

RESOURCES AND ENERGY WORKFORCE FORECAST

2024 – 2029



Volume 5 – September 2024

ABOUT AREEA



AREEA is the Australian Resources and Energy Employer Association – the national association for resources, energy industry and supply chain employers.

Since 1918, AREEA has worked to ensure Australia’s resources and energy industry is an attractive place to invest, employ and contribute to the nation’s economic prosperity. In doing so, AREEA helps the industry to create a brighter future for all Australians.

AREEA provides particular expertise, influence,

leadership and support in key workforce areas including workplace relations, human resources, diversity, training, government relations and public affairs.

Through its support on employment, skills and other people matters, AREEA is a source of considerable assistance for Australia’s resources and energy employers to meet their commercial objectives, overcome operating challenges, and run productive, competitive and socially responsible businesses.

METHODOLOGY

Resources and Energy Workforce Forecast (2024-2029) estimates the workforce and skills demands of prospective mining and oil and gas projects in Australia’s development pipeline.

Only projects that have been committed by the proponents / investors or have been assessed by AREEA’s analysts as advanced and likely to proceed, are included in this forecast series.

Further, this forecast is for the long-term operational phase of these projects, with workforce demand listed in the year they are scheduled to enter full production. It does not include the short-term construction workforces involved in building the projects in the years prior.

A variety of modelling techniques are applied to present as accurate a forecast as possible, including:

- Applying average productivity ratios (commodity volume produced per employee) from official State Government production and reported employee figures.
- Applying workforce planning formulas and occupation breakdown ratios provided to AREEA by leading employers in each commodity group.

- Cross-referencing workforce estimates in company issued ASX statements, press releases, media comments, project documents or via direct feedback from company representatives.
- Verification of forecasts by key industry participants in each commodity.

Formulas have been applied consistently within each commodity group to average out variances in project design, quality of resource, terrain and locality, technology and the other myriad factors which can impact total workforce numbers.

Across all modelling AREEA has been conservative. It is assumed new resources and energy projects will sit at the higher end of current industry productivity levels and improving technology may reduce the ratio of on-site operators to centralised white collar roles.

For expansion projects, only the actual increase on current workforce numbers is included in the forecasts. Therefore, expansions designed to maintain current production and workforce numbers are either not included or (where deemed relevant) have new workforce demand listed as nil.

AREEA thanks members who assisted in this industry forecasting project.

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FOREWORD

AREEA's 2024 workforce forecasting report tells a story of two parts. Part one repeats a familiar theme – the resources and energy industry's pipeline of job-creating major projects remains as prosperous as ever. And yet part two is of an industry experiencing serious workforce pain, having seen total employment go backwards for the first time since the COVID pandemic.

This edition's five-year projections show there are 107 major resources and energy projects in Australia's investment pipeline, either already committed or considered advanced, expected to enter production between the second half of 2024 and end of 2029.

These projects are worth roughly \$131 billion in capital investment to Australia and are forecast to drive demand for around 26,810 new production-related jobs over the projected timeline.

This is remarkably comparable to the past three years of AREEA's Resources and Energy Workforce Forecast report series.

Our 2024-2029 report numbers are slightly down on last year's report (103 projects worth \$142bn and 28,000 jobs) but remain above those of 2022 (107 projects for \$130bn and 24,000 jobs).

A closer look at the commodities driving this growth reveals more familiar themes. Mining projects are taking the lead in the first part of the projected period – led by coal in the East and iron ore and critical minerals in the West – and new major energy investments promise huge returns in the latter years.

The industry's major project pipeline and all the job-creating capital that it brings shows no signs of abating.

And yet, in what might be taken as an economics reality check, recent market challenges mean our projected workforce growth will be coming off a much lower than expected base.

In the 12 months to May 2024, the national resources and energy workforce has shed some 35,000-odd jobs. Over 20,000 of which were bled from Western Australia – the powerhouse state of mining and energy investment.

Volatile international prices for critical minerals and rare earths have suspended work at key West Australian nickel and lithium operations – which only 12 months ago were riding high.

While 3000 jobs were "lost" when BHP's Nickel West was mothballed earlier this year, the company committed to redeploy about 1600 front line nickel miners across its Pilbara iron ore and South Australian copper operations.

This is a prime example of how market conditions can impact the overall labour pool – and in turn, projections for new or extra workers – as displaced employees unexpectedly fill demand.

It's a reminder that in all industries – and particularly the resources and energy sector – workforce projections are by definition subject to the unforeseen. And it means that even if all projects in this report come to fruition, the sector's national workforce won't quite return to its record heights of 2023 within this decade.

While resources and energy workforce dynamics are complex, equally as complex are the constant risk vs reward assessments undertaken by companies and investors prior to making a final decision to proceed.

It's why Australian regulators and decision makers must tread cautiously with policy decisions that could quickly and dramatically impact on Australia's attractiveness as a preferred place to invest.

Queensland is the prime example with its controversial July 2022 coal royalty hikes clearly having a detrimental impact on its project investment trendline.

Meanwhile the cancellation of the McPhillamy's Gold Mine in New South Wales - a decision made by the federal government under Indigenous cultural heritage laws - has sent shockwaves through a mining sector that makes community and government engagement a priority.

It's clearly time for governments at all levels to reset and reunite with industry; to navigate a path forward in the best interests of the nation and all that it gains from mining and energy project investment.

