OXFORD ECONOMICS AUSTRALIA

Regional Economic Transition Analysis – Economic Outlook for Hunter

Final report

December 2025

Disclaimer

The modelling and results presented here are based on information provided by third parties, upon which Oxford Economics Australia has relied in producing its report and forecasts in good faith. Any subsequent revision or update of those data will affect the assessments and projections shown.

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EXECUTIVE SUMMARY

HUNTER REGION - KEY FINDINGS

The Hunter has been shifting away from industrial employment and this trend will continue, driven by reduced demand for thermal coal.

The Hunter workforce is set to expand steadily over the next 25 years as growth in the service workforce offsets declines in industrial sectors, predominantly coal mining.

Net job growth over the next 10 years is expected to be between 40,000 to 75,000 additional jobs depending on the transition scenario. This growth does not take into account industrial growth opportunities identified in the *Regional Investment Analysis* report.

Historical reductions in the industrial workforce will continue, although at a slower rate, with upside potential in advanced manufacturing and utilities. By 2035, 14,000 fewer industrial jobs are expected with the majority of these losses in coal mining due to lower demand.

The industrial workforce has different characteristics to the general Hunter workforce.

Fossil fuel workers are much more likely than other regional workers to work full time and hold a VET certification rather than a higher education degree.

Workers in the fossil fuel industry have much higher earnings than other jobs in the Hunter region.

The fossil fuel workforce in the Hunter is relatively young and will need support regarding upskilling and transitioning to other industries.

Other affected industries have a relatively older cohort and a significant share may naturally retire in the coming decades, softening the impact of industry transition.

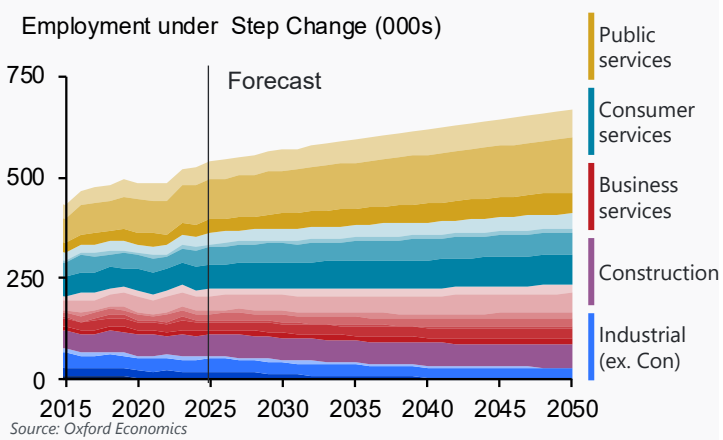
Strong growth in services is expected to shift demand towards roles with higher skill and qualification requirements.

Over the next 10 years, an additional 9,000 roles that do not require a qualification and 45,000 that do, are expected in the Hunter region with a shift towards those that require a bachelor degree or higher.

The workforce will increasingly demand roles requiring higher-order competencies across nearly all skill types, with numeracy the only exception.

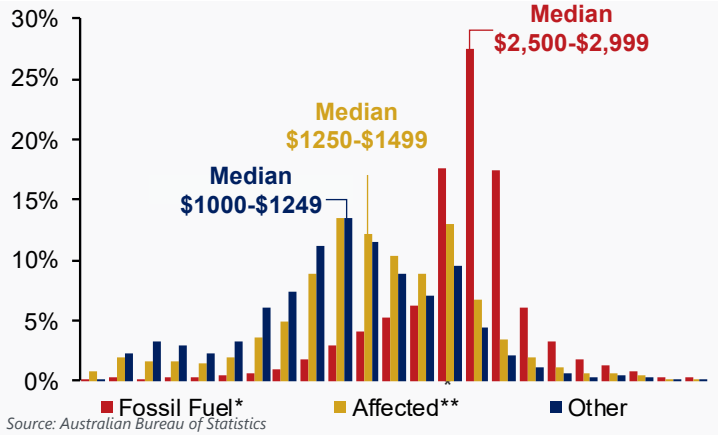
The most common fields of education demanded by additional roles reflect the continuing shift toward services in the regional economy.

Industrial employment outlook under central Step Change scenario



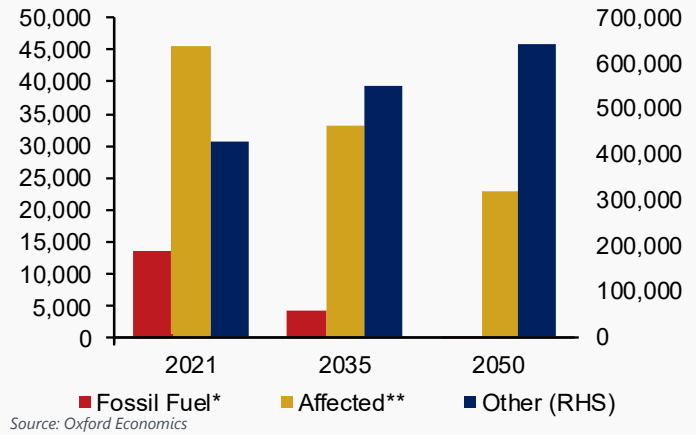
Source: Oxford Economics

Total personal weekly gross income for fossil fuel and affected industries



Source: Australian Bureau of Statistics

Employment outlook for fossil fuel and affected industries under central Step Change scenario



Source: Oxford Economics

** Fossil fuel workers include those employed in coal mining, fossil fuel based electricity supply and gas supply.*

*** Affected includes industries that have a declining share of regional employment - Agriculture, Mining, Manufacturing and Utilities*

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 provides scenario-based projections of industry composition, employment, and skills demand including profiles of priority cohorts.

Purpose of this Report

This report provides an integrated assessment of probable economic futures in a priority region. It forms part of the Net Zero Economy Authority's (NZEA) regional economic forecasting stream and supports its broader mandate to coordinate an orderly, inclusive and place-based transition to net zero. The focus is on understanding the timing, scale and nature of structural economic change at a regional level, and the resulting implications for industries, workforces and communities.

The report draws on a wide range of data to construct detailed 5, 10 and 25-year forecasts under three energy transition scenarios* developed by the Australian Energy Market Operator (AEMO). These forecasts incorporate information on fossil fuel facility closures, regional industry plans, labour market dynamics, and projected demand for jobs, qualifications and skills. The analysis identifies region-specific tipping points for economic transition, and highlights industries that are likely to grow, decline, or newly emerge.

Findings from this report will inform regional program and policy development, support strategic planning across governments and industry, and guide local engagement and communication. The outputs are designed to help NZEA and its partners anticipate the pace and impacts of economic change, better understand the risks and opportunities facing key community cohorts, and respond with targeted supports such as workforce transition planning or infrastructure investment. 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 pace and pattern of economic transition 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 a medium and long-term transition horizon.

Report Structure

The report is structured around four core components: a high-level economic overview of the Hunter region, an outlook for future labour demand based on projected industrial shifts, an assessment of the region's future skills and qualification needs, and an analysis of impacts on priority community cohorts to inform targeted policy and program responses.

ECONOMIC OVERVIEW OF THE HUNTER REGION: In this section, we provide a high-level economic profile of the Hunter region including industry and occupation composition, recent labour market trends, income distribution and demographic characteristics.

OUTLOOK FOR LABOUR DEMAND: In this section, we assess the future industrial composition of the Hunter region and the subsequent demand for labour over the next 25 years. This analysis includes an assessment of the outlook for current core industries in structural decline as well as existing and emerging industries which may contribute to future labour demand.

DEMAND FOR SKILLS: In this section, we assess the current and future skills and qualifications required to support the industry needs of the Hunter region over the next 25 years.

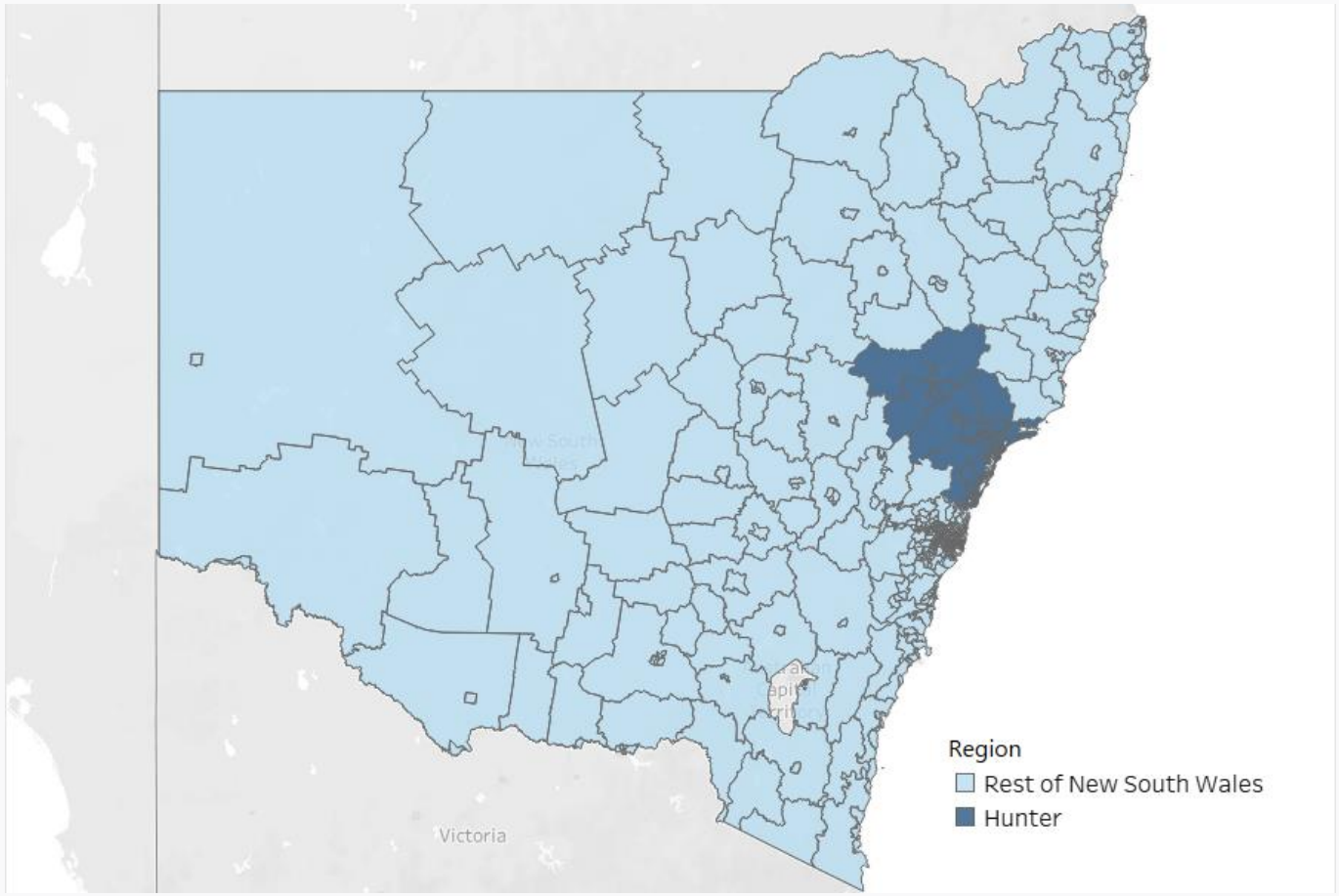
PRIORITY COHORT PROFILES: In this section we assess the impact of changes in the demand for labour, skills and qualifications on priority cohorts to support communications, policy and program planning/delivery in the Hunter region.

TECHNICAL APPENDICES: Appendices include a full list of major employing businesses, forecasting approach, key assumptions and references.

*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 the Hunter which is defined as the combination of four working zones which cover a total of 85 SA2 regions.

