



Advancing QEM's Julia Creek Project

"We would like to acknowledge the Wunumara people as Traditional Owners and their custodianship of the lands on which QEM operates its Julia Creek Project."

We pay our respects to their Ancestors and their descendants, who continue cultural and spiritual connections to Country.

We recognise their valuable contributions to Australian and global society."

Investor Presentation | June 2022
Gold Coast Investor Showcase



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Competent Persons and Qualified Estimator Statements

The information in this announcement that relates to exploration results, mineral resource and contingent resource estimates for the Company's Julia Creek Project was first reported by the Company in its IPO prospectus dated 20 August 2018 and supplementary prospectus dated 12 September 2018 (together, the "Prospectus") and the subsequent resource upgrade announcement ("Resource Upgrade") dated 14 October 2019. The Company confirms that it is not aware of any new information or data that materially affects the information included in the Prospectus and Resource Upgrade, and in the case of estimates of Mineral Resources and Contingent Resources, that all material assumptions and technical parameters underpinning the estimates in the Prospectus and Resource Upgrade continue to apply and have not materially changed



Team & Corporate



Led by a team of highly successful and invested mining professionals, with proven track record of mine development

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John Foley

Chairman

Extensive experience as current Chairman of Precious Metal Resources Limited (ASX: PMR), Citigold Corporation Limited (ASX: CTO) and Carbon Credit Corporation (C3).



Gavin Loyden

Managing Director

Company Founder, having identified and acquired the significant dual commodity resource at Julia Creek. Responsible for QEM's early capitalisation, initial exploration program and initial scoping study.



John Henderson

Non-Executive Director

Over 40 years experience in major and mega project development, including executive roles with oil and mining multinationals such as BHP and Rio Tinto, as well as mid-tier and startup energy companies.



Daniel Harris

Non-Executive Director

Mining executive with 40 years resources sector experience. Current independent Director at Australian Vanadium (ASX:AVL), former exec at Atlantic (ASX: ATI and Atlas Iron (ASX: AGO). Director of US Vanadium LLC.



**David Fitch
Director**

Non-Executive

Experienced in strategic planning, commercial negotiations and operations. Former COO & major shareholder of the Fitch Group and currently a director of BioCentral Laboratories. David is the largest shareholder of QEM.



ASX Symbol: QEM

Shares on Issue	113.4 million
Market Cap (21 June 2022)	\$29.50m
Share Price (21 June 2022)	\$0.195
Cash (as at 31 March 2022)	\$0.832m

Major Shareholders (~48% QEM Director Shareholding)

