



TECHNOLOGY
METALS AUSTRALIA LIMITED

Leading the Charge in the Vanadium Industry

Gabanintha Vanadium Project

Advanced | High Grade | Low Cost

Large Scale | High Quality | Long Life

Development Project

ASX: TMT, TMT0; FRA: TN6

www.tmtlimited.com.au

RIU Sydney Resources Round-up

7 - 9 May 2019

Important Information



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Competent Person's Statement

The information in this presentation that relates to Exploration Results are based on information compiled by Mr Ian Prentice. Mr Prentice is Managing Director of the Company and a member of the Australian Institute of Mining and Metallurgy. Mr Prentice has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this presentation 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 Prentice consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.



The information in this presentation that relates to Mineral Resource estimates is based on information compiled by Mr Grant Louw. Mr Louw is a Principal Consultant with CSA Global and a Member of the Australian Institute of Geoscientists. Mr Louw has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this presentation and to the activity which he is 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 Louw consents to the inclusion in this presentation of the matters based on his information 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 and reviewed by Mr Karl van Olden, both employees of CSA Global Pty Ltd. Mr van Olden takes overall responsibility for the Report as Competent Person. Mr van Olden is a Fellow 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, Karl van Olden 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 presentation that relates to the Processing and Metallurgy for the Gabanintha Project is based on and fairly represents, information and supporting documentation compiled by Damian Connelly who is a Fellow of The Australasian Institute of Mining and Metallurgy and a full time employee of METS. Damian Connelly 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 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**"). Damian Connelly consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

All currency amounts are in AUD\$ unless stated otherwise.

Vision: To become a high purity V_2O_5 supplier of choice

-  **Gabanintha – a globally significant vanadium deposit**
 - **Advanced development project** – among the highest grade high purity large-scale vanadium deposits in the world
 - **Location** – access to infrastructure in the Murchison region of Western Australia
-  **Robust June 2018 Pre-Feasibility Study* delivered +13 year LOM**
 - **Industry competitive US\$4.27/lb V_2O_5 operating cash cost**
 - **High purity product** supports development of end-user relationships
-  **Definitive Feasibility Study on track for mid 2019 delivery**
 - **Updated Resource** – high grade resource of 71.2Mt at 1.1% V_2O_5 to extend mine life
 - **Bulk sample** pilot plant testwork nearing completion
 - **Final product dispatched** to multiple end-users to perform testwork
-  **Vanadium – a metal we can't do without**
 - **Structural change** in industry has resulted in a global deficit
 - **Metal of the future** - ability to provide large scale energy storage solutions (VRBs) underpinned by traditional steel applications
-  **Global Peer**
 - **Largo Resources, Inc.** (TSX:LGO CN\$801mn) operating Maracas Menchen Mine, Brazil, 2019 production guidance 10,000t to 11,000t V_2O_5



*Refer TMT ASX announcement dated 21 June 2018 for full details of the pre-feasibility study

ASX: TMT, TMTO; FRA: TN6

Corporate Overview



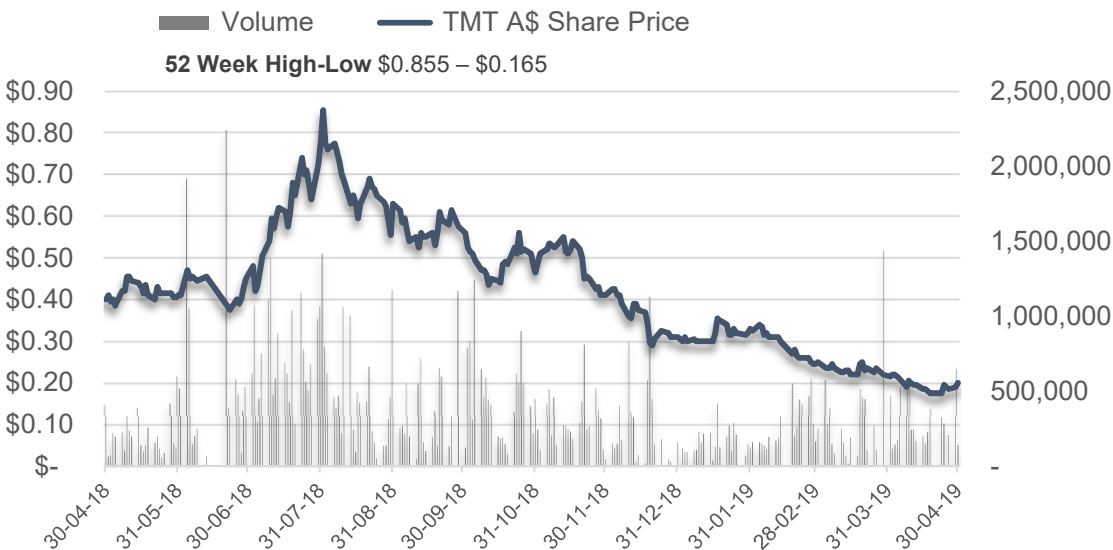
Capital Structure and Key Metrics

ASX Codes	TMT, TMTO
Cash as at 31 March 2019	\$4.9m
Market Cap <i>(as at 7 May 2019)</i>	\$16.0m
Tradeable Shares on Issue	67.5m
Escrowed Shares on Issue*	20.0m
Total Shares on Issue	87.5m
Unlisted Options <i>(various)**</i>	20.6m
Listed Options - (\$0.40 – 24/05/20)	14.9m

* 20m shares subject to restriction until 30 June 2019,
** 14.6m \$0.25, 31/12/19 expiry; 2.75m \$0.35 12/01/21 expiry; 3.26m \$0.40, 24/05/20 expiry



12 Month Share Price Performance



“We expect [vanadium] prices to remain high for some time - so it’s the perfect time to finance and develop a project”

- Jack Bedder, Roskill, December 2018.

Experienced Board and Development Team



Michael Fry
Non-Executive Chairman



Ian Prentice
Managing Director



Sonu Cheema
Non-Executive Director/Co Sec



David English
Project Director

Supported by experienced industry expert consultants delivering high quality outcomes



Financial Advisors



Milestones



Dec 2016

Listed on ASX

IPO raised A\$4,000,000

2018

PFS delivered in 18 months

Mar 2018 – Global Resource updated including maiden indicated resource

Apr 2018 – Testwork confirmed ore amenable to salt roast / water leach processing

Jun 2018 – Delivered technically and financially robust PFS

Aug 2018 – Commenced DFS

Nov 2018 – Infill and extension drilling confirmed high-grade continuity

Dec 2018 - Met results confirm 99.7% purity and Co-Ni-Cu base metal concentrate

2017

Feb 2017 – First Drilling Program

April 2017 – Drilling confirmed strike and dip continuity of mineralisation

June 2017 – Maiden Northern Block Resource

Aug 2017 – Infill drilling confirmed continuity of high grade vanadium

Dec 2017 – Maiden Southern Tenement Resource

Delivered a maiden Resource in six months

2019

Feb 2019 - \$4.5M funding secured to advance DFS

Mar 2019 – Global High-Grade Mineral Resource updated, 71.2Mt at 1.1% V₂O₅

Upcoming Catalysts

- » Pilot plant testwork
- » Offtake discussions

Delivery of DFS mid 2019

Pathway to development

2019 Catalysts

- Increase in global resource, and importantly the Indicated Resource, to support a material extension of mine life - **DELIVERED**.
- Pilot plant testwork to confirm scalability – **NEAR COMPLETION**.
- Progression of discussions with potential off takers / end users – **ONGOING**.
 - Targeting a range of jurisdictions including China, Japan, Korea, India and Europe.
 - Steel industry for majority of output, supplemented by the specialty alloy and battery sectors.
 - Aiming to secure fixed volume off take agreements with potential linkage to equity / project investment and / or prepayments.
- Delivery of high quality DFS to facilitate project financing package and project development – **ON TRACK**.



