

## **INVESTOR PRESENTATION**

Richmond Vanadium Technology Limited (ASX:**RVT**) is pleased to be presenting at the RIU Sydney Resources Round-Up at 08:45 EST on Wednesday, 10 May 2023.

A copy of the Investor Presentation for the conference is attached.

**This announcement has been authorised by the Board of Directors of RVT.**

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## About Richmond Vanadium Technology

Richmond Vanadium Technology Limited (**RVT**) is an Australian minerals company currently advancing its 100% owned Richmond – Julia Creek Vanadium Project (the Project) in North Queensland.

The 1.8Bt Richmond – Julia Creek Vanadium Project has a completed Pre-Feasibility Study demonstrating a technically viable and financially attractive development project. The Project has a completed process flowsheet using conventional techniques with a provisional patent application lodged with IP Australia covering the method for the concentration of vanadium.

RVT is completing a Bankable Feasibility Study and progressing approvals for the Project. Situated between the towns of Julia Creek and Richmond in Queensland, the Project is 500km west of Townsville and 400km east of Mt Isa along the Flinders Highway and Great Northern railway linked to Townsville Port, and close to existing infrastructure including gas pipeline and HV network line.

The Queensland Government declared the Richmond – Julia Creek Vanadium Project to be a Coordinated Project in May 2022, making it the first critical minerals project to be awarded this status.

The Company's Mineral Resource comprises three main prospects - Lilyvale, Manfred and Rothbury, across 5 tenements. Following resource definition drilling on the Lilyvale deposit in Q3 2019, RVT conducted a Mineral Resource update (compliant with the JORC 2012 code) and a maiden Ore Reserve<sup>1</sup>.

Richmond – Julia Creek Project Ore Reserve (Lilyvale Deposit)			
Category	Tonnage (MT)	Grade	Metal Content
		V <sub>2</sub> O <sub>5</sub> (%)	V <sub>2</sub> O <sub>5</sub> (MT)
Proved	0.0	0.00	0.00
Probable	459.2	0.49	2.25
<b>Total</b>	<b>459.2</b>	<b>0.49</b>	<b>2.25</b>

Note:

At cut-off grade (COG) of 0.3% V<sub>2</sub>O<sub>5</sub>

The Ore Reserve for the project is reported according to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, JORC Code (2012)

The Ore Reserve statement is based on information compiled by Dr Dawei Xu, MAusIMM

Richmond – Julia Creek Project Mineral Resource and Contained Metal (at 0.30% V <sub>2</sub> O <sub>5</sub> cut off)				
Deposit	Category	Tonnage (MT)	V <sub>2</sub> O <sub>5</sub> (%)	V <sub>2</sub> O <sub>5</sub> (MT)
Rothbury	Inferred	1,202	0.30	3.75
Lilyvale	Indicated	430	0.50	2.15
Lilyvale	Inferred	130	0.41	0.53
Manfred	Inferred	76	0.35	0.26
<b>Totals and Averages</b>		<b>1,838</b>	<b>0.36</b>	<b>6.65</b>

Note:

Reported in accordance with JORC Code (2012), at cut-off grade 0.3% V<sub>2</sub>O<sub>5</sub>.

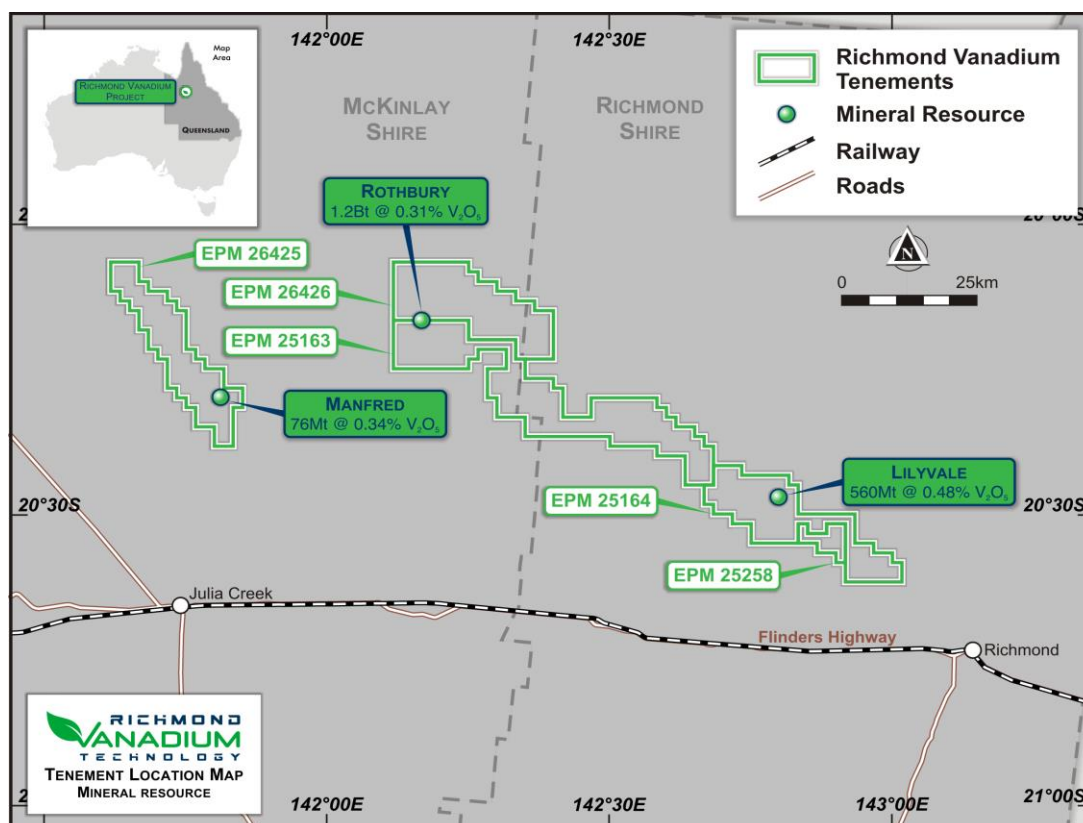
Metal contents calculated using grades with 3 decimal places.

Metal Content varies from Mineral Resource Update by HGS (IRC:ASX "Intermin announces world-class Vanadium Resource", 20 March 2018, due to arithmetic errors. The table above reflects the correct results for Manfred.

<sup>1</sup> Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022



## Richmond – Julia Creek Vanadium Project Tenement Location Map



### JORC Compliance Statement

The information in this announcement that relates to Minerals Resources and Ore Reserves referable to Richmond Vanadium Technology is extracted from the reports titled 'Prospectus' dated 14 October 2022 (which includes an Independent Technical Assessment Report at Schedule 1) and 'Supplementary Prospectus' dated 21 October 2022 released to the ASX on 9 December 2022 and available to view at [richmondvanadium.com.au](http://richmondvanadium.com.au) and for which Competent Persons' consents were obtained (together, the **Original Reports**).

Richmond Vanadium Technology confirms that it is not aware of any new information or data that materially affects the information included in the Original Reports and that all material assumptions and technical parameters underpinning the Mineral Resources and Ore reserves estimates in the Original Reports continue to apply and have not materially changed.

Richmond Vanadium Technology confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the Original Reports and that each Competent Person's consent remains in place for subsequent releases by Richmond Vanadium Technology of the same information in the same form and context, until the consent is withdrawn or replaced by a subsequent report and accompanying consent.



# POWERING THE FUTURE



ASX : RVT

RIU SYDNEY RESOURCES ROUND-UP



MAY 2023

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## COMPETENT PERSON STATEMENT

Where the Company refers to the results of the Prefeasibility study, the Mineral Resource Estimate and the Ore Reserve Estimate as outlined in this presentation and as disclosed in the Independent Technical Assessment Report in the Company's Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 and released to the ASX on 9 December 2022, it confirms that it is not aware of any new information or data that materially affects the information included in that Report and that all material assumptions, including the forecast financial information, and technical parameters continue to apply and have not materially changed.

Information on historical exploration results and Mineral Resources and Ore Reserves presented in this presentation, together with JORC Table 1 information, is contained in the Company's Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 and released to the ASX on 9 December 2022.