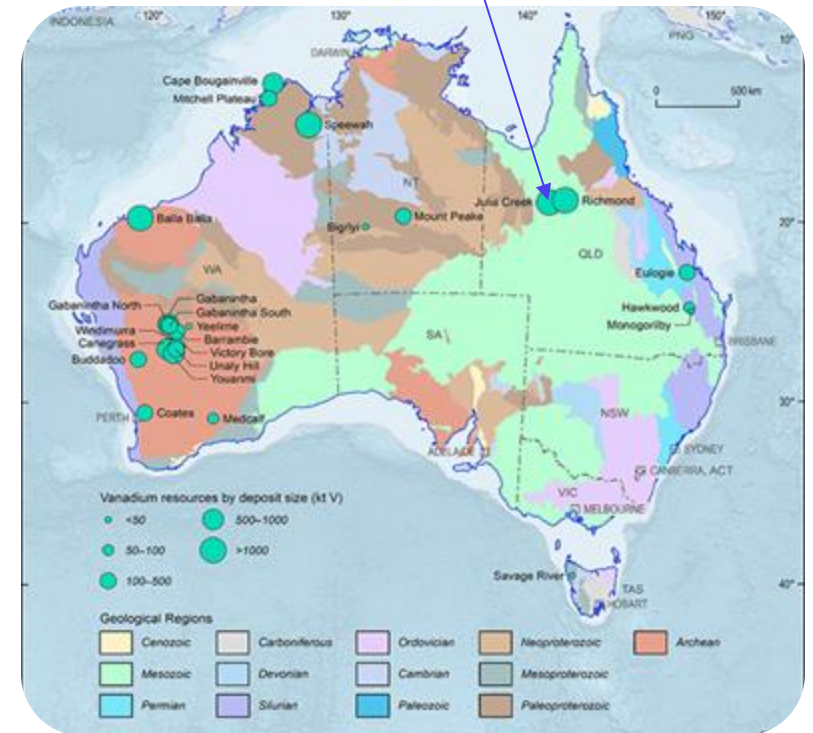
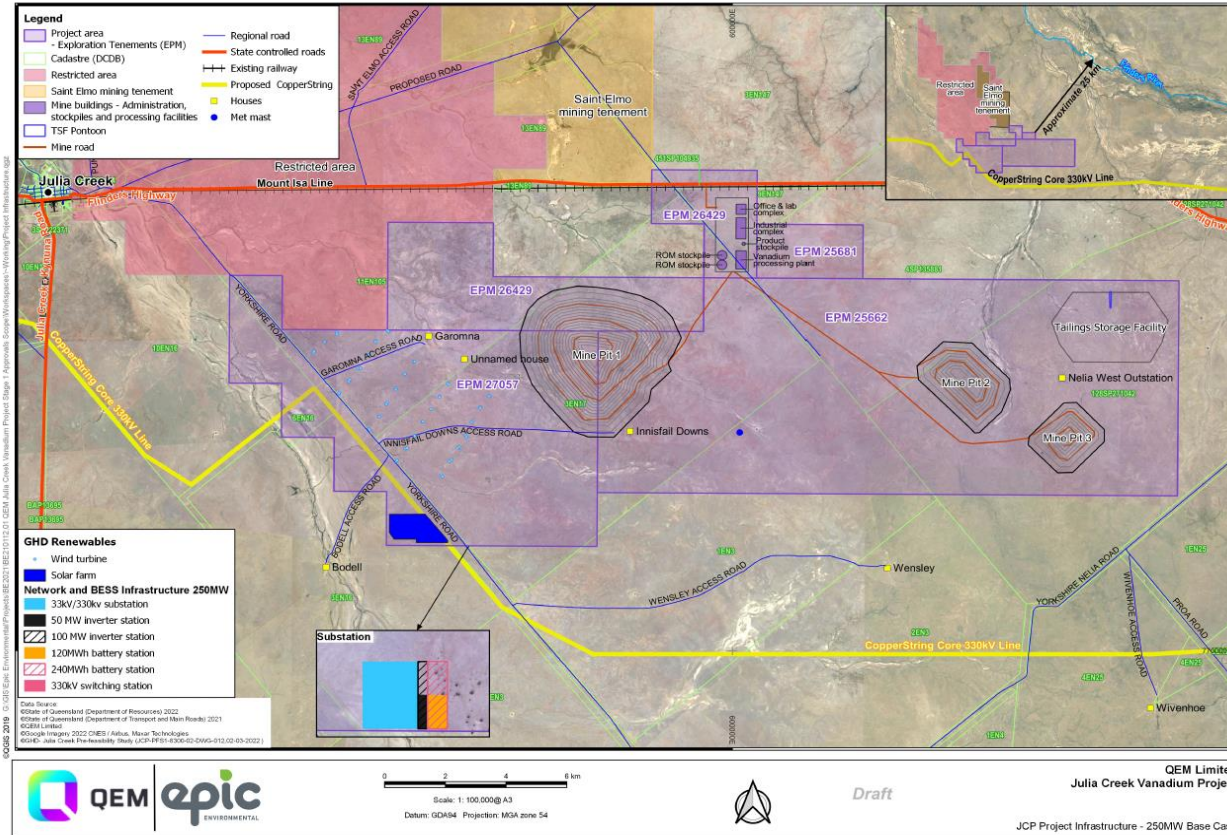
David Fitch (Non-Executive Director)	28.1%
Gavin Loyden (Managing Director)	18.2%

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4 Exploration Tenements Covering 249.6km² in the Julia Creek Area, NW Queensland

- **Tier-1 location**
- **North-West Minerals Province, Mount Isa to Townsville corridor, Eastern Resource Development Corridor**
- **Close to services and infrastructure**
- **CopperString 2.0** Proposed network transmission line through project area



Source: Geoscience Australia - Vanadium <https://www.ga.gov.au/scientific-topics/minerals/mineral-resources-and-advice/australian-resource-reviews/vanadium#heading-6>

Julia Creek Project



QEM is developing a Critical Minerals project utilizing Innovative & Sustainable energy solutions



Unique multi-commodity exposure:
Oil shale, Vanadium, Aluminium



Globally significant volume of
Critical Mineral **Vanadium**
JORC (2012) Indicated + Inferred
Resource **2,850 Mt @ 0.31% V₂O₅**



- **79 MMbbl's** of oil in-situ in the SPE-PRMS 2018 (2C)
- **696 MMbbl's** in-situ (3C)



Material volume of Aluminium
Avg **24,304 ppm**
Critical Mineral **HPA** potential



