



Queensland **EXPLORATION SCORECARD**

2022

*INVESTMENT REQUIRED
FOR THE FUTURE*



queensland
exploration
council



Image source: Bengal Energy

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FOREWORD

WELCOME TO THE 12TH ANNUAL QUEENSLAND EXPLORATION SCORECARD

The Queensland Resources Council (QRC) and the Queensland Exploration Council (QEC) are proud to deliver the QEC Exploration Scorecard 2022. This year's theme is "*Investment required for the future*", a topic the Scorecard is ideally placed to explore given it serves as both a pulse check for investor sentiment and a roadmap for future investment opportunities.

During several years of interruption due to the impact of the COVID-19 pandemic, the maintenance of safe operations has taken precedence over investing in the future through exploration.

While this year's Scorecard shows the impacts of the pandemic are stubbornly lingering, most likely because of interruptions in the availability of skilled workers and ongoing supply chain challenges, there's cause for optimism that a new chapter is ahead of us. The recent decision to scrap COVID isolation rules, coupled with the reopening of all international and state borders, should have a flow-on effect for sentiment and confidence in the exploration sector, with more certainty around the movement of both people and equipment.

Globally, the Northern Hemisphere energy crisis presents both opportunities to be a global leader in energy security and challenges for the resources sector and exploration. Queensland's high-quality coal and gas are helping fill a global supply squeeze in the immediate to medium term. As countries continue their net zero emissions trajectories, there will be a clear and sustained role for Queensland's thermal coal and gas, and in particular the metallurgical coal needed for lower emissions infrastructure.

The duration of the Ukraine conflict has, however, also fed uncertainty about global geopolitical tensions, a variable the resources and exploration sectors are more attuned to than ever following the lessons of COVID-19 with its interrupted supply chains and disincentive for investment.

Fortunately, results in this year's Scorecard attest that explorers have enduring confidence in Queensland's mineral prospectivity.

For Queensland, delivering on its future potential in mineral and energy resources will depend on a supportive policy framework

QEC acknowledges the ongoing support of the Department of Resources (DoR) in the development of this year's Scorecard. QEC is also very pleased to have the Department of Environment and Science (DES) on our working group. These robust partnerships with DoR and DES have helped ensure feedback from industry is actioned and implemented wherever possible.

Both QRC and QEC hope to see that partnership continue into the future to turn prospectivity into reality and lay the foundation for investment in Queensland's most important economic sector, resources.

The biggest uncertainty for the resources and exploration sectors in 2022 has been much closer to home. The Queensland Government's decision to introduce three new tiers of coal royalty taxes, with the top tax tier increased from 15 to 40 per cent, has blindsided the sector. There was no consultation on these changes and therefore no opportunity to provide feedback on the impact this decision would have on Queensland's exploration sector.

Queensland Treasury's forecast of an additional \$1.2 billion to be collected from the new tiers over four years is also a significant underestimation of the impact on the resources sector. Modelling from third-party analysts Commodity Insights shows the royalty tax increase will collect an extra \$4.5 billion from the new tiers in the first 12 months alone. These are billions of dollars that can no longer be invested in equipment, exploration or local resources communities

It's no surprise that some of Australia's biggest miners have now paused plans for further investment in Queensland because of the royalty increases.

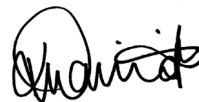
While it directly applies to the coal industry, the royalty hike is a significant concern for explorers in other commodities too, given the doubt it raises about the stability of investment conditions in Queensland. These concerns are clearly reflected in this year's Scorecard data. The resources sector continues to urge the Queensland Government to rethink this tax increase.

There is no doubt Queensland has the commodity potential to be a world-leading place to invest. Our resources industry continues to model leading practice ESG credentials, combined with some of the most talented geologists and exploration professionals in the world. The recently completed Queensland Resources Industry Development Plan (QRIDP) can also provide a blueprint for industry growth. The resources sector has worked constructively with the Queensland Government to develop this plan and we look forward to continuing engagement to realise the opportunities the plan identifies.

Investment in the exploration industry is based on confidence; confidence in the investment environment, confidence in a stable regulatory environment and confidence that we have the people and technologies to bring these vital resources to the marketplace. When all stakeholders work together to ensure these critical elements line up, Queensland can reach its full economic potential.



The Hon. Ian Macfarlane
Chief Executive
Queensland Resources Council



Kim Wainwright
Chair
Queensland Exploration Council



PUTTING THE SCORECARD INTO CONTEXT

2022 QUEENSLAND EXPLORATION SCORECARD “INVESTMENT REQUIRED FOR THE FUTURE”

The 2022 QEC Exploration Scorecard is a significant milestone for the Queensland exploration sector.

This year's Scorecard is the first edition since 2019 assessed without the all-consuming filter of COVID-19 constraints. We are not COVID-free, and the data attests to the lingering impact of the pandemic, but explorers are now seeking to look ahead to the resumption of a more normalised approach to planning and operations.

This year, COVID-related factors have been displaced as the top issue of concern for both coal and petroleum explorers, replaced by royalty rates and policy uncertainty respectively. For minerals explorers, COVID remains the key issue driving negative or uncertain sentiment. Overall, COVID-related concerns are slightly reduced on last year, but the sentiment of respondents towards their Queensland operations shows a deeper negativity than that expressed towards operations in other jurisdictions in Australia.

It is likely that questions about equipment uncertainty and access to skills and labour are driving that negative sentiment. On both measures, respondents are significantly more pessimistic towards their Queensland operations than their interstate activities.

This year, measures of both policy uncertainty and royalty rates show sharply deepening negative sentiment. This corresponds with the announcement from the Queensland Government of three new coal royalty tiers introduced in this year's budget, increasing the top royalty rate from 15 to 40 per cent, which is the highest rate in the world. The sharp downturn in sentiment on this measure is significant given the responses come from explorers, not necessarily producers. This suggests that even though respondents themselves aren't paying the higher royalty taxes, the sudden change in taxation has created a hesitancy in the broader sector and created concerns about future investment.

This year's Scorecard also shows a significant drop in sentiment on measures relating to environmental regulations and conduct and compensation agreements, demonstrating other policy changes beyond just the royalty increase are front of mind for explorers. Noteworthy policy concerns relating to environmental regulations include the Queensland Government's Lake Eyre Basin reforms and its investigation of an independent Environmental Protection Agency.

On the other side, once again the Scorecard reveals significant increases in positive sentiment on measures of resources prospectivity, pre-competitive geoscience data and government/departmental assistance. It is relevant that these increases in sentiment correlate with explorers benefiting from greater accessibility to data from the Geoscience Modernisation Project, as well as the release of the Queensland Resources Industry Development Plan (QRIDP), which is a long-term blueprint for the resources sector.



The QRIDP contains 43 measures for industry development which were finalised after an extensive year-long consultation process. The Department of Resources is to be commended for its detailed and collaborative approach to consultation in developing the Plan.

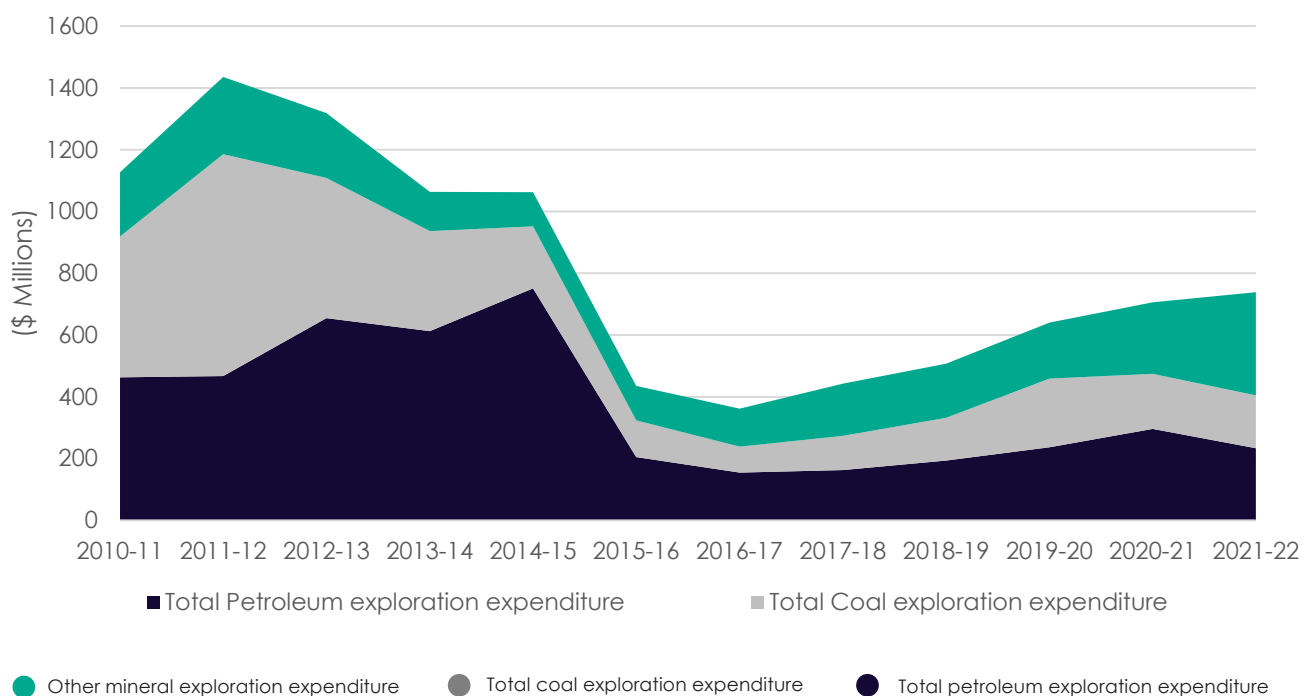
The contrast between the measures invoking positive compared to negative sentiment provides a clear indication of the opportunities and risks associated with the implementation of the QRIDP. Measures in the plan include further investment in the successful Collaborative Exploration Initiative, plans to capitalise on the burgeoning global opportunities in the critical minerals sector and opportunities to continue to strengthen resources regions. However, the clear warning from this year's results is that regardless of how detailed or extensive the planning for industry development is, that work is threatened when there is the prospect of sudden changes in the rules for investment or the implementation of significant new government regulatory requirements.

The development of the critical minerals sector provides a case in point, given the State Government's clear and stated intentions to develop the critical minerals industry. An example is the welcome announcement of a \$10 million multi-user vanadium processing facility in Townsville. This positive announcement is in contrast to the government's decision to implement policies that signal a red flag to investors, such as dramatically changing its royalty regime or introducing policies which may also be contradictory to growth.

At the same time, explorers continue to be buffeted by global trends that have seen a tightening of the flow of international capital and the fallout from geopolitical issues including unprecedented uncertainty in global energy markets as a result of Russia's invasion of Ukraine.

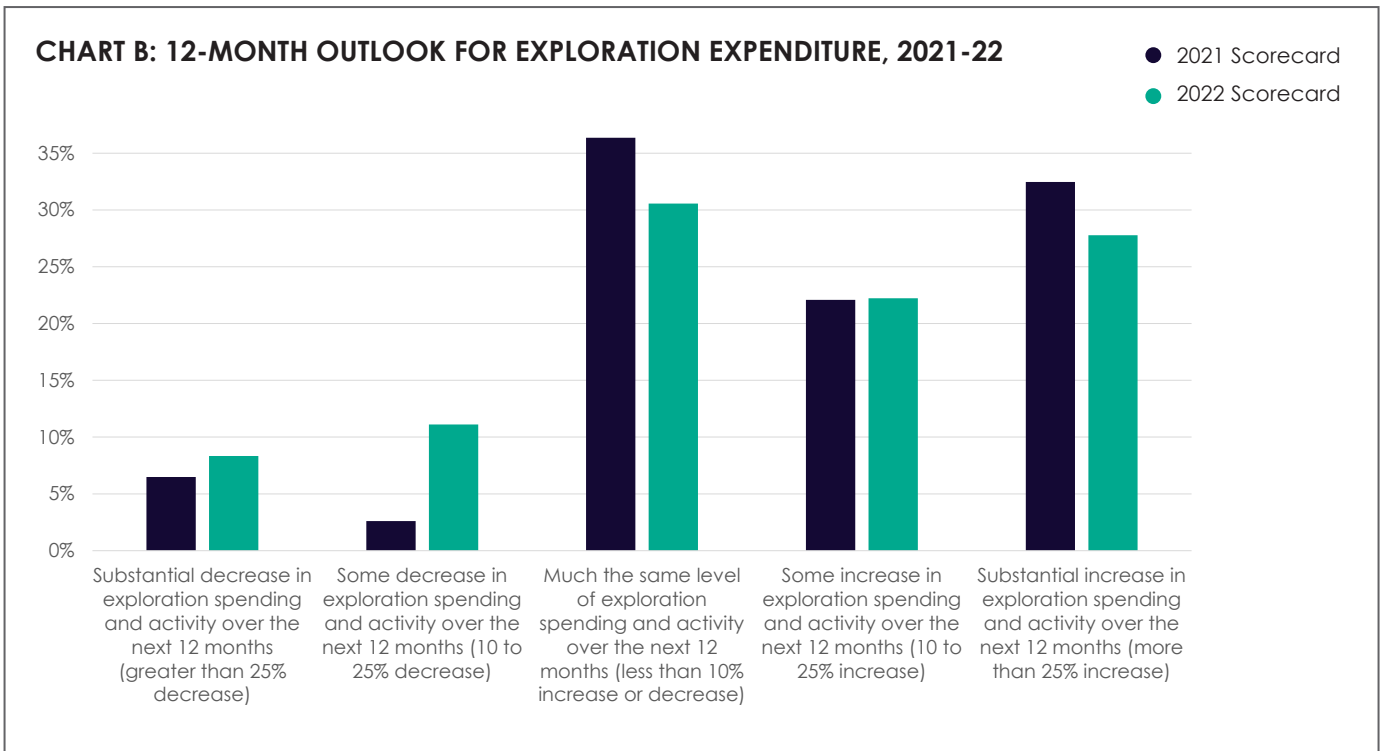
Outside of these concerns, this year's Scorecard data shows that, overall Queensland continues to be a premier investment destination based on prospectivity. Queensland's energy and minerals endowment will stay on the radar for international investors seeking to diversify their commodity base and solidify supply chains, with Queensland's rich prospectivity in the critical minerals required to facilitate the global energy transition one of our state's greatest advantages.

CHART A: EXPLORATION EXPENDITURE IN QUEENSLAND, 2010-22



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



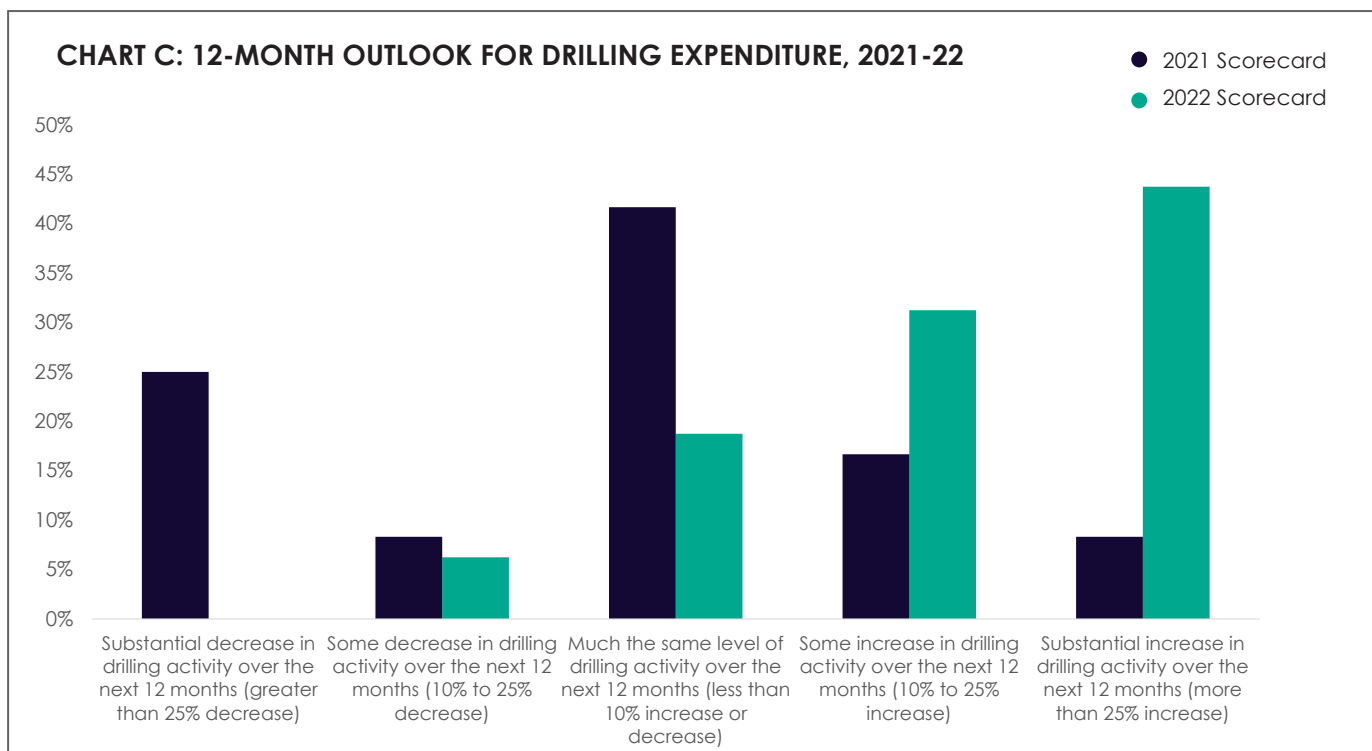
Queensland also has the potential to take a role as a market leader on ESG credentials, as operations develop the capacity to demonstrate that their performance exceeds any environmental or safety regulations imposed by government. In addition, continued or expanded government investment in innovation, technology and manufacturing will provide a catalyst for a new phase of development in Queensland's exploration sector.

