Queensland

EXPLORATION SCORECARD

2021

RESOURCING THE FUTURE

queensland exploration council

AN INITIATIVE OF THE QUEENSLAND RESOURCES COUNCIL

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FOREWORD

WELCOME TO THE 11TH ANNUAL QEC EXPLORATION SCORECARD

The Queensland Exploration Council (QEC) is proud to deliver the Queensland Exploration Scorecard for the 11th consecutive year. The Scorecard has measured industry sentiment towards exploration in Queensland since 2010-11 when it first set out to 'track Queensland's progress towards becoming an exploration leader by 2020'.

The world has changed dramatically in the decade since the QEC's very first Scorecard. QEC was established to address the concern that exploration in Queensland was falling behind other jurisdictions in Australia. The scorecard aimed to measure that claim – how did exploration in Queensland compare? What lessons could we learn from other jurisdictions?

It's telling that the last few editions of the Scorecard have focussed much more closely on Queensland's own performance. As a result, the Scorecard now serves to provide a comprehensive reference point for the growth in potential and ambition for the Queensland exploration sector.

The operating environment for explorers is far more complex than a decade ago. Machine learning, drones and geochemistry are all now standard in the explorers' toolkit. Businesses today are held to far greater standards on transparency, on performance and on reporting. This trend is evident across the resources sector and the exploration arm is no different.

These changes bring new opportunities for Queensland. A world focussed on delivering prosperity alongside environmental, social and governance outcomes will prioritise commodities from jurisdictions like Queensland, which has a strong record of environmental performance, on safety, on emissions reductions and where the supply chain is clear. The global trend of car manufacturers investing in their supply chain to ensure that their battery materials and their metals are all produced under the highest ethical standards favours our explorers. Queensland already has an enviable reputation as a reliable supplier of responsible commodities and explorers are starting to reap the benefit with many reporting that their access to capital has been the strongest in the Scorecard's 11-year history.

2020 was the year of the great pandemic shock as a result of COVID-19. While the impacts of COVID are still being felt, and are still a major factor shaping both Government policy and industry investment decisions, what we are starting to see this year is the elevated importance of exploration investment to deliver a sustained economic recovery.

Throughout the pandemic, from the days of deep uncertainty, through to being accustomed to the "new normal" and finally with a sharp eye trained on the return to "pre-COVID"-like conditions, the resources sector has a been a constant and reliable contributor to the economy and to regional communities.

That's not to say the last 18 months have been without significant challenges for the exploration sector, not least of all when it comes to the movement of personnel and equipment. However, it is a reflection on the safety-first culture of the resources sector which has allowed it to keep people in jobs, keep adding to the Queensland budget bottom line and to keep commodities moving.

A lesson we can take from this challenging period is that the resources sector is more vital than ever for the Queensland economy, especially in the face of unanticipated events.

To maintain this pre-eminent position, we must renew our focus on finding the resources of the future. Our coal, gas and mineral exports are an economic pillar for Queensland. Our state's best interests are served by adding further to the range of minerals and commodities in the economic toolkit that can weather economic shocks. New opportunities are emerging to add further value to our mineral wealth by refining, processing and manufacturing in Queensland. That makes our QEC Exploration Scorecard more important than ever.

Investments in exploration now will hold Queensland in good stead for the future. It is essential that we have the policy settings in place to encourage exploration, catalyse investment in new projects and create the jobs of the future. To this end, we acknowledge the major policy work being undertaken by the Queensland Government through the Department of Resources (DOR) to map out a Queensland Resources Industry Development Plan (QRIDP). This plan is intended to take a 30-year outlook on the state's resources sector, focussing on the full life cycle of resources investment – from exploration through to project development, mining, processing and value-adding.

QEC acknowledges the ongoing support DOR has shown in the production of the Scorecard. For the first time, QEC was delighted to also have a representative from the Department of Environment and Science on the working group. The Scorecard aims to represent industry sentiment as accurately as possible and over the years, the Department has worked hard to take the Scorecard outcomes into account.

Surveying sentiment has tracked some distinct highs and lows, but looking back over the full 11 years, there's been a distinct improvement in industry sentiment towards four key aspects of Queensland's regulatory framework including:

- exploration permit processes;
- land available for exploration;
- cultural heritage regulations; and
- conduct and compensation agreements.

The Queensland resources sector has a bright future. QEC looks forward to working with the Queensland Government, communities and other stakeholders to realise that full potential.

The Hon. Ian Macfarlane
Chief Executive
Queensland Resources Council

Kim Wainwright
Chair
Queensland Exploration Council

PUTTING THE SCORECARD INTO CONTEXT

2021 QUEENSLAND EXPLORATION SCORECARD *"RESOURCING THE FUTURE"*

The QEC Exploration Scorecard embarks on a new phase this year, following on from the 10-year anniversary of the Scorecard in 2020. In a cyclical industry that has weathered the impacts of a Global Financial Crisis and commodity price volatility and is now navigating a global pandemic, the Scorecard provides a rich source of data, tracking sentiment in the sector.

While the shadow of COVID remains over the exploration sector, as it does over the economy at large, the 2021 Exploration Scorecard is the first for a new decade in which mineral exploration will evolve to encompass new commodities which will be at least as central to the Australian and global economies as the commodity exploration that has been the hallmark of the previous decade.

You can only improve what you measure. The QEC Scorecard aims to be a fundamental reference for policy makers who seek to add value and enhance the Queensland resources sector.

The Queensland resources sector is entering an exciting new era, in which it has the potential to consolidate its position as a major global supplier of energy resources and commodities.

Queensland's resources sector has a role to play to deliver on the increasing focus on Environmental, Social and Governance (ESG) issues which are front of mind for investors. Not only does the Queensland resources sector operate under the highest environmental, safety, social and governance regulations, but also the commodities we have the potential to mine, process and value-add, will be at the centre of the global transition to a lower-emissions economy.

In a net zero world in which countries including Australia are increasingly focussed on the building blocks for lower-emissions energy and technologies, Queensland is in prime position to open a new chapter in its resources prosperity.

Net zero emissions can be an opportunity for the Queensland resources sector.

The International Monetary Fund's (IMF) recently published World Economic Outlook highlighted the prospects for nickel, copper, lithium and cobalt as essential components to the global energy transition, and the commodities are forecast to surge in price and demand to meet emissions reductions targets. Queensland has prospects in all four of those commodities, as well as substantial prospectivity in other new economy minerals such as vanadium, rare earths and graphite. Queensland is also at the forefront of developments in the hydrogen sector.

Queensland has vast potential to provide the critical minerals needed to manufacture everyday items such as smart phones and renewable energy products such as wind turbines, electric cars, solar panels and batteries.

Last year, Queensland produced 220,500 tonnes of copper – enough to make around 2.75 million electric vehicles – so the potential for this demand to grow by 400% is an incredible opportunity for Queensland. The world needs large-scale new discoveries of minerals such as copper, gold, vanadium, bauxite, silver, lead, zinc, indium, and cobalt to support the development of renewable energy technologies.

While these new opportunities are developed, there is still a role for the traditional strengths of the Queensland resources sector.

Queensland's coal and gas are world-class resources which continue to be in strong demand. The International Energy Agency's (IEA) most recent publication of its World Energy Outlook 2021 has mapped a series of scenarios for emissions reductions, including stated policies and more ambitious emissions reductions trajectories under net zero pledges.

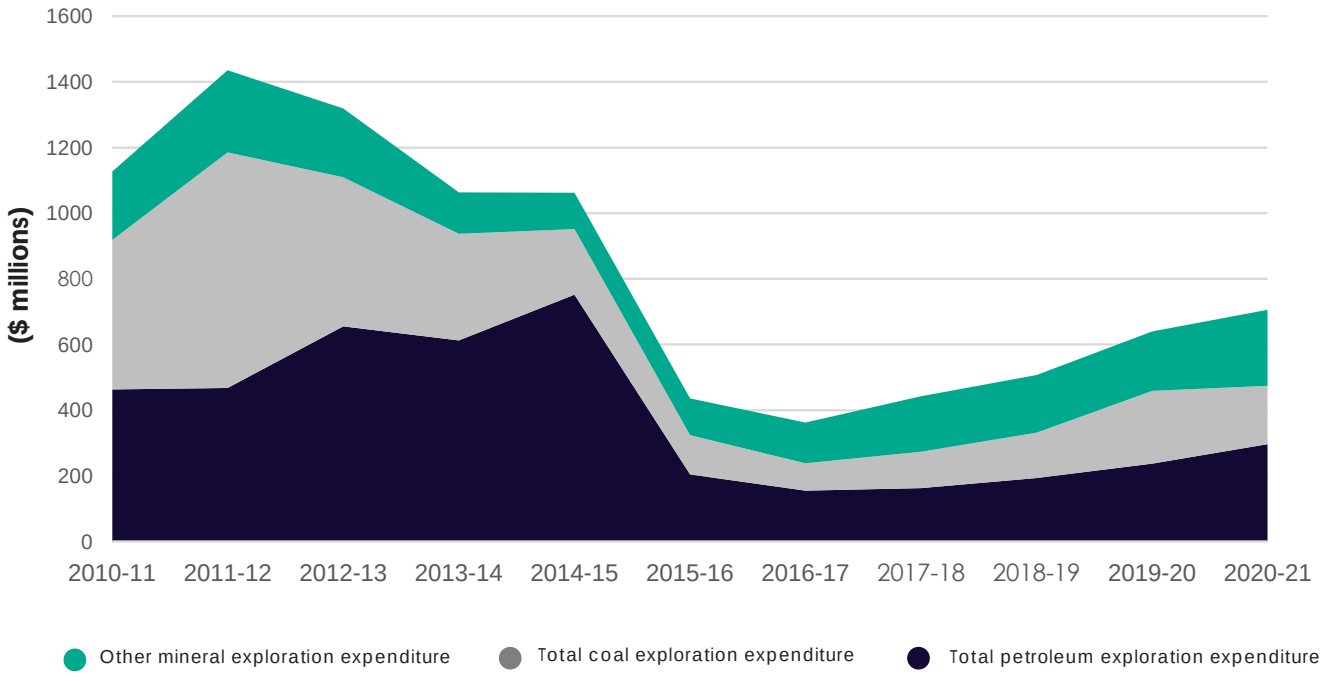
Under each of the scenarios there will continue to be demand for coal in significant volumes centred around the Asia Pacific region. Given Queensland's high quality coal reserves, it is Queensland coal that should be used to meet the market as long as demand exists given our coal is more energy efficient and with fewer emissions than much of the coal sourced in other nations. Queensland's metallurgical coal in particular will be essential to economic growth in the pandemic recovery phase.

Demand for natural gas in the Asia Pacific also increases under all scenarios modelled by the IEA. There are significant economic opportunities for Queensland gas as a transition fuel for nations that are pursuing a net zero emissions goal.

The bottom line is that Queensland's resources sector will become more diverse with a broader commodity base as the world makes the transition to a lower-emissions economy. The exploration intensity of our resources sector is destined to increase in meeting this global challenge.

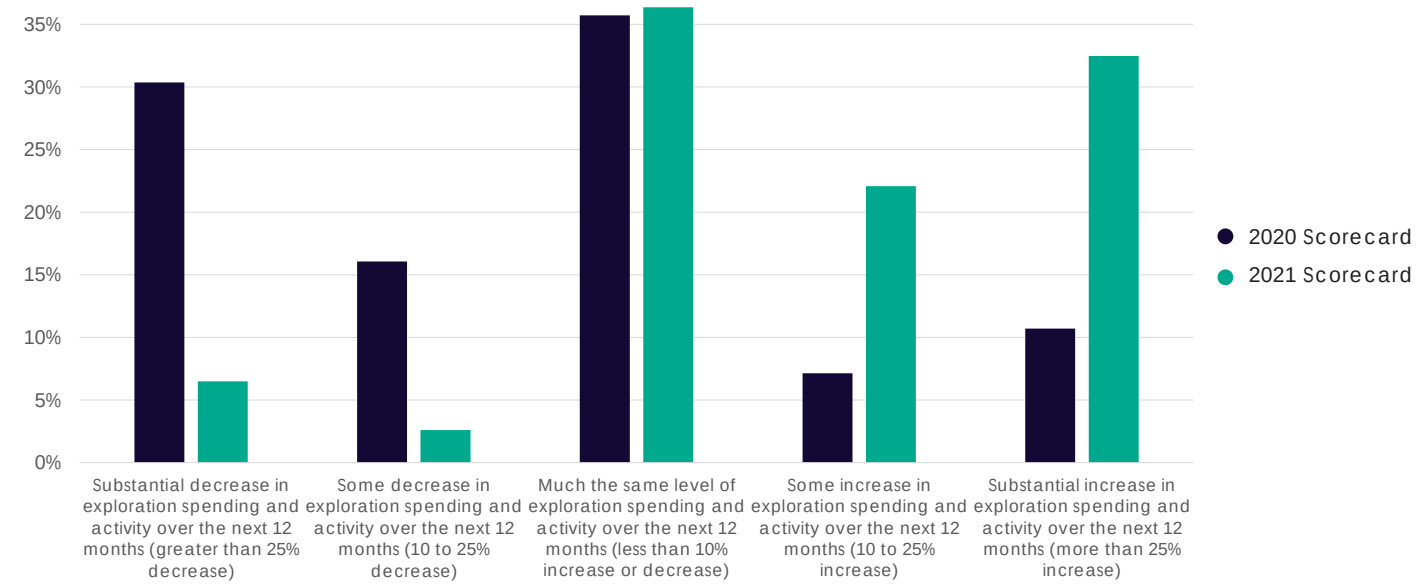
This transition is already evident in this year's Scorecard, with the focus on exploration for these new economy minerals.

CHART: EXPLORATION EXPENDITURE IN QUEENSLAND, 2010-21



Source: ABS Mineral and Petroleum Exploration, Australia.
Note: The material reduction in petroleum exploration expenditure in 2015-16 was driven by the 2015 oil price crash

CHART: 12 MONTH OUTLOOK FOR EXPLORATION EXPENDITURE, 2020-21



The Scorecard reflects a generally positive outlook for explorers in Queensland. Exploration spending is increasing and many explorers expect that trend to continue for the next 12 months, with more than a third of explorers expecting spending to increase by more than 25% over the period.

In this year's sentiment survey Queensland and the other jurisdictions scored the same factors as negative and positive, apart from access to investment capital, where the sentiment of Queensland explorers was far more positive. Access to capital and expectations of increased spending sound like a promising 12 months ahead.

