



ADVANCING QUEENSLAND EXPLORATION INITIATIVE

2021-22 QEC Budget Submission
to the Queensland Government

MARCH 2021

ABN 59 050 486 952
Level 13 133 Mary St Brisbane Queensland 4000
T 07 3295 9560
E info@queenslandexploration.com.au
W www.queenslandexploration.com.au

Table of contents

INTRODUCTION	3
BACKGROUND	5
1. CHAMPIONING QUEENSLAND EXPLORATION	6
2. FUNDAMENTALS TO DISCOVERY	7
A. LEADING THE WORLD IN COLLABORATIVE EXPLORATION INITIATIVES	7
B. DATA-DRIVEN GEOLOGICAL SURVEY	7
C. FACILITATING A SHARED VISION AND PRIORITIES FOR RESEARCH AND DEVELOPMENT	9
3. SUSTAINABLE RESEARCH FOR A GAS-LED RECOVERY	10
4. A SINGLE WHOLE OF GOVERNMENT PLAN FOR THE NORTH WEST MINERALS PROVINCE.....	11
5. QEC VISION 2022: NEW ECONOMY MINERALS UNLOCK CHALLENGE	14

Introduction

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 the QRC over a decade ago after the Global Financial Crisis (GFC) when it was almost impossible for an explorer to access capital. The year of the GFC also kicked off a new focus on the North West Minerals Province as the years started to stack up without a significant new discovery.

With endorsement from the Queensland Government, over 90 members in minerals and energy, service providers, business and academic research communities, QEC's **two key objectives** are 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.

Queensland is well placed to provide minerals to strategic partners in Europe and the United States of America. The QEC acknowledges the Queensland Government is already working towards this, with the Minister for Resources, Honourable Scott Stewart MP, who outlined his role in the growth and diversification of Queensland's mineral customers, saying:

“there is a new market for growing the Queensland minerals sector in Europe...the Palaszczuk Government was backing the potential of the North West Minerals Province with real investment.”¹

Minister Stewart's statement coincided with the release of new US President, Joe Biden's, plan for securing America's critical supply chains with critical minerals front and centre:

“Critical minerals are an essential part of defence, high-tech, and other products. From rare earths in our electric motors and generators to the carbon fibre used for airplanes—the United States needs to ensure we are not dependent upon foreign sources or single points of failure in times of national emergency.”²

¹ Queensland Government Media Statements (25 February 2021) “Queensland's North West Minerals Province attracts global attention.” Accessed at <https://statements.qld.gov.au/statements/91539>

² The White House (24 February 2021) [‘Fact Sheet: Securing America's Critical Supply Chains’](#)

QEC's *Advancing Queensland Exploration Initiative* comprises five (5) components **requiring funding totalling \$211.1 million**. These initiatives align with the key delivery priorities for the Minister for Resources, Scott Stewart MP, as outlined in his [Charter Letter](#) -

Continue to support the development of the resources sector including coal, gas and new economy minerals

1. Championing Queensland exploration (\$0.1m)
 - a. QUREX Update
 - b. Queensland Explorer Awards
2. Fundamental initiatives to discovery (\$200.5m);
 - a. World leading Collaborative Exploration Initiative
 - b. Further investment in data driven discovery
 - c. Facilitate shared vision between government, industry and researchers

Maximise the Queensland opportunities from the Commonwealth's gas-led COVID recovery

3. A sustainable Queensland Centre for Natural Gas (\$3.5m over 5 years)

Provide clear pathways for investment in new economy minerals exploration and production

4. A single whole of government plan for the North West Minerals Province (\$5m); and
5. QEC Vision 2022: New Economy Minerals Unlock Challenge (\$2m).

