



QEM

ASX : QEM

Advancing the **Julia Creek Vanadium and Energy Project**

Julia Creek/Richmond Critical Minerals Roundtable 16 May 2025

"We would like to acknowledge the Wanamara 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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Disclaimer

Refer to QEM Limited ASX announcement 27 August 2024 for full details of the Julia Creek Project Scoping Study (including all relevant material assumptions). QEM confirms that it is not aware of any new information or data that materially affects the information included in the relevant announcement and that all material assumptions and technical parameters underpinning the forecast financial information and production target in the relevant announcement continue to apply and have not materially changed.

Scoping Study Cautionary Statement

The Scoping Study referred to in this presentation was undertaken for the purpose of initial evaluation of the potential for development of a series of an open pit and processing facilities at the Julia Creek Project. It is a preliminary technical and economic study of the potential viability of the Julia Creek Project.

The Scoping Study is based on low level technical and economic assessments (+/- 40% accuracy) that are not sufficient to support the estimation of Ore Reserves or to provide assurance of an economic development case at this stage or to provide certainty that the conclusions of the Scoping Study will be realised. Further exploration and evaluation work and appropriate studies are required before QEM will be able to estimate any Ore Reserves or to provide any assurance of an economic development case.

The Scoping Study is based on the material assumptions outlined in the Scoping Study. These include assumptions about the availability of funding. While QEM considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the Scoping Study will be achieved. To achieve the range of outcomes indicated in the Scoping Study, funding of in the order of \$744 million excluding contingency costs and indirect costs such as owner's costs and EPCM (inclusive of these elements, the pre-production capital expenditure is \$1,095 million) will likely be required. Investors should note that there is no certainty that the Company will be able to raise that amount of funding when needed. It is also possible that such funding may only be available on terms that may be dilutive to or otherwise affect the value of QEM's existing shares.

Given the scale of the pre-production capital expenditure required, it is likely that QEM will need to access multiple streams of funding opportunities and/or partnering opportunities in order to support the pre-production capital expenditure, which may include a combination of project debt, equity capital, offtake prepayment, farm-in, joint venture and other appropriate initiatives.

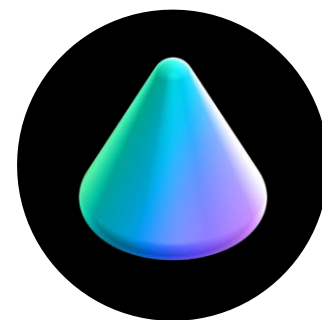
It is also possible that QEM could pursue other 'value realisation' strategies such as a sale, partial sale or joint venture of the project. If it does, this could materially reduce the Company's proportionate ownership of the project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the Scoping Study.

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, 7 April 2022 and February 2024. 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 Resources and 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.

Julia Creek Project

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



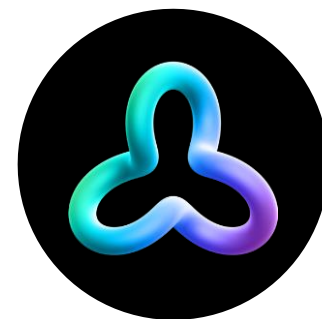
Multi Commodity

Vanadium
Transport Fuel



Location

Tier-1 Mining province
Close to all services



Unique Process

Shallow open pit mining
Renewable Power
Green Hydrogen



Globally Significant

Critical Mineral Resource

JORC and SPE-PRMS Resources

One of the world's single largest vanadium resources with significant oil resource.