Shallow-Low strip ratio allows for
standard open cut mining method



Staged development strategy to de-risk
project



Renewable power and hydrogen
to be directly applied to oil and
vanadium production and to meet
growing demand by government
and industry



EPIC Environmental completes
ecology study

Drone Survey Update

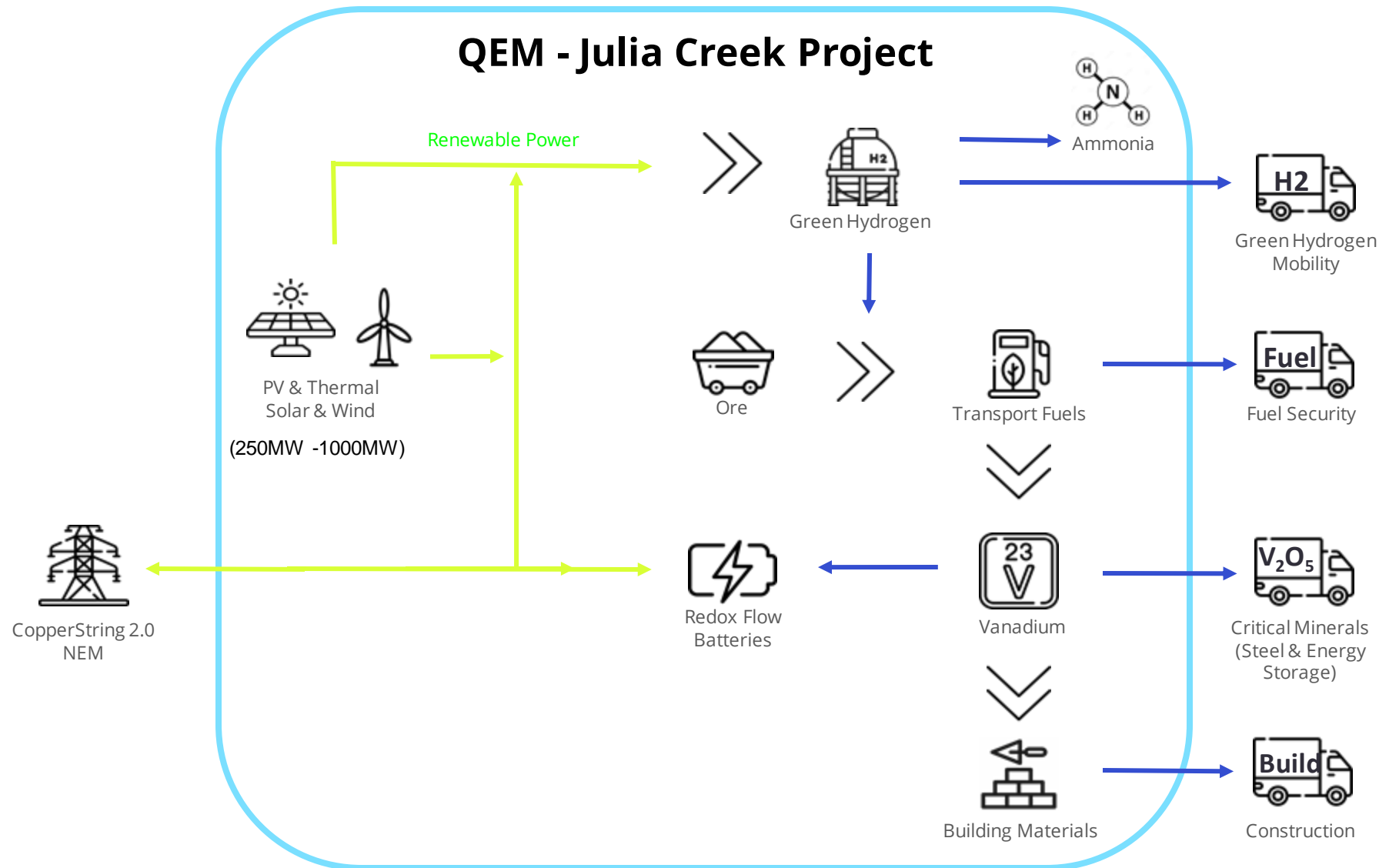


National Drones conducting survey across 250m2 of QEM tenements

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Project Concept Design



Pilot Plant Update



Bench scale pilot plant - Commissioning complete and testing program underway

- The pilot plant was fabricated by specialist manufacturer AMAR and will validate QEM's proprietary extraction process
- 25kg scale Pilot Plant delivered to HRL, Victoria in April 2022
- Pilot will enable QEM to optimise oil and vanadium recovery
- HPA extraction will also be trialled within the test program
- **QEM commenced operational activity at the bench-scale pilot this month**
- Next stage: development of a commercial demonstration plant.