THE AREEA TEAM



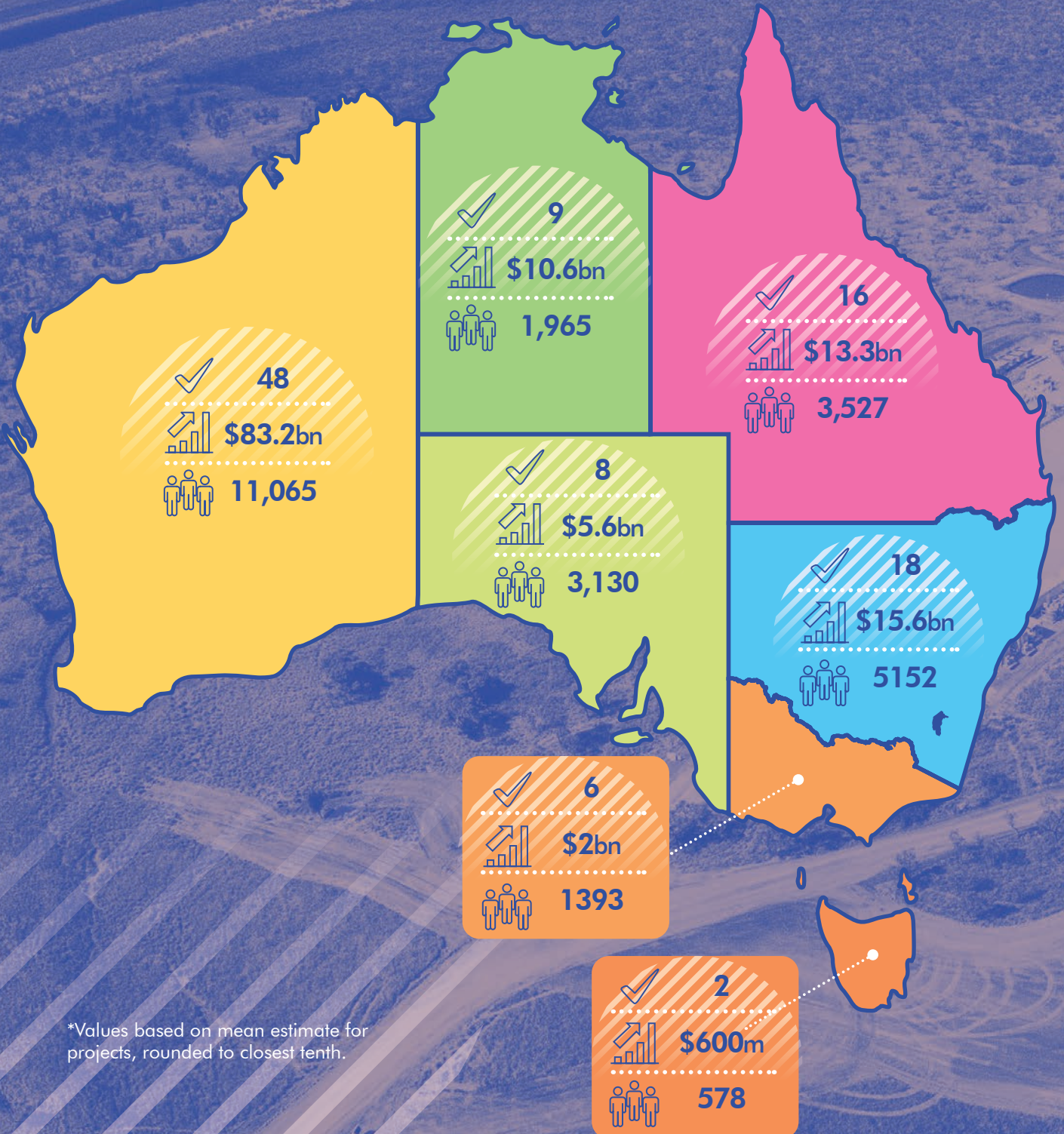
NATIONAL SUMMARY

✓ **107**
projects

↑ **\$130.9**
billion value*



26,810
Additional workforce demand



*Values based on mean estimate for projects, rounded to closest tenth.

AGGREGATE FIGURES



107 Projects



26,810 Employees

Nationally, the industry has 72 new projects, 27 expansions and 8 reactivations either committed or likely to proceed between 2024-2029. Total estimated value is \$130.9bn.

19 Gas / LNG / Oil	16 "Other Commodities" (Alumina Phosphate, Sulphate, Uranium, Tin).
14 Critical Minerals/ Rare Earths	13 Coal
13 Gold	10 Copper
8 Iron Ore	6 Lithium
5 Nickel / Cobalt	3 Lead / Silver

The total new operating workforce required by these projects is an estimated 26,810. Broken down into the below skills groups, demand will include:

MINING OCCUPATIONS	ENERGY OCCUPATIONS
9791 plant operators	818 production technicians / general service operators
3270 heavy diesel fitters	136 control room operators
980 other trades (electrical, maintenance)	1466 trade technicians (maintenance, instruments, electrical)
4680 supervisors, management, administration	750 management (supervisors, plant and supply chain, HSE)
4680 mine engineering, technical, geology	239 engineers, geologists, lab analysts

COMMENTARY

In May 2024 the Australian resources and energy industry directly employed 287,600 people. This is 35,300 people less (-11%) than its historic high reached one year ago in May 2023 (322,900), and the sector's lowest employment figure in three years.

While this indicates new market challenges, the pipeline of major projects remains strong.

107 mining and energy projects are considered likely to proceed by 2029 and will demand an estimated 26,810 new production roles, growing the workforce by a further 9.4% over five-years.

Demand from the 88 mining projects modelled (see 'mining occupations') will be around 23,400 workers. As is typical with the mining projections, the bulk of this demand will come over the next three years, with around 18,000 workers expected to be needed by the end of 2026.

In a development that seemingly runs counter to the common public narrative, coal is projected to be the strongest single commodity driver of new mining workforce demand, with 13 projects expected to require 4836 workers – all by 2027.

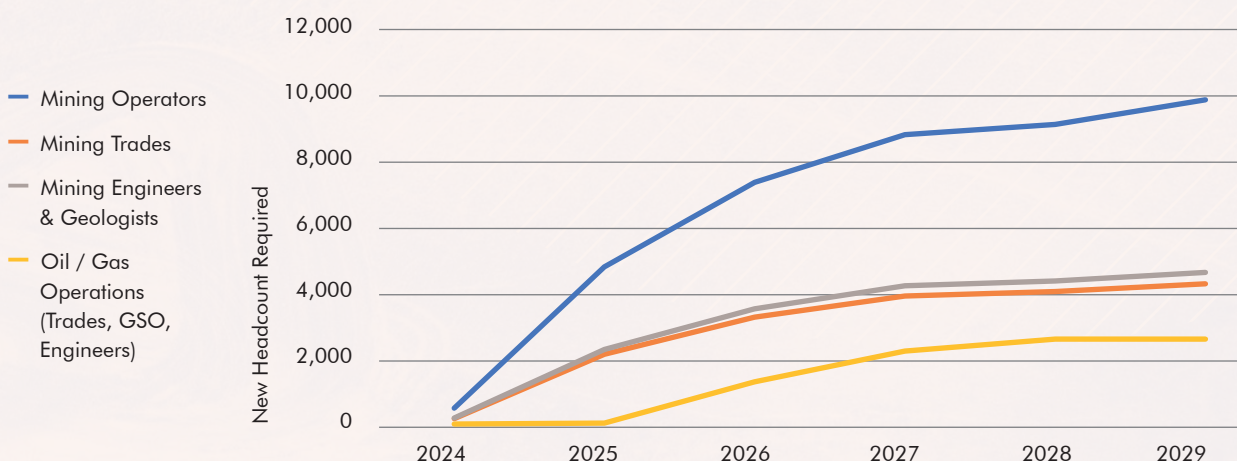
Other commodities retaining their traditional strengths include iron ore (8 projects for 4495 workers), gold (13 projects for 2830 workers), and critical minerals (14 projects for 3078 workers).

Copper is a surprise package this year with 10 projects forecast to require 2775 workers by the end of 2026, while at the other end of the scale lithium has fallen right off the boil with just 6 projects requiring some 970 workers planned.

Also reflecting some positive diversification of the Australian minerals investment market, there has been a notable surge in "Other Commodity" planned mining projects, extracting the likes of alumina, graphite, phosphate and mineral sands. 16 projects are expected to require nearly 2000 workers.

The energy industry continues its mini-investment boom, with 19 projects planned across the modelled period, forecast to require 3410 new operating phase employees by the end of 2029. Though some environmental approval hurdles remain in front of key projects.

New workforce demand (2024-2029): Australia (by skills group, accumulative)





WESTERN AUSTRALIA

CRUX LNG (Shell)

- 3mtpa gas/LNG
- Est. start-up: 2027
- Est. workforce: 327

SCARBOROUGH (Woodside)

- 8mtpa gas/LNG
- start-up: 2026
- Est. workforce: 600

PLUTO EXPANSION (Woodside)

- 5mtpa gas/LNG
- Est. start-up: 2026
- Est. workforce: 400

BROWSE AND NWS EXTENSION (Woodside)

- 11.4mtpa gas/LNG,
- Est. start-up: 2027
- Est. workforce: 720

HEMI GOLD (De Grey Mining)

- 553koz gold
- Est. start-up: 2026
- Est. workforce 350

YANGIBANA (Hastings Technology)

- 8.5kt rare earth oxide
- Est. start-up: 2025
- Est. workforce 180

WESTERN RANGE (Rio Tinto)

- 25mtpa iron ore
- Est. start-up: 2025
- Est. workforce 800

AUSTRALIAN VANADIUM PROJECT

- 11kt Vanadium oxide
- Est. start-up: 2025
- Est. workforce 240

ENEABBA RARE EARTHS PROCESSING PLANT (Iluka Resources)

- 17.5kt rare earths
- Est. start-up: 2025
- Est. workforce: 270

KALGOORLIE NICKEL PROJECT / GOONGARRIE HUB (Ardea)

- 24.5kt nickel / cobalt
- Est. start-up: 2028
- Est. workforce: 300

WEST MUSGRAVE (BHP)

- 41kt copper / nickel
- Est. start-up: 2025
- Est. workforce: 400

LAKE GILES MAGNETITE PROJECT (Macarthur Minerals)

- 3mtpa iron ore (magnetite)
- Est. start-up: 2026
- Est. workforce: 350

SOUTHDOWN MAGNETITE PROJECT (Grange Resources)

- 5mtpa iron ore (magnetite)
- Est. start-up: 2026
- Est. workforce: 500



AGGREGATE FIGURES



48 Projects



11,065 Employees

Western Australia has 35 new projects, 11 expansions and 2 reactivations either committed or likely to proceed between 2024-2029. Total est. value is \$83.2bn.