Vanadium Resource

Indicated JORC Resource increased by 28% to 461Mt V₂O₅



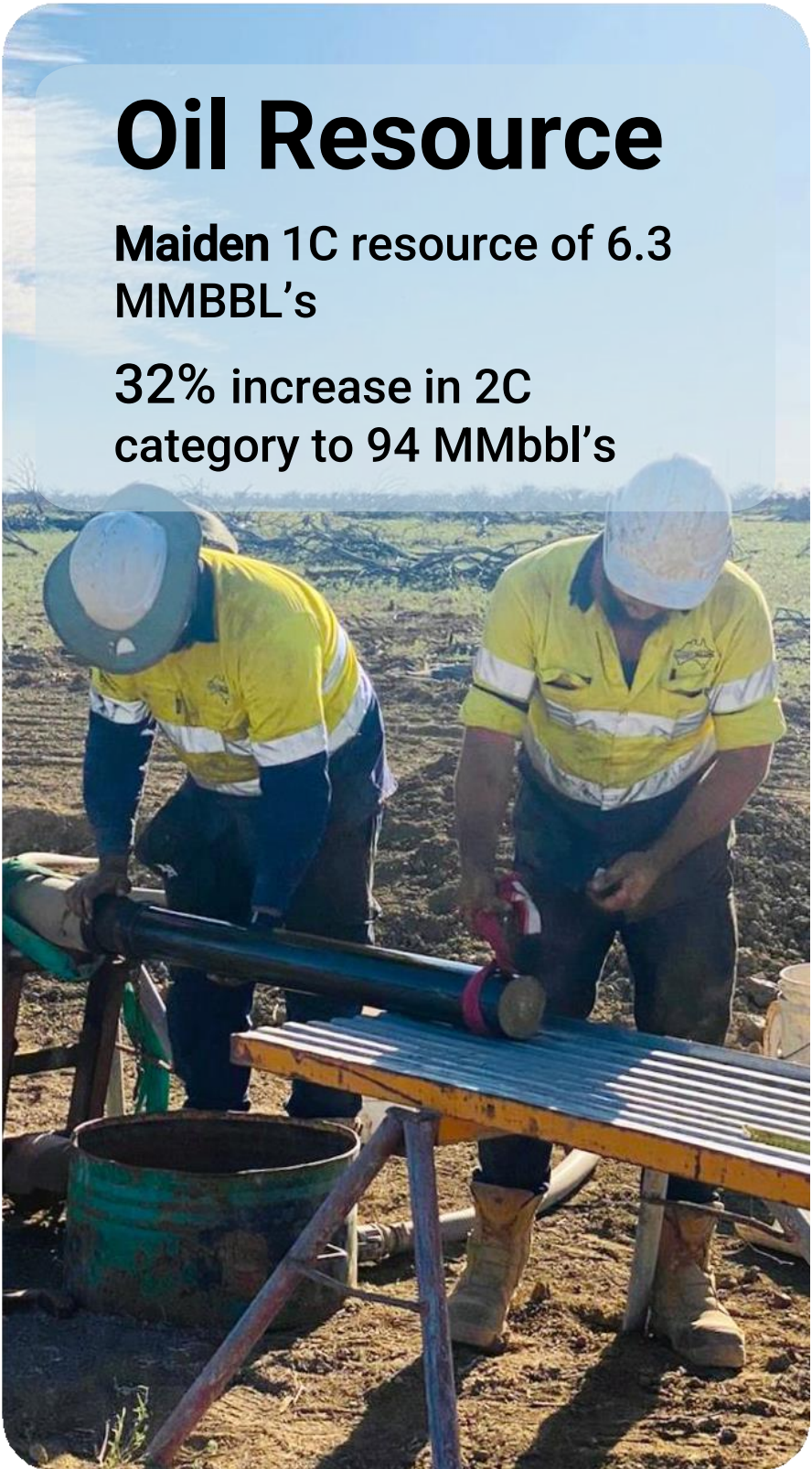
2,870 Mt

Inferred @ Ave V₂O₅ ore content of 0.31%



461 Mt

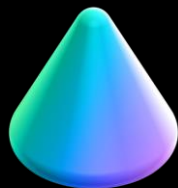
Indicated @ Ave V₂O₅ ore content of 0.28%



