



TECHNOLOGY
METALS AUSTRALIA LIMITED

TECHNOLOGY METALS FOR A CLEANER FUTURE

SPARK⁺ METALS & MINING DAY

MARCH 2022



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Competent Person's Statement

The information in this report that relates to Exploration Results are based on information compiled by Mr John McDougall. Mr McDougall is the Company's Exploration Manager and a member of the Australian Institute of Geoscientists. Mr McDougall has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this report and to the activity which they are undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves' ("**JORC Code**"). Mr McDougall consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mr Aaron Meakin. Mr Aaron Meakin is a Principal Consultant of CSA Global Pty Ltd and is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy. Mr Aaron Meakin has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as Competent Person as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves ("**JORC Code**"). Mr Aaron Meakin consent to the disclosure of the information in this announcement in the form and context in which it appears.

The information that relates to Ore Reserves is based on information compiled by Mr Daniel Grosso an employee of CSA Global Pty Ltd. Mr Grosso takes overall responsibility for the Report as Competent Person. Mr Grosso is a Member of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity he is undertaking, to qualify as Competent Person in terms of the JORC (2012 Edition). The Competent Person, Daniel Grosso has reviewed the Ore Reserve statement and given permission for the publication of this information in the form and context within which it appears.

The information in this report that relates to the Processing and Metallurgy for the Yarrabubba and Gabanintha projects is based on and fairly represents, information and supporting documentation compiled by Mr Brett Morgan a full-time employee of Technology Metals Australia.. Mr Morgan is a Member of The Australasian Institute of Mining and Metallurgy and has sufficient experience, which is relevant to the style of mineralisation and type of deposit under consideration, and to the activity which he is undertaking, to qualify as a Competent Person in terms of the JORC (2012 Edition). The Competent Person, Brett Morgan consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Pursuant to LR-5-19-1 production target and financial forecast: Refer ASX Release - 21 August 2019 for full details of the DFS: Financial Metrics at long term historical average price of US\$8.78/lb V2O5.

Pursuant to LR-5-19-2 production target and financial forecast: The material assumptions as per the ASX release on 21 August 2019 continue to apply and have not materially changed.

WHY INVEST IN TMT?

World class critical minerals resources in a Tier 1 jurisdiction

Murchison Technology Metals Project

- Two deposits – Gabanintha & Yarrabubba
- Large, long-life high purity vanadium production
- Lowest cost quartile
- DFS completed for Gabanintha
- Offtake agreements in place with both steel and battery industry participants
- Gabanintha environmental approvals nearing completion

Part of the future energy solution

- Downstream vanadium electrolyte strategy
- Potential for high purity product to be used in Australia based Vanadium Electrolyte production

Nationally significant project



CORPORATE OVERVIEW



CAPITAL STRUCTURE

TMT

ASX Code

\$21.7M

Cash *(as at 31 December 2021)*

\$73.3M

Market Cap *(As at 2 March 2022)*

203.7m

Shares on Issue

20.5M

Unlisted Options¹ *(Various exercise)*

3.65m

Performance Rights²

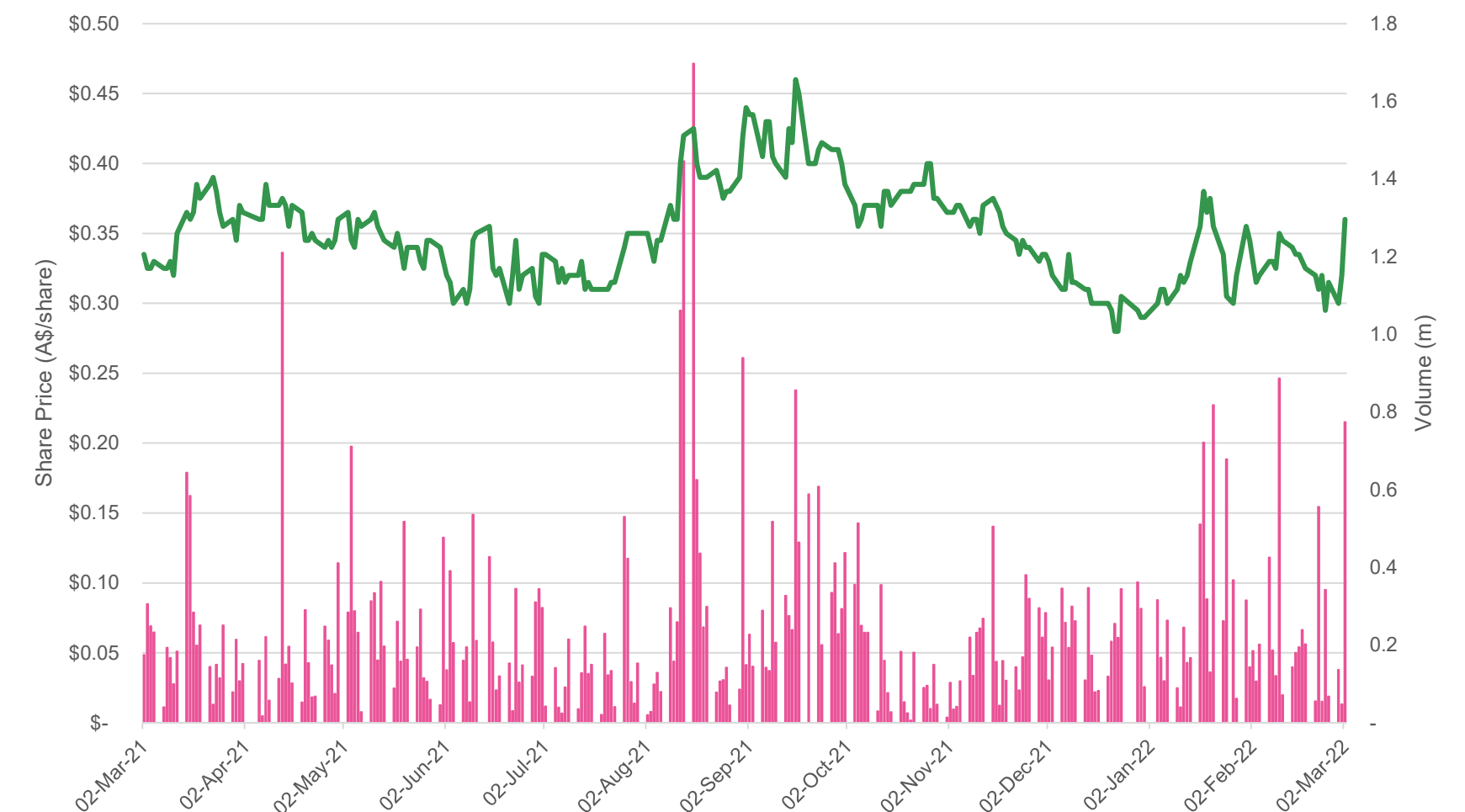
¹ Includes 14.35m director and employee options – 3.9m vested, balance vest on project development hurdles

