



# TECHNOLOGY METALS AUSTRALIA LIMITED

(ASX: TMT; FRA: TN6)

MINES AND MONEY ASIA  
HONG KONG – APRIL 2018

***“A World-Class Vanadium Development Opportunity”***

# Important Information



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

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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 a 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 report that relates to Mineral Resource estimates is based on information compiled by Mr Aaron Meakin. Mr Meakin is a Principal Consultant with CSA Global and a Member of the Australian Institute of Mining and Metallurgy. Mr Meakin has sufficient experience relevant to the styles of mineralisation and types of deposits which are covered in this report 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 Meakin consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

# Investment Highlights

***"Invest in a World-Class Vanadium Development Opportunity"***



**Vanadium Market in Deficit;** structural change reducing supply on the cusp of a period of expected dramatic demand growth delivering a near 400% price increase in past 18 months.

**Wholly Owned Gabanintha Vanadium Project;** 5.5km strike length of high grade mineralised layered mafic igneous unit – **one of the highest grade vanadium deposits** in the World.

**Updated Global Resource;** consistent high grade core of **55.0Mt at 1.1%  $V_2O_5$**  within a global resource of **119.9Mt at 0.8%  $V_2O_5$** , containing maiden Indicated Resource of **21.6Mt at 0.9%  $V_2O_5$** .

**Emerging Developer;** Technology Metals Australia (TMT) A\$21.5 million market capitalisation\* - **pre-feasibility study** focused on traditional salt roast / leach processing **due June 2018**.

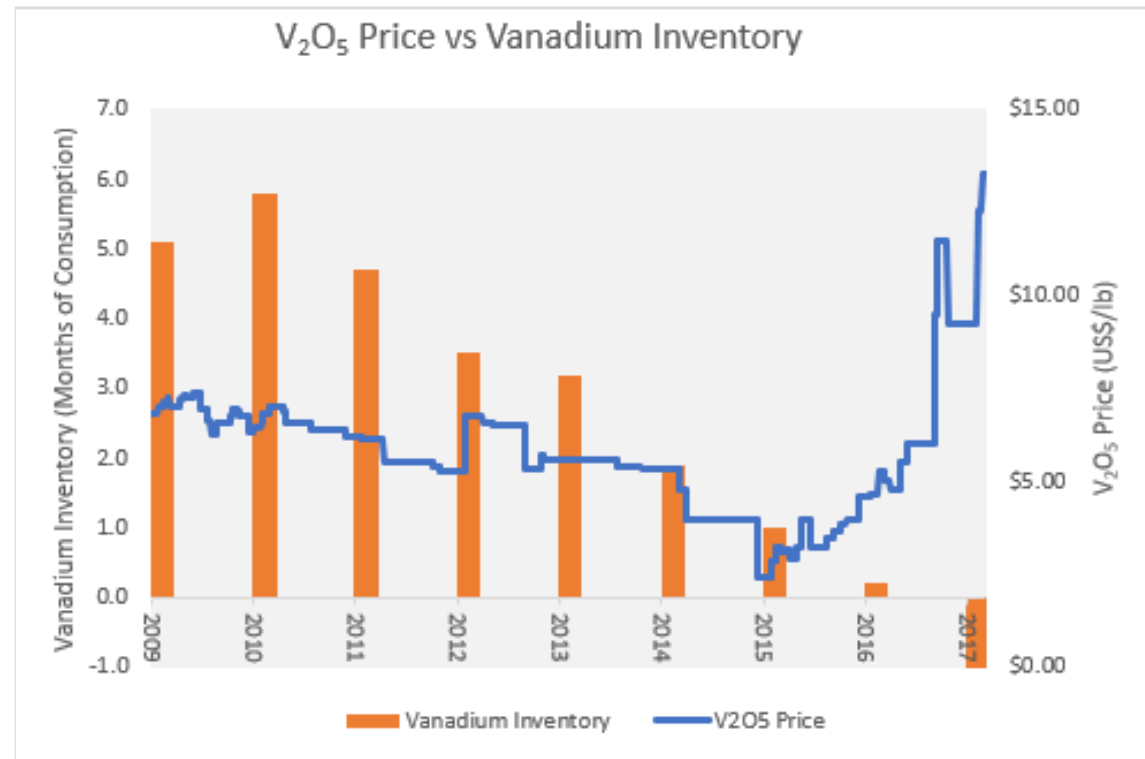
**Global Comparatives;** Largo Resources, Inc. (TSX:LGO market cap CN\$697m) operating mine in Brazil and TNG Limited (ASX:TNG market cap A\$137) advanced development project in Australia.



\* As at 19 March 2018

# Vanadium Market in Deficit

- **Structural change in industry** has seen consumption outstrip supply for the past five years with inventory now depleted.
- Industry rationalisation and environmental constraints in China resulting in a dramatic production decline.
- Ban on slag imports to China implemented 1 Jan 2018 amidst ongoing shutdowns of Chinese slag plants.
- Annual global production in 2016 made up of co-product from steel slag (73%), primary ores (17%) and 10% from secondary sources.
- Emerging primary producers ideally placed to meet increasing demand.

