

RESA

Capability Solutions

South Australian Mining and Energy Workforce Priorities Report - 2020 Review

March 2021

Resources and Engineering Skills Alliance

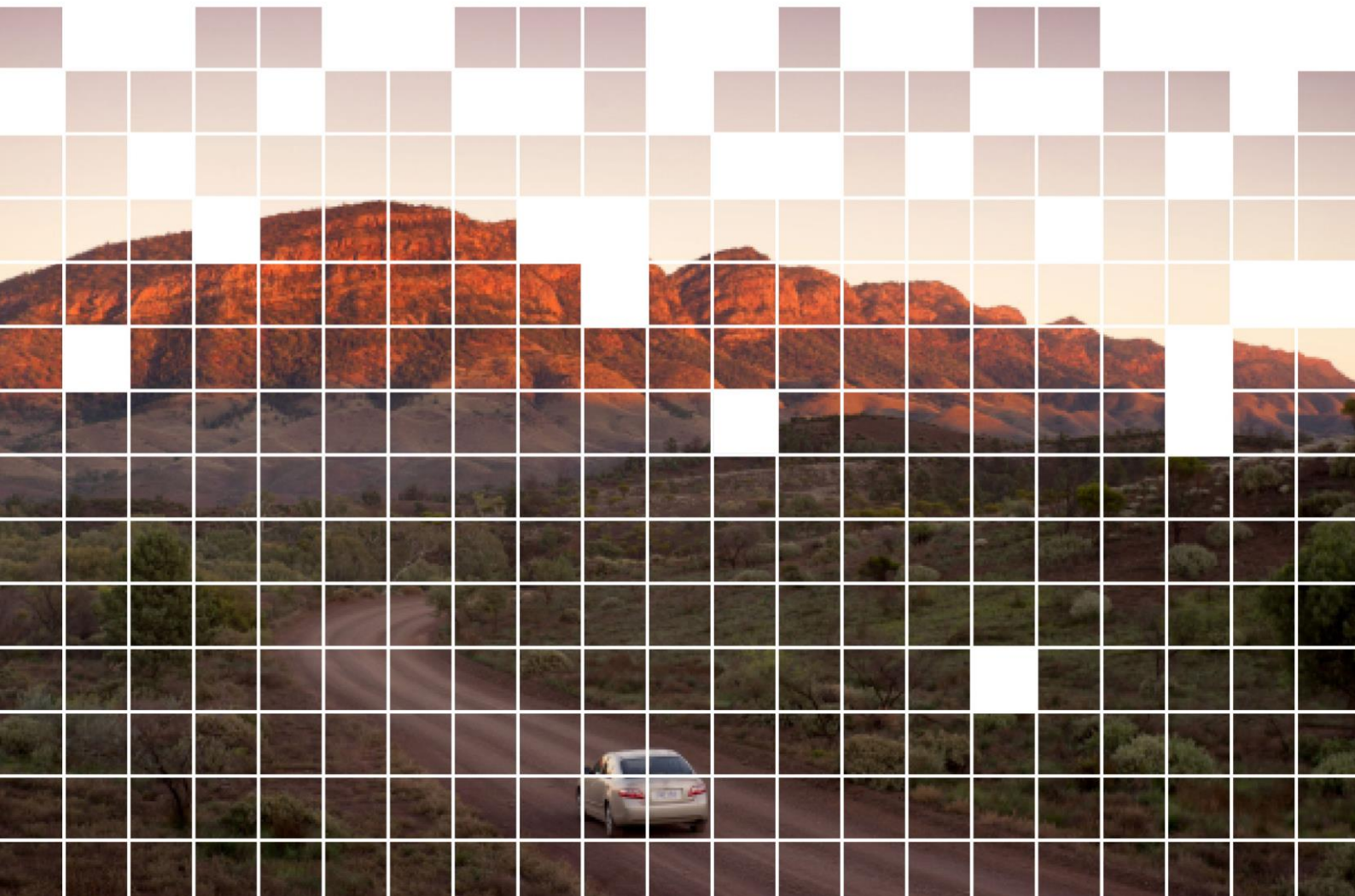


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Acknowledgement of Country

RESA acknowledges the Traditional Owners of the land on which we live and work. We recognise the importance of traditions and cultural beliefs of Aboriginal and Torres Strait Islander people. We offer respect to Elders past, present and emerging.

Disclaimer

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Introduction

About RESA

The Resources and Engineering Skills Alliance (RESA) is the primary skills and workforce development advisory agency for the mining and energy industry sectors in South Australia - providing state representation in national forums and connecting with the best of Australian practice for the benefit of South Australians.

RESA is a not-for-profit, independent organisation funded by the Government of South Australia.

RESA is committed to acting as a key point of reference for resources workforce planning, development and skilling requirements, as well as advocating for improved skills development across the sector. RESA undertakes resources and energy workforce research, contributes to policy development and facilitates, brokers and manages the delivery of projects to increase the number of skilled people in these sectors.

About this report

The *South Australian Mining Workforce Priorities Report, 2020 Review* provides an insight into:

- mining industry activity in 2020
- workforce trends with a focus on skills and occupations in demand
- industry workforce challenges.

The Report brings together 2020 Hiring Intentions data based on jobs advertised for South Australians in the mining and energy sector, industry operational priorities and activities based on company reports and media releases. Industry insights into challenges and priorities have been identified through direct consultation.

This report gives key stakeholders insights to understand the real-time workforce priorities of the mining and energy sector to inform effective program and policy development and implementation.

This report will be followed by the SA Mining and Energy Skills Report, to be released in April 2021.

Key Findings



In **2020**, the **South Australian resources sector, maintained production** activities and, in some cases, kept production at pre COVID-19 levels.



Prices for South Australia's main mineral commodities, copper, gold and iron ore, were **strong and providing solid foundations for future investment** in projects.



2117 job advertisements were placed by **294 different companies** for the SA resources sector in 2020.



Vacancy trends reflect **overall continuing growth** in the level of vacancy activity for the sector.



In 2020, **trade occupations** were **in highest demand** (34%) followed by professional occupations (25%), operator occupations (18%) and supervisor/manager occupations



The distribution of vacancies across subsectors in 2020 indicates strongest demand in **Mechanical/Maintenance** (31%), **Engineering** (16%), **Equipment Operations** (15%), **Electrotechnology** (10%) and **Drilling and Blasting** (8%), roles.



As we head into 2021 the **demand for maintenance personnel and equipment operators continues to grow.**

Mining Industry Activity Insights

Early Expectations for 2020

The end of 2019 and start of 2020 showed strong signs for the South Australian mining sector. BHP was progressing the Brownfields expansion of the Olympic Dam mine and OZ Minerals was producing the first concentrate from the Carrapateena mine and extending the Prominent Hill mine life to 2031. Heavy mineral concentrate production from Iluka's Jacinta Ambrosia mine was at similar levels to previous years, with plans underway for focusing on the Ambrosia site in 2020. Iron ore operations were continuing in the Middleback ranges to supply the Whyalla steel works operated by the GFG Alliance and a modest iron ore export market.

Planned and actual exploration activity was picking up with a continuing focus on gold and copper prospects.

COVID-19 – Summary of Responses for Industry

After an encouraging start, the rest of 2020 was dominated by the impacts of the COVID-19 pandemic. Even before the World Health Organisation declared COVID-19 a pandemic on 11 March 2020, Australia was responding quickly to the emerging crisis as it swiftly impacted on communities and businesses. Economic stimulus packages were announced from early March with movement limits introduced soon afterwards.

On 22 March 2020, the Premier announced South Australia's borders were closing on 24 March to non-essential travelers. Concurrently, the resources sector was designated as an essential industry for the Australian and State economies. This meant that mining, oil and gas production and electricity generation and supply, along with their key service providers and suppliers, were able to continue operating across Australia within approved protocols. These included implementation of specific exemptions for movement of workers and supplies to allow essential operations to continue on resources sites during the pandemic.

From mid-March 2020, the Department for Energy and Mining (DEM) working with SA Health, SAPOL and the South Australian Chamber of Mines and Energy, developed protocols to allow essential workers to move across borders and within the State to maintain critical operations, while minimising COVID-19 exposure pathways. Protocols included implementing local COVID-19 safe workforce management plans, identifying essential work

operations, developing contact tracing capabilities and enacting shift change plans to reduce operational impacts in the event of a local outbreak. Restrictions were placed on interactions with remote Aboriginal communities to minimize the risk of infections. Companies restricted FIFO movements and developed local workforces to cope with the restrictions.

During 2020, movement restrictions between states changed as COVID-19 infections rose and fell in Victoria, New South Wales and Queensland. The South Australian resources sector continued to operate with no cases reported on the operating sites - a testament to the efforts of the sector. This was noted by Dr Chris Lease, Deputy Chief Public Health Officer on 15 April 2020: *"I would like to acknowledge the significant efforts of SA's resources and energy employers to respond to COVID-19 transmission risk"*. SA Health highlighted that the quick response to reducing worker movements and implementing infection control plans were extremely important for both the performance and reputation of the sector.