² 50% vest on MTMP FID, 50% vest on first production

RESOURCE CAPITAL FUND VII L.P. SECURED AS CORNERSTONE SHAREHOLDER

Holder Name	Holding (%)
Resource Capital Fund VII L.P.	17.7%
BNP Paribas Nominees	7.9%
Great Southern Flour Mills	6.9%
Retzos Group	4.8%
TOTAL TOP 20	56.0%
Board and Management holdings (fully diluted)	7.9%

*Based on issued capital as at 2 March 2022



EXPERIENCED BOARD AND MANAGEMENT



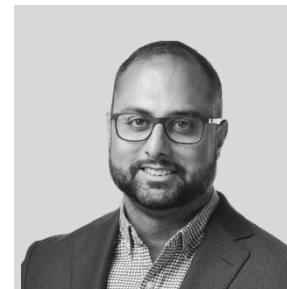
Michael Fry
Non-Exec Chairman

Michael holds a Bachelor of Commerce degree from the University of Western Australia, is a Fellow of the Financial Services Institute of Australasia, and is a past member of the Australian Stock Exchange. Mr Fry has extensive corporate and commercial experience, financial and capital market knowledge and a background in corporate treasury management.



Ian Prentice
Managing Director

Ian holds a Bachelor of Science (Geology) from the University of Western Australia and has over 30 years experience in the global mining industry, spanning exploration, development and open cut and underground mining. Ian is a Member of the Australasian Institute of Mining and Metallurgy.



Sonu Cheema
Non-Exec Dir/CoSec

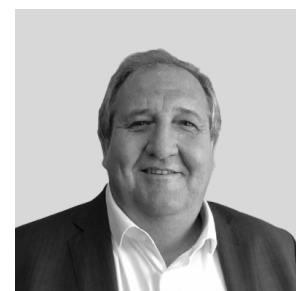
Sonu is a Partner at Cicero Group with over 10 years' experience working with public and private companies in Australia and abroad. Roles and responsibilities held by Mr Cheema include completion and preparation of management and ASX financial reports, investor relations, initial public offers, mergers and acquisitions, management of capital raising activities and auditor liaison.



Jacqueline Murray
Non-Exec Director

Jacqueline is a Partner at Resource Capital Funds (RCF) and has worked within the mining industry for over 20 years.

Mrs Murray joined RCF in 2012 after working in business analysis and improvement roles with BHP Billiton. Prior to this she worked in various geotechnical engineering roles in underground and open pit operations within BHP Billiton and WMC Resources.



Dave English
Chief Operating Officer

David is a mining professional with over 30 years operations and project development experience working in the Western Australian resources industry.

Mr English was General Manager Operations at the Windimurra Vanadium Project from February 2008 until February 2010 involved in the process of re-developing the project.



John McDougall
Exploration Director

John holds a Bachelor of Science with Honours (Geology) from the University of Tasmania and has over 20 years experience in mineral exploration, with iron ore, base and precious metals experience.

John has been managing the geological data acquisition at Gabanintha and Yarrabubba since February 2017.

ENVIRONMENT, SOCIAL & GOVERNANCE

BUILDING A GLOBALLY RELEVANT RESOURCES COMPANY



Environment

Constructive consultation with WA EPA supporting progress on the GVP ERD.

Early engagement with Traditional Owners and Pastoralists to minimise impacts.

Promote energy efficiency and minimise water usage.

Policy of mitigation, minimisation and rehabilitation.



Social / Community

Policy in place to support local procurement and employment wherever practical.

Support community events and activities – developing a social licence to operate.

Generate training, business and work opportunities for Traditional Owners.

Pursue downstream processing options to ensure value add and skills development.



Governance

Instilling a culture of high ethical standards throughout the group and its activities.

Aim to always operate in a safe and respectful manner.

Focus on active risk management throughout the business.

Develop, nurture and maintain our people.