11 Energy (Gas, LNG, Oil)	7 Critical Minerals / Rare Earths
7 Gold	6 Lithium
5 Iron Ore	4 Copper
3 Nickel / Cobalt	2 Alumina
2 Other (Salt, Potash, Graphite)	1 Lead, Zinc, Silver

The total new operating workforce required by these projects is an estimated 11,065. Broken down into the below skills groups, demand will include:

MINING OCCUPATIONS	ENERGY OCCUPATIONS
3530 plant operators	619 production technicians / general service operators
1171 heavy diesel fitters	103 control room operators
390 other trades (electrical, maintenance)	1109 trade technicians (maintenance, instruments, electrical)
1697 supervisors, management, administration	568 management (supervisors, plant and supply chain, HSE)
1697 mine engineering, technical, geology	181 engineers, geologists, lab analysts

COMMENTARY

In May 2024 Western Australia’s resources and energy industry directly employed 144,900 people.

Aligned to the national trend, this is a decrease of 31,000 employees (-17.6%) from its high point of 175,900 in May 2023, and the sector’s lowest direct workforce in WA since 2021.

Nonetheless, WA remains the powerhouse of Australia’s resources and energy industry, with 48 major projects expected to grow the workforce by 11,065 workers by 2029.

While accounting for 40% of the national forecast workforce growth over the next five years, this rise will only recover one-third of that lost in the past year alone. The recovery by 2029 may restore the state’s workforce to around the level of February 2023.

Eleven energy projects will drive about 66% of the sector’s investment – an incredible \$55.7bn. Resulting workforce growth is a more measured forecast 2580, all by the end of 2027 unless Browse LNG is further delayed by approval hurdles.

The 37 mining projects in the pipeline is where the real workforce growth will come from.

While only numbering 5 projects, iron ore will drive demand for 2095 workers, led by Southdown, Western Range and Lake Giles, all by the end of 2026.

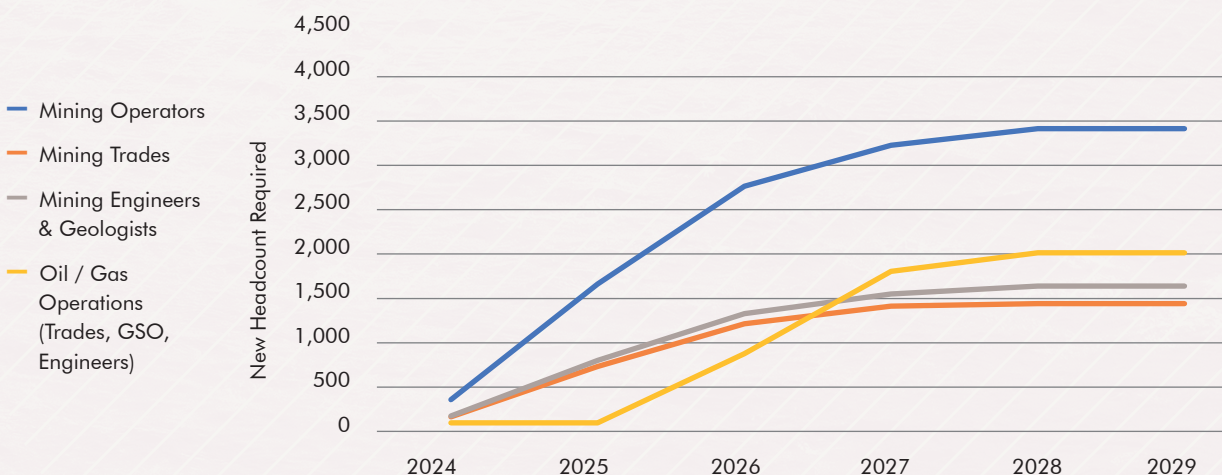
Seven gold projects, including the likes of Hemi gold and the KCGM Mill Expansion, should see nearly 1700 new workers needed by the end of 2027

The lithium potential (7 projects, 970 workers) has eased, but coupled with other critical minerals and rare earths (7 projects, 1000 workers) will continue to support a buoyant labour market.

Four copper projects, with West Musgrave the jewel in the crown, will require around 1200 workers by the end of 2026. A range of other minerals, including nickel, cobalt, alumina and others, comprise 8 projects requiring 1500 workers across the forecast period.

All-in-all, despite a substantial decline in employment numbers over the past 12 months, WA’s major project pipeline remains diverse and prosperous.

New workforce demand (2024-2029) by skills group: Western Australia





QUEENSLAND

EVA COPPER PROJECT (Harmony)

- 45ktpa copper
- Est start-up: 2025
- Est. workforce: 280

SAINT ELMO (Multicom Resources)

- 5kt vanadium oxide
- Est start-up: 2024
- Est. workforce: 150

SCONI NICKEL PROJECT (Australian Mines Limited)

- 46kt Nickel
- Est start-up: 2028
- Est. workforce: 300

HILLALONG (Shandong Energy)

- 4.2mtpa thermal and coking coal
- Est. start-up: 2026
- Est. workforce: 436

NORTH WEST PHOSPHATE (Phosphate International)

- 1mtpa phosphate
- Est. start-up: 2025
- Est. workforce: 250

CENTURIAN (Peabody Energy)

- 5mtpa coking coal reactivation
- Est. start-up: 2026
- Est. workforce: 500

ISAAC PLAINS COMPLEX (Stanmore Resources)

- 4mtpa coking coal expansion
- Est. start-up: 2026
- Est. workforce: 200

WINCHESTER SOUTH (Whitehaven Coal)

- 6mtpa coking coal
- Est. start-up: 2029
- Est. workforce: 450

SURAT GAS PROJECT (Arrow Energy)

- Gas, 400 TJ/day
- Est. start-up: 2026
- Est. workforce: 200

AGGREGATE FIGURES



16 Projects



3,527 Employees

Queensland has 10 new projects, 4 expansions and 2 reactivations either committed or likely to proceed between 2024-2029. Total est. value is \$13.2bn.

6 Coal	3 Gas / LNG / Oil
2 Other (phosphate, silica)	1 Gold
1 Copper	1 Alumina
1 Nickel / Cobalt	1 Critical Minerals

The total new operating workforce required by these projects is an estimated 3527 workers. Broken down into the below skills groups, demand will include:

MINING OCCUPATIONS	ENERGY OCCUPATIONS
1360 plant operators	55 production technicians / general service operators
439 heavy diesel fitters	9 control room operators
180 other trades (electrical, maintenance)	99 trade technicians (maintenance, instruments, electrical)
659 supervisors, management, administration	51 management (supervisors, plant and supply chain, HSE)
659 mine engineering, technical, geology	16 engineers, geologists, lab analysts

COMMENTARY

In May 2024 Queensland's resources and energy industry directly employed 77,900 people, or roughly 27% of the national workforce.