Hunter region map



Hunter Region Working Zone Listing

State	Working Zone Name
NSW	Central Coast and surrounds
NSW	Muswellbrook, Scone and surrounds
NSW	Newcastle, Lower Hunter and surrounds
NSW	Nelson Bay Peninsula and Anna Bay

Source: Net Zero Economy Authority, Australian Bureau of Statistics

Hunter Region SA2 listing

Central Coast and surrounds

SA2 NAME	SA2 CODE
Avoca Beach - Copacabana	102011028
Bateau Bay - Killarney Vale	102021044
Blue Haven - San Remo	102021045
Box Head - MacMasters Beach	102011029
Budgewoi - Buff Point - Halekulani	102021046
Calga - Kulnura	102011030
Chittaway Bay - Tumbi Umbi	102021047
Erina - Green Point	102011031
Gorokan - Kanwal - Charmhaven	102021048
Gosford - Springfield	102011032
Jilliby - Yarramalong	102021049
Kariong	102011033
Kincumber - Picketts Valley	102011034
Lake Munmorah - Mannering Park	102021050
Narara	102011035
Niagara Park - Lisarow	102011036
Ourimbah - Fountaindale	102021051
Point Clare - Koolewong	102011037
Saratoga - Davistown	102011038
Summerland Point - Gwandalan	102021052
Terrigal - North Avoca	102011039
The Entrance	102021053
Toukley - Norah Head	102021054
Tuggerah - Kangy Angy	102021055
Umina - Booker Bay - Patonga	102011040
Wamberal - Forresters Beach	102011041
Warnervale - Wadalba	102021056
Woy Woy - Blackwall	102011042
Wyoming	102011043
Wyong	102021057

Muswellbrook, Scone and surrounds

SA2 NAME	SA2 CODE
Muswellbrook	106041126
Muswellbrook Surrounds	106041127
Scone	106041128
Scone Surrounds	106041129
Muswellbrook	106041126

Nelson Bay Peninsula and Anna Bay

SA2 NAME	SA2 CODE
Anna Bay	106031119
Nelson Bay Peninsula	106031121

Newcastle, Lower Hunter and surrounds

SA2 NAME	SA2 CODE
Adamstown - Kotara	111031222
Belmont - Bennetts Green	111011206
Belmont South - Blacksmiths	111011207
Beresfield - Hexham	111031223
Bolton Point - Teralba	111021215
Bonnells Bay - Silverwater	111021216
Branxton - Greta - Pokolbin	106011107
Cessnock	106011108
Cessnock Surrounds	106011109
Charlestown - Dudley	111011208
Dungog	106011110
East Maitland - Metford	106021614
Edgeworth - Cameron Park	111021217
Glendale - Cardiff - Hillsborough	111011209
Hamilton - Broadmeadow	111031224
Kurri Kurri - Abermain	106011111
Lambton - New Lambton	111031225
Lemon Tree Passage - Tanilba Bay	106031120
Maitland	106021114
Maitland - North	106021116
Maryland - Fletcher - Minmi	111031226
Mayfield - Warabrook	111031227
Merewether - The Junction	111031228
Morisset - Cooranbong	111021218
Mount Hutton - Windale	111011210
Newcastle - Cooks Hill	111031229
Newcastle Port - Kooragang	111031230
Raymond Terrace	106031122
Redhead	111011211
Rutherford (North) - Aberglasslyn	106021615

Newcastle, Lower Hunter and surrounds

SA2 NAME	SA2 CODE
Rutherford (South) - Telarah	106021616
Seaham - Woodville	106031123
Shortland - Jesmond	111031231
Singleton	106011112
Singleton Surrounds	106011113
Stockton - Fullerton Cove	111031232
Swansea - Caves Beach	111011212
Tea Gardens - Hawks Nest	106031124
Tenambit - East Maitland	106021617
Thornton - Millers Forest	106021618
Toronto - Awaba	111021219
Valentine - Eleebana	111011213
Wallsend - Elermore Vale	111031233
Wangi Wangi - Rathmines	111021220
Waratah - North Lambton	111031234
Warners Bay - Boolaroo	111011214
West Wallsend - Barnsley - Killingworth	111021221
Wickham - Carrington - Tighes Hill	111031235
Williamtown - Medowie - Karuah	106031125

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 reportutilises 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.

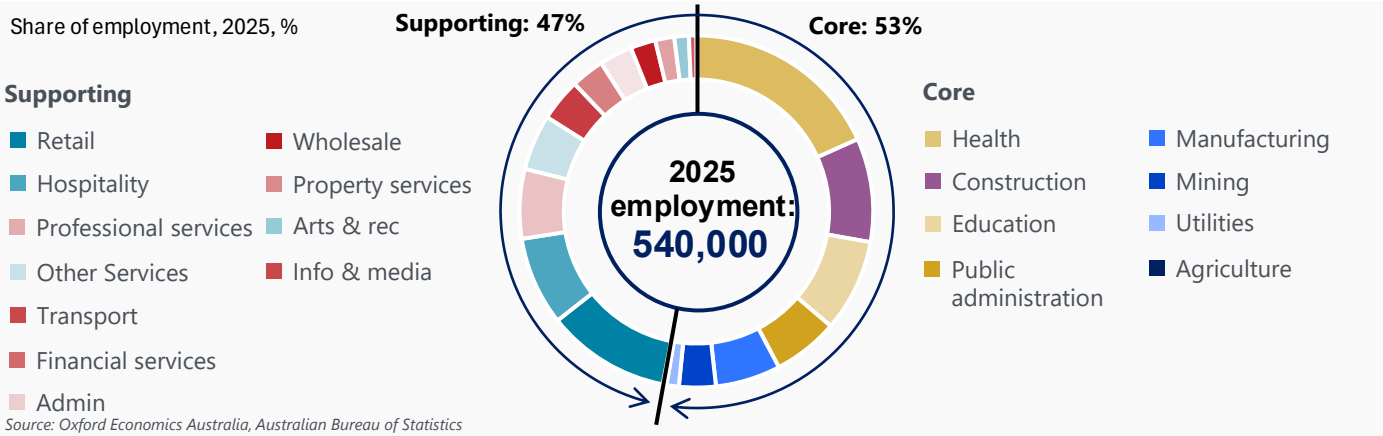
High scenario - Green Energy Industries

- 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.

ECONOMIC OVERVIEW OF THE HUNTER

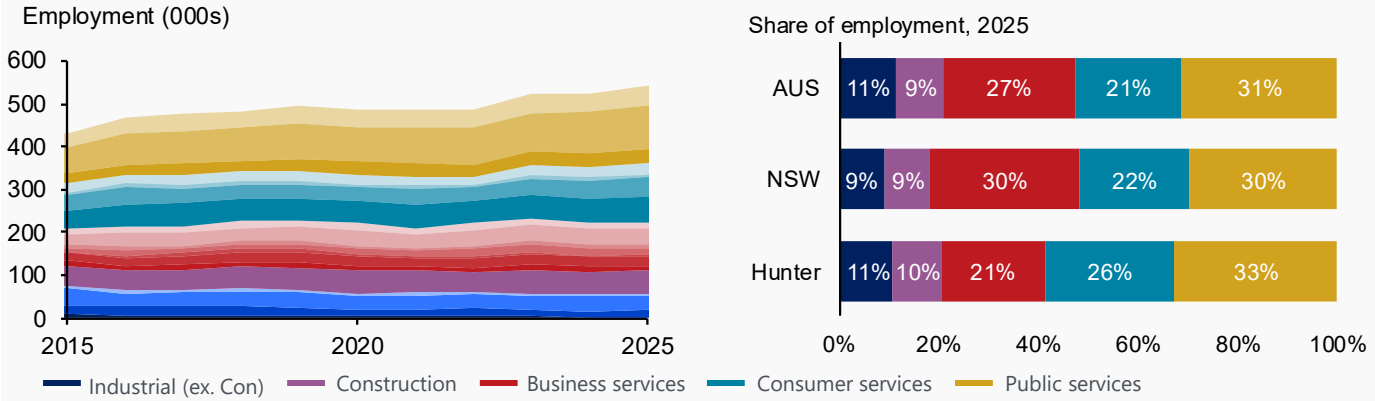
The Hunter region has been shifting away from industrial employment and toward public services for the last decade.

Hunter Region current employment makeup, 2025



Source: Oxford Economics Australia, Australian Bureau of Statistics

Hunter Region employment share and makeup relative to Australia in 2025



Source: Oxford Economics Australia, Australian Bureau of Statistics

Hunter region economic structure

Core* employment sectors represent 53% of employment in the Hunter region with supporting sectors, those interconnected with the core sectors, representing the remaining 47%.

Health, retail and construction are the largest employing industries in the Hunter region and have all increased in importance over the last decade. Health particularly has increased from 14% of the Hunter workforce to 18% in 2025, driven by increasing demand from the aging population and significant state government investment. Over the same period, manufacturing as a share of total employment has fallen from 10% to just 6% and mining from 4% to 3%, reflecting a trend away from high emitting sectors and the economy wide shift towards the service sector. Overall industrials (excl. con) share of employment has fallen by 7 percentage points from 18% to 11%, at the same time public services share has increased from 27% to 33%.

Key sub-industries supporting current employment include coal mining, construction services, public admin, preschool and school education, hospitals and social assistance services. Manufacturing has declined in total size but the mix of sub-industries remains diverse with food product, primary metal and machinery manufacturing each currently employing more than 3,000 workers.

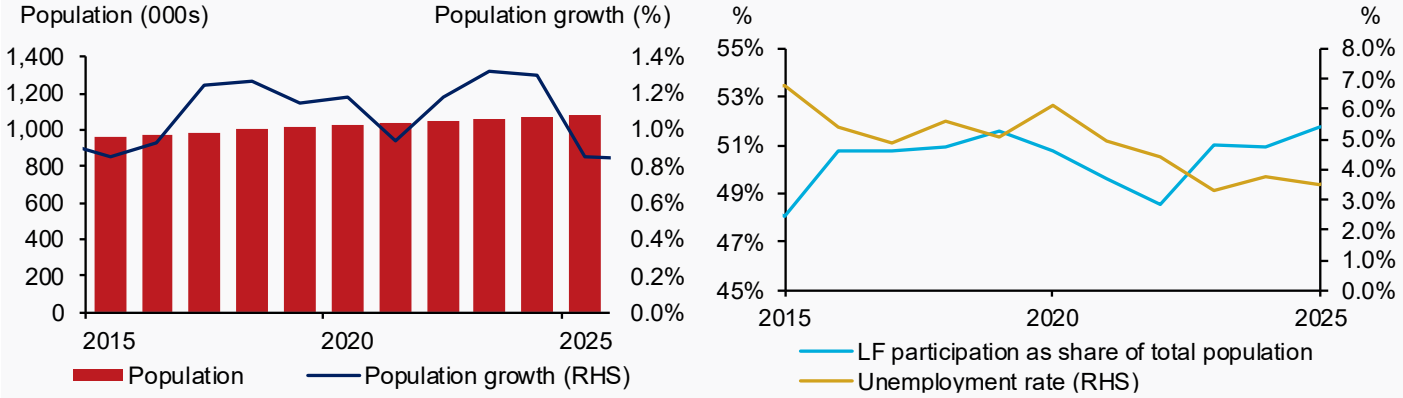
Consumer services and public services makes up a larger share of the Hunter workforce compared to the broader NSW and Australian labour force, driven by strong employment in retail trade and health. The Hunter region is also over four times more exposed to the mining industry compared to NSW as a whole. Business services makes up a significantly smaller proportion of employment in the Hunter, particularly professional services which makes up just 6% of the Hunter workforce compared to 10% for NSW and 9% for Australia.

**Core sectors refers to Mining, Agriculture, Construction, Manufacturing, Utilities, Health, Education and Public Admin.*
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:** Employment figures are rounded to the nearest thousand.*

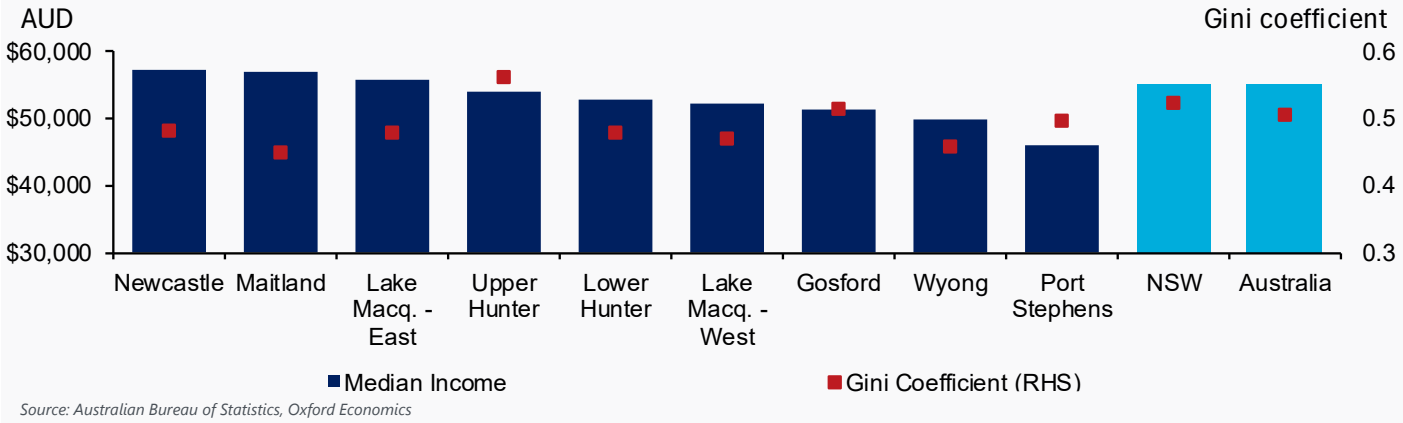
Income in the Hunter is marginally lower than NSW & Australia, with income inequality highest in the mining intense Upper Hunter.