# BOARD OF DIRECTORS

## JON PRICE

### NON-EXECUTIVE DIRECTOR

Jon has over 30 years' experience in Australia and overseas across all aspects of the industry including exploration, development, construction and mining operations in the gold and advanced minerals sectors. Jon graduated as a metallurgist and holds a Masters in Mineral Economics from the Western Australian School of Mines. He then worked in various gold and advanced mineral operations including general manager of the Paddington gold and St Ives gold operations in the Western Australian goldfields.

More recently, Jon was the founding Managing Director of Phoenix Gold Limited which was acquired by Evolution Mining Limited (ASX:EVN).

Jon is currently a director Horizon Minerals Limited (ASX:HRZ) and a former director of Kingwest Resources Limited (ASX:KWR).

He is a member of the AusIMM.

## DR SHUANG (SHAUN) REN

### MANAGING DIRECTOR

Shaun completed his PhD in Economic Geology at the Australian National University and has over 35 years industrial experience in exploration, project assessment and feasibility studies. He has worked for a list of international mining companies including Rio Tinto, BHP and AngloGold-Ashanti in senior technical and management positions. Since 2016, Shaun has focussed on the Richmond Vanadium Project leading the team to successfully complete the Pre-Feasibility Study.

He is a member of the AusIMM.

## BRENDON GRYLLS

### INDEPENDENT NON-EXECUTIVE CHAIR

Brendon brings extensive relationships and networks at all levels of business and government.

After 16 years as a state MP and senior cabinet minister in Western Australia his Grylls Group business has grown to include strategic consulting work within the iron ore and gold industry, civil contracting, agriculture, First Nations partnership, aviation and innovative research into carbon abatement and developing new carbon offset projects.



# CORPORATE OVERVIEW

**RVT**

ASX Code

**\$23.4m**

Cash  
(as at 31/12/2022)

**\$86.51m**

Market Cap  
(as at 3/5/2023)

**221.8m**

Shares  
on Issue

**13.1m**

Options  
on Issue<sup>1</sup>

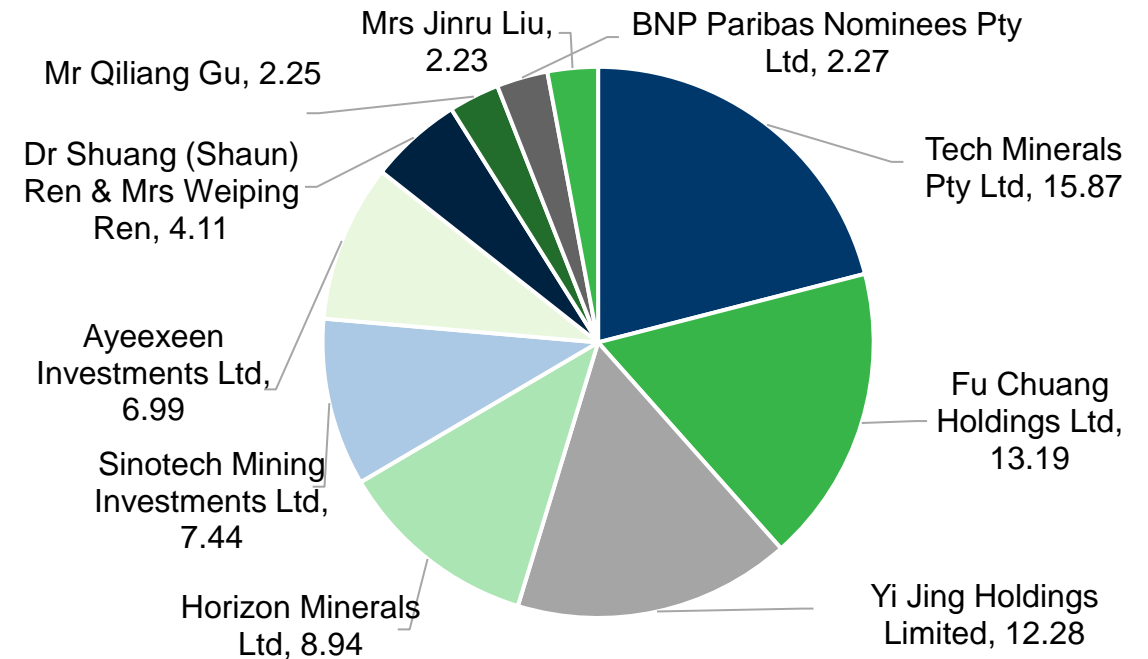
**2.3m**

Performance  
Rights<sup>2</sup>

## Board and Management

Brendon Grylls	Independent Non-Executive Chair
Shuang (Shaun) Ren	Managing Director
Jon Price	Non-Executive Director
Joanne Day	Administration Manager & Company Secretary
Peter Hedley	Project Director (BFS)
Lingli (Lily) Zhao	Chief Project Engineer
Warwick Nordin	Chief Resource Geologist

## Top 10 Shareholders



<sup>1</sup> Includes 6.5m director options and 6.65m Lead Manager options, all of which are escrowed for 2 years to 13 December 2024

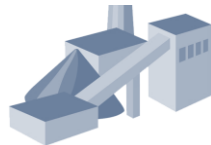
<sup>2</sup> Includes 1.8m director performance rights which are escrowed for 2 years to 13 December 2024

# INVESTMENT HIGHLIGHTS



## World Class Project

One of the largest undeveloped oxide vanadium resources in the world capable of supporting a vanadium operation for +100 years at current throughput rates<sup>1</sup>



## Tested metallurgy with proven technology

Proven metallurgical solution via conventional processing resulting in concentrate grades of 1.82%  $V_2O_5$ <sup>1</sup>

Completed process flowsheet, provisional patent application lodged



## Located in Queensland with access to infrastructure and government support

Close to existing infrastructure including gas pipeline, HV network line, major highway and railway linked to Townsville Port



## PFS delivers compelling financial returns

Refining recovery at 86.1% produces average production of 12,700t  $V_2O_5$  pa<sup>1</sup>  
At US\$9.60/lb  $V_2O_5$ , project generates NPV10 of A\$613M with IRR of 38% and payback of 3.2 years<sup>1</sup>



## Promising long-term outlook for Vanadium

Vanadium poised to play a pivotal role in commercialisation of renewable energy

Vanadium consumption for VRFBs is forecast to grow at an average 20.7% a year from 2020 - 2029<sup>2</sup>



## Lower carbon footprint compared to titanomagnetite projects

Mineralisation located at average depth of 2m to 25m below surface in soft marine sediment - no drilling, blasting, grinding or roasting required<sup>1</sup>



## Critical Mineral – attracts funding

Queensland Govt constructing a critical minerals facility to process vanadium, and building a 1,100km high voltage powerline through North West Minerals Province



## Co-ordinated Project Status Awarded

The only critical minerals project to be awarded Coordinated Project status by the Queensland Government

<sup>1</sup> Refer RVT Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

<sup>2</sup> Outlook for selected critical minerals in Australia 2021 Report, Dept of Industry, Science, Energy & Resources, Australian Government





# ENVIRONMENTAL, SOCIAL & GOVERNANCE (ESG)

**FRAMEWORK TO MEASURE AND REPORT ESG PERFORMANCE  
CURRENTLY UNDER DEVELOPMENT – FIRST REPORT EXPECTED Q4 2023**

## ENVIRONMENT

**We support the transition to a lower carbon future and are committed to sustainable development of our resources**

- Final EIS Terms of Reference released March 2023
- Epic Environmental commissioned to deliver Environmental Impact Statement (EIS) by Q4 2024
- Preliminary Environmental Assessment indicated no major environmental constraints to preclude project from proceeding
- Wet and dry season flora and fauna surveys conducted
- Project to be assessed under bilateral agreement between Queensland and Commonwealth governments providing pathway for approvals



## SOCIAL

**We serve as a catalyst for local economic development in Queensland through transparent and respectful engagement**

- Use of local business, civil, accommodation, services and meals



## GOVERNANCE

**We value accountability, transparency, fairness and responsibility for the best interests of all stakeholders**

- Best practice standards and corporate governance principles integrated
- First critical minerals project declared a Coordinated Project



