



ADVANCING QUEENSLAND EXPLORATION

***FIVE KEY INITIATIVES
FOR EXPLORATION INDUSTRY DEVELOPMENT***

2023-24 QEC Exploration Industry Submission
to the Queensland Government

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Introduction

ABOUT THE QEC

The Queensland Exploration Council (QEC) is an initiative of the peak representative body for Queensland's minerals and energy developers – the Queensland Resources Council (QRC).

The QEC was formed by QRC in 2010 after the Global Financial Crisis when it was near impossible for an explorer to access the capital required to get their projects off the ground. With endorsement from the Queensland Government, minerals and energy explorers, service providers, business and academic research communities, the QEC aims to:

- attract more exploration investment to Queensland; and
- promote the role of the exploration industry, and in particular, its importance to regional, state and national economies.

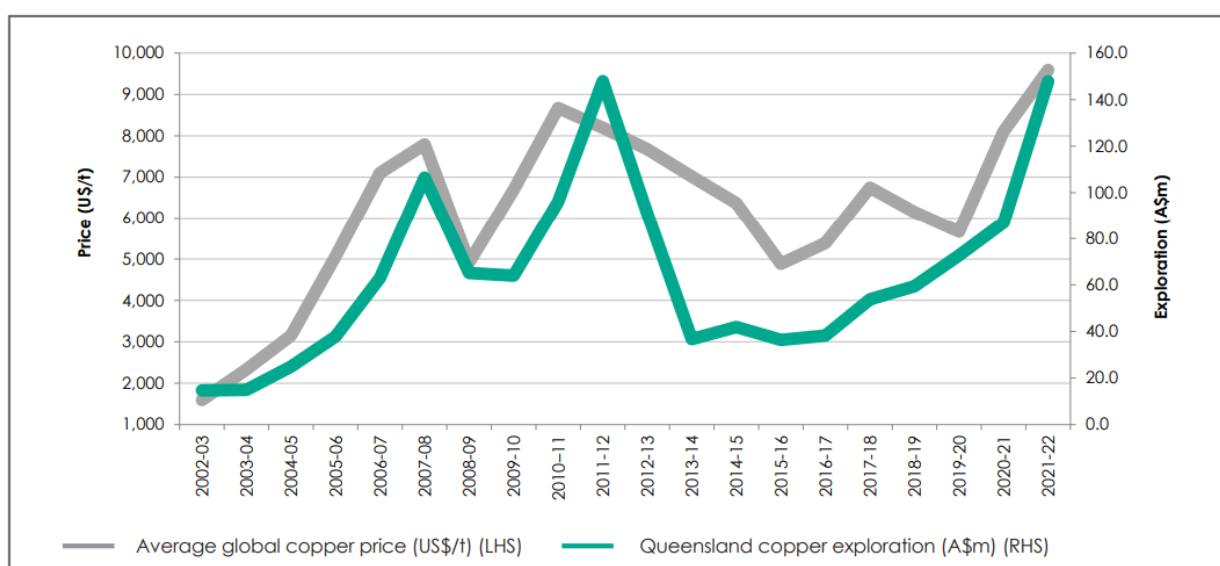
The QEC's vision is to support Queensland explorers on their pathway to production.

Today the not-for-profit QEC has 97 members and three proactive Working Groups reflecting the diversity of the exploration community in Queensland.

THE ROLE OF EXPLORATION

Typically, exploration activity is a leading indicator of the outlook for the broader resources sector. For analysts, exploration is a bellwether industry because when the broader economic outlook is positive, exploration activity flourishes. A good example of this is set out in the [QEC's Annual Exploration Scorecard](#) publication, where Chart 1 (page 17 of Scorecard document) below illustrates the relationships between the global average benchmark copper prices and Queensland's copper exploration spend.

Chart 1: Global average benchmark Copper prices and Qld Exploration Spend 2002-03 to 2021-22



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

For Queensland, exploration sustains a pipeline of new resource developments, and in turn the jobs, economic activity and royalty streams that underpin the state's economy. Last year, resources royalties alone contributed \$9 billion in revenues for the 2021-22 Queensland State Budget. This contribution was a \$6.4 billion increase from the previous year.

In the most recent Queensland Government 2022-23 Budget Update, revenue from royalties was estimated to total \$13.4 billion in 2022-23, \$4.5 billion higher than in 2021-22 and \$5.7 billion higher than estimated in the 2022-23 Queensland Budget.

Exploration expenditure continues to increase for minerals off the back of ambitious energy transition and manufacturing plans and strong commodity prices. Last year the Exploration Scorecard showed mineral exploration expenditure exceeded petroleum exploration expenditure in 2021-22, for the first time in the Scorecard's 12-year history.

Petroleum exploration spend was \$236m which was down 21% compared to the previous year. 2021-22 was a year where gas price indicators were at record levels and the outlook for the Eastern Australia gas market was that it was fundamentally undersupplied. Coal exploration spend has also been declining despite soaring coal prices. Together, these indicate there might be other contributing factors affecting the exploration spend such as no land releases for exploration and problems accessing capital.