Population, Unemployment and labour force participation



Source: Australian Bureau of Statistics

Median income and Gini coefficient, Relevant SA4, NSW and Australia, 2022



Source: Australian Bureau of Statistics, Oxford Economics

Hunter region labour market and income

The Hunter population has grown at a cumulative average growth rate of 1.1% over the past decade to sit at an estimated 1.08 million as of 2025. The Hunter region population typically grows at a slower pace than NSW and Australia more broadly. However, over the pandemic, international border closures and pandemic lockdowns in major cities drove more people to the regions. The Hunter benefitted from this trend, maintaining stable population growth over the pandemic. These trends have since reverted with growth averaging 1.1% over the past two years.

Around 51% of the total population are within the labour force, this has held relatively stable over the past decade, marginally lower than for NSW and Australia which have both increased from around 51% in 2015 to an estimated 55% in 2025.[1] This reflects both the older age cohort in the Hunter region, with the median age over 40 compared to 38 for Australia and 39 for NSW, as well as lower labour force participation of those of working age.

The unemployment rate has broadly tracked NSW as a whole over the last decade, reaching an estimated low of 3.3% in 2023. Although, unemployment has drifted back up to an estimated 3.5% in 2025 as the labour market continues to slacken. This headline figure hides a significant dispersion across the sub-regions with the unemployment rate in the Central Coast and Hunter Valley excl. Newcastle sitting near 4% while Newcastle and Lake Macquarie is closer to 3.3%.

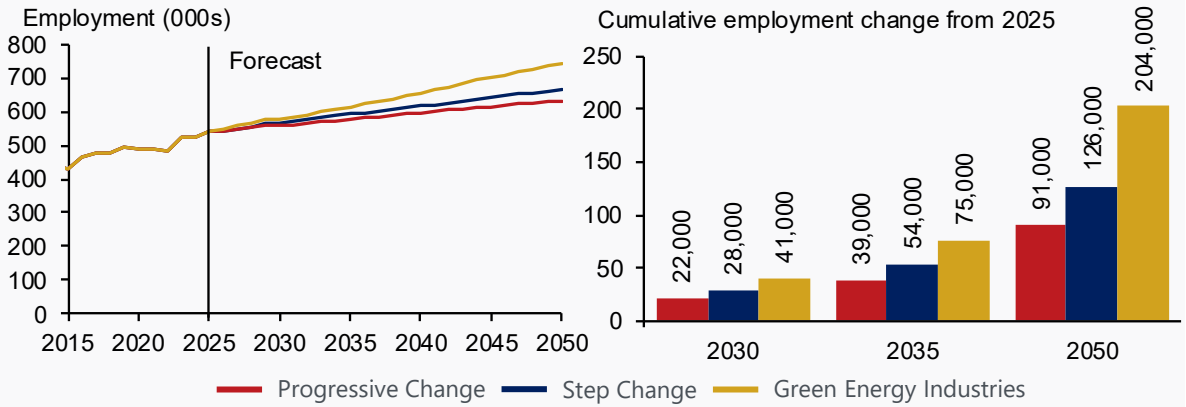
The median total income in the Hunter Region as of the latest available data in 2022 was $53,000, around 3.5% below the NSW and Australian median but 6% higher than the median of regional NSW as a whole. This is likely driven by the high income mining sector and the hub of Newcastle supporting higher incomes relative to other regional areas of NSW. Inequality, as measured by the Gini coefficient is lower than the total for NSW across most subregions at around 0.45 – 0.49.[2] However, this varies significantly in the Upper Hunter with the Gini coefficient sitting at 0.56 reflecting higher inequality, likely driven by higher mining incomes among a subset of the population.

[1] Labour force participation is presented as a share of total population rather than as a share of working age population due to data availability.
[2] The Gini coefficient measures inequality in the distribution of incomes across people, with 0 representing perfect equality where each person has the same income and 1 representing perfect inequality with one person receiving all the income.
Note: *Gini coefficients are sourced from Australian Bureau of statistics Personal Income in Australia and should not be directly compared with other ABS published Gini coefficients. Methodology available here.*

OUTLOOK FOR LABOUR DEMAND

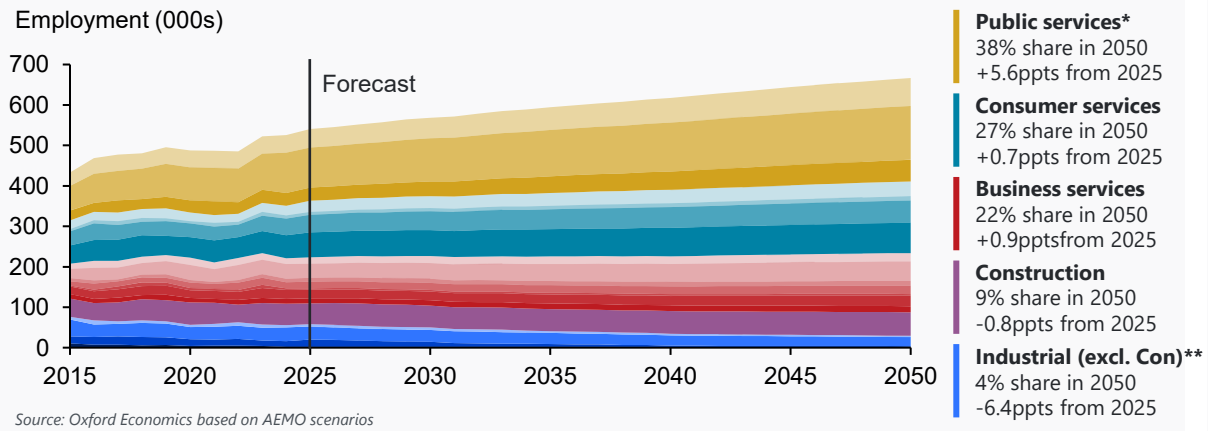
By 2035 the Hunter region's employment base will be larger, more service-oriented, and less dependent on traditional heavy industry.

Hunter region workforce outlook by scenario



Source: Oxford Economics based on AEMO scenarios

Hunter Region employment make-up under Step Change



Source: Oxford Economics based on AEMO scenarios

Public services includes Health, Education & Public Administration & Safety.
Business Services includes Wholesale Trade, Transport & Warehousing, Information & Media, Financial Services, Property Services, Professional Services and Administration Services.

Hunter region workforce outlook

The Hunter region's workforce is set to expand steadily over the next 25 years, but the pace and composition of that growth will vary depending on 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. The Hunter workforce is expected to increase from 540,000 today to 580,000 under the Progressive Change scenario, 595,000 under the Step Change scenario, and to more than 615,000 under the more ambitious Green Energy Industries pathway by 2035. This translates to net employment gains of around 39,000 in Progressive Change, 54,000 in Step Change, and 75,000 in Green Energy Industries to 2035. Over this period, the unemployment rate is expected to mimic the wider Australian economy, slowly increasing off the current low base of 3.5% towards 5% by the end of the decade. Economic growth across scenarios is expected to follow a similar path to employment, with the shift away from the high value added mining industry offset by strong employment and productivity growth across the rest of the Hunter economy.

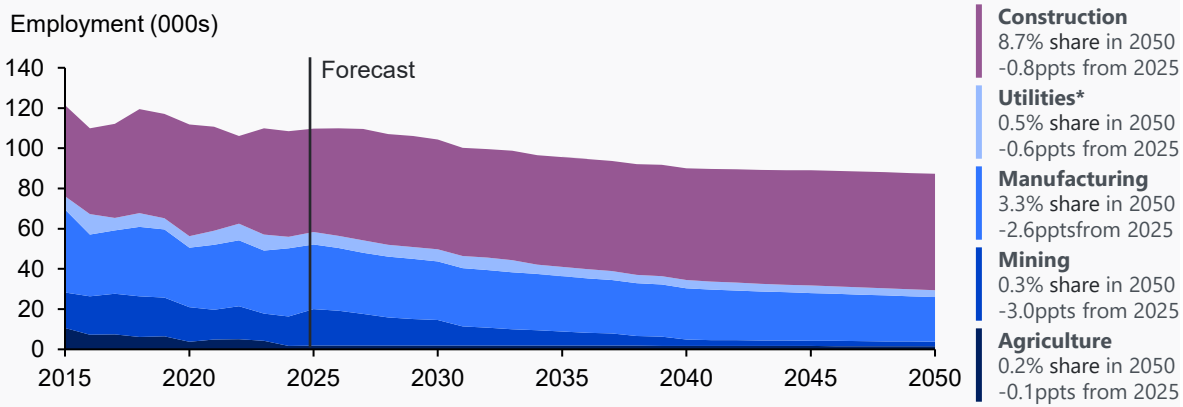
Beyond 2035, the impact of different economic futures on employment in the Hunter widens as demand for fossil fuels decline and investment in clean energy and emerging industries grows at different paces. By 2050, the structure of the Hunter's economy will have shifted noticeably. Industrial sectors excl. construction** share of employment is expected to continue to contract, with around half of this decline driven by mining. As global demand for coal and domestic demand from coal-powered power plants falls, the Hunter's mining and utilities workforce is expected to fall from roughly 11% of jobs today to 4% by 2050. Construction remains 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. While the industrial jobs change in share of the labour market is similar across all three scenarios, the number of industrial jobs is much higher under *Step Change* and *Green Energy Industries*. Public services increase their share from around one-third of the workforce in 2025 to about 36% by 2035, reflecting the influence of population ageing, higher participation in education, and elevated government spending on social programs.

Overall, Oxford Economics' forecasts, based on AEMO's transition scenarios, show that by 2035 the Hunter region's employment base will be larger, more service-oriented, and less dependent on traditional heavy industry. The scale and pace of this transformation - and the opportunities it brings - will depend on how rapidly clean energy industries are established and scaled, and on the region's ability to prepare its workforce for the demands of a changing economy.

Consumer services includes Retail Trade, Accommodation & Food Services, Arts & Recreation and Other Services.
***Industrials excluding Construction includes Agriculture, Mining, Manufacturing & Electricity, Gas, Water & Waste Services.*
***Note:** Employment figures are rounded to the nearest thousand.*

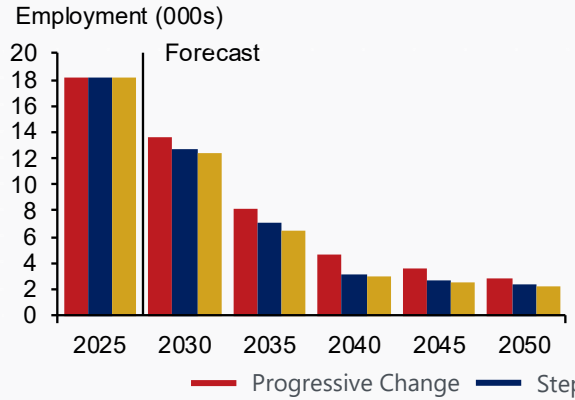
Historical reductions in the industrial workforce will continue, although at a slower rate, with upside potential in advanced manufacturing and utilities.

Industries in decline under Step Change

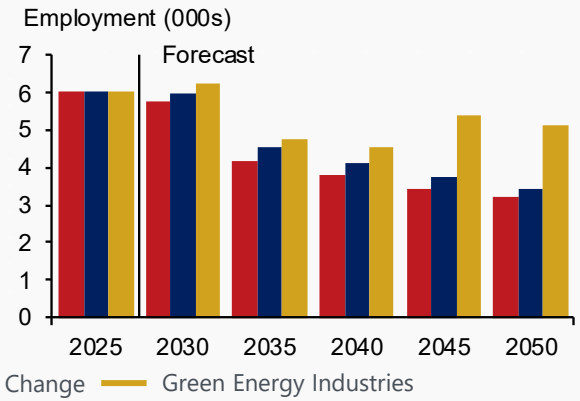


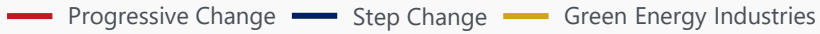
Source: Oxford Economics based on AEMO scenarios

Mining workforce outlook



Utilities workforce outlook





Source: Oxford Economics based on AEMO scenarios

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

Industrial workforce outlook

The industrial workforce has been reducing as a share of the Hunter economy over the past decade, and this is expected to continue with declines in mining employment driving the outlook.

There are 22 coal mines located in the Hunter region, employing an estimated 15,000 people from the Hunter region in 2025. Most of these are export-oriented, with Mount Arthur the largest mine closure expected, currently employing 2,000 people and expected to close in 2030. Myuna and Chain Valley mines supply the Eraring and Vales Point coal-fired power plants respectively. The closure of these mines are expected to coincide with the related power plant closures.

All currently operational coal mines are expected to close by 2050 under the Step Change and Green Energy Industries scenarios, driven by coal power plant closures and the global decline in coal demand. Under the Progressive Change scenario, Mount Pleasant and Hunter Valley North and South mines are assumed to remain open, having sufficient economic and technically accessible resources to continue production. However, their production is still expected to decline, servicing a smaller pool of global demand. Over the next decade, half of the 22 currently operating mines are expected to close under the Step Change and Green Energy Industries scenarios driving a decline in coal mining employment .

