OXFORD ECONOMICS AUSTRALIA

Regional Economic Transition Analysis – Central Queensland

Final report

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Disclaimer

To discuss the report further please contact:

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EXECUTIVE SUMMARY

KEY FINDINGS

Central Queensland has established advantages in agriculture, mining and transport

Mining, agriculture, energy generation and manufacturing form the backbone of the regional economy, underpinned by the Bowen and Galilee basins, 15 operating mines, and export infrastructure at Gladstone, Hay Point and Abbot Point.

Agriculture (beef, grain, horticulture), logistics (Aurizon rail, Bruce and Capricorn Highways, intermodal hubs) and Gladstone Port add further depth, supported by a skilled workforce and heavy industry.

Gladstone's heavy industry cluster, including alumina, aluminium, LNG, and ammonia facilities, anchors the region as one of Australia's key energy and industrial hubs.

Around 1,210 fossil fuel workers are likely to transition into new roles by 2035, with most likely to be able to access a similar role.

Around 2,380 workers are 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 workers are likely to be able to transition to similar roles in other industries with minimal transition support needs, with another 12% of workers are likely to move into roles with similar skills requirements, with training expected to focus on reskilling their specialist skill sets.

A handful of workers are likely to require significant retraining to capture growth roles outside similar and skill adjacent roles.

Hydrogen, defence, green metals and critical minerals present key opportunities in Central Queensland

Shoalwater Bay and the Rockhampton-Gladstone defence corridor provide opportunities in sustainment, logistics, and advanced manufacturing that support Australia's sovereign capability.

Gladstone's designation as a hydrogen hub, combined with strong pilot activity, established port infrastructure, and proximity to Asian markets, positions the region as a leader in green hydrogen and ammonia.

Emerging projects in high-purity alumina, vanadium, and green iron demonstrate Central Queensland's potential to expand value-added processing and exports in green metals and critical minerals

Regional employment demand is likely to absorb displaced workers but role characteristics and the age structure of some roles may be a challenge

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

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

The older age structure of some specialist roles is likely to create challenges for workforce transition, and combined with lower levels of skills increases the risk of long-term unemployment.

Public sector will continue to be a main source of employment, with utilities playing an increasingly important role.

There is a strong employment base in the health, public admin and education industries which is expected to grow with Australia's aging population, increasing education rates and investment in support services over the long-term.

Utilities employment is expected to grow quite significantly, increasing by around a third under the step change scenario, driven by a large number of renewable projects in the region.

Mining will dominate the direct declines in industrial employment, but will have further flow on effects to other industries via population, income and industry interlinkages.

Capturing opportunities in Central QLD requires policy support, shared infrastructure, coordinated defence precincts and a skilled workforce.

For hydrogen, reducing costs and building investor confidence will require developing shared infrastructure, state government policy support and securing early domestic demand through industrial decarbonisation.

For defence, progress depends on establishing a coordinated Defence Industry Precinct with secure facilities, streamlining contracting and accreditation, and growing specialist workforce capacity.

For green metals and critical minerals, success will require delivering competitively-priced renewable energy, de-risking capital through clear policy and offtake frameworks, and strengthening workforce skills in metallurgy, processing, and engineering.

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

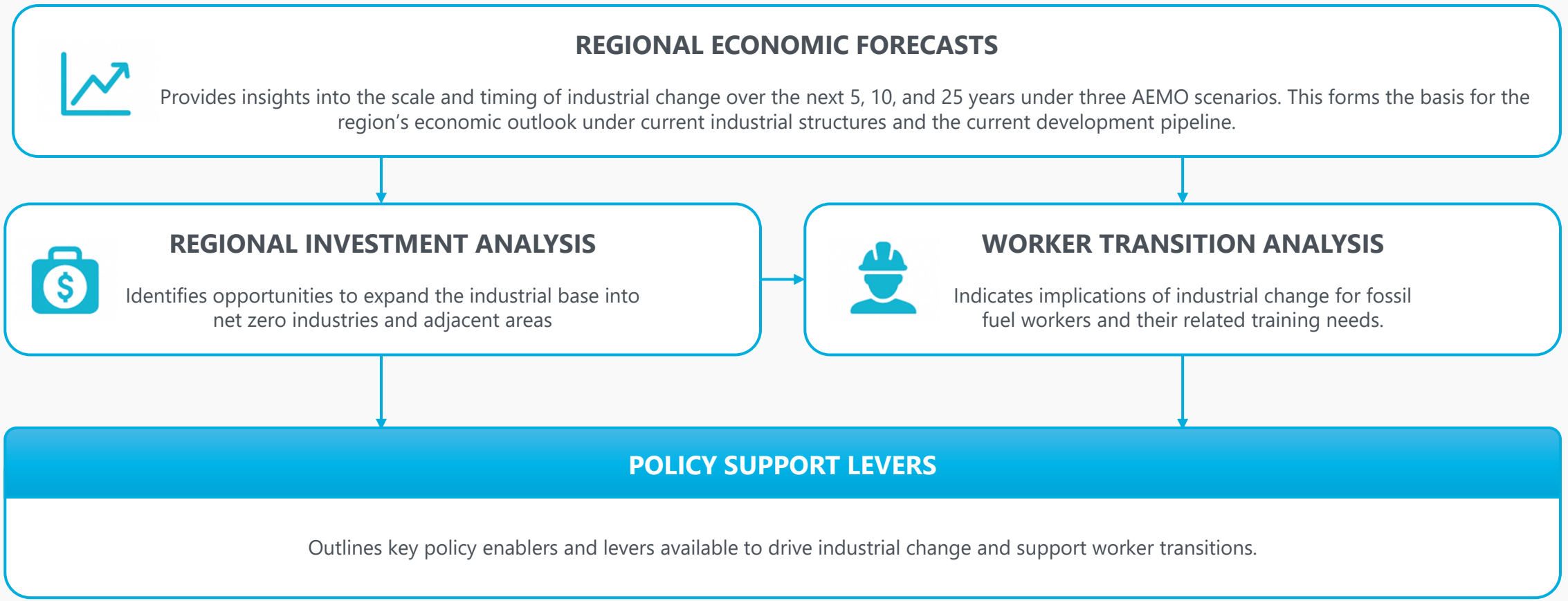
Focusing on each region's strategic position, this stream identifies comparative economic advantages, evaluates barriers to investment, and highlights opportunities to attract net zero aligned industries. It also outlines region-specific enablers such as infrastructure, workforce capability, and resource 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.

Our analytical framework brings together three interconnected streams of analysis to identify policy levers that could support the region's transition.

Regional economic transition analytical framework



This report presents findings into the challenges and opportunities facing Central Queensland's net zero transition and implications for supporting workforce transitions.

Purpose of this Report

This report provides an integrated analysis into the economic, investment, and workforce dimensions of the Central Queensland transition to net zero. It forms part of the Net Zero Economy Authority's (NZEA) regional analysis program and supports its broader mandate to coordinate an orderly, inclusive and place-based transition. The focus is on bringing together forward-looking economic forecasts, assessments of regional investment opportunities, and analysis of workforce transition pathways to provide a consolidated evidence base for decision-making.

The report draws on findings from each of the *Regional Economic Forecasts* report, *Regional Investment Analysis* report and *Worker Transition Analysis* report. It highlights the timing and scale of structural change likely to occur in the Central Queensland economy based on current development pipelines and industrial structures, identifies the most viable opportunities to attract and grow net zero-aligned and other relevant industries to support a thriving Central Queensland, and outlines the workforce supports required to enable an inclusive transition for affected communities. 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 inform strategic planning, investment prioritisation, and workforce development across government, industry and communities. The outputs are designed to help NZEA and relevant stakeholders anticipate the interconnected challenges and opportunities facing Central Queensland, and to align policy, investment, and support measures accordingly. These findings are intended to be validated by NZEA with regional stakeholders.

The structure and methodology bring together a single picture of the region's economic transition challenges and opportunities. The regional economic forecasts assess Central Queensland's likely economic path based on current industrial structures and the current development pipeline, the investment analysis identifies opportunities for growth and change aligned with net zero priorities, and the workforce transition analysis integrates both dimensions to map the opportunities and needs of affected workers and communities. While each stream provides depth in its own right, this report brings them together to create a single, region-wide narrative and provides a basis for validation with local communities. The analysis is forward-looking and designed to inform medium and long-term decision-making to ensure Central Queensland's transition is resilient, inclusive, and economically sustainable.

Report Structure

The report is structured around four core analytical components: analysis of Central Queensland's economic outlook, identification of priority investment opportunities, assessment of workforce transition pathways, and consideration of the policy supports and recommendations required to enable an orderly transition. Each of these components provides a distinct perspective on the region's transition, and together they offer an integrated view of how Central Queensland can navigate structural change while maximising opportunities for growth and community resilience.

CENTRAL QUEENSLAND'S ECONOMIC OUTLOOK: This section provides a forward-looking assessment of Central Queensland's likely economic trajectory under different transition scenarios. It draws on industry composition, employment forecasts, and skills demand projections to highlight sectors expected to grow, decline or emerge based on the industrial structure and current development pipeline.