STRATEGIC PLAN

TO PRODUCE STRATEGIC TECHNOLOGY
METALS THAT REDUCE EMISSIONS AND
PRODUCE EMISSIONS FREE POWER



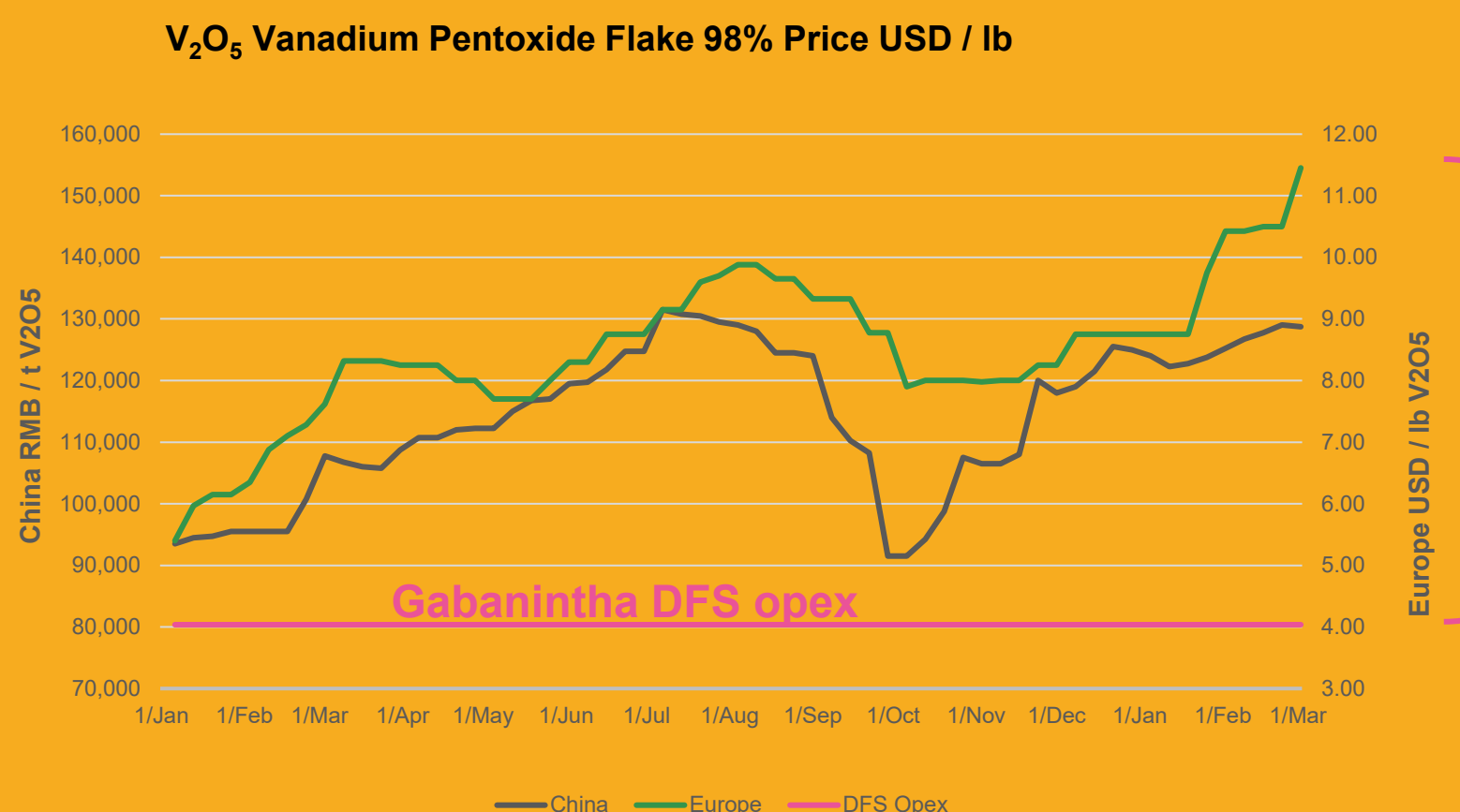
VANADIUM

A CRITICAL MINERAL SUPPORTING NET ZERO

- Vanadium has an important role to play enabling higher quality, stronger steel, lowering emissions.
- Savings from including vanadium in rebar represented 1.5% of the total 2019 CO₂ emissions from Chinese industrial processes¹.
- It is used in very large-scale batteries (VRFB) that don't degrade over time, ideal for support of renewable energy.
- Tightening market with steel consumption China and improving demand in Europe and North America.

“We see significant growth in demand for vanadium - which we foresee due to its growing use in high grade steel and flow batteries.”

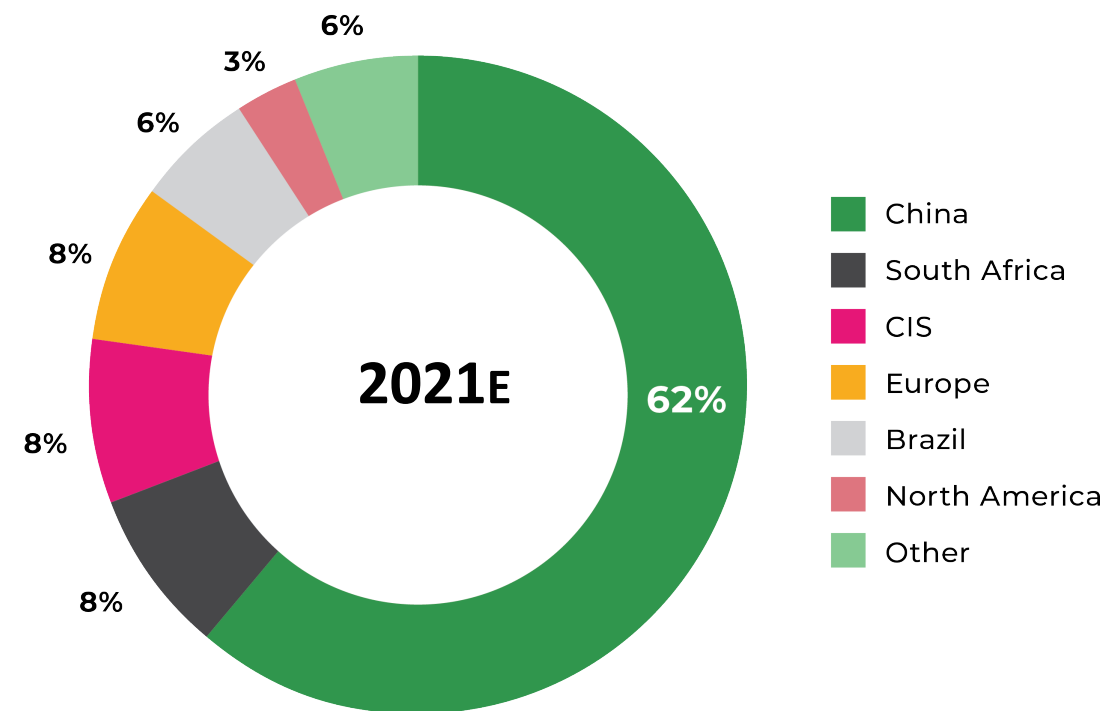
Sir Mick Davis, former Xstrata plc CEO



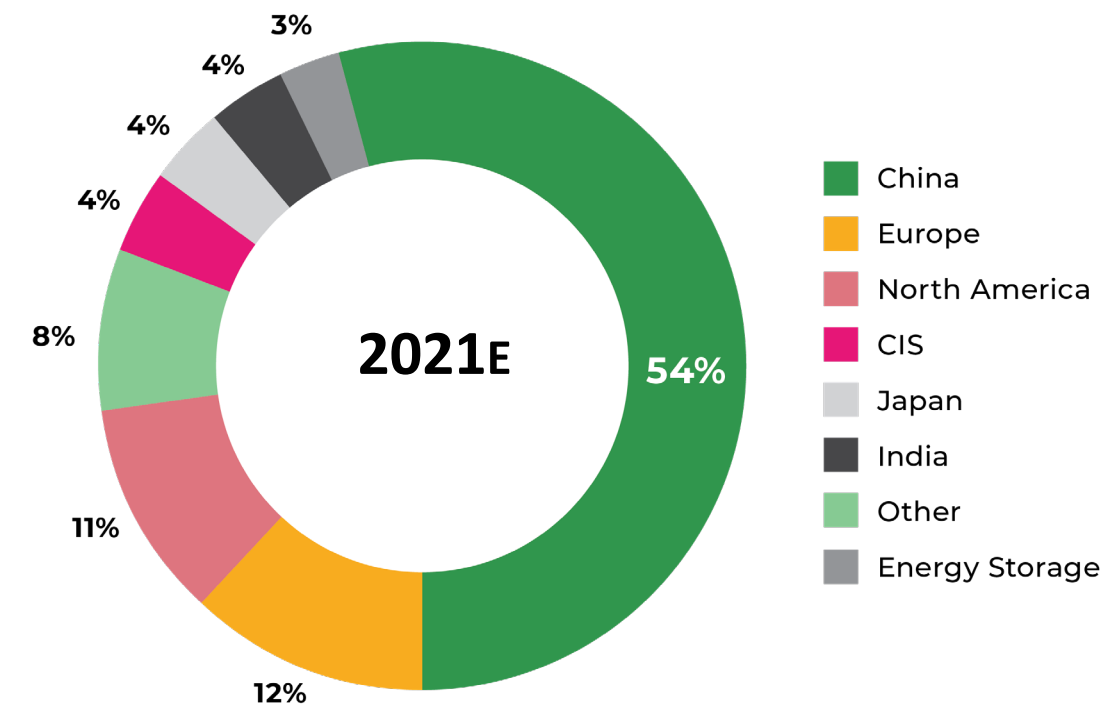
65% operating margin based on recent pricing