Oil Resource

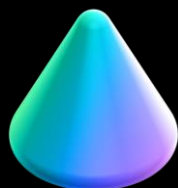
Maiden 1C resource of 6.3 MMBBL's

32% increase in 2C category to 94 MMBbl's



654 MMBbl's

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



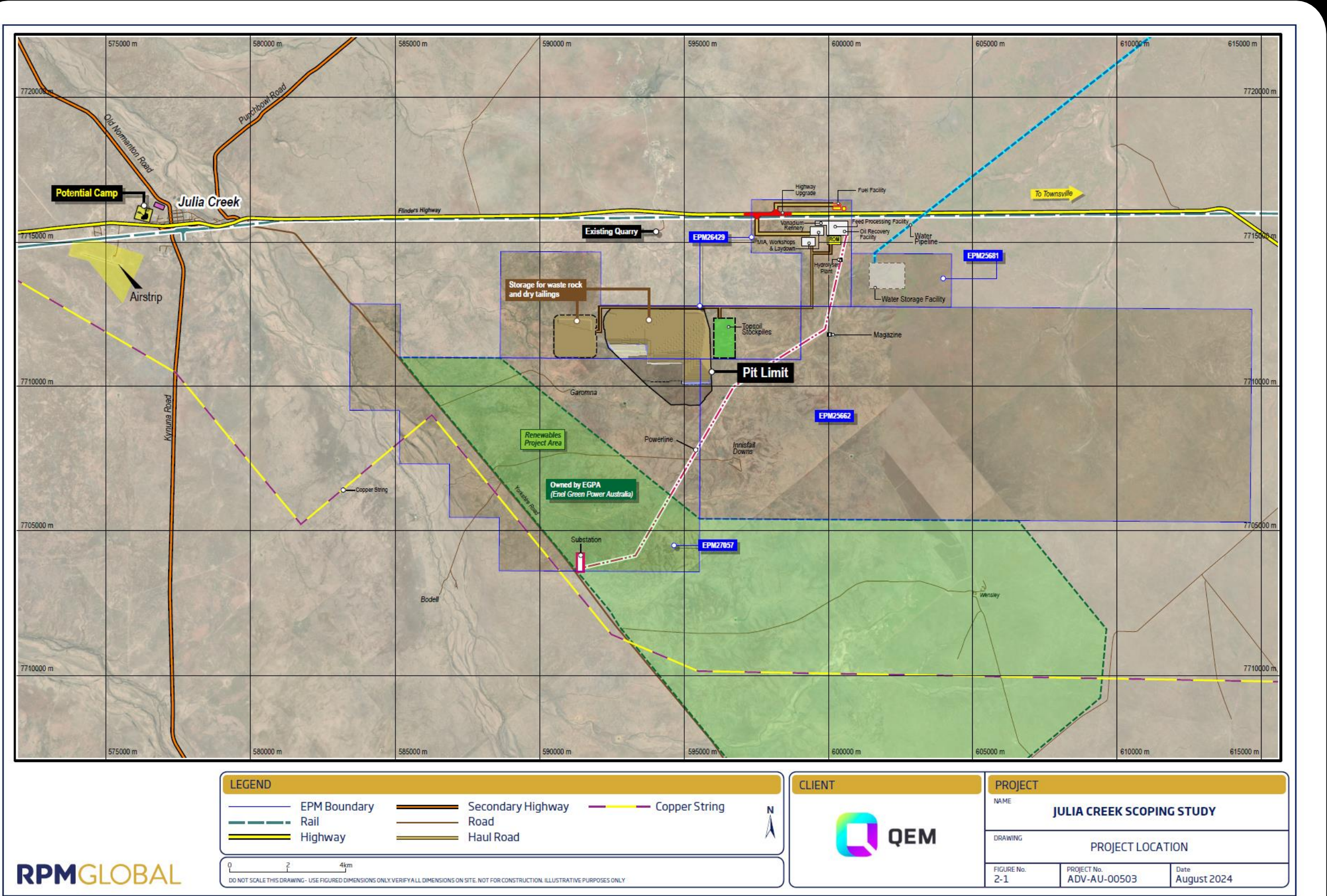
94 MMBbl's

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

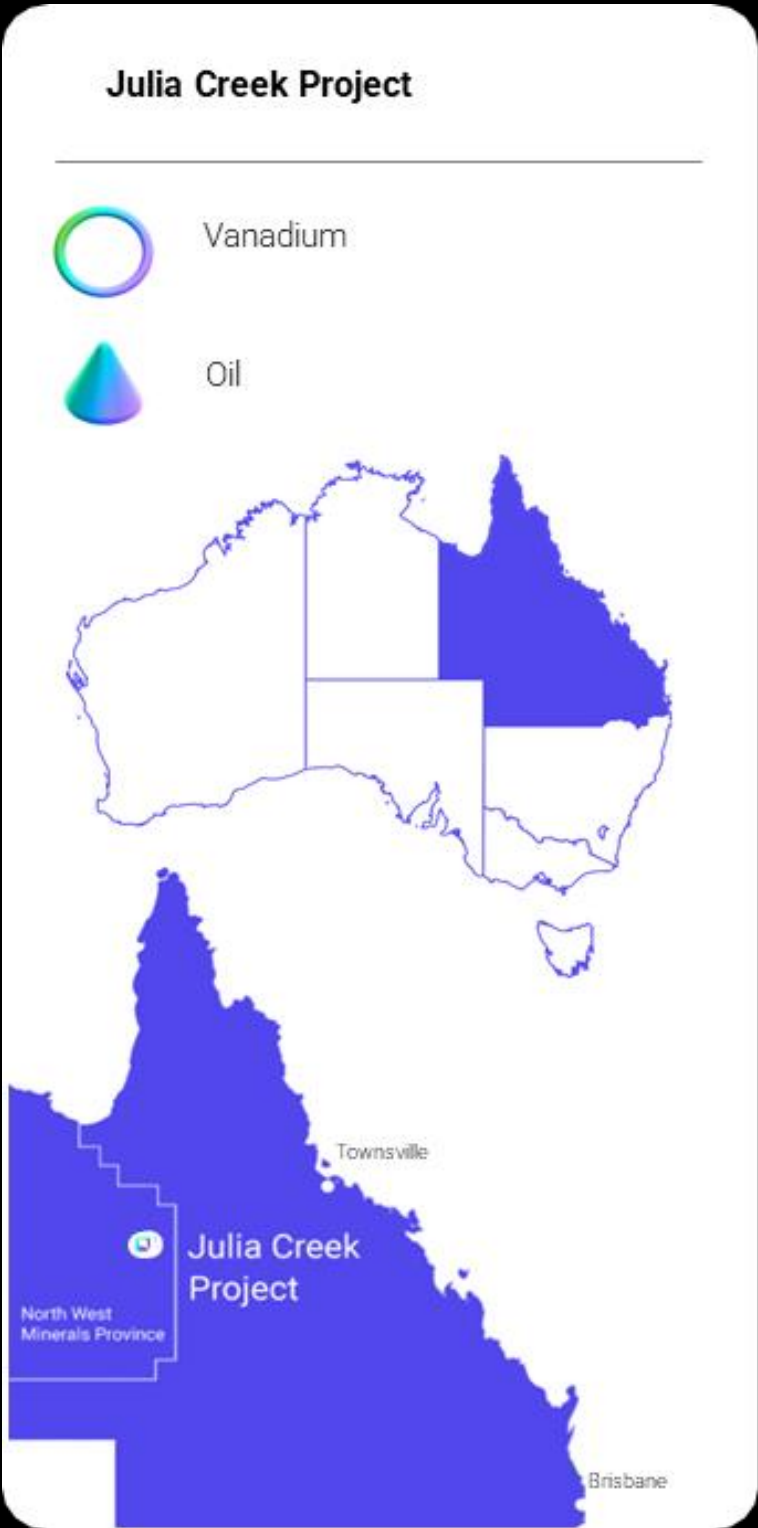
See QEM ASX Announcement dated 4 March 2024. QEM confirms that it is not aware of any new information or data that materially affects the information included in the relevant announcement, and all material assumptions and technical parameters underpinning the mineral resource estimates in the relevant announcement continue to apply and have not materially changed.

Julia Creek Vanadium and Energy Project

4 EPM's covering 250km2 in Queensland's NWMP. Well located on major infrastructure corridor, including Copperstring access.



Source: QEM Scoping Study ASX Announcement, 27 August 2024



2024 Scoping Study Highlights



Post - Tax
NPV (8%):

AUD **1,106M**

IRR:

16.3%

Payback
Period:

5 Years

Pre - production
CAPEX
(ex-contingency,
owners' costs & EPCM)

AUD **791M**

Life of Mine:

30 Years

ROM:

5.1Mt (dry)

Annual
Production:

10,571 tonnes V_2O_5
313M litres of fuel

OPEX:

V_2O_5 : USD \$5.80/lb
Fuel : AUD \$0.59L

See ASX announcement dated 27 August 2024 and the following slide for further information. QEM confirms that it is not aware of any new information or data that materially affects the information included in the relevant announcement and that all material assumptions and technical parameters underpinning the forecast financial information and production target in the relevant announcement continue to apply and have not materially changed.

Recently...



Excellent progress being made with significant government support for Critical Minerals

The Julia Creek Vanadium and Energy Project designated a Coordinated Project

- Coordinated Project declaration received from the Queensland State Government - Office of the Coordinator General (OCG) 2024 and a Controlled Action by the Commonwealth Department of Climate Change, Energy, the Environment and Water (DCCEW) in 2025.
- DCCEW also determined that the project's environmental approvals pathway will be assessed under the bilateral agreement between the Commonwealth and Queensland Government, streamlining the process of issuing an Environmental Impact Statement (EIS).

Draft Terms of Reference (TOR) for EIS

- Draft TOR received from OCG and is now available for public consultation until May 26 2025.

What's next....

The next step of the EPBC Act approval process is for the Queensland Government and QEM to reach agreement on the Terms of Reference which will be used to develop an EIS.

Exploration Program slated for Q3 with JORC report expected in Q4.

Progress PFS and EIS work program.

Vanadium Global Production

Market set for strong growth driven by LDES of 4-10 hours+ - VFB

Market expected to reach
\$4.89 Billion

in 2032 at **CAGR of 4.4%** (USGS-
Jan 2024, Project Blue)

VFB demand expected to equate
~17% of vanadium market

by 2033 currently only ~ 5% (USGS-
Jan 2024, Project Blue)

Global Production 2023
125,190 MTV*

85% of supply from China,
Russia & South Africa (vanitec
2024)

Australia holds
49% of undeveloped

global reserves (Geoscience Aust
2024) BUT has no domestic
production – YET!