These sentiments were backed by the Chief Executive, DEM, Dr Paul Heithersay, who said

"There is no doubt the early moves by the sector to coordinate its response and take swift, significant action have been material in shoring-up government and public confidence, which has allowed essential operations to continue" (14 May 2020).

Other impacts from COVID-19 on the resources sector included the temporary closing of the Drill Core Library and the transition of resources conferences to online versions, including the Copper to the World Conference in June and Discovery Day in November 2020. Fortunately, companies were able to meet and share ideas at the Global Maintenance Upper Spencer Gulf conference in October 2020.

Despite the impact of COVID-19 across the Australian and world economies, the South Australian resources sector managed to maintain production activities and, in some cases, keep production at pre COVID-19 levels.

Commodities

Copper

Copper started 2020 around US\$2.80 per pound and dropped rapidly to near US\$2.00/lb at the start of the pandemic. After late March 2020, copper climbed steadily to reach US\$3.63/lb in late December – an 80 percent increase from its lows in March 2020. This was the highest price since early 2013.¹ The rise in prices appeared to be due to an increase in economic activity in China as it emerged from COVID-19 and anticipation of rising demand in western economies as COVID-19 related restrictions decrease in 2021.²

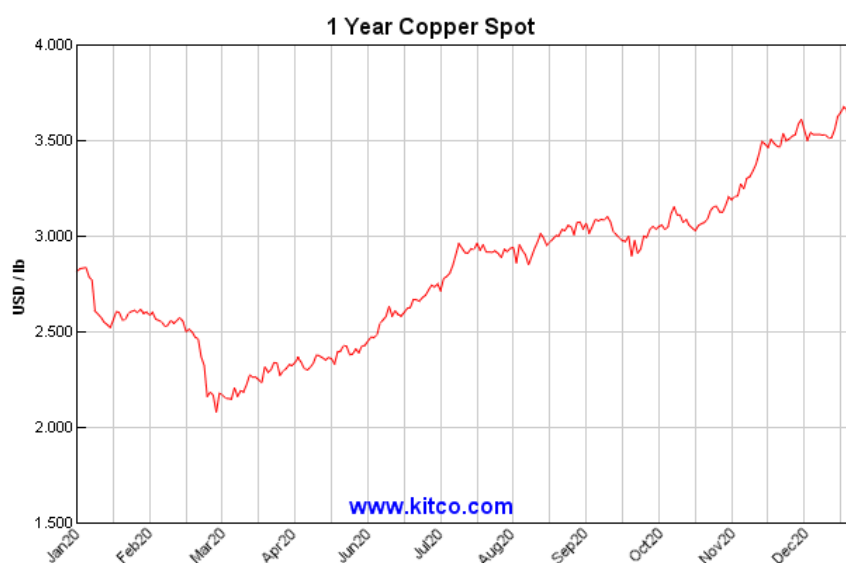
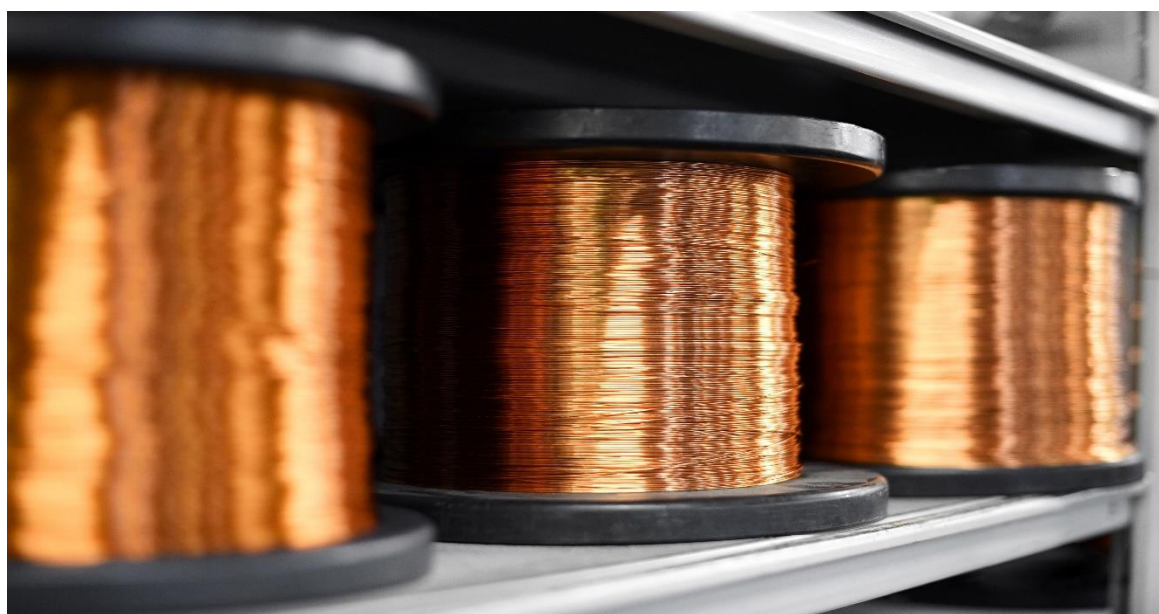


Figure 1: 2020 Copper Spot Price in US\$/pound



¹ http://www.kitcometals.com/charts/copper_historical.html accessed 22 Dec 2020

² Resources and Energy Quarterly, Dec 2020, Dept Industry, Science, Energy and Resources

Iron ore started 2020 at near US\$93/tonne for 62% fines, dropping to US\$82/tonne at the start of the COVID-19 pandemic. In May 2020, it starting rising rapidly and reached US\$162/tonne in late December 2020. ³ This is the highest price since late 2011. The rise in price was largely due to an increase in demand from China steel mills and concerns about supply shortages in 2021, particularly from Brazil.⁴



Figure 2: 2020 Iron Ore Spot Price in US\$/tonne⁵

Gold

Gold started 2020 around US\$1570/oz, dropping to US\$1490/oz in March 2020. The price peaked at US\$2050/oz on 3 August 2020 and finished at about US\$1870/oz. ⁶



Figure 3: 2020 Gold Spot Price in US\$/ounce⁷

³ <https://www.marketindex.com.au/iron-ore> accessed 28 Dec 2020

⁴ Resources and Energy Quarterly, Dec 2020, Dept Industry, Science, Energy and Resources

⁵ <https://tradingeconomics.com/commodity/iron-ore> accessed 28 Dec 2020

⁶ <https://markets.businessinsider.com/commodities/gold-price> accessed 28 Dec 2020

⁷ www.goldprice.org accessed 28 Dec 2020

Mineral Sands

Demand for zircon, a key product from Iluka's Jacintha-Ambrosia sand mining operations, declined in 2020 due to widespread COVID-19 induced shutdowns of key industries, including tile manufacturing and foundry markets, from February to May 2020. Demand started to recover late in 2020, although the outlook was uncertain⁸.



⁸ ILUKA presentation “Evolution”, Nov 2020.

Industry highlights - Major mining activities

Copper / Gold

The major mine in South Australia, Olympic Dam owned by BHP, spent the early part of 2020 building momentum following downtime at the smelter and acid plant in late 2019 and preparation for replacement of the refinery crane in March 2021. Following the onset of COVID-19, BHP developed a response plan to ensure continuity of operations in the face of travel restrictions and potential supply chain disruptions. The success of this response was demonstrated by reaching the best quarterly production of copper in the previous five years in the 2020 September Quarter: 52 kilo tonnes (kt). Overall copper production reached 99 kt in the second half of 2020 due to improved smelter stability and strong underground mining performance. 60 kilo ounces (koz) of gold was produced in the second half of 2020.



Late in 2020, BHP announced the proposed Olympic Dam Brownfield Expansion would not be proceeding in the short term. Instead, the company would target debottlenecking investments, plant upgrades and modernisation of infrastructure, including a Smelter Campaign Maintenance program early in FY2022.

The third phase of the drilling program at Oak Dam West project delivered encouraging results with further high grade mineralised intercepts of copper, with associated gold, uranium and silver confirmed. Resource definition drilling was due to start in the first half of the 2021 calendar year.

BHP committed to the international Copper Mark program, an independent certification for responsible practices in areas of environment, community, human rights and governance.

The second major copper/gold producer, OZ Minerals, progressed a number of projects while also adapting successfully to the COVID-19 restrictions. The newly commissioned Carrapateena mine achieved its expected ore throughput of 4.25Mtpa in Q4 2020, and produced 28kt contained copper and 53 koz of contained gold. Projects advanced including commissioning the Jameson Cell, progressing the Tailings Pump Upgrade project and commencing the Block Cave Expansion Feasibility Study Stage 1. Andrew Cole, Chief Executive OZ Minerals indicated there was potential for this area to be a mining province for 60-70 yrs.