Bucking the trend nationally, and in steep contrast to WA and NSW, Queensland has increased its resources and energy workforce by around 6000 people over the past year. Albeit, it's still well under the historic high of 91,000 achieved in May 2022.

Of concern to Queensland should be the continued decline in projected workforce growth driven by new (and expansion) mining and energy projects.

In 2022, this report forecast 5560 new jobs in Queensland's major project pipeline. In 2023 this figure was 4470, and this year, just 3527.

Demonstrably, as each year passes and short-term projects are completed and commence production, Queensland is struggling to attract new investment over the long-term to keep the pipeline flowing.

Noting, importantly, that investments in continuity expansion projects that will not create new jobs – such as Caval Ridge and Ensham – are not included in our workforce demand forecasts.

Clearly the unprecedented hike in coal royalties has shaken investor confidence. This may be a hotly contested issue in this year's state election.

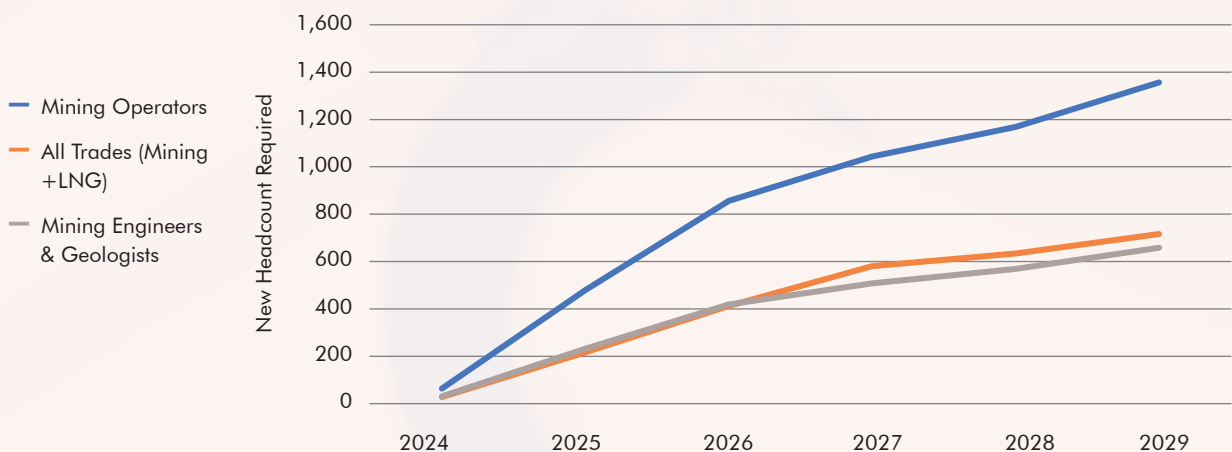
Despite all this, Queensland remains easily the second biggest resources state – with its workforce more than double that of NSW – and the projects in the pipeline are promising.

Coal is by far the star performer, with 6 projects expected to create about 2000 new jobs, led by Winchester South, Hillalong and Centurian's reactivation.

Other commodities comprise 7 projects, 5 of which are new mines, set to drive demand for 1380 employees over the forecast period. Stand-outs include Eva Copper, North West Phosphate, Saint Elmo and Sconi.

Three onshore CSG/LNG projects are expected to come online by late 2026. The only substantial driver of employment is Arrow Energy's Surat Gas, promising about 200 energy sector jobs.

New workforce demand (2024-2029) by skills group: Queensland





NEW SOUTH WALES

HAWSONS (Carpentaria Exploration)

- 10mtpa iron ore
- Est. start-up: 2027
- Est. workforce: 500

VICKERY (Whitehaven)

- 8mtpa thermal and coking coal
- Est. start-up: 2025
- Est. workforce: 700

NARRABRI CSG PROJECT (Santos)

- Gas, 200 TJ/day
- Est. start-up: 2028
- Est. workforce: 200

NARRABRI STAGE 3 (Whitehaven Coal)

- 9mtpa coal expansion
- Est. start-up: 2025
- Est. workforce: 500

MT PLEASANT OPTIMISATION (Mach Energy)

- 7.5mtpa thermal coal
- Est. start-up: 2026
- Est. workforce: 500

SUNRISE PROJECT (Sunrise Energy Metals)

- 18.4kt nickel, cobalt, scandium
- Est. start-up: 2026
- Est. workforce: 377

MAXWELL UNDERGROUND MINE (Malabar Resources)

- 4.7mtpa coal
- Est. start-up: 2025
- Est. workforce: 400

DUBBO PROJECT (Australian Strategic Minerals Ltd)

- Critical Minerals / Rare Earths
- Est. start-up: 2027
- Est. workforce: 270

DARTBROOK (Australia Pacific Coal)

- 7.5mtpa coal expansion
- Est. start-up: 2025
- Est. workforce: 470

WALLARAH 2 (Korean Resources Corp)

- 4mtpa coal
- Est. start-up: 2027
- Est. workforce: 300

BOWDENS (Silver Mines)

- Silver, zinc, lead
- Est. start-up: 2025
- Est. workforce: 200

AGGREGATE FIGURES



18 Projects



5,152 Employees

New South Wales has 12 new projects and 6 expansions either committed or likely to proceed between 2024-2029. Total est. value is \$15.6bn.

7 Coal	3 Critical Minerals
2 Energy (Gas, LNG, Oil)	1 Gold
1 Iron Ore	1 Lead, Zinc, Silver
1 Nickel / Cobalt	1 Scandium
1 Tin	

The total new operating workforce required by these projects is an estimated 5152. Broken down into the below skills groups, demand will include:

MINING OCCUPATIONS	ENERGY OCCUPATIONS
2003 plant operators	59 production technicians / general service operators
639 heavy diesel fitters	10 control room operators
303 other trades (electrical, maintenance)	105 trade technicians (maintenance, instruments, electrical)
981 supervisors, management, administration	54 management (supervisors, plant and supply chain, HSE)
981 mine engineering, technical, geology, data	17 engineers, geologists, lab analysts, data scientists

COMMENTARY

At May 2024 the New South Wales resources and energy industry directly employed 30,300 people – representing just 10.5% of the national workforce.

Like WA the state has bled a concerning proportion of its resources workforce over the past 12 months, down by 10,600 or over 25%.

Despite this, according to successive five-year forecasts on its major project pipeline, NSW has well and truly cemented itself as the nation's second-most attractive destination for resources and energy investment capital.

This report shows 18 projects are forecast to create demand for 5152 new production employees by end of 2029 in NSW - an increase of 800 on last year's figures and over 1600 more than Queensland's current projections.

In short, after overtaking its northern neighbour for the first time last year, NSW has significantly widened the gap on Queensland in 2024.

Coal remains the biggest driver of this result, with 7 projects forecast to create nearly 3000 new production jobs – almost all of them by end of 2027.

Highlights include the upgrade of Vickery's expansion from 1mtpa to 8mtpa, and the likes of Maxwell, Dartbrook and Mt Pleasant Optimisation.

Three critical minerals projects are set to come online, one in each year from 2025-2027, bringing demand for 740 workers mainly in the state's centre.