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

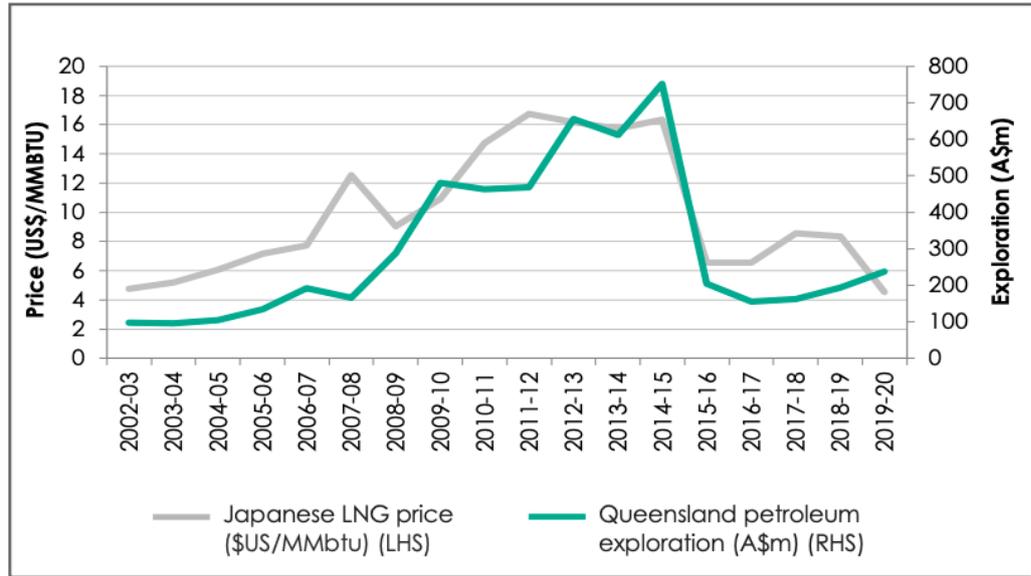
- ❖ more job creation in the North West Minerals Province and across Queensland;
- ❖ life extension for existing projects and infrastructure; and
- ❖ a global focus on resolving some outstanding challenges associated with the North West Minerals Province.

Background

THE ROLE OF EXPLORATION

Typically, exploration activity is a leading indicator of the outlook for the broader resources sector. For analysts, the 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.

Chart 3.2 illustrates the relationships between the global average benchmark LNG prices and the Queensland's exploration spend.



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

Source: METI, ABS 8412.0

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. Resources royalties alone contributed \$4.5 billion in revenues for the 2019-20 Queensland State Budget. The sector also paid over \$200 million in rates and charges to local governments across Queensland in 2019-20.

Currently, Queensland exploration activity remains well below the peak achieved in 2011-12, however recent results are encouraging:

- Queensland petroleum exploration expenditure in 2020 reached \$267.7 million (seasonally adjusted), up 31% on the \$204 million in 2019 and 44% on the \$186.5 million in 2018.
- Queensland minerals exploration expenditure totalled \$411.7 million in the 2020 calendar year (seasonally adjusted), up 18% on the \$348 million in 2019 and 35% on the \$304.8 million in 2018.
- Coal exploration expenditure accounted for 51% of the total minerals exploration expenditure, however coal also drove the decrease in mineral exploration expenditure from the September quarter (decrease by 26%).

1. CHAMPIONING QUEENSLAND EXPLORATION

The Queensland Government is one of the QEC's largest partners. Over the next few years, QEC has an ambitious program to champion Queensland's exploration sector and to sustain this ambition, a longer-term commitment is required.

The QEC is seeking a two-year partnership arrangement totalling \$100,000. This funding will be used on two key initiatives:

New functionality to the Queensland Resources & Exploration Gateway (QUREX)

QUREX was developed in 2017 as a gateway website bringing together all relevant information for explorers, investors, universities. The website was established after QEC received feedback from members, investors and Trade and Investment Commissioners how hard it is to find relevant information for the sector. QUREX plays an important role in connecting investors with the resources sector, the right areas of government, industry associations and business partners by providing information, resources and support.

The QUREX webpage has been a successful medium to channel users through to government sites for the latest maps and research. QUREX is Queensland's only exploration website that lists all the functions and events on one page. This has increased many organisations reach to attendees to conferences as well as assisted industry through COVID with all the latest webinars happening.

To continue to build on this success and after feedback from users, QEC could build greater functionality of maps and other information sharing initiatives across the sector.

Queensland Explorer Awards

The QEC would like to establish the Queensland Explorer Awards as one way to provide recognition where there has been significant discovery and/or innovation as well as a way to bring further exploration investment into Queensland.