We welcome the Government's announcement of the Queensland Energy and Jobs Plan, a 10-year strategy that includes an ambition for more onshore manufacturing. A vibrant exploration sector will be crucial to meet renewables targets, achieve emissions reductions and advanced manufacturing goals. The economic benefits modelled for this plan include a 'green premium' reflecting a lower cost of capital for 'new-economy' projects.

The 12-month outlook for exploration expenditure is bright, with almost half of explorer survey respondents forecasting an increase in spend of at least 10 per cent, including more than a quarter indicating an increase of more than 25 per cent in 2022-23. For drillers, the 12-month outlook is extremely positive - more than 40 per cent of driller survey respondents expect activity to increase over 25 per cent in 2022-23.

Scorecard Working Group members at the QEC Breakfast in 2021, with the Minister for Resources, Scott Stewart MP





We hope that the next 12 months will see a resolution to the COVID-related equipment and labour issues that persist for the exploration sector. We also hope to see continued positive engagement with both the Department of Resources and the Queensland Government on resolving policy issues that could stand in the way of the state reaching its full potential from its extensive and unique mineral and petroleum endowment.

We wish to acknowledge and thank the Department of Resources for its responsiveness and dedication to improving the facilitation of exploration in Queensland over the life of the Scorecard.

Euan Morton
Chair
QEC Exploration Scorecard Working Group



MEMBERS OF THE QEC SCORECARD WORKING GROUP 2022

SUPPORT

Euan Morton (Chair)	Synergies Economic Consulting Pty Ltd	Tony Knight	Geological Survey of Queensland, Department of Resources	Andrew Barger	Queensland Resources Council
John Bruce	Bruce Resource Consultants	Roger Leaning	Morgans Financial Limited	Kylie Barron	Queensland Resources Council
Peter Hall	Australian Drilling Industry Association	Donna Walsh	Department of Environment and Science	Tom Cunningham	Queensland Resources Council
Stephen Kelemen	Queensland Exploration Council	Kim Wainwright	Xplore Resources and Queensland Exploration Council	Nicole Duguid	Queensland Exploration Council
Dieter Kluger	Department of Resources	Darren Walker	U&D Mining (Australia) Pty Ltd and Queensland Exploration Council	Samantha Nasternak	Queensland Exploration Council

THE SCORECARD'S STRUCTURE

This year's Scorecard's scope covers the 2021-22 financial year (1 July 2021 to 30 June 2022). It retains the layout of previous years with a focused 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 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 for progressing to further resource 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

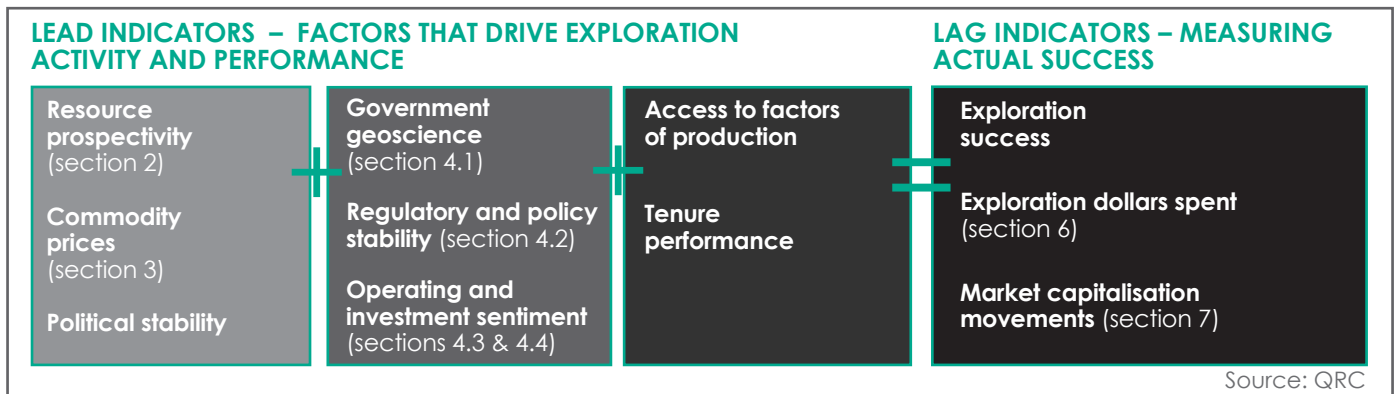


Image source: QEM



Image source: Hammer Metals

1.0 PERFORMANCE SUMMARY

LEGEND

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

THE QUEENSLAND EXPLORATION SECTOR, 2011-2022

Year to June...

LEAD INDICATORS – DRIVERS OF FUTURE ACTIVITY AND PERFORMANCE

Resource prospectivity and endowment (Section 2)

- Queensland is highly endowed with coal, minerals and gas resources.

Commodity prices (Section 3)

- Base and precious metals prices increased strongly over 2021-22.

- 2021-22 was a record year for key both thermal and metallurgical coal price benchmarks.

- Petroleum enjoyed record prices in 2021-22 with the Scorecard's benchmark spot LNG price increasing by 224% to US\$26 MMbtu across the year due to Russia's war in Ukraine and other energy security issues.

State government geoscientific funding and activities (Section 4.1)

- The Queensland Government's enthusiasm for new economy minerals and the Queensland Resources Industry Development Plan cannot be faulted.
- Through the QRIDP, increased investment in the Collaborative Exploration Initiative (CEI) to \$22.6 million over the next five years.
- Chart 4.1 shows the lowest budget for the Geological Survey of Queensland (GSQ) in the Scorecard's history.

Regulatory and policy stability (Section 4.2)

- Increase to coal royalties has cast a long shadow of sovereign risk over all commodities.

Operating and investment sentiment (Section 4.3 and 4.4)

- 3 out of the 16 factors showed a net positive sentiment in Queensland.
- 11 out of the 16 factors showed a net negative sentiment in Queensland.
- 7 out of 16 factors showed improvement from last year.
- This year, sentiment was more negative than in previous years, driven largely by growing skills, labour and equipment shortages and by the coal royalty rate increase announcement in June 2022.

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Resource prospectivity and endowment (Section 2) • Queensland is highly endowed with coal, minerals and gas resources.	●	●	●	●	●	●	●	●	●	●	●	●
Commodity prices (Section 3) • Base and precious metals prices increased strongly over 2021-22.	●	●	○	●	●	●	●	●	○	○	●	●
• 2021-22 was a record year for key both thermal and metallurgical coal price benchmarks.	●	●	○	●	●	●	●	●	●	●	○	●
• Petroleum enjoyed record prices in 2021-22 with the Scorecard's benchmark spot LNG price increasing by 224% to US\$26 MMbtu across the year due to Russia's war in Ukraine and other energy security issues.	●	●	●	●	●	●	●	○	○	●	●	●
State government geoscientific funding and activities (Section 4.1) • The Queensland Government's enthusiasm for new economy minerals and the Queensland Resources Industry Development Plan cannot be faulted. • Through the QRIDP, increased investment in the Collaborative Exploration Initiative (CEI) to \$22.6 million over the next five years. • Chart 4.1 shows the lowest budget for the Geological Survey of Queensland (GSQ) in the Scorecard's history.	●	●	●	●	●	●	●	●	●	●	●	○
Regulatory and policy stability (Section 4.2) • Increase to coal royalties has cast a long shadow of sovereign risk over all commodities.	●	●	●	●	●	●	●	●	●	●	●	●
Operating and investment sentiment (Section 4.3 and 4.4) • 3 out of the 16 factors showed a net positive sentiment in Queensland. • 11 out of the 16 factors showed a net negative sentiment in Queensland. • 7 out of 16 factors showed improvement from last year. • This year, sentiment was more negative than in previous years, driven largely by growing skills, labour and equipment shortages and by the coal royalty rate increase announcement in June 2022.	●	●	●	●	●	●	○	●	●	●	●	●



LEGEND

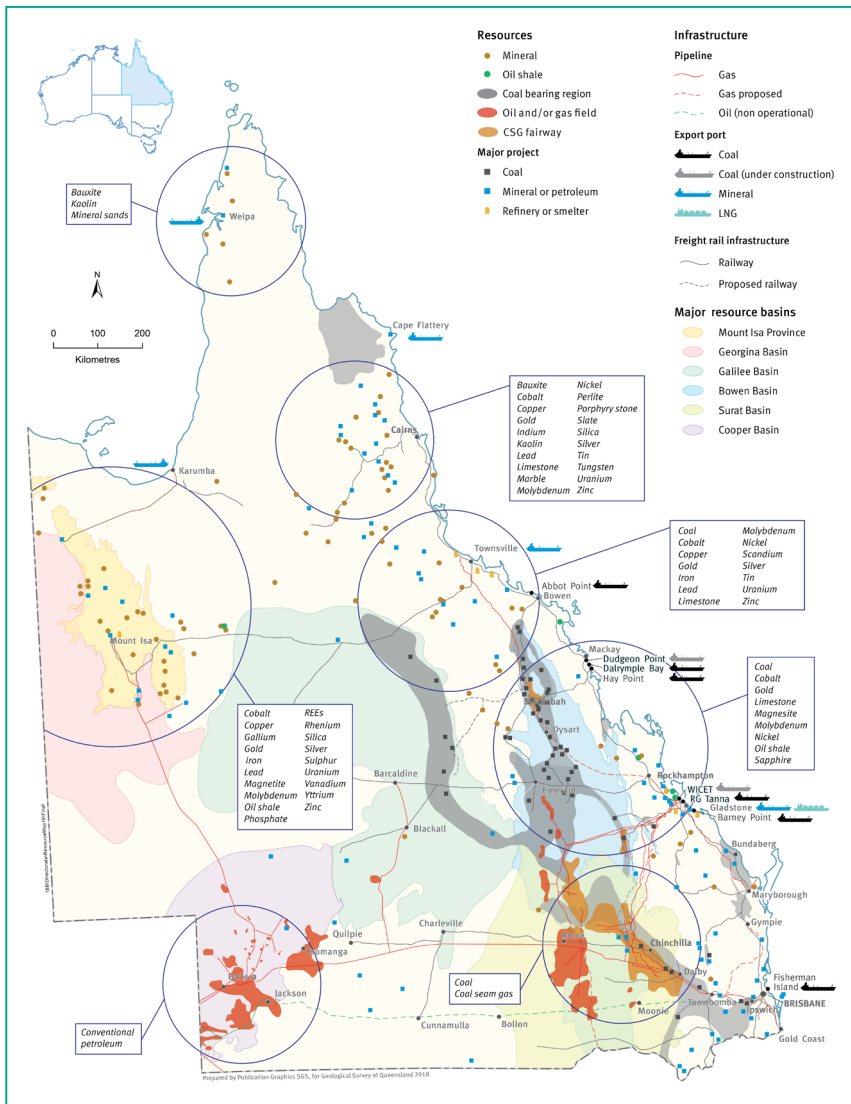
- Good ●
- No significant impediment
- Cause for concern ●
- Significant problems ●

	Year to June...											
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
LEAD INDICATORS CONTINUED												
Tenure performance (Section 5)												
<ul style="list-style-type: none"> • Industry sentiment towards exploration permit processes is neutral in 2021-22 after two years of positive sentiment. • During 2021-22, the Department's tender release schedule included 8 exploration areas for oil and gas and 4 areas suitable for greenhouse gas storage exploration. • There's industry optimism around the recommendations of QRC's <u>Streamlining report</u> being implemented as part of a broader set of QRIDP reforms. 	●	●	●	●	●	●	●	●	●	●	●	●
LAG INDICATORS - EXPLORATION SUCCESS												
Mineral exploration (Section 6)												
<ul style="list-style-type: none"> • Minerals exploration in Queensland continues to expand across the state, with a major focus on the North West and North East region • In 2021-22 Queensland's mineral exploration expenditure (including coal) was \$505.1 million, increasing 23% from 2020-21. • 251 exploration permits for minerals were granted in the 12 months to June 2022. There were no EPCs granted in 21-22. • Queensland's share of greenfields mineral exploration improved slightly for the third year in a row, increasing to 35% of all exploration spend. 	●	●	●	●	●	●	●	●	●	●	●	●
Petroleum exploration (Section 6)												
<ul style="list-style-type: none"> • Applications for petroleum exploration are spread across the state. • There were no Authority to Prospect (Petroleum) permits granted in 2021-22. • DoR announced one call for tender land release, made up of 8 petroleum and gas areas totalling 14,400 km² (4673 sub-blocks)¹. • After an EOI process, 4 areas suitable for greenhouse gas storage exploration were released totalling 14,500 km² (4,757 sub-blocks). • In 2021-22 Queensland petroleum exploration expenditure was \$233.5m, decreasing 27% since 2020-21. 	●	●	●	●	●	●	●	●	●	●	●	●
Market capitalisation movements (Section 7)												
<ul style="list-style-type: none"> • Uncertain economic conditions in 2021-22 drove volatile results for the four indices tracked in the Scorecard. 	●	●	●	●	●	●	●	●	●	●	●	●

¹https://www.resources.qld.gov.au/_data/assets/pdf_file/0009/1588410/2021-queensland-exploration-program.pdf

2.0 RESOURCE PROSPECTIVITY

FIGURE 2: QUEENSLAND'S RESOURCE PROSPECTIVITY



Source: Spatial and Graphic Services, Geological Survey of Queensland 2022

critical to the “new economy”. The confluence of global shifts in energy, industry and sustainability is driving demand for minerals previously of little value and interest to most countries.

So-called new economy or critical minerals is the term used to refer to the range of metals and minerals used in many advanced and emerging technologies, particularly in renewable energy applications.

Queensland's two great mineral provinces in the North-West and North-East of the state supplemented by a wide occurrence of minerals along coastal and border regions - provides a broad 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”, referring to materials 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 exciting new opportunities for exploration and development.

Prospectivity is a major driver of exploration activity in Queensland, and we are blessed with a rich and diverse endowment of resources and highly prospective deposits across the state. Figure 2 details Queensland's rich prospectivity in base and precious metals and significant endowments of coal and gas.

Understanding this rich endowment and its plenitude of uses through new data and knowledge is crucial to industry and investors to turn the opportunity into investable projects, and as the basis for new supply chains and value-creation.

Queensland has a long history of oil and gas in the South-West corner of Queensland around Ballera and Jackson in the Cooper and Eromanga Basins with world-class resources of coal seam gas under the Roma to Dalby area in the Surat and Bowen Basins.

Queensland is also home to several high-quality coal resources, which continue to be in demand across the world. The Bowen Basin contains almost all of the state's hard coking coal. Thermal coals are mined from the Clarence-Moreton and Surat Basins in the south-east of the state with further developments progressing in the Galilee Basin.

In recent years, traditional exploration and production has advanced dramatically to include a whole new range of minerals



The changing environment of the “new economy” is also driving change in the way investors and customers look to secure their 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 the progression of multiple critical minerals projects and the Queensland Government’s announcement of \$10 million in funding for a multi-user vanadium processing facility in Townsville¹.

It is no surprise explorer sentiment towards Queensland’s resource prospectivity has remained significantly positive for all twelve years of the QEC Exploration Scorecard, with a very strong positive sentiment in 2021-22.