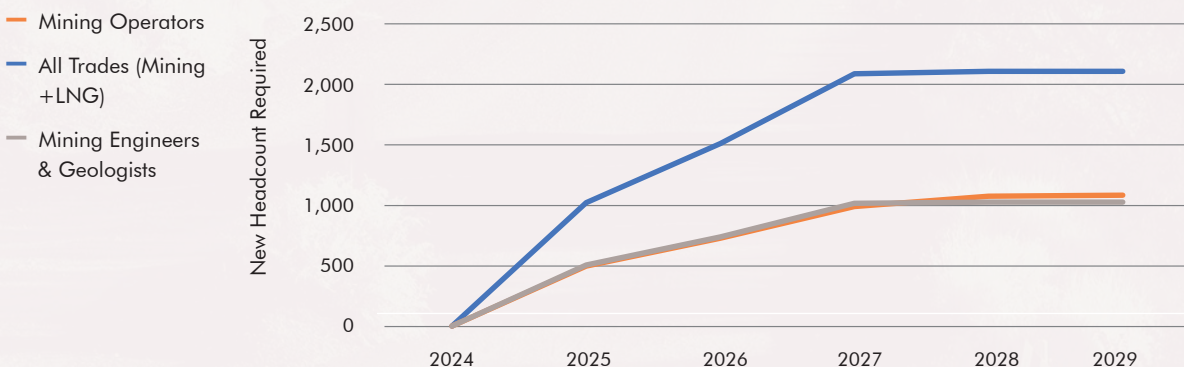
The only real blackspot for NSW is the likely cancellation of the McPhillimays Gold Mine after its tailings dam plans were controversially overturned by the federal government on Indigenous cultural heritage grounds. The industry's great concern is that similar decisions could, theoretically, be made anywhere in the country.

Meanwhile, Bowdens (silver) has faced further EPA challenges but the company is stoically pressing on.

Energy project investment is a much lesser feature. Squadron Energy has committed to its Port Kembla LNG import terminal, but the bigger ticket is Santos' Narrabri Coal Seam Gas project.

Should it overcome environmental challenges, Narrabri offers 200 long-term production jobs.

New workforce demand (2024-2029) by skills group: New South Wales





VICTORIA & TASMANIA

GOSCHEN PROJECT (VHM Limited)

- Rare earths and mineral sands
- Est. start-up: 2025
- Est. workforce: 400

STOCKMAN (Aeris Resources)

- 15kt copper
- Est. start-up: 2025
- Est. workforce: 250

AVONBANK MINERAL SANDS (WIM Resource)

- Rare earths and mineral sands
- Est. start-up: 2026
- Est. workforce: 588

DONALD PROJECT (Astron Corporation)

- Rare earths and mineral sands
- Est. start-up: 2025
- Est. workforce: 75

GOLDEN BEACH GAS PROJECT (GB Energy)

- 250tj/d hydrocarbons
- Est. start-up: 2025
- Est. workforce: 5

KIPPER (Esso)

- 137tj/d hydrocarbons expansion
- Est. start-up: 2024
- Est. workforce: n/a (continuity)

RENISON EXPANSION PROJECT

- 5.4kt Tin expansion
- Est. start-up: 2029
- Est. workforce: 78

HOBART ZINC WORKS ELECTROLYSIS PLANT (Nyrstar)

- Zinc smelter
- Est. start-up: 2025
- Est. workforce: 500

AGGREGATE FIGURES



8 Projects



1,971 Employees

Victoria and Tasmania combined have 8 projects either committed or likely to proceed between 2024-2029. Total est. value is \$2.7bn.

3 Critical Minerals	2 Gas / LNG / Oil
1 Copper	1 Lead, Zinc, Silver
1 Tin	

The total new operating workforce required by these projects is an estimated 1971 employees. Broken down into the below skills groups, demand will include:

MINING OCCUPATIONS	ENERGY OCCUPATIONS
808 plant operators	2 production technicians / general service operators
260 heavy diesel fitters	2 trade technicians (maintenance, instruments, electrical)
112 other trades (electrical, maintenance)	1 management (supervisors, plant and supply chain, HSE)
393 supervisors, management, administration	
393 mine engineering, technical, geology	

COMMENTARY

At May 2024 Victoria’s resources and energy sector directly employed 12,000 people. Also bucking the national trend, this is up some 1400 people on May 2023 or 14%.

The state’s resources workforce fluctuates more than most others but is unlikely to return to its historic high of 23,000 achieved in February 2019.

Over the next five years Victoria has 6 major projects in total expected to come online – 4 in mining and 2 oil and gas. These projects would require just under 1400 employees for long-term operations, according to AREEA’s modelling.

WIM Resource’s Avonbank Mineral Sands project is the biggest prospective driver of new employment, with nearly 600 employees expected to be required by end of 2026.

The Goschen rare earths and mineral sands project is another promising development, with an estimated operating requirement of 400 employees. Whilst pushed out by 24 months the project is considered in definitive feasibility and likely to proceed.

The Donald Project rounds out a small but fruitful portfolio of rare earths mines, whilst Stockman (250 employees by 2025) is the sole copper development.

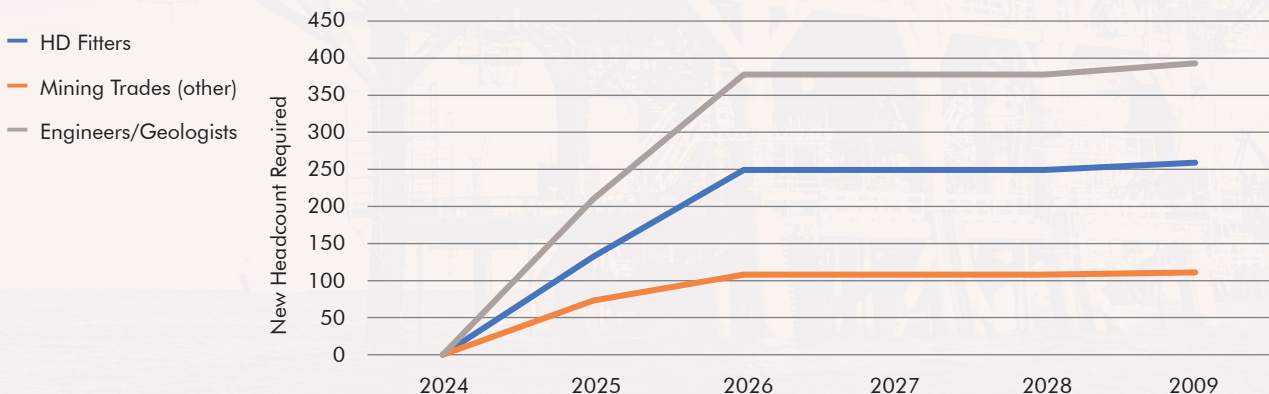
Investment is much drier on the energy front. Esso’s Kipper Expansion is considered a gas continuity project whilst the Golden Beach Gas Project will require a minimal workforce to sustain long-term production.

Tasmania’s resources and energy sector directly employed 3600 people at May 2024. This is 1400 or nearly 30% less than one year ago.

Greater investment is needed to revitalise Tasmania’s mining industry. This year, just two projects have been included in the projections.

The restart of Hobart Zinc Works could require an operating workforce of 500, based on historic figures, whilst the Renison Tin Expansion Project could see about 78 workers required towards the end of the decade.