PRIORITY INVESTMENT OPPORTUNITIES: This section identifies Central Queensland's comparative advantages and the most viable opportunities to attract and develop net zero-aligned and other relevant industries.. It considers enabling conditions such as infrastructure, resource availability, and workforce capability, and highlights barriers that may delay or limit investment.

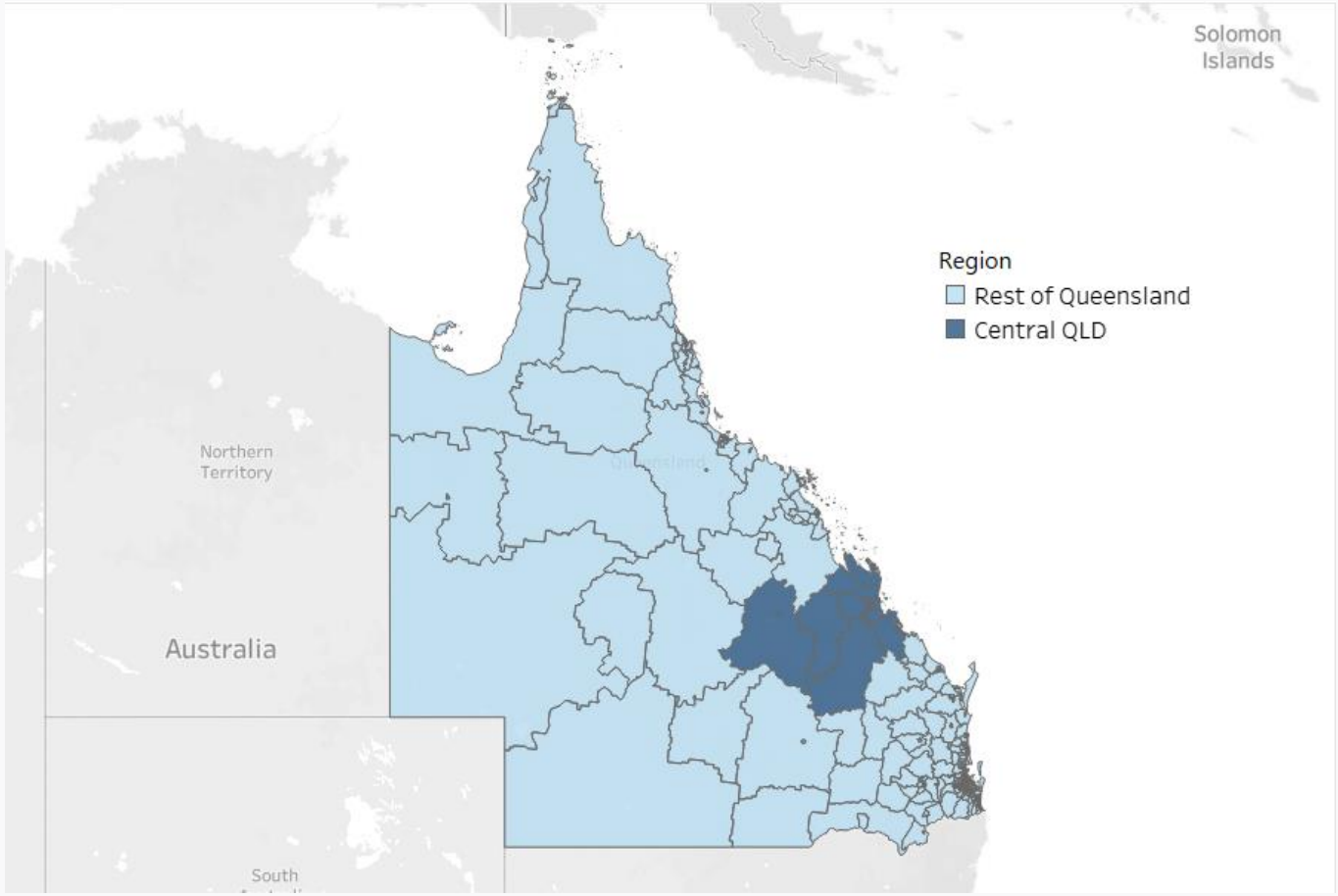
WORKFORCE TRANSITION PATHWAYS: This section examines the implications of industrial and investment change for Central Queensland's workforce. It maps potential occupational pathways for affected workers, identifies retraining and mobility requirements, and assesses the region's capacity to support workers through transition.

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

PRIORITY INVESTMENT OPPORTUNITIES

Central Queensland has established advantages in agriculture, mining and transport with the net zero opportunities in manufacturing and electricity generation.

Comparative advantage summary

Segment	Sector	LQ*	Growth rate**	Skilled labour ***	% of economy ****	Infrastructure and endowments
Established advantage	Agriculture, Forestry and Fishing	1.87	0.7%	3,499	3%	• Fertile land, irrigation schemes (Fitzroy Basin, Dawson River), and proximity to export ports
	Mining	5.61	-2.2%	6,597	51%	• Bowen and Galilee coal basins, Cobalt, Copper, Gold, Iron Ore - Magnetite, Zinc, Lead
Net zero opportunities	Manufacturing	1.13	-1.0%	4,209	4%	• Gladstone heavy industry precincts, Boyne aluminium smelter
	Electricity, Gas, Water and Waste	1.48	4.3%	1,375	4%	• Coal fired power stations, Gladstone Energy Hub
Enabling industries	Construction	1.15	1.4%	7,774	6%	
	Wholesale Trade	0.78	0.6%	1,205	1%	
	Information Media & Telco.	0.41	0.5%	500	0%	
	Transport, Postal and Warehousing	0.91	0.9%	1,802	4%	• Major freight rail, Gladstone, Hay Point & Abbot Point ports, Rockhampton Airport
	Financial and Insurance Services	0.22	0.9%	839	1%	
	Rental, Hiring and Real Estate	0.62	1.0%	881	7%	
	Professional, Scientific and Technical	0.43	1.6%	3,957	2%	• Emerging hydrogen R&D in Gladstone and CQU
	Administrative and Support Services	0.96	1.2%	1,218	1%	• Shoalwater Bay Military Training Area
	Public Administration and Safety	0.91	1.6%	4,107	3%	
Population serving	Retail Trade	0.98	-0.2%	2,458	2%	
	Accommodation and Food Services	0.77	1.3%	1,846	1%	• Tourism infrastructure (Sth. Great Barrier Reef)
	Education and Training	1.10	1.3%	8,372	3%	• CQUniversity, TAFE Queensland campuses
	Health Care and Social	0.87	0.9%	10,374	5%	• Rockhampton and Gladstone Base Hospital
	Arts and Recreation Services	0.68	1.9%	945	0%	
	Other Services	1.28	0.9%	4,182	1%	

Source: ABS; REMPLAN; Oxford Economics Analysis

Description

Central Queensland's economy is anchored by mining and agriculture, supported by world-class transport and export infrastructure. Mining dominates with 6,597 skilled workers, contributing more than half of regional value added (51%) and showing a very high LQ of 5.61, though employment is projected to decline by 2.2% annually. Agriculture, forestry and fishing also provides a strong comparative advantage (LQ 1.87), with 3,499 skilled workers and modest 0.7% growth.

Net zero opportunities are motivated by the renewables rollout, led by electricity, gas, water and waste, which is both specialised (LQ 1.48) and the fastest-growing sector at 4.3% a year, employing 1,375 skilled workers. Manufacturing is also driven by the rollout, retaining above-average concentration (LQ 1.13) and a 4% share of the economy, though jobs (4,209) are expected to decline by 1% annually. Construction remains significant with 7,774 skilled workers (6% of the economy) and 1.4% growth, while professional, scientific and technical services, though under-represented (3,957) workers, LQ 0.43), is forecast to grow 1.6% annually. Transport, postal and warehousing is a key supporter of the region's industries, employing 1,802 workers with 0.9% growth, underpinned by the region's rail and port network. Wholesale trade (1,205 workers) and financial services (839 workers) also provide capacity, despite low concentration, highlighting the importance of enabling sectors.

Population-serving industries underpin liveability and resilience. Health care and social assistance is the largest single employer, with 10,374 skilled workers (5% of the economy) and steady 0.9% growth. Education and training is also sizeable, with 8,372 workers, an above-average LQ of 1.10, and 1.3% growth supported by CQ University and TAFE. Public administration and safety adds further stability, with 4,107 workers and 1.6% growth. Smaller sectors including accommodation and food services (1,846 workers) and arts and recreation (945) are expanding at 1.3% and 1.9% a year respectively, pointing to opportunities in tourism and lifestyle. Together, these trends suggest the region is well placed to leverage established strengths while gradually diversifying into clean energy, advanced manufacturing, and services.

** Location quotient of employment in 2025 relative to national levels; **Employment growth forecast 2025-2035 - step change scenario; *** Defined as workers in industry with skill level 3 and above; ****Defined as the percentage of regional GVA*

Central Queensland offers key opportunities in defence, hydrogen and the minerals sector.

