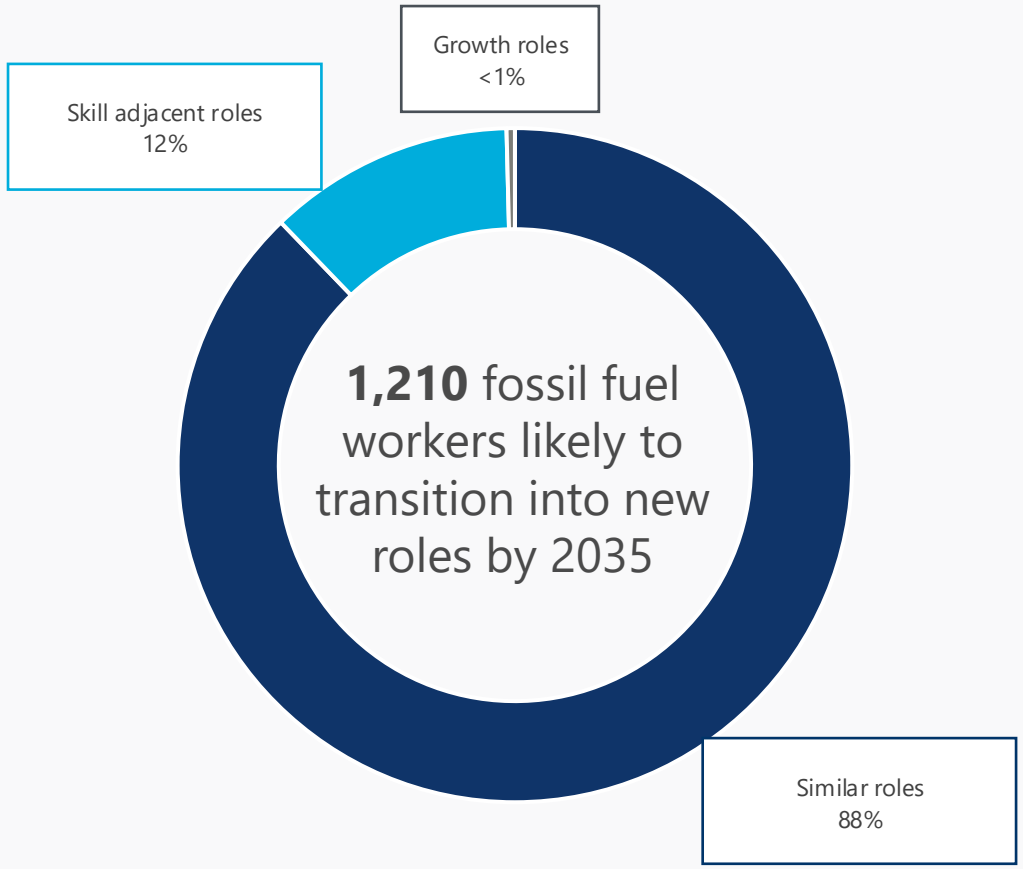
Other specialist roles - 7%
Other roles with skills highly relevant to fossil fuel activities

Highly transferable roles - 17%
Back office functions and transferable on-site functions

Source: Oxford Economics based on AEMO Step Chance scenario

The vast majority of fossil fuel workers seeking to transition into new roles are likely to find opportunities in both similar and skill adjacent roles.

Fossil fuel workforce transition pathways



Source: Oxford Economics

Headline analysis of transition pathways

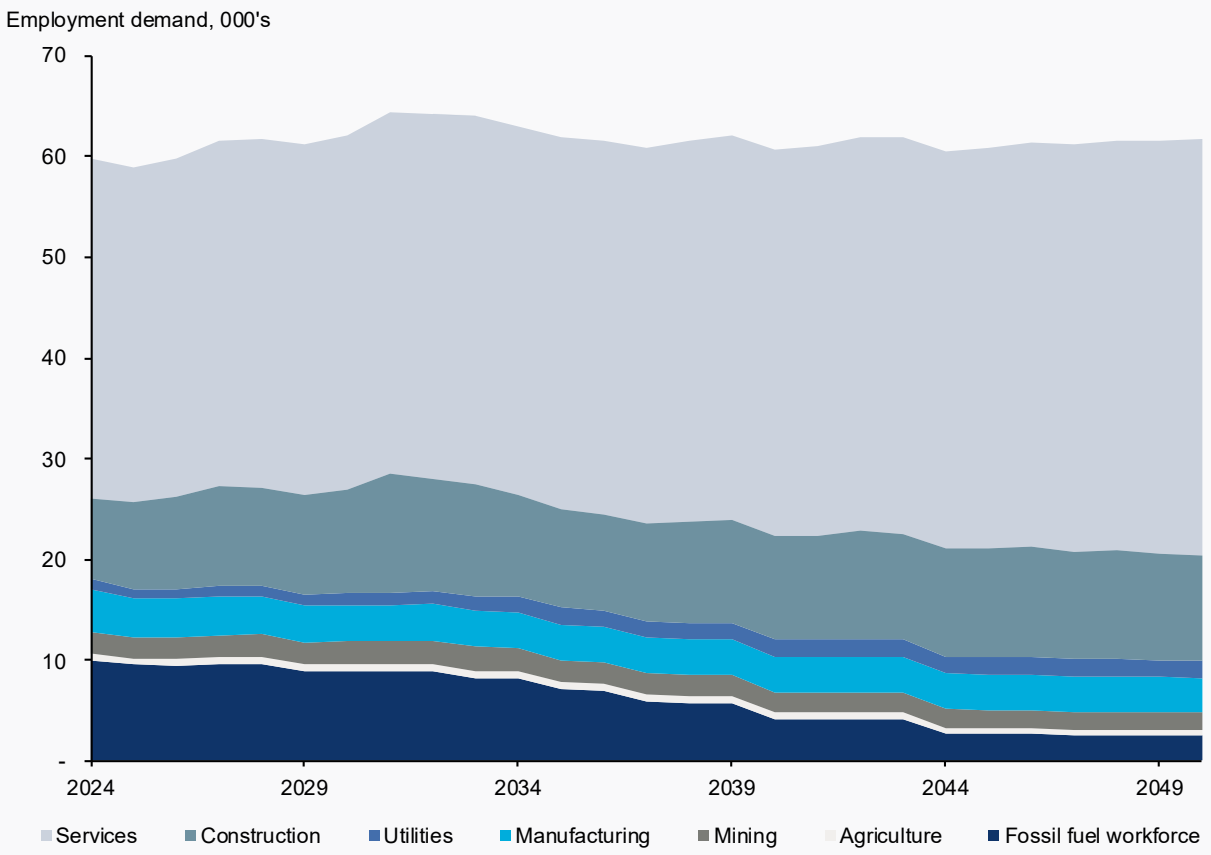
Similar roles across other industries represent a critical pathway for fossil fuel workers, with the potential to absorb around 88% of the workforce affected by the sector's projected decline. This pathway is particularly viable for occupations with highly transferable and industry agnostic skill sets, such as those in finance and human resources. This pathway is also accessible to a substantial proportion of workers in key specialist roles. Except other building and engineering technicians and a small fraction of production managers, all key specialist roles are likely to be fully absorbed into similar roles in other industries.

Skill adjacent roles are also a complementary pathway for many fossil fuel workforce transitions, potentially responsible for 12% of transitions where highly specialised skill set may present limited similar opportunities. Successful transitions along this pathway will likely necessitate reskilling in new specialist areas, complemented by upskilling in capabilities such as digital engagement and planning and organising. This approach enables fossil fuel workers to adapt their expertise to emerging industry demands while addressing the evolving nature of work.

Growth roles represent a niche but necessary pathway, with less than 1% of the fossil fuel workforce likely to pursue this pathway as their first option for new roles. Demand for similar and skill adjacent roles is anticipated to accommodate most displaced workers, however, due to the extent of demand shift, some workers may not be able to secure positions in these categories. Furthermore, competition from new entrants may restrict transitioning workers' access to similar and skill adjacent roles. Opportunities in high growth roles remain essential to support workforce transition though they will often require substantial reskilling. Under a *Step Change* scenario, high growth roles are concentrated in high skill health and education roles. Priority investment areas for the region also present important growth opportunities for fossil fuel workers, as these industries are well aligned to the fossil fuel workforce skillset.

An estimated 88% of fossil fuel workers may be able to transition into similar roles, driven by ongoing demand across other sectors for both support and key specialist roles.

Employment demand for similar roles, by industry



Source: Oxford Economics based on AEMO Step Change scenario

Analysis of similar role transition pathways

Employment demand for similar roles across the region is expected to remain relatively steady over the forecast period, with opportunities growing across services and construction.

Approximately 1,060 fossil fuel workers (88%) are expected to be able to transition to similar roles within Central Queensland region. Workers in highly transferable occupations are likely to benefit most from this pathway, as these roles typically require minimal formal retraining or major support interventions. However, the overall transition process could still be enhanced by support measures such as career guidance and job search assistance to ensure smoother adaptation into new employment opportunities.

There may be some challenges for workers in specific communities and towns where similar role opportunities are less accessible. However, in aggregate the region presents strong opportunities for similar role transitions.

The majority of office-based roles (98%) in fossil fuel workforce are highly transferable and are likely to transition into similar roles across other industries with minimal support needed. These position, including HR, cleaning and food preparation, are industry-agnostic by nature, and continue to be in steady demand across a wide range of sectors. The regional employment outlook indicates that the greatest opportunities for these workers will likely be found in the expanding services sectors.

Most key specialist roles are also likely to undergo similar role transition pathway. These workers possess highly transferable skills, although chemical, gas, petroleum, and power generation operators tend to have more specialized skill set. However, even these workers may find opportunities in the electricity supply sector. Demand for specialist workers in general is expected to remain strong in services and construction-related industries. Additionally, the ageing workforce is likely to drive replacement demand to an extent over the next decade.

Fossil fuel workers moving into similar roles may face competition from new entrants to the workforce, particularly for key specialist occupations, where the challenge is heightened by expected industrial employment growth slowdown under *Step Change* scenario. However, their existing experience is expected to provide a competitive edge, along with further opportunities identified in the *Regional Investment Analysis*.

An estimated 12% of fossil fuel workers are likely to transition into skill adjacent roles, with most requiring reskilling to align their specialist skills with broader industry needs.

Analysis of skill adjacent roles

An estimated 140 fossil fuel workers (12%) are likely to consider transitioning into skill adjacent roles within the Central Queensland region. This represents the majority of the fossil fuel workforce after accounting for potential similar role opportunities. While there are some skill adjacent roles for fossil fuel workers across the economy that would require upskilling (13%), most are likely to require reskilling (87%) into adjacent fields. Workers who are likely to pursue a skill adjacent pathway will need to reskill to harness these opportunities.

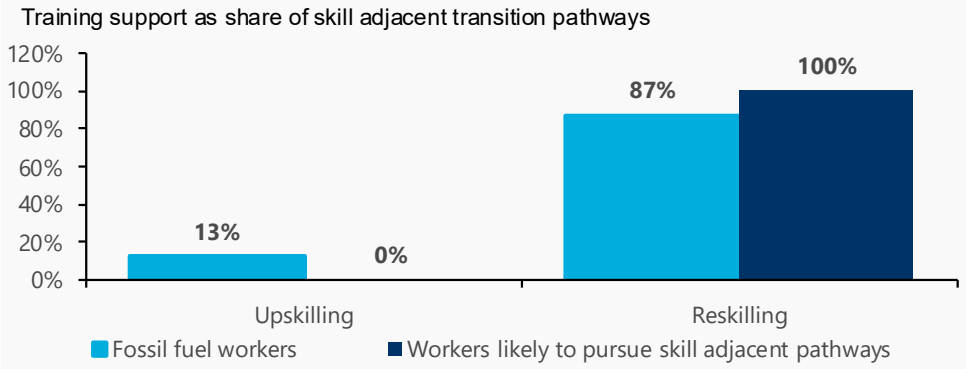
This pathway is particularly important for key specialist roles, where fewer direct transitions into similar roles are available. It is expected to account for 12% of these workers' transitions. Due to the specialised nature of fossil fuel skill sets, moving into skill-adjacent roles will likely require reskilling, with a focus on building and business & management specialist skills. For foundation and generalist skills, upskilling will be necessary in most areas for fossil fuel workers, notably in digital engagement and planning & organising. Furthermore, despite the comparable specialist skill level, formal qualifications or industry-specific accreditation may still be required to address cross-sector differences.

Fossil fuel sector employs approximately 76% of the key specialist roles, leaving little capacity for these occupation to be absorbed into other industries. Production managers (e.g. mine manager, mine superintendent) and other building and engineering technicians (e.g. mine deputy, metallurgical or materials technicians) are likely to follow skill-adjacent transition pathways, as their specialised mining expertise limits transferability without significant reskilling. Other building and engineering technicians are likely to find opportunities in variety of trade and technical occupations, while production managers may shift toward different management positions. These transitions will generally require reskilling into specialist areas relevant to business management as well as engineering. As workers in these professions are generally highly skilled, minimal upskilling may be required. For some production managers, additional development in areas such as numeracy, writing, planning and organising, and problem solving may be beneficial.

Development of priority industries as identified in the *Regional Investment Analysis* report would further support skill adjacent opportunities. Most of the fossil fuel workforce exploring this transition pathway are likely to have relatively high skill levels associated with industrial activities. Training focused on expanding skill sets into high priority areas such as renewables and advanced manufacturing will be important.

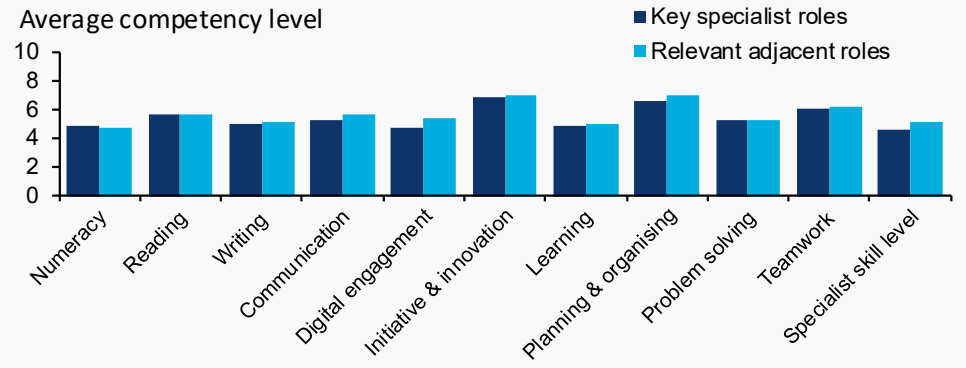
As these specialist roles are generally concentrated in specific mining communities, there may be some regional challenges in moving into skill adjacent opportunities outside their community. However, many of these workers travel significant distances for their current role, potentially mitigating the challenge of moving into a skill adjacent pathway.

Upskilling and reskilling requirements for skill adjacent roles



Source: Oxford Economics

Average skills competency for key specialist roles



Source: Oxford Economics, JSA

High growth roles under the current outlook would require fossil fuel workers to significantly invest in retraining, while priority investment areas present skill aligned opportunities.

Analysis of growth role opportunities in the Central Queensland region

While fossil fuel workers will be able to move into similar or skills adjacent roles within the Central Queensland region, there are broader opportunities across the workforce that may be of interest for some workers that require retraining.

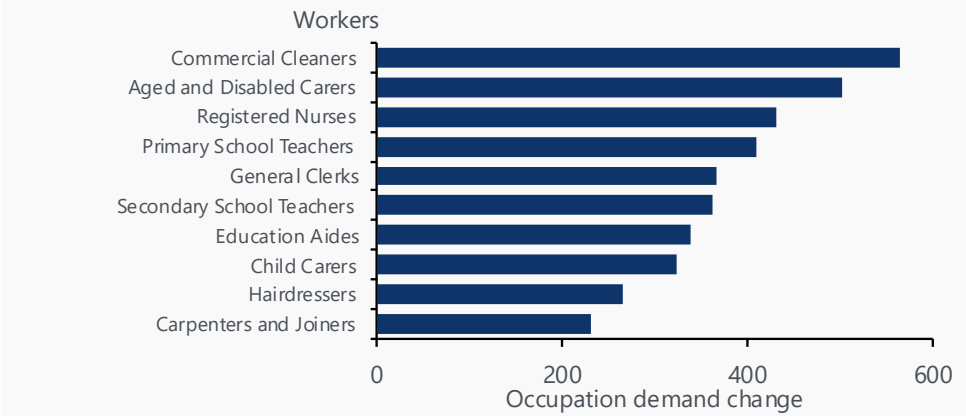
Demand for fossil fuel roles in Central Queensland is expected to decline significantly, but there are roles that are projected to grow strongly over the forecast period. While many fossil fuel workers may be able to transition into similar or skill adjacent roles, the scale of disruption from the decline in fossil fuel demand means some workers (less than 1%) will likely need to shift into occupations experiencing net growth. Total employment in Central Queensland is projected to increase from 123,480 in 2025 to 131,910 in 2035 under the Step Change scenario, representing a net gain of approximately 8,430 jobs. This is slightly lower than the increase of 9,960 jobs over the previous decade, indicating a slower rate of growth and potential structural shifts in key industries that may heighten competition for available roles.

Transitioning into high growth roles may present challenges due to the limited overlap of skills and experience of fossil fuel workers and those required in occupations expected to grow. Commercial cleaners are projected to see the largest increase in demand. These roles generally require minimal formal training and are often learned on the job, making them more accessible for transition. Roles in the healthcare and education sectors also show strong employment prospects. However, the fossil fuel workforce is primarily made up of machine operators and trades workers, where demand is set to decline. Due to the differences in skill sets and industry requirements, the transition pathways into these high growth occupations are likely to require significant retraining investment and are more suitable for some of the support roles within the fossil fuel workforce where skillsets are more similar.

Specialist skills in teacher education, human welfare studies & services, building and nursing are projected to experience strong demand over the forecast period. These trends highlight the growing need for specialised capabilities that support the societal needs of Central Queensland. In contrast, the specialist skills held by the fossil fuel workforce are expected to see declining demand by 2035, as the region undergoes industrial transformation. This indicates that fossil fuel workers will need to reskill into areas that are significantly removed from their current area of specialization to tap into the high growth opportunities. While this transition may be more achievable for highly transferable roles, particularly in back-office occupations, it presents greater challenges for key specialist workers whose skills are concentrated in industries facing long-term decline. Furthermore, while on-the-job training roles presents opportunities for fossil fuel workers, the challenge remains as these roles often do not leverage their existing specialized skills and experience.

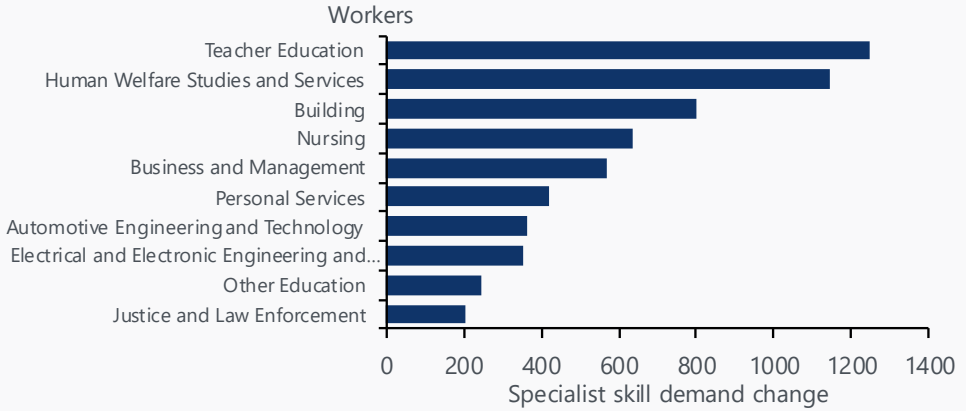
The priority areas identified in the *Regional Investment Analysis* also present potential growth opportunities for fossil fuel workers. Defence-related manufacturing, renewable hydrogen, and green metals processing are all sectors where workforce demand is expected to grow, creating opportunities in areas such as advanced manufacturing, engineering trades, and industrial operations. While transitioning from fossil fuel roles may present challenges due to specialised mining skill sets, the industrial and technical nature of the emerging sectors aligns well with the capabilities of the existing workforce.