New workforce demand (2024-2029) by occupation group: Victoria & Tasmania





NORTHERN TERRITORY & SOUTH AUSTRALIA

BAROSSA BACKFILL TO DARWIN LNG (Santos)

- 380 tj/d Gas/LNG
- Est. start-up: 2026
- Est. workforce: 350

TANAMI EXPANSION 2 (Newmont)

- 58,000oz expansion
- Est. start-up: 2025
- Est. workforce: 180

HILLSIDE (MACH Metals)

- 35kt copper/ 24,000oz gold
- Est. start-up: 2025
- Est. workforce: 430

MIDDLEBACK RANGES EXPANSION (SIMIC)

- 2.5mtpa magnetite (iron ore)
- Est. start-up: 2025
- Est. workforce: 1200

MOUNT BUNDY (Primary Gold)

- 135kt gold
- Est. start-up: 2024
- Est. workforce: 300

NOBLES NOB (Tennant Cons)

- 64kt gold
- Est. start-up: 2025
- Est. workforce: 160

NOLANS (Arufa)

- Rare earths
- Est. start-up: 2025
- Est. workforce: 280

CHANDLER SALT MINE (Tellus)

- Salt and Industrial Waste
- Est. start-up: 2027
- Est. workforce: 170

SIVIOUR (Renascor Resources)

- 28kt graphite
- Est. start-up: 2025
- Est. workforce: 200

CENTRAL EYRE IRON PROJECT (Iron Road)

- 12mtpa magnetite (iron ore)
- Est. start-up: 2029
- Est. workforce: 700

KALKAROO (Havilah Resources)

- 80kt copper, 72,000oz gold
- Est. start-up: 2025
- Est. workforce: 260

AGGREGATE FIGURES



17 Projects



5,095 Employees

Northern Territory and South Australia combined have 17 projects either committed or likely to proceed between 2024-2029. Total est. value is \$16.2bn.

4	Copper	4	Gold
2	Graphite	2	Iron Ore
1	Gas / LNG / Oil	1	Manganese Ore
1	Rare Earth Oxides	1	Refined Kaolin
1	Salt & Industrial Waste		

The total new operating workforce required by these projects is an estimated 5095 employees. Broken down into the below skills groups, demand will include:

MINING OCCUPATIONS		ENERGY OCCUPATIONS	
1985	plant operators	84	production technicians / general service operators
662	heavy diesel fitters	14	control room operators
200	other trades (electrical, maintenance)	150	trade technicians (maintenance, instruments, electrical)
949	supervisors, management, administration	77	management (supervisors, plant and supply chain, HSE)
949	mine engineering, technical, geology	25	engineers, geologists, lab analysts

COMMENTARY

At May 2024 the Northern Territory directly employed 4600 people in resources and energy.

This is the Territory's highest point since 2018, demonstrating healthy growth in the resources and energy workforce.

The NT has 8 mining projects in its investment pipeline promising approx. 1615 new production jobs by about 2027.

Gold is the standout with 4 projects expected to require around 990 workers over that timeframe. Mt Bundy and Mt Todd, both reactivations, offer a strong return for workers locally.

Three projects including Chandler Salt Mine – also doubling as an underground waste depository – Nolans Project and GEMCO (manganese ore) will require around 450 workers. A sole copper project in Jervis is expected to require 175 people by end of 2025.

The NT's sole gas project, Barossa, is underway and expects to employ an operational workforce of 350 when production commences in 2026.

Despite dropping over 2000 workers since May 2023, the outlook for South Australia's mining workforce is also very healthy.

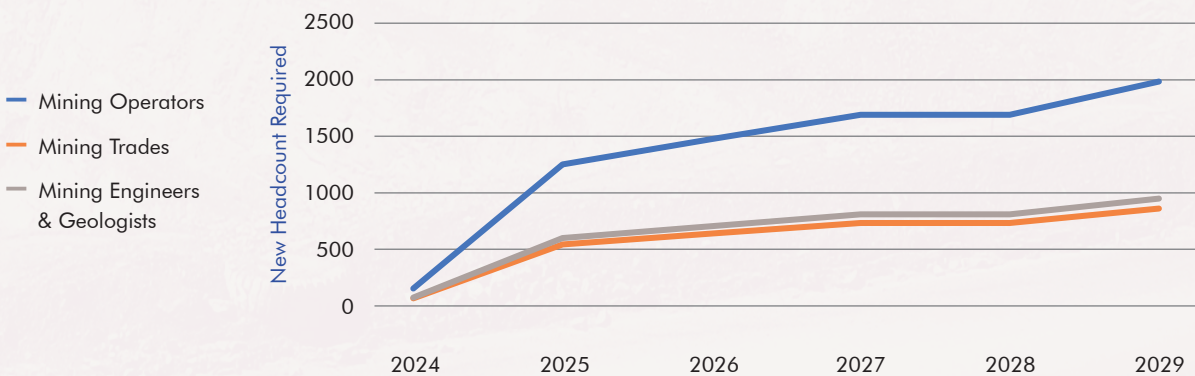
The state has 8 mining projects expected to come online between 2024-2029 and requiring a forecast 3130 new workers.

This would add 21% to South Australia's existing resources workforce of 14,400, bringing it back up to historic high levels.

Iron Ore is the big driver of growth in SA, with SIMEC's Middleback Ranges (1200) and Central Eyre Iron Project (700) accounting for more than half the total forecast growth alone.

Other standout projects include the Hillside copper/gold mine (430 by 2025), and Siviour Graphite (200 also by 2025).

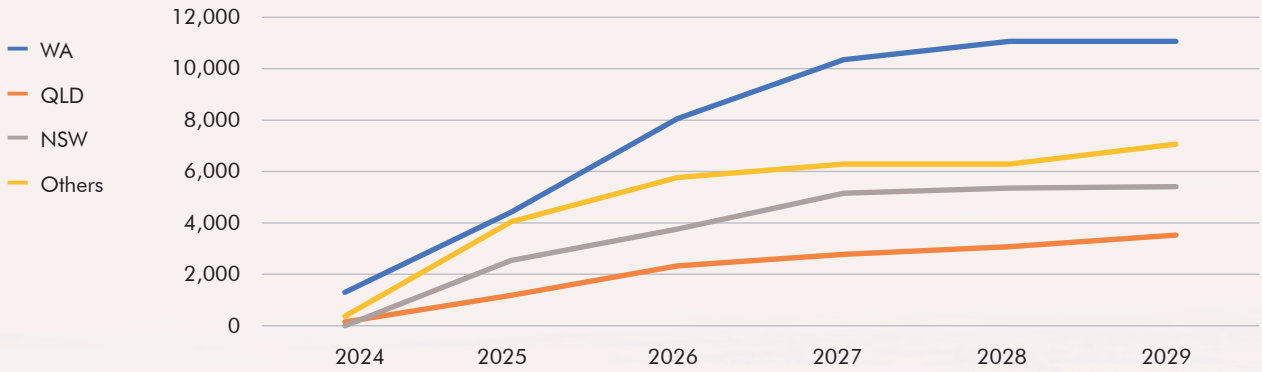
New workforce demand (2024-2029) by skills group: Northern Territory and South Australia



