QEM

Advancing the **Julia Creek Vanadium** Project

Brisbane Mining Conference, March 2023

"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."

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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 announcements ("Resource Upgrades") dated 14 October 2018 and 7 April 2022. 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 Upgrades, and in the case of estimates of Mineral Resourcesand Contingent Resources, that all material assumptions and technical parameters underpinning the estimates in the Prospectus and Resource Upgrades continue to apply and have not materially changed.

QEM Limited is focused on the exploration and development of the **Julia Creek Vanadium and Oil Shale Project**, a unique world class critical minerals resource.

Julia Creek Project

QEM seeks to develop a **World-Class Vanadium and Oil Shale Project**

Multi Commodity

Vanadium
Transport Fuel

Sovereign Supply

Fuel Security
High Purity V_2O_5

Unique Process

Renewable Power
Green Hydrogen

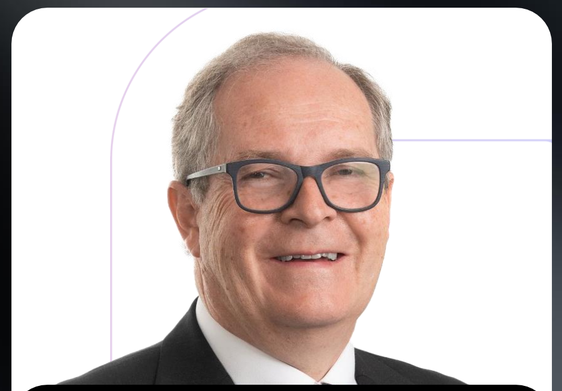
Globally Significant

Vanadium Resource
Critical Mineral

The QEM Board draws upon decades of experience in the resources sector ensuring that the Company is best placed to capitalise on the vast opportunities afforded from the **Julia Creek Project.**

Experienced Team

Led by a team of successful and invested professionals, with proven record of project development



Tim Wall

Chairman

- Senior Executive of multiple ASX 100 companies
- Director and Principle of TJW Energy, Senior Advisor ANZ – Oil and Gas at DSS+
- Former MD BP Refinery (Bulwer)
- Former President Global Manufacturing at Incitec Pivot Ltd (ASX:IPL)

Daniel Harris

Non - Executive Director

- Over 40 years of global vanadium experience
- Director of US Vanadium LLC (USA), Australian Vanadium Limited (ASX: AVL)
- Former CEO positions with Atlantic (ASX: ATI) Atlas Iron (ASX: AGO) ex VP EVRAZ plc. - Vanadium Assets

Gavin Loyden

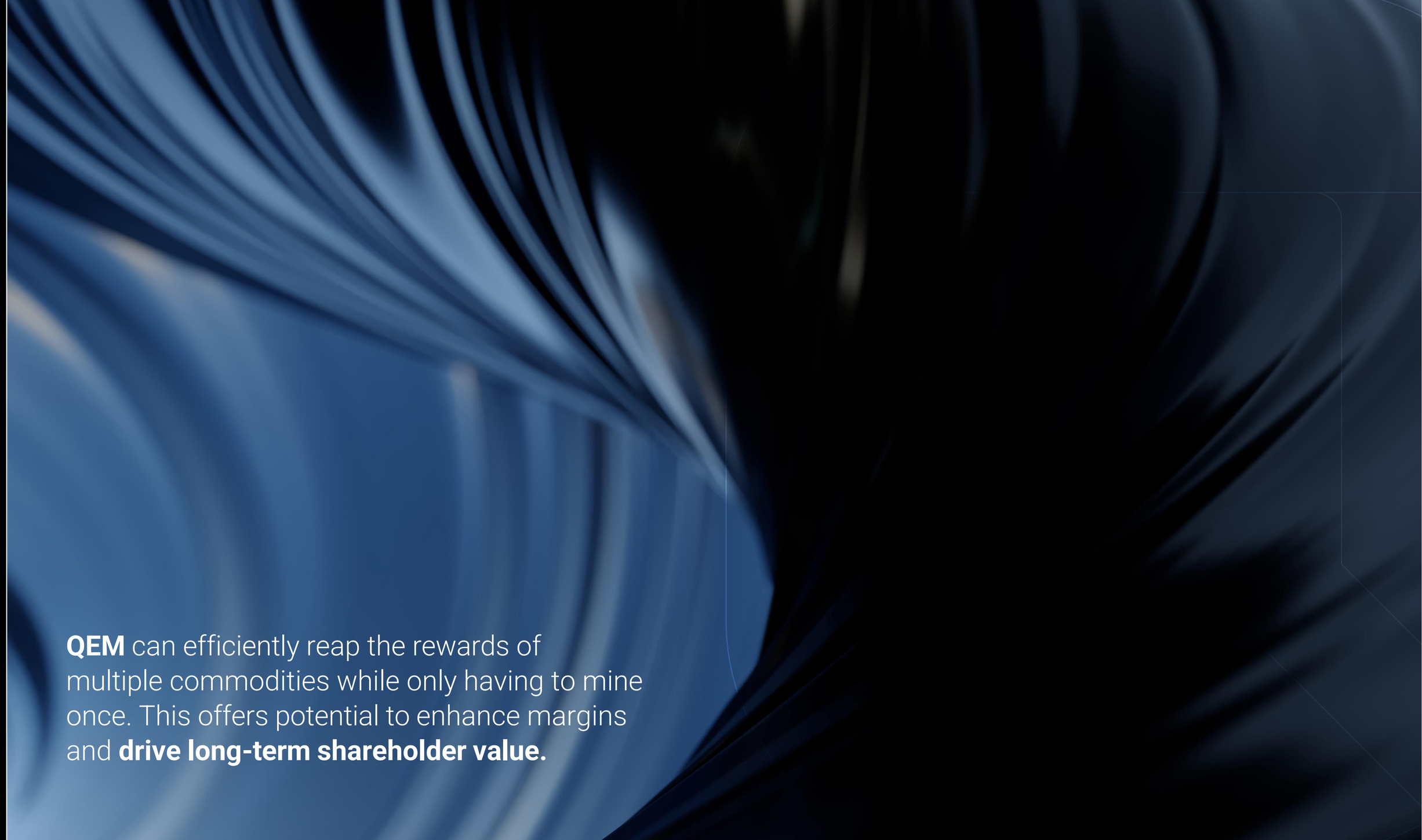
Founder and Managing Director

- QEM Founder
- Identified & acquired QEM's Julia Creek resource
- Over 10 years experience in mining industry
- Responsible for QEM's project development

David Fitch

Non - Executive Director

- President & CEO Class1 Nickel (Canada) (CSE:NICO)
- Director of BioCentral Laboratories Ltd
- QEM's largest shareholder
- Former Chief Operating Officer of the Fitch Group



QEM can efficiently reap the rewards of multiple commodities while only having to mine once. This offers potential to enhance margins and **drive long-term shareholder value.**

Corporate Snapshot

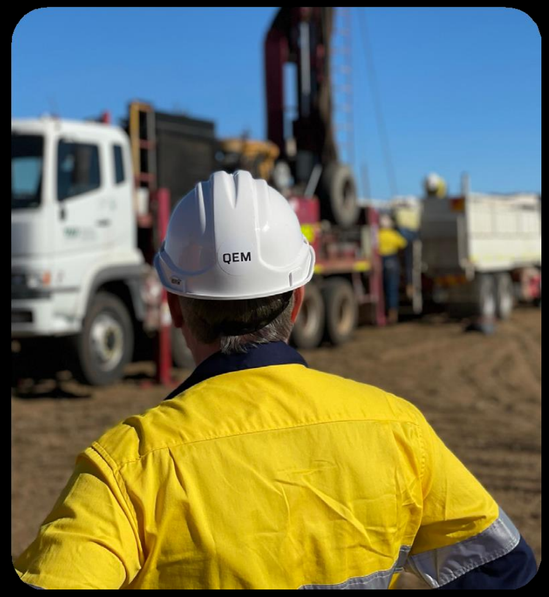
QEM Limited

Shares on Issue	Share Price 20/03/23	Cash at 20/03/23
135.1m	$0.205	$1.393m

Options on issue
Exp 12/08/25 @ **$0.345** — **5,600,000**

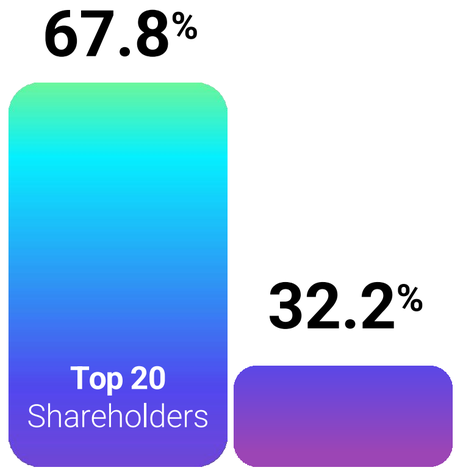
Open	0.20	Mkt cap	25.69M	52-wk high	0.30
High	0.20	P/E ratio	-	52-wk low	0.16
Low	0.20	Div yield	-		