QEC Deputy Chair Stephen Kelemen presenting the 2021 Scorecard at the QUPEX Lunch



QEC Chair Kim Wainwright (centre) attending Noosa Mining Conference

¹<https://statements.qld.gov.au/statements/93871>

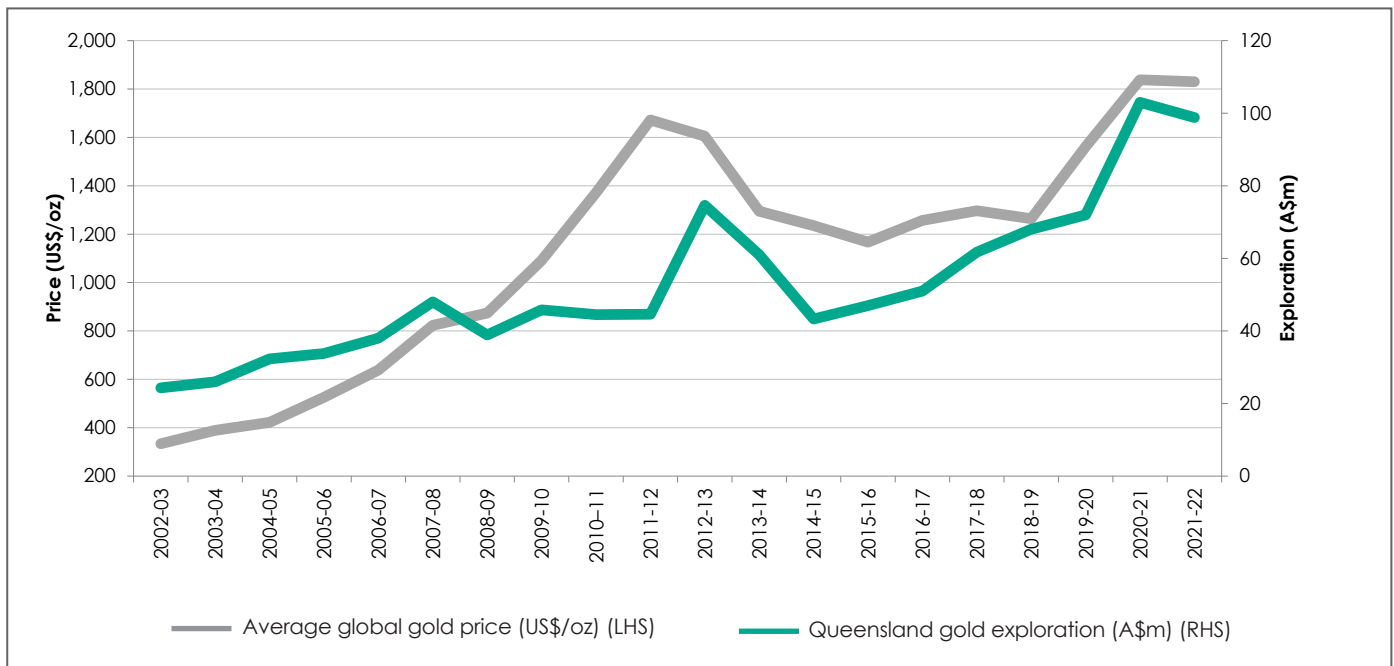
3.0 COMMODITY PRICES

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 returning sense of optimism was complimented by record pricing for key Queensland exploration targets. Copper, metallurgical coal, thermal coal and LNG all achieved record prices in across 2021-22, with gold maintaining close to record high prices across the year. The rallying prices were not matched with increasing exploration expenditure, with copper the only commodity to achieve substantial growth in exploration expenditure — up 70% across the year.

Europe's energy crisis in 2021 and Russia's invasion of Ukraine this year has dramatically impacted energy markets, with a number of major importers looking to diversify from Russian energy supplies.

CHART 3.1: GLOBAL AVERAGE BENCHMARK GOLD PRICES & QUEENSLAND EXPLORATION SPEND, 2002-03 TO 2021-22



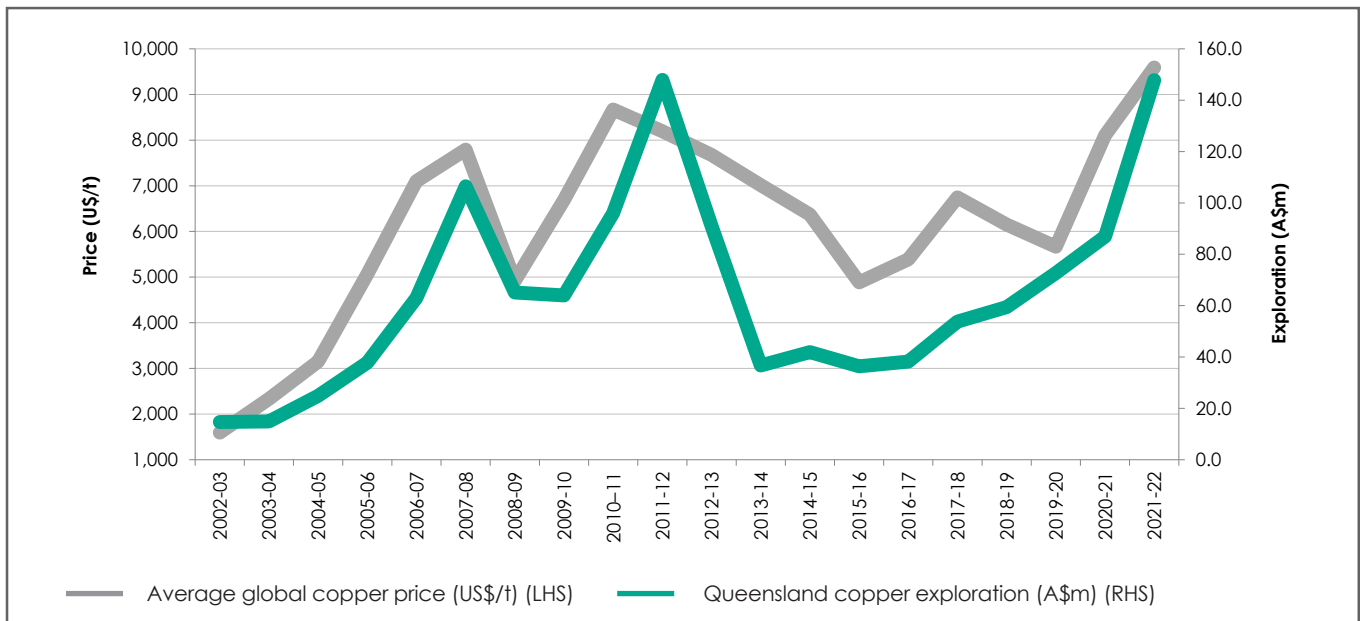
Source: Office of the Chief Economist, Resources and Energy Quarterly; Market Index; ABS 5368.0.

Gold ended its six-year run of exploration expenditure growth, with expenditure decreasing by 4% across the year. Despite the small decrease, expenditure remains healthily above pre-pandemic levels with close to Queensland exploration's previous record expenditure. Gold exploration expenditure should remain elevated with the average global gold price in 2021-22 just 0.4% below 2020-21's record level.

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 2021-22

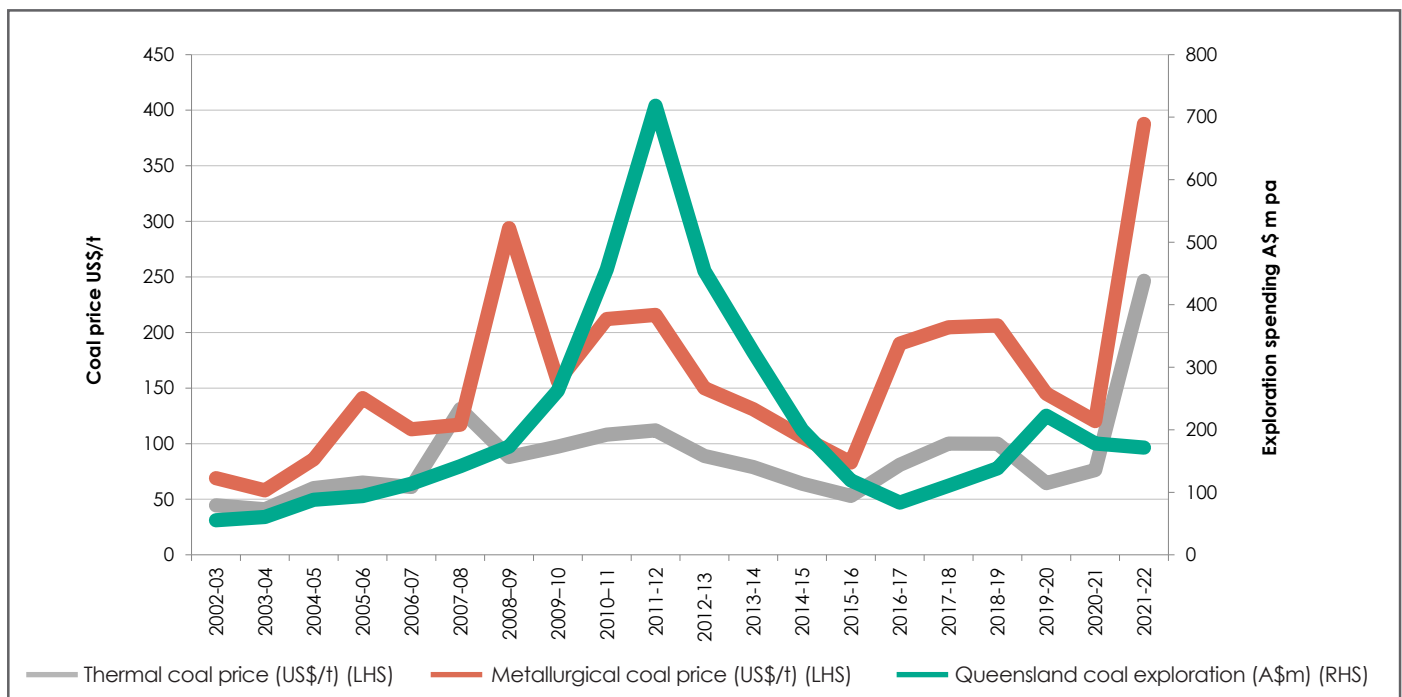


Source: Office of the Chief Economist, Resources and Energy Quarterly; Market Index; ABS 5368.0

Queensland copper exploration expenditure grew by 70% in 2021-22, the largest annual increase in expenditure in Scorecard history. This is the commodity’s sixth consecutive year of expenditure growth, and this latest result means Queensland copper exploration expenditure is now more than triple the \$38 million spent just five years earlier. Copper’s average spot price remains supportive for exploration, with the average copper price increasing by 18% on 2020-21’s record prices.

The outlook for copper demand remains strong and should continue to be a bright spot for Queensland. 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 2021-22



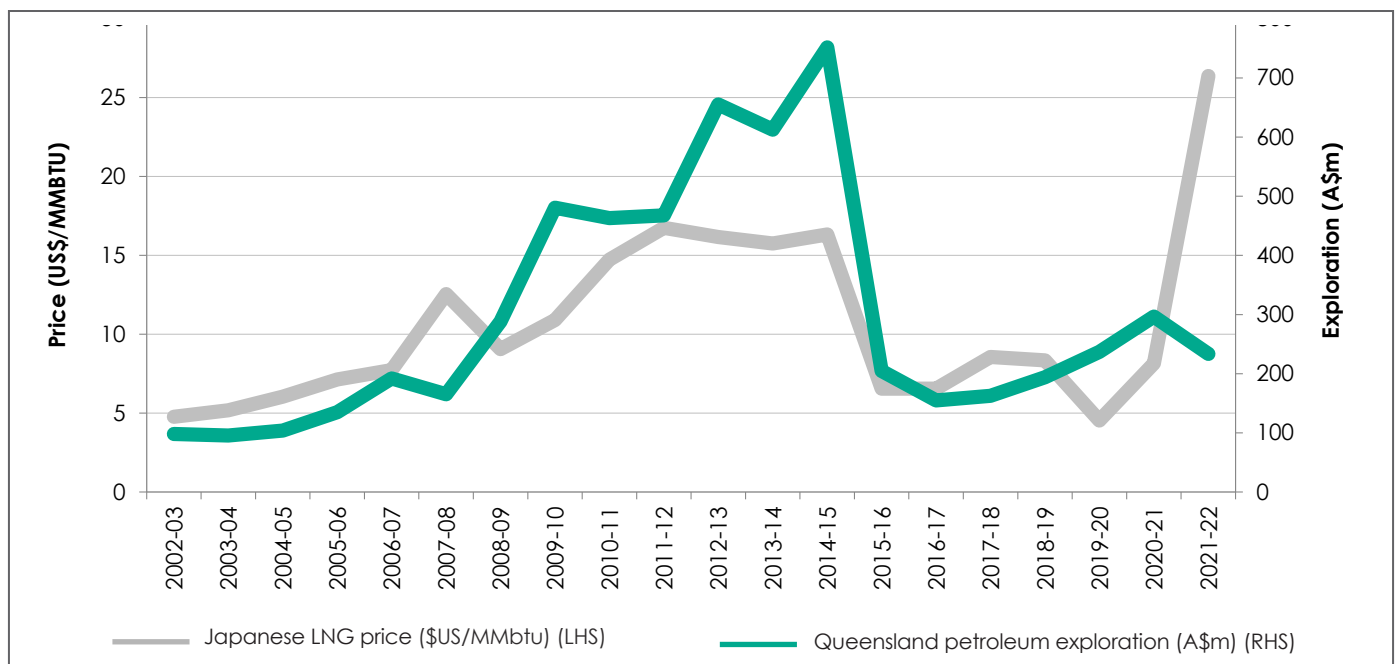
Source: Office of the Chief Economist, Resources and Energy Quarterly; ABS; IHS.

Note: Benchmark spot prices for thermal & metallurgical coal achieved new records in late 2021, beyond the scope of this year’s Scorecard.

2021-22 was a record year for coal price benchmarks. Ongoing trade tensions, the war in Ukraine and tight gas markets globally have reshaped coal markets dramatically. These tight conditions have meant benchmark metallurgical coal prices increased by 222% in 2021-22 to average US\$388 a tonne, while benchmark thermal coal prices increased by 223% to US\$247 a tonne.

Queensland's coal exploration expenditure declined for the second consecutive year, down 4% in 2021-22. Queensland could expect stronger coal exploration expenditure for next year's Scorecard, given the record spot prices for both thermal and metallurgical coal in late 2021. The Queensland Government's recent increase in coal royalty rates has however created uncertainty for investors and the exploration expenditure outlook.

CHART 3.4: GLOBAL AVERAGE BENCHMARK LNG PRICES AND QUEENSLAND PETROLEUM EXPLORATION SPEND, 2002-03 TO 2021-22



Source: METI; JOGMEC; ABS 8412.0

Note: Petroleum exploration expenditure includes appraisal activities, but excludes developmental and production activities.

As a result of Europe's energy crisis in 2021 and Russia's invasion of Ukraine in 2022 and its impact on energy markets, petroleum enjoyed record prices in 2021-22, with the Scorecard's benchmark spot LNG price increasing by 224% to US\$26/MMbtu across the year.

Queensland petroleum exploration expenditure did not build on the growth of 2020-21, with exploration declining by 21% to \$236 million in 2021-22. Increasing Queensland petroleum exploration activity remains critical for the domestic gas market supply, with AEMO's 2022 Gas Statement of Opportunities indicating that gas production in South-East Australia "will drop significantly from 2023."²

KEY FINDINGS

- While prices for Queensland's key commodities remained strong, copper was the only key commodity to achieve exploration expenditure growth in 2021-22 (Chart 3.2).
- Queensland gold exploration expenditure remains healthily above pre-pandemic levels, with close to record expenditure in 2021-22 (Chart 3.1).
- For the sixth consecutive year, Queensland's copper exploration spending continues to surge, increasing by a record 70% in 2021-22.
- 2021-22 was a record year for key both thermal and metallurgical coal price benchmarks (Chart 3.3).
- Petroleum enjoyed record prices in 2021-22 with the Scorecard's benchmark spot LNG price increasing by 224% to US\$26 MMbtu across the year due to Russia's war in Ukraine. (Chart 3.4).