Euan Morton
Chair
QEC Exploration Scorecard Working Group

MEMBERS OF THE QEC SCORECARD WORKING GROUP 2020				SUPPORT	
Euan Morton (Chair)	Synergies Economic Consulting Pty Ltd	Tony Knight	Geological Survey of Queensland, Department of Resources	Andrew Barger	Queensland Resources Council
John Briggs	Ashurst Australia	Roger Leaning	Morgans Financial Limited	Kylie Barron	Queensland Resources Council
John Bruce	Bruce Resource Consultants	Brett O'Donovan	Consultant	Tom Cunningham	Queensland Resources Council
Peter Hall	Australian Drilling Industry Association	Laura Steele	Department of Resources	Katie-Anne Mulder	Queensland Exploration Council
Todd Harrington	Whitehaven Coal Limited	Donna Walsh	Department of Environment and Science	Samantha Nasternak	Queensland Exploration Council
Stephen Kelemen	Queensland Exploration Council	Kim Wainwright	Xplore Resources and Queensland Exploration Council		
Dieter Kluger	Department of Resources	Darren Walker	U&D Mining (Australia) Pty Ltd and Queensland Exploration Council		

THE SCORECARD'S STRUCTURE

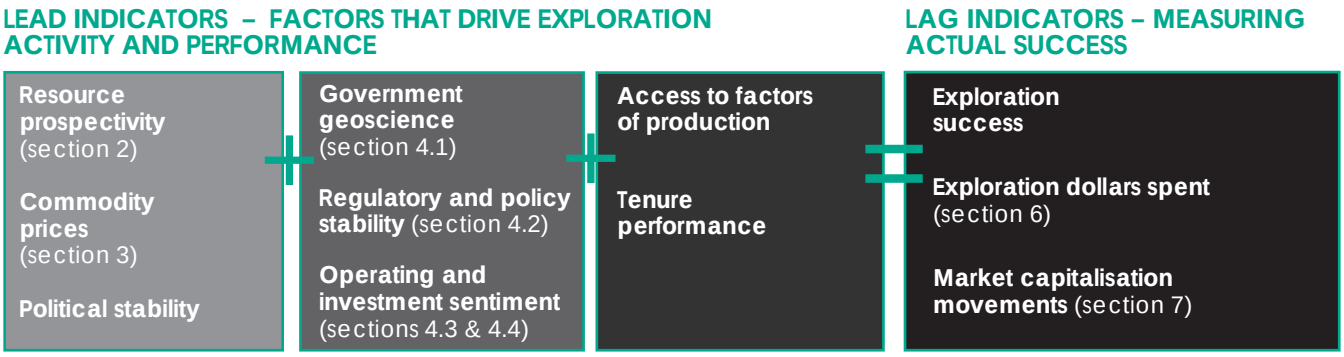
This year's Scorecard's scope covers the 2020-21 financial year (1 July 2020 to 30 June 2021). It retains the layout of previous years with a focussed analysis of key exploration indicators. The Scorecard reflects the assumption that the level of exploration activity is broadly driven by:

- Queensland's resource prospectivity and endowment;
- the price and outlook for key commodities;
- explorer and investor confidence; and
- policy and regulatory stability.

As for the 2020 document, this year's Scorecard also measures the impact of COVID-19 related issues.

As the market drives commodity prices, the Scorecard concentrates on those lead indicators that can be influenced – namely, explorer and investor confidence and access to the essential factors of progressing to further development and production. Outcomes or lag indicators that measure actual exploration success are also included. Figure 1 below shows the Scorecard structure.

FIGURE 1: SCORECARD STRUCTURE



Source: QRC

1.0 PERFORMANCE SUMMARY

THE QUEENSLAND EXPLORATION SECTOR, 2011-2021

LEGEND

- Good
- No significant impediment
- Cause for concern
- Significant problems

LEAD INDICATORS – DRIVERS OF FUTURE ACTIVITY AND PERFORMANCE	Year to June... 2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Resource prospectivity and endowment (Section 2) • Queensland is highly endowed with coal, minerals and gas resources.	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Commodity prices (Section 3) • Base and precious metals prices increased strongly over the 2020-21 financial year including record high prices for copper.	Good	Good	No significant impediment	Cause for concern	Significant problems	Cause for concern	Good	Good	No significant impediment	No significant impediment	Good
• The performance of key coal price benchmarks was mixed. The benchmark metallurgical coal price dropped a further 17% while the benchmark thermal coal price increased by 18% over the year. Despite the disruptions to global trade flows of China's ban on Australian coal, both benchmarks enjoyed strong gains towards the end of the 2020-21 financial year.	Good	Good	No significant impediment	Cause for concern	Significant problems	Significant problems	Good	Good	Good	Cause for concern	No significant impediment
• The average spot price for LNG delivered to Japan increased by 80% in 2020-21. The price for domestic gas sold under long term contracts is typically less volatile, as prices are agreed between the producer and customer.	Good	Good	Cause for concern	Significant problems	Significant problems	Significant problems	Cause for concern	No significant impediment	No significant impediment	Cause for concern	Good
State government geoscientific funding and activities (Section 4.1) • The final year of GSQ's $27 million, four-year Strategic Resources Exploration Program. • The second year of GSQ's $23 million, five-year New Economy Minerals Initiative including an additional $10 million in funding for the Collaborative Exploration Initiative.	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Regulatory and policy stability (Section 4.2) • Uncertainty around Financial Provisioning Framework is diminishing as industry implements the guidelines on how the scheme is administered. • Native Title amendments streamlined the application process when they took effect on 25 March 2021 • Continuing uncertainty about Lake Eyre Basin, and possible implications from the review of Queensland's environmental offsets framework. • There's industry optimism around the recommendations of QRC's 2020 Streamlining Report being implemented as part of a broader set of Queensland Resource Industry Development Plan (QRIDP) reforms.	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern
Operating and investment sentiment (Section 4.3 and 4.4) • 5 out of the 16 factors showed a net positive sentiment in Queensland. • 5 out of 16 factors showed improvement from last year. • This year, sentiment was more negative than previous years, driven largely by COVID related factors and growing skills and equipment shortages.	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	Cause for concern	No significant impediment	Good	Cause for concern	Cause for concern	Cause for concern

LEGEND

- Good
- No significant impediment
- Cause for concern
- Significant problems

Year to June...

LEAD INDICATORS CONTINUED	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Tenure performance (Section 5) • As of 23 July the Georesources Tenure Performance Dashboard has been published online. The dashboard provides transparency of the volume of tenure processes and the pace at which they are being assessed. For the year to 30 June 2021, nine of the 12 KPIs have outperformed their target processing time, with five of them at 100% outperformance. • QRC's 2020 Streamlining Report outlined the need for more certainty of decision timeframes. The Georesources Tenure Performance Dashboard has improved certainty of tenure assessments.	○	●	●	●	●	●	●	●	●	●	●

LAG INDICATORS - EXPLORATION SUCCESS	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Mineral exploration (Section 6) • Minerals exploration in Queensland continues to expand across the state, with a major focus on the North-West and North-East. • In 2020-21 Queensland's mineral exploration expenditure (including coal) was $409.7 million, increasing 2% from 2019-20 • Queensland's greenfields share of mineral exploration improved slightly for the third year in a row, increasing to 34% of all exploration spend.	○	○	○	●	●	●	●	●	○	○	○
Petroleum exploration (Section 6) • Applications for petroleum exploration are spread across the state. • DOR released 12 petroleum tender areas which closed for bids at the beginning of the financial year and a further 5 tender areas were released in June 2020. • In 2020-21 Queensland petroleum exploration expenditure increased by 25%.	●	●	●	●	●	●	●	●	○	○	○
Market capitalisation movements (Section 7) • All four capital indices tracked by the Scorecard enjoyed strong growth in 2020-21 as economic conditions continued to improve. The more resource-focused indices outpaced the broader market indices. The QEC Explorers Index and Deloitte QLD Energy Resources Index both grew by 78% in 2020-21, while the Deloitte Queensland Index grew by 34% and the S&P/ASX All Ordinaries grew by 26% across the year.	●	●	●	●	●	●	●	●	●	●	●

[1]Department of Resources

2.0 RESOURCE PROSPECTIVITY

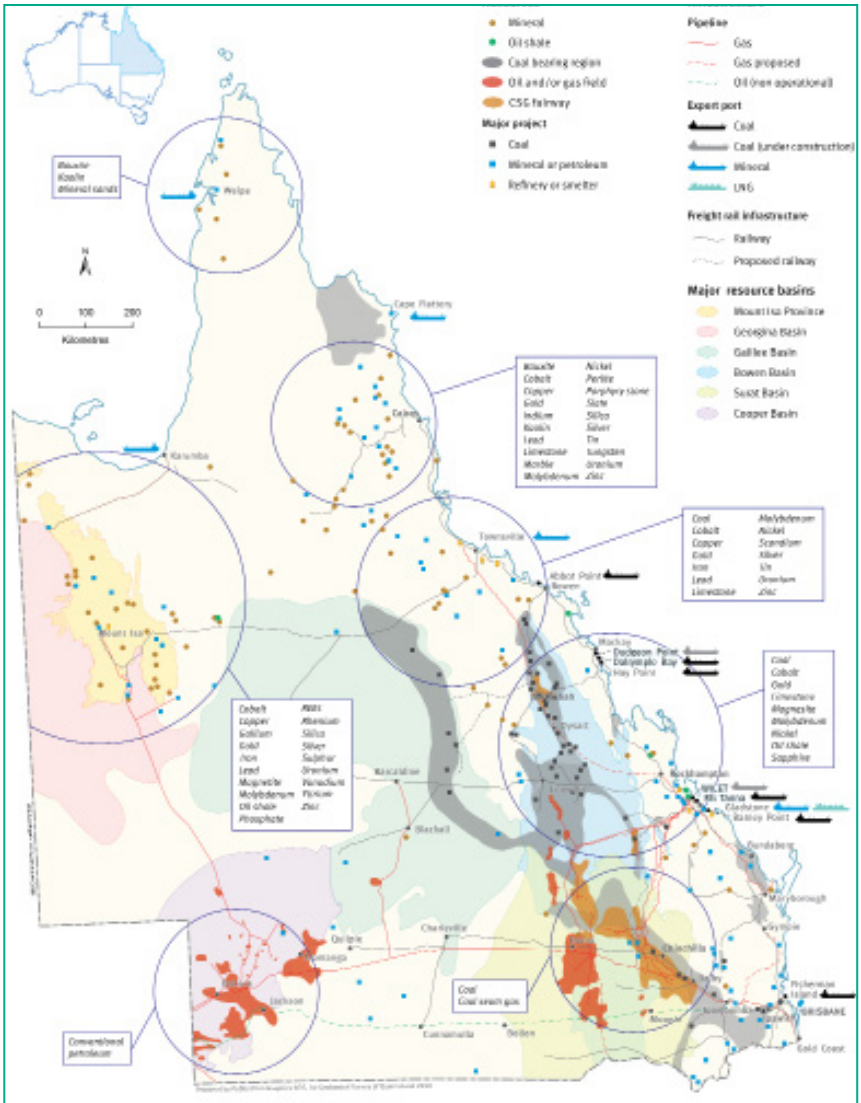


FIGURE 2: QUEENSLAND'S RESOURCE PROSPECTIVITY

Source: Spatial and Graphic Services, Geological Survey of Queensland 2021

While Queensland's rich endowment of mineral and energy resources is the product of its very long and rich geological history, it is our understanding of that endowment and how it might be put to best use that is of most importance to industry and investors. To acquire data and knowledge will help turn the opportunity of that rich endowment into investable projects, and form the basis for new supply chains and value-creation.

Our focus has broadened too, from our past based on precious and base metals, coal, oil and gas amongst other commodities essential to our industry. It includes those things today, but has expanded dramatically to include a whole new family of minerals critical to the "new economy" at the confluence of global shifts in energy, industry and sustainability driving demand for minerals of little value and interest in the past.

New economy, or critical minerals are the range of metals and minerals used in many advanced and emerging technologies, most particularly in renewable energy applications.

Queensland's two great mineral provinces, in the North-West and North-East of the state, and supplemented by a wide occurrence of minerals along coastal and border regions provides wide exploration search space. Indeed, that search space in many cases involves re-visiting previously explored, or even previously mined, areas for new potential.

The search has given rise to a new term, of "secondary prospectivity", being that left behind from the primary mining phase in wastes, tailings and by-passed low-grade ores. Secondary prospectivity now combines with primary prospectivity to offer new opportunity for exploration and development.

The changing environment of the "new economy" is also driving change in the way investors and customers look to secure mineral supply, especially for in-demand minerals used in renewable energy technologies.

These shifts, and the need to expand the search-space for new economy minerals is creating great opportunity to broaden and strengthen our resources sector as evidenced by progression of the Multicom St Elmo vanadium project near Julia Creek.

The explorer sentiment towards Queensland's resource prospectivity has remained significantly positive for all 11 years of the QEC Exploration Scorecard.

2.1 QUEENSLAND'S RESOURCE ENDOWMENT

Queensland's history is indelibly linked to its resource sector, with the discovery of gold at Gympie integral to putting us on to our feet financially. As explorers fanned out across Queensland they soon made important new discoveries, of the tremendous Mount Isa base metals deposit, and of coal, oil and gas to power our industries and emerging railway system.

We still benefit from many of those finds, with for example Mount Isa still in operation some 98 years after it began (and will mark its centenary in 2023). Likewise the prolific Bowen Basin coalfields, the Surat and Cooper basin gas and oil fields, Cape York bauxite and many more still provide widespread benefit to the state and nation.

But it is also true that we cannot rest on our laurels, with the frontier for discovery of base metals moving into deeper and more difficult terrains, requiring careful assembly of information and insights, and to rally significant capability and capacity to drive the next generation of major base metal discoveries.

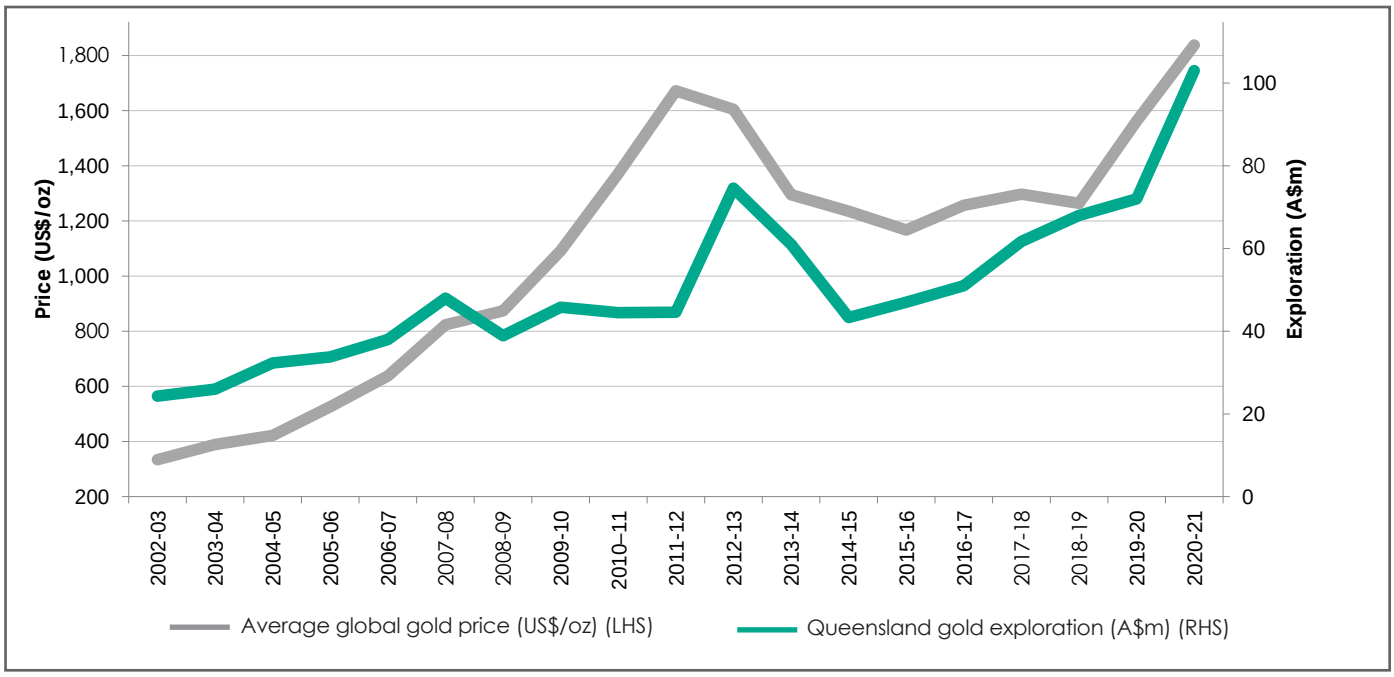
It is fortunate then that we can turn to driving development of our rich endowment of new economy minerals, of vanadium, cobalt, and rare earth elements in particular to broaden the opportunity scope in Queensland.