TMT High Purity 99.53% V_2O_5 sub-samples dispatched to end users
September 2018

Vanadium

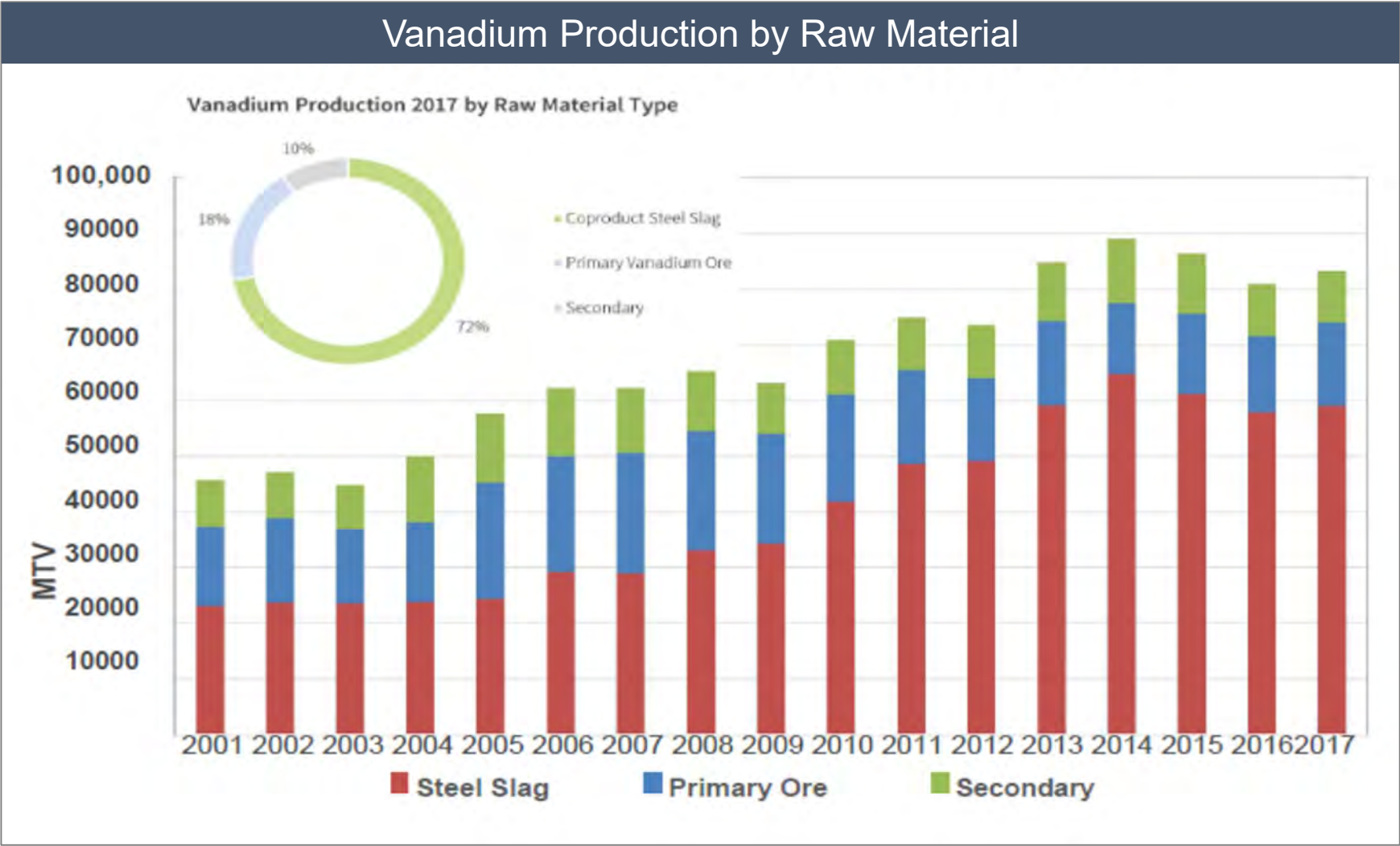
**The Metal You Need to
Know About**



Primary Use of Vanadium



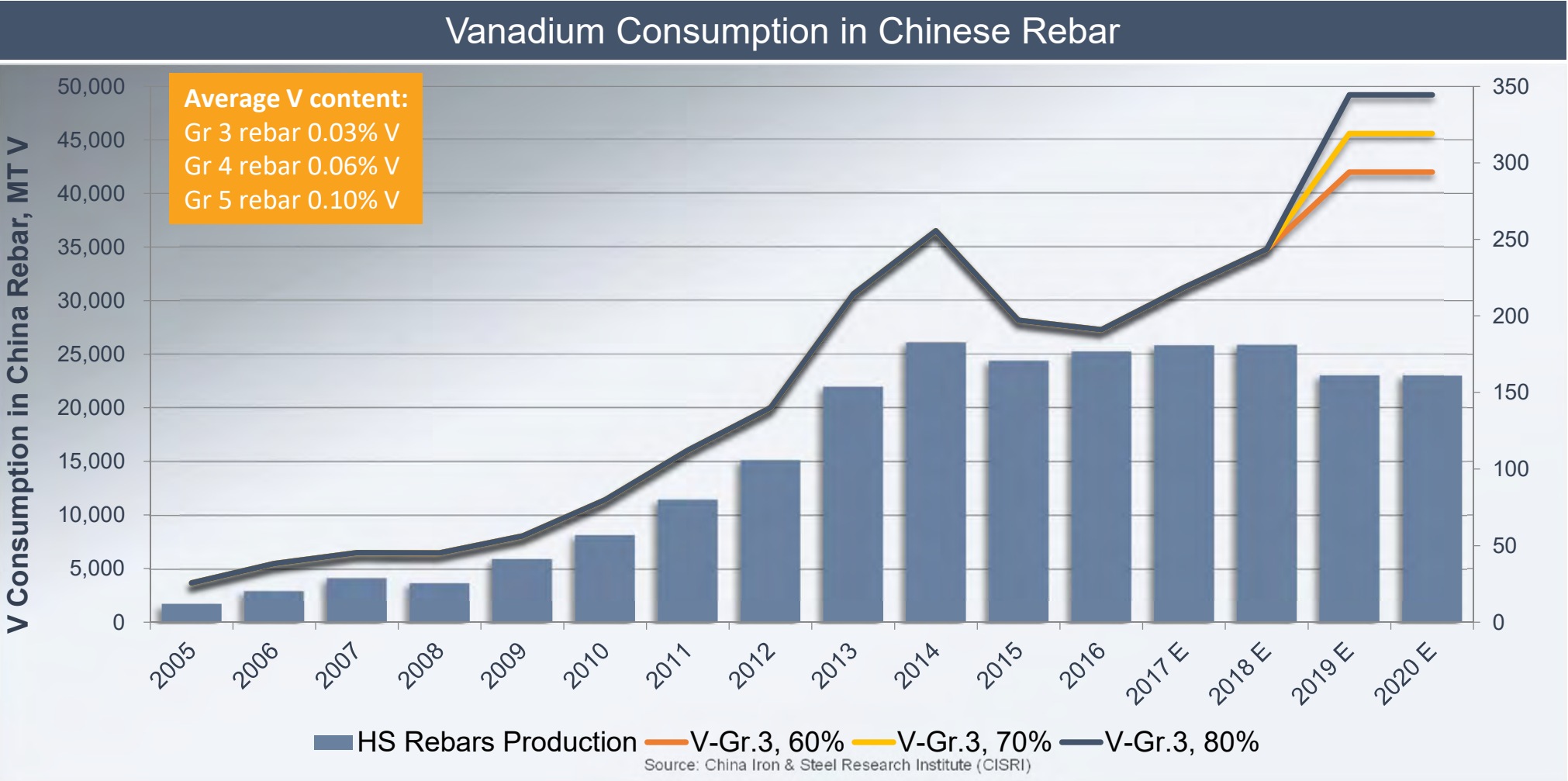
Vanadium Supply Constraints



Production from existing sources forecast to reach ~111,900t V metal by 2025

(Source: TTP Squared)

Vanadium Consumption Increasing



Global consumption forecast to increase to 133,200t V metal by 2025

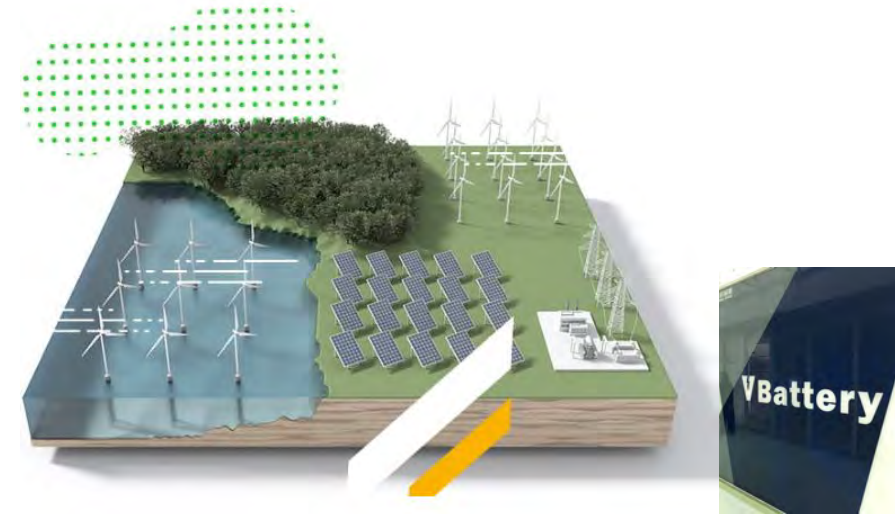
(Source: TTP Squared).