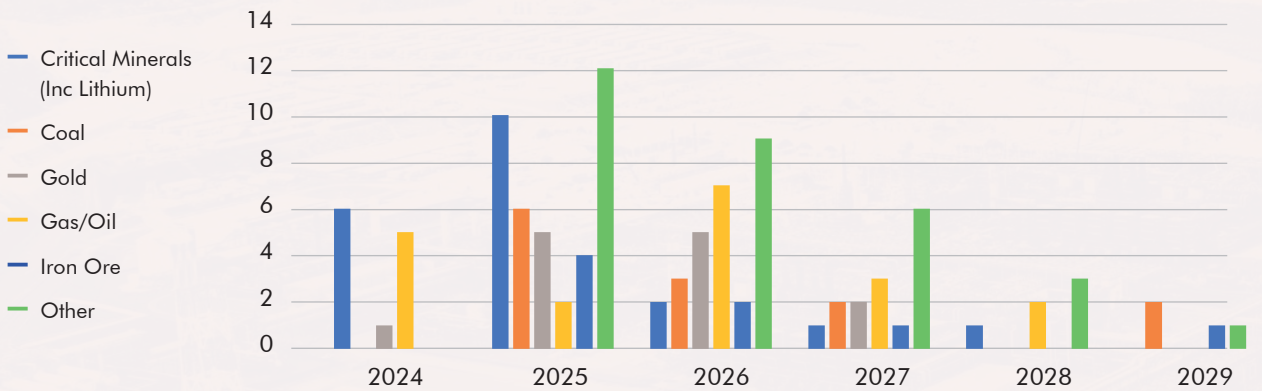


ADDITIONAL DATA BREAKDOWN

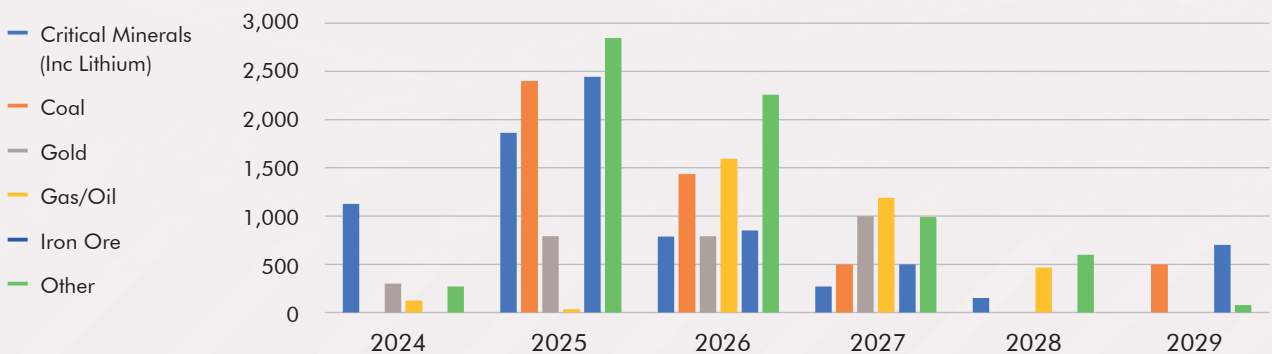
New workforce demand (by state / territory, accumulative)



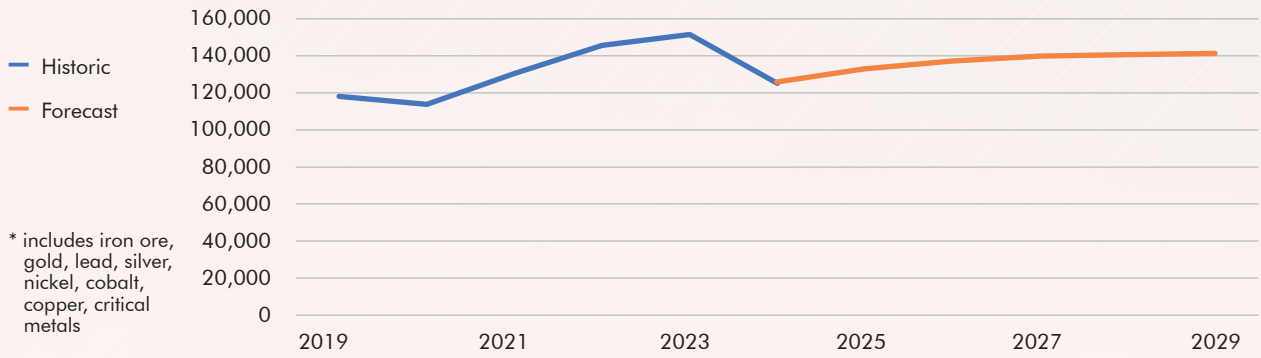
Projects: Commodity Breakdown (by year expected first production)



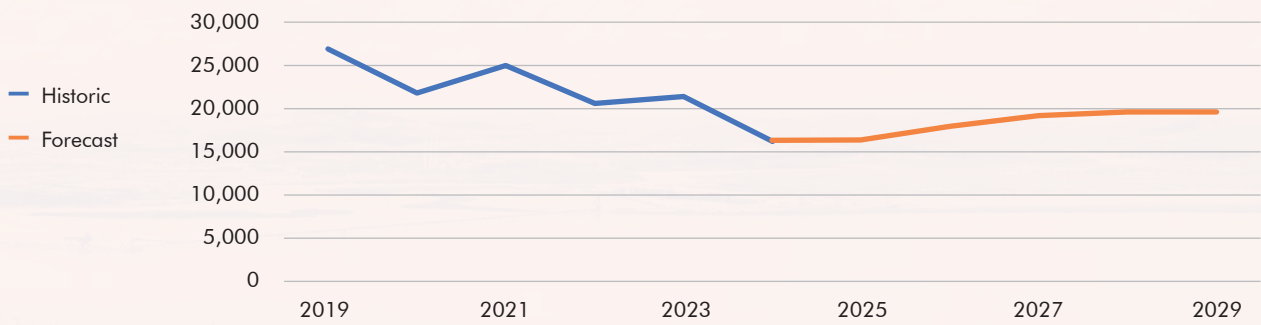
Workforce: Commodity Breakdown (by year expected demand)



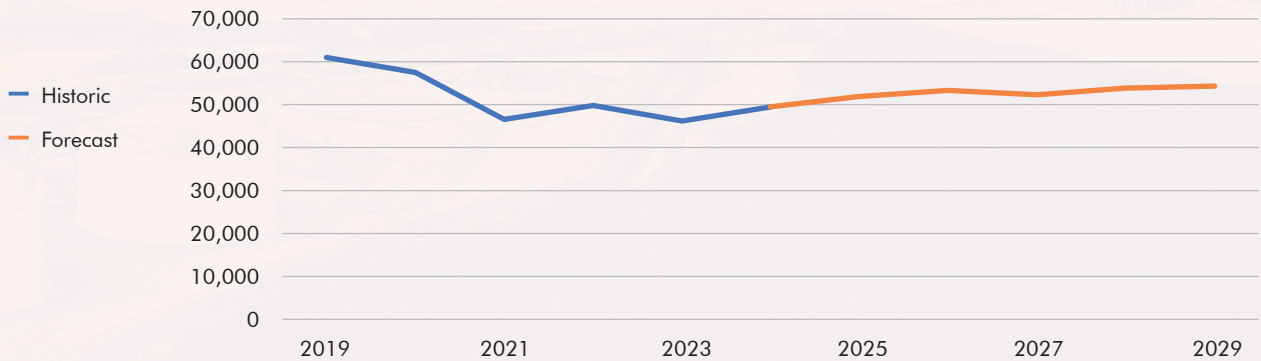
Metal ore mining* workforce (2019-2029)



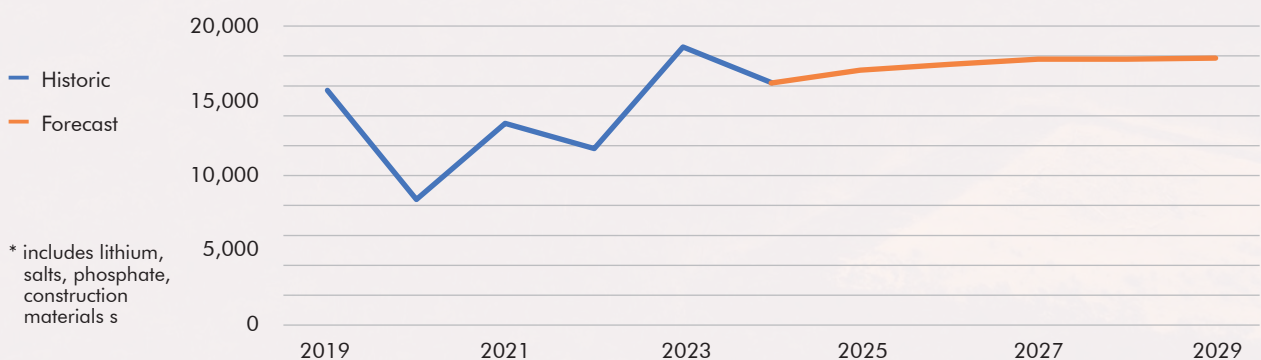
Oil and gas extraction workforce (2019-2029)