May 2022 Completing installation of pilot plant at HRL Labs, Victoria

Renewable Power Update



“Situated in the best co-located wind and solar resources in Eastern Australia” - AEMO

- GHD recently completed a study for Renewables Project describes scalability options:
- Modelling for 250 MW, 500Mw and 1GW, hybrid solar/wind.
- Cloncurry-based Fulcrum 3D has completed fabrication on a 160m Met Mast for a 12-month (min), on-site wind and solar monitoring station to gather baseline meteorological data. Delivery July.
- SODAR and LIDAR units now stationed on site.
- Geotech for Met Mast completed.
- Connection enquiry sent to CopperString 2.0 for potential import/export into NEM.

SODAR & LiDAR equipment installed on site at Julia Creek



Met Mast ready for delivery to site

QEM's Commitment to ESG



"Developing a critical minerals project utilising innovative and sustainable energy solutions"



Environmental

- Low carbon footprint
- Utilises renewable energy sources
- Target products such as V_2O_5 , fuel & hydrogen to support emission reduction targets



Social

- Supports local community – engagement, Indigenous relations and employment, long-term jobs, training, youth programs, sport
- Encourages employees to volunteer and fundraise (St Vinnies CEO Sleepout, St Vincent de Paul Society, Endeavour Foundation, Pink Ribbon Cup Raceday Sponsor for National Breast Cancer Foundation)



Governance

- Dedicated to corporate transparency
- Ethically sourced Critical Minerals- traceability and provenance
- Indigenous Engagement Strategy
- Management aligned with shareholders
- *Socialsuite ESG Go* reporting software used to capture all ESG data

ESG Update



QEM adopted ESG framework developed by the World Economic Forum (WEF).

ASX ANNOUNCEMENT



31 March 2022

QEM Proactively Adopts the Global Standard for ESG Reporting

- QEM adopts framework to measure and report its Environmental, Social and Governance performance
- The Company has engaged Socialsuite to monitor, disclose and streamline ESG progress and initiatives
- Commencement of ESG reporting comes ahead of several key project development milestones set to be achieved in the near term

QEM's purpose statement: "Developing a critical minerals project utilising innovative and sustainable energy solutions"

QEM Limited (ASX: QEM) ("QEM" or "Company") is pleased to announce that it has adopted a comprehensive Environment, Social and Governance (ESG) framework and reporting process, as the Company advances its Julia Creek vanadium and oil shale project with associated green hydrogen potential.

QEM will implement an ESG framework developed by the World Economic Forum (WEF), encompassing 21 core metrics and disclosures.¹

As the Company is committed to achieving tangible positive ESG outcomes, QEM has engaged independent impact monitoring technology company Socialsuite to ensure it can effectively measure, monitor and report on its progress across ESG metrics. This information will be streamlined with other ESG-related initiatives QEM is undertaking.

QEM is developing the Julia Creek project in North Western Queensland, with the project possessing a 2,760Mt Vanadium JORC Resource with an average V2O5 content of 0.30%, making it one of the single largest Vanadium deposits in the world. The project has the added benefit of 783MMBBls of Oil in the 3C category, contained within the same ore body. Additionally, QEM is currently progressing renewable power generation optimisation studies following initial encouraging results, potentially facilitating green hydrogen production.

QEM's dual commodities of vanadium and oil will help address Australia's growing energy storage and fuel security issues in the transition to a renewable energy driven society. Vanadium is a key input into the renewable large scale energy storage markets through the use of vanadium redox flow batteries (VRFB), and the oil shale is intended to be upgraded to diesel utilising green hydrogen produced onsite at Julia Creek.

This forms the basis of QEM's purpose statement: "Developing a critical minerals project utilising innovative and sustainable energy solutions".

QEM Managing Director Gavin Loyden said the adoption of the ESG reporting process will crystallise the Company's commitment to environmentally and socially responsible initiatives to all of QEM's stakeholders.