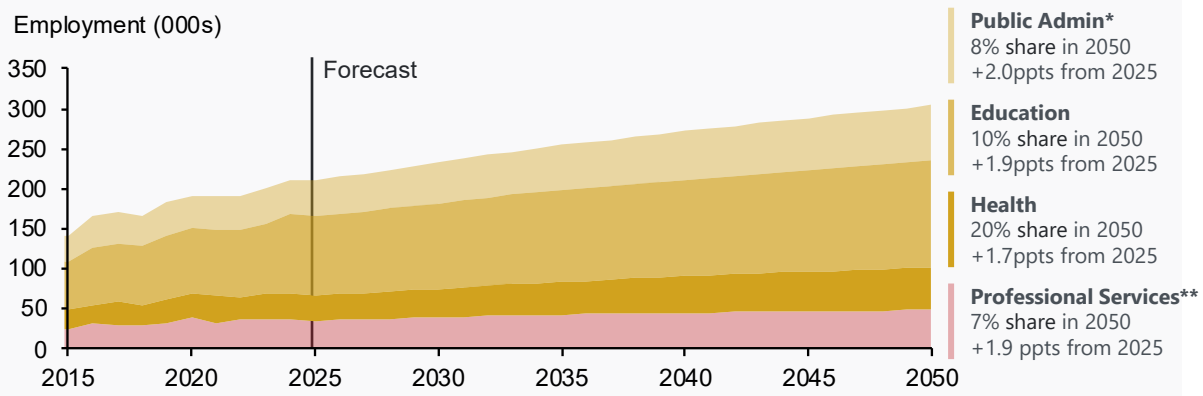
The Eraring (assumed to close in 2027), Bayswater (2033) and Vales Point (2033) coal-fired power plants alongside the Hunter Economic Zone – Peaking Power Station (2036) are expected to close over the next decade. This drop in employment will be partially offset by a significant pipeline of renewables with the Hunter Region within the Hunter-Central Coast Renewable Energy Zone (REZ). The combined 1,680 MW of wind energy at the Liverpool Range (2026) and Bowmans Creek (2028) wind farms are the largest projects over the near-term but these assets typically employ less people per MW than coal-fired plants. The Kurri Kurri Gas project, currently in commissioning phase, is expected to support another 100 jobs in the region.

Offshore wind developments in the Hunter Coast REZ represent an opportunity for the industrial workforce. These projects are relatively speculative compared to other types of renewables. The 2024 ISP from AEMO, the most up to date system plan that long-term assumptions are aligned to, suggests no offshore wind is expected under any of the scenarios. To balance this view with the currently proposed offshore wind projects, the Novocastrian and the Hunter Central Coast offshore wind projects are assumed to go ahead under the Green Energy Industries scenario.

While industrial employment is expected to decline under the baseline outlook, there is potential upside in the hydrogen and ammonia and biofuels sectors if supported by sufficient investment. Analysis of these sectors in explored in the '*Regional Investment Analysis – Hunter*' report.

The Hunter is expected to experience strong growth in health & education, as well as a potential for growth in defence and professional services.

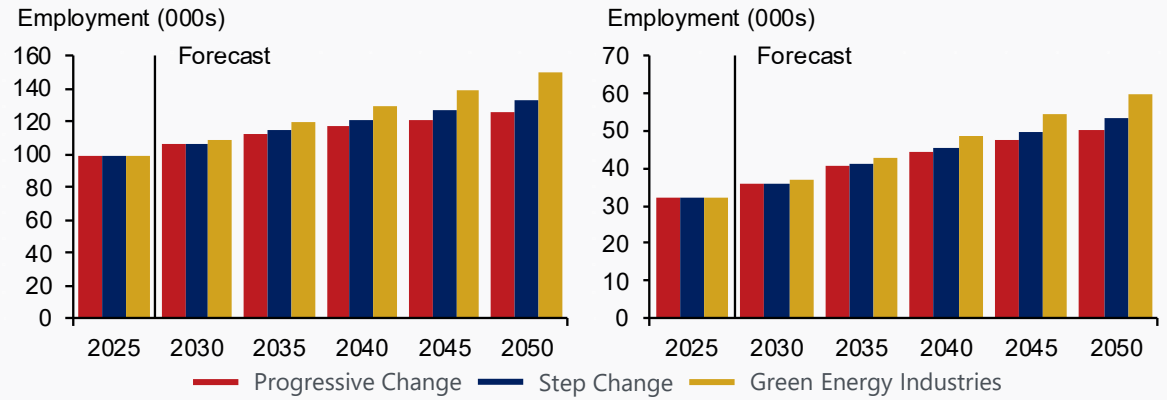
Growth industries under Step Change



Source: Oxford Economics based on AEMO scenarios

Health workforce outlook

Public Admin* workforce outlook



Source: Oxford Economics based on AEMO scenarios

Growth industries workforce outlook

The Hunter's industrial structure is shifting toward service-based, knowledge-intensive sectors. By 2050, public administration, education, health, and professional services will all expand their share of the Hunter's workforce. Together, they will increase their workforce from around 35% today to over 46% of the Hunter's jobs by 2050. Strong growth in these sectors will offset the impacts of fossil fuel industry decline to drive overall growth in the Hunter's workforce. Roles in these growth sectors generally require higher-order competencies across most skill types, as well as a larger footprint of bachelor level degrees.

The health sector is expected to add the largest number of jobs to the Hunter Region - 16,000 additional jobs over the next 10 years – driving its workforce share to 20% by 2035. Growth will be fueled by the Hunter's ageing population and the expansion of aged care and health infrastructure - notably the John Hunter Health and Innovation Precinct and the recently completed $470 million Maitland Hospital.

Over the next 10 years, education (+10,000), public administration* (+9,000) and professional services** (+8,000) contribute a similar number of jobs to the Hunter region. However by 2050, growth in education (+23,000) and public administration (+21,000) outstrip growth in the professional services (+14,000) workforce as demand from regional industrial activity falls behind government investment in public services. Professional services, which includes research, engineering, computer systems, law and accounting among other sub-industries, is also expected to increase its share of employment under the central Step Change scenario, reflecting the Hunter's growing technical and skills base.

Defence-related public administration* is a potential upside opportunity, supported by existing assets in the Williamtown Defence cluster, the Astra Aerolab aerospace precinct, and Lone Pine Barracks. These facilities underpin an established defence presence in the region, with current activities focused on sustainment, logistics, and training. Upgrades to base infrastructure and the development of new production and testing facilities could increase the scope of work undertaken locally and stimulate supporting industries like professional services and manufacturing.

**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.*
***Note:** Employment figures are rounded to the nearest thousand.*

DEMAND FOR SKILLS

Over the 10 years the Hunter region workforce is expected to shift towards roles with higher skill and qualification requirements.

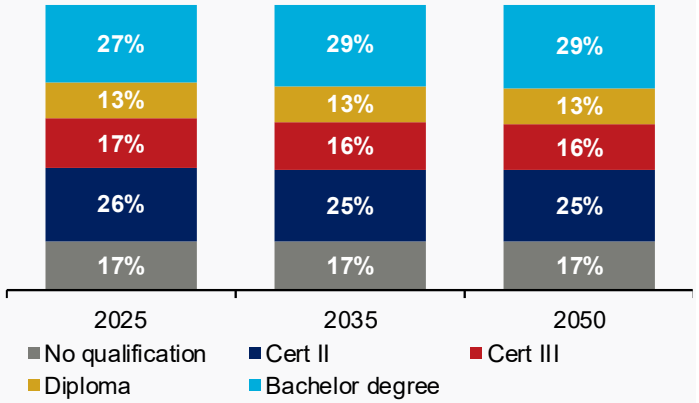
Additional skill and qualification demand by 2035 under Step Change

Increasing share of workforce -2% to +2%; Increasing level of skill 1 to 9

Skill level required*	1-2	3-4	5-6	7-9
Digital engagement		-1.4%	1.8%	-0.5%
Initiative and innovation			-1.3%	1.3%
Learning		-1.5%	1.2%	0.3%
Numeracy		0.4%	-0.4%	
Oral communication			-0.7%	0.9%
Planning and organising			-0.7%	0.7%
Problem solving			-0.4%	0.4%
Reading			-1.0%	1.1%
Teamwork			-2.0%	2.0%
Writing		-0.5%	-0.3%	0.8%

Source: Oxford Economics

Minimum skill level equivalent qualification required for jobs in the Hunter**



Most common field of education in additional jobs by 2035	
1 Teacher Education	6,500
2 Human Welfare Studies and Services	5,800
3 Business and Management	3,900
4 Nursing	3,400
5 Building	1,900
6 Computer Science	1,500
7 Accounting	1,400
8 Justice and Law Enforcement	1,200
9 Personal Services	900
10 Sales and Marketing	800

Skill and qualification demand outlook

At present, 57% of jobs the Hunter require a skill level equivalent to Cert III or above. This share is expected to remain broadly stable over the outlook period, though there will be a shift toward roles requiring a bachelor degree or above (+2.0% of the workforce). Over the next 10 years, an additional 54,000 jobs are expected, including 9,000 roles that do not require a qualification and 45,000 that do. Of the qualified roles, around 10,000 will require a Certificate II, 5,000 a Certificate III, 18,000 a diploma, and 21,000 a bachelor degree or higher.

The most common fields of education within these additional roles are teacher education (+6,500 jobs), human welfare studies and services (+5,800), business and management (+3,900), and nursing (+3,400). These fields of education reflect the continuing shift toward services and the expansion of health, care, and education services in the regional economy.

The workforce will increasingly demand roles requiring higher-order competencies across nearly all skill types, with numeracy the only exception. Generalist skills such as digital engagement, initiative and innovation, learning, planning & organising, problem solving, and teamwork, alongside foundational skills including reading, writing, and communication, all show a clear shift towards higher proficiency levels. The most pronounced change is in teamwork, where 2% more of the workforce will require advanced capabilities, compared with a decline in mid-level roles.

These trends are similar across all transition scenarios, though the scale of demand varies. The *Green Energy Industries* pathway generates the fastest workforce growth, amplifying the need for high-level skills compared with the more gradual shift under the *Progressive Change* scenario. While aggregate figures highlight a broad shift toward more complex and adaptable skill sets, they also mask the challenges of transitioning specific cohorts between roles. These transition challenges are examined in detail in the *Regional Economic Transition Analysis – Worker Transitions in the Hunter* study.

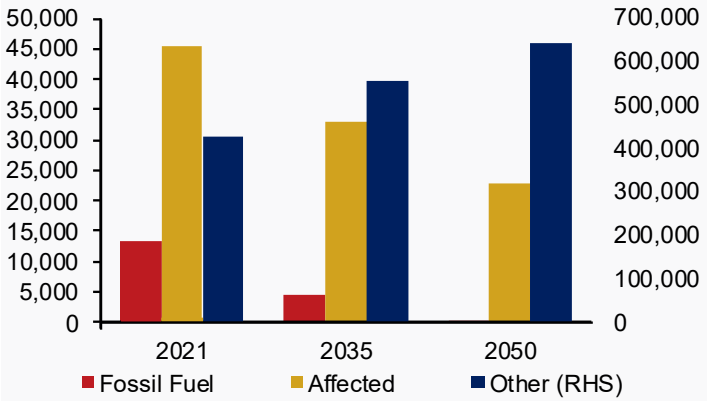
**The Australian Skills Classification (ASC) provides a common framework for describing skills across jobs, categorising them into core competencies, specialist tasks, and technology use.*
*** These qualifications refer to the minimum qualification equivalent to skill levels 1-5 required to perform a role rather than the qualification levels that are actually held by the workforce and so not all qualification levels are shown. E.g. Cert III is equivalent to skill level 3 and bachelor degree is equivalent to skill level 1. The correspondence of skill level to AQF level can be accessed here..*
***Note:** Employment figures are rounded to the nearest hundred.*

PRIORITY COHORT PROFILES

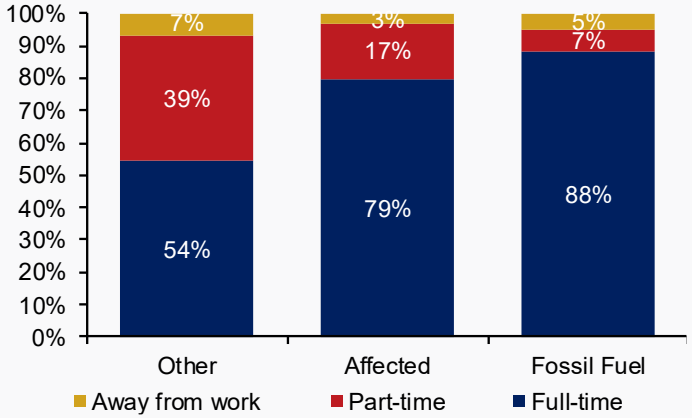
There is a high concentration of young, high income earning fossil fuel workers in the Hunter region.