Vanadium Listed as
Critical Mineral
in Aust, US, EU and Japan

Global Vanadium demand
200% Increase by 2050
5th highest growth market in
critical minerals according to the
World Bank- Minerals for Climate Action

* MTV is Metric Tonne Unit of Vanadium

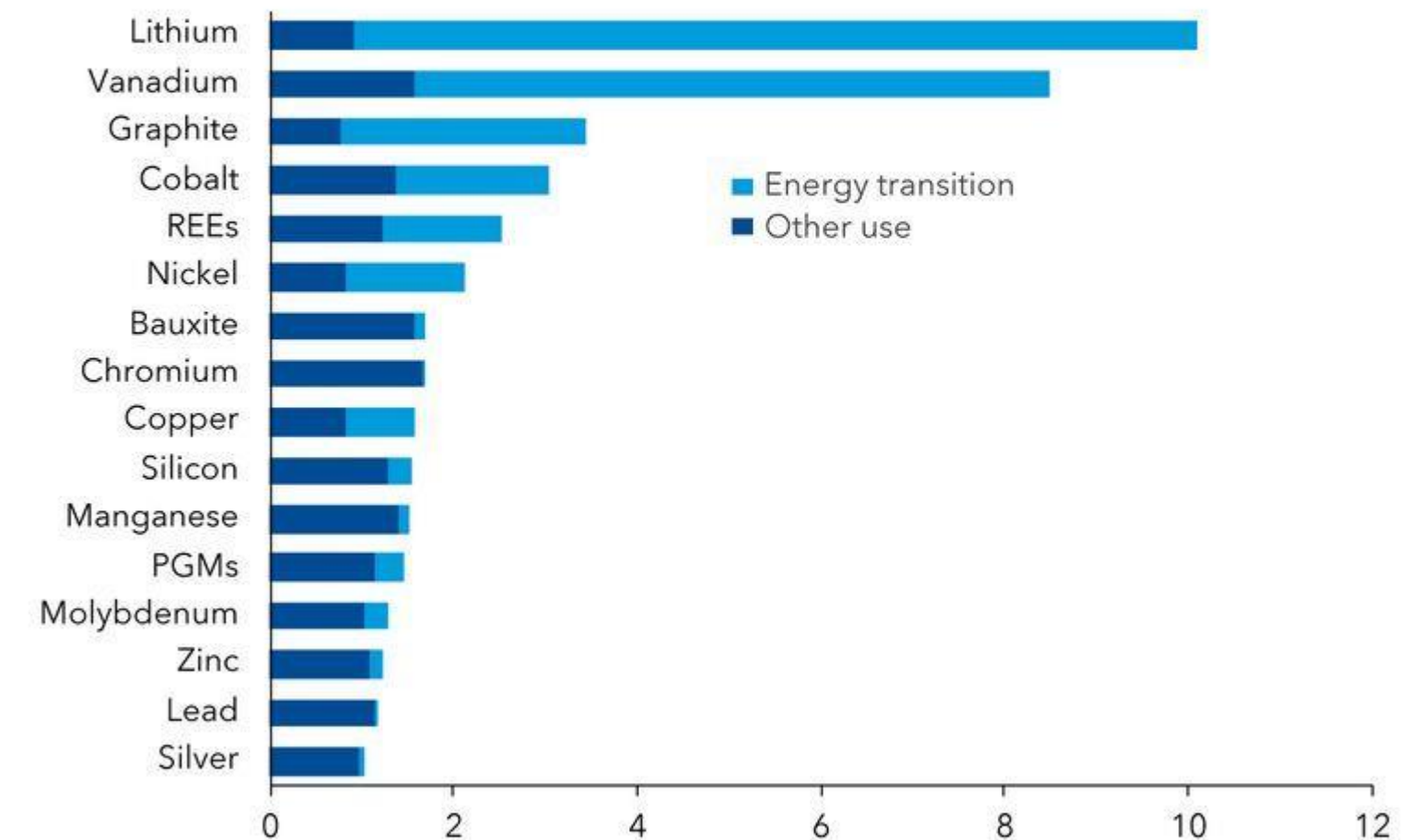


IMF predicts 8-fold surge in Vanadium Demand by 2050

A critical surge

Global demand for energy transition minerals will increase significantly in the coming decades.

Ratio of 2050 to 2022 demand under a net zero emissions scenario



Sources: International Energy Agency (IEA) World Energy Outlook (2023); and IMF staff calculations.

Note: The chart shows the IEA's projected increase in mineral demand (in quantity terms) broken down by sector as a ratio of 2050 to 2022 demand, under the IEA's net zero emissions transition scenario. REE = Rare Earth Elements; PGMs = Platinum Group Metals.

IMF

Vanadium Uses

Vanadium - The Versatile Element



Renewable Energy Storage

Vanadium Flow Batteries (VFB) are a proven, safe and economic solution for large scale, long duration energy storage.

Long duration energy storage is the key to unlocking the global renewable energy revolution.



Improves Tensile Steel Strength

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

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).