A new explorer award could become a new initiative of the Queensland Government with the QEC. QEC would manage the nominations, criteria, panel review, decision and an associated event in partnership with the Queensland Government.

Note: Vertical Events previously ran a commercial explorer award process with the Resources minister presenting the award. This initiative ended in 2017 – [see the story on Minotaur winning the award in 2014.](#)

2. FUNDAMENTALS TO DISCOVERY

A. LEADING THE WORLD IN COLLABORATIVE EXPLORATION INITIATIVES

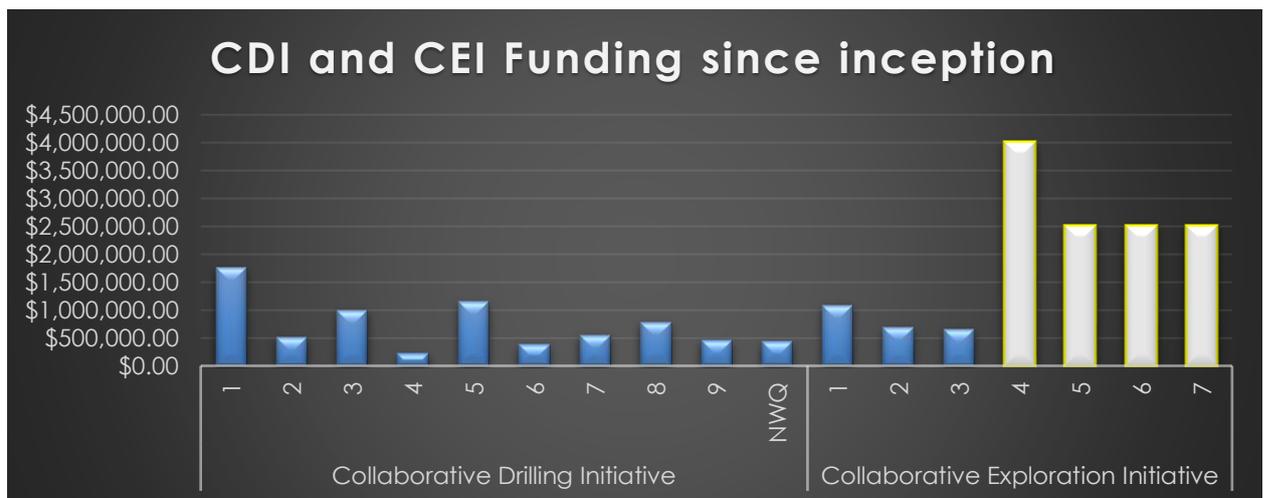
Queensland's Collaborative Exploration Initiative (CEI) is one of the most successful in Australia with three key objectives to encourage high risk exploration:

- That is undercover in frontier regions;
- To promote innovation; and
- Accelerate discovery.

High risk exploration is essential for a diverse and sustainable resources exploration industry. The companies that operate in this space are small and nimble; 74 percent of Queensland's explorers are junior or micro-cap with <\$100M market cap. For these explorers, cash flow is negative and capital investment is tricky to secure. There is an additional challenge if the company is ASX listed given capital waxes and wanes with commodity prices.

Since the CEI (previously called Collaborative Drilling Initiative or 'CDI') was established 14 years ago there have been numerous discoveries with a 65 per cent technical success rate.

QEC is highly supportive of the record level of funding the CEI received last year of \$2.5 million per round (15-20 projects) – a \$10 million dollar commitment over 4 years (until the last year in Financial year 2023/2024).



Source: Queensland Government, Rhys Davies presentation to 19 February 2021 QEC Technical Forum.

Consistent with the QRC and AMEC's Resource Industry Recovery Agenda, the QEC is seeking \$100 million over four years for an expanded CEI program. This would mean over 50 projects could be funded with a new ability for companies to have access to a multi-year grant.

B. DATA-DRIVEN GEOLOGICAL SURVEY

In 2019-2020, the Queensland Government committed to major advances towards enabling data-driven exploration in Queensland. With the initiative of the Geological Survey of Queensland (GSQ) called the Geoscience Data Modernisation Project (GDMP), Queensland is now at the forefront of a world-leading data repository enabling modern data analytics such as machine learning and artificial intelligence applications to existing exploration data.