$27.1m
Market Cap (20/03/23)



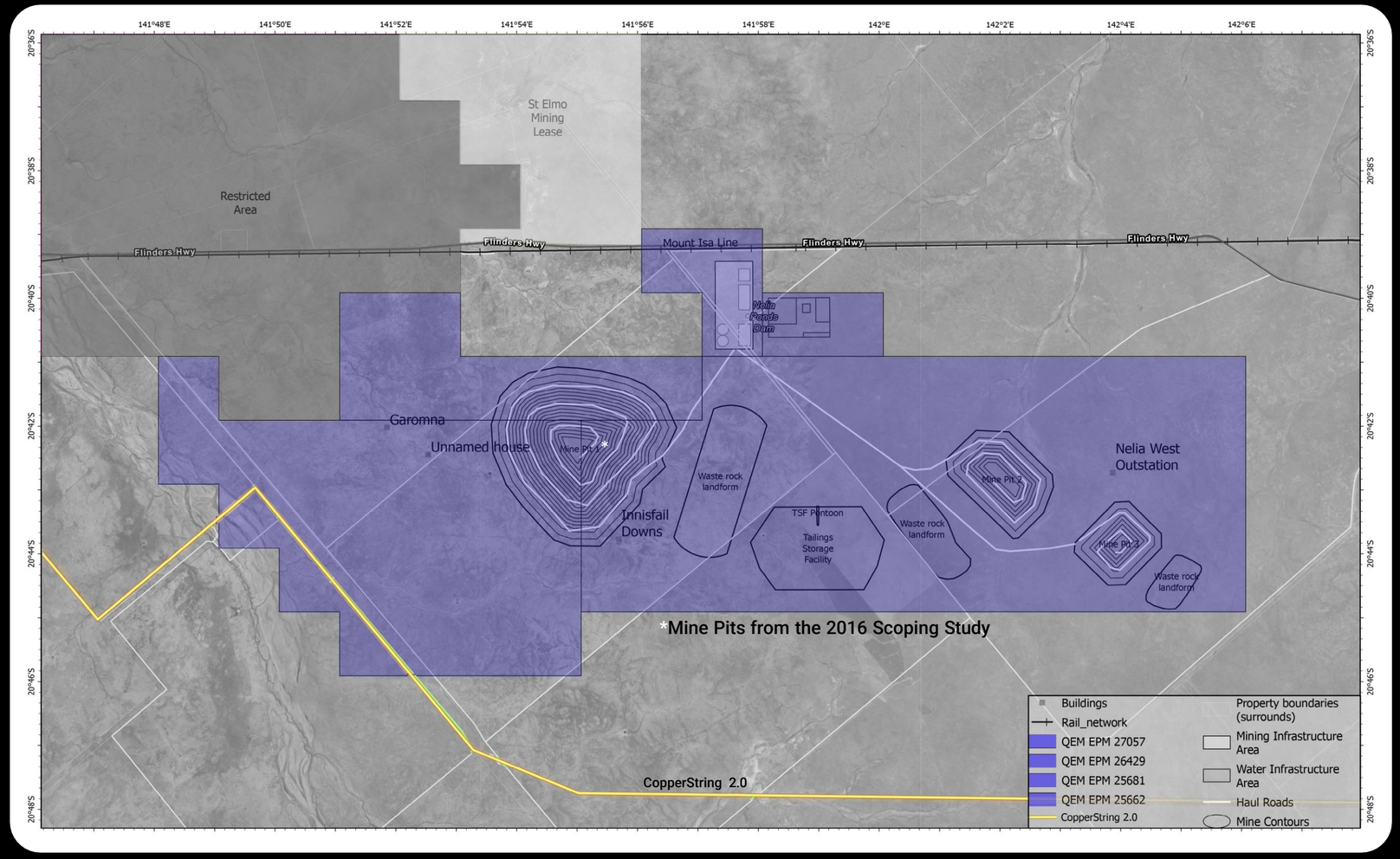
Director Support

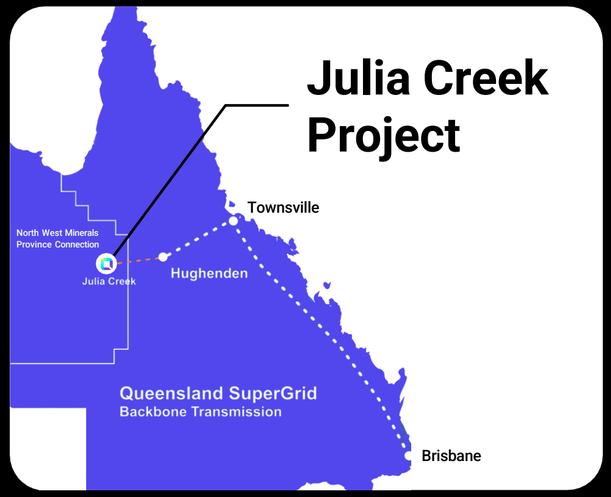
Management alignment with public shareholders



Julia Creek Project Location

4 Exploration Tenements Covering 249.6km² in the Julia Creek Area, North-Western Queensland





Drilling Results JORC Upgrade

One of the **world's largest single vanadium resources**

QEM

Vanadium Resource

Indicated JORC Resource increased by 64% to 360Mt V_2O_5

2,490Mt

Inferred @ Ave V_2O_5 ore content of 0.31%

360Mt

Indicated @ Ave V_2O_5 ore content of 0.31%

Oil Resource

71 MMbbl's

2C 71MMbbl's **(SPE-PRMS)** (recoverable @ 90%)

626 MMbbl's

3C 626 MMbbl's **(SPE-PRMS)** (recoverable @ 90%)

We have achieved **highly encouraging extraction rates** with further optimisation work underway.