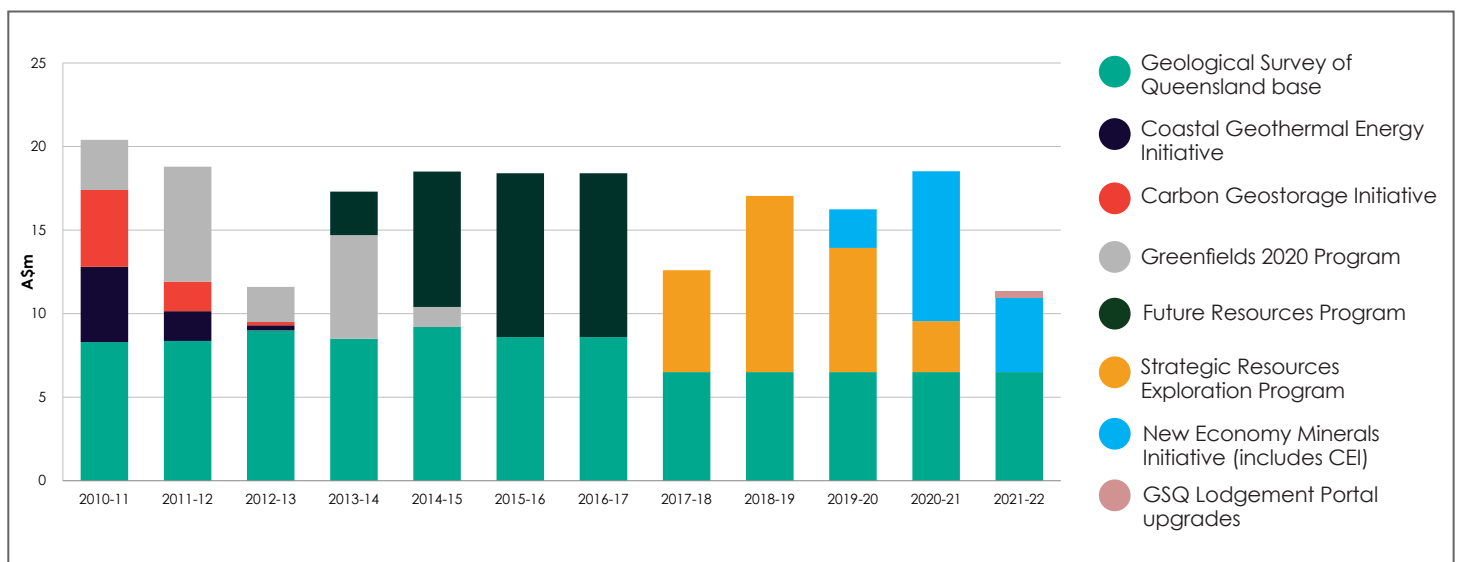
²AEMO, Gas Statement of Opportunities 2022

4.0 EXPLORER & INDUSTRY CONFIDENCE

4.1 STATE GOVERNMENT GEOSCIENTIFIC FUNDING AND ACTIVITIES

The release of pre-competitive geoscience data by the Geological Survey of Queensland (GSQ) was ranked as one of the top five government initiatives providing benefits to exploration companies in this year's sentiment survey. Ongoing state funding to support pre-competitive geoscience activities is essential for the ongoing health of the sector. Total State Government geoscientific funding and the components of that funding across various programs are shown in Chart 4.1.

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



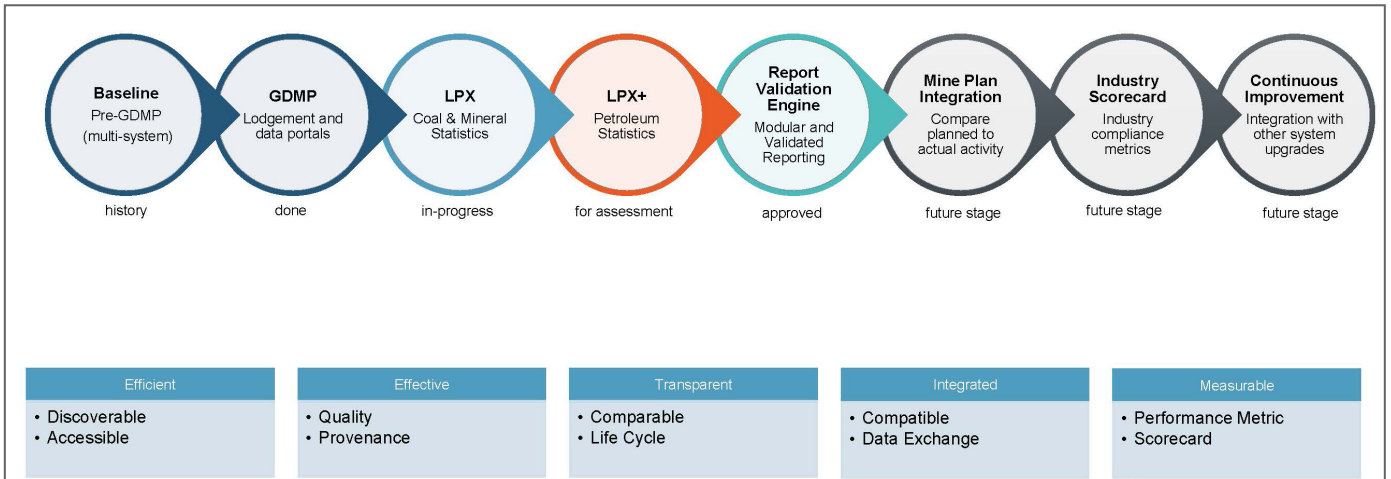
Source: Department of Resources

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.

The Queensland Government is investing in exploration activities to improve the scientific understanding of geoscience data needed by industry to help locate and define deposits for future production through the Five-year New Economy Minerals Initiative, now in its third year. This \$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 Collaborative Exploration Initiative.

In support of ongoing works to improve the efficiency and efficacy of exploration and discovery by explorers in Queensland, the Geological Survey of Queensland is modernising its data and digital systems. This systems evolution began with delivery of the GSQ Open Data and Lodgement Portals in 2020, together with changes to confidentiality periods and method of report submission to improve data quality and completeness. Current and future improvements are displayed in Figure 3.

FIGURE 3: GSQ DATA SYSTEM EVOLUTION



Source: Geological Survey of Queensland

The work of GSQ continues to be promoted and detailed in the long-established GSQ-UQ webinar series, which is freely available for all interested parties to download via the [Sustainable Minerals Institute website](#).

QUEENSLAND RESOURCES INDUSTRY DEVELOPMENT PLAN

In 2021-22, the Department of Resources released the Queensland Resources Industry Development Plan (QRIDP) as a 30-year vision for a 'resilient, responsible and sustainable Queensland resources industry that grows as it transforms'. The QRIDP identifies six areas of focus to achieve its 30-year vision, accompanied by 43 actions.



Source: Department of Resources: <https://www.resources.qld.gov.au/qrmdp>

An immediate priority for the Queensland Government is capitalising on the significant increase in demand for new economy minerals. Some new economy minerals such as copper, zinc and aluminium have been mined in Queensland for decades. Others such as vanadium—a material used for large-scale stationary batteries—are about to be mined for the first time.

 <p>29 Cu Copper 63.546</p> <p>Copper</p> <ul style="list-style-type: none"> » Solar and wind technology » Electric vehicles and batteries, and other energy storage systems » Infrastructure for transmitting electricity 	 <p>23 V Vanadium 50.9415</p> <p>Vanadium</p> <ul style="list-style-type: none"> » Emerging battery technologies, especially those used for grid-scale electricity storage » Important for a range of defence technologies » Used to manufacture high-strength steel alloys 	 <p>13 Al Aluminium 26.9815385</p> <p>Aluminium</p> <ul style="list-style-type: none"> » Important input into the manufacture of solar panels » Electric vehicles and batteries, and other energy storage systems » Used to manufacture aircraft 	 <p>27 Co Cobalt 58.933194</p> <p>Cobalt</p> <ul style="list-style-type: none"> » Energy storage, especially lithium-ion technology batteries » Wind turbine technology, including their blades
 <p>6 C Carbon 12.011</p> <p>Graphite</p> <ul style="list-style-type: none"> » Electric vehicles and battery storage » Solar technology 	 <p>74 W Tungsten 183.84</p> <p>Tungsten</p> <ul style="list-style-type: none"> » Heavy metal alloys » Important input into manufacturing the turbines in jet engines 	 <p>30 Zn Zinc 65.38</p> <p>Zinc</p> <ul style="list-style-type: none"> » Used for galvanising metals, including iron and steel » An input into batteries 	 <p>28 Ni Nickel 58.6934</p> <p>Nickel</p> <ul style="list-style-type: none"> » Used across a range of battery technologies » Manufacturing stainless steel

Source: Department of Resources: <https://www.resources.qld.gov.au/qrldp>

KEY EXPLORATION INITIATIVES UNDER THE QRIDP INCLUDE:

- \$42.6 million in exploration and geological science; including \$22.6 million for the Collaborative Exploration Initiative (action 2).
- \$10 million in geophysical data (action 3).
- \$5 million in geoscience research in new economy minerals (action 4).
- \$5 million in circular mining opportunities (action 5).
- \$5 million in the Queensland Battery Industry Strategy (action 9).
- A system of rent deferral for new economy mineral projects (action 10).
- At least \$10 million in a common-user demonstration minerals processing facility (action 12).
- Complete the Bowen Basin pipeline study (action 13).
- \$5.7 million for the Resources Centre of Excellence (RCOE) in Mackay to develop a new Future Industries Delivery Hub (action 18).



Click here to view the Queensland Resources Industry Development Plan

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 2021 to 30 June 2022 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

CHANGES BETWEEN

Types of exploration controls in Queensland	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
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 • DoR's Business process mapping of resource project approvals in Queensland report was commissioned from PwC as a major contributor to the QRIDP process.	○	○	○	●	○	○	○	●	●	○	○
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

CHANGES BETWEEN

Types of exploration controls in Queensland continued	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2018-20	2020-21	2021-22
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):											
Administration of the Financial Provisioning scheme framework is ongoing					○	○	○	●	○	●	○
Introduction of three new, higher tiers of coal royalties commence on 1 July 2022											●

Source: Ashurst Australia and QRC

QRC Resources Policy Manager visiting the Exploration Data Centre



4.3

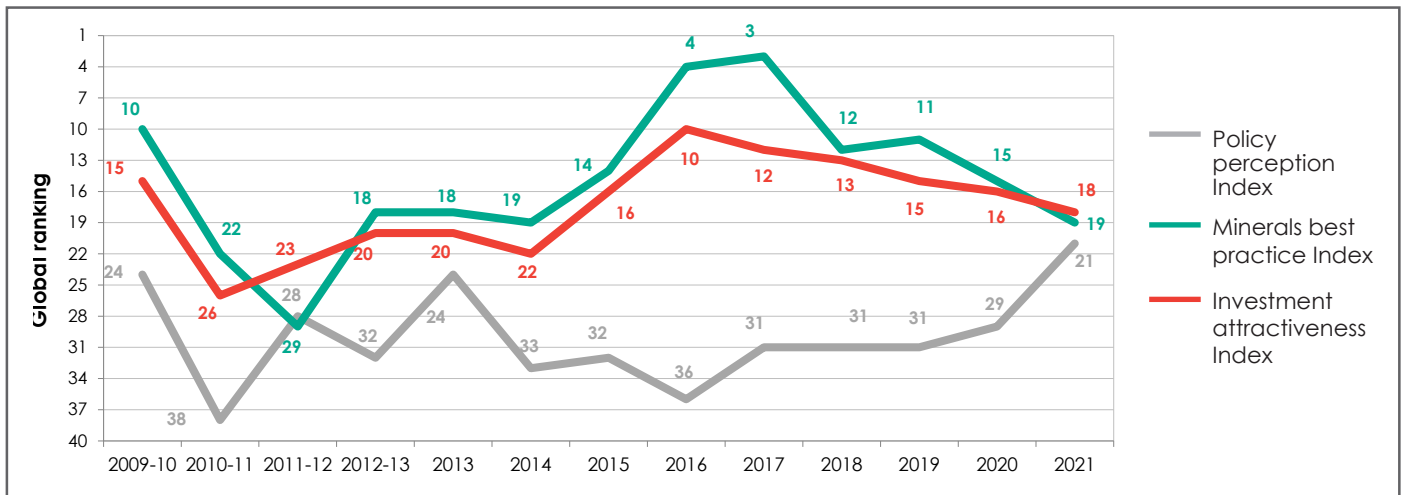
FRASER INSTITUTE'S ANNUAL SURVEY OF MINING COMPANIES 2021

On 12 April 2022 the Fraser Institute released its *Annual Survey of Mining Companies 2021*. The survey ranks global jurisdictions on an Investment Attractiveness Index, which is scored based on policy and mineral resource perception. This year the survey received 290 responses, with 84 jurisdictions assessed. The Fraser Institute survey was conducted between August and November 2021, so the sentiment pre-dates the QEC sentiment survey by around six months. It also pre-dates the Queensland Government's state budget announcement to increase coal royalty rates.

The survey ranks Queensland as 18th out of 84 jurisdictions for investment attractiveness, falling two places from the previous year (16/77 jurisdictions in 2020). Queensland is the fourth highest-ranked jurisdiction in Australia, with Western Australia (1st), South Australia (10th) and Northern Territory (14th) scoring higher for investment favourability. Western Australia returned to the number one spot in the world this year, after achieving fourth place in 2020 and first place in 2019.

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 (PPI) is a composite index that measures the overall policy attractiveness of the 84 jurisdictions in the survey. The index is composed of survey responses to government policy factors that affect investment decisions.

The Annual Survey of Mining Companies 2021 reports that all Australian jurisdiction Policy Perception Index scores decreased, compared with the previous year when all Australian jurisdictions increased their score. For Queensland, that translated to a decrease of less than 1 point from 81.12 to 80.33, with its ranking improving to 21/84 jurisdictions, compared to 29/77 jurisdictions the previous year. WA recorded the highest score of any Australian jurisdiction for this measure in this year's survey at 92.83 (4/84 jurisdictions). Victoria recorded the lowest Australian score at 66.57 (43/84 jurisdictions).

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

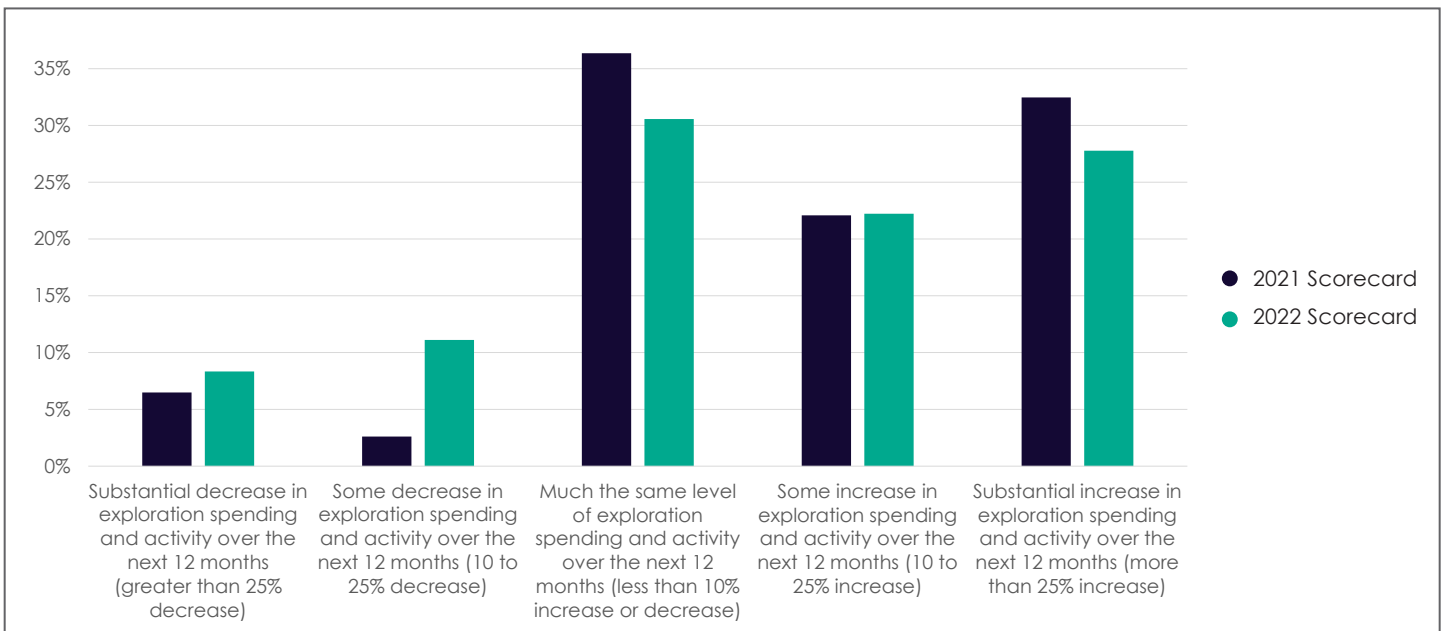
Queensland has dropped slightly on this measure in 2021, falling from 75.93 to 75.00, placing the state at 19/84 jurisdictions, down from 15th spot the previous year. Again, Western Australia is Australia's highest-ranking jurisdiction on this measure at 88.46, taking first place globally for the Best Practices Mineral Potential Index. Australia's lowest-ranking jurisdiction in this category is Victoria at 62.50 (39/84).