Prominent Hill mine produced 61 kt contained copper and 199 koz contained gold. Major works in 2020 included commissioning the Malu Paste Plant and installing the Malu East primary ventilation fans. Several projects were commenced to scope increased feed rates, expand underground operations and to consider a vertical hosting shaft to replace truck haulage. A new 270 km electricity transmission line was commissioned connecting the Prominent Hill and Carrapateena mines with the Davenport Substation outside Port Augusta. OZ minerals led 3 open innovation programs in 2020 to bring new people, ideas and thinking to its operations: Drillanthropy; Trace from Space - Gravity Challenge; and, Capture the Spark. The results of these programs will be incorporated into future operations.

At White Dam, a joint venture between GBM Resources and Round Oak Minerals, a newly commissioned SART plant produced a small quantity of gold in the latter half of 2020, with plans for further gold production and some copper production in 2021.

Iron Ore

Iron ore operations by SIMEC mining continued in the Middleback ranges and surrounding mining provinces to support the GFG Alliance steel works at Whyalla and the export of iron ore.



Upgrades to the shipping infrastructure during 2020 at the Whyalla steel works are expected to support increased iron ore exports in coming years, as well as facilitate copper exports from OZ Minerals operations.

Peak Iron Mines commenced processing stockpiles at Peculiar Knob mine site near Coober Pedy leading to a restart of iron ore exports from this location.



Mineral Sands

Production of Heavy Metal Concentrate mineral sands at the Jacinth-Ambrosia mine owned by Iluka Resources was initially negatively impacted by COVID-19, with zircon markets declining significantly at the start of the pandemic. Limited field exploration work was undertaken during the year. At the end of 2020, production was trending back to pre COVID-19 levels as markets started recovering.

Uranium

The Four Mile Mine, operated by Heathgate Resources, and the Olympic Dam mine owned by BHP, continued to produce uranium for export.

Explorers

After a promising start to 2020, exploration activities were significantly curtailed in Q1 and Q2 of 2020 due to the COVID-19 travel and work restrictions. Exploration was not included in the definition of an essential industry meaning it was subject to the standard operating restrictions for other industries. Following the easing of restrictions, many companies recommenced their exploration programs with copper and gold the focus of activity.



A feature of 2020 was the significant number of exploration companies undertaking capital raisings to build their capacity to continue exploration activities and undertake feasibility studies for their projects. These projects provide a valuable platform for future mining developments in South Australia.

Major infrastructure activities

During 2020, two port infrastructure projects supporting iron ore exports in the Spencer Gulf were progressed.

At Port Augusta, the Port Playford infrastructure and facilities proposal was submitted for approval in July 2020. This project included the development of a new iron ore export port featuring upgraded and new infrastructure designed to receive, store and handle iron ore. It is anticipated the port will be operational by late 2022, providing an export channel for mines in the Far North and the Braemar regions of South Australia. The \$100 million development is expected to support 100 construction jobs and 80 ongoing roles.

Planning continued for the proposed multi commodity port at Cape Hardy on the eastern side of the Eyre Peninsula. The Cape Hardy proposal by Iron Road Limited will be developed in two stages, with Stage 1 focusing on grain exports and Stage 2 for iron ore exports. Both proposals will require expertise in maritime and civil engineering and associated trades.

Energy infrastructure proposals and developments also progressed during 2020. The most significant included the completion of Electranet's \$270 million high voltage transmission line, and associated substations, from the Davenport Substation near Port Augusta to OZ Minerals' Carrapateena and Prominent Hill mines. Up to 270 people were employed on this project. The Hornsdale Battery Power Reserve near Jamestown was expanded by 50 MW. Construction started on the \$500m Port Augusta Renewable Energy Park comprising 320 MW of wind and solar power and a 275kV substation.

Sealing of the first 50 km of the 472 km Strzelecki Track started in Q3 of 2020, the first stage of a \$110 million project to upgrade priority sections of the track.

Industry Outlook

Opportunities and Challenges

The outlook for the mining sector is dominated by the uncertainty associated with the impact of COVID-19 on international markets.

At the end of 2020, prices for South Australia's main mineral commodities, copper, gold and iron ore, were strong and providing solid foundations for future investment in projects. The international need for copper is likely to remain robust as strong demand from the energy and transport sectors seeking to meet climate change targets drive investment in copper intensive renewable energy technologies and infrastructure.

Mining Projects

The major maintenance and asset optimisation programs at BHP's Olympic Dam mine and the continued development of OZ Minerals' Carrapateena mine are the projects likely to significantly impact on employment and skills development in the mining sector in 2021.

Complementing these projects are the proposed expansion project at the OZ Minerals Prominent Hill mine and progression of the Carrapateena Block Cave Expansion Feasibility Study, each of which may result in further workforce development.

Supplementing the major projects are several smaller mining projects being considered for 2021 and 2022. These include the following proposals:

- expansion of the iron ore mines around Whyalla by SIMEC Mining to support growth of the Whyalla Steel Works and increased magnetite exports
- development of the Great White Kaolin resource by Andromeda Metals
- development of the Hillside copper/gold mine on the Yorke Peninsula by Rex Minerals
- development of an iron ore mine in the Razorback Ranges by Magnetite Mines
- development of a gold/copper mine at Kalkaroo by Havilah Resources
- establishment of the Siviour graphite mine and battery anode plant by Renascor Resources
- research on the potential for an In-Situ Recovery copper project at Kapunda by EnviroCopper
- development of an underground mining operation at the Kanmantoo copper/gold mine operated by Hillgrove Resources

- Restarting the Honeymoon Uranium mine by Boss Energy.

Exploration is expected to continue across South Australia with the focus commodities including gold, copper, silver and kaolin.

Infrastructure

The trend of significant energy projects being developed in South Australia will continue in 2021. The interconnector between NSW and South Australia, Project Connect, is expected to progress beyond the planning stage, while several solar and wind power projects near Whyalla and Port Augusta are expected to commence. The Eyre Peninsula Electricity Project, to upgrade the main transmission line into the Eyre Peninsula, will commence with expected completion at the end of 2022.

The Strezlecki track upgrade program is expected to be completed in 2021.

A number of the port development proposals for the Spencer Gulf are likely to gain approvals to allow initial site works and construction to commence.

Commodities⁹

At a national level, exports of resource and energy commodities are forecast to remain strong over the 2020-21 and 2021-22 forecast periods. The rate of community and economic recovery from the COVID-19 pandemic is the major uncertainty in all commodity forecasts for 2021.

Growing consumption of copper internationally amidst the modest recovery is expected to lift average prices to US\$6570/tonne by 2022. This level is likely to underpin demand for South Australian copper in 2021.

The iron ore price is likely to remain above US\$100/tonne through 2021 before easing to just over US\$75 at the end of 2022, supported by robust demand in China and supply constraints from Brazil. These levels are likely to underpin demand for South Australian iron ore in 2021. The expected global economic rebound and rollout of an effective COVID19 vaccine is projected to see gold price decline to US\$1560/ounce in 2022. This level is still likely to support continued exploration for gold in South Australia as well as underpin demand for South Australian gold in 2021.

⁹ Resources and Energy Quarterly, Dec 2020, Dept Industry, Science, Energy and Resources

Workforce Demand in 2020

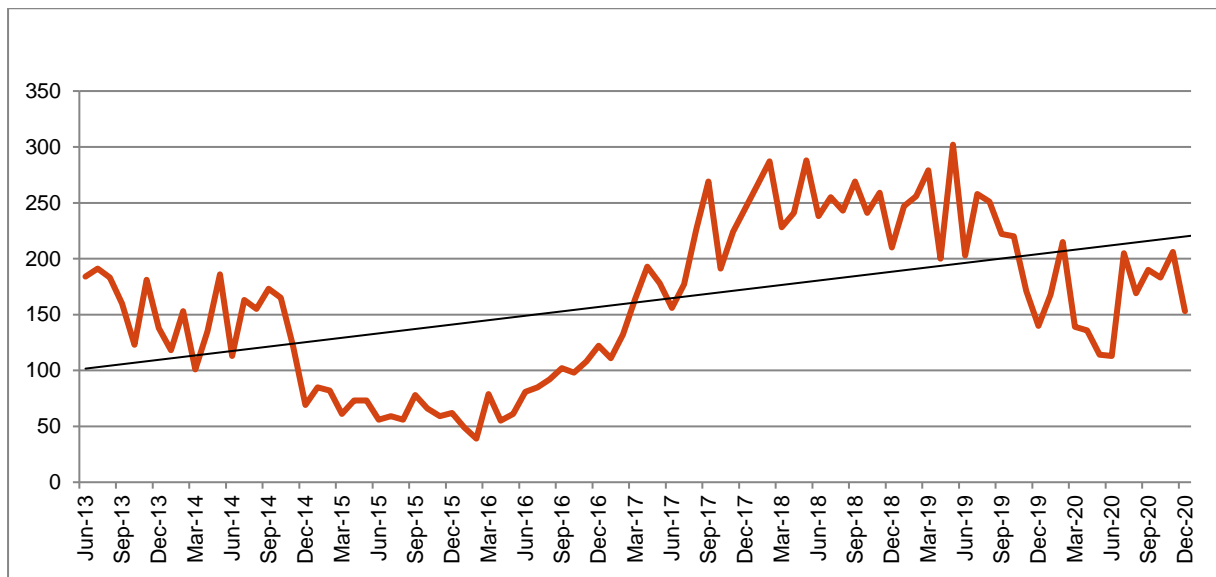
South Australian Mining and METS Sector

Hiring Intentions Data - 2020

RESA’s Hiring Intentions reports highlight real-time employment activity based on jobs for South Australian residents advertised in the mining and energy sectors. Although job ad data does not provide an accurate indicator of actual jobs, it does provide insights into demand, growth, shortages at the occupation and sector levels