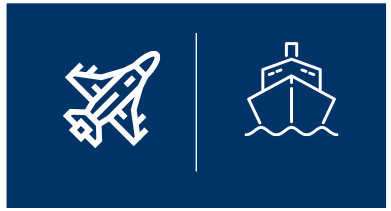
Project type	Lead Times*	Job Contribution	Policy	Comparative Advantage	Average Rating**	Description
Defence maintenance/sustainment	Short	5.00	5.00	5.00	5.00	Proximity to Shoalwater Bay enables long-term sustainment, logistics, and support.
Hydrogen	Medium	5.00	4.00	4.00	4.33	Gladstone is a proposed Hydrogen Hub, but state government support is mixed.
Defence manufacturing	Short	3.00	5.00	5.00	4.33	Established heavy industry base supports advanced defence manufacturing.
Green metals	Medium	3.00	4.00	5.00	4.00	Anchor projects in alumina and green iron highlight export potential.
Minerals processing	Short	2.00	5.00	5.00	4.00	Transport, logistics, regional minerals, provide a strong base for downstream refining.
Urea and ammonia production	Short	4.00	4.00	3.00	3.67	Hydrogen and ammonia capabilities and infrastructure position CQ for green ammonia.
Energy from waste facilities	Long	4.00	3.00	4.00	3.67	Local feedstock and industrial hubs support waste-to-energy opportunities.
LCLFs, biofuels and biochemicals from waste streams	Medium	3.00	4.00	4.00	3.67	Agricultural by-products can drive new biofuel and biochemical industries.
Battery energy storage systems (BESS)	Medium	1.00	5.00	5.00	3.67	Supports renewable integration and grid reliability across CQ.
Renewables component manufacturing	Short	5.00	4.00	2.00	3.67	Heavy industry skills enable manufacturing of wind, solar and battery parts.
Pumped hydro energy storage	Long	2.00	4.00	5.00	3.67	Regional sites provide potential long-duration renewable energy storage.
Transport and logistics	Medium	4.00	4.00	3.00	3.67	Ports, rail and road networks enable freight, defence and export growth.
Circular economy manufacturing	Short	1.00	5.00	4.00	3.33	Industrial land and by-products create opportunities for recycling and reuse.
Food and fibre product manufacturing	Short	2.00	5.00	3.00	3.33	Agricultural base supports expansion of value-added processing.
Offshore wind farms	Long	4.00	2.00	3.00	3.00	Central Queensland currently has no approved projects, with only early feasibility studies and investigations in proposed areas.
Solar farms	Medium	1.00	5.00	3.00	3.00	High solar irradiance underpins large-scale renewable energy projects.
Onshore wind farms	Medium	1.00	5.00	3.00	3.00	Hybrid resources enable scalable wind developments inland from Gladstone.
Mine rehabilitation	N/A	3.00	1.00	5.00	3.00	Large legacy mine sites offer demand for remediation and environmental services.
Carbon capture, utilisation and storage (CCUS)	Long	5.00	2.00	1.00	2.67	Recent ban of CCS activity in GAB limits opportunity and comparative advantage.
Geothermal heating and power	Long	2.00	1.00	2.00	1.67	Geothermal potential exists but remains unproven and high risk.
Data centres	Short	1.00	2.00	1.00	1.33	Proximity to renewables offers low-carbon digital infrastructure opportunities.

**Note that lead times are not considered when deriving a project type's rating or the subsequent prioritisation. Details and categorisation are retained here for illustrative purposes.*
***These 21 industry types were considered for each region and are not specific to Central Queensland. Additional detail on methodology to derive scores is present in report appendices.*

Key opportunities Weakest 1 2 3 4 5 Strongest

Central Queensland can leverage Shoalwater Bay and its industrial base to become a leading hub for defence manufacturing, sustainment and training.

Summary of opportunity – Defence manufacturing and sustainment



Central Queensland has the potential to grow into a leading hub for defence manufacturing, sustainment and training, building on its existing industrial base, strategic location and workforce. With strong defence presence already established through facilities like Shoalwater Bay Training Area, the region is well placed to expand into defence-related manufacturing, maintenance, and logistics. By leveraging these strengths, Central Queensland can attract investment from defence primes and SMEs, create long-term skilled jobs, and position itself as a critical contributor to Australia's sovereign defence capability.

Central QLD advantages

- Strategic proximity to the Shoalwater Bay Training Area, one of Australia's premier military training facilities.
- Established industrial capabilities in heavy engineering, fabrication, advanced manufacturing, and logistics.
- Port of Gladstone, explosives ordinance logistics, Rockhampton Airport and Bajool Explosives Reserve.
- Policy alignment with federal and state government defence industry strategies, regional development agendas, and sovereign capability priorities.

Actions to realise opportunity

- Develop a dedicated defence manufacturing and sustainment precinct to co-locate suppliers, primes, and training providers.
- Attract anchor defence industry tenants (ship/vehicle sustainment, aerospace, munitions, robotics).
- Partner with TAFE, universities and defence contractors to grow the local skilled workforce in advanced trades, engineering, and systems integration.
- Strengthen transport and logistics links to ports and bases to support efficient sustainment.

Estimated economic impacts per project*

	Defence Manufact.		Defence Sustainment	
	Constr-uction	Ongoing	Construc-tion	Ongoing
Investment	$400m	$295m p.a.	$680m	$612m p.a.
GVA	$87m	$58m p.a.	$148m	$120m p.a.
Employment	148 jobs	263 jobs p.a.	367 jobs	600 jobs p.a.

Key project examples

- **Shoalwater Bay Training Area expansion –** delivered under the Australia–Singapore Military Training Initiative (ASMTI).
- **Rockhampton and Gladstone Defence Support Hub proposals** – initiatives to attract defence contractors and sustainment businesses to service land and maritime assets.
- **Central to Defence** – Central Queensland Defence Industry Precinct Business Case.
- **Gladstone Port defence logistics capability** – Use of port facilities to support heavy lift, logistics and sustainment.

Key opportunity areas

Immediate priorities (2025–2030)

1. Progress QDIP Business Case and secure defence industry tenants and investment.
2. Align training programs to build a pipeline of defence-ready workers.

Medium-term opportunities (2030–2035)

3. Establish sustainment hubs for armoured vehicles, land systems, and aerospace assets.
4. Develop partnerships with international defence primes to localise supply chains.
5. Expand advanced manufacturing (e.g. composites, robotics, munitions).
6. Integrate defence logistics with regional freight and port infrastructure.

Longer-term opportunities (post-2035)

7. Position Central QLD as a national centre for joint training, sustainment, and manufacturing.
8. Develop export capability for defence-related advanced manufacturing.
9. Embed defence manufacturing as a cornerstone of regional diversification beyond coal.

** Expected investment CAPEX, and Construction and Ongoing employment impacts are taken as averages from publicly available project information. Expected Ongoing investment and GVA impacts are inferred using ratios. See more details in the Appendix.*

Central Queensland can harness its renewable resources, ports and industrial base to become Australia's leading hub for hydrogen production and use.

Summary of opportunity – Hydrogen

Central Queensland can become a national hub for hydrogen production and export, leveraging its natural resources, industrial base, and strategic port infrastructure. With early-stage projects and feasibility work already underway in Gladstone and surrounding areas, the region is well placed to scale hydrogen production, develop downstream industries, and supply both domestic markets and international partners as Australia transitions to net zero. This capability can be leveraged for both green ammonia production and green metals.

Central QLD advantages

- Gladstone is one of Australia's leading energy and industrial hubs, with deepwater port infrastructure, heavy industry, ammonia production and established energy expertise.
- Strong renewable energy resources (solar and wind) and grid access to support green hydrogen production.
- Strategic location close to Asian export markets, with established trade links through Gladstone Port.
- Policy alignment with the National Hydrogen Strategy and Commonwealth hydrogen hubs.

Actions to realise opportunity

- Secure investment in large-scale electrolysers, hydrogen hubs, and export infrastructure in Gladstone.
- Support workforce transition from fossil fuels to hydrogen and renewables through targeted training programs.
- Develop domestic hydrogen demand (e.g. heavy vehicles, industrial users, ammonia and fertiliser production) to underpin early scale-up.
- Strengthen partnerships with international offtakers (Japan, Korea, EU) to guarantee long-term export markets.

Estimated economic impacts per project*

	Hydrogen	
	Construction	Ongoing
Investment	$1,400m	$420m p.a.
GVA	$248m	$136m p.a.
Employment	790 jobs	383 jobs p.a.

Key project examples

- **Yarwun Hydrogen Calcination Pilot**[14] – world-first hydrogen-powered alumina calcination pilot at Gladstone's Yarwun refinery.
- **Hydrogen Park Gladstone (HyP Gladstone)**[15] – demonstration-scale renewable hydrogen facility blending hydrogen into local gas.
- **Queensland Alumina Limited (QAL) decarbonisation studies**[16] – ongoing work into using hydrogen and alternative fuels to replace coal in alumina refining.

Key opportunity areas

Immediate priorities (2025–2030)

1. Expand upon HyP Gladstone's existing capabilities and establish domestic hydrogen refuelling and supply.
2. Trial green ammonia production, and explore offtake agreements with key export markets.

Medium-term opportunities (2030–2035)

4. Scale hydrogen and ammonia export volumes through Gladstone Port.
5. Develop hydrogen-based industrial precincts (fertilisers, green metals).
6. Deploy hydrogen for heavy haulage, mining fleets and rail transport in Central QLD.