3.0 COMMODITY PRICES

Commodity prices are a significant driver of exploration activity in Queensland. Charts 3.1 – 3.4 show the relationship between average global benchmark prices for gold, copper, coal and LNG compared with Queensland exploration expenditure for each commodity since 2002.

Last year's uncertain outlook for many of Queensland's key commodities has been replaced by a returning sense of optimism. Gold, copper, thermal coal and petroleum all benefited from strong price growth across 2020-21, with metallurgical coal enjoying a strong price rally post 2020-21. The rallying prices were matched with increased exploration expenditure across the year. Gold lead the way, 43% higher than its 2019-20 result.

CHART 3.1: GLOBAL AVERAGE BENCHMARK GOLD PRICES & QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2020-21



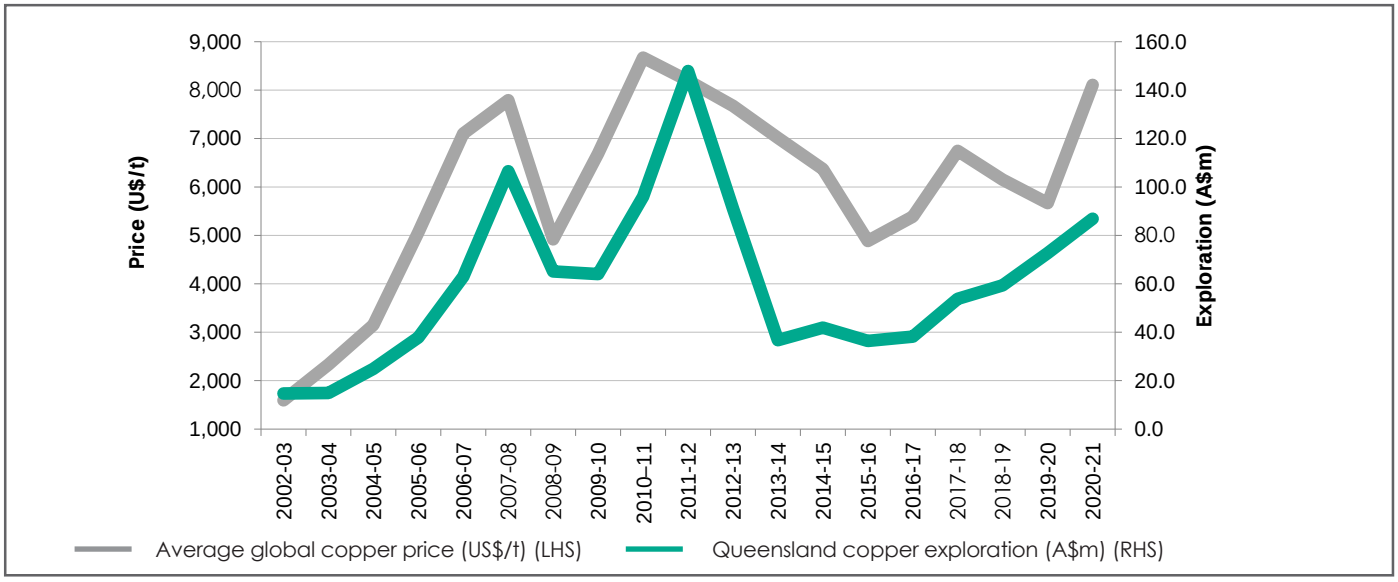
Source: Office of the Chief Economist, Resources and Energy Quarterly; Market Index; ABS 5368.0.

Gold remains a highlight of the Exploration Scorecard. Queensland is on its sixth consecutive year of gold exploration expenditure growth—up 43% from 2019-20 and well above pre-pandemic levels. This expenditure growth was supported by the continued rise in the benchmark gold price, up a further 18% on the elevated level of 2019-20.

Historically, gold prices tend to surge during economic downturns, functioning as an inflation hedge against the falling value of currencies. The demand for gold will be supported by a host of new technology applications, with the Queensland Government identifying the commodity as one of the new economy minerals expected to be in high demand.[1]

[1] https://www.resources.qld.gov.au/mining-resources/initiatives/new-economy-minerals

CHART 3.2: GLOBAL AVERAGE BENCHMARK COPPER PRICES & QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2020-21

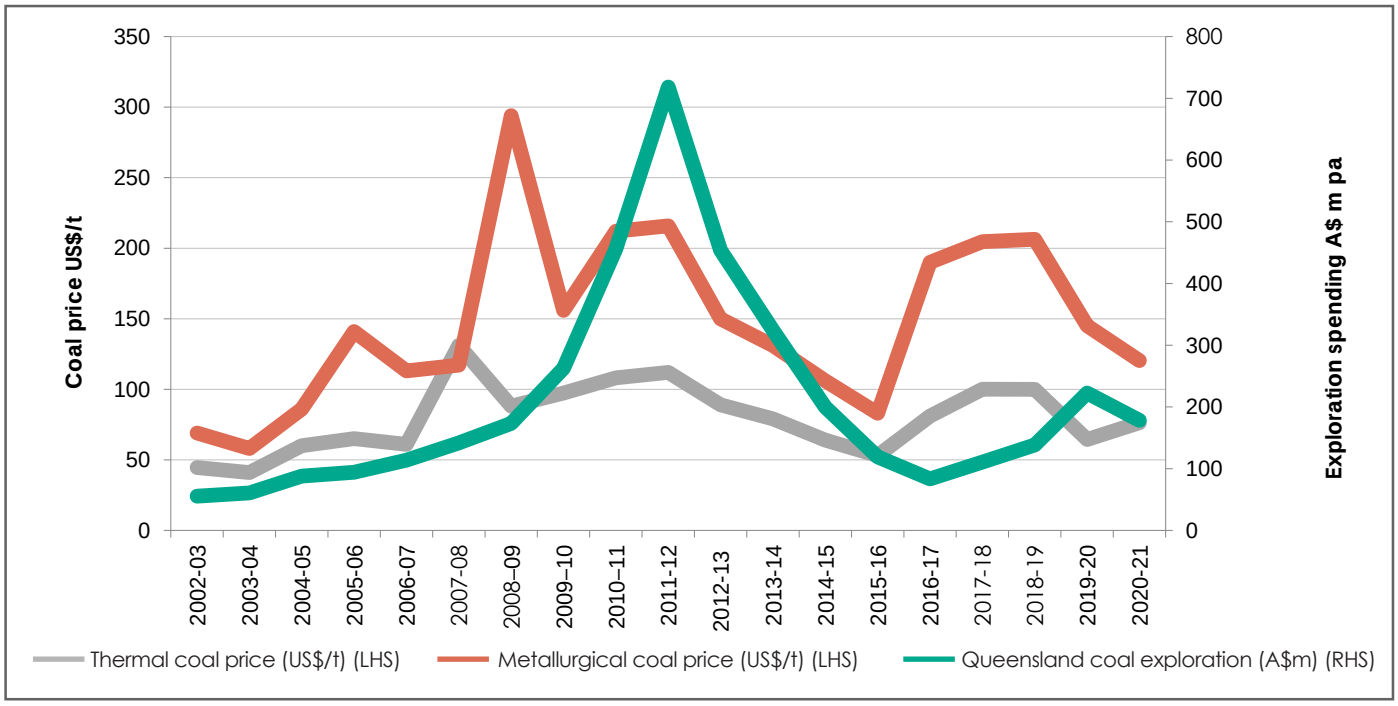


Source: Office of the Chief Economist, Resources and Energy Quarterly; Market Index; ABS 5368.0

In 2020-21, Queensland copper exploration expenditure grew by 20%, its fifth consecutive year of growth. Queensland copper exploration expenditure is now more than double the $36 million spent in 2015-16. Copper's average spot price increased by 43% in 2020-21, the single highest increase since 2005-06 thanks in part to record high prices in May 2021.

Looking ahead, demand for copper will remain well supported. As a new economy mineral, copper is crucial to renewable energy production and storage, electric cars, and other low-emission technologies.

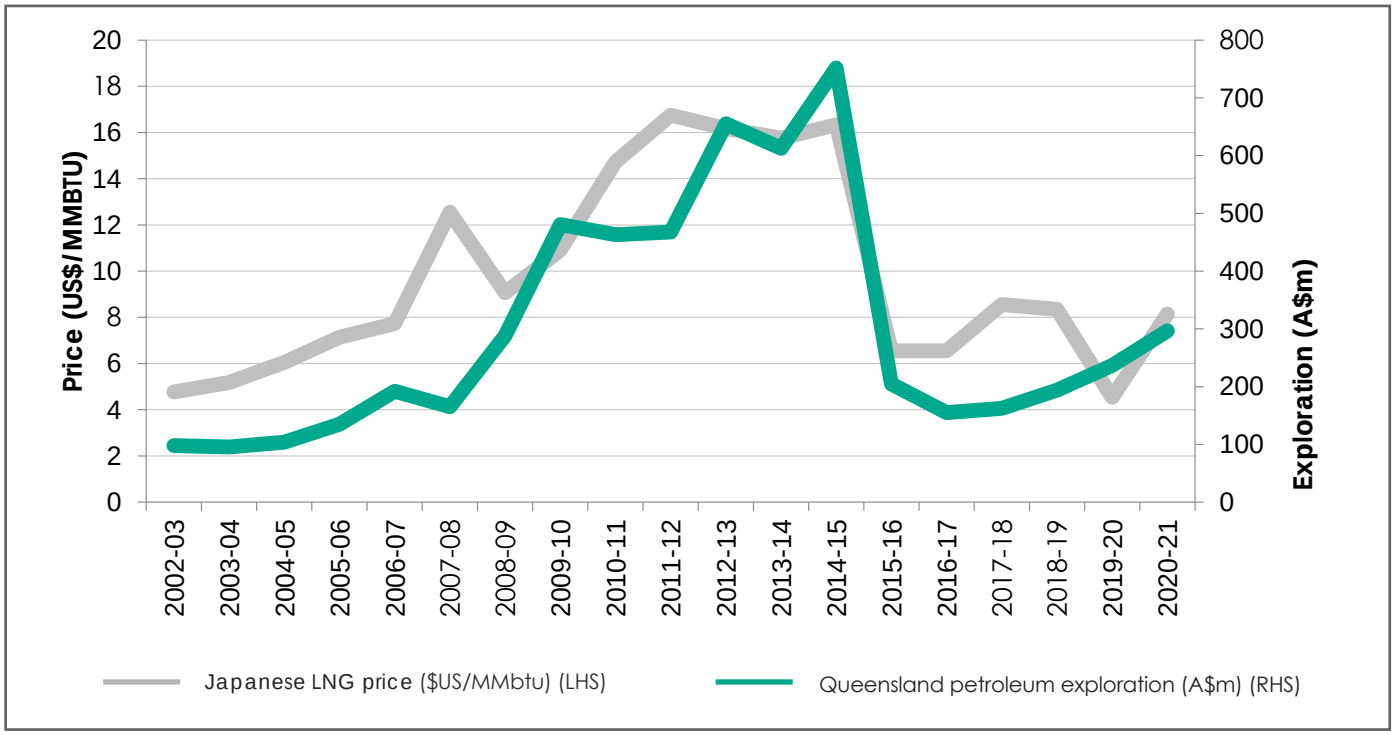
CHART 3.3: GLOBAL AVERAGE BENCHMARK COAL PRICES & QUEENSLAND COAL EXPLORATION SPEND, 2002-03 TO 2020-21



Source: Office of the Chief Economist, Resources and Energy Quarterly; ABS; IHS.
Note: Benchmark spot prices for thermal & metallurgical coal achieved new records in late 2021, beyond the scope of this year's Scorecard.

In 2020-21, the performance of key coal price benchmarks was mixed. The benchmark metallurgical coal price dropped a further 17% due to reduced steel output and trade tensions while the benchmark thermal coal price increased 18% over the year due to a re-opening Asia and relatively tight supply conditions. Queensland's coal exploration spending ended its three-year run of growth, declining by 20% in 2020-21. Queensland could expect stronger exploration expenditure for next year's Scorecard, given the record spot prices for both thermal and metallurgical coal in late 2021.

CHART 3.4: GLOBAL AVERAGE BENCHMARK LNG PRICES AND QUEENSLAND PETROLEUM EXPLORATION SPEND, 2002-03 TO 2020-21



Source: METI; JOGMEC; ABS 8412.0
Note: Petroleum exploration expenditure includes appraisal activities, but excludes developmental and production activities.

2020-21 was the strongest year for petroleum for several years. Queensland petroleum exploration expenditure increased by 25% in 2020-21, its fourth consecutive year of growth following the dramatic decline of the 2015 oil price crash. Ongoing exploration restrictions across New South Wales and Victoria as well as the natural decline from the traditional gas fields/basins supplying these large markets means that increasing Queensland exploration activity remains critical for the domestic gas market supply.

AEMO's 2021 Gas Statement of Opportunities indicates that in the absence of LNG import terminals the southern states face increasing risks of supply scarcity from winter 2023.

Across 2020-21, the Scorecard's benchmark spot LNG price for Japan delivery increased by 80% —a welcome recovery from 20-year lows experienced in 2019-20. Higher prices as well as the Queensland Government's 2020 release of a further released 8,205 square kilometres for gas exploration should drive further exploration expenditure growth in future Scorecards.[2]

KEY FINDINGS

- Exploration expenditure for three out of the four key commodities (petroleum, gold and copper) grew strongly in 2020-21.
- Despite the increase in thermal coal prices, Queensland's coal exploration spending ended its three-year run of growth, declining by 20% in 2020-21 (chart 3.1).
- 2020-21 was a strong year for Queensland petroleum exploration. Expenditure increased by 25% and the Scorecard's benchmark Japanese LNG price grew by 80% (chart 3.2).
- Queensland has now enjoyed six consecutive years of gold exploration expenditure growth—up 43% in 2020-21 and well above pre-pandemic levels (chart 3.3).
- For the fifth year running, Queensland's Copper exploration spending continues to surge— increasing by 20% in 2020-21 (chart 3.4)

[2] https://statements.qld.gov.au/statements/91399 3 February 2021

4.0 EXPLORER & INVESTOR CONFIDENCE

4.1 STATE GOVERNMENT GEOSCIENTIFIC FUNDING AND ACTIVITIES

Funding for pre-competitive geoscience activities is vital for the ongoing health of the sector. Total State Government geoscientific funding and the components of that funding across the various programs is shown in Chart 4.1. Industry continues to advocate for a substantial and growing base level of funding for the Geological Survey of Queensland (GSQ).