Largest growth opportunities by role, 2024-2035



Source: Oxford Economics based on AEMO Step Change Scenario

Largest growth opportunities by specialist skill, 2024-2035



Source: Oxford Economics based on AEMO Step Change Scenario

EDUCATION & TRAINING REQUIREMENTS

Apprenticeship completions have been increasing, particularly in engineering & related technologies, architecture & building, and food, hospitality and personal services.

VET sector analysis

The vocational and education training (VET) sector is a critical pathway for supplying skills into the Central Queensland's workforce. Around 41% of the workforce hold a VET qualification as their highest qualification, with high concentrations in engineering, construction, and other services industries.

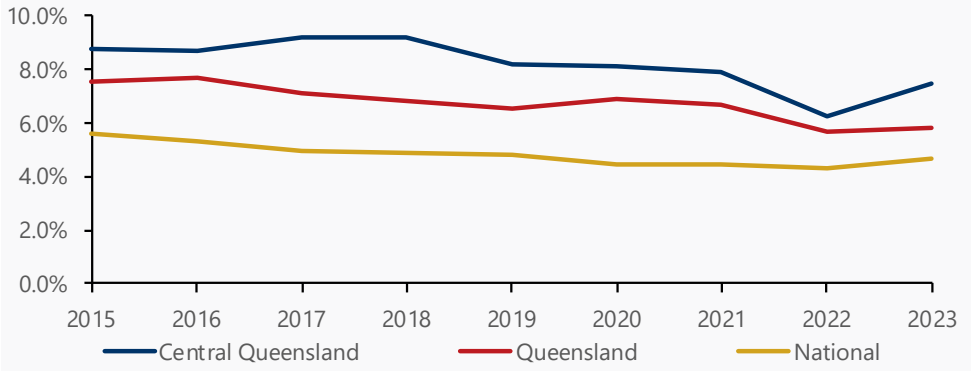
The completion trend in Central Queensland has generally aligned with the state and national patterns. While the VET completion rates have been gradually recovering since the pandemic, they remains below pre-pandemic level, with a notable year-on-year increase between 2022 and 2023. In 2023, 7.5% of the local population completed a VET course, though below the 8.8% rate in 2015, this remains higher than national average of 4.6% for the same year. Despite this improvement, total completions in 2023 were 13.3% lower (1,740 fewer completions) than in 2015, which is largely attributed to decline in commencements.

Apprenticeships continue to play a vital role in addressing skill demand across key trades sectors, including construction, utilities, and manufacturing. Completions have been increasing and have surpassed pre-pandemic level. The completion rate has remained relatively stable at approximately 1% between 2015 and 2023, with total completions rising slightly from 1,640 in 2015 to 1,650 in 2023. Central Queensland consistently reports higher apprenticeship completion rate than state and national. The most popular apprenticeship area is within engineering and services-related field

The region has CQUniversity, which supports a broad rage of TAFE training across several campuses in Central Queensland, including Rockhampton, Gladstone, Emerald, and Mackay. These campuses delivers trade-based apprenticeships and vocational training in areas such as hospitality and personal services.

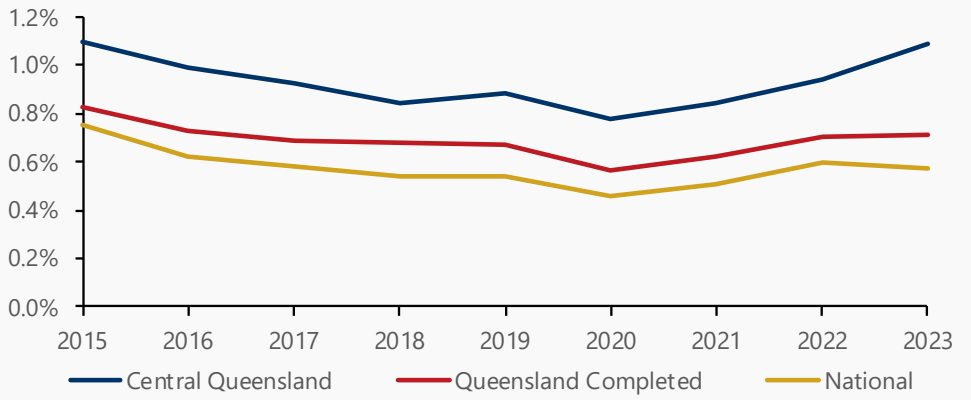
CQUniversity is significantly expanding its vocational education and training capacity to support Central Queensland's workforce needs. The $61.1 million TAFE Excellence Precinct[1] at the Rockhampton North campus will consolidate trade training facilities and increase annual student capacity to over 350 in areas such as construction, manufacturing, hospitality, and horticulture. Based on projected annual worker transition needs, this expanded capacity is expected to support upskilling and reskilling efforts into the relevant fields. Stage One, a $10.2 million centre focused on construction trades including bricklaying, carpentry, plumbing, and cabinet making, is already under construction. Since merging with CQ TAFE ten years ago, CQUniversity has invested more than $80 million[2] in new and upgraded facilities across the region, including Gladstone, Mackay, and Emerald. The university also collaborates with industry partners through the Queensland Future Skills Partnership[3] to deliver flexible training in emerging areas like automated mining technologies.

VET program completion rates, 2015 to 2023



Source Oxford Economics, NCVER

VET apprenticeship completion rates, 2015 to 2023



Source Oxford Economics, NCVER

**Completion rate is calculated as total completions as a share of the 15 to 64 year old population.*

The higher education sector has invested in resources to help the region adapt to the net-zero transition and create clear education-to-job pipelines, but workers may need to travel to access training.

Higher education sector analysis

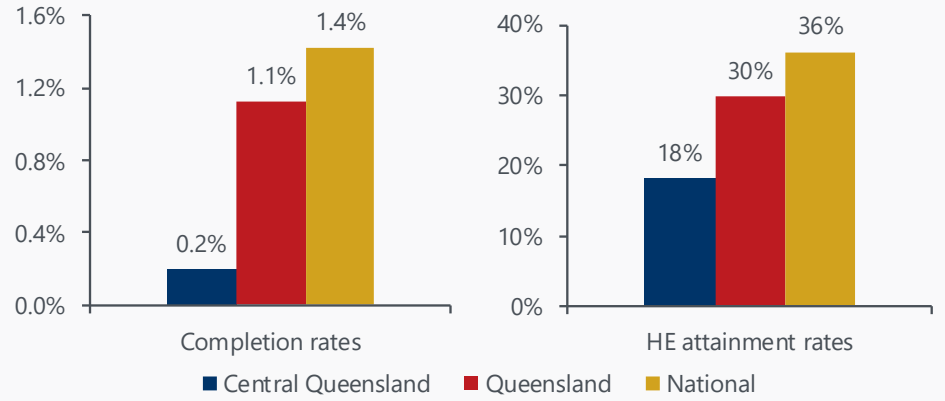
The higher education (HE) sector is an essential pathway for equipping Central Queensland with a highly skilled workforce. Around 18% of the regional workforce hold a HE qualification as their highest qualification, with high concentrations in health, management and commerce and education. Despite, the high attainment figure, local HE completions account for just 0.2% of the workforce, significantly below both state and national benchmarks. This substantial gap between attainment and completions in Central Queensland suggest that a large proportion of HE qualifications are likely acquired outside the region, which may limit the region's capacity to retrain skilled workers and build capabilities needed for economic transition.

CQUniversity, headquartered in Rockhampton, is the primary provider of higher education in the region, offering more than 200 undergraduate and postgraduate courses across a wide range of disciplines. Domestic student completions at CQUniversity reached 350 in 2022, before experiencing a slight decline to 320 in 2023. The completion rate has been relatively stable in the last 5 years. However, it continues to fall significantly lower than the state and national benchmarks. Enrolments have been declining post-pandemic, indicating a potential weakening of graduate pipeline in the coming years.

CQUniversity is playing a central role in strengthening Central Queensland's workforce and driving the region's transition to a low-emissions economy through targeted educational and research expansion initiatives. The university's Centre for Hydrogen and Renewable Energy[4], based at the Gladstone Marina campus, supports the growth of hydrogen and renewable energy industries in Central Queensland by delivering applied research, industry-aligned training, and workforce development through community and youth engagement. CQUniversity has partnered with key industry stakeholders, including Stanwell Corporation[5] and Sunshine Hydro[6], to co-develop clean energy initiatives, such as hydrogen innovation hubs, workforce development programs, and pilot technologies like the Mini Superhybrid™ system. CQUniversity has also introduced micro-credentials to build foundational knowledge in clean energy for school students, and its Hydrogen Community Hub[7] serves as a regional focal point for energy literacy.

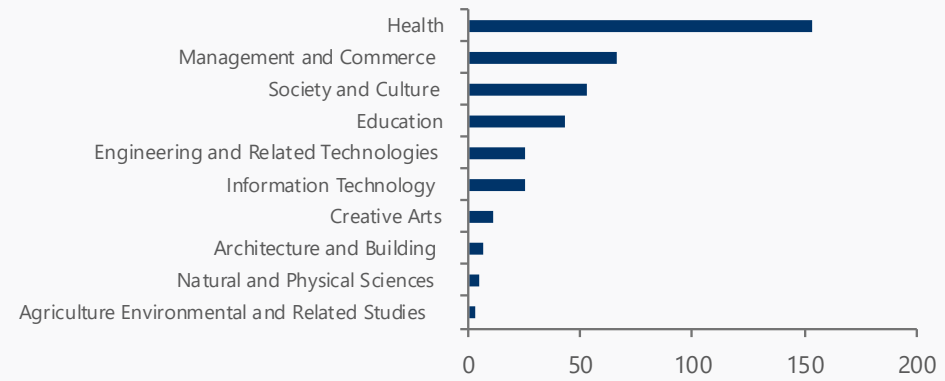
Furthermore, across the state, Queensland University of Technology (QUT) hosts the Energy Transition Centre[7] and the QUEST Hub[8], which include Australia's only lithium-ion battery manufacturing facility, clean hydrogen pilot plants, and a $15 million Queensland Energy Storage Technologies[9] initiative focused on battery storage research and commercialisation. The University of Queensland (UQ) similarly plays a leading role, with its Trailblazer collaboration[10] advancing critical minerals supply chain development for low-emission energy technologies. James Cook University (JCU) has also expanded its capabilities with the opening of the Engineering and Innovation Place[11], a new state-of-the-art facility supporting research and training in renewable energy, climate resilience, and regional infrastructure to prepare northern Queensland's workforce for the clean energy transition.

Average completion rates, 2018 to 2023 & attainment rates, 2021



Source Oxford Economics, Department of Education

Most common HE course completions by field of education, 2023



Source Oxford Economics, Department of Education

**Completion rate is calculated as total completions as a share of the 15 to 64-year-old population.*
*** CQUniversity serves the wider Queensland region; the completion rate is calculated based on ratio student's ratio across campuses.*

TRANSITION BARRIERS & ENABLERS

Role specific barriers around skills and wages present significant barriers to workforce transitions, exacerbated by the age structure of the workforce.

Workforce barrier analysis

Regional barriers to workforce transition for fossil fuel workers appear to be relatively limited, with the region demonstrating sufficient capacity to absorb displaced workers and support their mobility. A wide range of opportunities exist across other industries, particularly in the services, construction and utilities sectors, which are expected to experience strong demand by 2035. While job availability present a potential obstacle for some groups, namely other building and engineering technicians, this is offset by skill adjacent role capacity that draw on related capabilities. The fossil fuel workforce is willing to overcome geographic mobility barriers, as these workers typically commute longer distances than the broader workforce average. This is largely due to prevalence of remote mining operations and the widespread use of fly-in fly-out arrangements. However, willingness to travel to new jobs will depend on the nature of the work. Furthermore, the region is well equipped with tertiary educational institutions which can support workers who require upskilling or reskilling as part of their career transition. However, it has limited capacity in higher education with low completion rates within the region from CQU, suggesting higher education training is often completed outside the region.

Role-specific barriers are generally moderate, with higher skill demands across the broader workforce and wage gaps standing out as the primary constraints. The fossil fuel workforce has a diverse skill profile. Some groups, such as engineering and managerial workers possess strong foundational and generalist skills sets that may enable a relatively smooth transition. However, most trades workers and machine operators will require considerable upskilling as they generally score lower in skill assessment compared to the broader workforce average. In particularly, truck drivers and earthmoving plant operators tend to have average skill level nearly 1 point lower than the average regional workforce. Without appropriate support, their skills are not readily transferable to new roles. Moreover, workers in the fossil fuel sector generally receive substantially higher wages, primarily due to their specialized skill, extensive experience, and the industry's high productivity. This wage disparity could pose a major barrier to transitioning, as many alternative roles in other industries may offer lower compensation. Furthermore, there exists a certain level of competition between displaced fossil fuel workers and newcomers entering the job market, which may further constraint the already limited employment prospects. Nonetheless, the number of graduates currently joining these industries is relatively modest, suggesting such pressure should remain manageable in the near term. Additionally, employment status is unlikely to pose an obstacle, as the majority of fossil fuel workers are employed full-time, which aligned with the average employment pattern across the region.

Demographic barriers, with age as a critical factor, can hinder workforce mobility among fossil fuel workers in Central Queensland. A considerable number of these workers belong to older age groups, which may not only make reskilling or changing careers more challenging due to potential skills gaps but could also affect their willingness to pursue such transition, especially as many approach retirement age. Nevertheless, the proportion of workers needing additional support is relatively small, indicating a limited demand for targeted assistance during transition. Though the representation of First Nations people make up a minimal segment of the workforce, tailored support may still be required to address specific needs of this cohort.

Workforce barrier assessment by barrier type

Barrier type		Barrier assessment
Regional	Job availability	**Low**
	Diversification of roles	**Low**
	Workforce willingness to commute	**Low**
	Training availability	**Medium**
Role	Skills*	**High**
	Qualifications*	**Medium**
	New graduates supply**	**Medium**
	Wages	**High**
	Employment type	**Low**
Demographic	Age	**High**
	First Nations	**Low**
	Disability	**Low**

Source: Oxford Economics

**Ranking compares the fossil fuel workforce skills and qualifications to the broader workforce.*
***based on SA4 and OE workforce supply modelling*

Policy response is required across all three levels of government, ensuring consistent support for fossil fuel communities that is flexible to a region's economic priorities.

Policy Levers

Diversification

Create new economic opportunities through investment in new industries and infrastructure to reduce regional dependence on fossil fuels and create alternative employment opportunities

Retraining

Provide workers with the resources to make informed decisions on retraining pathways that are likely to provide long-term, stable employment

Redeployment/ Transition Support

Utilise and repurpose the existing fossil fuel workforce as the industry declines to ensure continued employment opportunities for fossil fuel workers

Early Retirement

Offer older workers with limited redeployment opportunities and limited benefits from retraining, redundancy and retirement bridging packages to ease labour market pressure on key occupations in decline.

Government roles

Federal

Provides national frameworks that guarantee worker entitlements, provide structural adjustment funding, and coordinate transition planning across jurisdictions.

State

Implements regionally tailored transition mechanisms such as statutory authorities, training and reskilling programs, and industry development initiatives for coal-dependent areas.

Local

Engages with communities and industry stakeholders, contributes to transition authorities, and facilitates local initiatives that reflect workforce and economic priorities.

**Early retirement was out of scope for this analysis.*

Worker transition policy is broad with specific supports for job security at Government-owned fossil fuel generation workers and workers at associated mines.

Current workforce policy support

Workforce transition policies in Central Queensland combine national consistency with regional flexibility, guaranteeing workers' core entitlements in transitioning industries while enabling communities to adapt solutions to their circumstances.

Federally, the *Energy Industry Jobs Plan* (EIJP) ensures workers in coal fired power stations, associated coal mines and supply chain businesses are provided transition supports by their employers. This is further supported by the *Regional Workforce Transition Plan* will set out place-specific strategies for regions significantly impacted by Australia's transition to a net-zero emissions economy, delivered on the ground by Regional Workforce Transition Officers who link workers to training, jobs, and support services[13,14]. Transition support for retrenched workers can be accessed through the Department of Employment and Workplace Relations Transition Support Network; however, beyond this, there appear to be limited resources to help workers in declining industries proactively transition[15]. Training access is expanded through the New Energy Apprenticeships stream of the Key Apprenticeship Program (supporting apprentices in clean energy trades), Fee-Free TAFE (eliminating training costs for priority courses), and the Clean Energy Training Investment Fund (building new capacity in TAFE and registered training organisations to deliver clean energy skills)[16,17,18]. Training products are informed directly by industry feedback, with the relevant Jobs and Skills Council advising on the type of training required by the job market and that will drive high-quality outcomes for both employers and employees.

State policy in Central Queensland currently combines retraining and transition support, regional economic diversification, and targeted public sector redeployment to manage the transition for fossil fuel workers. On retraining and transition support, Queensland has established a pipeline of training infrastructure and programs: Stanwell Corporation's Future Energy Innovation and Training Hub in Rockhampton will deliver practical training aligned to emerging technologies; Powerlink's SuperGrid Training Centre in Gladstone aims to upskill up to 500 workers per year and expand apprenticeships for transmission build-out[19,20]. Furthermore, the Queensland Government has released a Future Energy Jobs Guide highlighting occupations that will be required in the future energy sector, and put $15 million towards the VET Emerging Industries Initiative to ensure potential skill gaps in manufacturing, agriculture and energy packages are identified and new VET products are developed where required to meet emerging industries' needs[21,22]. The Central Queensland Regional Transformation Strategy (2024) sets out economic diversification priorities in decarbonised manufacturing, renewable energy supply chains, advanced and value-added agriculture, and freight and logistics, with the $200 million Regional Economic Futures Fund providing funding for priority areas[23,24]. Recent allocations include $5.4 and $3.0 million for industrial precincts in Biloela and Rockhampton, respectively, to attract new industries[25]. On redeployment, the Queensland Energy and Jobs Plan and the Queensland Energy Workers' Charter provide a job security guarantee, training and financial support, and the progressive conversion of publicly owned power stations into regional energy hubs. These redeployment provisions apply to employees of government-owned corporations and associated mines[26,27].

Local governments and regional bodies in Central Queensland are implementing coordinated, place-based transition measures. Gladstone Regional Council's Economic Transition Roadmap 2022–2032 identifies shifting to hydrogen and large-scale renewables, building on its history as an energy exporter[28]. Furthermore, the council identified that the region has current acute workforce shortages in renewables, manufacturing and health and suggested that prioritising training in these areas could support transition workers as these are known parts of the economy which have existing workforce shortages. Councils across the region co-designed the Central Queensland Regional Transformation Strategy (2024) with the state to align industrial land activation, investment attraction and skills programs with emerging energy and manufacturing supply chains[21]. These initiatives are designed to integrate with state and Commonwealth frameworks, including the Queensland Energy and Jobs Plan, the Clean Energy Workforce Roadmap. Reflecting the need for formal local input, the Local Government Association of Queensland (LGAQ) is advocating for local government representation on the Net Zero Economy Authority board to embed place-based knowledge in transition decision-making[29].

International policy efforts have combined a mix of diversification, redeployment, retraining and early retirement to support workforce transitions.

International workforce policy support examples

International workforce transition plans use a mix of policies to support displaced fossil fuel workers. Countries such as Germany, Spain, Canada, and the United States have combined diversification funding, redeployment, retraining, and early retirement schemes to protect livelihoods while building pathways into new industries.

Diversification funding has been used internationally to reduce a region's reliance on fossil fuel industries by investing in infrastructure and programs to attract new industries. The German government's 2020 Structural Strengthening of Coal Regions Act committed to spending €40 billion over 20 years on infrastructure upgrades, industry attraction and diversification, and research and development[34] Canada and the United States have both committed more modest resources to increasing economic diversification in fossil fuel communities. Funding in Canada was primarily directed towards infrastructure, with the C$150 million Infrastructure Fund providing coal regions funding to upgrade local infrastructure to make the regions more attractive to investment[35]. Furthermore, the C$35 million Coal Transition Initiative provided funding for communities to develop sector strategies to attract future industries[35]. In the United States, the POWER (Partnerships for Opportunity and Workforce and Economic Revitalisation) Initiative, run by the Appalachian Regional Commission, has channeled more than US$480 million into projects such as broadband networks, business incubators, and land redevelopment to attract new employers[36].