Emerging Vanadium Market



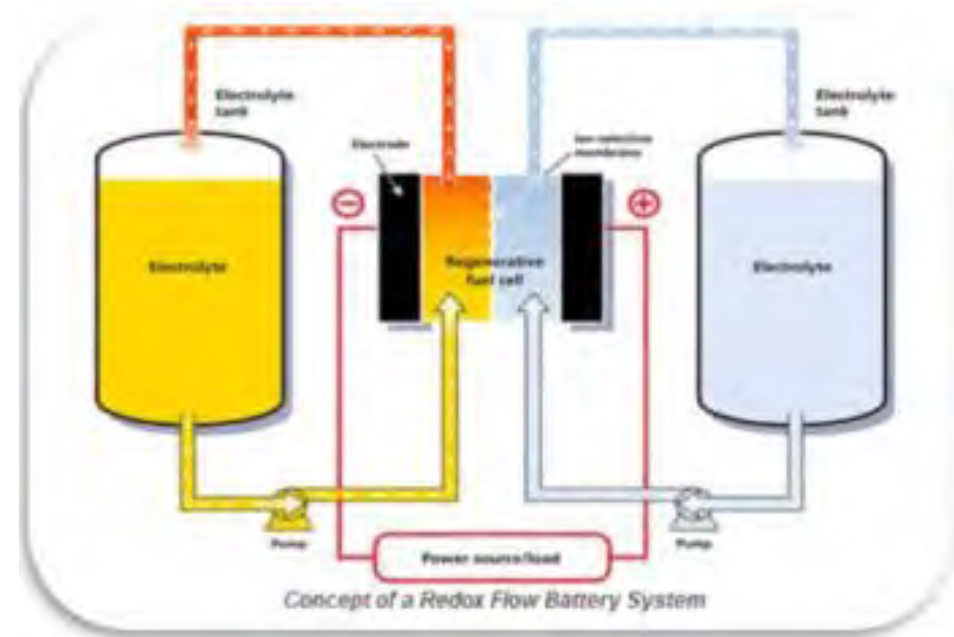
Market Disrupter – VRB's

- Alternative energy production (wind and solar) requires efficient storage solution to maximise value / applications
- Vanadium Redox Batteries (VRB's) have a long lifespan and provide efficient grid level electricity storage and re-supply solution for renewable energy
- VRB's are able to time-shift large amounts of previously generated energy for later use – balancing solar and wind intermittency
- Vanadium ions in different oxidation states used to store energy; battery capacity expandable by adding more storage tanks
- Rongke Power developing a 200MW/ 800MWh battery in Dalian, China, using ~6,960 tonnes V_2O_5

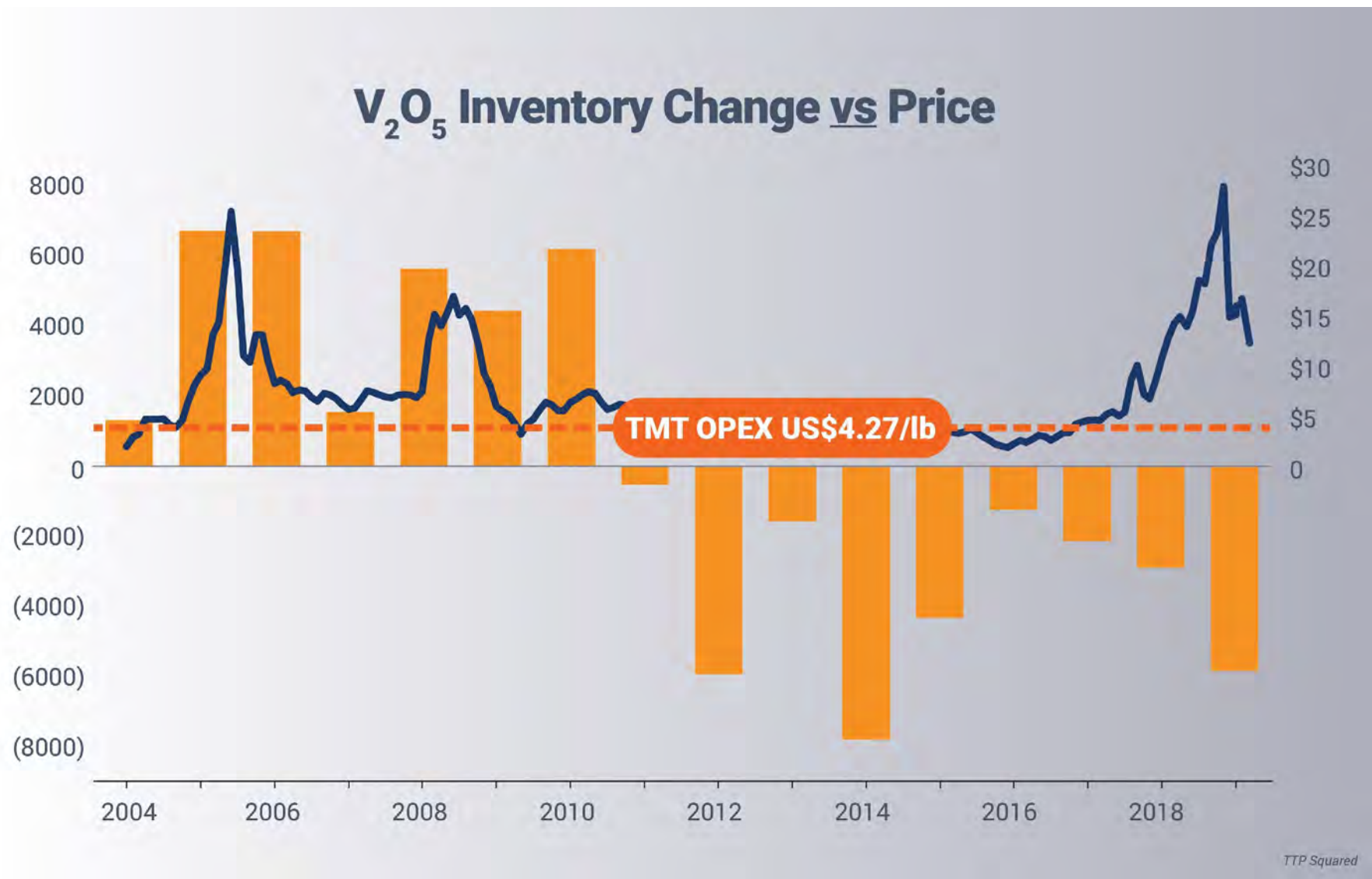


Advantages of VRB's

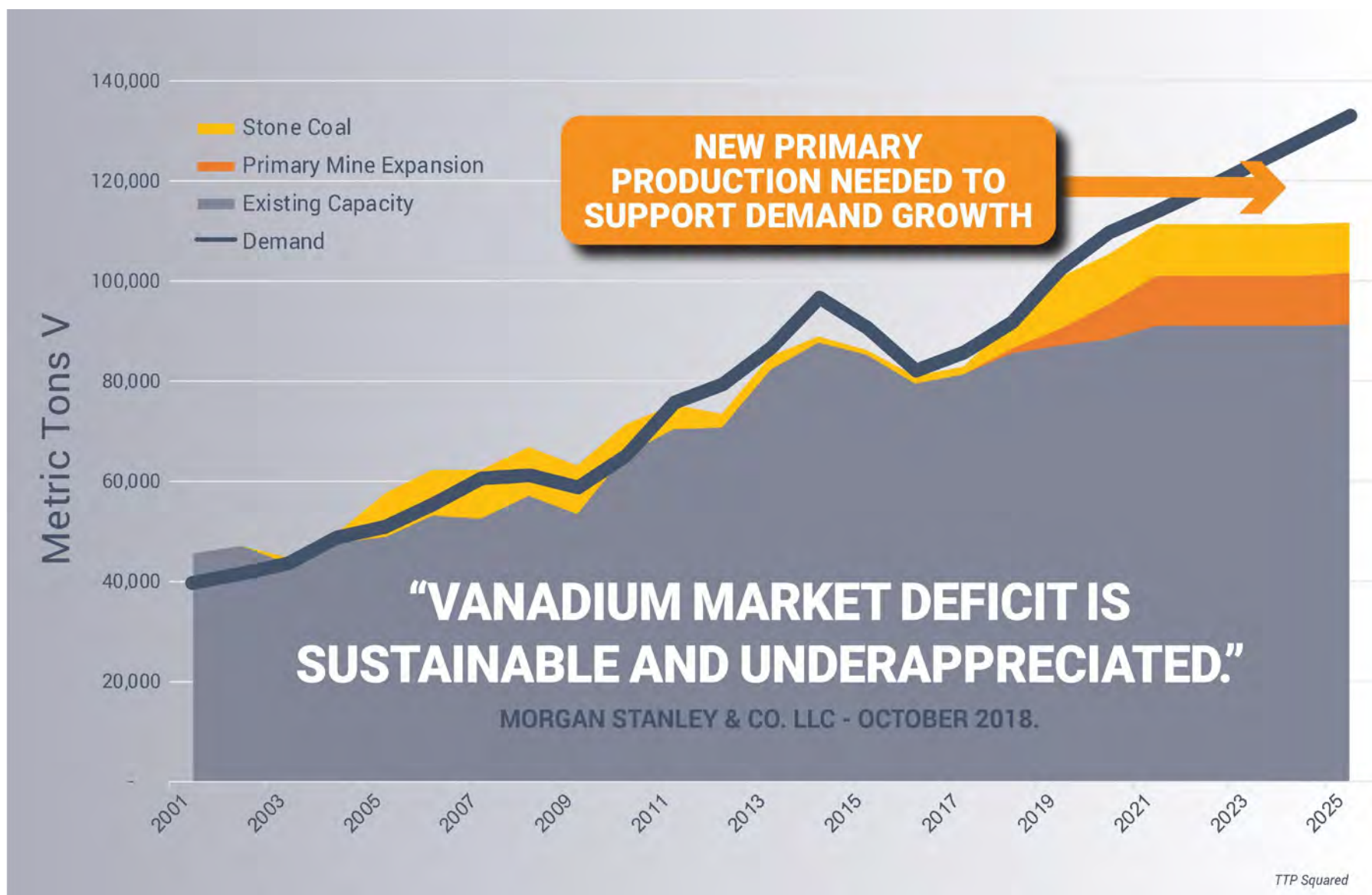
- Lifespan of +20 years with very high cycle life (up to 20,000 cycles) and no capacity loss.
- Rapid recharge and discharge, with very fast response time (<70ms).
- Can discharge to 100% with no performance degradation with excellent long term charge retention.
- Only one battery element – vanadium is anode and cathode – unique among flow batteries.
- Easily scalable into large MW applications; provide a grid scale solution – peak shaving, regulating load frequency, driving grid efficiency.
- Suitable for micro grids for remote communities, mine sites, islands etc.
- Non-flammable – enhanced safety.