RESA’s Hiring Intentions data indicates **2117 job advertisements** were placed by **294 different companies** for the SA resources sector in 2020. This reflects the diversity of the sector and a strong response and recovery with two quarters of uncertainty as coronavirus response measures were developed and implemented.

Figure 4: Total Vacancy Trend to July 2013 - December 2020



Vacancy trends reflect overall continuing growth in the level of vacancy activity for the sector.

Occupational Demand

Vacancy Distribution – Occupation Level

In 2020, the **highest demand** (34%) was for **trade level** occupations, followed by professionals (25%) and operators (18%).

Over 50% of jobs advertised were for **trade and operator occupations**.

Supervisor / manager positions represented 11% of total vacancies.

Entry level occupations, including apprenticeships, traineeships and graduate positions represented 7% of the total vacancies.

Top 3 Advertised Roles

 **52%**

Trades and Operators

 **25%**

Professionals

 **11%**

Supervisor/Managers

The 2020 Vacancy Distribution Occupation Level represents % of total job advertisements that fall into the Occupation Level classification indicated based on the minimum entry requirements and characteristics of the occupation, as shown in Figure 5.

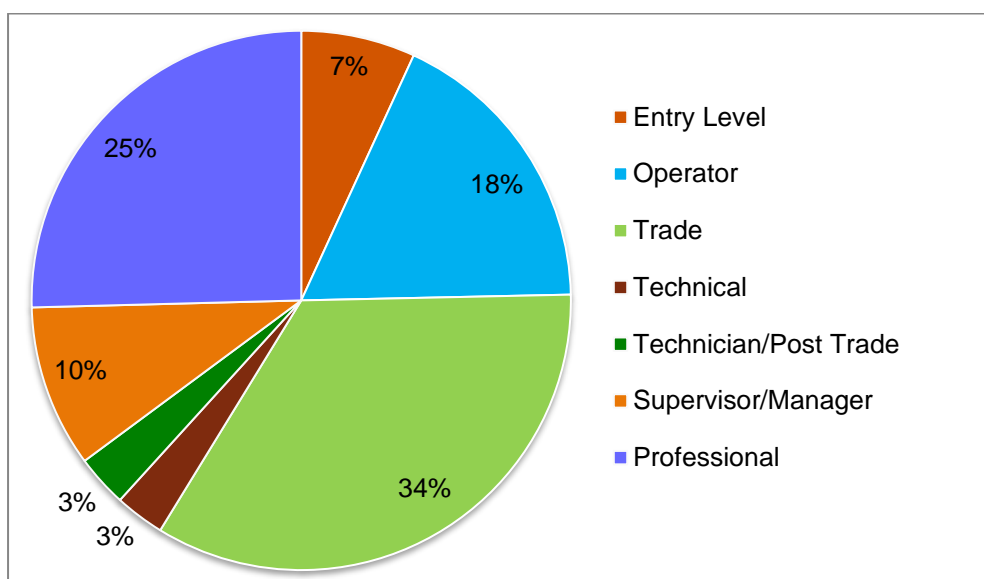


Figure 5: 2020 Vacancy Distribution - Occupation Level

In 2020, trade occupations were in highest demand (34%) followed by professional occupations (25%), operator occupations (18%) and supervisor/manager occupations.

The **top 5 trade occupations** in demand were:

1. Diesel Fitter (Heavy)
2. Maintenance Personnel
3. Auto Electrician
4. Boilermaker
5. Drill Fitter

The **top 5 professional occupations** in demand were in the Engineering and Maintenance sectors and included:

1. Mining Engineer
2. Scheduler / Planner
3. Engineer (all other types)
4. Project Manager
5. Electrical Engineer and Maintenance Planner

Vacancy Distribution - Sector

The 2020 Vacancy Distribution – Sector represents % of jobs advertised that fall into the occupational sector categories identified. This is determined by the job role rather than the field of operation of the organisation, as shown in Figure 6.

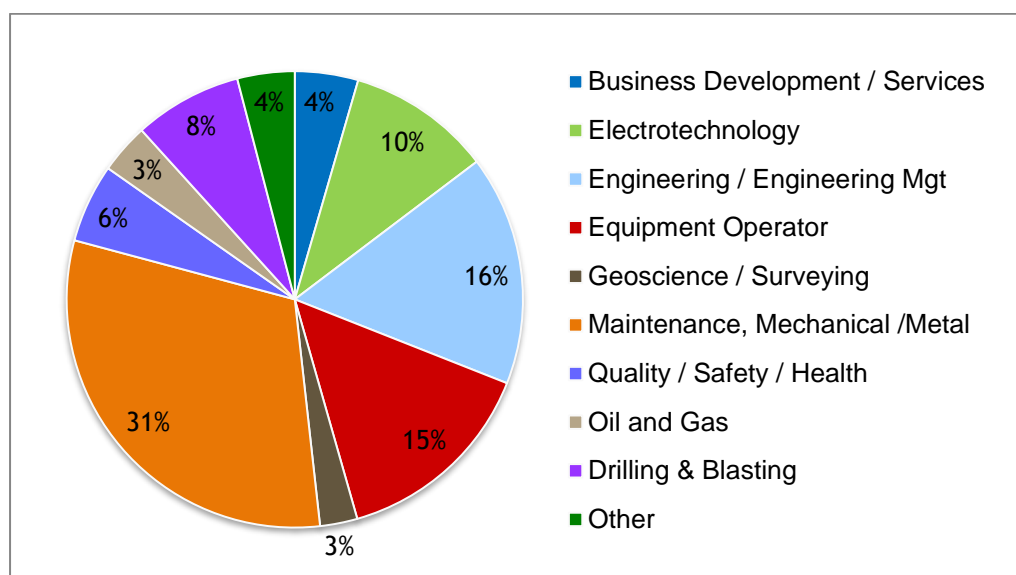


Figure 6: 2020 Vacancy Distribution - Sector

The distribution of vacancies across subsectors in 2020 indicates strongest demand in **Mechanical/Maintenance** (31%), **Engineering** (16%), **Equipment Operations** (15%), **Electrotechnology** (10%) and **Drilling and Blasting** (8%), roles. This is consistent with operations focusing continuing to focus on critical production and maintenance roles.

The top **5 Mechanical – Metal / Maintenance occupations** in demand were:

1. Diesel Fitter – Heavy
2. Maintenance Personnel
3. Boilermaker / Welder
4. Mechanical Fitter
5. Diesel Mechanic – Heavy

The high representation of mechanical / maintenance occupations most likely reflects the increase in demand for shut maintenance crews during planned shutdowns in addition to the critical role these occupations play in maintaining operations.

RESA's hiring intentions data captures 118 different Engineering occupations. Where a suitable alignment does not exist the Engineer – All other types category may be selected. In 2020 this field captured **emerging and specialist occupations** including:

- Data Analyst
- Technical Manager
- Ventilation / Structural Engineer
- Specialist – Master Data
- Quality Engineer
- Innovation Engineer
- Engineer - Asset Data
- Line Engineer
- Closure Engineer.

The **Equipment Operations occupations** in demand were predominantly mobile plant operators and labourers.