Redeployment policies help workers remain employed by shifting them into roles that use existing skills. In Spain, the 2018 Just Transition Agreements were negotiated specifically around coal mine closures, with ex-miners prioritised for mine land rehabilitation and public works that matched their heavy equipment, safety, and environmental management skills[37]. In Canada, redeployment was less formalised but present, with the provincial government providing enhanced employment services including a top-up on traditional unemployment benefits, education and relocation support [39,40].

Retraining programs internationally have focused on aligning training opportunities with identified growth industries and boosting training infrastructure to meet the increased needs of regions in transition. Spain focused retraining on miners not covered by early retirement or redeployment, with training programs designed to redirect younger workers into identified industries, including construction, energy, and environmental services[37]. German workers who were not old enough to retire were provided access to their national upskilling fund[34]. Canada's Just Transition Task Force recommended the creation of locally based worker transition centres that provide career counselling and subsidised training, with programs aligned to regional opportunities in clean energy, construction, and advanced manufacturing[39]. In the United States, the POWER Initiative channels funding to community colleges and workforce boards to reskill displaced workers in IT, healthcare, and advanced manufacturing, emphasising sectoral diversification[36].

Early retirement and pension bridging schemes reduce pressure on the labour market by offering older workers a secure exit when retraining is less realistic. In Germany, the Anpassungsgeld (APG) allowance provided income support for workers aged 58 and above in both mines and power plants until they qualified for statutory pensions, ensuring stability and protecting entitlements35. Spain's 2018 Just Transition Agreement offered miners aged 48 and above early retirement packages with state-backed pension top-ups, while younger workers received redundancy payments and retraining opportunities[38]. In Canada, Alberta's Coal Workforce Transition Program considered a "bridge to retirement" payment for eligible power sector workers close to pension age, complementing federal transition supports, however, it decided against this and instead relied on more generous unemployment benefits to help workers transition within instead of out of the labour market[39].

POLICY GAP ASSESSMENT

State-level economic diversification and retraining initiatives provide broad support, with targeted measures needed to ensure transitioning workers can effectively access and benefit from these opportunities.

Barriers

Demographics

- The demographic make-up of key roles in the fossil fuel workforce in Central Queensland is older, predominantly male, with limited numbers of workers with a university education, which matches the profile of those at risk of longer unemployment duration[41].

Qualifications & skills

- Across key specialist occupations, fossil fuel workers tend to have skill levels that are lower than or match those of the wider Central Queensland population. In addition, their education is more centred around VET and on-the-job-training, with lower rates of diploma and above education. Despite this, they receive above-average wages.

Wages

- Fossil fuel workers have marginally lower education levels on average, with workforce education primarily centred around VET and on-the-job training. Despite having lower levels of formal education, they currently receive above-average wages.

Assessment of current levers

The Queensland Energy and Jobs Plan and the Queensland Energy Workers Charter that came alongside it were designed with the principles of a just transition for the state's fossil fuel workers employed by government-owned corporations[26,27]. Eligible workers are guaranteed job security, redeployment and transition assistance, including financial support, and voluntary separation options such as early retirement or redundancy.

For workers not covered by the Queensland Energy Workers Charter, the state government has primarily focused on managing the transition away from fossil fuels through policies prioritising economic diversification and ensuring the region's training facilities are adaptive to the economic opportunities identified. Economic diversification strategies have focused on the opportunities available to the region from global decarbonisation through the $200 million Regional Economic Futures Fund and the Central Queensland Regional Transformation Strategy[23,24]. Training efforts are broad-based and do not tend to be specific to workers who are likely to transition, but are instead open to all to access, with training being prioritised in renewable generation, transmission and hydrogen production[19,20,22].

Retraining has been further supported by the Australian Government with Fee-Free TAFE, the Clean Energy Training Investment Fund, and the New Energy Apprenticeships stream of the Key Apprenticeship Program, which target critical skills in identified industries of interest for the region, as well as broader national skill priorities[16,17,18]. Furthermore, the Australian Government has identified Central Queensland as a community likely to be significantly impacted by the closure of emission-intensive industries, making it eligible for a Regional Workforce Transition Plan, which may include training pathways, career support and financial planning services[13]. This complements the *EIJP* that is targeted at coal fired power stations and their direct supply chains.

Additional support to address barriers

Fossil fuel workers likely to transition have varied levels of support across the fossil fuel regional workforce: comprehensive, codified supports for publicly owned generation workers, and indirect supports for export-oriented mining employees, contractors and privately owned power generation.

Beyond the potential Australian Government's commitments outlined in the Regional Workforce Transition Plan (RWTP), there is limited dedicated transition support for these workers. If current state policy persists, the RWTP could be the primary transition support offered to other fossil fuel workers in the region[13]. Potential supports offered by the RWTP include case management, career guidance, community hubs, retraining and transition support and well-being and financial advice. These measures could be implemented in a place-based fashion that takes advantage of the fact that workers in coal mining are clustered around 15 mines within the region. A review of the benefits as well as budgetary implications of providing transition support in a place-based fashion would be beneficial to inform future government decision-making on potential support offered to those not covered by the Queensland Energy Workers Charter.

** Industrial employment is made up of employment in agriculture, mining, manufacturing, utilities and construction*

Utilising workers current skills and qualifications to there fullest will limit the impact of wage disparities.

Analysis of key barriers and current support programs

Barriers

Central Queensland's fossil fuel workforce will potentially face barriers to finding employment, and when they do are likely to experience wage disparities compared with the compensation received in the fossil fuel industry.

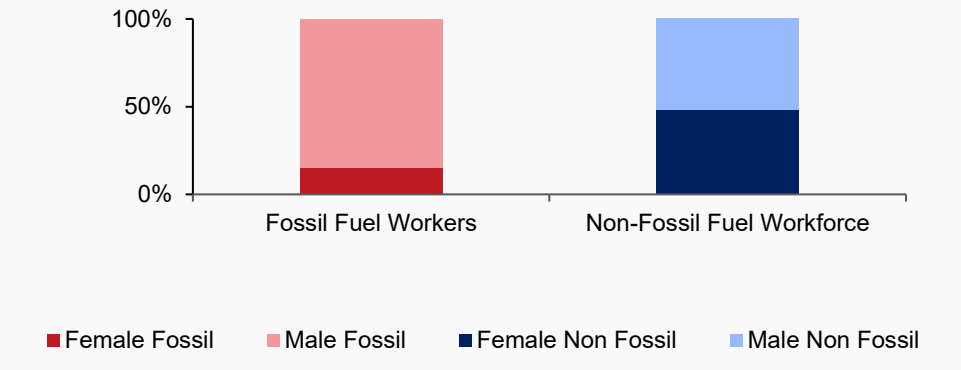
The fossil fuel workforce in Central Queensland is predominantly prime working-age men whose qualifications are concentrated in senior secondary and VET pathways, which raises re-employment risks as industry conditions shift. Evidence shows that older, male workers without a university degree experience longer durations of unemployment[41]. In Central Queensland, fossil fuel workers are primarily male (85%), have lower rates of university attainment (8% versus 19% among non-fossil-fuel workers), and are marginally older, with 43% aged 45+ compared with 42% in the broader regional workforce.

High industry wages set a benchmark that could be difficult to match for workers transitioning out of the fossil fuel industry. Despite lower-level formal qualifications and a skills profile that is broadly lower than or comparable to that of the wider Central Queensland workforce across the main employing roles, average wages in key specialist roles are significantly higher than regional norms, creating the potential for earnings losses during the transition. Furthermore, wage disparities tend to be further exacerbated the lower the skill level of an occupation is outside of the fossil fuel industry. Supporting workers transitioning into new roles to maximise their existing qualifications and skillsets will help reduce the scale of the income disparity they may face.

Current support programs

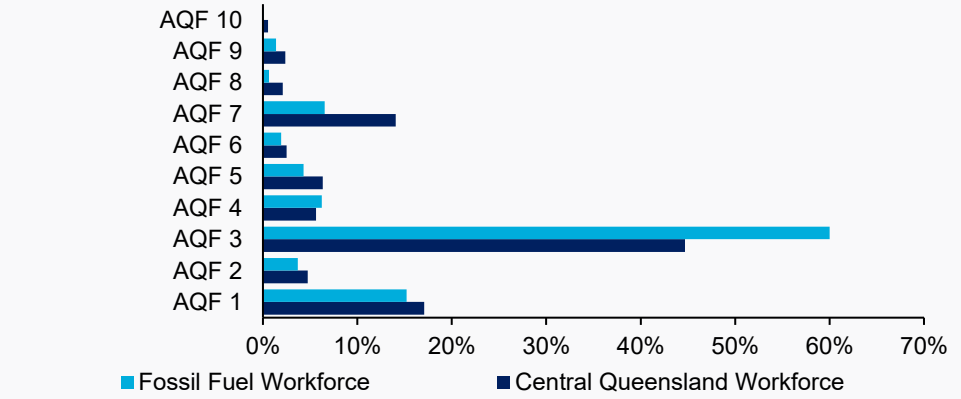
Workers employed at publicly owned generation facilities, and at eligible associated mines linked to those facilities, are supported under the Energy Workers' Charter, which provides a job security guarantee, redeployment and transition assistance, including financial support, and voluntary separation options such as early retirement or redundancy[27]. The Queensland Government is advancing economic diversification through the $200 million Regional Economic Futures Fund, which backs projects aligned with global decarbonisation, and through the Central Queensland Regional Transformation Strategy, which identifies low-emissions opportunities for jobs and investment[24,23]. To build the skills base required for this shift, the state is investing in regional training infrastructure, including Stanwell Corporation's Future Energy Innovation and Training Hub and Powerlink's SuperGrid Training Centre in Gladstone, to support the transition from fossil fuels to renewable energy[19,20]. In parallel, the government has committed $15 million to the VET Emerging Industries Initiative to identify potential skills gaps in manufacturing, agriculture, and energy, and to develop new training products where required to meet emerging industry needs[22].

Workforce gender distribution in Central Queensland



Source: Oxford Economics, ABS

Share of workforce by AQF level



Source: Oxford Economics, ABS

The Australian Government's proposed Regional Workforce Transition Plan could help coordinate career support and retraining opportunities for transitioning workers

Gap analysis of current policy levers

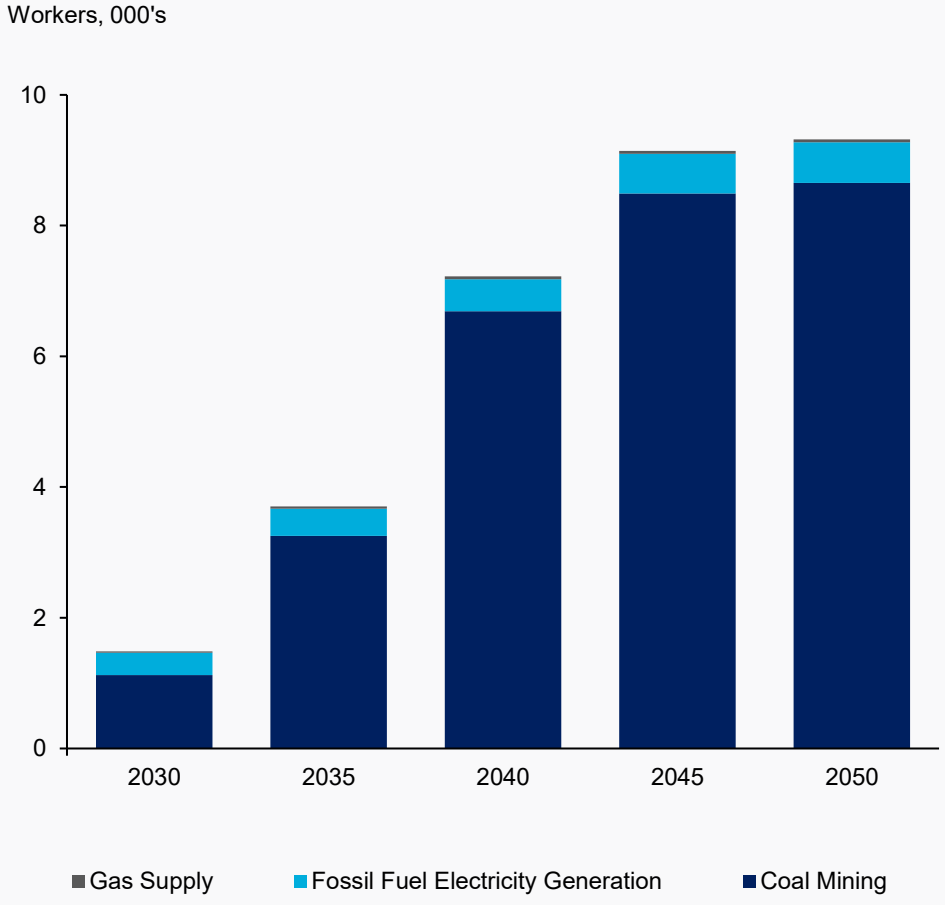
Gap

Support for fossil fuel workers in Central Queensland differs markedly by employer type and sub-industry type. Employees at publicly owned generation assets, and at eligible associated mines that directly supply those assets, are covered by the Queensland Energy Workers' Charter and potentially EIJP legislation[27]. They have clear access to job security guarantees, redeployment and transition assistance, and funded training. By contrast, most coal miners in export-oriented, privately owned operations do not have an equivalent entitlement. Their support is largely limited to broad regional initiatives, with the Australian Government's Regional Workforce Transition Plans[13] playing an important role in supporting these workers in conjunction with any relevant regional initiatives.

Current economic diversification and retraining policies are broad-based and are designed to identify future economic opportunities and workforce requirements. However, these measures do not provide tailored support to workers in the gas supply and coal mining sectors whose work is export-oriented. As a result, workers outside the publicly owned electricity system face less predictable pathways to support and more reliance on general employment and training programs that are not specific to their roles.

The distribution of expected job losses further amplifies this gap. Most job losses over the medium term are likely to occur in coal mining. Employment in metallurgical coal is forecast to decline as global decarbonisation efforts intensify. Current policy settings create uneven protection across the regional workforce: comprehensive, codified supports for publicly owned generation workers, and comparatively limited, indirect supports for export-oriented mining employees, contractors and privately owned power generation. The Australian Government's Regional Workforce Transition Plan will be an important policy support mechanism to provide private sector fossil fuel workers with coordinated employment and skills support, and to help workers access the broader-based retraining and career support policies that the Queensland State government has produced to prepare the region to take advantage of the opportunities of global decarbonisation.

Cumulative decline in roles, by sub-industry



Source: Oxford Economics based on AEMO Step Change scenario

TECHNICAL APPENDIX

FOSSIL FUEL WORKER ESTIMATES

The current size of the fossil fuel workforce has been estimated using a combination of census and labour force data.

Methodology for estimating fossil fuel workers in the region

Using Census data on industrial structures for the region and ABS Detailed Labour Force the following process was used to estimate the fossil fuel workforce.

1. **Workers are divided into smaller regions (SA3s) based on the share of the workforce that was in that location during the 2021 census, over the larger region it is a part of (SA3/SA4). This is done for each industry individually.** SA4 1-digit employment by industry is divided based on the share of 1-digit industry employment held by an SA3 in the 2021 Census.
2. **The share of workers in the smaller region is then multiplied by the current number of workers in the larger region to estimate the number of workers in the smaller region. (SA3/SA4)*(SA4)** Industrial share by SA3 is multiplied by the relevant industry SA4 ABS Detailed Labour Force employment to produce a current estimate of employment for the region of interest.
3. **Smaller industries (4D) are estimated by dividing the smaller industry by its parent industry (4D/1D). Once the smaller industry has been estimated we divide it into occupations based on the share of workers each occupation represented at the census.** 4-digit fossil fuel industries' shares from the Census are applied to estimate the fossil fuel workforce. 1-digit Census occupation shares are applied to the 4-digit industries of interest to estimate the occupational makeup of the fossil fuel industry

Definition of fossil fuel workers, ANZSIC 4-digit industries

Industry name	ANZSIC code	Definition
Coal mining	0600	This class consists of units mainly engaged in open-cut or underground mining of black or brown coal.
Fossil fuel electricity generation	2611	This class consists of units mainly engaged in the generation of electricity using mineral or fossil fuels in internal combustion or combustion-turbine conventional steam processes.
Gas supply	2700	This class consists of units primarily engaged in the distribution of gas such as natural gas or liquefied petroleum gas through mains systems.

Source: ABS ANZSIC (2006)

Additional source information

After producing the fossil fuel workforce estimates, we conducted a feasibility check using a bottom-up research approach. This involved aggregating employment numbers from company reports, government publications, and credible third-party sources across the relevant fossil fuel industries. This method allowed us to account for approximately 90% of the overall estimate, with the majority of identified employment concentrated among the largest companies. The remaining shortfall was anticipated, supporting our conclusion that the estimates were reasonable.

WORKFORCE TRANSITION METHODOLOGY

There are four pathways that fossil fuel workers can take as they transition to other roles in the Central Queensland economy.

Transition pathway	Similar roles	Skill adjacent roles	Growth roles	Workforce exits
	Similar roles are those that are the same or nearly identical to other roles within the regional workforce.	Skill adjacent roles are roles where qualifications and/or skills have similarities to other roles within the regional workforce.	Growth roles are those with strong demand in the region where specialist skills and qualifications are not well aligned to fossil fuel workers' skill sets.	A proportion of fossil fuel workers will continue to retire each year, exiting the workforce naturally as they enter retirement.
Support measures	**Transition support** will enable workers to identify the types of roles they are suitable for and the industries these roles are often in. This support often takes the form of employment services or financial assistance. Supporting workers into equivalent roles where their qualifications and skills are aligned should be prioritized as this pathways has the lowest investment requirement. Emphasis should be placed on growing and stable industries to provide longer-term role security for transitioning workers.	Supporting workers to identify and undertake **reskilling and upskilling** opportunities that align with current skills and qualifications will enable workers to transition to a skill adjacent role. Minimal training is needed to bridge the gap between a worker's current role and an identified skill adjacent role which can reduce pressure on the education system. Reskilling & upskilling should focus on pathways that minimise time out of employment and educational resources needed, while offering access to stable employment that leverages workers' existing skills and experience.	**Retraining** pathways should highlight qualifications that lead to roles in growing or stable industries to support long-term job security and living standards for at-risk workers. Significant training will be needed to retrain at-risk roles requiring investment from the worker, their employer and the region's education system. There are two key components of retraining support: the provision of training through educational pathways and support to enable at-risk individuals to identify new employment opportunities.	Workers exiting the workforce due to retirement will not require workforce transition support. In some cases, these workers may need financial advice to support their retirement decisions and planning*.
Additional considerations	Regional demand will determine how many workers can access transition support. Where a surplus of similar roles exists, prioritisation should be given to reskilling & upskilling over retraining.	Where workforce supply exceeds demand for workers in skill-adjacent roles, retraining may be required.	Retraining will also be required where there is a surplus of workers with similar and skill-adjacent roles.	Consideration should be given to the types of roles that tend to have older age cohorts and how this will impact workforce support pathways.

Notes: The workforce transition methodology appendix presents a decision tree outlining how fossil fuel workers can be assessed to ensure they receive the most appropriate employment support for their transition
** A review of retirement support policies and requirements is outside the scope of this project.*

Identifying appropriate transition pathways draws on three sources of information.

Skillsets demanded by the workforce

Skills analysis will identify transition pathways by highlighting viable alternative occupation pathways for fossil fuel workers. Viable pathways are defined as pathways where an occupation's **specialist, generalist** and **foundational** skills are equivalent to or greater than another occupation's skills.

Specialist skills

- Minimum education requirements are based on the Australian Qualifications Framework (AQF) level.
- The field of education is based on the most common field by industry occupation pair.

Generalist

- Are classified as a set of the required proficiency levels in core skills focused on generalist thinking and work-based learning experiences.