Hunter worker cohort profile

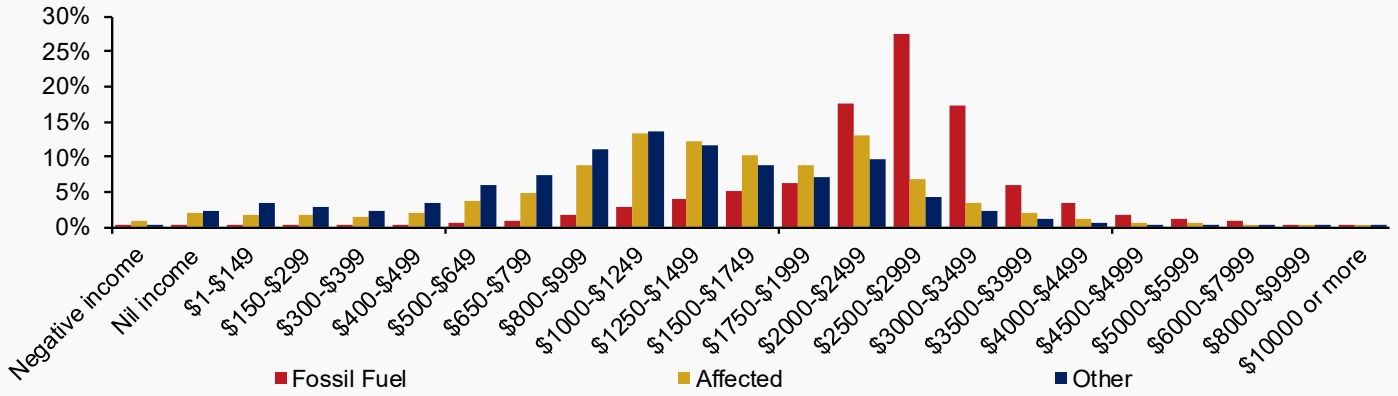
Employment outlook



Employment status



Total personal weekly gross income



Source: Australian Bureau of Statistics

The Hunter region is estimated to employ 15,600 fossil fuels workers as of 2024, accounting for 2.9% of the region's total workforce. The vast majority are employed in coal mining, followed by electricity supply and gas supply.

The Hunter region has been shifting away from industrial employment and toward public services for the last decade. Industries in the Hunter region that are facing structural declines include: Agriculture, Forestry and Fishing, Mining, Manufacturing and Electricity, Gas, Water and Waste Services.

Workers in fossil fuel industries have an age distribution distorted towards the 25-34 and 35-44 age groups, but have significantly fewer workers aged 15-24. Workers not near retirement age will need support regarding upskilling and transitioning to other industries. Affected industries have a relatively older cohort compared to the overall regional workforce. Fewer young individuals are entering this sector. As a result, a significant share may naturally retire in the coming decades, softening the impact of industry transition.

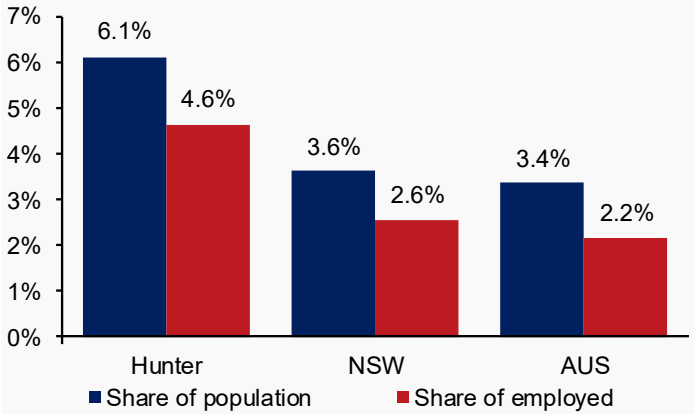
Workers in fossil fuel industries are predominantly employed full time, with nearly 90% in full-time roles, significantly higher than the broader workforce, where only around 54% are employed full time and 39% work part time. Furthermore, there is higher concentration in upper income brackets for fossil fuels workers. These indicate that transition out of this sector may result in reduced income and employment security. Affected industries share similar characteristics, including high full-time employment rates, but are more concentrated in the middle-income range.

Fossil fuel workers are more likely to hold diplomas or certificates (64%) as their highest qualification, compared to 40% of the regional workforce. This suggests a stronger reliance on vocational education pathways in the sector. As a result, upskilling pathways may need to build on existing technical skills, rather than higher education.

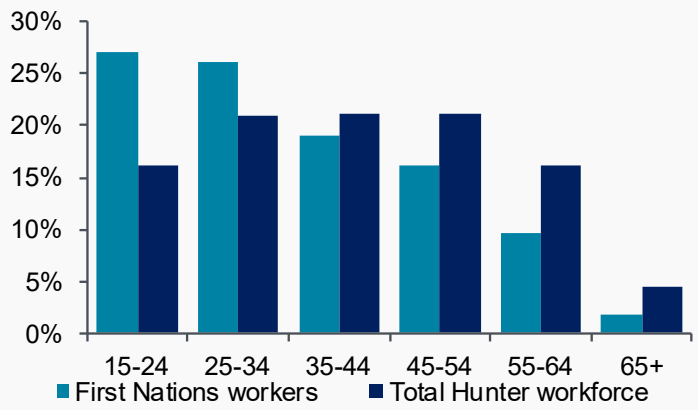
First Nations workers have a similar exposure to the impacts of the transition on the industrial base as the region on average.

Hunter First Nations worker profile

First Nations people in the Hunter



Workforce age distribution

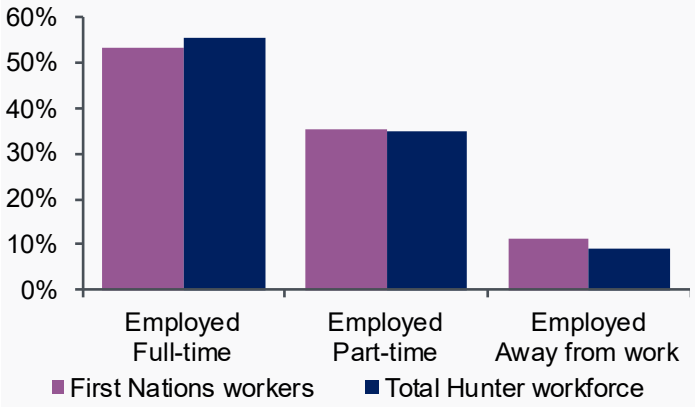


There are more First Nations people living and working in the Hunter than in NSW or Australia on a per capita basis. The First Nations workforce is much younger than the region overall with more than 50% of workers 34 years or younger.

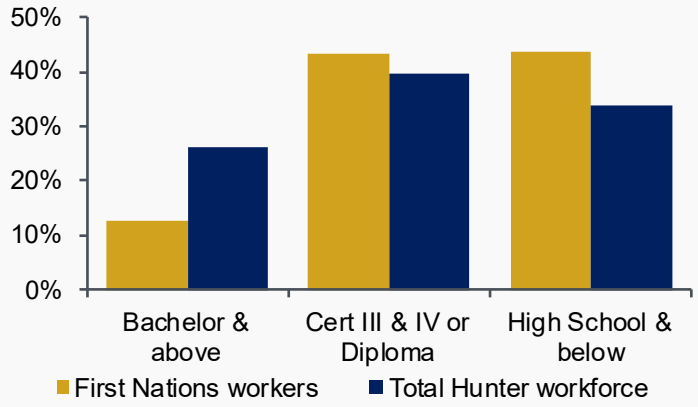
The Hunter's 21,500 First Nations workers are more likely to work in construction, consumer services or public services than the general Hunter workforce however they are just as likely to work in the industrial sector, suggesting they are as exposed to industrial shifts from the transition as the workforce overall.

First Nations workers are much less likely to have a Bachelor's degree or above – 13% of First Nations workers compared to 26% of the workforce overall. First Nations are also more likely to have a high school level qualification as their highest educational attainment (44%) compared to the region overall (34%).

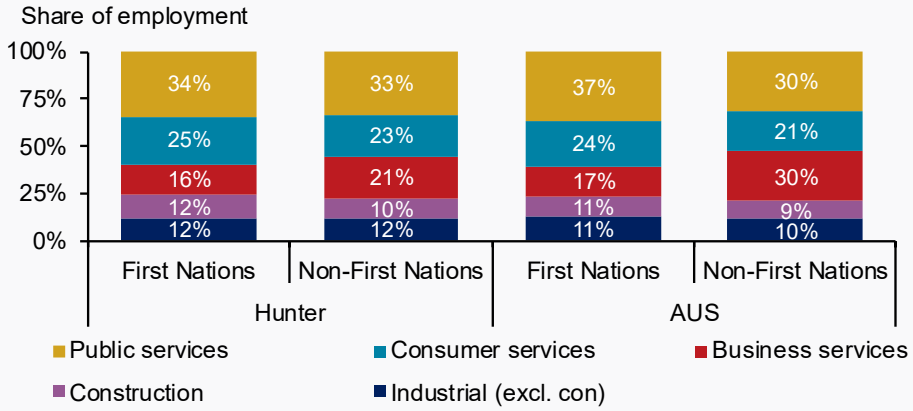
Employment status



Educational attainment (% highest level)



First Nations Industries of employment*



Source: Australian Bureau of Statistics

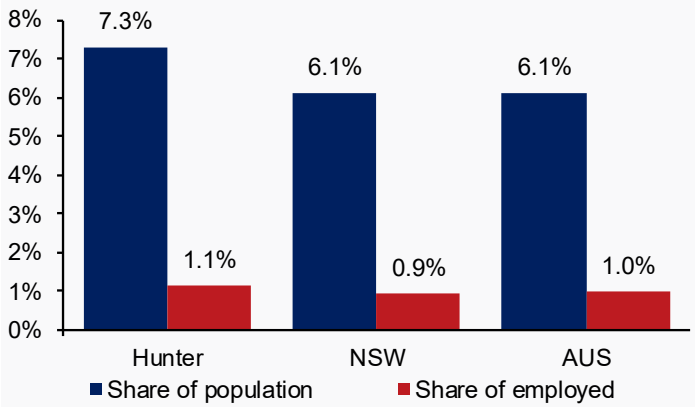
**Public services includes Health, Education & Public Administration & Safety.*
Consumer services includes Retail Trade, Accommodation & Food Services, Arts & Recreation and Other Services.

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.

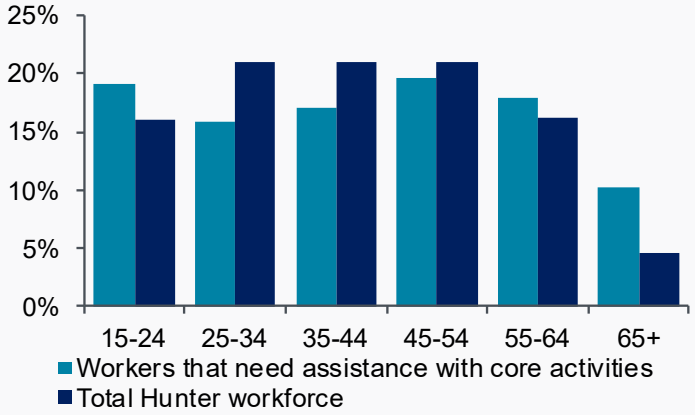
Disabled workers in the Hunter are more likely to be working part-time and into older age. They are less exposed to industries in decline.

Hunter profile of workers with a disability

People with a disability in the Hunter



Workforce age distribution

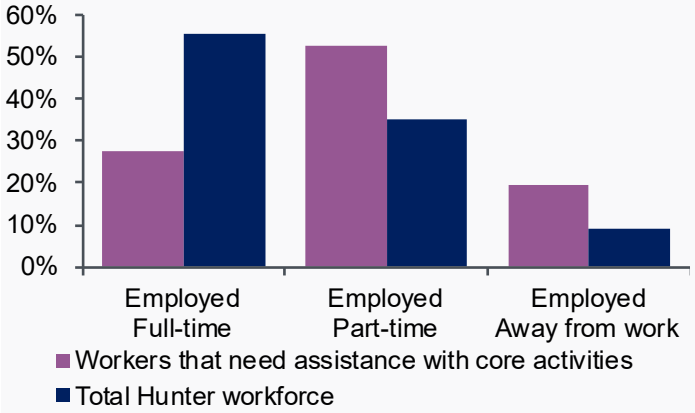


Compared with the state and national average, the Hunter has a larger share of residents with disability participating in the workforce. This group has a distinct age profile: workers with disability are twice as likely to be aged over 65 as the wider workforce, while also being slightly more represented among young people aged 15 to 24.