The other key issues for the exploration industry highlighted in the scorecard were:

- Equipment availability
- Labour/Skills shortages
- Land availability

OPPORTUNITY FOR QUEENSLAND

Global energy security is becoming critically important with many countries re-assessing their options for secure, reliable and affordable energy supply chains. Queensland's coal, gas, minerals and energy resources will play an essential role more than ever, now and into the future with its strategic partners in Europe, Asia and the United States of America. The QEC acknowledges the Queensland Government is already working towards this, with the Minister for Resources, The Honourable Scott Stewart MP, outlining the Queensland Government's vision for new economy minerals, saying:

"New economy minerals present significant opportunities for Queensland. That's why we're making investments like this now, to the expansion of Mackay's Resources Centre of Excellence, to ensure a strong future for our resources sector. Whether that's in infrastructure such as the vanadium processing plant or with this future industries development hub, these are down payments on high-skill, well-paid jobs, particularly in regional Queensland. Our government's vision is to mine, process and manufacture these minerals here in Queensland, taking them all the way from pit to product. From copper and bauxite/alumina to silica, vanadium and cobalt, we want to maximise our minerals for the benefit of every Queenslander."¹

Hon Scott Stewart MP – Minister for Resources 9 June 2022

¹ Queensland Government Media Statements (20 November 2021) "Maroon push seeks backers for new economy minerals." Accessed at <https://statements.qld.gov.au/statements/95362>

In October 2022, the President of the United States of America, Joe Biden announced the American Battery Materials initiative, an effort to mobilise the US government and its allies to strengthen the global supply chain for critical minerals used for power, electricity, and EVs, saying:

*"...The demand for critical materials is set to skyrocket by 4- to 600 percent over the next several decades. The demand for minerals like lithium and graphite is expected to increase by as much as 4,000 percent. Some see it as a challenge, but we see an opportunity — a real opportunity to shift to a net-zero sum carbon world in one of the most significant economic transitions since the Industrial Revolution."*²

Joe Biden, USA President, 19 October 2022

About this submission

This budget submission titled, *Advancing Queensland Exploration - Five key initiatives for exploration industry development*, is a Queensland Exploration Industry submission developed by the QEC which advocates for the growth and development of Queensland exploration to ensure the long-term success of Queensland's resources sector.

Each of the five (5) initiatives in this submission are a suggested industry solution to manage key issues highlighted in the 2022 Exploration Scorecard. QEC is seeking financial support and action from the Queensland Government in partnership with industry and other membership groups to address the issues of equipment availability, labour/skills shortages, land availability as well as continue to enhance the role and influence of the Geological Survey of Queensland.

The QEC seeks to bring these initiatives to the attention of the Department of Resources and urges the Queensland Government to consider each of the five initiatives in its upcoming budgetary decisions for the 2023-24 financial year and forward estimates.

The QEC estimates that the five key initiatives for exploration industry development require total Queensland Government funding of \$130.755 million, over various terms.

The anticipated return on this investment is significant, translating into:

- ❖ **more job creation in the North West Minerals Province and across Queensland;**
- ❖ **increased State revenue from royalties and land rent as a result of successful exploration;**
- ❖ **life extension for existing projects and infrastructure; and**
- ❖ **a global focus on resolving some outstanding challenges associated with the North West Minerals Province.**

² The White House (19 October 2022) '[Remarks by President Biden on the Bipartisan Infrastructure Law](#)'

The *Advancing Queensland Exploration - Five key initiatives for exploration industry development*, aligns with the key delivery priorities for the Minister for Resources, Scott Stewart MP, as outlined in his [Charter Letter](#) and more recently in the key focus area actions outlined in the [Queensland Resources Industry Development Plan](#). At a glance, the five key initiatives of this QEC budget submission are summarised in Table 1 which outlines the relevance of each initiative to key Queensland Government priorities, whether it is a new or existing initiative and the recommended funding amount per initiative.