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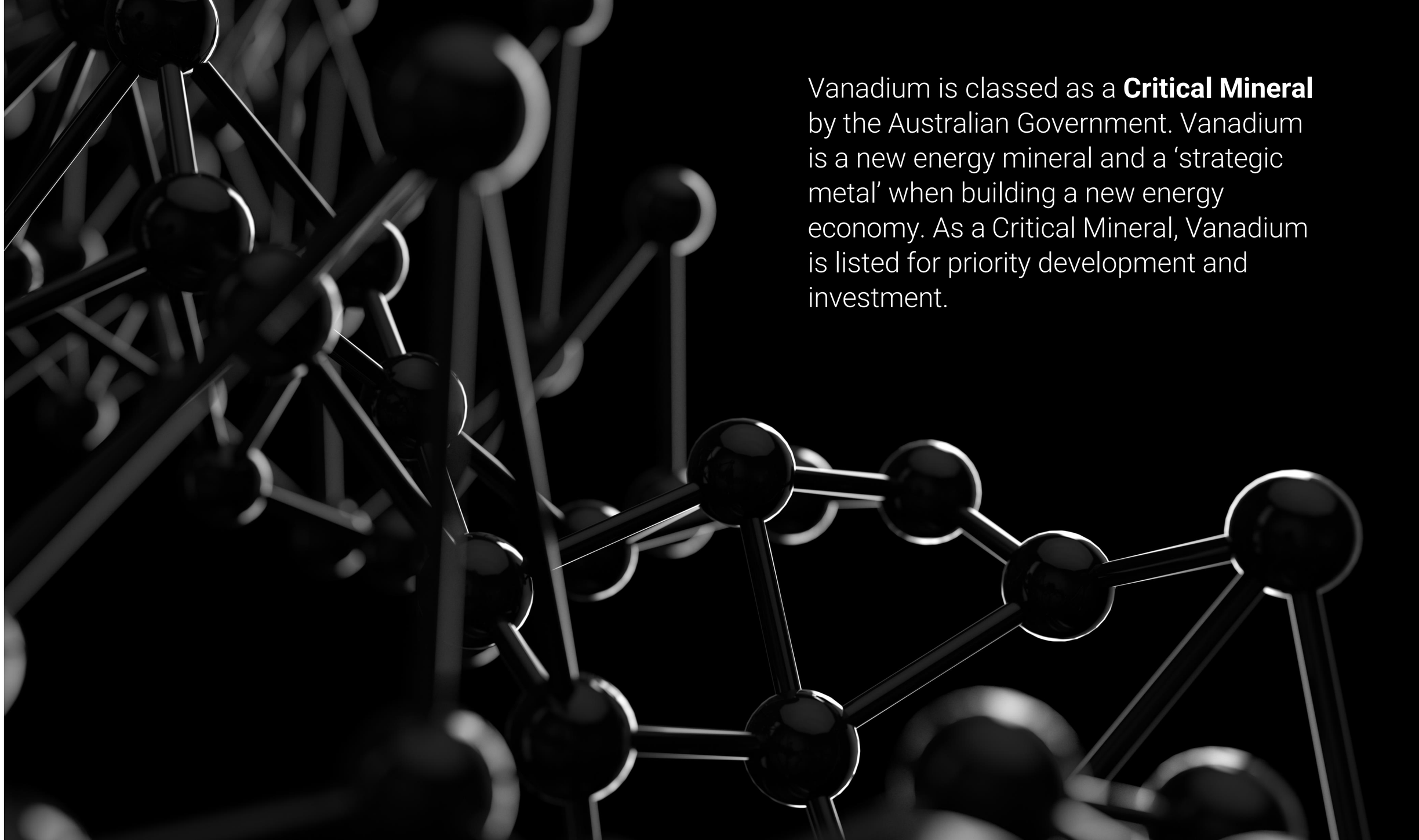


Vanadium is classed as a **Critical Mineral** by the Australian Government. Vanadium is a new energy mineral and a ‘strategic metal’ when building a new energy economy. As a Critical Mineral, Vanadium is listed for priority development and investment.

Vanadium Uses

Vanadium - The Versatile Element

QEM

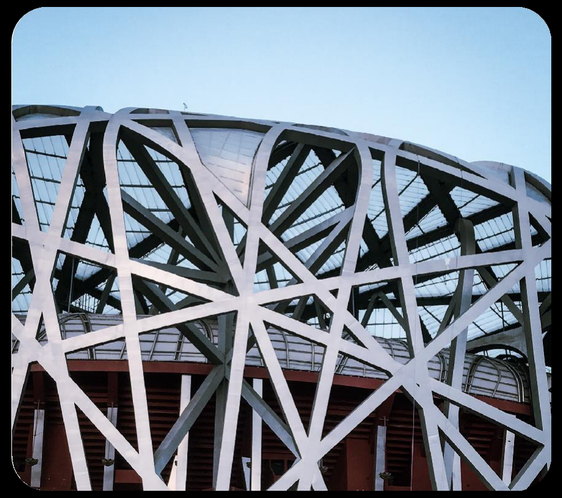
Improves Tensile Steel Strength

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

Lowers CO_2 emissions

In steel-Lowers CO_2 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.

Vanadium Uses

Vanadium - The Versatile Element

QEM

Durability and Weather Resistance

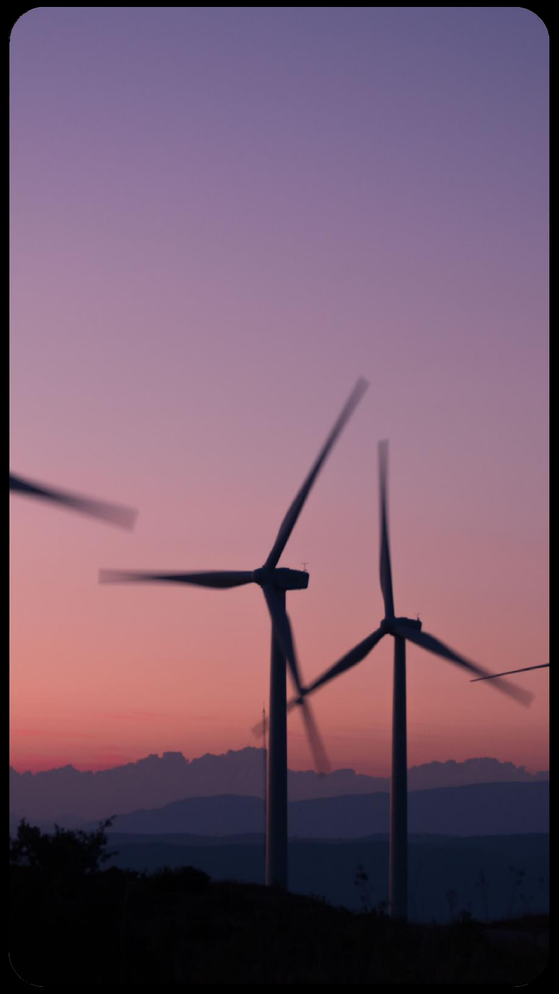
Vanadium alloys are naturally durable to extreme temperature and corrosion, making it irreplaceable in the aerospace industry. Suitable for hydrogen storage and pipes (reduces failure due to hydrogen embrittlement).

Chemical and Catalysts

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

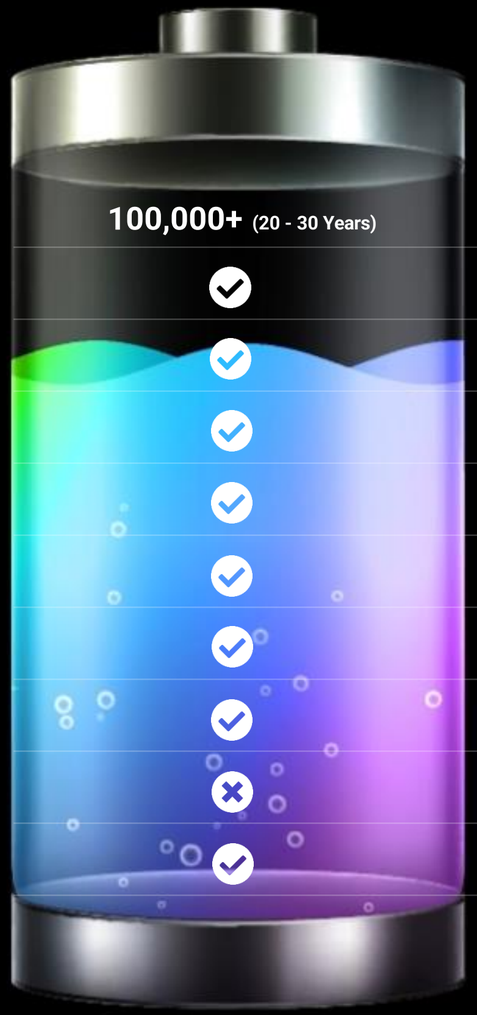
Renewable Energy Storage

Vanadium Redox Flow Batteries (VRFB) are the preferred solution for large scale energy storage globally. Produces 78% less CO_2 than Li-B - Cradle-to-gate, with recycling and renewables.



Renewable Storage

Building a Renewable Future with Vanadium Redox Flow Batteries (VRFB)



Vanadium		Lithium
100,000+ (20 - 30 Years)	Number of Cycles	3,000 - 10,000+ (5 - 7 Years)
✓	Low Self Discharge (Stays Charged)	✗
✓	Low Environmental Footprint	✗
✓	Highly Expandable	✗
✓	Generates Low Level of Heat	✗
✓	Charges and Discharges Simultaneously	✗
✓	Can Release Energy Instantaneously	✗
✓	Suitable for Connection to Power Grid	✗
✗	Small Footprint	✓
✓	**Can be Completely Recycled**	✗

Source: energyandcapital.com

Vanadium Global Production

Market Set for growth

Market expected to reach

$2.36 Billion

in 2025 at **CAGR of 10.2%**

VRFB demand expected to equate

~23% of vanadium market

by 2030 currently only ~ 4%

Global Production 2022

112,515 MTV

or approx. **200,000tpa** V_2O_5 equivalent.