# WHY VANADIUM

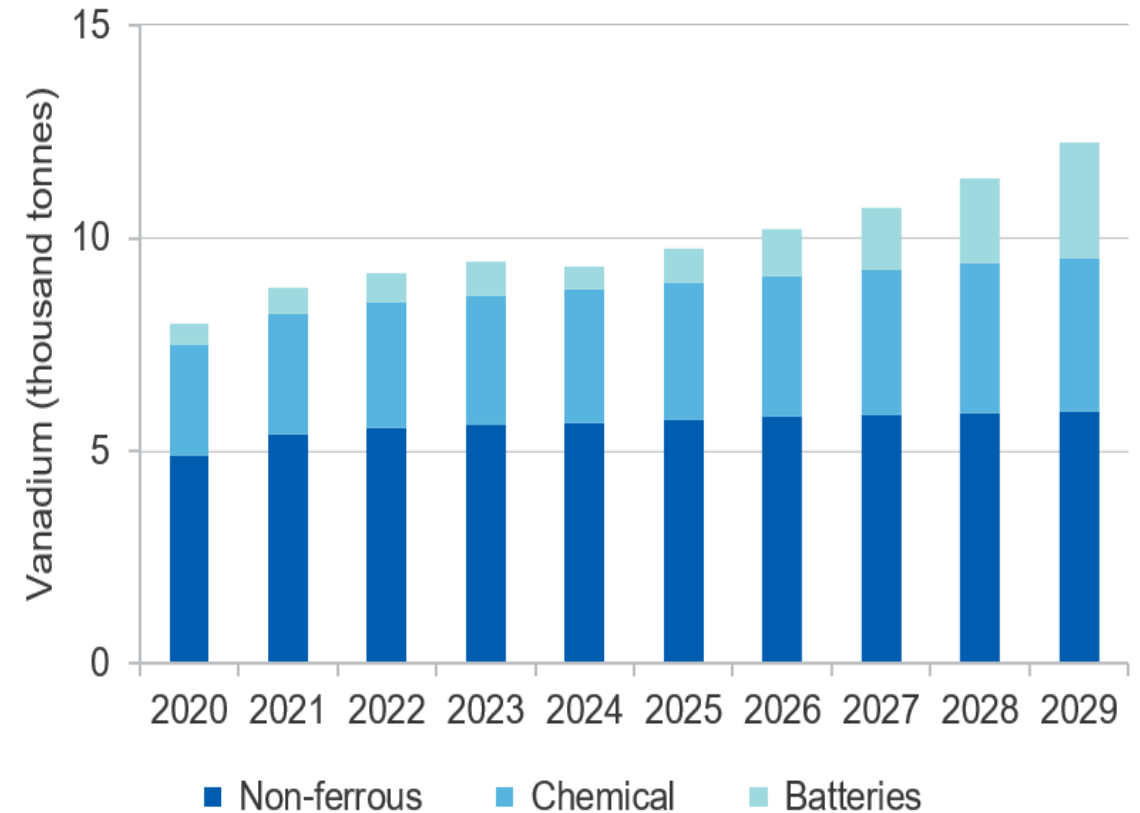
## Critical Mineral

- Listed by the Australian and US Governments as “Critical Mineral”
- China, Russia and South Africa account for almost all worldwide production
- Australian resources 3rd largest in world, accounting for 18% of economic resources but current production levels are negligible<sup>1</sup>

## Demand / Supply

- Majority of vanadium produced as by-product of magnetite or uranium processing - limited supply of battery material
- >90% of global vanadium supply consumed by steel mills<sup>1</sup>
- Promising long-term potential use in vanadium redox flow batteries (VRFBs) for grid-scale electricity applications
- Consumption for batteries forecast to grow on average 20.7% a year over 2020-2029<sup>1</sup>

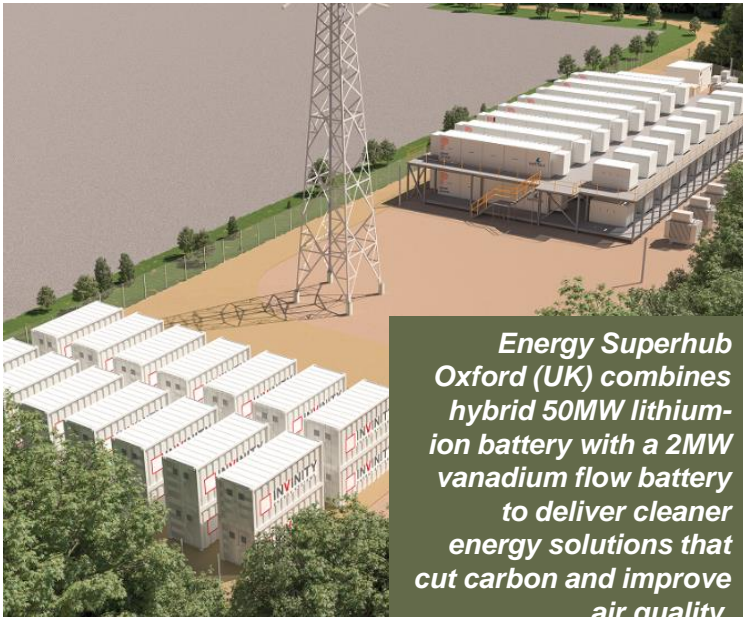
Projected vanadium consumption by end-use (excluding steel)<sup>1</sup>



# VANADIUM REDOX FLOW BATTERIES (VRFBs)



*China builds world's largest lithium-free battery - an 800 MWh vanadium redox flow battery.*



*Energy Superhub Oxford (UK) combines hybrid 50MW lithium-ion battery with a 2MW vanadium flow battery to deliver cleaner energy solutions that cut carbon and improve air quality.*

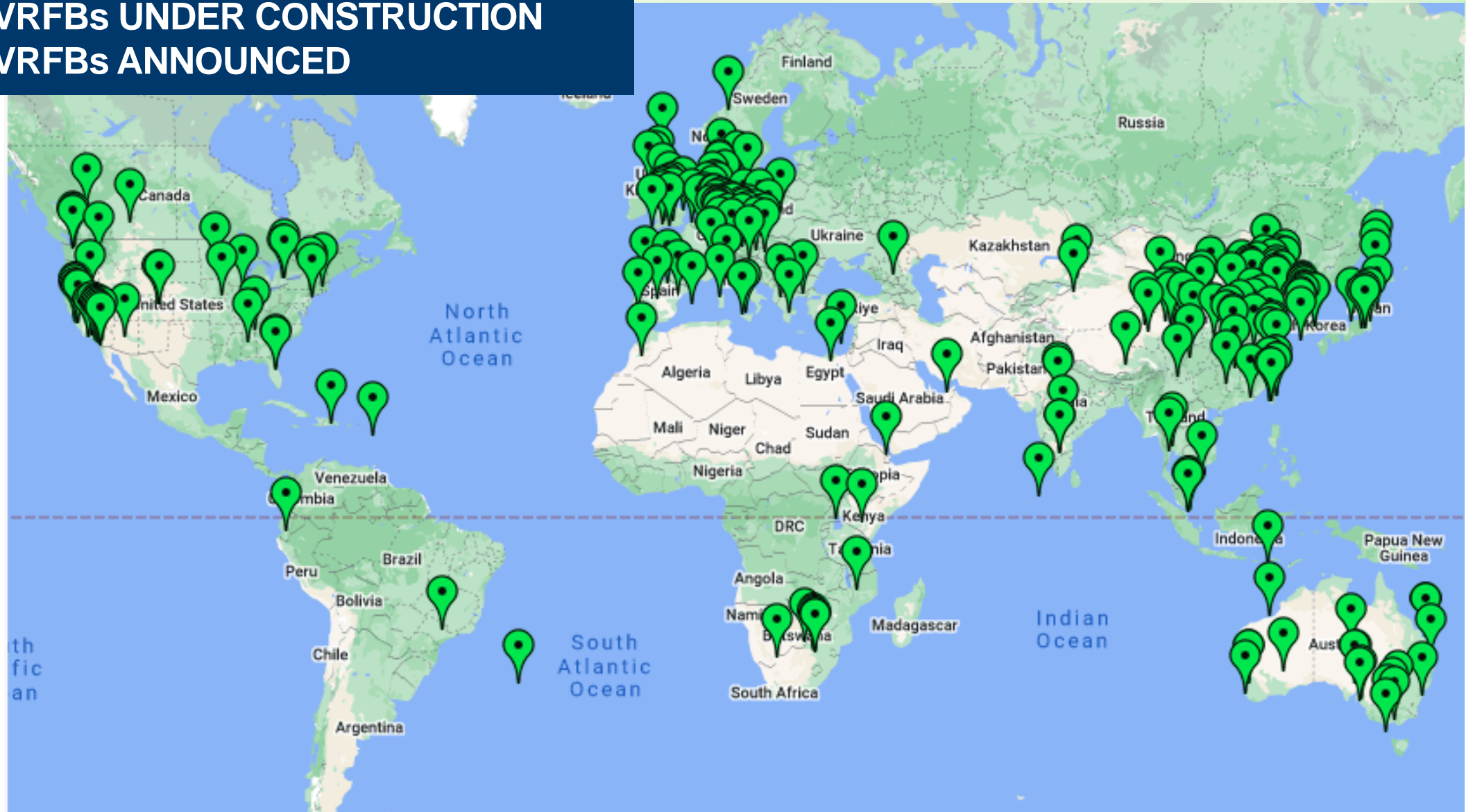
- Adoptable energy storage system ideal for residential and commercial applications
- Megawatt capacities for grid and standalone storage systems for solar and wind farm installation
- Non-flammable compared with lithium batteries with longer service life of around 20 years – compared with 10 years for lithium batteries – and can discharge 100% of stored energy<sup>1</sup>
- VRFBs and lithium batteries can be complementary technologies. Lithium batteries typically discharge over 4-5 hours, whereas the discharge profile for VRFBs is often longer<sup>1</sup>
- Electricity from renewable sources could provide 65% of world's electricity supply by 2030, potentially decarbonising 90% of power sector by 2050<sup>2</sup>