2020-21 marked the final year of GSQ's $27 million, four-year Strategic Resources Exploration Program. The Program included activities to support resources exploration in North-West Queensland, including a range of pre-competitive data to support mineral exploration, a search for new gas resources in frontier basins, and modernisation of government geoscience data systems. It also includes targeted support towards drilling and non-drilling activities.

The Queensland Government is also in the second year of its five-year New Economy Minerals Initiative. The $23 million program aims to develop, promote and understand the state's new economy mineral wealth and potential through a broad corridor from Mount Isa to Townsville and includes an additional $10 million in funding for the Government's much-lauded Collaborative Exploration Initiative.

The forth-coming final draft of the Queensland Resources Industry Development Plan (QRIDP) is an opportunity to provide further impetus to exploration activity by articulating a clear vision for the resources sector in its entirety, from exploration through to minerals export and minerals value-adding. Investments in new technologies ranging from hydrogen, to carbon capture and storage will require commensurate investment in exploration, including via programs overseen by the GSQ.

NEW ECONOMY MINERALS: *NEW EXPLORATION ACTIVITIES*

New economy minerals (sometimes referred to as critical minerals) are a range of metals and minerals used in many emerging technologies including electric vehicles, renewable energy products, low-emission power sources, consumer devices, and products for the medical, defence and scientific research sectors. The following projects involve searching for minerals as well as looking at ways in which they can be sustainably produced.

- **Kamilaroi airborne magnetic survey:** GSQ is undertaking an airborne magnetic survey north of Mount Isa, following the known trend of cobalt mineralisation associated with major copper deposits. This survey will better define key structures known to be responsible for this style of mineralisation. The survey has the potential to open up exploration for copper and cobalt in previously under-explored areas.

- **Canobie gravity gradiometry survey:** GSQ will undertake a high-resolution gravity gradiometry survey north of Cloncurry, including the Saxby area, to assist with targeting for new economy mineral and iron-oxide-copper-gold deposits (IOCG). In addition to being a major source of copper in the North-West, IOCG deposits are a key host to other critical minerals such as cobalt and rare earth elements.

- **Carpentaria Conductivity Anomaly magneto-telluric survey:** GSQ is undertaking two broad-scale magneto-telluric (MT) surveys to the south and east of Cloncurry to map out the Carpentaria Conductivity Anomaly, a geological feature that may be prospective for copper, cobalt and rare earth elements.

- **Re-imagine Queensland's phosphate deposits:** This project will define an entirely new class of rare earth element (REE) deposits in Queensland. The project is focused on REE mineralisation along a 1,000 km belt of the North-West Minerals Province, from Boulia to Century.

- **Extracting rare earth elements (REE) sustainably:** This initiative is crucial to the future development of an entire REE supply chain. By demonstrating an economic and environmentally sustainable extraction method for REE, numerous exploration-stage REE projects will become viable. Commercialising these techniques will create new jobs in and around a Queensland-based processing facility, with flow-on benefits for communities and the region.

- **Determining the rare earth element potential of Queensland's basins:** Researchers at University of Adelaide have developed a cutting-edge model for rare earth mineralisation in basin environments. GSQ will conduct a project in collaboration with University of Adelaide to develop this model further with particular reference to specific examples and regions in North-West Queensland, such as the Georgina Basin around Mount Isa. This model will enable explorers to identify prospective target areas more effectively.

- **Camooweal 2D 2019 seismic survey:** This data was released in February 2020. The Camooweal seismic survey provides better coverage and quality of fundamental geophysical data over the southern Isa Superbasin, South Nicholson Basin and Georgina Basin.

- **Cloncurry extension survey:** This work began in 2019 and is being conducted as part of the Queensland Government's Strategic Resources Exploration Program in collaboration with Geoscience Australia.

- **Mary Kathleen Domain geology project:** This work aims to establish a geochemical and geochronological framework for magmatic rocks of the Mary Kathleen Domain. Sampling and local geological mapping will be followed by geochemistry and geochronology analyses. It hosts significant copper, zinc, uranium and rare earth element deposits. The project is a collaboration between the Geological Survey of Queensland, James Cook University researchers and Geoscience Australia.

NEW ECONOMY MINERALS: *RE-EXAMINING EXISTING MINES*

GSQ are always looking at ways to re-use old mines. In the search for new economy minerals, GSQ are analysing waste from existing mines, and looking at old mines to see if they contain viable deposits.

- **Analysing mine waste materials and core samples:** In collaboration with the Sustainable Minerals Institute at the University of Queensland, the GSQ is re-analysing samples from mine waste materials at mine sites throughout Queensland, to identify new economy mineral opportunities.

In the past, cost constraints prevented many companies from analysing drill core samples beyond a restricted suite of metals when conducting their exploration programs. For example, a copper explorer might typically examine core only for copper, lead, zinc and possibly gold and silver. Cobalt, which may be associated with copper, was not commonly included in those examinations.

GSQ are re-analysing large volumes of core samples obtained from known deposits. GSQ has access to a large number of representative drill core and surface samples through its drill core libraries, as well as through collaborative relationships with key Queensland explorers. This information will be digitised and released to the public.

- **Reusing old mines:** There are a number of previously mined sites in Queensland that have returned to state control that may contain untapped opportunities. These sites are ideal for exploitation as they are on prior mining leases, infrastructure in some cases already exists and often the resources are on the surface. In collaboration with The University of Queensland, GSQ are examining the prospectivity of mine waste (tailings, stockpiles, waste dumps) for new economy minerals.

- **Using native plants to harvest minerals:** A highlight of the New Economy Minerals Initiative was the announcement of a four-and-a-half-year study with the University of Queensland to examine the potential of phytomining—using native plants to extract rare earth metals from the ground. Researchers have already found that planting across a nickel-rich site like a mine tailings dam could yield 300kg of nickel per hectare every year, meaning the important metal used in rechargeable batteries and stainless-steel manufacturing could be harvested, rather than mined.

COLLABORATIVE EXPLORATION INITIATIVE

The Collaborative Exploration Initiative (CEI) allows explorers to apply for grants of up to $200,000 to help drive innovation to make new discoveries and drive economic growth across the state. The initiative provides industry grants to:

- encourage exploration, particularly in frontier/greenfield areas
- support innovative exploration techniques, including machine learning
- promote the discovery and development of 'new economy' minerals.

The previous four rounds of the Collaborative Exploration Initiative supported 46 projects exploring for mineral resources across Queensland. In announcing a fifth round, Queensland's Minister for Resources Scott Stewart said, "Demand for the next generation of minerals is growing globally, driven by emerging technologies like electric vehicles, solar panels and battery storage, low-emission power sources, consumer devices, and products for the medical, defence and scientific research sectors."

Mr Stewart said as the world continued to adopt and developed these emerging technologies, the demand for minerals like silica, titanium, lithium and vanadium would increase.

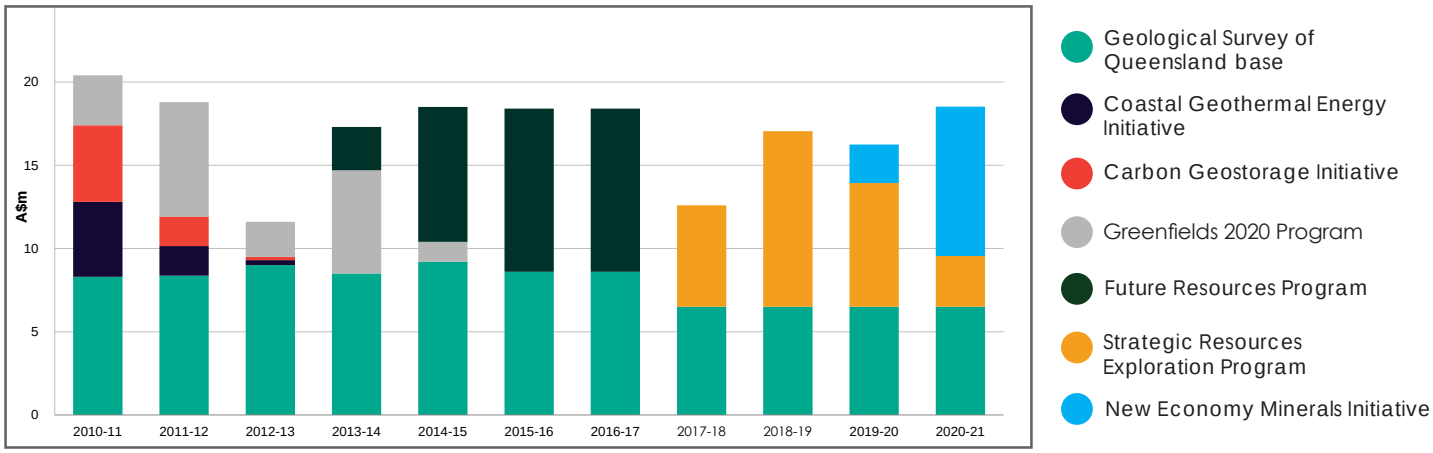
"And Queensland will be front and centre," he said.

"Exploration is incredibly important for developing potential new projects and mineral deposits, which will benefit all Queenslanders."[3]

DRILL CORE UPGRADES

The Queensland Government is also investing in the physical infrastructure of geoscience. The Minister for Resources recently announced a significant upgrade to the drill core facility at Mount Isa which hosts more than 230 linear kilometres of drill core. It has been estimated that the replacement cost of all the data and drill core that the Geological Survey of Queensland have collected over the past 153 years exceeds $40 billion.

CHART 4.1: TOTAL GEOLOGICAL SURVEY OF QUEENSLAND EXPENDITURES (A$M) 2010-11 TO 2020-21



Source: Department of Resources

Note: From 2017-18, a DOR internal restructure meant all IT-related resources moved to the State-wide business systems team. This accounts for the drop in base funding within GSQ, however the total funding and budgeted FTE's stayed on to service the Geological Survey.

[3] https://statements.qld.gov.au/statements/91929 21 April 2021

4.2 REGULATORY AND POLICY STABILITY

This section provides an annual snapshot of the year-to-year regulatory changes from 2011 (representing the baseline) as they relate to exploration activities in Queensland. The table aims to summarise complex regulatory changes for the period from 1 July 2020 to 30 June 2021 as they affect exploration projects.

LEGEND

- Favourable reduction in regulatory control occurred in that year
- No change in regulatory control occurred in that year
- Unfavourable increase in regulatory control occurred in that year

Types of exploration controls in Queensland	Changes between 2011 and 2012	Changes between 2012 and 2013	Changes between 2013 and 2014	Changes between 2014 and 2015	Changes between 2015 and 2016	Changes between 2016 and 2017	Changes between 2017 and 2018	Changes between 2018 and 2019	Changes between 2019 and 2020	Changes between 2020 and 2021
A. Foundation requirements for exploration - processes that most holders of exploration permits must meet on application and continuously through the life of the tenure:										
Cultural heritage (Aboriginal and non-Aboriginal) • No regulatory change, but Juukan Gorge in WA (May 2020) will increase scrutiny for the whole industry.	○	○	○	○	○	○	○	○	○	○
• Application for environmental authority (this requirement was relaxed in 2013 in some circumstances)	○	●	○	○	○	○	○	○	○	○
• Application for exploration tenure (applications for coal subject to tender process in 2012 - minerals applications are unchanged)	○	○	○	○	○	○	○	○	○	○
• Application for exploration tenure (oil & gas rights subject to tender process)	○	○	●	○	○	○	○	●	○	○
Landowner compensation • Note ongoing negative industry feedback about aspects of the conduct and compensation agreement process.	○	○	○	○	○	○	●	○	○	○
• Native Title considerations	○	○	○	○	○	○	○	●	○	●
• Rehabilitation obligations	○	○	○	○	○	○	○	○	○	○
Renewal of exploration rights • Fixed terms on exploration tenures from 25 May 2020.	○	○	●	○	○	○	○	○	●	○
Administrative improvements in processing applications • QRC Streamlining Report maps out a path for improvement (June 2020).	○	○	○	●	○	○	○	●	●	○
B. Gateway controls on exploration – policies that present barriers to tenure in some areas:										
• Land regulated as 'Restricted Area'	○	○	○	○	○	○	○	○	○	○
• Land otherwise off limits for environmental reasons (e.g. National Parks and strategic environmental areas)	○	○	●	○	○	○	○	○	○	○
• Restrictions on exploration activity in other areas of regional interest (e.g. priority agricultural areas (including strategic cropping areas) and priority living areas)	○	○	○	●	○	○	○	○	○	○
• Environmental authority applications must be refused for activities in the Great Barrier Reef catchment area which will or may result in the release of fine sediment or dissolved organic nitrogen to catchment waters.	○	○	○	○	○	○	○	○	○	●
• Land subject to other third-party interests (e.g. overlapping tenure regime commences for coal and gas (includes exploration)), growing risk of land use conflicts with renewable projects.	○	○	○	○	○	●	○	○	○	○

LEGEND

- Favourable reduction in regulatory control occurred in that year
- No change in regulatory control occurred in that year
- Unfavourable increase in regulatory control occurred in that year

Types of exploration controls in Queensland continued	Changes between 2011 and 2012	Changes between 2012 and 2013	Changes between 2013 and 2014	Changes between 2014 and 2015	Changes between 2015 and 2016	Changes between 2016 and 2017	Changes between 2017 and 2018	Changes between 2018 and 2019	Changes between 2018 and 2020	Changes between 2020 and 2021
C. Conditioning controls on exploration - policies that impose additional conditions:										
• Applications and approvals to disturb native vegetation	○	○	○	○	○	○	○	○	○	○
• Transfer duty – became payable in 2012 – farm-in agreements	●	●	○	○	○	○	○	○	○	○
• In 2016, work programs halved.					○	●	○	○	○	○
• In 2020, rent waivers were introduced and variations on work programs were available to acknowledge the impacts of COVID on operational plans.					○	○	○	○	●	○
D. Impacts on production (but indirectly relevant to exploration):										
• Ongoing uncertainty around Financial Provisioning framework.					○	○	○	●	○	●

Source: Ashurst Australia and QRC

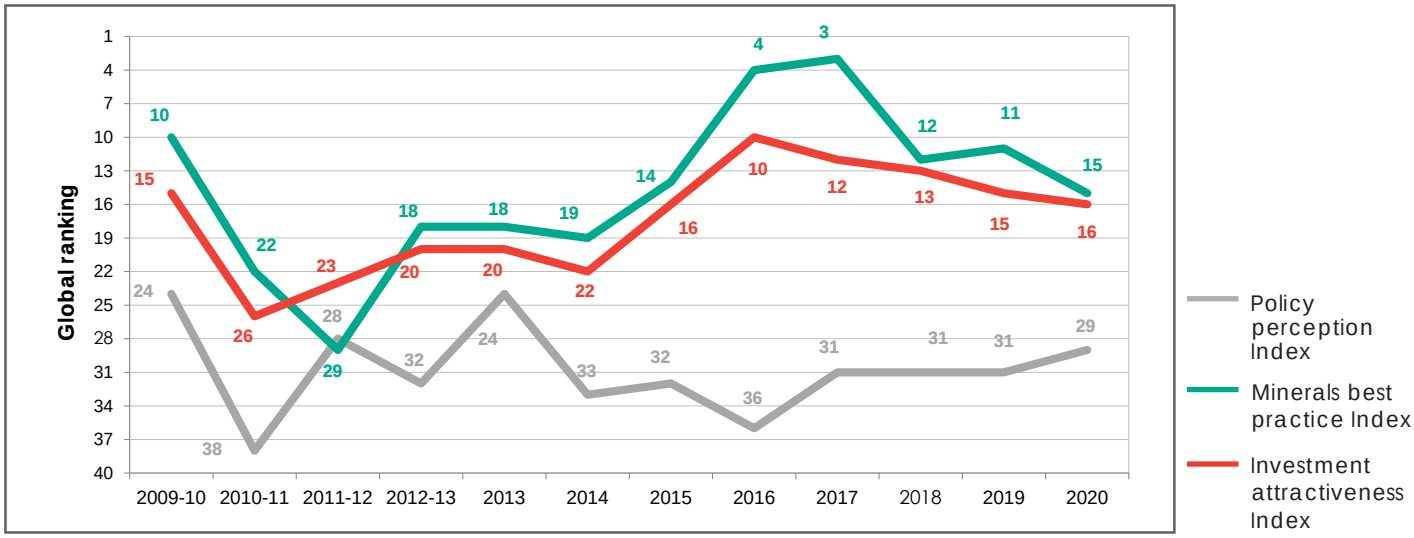
4.3 FRASER INSTITUTE'S ANNUAL SURVEY OF MINING COMPANIES 2020

On 23 February 2021, the Fraser Institute released its Annual Survey of Mining Companies 2020. The survey ranks global jurisdictions on an Investment Attractiveness Index, which is scored based on policy and mineral resource perception. This year 77 jurisdictions were assessed.