ASX ANNOUNCEMENT



ESG Dashboard - Baseline (30/Mar/2022)

Disclosure Status:

D

Draft

R

Reported

V

Verified

A

Audited

Disclosure Progress:

P

In progress

C

Completed

GOVERNANCE					
Code	Description	Type	Last Updated	Disclosure	Progress (A1-A5)
GO-01-A	Setting purpose	Full disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>C</div> <div>C</div> <div>C</div> <div>C</div>
GO-02-A	Governance body composition	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>C</div> <div>C</div> <div>C</div>
GO-03-A	Material issues impacting stakeholders	Full disclosure	30 Mar 2022	<div>D</div>	<div>C</div> <div>C</div> <div>P</div> <div>P</div> <div>C</div>
GO-04-A	Anti-corruption practices	Full disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>C</div> <div>C</div> <div>C</div> <div>C</div>
GO-04-B	Mechanisms to protect ethical behaviour	Full disclosure	30 Mar 2022	<div>D</div>	<div>C</div> <div>C</div> <div>P</div> <div>C</div> <div>C</div>
GO-05-A	Integrating risk and opportunity into business process	Full disclosure	30 Mar 2022	<div>D</div>	<div>C</div> <div>C</div> <div>P</div> <div>P</div> <div>P</div>
PLANET					
Code	Description	Type	Last Updated	Disclosure	Progress (A1-A5)
PL-01-A	GHG emissions	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>C</div> <div>C</div>
PL-01-B	TCFD implementation	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>C</div> <div>C</div>
PL-02-A	Land use and ecological sensitivity	Full disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>N</div> <div>N</div> <div>N</div> <div>N</div>
PL-03-A	Water consumption	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PEOPLE					
Code	Description	Type	Last Updated	Disclosure	Progress (A1-A5)
PE-01-A	Diversity and inclusion	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PE-01-B	Pay equality	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PE-01-C	Wage level	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PE-01-D	Child, forced or compulsory labour	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PE-02-A	Health and safety	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PE-03-A	Training provided	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PROSPERITY					
Code	Description	Type	Last Updated	Disclosure	Progress (A1-A5)
PR-01-A	Rate of employment	Full disclosure	30 Mar 2022	<div>D</div>	<div>P</div> <div>P</div> <div>P</div> <div>P</div> <div>P</div>
PR-01-B	Economic contribution	Full disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>C</div> <div>C</div> <div>C</div> <div>C</div>
PR-01-C	Financial investment contribution	Partial disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>N</div> <div>C</div> <div>C</div> <div>C</div>
PR-02-A	Total R&D expenses	Full disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>C</div> <div>C</div> <div>C</div> <div>C</div>
PR-03-A	Total tax paid	Full disclosure	30 Mar 2022	<div>R</div>	<div>C</div> <div>C</div> <div>C</div> <div>C</div> <div>C</div>

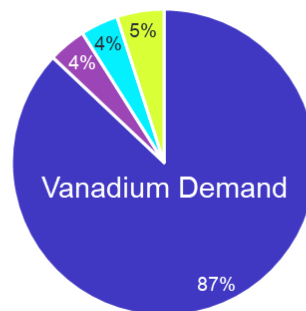
Why Invest in QEM



Markets set for Growth across all of QEM's commodity exposure

- Vanadium producer in a market expected to reach **\$2.36 Billion** in 2025 (**CAGR of 10.2%**)
- Oil/diesel producer in a country that depends heavily on imported fuel
- Aluminium – HPA Critical Mineral exposure