The top **5 Electrotechnology occupations** in demand were:

1. Auto Electrician
2. Electrician
3. Powerline Tradesperson
4. Metallurgist
5. Electrician (High Voltage)

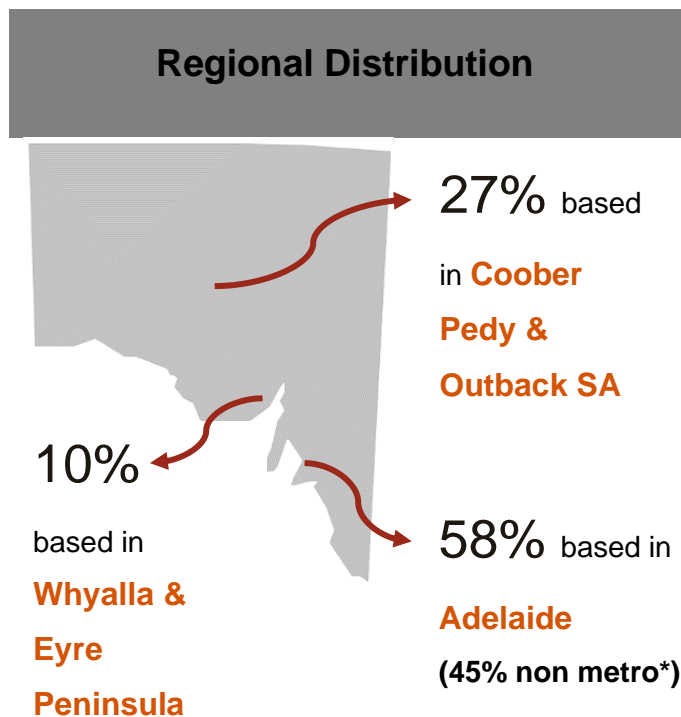
The top **5 Drilling and Blasting occupations** in demand were:

1. Drillers Assistant
2. Drill Fitter
3. Driller (over 1/3rd specifically diamond drillers)
4. Drillers' Assistant
5. Blast Crew

Regional Distribution

The distribution of vacancies across the state indicates 27% of jobs advertised would be undertaken in the Coober Pedy and Outback region.

Although the majority (58%) of vacancies listed were identified as located in Adelaide, further analysis indicates that almost half (45%) would be undertaken in regional South Australia, where mining operations are located, based on the occupation advertised.



*Job vacancies identified as **non-metro** includes occupations managed from a metropolitan location but usually undertaken in a non-metropolitan region. eg: drillers, dump truck operators, underground mining operators.

Industry Sector Vacancy Trends

RESA's Hiring Intentions data indicates a continuing trend of growth in demand across the South Australian mining industry sectors since 2013. This indicates strong recovery from the downturn in 2015 and resilience in the response to the declaration of the COVID-19 pandemic in March 2020.

The graphs on pages 26 - 30 reflect the total jobs advertised for the sector from June 2013 to December 2020. The **ten most in demand sectors** have consistently been:

1. Maintenance
2. Engineering / Engineering Management
3. Equipment Operator
4. Mechanical / Metal
5. Electrotechnology (including auto electricians)
6. Drilling and Blasting
7. Business Development / Services
8. Quality Safety and Health
9. Oil and Gas
10. Geoscience/Surveying

As we head into 2021 the demand for maintenance personnel and equipment operators continues to grow. With data integration, automation and robotics projects leading innovation in the sector, we might expect to see a shift in the skills requirements for these roles as access to data and modifications/developments in equipment continues. Despite industry studies¹⁰ into the changing skills landscape forecasting decreases in demand for drilling and blasting, operators and mechanical trades, this is not yet reflected in the demand for jobs. In South Australia. We are not yet seeing any decline in job advertisements, or displacement of jobs, for these occupations.

*What we are **not seeing**, is widespread **displacement of jobs**.*

Jodie Badcock, Chief Executive Officer RESA

¹⁰ The Future of Work: the Changing Skills Landscape for Miners, A report for the Minerals Council of Australia, Ernst and Young Australia 2019

The job advertisement trends for the most in demand sectors, shown in Figures 7 – 16, demonstrate overall growth in demand in almost all of the top 10 sectors. Geoscience / Surveying roles are the exception however these roles are critical to industry growth and will continue to be priority occupations. This sector has shown overall growth since recovery from the downturn in 2016.

1 Maintenance Trends

Maintenance job roles are consistently in the highest demand for the SA Mining and Energy sector, with fluctuation reflective of shutdown maintenance cycles and project requirements.

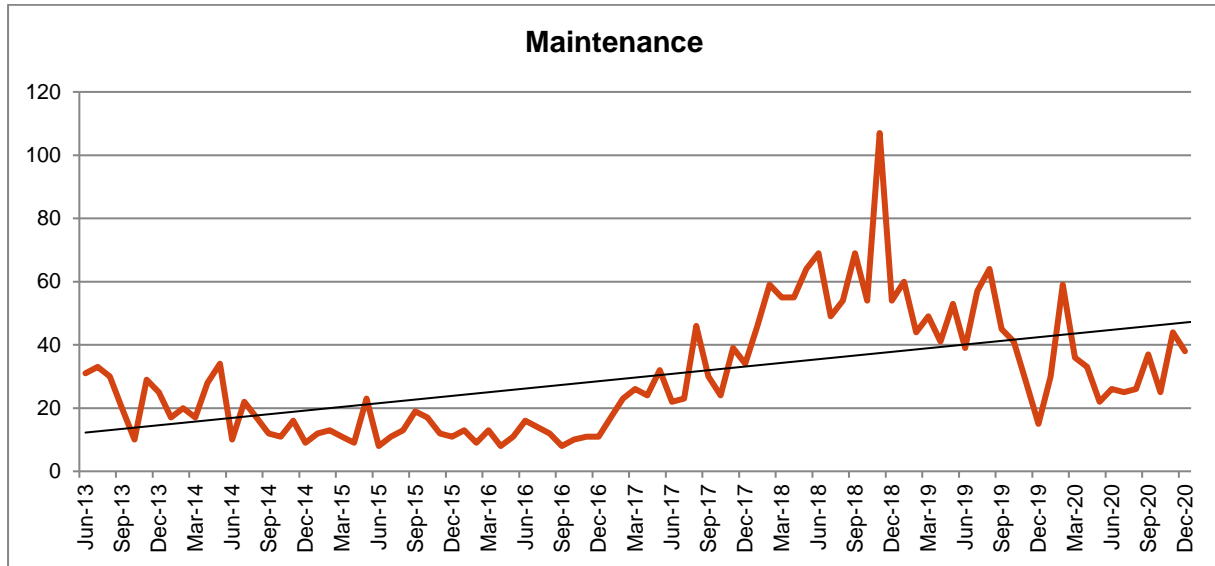


Figure 7: Maintenance Job Advertisement trends in SA Mining and Energy Sector

2 Engineering / Engineering Management

Engineering job roles are consistently in high demand. This subsector captures Engineering occupations across all technical streams including: mining, civil, electrical, mechanical, process, chemical, geotechnical, project, reliability, A&I.

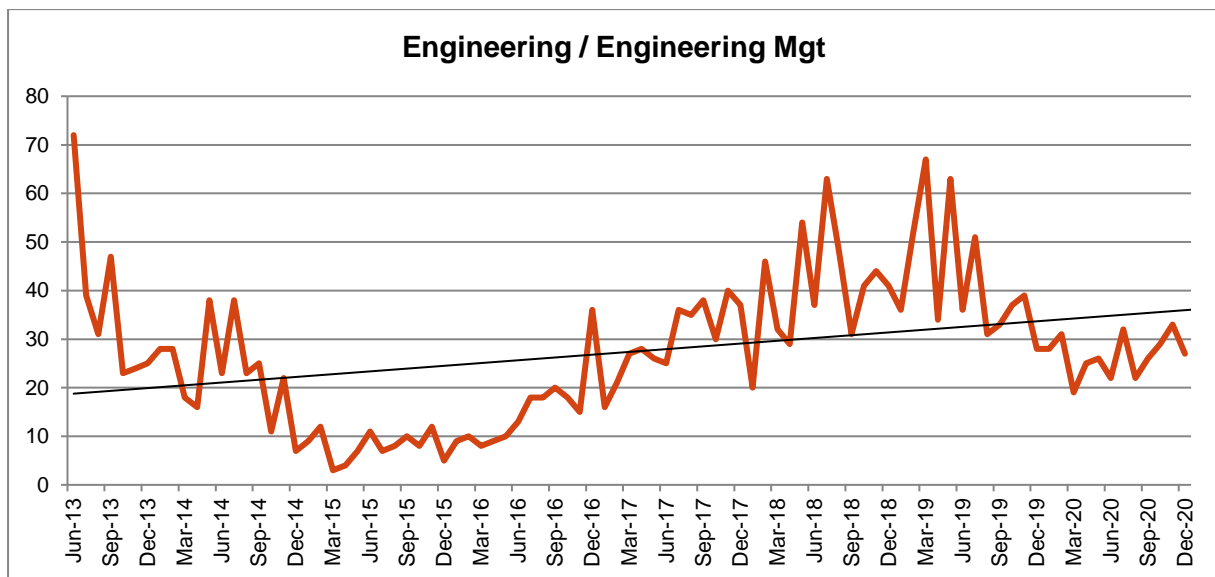


Figure 8: Engineering / Engineering Management Job Advertisement trends in SA Mining and Energy Sector

3 Equipment Operators

Equipment operator job roles reflect operators of a range of plant and equipment in surface, underground and civil operator and operations support roles.