The survey ranks Queensland as 16th out of 77 jurisdictions for investment attractiveness, falling one place from the previous year (15/76 jurisdictions in 2019). Queensland is third highest rank jurisdiction in Australia, with both Western Australia (4th) and South Australia (7th) scoring higher for investment favourability. North America dominated the top three spots for the index, with Nevada, Arizona and Saskatchewan taking the three highest spots.

The Investment Attractiveness Index is based on two factors. Firstly, the Policy Perception Index, which weights 40% towards the overall score. Secondly, the Best Practices Mineral Potential Index, which weights 60% towards the overall score. Queensland's ranking is presented below:

CHART 4.3: FRASER INSTITUTE – QUEENSLAND'S GLOBAL RANK 2009-10 TO 2020



Source: Fraser Institute

The Policy Perception Index measures the effects of government policy on investment in exploration.

The Fraser Institutes notes in this year's publication, that all Australian jurisdictions increased their Policy Perception Index scores in this survey compared with the previous year. For Queensland that translated to an increase of almost 5 points from 76.91 to 81.12 (29/77 jurisdictions). WA recorded the highest score of any Australian jurisdiction for this measure in this year's survey at 94.77 (11/77 jurisdictions). NSW recorded the lowest Australian score at 72.13 (49/77 jurisdictions).

Queensland has increased its global ranking on this measure at 29th spot (up from 31st spot the previous year) but has fallen one spot among Australian jurisdictions, now ranked at number four below Western Australia, South Australia and Tasmania.

The Best Practices Mineral Potential Index is a measure of the extent to which a region's geology encourages exploration investment.

Queensland lost some ground on this measure in this year's survey falling from 80.95 to 75.93, placing the state at 15/77 jurisdictions down from 11th spot the previous year. WA is Australia's highest-ranking jurisdiction on this measure at 84.85 (6/77) and Tasmania is Australia's lowest-ranking jurisdiction at 37.50 (69/77).

4.4 OPERATING SENTIMENT

Companies were asked to indicate to what degree individual factors positively or negatively impacted the commercial objectives of their Queensland operations during 2020-21. Companies were also asked to respond to the same questions for the other Australian or overseas jurisdiction in which they are most active.

To enable a yearly comparison, the Scorecard's core factors have remained constant since the Scorecard began in 2011. Over the past three years, two new categories have been added. In 2019, the Scorecard introduced a category for sentiment towards Queensland's royalty and tax rates. In 2020, the Scorecard introduced a category for sentiment towards the impact of COVID-19.

This year's exploration sentiment survey received 79 responses from companies with exploration targets in Queensland. Of those responses, 34 companies also reported operating in other jurisdictions. Across the 2020-21 survey, the most common Queensland exploration targets were base or precious metals (29%), metallurgical coal (24%), unconventional oil & gas (21%), technology minerals (14%) and thermal coal (11%). Other Queensland targets included bauxite, industrial minerals, conventional oil and gas and uranium. A total of 92 exploration targets were declared by 79 respondents indicating a number of respondents with multiple exploration targets.

The responses were combined into a single value by weighting each response. 'Strongly positive' (negative) responses were given a weighting of 1 (-1), 'positive' (negative) responses were given a weighting of 0.5 (-0.5) and 'not at all' responses were given a weighting of 0. For more details and a worked example, please see here.

INDUSTRY SENTIMENT SURVEY

The Exploration and Drilling Sentiment Surveys were opened on 9 July and closed on 31 August. The full results for 2021 show:

- **5 of the 16 factors** showed a net positive sentiment in Queensland, with 2 of those factors strongly positive:
  - ✓ Resource prospectivity and endowment
  - ✓ Pre-competitive geoscience data
  - ✓ Access to investment capital showed the highest positive sentiment in the history of the Scorecard
  - ✓ Government/departmental assistance was rated as positive, reflecting the gradual dividends of complex reforms to refine and streamline tenure assessment processes.

- **11 of the 16 factors** showed net negative sentiment in Queensland, with 5 of those being strongly negative:
  - × COVID-19 related factors
  - × Policy uncertainty
  - × Labour/skills availability
  - × Environmental regulations
  - × Equipment availability

- The 11-year trends for Queensland show an **improvement in sentiment** towards:
  - ✓ exploration permit processes
  - ✓ land available for exploration
  - ✓ cultural heritage regulations
  - ✓ conduct and compensation agreements

CHART 4.4.1: COMPARING QUEENSLAND TO OTHER JURISDICTIONS, 2020-21

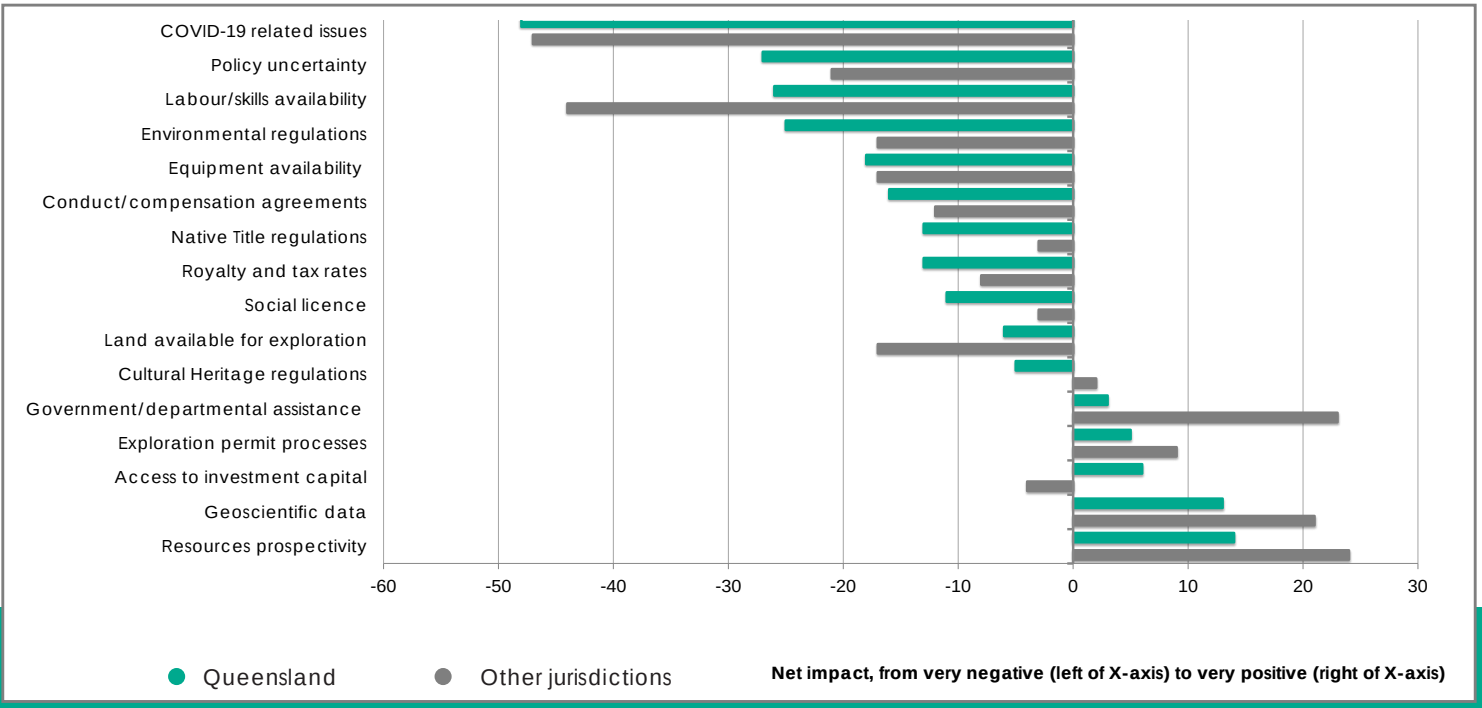
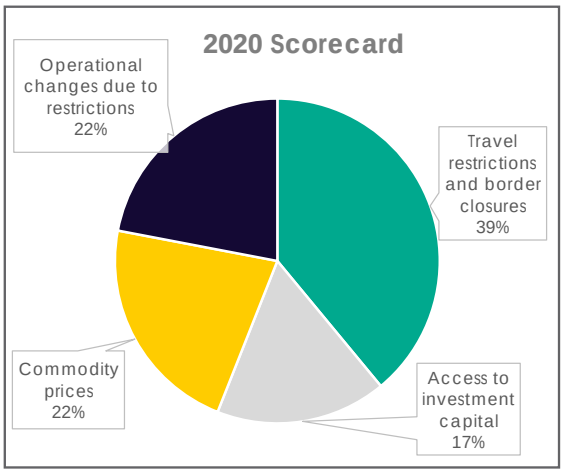
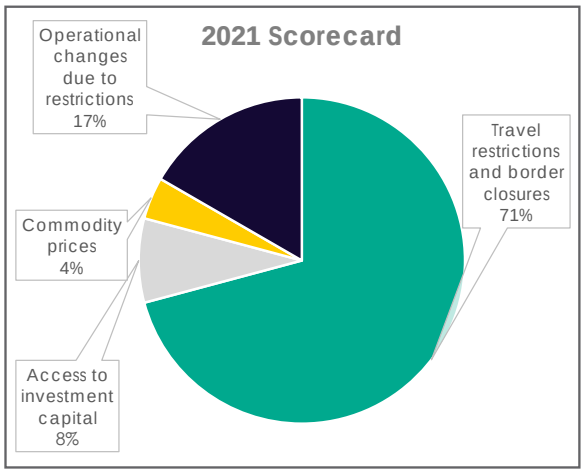


Chart 4.4.1 lists the sentiment responses from the least positive to the most positive. For comparison, the results for "other jurisdictions" are shown. Responses to COVID-19 related initiatives represented the most polarising aspect of this years' scorecard.

CHART 4.4.2: COVID-19 RELATED FACTORS 2020 SCORECARD VS 2021 SCORECARD





In the 2021 Scorecard survey, COVID-19 related issues again received the single lowest net sentiment score.

The earlier COVID challenges of commodity price impacts and access to investment capital have subsided with only 12% of respondents identifying either category as their top COVID impact through the year.

However, the Queensland Government's COVID-19 measures continue to impact exploration activities. Travel restrictions and border closures remained the single greatest COVID challenge in 2020-21, with 71% citing the category as a major driver of their concern.

Conversely, explorers continued to applaud the Queensland Government for its support during the pandemic. According to this year's survey, one quarter of explorers said the Queensland Government's range of COVID-19 initiatives were the single most beneficial program or policy for the year. A majority (53%) pointed to fee and rent relief as the major benefit for their business while other benefits included the border exemption process, work program deferrals as well as the general support provided by the Department of Resources.

The Department of Resources' engagement with industry as COVID developed was acknowledged in recent QUT research as being the best in Australia. In the highly uncertain times when border closures were dynamic, the Department was in constant contact with the industry and senior officials made themselves available for a weekly industry teleconference that provided invaluable guidance to the industry.

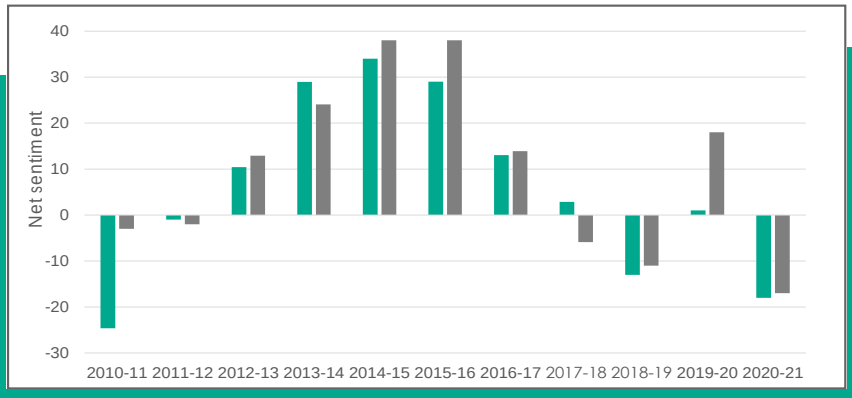
Several explorers commented that they appreciated the way the Department had worked with them to implement these initiatives on a case-by-case basis and QEC acknowledges the Department of Resources staff who showed exemplary responsiveness regarding the industry's travel passes and ensuring that industry understood the latest health advice as the COVID restrictions evolved.

LEGEND

Queensland

Rest of Australia

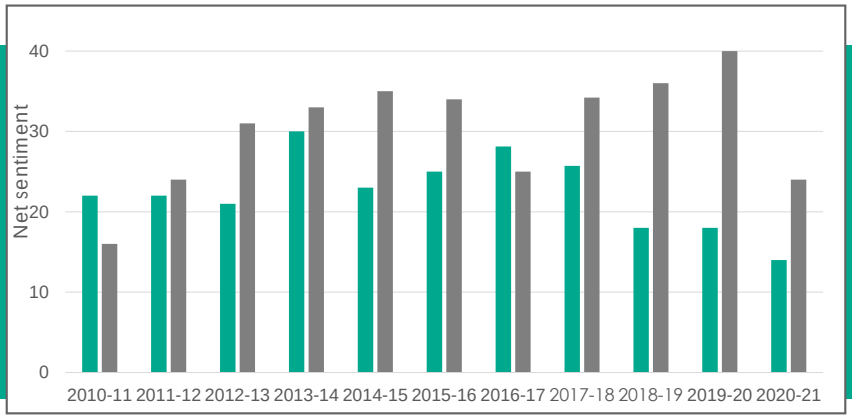
CHART 4.4.3: EQUIPMENT AVAILABILITY 2010-11 TO 2020-21



Last year, the survey showed a near neutral response for equipment availability, reflecting the early days of the COVID pandemic. The domestic border closures and fluctuating restrictions have tightened access to essential equipment such as drill rigs, trucks and machinery.