Structural Change in Vanadium Industry



Vanadium Market in Deficit



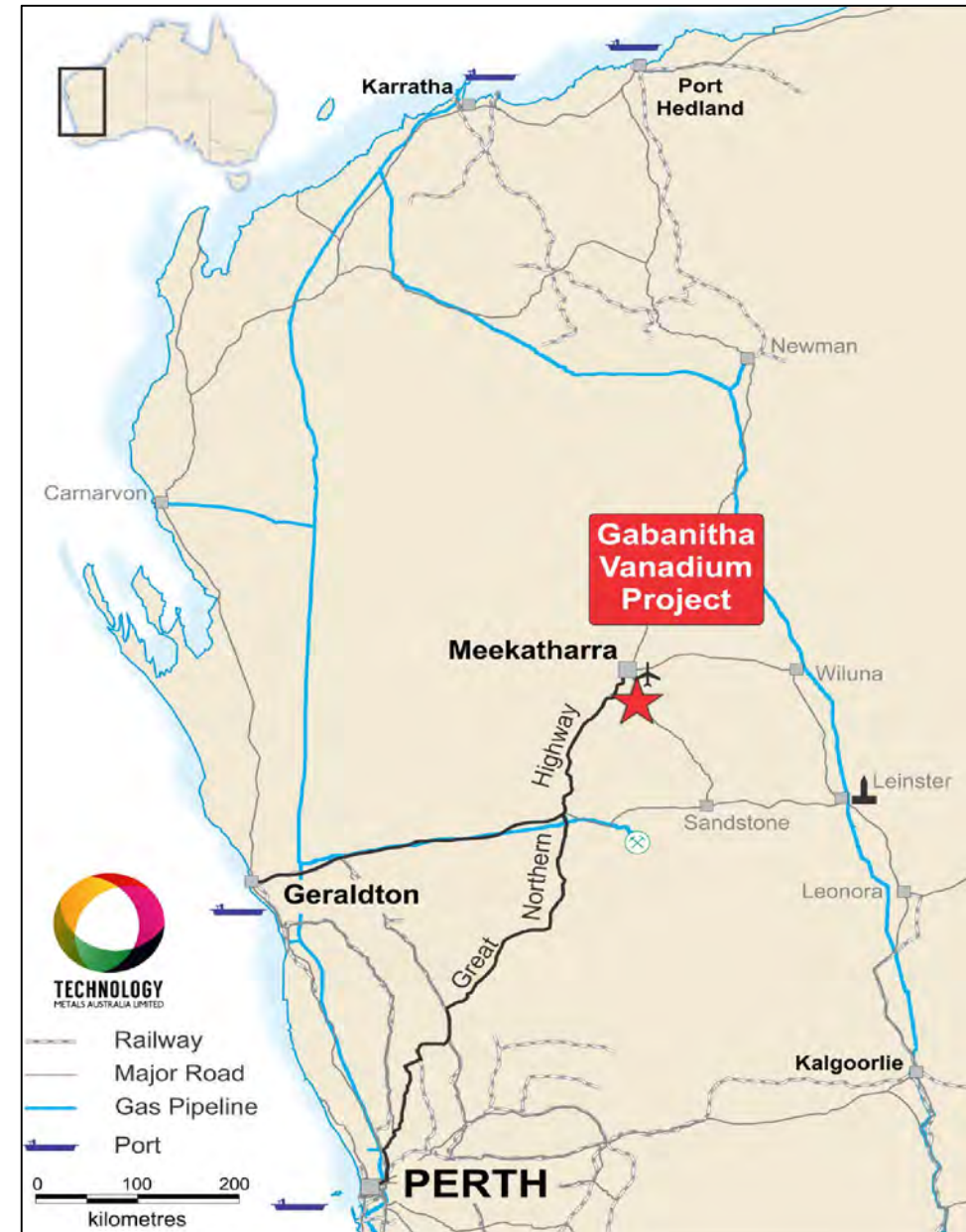
Global consumption forecast to increase to 133,200t V metal by 2025 delivering a forecast deficit of ~21,300t V (~37,900t V₂O₅)
(Source: TTP Squared)

Gabanintha Vanadium Project



Outstanding Location

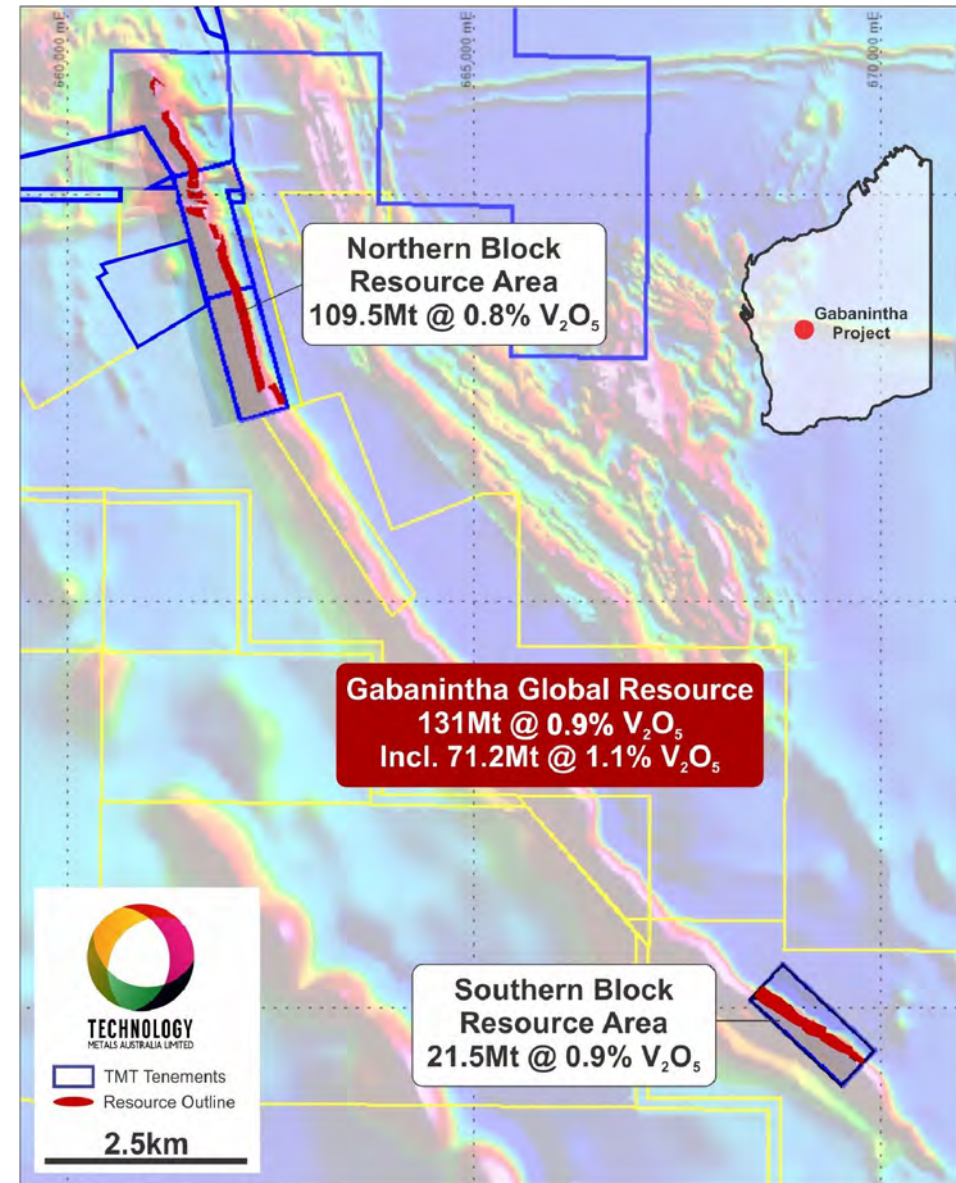
- 40km south of regional centre of Meekatharra in Murchison District of Western Australia.
- Sparsely populated region with +100 year history of mining.
- Excellent infrastructure – sealed National Highway from Perth passes within 30km of the project.
- Port of Geraldton 500km to the south west accessible via sealed highway.
- Gas pipeline within 160km to east or south.
- Granted tenure with Mining Lease applications in place.