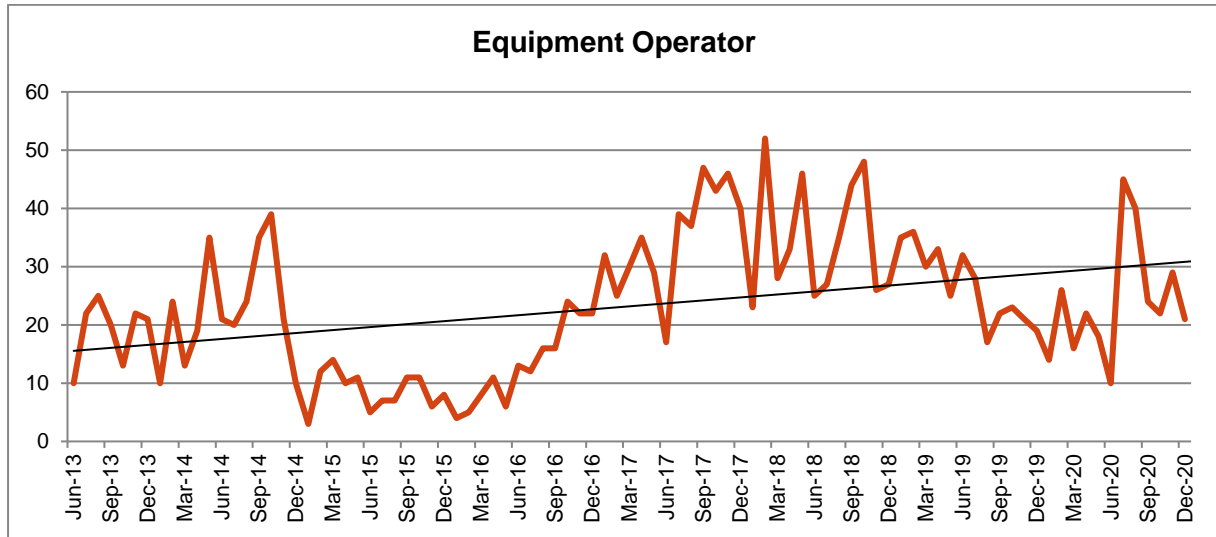


Figure 9: Equipment Operator Job Advertisement trends in SA Mining and Energy Sector

4 Mechanical / Metal

Mechanical / Metal roles reflect metal trades (eg: welding and fabrication) and automotive maintenance (eg: light vehicle, heavy diesel)

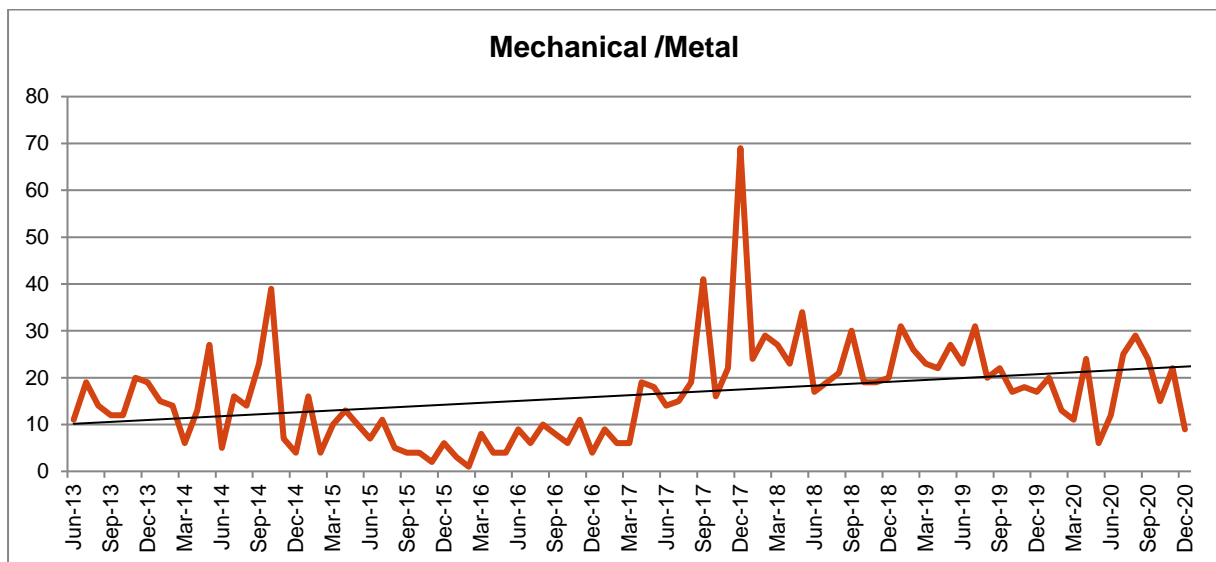


Figure 10: Mechanical / Metal Job Advertisement trends in SA Mining and Energy Sector

5 Electrotechnology

Electrotechnology roles include electricians, electronics, instrumentation, telecommunications, powerline/transmission and auto electrical trades.

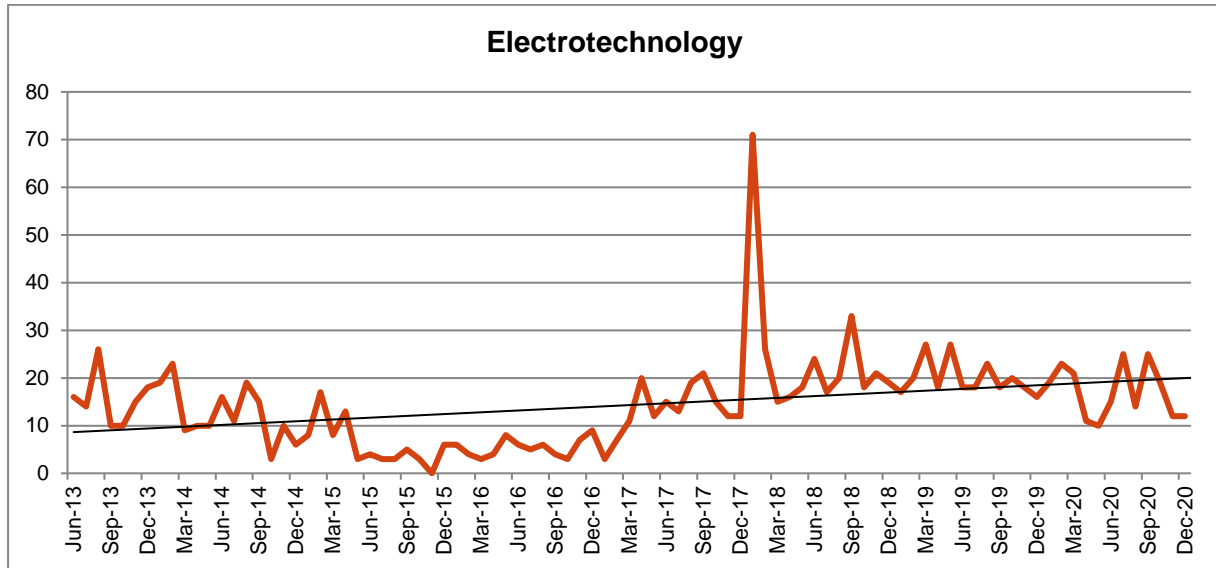


Figure 11: Electrotechnology Job Advertisement trends in SA Mining and Energy Sector

6 Drilling and Blasting

Drilling and blasting roles include drill crew (not oil and gas drilling), drill fitters and blast crew operators.