*Ultra Power Systems has stand-alone power system at Second Fortune Gold Mine and will deploy to IGO's Silver Knight camp.*

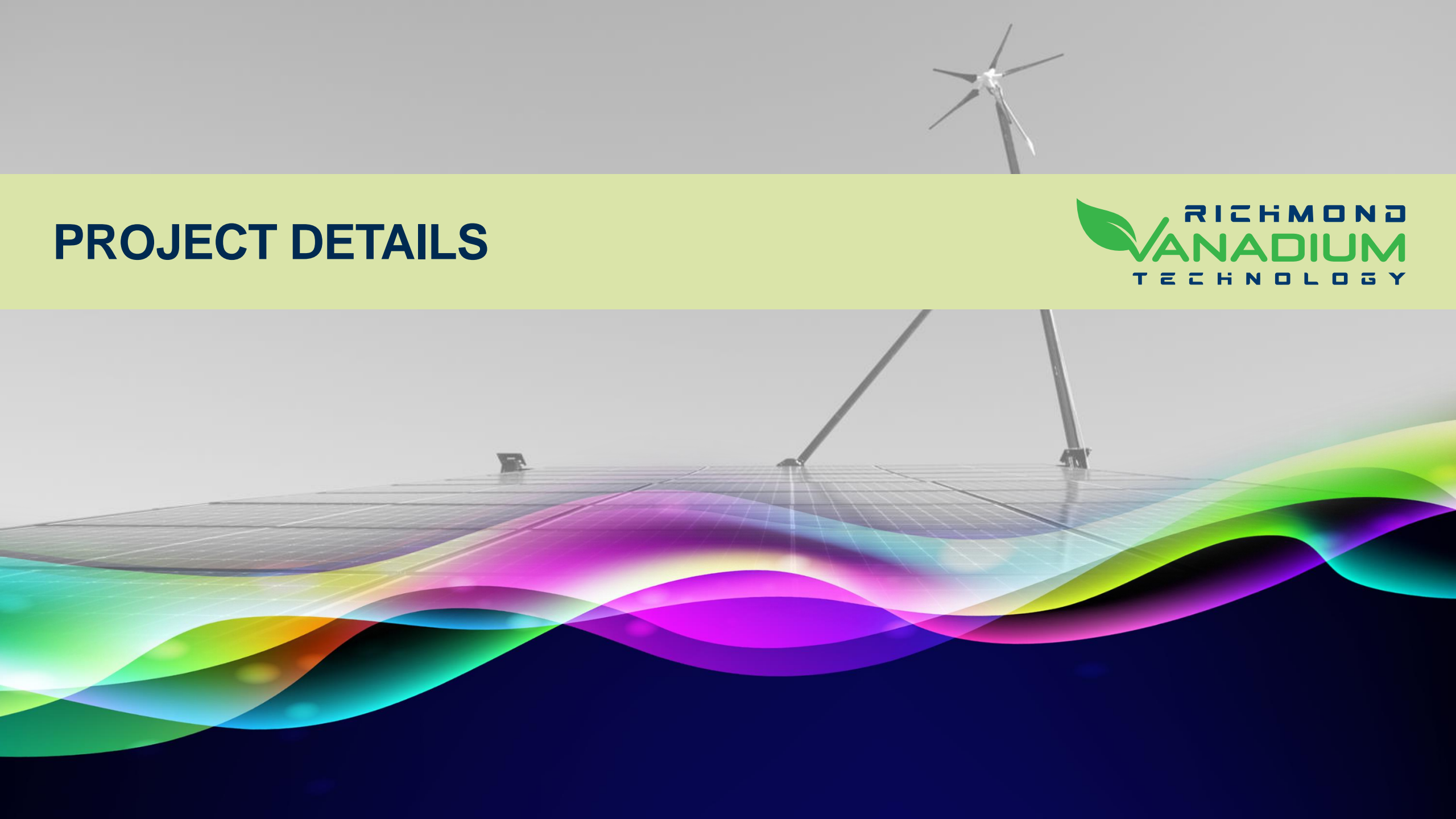


*Plans unveiled for Australia's biggest vanadium flow battery and gigawatt factory. North Harbour Clean Energy backed by Aware Super and CellCube will build a 4MW, 16MWH VRFB for an industrial customer.*

**200 VRFBs IN OPERATION**  
**42 VRFBs UNDER CONSTRUCTION**  
**49 VRFBs ANNOUNCED**



# PROJECT DETAILS



# RICHMOND VANADIUM PROJECT OVERVIEW

## Location

- Located in mining friendly jurisdiction of North Queensland
- Close to existing infrastructure including gas pipeline, proposed Copper String 2.0 HV network line, Flinders Highway and Great Northern railway link to Townsville Port
- Three main prospects – Lilyvale, Manfred and Rothbury covering ~1,400 km

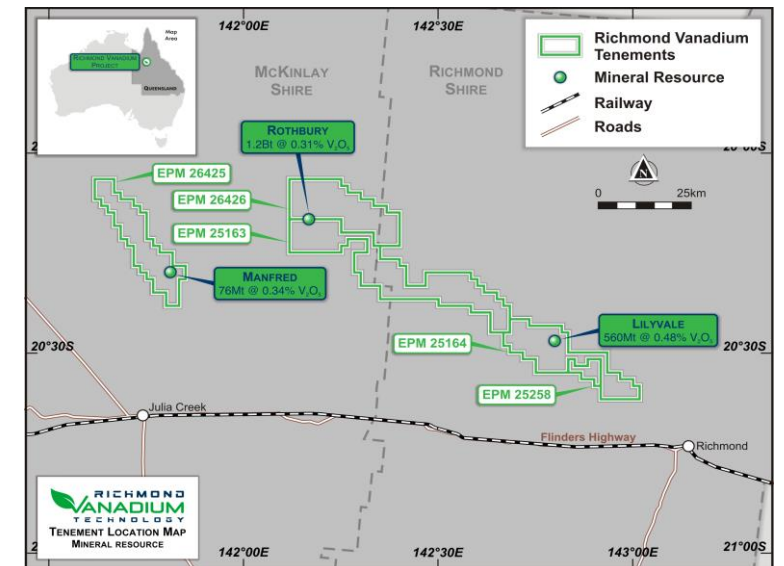
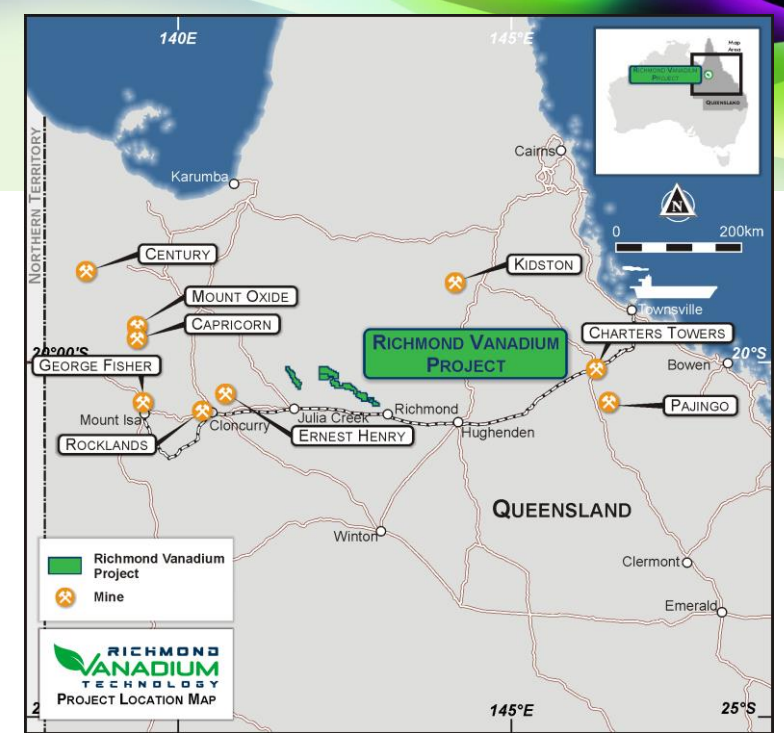
## Mineral Resource & Ore Reserve