Foundational skills

- Are the basis upon which all other skills are built and are common across all occupations. Generalist skills (e.g. reading and numeracy).

Qualifications held within roles

Analysis of identified viable job pathways will be complemented with an assessment of the level and fields of education (**specialist skills**) held by fossil fuel workers.

Level of education (LOE)

- Data on the level of education that fossil fuel workers possess, e.g. Census data on highest educational attainment, will be analysed to confirm alignment with occupations' minimum education requirements.
- Seek data will be used to confirm the LOE that viable job pathways typically ask for, to determine if there are deviations in minimum educational requirements and actual education requirements demanded by employers.

Field of education (FOE)

- Analysis will be undertaken on the distribution of FOE by industry occupation pairs using the Census to understand the implications for viable job pathways on workers who have equivalent industry occupation pairings but a different FOE.

Historic movement patterns

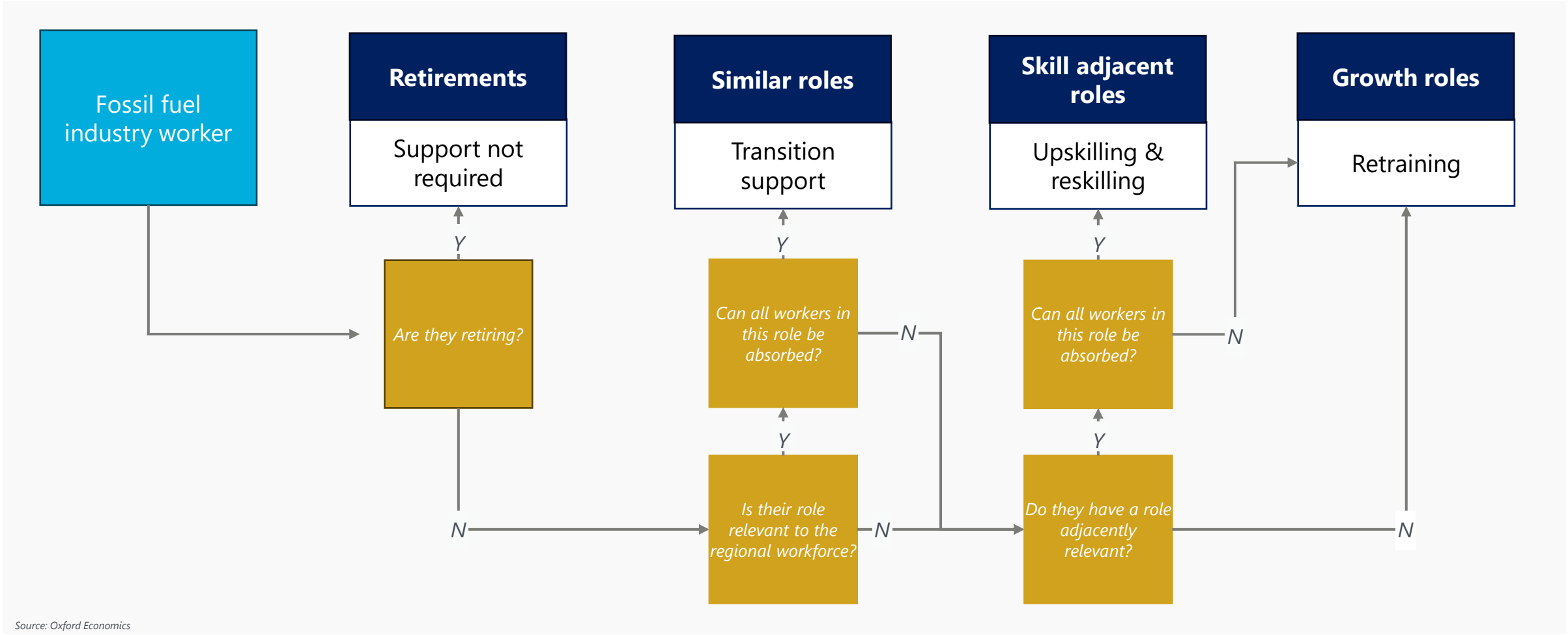
To corroborate that transition pathways are appropriate and viable for fossil fuel workers, Oxford Economics will undertake an analysis of historic movements of fossil fuel workers out of industry.

Historic movements of fossil fuel workers

- Seek data will be used to identify the known pathways by occupation industry pairs that fossil fuel workers have moved into successfully in the past and the propensity for them to do so.
- Historical movements will be tested against occupation industry pair transition pathways identified in the skillsets and qualifications analysis.
- Where viable job pathways have been determined based on our skills framework, and an analysis of actual qualifications held by fossil fuel workers, but there is limited evidence of historic job movements analysis of potential barriers limiting these pathways will be undertaken.

Identifying the workforce transition pathway that fossil fuel workers are most likely to need is based on a decision tree framework.

Fossil fuel worker, workforce transition pathway decision tree



Source: Oxford Economics

WORKFORCE BARRIER ASSESSMENT

There are limited regional barriers facing fossil fuel workers with sufficient job availability to absorb the workforce.

Regional barrier assessment by role

Central Queensland fossil fuel workforce barrier assessment	Job availability	Diversification of roles	Workforce willingness to commute	Training availability
Metric	*Ratio measures the availability of similar roles against the number of transitioning workers.*	*Growth in employment demand for skill adjacent roles by 2035 ****	*Average commute distance* ratio of role to region average.*	*Availability of training within the region*
Rating	*Low barrier: ratio > 2* *Medium barrier: ratio between 1 & 2* *High barrier: ratio < 1*	*Low barrier: growth > 13%* *Medium barrier: growth 8-13%* *High barrier: growth < 13%*	*Low barrier: ratio > 2* *Medium barrier: ratio between 1 & 2* *High barrier: ratio < 1*	*Qualitative assessment*
Fossil fuel workforce	***LOW***	***LOW***	***LOW***	***MEDIUM***
Drillers, Miners and Shot Firers	MEDIUM - 1.6 ratio	LOW - 21% increase	LOW - 3.6 ratio	6 University campuses • Limited regional training capacity, with many gaining HE qualifications outside the region. • Preparing for the transition with the university's Centre for Hydrogen and Renewable Energy at the Gladstone Marina Campus. 3 TAFE campuses • Significantly expanding its vocational education and training capacity • Increased capacity for construction trades and will consolidate training facilities in the TAFE Excellence Precinct at the Rockhampton North campus.
Metal Fitters and Machinists	LOW - > 2 ratio	LOW- 22% increase	LOW - 3.2 ratio	
Electricians	LOW - > 2 ratio	LOW - 17% increase	LOW - 3.1 ratio	
Other Building and Engineering Technicians	HIGH – 0 ratio	LOW - 15% increase	LOW – 3.2 ratio	
Truck Drivers	LOW - > 2 ratio	MEDIUM - 11% increase	LOW – 3.6 ratio	
Structural Steel and Welding Trades Workers	LOW - > 2 ratio	LOW - 17% increase	LOW – 2.7 ratio	
Production Managers	LOW - > 2 ratio	MEDIUM - 8% increase	LOW – 2.6 ratio	
Other Stationary Plant Operators	LOW - > 2 ratio	LOW - 14% increase	LOW – 3.3 ratio	
Earthmoving Plant Operators	LOW - > 2 ratio	LOW - 17% increase	LOW - 3.2 ratio	
Chemical, Gas, Petroleum and Power Generation Plant Operators	LOW - > 2 ratio	MEDIUM - 11% increase	MEDIUM – 1.4 ratio	
Highly transferable fossil fuel roles****	LOW - > 2 ratio	MEDIUM - 10% increase **	LOW – 2.1 ratio	

**Uses 2016 Census due to COVID. **based on growth in employment of the region. ***criteria is based on total workforce employment growth excluding fossil fuel sectors due to its significance. ****Back-office functions and transferable on-site roles are industry-agnostic, and essential across all sectors, making them highly transferable roles.*

Relatively high wages combined with lower levels of skills & qualifications create barriers for role movements, with competition from new graduates also contributing.

Role barrier assessment by role

Central Queensland fossil fuel workforce barrier assessment	Skills	Qualifications	New graduates supply*	Wages	Employment type
Metric	*Average skill level (5.67 regional workforce average)*	*Level of education (AQF level 3 most common across regional workforce)*	*Estimated new graduates as a share of total workforce (2% regional workforce average)*	*Average wages ($52,000 - $64,999 regional workforce average)*	*Most common work type (full-time workforce average)*
Rating	*Low barrier: > 6 Medium barrier: 5.5 & 6 High barrier: < 5.5*	*Low barrier: > 3 Medium barrier: 3 High barrier: < 3*	*Low barrier: < 2% Medium barrier: 2% High barrier: > 2%*	*Low barrier: < $52,000 Medium barrier: within range High barrier: > $64,999*	*Low barrier: same type High barrier: different type*
Fossil fuel workforce	***HIGH***	***MEDIUM***	***MEDIUM***	***HIGH***	***LOW***
Drillers, Miners and Shot Firers	HIGH - 5.0	MEDIUM - AQF level 3	MEDIUM - 2%	HIGH - $104,000 – $155,999	LOW - Full-time
Metal Fitters and Machinists	MEDIUM - 5.8	MEDIUM - AQF level 3	LOW - 1%	HIGH - $104,000 – $155,999	LOW - Full-time
Electricians	MEDIUM - 5.7	MEDIUM - AQF level 3	LOW - 1%	HIGH - $104,000 – $155,999	LOW - Full-time
Other Building and Engineering Technicians	LOW - 6.4	MEDIUM - AQF level 3	LOW - 1%	HIGH - $182,000 or more	LOW - Full-time
Truck Drivers	HIGH - 4.8	MEDIUM - AQF level 3	MEDIUM - 2%	HIGH - $104,000 – $155,999	LOW - Full-time
Structural Steel and Welding Trades Workers	HIGH - 5.1	MEDIUM - AQF level 3	LOW - 1%	HIGH - $104,000 – $155,999	LOW - Full-time
Production Managers	LOW - 6.7	MEDIUM - AQF level 3	MEDIUM - 2%	HIGH - $182,000 or more	LOW - Full-time
Other Stationary Plant Operators	HIGH - 5.0	MEDIUM - AQF level 3	MEDIUM - 2%	HIGH - $104,000 – $155,999	LOW - Full-time
Earthmoving Plant Operators	HIGH - 4.6	MEDIUM - AQF level 3	MEDIUM - 2%	HIGH - $104,000 – $155,999	LOW - Full-time
Chemical, Gas, Petroleum and Power Generation Plant Operators	MEDIUM - 5.7	MEDIUM - AQF level 3	LOW - 1%	HIGH - $182,000 or more	LOW - Full-time
Highly transferable fossil fuel roles	MEDIUM - 5.9	MEDIUM - AQF level 3	HIGH - 3%	HIGH - $104,000 – $155,999	LOW - Full-time

**based on SA4 and OE workforce supply modelling*

The demographic characteristics of the fossil fuel workforce create some barriers to transition, particularly concerning age, alongside a need for targeted support for the First Nations cohort.

Demographic barrier assessment by role

Central Queensland fossil fuel workforce barrier assessment	Age	First Nations	Disability
Metric	*Average age of fossil fuel workforce (35-44 regional workforce average)*	*First Nations representation (4.9% regional workforce representation)*	*Disability representation (1.0% regional workforce representation)*
Rating	*Low barrier: 25-34* *Medium barrier: 35-44* *High barrier: > 45*	*Low barrier: < 4%* *Medium barrier: 4-5%* *High barrier: > 5%*	*Low barrier: < 1%* *Medium barrier: 1-2%* *High barrier: > 2%*
Fossil fuel workforce	***HIGH***	***LOW***	***LOW***
Drillers, Miners and Shot Firers	MEDIUM - 35-44	HIGH – 6.7%	LOW – 0.4%
Metal Fitters and Machinists	LOW - 25-34	MEDIUM – 4.1%	LOW – 0.4%
Electricians	LOW - 25-34	LOW – 1.8%	LOW – 0%
Other Building and Engineering Technicians	HIGH - 45-54	LOW – 2.9%	LOW – 0%
Truck Drivers	HIGH - 45-54	HIGH – 11.2%	LOW – 0%
Structural Steel and Welding Trades Workers	LOW - 25-34	HIGH – 5.7%	LOW – 0%
Production Managers	HIGH - 45-54	HIGH – 5.4%	LOW – 0%
Other Stationary Plant Operators	HIGH - 45-54	LOW - 0%	LOW – 0%
Earthmoving Plant Operators	MEDIUM - 35-44	LOW - 0%	LOW – 0%
Chemical, Gas, Petroleum and Power Generation Plant Operators	HIGH – 55-64	LOW – 2.6%	LOW – 0%
Highly transferable fossil fuel roles	HIGH - 45-54	MEDIUM – 2.1%	LOW – 0%

DRILLERS, MINERS & SHOT FIRERS PROFILE

Drillers, miners and shot firers account for a significant share of the fossil fuel workforce with demand expected to decline substantially by 2035.

Commentary

There are approximately 4,160 drillers, miners and shot firers in Central Queensland's fossil fuel sector as at 2024. Under a Step Change Scenario, employment in this group is expected to decline 28.2% by 2035, down to around 2,980 workers. Of the 1,180 roles expected to be lost, an estimated 830 are likely to retire over this period, leaving 350 drillers, miners and shot firers likely to undergo a workforce transition.

Drillers, miners and shot firers represent the largest proportion within Central Queensland's fossil fuel workforce, comprising 34% of the sector's total employment. The occupation is also highly concentrated in the fossil fuel industry, with approximately 74% of these workers across the region employed within the sector. This level of dependence suggests that drillers, miners and shot firers are particularly exposed to the impacts of the sector's decline.

Specialist skills are usually learned through on-the-job training for this role. Drillers, miners and shot firers tend to have intermediate foundation skills levels and in most generalist skills. The exception is digital engagement, where the cohort only has a basic level of competency, which may limit their ability to move into more tech-heavy roles without additional training.

Employment size and outlook

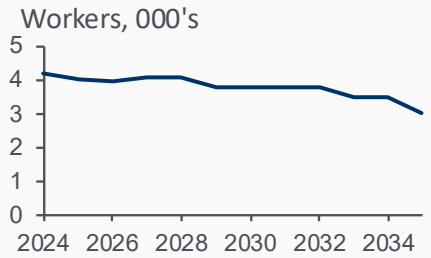
4,160 drillers, miners & shot firers in Central Queensland in 2024

28.2% decline in employment by 2035

This represents

34% of fossil fuel workers

74% of all drillers, miners and shot firers



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

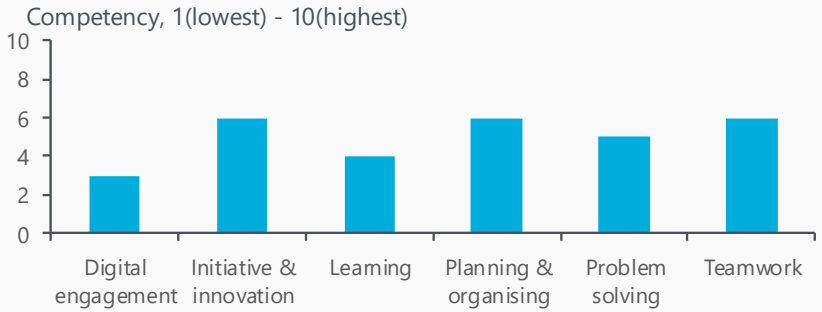
On-the-job training

4

Skill level 4 which corresponds to AQF level 2 (requiring skills equivalent to the competencies gained through a certificate II or III)

Foundational skills

Generalist skills

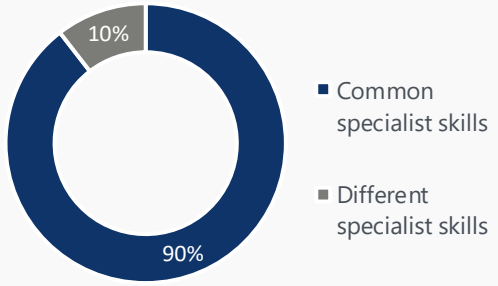


Source: Oxford Economics, ABS ANZSCO, JSA

Drillers, miners and shot firers have transferable skills across machinery operators, technicians and labourer roles outside the fossil fuel industry.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

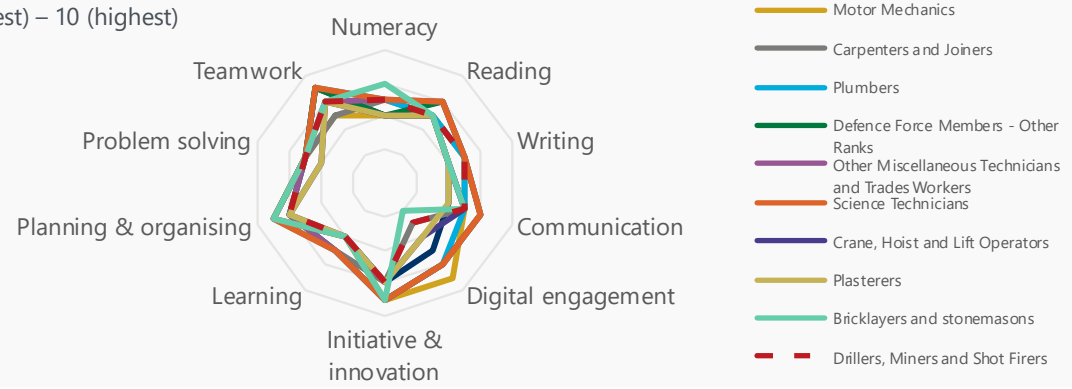


Similar roles	Seek movement	ATO movement
Other construction & mining labourers	Yes	Ranked #1

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Other Machine Operators	On-the-job training	Same
Motor Mechanics	Automotive Engineering and Technology	Same
Carpenters and Joiners	Building	Same
Plumbers	Building	Same
Defence Force Members - Other Ranks	On-the-job training	Same
Other Miscellaneous Technicians and Trades Workers	On-the-job training	Same
Science Technicians	On-the-job training	Higher
Crane, Hoist and Lift Operators	On-the-job training	Same
Plasterers	On-the-job training	Same
Bricklayers and Stonemasons	On-the-job training	Same

Source: Oxford Economics

Drillers, miners and shot firers may be able to transfer within their occupation as current workers retire, creating replacement demand.

Analysis of similar role pathways

Additional demand for drillers, miners and shot firers outside of the fossil fuel industry is set to more than offset the declines in demand for this occupation in Central Queensland to 2035. However, there are limited similar role opportunities for fossil fuel workers needing to transition.

Around 350 drillers, miners and shot firers in the fossil fuel industry are expected to undergo a workforce transition by 2035. Growth outside of the fossil fuel industry, particularly in utilities not associated with the fossil fuel industry, and attrition of current workers will support occupation transitions to an extent. However, demand for similar roles is only expected to increase by a handful of roles over this time.

In contrast, the outlook to 2050 is more pessimistic, with demand in other industries and similar roles unlikely to be sufficient to absorb the affected drillers, miners and shot firers.

Analysis of skill adjacent role pathways

Drillers, miners and shot firers are likely to have additional opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 1,500 roles by 2035.

The biggest demand in skill adjacent roles is for carpenters and joiners, increasing by around 410 by 2035. However, transitioning into this role may require reskilling, as it involves a different set of specialist skills albeit at a similar skill level. Demand for roles in trades related to the building sector beyond carpenters and joiners is also strong, including and plumbers, plasterers, bricklayers and stonemasons, with a projected increase of over 380 by 2035.

Motor mechanics are also expected to see elevated demand, with an increase of around 400 roles projected by 2035. Transitions into this occupation are also likely to require reskilling.