Australia holds

18% of undeveloped

global reserves BUT has no domestic production – YET!

Vanadium Listed as

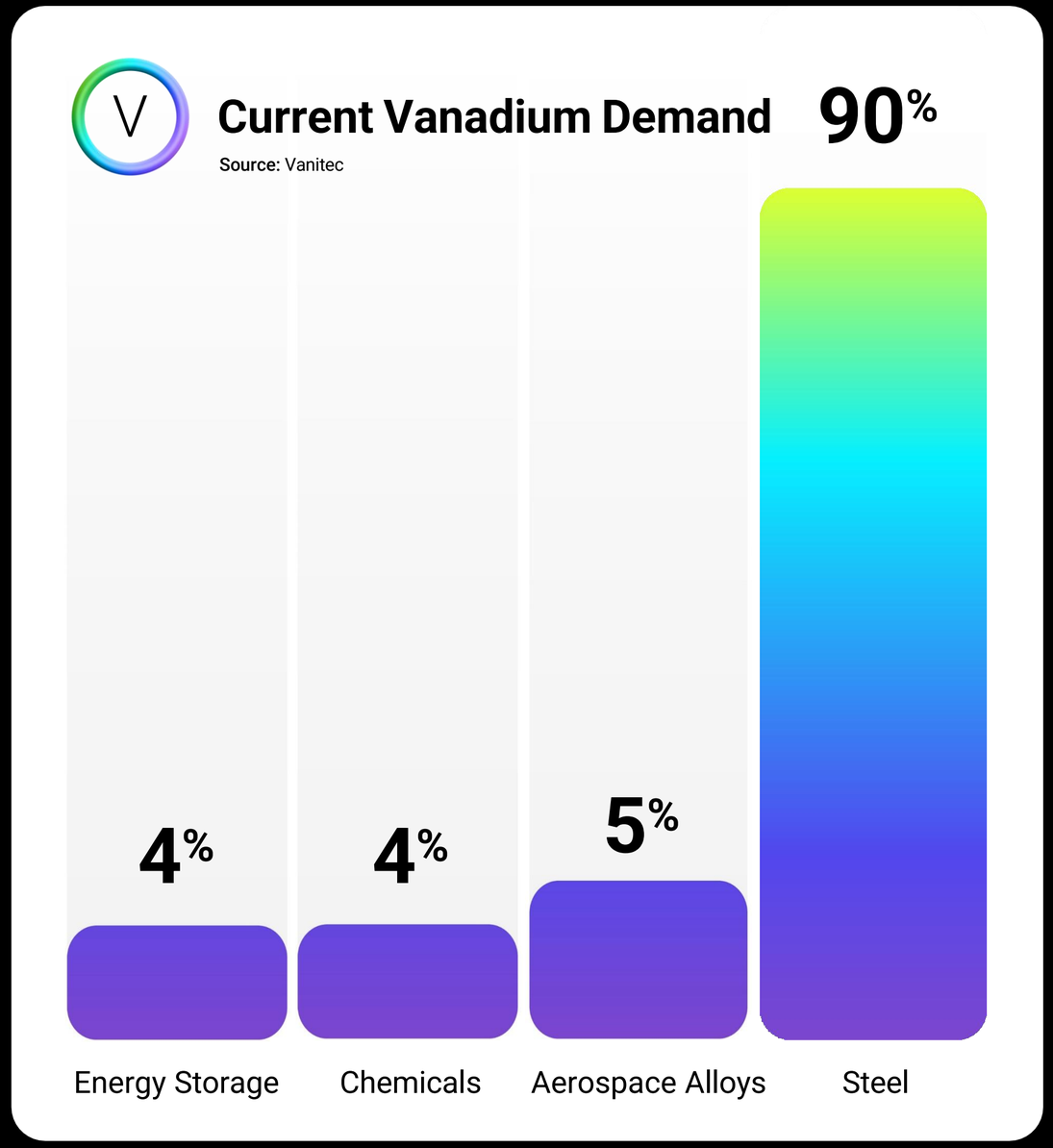
Critical Mineral

in Aust, US, EU and Japan

Global Vanadium demand

100% Increase by 2030

This is due to the growing demand for Vanadium Redox Flow Batteries (VRFBs) – Vanitec, 2022.

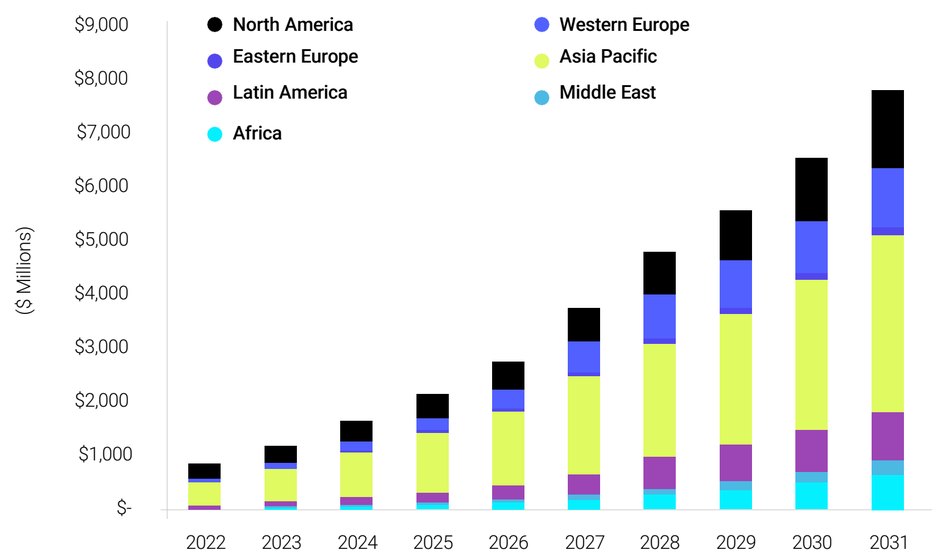


VFRB Market Forecasts

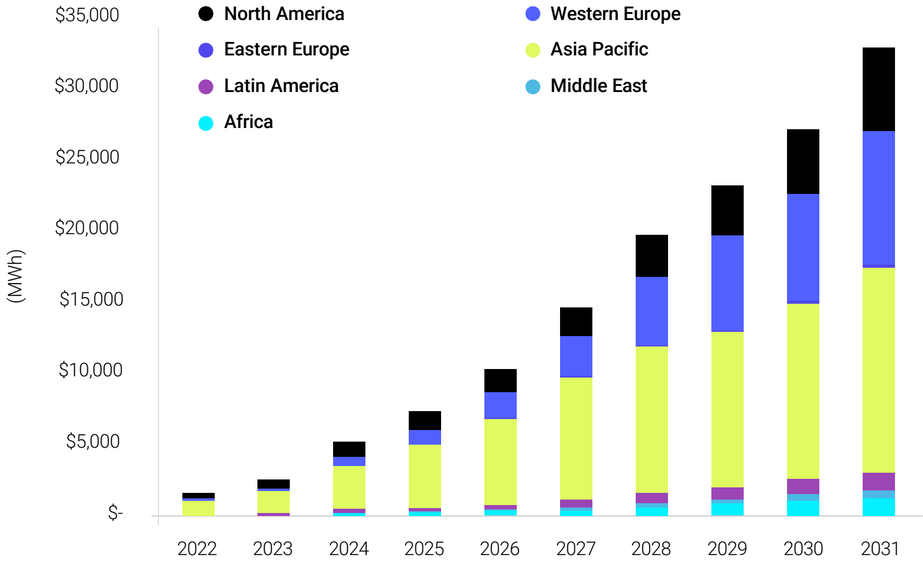
Vanadium for VRFB forecast to grow at an average compound rate of 41% YOY to 2031

QEM

Annual Installed VRFB Utility-Scale and Commercial and Industrial Deployment **Revenue** by Region, All Application Segments, World Markets: 2022-2031



Annual Installed VRFB Utility-Scale and Commercial and Industrial Battery Deployment **Energy Capacity** by Region, All Application Segments, World Markets: 2022-2031



Source: Guidehouse Insights: White Paper Identifying Market Opportunities and Enablers Q2 2022, for Vanitec.