Europe : US\$12.20/lb ▼(-0.81%)
Mar 29, 2022



■ Steel ■ Energy Storage ■ Chemicals ■ Aerospace Alloys

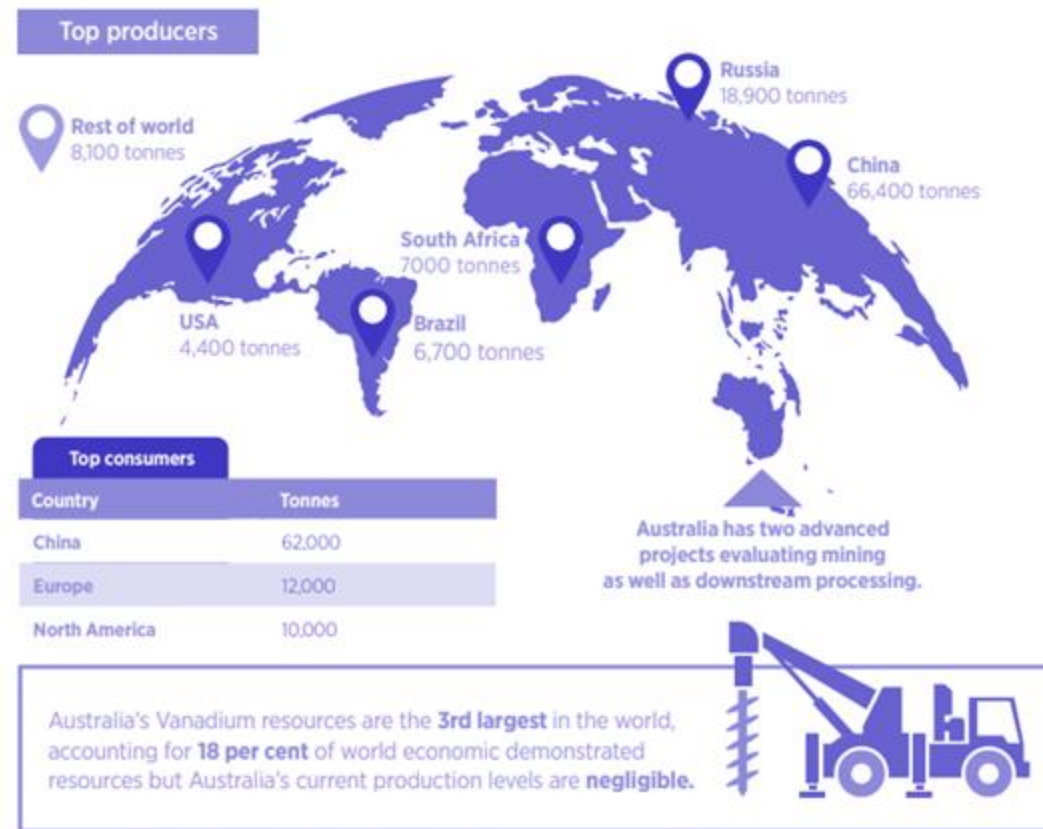


Image source: Office of the Chief Economist, Outlook for Selected Critical Minerals in Australia 2021 report

Right Project at The Right Time

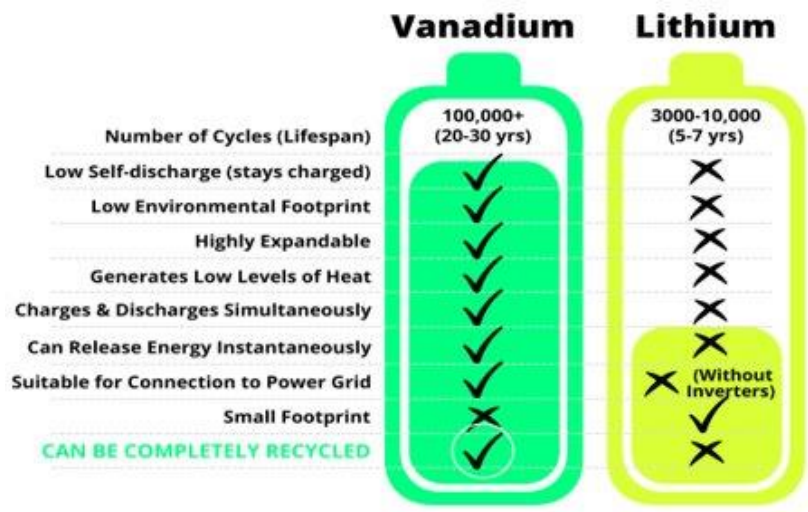


The catalyst to help unleash the inherent potential wealth of the NWMP and beyond



Vanadium

QEM aims to become a leading supplier of high-quality vanadium pentoxide in Australia



Source: <https://www.energyandcapital.com/articles/the-best-thing-since-lithium/1531>
Mining Journal June 2018

QEM's Julia Creek Project

Multi-Commodity Deposit in North Queensland responds to:
- our need to build a renewable future, supported by safe, large-scale batteries



Transport Fuels + Hydrogen

QEM aims to provide innovative and environmentally friendly solutions that are important to our energy future

Contact



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Appendix – A

Julia Creek Resource

Vanadium Uses



Vanadium - The Versatile Element

Improves Steel Tensile Strength

Most widely used alloy to strengthen steel (HSLA.) in construction, automotive, aerospace, rail, shipping, tools, drilling and more.

Lowers CO₂ emissions

In steel-Lowers CO₂ emissions by 185 million metric tons annually -Texas A&M University

Supports Fuel Efficiency

High strength-to-weight ratio makes vanadium a critical component in the automotive industries. In 85% of all vehicles by 2025. Henry Ford first used in Model – T.

Durability & Weather Resistance

Vanadium alloys are naturally durable to extreme temperature and corrosion, making it irreplaceable in the aerospace industry. Suitable for hydrogen storage & pipes (reduces failure due to hydrogen embrittlement).

Chemical & Catalysts

Catalysts, 'Smart Glass', sulphuric acid production, ceramics, dyes, cathodes for lithium batteries.

Renewable Energy Storage

Vanadium Redox Flow Batteries (VRFB) are the preferred solution for large scale energy storage globally. Produces 78% less CO₂ than Li-B - Cradle-to-gate, with recycling and renewables.