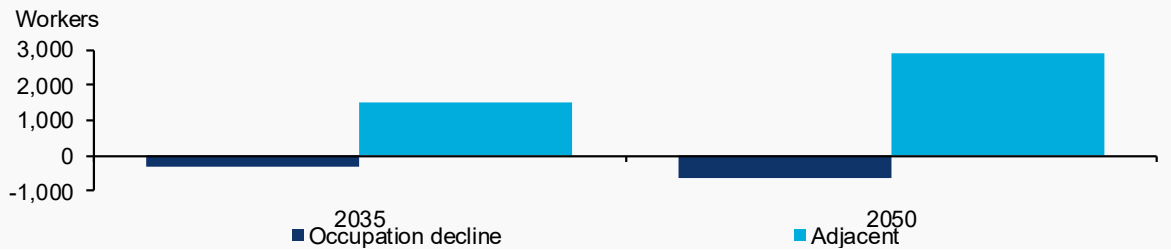
There is some demand from other machinery operator roles, with a projected increase of approximately 150 roles by 2035. These roles generally present lower skill barriers, requiring mostly on-the-job training.

Drillers, miners and shot firers are likely to need upskilling across areas such as digital engagement, learning, planning & organising and initiative & innovation. On average, these skills are over half a point lower for drillers, miners and shot firers compared to skill adjacent roles, with digital engagement being close to 2 points lower.

Demand for similar roles

Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

METAL FITTERS & MACHINISTS PROFILE

Metal fitters and machinists account for a sizeable portion of the fossil fuel workforce with demand expected to decline substantially by 2035.

Comments

Central Queensland has approximately 1,860 metal fitters and machinists as at 2024. Under a Step Change Scenario employment in this group is expected to decline significantly, by 29.1% by 2035, falling to around 1,320 workers. Of the 540 roles expected to be lost, an estimated 260 are likely to retire over this period, leaving 280 metal fitters and machinists likely to undergo a workforce transition.

Metal fitters and machinists account for 15% of the fossil fuel's workforce in Central Queensland. Within this occupation, 37% across the region are employed in fossil fuel industry. This is sizeable share of workers that may be impacted by fossil fuel industry changes.

Employment in this field usually requires a certificate-level qualification in mechanical and industrial engineering and technology. Metal fitters and machinists tend to have intermediate levels of foundational skills. They also display intermediate generalist capabilities, with relative strengths in digital engagement, initiative & innovation and planning & organisation.

Employment size and outlook

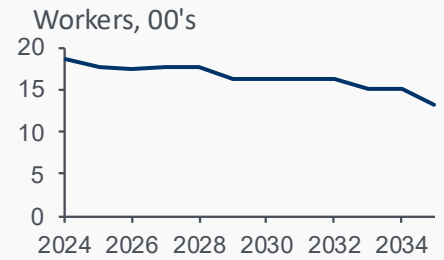
1,860 metal fitters and machinists in Central Queensland in 2024

29.1% decline in employment by 2035

This represents

15% of fossil fuel workers

37% of all metal fitters and machinists



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

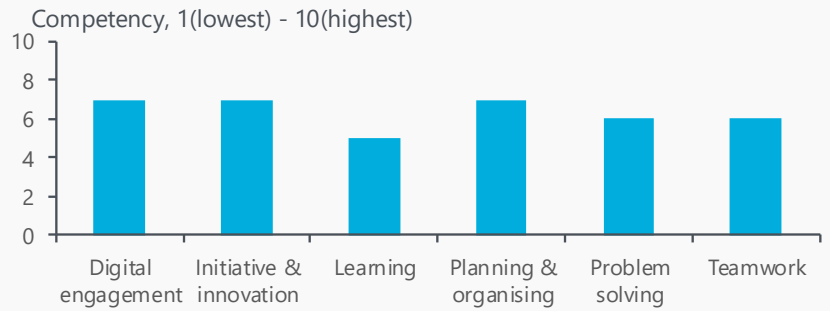
Mechanical and Industrial Engineering and Technology

4

Skill level 4 which corresponds to AQF level 3 (requiring skills equivalent to the competencies gained through a certificate III)

Foundational skills

Generalist skills

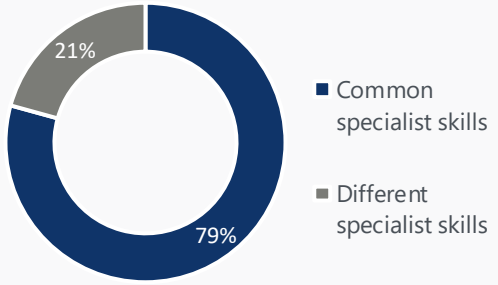


Source: Oxford Economics, ABS ANZSCO, JSA

Metal fitters and machinists have relatively high problem solving and digital engagement skills compared to skill adjacent trades worker and technician roles.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

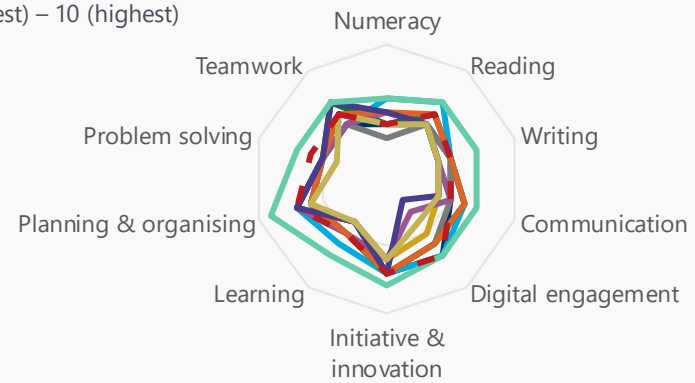


Similar role	Seek movement	ATO movement
NA – No identified roles		

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Motor Mechanics	Automotive Engineering and Technology	Same
Other Machine Operators	On-the-job training	Same
Motor Vehicle Parts and Accessories Fitters	On-the-job training	Same
Mechanical Engineering Draftspersons and Technicians	Mechanical and Industrial Engineering and Technology	Higher
Defence Force Members - Other Ranks	On-the-job training	Same
Carpenters and Joiners	Building	Same
Other Miscellaneous Technicians and Trades Workers	On-the-job training	Same
Structural Steel Construction Workers	On-the-job training	Same
Plumbers	Building	Same
Engineering Managers	Mechanical and Industrial Engineering and Technology	Higher

Source: Oxford Economics

Metal fitters and machinists are likely to find opportunities in other industries, though reskilling will be necessary to transition into skill adjacent roles.

Analysis of similar role pathways

Demand for metal fitters and machinists is expected to decline marginally across the Central Queensland, with demand in manufacturing, construction and utilities not associated with the fossil fuel industry set to support demand for the occupation by 2035 and will provide an avenue for fossil fuel workers to transfer their skill set.

However, looking ahead, the outlook for metal fitters and machinists through 2050 suggests that employment opportunities beyond the fossil fuel industry will be inadequate to absorb all affected workers.

Outside the metal fitter and machinist occupation, there are no identified similar role opportunities.

Analysis of skill adjacent role pathways

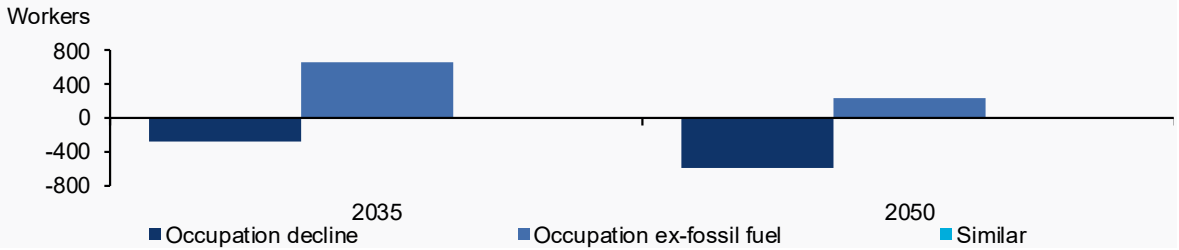
Metal fitters and machinists may also transition into skill adjacent roles, where demand is projected to grow by 1,560 positions by 2035, significantly outpacing the anticipated job losses in fossil fuels.

The biggest demand in skill adjacent roles is for carpenters and joiners, increasing by 410 by 2035. However, transitioning into this role may require reskilling, as it involves a different set of specialist skills, albeit at a similar skill level.

Demand for other roles in trades related to the building sector is also strong, with a projected increase of over 910 by 2035. These roles, include motor mechanics and plumbers, and structural steel construction workers, and are likely to require reskilling due to different specialist skill sets specific to the building sector.

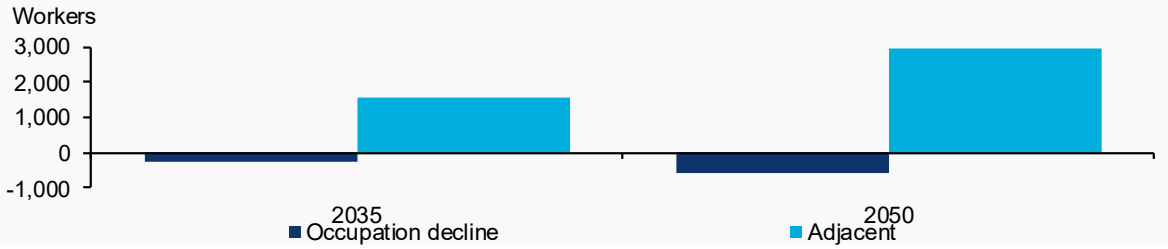
Overall, metal fitters and machinists are on quite comparable level with the average skill adjacent roles level. The area they are likely to need upskilling is numeracy, which is over half a point lower for metal fitters and machinists in comparison.

Demand for similar roles



Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

ELECTRICIANS PROFILE

Electricians account for a moderate portion of the fossil fuel workforce with a significant presence outside of the fossil fuel industry.

Comments

As at 2024, approximately 830 electricians are employed in the fossil fuel industry in Central Queensland. Under a Step Change Scenario, employment in this group is expected to decline by 29.6% by 2035, dropping to around 580 workers. Of the 250 roles expected to be lost, an estimated 120 are likely to retire over this period, leaving 130 electricians likely to undergo a workforce transition.

In the regional fossil fuel industry, electricians make up around 7% of the workforce. Generally, 27% of all electricians are employed within this industry in Central Queensland. This suggests a moderate level of exposure to transition risks, while also reflecting a substantial footprint in non-fossil fuel industries.

Specialist skills are usually required at certificate-level qualification in electrical and electronic engineering & technology. In general, electricians have intermediate foundational skills. Their generalist skills are also within the intermediate range, with strengths in initiative & innovation and planning & organisation, though digital engagement is at the lower end.

Employment size and outlook

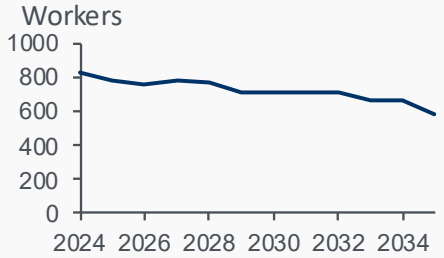
830 electricians in Central Queensland in 2024

29.6% decline in employment by 2035

This represents

7% of fossil fuel workers

27% of all electricians



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

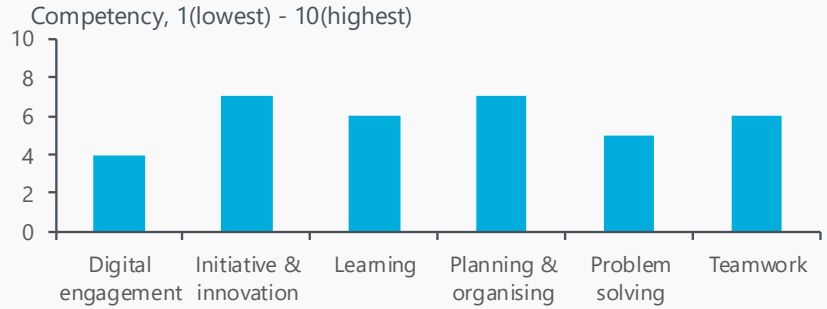
Electrical and Electronic Engineering and Technology

4

Skill level 4 which corresponds to AQF level 3 (requiring skills equivalent to the competencies gained through a certificate III)

Foundational skills

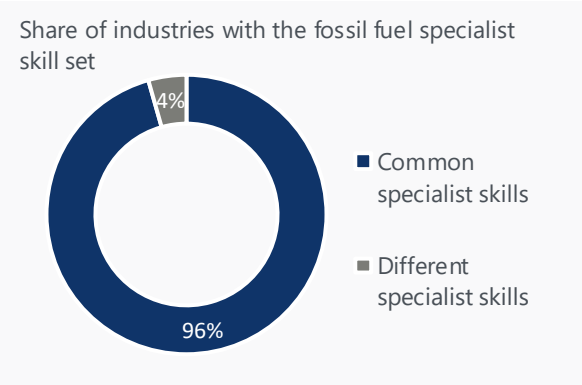
Generalist skills



Source: Oxford Economics, ABS ANZSCO, JSA

Electricians have strong transferability into a range of skill adjacent roles within the electrical and technical fields.

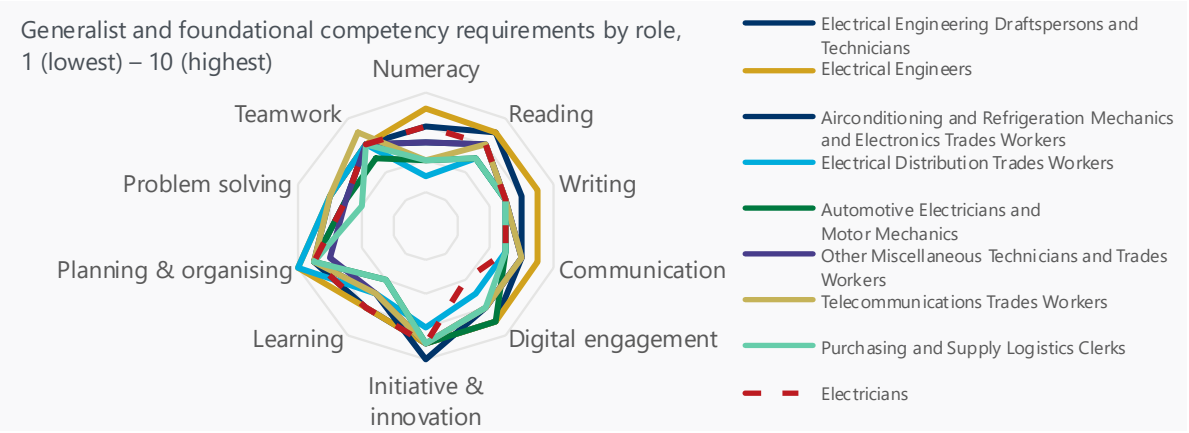
Identification of similar roles



Similar roles	Seek movement	ATO movement
NA – No identified roles		

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Electrical Engineering Draftspersons and Technicians	Electrical and Electronic Engineering and Technology	Higher
Electrical Engineers	Electrical and Electronic Engineering and Technology	Higher
Airconditioning and Refrigeration Mechanics	Electrical and Electronic Engineering and Technology	Same
Electrical Distribution Trades Workers	Electrical and Electronic Engineering and Technology	Same
Automotive Electricians	Automotive Engineering and Technology	Same
Motor Mechanics	Automotive Engineering and Technology	Same
Electronics Trades Workers	Electrical and Electronic Engineering and Technology	Same
Other Miscellaneous Technicians and Trades Workers	On-the-job training	Same
Telecommunications Trades Workers	Electrical and Electronic Engineering and Technology	Same
Purchasing and Supply Logistics Clerks	On-the-job training	Same

Source: Oxford Economics

Strong demand exists outside the fossil fuel industry for electricians and related skill sets, as well as for skill adjacent roles.

Analysis of similar role pathways

Demand for electricians is expected to decline marginally across the region, with continued employment supported by demand outside the fossil fuel industry. When combined with natural attrition, this is likely to be sufficient to absorb transitioning workers within the same occupation. Demand is strongest in electrical services within construction and in utilities not associated with fossil fuels.

Outside the electricians occupation, there are no identified similar role opportunities.

Analysis of skill adjacent role pathways

Electricians are likely to also have strong opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 1,090 roles by 2035, providing abundant capacity to accommodate the transition of fossil fuel electricians.

The biggest demand in skill adjacent roles is for motor mechanics, increasing by 410 roles by 2035. Transitioning into this occupation may require reskilling, as it involves different specialist skills despite being at a similar skill level.

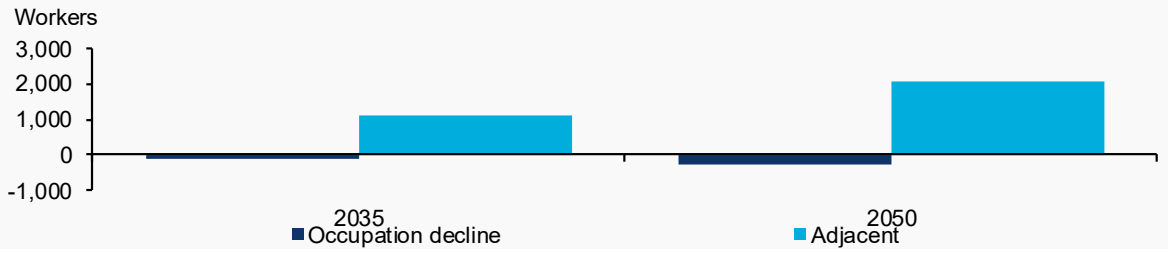
There are sufficient opportunities to transition into roles with the same specialist skills, with over 430 roles projected to 2035. Some upskilling in foundational and generalist skills may be necessary to support the transition for roles such as electrical engineers.

Electricians are likely to need training across areas such as communication and digital engagement, with digital engagement being over 2 points lower for these workers compared to the average skill adjacent roles.

Demand for similar roles

Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

OTHER BUILDING & ENGINEERING TECHNICIANS PROFILE

Other building and engineering technicians, while relatively a minor group, face steep demand losses due to their reliance on fossil fuel roles.

Comments

Fossil fuel sector in Central Queensland employs approximately 830 other building & engineering technicians as at 2024. However, employment in this group is expected to decline sharply, by 28.5% by 2035, dropping to around 590 workers. Of the 240 roles expected to be lost, an estimated 170 are likely to retire over this period, leaving 70 other building and engineering technicians likely to undergo a workforce transition.

Other building and engineering technicians make up just 7% of Central Queensland's fossil fuel workforce. Despite this, 48% of all workers in this occupation are employed within the regional fossil fuel industry. This indicates a significant reliance on fossil fuel-related employment, exposing them to greater risk from industry transition.

Working in this field usually requires a diploma-level qualification in process and resources engineering. Other building and engineering technicians sit at the higher-end of intermediate level across foundational skills. Similarly, their generalist skills are also within intermediate range, creating a relatively even skill profile overall.

Employment size and outlook

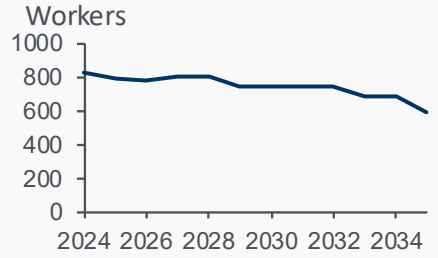
830 other building and engineering technicians in Central Queensland in 2024

28.5% decline in employment by 2035

This represents

7% of fossil fuel workers

48% of all other building and engineering technicians



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

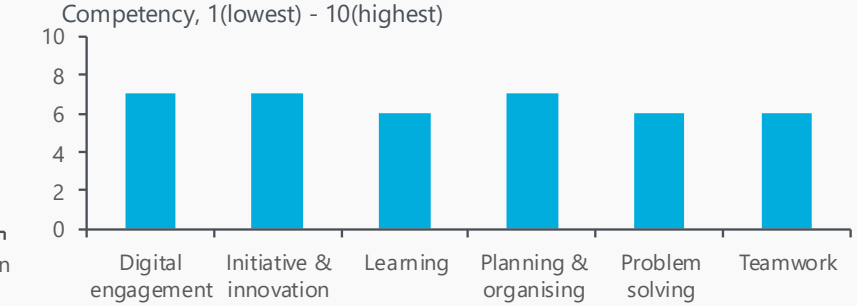
Process and Resources Engineering

2

Skill level 2 which corresponds to AQF level 5 (requiring skills equivalent to the competencies gained through a diploma)

Foundational skills

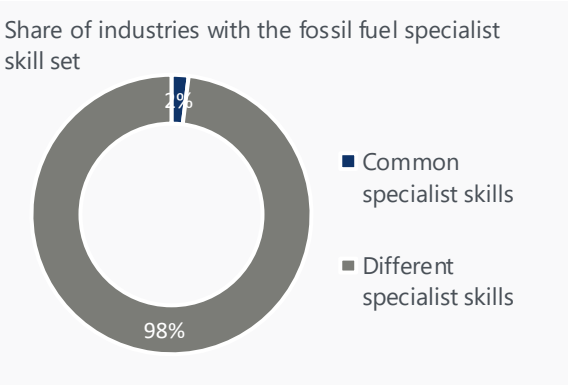
Generalist skills



Source: Oxford Economics, ABS ANZSCO, JSA

Other building & engineering technicians have a sufficient skill level to transition into skill adjacent roles, despite limited specialist skills transferability.