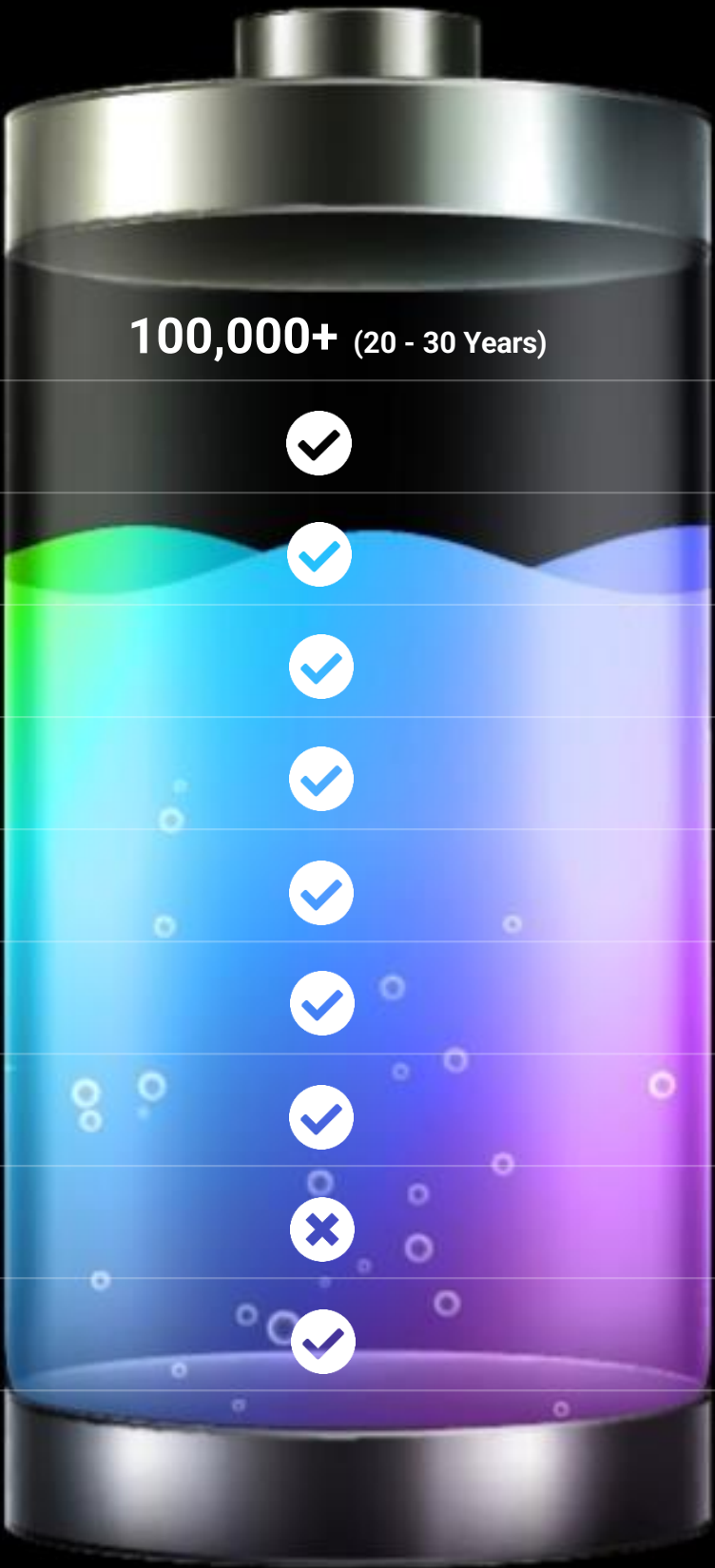


Renewable Storage

Building a Renewable Future with Vanadium Flow Batteries (VFB)



Vanadium



LONG ASSET LIFE - Number of Cycles

Low Self Discharge (Stays Charged)

Long Duration Energy Storage (LDES 4hr+)

Highly Expandable

SAFETY – Non-Flammable, Non-Toxic.

Charges and Discharges Simultaneously

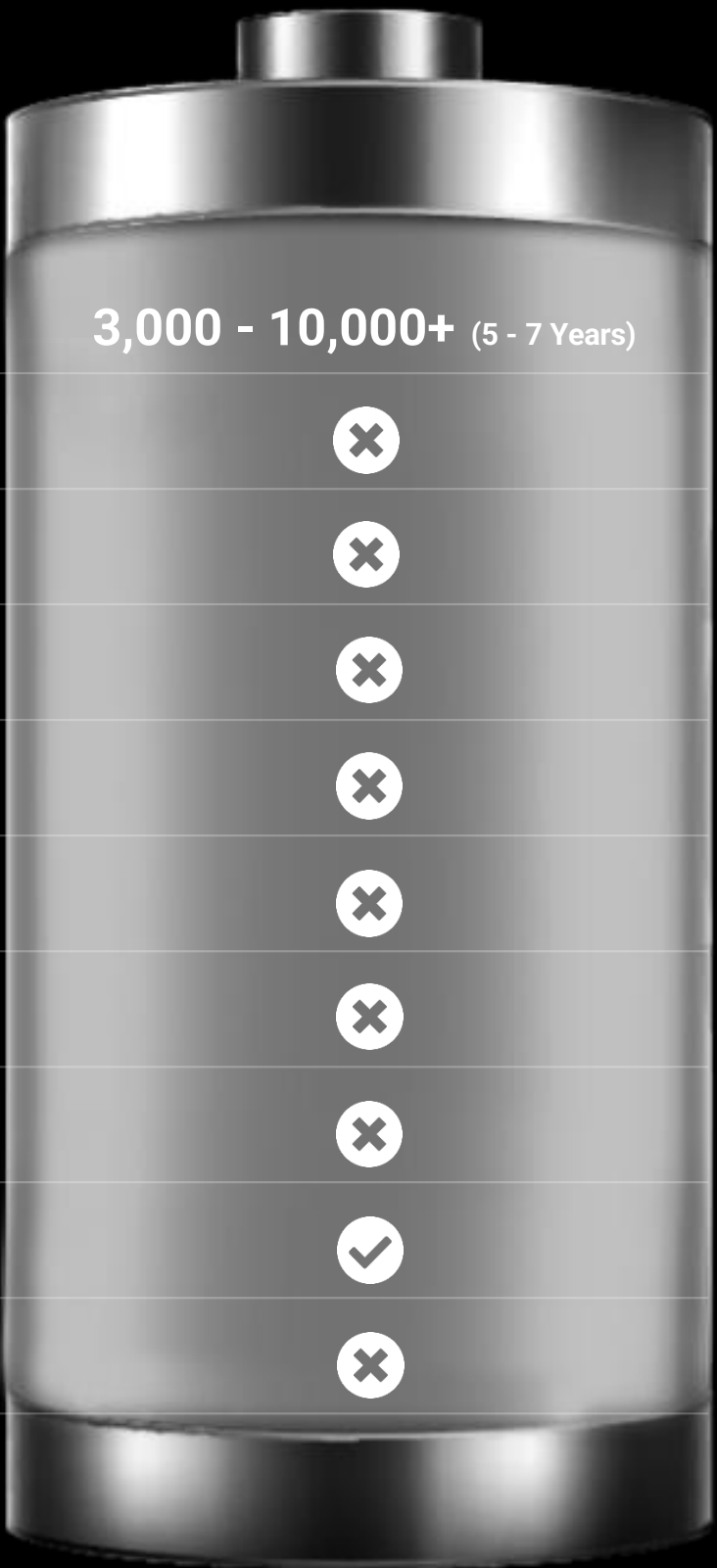
COST - Lower Operating Cost (LCOS)