A MARKET IN NEED OF NEW SUPPLY

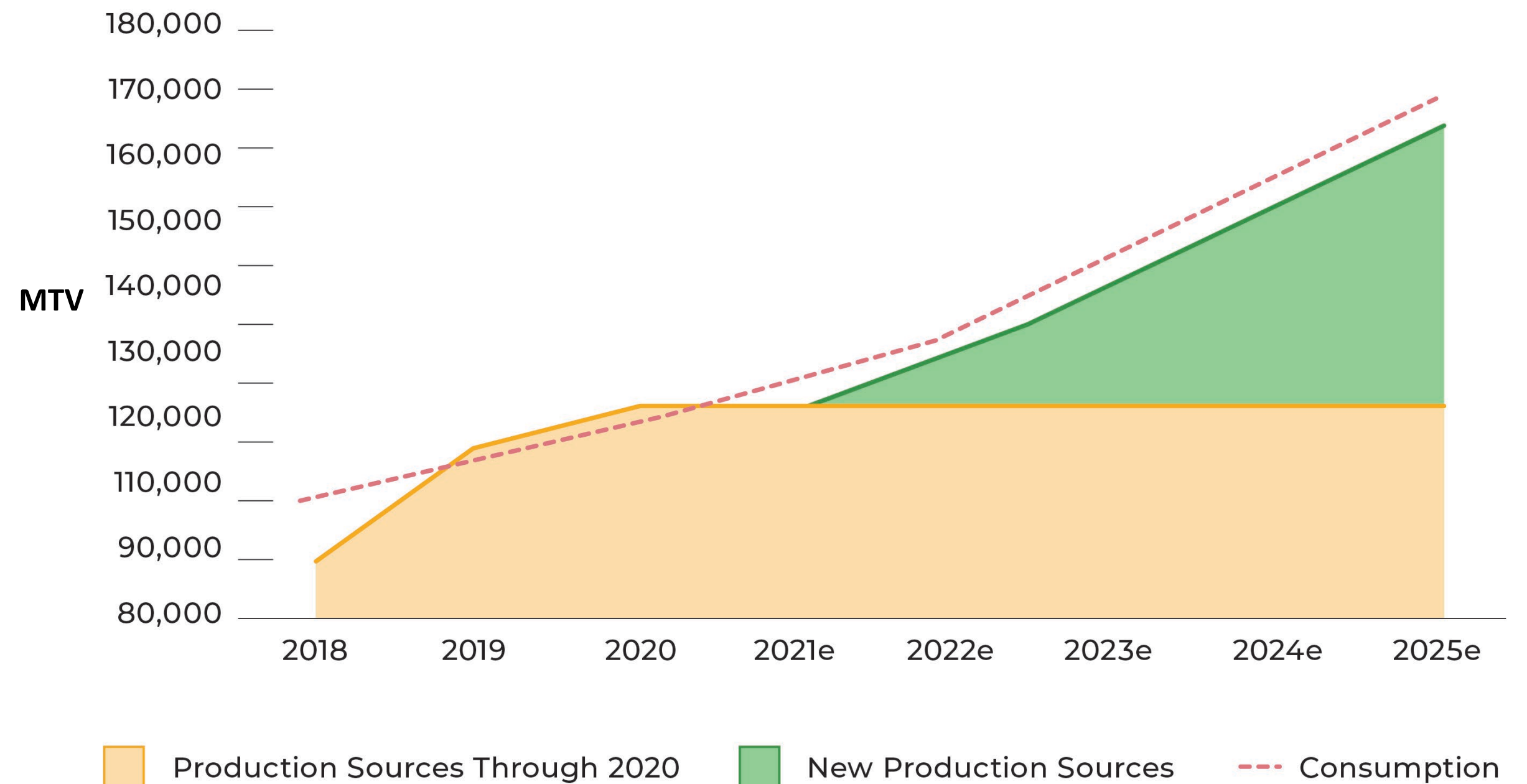
VANADIUM PRODUCTION BY REGION



VANADIUM CONSUMPTION BY REGION



FORECAST SUPPLY AND DEMAND



Source: TTP Squared Inc.

VANADIUM REDOX FLOW BATTERIES

ENABLING THE FUTURE OF GREEN ENERGY



TECHNOLOGY
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LIMITED



No Degradation

Performance remains constant with excellent long term charge retention



Low Energy Cost

Over its 20+ year lifespan, VRFB technology offers the lowest cost per kWh stored (LCOE)



Safety

The vanadium electrolyte is water based and is totally non-flammable



Sustainability

The vanadium is fully reusable and recyclable at end of the battery life



Long Life

VRFB's can easily last more than 20 years with very high cycle life (up to 20,000 cycles)

ACCELERATING GLOBAL VRFB DEPLOYMENT

Vanadium Redox Flow Battery (VRFB) technology is increasingly being deployed across the globe