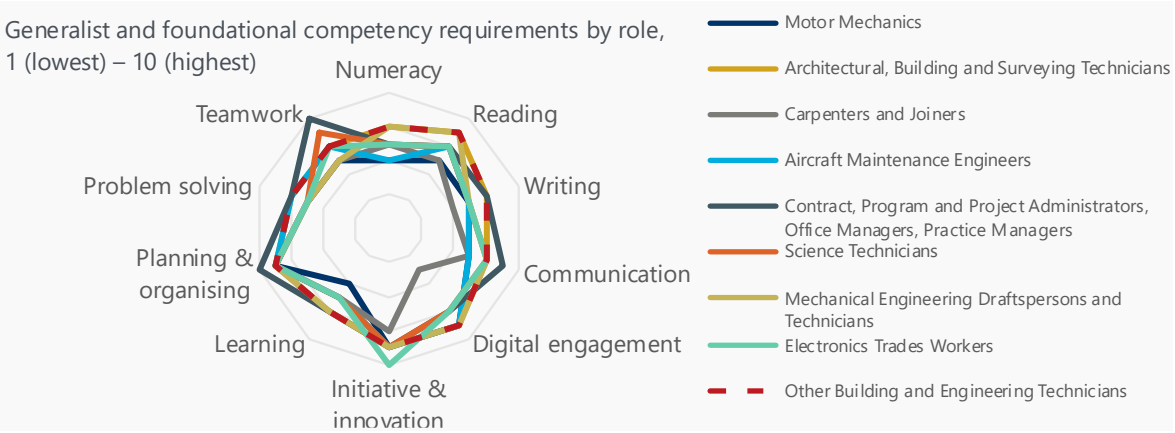
Identification of similar roles



Similar roles	Seek movement	ATO movement
NA – No identified roles		

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Motor Mechanics	Automotive Engineering and Technology	Lower
Architectural, Building and Surveying Technicians	Building	Same
Carpenters and Joiners	Building	Lower
Aircraft Maintenance Engineers	Aerospace Engineering and Technology	Lower
Contract, Program and Project Administrators	Business and Management	Same
Office Managers	On-the-job training	Same
Science Technicians	On-the-job training	Same
Practice Managers	Business and Management	Same
Mechanical Engineering Draftspersons and Technicians	Mechanical and Industrial Engineering and Technology	Same
Electronics Trades Workers	Electrical and Electronic Engineering and Technology	Lower

Other building & engineering technicians have a specialised skillset which may require retraining to transition within occupation or into skill adjacent roles.

Analysis of similar role pathways

Demand for other building and engineering technicians is set to decline marginally across the Central Queensland. The typical field of education primarily held by other building & engineering technicians in fossil fuel workers is process and resource engineering. However, the majority of workers in this occupation hold a different field of education, making a transition within the occupation more difficult and potentially requiring retraining. Furthermore, it should be noted that this is a relatively small group of workers with demand for this occupation only set to decline by around 60 roles to 2035. While reskilling would be required, there are adequate opportunities for these workers to shift into other industries. However, beyond 2035, the longer-term outlook appears less favourable.

Outside the other building and engineering technicians occupation, there are no identified similar role opportunities.

Analysis of skill adjacent role pathways

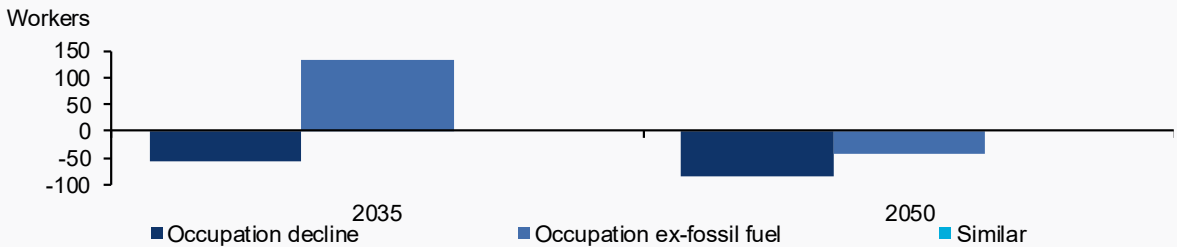
Other building and engineering technicians are likely to have ample opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 2,210 roles by 2035.

The biggest demand in skill adjacent roles is in administration, increasing by 900 by 2035. Primary roles in administration are centred around contract, program and project administrators and office managers.

Outside of administration, there are opportunities to transition into roles associated with trades set to increase by over 1,000 roles by 2035, such as carpenters and joiners, motor mechanics and architectural, and building and surveying technicians.

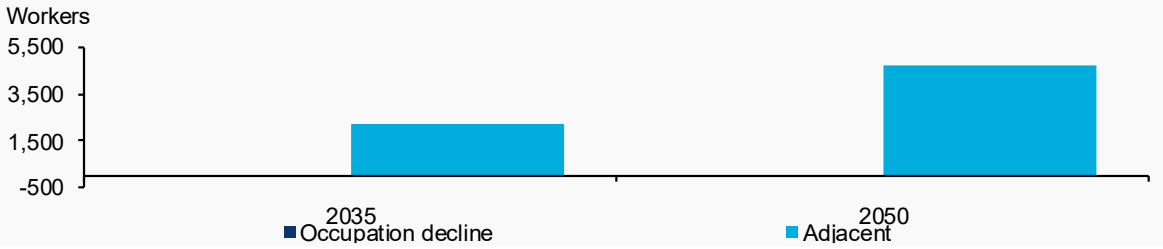
Other building and engineering technicians possess the foundational and generalist skill set sufficient to support transition into skill-adjacent roles but may require reskilling specialist skills where applicable.

Demand for similar roles



Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

TRUCK DRIVERS PROFILE

Truck drivers are somewhat dependent on fossil fuel employment, though their high skill transferability offers strong pathways for employment in alternative industries.

Comments

As at 2024, Central Queensland region employs approximately 730 truck drivers in fossil fuel sector. However, employment in this group is expected to decrease by 28.7% by 2035, falling to around 520 workers. With the highest retirement rate among key specialist roles, approximately 260 truck drivers are expected to retire during this period. This exceeds the number of roles projected to be lost, meaning that few, if any, workers will need to transition to other jobs by 2035.

Truck drivers represent around 6% of Central Queensland's fossil fuel workforce. More broadly, 22% of all truck drivers in the region are employed within the fossil fuel industry. This indicates a moderate level of reliance on the sector, exposing a portion of the occupation to transition risks as fossil fuel demand declines.

Training for truck driving are usually acquired on the job. Truck drivers are generally assessed at the intermediate level across both foundational skills and generalist skills. However, most of these skills, particularly numeracy, writing, digital engagement and learning capabilities, are falling on the lower end of intermediate range, suggesting potential challenges in adapting to new roles.

Employment size and outlook

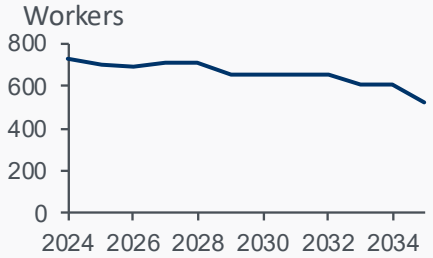
730 truck drivers in the Central Queensland in 2024

28.7% decline in employment by 2035

This represents

6% of fossil fuel workers

22% of all truck drivers



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

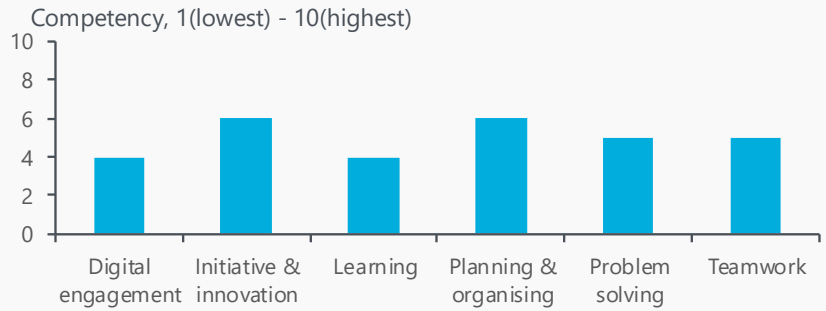
On the job training

4

Skill level 4 which corresponds to AQF level 2 (requiring skills equivalent to the competencies gained through a certificate II)

Foundational skills

Generalist skills

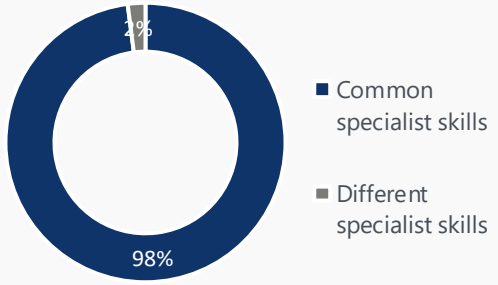


Source: Oxford Economics, ABS ANZSCO, JSA

Truck drivers have strong transferability into driving-related roles, despite their relatively low skill profile.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

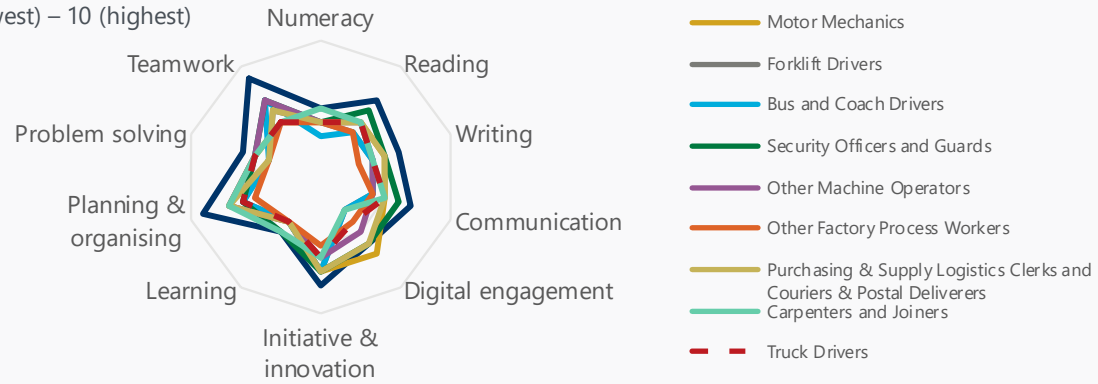


Similar roles	Seek movement	ATO movement
Other miscellaneous labourers	No	Ranked #1
Delivery drivers	Yes	Ranked #2

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Transport Services Managers	On-the-job training	Higher
Motor Mechanics	Automotive Engineering and Technology	Same
Forklift Drivers	On-the-job training	Same
Bus and Coach Drivers	On-the-job training	Same
Security Officers and Guards	On-the-job training	Same
Other Machine Operators	On-the-job training	Same
Other Factory Process Workers	On-the-job training	Lower
Purchasing and Supply Logistics Clerks	On-the-job training	Same
Couriers and Postal Deliverers	On-the-job training	Lower
Carpenters and Joiners	Building	Same

Source: Oxford Economics

Truck drivers are likely well-positioned to transition into both similar and skill adjacent roles due to strong demand for their skill sets.

Analysis of similar role pathways

Truck drivers are projected to experience a notable decline in demand by 2035, however, a high rate of natural attrition means there is likely sufficient capacity within and outside the fossil fuel industry to absorb displaced workers. Demand outside the sector remains strong across Central Queensland, particularly in labour supply services and the road freight transport sector, which may provide longer-term opportunities.

Furthermore, the demand for other similar roles is also robust, providing alternative pathways for these workers to pursue.

Analysis of skill adjacent role pathways

Truck drivers are likely to have even stronger opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 1,570 by 2035.

The biggest demand in skill adjacent roles is for motor mechanics, increasing by 410 by 2035. However, transitioning into this role may require additional training, as it involves different specialist skills despite being at a similar skill level.

There is high demand for comparable driving and operators roles, with a projected increase of approximately 320 by 2035, such as forklift drivers, bus and coach drivers and postal deliverers. These roles require similar skills and minimal retraining.

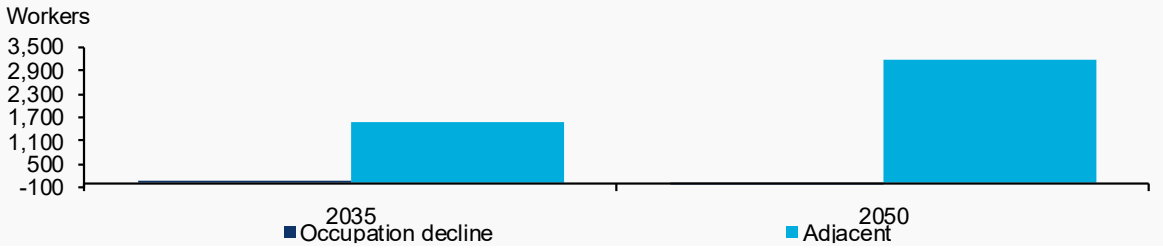
There is some opportunities to upskill into more managerial positions. Though demand is minimal with a projected increase of 40 by 2035.

Truck drivers are likely to need upskilling across most foundational and generalist skills to support transitioning into skill adjacent roles. Particularly, skills such as digital engagement, initiative & innovation, planning & organising, and teamwork are notably lower than average for skill adjacent roles, sitting around one point below.

Demand for similar roles

Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

STRUCTURAL STEEL & WELDING TRADES WORKERS PROFILE

Structural steel & welding trades workers are a small portion of the fossil fuel workforce but are relatively reliant on this sector for employment.

Comments

Approximately 350 structural steel and welding trades workers are employed in Central Queensland's fossil fuel sector as of 2024. Under the Step Change Scenario, this number is projected to decline by 28.8% by 2035, reducing the workforce to around 250. Of the 100 roles expected to be lost, an estimated 50 are likely to retire over this period, leaving 50 workers likely to undergo a workforce transition.

These trades workers represent about 3% of the fossil fuel workforce in the region. More broadly, 19% of all individuals employed in this occupation across Central Queensland work in the fossil fuel sector. This suggests a relatively high dependence on fossil fuel-related employment, leaving the occupation moderately exposed to the risks associated with long-term industry decline.

The occupation usually requires certificate-level qualification in mechanical and industrial engineering and technology. In terms of skills, structural steel and welding trades workers demonstrate intermediate levels of foundational skills. Their generalist skills are also mostly at intermediate level, with particular strength in initiative & innovation capabilities.

Employment size and outlook

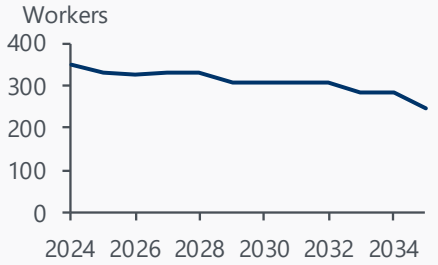
350 structural steel and welding trades workers in Central Queensland in 2024

28.8% decline in employment by 2035

This represents

3% of fossil fuel workers

19% of all structural steel and welding trades workers



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

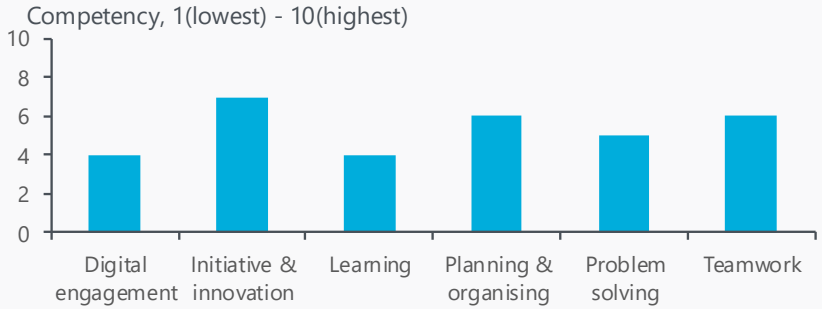
Mechanical and Industrial Engineering and Technology

4

Skill level 4 which corresponds to AQF level 3 (requiring skills equivalent to the competencies gained through a certificate II or III)

Foundational skills

Generalist skills

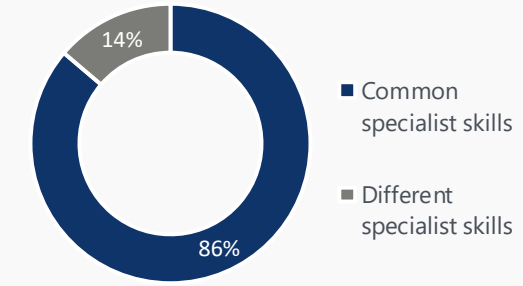


Source: Oxford Economics, ABS ANZSCO, JSA

Structural steel and welding trades workers have high transferability, but their specialist skill is not in high demand across skill adjacent roles.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

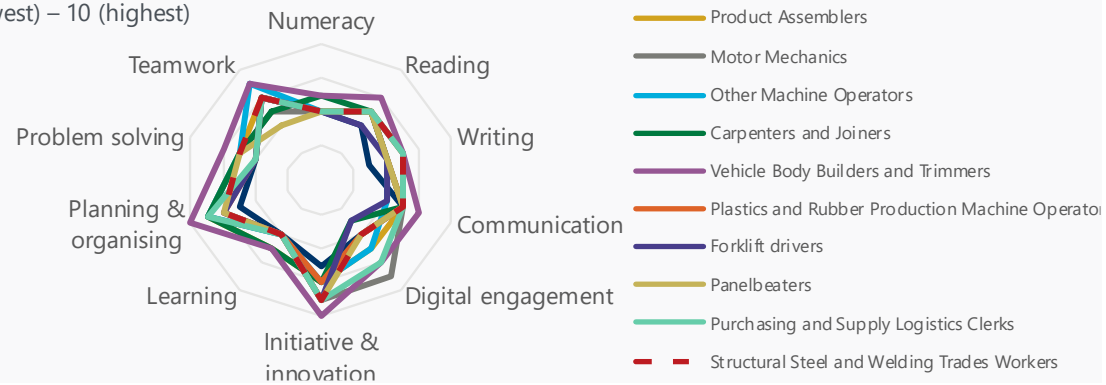


Similar roles	Seek movement	ATO movement
Sheetmetal Trades Workers	Yes	Ranked #4

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Metal Engineering Process Workers	On-the-job training	Lower
Product Assemblers	On-the-job training	Lower
Motor Mechanics	Automotive Engineering and Technology	Same
Other Machine Operators	On-the-job training	Same
Carpenters and Joiners	Building	Same
Vehicle Body Builders and Trimmers	Automotive Engineering and Technology	Same
Plastics and Rubber Production Machine Operators	On-the-job training	Same
Forklift Drivers	On-the-job training	Same
Panel beaters	Automotive Engineering and Technology	Same
Purchasing and Supply Logistics Clerks	On-the-job training	Same

Source: Oxford Economics

Structural steel and welding trades workers are likely to find transition pathways within their occupation with employment demand set to grow by 2035.

Analysis of similar role pathways

Demand for structural steel and welding trades workers outside of the fossil fuel industry is set to grow strongly across the Central Queensland to 2035, with demand set to continue to be supported by industrial employment in the region to 2050. This provides pathways to transition within the occupation for fossil fuel workers.

Similar roles are set to provide marginal support by 2035, with sheet metal trade worker employment holding steady across the region. However, the likelihood that fossil fuel workers will need to use this pathway increases as the occupation demand growth projected to slow down toward 2050.