4.4 QEC'S MEASUREMENT OF OPERATING SENTIMENT

In this year's Queensland Exploration Sentiment Survey, companies were asked to indicate to what degree individual factors positively or negatively impacted the commercial objectives of their Queensland operations during 2021-22, and to provide a 12-month outlook for their level of exploration activity (see chart 4.4). Companies were also asked to respond to the same questions for the other Australian or overseas jurisdictions in which they are most active.

CHART 4.4: 12-MONTH OUTLOOK FOR EXPLORATION EXPENDITURE, 2021-22



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 opened on 18 July and closed on 5 September. The full results for

- **3 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
 - ✓ Government/departmental assistance
- **2 of the 16 factors** showed neutral sentiment in Queensland:
 - Exploration permit processes
 - Social licence to operate
- **11 of the 16 factors** showed net negative sentiment in Queensland, with 7 of those being strongly negative:
 - ✗ COVID-19 related factors
 - ✗ Policy uncertainty
 - ✗ Environmental regulations
 - ✗ Labour/skills availability
 - ✗ Royalty and tax rates showed the lowest negative sentiment in the history of the Scorecard
 - ✗ Equipment availability
 - ✗ Conduct & compensation agreements

CHART 4.4.1: COMPARING QUEENSLAND TO OTHER JURISDICTIONS, 2021-22

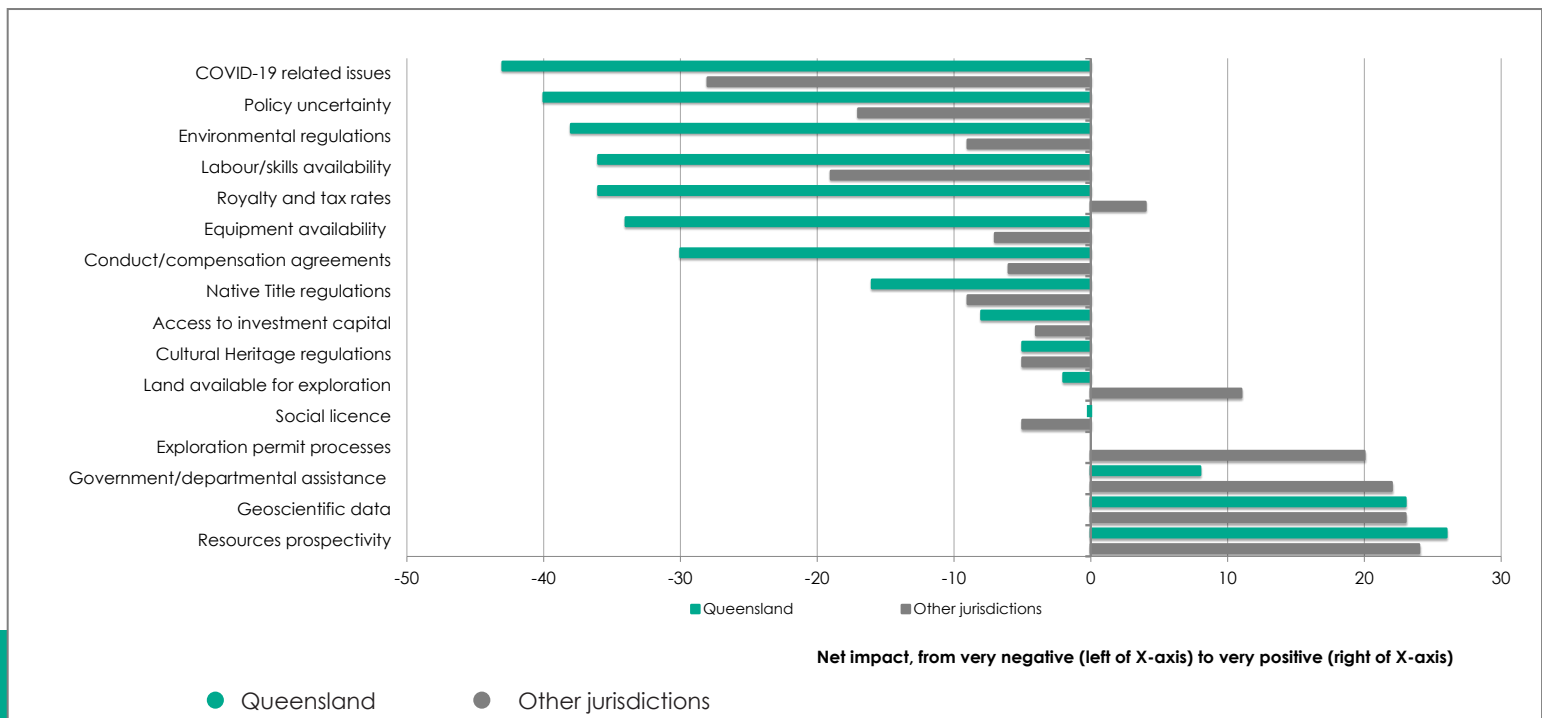
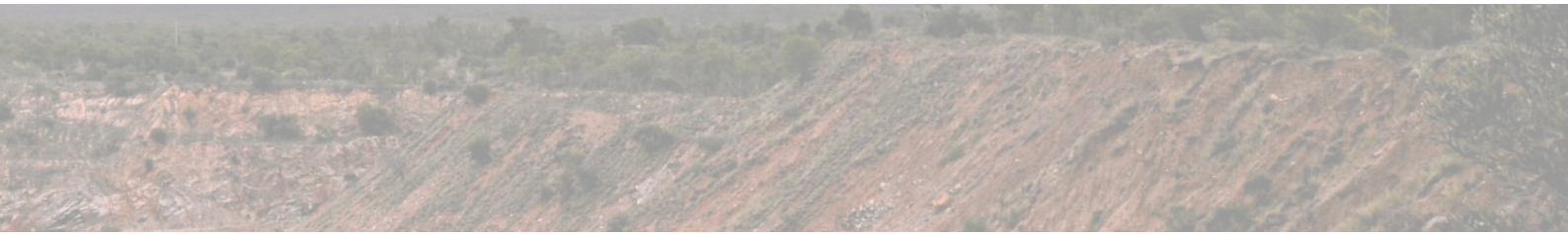


Chart 4.4.1 lists the sentiment responses from the least positive to the most positive. For comparison, the results for "other jurisdictions" are shown. This year's Scorecard shows that COVID-19 related factors had the most negative impacts on explorers, followed closely by policy uncertainty and environmental regulations.



Over the history of the Exploration Scorecard, the 12-year trends for Queensland show an improvement in sentiment towards:

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

The successes above have meant that over the Scorecard's 12-year history, average sentiment across the sentiment factors has improved greatly. However, those hard-fought gains do not guarantee the success of the sector alone. This year's negative results mean that much of the sentiment gains achieved over more recent years have since been lost, with average sentiment in 2021-22 the most negative since 2012-13 (see chart 4.4.1A).

CHART 4.4.1A: AVERAGE SENTIMENT FOR ALL CATEGORIES (EXCLUDING COVID-19 RELATED FACTORS)

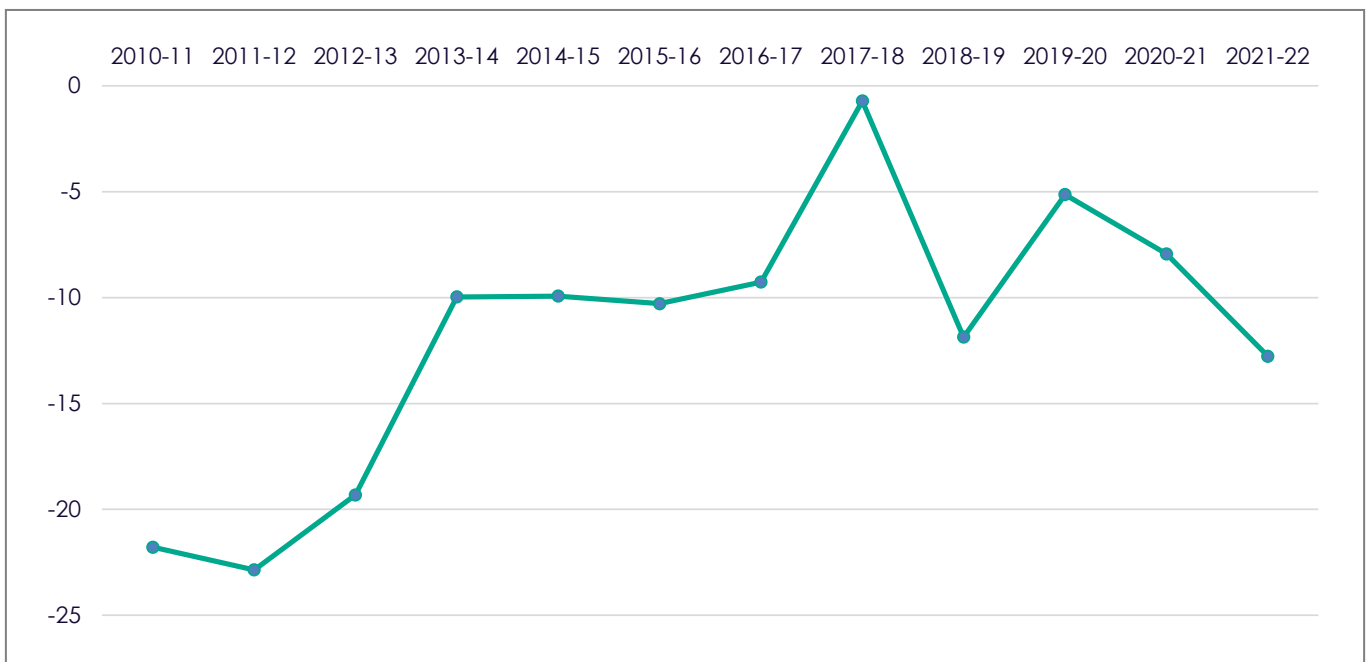
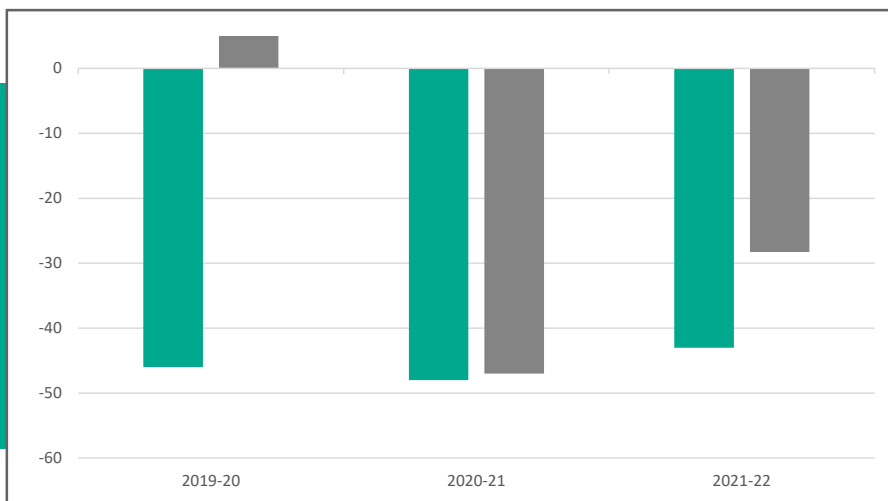


CHART 4.4.2: COVID-19 RELATED FACTORS 2020-21 TO 2021-22

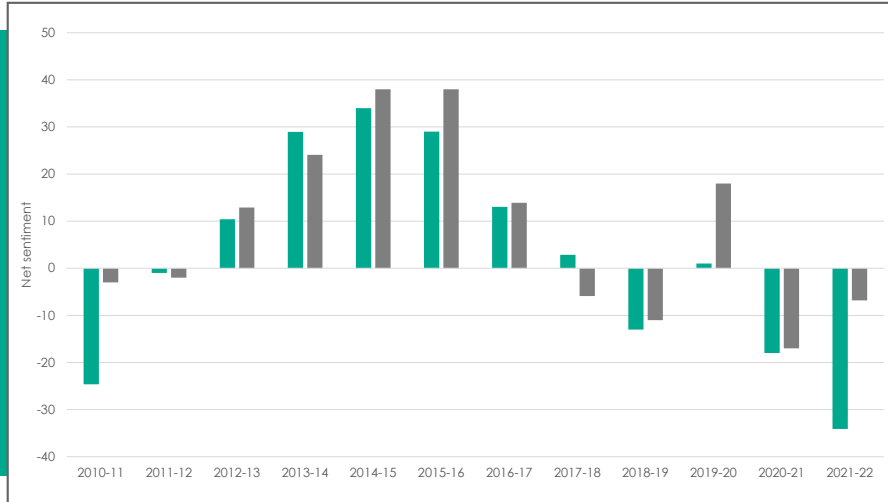


COVID-19 related factors impacted Queensland explorers very negatively again in 2021-22, and for a third year running it was the most negative sentiment category in the Scorecard. The difference this year is that border closures and travel restrictions are no longer impacting the availability of labour. This year's Scorecard reports COVID-19 affected Queensland exploration through higher rates of workforce absenteeism due to illness, impacting the ability to carry out pre-planned activities and productivity overall.

LEGEND

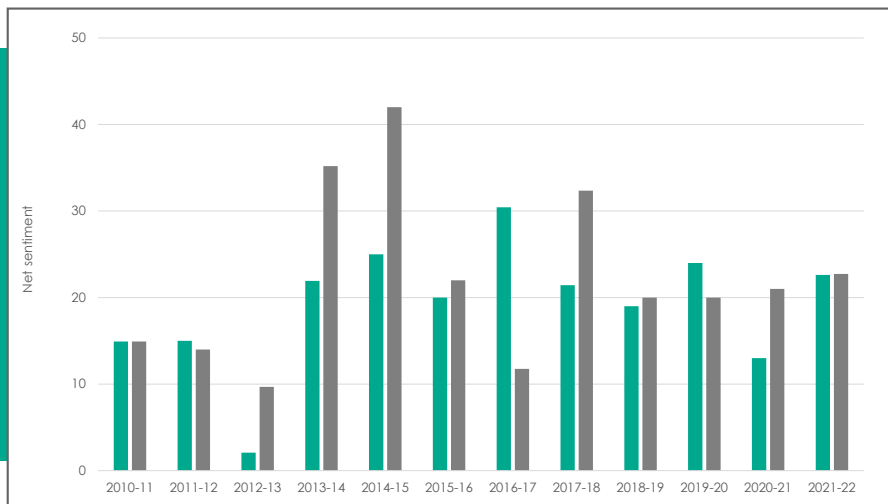
- Queensland
- Rest of Australia

CHART 4.4.3: EQUIPMENT AVAILABILITY 2010-11 TO 2021-22



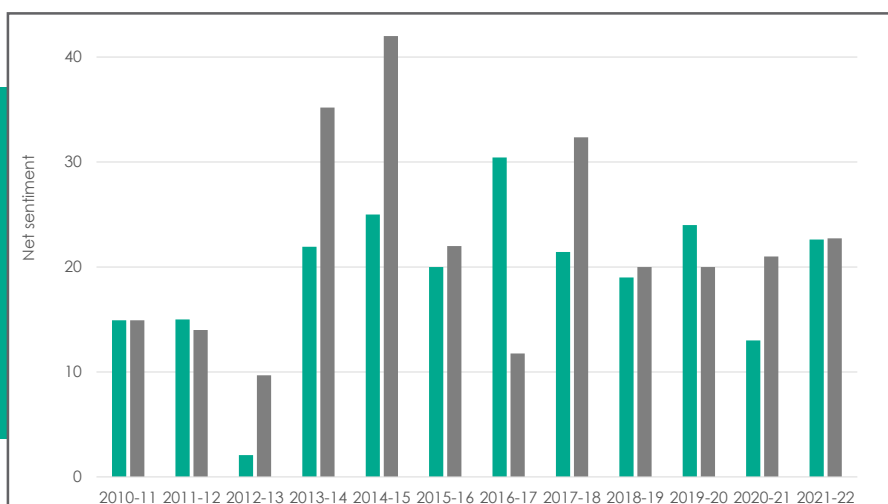
Negative sentiment towards the availability of essential equipment for exploration, such as drill rigs, trucks and machinery is significantly more negative than last year and has surpassed the historical lows of the mining boom in 2010-11 when demand far outweighed supply of equipment. Post COVID-19, while domestic border closures and restrictions have eased labour and skills shortages are still impacting equipment availability because companies have little incentive to increase their fleets while there is a shortage of workers. As reported by the Australian Drilling Industry Association (ADIA), equipment utilisation rates are historically high at 84% with spare drill rigs mostly non-existent.