Note: QEM is a full member of Vanitec.

Vanadium and Oil Shale Project

JCP Concept Design

Shallow Open - Cut Pit Ave 65m deep

Ore

V_2O_5 @ 0.31%+

Oil Extraction and separation

Solids

V_2O_5 @ 0.48%+

Vanadium Extraction

> 90%

Vanadium

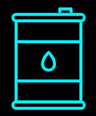
~10,000 t/yr @ 99.5% Purity

Structural Steel

Aerospace

Redox Flow Batteries

180% MFA



Raw Oil

Residue

Potential opportunites

Other Critical Minerals

Building Materials

Renewables Project

Solar and Wind

Green Hydrogen

HydroTreating

Transport Fuels & Other Products

Pilot Plant Progress

Bench scale pilot plant - Testing program and optimisation program underway

- **Pilot plant test program delivering exciting results**
- **>98%** V_2O_5 extraction achieved using acid leaching*
- **>92%** V_2O_5 extraction achieved using alkali leaching*

* QEM ASX Announcement February 28th 2023

- Oil yields (equivalent) **~180%** of Modified Fischer Assay (MFA)**
- Petrology studies now underway to understand potential product suite
- Pilot is a proof of concept that enables QEM to maximise vanadium and oil recovery, using this proprietary extraction process

** QEM ASX Announcement December 6th 2022

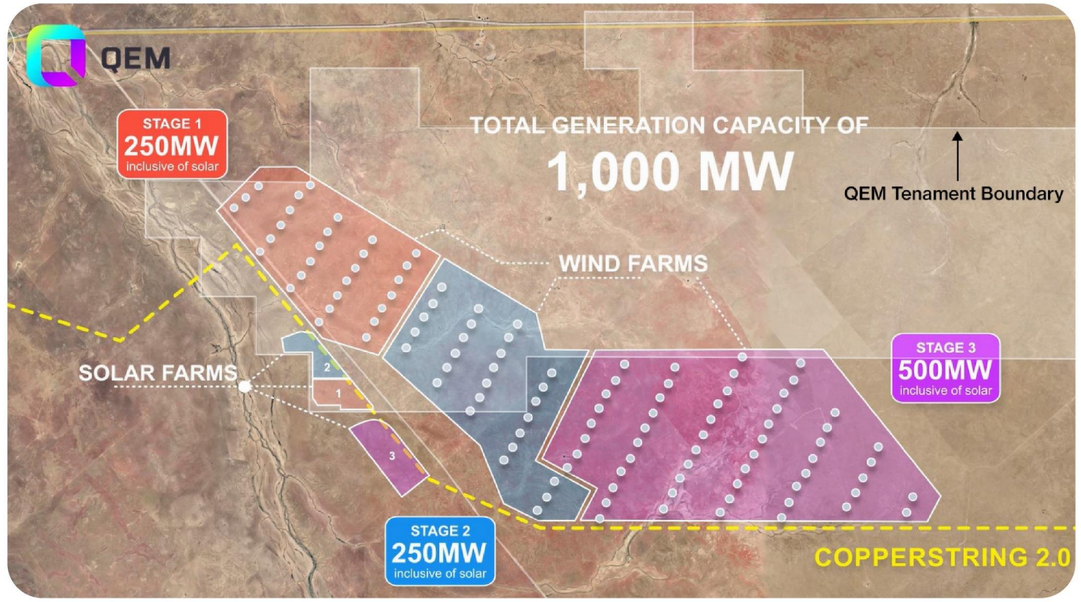
Access to affordable, reliable and renewable energy is a key development pillar for QEM.

With the $5B **CopperString** network proposed to run through the western portion of QEM's Julia Creek Vanadium and Oil shale project, clean renewable energy will power the project operations.

Renewable Power Update

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

- Meteorological mast, SoDAR and solar monitoring instruments are transmitting data in real time to support the wind and solar modelling developed in the 2021Pre-Feasibility Study
- Modelling for **250 MW, 500MW and 1GW**, hybrid solar/wind
- Julia Creek Project (JCP) proposed off taker for **renewable power**
- Strong appetite for large scale projects in the region **with interest shown from global project developers**
- The JCP will utilise renewable power and connect to the NEM via the CopperString network



Queensland Government

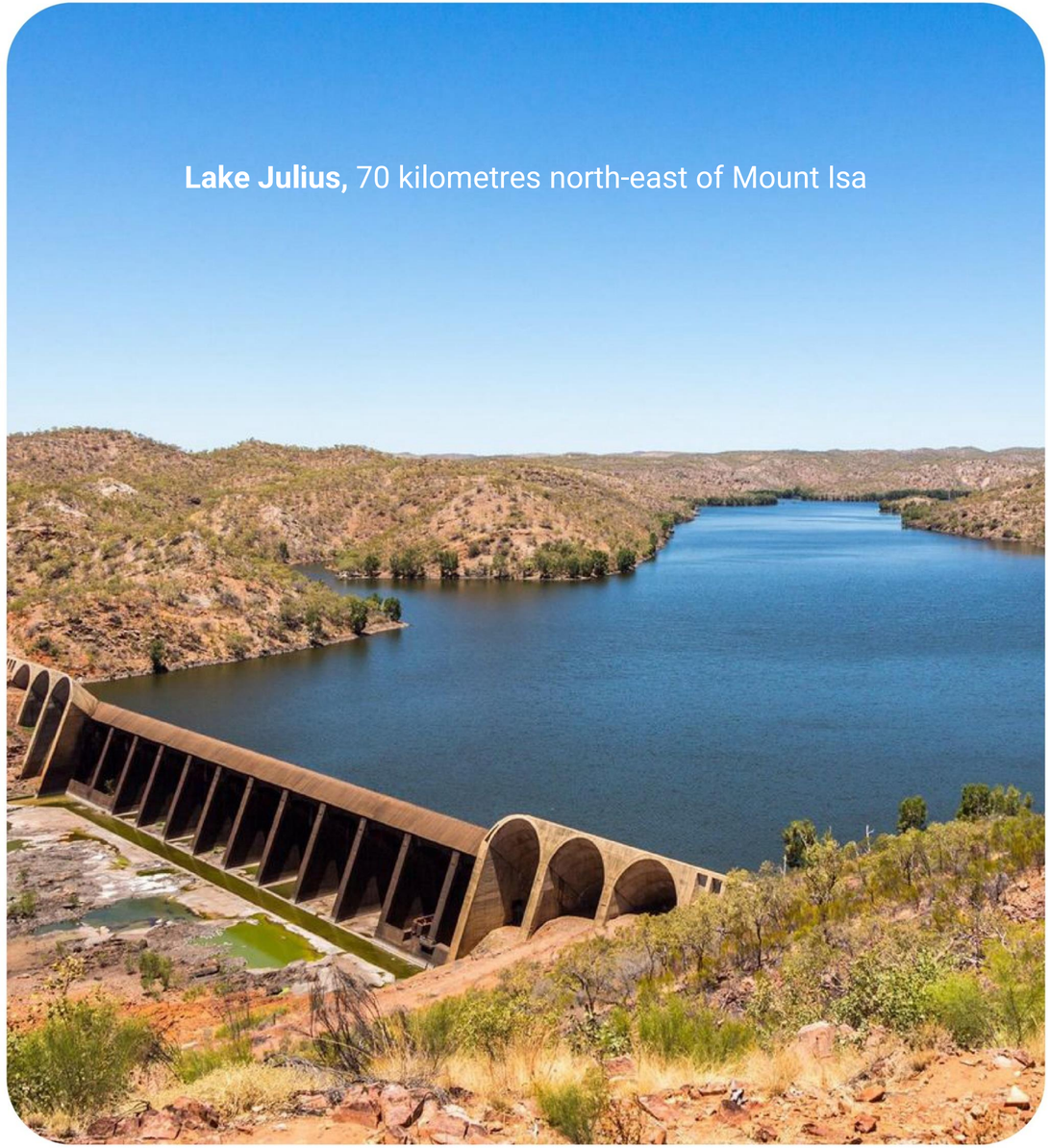
The Queensland government will deliver **CopperString** to provide affordable, renewable energy to open up the North West Minerals Province. The **1,100 kilometre $5 billion** expanded CopperString project will be **100 per cent government owned.**

Source: Premier’s Speech, Townsville 7 March 2023

Water Options

Water options study completed

- JCP's water requirement is estimated to be between 4 and 6 gigalitres/yr; Volumes will be refined through progressive engineering stages.
- Water options study recently completed, resulting in two viable options:
    1. The water supply options assessment explored seasonal water harvesting from the Flinders River.
    2. Potential for pipeline from Cloncurry, utilizing Lake Julius resource.
- However, QEM strongly supports a multi-user approach that will benefit not only mining but also other industries and users.
- Ground water use has been ruled out.