- Global Mineral Resource estimate of **1.8Bt @ 0.36% for 6.65Mt V<sub>2</sub>O<sub>5</sub> at 0.30% cut-off<sup>1</sup>**
- Maiden Ore Reserve for Lilyvale Deposit of **459.2Mt @ 0.49% for 2.25Mt V<sub>2</sub>O<sub>5</sub><sup>1</sup>**

## Geology & Mineralisation

- One of the largest non-titanomagnetite vanadium deposits of its kind (soft marine sediments)
- Vanadium mineralisation at an average depth of between 2m and 25m below surface
- Soft sediment means no drilling, blasting, grinding (milling) or roasting - significantly reducing power requirements, capex and operating costs

<sup>1</sup> Refer Prospectus dated 14 October 2022, Section 4 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022.



# A SYSTEMATIC, STEPPED APPROACH<sup>1,2</sup>

- 2,089 holes for 285,948m of resource drilling completed
- Significant metallurgical testwork undertaken
- JORC (2004) Mineral Resource of 3.3 billion tonnes @ 0.40% V<sub>2</sub>O<sub>5</sub>
- RVT earns 25% stake in project
- 57 holes for 1,139m of drilling completed
- Updated JORC (2012) Mineral Resource (Inferred) completed
- Partnered with specialist research institutes to determine concentration process
- Pre-concentration and downstream processing testwork undertaken
- Tests resulted in concentrate grades averaging 1.6% V<sub>2</sub>O<sub>5</sub> with 73% recovery
- 75 acre parcel of land purchased in Richmond
- Updated JORC (2012) Mineral Resource of 1.8 billion tonnes @ 0.36% V<sub>2</sub>O<sub>5</sub>
- Over 76% of Lilyvale deposit in Indicated Category
- Maiden Ore Reserve of 459.2Mt @ 0.49% V<sub>2</sub>O<sub>5</sub>
- Preliminary Environmental Assessment undertaken
- PFS completed - demonstrated financially viable project
- Awarded Coordinated Project Status
- Project restructured to 100% RVT ownership
- New Board appointed
- Board resolved to progress project to BFS
- Binding term sheet signed with Australia's first V battery maker – Ultra Power Systems
- Provision patent for concentration of V ore
- Richmond community forum held
- RVT commenced trading on ASX, raising \$25m before costs



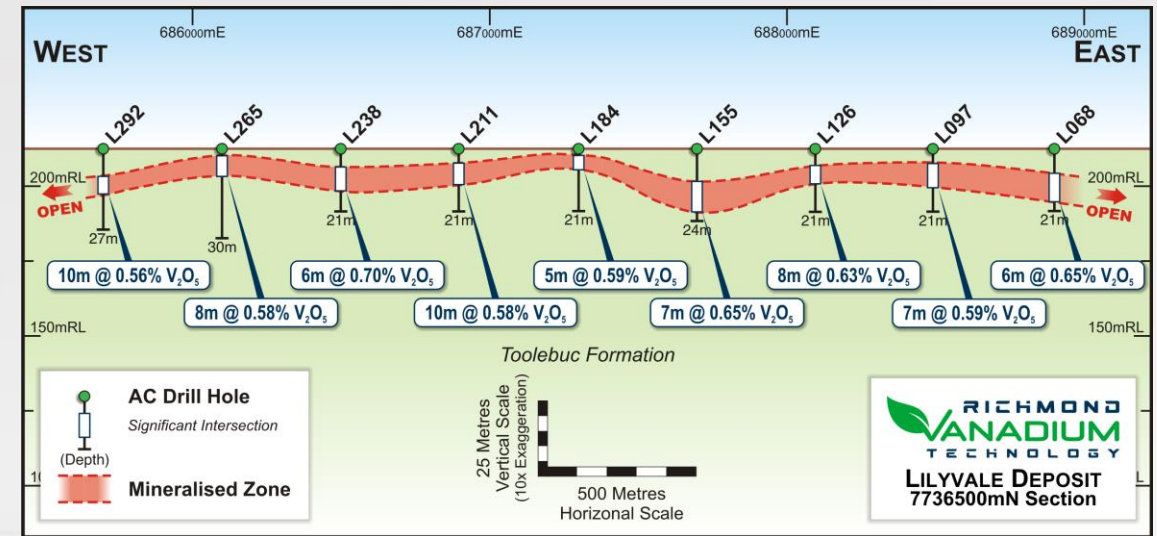
- JV with Horizon Minerals to earn in up to 75% of project over 3 years
- DNRME Project Status approved (5 tenements now "Richmond - Julia Creek V project")
- 1.2 tonnes of V sample sent to specialist research institutes for metallurgical testwork
- 333 holes for 7,817m of drilling completed
- Geological block model developed
- Further 3.6t of V sample sent to lab for optimisation testwork
- Simulated production tests using 50kg sample
- Preliminary process flowsheet developed
- Preliminary pit design completed
- Richmond community forum held
- RVT earns 75% of project
- PFS updated (increase in V price)
- RVT progressed IPO and ASX listing
- \$3m investment in Australia's first V battery maker, Ultra Power Systems
- Multi-user water solution assessment
- BFS Project Director appointed
- Epic Environmental appointed to deliver EIS and associated approvals
- Final EIS TOR's released
- Metallurgical sample from Stage 1 pit taken for independent confirmation testing of patented process flowsheet
- ESG framework under assessment

<sup>1</sup> Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

<sup>2</sup> Refer RVT ASX announcements; Terms of Reference for EIS released dated 11 Apr 2023, Epic appointed to deliver EIS dated 9 Mar 2023, Appointment of BFS Project Director dated 3 Mar 2023, RVT signs Subscription Agreement with Ultra Power Systems dated 28 Feb 2023, Draft Terms of Reference for EIS dated 19 Dec 2023, RVT commences trading on the ASX dated 13 Dec 2022

# LILYVALE DEPOSIT

- 45km north-west of the Richmond township in close proximity to the Flinders Highway and Great Northern railway
- Mineral Resource of 560Mt @ 0.48%  $V_2O_5$ <sup>1</sup>
- Mineralisation associated with the Toolebuc geological formation at an average depth of 2 - 25m below surface
- Starter pit to focus on upper mineralised zone:
  - highest grade based on drilling to date (0.52%  $V_2O_5$ )<sup>1</sup>
  - free dig open cut mining with very low strip ratio (0.92)<sup>1</sup>
  - amenable to low cost removal of coarse fraction to produce high grade feedstock of 1.82%  $V_2O_5$ <sup>1</sup>
  - waste/tailings is non-toxic