Table 1: QEC Budget Submission Summary 2023-24

QEC submission: <i>Advancing Queensland Exploration</i>	Minister Stewart Charter Letter: <i>Portfolio Key Delivery Priorities</i>	Queensland Resources Industry Development Plan: <i>Actions</i>	Is this a new initiative or ongoing industry support?	Funding and term, recommended by QEC
1) Championing Queensland exploration	Continue to support the development of the resources sector including coal, gas and new economy minerals. Provide clear pathways for investment in new economy minerals exploration and production.	<ul style="list-style-type: none"> - Investigate promotion strategies for Queensland's new economy minerals - Embed Queensland's ESG competitive advantage - Deliver Queensland's Collaborative Exploration Initiative 	A: Transforming – Ongoing industry support	A: \$30,000 Grant Deed funding in 2023-24 to support increased resourcing and operational costs of managing QE-Connect website internally.
			B: Queensland Explorer Awards – New initiative	B: \$50,000 over two years to promote and run the new Queensland Explorer Awards event.
			C: Showcasing Investment Attractiveness – New initiative	C: \$500,000 in 2023-24 towards Investment Attraction Commissioner position and associated costs
			D: Centre of Excellence for skills development - Townsville – New initiative	D: \$15M over four years towards Centre of Excellence for resource sector skills development with a focus on critical mineral and exploration
2) Fundamental initiatives to discovery		<ul style="list-style-type: none"> - Deliver Queensland's Collaborative Exploration Initiative - \$5 million to develop a Queensland Battery Industry Strategy - Facilitate and investigate common user infrastructure - Investigate research and development support options, particularly for mineral traceability technology 	A: Increased funding for CEI – Ongoing industry support	A: \$20M over four years towards CEI grants over four years, including \$200k quarantined towards investigating supply chain solutions.
			B: Common-user drill rig – New initiative	B: \$150,000 in 2023-24 towards set-up costs for a communal contract/tendering tool.
			C: R&D Priorities for Minerals in Qld – Ongoing industry support	C: \$500,000 over two years towards 'Research and Development Priorities for Minerals in Queensland'
3) An influential, data-driven Geological Survey	Continue to support the development of the resources sector including coal, gas and new economy minerals.	<ul style="list-style-type: none"> - \$22.6 million to deliver Queensland's CEI - \$10 million for geophysics for discovery - \$5 million for better defining our new economy mineral potential - \$5 million for circular economy in mining 	Ongoing industry support	\$87M over six years for GSQ base funding (previously \$72M) + \$25,000 in 2023-24 for consultant costs for review of GSQ structure
4) Sustainable research for gas, transition, and energy security	Maximise Queensland's opportunities from the Commonwealth's gas-led COVID recovery.	<ul style="list-style-type: none"> - Embed Queensland's ESG competitive advantage - Complete the Bowen Basin pipeline study - Investigate carbon capture, use and storage 	Ongoing industry support	\$1.5M over three years towards the UQ Centre for Natural Gas.
5) One vision for the North West Minerals Province	Provide clear pathways for investment in new economy minerals exploration and production. Continue to implement Govt's reforms to mine rehabilitation and FA	<ul style="list-style-type: none"> - Re-commercialising abandoned mine pilot program - \$5 million to develop a Queensland Battery Industry Strategy - Investigate promotion strategies for Qld's new economy minerals - Rent deferral for new economy minerals projects - Facilitate & investigate common user infrastructure - \$5 million for circular economy in mining - Embed Qld's ESG competitive advantage 	Ongoing industry support	\$1M in 2023-24 towards a NWMP Deputy Coordinator-General position and establishing a small support team. + \$5M in 2023-24 towards circular economy solutions in exploration and mining
TOTAL				\$130.755 M

The five key initiatives for exploration industry development

1. CHAMPIONING QUEENSLAND EXPLORATION

The QEC has an ambitious work program to champion Queensland's exploration sector. To sustain this ambition, QEC has successfully acquired increased funding support from its largest partner, the Queensland Government through the Department of Resources towards the QUREX website update project.

A. TRANSFORMING THE QUREX GATEWAY TO QE-CONNECT

In 2017, the Queensland Exploration Council (QEC) together with the Queensland Government's then Department of Natural Resources, Mines & Energy (DNRME) and Trade & Investment Queensland (TIQ) collaborated to create a one-stop-shop "gateway" website for hard-to-find yet existing information, for all things exploration, investment and doing business in the Queensland resources sector.

The Queensland Resources and Exploration Gateway (QUREX) website has been a successful medium to channel users through to government sites for the latest maps, research as well as Queensland's only exploration website that lists all resource industry functions and events on the one resource sector events calendar.

In 2023, the Queensland Exploration Council (QEC) is launching a refreshed and rebranded exploration industry promotion website, to replace the QUREX Gateway. The new website, QE-Connect, will promote the Queensland Resources Industry Development Plan (QRIDP) and provide essential information about the Queensland exploration industry. QEC has updated its internal workplans to align with specific QRIDP areas relevant to exploration. *QE-Connect* content will align with key focus areas of the QRIDP that are relevant to exploration, including:

- Collaborative Exploration Initiative
- Promotion of Queensland's new economy minerals
- Build ESG industry capability
- Minerals' traceability
- Land access and coexistence
- Safe and resilient future workforce
- Land release process

QEC is currently in consultation with the Department of Resources regarding the QE-Connect website project.

RECOMMENDATION:

Increased Grant Deed funding from the current annual amount of \$24,500, to \$30,000 in 2023-24.

COST:

The QEC is seeking \$30,000 Grant Deed funding from the Queensland Government in 2023-24 to support increased resourcing and operational costs of managing the QE-Connect website.

OUTCOME:

This will support the ongoing operations of QEC and also result in an updated website called QE-Connect to assist in the delivery of the Queensland Resources Industry Development Plan, and will complement and support the exploration related actions of the QRIDP, promoting the exploration investment potential of Queensland's resources sector.

QRIDP Actions –

- ✓ Investigate promotion strategies for Queensland's new economy minerals
- ✓ Embed Queensland's ESG competitive advantage
- ✓ Deliver Queensland's Collaborative Exploration Initiative

B. CELEBRATING SUCCESS WITH NEW QUEENSLAND EXPLORER AWARDS

QEC believes the establishment of the Queensland Explorer Awards is an excellent way to provide recognition where there has been significant discovery in Queensland, as well as best practice in areas of operation such as ESG and innovation.