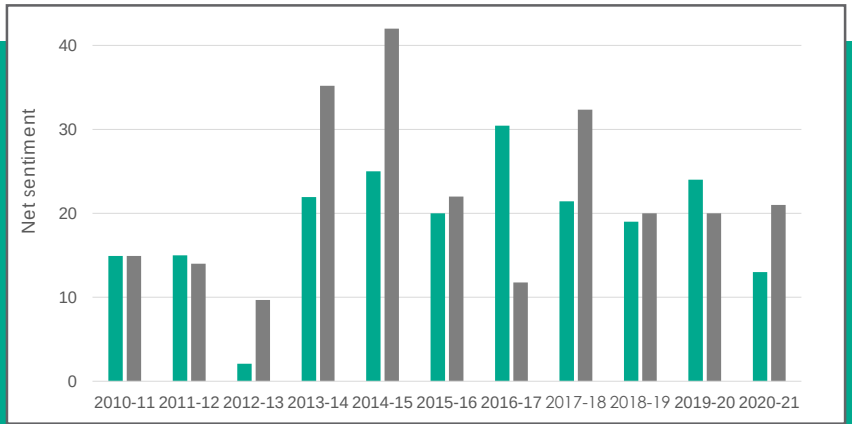
This year's negative sentiment is approaching the lows of the mining boom in 2010-11 when demand for outweighed supply of equipment. A variety of pandemic impacts, including increased international shipping costs and factory shortages mean accessing new exploration equipment is particularly difficult.

CHART 4.4.4: RESOURCE PROSPECTIVITY/ENDOWMENT 2010-11 TO 2020-21



Queensland's world-class resource prospectivity remains a strong positive for an 11th-year running. Most respondents continued to rate Queensland's resources prospectivity as positive, with negative sentiment from petroleum explorers driving the overall score slightly lower. This comes as development shifts into more challenging gas plays such as shale, tight gas and less permeable coals. Queensland minerals explorers remained extremely positive towards the category, with this factor being minerals explorers' most positive overall.

CHART 4.4.5: PRE-COMPETITIVE GEOSCIENCE DATA 2010-11 TO 2020-21



Pre-competitive geoscience data is necessary for attracting exploration spending and remains a real strength for Queensland. This year's survey results suggest explorers have become accustomed to the release of pre-competitive geoscience data by the Geological Survey of Queensland (GSQ). 30% of respondents said the data had a positive impact on their company's objectives, while 63% were neutral. This larger neutral response has resulted in positive sentiment for this category dropping to its lowest score since 2012-13.

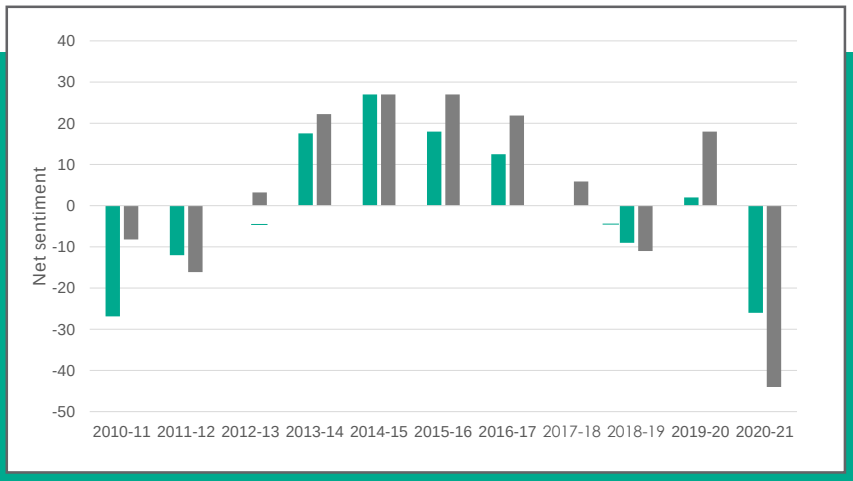
Although positive sentiment has decreased, the release of pre-competitive geoscience data by GSQ was still ranked as one of the top three government initiatives providing benefits to exploration companies.

LEGEND

Queensland

Rest of Australia

CHART 4.4.6: LABOUR/SKILLS AVAILABILITY 2010-11 TO 2020-21

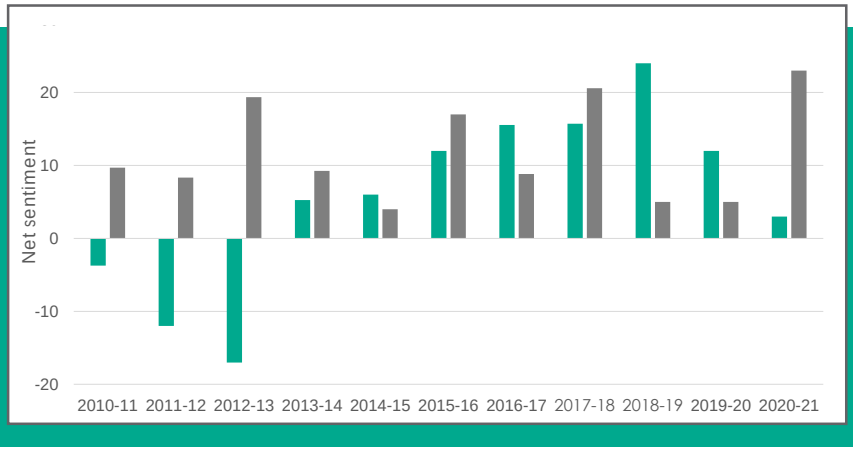


Similar to equipment availability, labour and skills availability has decreased significantly from last year. A national skills shortage across the resources sector, combined with border restrictions across all Australian states has made operating conditions difficult for explorers.

For this category, explorers in other jurisdictions were far more negative than Queensland explorers. Explorers pointed to the long-term effects of fluctuating border restrictions and closures, the ban of FIFO workers in Western Australia and competition for skills with the wider resources sector.

Note: Queensland sentiment in 2012-13 & 2017-18 was neutral (zero)

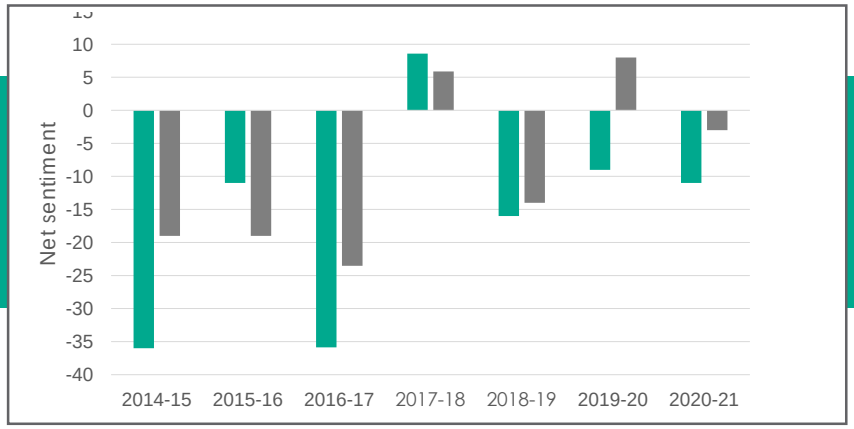
CHART 4.4.7: GOVERNMENT/DEPARTMENTAL ASSISTANCE 2010-11 TO 2020-21



Departmental assistance delivered a positive sentiment for its eighth year in a row. The drop in positive sentiment this year was driven predominantly by petroleum explorers. Minerals explorers were mildly positive and coal explorers were strongly positive towards the government/ departmental assistance they received in 2020-21 (this category was the highest scored category overall for coal).

One explorer said, ***"Overall, improving stakeholder engagement from the mineral hub and GSQ is providing an ongoing positive impact on exploration in Queensland".***

CHART 4.4.8: INDUSTRY PERCEPTIONS OF SOCIAL LICENCE TO OPERATE 2014-15 TO 2020-21



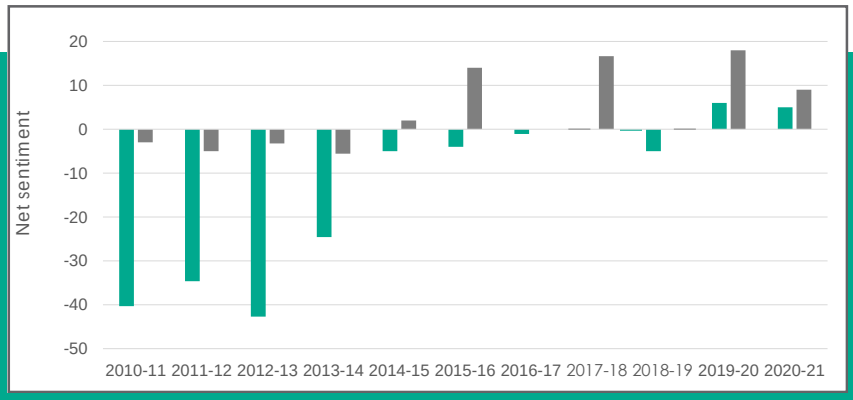
The industry's perception of its social licence has not improved with respondents remaining negative for a third year running. The industry has a growing awareness of itself in the face of ESG concerns becoming more prevalent for investors, resources communities and the general public.

LEGEND

Queensland

Rest of Australia

CHART 4.4.9: EXPLORATION PERMIT PROCESSES 2010-11 TO 2020-21

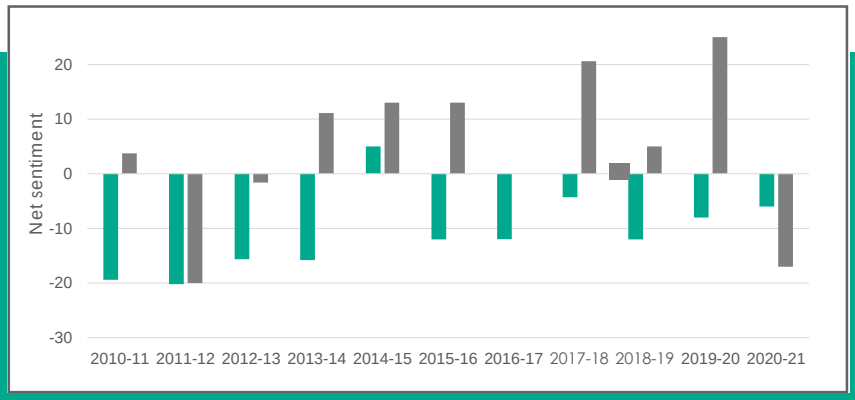


Exploration permit processes are one of the major successes of the Scorecard's 11-year history. The good news continues here, with sentiment remaining positive again this year.

The shift to positive sentiment over the past two years is due to the continuous work DOR has undertaken to improve permit processes since 2015. The Department values industry feedback and the concerns highlighted by previous Scorecards have in-large been addressed and implemented by DOR.

Note: Rest of Australia's sentiment in 2016-17 and Queensland's sentiment in 2017-18 were neutral (zero)

CHART 4.4.10: LAND AVAILABLE FOR EXPLORATION 2010-11 TO 2020-21

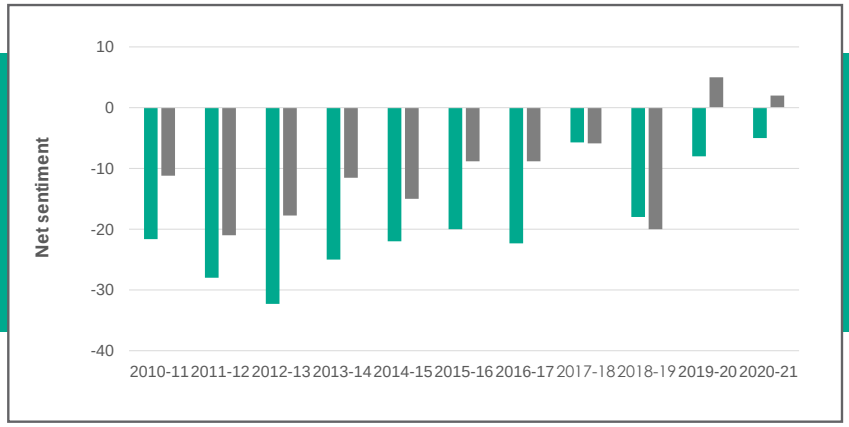


Sentiment towards land available for exploration in Queensland improved slightly in 2020-21. In the Scorecard's 11-year history, this category has remained negative sentiment for ten of those years, but the category has improved since 2013.

In this year's survey, some explorers pointed to a perceived bias from the government towards the North-West Minerals Province and wished to see a broader focus across all commodities. Explorers also said land-banking remains as an ongoing issue in Queensland.

Note: Rest of Australia's sentiment in 2016-17 was neutral (zero)

CHART 4.4.11: CULTURAL HERITAGE REGULATIONS 2010-11 TO 2020-21



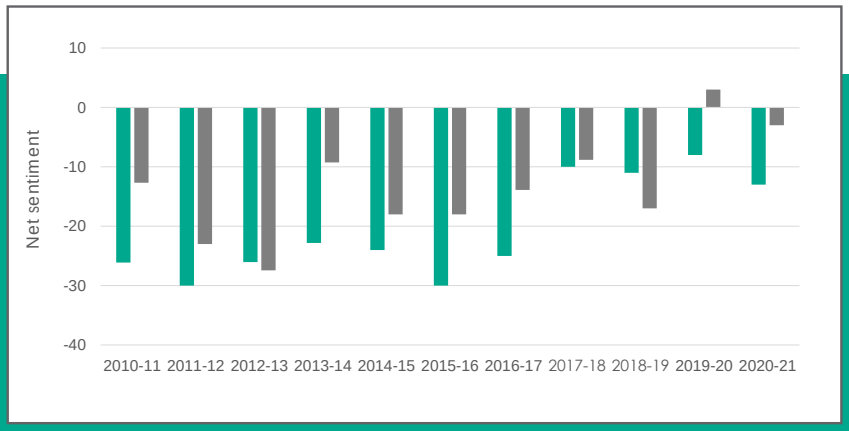
For a third year, negative sentiment towards Cultural Heritage regulations has improved. This could indicate that the exploration industry has accepted these assessment and conservation processes as a part of doing business in Queensland.