CHART 4.4.4: RESOURCE PROSPECTIVITY/ENDOWMENT 2010-11 TO 2021-22



Queensland's world-class resource prospectivity remains a strong positive for the 12th consecutive year and has increased significantly since last year. Resources prospectivity and endowment is also the most positively rated category in the Scorecard for the second year in a row. Most respondents continued to rate Queensland's resources prospectivity as positive, with some negative sentiment from petroleum explorers due to development shifts into more challenging gas plays such as shale, tight gas and less permeable coals. Queensland coal and minerals explorers remained very positive towards the category.

CHART 4.4.5: PRE-COMPETITIVE GEOSCIENCE DATA 2010-11 TO 2021-22

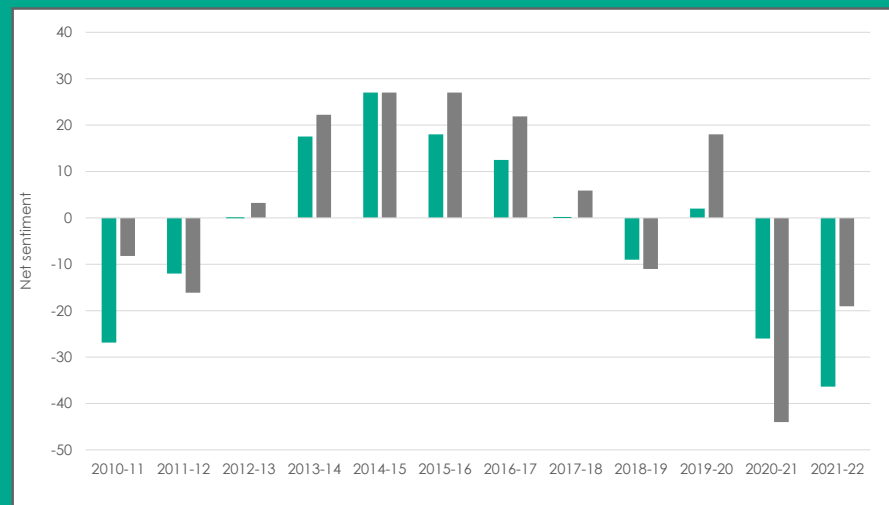


Pre-competitive geoscience data remains a strength for Queensland and is essential to increasing exploration expenditure and activity across the industry. For the 9th year, sentiment has remained positive towards this category, with this latest result suggesting last year's surprise decline was an anomaly. The release of pre-competitive geoscience data by the Geological Survey of Queensland (GSQ) was ranked as one of the top five government initiatives providing benefits to exploration companies in 2021-22.

LEGEND

- Queensland
- Rest of Australia

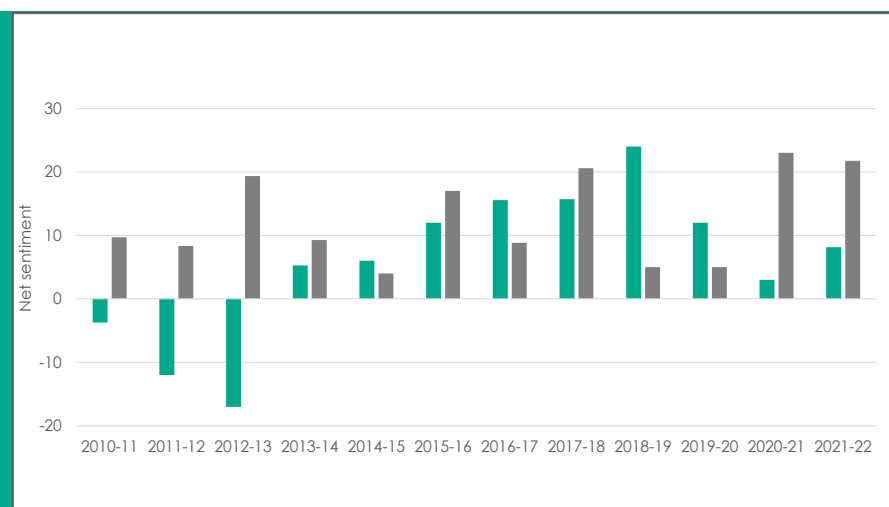
CHART 4.4.6: LABOUR/SKILLS AVAILABILITY 2010-11 TO 2021-22



Similar to equipment availability, labour and skills availability sentiment has decreased significantly from last year and is now at its lowest sentiment score in the Scorecard's 12-year history. This is not surprising given national unemployment has reached its lowest level in almost 50 years. The resources sector continues to experience a national skills shortage and this year it has worsened in Queensland. Increasing levels of skilled labour (for example, drillers) are taking roles in states such as Western Australia, where salaries are reportedly 50% higher in some roles. Amid a period of record gas prices, larger companies have also moved to boost productivity by shifting from 12 to 24-hour operations, which is further constraining the labour market, leaving less labour available to smaller exploration companies.

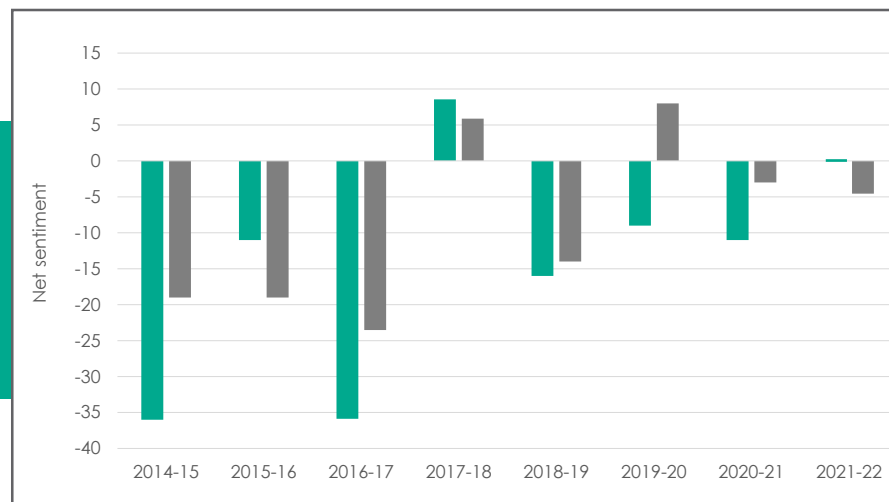
Note: Queensland sentiment in 2012-13 & 2017-18 was neutral (zero)

CHART 4.4.7: GOVERNMENT/DEPARTMENTAL ASSISTANCE 2010-11 TO 2021-22



Explorers were positive towards Queensland departmental assistance for a ninth year in a row, which positive sentiment increasing since last year? Various survey respondents recognised The Department of Resources has worked well to support industry through initiatives such as the Collaborative Exploration Initiative, Queensland Resources Industry Development Plan and fee, rent and work program relief, which were all recognised by various survey respondents. One respondent commented "The CEI is an excellent program and should be increased in its capability". Another respondent commended the work of the department in its collaboration with the Queensland Vanadium Industry Consortium, which led to a \$10million funding allocation towards a multi-user processing facility in Townsville.

CHART 4.4.8: INDUSTRY PERCEPTIONS OF SOCIAL LICENCE TO OPERATE 2014-15 TO 2021-22

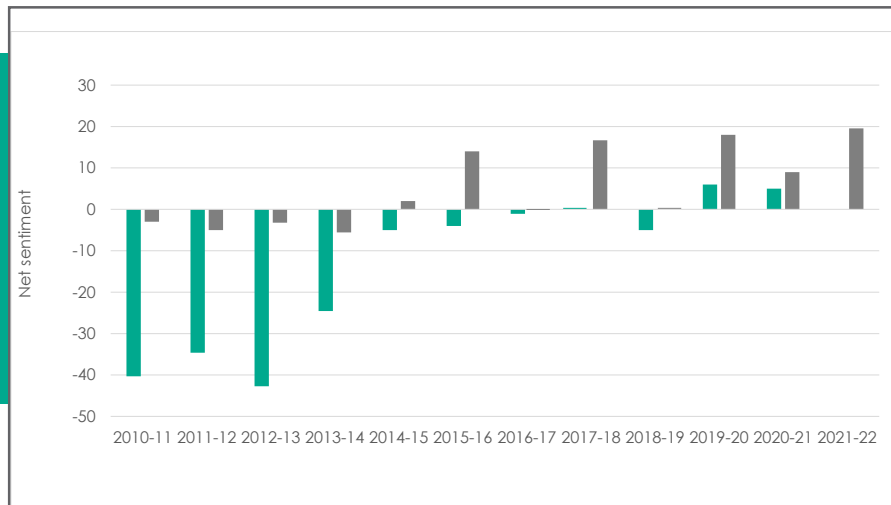


The industry's perception of its social licence to operate has improved for the first time in four years. The neutral result is due to a division of sentiment towards this category across coal, minerals and petroleum industry respondents. Coal industry respondents were neutral, while minerals respondents were positive and petroleum respondents were negative.

LEGEND

- Queensland
- Rest of Australia

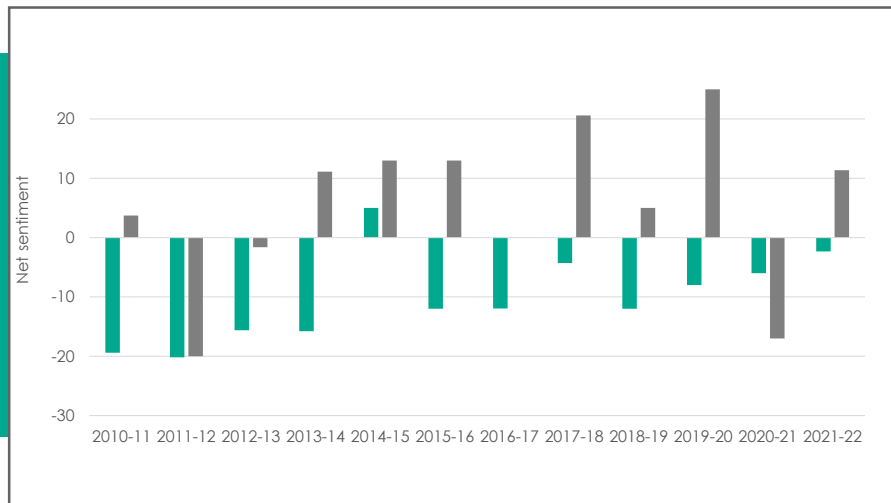
CHART 4.4.9: EXPLORATION PERMIT PROCESSES 2010-11 TO 2021-22



Exploration permit processes are one of the major successes of the Scorecard, with huge improvements in sentiment over the past 12 years. This year, sentiment is neutral for this category after two years of positive sentiment. This small drop is due to coal and petroleum explorers scoring this category negatively, while minerals respondents indicated a positive sentiment.

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

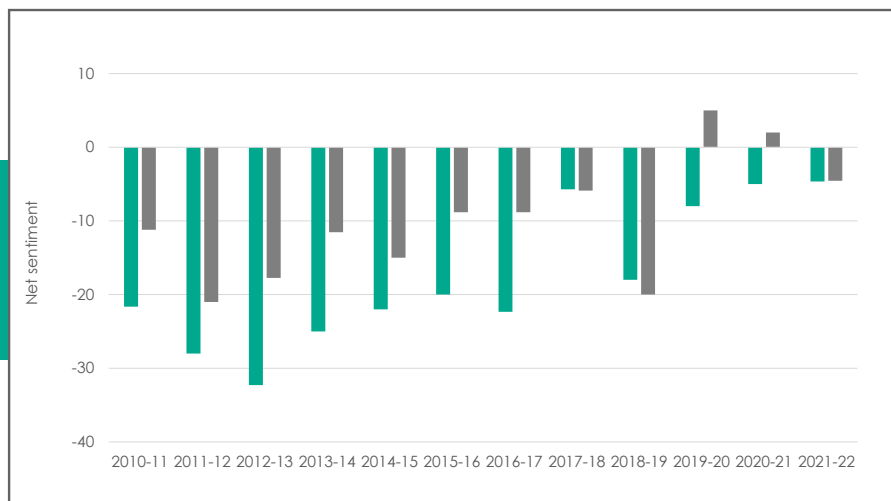
CHART 4.4.10: LAND AVAILABLE FOR EXPLORATION 2010-11 TO 2021-22



Sentiment towards land available for exploration in Queensland has improved for a third consecutive year in 2021-22. This category, along with exploration permit processes, has seen a shift in negativity since 2014-15, indicating an improvement in these areas.

In this year's survey, some explorers pointed to extended negotiations with landholders having an impact on exploration schedules, and that triggering the Alternative Dispute Resolution (ADR) process can harm landholder relations. *Note: Rest of Australia's sentiment in 2016-17 was neutral (zero)*

CHART 4.4.11: CULTURAL HERITAGE REGULATIONS 2010-11 TO 2021-22

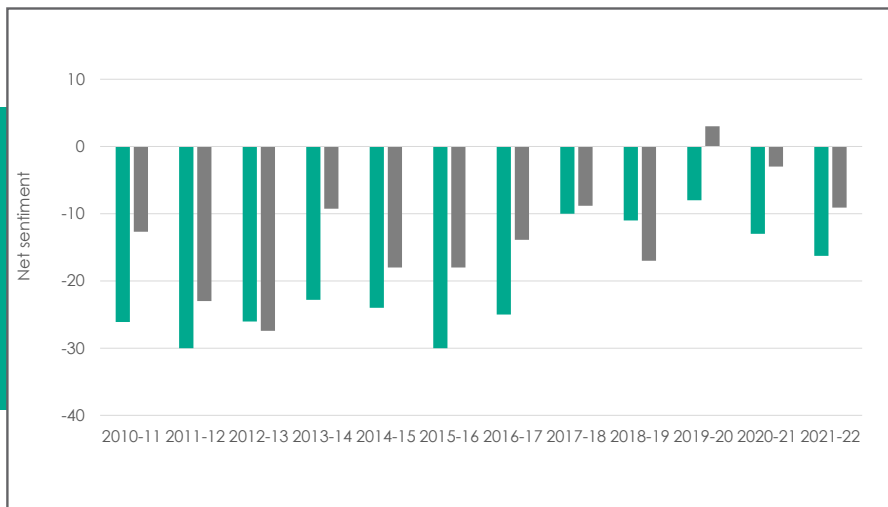


For a third year, negative sentiment towards cultural heritage regulations has improved. This could indicate the exploration industry has accepted these assessment and conservation processes are required to operate in Queensland.

LEGEND

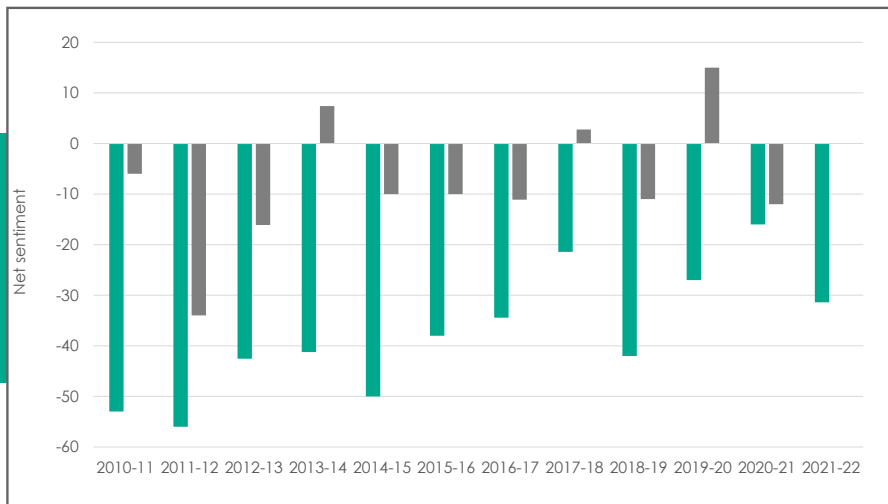
- Queensland
- Rest of Australia

CHART 4.4.12: NATIVE TITLE REGULATIONS 2010-11 TO 2021-22



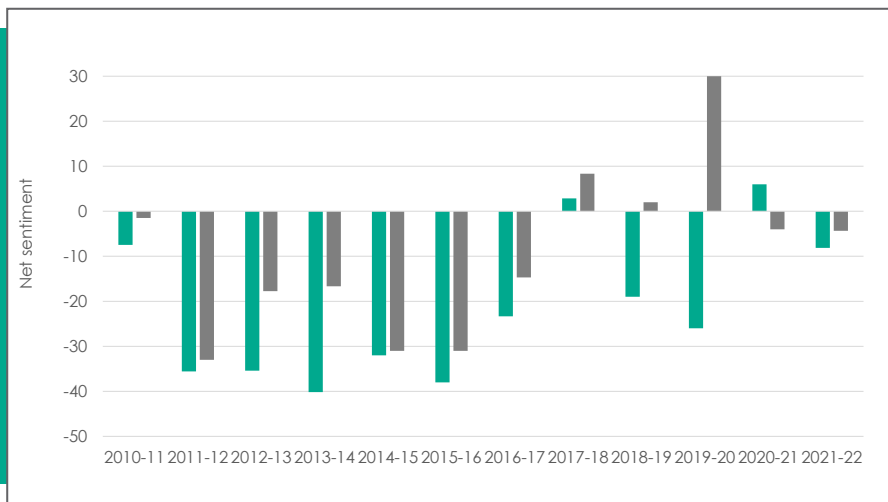
Sentiment towards Native Title regulations has decreased for the second year in a row. Given there have been no significant legislation changes in this area, the increased negative sentiment is most likely a perception of the exploration industry. Coal, minerals and petroleum industry respondents were collectively mildly negative towards this category.