This new initiative would be developed in partnership by the QEC and Queensland Government, working together to identify award categories, criteria and judging to develop the awards. It would be promoted via the new QE-Connect website and presented at the annual launch of the Queensland Exploration Scorecard in November 2024. It is strategic to bringing exploration investment to Queensland.

The award criteria would be developed in partnership with the Department of Resources with a selection panel made up of industry and government representatives. It is envisaged the awards would be handed out by the Minister for Resources each year.

RECOMMENDATION:

A new partnership between QEC and the Queensland Government introducing the Queensland Explorer Awards initiative.

COST:

The QEC is seeking investment over two years from the Queensland Government totalling \$50,000, to be used towards resourcing and annual event running costs. The QEC will also seek private industry sponsorship for the event.

OUTCOME:

A Queensland-first initiative for the exploration industry which will celebrate, promote and encourage best practice across industry in multiple action areas of the QRIDP such as ESG, safety, diversity and innovation. The awards would raise the profile of explorers in Queensland and attract investment in innovation and technology.

QRIDP Actions –

- ✓ Investigate promotion strategies for Queensland's new economy minerals
- ✓ Embed Queensland's ESG competitive advantage

C. SHOWCASING INVESTMENT ATTRACTIVENESS

QEC believes Queensland's burgeoning critical minerals industry requires a stronger level of strategic promotion to drive investment and further develop the industry. An Investment Attraction Commissioner position, as part of the Trade and Investment Queensland team or a dedicated senior executive within the Department of Resources, is one solution to ensuring Queensland's critical minerals prospectivity and the industry's key role in advancing the transition to a greener future, is promoted across the globe.

RECOMMENDATION:

QEC recommends the Queensland Government create a dedicated role responsible for showcasing Queensland investment attractiveness. This newly created Investment Attraction Commissioner position would be complemented by critical minerals advocacy initiatives that promote investment attraction to Queensland such as Investment Showcase events, delegation travel etc.

COST:

Approximately \$500,000 in 2023-24 towards a Queensland Investment Attraction Commissioner position and associated promotional costs.

OUTCOME:

The KPIs of this new position would deliver on new investment being brought into Queensland's resources exploration industry, through strong relationship building and promotion strategies. The Investment Attraction Commissioner would co-host Investment Showcase events with QEC to promote selected Queensland critical minerals projects, including previous Collaborative Exploration Initiative recipients.

QRIDP Actions –

- ✓ Investigate promotion strategies for Queensland's new economy minerals
- ✓ Embed Queensland's ESG competitive advantage

D. Centre of excellence for resource sector skills development

As found in the 2022 Queensland Exploration Scorecard report, labour and skills availability is having a negative impact on the operations of Queensland exploration companies. This category scored negative sentiment at its lowest level in the 12-year history of the Scorecard.

"... 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".

Queensland Exploration Scorecard, page 29.

One solution proposed is to develop a Centre of Excellence for Resources with a focus on Critical Minerals in Townsville, championed as the critical minerals capital of Queensland to study, develop skills, conduct specialist training, and showcase this essential industry. This could be a joint venture between TAFE Queensland, James Cook University and Central Queensland University and other universities to develop a world class training and education facility for resources with a focus on critical minerals. This centre would complement the Mackay Resources Centre of Excellence.

RECOMMENDATION:

QEC recommends development of a Centre of Excellence for Critical Minerals based in Townsville, to showcase Queensland's leading role in developing Australia's critical minerals export industry to power a renewables future.

COST:

Approximately \$15 million across four years towards the development of the Centre of Excellence, towards building the facility, additional academia resourcing, developing specialised coursework and further research.

OUTCOME:

This recommendation would create a competitive advantage for Queensland's resources sector, attract skilled labour to increase their knowledge and skills, and contribute to the development of Queensland's critical minerals industry.

QRIDP Actions –

- ✓ Investigate promotion strategies for Queensland's new economy minerals
- ✓ Embed Queensland's ESG competitive advantage

2. FUNDAMENTAL INITIATIVES TO DISCOVERY

A. INCREASED FUNDING TOWARDS QUEENSLAND'S WORLD-LEADING COLLABORATIVE EXPLORATION INITIATIVE

The Collaborative Exploration Initiative (CEI) is a Queensland Government new economy minerals initiative and is one of the most successful grants of its kind in Australia. It has three key objectives:

- encourage exploration, particularly in frontier/greenfield areas
- support innovative exploration techniques, including machine learning
- promote the discovery and development of 'new economy' minerals – new economy minerals include a range of metals and minerals in high demand for use in renewable energy and advanced technological applications.

QEC is highly supportive of the record level of funding the CEI received during the COVID-19 pandemic, which included \$2.5M per round in 2020 and a commitment then, of \$10M over 4 years until 2023/2024.