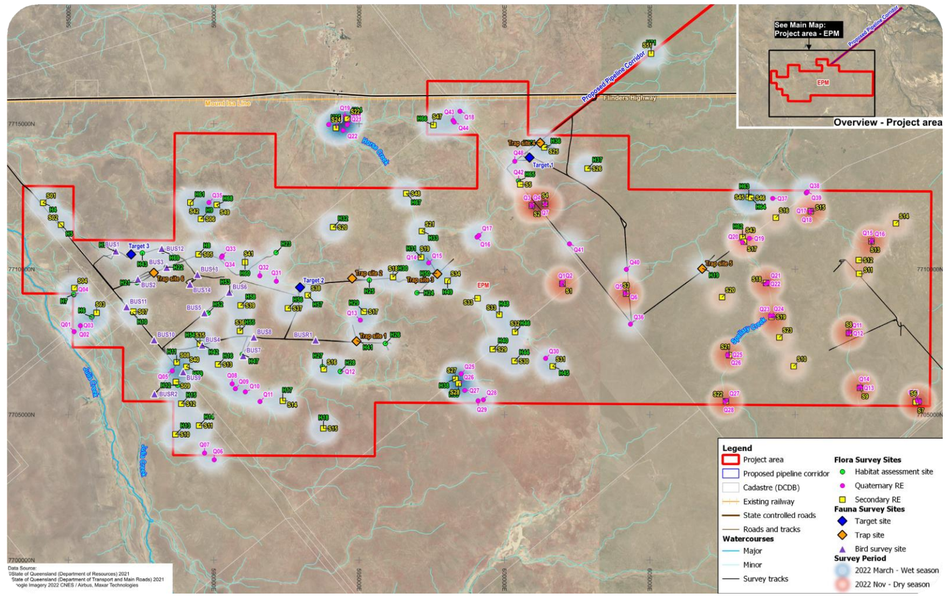


Lake Julius, 70 kilometres north-east of Mount Isa

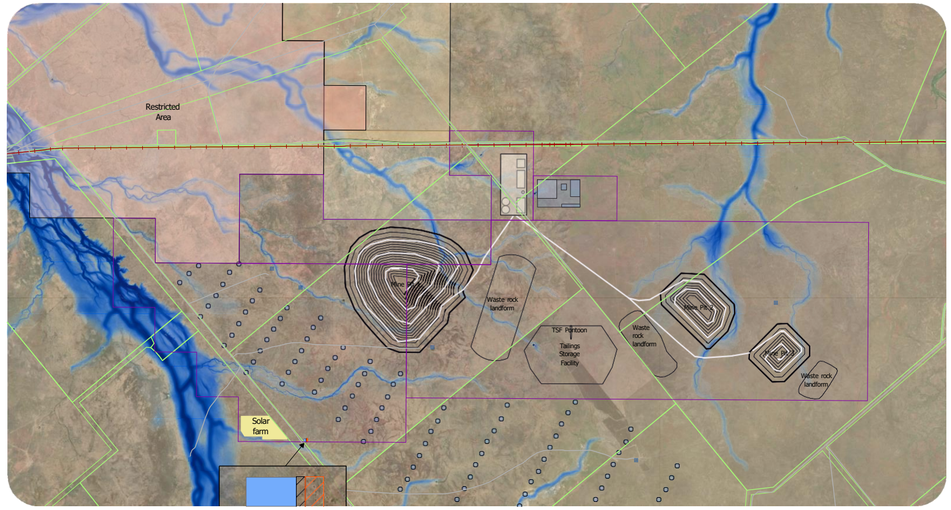
Environmental Progress

Ecological Assessment Report and other environmental surveys have been completed in 2022

- The purpose of the EAR is to baseline ecological values to develop an Environmental Impact Assessment under the State Development and Public Works Organisation Act 1971 or similar process to obtain Environmental Authority.
- The ecological assessment includes a desktop assessment, a post wet season flora and fauna survey and a dry season flora field survey.
- A 12-month survey to monitor ground and surface water quality is currently underway.
- A flood modelling study has recently been completed which included 5 design AEP events ranging from AEP 10% to 0.1%, along with two historical flood events (1994 & 2019).
- The result indicates the Project site remains largely unaffected even in 1:100/years and 1:1,000/years rain events.



Multiple fauna traps, bird observation points and flora sampling sites support the EAR

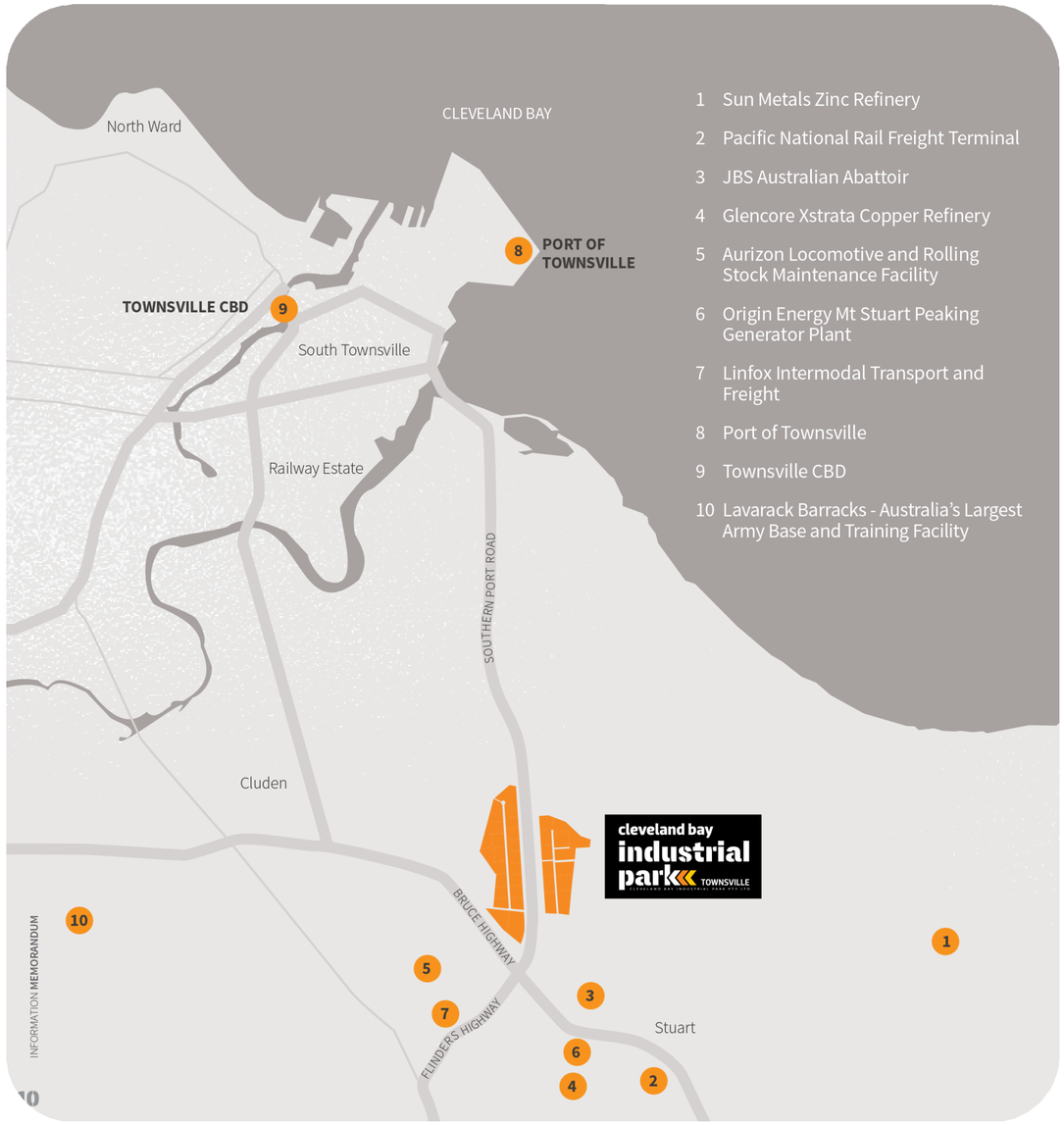


Flood model (environmental baseline), 1:100 years event (AEP 1.0%)