QEC members are already seeing the benefits of this leading practice system. The QEC's [2020 Exploration Scorecard](#) released in December highlighted the gains in the last four years Queensland has made to geoscientific data.

Page 22 of the 2020 QEC Exploration Scorecard -

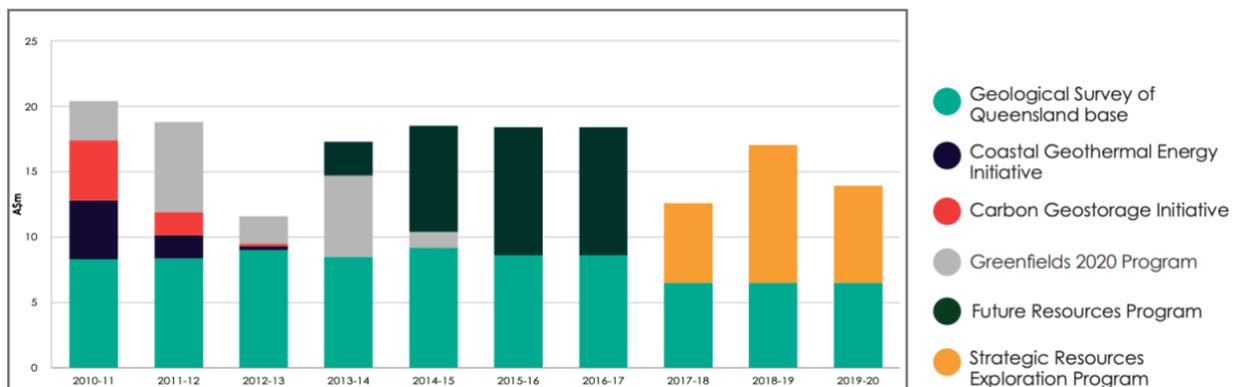
Pre-competitive geoscience data is necessary for attracting exploration dollars and remains a strength for Queensland. This year holds the highest sentiment score in this category since 2016-17. The survey results found 43% of participants placed the release of pre-competitive geoscience data by GSQ as part of the top three beneficial government initiatives for the year.

One survey participant said *"The release of new GSQ data and information has been an excellent initiative and extremely encouraging. The developments with the GeoResGlobe and new data/report portal are industry leading"*.

The open data portal is the 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. There are further stages of the GDMP that will be critical to complete over the next few years. Without this, Queensland will lose its foothold as one of the leading global jurisdictions for quality and accessible geoscientific data.

The QEC's [2020 Exploration Scorecard](#) also outlined a clear need for boosted GSQ base funding as well as funding to keep important initiatives such as the GDMP moving forward.

CHART 4.1: TOTAL GEOLOGICAL SURVEY OF QUEENSLAND EXPENDITURES (A\$M) 2010-11 TO 2019-20



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.

QEC seeks an increase of \$100 million in GSQ base funding as well as further funding for the GDMP to undertake system improvements as well as staff to ensure the validation of reports.

C. FACILITATING A SHARED VISION AND PRIORITIES FOR 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.

QEC estimates the cost of continuing this important work would be \$500,000.

3. SUSTAINABLE RESEARCH FOR A GAS-LED RECOVERY

Ensuring Queensland effectively contributes to the Commonwealth gas-led recovery 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.

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 research program and policy advice service deliver significant benefits to the industry and the State, in the areas of cost reduction, understanding heterogeneity and connectivity, converting contingent resources, management of depleted fields and social performance. The Centre's capability also includes carbon, capture utilisation and storage (CCUS), providing the potential to reduce the emissions intensity of Queensland's gas industry and broader energy sector.

QEC seeks Queensland Government support for the Centre and its important work on three key objectives:

Abundance will ensure there is sufficient gas support to meet future domestic (including gas-led recovery expectations), and international demand (substantial contractual obligations and essential contribution to UN Sustainable Development Goals and reducing emissions in our neighbouring countries).

A key focus of Centre's research has been the continual improvement of modelling techniques, which give industry and the resource owners (the State) greater predictive confidence. 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.