QEC also supports the Queensland Government's recent increase in funding towards the CEI through the Queensland Resources Industry Development Plan (QRIDP). This included an extra \$2.5M in CEI funding in 2023-24 (round 7), plus \$5M for the following three years to 2026-27 (rounds 8, 9, 10).

One of the missing pieces of the exploration puzzle is the access to infrastructure once the discovery has been made. Some explorers may be forced to halt operations if they cannot connect into supply chain opportunities such as processing, manufacturing or common user infrastructure to develop the resource ready for market. QEC would like to see research into solutions for explorers in the area of supply chains from pit to port, so that new industries and opportunities can be created from new economy minerals.

RECOMMENDATION:

QEC recommends an increase in ongoing industry support and funding to the CEI, as well as new funding towards exploring supply chain solutions for successful discoveries that are missing the infrastructure and supply chain capability.

COST:

An increase in funding and ongoing support for the exploration industry, increasing from \$5M to \$10M per year from 2023-24, at a total additional cost of \$20M over the next 4 years, towards the CEI. The total amount includes \$200K to be quarantined towards investigating potential supply chain solutions for remote exploration operations that have made a significant discovery but are missing the pit to port infrastructure.

OUTCOME:

This will result in an expanded CEI program and would mean approximately 80 total projects could be funded per year, with the ability for some companies to access multi-year grants and successfully transform to production and export through better access to infrastructure and supply chains.

QRIDP Actions –

- ✓ Deliver Queensland's Collaborative Exploration Initiative

B. A COMMON-USER DRILL RIG FOR NEW ECONOMY MINERALS EXPLORERS

Following the success of the vanadium consortium and the Queensland Government's announcement of \$10 million in funding towards a common-user vanadium processing facility in Townsville, which recently extended to \$75 million funding for expanded processing across all critical minerals, it is evident the common-user model is best practice towards further development of Queensland's critical minerals industry.

At a recent QEC Management Committee meeting in December 2022, QEC members expressed interest at the idea of a common-user drill rig being made available to small critical minerals explorers, which could be transported between critical mineral companies in a certain region and hired for a period of time, based on a communal contract through an expressions of interest (EOI) process. This was suggested as a solution to the current shortage of exploration equipment, as outlined in the [QEC's 2022 Queensland Exploration Scorecard](#), which showed sentiment towards equipment availability at an all-time low. This would also improve sentiment towards access to skilled labour (which also showed low sentiment in the 2022 Scorecard) as exploration companies would be able to offer drillers longer contracts on Queensland projects.

It should be noted, the recently announced Commonwealth Government \$100 million Critical Minerals Interest Fund has \$50 million in remaining funding yet to be allocated.

RECOMMENDATION:

QEC recommends a new tendering tool be introduced for explorers to complete an EOI towards hiring a common user drill rig. The winning tenders would be based on common location (region) and period of time for hire, with incentives available for longer hires (eg discounts) to keep more exploration equipment in the state.

COST:

Subject to a business case to review costs of software implementation and management of the tool, this is estimated at approximately \$150,000 in set-up costs for the communal contract and tendering tool.

OUTCOME:

Shared use of exploration equipment is best practice towards further industry development.

QRIDP Actions –

- ✓ **Facilitate and investigate common user infrastructure**

C. FACILITATING A SHARED VISION TOWARDS RESEARCH AND DEVELOPMENT

In 2020, the Department of Resources, QEC, QRC and the University of Queensland released the publication '[Research and Development Priorities for Minerals in Queensland.](#)'

The publication is a key piece of work that highlighted six (6) key themes/challenges and recommendations for researchers to take on board to ensure their work is practical and reflects commercial drivers.

This joint publication was a first step in understanding the industry's research priorities, yet there are further steps in this work that deserve follow through – where do these priorities fit with existing research programs and how can this be promoted? Where does industry, academia and government go from here? The QEC would like to see a continuation of this work, led by the Department of Resources.

The QEC is pleased to see numerous opportunities presented in the Queensland Resources Industry Development Plan that could address these remaining questions. There are a number of key focus area actions within the QRIDP which expand on the research and development priorities in the 2020 Report. These include:

- Develop a Queensland Battery Industry Strategy
- Refresh Queensland's approach to innovation
- Facilitate and investigate common user infrastructure
- Complete the Bowen Basin pipeline concept study
- Investigate innovative options to support junior and mid-level companies to decarbonise operations
- Investigate research and development support options, particularly for mineral traceability technology

RECOMMENDATION:

QEC seeks an increase in ongoing support through the Department of Resources continuation of partnerships to build upon the research & development priorities identified in the 2020 report.

COST:

QEC estimates the cost of continuing this important work would be \$250k per year, at a total cost of \$500k over two years, with the majority towards resourcing (consultants) and any identified university funding needed over the next two years.

OUTCOME:

Investigate the delivery of the priorities identified in the 2020 report and align these priorities to the QRIDP outcomes and achievements.