<sup>1</sup> Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022



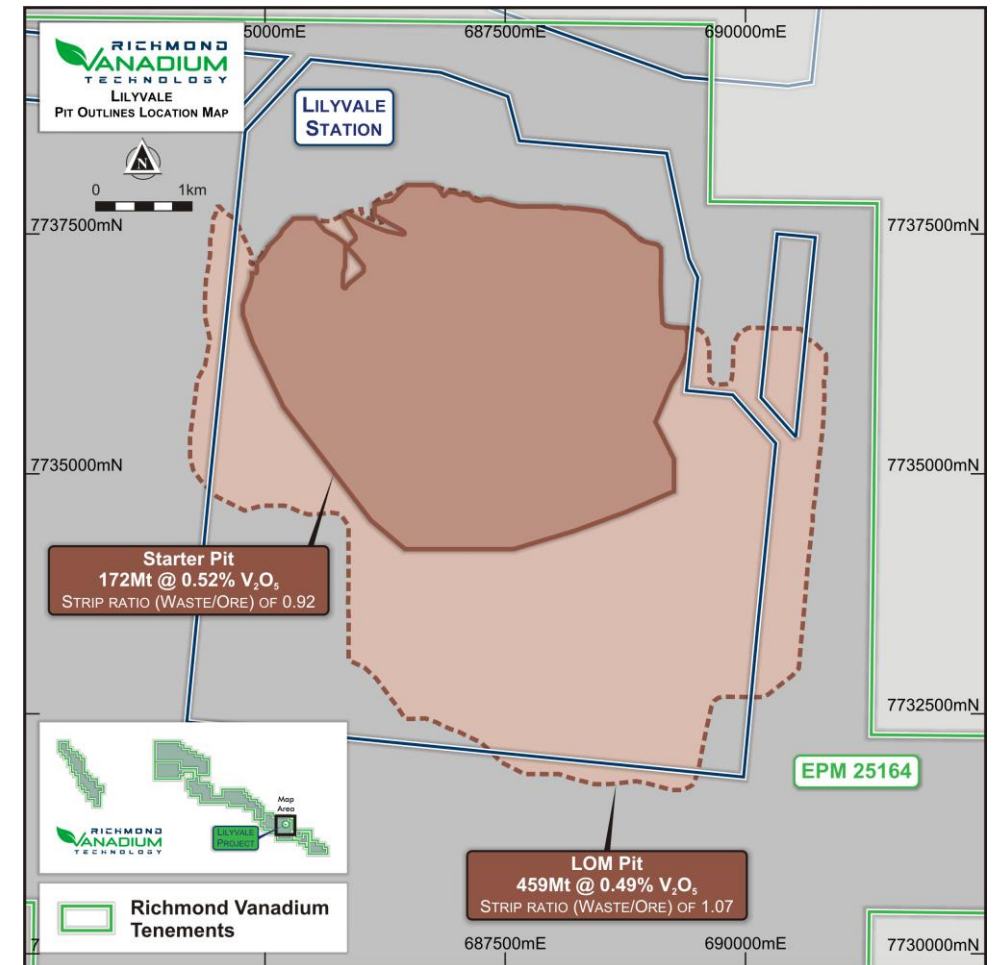
# LILYVALE DEPOSIT ORE RESERVE<sup>1</sup>

- Maiden open pit Ore Reserve at the Lilyvale Deposit of:  
**459.2Mt @ 0.49% for 2.25Mt V<sub>2</sub>O<sub>5</sub>**
- Two pits designed over Lilyvale Deposit Indicated Mineral Resource:
  - LOM (Life of Mine) pit hosting Probable Reserves; and
  - Starter pit focussed on the higher grade part of LOM pit
- Both pits host Probable Reserves designed over Indicated Resources according to the 2012 JORC code
- Starter pit designed to achieve a lower strip ratio (0.92) and higher ore grade (0.52% V<sub>2</sub>O<sub>5</sub>) in early pit development periods

## Ore Reserve – Lilyvale Deposit at a cut-off grade 0.30%

Pit	Total Rock (MT)	Probable Ore (MT)	Strip Ratio (W/O)	Average V <sub>2</sub> O <sub>5</sub> grade for Probable Ore (%)
LOM	951.7	459.2	1.07	0.49
Starter	331.7	172.5	0.92	0.52

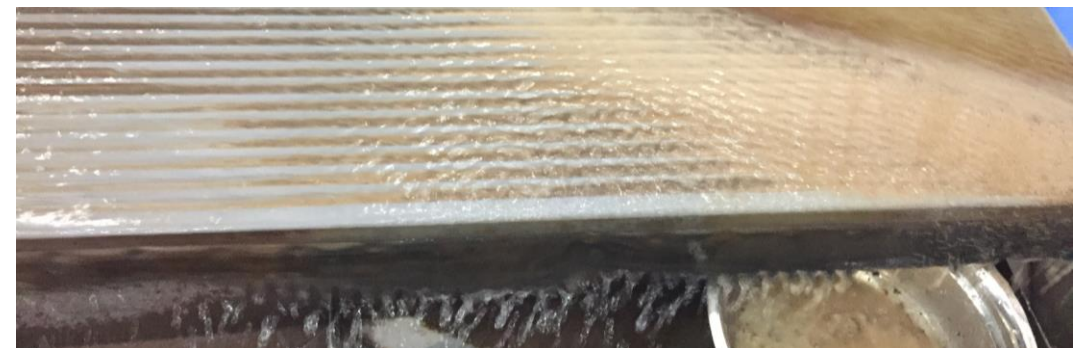
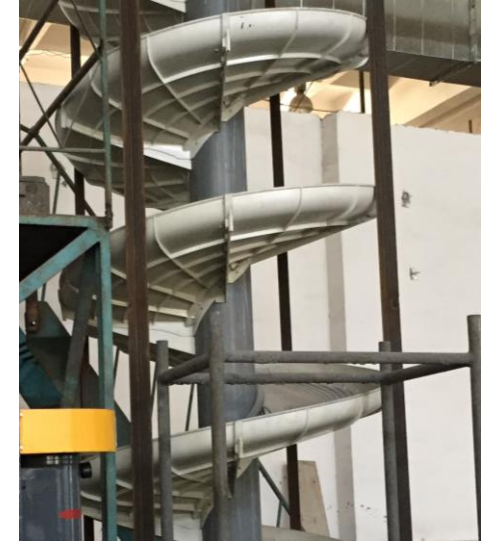
Refer to Appendix “Mineral Resource & Ore Reserve Estimates” attached to this presentation



<sup>1</sup> Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

# PROVEN METALLURGICAL RESULTS <sup>1</sup>

- Project is a large, low grade, high calcite content resource
- Process flowsheet uses proven conventional technology
- 1.2 tonnes of vanadium samples sent to two research institutes
- Testwork programs jointly developed, all testwork supervised by RVT
- Two-step process determined:
  - 1) Ore upgraded from a mined grade of 0.49% to a shipping grade of 1.82%  $V_2O_5$  concentrate
  - 2) Extraction via recovery plant to produce 98%  $V_2O_5$  flake for use in the energy storage and steel markets
- Concentrate produced reduced calcium carbonate grade significantly, enabling consideration of several downstream processing options
- Testwork enabled flowsheet design to be completed during PFS
- Provisional patent application lodged with IP Australia relating to the method for the concentration of vanadium

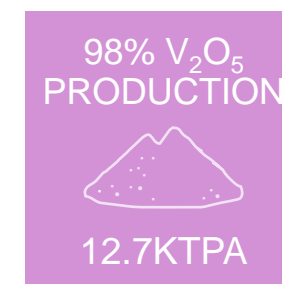
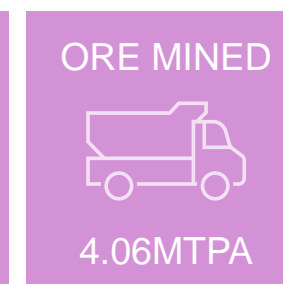
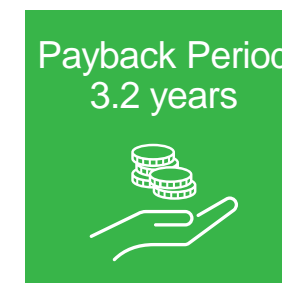
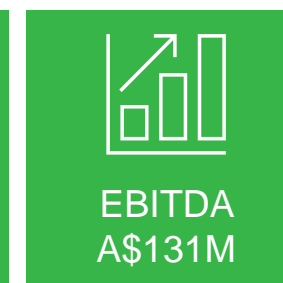
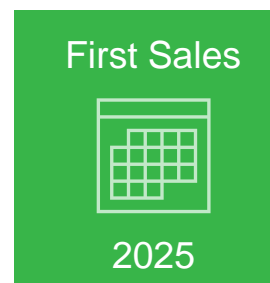
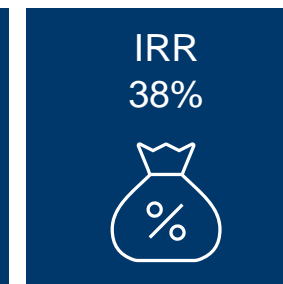