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 aims to drive down cost while increasing supply.

Acceptability relates to community views of Australia's future domestic energy production and energy export opportunities. 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 different energy systems.

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. Emerging issues with a direct bearing on the success of future exploration programs include growing activism potentially affecting industry's access to investment funding, and increasing community expectations regarding environmental, social and corporate governance aspects.

QEC seeks funding of \$750,000/year for 5 years (\$3.5M in total) for the University of Queensland's Centre for Natural Gas. This will align with the Centre's Term 3 funding period (December 2021 – December 2026).

4. A SINGLE WHOLE OF GOVERNMENT PLAN 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. It all started in 1974, when the then Australian Prime Minister, Gough Whitlam, visited Mount Isa and said -

"We are undertaking a thorough study of the development prospects of the North-West of Queensland stretching from Mount Isa to the Gulf of Carpentaria. A region with great beef, and fisheries potential and rich in minerals including lead, zinc, copper, uranium and phosphates. The study will help us integrate all industrial development in the region, rationalise transport costs and co-ordinate the provision of power and essential public service."³

Since 2007, copious analysis has not translated into significant outcomes for the exploration industry or potential investors.

The recent lineage of NWMP inquiries includes:

1. 2007-2012 [Northern Economic Triangle](#)
2. 2008-2009 [Blueprint for Powering the North-West](#)
3. 2009 [North West Queensland Mineral and Energy Province Study](#)
4. 2015 [MITEZ NWQ Strategic Development Study](#)
5. 2015 [North West Minerals Province Taskforce Report](#)
6. 2017 [A Strategic Blueprint for Queensland's North West Minerals Province](#)
Queensland Department of State Development, Manufacturing, Infrastructure and Planning.
7. 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.
8. 2019 [North West Economic Diversification Strategy](#)
Queensland Department of State Development, Manufacturing, Infrastructure and Planning

³ [Transcript 3483 | PM Transcripts \(pmc.gov.au\)](#)

-
9. 2019 Queensland Minerals Research Barriers and Priorities
Neuchatel Report (unpublished)
 10. 2019 [Australia's Critical Minerals Strategy](#)
Australian Department of Industry, Innovation and Science
 11. 2020 [Australia's Critical Minerals Investment Opportunities](#)
Association of Mining and Exploration Companies (AMEC)
 12. 2020 [Research and Development Roadmap for Queensland Minerals](#)
Queensland Department of Resources
 13. 2020 [North West Minerals Province Investment Prospectus](#)
Queensland Department of Resources

In published reviews, the consistent conclusion is the region's future is critically dependent on exploration success. 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 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.

On 2 September 2019, Queensland's Premier said to Townsville Enterprise business event *"There are huge opportunities in the North West Minerals Province and the amazing minerals that you have can actually foster new industries, such as the battery industry which we have been talking about at length in this town."*

There are two recent examples where the government has delivered for bulk commodities in the North West:

1. On 9 June 2019, the Deputy Premier and Transport Minister announced a generous package of reforms for mineral freight exports.

"Our state's economy is stronger when we have a reliable supply of minerals for export,"
Ms Trad said.⁴

2. On 23 September 2020 as part of the Townsville Regional Recovery Action Plan, the Premier announced multi-million-dollar funding to secure more than 1,000 resource and manufacturing jobs in the Mount Isa copper smelter, the Townsville copper refinery and manufacturer Incitec Pivot.⁵

⁴ <https://statements.qld.gov.au/statements/87560>

⁵ <https://statements.qld.gov.au/statements/90854>

QEC acknowledges the 2019 North West Economic Diversification Strategy and its broad focus on economic development, however its role in facilitating the development of a new economy mineral industry could be more focussed. Actions under 1.4 include –

- 1) Determine the supply chain required to support the development of a technology minerals industry in North West Queensland.
- 2) Identify investment opportunities for new market entrants to contribute to an investment prospectus for the North West Minerals Province.

These diversification actions are broadly ambitious and should be updated to reflect the progress achieved by the Geological Survey of Queensland (GSQ) and the University of Technology since January 2020.