Longer-term opportunities (post-2035)

7. Position Gladstone as Australia's leading hydrogen export hub.
8. Build integrated hydrogen-to-green-metals value chains.
9. Expand into global markets for hydrogen derivatives.

Interlinkages to other opportunities

Green hydrogen development in Central Queensland is closely linked to green ammonia production, leveraging Gladstone region's existing ammonia production and infrastructure. By establishing large-scale electrolysis and hydrogen supply infrastructure, the region can enable co-located green ammonia and green metals industries, catalysing investment in low-carbon processing and advanced manufacturing.

** Expected investment CAPEX, and Construction and Ongoing employment impacts are taken as averages from publicly available project information. Expected Ongoing investment and GVA impacts are inferred using ratios. See more details in the Appendix.*

Green metals and minerals processing can make Central Queensland a global hub for low-carbon manufacturing and advanced materials.

Summary of opportunity – Green metals and minerals processing

Central Queensland is emerging as a hub for green metals and advanced minerals processing, with projects like Alpha HPA's high-purity alumina refinery and the Gladstone Green Iron initiative positioning the region at the forefront of value-added manufacturing. By moving further downstream, CQ can capture more of the critical minerals value chain, diversify its economy, and create high-skill, future-facing jobs beyond coal and traditional alumina refining.

Central QLD advantages

- Anchor projects in development (Alpha HPA, Green Iron) demonstrate real momentum in value-added processing.
- Gladstone offers deepwater port access, established heavy industry precincts, water security, and reliable power.
- Government support through Future Made in Australia and the Queensland Critical Minerals Strategy, ensuring strong policy alignment and funding.
- Workforce with transferable skills from resources, refining, and heavy engineering.

Actions to realise opportunity

- Support first-mover projects to full commercial operation and expansion.
- Attract further investment in refining, processing and downstream manufacturing of critical minerals and low-carbon metals.
- Develop workforce transition and training programs in partnership with CQUniversity and TAFE to build skills in processing, automation, and advanced manufacturing.
- Strengthen enabling infrastructure (ports, pipelines, energy) to scale processing precincts.

Estimated economic impacts per project*

	Green Metals		Minerals Processing	
	Constr-uction	Ongoing	Construc-tion	Ongoing
Investment	$500m	$100m p.a.	$223m	$45m p.a.
GVA	$82m	$22m p.a.	$36m	$10m p.a.
Employment	700 jobs	200 jobs p.a.	206 jobs	138 jobs p.a.

Key project examples

- **Alpha HPA's high-purity alumina refinery (Gladstone)** – producing advanced materials for LED lights, semiconductors, and lithium-ion batteries.
- **Gladstone Green Iron project** – proposed low-carbon iron production hub, leveraging renewable energy and hydrogen for steelmaking.

Key opportunity areas

Immediate priorities (2025–2030)

1. Commission Alpha HPA refinery and progress Gladstone Green Iron pilot.
2. Secure government and private investment to de-risk early-stage projects.
3. Build specialised workforce pipelines for green metals processing.
4. Begin decarbonisation of Gladstone's aluminium smelter and refineries through renewable power and energy efficiency.

Medium-term opportunities (2030–2035)

5. Expand green iron and high-purity alumina capacity for export markets.
6. Attract further critical minerals processing.
7. Develop integrated advanced manufacturing clusters around Gladstone.

Longer-term opportunities (post-2035)

8. Position Central QLD as a globally competitive low-carbon metals hub.
9. Build downstream industries in batteries, semiconductors, and clean tech supply chains.
10. Embed green metals as a cornerstone of regional diversification beyond coal.

** Expected investment CAPEX, and Construction and Ongoing employment impacts are taken as averages from publicly available project information. Expected Ongoing investment and GVA impacts are inferred using ratios. See more details in the Appendix.*

Central Queensland can lead Australia's clean energy and defence transition if key barriers in skills, infrastructure, and markets are overcome.

Key barriers

Commercial and market risk

Uncertain global demand and high input costs create financing challenges, particularly for hydrogen and green metals projects that require long-term offtake contracts.

Policy and regulatory uncertainty

Inconsistent signals across State and Commonwealth policies, plus complex approval cycles, delay investment in defence and critical minerals processing.

Infrastructure gaps and constraints

Upgrades to energy, water, port, and transport infrastructure are essential to scale hydrogen exports and green metals processing, while defence projects require logistics hubs.

Specialist skills in short supply

Limited availability of advanced trades, engineers, and defence-specific skills creates competition across hydrogen, mining, and manufacturing sectors

Key enablers

Commercial certainty

Bankable offtake agreements for hydrogen and green metals, plus long-term defence contracts, provide investor confidence.

Governance and regulatory certainty

Streamlined and coordinated approval processes across government tiers are needed to accelerate new precincts and large-scale projects.

Infrastructure and utilities access

Expanded port capacity, water security, transmission, and logistics upgrades strengthen Central Queensland's industrial advantage.

Workforce transition and R&D potential

Leveraging transferable skills from mining and energy, alongside targeted training and partnerships with TAFE, universities, and defence primes.

Description

Central Queensland has strong foundations for industrial transition, but success will depend on overcoming barriers in commercial certainty, infrastructure, skills, and regulation. As coal-fired power stations progressively close, the region faces both the challenge and the opportunity of building new industries that can deliver long-term jobs and economic resilience.

For **hydrogen**, barriers include high input costs, slow market development, and the risks associated with scaling capital-intensive projects. Several large-scale export projects such as CQ-H2 have already been cancelled or delayed, reflecting uncertainty in global demand and the absence of bankable offtake contracts[19]. Near-term opportunities are stronger in industrial decarbonisation and green ammonia, but will require shared infrastructure, common-user facilities, and clearer demand signals.

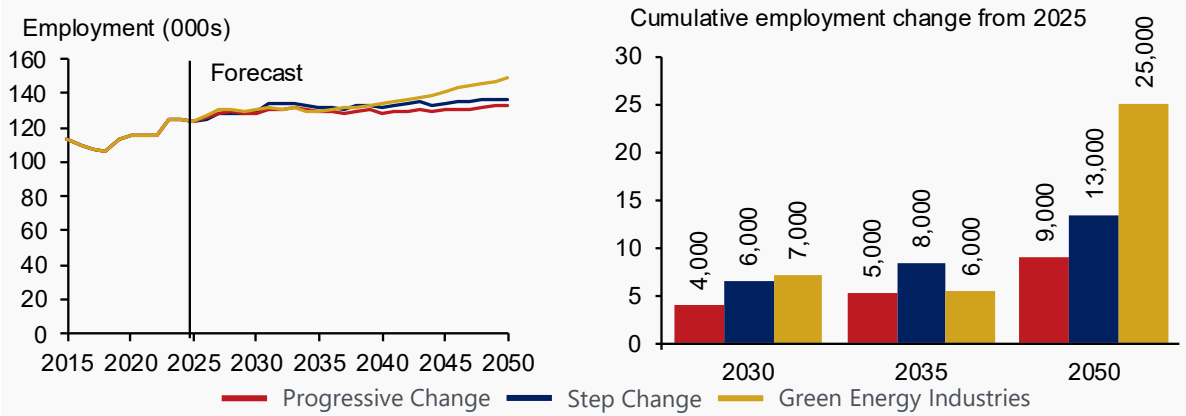
In **defence manufacturing and sustainment**, Central Queensland benefits from the Shoalwater Bay Training Area and the region's growing role in joint exercises with international partners. However, national barriers such as long contracting cycles, complex regulatory and acquisition processes, and fragmented investment planning increase the burden of working with defence[20]. Streamlined approvals, dedicated precinct development, and investment in skills pipelines are needed to secure more local sustainment work and attract new manufacturing opportunities linked to Australia's growing defence spend.

For **green metals and critical minerals processing**, the region has strong potential through projects like Alpha HPA's high-purity alumina refinery and Quinbrook's Gladstone Green Iron Project. The barriers here include the need for reliable low-carbon energy, secure water supplies, and sufficient grid capacity to power large-scale processing. Skills shortages in advanced manufacturing and process engineering also present risks. Enablers include strong government alignment through the Future Made in Australia Act and Queensland's Critical Minerals Strategy, as well as access to Gladstone's deepwater port, established industrial land, and new infrastructure like the Fitzroy–Gladstone Pipeline.