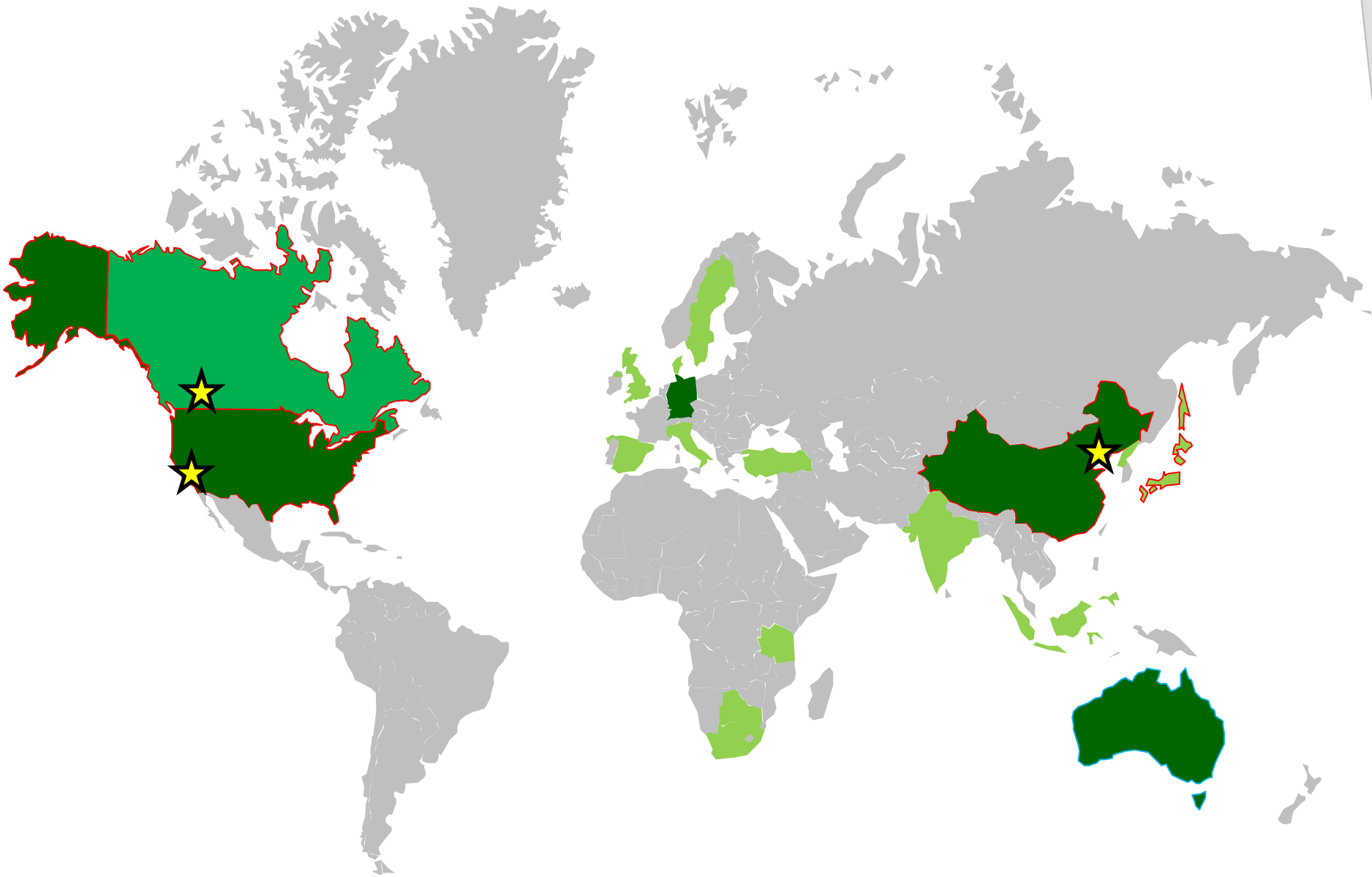
	Country	VRFBs	kW	kWh
	Australia	13	1.356,50	6.333,90
	Barbuda	1	3.000,00	12.000,00
	Botswana	1	112,00	560,00
	Canada	3	2.500,00	10.000,00
	China	38	597.568,50	2.457.269,00
	Czech Republic	3	47,00	209,90
	Denmark	3	40,00	260,00
	Germany	17	1.840,00	87.310,00
	Hungary	1	10	40,00
	India	4	155,00	740,15
	Indonesia	1	400,00	500,00
	Italy	6	1.131,00	4.610,00
	Japan	6	2430,00	7.861,00
	Kenya	1	140,00	560,00
	Netherlands	1	10,00	80,00
	Portugal	1	5,00	60,00
	Singapore	1	60,00	2.000,00
	Slovakia	2	107,00	640,00
	Slovenia	1	10,00	45,00
	South Africa	2	745,00	2.950,00
	South Korea	4	1.250,00	4.900,00
	Spain	3	220,00	800,00
	Sweden	1	210,00	1.800,00
	Switzerland	2	800,00	460,00
	Taiwan	1	460,00	750,00
	Turkey	1	10,00	40,00
	UAE	1	10,00	40,00
	United Kingdom	5	805,00	5.180,00
	United States	22	80.668,00	261.373,70

Number of VRFBs

1 – 5 VRFBs 6 – 10 VRFBs >11 VRFBs

Size of VRFBs in Kilowatts

1 – 1,000 kW 1,001 – 2,000 kW >2,000 kW



Total
VRFBs

115

OPERATIONAL

22

ANNOUNCED

9

UNDER
CONSTRUCTION

146

INSTALLATIONS GLOBALLY

695,955 kW

OF POWER

2,869,272.65 kWh

OF ENERGY

pV magazine

3 February 2022

[Canada's largest solar-powered vanadium flow battery](#)

Canada-based VRFB manufacturer [Invinity Energy Systems](#) and Canadian renewable energy developer Elemental Energy have announced the construction of a 21 MW solar plant coupled to 8.4 MWh of VRFB capacity at Chappice Lake, in Cypress County, in Canada's Alberta province.

搜狐
SOHU.COM

17 February 2022

[The World's Largest 100MW VRFB Energy Storage and Peak Shaving Power Station Has Entered the Single Module Commissioning Stage](#)

The power station is the first phase of the "200MW/800MWh Dalian Flow Battery Energy Storage Peak Shaving Power Station National Demonstration Project".

pV magazine

31 January 2022

[Microgrid project using vanadium redox flow battery](#)

San Diego Gas & Electric (SDG&E) and Sumitomo Electric (SEI) completed a zero-emissions microgrid pilot project using a VRFB in the Bonita community in south San Diego County. The 2MW VRFB at the heart of the demonstration project can store 8MWh of energy, potentially enough to power the equivalent of about 1,000 homes for up to four hours.

VRFB AND ELECTROLYTE STRATEGY

PART OF THE ENERGY SOLUTION



- MoU with LE System to jointly undertake a Feasibility Study into vanadium electrolyte production in Australia using TMT's high purity vanadium.
- Vanadium electrolyte business plan being deployed:
 - Production centres contemplated on western and eastern seabords of Australia.
 - Competitive advantage as a very low-cost primary producer of high purity vanadium.
 - Long term – stable supplier able to provide certainty for VRFB developers.
 - Significant political support for decarbonization opportunities.
- Discussions initiated with VRFB manufacturers with regards to the establishment of Australian VRFB deployment.
- Evolution of the MTMP from a high purity V_2O_5 producer into downstream applications forms part of TMT's sustainability strategy.



LE SYSTEM CO., Ltd.

LE SYSTEM Co., Ltd.

MURCHISON TECHNOLOGY METALS PROJECT

Integration study underway into open pit mining, beneficiation and high purity vanadium processing facility in the mid-west of Western Australia.