Townsville QR-CUF Progress

Queensland Government support reach's $75m for vanadium extraction demonstration plant

- On January 24th, the Qld Premier announced a substantial increase in funding from $10M to $75M for the construction of the Queensland Resources Common User Facility (QR-CUF).
- The project will be built at the Cleveland Bay Industrial Park in Townsville.
- The facility is intended to trial production processes for commercialisation, enabling prospective miners to begin producing mineral samples at scale.
- QEM has been involved in the design inputs for the project since its inception and will utilise the facility to demonstrate vanadium extraction processes at scale.
- The project has been granted a Prescribed Project Status, with project completion due in 2025.



Ref: Cleveland Bay Industrial Park Information Memorandum September 2022

QEM secures vanadium-rich waste stream for conversion to battery electrolyte

Positive ESG outcomes for Queensland

- Sun Metals will provide QEM with vanadium-bearing spent catalyst
- Circular Economy opportunity for QEM to upcycle Queensland industrial waste to battery grade vanadium pentoxide (V_2O_5)
- QEM plans to use the Queensland Government's $75M Critical Minerals facility in Townsville to produce battery grade V_2O_5 from the spent catalyst

Image at Sun Metals offices, Townsville

DK Choi - Operations Director, Sun Metals
Joanne Bergamin - Communications Director, QEM Limited
Gavin Loyden - Managing Director, QEM Limited

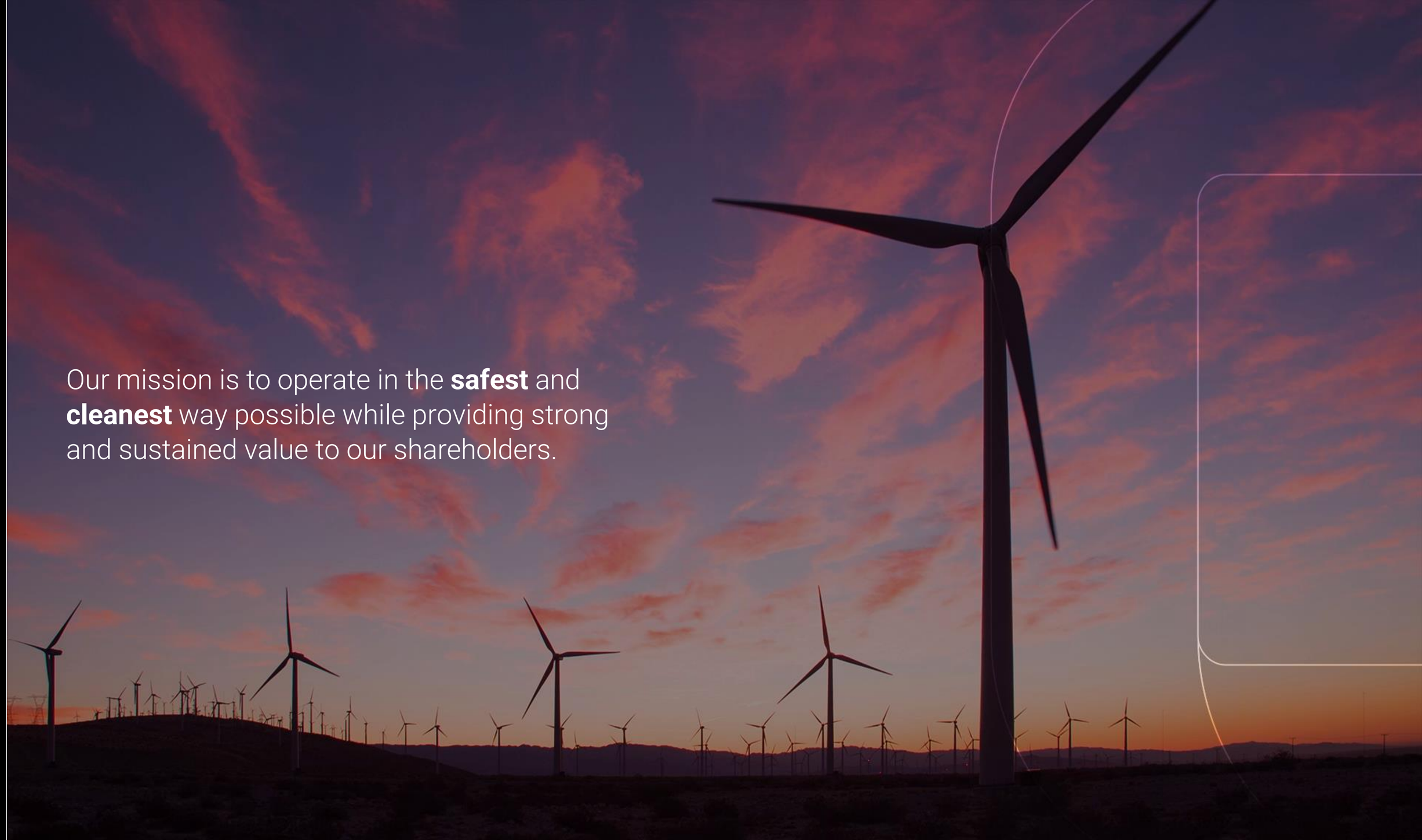
Fuel Security

Running on Empty

- Fuel imports at **93%,** adding **$30B** to Australia's trade deficit
- Australia now highly exposed to supply shock
- Australia's obligation as a member of the International Energy Agency (IEA) – Minimum 90 days supply
- COVID-19 has further exposed Australia's lack of resilience in this area

QEM

We consider this an opportunity!



Our mission is to operate in the **safest** and **cleanest** way possible while providing strong and sustained value to our shareholders.

QEM's Commitment to ESG

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

Environmental

- Low carbon footprint goal
- Proposed renewable energy sources
- Products such as V_2O_5 support Australia's emission reduction targets

Social

- QEM supports local community – focus on youth, women's and sport programs
- QEM sponsors St Vinnies CEO Sleepout, St Vincent de Paul Society, Endeavour Foundation, National Breast Cancer Foundation, WIMARQ (Women In Mining and Resources Qld)

Governance

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

Why invest in QEM?