Geological Setting

- Mineralisation hosted by a layered mafic igneous unit – magnetite layers host high grade vanadium.
- Outstanding consistency of grade and continuity of mineralisation in broad high grade massive magnetite zone – over 5.5km strike of the mineralised unit.
- Mineralisation outcrops along majority of strike length and dips to the west / south west at 55° to 60°.
- Mineralisation remains open at depth with high grade zone intersected at in excess of 190m vertical.
- Maiden reserve* of 16.7Mt at 0.96% V_2O_5 – being updated in DFS based on M&I resource of 30.0Mt at 0.9% V_2O_5 to extend life of mine.

*Refer TMT ASX announcement dated 21 June 2018 for full details of the probable reserve



World Class Mineral Resource*

One of the highest grade deposits in the World

- High grade resource in consistent basal massive magnetite, within **Global Resource of 131Mt at 0.9% V₂O₅**.
- Measured and Indicated Resource of 30Mt at 0.9% V₂O₅** (Northern Block only – includes a high grade component of 19.7Mt at 1.1% V₂O₅) a **39% increase on previous which supported a 13 year mine life**.
- Northern Block Resource of 109.5Mt at 0.8% V₂O₅ with **96.5% high yielding transitional and fresh ore**.

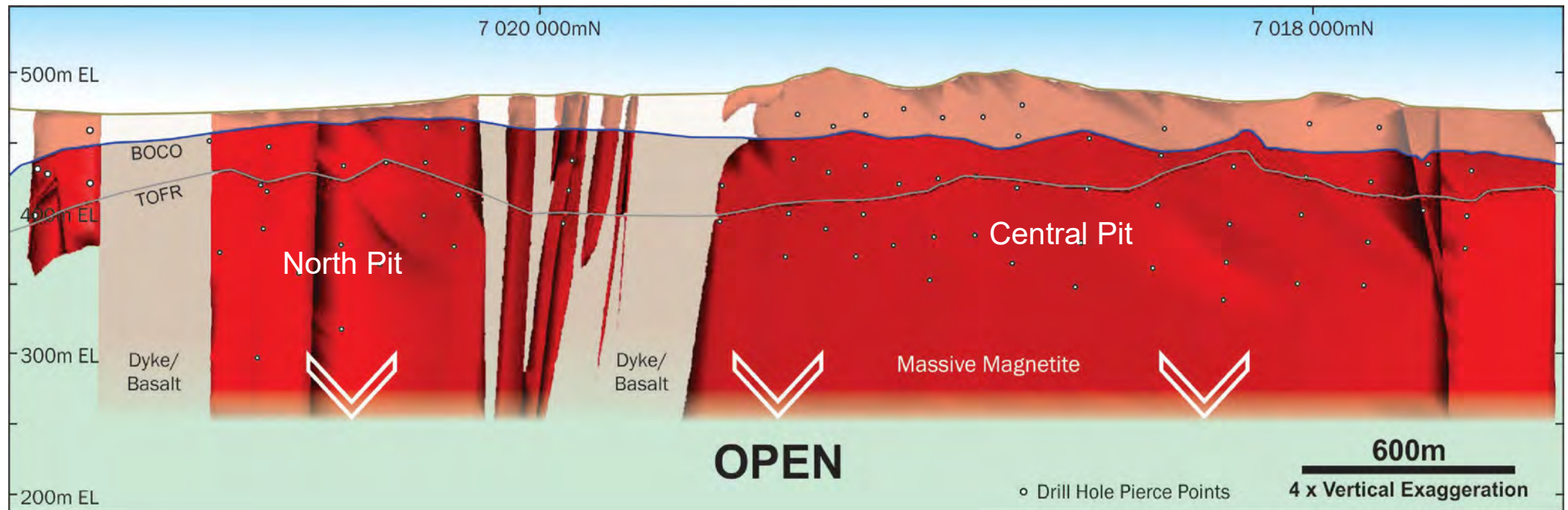
Material Type	Classification	Tonnage (Mt)	V ₂ O ₅ %	Fe%	Al ₂ O ₃ %	SiO ₂ %	TiO ₂ %	LOI%	P%	S%
Massive Magnetite	Measured (North)	1.2	1.0	44.7	6.2	10.4	11.4	0.0	0.009	0.2
	Indicated (North)	18.5	1.1	49.1	5.2	5.8	12.9	-0.1	0.007	0.2
	Inferred (North)	41	1.1	47.7	5.6	7.1	12.6	0.3	0.008	0.2
	Inferred (South)	10.4	1.1	49.1	4.9	5.9	12.6	-0.4	0.004	0.3
	Total Inferred	51.5	1.1	48.0	5.5	6.9	12.6	0.1	0.007	0.2
	Massive Global	71.2	1.1	48.2	5.4	6.7	12.7	0.1	0.007	0.2
Disseminated / Banded Magnetite	Indicated (North)	10.3	0.6	28.6	13.1	25.5	7.5	3.0	0.030	0.2
	Inferred (North)	38.5	0.5	27.1	12.7	27.4	6.9	3.3	0.027	0.2
	Inferred (South)	11.1	0.6	30.2	11.9	23.4	7.7	2.4	0.012	0.4
	Total Inferred	49.6	0.6	27.8	12.5	26.5	7.1	3.1	0.024	0.2
	Diss / Band Global	59.9	0.6	27.9	12.6	26.4	7.2	3.1	0.025	0.2
Combined	Measured + Indicated + Inferred	131	0.9	39.0	8.7	15.7	10.1	1.4	0.015	0.2

* Note: The Mineral Resource was estimated within constraining wireframe solids using a nominal 0.9% V2O5 lower cut-off grade for the basal massive magnetite zone and using a nominal 0.4% V2O5 lower cut-off grade for the banded and disseminated mineralisation zones. The Mineral Resource is quoted from all classified blocks within these wireframe solids above a lower cut-off grade of 0.4% V2O5. Differences may occur due to rounding

* – Refer TMT ASX announcement dated 29 March 2019 for full details of the mineral resource estimation.

Oxidation Profile – a Key Point of Differentiation

- Very shallow oxidation profile in North Pit area – reflected in negligible oxide ore in Northern Block resource.
- Early access to higher yielding transitional and fresh material – positive impact on project economics.
- Higher yield equates to lower ore mined per tonne of final product.
- Southern Tenement has similar very shallow oxidation profile.