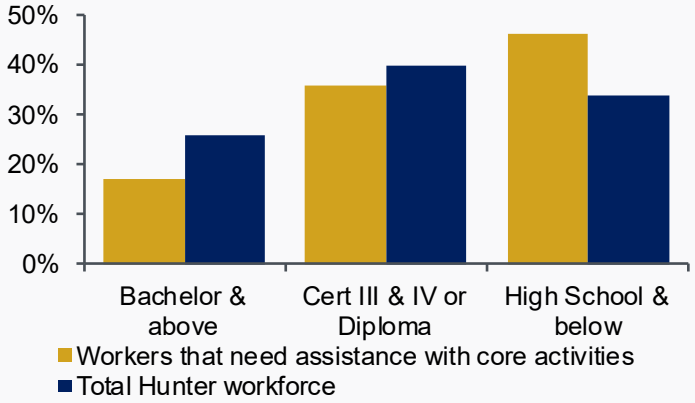
In total, around 5,200 people with disability are employed in the region. Their employment is more heavily concentrated in consumer-facing and public service roles, while they are underrepresented in construction and other industrial sectors.

Educational attainment levels also differ from the broader workforce. Just 17% of workers with disability in the Hunter hold a bachelor degree or higher, compared with 26% across all workers. The most common level of education remains high school, with almost half (46%) reporting this as their highest qualification, compared with one-third (34%) of the overall workforce.

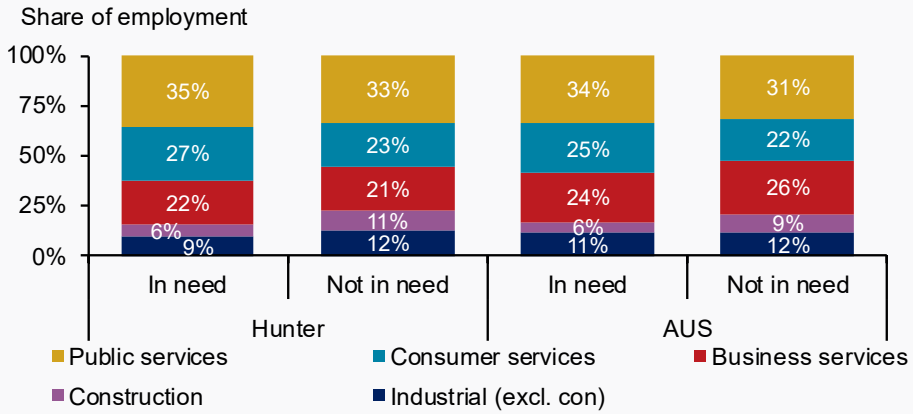
Employment status



Educational attainment (% highest level)



Workers in need of assistance by industry of employment*



Source: Australian Bureau of Statistics

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Consumer services includes Retail Trade, Accommodation & Food Services, Arts & Recreation and Other Services.

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Industrials excluding Construction includes Agriculture, Mining, Manufacturing & Electricity, Gas, Water & Waste Services.

TECHNICAL APPENDICES

MAJOR EMPLOYING BUSINESSES

Hunter region - Largest employing businesses.

Hunter region - Largest employing businesses – 1 to 6

Business name	Description	Location	Est. Employment	Type of roles	Top Recent Job Postings
Hunter New England Local Health District	Delivers public health services across the Hunter and New England regions through hospitals, multipurpose services and community health care. Website	Hunter region	~11,700	Registered nurses & midwives, medical officers & specialists, allied health, mental health clinicians & community health, pathology & medical imaging	Registered nurse, administration officer, staff specialist, enrolled nurse, visiting medical officer
Glencore	A global mining and commodity trading company with major coal, copper, and zinc operations. Website	Hunter region	~5,350	Mine operators, maintenance trades, mining & processing engineers, geologists & surveyors, coal handling & preparation plant operators	Mining engineer, maintenance technician, mechanical engineer, maintenance planner, mining supervisor
Catholic Diocese of Maitland – Newcastle	A religious and educational organisation overseeing Catholic schools, parishes, and welfare services. Website	Newcastle	~4,600	Clergy & pastoral ministry, teachers & school leadership, social & community services, safeguarding & chaplaincy, administration & finance	Early childhood educator, primary teacher, outside school hours care educator, administration officer
NSW Department of Education	The state government agency responsible for public education from early childhood through primary and secondary schooling, and for regulating early childhood education and care. Website	Hunter region	~3,780	Primary & secondary teachers, principals & school leadership, school support, school counsellors/psychologists & learning support, early childhood regulation & policy	Assistant principal, teacher, school administration officer, special educational needs teacher, principal
RAAF Base	A Royal Australian Air Force installation, such as RAAF Base Williamtown near Newcastle, supporting national defence, training, and air surveillance operations. Website	Williamtown - Medowie - Karuah	~3,500	Pilots & aircrew, aircraft technicians & avionics, airbase operations & ground crew, air traffic control, intelligence & surveillance	Contracts specialist, systems engineer, software engineer, systems administrator
University of Newcastle	A major public university offering higher education and research across disciplines, with campuses in Newcastle and the Hunter region. Website	Newcastle	~3,250	Academic staff, research fellows, professional staff, laboratory & technical officers, library & learning support	Lecturer, administration officer, manager, technical officer, professor

Source: Oxford Economics estimates based on Seek data

Hunter region - Largest employing businesses.

Hunter region - Largest employing businesses – 7 to 13

Business name	Description	Location	Est. Employment	Type of roles	Top Recent Job Postings
Central Coast Council	The local government authority overseeing infrastructure, planning, and community services across the Central Coast region. Website	Gosford, Wyong	~2,270	Urban planning and project management, infrastructure maintenance and operations, community and recreation services	Crew member, team leader, development planner, crew leader, diploma educator
BHP	A global resources company with major operations in iron ore, copper, and coal. Website	Muswellbrook	~2,000	Mining engineers, maintenance and mechanical tradespeople, environment and community officers, administration and support staff	Production operator, mechanical fitter, mining engineer, superintendent
Yancoal	A large coal producer operating several open-cut and underground coal mines. Website	Hunter region	~1,750	Operators, maintenance trades, mining engineers & technical services, geologists & surveyors, CHPP operators & production	Mechanical maintainer, mining engineer, electrical maintainer, maintenance supervisor
Newcastle Greater Mutual Group	A member-owned financial institution providing banking and lending services across regional New South Wales. Website	Hunter region	~1,600	Branch & contact centre banking, home lending specialists & credit assessment, financial planning & customer solutions, risk, compliance & audit	Customer service representative, customer contact officer, member service officer, project manager
City of Newcastle	The municipal council responsible for services, planning, and development in the Newcastle local government area. Website	Newcastle	~1,300	Urban planning and project management, infrastructure maintenance and operations, community and recreation services, corporate positions	Development officer, fieldworker, early childhood educator, civil construction role, administration officer
Ramsay Health Care	Operates private hospitals in the region, including Lake Macquarie Private and Warners Bay Private, providing surgical, maternity, and rehabilitation services. Website	Gateshead, Warners Bay	~1,250	Registered and enrolled nurses, medical and surgical specialists, allied health clinicians, theatre and perioperative staff, pathology and imaging	Registered nurse, physiotherapist, enrolled nurse, therapist, administration clerk
Lake Macquarie City Council	The local government body delivering urban services, infrastructure, and community programs across Lake Macquarie. Website	Speers Point	~1,200	Urban planning and project management, infrastructure maintenance and operations, community and recreation services, corporate positions	Administration officer, building surveyor, project officer, site supervisor, development planner

Source: Oxford Economics estimates based on Seek data

Hunter region - Largest employing businesses.

Hunter region - Largest employing businesses – 14 to 19

Business name	Description	Location	Est. Employment	Type of roles	Top Recent Job Postings
Tomago Aluminium	One of the country's largest aluminium smelters, employing hundreds in production, engineering, and maintenance roles. Website	Tomago	~1,200	Mechanical and maintenance tradespeople, production operators, administration roles, mining engineers	Mechanical fitter, electrician, bricklayer, operator, maintenance supervisor
TAFE NSW	TAFE NSW is a leading provider of vocational education and training, offering more than 1,200 courses and qualifications with flexible study options across New South Wales. Website	Hunter region	~1,175	Teachers and trainers, education support and student services, curriculum and program design, industry liaison and apprenticeships, facilities and campus operations	Teacher, manager, education support officer, analyst, project manager
Uniting	Provides aged care, home care, and disability support services through facilities and outreach programs in local communities. Website	Hunter region	~1,000	Aged care nurses and care workers, disability support workers, early learning educators, allied health and clinical services, case managers and social workers	Careworker, registered nurse, home care worker, support worker, mental health support worker
Baiada	A leading Australian poultry producer supplying to a range of retail, QRS and foodservice and independent customers. Website	Beresfield - Hexham	~1,000	Processing line and production workers, livestock and farm operations, maintenance trades, food safety and quality assurance, supply chain warehousing and logistics	Coordinator, food technologist, accounts payable officer, maintenance fitter, recruitment assistant
Varley Group	A long-established engineering and manufacturing firm headquartered in Tomago, producing equipment for defence, mining, and transport. Website	Tomago, Carrington	~800	Mechanical and electrical trades, fabrication and assembly, design and drafting, project engineering and management, quality assurance and testing	Automotive electrician, boilermaker, sheet metal welder, workshop boilermaker, mechanical fitter
Centennial Coal	Centennial Coal is an Australian mining company supplying coal to domestic power generation and export customers. Website	Hunter region	~750	Underground and surface operators, maintenance trades, mining engineers and technical services, geology and surveying, health safety and environment	Contracts specialist, accountant, compliance manager, coordinator, electrical engineer

Source: Oxford Economics estimates based on Seek data

Hunter region - Largest employing businesses.

Hunter region - Largest employing businesses – 20 to 24

Business name	Description	Location	Est. Employment	Type of roles	Top Recent Job Postings
Healthscope	Operates private hospitals and medical facilities, including Newcastle and Hunter Valley Private Hospitals, offering surgical and specialist care. Website	Hunter region	~750	Registered and enrolled nurses, medical and surgical specialists, allied health clinicians, theatre and perioperative staff, imaging and pathology	Registered nurse, registered midwife, food services assistant, endorsed enrolled nurse, clinical nurse specialist
Ampcontrol	Designs and manufactures electrical and electronic equipment for mining, infrastructure, and energy sectors, with headquarters in the region. Website	Hunter region	~700	Electrical engineers and designers, power systems and protection engineers, electronics and control systems, manufacturing and assembly technicians, service technicians	Field service technician, electrician, electrical engineer, administration officer, estimator
NIB Healthcare Fund	A major health insurer headquartered in Newcastle, providing private health cover and insurance products nationally. Website	Hunter region	~675	Customer service and claims, health insurance product and policy, provider relations and networks, digital product and software engineering, data analytics and reporting	Customer care consultant, customer service representative, performance lead, claims officer
Thiess Ltd	Thiess is a global mining services provider delivering open-cut and underground mining, asset management and rehabilitation services for resources clients. Website	Hunter region	~640	Mine operators and supervisors, diesel fitters, electricians, boilermakers, project engineering and technical services, geology and surveying	Production operator, heavy diesel fitter, fitter, automotive electrician, diesel fitter
Monadelphous	An engineering group delivering construction and maintenance services to the mining, energy, and infrastructure sectors, with local contracts. Website	Hunter region	~625	Construction and maintenance trades, project engineers and managers, schedulers and estimators, supervisors and site management, quality assurance and inspection	Boilermaker, rigger, mechanical fitter, roofer, blaster

Source: Oxford Economics estimates based on Seek data

FORECASTING APROACH

The regional forecasting approach aligns to AEMO's scenario assumptions.