Analysis of skill adjacent role pathways

Structural steel and welding trades workers are likely to have more opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 1,130 by 2035.

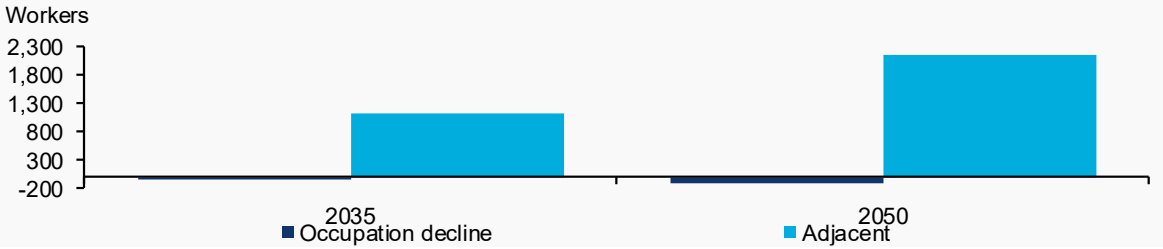
Demand for trade-based roles is set to increase with motor mechanics, carpenters and joiners increasing by 820 roles to 2035. Transitioning into this role may require additional training due to differing specialist skills despite being at a similar skill level.

To transition into most of the identified skill adjacent roles, structural steel and welding trades workers are likely to need training in digital engagement and planning & organising, where these workers score over half a point lower than the average skill adjacent level.

Demand for similar roles

Source: Oxford Economics based on AEMO Step Change scenario

Demand for similar roles



Source: Oxford Economics based on AEMO Step Change scenario

PRODUCTION MANAGERS PROFILE

While production managers make up a minor share of the fossil fuel workforce, their employment is notably concentrated in this industry.

Comments

There are about 290 production managers employed in Central Queensland's fossil fuel industry as at 2024. Under the Step Change Scenario, employment in this occupation is projected to decline by 28.4% by 2035, decreasing to approximately 210 workers. Of the 80 roles expected to be lost, an estimated 50 are likely to retire over this period, leaving 30 production managers likely to undergo a workforce transition.

Production managers contribute 3% to the regional fossil fuel's workforce. However, this occupation shows significant dependence on fossil fuel sector, with nearly one-third (32%) of all production managers in Central Queensland work within this industry. This suggests considerable vulnerability to shifts in fossil fuel demand.

Employment in this occupation usually requires bachelor qualifications in process and resources engineering. In terms of skills, production managers demonstrate intermediate levels of foundational skills, with reading and communication at the higher end of the intermediate range. Their generalist skills also sit mostly at intermediate level, though initiative & innovation and planning & organising are rated at high level, making them well-suited for leadership roles in other industries pathways.

Employment size and outlook

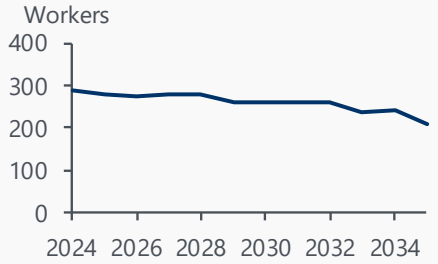
290 production managers in Central Queensland in 2024

28.4% decline in employment by 2035

This represents

2% of fossil fuel workers

32% of all production managers



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

Process and Resources Engineering

1

Skill level 1 which corresponds to AQF level 7 (requiring skills equivalent to the competencies gained through vocational or bachelor degree)

Foundational skills

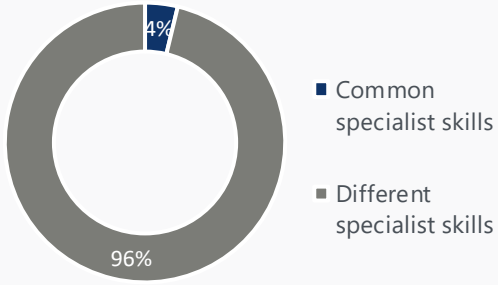
Generalist skills

Source: Oxford Economics, ABS ANZSCO, JSA

Despite having low transferability, production managers are well-equipped to transition to other managerial roles with their high skill profile.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

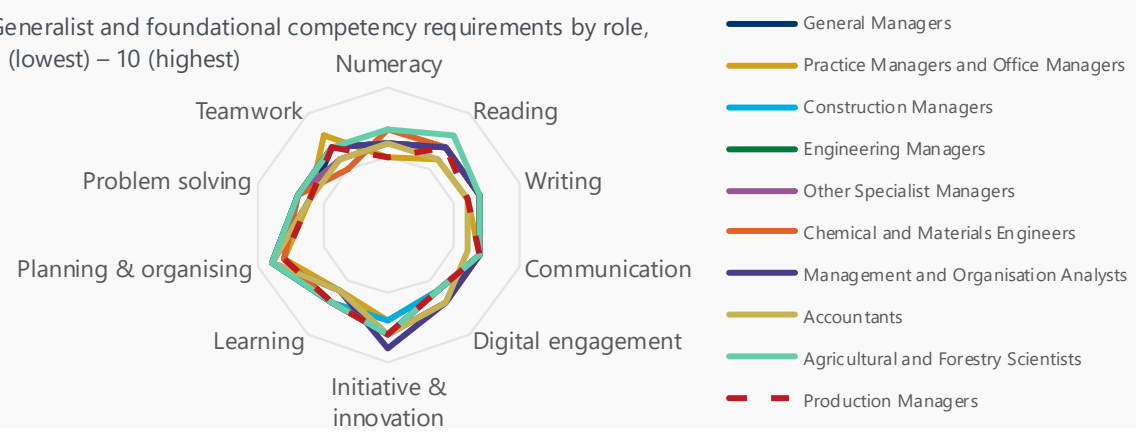


Similar roles	Seek movement	ATO movement
Manufacturers	No	Ranked #3

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
General Managers	Business and Management	Same
Practice Managers	Business and Management	Lower
Office Managers	On-the-job training	Lower
Construction Managers	Building	Same
Engineering Managers	Mechanical and Industrial Engineering and Technology	Same
Other Specialist Managers	Business and Management	Same
Chemical and Materials Engineers	Process and Resources Engineering	Same
Management and Organisation Analysts	Business and Management	Same
Accountants	Accounting	Same
Agricultural and Forestry Scientists	Agriculture	Same

Source: Oxford Economics

Production managers are likely to face some capacity limits transitioning into similar roles, whereas skill adjacent roles shows strong demand.

Analysis of similar role pathways

Demand for production managers outside of the fossil fuel industry is set to decline through to 2035. Fossil fuel production managers have limited transferability. This pathway doesn't present a strong opportunity for transition. The typical field of education primarily held by production managers is in fossil fuel workers is process and resource engineering, however, the majority of workers in this occupation hold a different field of education, making a transition within the occupation more difficult and potentially requiring retraining. Furthermore, it should be noted that this is a small group of workers with demand for this occupation only set to decline by around 30 roles by 2035.

The demand for similar roles is projected to provide additional opportunities for production managers in Central Queensland region by 2050. Overall, these roles are likely to fully absorb workers needing transition in the long term. Although, competition amongst production managers across industries may pose challenges.

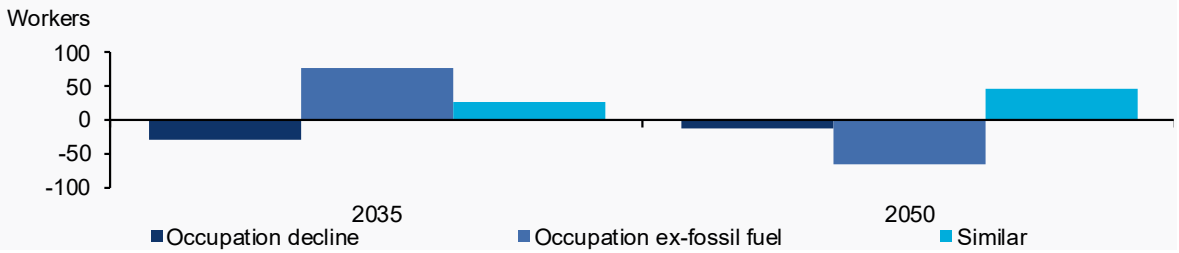
Analysis of skill adjacent role pathways

Production managers are likely to have more opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 1,490 roles by 2035.

The biggest demand in skill adjacent roles is managerial positions, with office managers increasing by 520 by 2035. Other managerial roles also observed strong demand, with over 760 increase projected over the same period. Despite being on same skill level, transitioning into these roles may require reskilling, as specific specialist skills such as business management or building may be required for different industries.

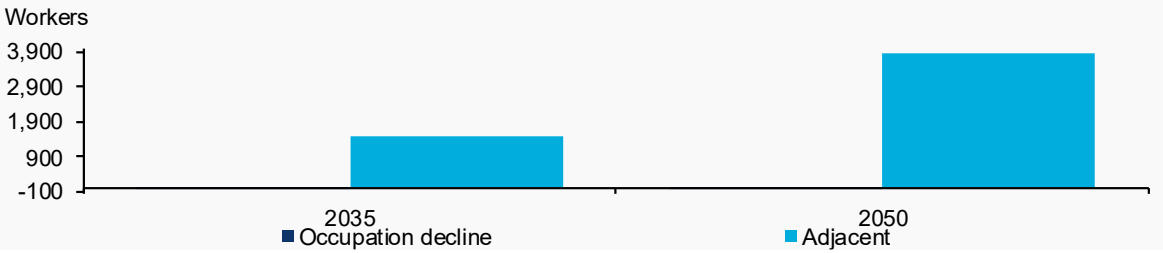
Production managers are likely to need training across areas such as numeracy, writing, problem solving and planning & organising where they tend to lag other adjacent roles by one point.

Demand for similar roles



Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

OTHER STATIONARY PLANT OPERATORS PROFILE

Other stationary plant operators account for a small portion of the fossil fuel workforce with considerable employment reliance on this sector.

Comments

As of 2024, Central Queensland employs approximately 210 other stationary plant operators in fossil fuel sector. However, employment in this group is expected to fall by 28.7% by 2035, dropping to around 150 workers. Of the 60 roles expected to be lost, a similar number is projected to retire over this period, meaning few, if any, workers will require a workforce transition.

Other stationary plant operators comprise 2% of Central Queensland's fossil fuels workforce. More broadly across the occupation, 23% of workers in this occupation are employed within the regional fossil fuel industry. This indicates a relatively high level of exposure to demand transition.

Training for other stationary plant operators is typically acquired on the job. While they are generally assessed at an intermediate level for foundational skills, this tends to be at the lower end of the spectrum. In terms of generalist capabilities, they demonstrate relatively strong intermediate proficiency in initiative and innovation, planning and organising, and teamwork. However, their digital engagement remains at a basic level, which may pose a barrier to transitioning into more technical or digitally intensive roles.

Employment size and outlook

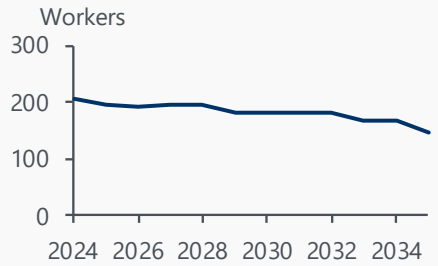
210 other stationary plant operators in Central Queensland in 2024

This represents

2% of fossil fuel workers

23% of all truck drivers

28.7% decline in employment by 2035



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

On the job training

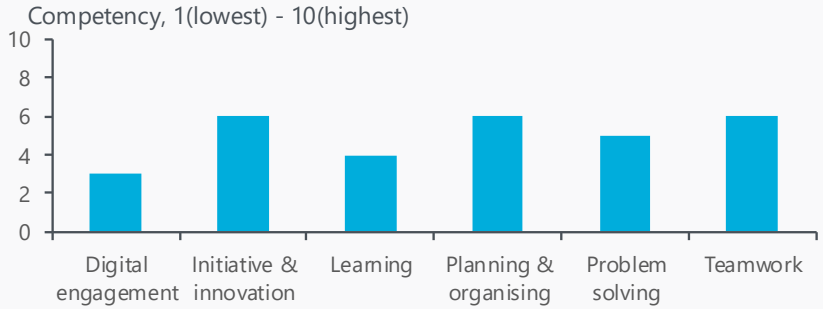
4

Skill level 4 which corresponds to AQF level 2 (requiring skills equivalent to the competencies gained through a certificate II)

Source: Oxford Economics, ABS ANZSCO, JSA

Foundational skills

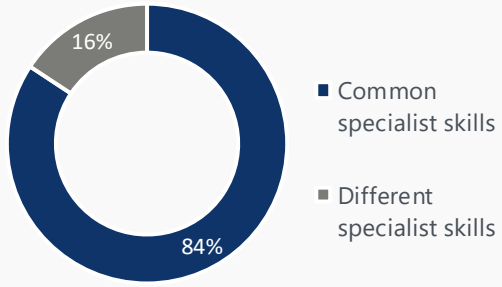
Generalist skills



Other stationary plant operators possess highly transferable skills suited to roles that do not require formal qualifications, though upskilling might be needed.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set



Similar roles	Seek movement	ATO movement
NA – No identified roles		

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)

Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Other Machine Operators	On-the-job training	Same
Plumbers	Building	Same
Motor Mechanics	Automotive Engineering and Technology	Same
Forklift Drivers	On-the-job training	Same
Purchasing and Supply Logistics Clerks	On-the-job training	Same
Clay, Concrete, Glass and Stone Processing Machine Operators	On-the-job training	Same
Carpenters and Joiners	Building	Same
Delivery Drivers	On-the-job training	Same
Office Managers	On-the-job training	Higher
Agricultural, Forestry and Horticultural Plant Operators	On-the-job training	Same

Source: Oxford Economics

Other stationary plant operators are likely to find strong opportunities to transition into both similar and skill adjacent roles outside fossil fuel industry.

Analysis of similar role pathways

Demand for other stationary plant operators outside of the fossil fuel industry is strong across Central Queensland, particularly in construction-related sector, where demand is set to increase for these workers. The additional demand coming from natural attrition of the current workforce should provide capacity to absorb the workforce by 2035.

The longer outlook by 2050 seems less promising for the occupation in general, which might require these workers to explore other transition pathways.

Outside the other stationary plant operators occupation, there are no identified similar role opportunities.

Analysis of skill adjacent role pathways

Other stationary plant operators are likely to have stronger opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 2,020 roles by 2035.

The biggest demand in skill adjacent roles is for office managers, which is projected to increase by 520 by 2035. However, transition into these roles may require substantial upskilling.

Motor mechanics also present strong demand, increasing by 410 by 2035. However, transitioning into this role may require reskilling, as it involves a different set of specialist skills, albeit at a similar skill level.

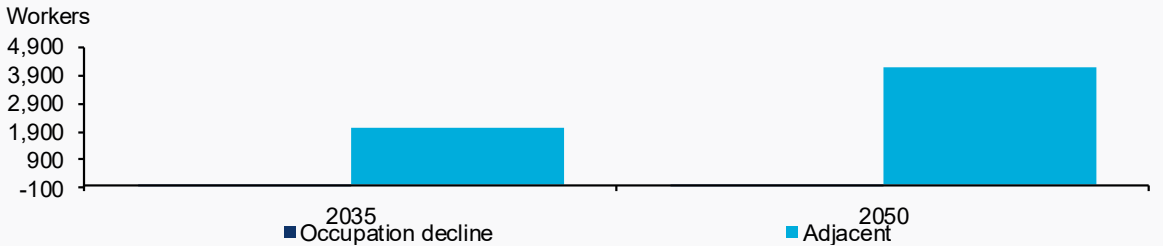
Other building-related roles such as carpenters and joiners and plumbers have elevated demand by 2035, with close to 700 increase. These transition pathways may also require reskilling due to different specialist skill sets specific to the building sector.

For other stationary plant operators to transition into skill adjacent roles, they are likely need to upskill in areas such as digital engagement, initiative & innovation, and planning & organising, where their assessment is generally over half a point lower than that of the average skill adjacent workers.

Demand for similar roles

Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

EARTHMOVING PLANT OPERATORS PROFILE

Earthmoving plant operators account for a minimal share of the fossil fuel workforce with a diverse footprint across the regional economy.

Comments

Fossil fuel sector in Central Queensland employs approximately 200 earthmoving plant operators as of 2024. Under a Step Change Scenario employment demand in this group is expected to drop by 28.4% by 2035, falling to around 150 workers. Of the 60 roles expected to be lost, a similar number is projected to retire over this period, meaning few, if any, workers will require a workforce transition.

Earthmoving plant operators make up only 2% of Central Queensland's fossil fuel workforce. However, 16% of all earthmoving plant operators in their region are employed within the fossil fuel industry. This reflects a relatively high level of exposure to fossil fuel demand transition.

Skills in this field is usually learned on the job. Earthmoving plant operators generally score at intermediate levels for foundational skills, though at the lower end of that range. Similarly, their generalist skills are mostly intermediate, with relative strength in initiative & innovation. Except for digital engagement, which is only rated at the basic level, posing some challenges in adapting to more technical roles.

Employment size and outlook

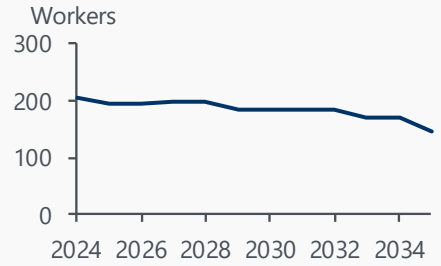
210 earthmoving plant operators in Central Queensland in 2024

28.4% decline in employment by 2035

This represents

2% of fossil fuel workers

16% of all earthmoving plant operators



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

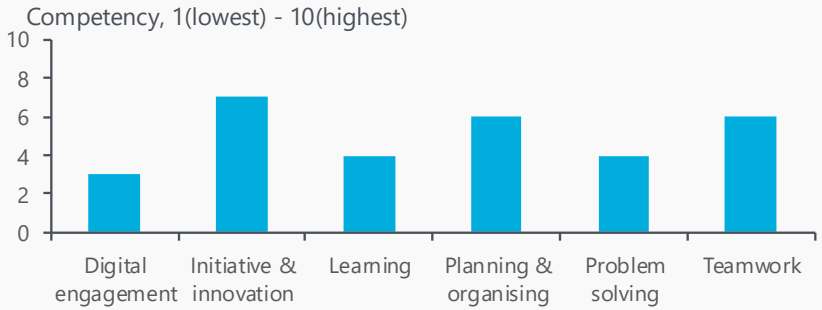
On-the-job training

4

Skill level 4 which corresponds to AQF level 2 (requiring skills equivalent to the competencies gained through a certificate II)

Foundational skills

Generalist skills

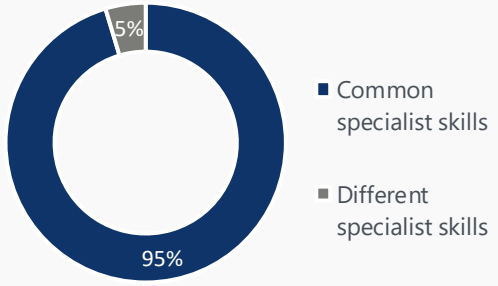


Source: Oxford Economics, ABS ANZSCO, JSA

Earthmoving plant operators have relatively comparable skill set to the skill adjacent roles, however, upskilling is likely needed in digital engagement.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

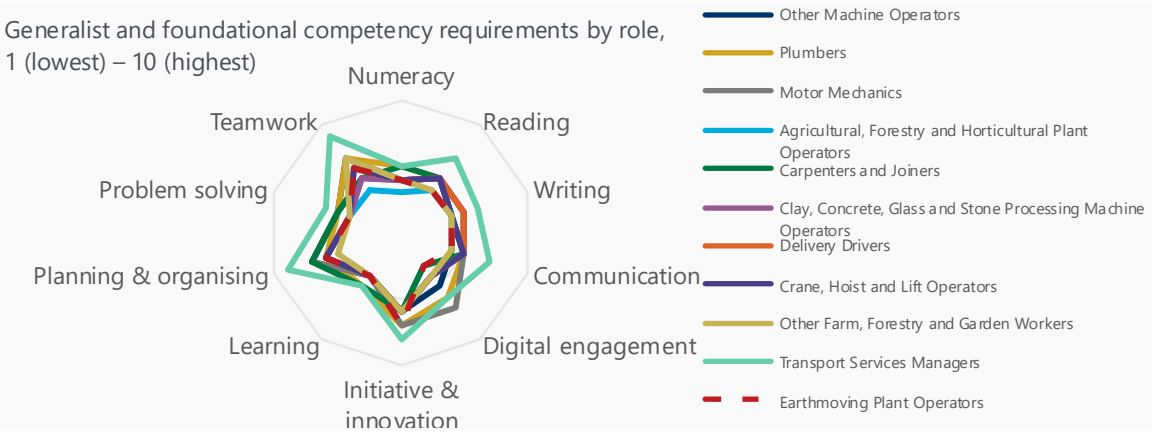


Similar roles	Seek movement	ATO movement
Building and Plumbing Labourers	No	2
Other Miscellaneous Labourers	No	5

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Other Machine Operators	On-the-job training	Same
Plumbers	Building	Same
Motor Mechanics	Automotive Engineering and Technology	Same
Agricultural, Forestry and Horticultural Plant Operators	On-the-job training	Same
Carpenters and Joiners	Building	Same
Clay, Concrete, Glass and Stone Processing Machine Operators	On-the-job training	Same
Delivery Drivers	On-the-job training	Same
Crane, Hoist and Lift Operators	On-the-job training	Same
Other Farm, Forestry and Garden Workers	On-the-job training	Same
Transport Services Managers	On-the-job training	Higher

Source: Oxford Economics

Earthmoving plant operators are likely to transition smoothly within occupation and into similar roles, given the strong demand projected.