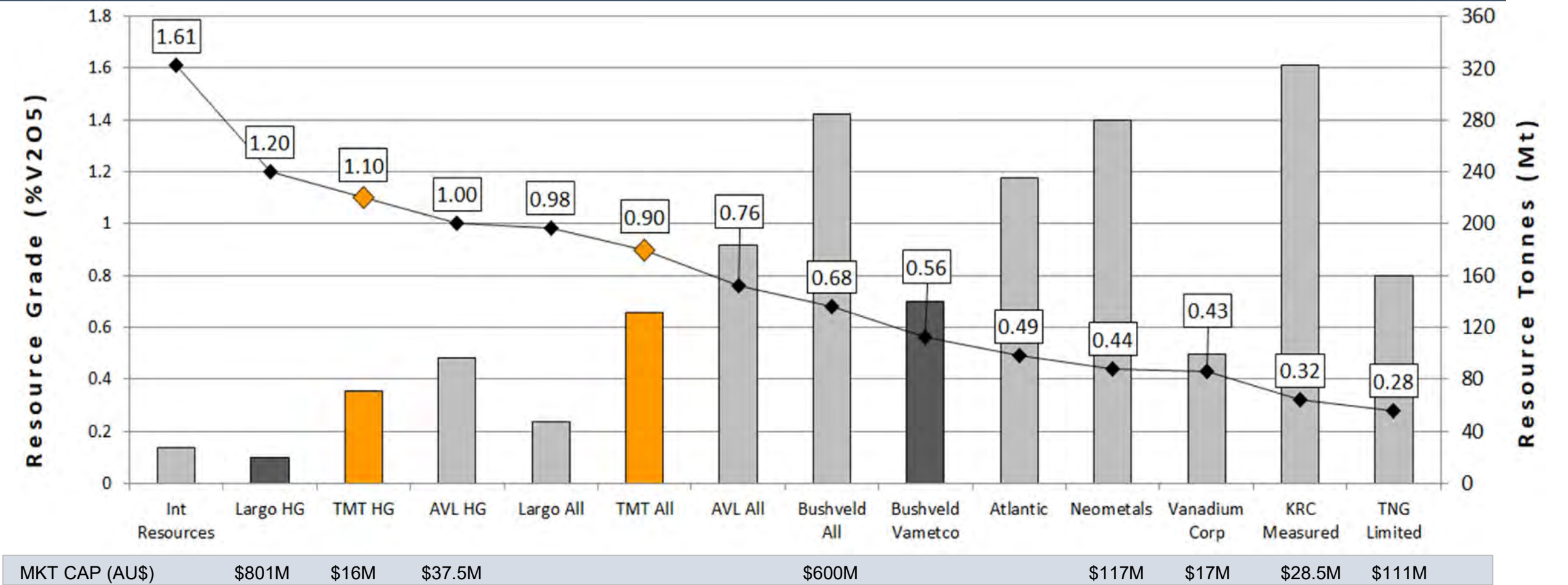


Long Section – Northern Block – Massive Magnetite Zone

Global Vanadium Projects (ex China)



TMT at the Right End of the Chart



*Market capitalisation of listed entities as at 7 May 2019.
Bushveld Minerals and Neometals hold other significant resource assets. Vametco 75% owned by Bushveld Minerals.
Atlantic Limited not listed. Mapochs owned by International (Int) Resources

Development Pathway



June 2018 Pre-feasibility Study Outcomes*

**MASSIVE MAGNETITE
RESOURCE**
55Mt
@ 1.1V₂O₅

**MINING
RESERVE**
16.7Mt
@ 0.96 V₂O₅

**PROCESSING
PLANT**

13,000t V₂O₅ p.a.

MINE LIFE

13+YEARS

OPEX
US\$4.27
/ lb V₂O₅

PAYBACK

<2.5years
at US\$13/lb V₂O₅

**CAPITAL
COSTS**

US\$285M
A\$380M

POST TAX NPV

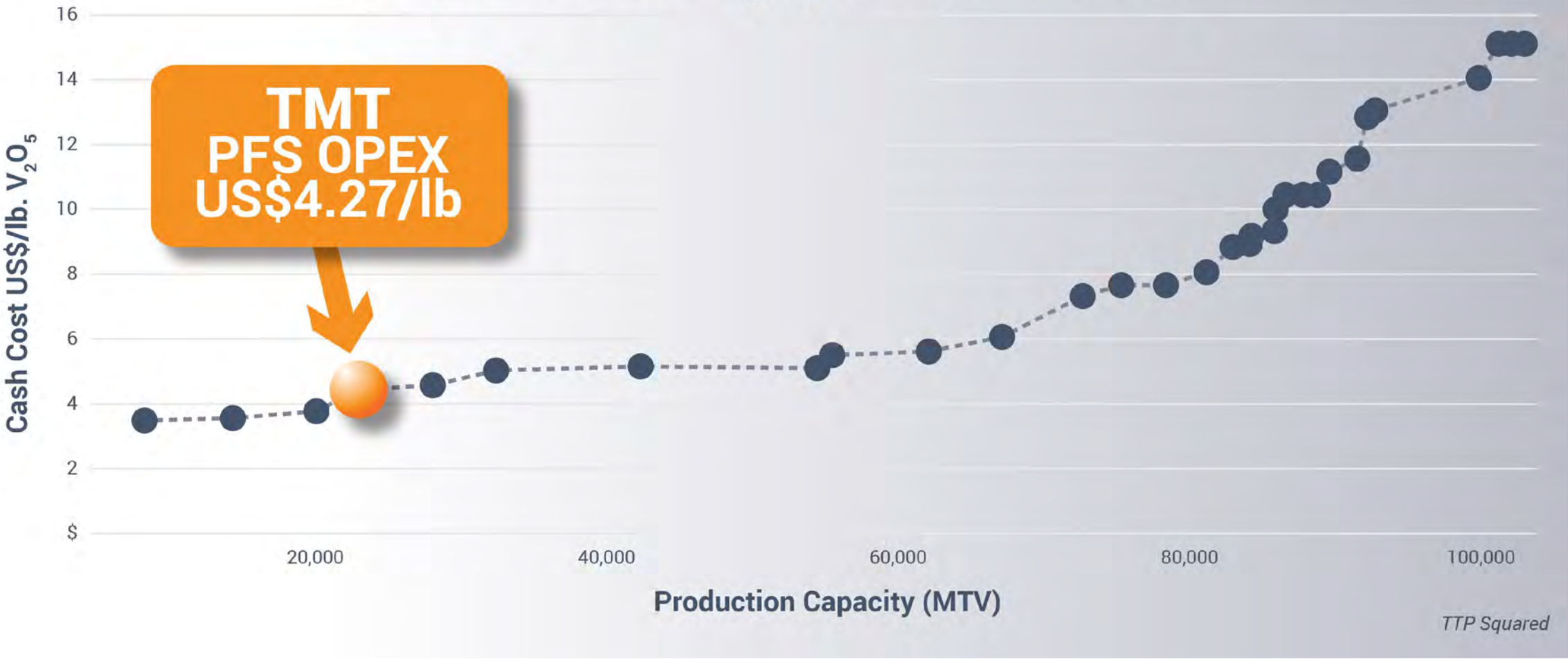
US\$645M
A\$850M
at US\$13/lb V₂O₅
and A\$=US\$0.75
IRR 43%

Definitive Feasibility Study progressing toward mid 2019 delivery

* Refer TMT ASX announcement dated 21 June 2018 for full details of the pre-feasibility study.

Gabanintha – Emerging Tier 1 Vanadium Project

Forecast 2019 V_2O_5 Cash Cost Curve



Metallurgical Testwork*



Coarse grain ore with very high weight recoveries in to a magnetic concentrate



Beneficiation produces very clean, high quality magnetic concentrate



Roast / leach processing delivers very high purity final product

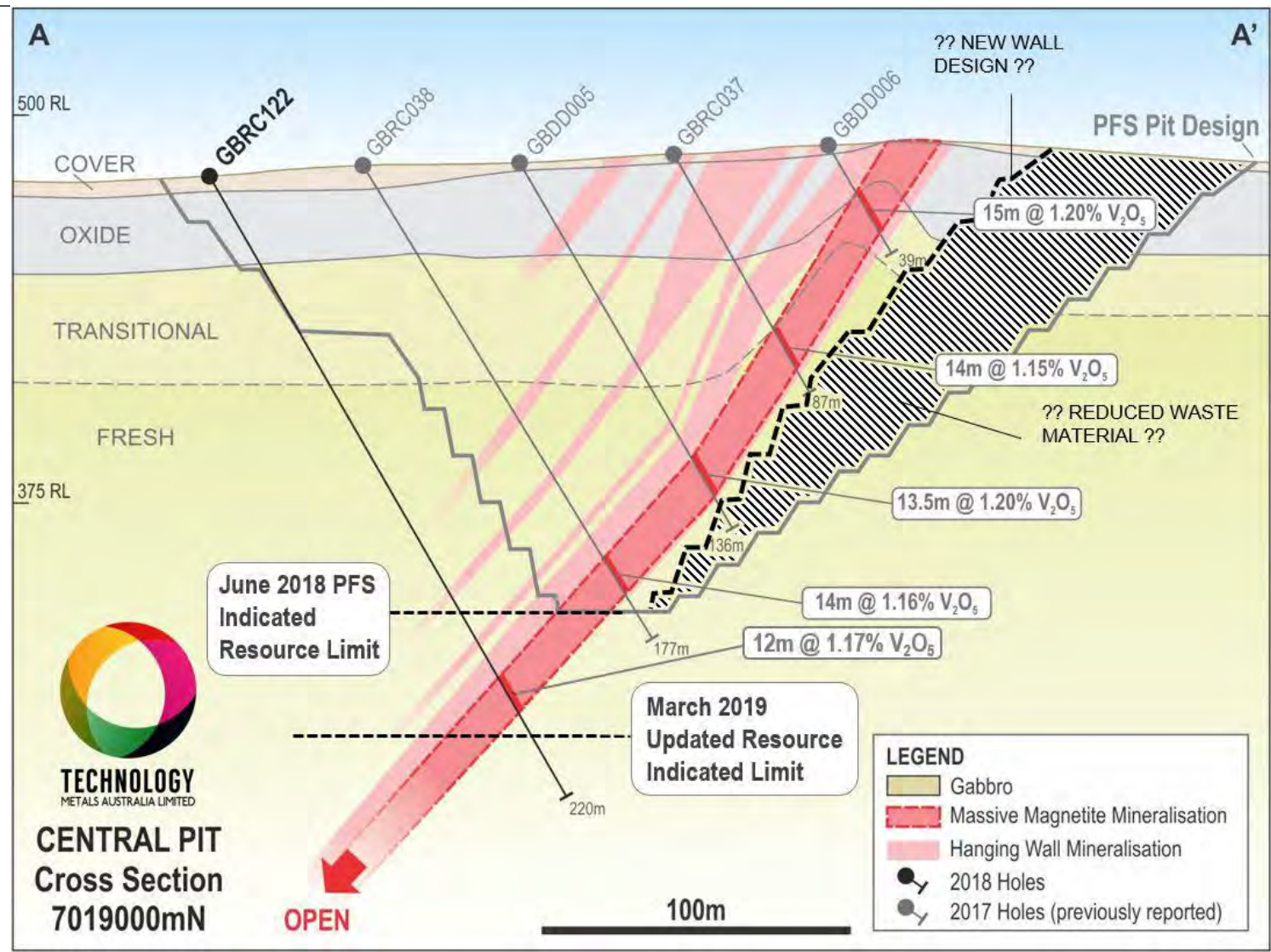
* – Refer TMT ASX announcements dated 8 September 2017, 22 February, 4 April 2018, 31 May 2018, 12 September 2018 and 12 December 2018 for full details of metallurgical testwork.