LEGEND

Queensland

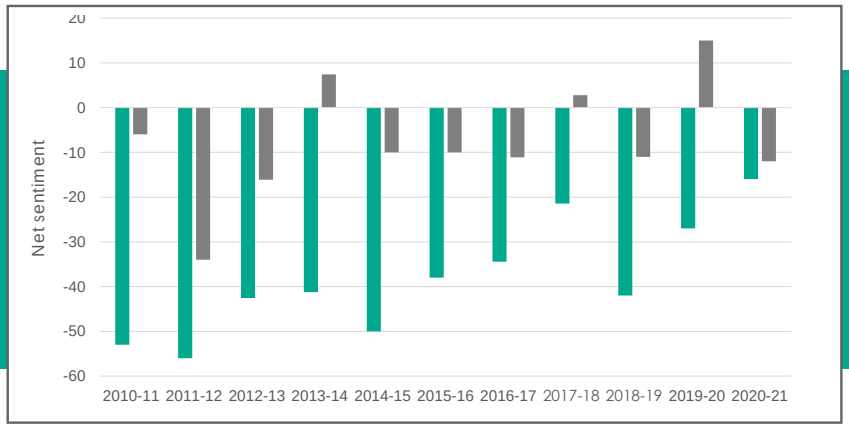
Rest of Australia

CHART 4.4.12: NATIVE TITLE REGULATIONS 2010-11 TO 2020-21



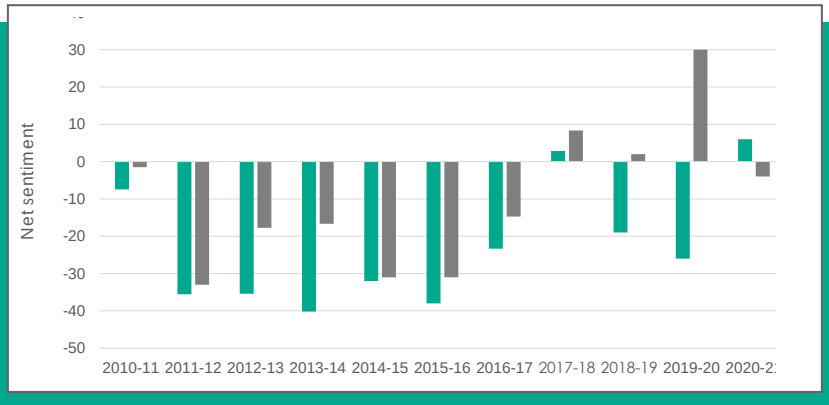
Sentiment towards Native Title regulations has decreased to its lowest level in four years. This drop in sentiment may be yet another area of doing business that has been impacted by COVID. Travel restrictions within Queensland and interstate has made face-to-face negotiations with Traditional Owners more difficult to secure. Legislation reviews in previous years have been widely accepted by the industry, however explorers may now be experiencing some difficulties.

CHART 4.4.13: CONDUCT AND COMPENSATION AGREEMENTS 2010-11 TO 2020-21



Conduct and Compensation Agreements (CCAs) sentiment has improved for a third year running and is the highest score this category has received in the Scorecard's 11-year history. Sentiment was scored evenly across commodity groups, with some respondents pointing towards frustration with rates of compensation.

CHART 4.4.14: ACCESS TO INVESTMENT CAPITAL 2010-11 TO 2020-21



Sentiment towards access to investment capital is now better than it's ever been in the Scorecard's 11-year history, meaning a majority of explorers are now more confident that they will be able to raise capital for their operations going forward. Minerals explorers were the most positive towards this category, while coal and petroleum respondents were mildly negative.

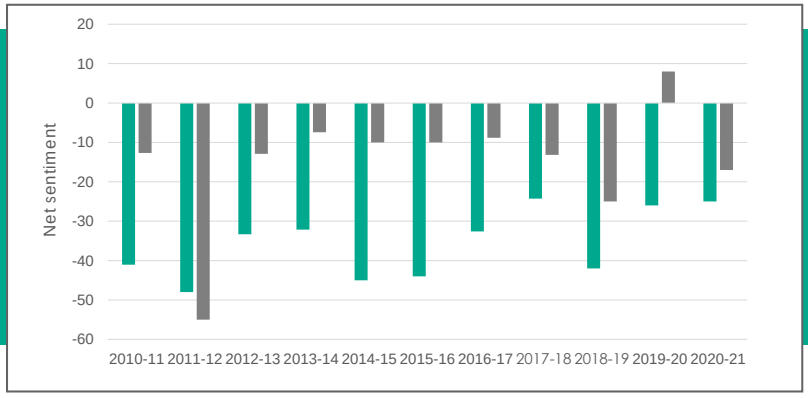
Queensland is on the cusp of developing its richly endowed critical minerals industry, to meet increased global demand for the materials needed to power renewable technologies. There is new confidence in the future of the critical minerals industry in Australia, which has created a new economy for many existing Queensland mineral resources. This investor confidence coupled with historically low interest rates, is driving investment into Australia's stock markets.

LEGEND

Queensland

Rest of Australia

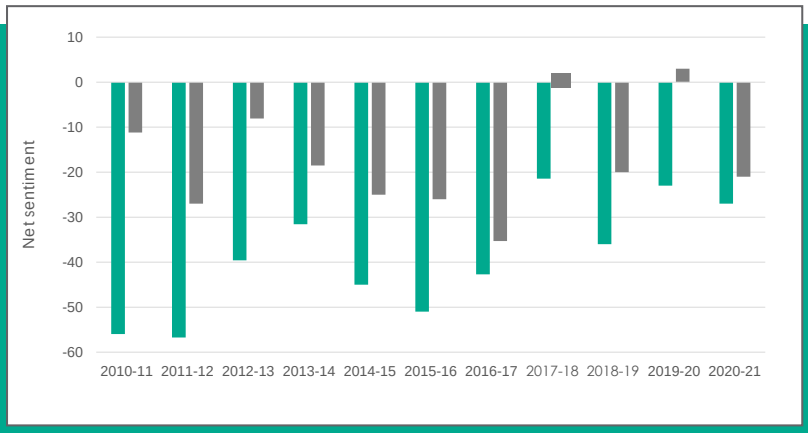
CHART 4.4.15: ENVIRONMENTAL REGULATIONS 2010-11 TO 2020-21



Sentiment towards environmental regulations has not changed since last year's Scorecard survey and is as good as it's ever been in the Scorecard's 11-year history. In 2020-21 this category has scored the 4th lowest overall ranking.

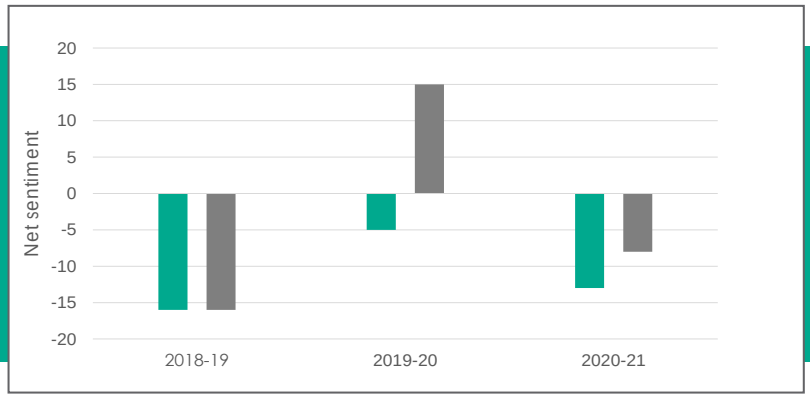
One explorer said, ***"Drawing upon successful environmental assessment processes from other states to improving existing environmental assessment processes in Queensland would benefit the entire sector".***

CHART 4.4.16: POLICY UNCERTAINTY 2010-11 TO 2020-21



Negative sentiment towards policy uncertainty remains for an 11th year and has worsened after last year's improvement. After COVID-19 related issues, policy uncertainty was scored the second-most negative factor affecting Queensland explorers in 2020-21. Negative sentiment towards this category was driven by strong negative sentiment from petroleum respondents. When asked which policy had the most negative impacts, one petroleum respondents stated, ***"Queensland Government's control of areas being released for exploration tenure is limiting the development of new sources of gas supply"***. Minerals respondents scored this category moderately negative, while coal respondents were mildly negative.

CHART 4.4.17: ROYALTY AND TAX RATES 2018-19 TO 2020-21

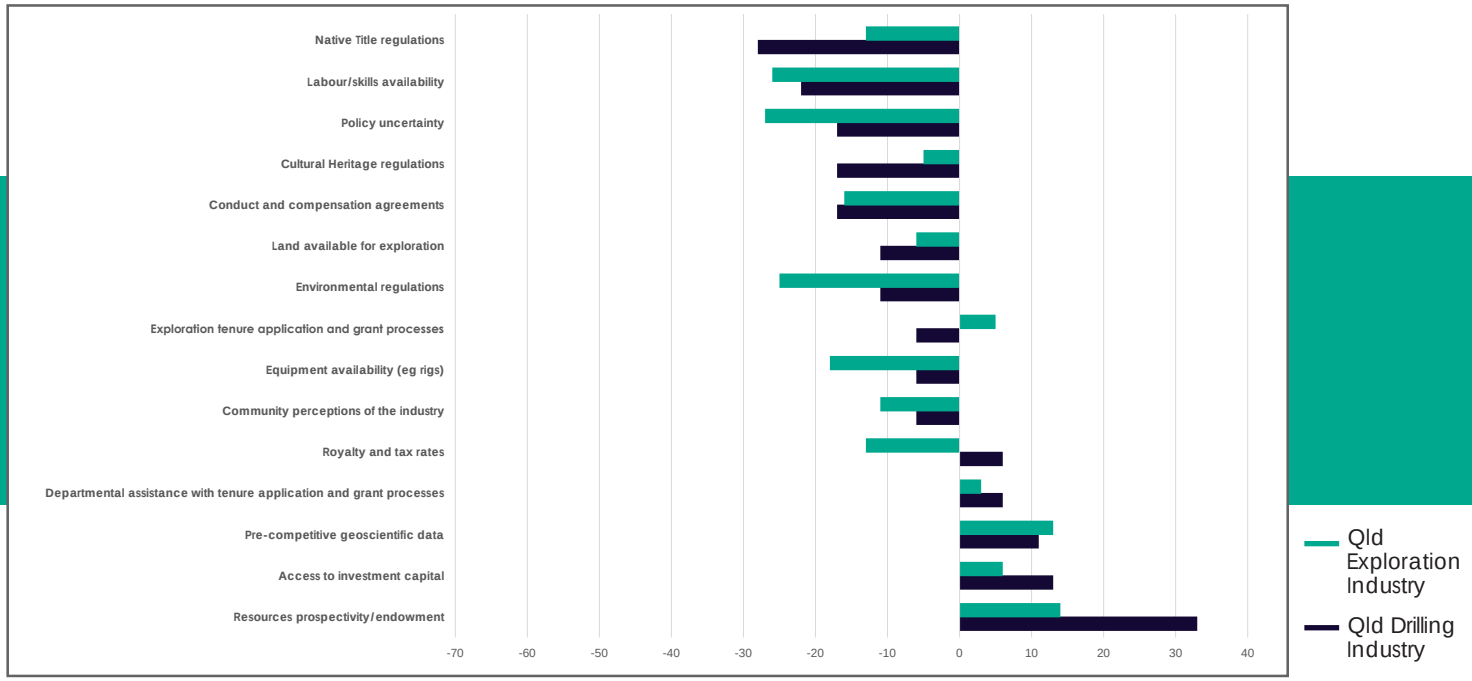


Last year's improvement in sentiment towards royalty and tax rates has since declined in this year's survey. The category had the third most negative sentiment for coal and petroleum explorers in 2020-21, while minerals explorers were mildly negative towards this category. Despite the increased sensitivity regarding royalty and tax rates some explorers reported that a decrease in payroll tax for regional based Queensland business helped their companies in 2020-21 during the pandemic.

4.5 QUEENSLAND DRILLING INDUSTRY SENTIMENT

The drilling industry is vital for exploring and developing Queensland's natural resources and it remains an important bellwether for the health of the sector. The Australian Drilling Industry Association asked its member companies with drilling interests in Queensland a number of questions to gauge the sentiment and outlook for the industry.

CHART 4.5.1: SENTIMENT COMPARISON: QUEENSLAND EXPLORERS VS QUEENSLAND DRILLING INDUSTRY 2020-21



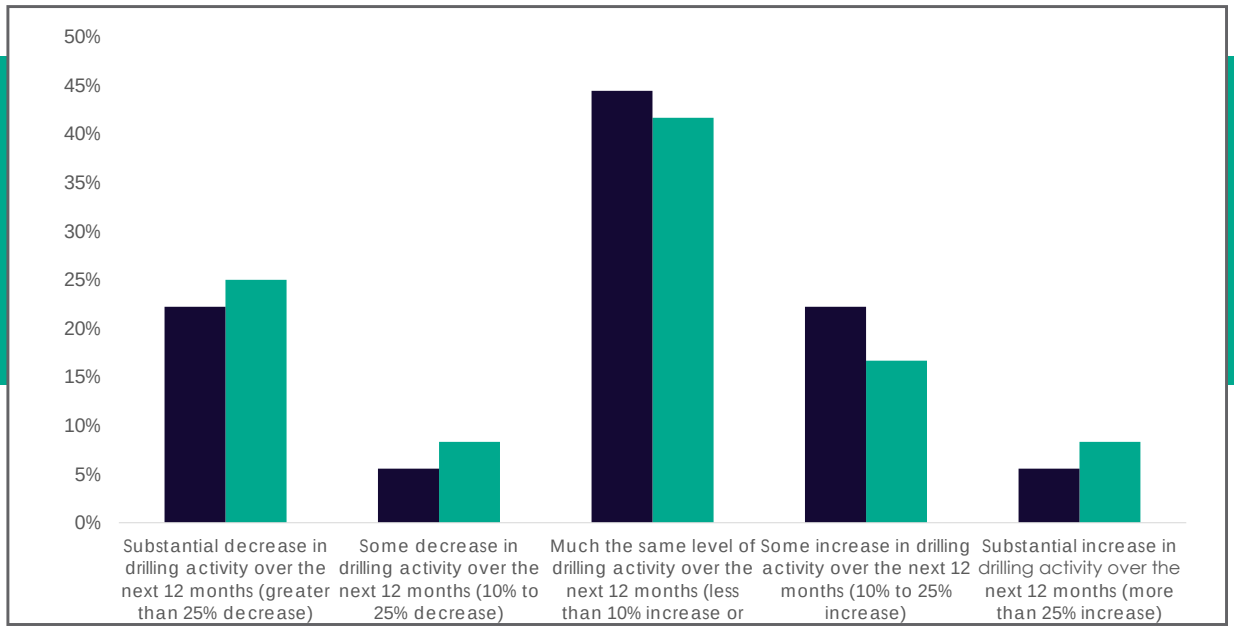
Note: Years with no data equals a neutral score (zero).

The drilling and exploration surveys produced similar sentiment direction for the majority of categories, with just two exceptions. On exploration tenure application and grant processes the Queensland drilling industry recorded a negative sentiment while the exploration sector was positive. Conversely, on the measure of royalty and tax rates, explorers expressed a negative sentiment while the drilling industry was positive.

For both the exploration industry and the drilling industry sentiment remains deeply negative on COVID-related factors for a second year in a row. Other concerns include labour/skills availability, policy uncertainty and environmental regulations. The strongest positive for both sectors was resources prospectivty and endowment. Pre-competitive geoscientific data, access to investment capital and Department assistance with tenure application and grant processes were all in positive territory for both drillers and explorers.

While the sentiment index suggests there are some substantial challenges to navigate, there are strong signs the fundamentals are in place particularly when it comes to confidence about prospectivity and access to the funds to translate prospectivity into exploration.

CHART 4.5.2: 12 MONTH OUTLOOK FOR DRILLING ACTIVITY, 2020-21



The 12 month outlook for drillers has eased slightly, when compared to the 2020 Scorecard results. One quarter of drillers expect to increase activity in 2021-22 while one third expect a decrease. This result, combined with negative sentiment towards equipment and skills availability suggests drillers are at or nearing capacity over the next 12 months.