Coal mining workforce (2019-2029)



Non-metallic mining* workforce (2019-2029)





PROJECTS

PROJECT	COMMODITY	YEAR	EST. WORKFORCE
WESTERN AUSTRALIA			
Australian Vanadium Project	Critical Minerals / Rare Earths	2025	240
Bardoc Gold Project	Gold	2026	150
Barrambie Titanium Project	Critical Minerals / Rare Earths	2025	120
Browse to North West Shelf	Energy (Oil and Gas)	2027	720
Cadoux Kwinana High Purity Alumina	Aluminium, Alumina, Bauxite	2026	100
Caravel (Stage 1)	Copper	2026	450
Crux LNG	Energy (Oil and Gas)	2027	327
Dorado	Energy (Oil and Gas)	2028	266
Eneabba Rare Earths Processing Plant	Critical Minerals / Rare Earths	2025	270
Equus	Energy (Oil and Gas)	2027	142
FYI HPA Project	Aluminium, Alumina, Bauxite	2024	100
Goongarrie Nickel Cobalt Project	Nickel, cobalt	2028	300
Great Fingall	Gold	2025	150
Greenbushes Expansion CGP3	Lithium	2025	50
Hemi Gold Project	Gold	2026	350
Janz-lo Compression Project	Energy (Oil and Gas)	2026	Backfill
Julimar-Brunello Project (Phase 3)	Energy (Oil and Gas)	2026	Backfill
Katanning Gold Project	Gold	2025	150
Kathleen Valley	Lithium	2024	350
KCGM mill expansion	Gold	2027	600
Kwinana Lithium Refinery (Tianqi/IGO)(Stage 2)	Lithium	2024	75
Kwinana Lithium Refinery (Wes/SQM)	Lithium	2024	150
Lake Giles iron ore project (Moonshine and Ularring)	Iron Ore	2026	350
Mardie Salt & Potash Project	Other Commodities	2026	200
McPhee Creek	Iron Ore	2025	145
Mt Thirsty	Nickel, cobalt	2027	300
Mt Weld expansion	Critical Minerals / Rare Earths	2024	100
Mungari	Gold	2026	150
Munglinup	Other Commodities	2025	55
Murchison Technology Metals Project	Critical Minerals / Rare Earths	2025	120
NiWest Nickel-Cobalt Project	Nickel, cobalt	2027	200
Pilgangoora (P680 Expansion)	Lithium	2024	300
Pilgangoora Lithium Salts Plant	Lithium	2025	45
Pluto expansion (Train 2)	Energy (Oil and Gas)	2026	400
Ravensthorpe Gold Project	Gold	2026	140
Robe Mesa	Iron Ore	2025	300
Scarborough	Energy (Oil and Gas)	2026	600
Sorby Hills	Lead, Zinc, Silver	2025	95
South Erregulla	Energy (Oil and Gas)	2024	20
Southdown	Iron Ore	2026	500
Sulphur Springs Copper-Zinc Project	Copper	2026	250
Waitsia (Stage 2)	Energy (Oil and Gas)	2024	25
West Erregulla (Phase 1)	Energy (Oil and Gas)	2024	80
West Musgrave	Copper	2025	400
Western Range	Iron Ore	2025	800
Whim Creek	Copper	2024	100
Windimurra	Critical Minerals / Rare Earths	2028	150
Yangibana	Other Commodities	2025	180

PROJECT	COMMODITY	YEAR	EST. WORKFORCE
QUEENSLAND			
Cape Flattery Silica Sands	Other Commodities	2027	100
Centurian Coal Mine	Coal	2026	500
Eva Copper Project	Copper	2025	280
Goog-a-binge	Energy (Oil and Gas)	2024	Backfill
Hillalong	Coal	2026	436
HPA First Project - Stage 2	Aluminium, Alumina, Bauxite	2027	151
Isaac Plains Complex (Isaac Downs)	Coal	2027	200
Mahalo Gas project	Energy (Oil and Gas)	2025	30
Mammoth Underground	Coal	2025	200
Mount Morgan Tailings Project	Gold	2025	150
North West Phosphate	Other Commodities	2025	250
Saint Elmo	Critical Minerals / Rare Earths	2024	150
Sconi	Nickel, cobalt	2028	300
Surat Gas Project (Phases 2-5)	Energy (Oil and Gas)	2026	200
Wilton-Fairhill	Coal	2025	130
Winchester South	Coal	2029	450
NEW SOUTH WALES			
Balranald Project	Critical Minerals / Rare Earths	2025	270
Bowdens Project	Lead, Zinc, Silver	2025	200
Bulga Optimisation Project mod 3 and Bulga Underground mod 7	Coal	2029	50.00
Cadia PC 1-2	Gold	2026	Continuity
Copi Project	Critical Minerals / Rare Earths	2026	200
Dartbrook	Coal	2025	470
Dubbo Project	Critical Minerals / Rare Earths	2027	270
Hawsons Iron Project	Iron Ore	2027	500
Maxwell Underground Mine	Coal	2025	400
Mt Pleasant Optimisation Project	Coal	2026	500
Narrabri (Stage 3)	Coal	2025	500
Narrabri coal seam gas project	Energy (Oil and Gas)	2028	200
Nyngan Scandium Project	Other Commodities	2027	70
Port Kembla Gas Terminal	Energy (Oil and Gas)	2026	45
Sunrise Project	Nickel, cobalt	2026	377
Taronga Tin Project	Other Commodities	2026	100
Vickery	Coal	2025	700
Wallahah 2	Coal	2027	300
NORTHERN TERRITORY			
Barossa backfill to Darwin LNG	Energy (Oil and Gas)	2026	350
Chandler Salt Mine	Other Commodities	2027	170
GEMCO - Eastern lease South Life Expansion	Other Commodities	2025	Continuity
Jervois	Copper	2025	175
Mt Bundy	Gold	2024	300
Mt Todd	Gold	2027	350
Nobles Nob	Gold	2025	160
Nolans Project	Other Commodities	2025	280
Tanami Expansion 2	Gold	2025	180
SOUTH AUSTRALIA			
Carrapateena Block Cave 1 Expansion	Copper	2026	440
Central Eyre Iron Project	Iron Ore	2029	700
Great White Kaolin Project (Stage 1A & Stage 1B)	Other Commodities	2024	70
Hillside	Copper	2025	430
Magnetite Expansion Project, Middleback Ranges	Iron Ore	2025	1,200
Prominent Hill - Wira Hoist Shaft	Copper	2024	Continuity
Sivour Graphite Project	Critical Minerals / Rare Earths	2025	200
Uley 2	Other Commodities	2026	90
TASMANIA			
Hobart zinc works electrolysis plant	Lead, Zinc, Silver	2025	500
Renison Expansion Project (Rentails)	Other Commodities	2029	78
VICTORIA			
Avonbank Mineral Sands Project	Critical Minerals / Rare Earths	2026	588
Donald Rare Earth and Mineral Sands Project	Critical Minerals / Rare Earths	2025	150
Golden Beach Gas project	Energy (Oil and Gas)	2025	5
Goschen Project	Critical Minerals / Rare Earths	2025	400
Kipper	Energy (Oil and Gas)	2024	Backfill
Stockman Project	Copper	2026	250