CHART 4.4.13: CONDUCT AND COMPENSATION AGREEMENTS 2010-11 TO 2021-22



Conduct and compensation agreements (CCAs) sentiment has declined this year, with many survey respondents commenting on the significant delay and frustration associated with the CCA process. Coal, minerals and petroleum respondents all scored this category as having a moderately negative impact on their business.

CHART 4.4.14: ACCESS TO INVESTMENT CAPITAL 2010-11 TO 2021-22

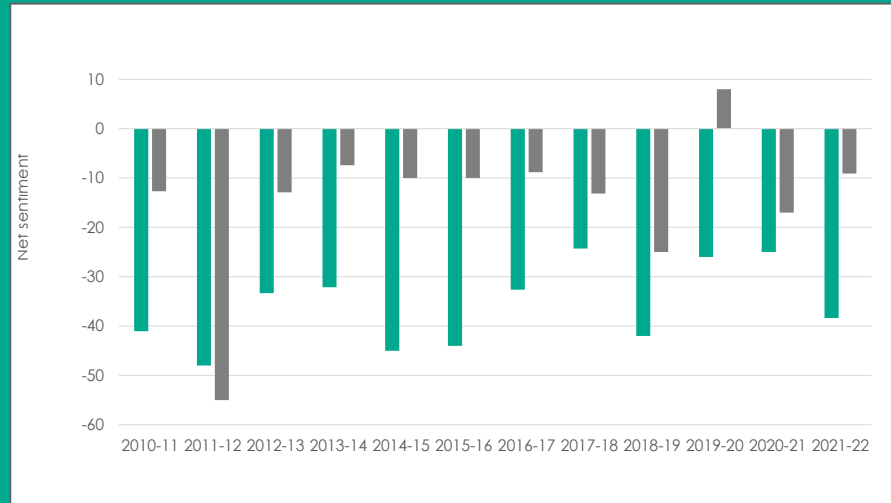


In last year's Scorecard, sentiment towards access to investment capital was the good news story indicating confidence among explorers for capital raising. This category has now dropped to a negative sentiment, driven largely by coal and petroleum respondents. Minerals explorers were positive towards this category. The number of companies engaged in capital raising has dropped significantly over the past six months, which may be a sign companies are seeking to preserve cash before they see what lies ahead for 2022-23. One survey respondent commented that "Royalty increases make it difficult to compete for global capital/investment."

LEGEND

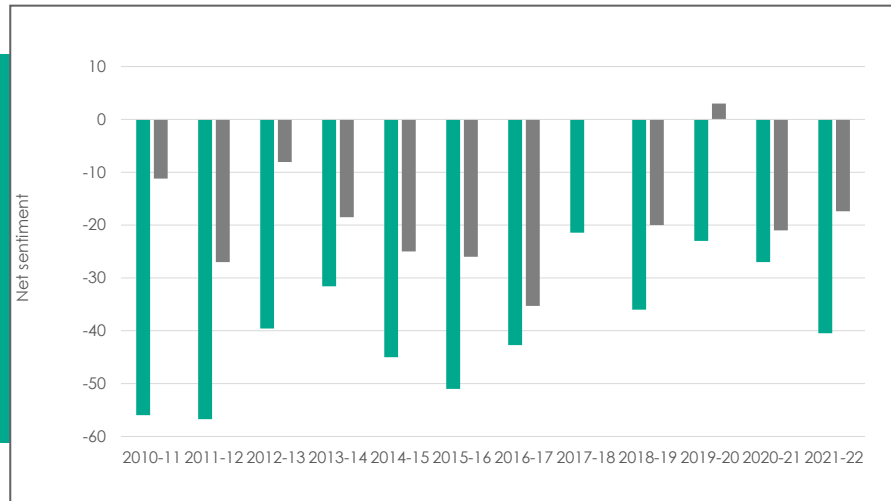
- Queensland
- Rest of Australia

CHART 4.4.15: ENVIRONMENTAL REGULATIONS 2010-11 TO 2021-22



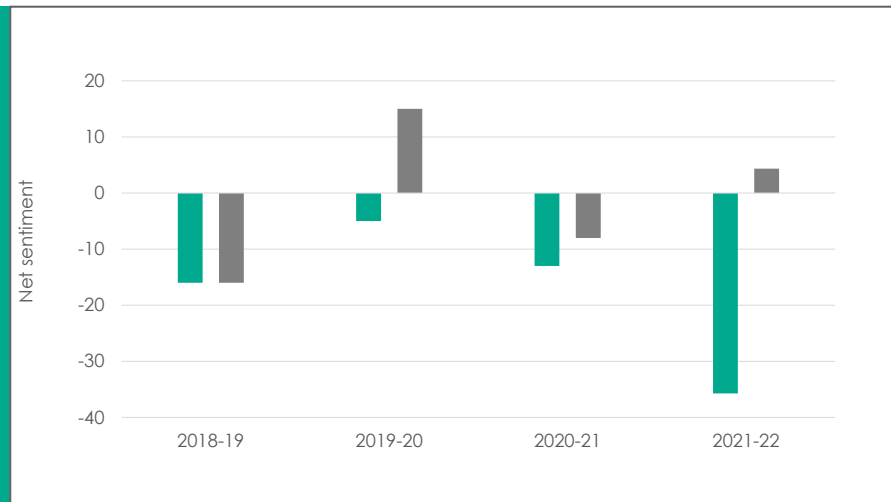
Sentiment towards environmental regulations has become more negative since last year's Scorecard. Respondents across the coal and petroleum industries ranked sentiment towards environmental regulations as highly negative, while minerals respondents were moderately negative. Feedback included a need for the Department of Resources and the Department of Environment and Science to communicate more effectively. As an action of the Queensland Resources Industry Development Plan and based on customer feedback, the Department of Environment and Science, the Department of Resources and the Office of the Coordinator-General have committed to working together to understand and improve customer journeys to streamline approvals and provide more focussed and clear guidance.

CHART 4.4.16: POLICY UNCERTAINTY 2010-11 TO 2021-22



Negative sentiment towards policy uncertainty remains for a 12th year. After COVID-19 related issues, policy uncertainty was scored the second-most negative factor affecting Queensland explorers in 2021-22. Negative sentiment towards this category was driven by very strong negative sentiment from petroleum and coal respondents. Minerals respondents were moderately negative. Many respondents referenced royalty rate increases as having a strong impact on policy uncertainty and this is likely to be the dominant driver in negative sentiment towards this category.

CHART 4.4.17: ROYALTY AND TAX RATES 2018-19 TO 2021-22



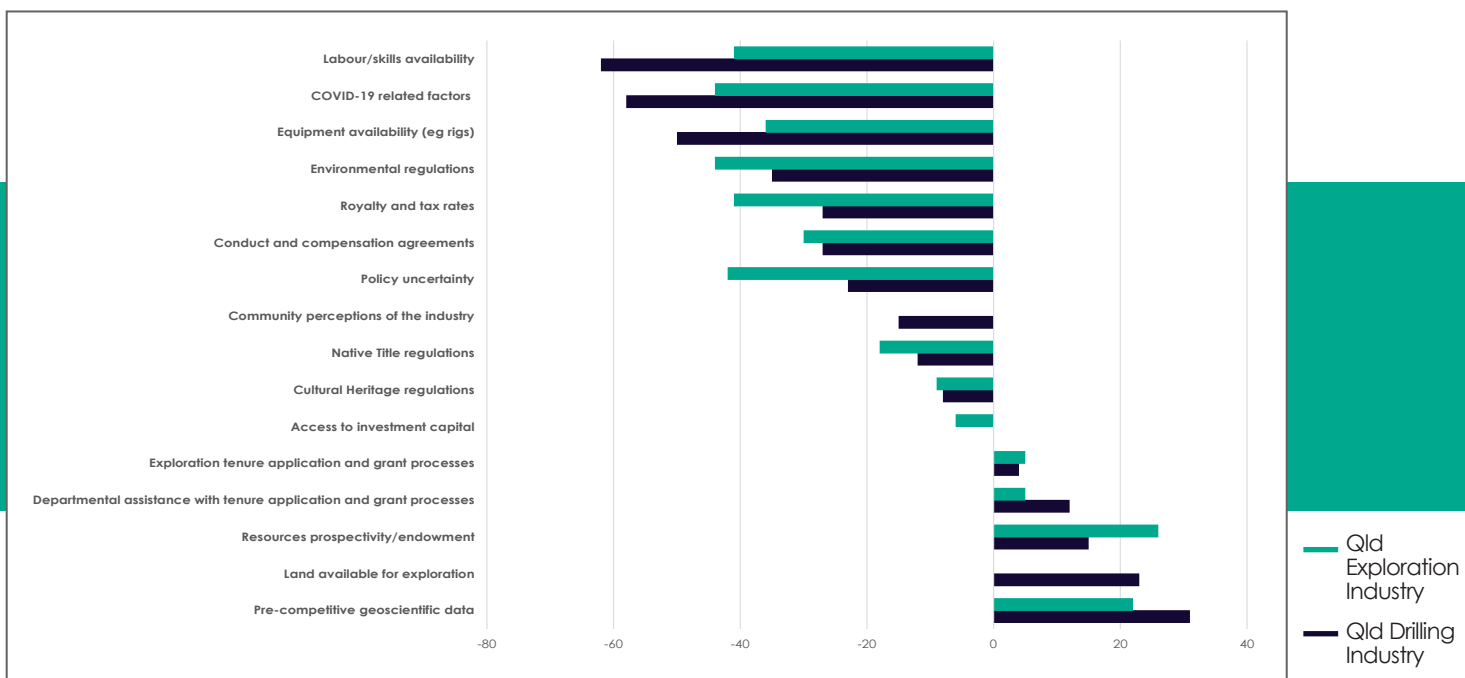
The recent Queensland Government announcement in June 2022 of additional, higher royalty tiers and increased royalty rates for coal producers has caused marked unrest across the resources sector as a whole and is driving the negative sentiment towards this category. The negative sentiment wasn't limited to coal, with 91% of survey respondents who are not coal producers stating they are concerned their sector could be subject to similar tiered royalty tax rate changes in the future. A number of survey respondents referenced the multiple issues the royalty increase has caused including significantly reduced profits, reduced exploration expenditure, sovereign risk, anti-competitiveness, divestment and decrease to asset values. One explorer said: "Queensland no longer rates as an investment destination. We're very way to put money into search for Rare Earths as the royalty change precedent in coal is unfathomable."

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4.5 QUEENSLAND DRILLING INDUSTRY SENTIMENT

The drilling industry is a reliable indicator of the health of the resources sector and is vital to exploration and further development of natural resources. 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 2021-22



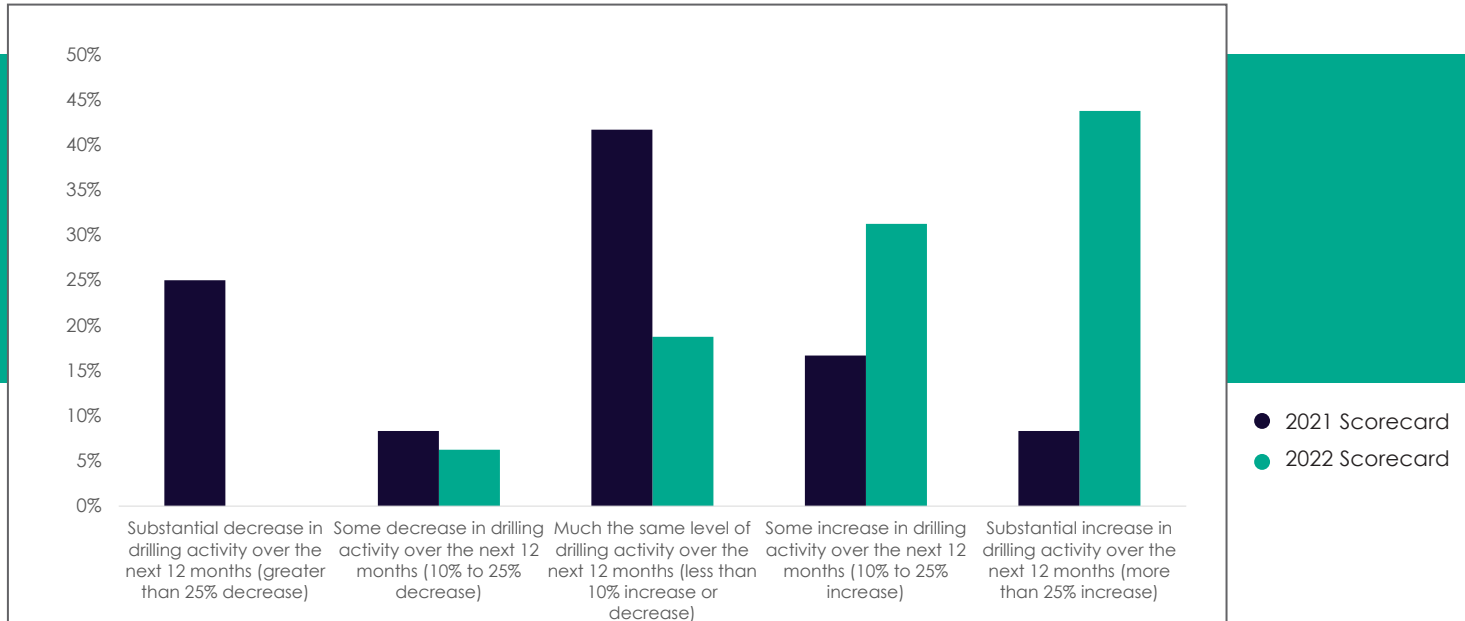
Note: Years with no data equals a neutral score (zero).

The drilling and exploration surveys produced similar sentiment direction for most categories, with three exceptions. The Queensland drilling industry sentiment towards community perception of the industry was significantly more negative than the neutral perception towards the exploration sector. For access to investment capital, the drilling industry was neutral and exploration industry was negative. Conversely, on land available for exploration, drillers were significantly positive while the exploration industry was neutral.

For both the exploration industry and the drilling industry, sentiment remains deeply negative on COVID-19, labour/skills and equipment-related factors. Other concerns include policy uncertainty, royalty and tax rates and environmental regulations. Pre-competitive geoscientific data, resources prospectivity, departmental assistance and exploration tenure application and grant processes were all in positive territory for both drillers and explorers, showing Queensland's Department of Resources is a bright spot for the industry.



Image source: Hammer Metals

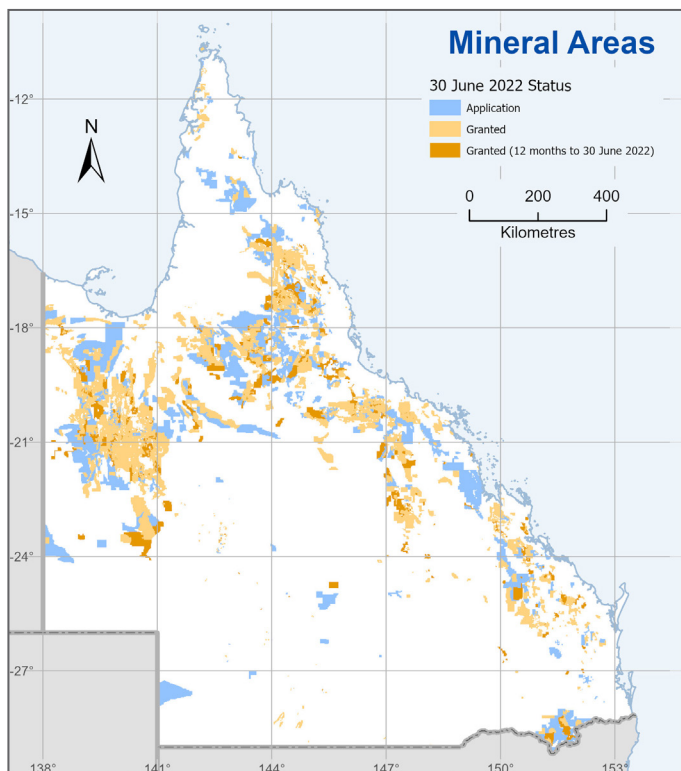
CHART 4.5.2: 12 MONTH OUTLOOK FOR DRILLING ACTIVITY, 2021-22

The 12-month outlook for driller activity has increased compared to the 2021 Scorecard results. Approximately 75% of drillers expect to increase their drilling activity in 22-23, with more than 40% expecting a substantial increase in activity. In contrast, less than 20% indicated a decrease in activity, with no drillers expecting a substantial decrease, which is a substantial shift from last year's result.