Suitable for Connection to Power Grid

Small Footprint

Can be Completely Recycled

Lithium



3,000 - 10,000+ (5 - 7 Years)

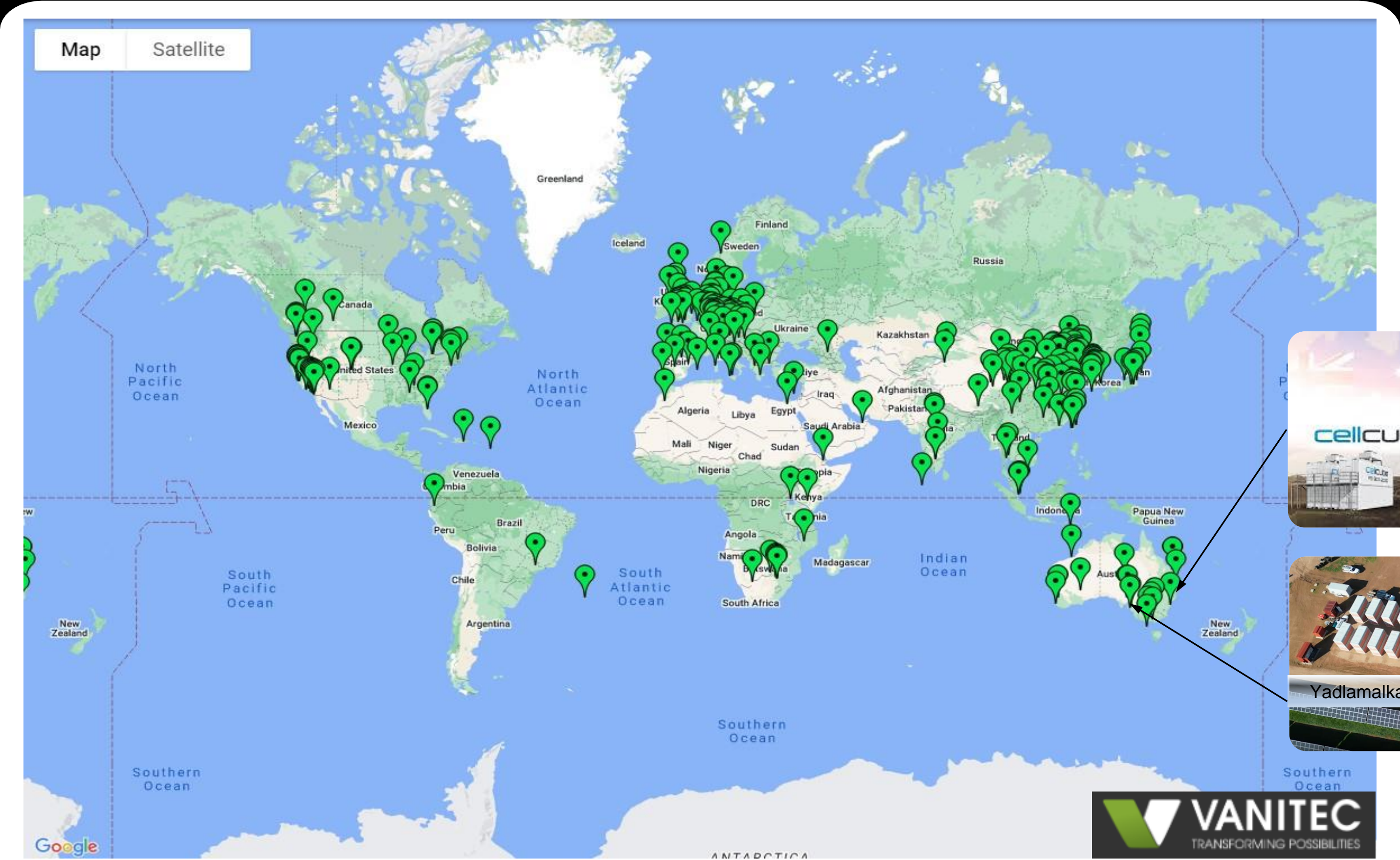


Source: energyandcapital.com

VFB Global Installations



Approx. 500 large scale VFB projects worldwide operational with 180 under construction, many more announced



Examples of Australian VFB installations:



Yadlamalka Energy - grid scale VFBs



Source: Vanitec.

QEM Limited: Full Member of Vanitec since 2016

Fuel Security

Running on Empty

- Fuel imports are 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, currently holding 54 days, with only 20 days diesel supply.
- Liquid fuel security is a growing concern for Australia



We consider this an opportunity!



Strong Government Support

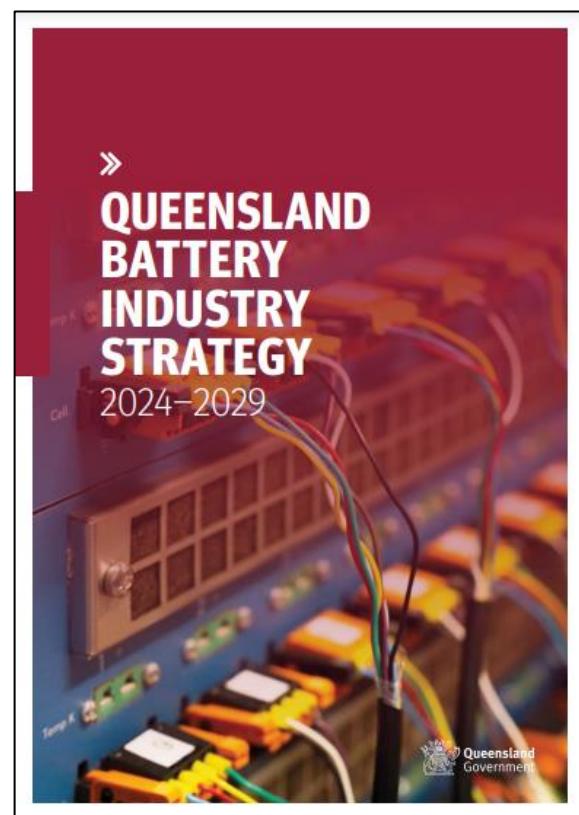
A framework of support across the Value Chain



Critical Minerals Production Tax Incentive (CMPTI)

This incentive forms part of the Commonwealth Government's *Future Made in Australia* package.