Right Project at Right Time

- **Multi Commodity Exposure** in high growth markets
- Globally significant Critical Minerals opportunity
- Fuel Security concerns
- Helping to meet Australia's energy transition targets

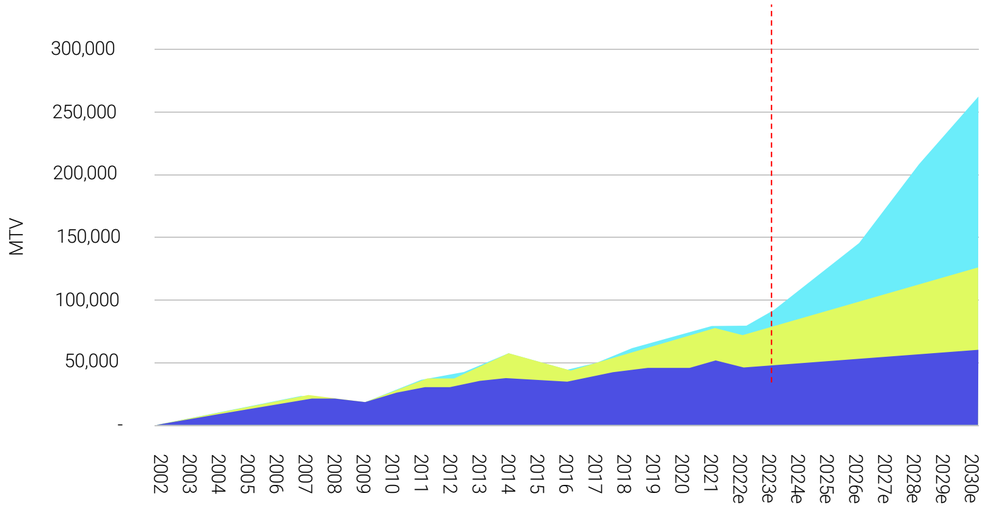
- Unique proprietary extraction technology
- Low market capitalization
- Strong government support
- **Tier 1** Mining Jurisdiction

Sources of New Vanadium Demand

(2002 - 2030)

- Changes in Steel Production
- Changes in Specific V Consumption in Steel
- Energy Storage

Source: TTP Squared, Inc.



QEM joins up with UQ as a new vanadium company hits ASX

BUSINESS

The University of Queensland has signed on with fledgling vanadium company QEM to improve the value and yields from the Julia Creek deposit and search for rare earths.

ASX Resources Quarterlies: This oil play is raking in the dollars

January 31, 2023 | Bevis Yeo STOCKHEAD

Queensland just made a $75m move to become a critical minerals centre of excellence

January 26, 2023 | Christian Edwards STOCKHEAD

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is clearing and it looks really bright

March 8, 2023 | Special Report STOCKHEAD

Queensland transmission line upgrade to enable battery and renewables manufacturing ambitions

By Jonathan Tourino Jacobo, Andy Colthorpe
March 7, 2023

QEM achieves highest vanadium extraction results to date from Julia Creek Project in Queensland

By Adam Drought 1 March 2023 | mining.com.au

Outstanding extraction tests put vanadium spotlight on QEM's Julia Creek Shale

February 28, 2023 | Special Report STOCKHEAD

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billion as Government energy project

BUSINESS

Queensland's premier Annastacia Palaszczuk with the QEM team.

QEM, University of Queensland Partner for Minerals Study at Queensland Project; Shares Rise 3%

12/14/2022 | 03:29am GMT

MarketScreener

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Appendix A:

Julia Creek Resource

Julia Creek Resource Overview

Queensland Government support reach's $75m for vanadium extraction demonstration plant

Resource Class	Strat Unit	Mass (Mt)	Average Thickness (m)	Insitu Density (gm/cc)	V_2O_5 (Wt%)	Cu (ppm)	Mo (ppm)	Ni (ppm)	Zi (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**

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

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.

Julia Creek Resource Overview

Queensland Government support reach's $75m for vanadium extraction demonstration plant

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		**2,850**		**8.1**	**66**	**68**	**79**	**71**

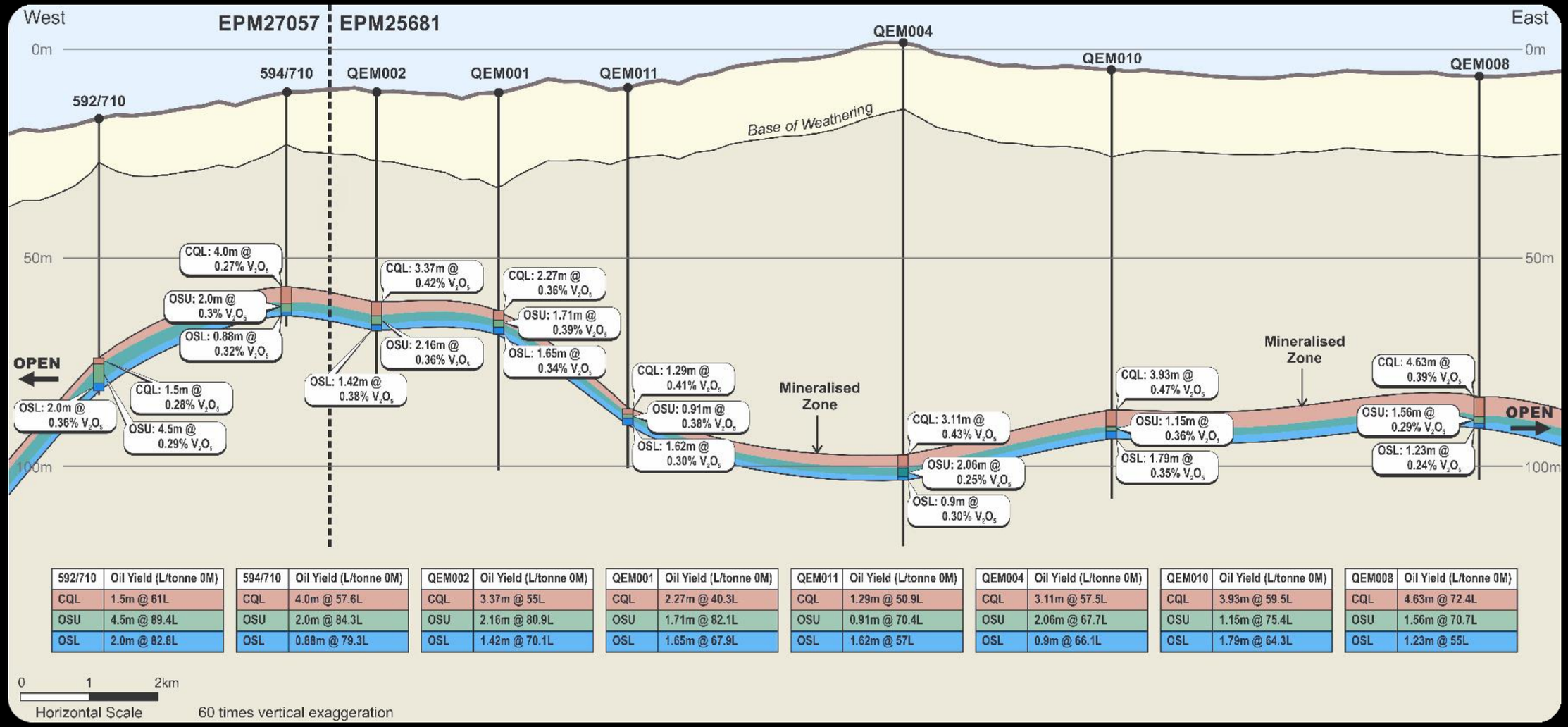
Table 2: Summary of SPE-PRMS Oil Resource estimate 31 March 2022

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/tonnne 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



592/710	Oil Yield (L/tonne 0M)
CQL	1.5m @ 61L
OSU	4.5m @ 89.4L
OSL	2.0m @ 82.8L

594/710	Oil Yield (L/tonne 0M)
CQL	4.0m @ 57.6L
OSU	2.0m @ 84.3L
OSL	0.88m @ 79.3L

QEM002	Oil Yield (L/tonne 0M)
CQL	3.37m @ 55L
OSU	2.16m @ 80.9L
OSL	1.42m @ 70.1L

QEM001	Oil Yield (L/tonne 0M)
CQL	2.27m @ 40.3L
OSU	1.71m @ 82.1L
OSL	1.65m @ 67.9L

QEM011	Oil Yield (L/tonne 0M)
CQL	1.29m @ 50.9L
OSU	0.91m @ 70.4L
OSL	1.62m @ 57L

QEM004	Oil Yield (L/tonne 0M)
CQL	3.11m @ 57.5L
OSU	2.06m @ 67.7L
OSL	0.9m @ 66.1L

QEM010	Oil Yield (L/tonne 0M)
CQL	3.93m @ 59.5L
OSU	1.15m @ 75.4L
OSL	1.79m @ 64.3L

QEM008	Oil Yield (L/tonne 0M)
CQL	4.63m @ 72.4L
OSU	1.56m @ 70.7L
OSL	1.23m @ 55L

Source: Measured Group

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

QEM

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