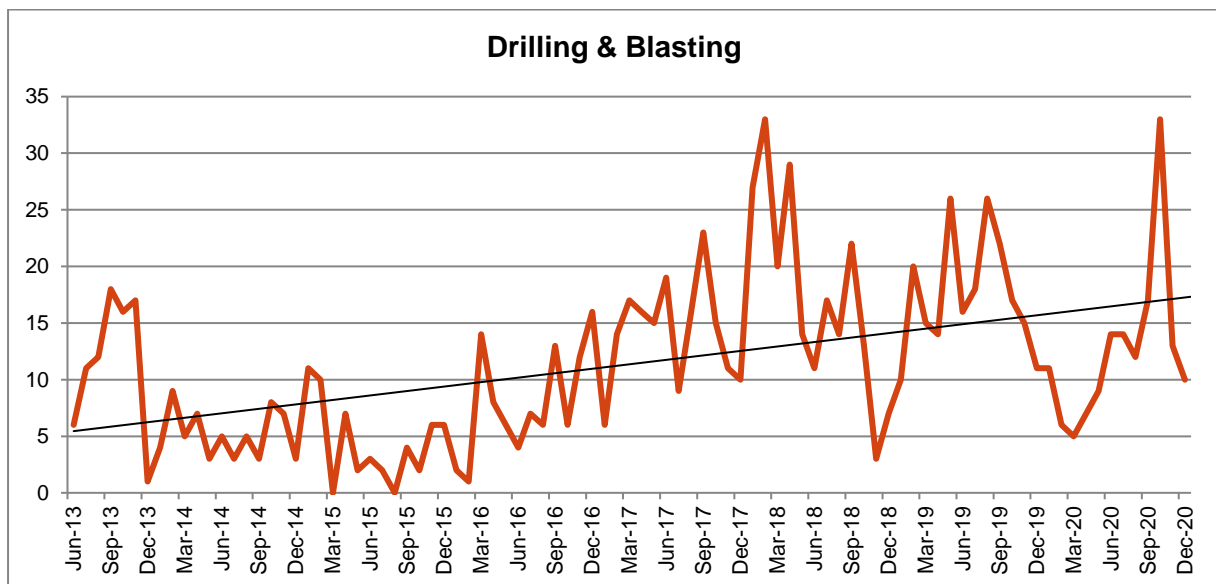


Figure 12: Drilling and Blasting Job Advertisement trends in SA Mining and Energy Sector

7 Business Development / Services

Business Development / Services roles include business management, business development, business planning and support roles.

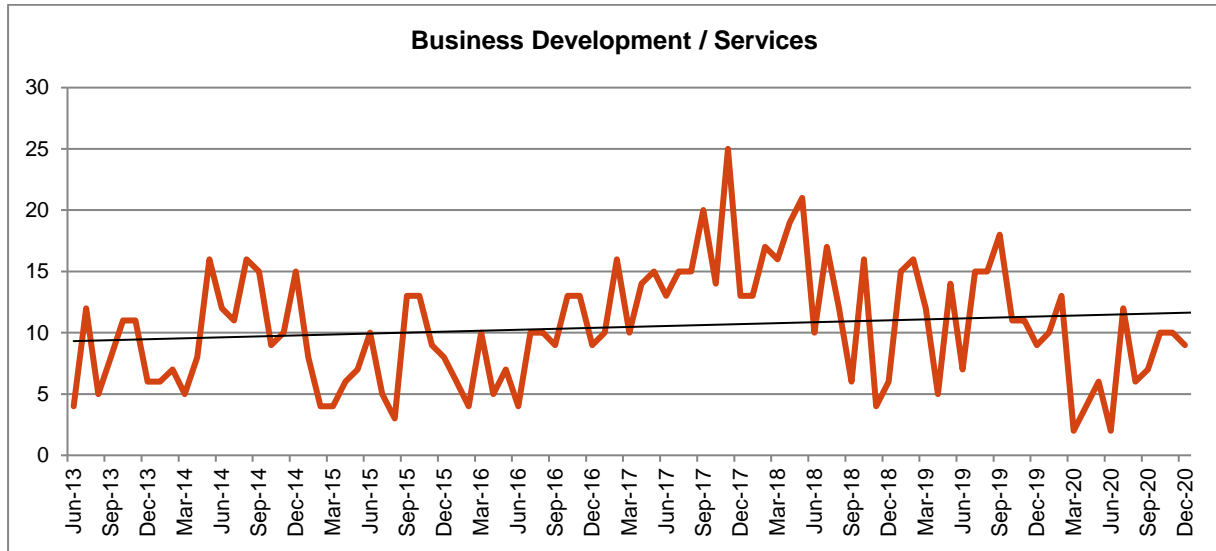


Figure 13: Business Development / Services Job Advertisement trends in SA Mining and Energy Sector

8 Quality Safety and Health

Quality, safety and health roles include quality management and control, safety advisors/managers/officers/inspectors, medical personnel, security, WHS/EHS/OHS roles, risk and compliance officers/managers.

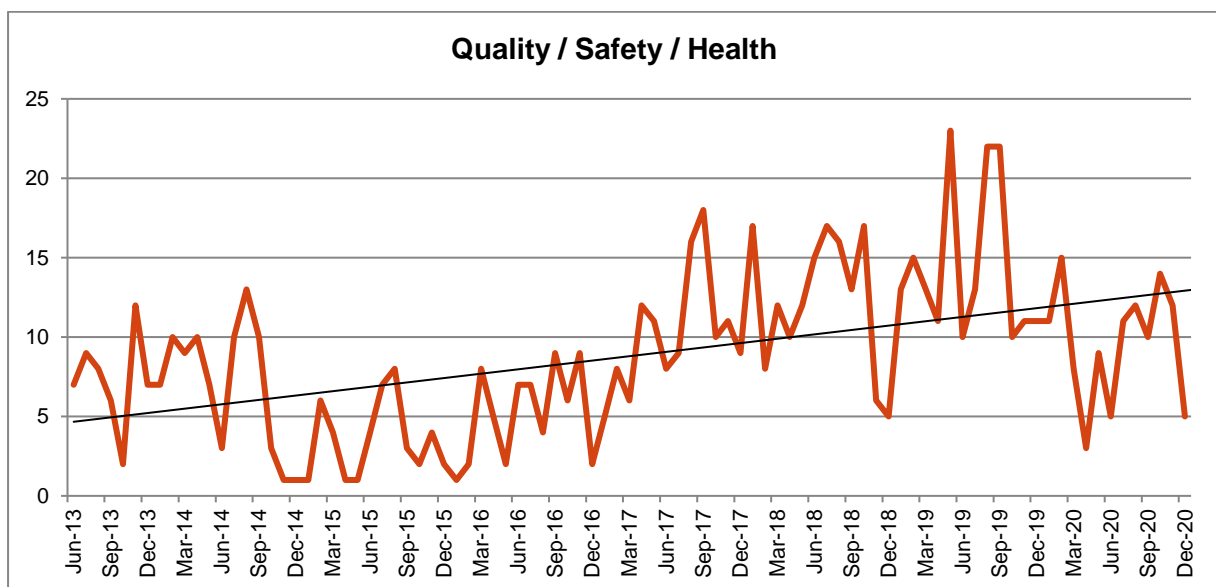


Figure 14: Quality Safety and Health Job Advertisement trends in SA Mining and Energy Sector

9 Oil and Gas

Oil and gas roles include onshore and offshore oil and gas drill crew roles, workover crews, well control crews, gas distribution managers, technicians and trades.

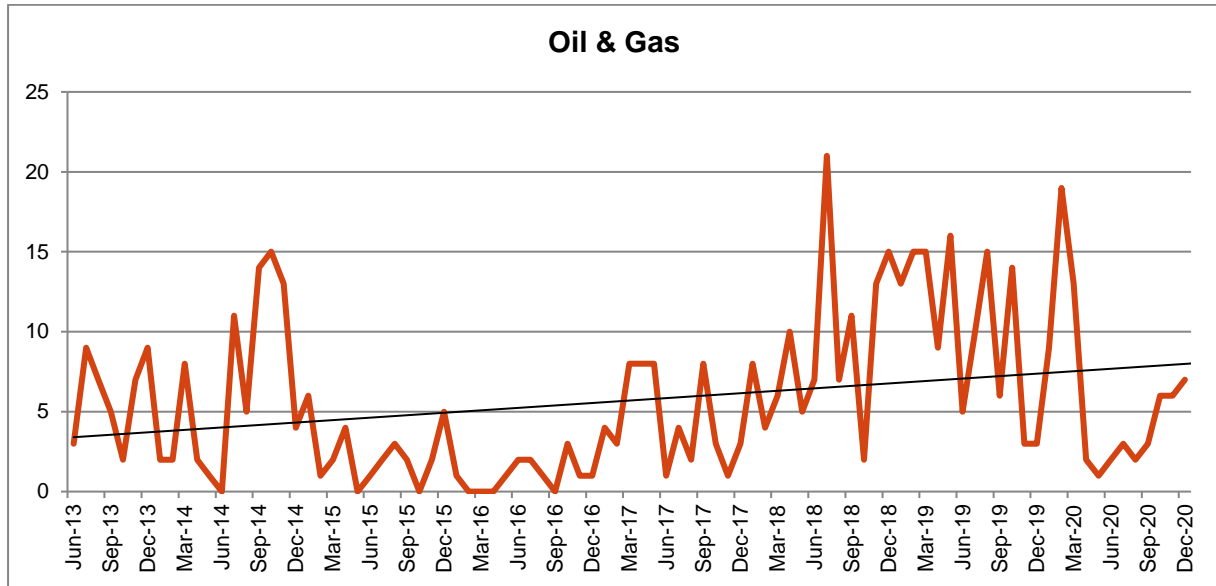


Figure 15: Oil and Gas Job Advertisement trends in SA Mining and Energy Sector

10 Geoscience / Surveying

Geoscience / Surveying roles include geologists, exploration managers, assayer/sample preparers, technical assistants, GIS specialists and surveyors.