The commitment of \$7 billion over 10 years, for 31 critical minerals, including vanadium, provides the assistance for companies to value-add to their raw minerals by undertaking downstream processing. In return they will receive a 10 per cent tax credit for production between 2027 and 2040 and is the largest commitment to date from an Australian government.



\$1.2 billion Critical Minerals Strategic Reserve

The Prime Minister recently outlined plans to invest an initial \$1.2 billion to establish the reserve, including a \$1 billion increase to the existing Critical Minerals Facility.

The recently announced Strategic Reserve will also be a crucial national investment in securing future supply chains, both for our domestic industries and key international allies.



National Battery Testing Centre

Project Timeline



2024	2025	2026	2027	2028	2029	2030
<div>☑ Flora & Fauna Surveys, Water Baselines</div> <div>☑ EPBC Referral Submitted</div>	<div>☑ Controlled Action Decision</div> <div>Agreement of Terms of Reference for EIS</div>	<div>Submit Environmental Impact Statement (EIS)</div>	<div>Environmental Authority (EA) granted</div>			
<div>☑ Initial Advice Statement Submitted</div> <div>☑ Coordinated Project Declaration</div>	<div>Cultural Heritage Management Plan (CHMP) Implementation</div>	<div>Prepare EIS</div>	<div>Mining Lease (ML) granted</div>			<div>Production</div>
<div>☑ Renewables sale, Scoping Study Completion, JORC update, V₂O₅ extraction from waste</div>	<div>Start Pre-Feasibility Study (PFS)</div>	<div>Complete PFS</div> <div>Start Definitive Feasibility Study</div>	<div>Complete Definitive Feasibility Study</div>	<div>FID</div>	<div>Engineering, Procurement and Construction (2 Years)</div>	<div>Commis-sioning (6 months)</div>
<div>☑ Flowsheet optimisation</div>	<div>Infill drilling campaign</div>	<div>JORC update - Measured Resource</div>	<div>Preliminary Offtake agreements</div>			

☑ = Completed tasks

Experienced Team

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



Tim Wall

Chair

- Former Senior Executive of multiple ASX 100 companies. Over 35 years of global Oil Refining & Fuel Supply experience.
- Global experience in Hydrogen, Ammonia and Chemical processing, Former President Global Manufacturing at IPL (ASX:IPL)
- Director & Principal of TJW Energy, Senior Advisor Oil, Gas, Energy dss+



Daniel Harris

Non - Executive Director

- Over 40 years of global vanadium experience
- Former Director of US Vanadium LLC (USA), Currently, Australian Vanadium Ltd (ASX: AVL), Flinders Mines (ASX:FMS)
- Former CEO positions with Atlantic (ASX: ATI); Atlas Iron (ASX: AGO); ex VP EVRAZ plc. - Vanadium Assets; ex MD Vametco Alloys



Gavin Loyden

Founder and Managing Director

- QEM Founder
- Identified & acquired QEM's Julia Creek resource
- Over 12 years experience in mining industry
- Responsible for QEM's project development along with renewables project development and sale

Corporate Snapshot

QEM Limited

Shares on Issue

190.8m

Share Price 12/05/25

\$0.060

Cash at 31/03/25

\$1.671m

Listed Options on issue

20.8m Exp 20/09/26 @ 0.14

0.055 AUD

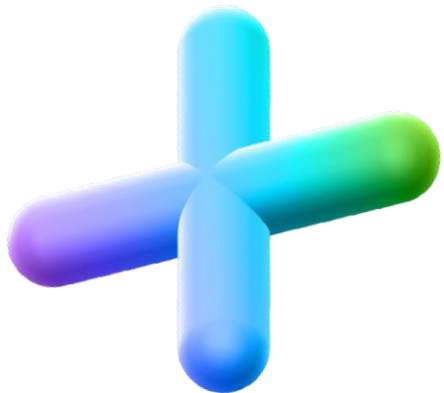
+0.00 (10.00%) ↑ year to date

12 May, 4:10 pm AEST • Disclaimer

1D 5D 1M 6M YTD 1Y 5Y Max



Open	0.041	Mkt cap	10.08M	52-wk high	0.16
High	0.055	P/E ratio	-	52-wk low	0.031
Low	0.041	Div yield	-		



\$10.8m

Market Cap (12/05/25)