QRIDP Actions –

- ✓ Investigate research and development support options, particularly for mineral traceability technology
- ✓ \$5 million to develop a Queensland Battery Industry Strategy

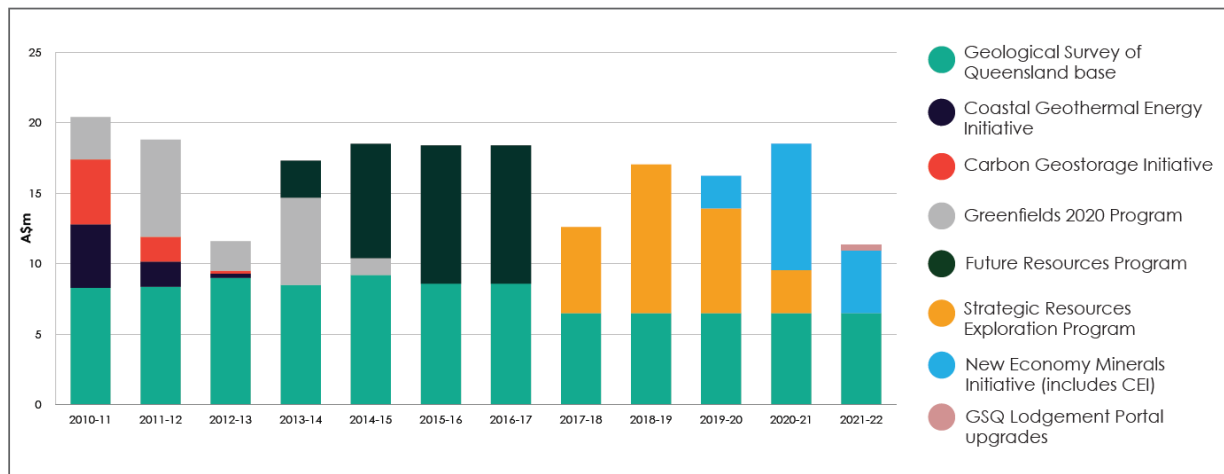
3. AN INFLUENTIAL, DATA-DRIVEN GEOLOGICAL SURVEY

In 2019-2020, the Queensland Government committed to major advances towards enabling data-driven exploration in Queensland, particularly through the Geological Survey of Queensland's (GSQ) initiative, the Geoscience Data Modernisation Project (GDMP).

The open data portal is a first step towards ensuring one of the State's largest resources – geological data – is managed well and accessible for both decision makers and future explorers. Essential to the success of the GDMP is the contributions made by resource companies to the portal data collection process. The QEC supports the Department in its quest to ensure the fair use of the portal with accurate data and will assist by hosting a QEC member briefing.

As demonstrated in the below chart from the QEC's [2022 Queensland Exploration Scorecard](#) released in November 2022, a clear need for continued support for GSQ base funding, as well as funding to keep key initiatives such as the GDMP moving forward was identified.

CHART 4.1: TOTAL GEOLOGICAL SURVEY OF QUEENSLAND EXPENDITURES (A\$M) 2010-11 TO 2021-22



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.

In addition to maintaining base funding for the GSQ, a partnership review between industry and government is recommended to be undertaken, on the most effective model for a geological survey. This is to ensure maximum efficiency in the structure of the GSQ, to positively benefit the exploration industry overall and increase discoveries in Queensland. The continued promotion of the industry across Queensland and enabling industry development opportunities will be critical to the longevity and success of the exploration industry.

RECOMMENDATION:

QEC seeks ongoing support and promotion of the exploration industry and recommends continued support for GSQ to implement their priority projects including maintaining their base funding and a review of the model of the GSQ as an organisation.

COST:

Maintain GSQ base funding and project commitments for the next 6 years at a total \$87 M to successfully implement the QRIDP actions and the associated vision of the QRIDP to grow industry in Queensland. Plus, a review of the GSQ model of organisation, estimated at \$25,000 in consultation fees.

OUTCOME:

Increased ability for the Department of Resources to continuously improve the rollout of the GDMP through engaging companies, encouraging fair use and the upload of quality reporting data. The funding would also support relevant QRIDP Actions, and any increased resourcing required.

QRIDP Actions –

- ✓ \$22.6 million to deliver Queensland’s Collaborative Exploration Initiative
- ✓ \$10 million for geophysics for discovery
- ✓ \$5 million for better defining our new economy mineral potential
- ✓ \$5 million for circular economy in mining

4. SUSTAINABLE RESEARCH FOR GAS, TRANSITION & ENERGY SECURITY

Ensuring Queensland effectively contributes to secure gas supply and longer-term energy transition and decarbonisation goals is reliant on research to improve the abundance, affordability, and acceptability of the State's natural gas resources. There is an opportunity for Queensland's gas sector to be best in class in sustainability and support global energy security.