CENTRAL QUEENSLAND ECONOMIC OUTLOOK

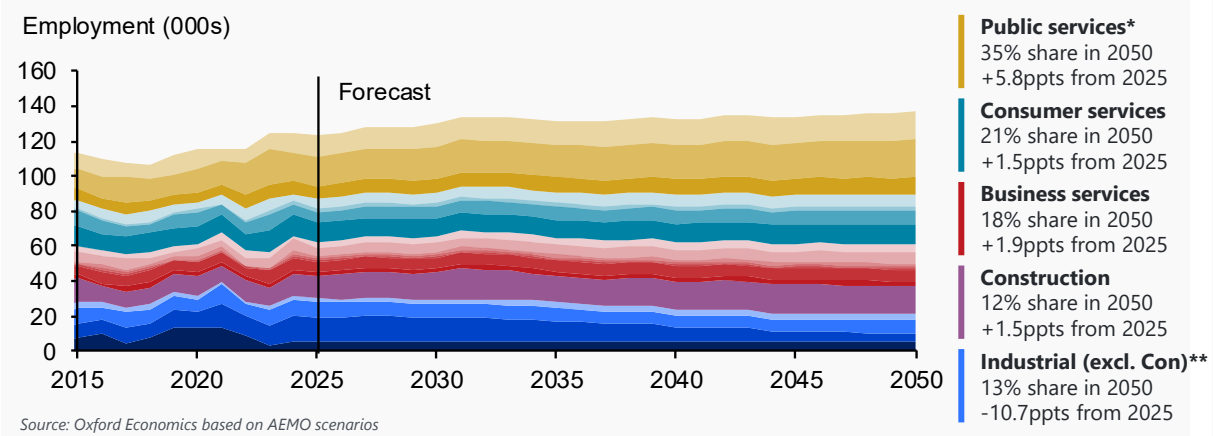
The growing public services and utilities sector will be key sources of employment growth and economic activity in Central Queensland.

Central Queensland workforce outlook by scenario



Source: Oxford Economics based on AEMO scenarios

Central Queensland employment make-up under Step Change



Source: Oxford Economics based on AEMO scenarios

Central Queensland workforce outlook

Central Queensland's significant exposure to heavy industry, particularly coal mining, is expected to drive a significant workforce transition over the next 25 years. While total employment is still expected to increase, the dispersion of growth across industries is very diverse depending on the pace of the transition pathway. This outlook does not include future industrial growth opportunities identified in the *Regional Investment Analysis* report.

Over the next 10 years across all scenarios, total employment is expected to grow, from 123,000 today to 132,000 the central Step Change scenario and 129,000 under both the Progressive Change and Green Energy Industries scenarios. This difference is due to the timing on coal asset closures and the rollout of renewables. Relative to Step Change, coal mining performs better under Progressive Change and worse under Green Energy Industries but the opposite is true for renewables.

Over this period, the unemployment rate is expected to mimic the wider Australian economy, slowly increasing off the relatively low base towards 6.5% by 2035. Economic growth is expected to underperform employment across all scenarios, particularly Green Energy Industries. The rapid shift away from high value-added coal mining means that even while total employment increases under Green Energy Industries, the contribution to economic growth of service-oriented industries is not enough to fully offset the declines in mining.

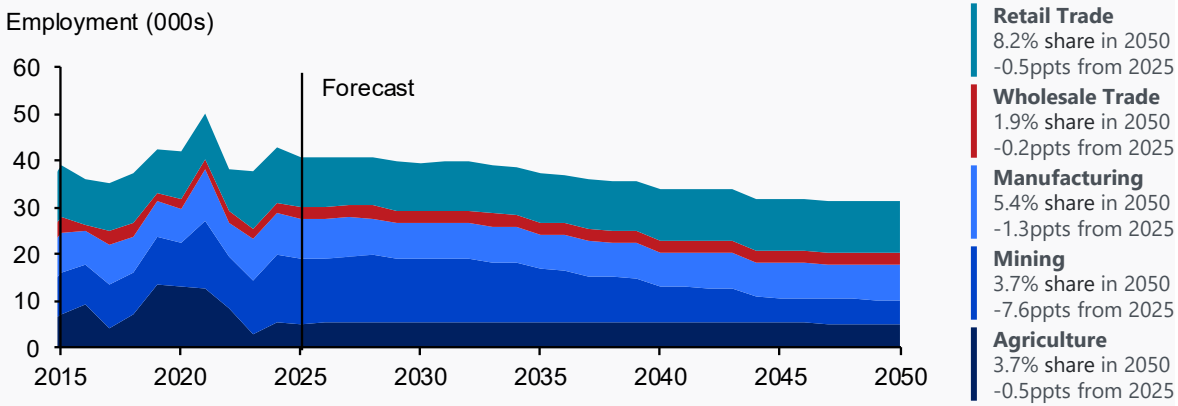
Beyond 2035, industrial sectors excluding construction** share of employment is expected to contract, reaching 13% by 2050, down 11 percentage points (ppt) from today with the majority of this decline due to mining as demand for coal falls. Manufacturing and agricultural employment is expected to continue contracting, mines will reach their planned closure or end of life date and demand for coal is expected to continue falling, although at varying speeds by scenario. Construction is expected to remain a major industrial employer, holding close to 9% of total jobs in 2035 under Step Change, fueled by ongoing infrastructure, housing and renewable energy developments. The number of jobs in utilities is expected to increase significantly across all scenarios, from 2,300 today to 2,500 under Progressive Change, 3,000 under Step Change and 4,600 under Green Energy Industries.

The sources of employment growth in Central Queensland will be increasingly driven by public services, the currently underrepresented business service sector and the renewable rollout. Public services, including health, education and public admin, are expected to increase their share of employment from 30% to about 35%, reflecting the influence of the aging population, higher participation in education, and elevated government spending on social programs.

*Public services includes Health, Education & Public Administration & Safety. Consumer services includes Retail Trade, Accommodation & Food Services, Arts & Recreation and Other Services. Business Services includes Wholesale Trade, Transport & Warehousing, Information & Media, Financial Services, Property Services, Professional Services and Administration Services. **Industrials excluding Construction includes Agriculture, Mining, Manufacturing & Electricity, Gas, Water & Waste Services.*
***Note:** Figures rounded to the nearest thousand*

Mining will dominate the direct declines in employment, but manufacturing will perform relatively better than state and national averages.

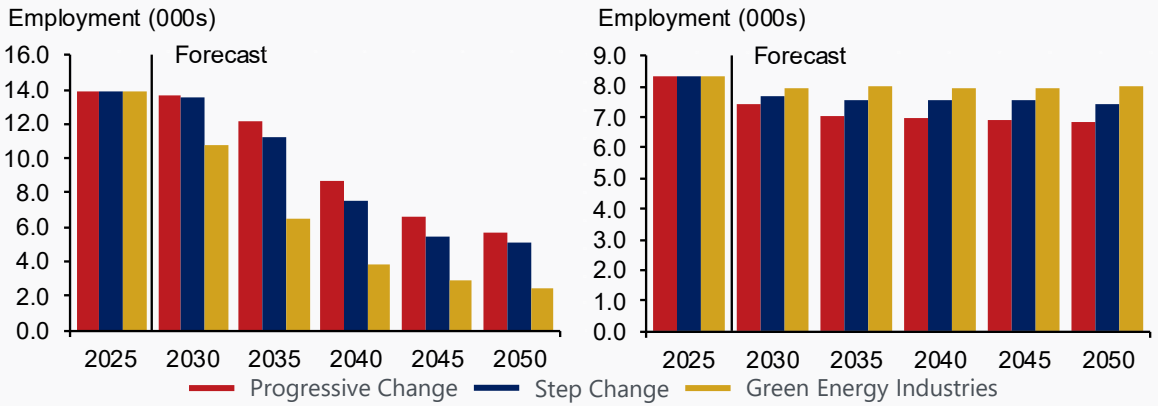
Industries in decline under Step Change



Source: Oxford Economics based on AEMO scenarios

Mining workforce outlook

Manufacturing workforce outlook



Source: Oxford Economics based on AEMO scenarios

Utilities includes electricity and gas supply activities as well as water and waste services.
Note: *Figures rounded to the nearest thousand*

Industrial workforce outlook

Central Queensland is one of the most dominant coal mining regions in Australia. There are currently an estimated 11,000 people working in the industry, representing 9% of the total workforce. Under all scenarios the primary driver of the coal mining contraction is announced planned closures and closure due to end of mine life within the forecast period. Additionally, those coal mines without explicit closure plans are expected to face slowing global demand for coal under all scenarios to varying degrees.

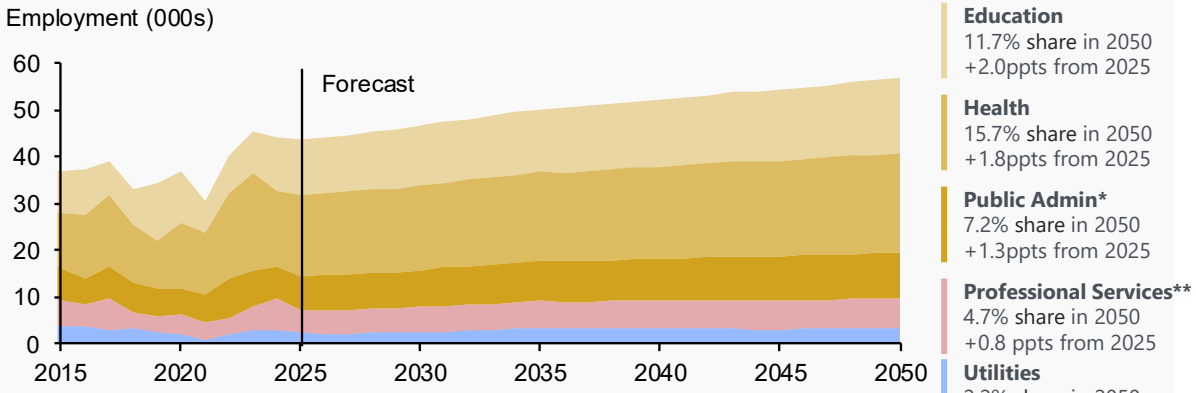
Non-coal mining currently employs around 2,900 people split across gas extraction, metal ore mining, non-metal minerals and exploration. These sub-sectors are expected to perform better than coal mining, with metal ore mining particularly benefiting from the regions deposits of gold, alumina and magnesium. Overall, total mining employment is expected to decline from 14,000 in 2025 to 5,000 by 2050 under Step Change and just 2,000, under Green Energy Industries as the more aggressive global transition weighs more heavily on coal demand after 2035. This is the major driver of industrial job losses, particularly under the Step Change scenario.