While the work of the GSQ is commendable, QEC recommends the Queensland Government urgently establish a role responsible for the overall coordination of the North West, projects, energy and infrastructure. There is a real need for a coordinated response to major constraints identified in reviews into future development of the North West Minerals Province. The role would involve auditing and updating previous inquiries, report and taskforce recommendations with the objective of defining a clear pathway for resource exploration and development and having a line of sight on energy issues and transport opportunities via the Ports of Karumba and Townsville.

QEC expects a whole of government North West Plan would cost approximately \$5 million over two years.

5. QEC VISION 2022: NEW ECONOMY MINERALS UNLOCK CHALLENGE

Both at the national and state level there is a broad strategy to further enhance our capability in resources technology and critical minerals processing. Most recently, the Australian Government's [Modern Manufacturing Strategy](#) outlines its plan to build the countries critical mineral supply and processing capability. As part of the Strategy, \$107.2 million was announced to work closely with industry to better understand supply chains, identify gaps and take action to address them, including critical minerals.

Queensland has an opportunity to play a significant role in this national shift in manufacturing policy through our minerals endowment and existing commitment to developing a New Economy Mineral industry. As the Queensland Government [North West Minerals Province Investment Prospectus](#) identified, there are gaps in our processing capability which are most likely overcome through a combined effort - a tripartite approach for a Queensland advantage -

Queensland's Minerals Provinces are endowed with an abundant supply of valuable resources. This, combined with a culture of innovation and collaboration between government, academia and industry, gives investors a global advantage in meeting the growing demand for new economy minerals.⁶

The Prospectus outlines a number of key areas for development and investment opportunity with reprocessing, development of advanced technology and further development in downstream processing capability (e.g. aluminium smelting, nickel refining, and battery manufacture proposals). Queensland has a unique opportunity to become a world leader in this space with already the fundamentals in place such as a supportive government, world class researchers and an industry that has the drive and appetite to work through the challenges for the reward.

QEC understands one of the key areas our new economy mineral members seek a bold new approach is in unlocking the processing challenges - how do we pull down intellectual property barriers to foster accelerated collaboration between industry, academia and government? This is an issue not unique to new economy minerals as industry strives to innovate advanced processing techniques, yet bulk commodity processing structures and supply chains (such as copper and zinc) are well understood. Critical minerals (many of which are new economy minerals) face numerous challenges from geological through to processing and supply chain.

The QEC Vision 2022: New Economy Minerals Unlock Challenge aim is for the industry to open its doors to what we know already so we can advance together and sooner. The idea is not new, with precedent for this type of challenge already done overseas and in Australia with making geological data open to the public. BHP have recently adapted this concept for processing data in South America – See the [Expand BHP tailings Challenge](#). To date, the South American challenge has received over 150 applications from 19 countries and entries from across industries. Previous challenge applicants have adapted learnings from other industries, such as aviation and medicine, that have been highly valuable in solving the challenges the resources industry also face.

QEC proposes to use a mix of the Unearthed Goldcorp Challenge and the Expand BHP Tailings Challenge as a template (crowdsourcing to solve the problem) for a Queensland new economy minerals processing challenge.

⁶ [North West Minerals Province Investment Prospectus](#) (November 2020), page 5

QEC's vision is a collaborative one, with matched industry, sponsor and government (both federal and State) funding for the New Economy Minerals Unlock Challenge. This funding would be pooled to fund a series of processing challenges. QEC is currently developing a project proposal for this series of challenges which will complement the existing CEI grants focused on fundamental exploration activity. Based on the Expande challenge prize of \$14.5 million (\$10 million USD), **QEC is targeting a total funding pool of \$20 million.**

One of key benefits of this challenge is who will own the intellectual property – unlike other challenges, any intellectual property would not be solely owned by the participating company. Further detail will be worked through with the project sponsors, however QEC would seek a competitive advantage for Queensland explorers in the first instance.

A global explorer challenge that is about unlocking processing challenges within the critical minerals sector will deliver significant benefits to Queensland's new economy minerals commitment to sustain and further develop North West Queensland. QEC's vision for the series of challenges is to target specific new economy minerals. Examples include such as vanadium, copper for copper sulphide and gold tailings reprocessing.