<sup>1</sup> Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022



# PRE-FEASIBILITY STUDY COMPLETED<sup>1</sup>

- Project **presents opportunity to develop** and produce vanadium concentrate at 1.82%
- Mining and concentration options known while logistics and available infrastructure provide **a positive economic solution**
- Modest capital costs of **A\$242.2m** (US\$176.8m) to concentrate in Australia and recover overseas, and operating cash costs **of A\$8.66/lb** (US\$6.32/lb<sup>2</sup>) of 98% V<sub>2</sub>O<sub>5</sub> flake<sup>2</sup>
- Independent Technical Assessment Report noted costs more susceptible to changes in flowsheet selection, design and mechanical equipment sizing as engineering design advances, than changes in equipment pricing
- At US\$9.60/lb (study price) project generates **NPV<sub>10%</sub> of A\$613.0M (US\$447.5M) with IRR of 38%** and payback of 3.2 years, concentrating in Australia and refining offshore
- BFS will consider preferred onshore recovery plant option due to a changed government landscape, and look at further optimising process to reduce capital costs



## QUEENSLAND GOVT COMMITTED TO ACCELERATE THE GROWTH OF THE CRITICAL MINERALS INDUSTRY

Building a \$75 million critical mineral demonstration facility in Townsville

Funding the \$5 billion Copperstring 2.0 project, a 1,100 km, high voltage transmission line connecting the North West Minerals Province to the National Electricity Market

<sup>1</sup> Refer Prospectus dated 14 October 2022, at section 4 and also ITAR at Schedule 1 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

<sup>2</sup> AUD-USD FX rate (0.73)

# BANKABLE FEASIBILITY STUDY COMMENCED

## STATUS

Draft Terms of Reference for Environmental Impact Statement (EIS) issued & responses received	Completed
Expressions of Interest for role of BFS lead contractor issued & responses received	Completed
Appointment of BFS Project Director	Completed
Final Terms of Reference for Environmental Impact Statement (EIS) issued	Completed
EIS and associated approvals process including appointment of subcontractors	Commenced
BFS lead contractor appointment	Underway



**Peter Hedley**  
appointed as  
**BFS Project Director**

Qualified Chemical Engineer and highly experienced Project and Feasibility Study Manager, with over 40 years of experience in projects, study management, engineering and construction in the chemicals and minerals processing industries.

Peter was study manager for Australian Vanadium's (ASX: AVL) greenfields mine and processing plant to produce high purity vanadium pentoxide.

# COMPARISON OF ESTIMATED PRODUCTION COST BREAKDOWN

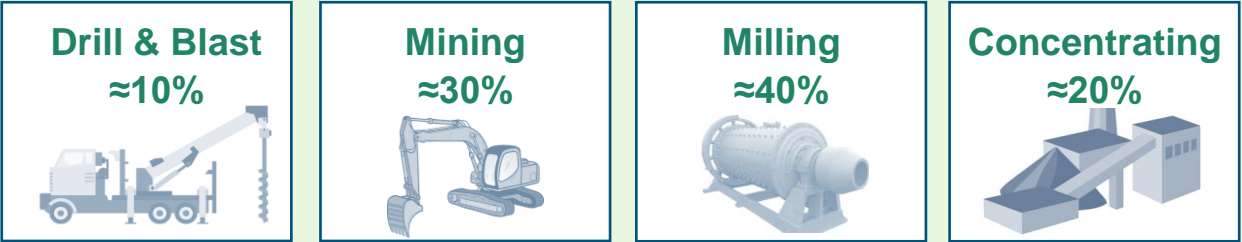
## Soft Oxide vs Titanomagnetite Vanadium Deposits

### Concentrating

### Recovery

*to minimum 98% to meet vanadium flake standard*

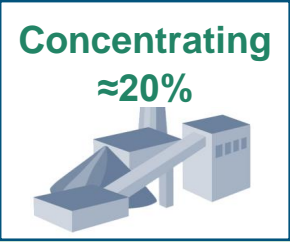
#### TITANOMAGNETITE VANADIUM DEPOSIT



**1.4 – 1.48%**  
**vanadium concentrate**

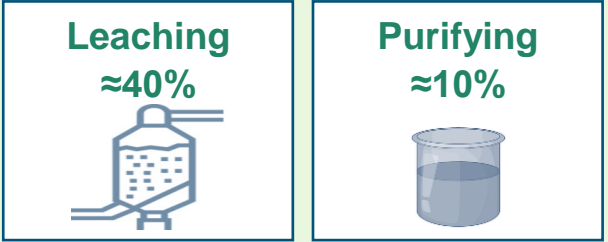


#### SOFT OXIDE VANADIUM DEPOSIT



**1.83%**  
**vanadium concentrate<sup>1</sup>**

No Roasting

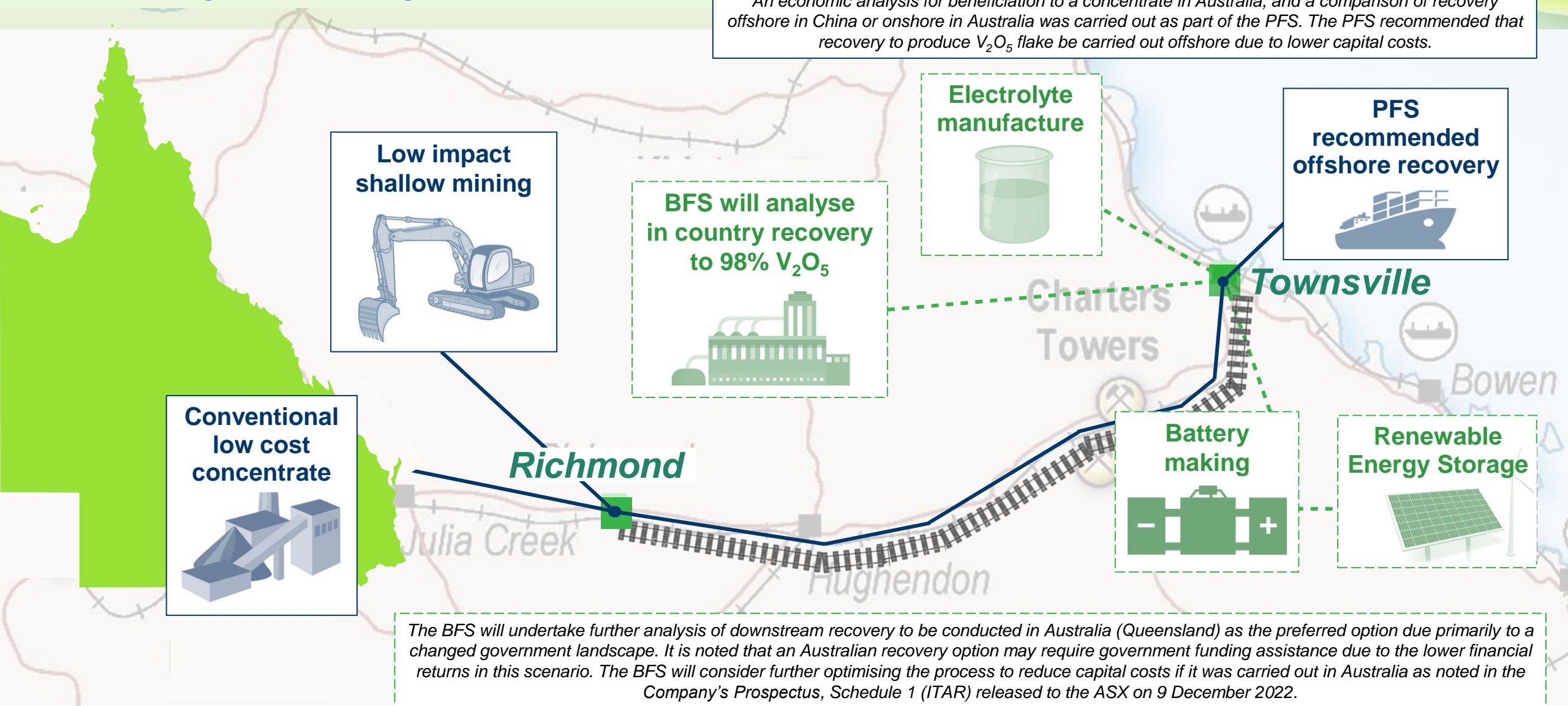


**98.6%**  
**vanadium flake<sup>1</sup>**

<sup>1</sup> Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

# MINE TO METAL TO BATTERY

An economic analysis for beneficiation to a concentrate in Australia, and a comparison of recovery offshore in China or onshore in Australia was carried out as part of the PFS. The PFS recommended that recovery to produce  $V_2O_5$  flake be carried out offshore due to lower capital costs.