The outlook for drillers is likely to be driven by their current and expected bookings into the next financial year and may not translate to an increase in output because drilling companies are now at capacity, with limited access to labour and equipment.



5.0 TENURE COVERAGE



Source: Department of Resources

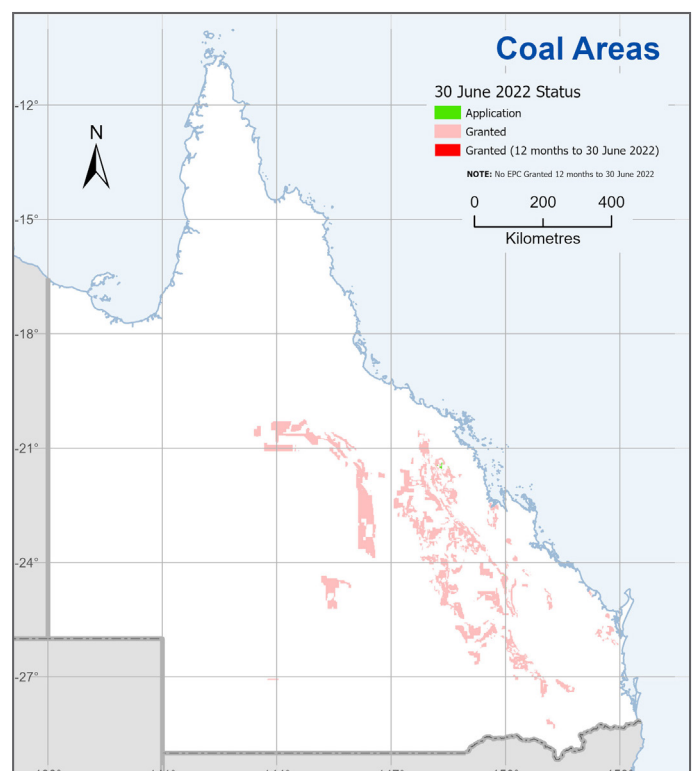
FIGURE 4: EXPLORATION PERMIT MINERAL COVERAGE, JUNE 2022

Figure 3 displays mineral tenure permits and applications in Queensland as of 30 June 2022. It is 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.

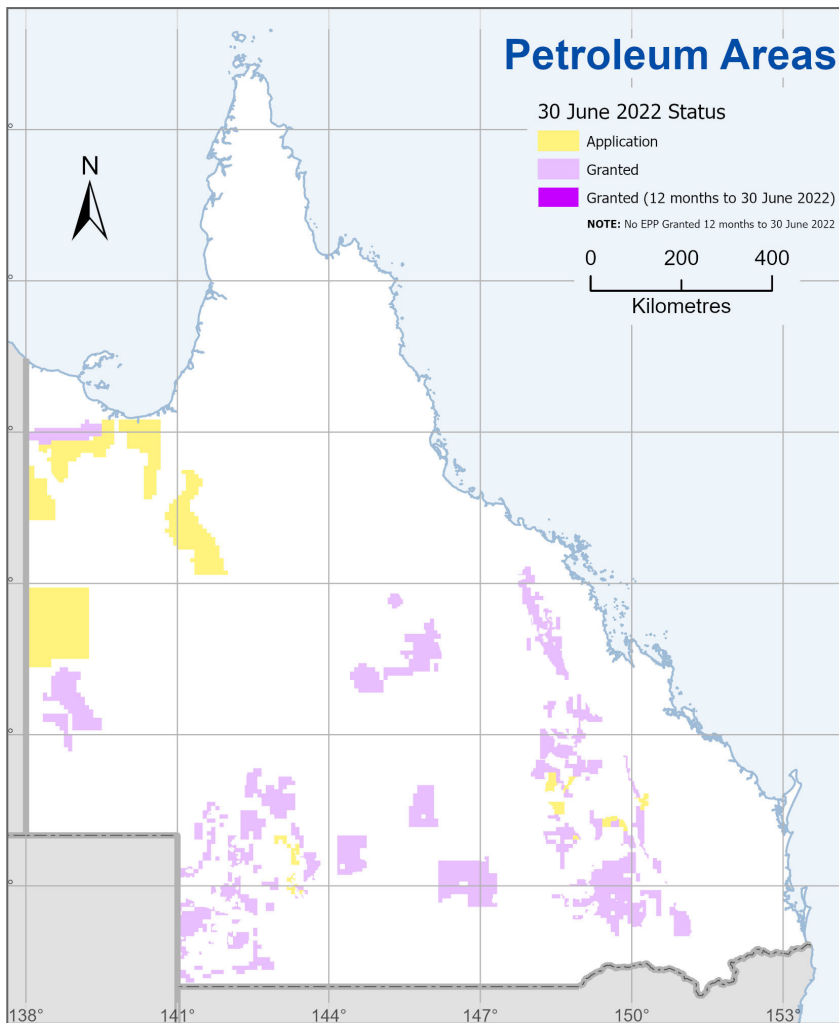
This year's map shows a considerable number of areas shaded in dark orange representing the 251 exploration permits for minerals (EPM) granted in the 12 months to June 2022, which are clustered in the top half of the state. There are also a sizable number of geographically spread areas shaded in blue representing permits at the application stage. Again, these are clustered in central, north and western Queensland, with some located in the southern half of the state.

FIGURE 5: EXPLORATION PERMIT COAL COVERAGE, JULY 2021

Queensland boasts some of the world's highest quality metallurgical coal and is richly endowed in this natural resource, which is essential to building a renewable energy future. In Queensland, there were no new exploration permits for coal (EPC) granted in the 12 months to June 2022.



Source: Department of Resources



Source: Department of Resources

FIGURE 6: 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 characterized by the larger permit areas being in greenfield regions, and most tenures and generally smaller permit areas being in brownfield regions. In the 12 months to 30 June 2022, no new Authority to Prospect (Petroleum) (EPP) permits were granted.

In 2021-22, the Department of Resources (DoR) announced one call for tender land release, made up of 8 petroleum and gas areas totalling 14,400 km² (4673 sub-blocks).

After an expressions of interest period in early 2021, four exploration areas suitable for greenhouse gas storage were released in March 2022, totaling 14,500 km² (4,757 sub-blocks).

KEY FINDINGS

- DoR exploration permit processes have improved over the history of the Scorecard.
- The Queensland Exploration Program continues to release prospective land for petroleum explorers. For the first time in ten years, areas were released for greenhouse gas storage exploration.
- The Collaborative Exploration Initiative (CEI) continues to be a popular and well received government initiative among explorers, encouraging minerals exploration in areas with high New Economy minerals prospectivity. As part of the Queensland Resources Industry Development Plan (QRIDP) CEI funding has increased to \$22.6million over the next 5 years.
- As in previous years, petroleum exploration is widespread across the State. Many tenure applications and grants for minerals exploration appear through the eastern parts of the state, but the majority of minerals exploration is located across the North and North-West of Queensland. Coal exploration tenure applications and grants are confined to the Bowen and Surat basins and compared to minerals and petroleum there are limited areas (of mostly relinquished) land available.

6.0 EXPLORATION EXPENDITURE

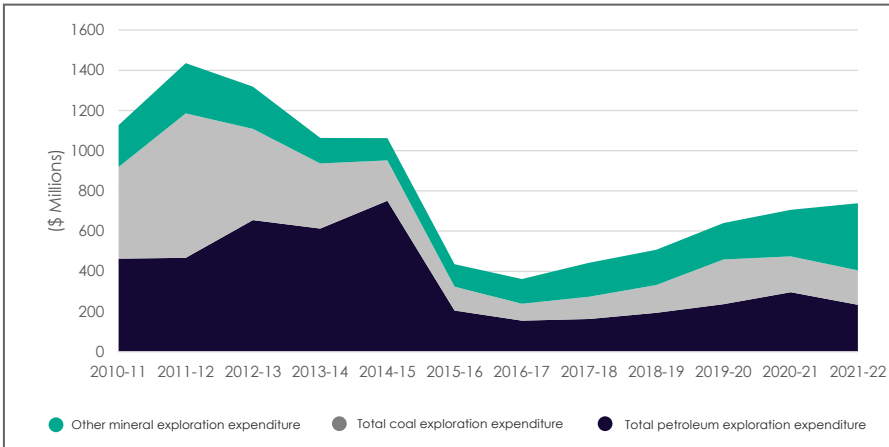


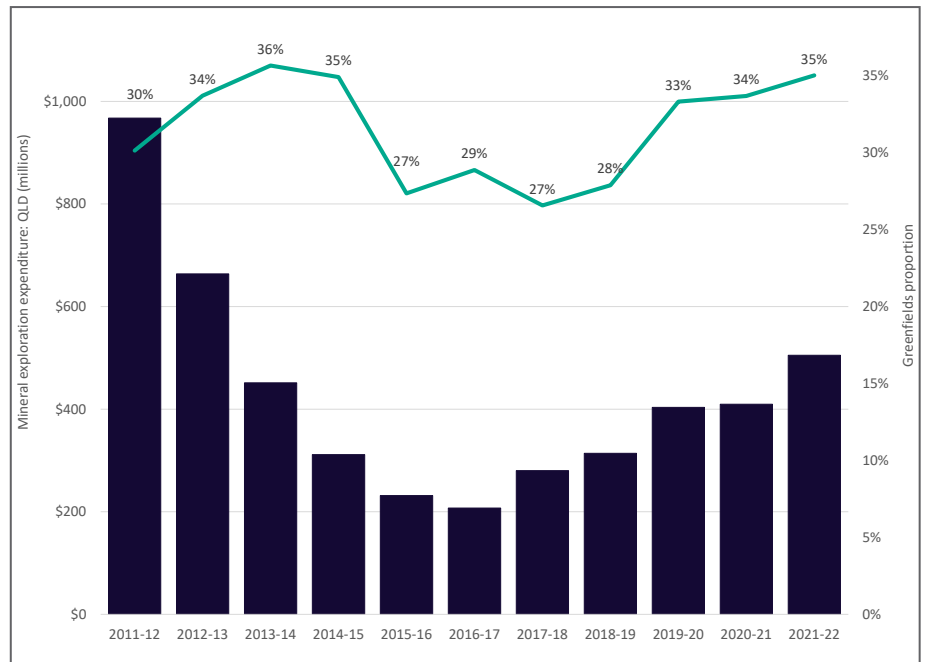
CHART 6.1: QUEENSLAND EXPLORATION EXPENDITURE - 2010-11 TO 2021-22

Queensland's total exploration expenditure increased slightly by 4.6% in 2021-22 compared to the previous year.

In the 12-year history of the Exploration Scorecard, 2021-22 marks the first time minerals exploration expenditure has exceeded petroleum exploration expenditure.

CHART 6.2: NEW DEPOSITS (GREENFIELDS) AS PERCENTAGE OF TOTAL QUEENSLAND MINERALS EXPLORATION EXPENDITURE - 2011-12 AND 2021-22

In 2021-22, Queensland's greenfields share of minerals exploration improved slightly for the fourth consecutive year, increasing to 35% of all exploration spend. While this is a mild improvement, Queensland's greenfields proportion is not far off the highs of 2013-14 when Greenfields made up 36% of exploration spend.



Source: AUSTEX Resource Opportunities

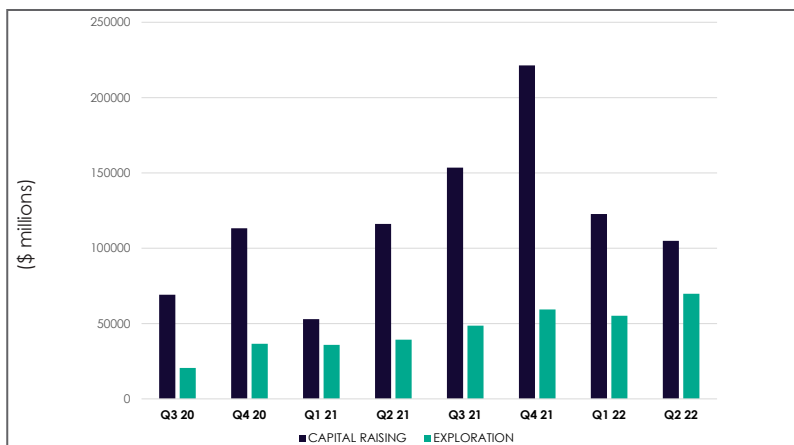


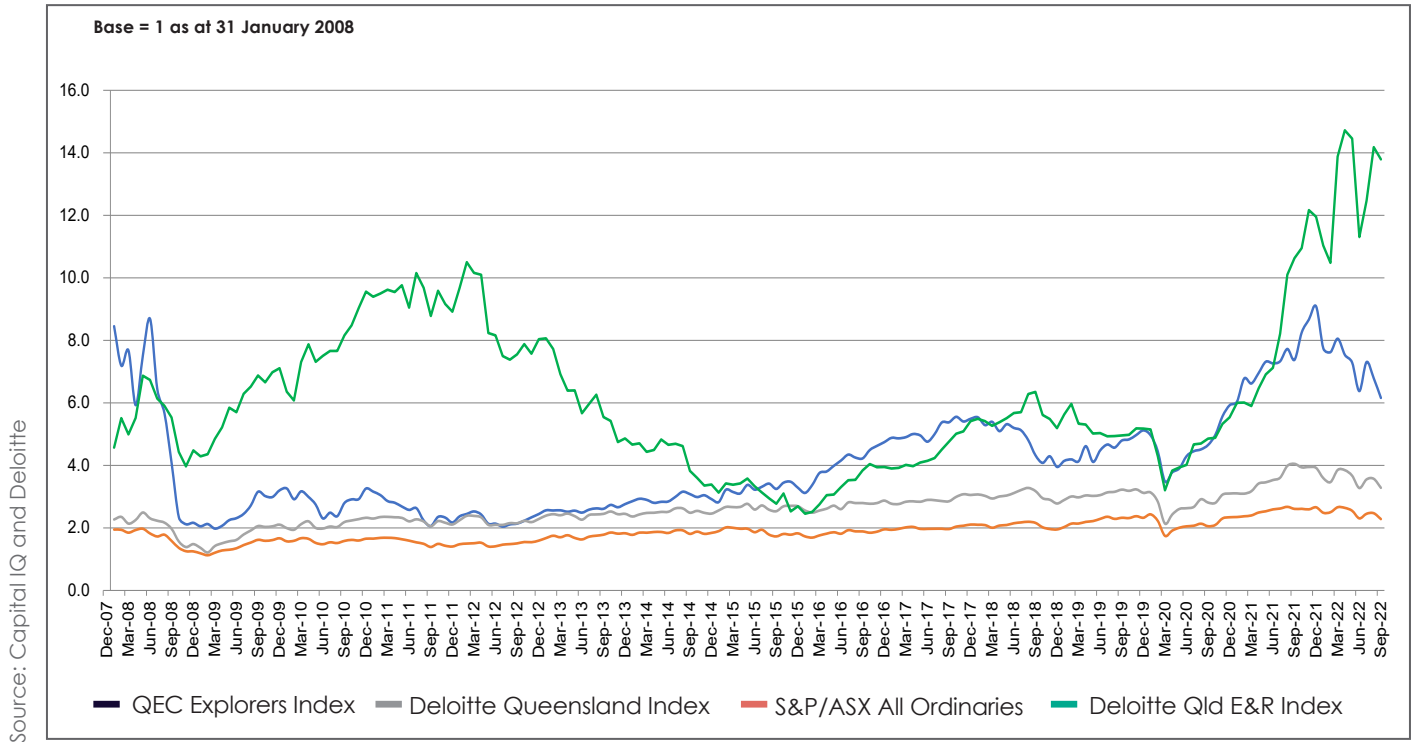
CHART 6.3: AUSTEX JUNIOR COMPANY EXPLORATION EXPENDITURE IN QUEENSLAND (\$MILLIONS, ANNUAL)

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



Uncertain economic conditions in 2021-22 drove volatile results for the four indices tracked in the Scorecard. The S&P/ASX All Ordinaries decreased 11%, the Deloitte Queensland Index decreased by 7% and QEC Explorers Index decreased by 12% over the year. The drop in market capitalisation is particularly concerning for junior explorers, which rely heavily on listed equities to fund their exploration programs. The bright spot for the Scorecard was the Deloitte Queensland Exploration and Resources Index, which increased by 59% across the year, perhaps reflecting recent corporate activity and record coal prices achieved in 2021-22.

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