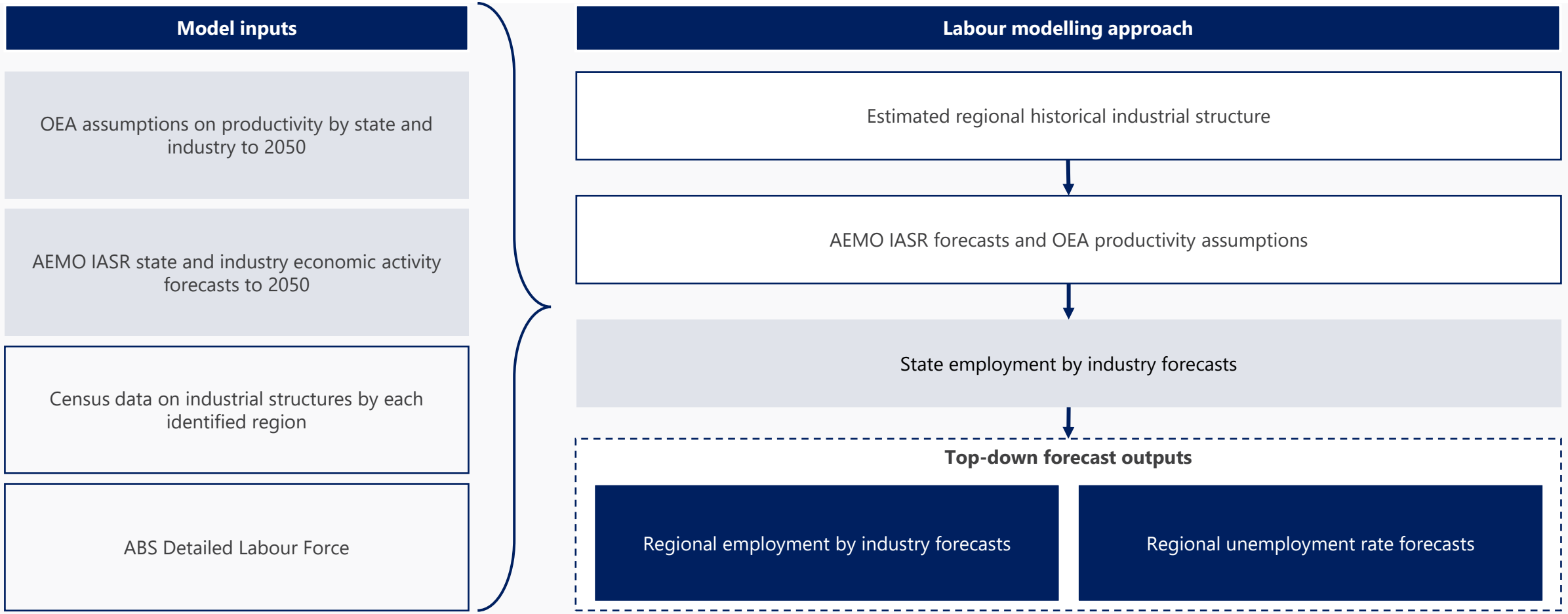
AEMO Scenario Features

	Progressive Change	Step Change	Green Energy Industries
Global export demand	• Aligned to IEA STEPS (Stated Policies). • Slower economic growth, less climate coordination.	• Aligned to IEA APS (Announced Pledges). • Moderate economic growth, stronger climate coordination.	• Aligned to IEA NZE (Net Zero). • High economic growth, stronger climate coordination.
Domestic demand for high emission industries	• Slowest pace of fossil fuel phaseout. • Weak economy forces closures of costlier energy and industrial loads.	• Moderate pace. • Coal/gas retirements follow announced schedules.	• Fastest pace.
Emerging industries	• Limited new industries. • Minimal hydrogen uptake, slower renewables rollout; energy- and mining-related industries struggle under weaker demand.	• Strong growth of renewables (wind/solar, storage) and consumer energy resources • Some domestic hydrogen use largely in the transport sector	• Development of a hydrogen industry, focusing on transport and value-add hydrogen products such as green iron and steel, for domestic use.
Renewables & major projects	• Only committed or financially close projects proceed. Renewable projects slow due to policy uncertainty and limited investor confidence. • Little new infrastructure beyond current plans.	• Committed and anticipated projects go ahead leading to large-scale deployment of solar, onshore wind, and storage proceeds rapidly to meet 82% renewables by 2030 target.	• High growth leads to development of more speculative pipeline projects. • Processing hubs for green commodities.
Government policy	• All sufficiently developed government policies. • IASR economic forecasts exclude the Future Made in Australia policy.	• All sufficiently developed government policies • IASR economic forecasts include some impacts of Future Made in Australia.	• All sufficiently developed government policies • IASR economic forecasts include moderate impacts of Future Made in Australia.

Source: AEMO (2025)

AEMO's headline forecasts are downscaled to a regional level to give a high-level top-down view that serves as a base for the detailed bottom-up forecasting.

Downscaling approach



Source: Oxford Economics

AEMO's scenario assumptions are supplemented by Census, ABS data and OE's regional productivity assumptions to generate regional forecasts aligned to AEMO's scenarios.

1. Compile AEMO average CAGRs to produce a full time series for state & national industry GVA

Industry	Scenario	Agriculture	Mining	Manufacturing	Utilities	Construction	Services
New South Wales	Progressive Change	0.3%	0.2%	-1.8%	-0.4%	0.8%	1.7%
	Step Change	0.6%	0.5%	-1.4%	-0.2%	1.1%	2.3%
	Exportless 1.5 Degrees	1.3%	0.8%	-1.1%	0.4%	1.8%	3.1%
	Green Energy Exports	1.3%	0.8%	-0.6%	0.4%	1.8%	3.1%

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Table 3.1: Forecast summary for the Step Change scenario

	History 2022-23	Forecast 2027-28	2037-38	2047-48	2057-58	Forecast period*
GVA by industry						
Agriculture ($ billion)	$61.9	$63.6	$71.8	$77.3	$80.8	-
CAGR over previous decade	*1.4%*	*1.6%*	*1.2%*	*0.7%*	*0.5%*	0.8%
Mining ($ billion)	$321.0	$334.9	$394.3	$430.9	$459.9	-
CAGR over previous decade	*3.4%*	*0.9%*	*1.6%*	*0.9%*	*0.7%*	1.0%
Manufacturing ($ billion)	$124.0	$120.8	$120.1	$113.7	$105.1	-
CAGR over previous decade	*-0.4%*	*-0.3%*	*-0.1%*	*-0.5%*	*-0.8%*	-0.5%
Utilities ($ billions)	$45.2	$45.7	$47.6	$47.8	$47.4	-
CAGR over previous decade	*0.6%*	*0.3%*	*0.4%*	*0.1%*	*-0.1%*	0.1%
Construction ($ billion)	$158.6	$178.3	$200.5	$220.8	$236.2	-
CAGR over previous decade	*0.3%*	*1.3%*	*1.2%*	*1.0%*	*0.7%*	1.1%
Services ($ billion)	$1,345	$1,504	$1,909	$2,395	$2,942	-
CAGR over previous decade	3.1%	2.8%	2.4%	2.3%	2.1%	2.3%

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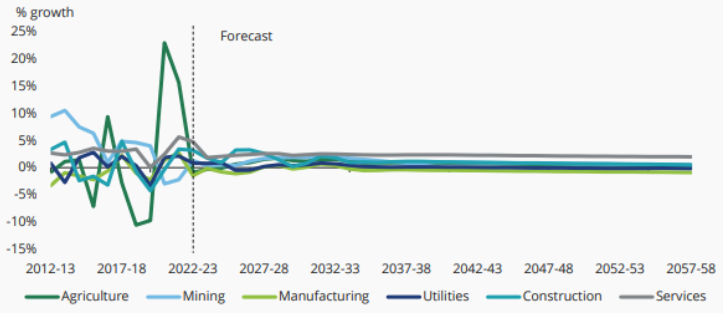
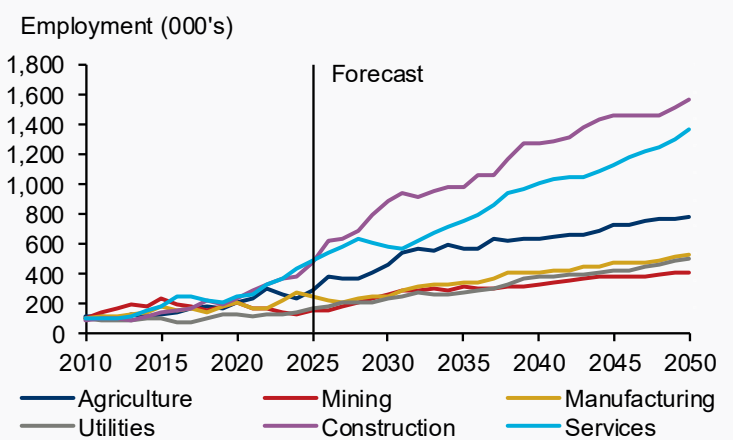
Chart B.1: Step Change industry GVA growth, Australia

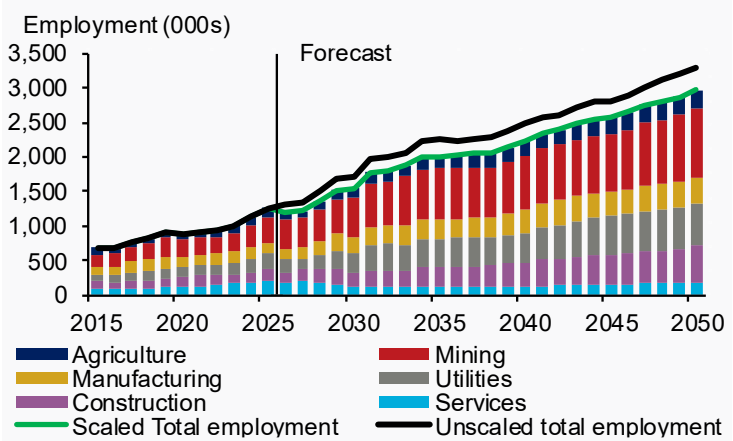


Source: Deloitte Access Economics (2024), AEMO (2025)

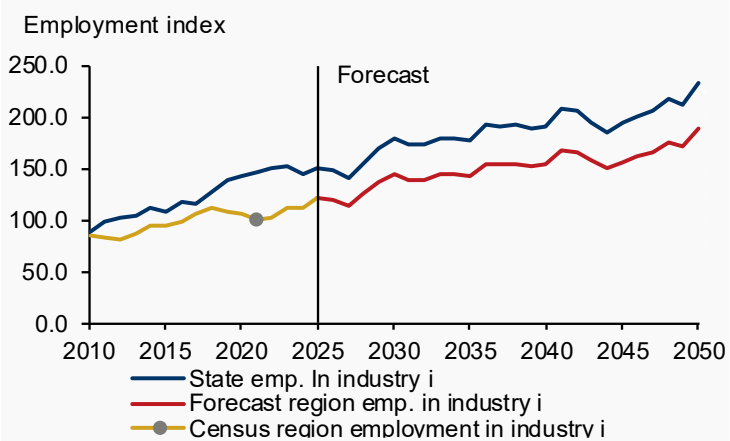
2. For each state industry pair, OE productivity growth is used to produce employment forecasts



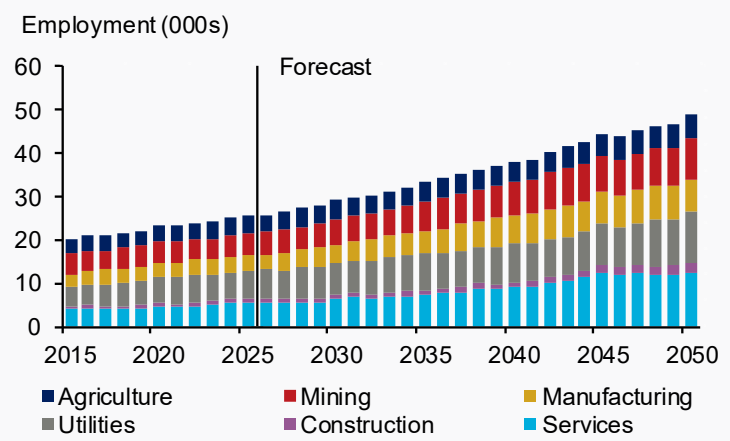
3. These employment forecasts are then scaled to align to AEMO's national productivity assumptions



4. Regional employment by industry (Census interpolated by ABS LF) grows with state industry



Regional industry employment forecasts are used to produce total employment & UR by region



Please note these charts contain illustrative dummy data

The top-down downscaled forecasts are supplemented with detailed bottom-up regional analysis to produce the final forecasts.

Bottom-up forecasting approach

Demographic implications	Regional changes to industrial structure
Analysis considers: • The current age, income and education profile of the region. • Current migration flows in region i.e. whether the region currently attracts workers or loses workers to other regions. • Whether labour supply is available to meet demand or whether regional population size will limit opportunities for industrial expansion. • Whether the decline in economic activity will result in population outflows as households look to capture employment opportunities elsewhere.	**Analysis considers:** • Closure of major industrial facilities due to changes to domestic and global demand for the regions output. • We consider core industries as the primary industries and public services if they represent a significant proportion of the regions employment. • The flow-on impact to other industries in the region due to structural decline of core industries are captured based on the supply and use of core industry output to and from supporting industries • Closure plans for existing electricity generation operations • Renewable energy projects aligned to AEMO's scenarios where the region is part of a Renewable Energy Zone. • Any benefits from the introduction or expansion of currently nascent industries (e.g. renewable energy).
Population & labour force impact	Employment by industry

Any currently proposed government policies or strategies to address impacts in these regions in which case we would assume these strategies are implemented with a degree of success based on similar policy interventions in the past.