5.0 TENURE COVERAGE

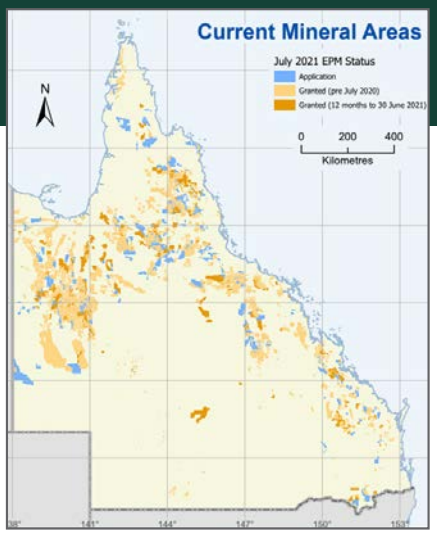


CHART 5.1: EXPLORATION PERMIT MINERAL COVERAGE, JULY 2021

The map to the right displays mineral tenure permits and applications in Queensland as at July 2021. It's a clear illustration of the diverse geographic spread of Queensland's minerals potential, spanning the traditional investment zones of Central and North Queensland, along with the ever-expanding prospects of North-Western Queensland.

This map shows a significant number of areas shaded in dark orange representing exploration permits granted in the 12 months to June 2021 - largely clustered in the top half of the state. There are also a significant number of geographically spread areas shaded in blue – representing permits at the application stage. Again, these are largely clustered in Central, North and Western Queensland, with some located in the southern half of the state.

While an awarded permit or new application doesn't necessarily translate to new project investments, it is an encouraging pointer to the robust nature of the resources sector that even after 18 months of COVID-induced challenges, explorers have great ambitions for the state.

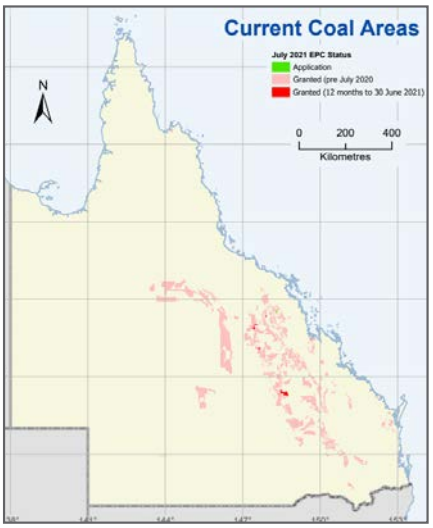


CHART 5.2: EXPLORATION PERMIT COAL COVERAGE, JULY 2021

Queensland has a rich coal endowment and some of the highest quality metallurgical coal in the world. As part of the Queensland Exploration Program the Government released five coal tender areas in the second half of 2019 and two new coal tender areas in the Bowen Basin in 2020. The awarded coal tenure grants and active tenure applications are not as widespread as for minerals or petroleum. This is likely due to an increased focus on coal development and production activities as part of the progression of coal exploration tenure.

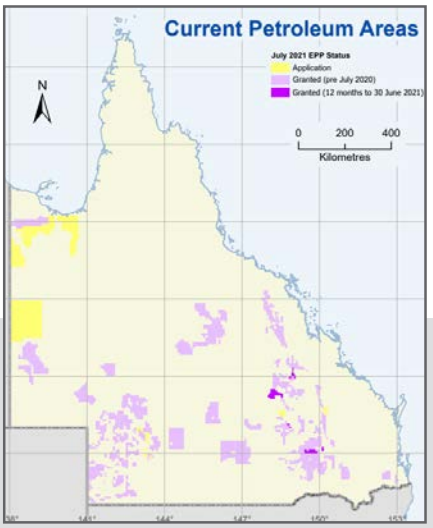


CHART 5.3: AUTHORITY TO PROSPECT (PETROLEUM), JULY 2021

The Queensland petroleum sector is central to the domestic supply of gas along the east coast of Australia and has also become a key export for the state over the past few years. Petroleum exploration tenure in Queensland is distributed across the state, characterised by the larger permit areas being in greenfield regions and most tenures and generally smaller permit areas are in brownfields regions. DOR released 12 petroleum tender areas which closed for bids at the beginning of the financial year and a further 5 tender areas were released in June 2020.

Alongside minerals, petroleum and coal—areas suitable for greenhouse gas storage may soon be expanded for Queensland explorers. In early 2021, the Queensland Government sought expressions of interest for nominations of areas of land suitable for greenhouse gas storage exploration, building on the single granted permit as at 30 June 2021. Any areas released under the process will be mapped in future Scorecards.

KEY FINDINGS

- DOR exploration permit process continued to improve in 2020-21 and is an ongoing success for the sector.
- The Queensland Exploration Program continues to release prospective land for coal and petroleum explorers. The Collaborative Exploration Initiative is encouraging minerals exploration in areas with high New Economy Minerals prospectivity.
- As in previous years, petroleum exploration is widespread across the state. Tenure applications and grants for minerals exploration appear through the eastern parts of the state, but with the majority of minerals exploration located across North Queensland (particularly North-West). Coal exploration tenure applications and grants are confined to the Bowen and Surat basins and compared to other commodity groups limited areas (of mostly relinquished) land is up for tender.

Source: Department of Resources

6.0 MINERALS AND PETROLEUM EXPLORATION

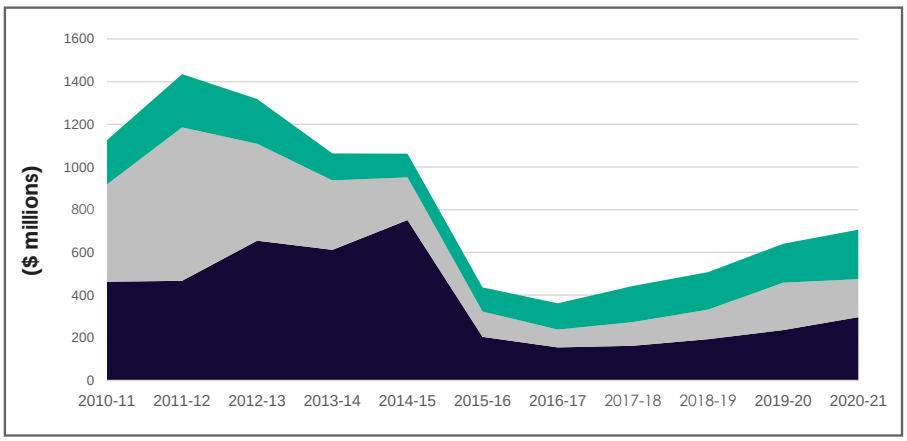
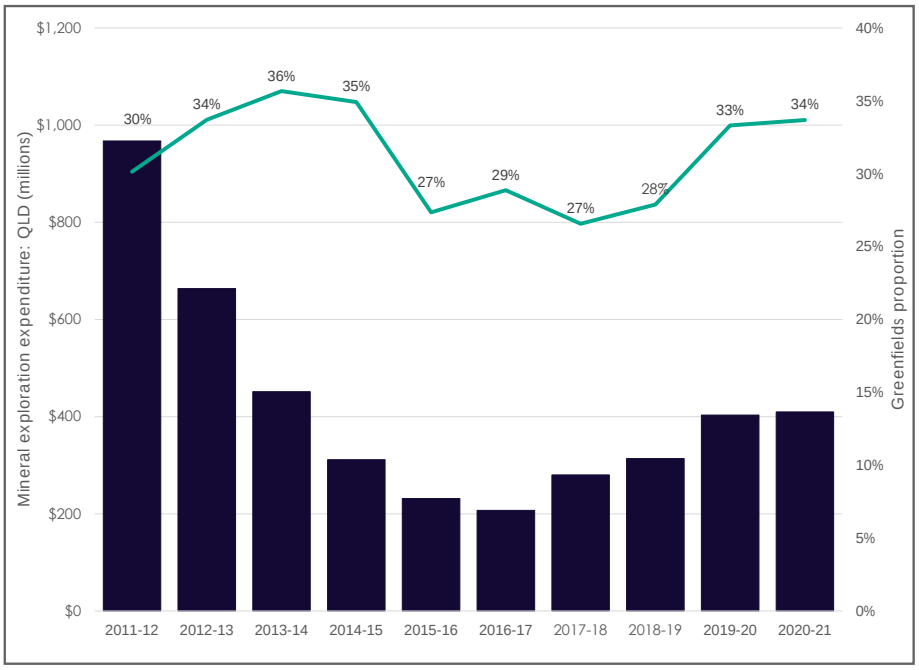


CHART 6.1: QUEENSLAND EXPLORATION EXPENDITURE - 2010-11 TO 2020-21

Queensland's total exploration expenditure continued to recover in 2020-21— up 95% on the recent lows of 2016-17.

CHART 6.2: NEW DEPOSITS (GREENFIELDS) AS PERCENTAGE OF TOTAL QUEENSLAND MINERALS EXPLORATION EXPENDITURE - 2011-12 AND 2020-21

In 2020-21, Queensland's greenfields share of mineral exploration improved slightly for the third year in a row, increasing to 34% of all exploration spend. While only a mild improvement, Queensland's greenfields proportion continues to approach recent highs.



Source: AUSTEX Resource Opportunities

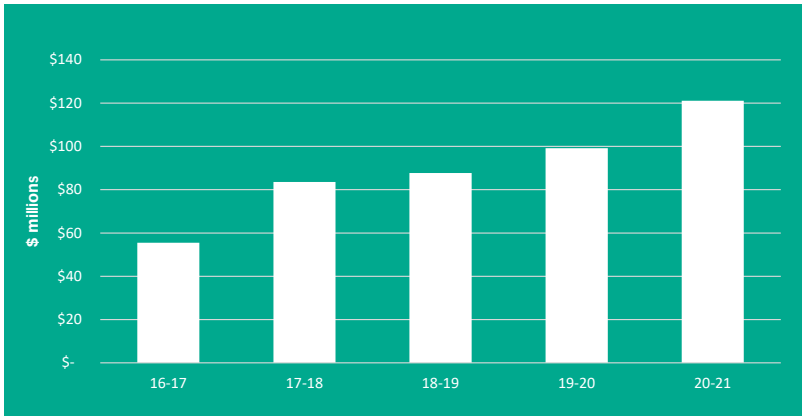


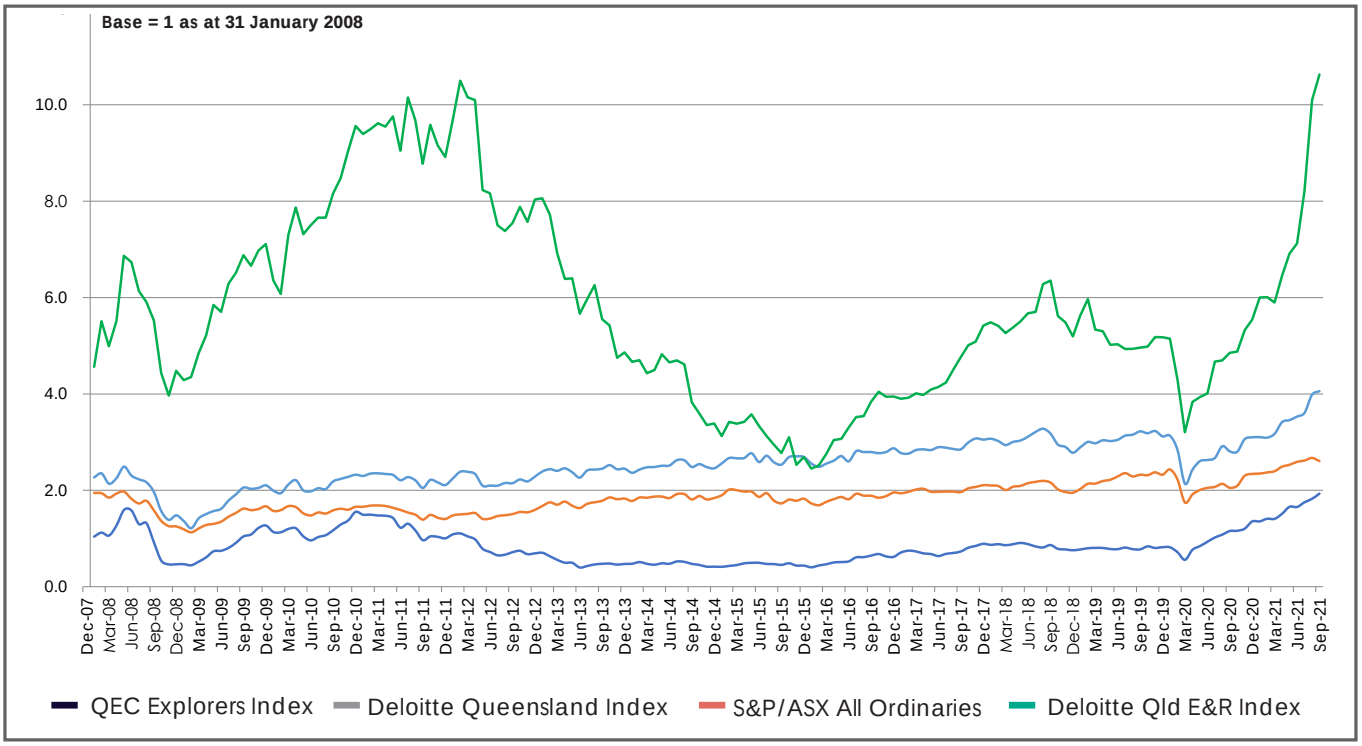
CHART 6.3: AUSTEX JUNIOR COMPANY EXPLORATION EXPENDITURE IN QUEENSLAND ($MILLIONS, ANNUAL)

Queensland's junior explorers continued to increase expenditure in 2020-21. AUSTEX Resources Opportunities data shows that junior company exploration in Queensland increased a further 22% to $121 million in 2020-21 - now more than double the $56 million spent in 2016-17.

Gold, copper and oil & gas were the top targets for junior exploration. Yet Queensland's junior explorers continue to target a broad range of resources, from base and precious metals to specialty or strategic metals such as cobalt and tungsten.

7.0 MARKET CAPITALISATION MOVEMENTS

CHART 7.1: QEC EXPLORATION INDEX VERSUS OTHER CAPITAL INDICES



Source: Capital IQ and Deloitte

All four capital indices tracked by the Scorecard enjoyed strong growth in 2020-21 as economic conditions continued to improve. The more resource-focused indices outpaced the broader market indices. The QEC Explorers Index and Deloitte QLD Energy Resources Index both grew by 78% in 2020-21, while the Deloitte Queensland Index grew by 34% and the S&P/ASX All Ordinaries grew by 26% across the year. There are more positive signs beyond the scope of this year's Scorecard, with all four indices achieving new records in the first quarter of 2021-22.

THE QEC WOULD LIKE TO THANK ITS 2021 SCORECARD LAUNCH EVENT PARTNER, BDO AND SCORECARD PANEL SPONSOR, PASSAGE MIGRATION CONSULTING

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QUEENSLAND resources COUNCIL

Queensland Resources Council
Level 13, 133 Mary Street Brisbane QLD 4000
Phone: +617 3295 9560

qrc.org.au
queenslandexploration.com.au