Director Support

Management alignment with public shareholders

66.6%

Top 20 Shareholders

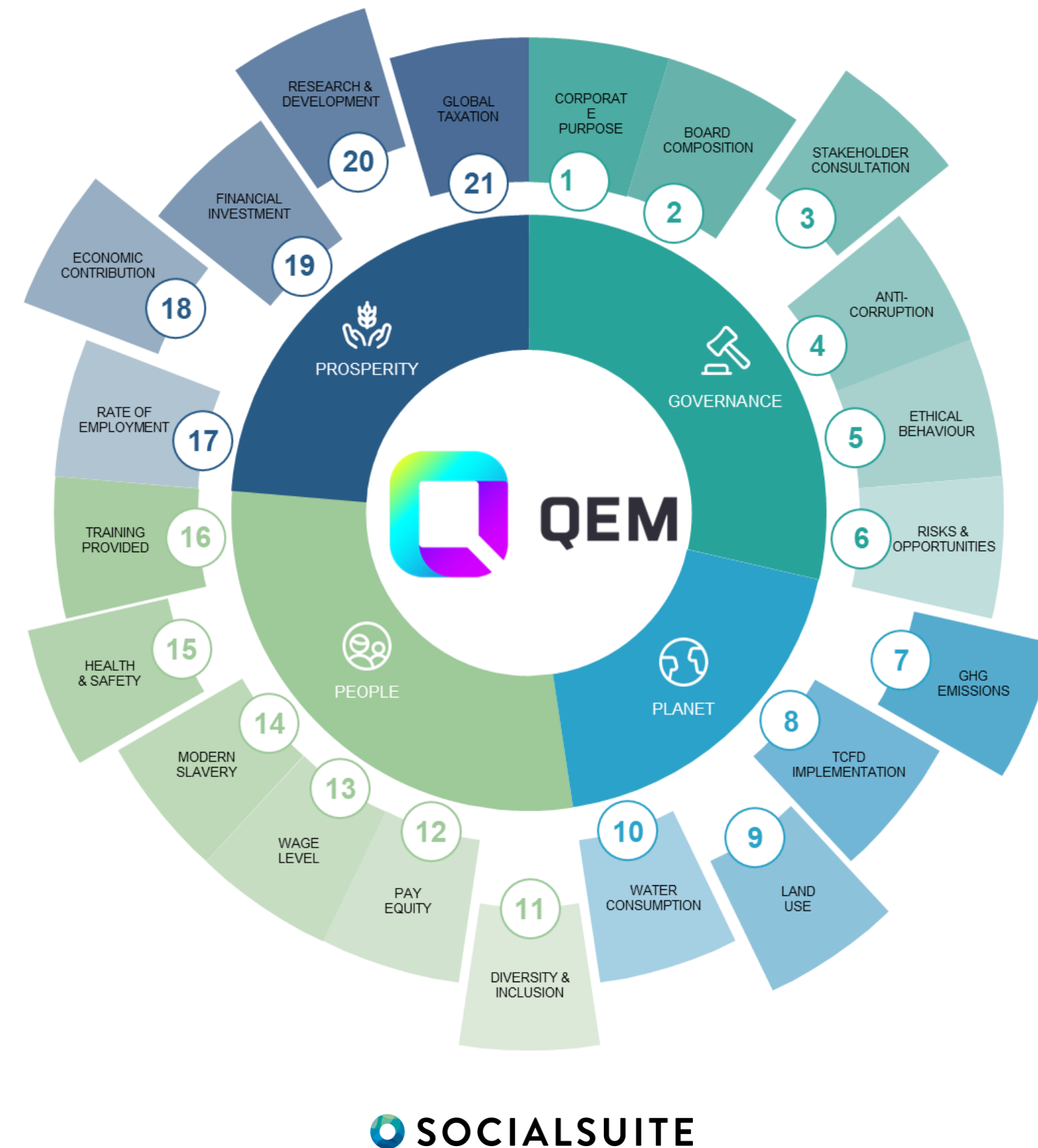
33.4%

QEM's ESG UPDATE

Highlights and achievements Q1 2025:

- 13th consecutive quarter that QEM is monitoring and disclosing the Company's ESG progress and initiatives via Socialsuite's ESG Go platform.
- QEM's investment in our Julia Creek community – sponsor of 2025 Dirt N Dust Festival & Saxby Roundup.
- QEM's water monitoring program in Julia Creek continues.
- QEM continues support for WISER (Women In Sustainable Energy & Resources) Inc. Bronze Partner & sponsored IWD Event.
- Completed inaugural stakeholder Materiality Assessment with updated ESG focus areas (see diagram opposite).
- Updated ESG website dashboard.

QEM's ESG Focus Areas*



*QEM has adopted the WEF Stakeholder Capitalism Metrics ESG Framework



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Appendix A:

Julia Creek Resource

Julia Creek Resource Overview 2024



JORC (2012) Vanadium & Other Metals

Resource Class	Strat Unit	Mass (Mt)	Average Thickness (m)	Insitu Density (gm/cc)	V ₂ O ₅ (Wt%)	Cu (ppm)	Mo (ppm)	Ni (ppm)	Zn (ppm)	Al (ppm)
Indicated	CQLA	167	3.17	2.40	0.24					
	CQLB	128	2.58	2.28	0.30					
	OSU	81	1.92	1.95	0.31					
	OSL	84	2.02	1.93	0.32					
Total Indicated		461		2.20	0.28					
Inferred	CQLA	697	2.46	2.42	0.23	293	137	120	801	2,943
	CQLB	826	3.13	2.23	0.39	448	226	199	1,165	5,555
	OSU	432	1.84	1.97	0.31	380	152	188	1,090	57,843
	OSL	451	1.95	1.95	0.29	346	133	170	1,040	58,502
Total Inferred		2,406		2.18	0.31					
Total		2,870		2.19	0.31					

Table 1: Summary of JORC Mineral Resource Estimate 9 February 2024

Note:

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.

- 1. 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 2024



SPE-PRMS Petroleum Resource - Petroleum In Place (PIIP) @ 90% recovery

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	903	2.5	6.8	53.1	55.0	254	228
	OSU	621	1.8	6.8	75.9	79.0	248	223
	OSL	609	1.9	6.8	70.7	76.7	224	202
3C Total / Ave		2134		6.8	66.6	70.2	726	654
2C Contingent	CQLB	107	2.1	2.8	50.9	52.3	33	29
	OSU	76	1.9	13.3	78.7	81.4	36	32
	OSL	81	2.0	11.8	74.8	76.7	36	33
2C Total / Ave		264		9.3	68.1	70.1	105	94
1C Contingent	CQLB	7	1.9	2.8	49.0	49.6	1.9	1.8
	OSU	5	1.9	13.3	77.2	78.7	2.5	2.2
	OSL	6	2.1	11.8	74.6	76.2	2.6	2.3
1C Total / Ave		18		9.3	66.9	68.1	7.0	6.3
Total / Ave								726

Table 2: Summary of SPE-PRMS Oil Resource estimate 9 February 2024

- 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 1C and 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 1C, 2C and 3C volumes reported here are unrisksd.