Bespoke labour forecasts for each region including unemployment rates and employment by industry forecasts (which are then reapplied to Oxford Economics' skills framework model)

Source: Oxford Economics

Explicit assumptions are made for the closure date of existing sites, completion date of proposed sites and the affected employment of major projects in the region

Mining

- Assumed mine closure dates are based on government government documentation, mine operator disclosure and desktop research
- Under the Progressive Change Scenario, unless an explicit closure date is listed by mine operators, the explicit closure date is assumed to be when economically and technically extractable coal resources will deplete based on current rates of production.
- Beyond explicit mine closures, coal demand is expected to decline over the forecast period driven by declining domestic and global demand. Under all scenarios, employment in operating mines (those that have not hit their assumed closure date) responds to global demand for coal, decreasing over the forecast period.

Electricity supply

- Assumed closure dates of operating assets are based on AEMO 2025 Draft IASR *'Generator Summary - Existing, Committed and Anticipated generators'*.
- Proposed projects and completion dates are based on a combination of AEMO '*General Information'* and desktop research. Proposed projects are assigned to scenarios based on AEMO commitment status whereby committed projects are include in all three scenarios, anticipated projects are included only in Step Change and Green Energy Industries and A subset of proposed projects are included in Green Energy Industries for projects that are further along the development pathway.
- Beyond explicit project assumptions, electricity supply additions are assumed to follow the pathway from AEMO's Installed Generator Capacity by REZ from the 2024 ISP from 2030 through to 2050.
- Ongoing employment assumptions for each new entrant are estimated based on a combination of public employment disclosures where possible, estimates based on similar projects and AEMO's 2024 ISP employment factors.

Other major projects

- Other major projects that are expected to break ground over the near-term and are likely to drive an increase in employment above business-as-usual activity, are explicitly included in the regional economic modelling.
- These projects are identified from various sources including:
    - OEA Non-Residential and Engineering Construction Masterplans
    - RenewMap
    - Resources and Energy major projects
    - HyResource CSIRO
    - Critical minerals prospectus
    - NZEA regional profiles
    - Regional development strategies
    - Council project pipelines

Construction

- Employment in heavy & civil engineering construction is aligned to identified projects in mining, utilities and other key sectors.
- Employment numbers are based on a combination of public employment disclosures, OE estimates based on similar projects and AEMO's 2024 ISP employment factors for energy supply assets.

Hunter – Explicit mining assumptions (1)

Operating sites - Mining

Site	Assumed closure date			Employment	Notes
	PC	SC	GEI		
Dartbrook	2030	2027	2027	486	Reopened in 2024, under administration as of July 2025. Has approval to extend life to 2030.
Mount Pleasant	BFP	2048	2048	340	Expansion project approved to be completed in 2029. However, expansion is being challenged in Supreme Court of Appeal. Received approval to extend operations until 2048.
Bengalla	2039	2039	2039	705	Expected closure date calculated based on reserves and production.
Mangoola	2030	2030	2030	452	Received approval to extend operations until 2030.
Mount Arthur	2030	2030	2030	1554	BHP announced closure in 2030.
Maxwell	2047	2047	2047	350	Approved to operate to 2047.
Mt Owen	2037	2037	2037	330	Approved to operate to 2037 but has reserves to support current production to 2044.
Ravensworth	2039	2039	2039	778	Approved to operate to 2039.
Ravensworth East	2039	2039	2039	153	Approved to operate to 2039.
Hunter Valley North	BFP	2026	2026	603	Recently granted an 18-month extension until 2026. Life extension to 2050 in permitting stage. Resources and current production indicate potential mine life beyond the forecast period.
Hunter Valley South	BFP	2030	2030	603	Currently approved to 2030. Life extension to 2045 in permitting stage. Resources and current production indicate potential mine life beyond the forecast period.

Source: Oxford Economics

Hunter – Explicit mining assumptions (2)

Operating sites - Mining

Site	Assumed closure date			Employment	Notes
	PC	SC	GEI		
Ashton	2049	2032	2032	315	Currently approved to 2032. Resources and current production indicate potential mine life to 2049.
Integra	2025	2025	2025	201	Planned closure in 2025
Rix Creek	2049	2035	2035	280	Currently approved to 2035. Life extension to 2049 in permitting stage, assumed to be approved under Progressive Change Scenario.
United Wambo	2040	2040	2040	530	Approved to 2040
Wambo	2042	2042	2042	203	Approved to 2042
Mt Thorley Warkworth	2037	2037	2037	1425	Approved to 2037. Expansion project assumed to be approved from 2030-2037 under Progressive Change and Step Change scenarios.
Bulga	2039	2039	2039	950	Currently approved to 2035. Life extension to 2039 in permitting stage, assumed to be approved under Progressive Change Scenario.
Bloomfield	2030	2030	2030	100	Approved to 2030
Myuna	2027	2027	2027	259	Linked to Eraring Power Station with planned closure in 2027.
Mandalong	2050	2039	2039	600	Approved to 2039. Resources and current production indicate potential mine life to 2050.
Chain Valley	2034	2034	2034	220	Linked to Vales point power Station with planned closure in 2034.

Source: Oxford Economics

Hunter – Explicit mining assumptions (3)

Proposed projects - Mining

Site	Assumed completion date			Employment impact	Notes
	PC	SC	GEI		
Mount Pleasant - Expansion	2029	2029	-	220	Expansion approved but is being challenged in Supreme Court of Appeal
Mt Thorley Warkworth - Expansion	2030	2030	-	200	Expansion approved
Muswellbrook No.2 - New	-	-	-	-	Not expected to go ahead - Owner has suggested shift towards renewable energy focus
Ravensworth Underground - New	-	-	-	-	Not expected to go ahead – Owner publication indicate mothballed
Hunter Valley North - Extension	2050	-	-	-	Not yet approved. Assumed approved under Progressive Change Scenario.
Hunter Valley South Extension	2045	-	-	-	Not yet approved. Assume approved under Progressive Change Scenario.
Rix Creek - Extension	2049	-	-	-	Not yet approved. Assume approved under Progressive Change Scenario.
Bulga - Extension	2039	2039	2039	-	Approved
Newstan - Reactivation	-	-	-	-	Not expected to go ahead - The project application was previously withdrawn and then re-lodged in 2021 but has since had little movement.
Chain Valley - Extension	-	-	-	-	Not expected to go ahead - Has been seeking for a while - dependant on generator closure.

Source: Oxford Economics

Hunter – Explicit electricity supply assumptions (1)

Operating sites – electricity supply

Site	Assumed closure date			Type	Employment impact	Notes
	PC	SC	GEI			
Coal - Bayswater Power Station	2033	2033	2033	Coal	1000	AEMO indicate planned closure in 2033.
Coal - Eraring power station	2027	2027	2027	Coal	440	AEMO indicate planned closure in 2027.
Diesel - Hunter Economic Zone - Peaking power plant	2036	2036	2036	Diesel	16	AEMO indicate planned closure in 2036.
Coal - Vales Point power station	2033	2033	2033	Coal	270	AEMO indicate planned closure in 2033.
Gas - Colongra power station	BFP	BFP	BFP	Gas	24	AEMO indicate planned closure in 2070.

Source: Oxford Economics

Hunter – Explicit electricity supply assumptions (2)

Proposed projects – Electricity supply

Site	Assumed completion date			Type	Employment impact	Notes
	PC	SC	GEI			
Hunter Central Coast Offshore Energy (Wind)	-	-	2029	Offshore Wind	600	AEMO Proposed status with approvals.
Muswellbrook Pumped Hydro	-	-	2029	Pumped Hydro	20	AEMO Proposed status with approvals.
Upper Hunter Energy Park - Solar	-	-	2027	Solar	5	AEMO Proposed status with approvals.
Upper Hunter Energy Park - Wind	-	-	2027	Onshore Wind	17	AEMO Proposed status with approvals.
Novocastrian Offshore Wind Farm	-	-	2032	Offshore Wind	400	AEMO Proposed-Development status.
Bowmans Creek Wind Farm	-	2028	2028	Onshore Wind	15	AEMO Anticipated status.
Liverpool Range Wind Farm	-	-	2026	Onshore Wind	47	AEMO Proposed-Development status. This project is on the Western border of the Hunter region.
Hunter Power Project (Kurri Kurri)	2026	2026	2026	Gas	102	AEMO Committed status.
Goulburn River Solar Farm	2026	2026	2026	Solar	48	AEMO Committed status.
Eraring BESS (Stage 2)	2027	2027	2027	BESS	8	AEMO Committed status.
Eraring BESS (Stage 1)	2025	2025	2025	BESS	16	AEMO Committed status.
Liddell BESS	2027	2027	2027	BESS	17	AEMO Committed status.
Muswellbrook BESS	2028	2028	2028	BESS	3	AEMO Proposed-Development status.

Source: Oxford Economics

Hunter – Explicit electricity supply assumptions (3)

Proposed projects – Electricity supply

Site	Assumed completion date			Type	Employment impact	Notes
	PC	SC	GEI			
McCullys Gap (Muswellbrook PRO) BESS	-	-	2028	BESS	14	AEMO Proposed-Development status.
Bowmans Creek Wind Farm (BESS)	-	2027	2027	BESS	9	AEMO Anticipated status.
Tomago BESS	-	-	2028	BESS	6	AEMO Proposed-Development status.
Goulburn River Solar Farm (BESS)	2026	2026	2026	BESS	10	AEMO Committed status.
Eraring BESS	2027	2027	2027	BESS	24	AEMO Committed status.
Waratah Super Battery (BESS)	2025	2025	2025	BESS	30	AEMO Committed status.
Eastern Rise Offshore Wind	-	-	-	Offshore Wind	345	AEMO Proposed status, proponent has exited Australian market.
Muswellbrook Solar Farm	-	-	-	Solar	-	AEMO Proposed status with less public detail or approval.
Glenbawn Pumped Hydro Project	-	-	-	Pumped Hydro	-	AEMO Proposed status with less public detail or approval.
Glennis Creek Pumped Hydro Project	-	-	-	Pumped Hydro	-	AEMO Proposed status with less public detail or approval.
Strafford Renewable Energy Hub - Pumped Hydro	-	-	-	Pumped Hydro	-	AEMO Proposed status with less public detail or approval.
Denman BESS – KCI	-	-	-	BESS	-	AEMO Proposed status with less public detail or approval.
Kurri Kurri Battery	-	-	-	BESS	-	AEMO Proposed status with less public detail or approval.
Merriwa BESS 1	-	-	-	BESS	-	AEMO Proposed status with less public detail or approval.

Source: Oxford Economics

Hunter – Other explicit major project assumptions (1)

Proposed projects – Other

Site	Assumed completion date			Type	Employment impact	Notes
	PC	SC	GEI			
Hunter Valley Hydrogen Hub	2027	2027	2027	Hydrogen	10	Contract awarded
Port of Newcastle Clean Energy Precinct	2030	2030	2030	Hydrogen	120	Includes the NDCT
Allegro Energy electrolyte technology project (Part of AGL Hunter Energy Hub)	-	2030	2030	Manufacturing	326	Allegro completed testing phase
Nu Rock (Part of AGL Hunter Energy Hub)	-	-	2035	Hydrogen	35	Limited public information since announcement in 2022. Assumed to occur later in Hunter Energy Hub contruction.
Renewable Metals (Part of AGL Hunter Energy Hub)	-	-	2032	Manufacturing	170	Part of initial Hunter Energy Hub plans. Has seen little public information since announcement. Assumed only further developed projects occur in Progressive Change and Step Change scenarios.
Elecome (Part of AGL Hunter Energy Hub)	-	-	2032	Manufacturing	50	Part of initial Hunter Energy Hub plans. Has seen little public information since announcement. Assumed only further developed projects occur in Progressive Change and Step Change scenarios.
AGL SunDrive Solar manufacturing facility / Part of AGL Hunter Energy Hub	2028	2028	2028	Manufacturing	170	Part of initial Hunter Energy Hub plans. Further developed.
Ethtec Cellulosic Ethanol Pilot plant	2026	2026	2026	Manufacturing	41	Under Construction..
The University of Newcastle, electric smelting of hematite-goethite hydrogen DRI	2029	2029	2029	Manufacturing	1	
Solar SunShot Manufacturing	2030	2030	2030	Manufacturing	200	
Lavo Hydrogen Storage Technology - pilot manufacturing at Tomago	2026	2026	2026	Hydrogen	2	Pilot phase expected, could spark further investment.
John Hunter Health and Innovation Precinct	2027	2027	2027	Health	488	Under Construction

Source: Oxford Economics

Hunter – Other explicit major project assumptions (2)

Proposed projects – Other

Site	Assumed completion date			Type	Employment impact	Notes
	PC	SC	GEI			
Kongsberg advanced missile manufacturing facility	*2027*	*2027*	*2027*	Manufacturing	100	Under Construction
Belmont desalination plant	2027	2027	2027	Water	30	Under Construction
TAFE Connected Learning Centres - Scone, Singleton, Tomaree	2025	2025	2025	Education	10	Under Construction
Maitland Gaol redevelopment	2026	2026	2026	Public Admin	10	Under Construction
Newcastle Logistics Precinct	*2027*	*2027*	*2027*	Transport	20	Expected

Source: Oxford Economics

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