The University of Queensland's [Centre for Natural Gas](#) is funded by the University, and industry members Australia Pacific LNG, Arrow Energy and Santos. The Centre's multi-disciplinary, energy transition-focused research program and policy advice service deliver significant benefits to the industry and the State. Importantly, maintaining a world-class research establishment in Queensland ensures the availability and retention of expertise which can be drawn on by the State when needed. For example, currently, the Centre's experts support the Gasfields Commission (e.g. Subsidence, Co-existence), Department of Environment and Science (e.g. Methane Abatement, Salt & Brine, CCUS), OGIA (e.g. Groundwater Research) and the Department of Resources (e.g. International developments, Ukraine, and new opportunities for Qld gas, Bowen Basin Pipeline Studies, GHG Tenement evaluation, ESG Working Groups, Resource Industry Development Plan etc.). Recently, the Centre director's efforts attracted \$17m of Commonwealth funds to the State for Galilee and Bowen Basin technology trials. In support of the 2022 Queensland Energy and Jobs Plan, the Centre has also adopted world-leading integrated systems modelling capability (for gas and power) working closely with colleagues in UQ 'power engineering'. This enables deeper investigation into transition energy system dynamics (i.e. independent of AEMO) in order to optimise deployment of QREZs and predict and safeguard against changes in gas demand volatility.

The work of the Centre for Natural Gas is based on its three key inter-linked objectives:

Abundance/Security will ensure there is sufficient gas support to meet domestic demand (e.g. so that natural gas can support rapid transition of the electricity sector) and changing international demand (substantial contractual obligations, new opportunities for Qld gas arising from the Russia-Ukraine tragedy, the essential contribution to UN Sustainable Development Goals and reducing emissions in our neighbouring countries). Queensland is an exemplar of dependable LNG supply for our region and beyond.

A key focus of the Centre's research has been the continual improvement of modelling techniques, which give industry and the resource owners (the State) greater predictive confidence and better exploitation from existing assets. Queensland-led, advanced modelling guides exploration and impact assessment activities in relation to gas reservoir assessment and production estimation, and groundwater and gas flows in heterogeneous media. This is expanded into power systems with a mix of renewables and gas.

Affordability requires development of new technology tailored to Australian geology to reduce unit costs and enable marginal supply to be brought to market.

The Centre has a substantial body of technical research focused on improved management of depleted fields and development of new technologies to extract gas from low permeability reservoirs. This research also aims to drive down cost while increasing supply from known fields. Work has also been undertaken on final decommissioning and, while seemingly a long way in the future, the time is ripe for this research focus to grow so that energy communities can get value from beneficial use of legacy assets where possible.

Acceptability relates to community views of Australia's future domestic energy production and energy export opportunities in the context of energy transition and security. New strategies are needed to deal with the different stakeholder groups and issues emerging e.g. fugitive emissions, institutional investment strategies, and groundwater demands of new energy systems. It is also time for an early view on maximizing the legacy value that the industry can leave to regional economies when it finally decommissions.

The social performance research has produced instructive insights regarding the complexities of both industry and government engagement with communities from the earliest stages of the development phase, and the lessons can be applied to future exploration and appraisal initiatives. The Centre's experts are now applying lessons from Queensland's CSG developments to the roll out of new energy technologies such as wind, solar and hydrogen. Emerging issues with a direct bearing on the success of future energy programs include growing activism potentially affecting industry's access to investment funding, and increasing community expectations regarding environmental, social and corporate governance (ESG) aspects.

The Centre undertakes research aimed at supporting Queensland to be recognised as the world's preferred gas/LNG supplier in terms of emissions intensity, environmental footprint, supply assurance and social license.

- Queensland gas to be best-in-class for GHG emissions intensity. The Centre will undertake a suite of decarbonisation research which contributes to Queensland being recognised as best-in-class on emissions.
- More supply, Queensland gas recovery to be most efficient. The Centre will undertake research into complex modelling to maximise the recovery of the State's resource from known accumulations.
- World-leading Queensland science to address key community concerns around subsidence in CSG producing areas. The Centre will undertake world-leading research (in support of OGIA) to develop new, improved and transparent ways of predictive modelling for these complex phenomena.

In addition to the important work of the Centre for Natural Gas, QEC acknowledges the Queensland Government's work on the Bowen Basin Pipeline Study and is supportive of the proposed new gas pipeline in the Bowen Basin. QEC is supportive of new infrastructure to support explorers, which could also help reduce industry emissions, boost the state's gas supplies and create more regional jobs. QEC would like to see more support for explorers in other neighbouring basins.

RECOMMENDATION:

The QEC seeks an increase in ongoing support for the UQ Centre for Natural Gas through increased funding from the Queensland Government.

COST:

\$500k per year over three years, at a total cost of \$1.5M, towards the UQ Centre for Natural Gas.

OUTCOMES:

- Queensland gas to be best-in-class for GHG emissions intensity
- Increased gas supply
- Queensland gas recovery to be more efficient
- World-leading Queensland science to address key community concerns around subsidence in CSG producing areas.

QRIDP Actions –

- ✓ Embed Queensland's ESG competitive advantage
- ✓ Complete the Bowen Basin pipeline concept study
- ✓ Investigate carbon capture, use and storage (CCUS)

5. ONE VISION FOR THE NORTH WEST MINERALS PROVINCE

The North West Minerals Province (NWMP), centred on Mount Isa, is a major focus for the QEC and its members, just as it has been for successive governments and generations of Australians since John Campbell Miles' discovery in 1923 that led to creation of the iconic Mount Isa Mines Limited.