The region is twice as exposed to agriculture compared to wider Australia and the largest manufacturing sub-sector by far is food product manufacturing. While the level of employment is expected to stay relatively similar to today, both of these sectors are expected to decrease their share of employment over the long-run. Both industries will continue to gain productivity benefits from the integration of advanced technologies, albeit at a slowing rate compared to the rapid impact over the last two decades. Compared to the state and national outlook, manufacturing in Central Queensland is expected to perform relatively well with project support in minerals processing at Mount Morgan, Mt Chalmers and from the second stage of the HPA First Project, as well as some early signs of a developing hydrogen industry despite some mixed results from pilot projects.

Retail and wholesale trade employment has been relatively stable over the last decade. Employment levels are expected to remain relatively stable but retail and wholesale trade are expected to decrease their share of employment. The slow post mining boom population growth is expected to continue over the long-term, weighing on underlying demand for retail. Additionally, the shift away from high income mining to a more service-oriented economy may slow household income growth in the region, further impacting retail demand. Activity in key industrials including manufacturing, agriculture and mining, which are all expected to decline as a share of employment, will have flow on effects to wholesale trade.

The renewable rollout and significant grid investment planned in Central Queensland is expected to offset the employment losses from fossil fuel generator closures.

Growth industries under Step Change



Education
11.7% share in 2050
+2.0ppts from 2025

Health
15.7% share in 2050
+1.8ppts from 2025

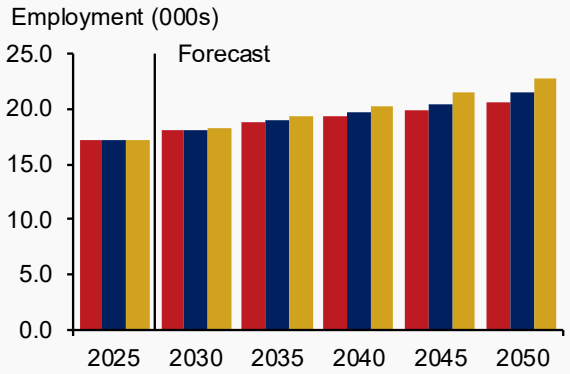
Public Admin*
7.2% share in 2050
+1.3ppts from 2025

Professional Services**
4.7% share in 2050
+0.8 ppts from 2025

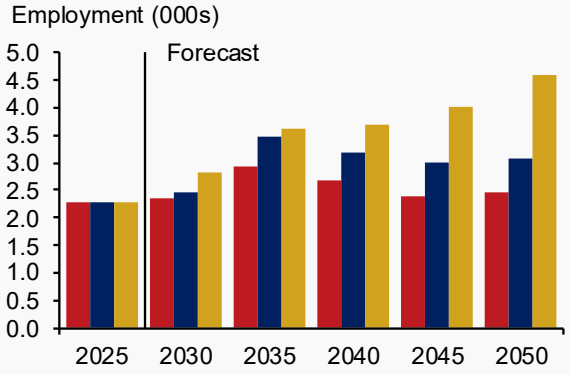
Utilities
2.2% share in 2050
+0.4 ppts from 2025

Source: Oxford Economics based on AEMO scenarios

Health workforce outlook



Utilities workforce outlook



Progressive Change Step Change Green Energy Industries

Source: Oxford Economics based on AEMO scenarios

Growth industries workforce outlook

The utilities, professional services, and public services* sectors are expected to be the key drivers of employment growth long-term. There is a strong employment base in the health, public administration and education which is expected to grow with Australia's aging population, increasing education rates and investment in support services. Public services are expected to add a combined 5,000 jobs over the next 10 years and professional services is also expected to significantly increase its share of employment under the central Step Change scenario driven by strong growth at the national and state levels.

Despite the expected closure of the Callide B and Gladstone power stations over the next decade, overall utilities employment is expected to grow quite significantly under all scenarios. This will be driven by the renewable rollout in the Fitzroy Renewable Energy Zone (REZ) and grid related investment from the Queensland Supergrid*** and the Gladstone Grid Reinforcement. There is 1700MW of known renewable generation expected to be added by 2027 under Step Change and a further 1800MW in battery storage, adding an expected 1,200 jobs in the region by 2035.

Beyond 2030, the renewable rollout is expected to continue to add significant capacity, reaching 11GW by 2050. However, further closures of fossil fuel generators will offset some of this growth. By 2050, utilities employment is expected to sit at 2,500 (+200), 3,100 (+800) and 4,600 (+2,300) under the Progressive Change, Step Change and Green Energy Industries scenarios respectively. The location of currently known projects suggests the early stages of the renewable rollout will be centred around the central and southern parts of Central Queensland, particularly Gladstone and Biloela.

Although not currently included in any of the baseline economic scenarios due to insufficient project certainty, there is upside potential in the defence industry. There are several significant defence proposals in the early stages of planning. These projects propose adding an RAAF base at Rockhampton and an associated barracks, the Shoalwater Bay School of Armour, and a fleet base at Gladstone. Together, these proposals could add over 10,000 defence roles to the region as well as stimulate supporting industries like professional services and manufacturing. The role of defence for Central Queensland is explored further in the '*Regional Investment Analysis*' report.

**The Public Administration industry includes government legislative, executive and judicial activities as well as military defence.*
*** Professional Services includes scientific research, architecture, engineering, computer systems design, law, accountancy, advertising, market research, management and other consultancy, veterinary science and professional photography*
****legislation for Supergrid is anticipated to be replaced by the Energy Roadmap Amendment Bill 2025 (yet to be passed).*
Note: *Figures rounded to the nearest thousand*

WORKFORCE TRANSITON 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

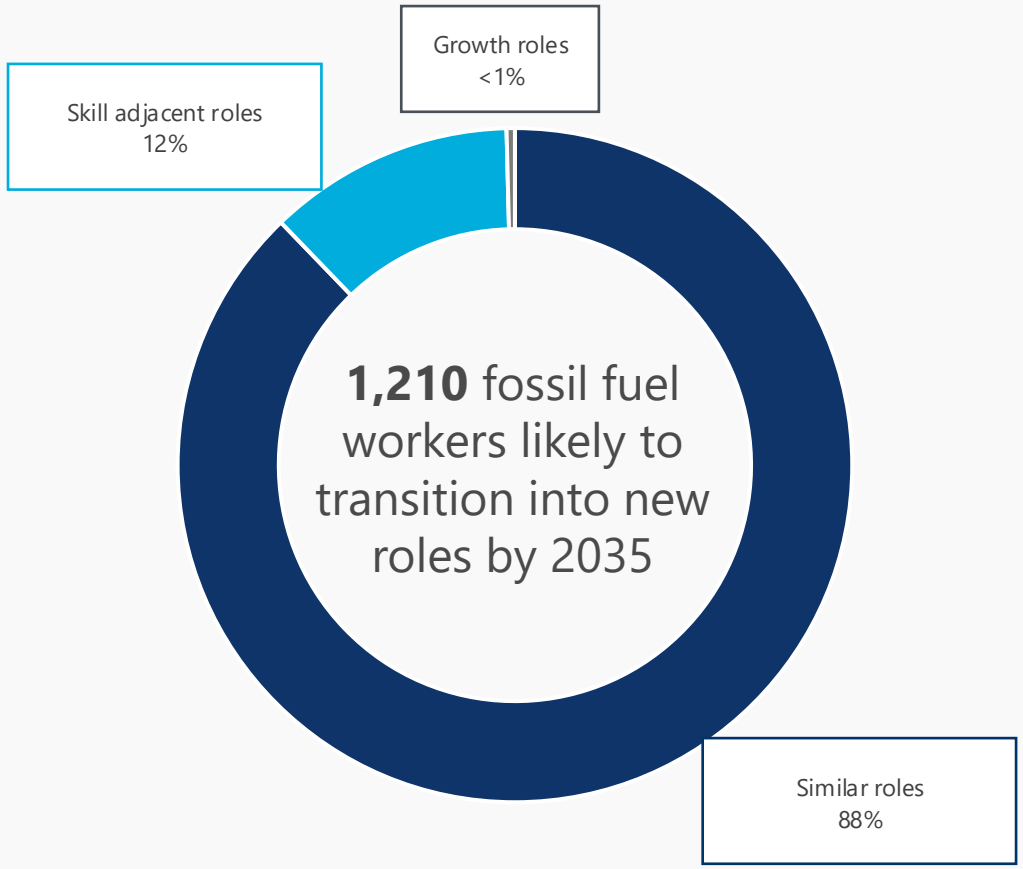
Highly transferable roles - 17%

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.