Ahead of the Pack - Pilot Test Work



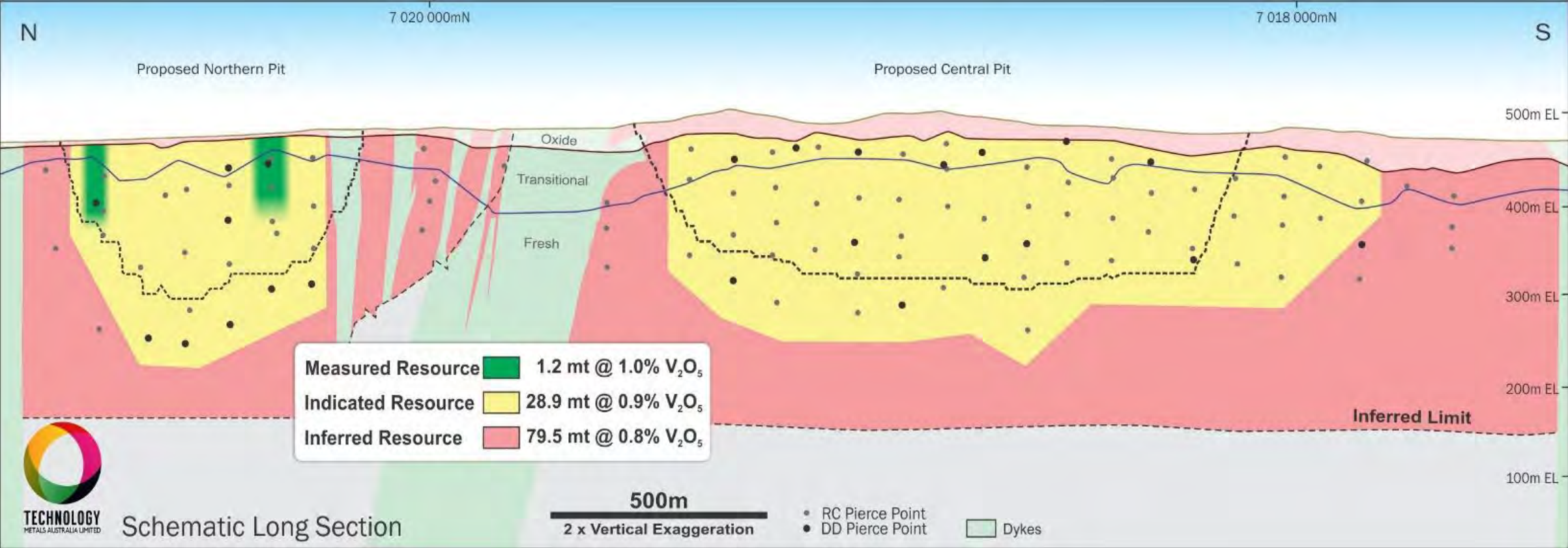
- ✓ 9t of magnetic concentrate produced and sent to USA for important kiln pilot test work
- ✓ Results will de-risk process flow sheet and support scalability
- ✓ Testwork will provide significant volume of final product aid marketing campaign with potential partners

Project Enhancement Drilling Program*



* – Refer TMT ASX announcement dated 8 November 2018, 20 December 2018 and 30 January 2019 for full details of project enhancement drilling results.

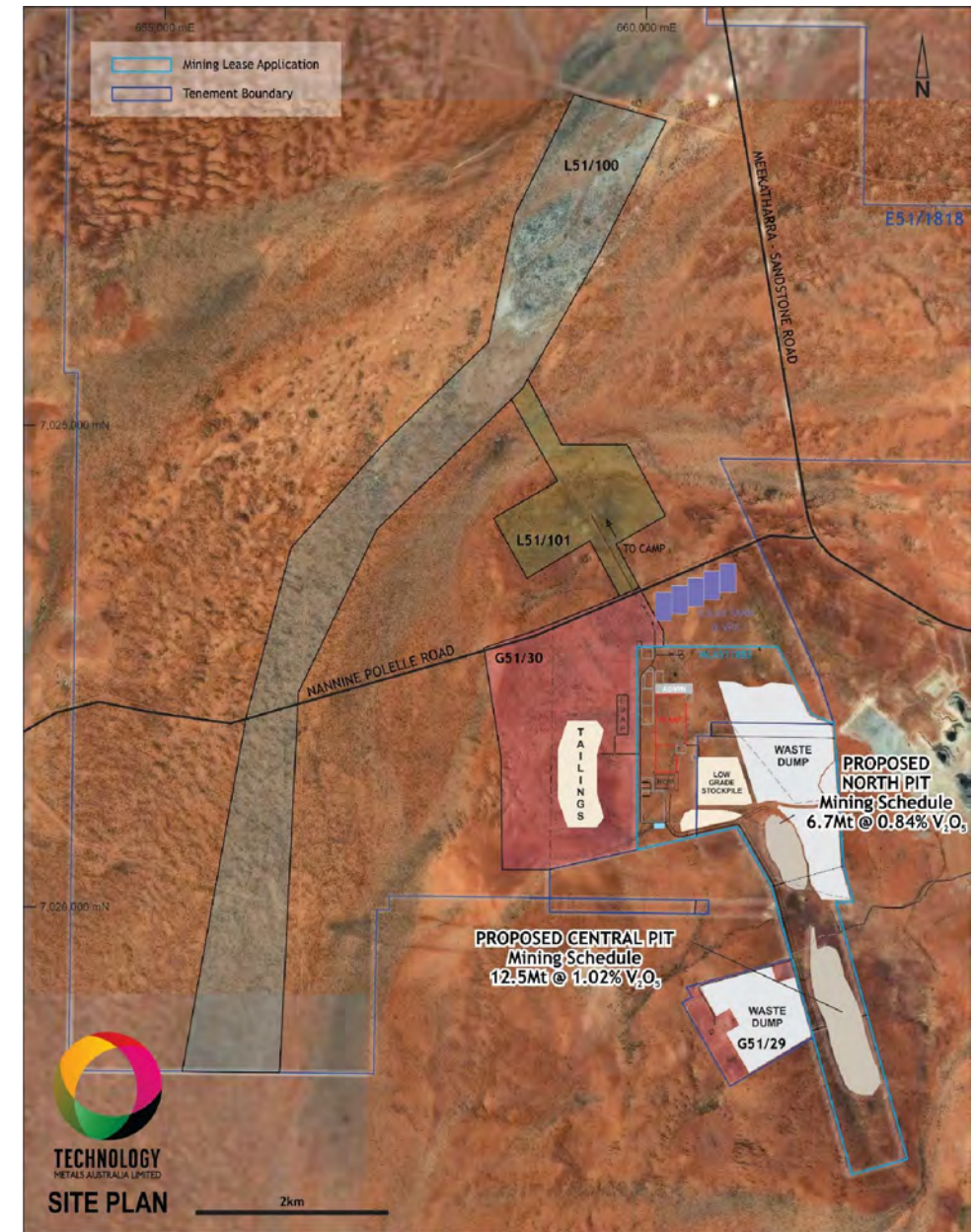
Resource Growth to Deliver Reserve Increase