Successive Queensland Governments have undertaken reviews and assigned industry taskforces to help unlock a self-sustaining cycle of prosperity for the North West Minerals Province.

However, since 2007 copious analysis has not translated into significant outcomes for the exploration industry or potential investors. The lineage of NWMP inquiries includes:

2017 A Strategic Blueprint for Queensland's North West Minerals Province

Queensland Department of State Development, Manufacturing, Infrastructure and Planning.

<https://statedevelopment.qld.gov.au/resources/plan/nwmp/nwmp-strategic-blueprint.pdf>

2017-2021 (Geoscience Australia): Exploring for the Future

Four-year study focusing on Tenant Creek to Mount Isa making it the best mapped section of the Earth's crust. <https://www.ga.gov.au/eff/minerals/fis/tenant-creek-mt-isa>

2019 North West Economic Diversification Strategy

Queensland Department of State Development, Manufacturing, Infrastructure and Planning.

<https://www.statedevelopment.qld.gov.au/resources/plan/nw-qld-economic-diversification-strategy.pdf>

2019 Queensland Minerals Research Barriers and Priorities

Neuchatel Report (unpublished)

2019 Australia's Critical Minerals Strategy Australian Department of Industry, Innovation and Science.

<https://www.industry.gov.au/sites/default/files/2019-03/australias-critical-minerals-strategy-2019.pdf>

2007-2012 Northern Economic Triangle <http://www.dlgrma.qld.gov.au/resources/plan/cg/net-infrastructure-plan-full-version.pdf>

2008-2009 Blueprint for Powering the North-West <http://statements.qld.gov.au/Statement/Id/65982>

2009 North West Queensland Mineral and Energy Province Study

<https://www.business.qld.gov.au/industries/mining-energy-water/resources/geoscience-information/geoscience-projects/mineral-energy>

2015 MITEZ NWQ Strategic Development Study http://www.mitez.com.au/cpt_projects/nwq-strategic-development-study/

2015 North West Minerals Province Taskforce report

<https://statedevelopment.qld.gov.au/resources/plan/nwmp/nwmp-strategic-blueprint.pdf>

2020 Australia's Critical Minerals Investment Opportunities, Association of Mining and Exploration Companies (AMEC)

<https://secureservercdn.net/198.71.233.51/0h5.0cf.myftpupload.com/wp-content/uploads/2020/10/Australias-Critical-Minerals-Opportunities.pdf?time=1612917088>

North West Minerals Province Investment Prospectus, Queensland Department of Resources

https://www.statedevelopment.qld.gov.au/_data/assets/pdf_file/0023/32918/nwmp-investment-prospectus.pdf

**2020 Research and Development Roadmap for Queensland Minerals
Queensland Department of Resources**

https://www.dnrme.qld.gov.au/_data/assets/pdf_file/0011/1475498/rd-priorities-qld.pdf

In published reviews, the consistent conclusion is the region's future is critically dependent on exploration success. Most recently, the Queensland Government announced funding of \$75M towards expanding a common user vanadium processing plant, to include processing for critical minerals, based in Townsville. This increased investment into the NWMP warrants a strong battery strategy for the critical minerals industry.

Despite generating billions of dollars in revenues over the past century, the region's complex geology is still not well understood – QEC acknowledges the great work currently being done through the GSQ and the Department of State Development to further our understanding of the region including collaboration with universities on some abandoned sites secondary prospectivity.

Given the complexity and multiplicity of issues covered by these reviews and the recurring recommendations arising from them, a coordinated and overarching strategic response is needed to address the North West Minerals Province's unique challenges which include gaps in the supply chain, infrastructure and transport systems, as well as the potential of local content potential in METS, battery strategy and new and expanded export terminal planning.

RECOMMENDATION:

QEC recommends the Queensland Government urgently establishes a dedicated role responsible for the overall coordination of the North West, including projects, energy and infrastructure. QEC seeks an Assistant Coordinator-General be appointed to focus on a coordinated response to major constraints identified in reviews into future development of the North West Minerals Province, including supply chain solutions, abandoned mines and circular economy, METS and export opportunities.

COST:

Approximately \$1M in the first year towards an Assistant Coordinator-General position and establishing a small support team.

A further \$5M in funding is recommended towards supporting industry to implement circular economy solutions.

OUTCOME:

The responsibilities of this new role and team would involve auditing and updating previous inquiry, report and taskforce recommendations with the objective of defining a clear pathway for resource exploration and development. The Assistant Coordinator-General and team would develop a North West Strategy including a line of sight on energy issues and transport opportunities via the Ports of Karumba and Townsville.

QRIDP Actions –

- ✓ **Re-commercialising abandoned mine pilot program**
- ✓ **\$5 million to develop a Queensland Battery Industry Strategy**
- ✓ **Investigate promotion strategies for Queensland's new economy minerals**
- ✓ **Rent referral for new economy minerals projects**
- ✓ **Facilitate and investigate common user infrastructure**
- ✓ **\$5 million for circular economy in mining**
- ✓ **Embed Queensland's ESG competitive advantage**