**Low impact shallow mining**

**Conventional low cost concentrate**

**BFS will analyse in country recovery to 98%  $V_2O_5$**

**Electrolyte manufacture**

**PFS recommended offshore recovery**

**Battery making**

**Renewable Energy Storage**

The BFS will undertake further analysis of downstream recovery to be conducted in Australia (Queensland) as the preferred option due primarily to a changed government landscape. It is noted that an Australian recovery option may require government funding assistance due to the lower financial returns in this scenario. The BFS will consider further optimising the process to reduce capital costs if it was carried out in Australia as noted in the Company's Prospectus, Schedule 1 (ITAR) released to the ASX on 9 December 2022.

The process flow for electrolyte manufacture, battery making, and renewable energy storage is not a direct asset of the Company, however, it is part of the intended market to which the Company's product is to be supplied, including via investment into and arrangements with Ultra Power Systems Ltd (refer ASX announcement dated 28/02/2023 "RVT signs formal Subscription Agreement with Ultra Power Systems").

# INVESTMENT IN ULTRA POWER SYSTEMS (UPS)<sup>1</sup>

## RVT and UPS formed a joint alliance to grow vanadium redox flow battery manufacturing inclusive of an offtake arrangement

- Formal subscription agreement executed for RVT to invest \$3 million into UPS to acquire 10.94%
- UPS to become primary RVT offtake partner with the purchase of vanadium pentoxide flake from RVT – subject to availability and timeliness of delivery, quality and price
- RVT MD, Shaun Ren, appointed to the UPS board

Ultra provides RVT with a strategic partnership with an Australian battery manufacturer, as well as substantive off-take agreements in the future.

Ultra's initial markets, both in Australia and overseas, include off-grid applications within the mining sector (such as bore pumps, exploration camps, mining villages and ultimately full mine electrification), remote communities, community batteries, residential microgrids, and the specific charging demands of the electric vehicle sector.

**UPS = AUSTRALIA'S FIRST VANADIUM BATTERY MANUFACTURER**



# Project Impact

29% of Australia's electricity generation came from renewables, and 51% from coal in 2021<sup>1</sup>

Renewable energy has the potential to reduce energy costs, improve health (by reducing air pollution) and reduce greenhouse gas emissions<sup>2</sup>

Australia recorded a 31% growth in solar generation in 2021<sup>1</sup>

Increasing reliance on renewable energy requires large scale battery energy storage systems

~10,000 tonnes of vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) is required for each GWh of VRFB energy storage<sup>3</sup>

RVT to produce 12,701 tonnes vanadium pentoxide (V<sub>2</sub>O<sub>5</sub>) per annum<sup>4</sup>

**RVT annual production equivalent to energy storage of ~95,000 Tesla Power Walls<sup>5</sup>**

<sup>1</sup> www.energy.gov.au, Australian Energy Statistics by state and territory

<sup>2</sup> Australian Government, Your Home, Renewable Energy <https://www.yourhome.gov.au/energy/renewable-energy>

<sup>3</sup> Refer Largo Physical Vanadium Corp (TSXV:VAND), Presentation, February 2023

<sup>4</sup> Refer RVT Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

<sup>5</sup> Calculated using Tesla Powerwall 2 average usable energy of 13.5 kWh (Powerwall Datasheet Performance Specifications); RVT annual production of 12,701 tonnes equivalent to 1.27 GWh





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 **RICHMOND**  
**VANADIUM**  
TECHNOLOGY

# MINERAL RESOURCE AND ORE RESERVE ESTIMATES<sup>1</sup>

Richmond – Julia Creek Project Mineral Resource and Contained Metal (at 0.30% V <sub>2</sub> O <sub>5</sub> cut-off)				
Deposit	Category	Tonnage (MT)	V <sub>2</sub> O <sub>5</sub> (%)	V <sub>2</sub> O <sub>5</sub> (MT)
Rothbury	Inferred	1,202	0.30	3.75
Lilyvale	Indicated	430	0.50	2.15
Lilyvale	Inferred	130	0.41	0.53
Manfred	Inferred	76	0.35	0.26
<b>Totals and Averages</b>		<b>1,838</b>	<b>0.36</b>	<b>6.65</b>

Richmond – Julia Creek Project Ore Reserve (Lilyvale Deposit)			
Category	Tonnage (MT)	V <sub>2</sub> O <sub>5</sub> (%)	V <sub>2</sub> O <sub>5</sub> (MT)
Proved	0.00	0.00	0.00
Probable	459.2	0.49	2.25
<b>Total</b>	<b>459.2</b>	<b>0.49</b>	<b>2.25</b>

Note:

Reported in accordance with JORC Code (2012) at cut-off grade 0.3% V<sub>2</sub>O<sub>5</sub>

Metal content calculated using grades with 3 decimal places

Metal content varies from Mineral Resources Update by HGS (ASX:IRC “Intermin announces world –class Vanadium Resource”, dated 20 March 2018), due to arithmetic errors. The table above reflects the correct results for Manfred.

Metal content of molybdenum and nickel can be found in Table 5-1 of the ITAR (Refer Prospectus dated 14 October 2022 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022)

Note:

At cut-off grade (COG) of 0.3% V<sub>2</sub>O<sub>5</sub>

The Ore Reserve for the project is reported according to the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, JORC

The Ore Reserve statement is based on information compiled by Dr Dawei Xu, MAusIMM

# SUMMARY OF KEY PFS OUTCOMES<sup>1</sup>

Measure	PFS outcome US\$9.60/lb V <sub>2</sub> O <sub>5</sub> (Study Price)
<b>Life of Mine (LOM)</b>	
Total pit volume (Mt)	951.7
Stripping ratio (waste: ore)	1.07
Mined ore (Mt)	459.2
Ore Grade V <sub>2</sub> O <sub>5</sub> (%)	0.49



Measure	PFS outcome US\$9.60/lb V <sub>2</sub> O <sub>5</sub> (Study Price)	Sensitivity Analysis		
		PFS outcome at US\$7.60/lb V <sub>2</sub> O <sub>5</sub>	PFS outcome US\$8.60/lb V <sub>2</sub> O <sub>5</sub>	PFS outcome US\$10.60/lb V <sub>2</sub> O <sub>5</sub>
<b>PFS (Initial 25-year life)</b>	<b>(based on concentrating in Australia, refining offshore)</b>			
Mined ore (Mt)		101.5		
Ore Grade V <sub>2</sub> O <sub>5</sub> (%)		0.49		
Concentrate Produced V <sub>2</sub> O <sub>5</sub> (Mt)		19.75		
Concentrate Grade (%)		1.82		
Refining recovery average (%)		86.1		
V <sub>2</sub> O <sub>5</sub> 98% Flake Produced (kt)		317.5		
Capital costs (\$M)		A\$242.2		
Operating costs (\$/lb)		A\$8.66 (US\$6.32 <sup>2</sup> )		
NPV @ 10% (\$m) (post-tax)	A\$613	A\$139	A\$376	A\$850
Payback (years)	3.2	8.7	4.6	2.5
IRR	38%	17%	28%	48%

All material assumptions in the sensitivity analysis continue to apply and have not materially changed. The sensitivity analysis included in the ITAR (refer Prospectus dated 14 October 2022, ITAR at Schedule 1, Figure 10-1) shows that the project is most sensitive to the product price followed by the exchange rate. A 15% change in the concentrate product price results in a 31% - 41% change in NPV.

<sup>1</sup> Refer Prospectus dated 14 October 2022, at section 4 and also ITAR at Schedule 1 and Supplementary Prospectus dated 21 October 2022 released to ASX on 9 December 2022

<sup>2</sup> AUD-USD FX rate (0.73)