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-put 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 high skill demands and wage gap 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*

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 will be delivered by local officers who connect workers to services that may include training pathways, career support and financial planning services[13].

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*

TECHNICAL APPENDIX

ECONOMIC FORECASTING METHODOLOGY

The forecasts in this report align to AEMO's scenarios which capture key uncertainties and material drivers of a range of possible futures.

The scenarios presented in this report are grounded in the Australian Energy Market Operator's (AEMO) *Draft 2025 Inputs, Assumptions and Scenarios Report* (IASR)[2], which is currently in its final consultation phase.

The three scenarios – *Progressive Change, Step Change and Green Energy Industries* - are designed to encompass a broad spectrum of plausible futures for Australia's energy sector, capturing key uncertainties and material drivers in an internally consistent manner. They reflect the policies that Australian governments have committed to for transitioning the economy to net zero emissions by 2050. Each scenario delineates a distinct pace of transition to net zero, influenced by global, national, and sectoral factors, leading to variations in future energy system requirements while aligning with Australia's emissions reduction policy objectives. The scenarios consider the growth trajectory of the Australian economy, including population trends and economic activities across industrial, commercial, manufacturing, mining, transportation sectors, and emerging commercial loads such as data centres. They also identify opportunities for emerging energy technologies that could impact Australia's decarbonisation pathway and export economy, including hydrogen production, green iron and ammonia products, and biomethane.

AEMO's scenarios are aligned with the International Energy Agency's (IEA) 2024 World Energy Outlook (WEO) scenarios to anchor them to global narratives on developments and commitments to the Paris Agreement. This alignment ensures consistency with global economic settings and temperature goals, providing context for Australia's share in meeting various temperature outcomes and guiding multi-sectoral modelling regarding fossil fuel export projections, energy efficiency, and electrification uptake rates and limits across scenarios.

AEMO has engaged in extensive stakeholder consultation to develop these scenarios, incorporating feedback from a diverse range of sectors to ensure the scenarios are robust and reflective of various perspectives. The final 2025 IASR, incorporating insights from this consultation process, was finalised during the preparation of this research report, however as analysis was already underway this report utilises the draft scenarios.

An overview of the high-level narrative for each scenario is provided below and detailed assumptions are included in the technical appendix.

Low scenario - Progressive Change

- Low economic demand and industrial transformation
- The transition proceeds more slowly and reactively under current policy settings, reflecting only existing federal and state commitments without major new initiatives.
- Fossil fuel industries decline due to market and technological pressures rather than policy direction. There is limited economic diversification or new clean industries in regional areas, and minimal development of emerging fuels like hydrogen or biomethane.

Central scenario - Step Change

- Moderate economic demand and industrial transformation reflecting long term average trends
- Australia follows a coordinated and firm transition to net zero emissions by 2050, with electricity playing a central role in decarbonisation and significant deployment of renewable energy, storage, and electrification across sectors.
- Fossil fuel industries decline in a planned manner, with regional opportunities emerging through transmission expansion, Renewable Energy Zones (REZs), and moderate development of hydrogen to support industry and domestic use.

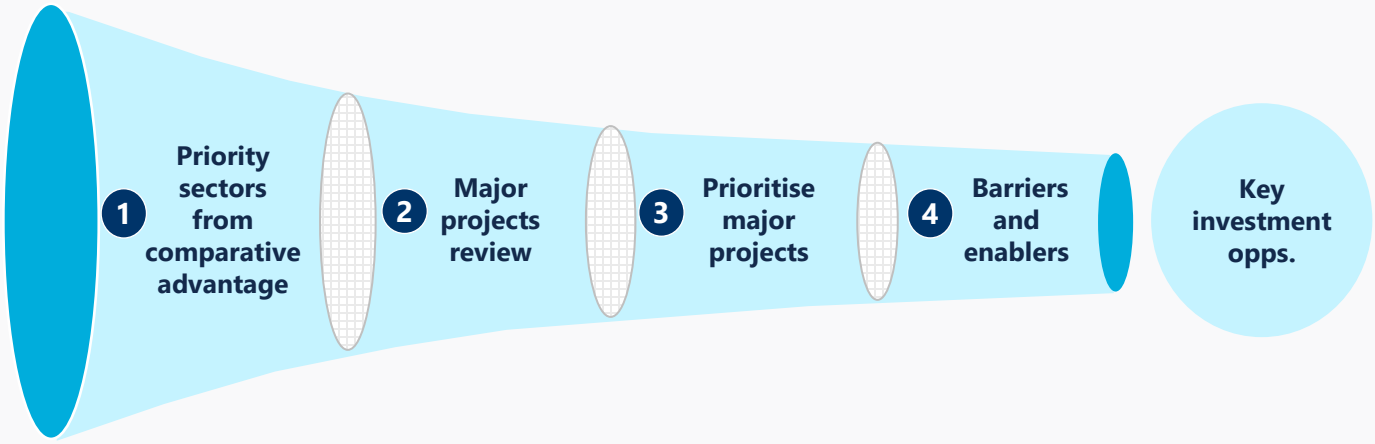
High scenario - Green Energy Industries

- High economic demand and industrial transformation.
- Australia undergoes a rapid and coordinated transformation to become a clean energy economy, underpinned by strong global and domestic climate ambition aligned with a 1.5°C pathway.
- Large-scale renewable energy and hydrogen production are co-located in regional Renewable Energy Zones, supported by major transmission investment and value-added clean exports (such as green iron and ammonia), though this shift brings significant disruption for fossil fuel communities.

INVESTMENT ANALYSIS METHODOLOGY

A four step process was used for identifying and prioritising opportunities.

Investment opportunities methodology



Output

Priority sectors
- Renewable Energy and Storage
- Low-Emissions Manufacturing and Circular Economy
- CCUS
- Advanced Agribusiness and Food

Top 21 opportunities identified by
- Value
- Likelihood of realisation
- Job creation potential

Top 3 opportunities ranked by
- Economic impact
- Jobs
- Comparative advantage
- Lead times
- Policy alignment

Top 3 opportunities
- Barriers
- Enablers
- Constraints
- Key actions to unlock investment

Key investment opportunities for NZEA to focus on and prioritise in each region

Description

The methodology for identifying investment opportunities in Central Queensland builds on the region's comparative advantages while aligning with national net zero objectives. It begins by identifying priority sectors where Central Queensland has structural strengths and growth potential,. These sectors reflect both the region's established industrial base and its capacity to transition into globally competitive industries.

The next step is a review of Central Queensland's major projects pipeline to develop a long list of 21 opportunities. Each is assessed against economic value, likelihood of realisation, and job creation potential, ensuring the pipeline captures projects that can deliver economic transformation and are commercially and technically feasible.

This is then narrowed to the top three opportunities with the greatest impact. Selection is based on economic contribution, alignment with Central Queensland's comparative advantage, job creation potential, lead times, and policy consistency. This ensures the region focuses on opportunities that are both ambitious and achievable.

Finally, the methodology considers the barriers and enablers shaping delivery. These include demand signals and offtake agreements, access to enabling infrastructure such as energy, water, and ports, policy and regulatory clarity, and availability of specialist workforce skills. Understanding these factors highlights the key actions required to unlock investment and accelerate delivery.

The outcome is a focused set of three priority opportunities for Central Queensland, supported by evidence of their economic potential, enabling requirements, and policy alignment. These opportunities form the basis for targeted investment attraction and coordinated delivery across government, industry, and the community.

Project types have been prioritised based on multi-domain criteria, tailored to the specific conditions of the Central Qld region.

Comparative advantage alignment

Denoted by a qualitatively derived comparative advantage score out of 5:

1. No alignment with regional strengths or capabilities
2. Minimal alignment; limited local advantages
3. Moderate alignment with some key strengths (e.g. workforce or land)
4. Strong alignment with multiple comparative advantages
5. Excellent alignment; leverages core regional assets and priorities

Project lead times*

Based on a region-specific rank of project types by expected lead time (defined as the time between project inception and construction commencement):

Short Term: Lead time of less than 3 years

Medium Term: Lead time of between 3 and 5 years

Long Term: Lead time of greater than 5 years

Typical job contributions

Based on a quintile rank of project types by expected job-year contribution within 10 years of construction starting:

1. Fewer than 600 jobs; short-term or low-quality employment
2. 600–1,600 jobs; limited regional employment impact
3. 1,600–2,800 jobs; moderate and/or specialised workforce impact
4. 2,800–4,400 jobs; strong job creation with varied roles
5. 4,400+ jobs; transformative workforce impact across skill levels

Government policy alignment

Derived from a review of government documents, as well as a review of the Major Projects Listing.

1. Not mentioned at local, state or commonwealth level; no relevant projects identified in region
2. Mentioned once at a local, state or commonwealth level; or projects identified in region
3. Mentioned twice at a local, state or commonwealth level; or projects identified in region
4. Mentioned three times at a local, state or commonwealth level; or projects identified in region
5. Mentioned at local, state and commonwealth level; and projects identified in region.