**High-quality, high-grade resource of 79.8Mt at 1.1% V₂O₅
50.2Mt at 0.9% V₂O₅ M&I component to target a +25 year operation.**

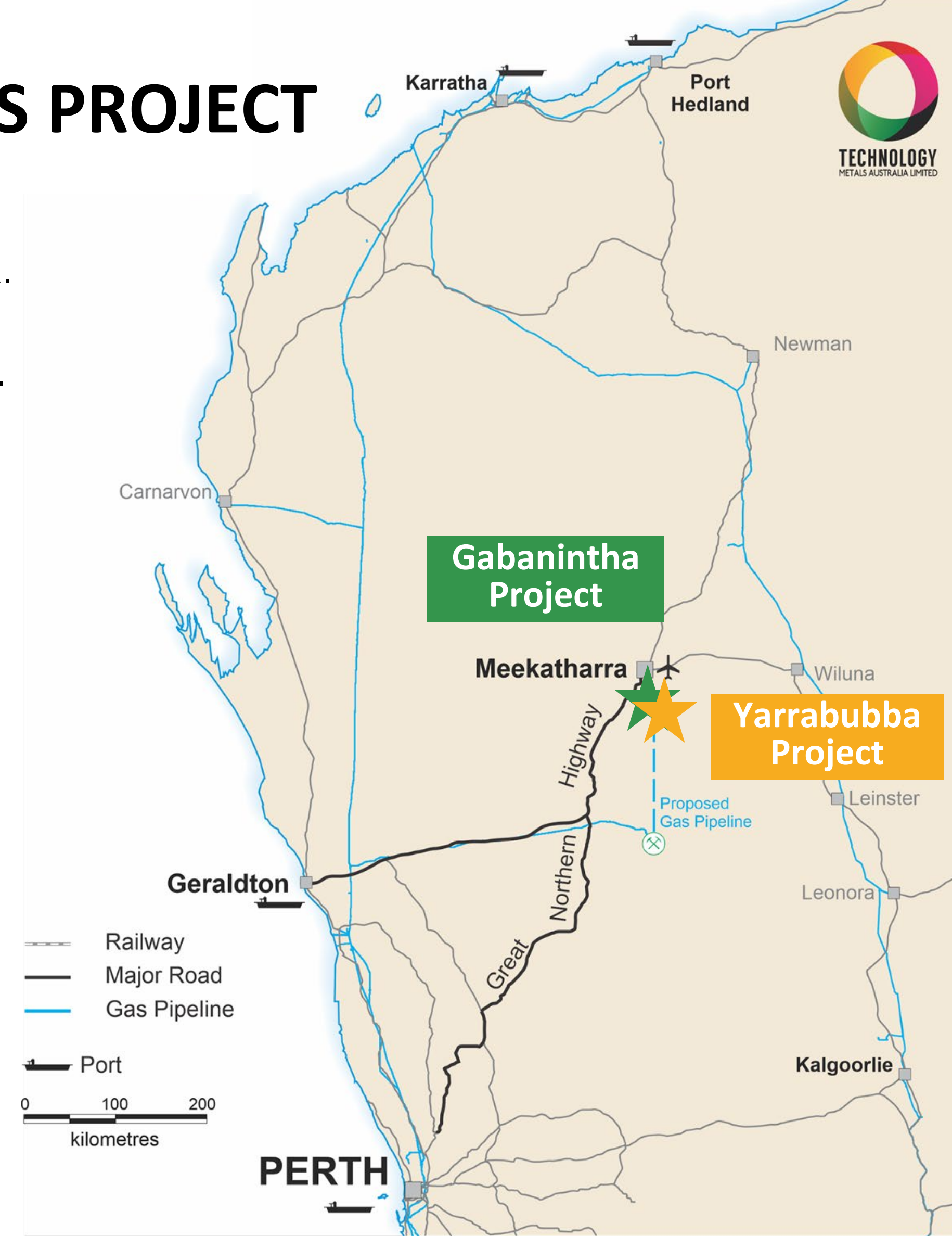
GABANINTHA VANADIUM

- DFS completed
- Large, long-life high purity vanadium project
- Lowest cost quartile at US\$4.04/lb V₂O₅
- Pre-tax NPV₈ A\$1,320M, IRR 34%¹
- Offtake agreements in place with steel and battery industry
- Key permitting and approvals progressing

YARRABUBBA VANADIUM

- High grade V₂O₅ in magnetite concentrate
- Same geological setting as Gabanintha
- Potential to materially enhance project economics
- Likely to extend MTMP mine life beyond 25 years
- Integration Study on track for mid 2022 delivery