Julia Creek Resource Overview



Table 1: Summary of JORC Mineral Resource Estimate 31 March 2022

Total										
Resource Class	Strat. Unit	Mass (Mt)	Average Thickness (m)	Insitu Density (gm/cc)	V2O5 (wt%)	Cu (ppm)	Mo (ppm)	Ni (ppm)	Zn (ppm)	Al (ppm)
Indicated	CQLA	127	3.16	2.41	0.24	161	132	121	763	4525
	CQLB	104	2.74	2.32	0.30	201	180	151	912	5756
	OSU	64	1.97	1.99	0.32	217	162	194	1012	49360
	OSL	64	2.05	1.95	0.32	206	143	182	1006	52759
Inferred	CQLA	698	2.52	2.42	0.23	156	136	120	810	2706
	CQLB	879	3.32	2.24	0.38	225	226	205	1197	5322
	OSU	458	1.92	2.02	0.31	229	150	189	1121	60505
	OSL	457	1.94	1.97	0.29	215	130	169	1051	59696
Total		2,850		2.21	0.31	203	167	169	1029	24304

Note:

1. The estimate uses a minimum cut-off of 0.2% V₂O₅ for the oil shale units, and minimum cut-off of 0.15% V₂O₅ for the Coquina units.
2. The total resource tonnage reported is rounded to reflect the relative uncertainty in the estimate categories and component horizons may not sum correctly.

Table 2: Summary of SPE-PRMS Oil Resource estimate 31 March 2022

Resource Class	Strat Unit	Mass (Mt)	Average Thickness (m)	Total Moisture wt%	Oil Yield (L/tonne)	Oil Yield LTOM	MMBbls (in-situ PIIP)	MMBbls Recoverable
3C Contingent	CQLB	983	2.8	5.6	49.2	51.2	274	247
	OSU	522	1.8	5.6	74.6	78.8	221	199
	OSL	521	1.9	5.6	68.3	71	202	181
Total / Ave		2026		5.6	64	67	696	626
2C Contingent	CQLB	104	2.6	2.6	43.7	44.5	27	24
	OSU	64	1.9	9.5	79.4	83	28	25
	OSL	64	1.9	12.2	74.2	76	25	23
Total / Ave		232		8.1	66	68	79	71

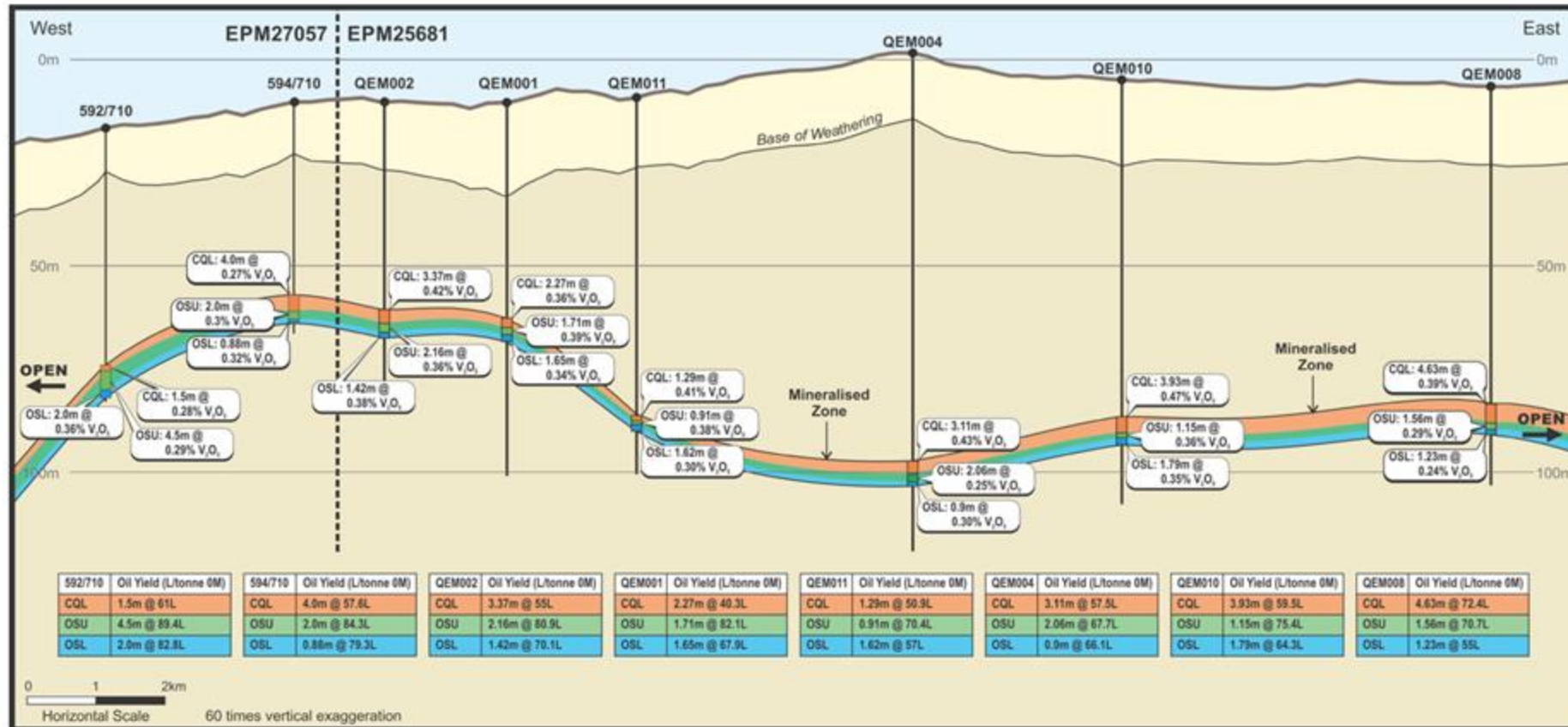
Note:

1. The total resource tonnage reported is rounded to reflect the relative uncertainty in the estimate and component horizons may not sum correctly.
2. The 3C petroleum resource reported includes the 2C volumes, ie. They are cumulative not incremental as per the PRMS 2018 guidelines
3. An economic cut-off of 40l/tonne was applied prior to the calculation; it must be noted that the CQU and CQLA did not meet the >40l/tonne for inclusion in the calculation. The 2C and 3C volumes reported here are unrisked

Julia Creek Oil Yield



Cross Section the Julia Creek Oil Deposit



Source: Measured Group

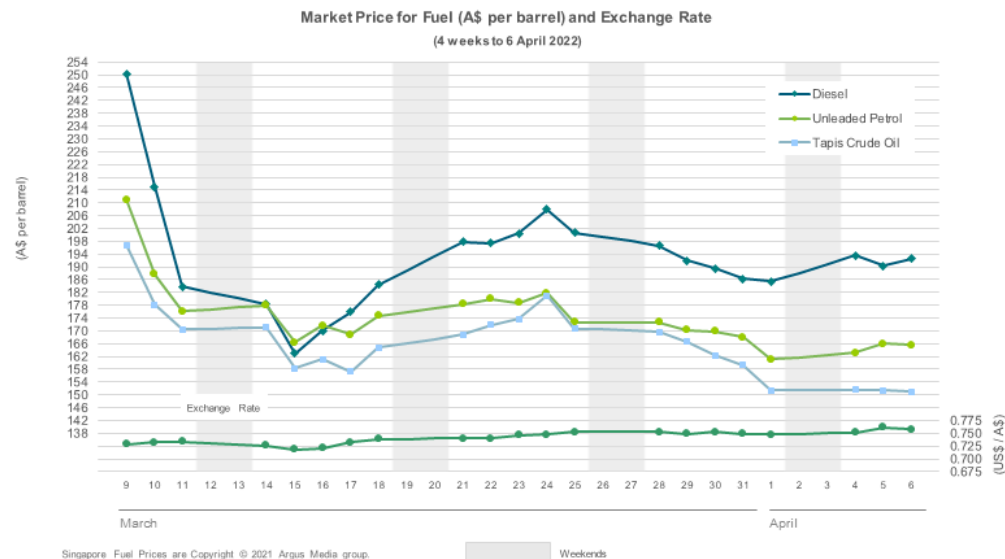
The estimation methodology used is deterministic. The estimation is based on grids constructed for unit structure, thickness and oil grade parameters

Oil Market



Looming Energy Crisis

- Globally, nations are dealing with a severe rise in energy prices. Demand is high and supply is tight.
- In the last 12 months, Australia lost half of its remaining oil refineries, with just two remaining which has **left our fuel supply vulnerable to crisis**.
- A dramatic rebound in the global economy and tight supply has seen demand and price for oil skyrocket, with **prices recently reaching levels above US\$100bbl**.
- Prices at the bowser are rising nationally. Recent invasion of Ukraine is adding to pressure globally.



CL:NMX - Crude Oil Price



Source: NASDAQ <https://www.nasdaq.com/market-activity/commodities/cl:nmx>

NG:NMX - Natural Gas Price



Source: NASDAQ <https://www.nasdaq.com/market-activity/commodities/ng%3Anmx>