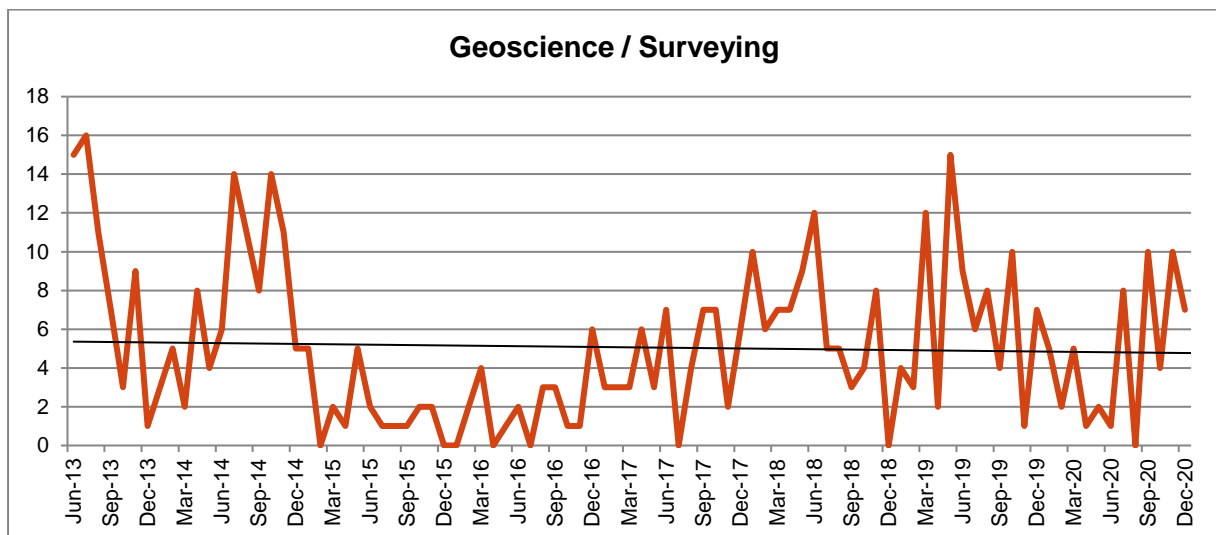


Figure 16: Geoscience / Surveying Job Advertisement trends in SA Mining and Energy Sector

Industry Skills Priorities

RESA has undertaken extensive consultation throughout 2020 to identify skills priorities and occupations in demand in the South Australian resources sector. The data reflects current shortages and the occupations in demand in the period to 2025.

This information has been provided to the Training and Skills Commission (TASC) and the Department for Innovation and Skills to support the Workforce Insights online data tool.

For the purpose of this report, RESA has classified skills and occupations in two categories:

- *Skills shortages*: hard to fill skills and occupation requirements (see Table 1)
- *Critical skills*: skills and occupations critical to the sustainability and growth of the sector. (see Table 2)

Industry priorities are identified by the overlap between critical skills / and skills shortage occupations. Additional challenges apply when low volume specialist skills and occupations are identified as critical to industry. These challenges will be further explored in RESA's SA Mining and Energy Skills Report, to be released in April 2021.

Skills Shortages

Job Title	Type	Sector
Project Engineers / Project Managers	Occupation	Engineering
Mining Engineers	Occupation	Engineering
Mechanical Engineers	Occupation	Engineering
Reliability Engineers	Occupation	Engineering
Geologists	Occupation	Geoscience / Surveying
Surveyors	Occupation	Geoscience / Surveying
Occupational Hygienists	Occupation	Quality Safety and Health
Data Analysts	Occupation	Engineering
Project Support	Occupation	Business Development / Services
Diesel Fitters	Occupation	Maintenance
Mechanical Fitters	Occupation	Mechanical / Metal
Mechanics	Occupation	Mechanical / Metal
Electrical Fitters	Occupation	Electrotechnology
Auto Electricians	Occupation	Electrotechnology
Electricians	Occupation	Electrotechnology
Instrumentation Electricians	Occupation	Electrotechnology
Electrical Technicians	Occupation	Electrotechnology
Jumbo Operators	Occupation	Equipment Operator
Drillers	Occupation	Drilling and Blasting
Metallurgists	Occupation	Electrotechnology

Table 1: Skills shortages in SA Mining and Energy Sectors identified in 2020

Critical Skills for Growth

Job Title	Type	Sector / Type
Geotechnical Engineers	Occupation	Engineering
Hydrogeology	Occupation	Geoscience / Surveying
Metallurgy – Development	Occupation	Electrotechnology
Metallurgy – Production Support	Occupation	Electrotechnology
Process Engineers	Occupation	Engineering
Project Engineers	Occupation	Engineering
Project Managers	Occupation	Engineering
Mining Engineers	Occupation	Engineering
Reliability Engineers	Occupation	Engineering
Chemical Engineers	Occupation	Engineering
Electrical and Instrumentation Engineers	Occupation	Engineering
Mechanical Engineers	Occupation	Engineering
Occupational Hygienists	Occupation	Quality Safety and Health
Geologists	Occupation	Geoscience / Surveying
Surveyors	Occupation	Geoscience / Surveying
Data Analysts	Occupation	Engineering
Mechanical Trades	Occupation	Mechanical / Metal
Electrical and Instrumentation Trades	Occupation	Electrotechnology
Applied Technologies – Mechatronics and Automation	Occupation	Engineering
Mechanical and Fluid Power (Hydraulics) Technicians	Occupation	Maintenance
Communication Systems Technicians	Occupation	Electrotechnology
Refractory Technicians	Occupation	Maintenance
Drillers	Occupation	Drilling and Blasting

Job Title	Type	Sector / Type
Scaffolders	Occupation	Maintenance
Crane Operators	Occupation	Equipment Operator
Construction Trades	Occupation	Maintenance
Shotcreters	Occupation	Equipment Operator
Cable Bolters	Occupation	Equipment Operator
Emergency Services Officers	Occupation	Quality Safety and Health
Health and Safety Officers	Occupation	Quality Safety and Health
Mobile Plant and Heavy Vehicle Operators	Occupation	Equipment Operator
Systems Evaluation	Skills	Technical
Systems Analysis	Skills	Technical
Mathematics	Skills	Technical
Data Analysis	Skills	Technical
Data and Digital Literacy	Skills	Technical
Judgement and Decision Making	Skills	Personal
Active Learning	Skills	Personal
Complex Problem Solving	Skills	Personal
Critical Thinking	Skills	Personal
Operations Analysis	Skills	Technical
Governance and Risk Management	Skills	Technical
Learning Strategies	Skills	Personal
Work Health and Safety	Skills	Technical
Configuration and Maintenance	Skills	Technical
Negotiation	Skills	Personal
Social Perceptiveness	Skills	Personal
Management of Material Resources	Skills	Technical
Technology Design	Skills	Technical

Job Title	Type	Sector / Type
Strategic Planning	Skills	Technical
Management of Financial Resources	Skills	Technical
Science	Skills	Technical
Complex Stakeholder Engagement	Skills	Technical
Change Management	Skills	Personal
Design Thinking	Skills	Personal
Geospatial Analytics	Skills	Technical
Creativity	Skills	Personal
Maintenance	Skills	Technical

Table 2: Critical Skills for Growth in SA Mining and Energy Sector identified in 2020

Industry has identified critical personal and technical skill requirements. Technical skills can be clearly identified and would usually be addressed through mainstream education mechanisms in the vocational education and training, tertiary or private sector.

Personal skills reflect ways of working and the application of personal effectiveness capabilities in the work environment. Developing personal capabilities requires an individual development approach implemented in the context of workplace activities.

Strategic Priorities for Industry

The overlap in occupations currently identified by industry as Skills Shortages and Critical Skills and Occupations for Growth provides insight into the strategic priorities for industry skills. The occupations highlighted are:

- Project Engineers / Project Managers
- Mining Engineers
- Mechanical Engineers
- Reliability Engineers
- Metallurgists
- Geologists
- Surveyors
- Occupational Hygienists
- Data Analysts
- Project Support
- Diesel Fitters
- Mechanical Fitters
- Auto Electricians
- Jumbo Operators

The identification of critical skills and occupations does not intend to diminish the importance of the full range of skills shortage occupations – rather to highlight the occupations that may have the most impact on industry growth targets.

Conclusion

The resources and energy industry sectors are continuing to demonstrate stability in operations and growth in employment activity. The industry has demonstrated diversity in demand across sub-sectors, skills and occupations, geographic distribution and in the range of companies operating in the sector.

RESA recognises the importance of a strategic and collaborative approach to ensure efficient, accessible pathways are available to develop the skills and capabilities required by industry, in order for South Australian's to benefit from these opportunities.

RESA's SA Mining and Energy Skills Report, to be released in April 2021, will further explore the challenges and opportunities in addressing current and emerging industry skills requirements.

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