1 - AUD/USD 0.70, US\$10.88/lb long term V₂O₅ price



GABANINTHA VANADIUM

WORLD-CLASS DEVELOPMENT READY PROJECT

MINING RESERVE

29.6Mt
@ 0.88% V₂O₅

MINE LIFE

+16years

PROCESSING PLANT

27.9Mlb
V₂O₅ pa

HIGH PURITY PRODUCT

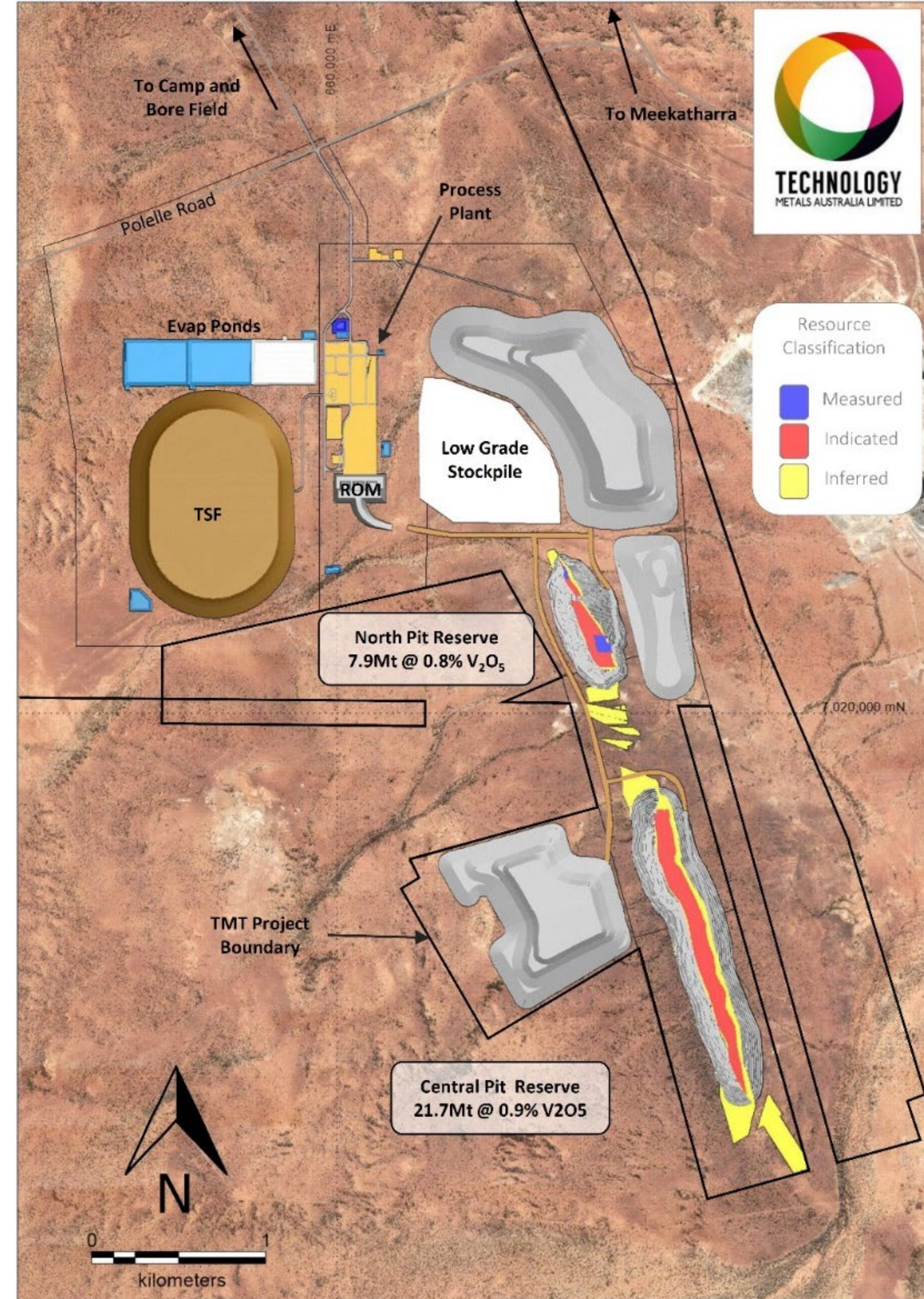
>99% V₂O₅

OPEX

US\$4.04
/ lb V₂O₅

- One of the highest grade vanadium deposits in the world.
- Ore body characterised by **shallow oxidation** profile
- Life of mine¹ **revenue of A\$7.0Bn.**
- Average annual EBITDA of A\$255 million.
- Lowest cost quartile **operating costs at US\$4.04/lb V₂O₅.**
- **Premium purity product (>99%)** supporting the movement to Net Zero 2050.
- Site of integrated processing facility for MTMP.
- Mining licences granted, environmental approvals nearing completion.
- Gas supply MoU in place.
- Solar farm location identified for future power generation.

1 - TMT ASX announcement 21 August 2019 for full details of the DFS: Financial Metrics at long term forecast price of US\$10.88/lb V₂O₅