Schematic Long Section – Northern Block – Massive Magnetite Horizon

Development Milestones

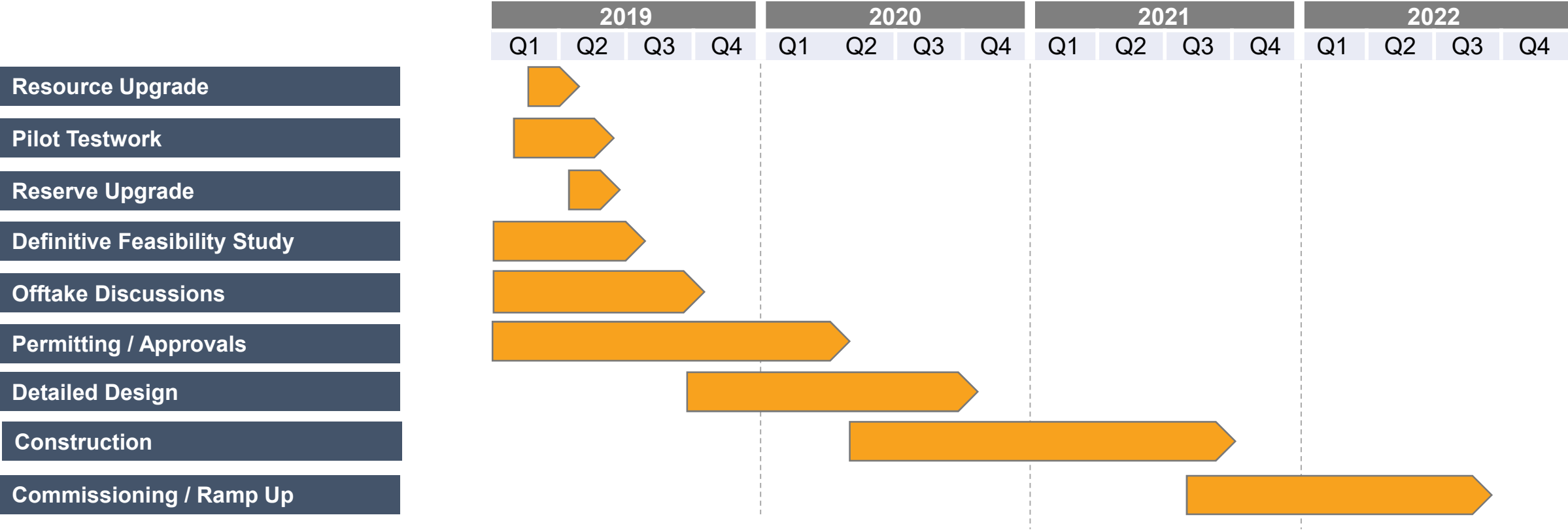
- Pilot plant testwork underway on bulk sample from North Pit area including scaled-up kiln testwork – optimise process flow sheet.
- This work generating further final product sample for off taker / end-user testing.
- Detailed process plant design and engineering completed with updated opex and capex being compiled.
- Process water source identified to the north of treatment plant on TMT tenure – drilling underway to further define quantum.
- Environmental and heritage studies progressing in support of advancing mining lease grant and statutory approvals.



Gabanintha Project Schedule



Indicative Timetable





Investment Case



- **Leveraged** to structural change in the vanadium industry.
- **Progressing** offtake discussions underpinned by delivery of high purity final product.
- **Globally Significant** high grade, low cost, large scale and long life vanadium development project.
- **Stable** well resourced mining environment with excellent infrastructure and access to services.
- **Experienced Team** focused on rapidly progressing the project to maximise shareholder value.

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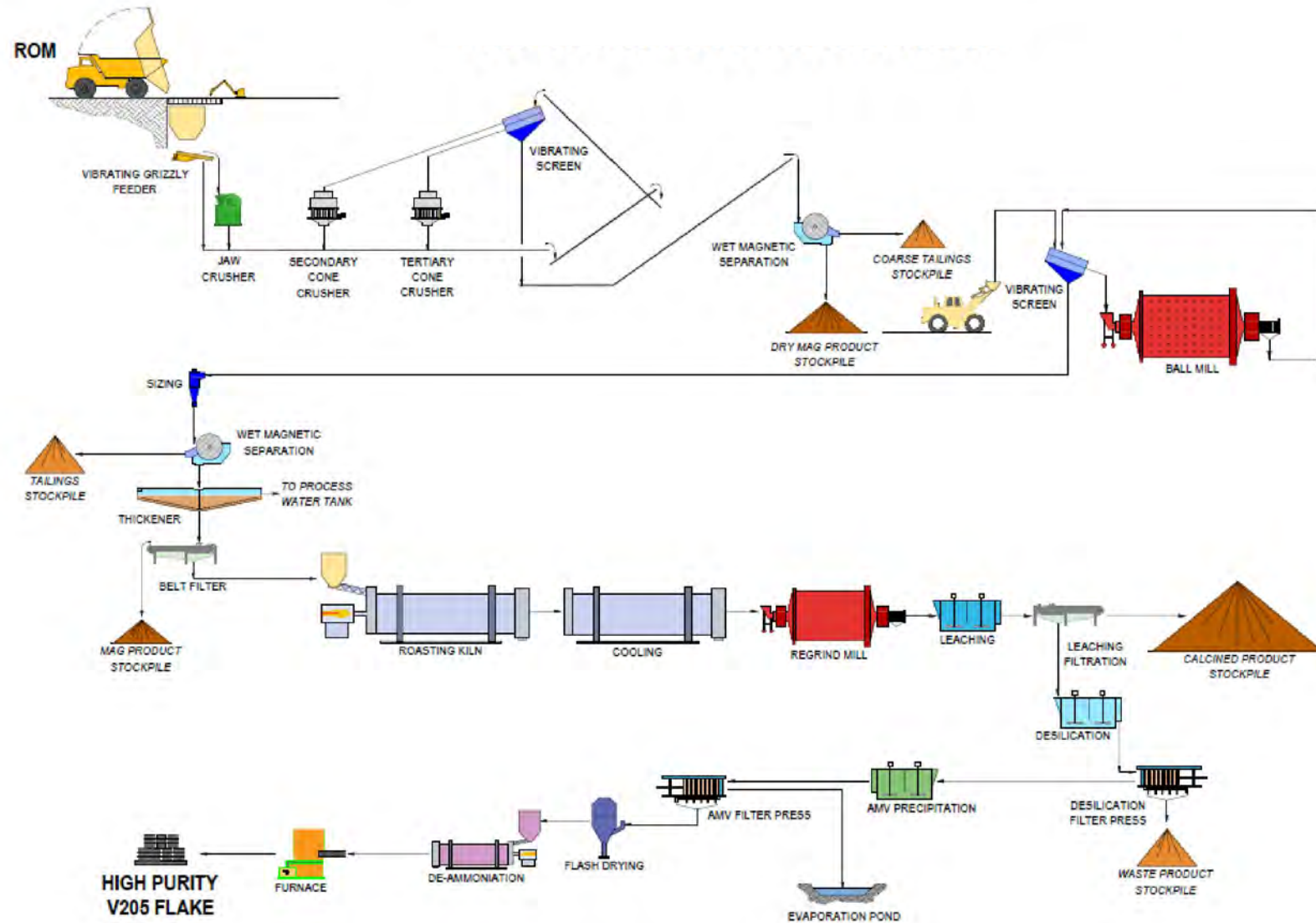
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APPENDICES



Proposed Processing Flow Sheet



Base Metal (Co-Ni-Cu) By-product Stream*



- Preliminary base metal recovery testwork delivered highly encouraging flotation concentrates with a combined base metal content of 10% - 15%
- Base metal cleaner concentrates contain up to **2.31% cobalt, 4.47% nickel and 9.50% copper**
- Significant scope for optimisation of base metal recovery into a concentrate product

Material specifications for base metal cleaner concentrates

Al ₂ O ₃ (%)	As (%)	CaO (%)	Co (%)	Cr (%)	Cu (%)	Fe (%)	K ₂ O (%)	MgO (%)
1.45 – 5.45	0.01 - 0.02	0.31 – 1.20	1.28 – 2.31	0.03 – 0.07	4.18 – 9.50	17.0 – 29.3	0.01 – 0.04	5.95 – 14.4
MnO (%)	Na (%)	Ni (%)	P (%)	S (%)	SiO ₂ (%)	TiO ₂ (%)	V ₂ O ₅ (%)	LOI1000 (%)
0.02 – 0.07	0.08 -0.10	2.50 – 4.47	0.01 – 0.02	14.60 - 34.40	11.80 – 27.47	0.35 – 1.88	0.02 – 0.07	12.52 - 21.46



Cleaner flotation test and resultant filtered base metal concentrate

Base Metal Mineral Resource Estimate – Gabanintha Vanadium Project Northern Block

Classification	Million Tonnes	Co ppm	Ni ppm	Cu ppm
Inferred	15.7	230	830	200

* Note: The Mineral Resources are estimated within the constraining wireframe solids defined using a nominal 0.9% V2O5 lower cut-off grade for the basal massive magnetite unit. The base metal Mineral Resources are reported from within higher confidence zones of the fresh rock portions of the massive magnetite unit. Differences may occur due to rounding.

* - Refer TMT ASX Announcement 12 December 2018

Processing Facility Schematic



Gabanintha Project – Schematic Processing Plant Layout

Gabanintha Site Layout