Analysis of similar role pathways

Demand for earthmoving plant operators outside of fossil fuel will offset declining demand from the fossil fuel industry to 2035, providing capacity to fully absorb workers needing to transition.

Furthermore, the demand outlook for similar roles outside of this occupation is also robust, providing earthmoving plant operators pathways to utilise their skill set when transitioning into new roles.

Analysis of skill adjacent role pathways

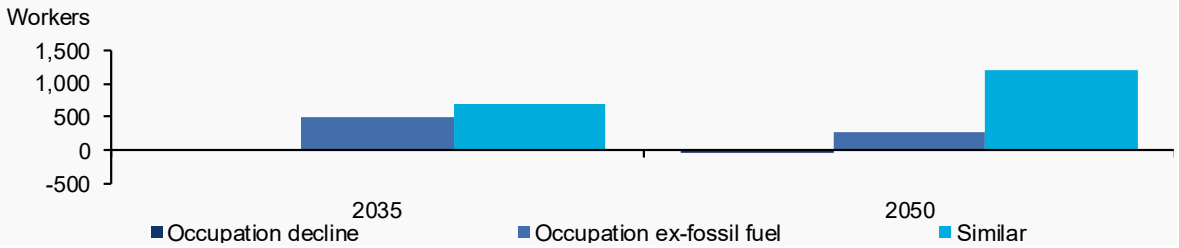
Earthmoving plant operators are likely to have even stronger opportunities to transition to skill-adjacent roles, where the demand is expected to increase by 1,560 roles by 2035.

Adjacent roles are primarily concentrated in transportation and trade roles which account for the majority of roles to 2035.

Trade roles including carpenters and joiners, motor mechanics, and plumbers account for majority of skill adjacent opportunities, with over 1,100 roles by 2035. Trade roles may require additional training due to differing specialist skills despite being at a similar skill level.

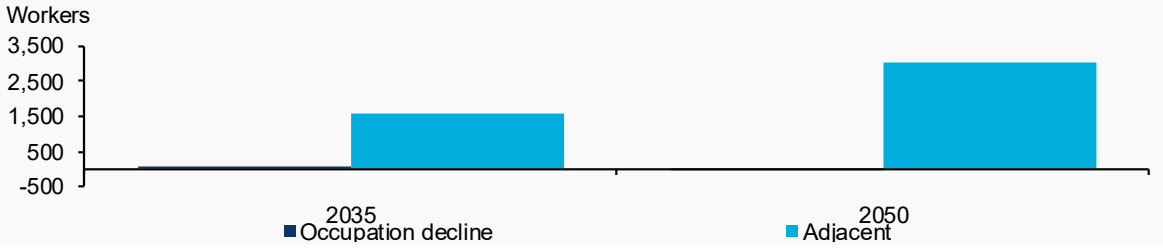
Earthmoving plant operators are likely to need training across most areas of both foundational and generalist skills, as their current levels are around one point below the average for skill adjacent roles, particularly in digital engagement, which is almost 2 point lower.

Demand for similar roles



Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

CHEMICAL, GAS, PETROLEUM AND POWER GENERATION PLANT OPERATORS PROFILE

Chemical, gas, petroleum and power generation plant operators is project to experience significant decline in demand by 2035, due to their high reliance on fossil fuel sector.

Comments

There are approximately 160 chemical, gas, petroleum and power generation plant operators in Central Queensland's fossil fuel sector as of 2024. Under a Step Change Scenario employment in this group is expected to drop by 41.4% by 2035, the steepest decline amongst key specialist roles, falling to around 90 workers. Of the 70 roles expected to be lost, an estimated 30 are likely to retire over this period, leaving 40 operators likely to undergo a workforce transition.

Chemical, gas, petroleum and power generation plant operators make up around only 1% of the Central Queensland's fossil fuel workforce. However, 27% of all chemical, gas, petroleum and power generation plant operators in region are employed within the fossil fuel industry. This reflects a relatively high level of dependence on this sector, making them vulnerable to demand changes.

Employment in this field usually required certificate-level qualification in electrical and electronic engineering and technology. Chemical, gas, petroleum and power generation plant operators generally score at intermediate levels for foundational skills. Similarly, their generalist skills are mostly intermediate, with relative strength in initiative & innovation and planning & organising, creating an even skill profile.

Employment size and outlook

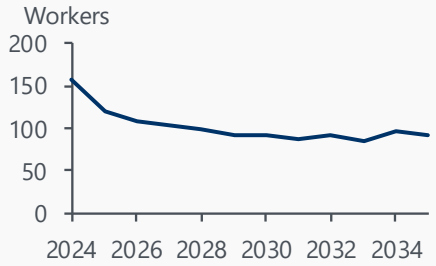
160 chemical, gas, petroleum and power generation plant operators in Central Queensland in 2024

This represents

1% of fossil fuel workers

27% of all chemical, gas, petroleum and power generation plant operators

41.4% decline in employment by 2035



Source: Oxford Economics based on AEMO Step Change scenario, ABS Census

Role specific skill set

Specialist skills

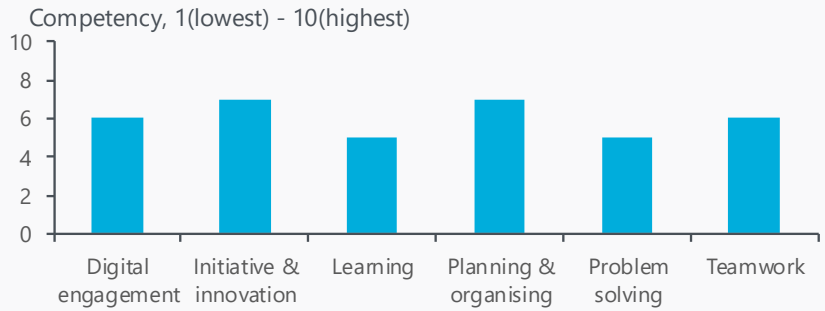
Electrical and Electronic Engineering and Technology

4

Skill level 4 which corresponds to AQF level 3 (requiring skills equivalent to the competencies gained through a certificate II)

Foundational skills

Generalist skills

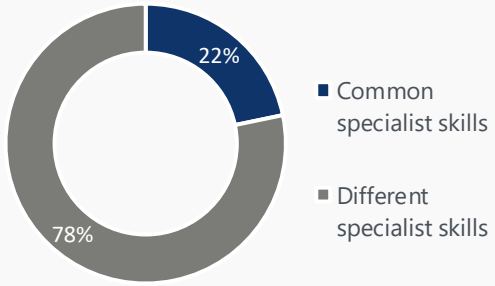


Source: Oxford Economics, ABS ANZSCO, JSA

Chemical, gas, petroleum and power generation plant operators have low transferability, however, their skill profile is adequate to transition into skill adjacent roles.

Identification of similar roles

Share of industries with the fossil fuel specialist skill set

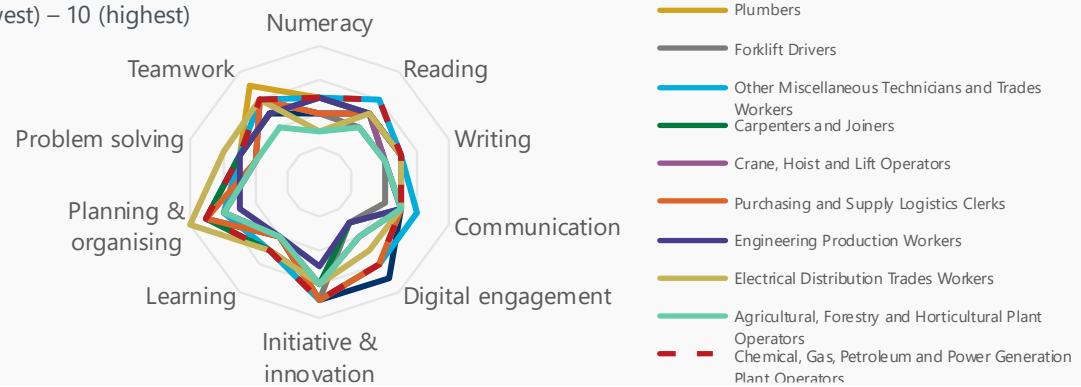


Similar roles	Seek movement	ATO movement
Other Factory Process Workers	Yes	1
Other Machine Operators	Yes	5

Source: Oxford Economics, JSA, Seek, ATO

Generalist & foundational skill assessment for skill adjacent roles

Generalist and foundational competency requirements by role, 1 (lowest) – 10 (highest)



Source: Oxford Economics, JSA

Identification of skill adjacent roles

Skill adjacent roles	Field of education	
	FOE	Skill level
Motor Mechanics	Automotive Engineering and Technology	Same
Plumbers	Building	Same
Forklift Drivers	On-the-job training	Same
Other Miscellaneous Technicians and Trades Workers	On-the-job training	Same
Carpenters and Joiners	Building	Same
Crane, Hoist and Lift Operators	On-the-job training	Same
Purchasing and Supply Logistics Clerks	On-the-job training	Same
Engineering Production Workers	On-the-job training	Same
Electrical Distribution Trades Workers	Electrical and Electronic Engineering and Technology	Same
Agricultural, Forestry and Horticultural Plant Operators	On-the-job training	Same

Source: Oxford Economics

Chemical, gas, petroleum and power generation plant operators are unlikely to face challenges transitioning into similar and skill adjacent roles, given strong demand.

Analysis of similar role pathways

Demand for chemical, gas, petroleum and power generation plant operators is muted across all industries, excluding the fossil fuel and is stable out to 2035 at 50 roles. The typical field of education primarily held by chemical, gas, petroleum and power generation plant operators in fossil fuel workers is electrical & electronic engineering & technology, however only a quarter of workers hold this qualification, making a transition within occupation more difficult and potentially requiring retraining.

Outside of the occupation, demand for similar roles is strong and able to fully absorb workers needing transition, providing alternative pathways for these workers. Similar roles include factory workers and machine operators.

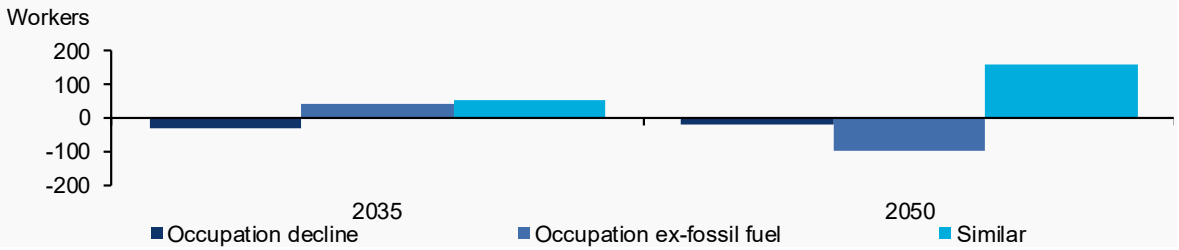
Analysis of skill adjacent role pathways

Chemical, gas, petroleum, and power generation plant operators are likely to even stronger outlook to transition to skill-adjacent roles, where the demand is expected to increase by 1,620 by 2035.

Demand for roles concentrated in construction and building shows the highest demand amongst skill adjacent roles, with a projected increase of over 1,100 by 2035. Roles including motor mechanics, plumbers and carpenters and joiners are also to require reskilling due to different specialist skill sets specific to the building sector.

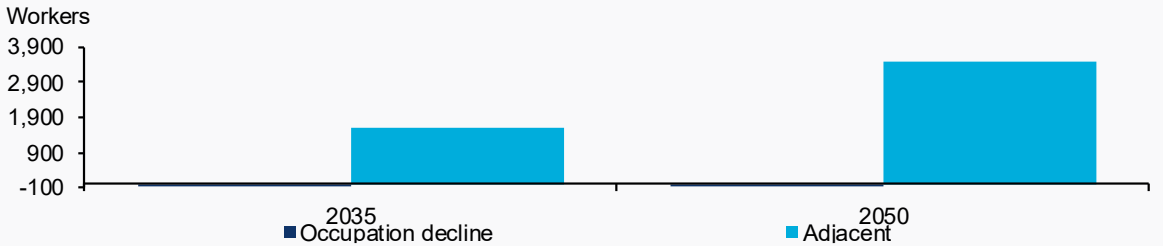
Chemical, gas, petroleum and power generation plant operators are unlikely to need training for both foundational and generalist skills. Their current skill levels are sufficient to facilitate a smooth transition into most identified skill adjacent professions, particularly stronger in reading and digital engagement, compared to the average for skill adjacent roles.

Demand for similar roles



Source: Oxford Economics based on AEMO Step Change scenario

Demand for skill adjacent roles



Source: Oxford Economics based on AEMO Step Change scenario

REFERENCES & SOURCES

REFERENCES

1. CQUniversity (2025) *TAFE Excellence Precinct*. Available here.
2. CQUniversity (2024) *CQUniversity marks 10 years of TAFE*. Available here.
3. TAFE Queensland (2025) *Queensland Future Skills Partnership*. Available here.
4. CQUniversity (2025) *Centre for Hydrogen and Renewable Energy*. Available here
5. CQUniversity and Stanwell Corporation (2024) *Stanwell appoint dedicated CQUniversity Research Chair to advance hydrogen and renewables*. Available here
6. CQUniversity and Sunshine Hydro (2024) *CQUniversity launches Mini Superhybrid technology initiative*. Available here.
7. Queensland University of Technology (2025) *Energy Transition Centre*. Available here.
8. Queensland University of Technology (2025) *QUEST Hub*. Available here.
9. Queensland University of Technology (2022) *Big boost for Queensland battery-powered jobs*. Available here
10. University of Queensland (2022) *Trailblazer collaboration*. Available here.
11. James Cook University (2024) *Engineering and Innovation Place.* Available here.
12. Net Zero Economy Authority (2024) *Overview of Functions*. Available here.
13. Department of Employment and Workplace Relations (2024) *Regional Workforce Transition Plans*. Available here.
14. Department of Employment and Workplace Relations (2025) *Regional Workforce Transition Officers (RWTOs)*. Available here.
15. Department of Employment and Workplace Relations (2023) *Transition Support Network*. Available here.
16. Department of Employment and Workplace Relations (2023) *New Energy Apprenticeships Program*. Available here.
17. Department of Employment and Workplace Relations (2023) *Fee-Free TAFE*. Available here.
18. Department of Employment and Workplace Relations (2024) *Clean Energy Training Systems*. Available here.
19. Queensland Government (2024) *Queensland's Clean Energy Workforce Roadmap*. Available here.
20. Renew Economy (2023) *SuperGrid training centre launched to support Queensland's switch to renewables*. Available here.
21. Queensland Government (2025) *Future Energy Jobs Guide*. Available here.
22. Department of Trade, Employment and Training (2023) *Vet Emerging Industries.* Available here.
23. Queensland Government (2024) *Regional Transformation Strategy 2024.* Available here.
24. Queensland Government (2024) *Central Queensland on Course for Sustainable Future*. Available here.
25. Queensland Government (2025) *Approved projects under the $200 million Regional Economic Futures Fund (REFF)*. Available here.
26. Trade and Investment (2022) *Queensland Energy and Jobs Plan.* Available here.
27. Department of Energy and Climate (2022) *Queensland Energy Workers' Charter*. Available here.
28. Gladstone Regional Council (2022) *Gladstone Region Economic Transition Roadmap*. Available here.
29. Government News (2025) *QLD councils call for seat on net zero board*. Available here.
34. Federal Ministry for Economic Affairs and Energy (Germany) (2020) *Structural Strengthening of Coal Regions Act (Strukturstärkungsgesetz Kohleregionen)*. Available here.
35. Government of Canada (2020) *Canada Coal Transition Initiative*. Available here.
36. Appalachian Regional Commission (n.d.) *POWER Initiative (Partnerships for Opportunity and Workforce and Economic Revitalization)*. Available here.
37. Elcano Royal Institute (2018) *From phasing-out to phasing-in: lessons from Spain's just transition governance framework*. Available here.
38. Federal Ministry for Economic Affairs and Energy (Germany) (2020) *Coal Phase-Out and Structural Strengthening Laws and Support Measures*. Available here.
39. Office of the Auditor General of Canada (2022) *Just Transition to a Low-Carbon Economy*. Available here
40. Government of Alberta (2020) *Support for Albertans affected by coal phase out*. Available here.
41. Reserve Bank of Australia [Cassify, Chan, Fao & Penrose] (2020) *Long-term Unemployment in Australia.* Available here.

SOURCES

ABS ANZSIC (2006), Australian and New Zealand Standard Classification of Industry. Available here.

ABS ANZSCO (2022), Australian and New Zealand Standard Classification of Occupations. Available here.

ABS Census (2021), 2021 Census of Population and Housing. Available through TableBuilder.

ABS Detailed Labour Force (2025), Labour market regions Table RQ1. Available here.

AEMO (2025) Draft Inputs, Assumptions and Scenarios Report Stage 2. Available here.

ATO (2022), Taxation statistics - Occupation transition year to year. Available here.

Department of Education (2023), Selected higher education statistics. Available here.

JSA (2023), Australian Skills Classification. Available through data request.

NCVER (2025), VOCSTATS. Available here.

SEEK (2025), Candidate profile datasets.

Oxford Economics *Regional Economic Forecasts* (2025), Economic Outlook for Central Queensland.

Contacts

EUROPE

Oxford (Headquarters)
Tel: +44 (0)1865 268 900

London
Tel: +44 (0)20 3910 8000

Belfast
Tel: + 44 2892 635400

Milan
Tel: +39 02 8295 2521

Frankfurt
Tel: +49 69 96 758 658

Paris
Tel: +33 (0)1 78 91 50 52

Stockholm
Tel: +46 (0) 8 446 887 65

AFRICA AND MIDDLE EAST

Cape Town
Tel: +27(0)21 863-6200

Dubai
Tel: +971 56 396 7998

AMERICAS

New York
Tel: +1 (646) 786 1879

Philadelphia
Tel: +1 (646) 786 1879

Mexico City
Tel: +52 155 5419-4173

Boston
Tel: +1 (617) 780 2265

Chicago
Tel: +1 (847) 993-3140

Los Angeles
Tel: +1 (424) 303 3449

Toronto
Tel: +1 (905) 361 6573

ASIA PACIFIC

Singapore
Tel: +65 6850 0110

Sydney
Tel: +61 (0)2 8458 4200

Hong Kong
Tel: +852 3974 8842

Tokyo
Tel: +81-(0)3-4588-2798