Methodology

Project types were prioritised using an equally weighted average of three index scores: comparative advantage, job contribution, and government policy alignment. Each index was scored out of 5 using a tailored methodology. The final score provides a comparative view across project types for the Central Qld region.

Comparative advantage was assessed qualitatively, based on factors such as resource endowment, industrial base, infrastructure readiness, workforce availability, and regulatory context. Given the variability across project types, no single indicator set was universally applicable. The assessment relied on structured expert judgement, informed by the most relevant metrics for each case.

Job contribution scores were based on estimated job years, combining construction and ongoing employment over a 10-year operational period. Estimates were drawn from project-level data, supplemented with desktop research where necessary. Final scores were assigned by ranking each project type into quintiles.

Policy alignment scores reflected the presence of each project type in local, state, and federal policy documents, and in Central Qld's major project pipeline.

A separate **lead time analysis** was conducted to support the evidence base. Lead times (from inception to construction) were estimated using proprietary modelling for energy projects and desktop research for others. While not included in scoring, these estimates informed comparative advantage assessments and delivery timelines.

**Note that lead times are not considered when deriving a project type's rating or subsequent prioritisation. Details and categorisation are retained here for illustrative purposes.*

GVA and employment effects have been estimated based on construction and operational spend, employment and local content proportions.

Estimating GVA and employment effects

As indicated in the investment opportunity section of this report, for each project type, estimates of the construction and annual ongoing spend, employment contribution, and GVA contribution were derived.

Average construction spend, and direct construction and annual ongoing employment impacts are taken as averages from publicly available project information. Where possible, this was sourced from the major project list (that is, the estimates derived reflect the averages of proposed and upcoming projects across the Hunter Region, Latrobe Valley and Central Queensland region). ongoing spend was not sourced from projects due to a lack of data. In cases where a low number of projects were identified across these regions, desktop analysis was undertaken to identify comparable projects from either outside these regions domestically, or where this was not possible, internationally. To estimate the construction and ongoing GVA and ongoing Spend, several data were acquired, including:

- An estimate of the construction spend.
  This was sourced using averages from the major project list. In cases where there were not enough projects on the major project list, estimates of construction spend were sourced from other projects domestically.

- An estimate of the ratio between construction and ongoing spend.
  Desktop research was undertaken for each project type to identify the approximate ratio between construction and ongoing spend using exemplar projects. Once again, domestic projects were prioritised, but where data was not available, international projects were used in their place.

- Estimated profiles on the proportional distribution of construction and ongoing spend (note: separate profiles for construction and ongoing) across 1-digit ANZSIC industries for each project type.
  For each prioritised project type, this was inferred using a combination of: 1) detailed cost breakdowns and technical documentation on construction and ongoing spend where available, and; 2) professional judgement based on available documentation where quantitative estimates were not readily available.

- Estimated domestic local content proportions assumptions at a 1-digit ANZSIC industry level for each prioritised project type
  Likewise, for each prioritised project type, the proportion of local content in the estimated spend in each ANZSIC industry was derived. That is, the proportion of spend that was not spent on sourcing inputs from overseas.

- Ratios between the gross output and GVA of 1-digit ANZSIC industries at a national level
  These were sourced using industry value-added coefficients (GVA per dollar of output), applied with the domestic A-matrix (direct allocation of imports).

Using these data, we first estimated for each prioritised project type the average annual ongoing spend. Then, construction and ongoing spend was decomposed into ANZSIC 1-digit industries, and local content proportion assumptions were made. Finally, gross output to GVA ratios were used to infer GVA contribution. We further note that we have not considered either indirect (supply chain) or induced (employee spending-driven) GVA or employment effects due to the small regions under consideration.

The following project types have been defined to support the analysis.

Project type definitions – Central Queensland region

Project Type	Definition
Offshore wind farms	Large-scale wind turbines located offshore to generate electricity from wind resources. Does not include any infrastructure beyond landfall.
Hydrogen	Production, storage, or distribution of green hydrogen (hydrogen produced using renewable energy).
Transport and logistics	Facilities or terminals focused on the moving of goods and materials efficiently between locations. Does not include roads or rail.
Food and fibre product manufacturing	Processing agricultural outputs into food, textiles or related products.
Energy from waste facilities	Plants that convert waste materials into usable energy.
Carbon capture, utilisation and storage (CCUS)	Technology capturing and storing CO2 emission, or otherwise reusing CO2 emissions before, or instead of, storage.
Renewables component manufacturing	Production of parts and equipment for renewable energy systems. This includes parts for renewable-facilitating technologies, such as batteries.
Circular economy manufacturing	Manufacturing using recycled inputs or designed for reuse and minimal waste.
Defence maintenance/sustainment	Ongoing repair, servicing and support for defence assets and equipment.
Urea and ammonia production	Facilities producing ammonia or urea, and associated chemicals (e.g. nitric acid, ammonium nitrate).
LCLFs, biofuels and biochemicals from waste streams	Production of fuels and chemicals from waste materials.
Defence manufacturing	Fabrication of weapons, vehicles and equipment for defence forces.
Solar farms	Large-scale installations generating electricity from photovoltaic solar panels.
Battery energy storage systems (BESS)	Facilities storing electricity in batteries for later use.
Green metals	Low-carbon production and processing of metals.
Geothermal heating and power	Energy generation or heating using underground geothermal heat.
Mine rehabilitation	Restoration and remediation of land disturbed by mining activities.
Onshore wind farms	Land-based wind turbines generating electricity from wind resources.
Minerals processing	Refining and transforming raw minerals into usable materials or products.
Data centres	Facilities housing computer systems for data storage, processing, and management.
Pumped hydro energy storage	Facilities storing electricity by pumping water uphill and releasing downhill.

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

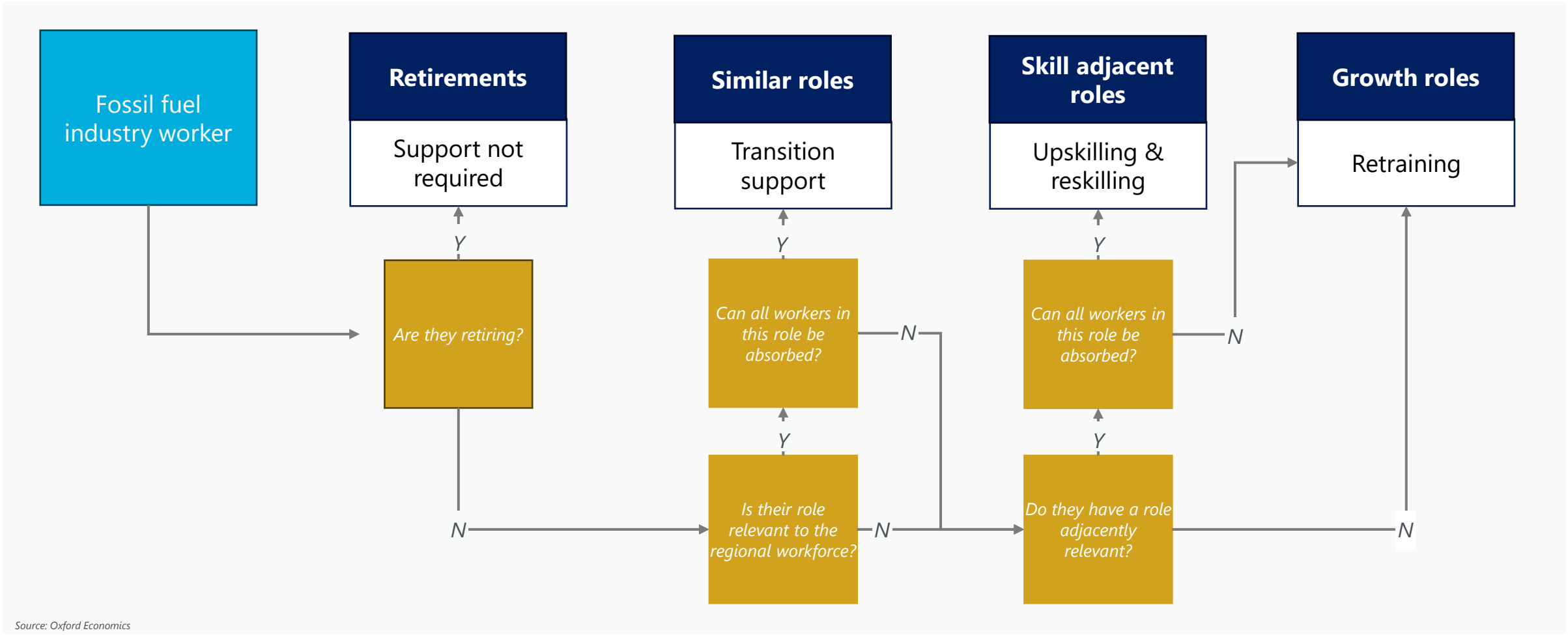
To corroborate that transition pathways are appropriate and viable for fossil fuel workers, Oxford Economics will undertake an analysis of historic movements of fossil fuel workers out of industry.

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

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