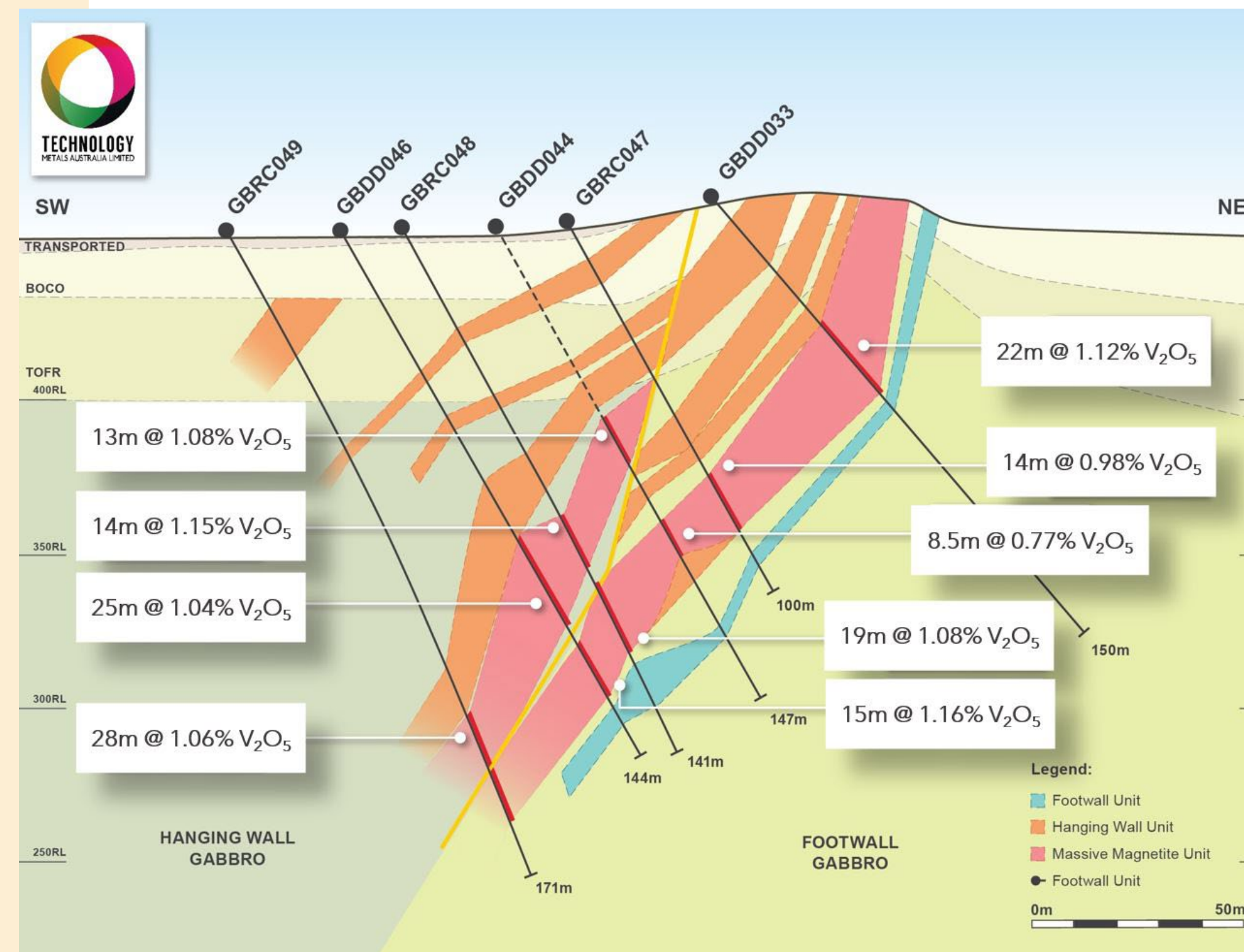


YARRABUBBA VANADIUM

HIGH GRADE HIGH VALUE ADDITION TO THE MTMP



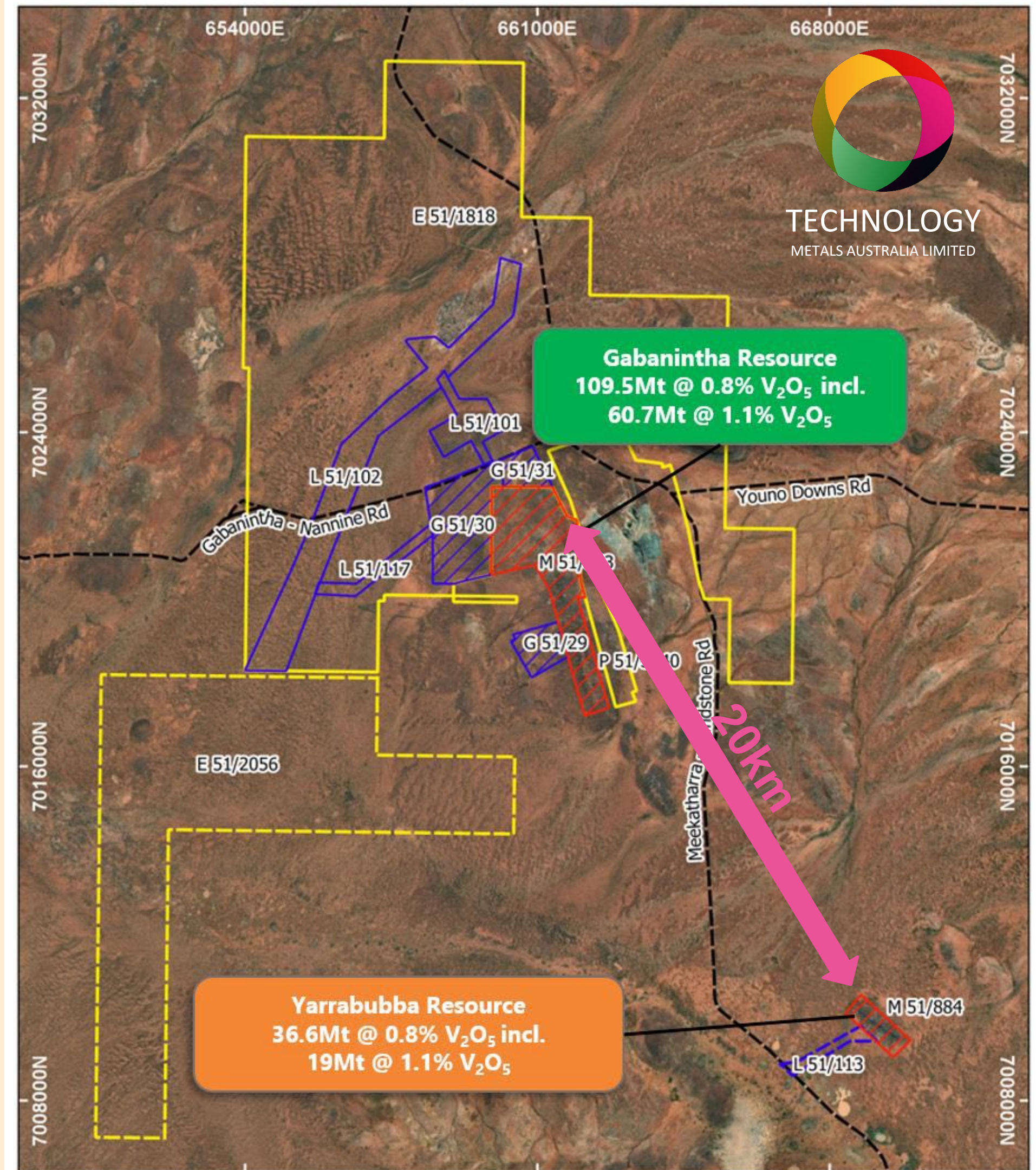
- Yarrabubba resources and reserves were not included in the Gabanintha DFS.
- Mineral Resource¹ upgraded to 36.6Mt at 0.8% V₂O₅, with a **high-grade** component of **19Mt at 1.1% V₂O₅**.
- Same geological horizon as Gabanintha.
- Up to **1.6% V₂O₅ in concentrate**; ~25% higher than Gabanintha.
- Key attributes for Yarrabubba:
 - High in-situ grades with very high mass recoveries
 - Ability to separate large portion of titanium from non mag tails.
 - **Very shallow oxidation profile**
 - Thick high-grade zones near surface



MTMP INTEGRATION STUDY

REDUCING THE DEVELOPMENT RISK

- Yarrabubba has the potential to materially increase the mine life of the MTMP – Global M&I Resource of **50.2Mt at 0.9% V₂O₅¹**
- Scope to lower operating costs, reduce the payback period and lower the overall development risk of an integrated MTMP.
- Workstreams underway to inform the Integration Study:
 - Open pit mine scheduling to optimise sequencing of ores.
 - Roast-leach testwork to lock down kiln operating parameters.
 - Grind liberation identifying optimal grind size to maximise vanadium recovery and titanium extraction.
 - Optimisation of process flow sheet design to “right size” the plant to ensure optimal production rates.
 - Drilling to upgrade a portion of the resource to the highest confidence Measured category.
 - Updated ore reserve estimate based on optimal mining schedule.
- MTMP Integration Study on track for delivery in mid 2022.



MURCHISON TECHNOLOGY METALS PROJECT

KEY PROJECT PARTNERS



WA Government

Lead Agency Support
Future Battery Industry
Supporting downstream processing.

NAIF

Engagement with Federal Government agency

Part of strategic funding approach.

WA EPA

Environmental approvals

Constructive consultation underway

APA

Gas transportation agreement

Lower gas transportation costs; access to emerging Perth Basin gas fields.

FLSmidth

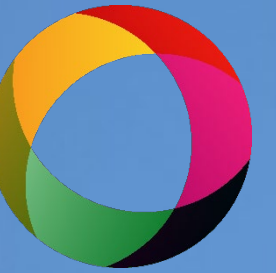
Equipment vendor engagement

Kiln supply agreement executed.

Ongoing market engagement for product offtake / funding options

CNMNC, LE System, Shaanxi Fengyuan, Big Power.

TIMETABLE AND NEWS



TECHNOLOGY
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Mining leases - granted



Bulk sample generation



Infill Resource drilling



Mineral Resource update



Yarrabubba metallurgical testwork

H1 2022

Resource upgrade drilling

H1 2022

Process plant design optimisation

H1 2022

Yarrabubba ore reserve update

Q2 2022

Integration study completion

Q2/Q3 2022

Environmental approval

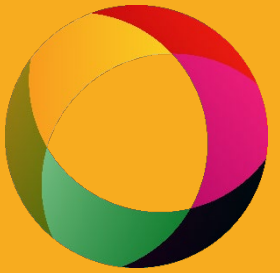
Q2/Q3 2022

Project development decision

H2 2022



A COMPELLING INVESTMENT



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Globally Significant

project with outstanding economics located in a Tier 1 jurisdiction

Strategic Investor

RCF VII with long-term focus on supporting project development

Critical Metals

to deliver critical minerals that support a cleaner future

Delivering

on project development underpinned by high quality technical work

Team in place

focused on a development strategy to maximise shareholder value

Stable

operating environment with excellent infrastructure and access



TECHNOLOGY
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