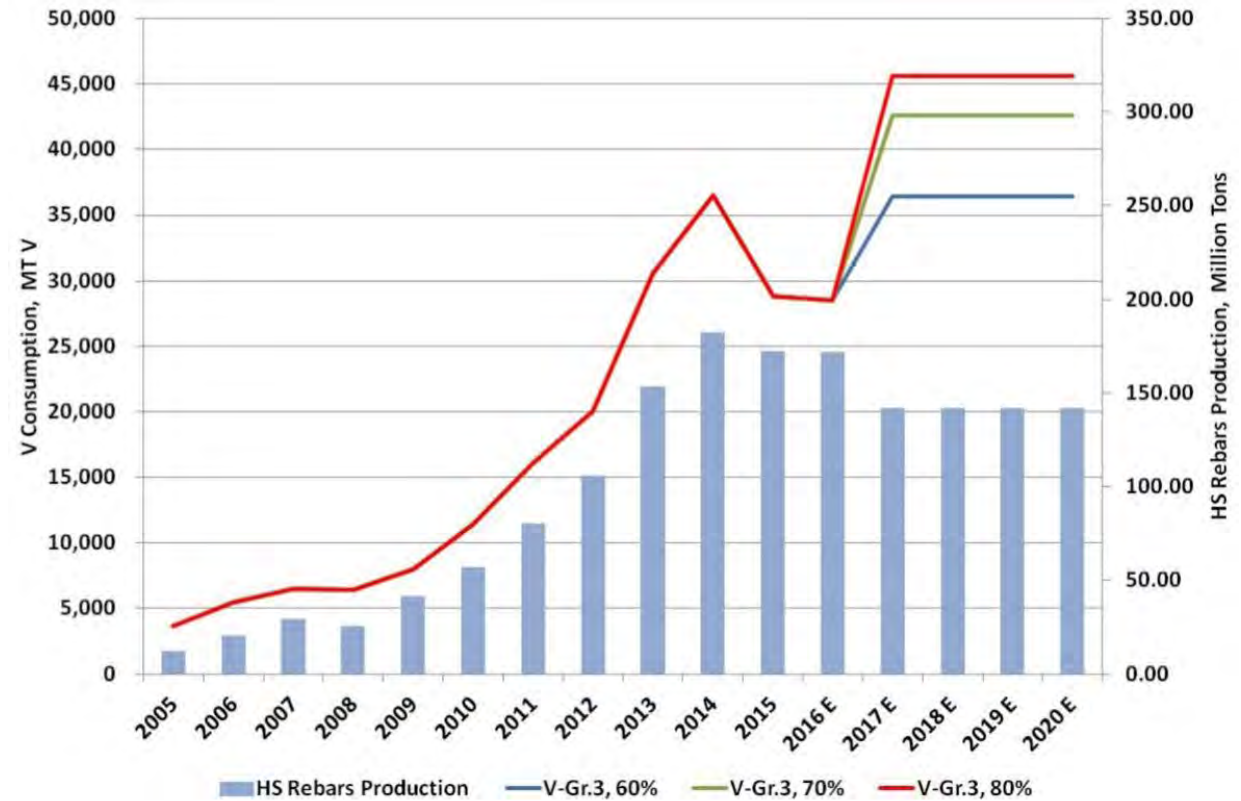


Source: TTP Squared, Inc., Metal Bulletin

# Vanadium Consumption Increasing

- Consumption in 2016 (~81,000t) dominated by steel alloys (91%) with energy storage at 2%.
- Addition of 0.2% vanadium content increases steel strength up to 100% and reduces weight for the same use by up to 30%.
- Newly implemented Chinese Rebar standard forecast to increase vanadium consumption in China by up to 50% (15,000tpa).
- Global consumption forecast to increase to 131,000tpa by 2025 (source: Roskill), excluding significant growth in the energy storage (battery) sector.

Vanadium Use in Chinese Rebar

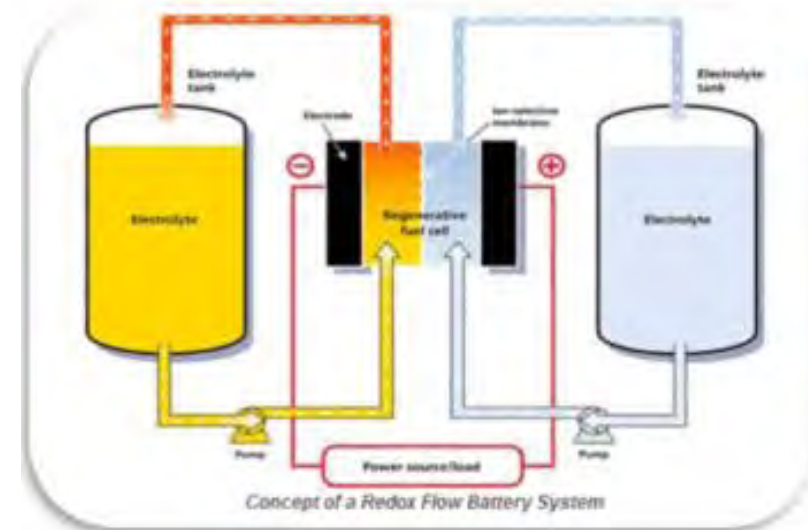


Source: China Iron & Steel Research Center



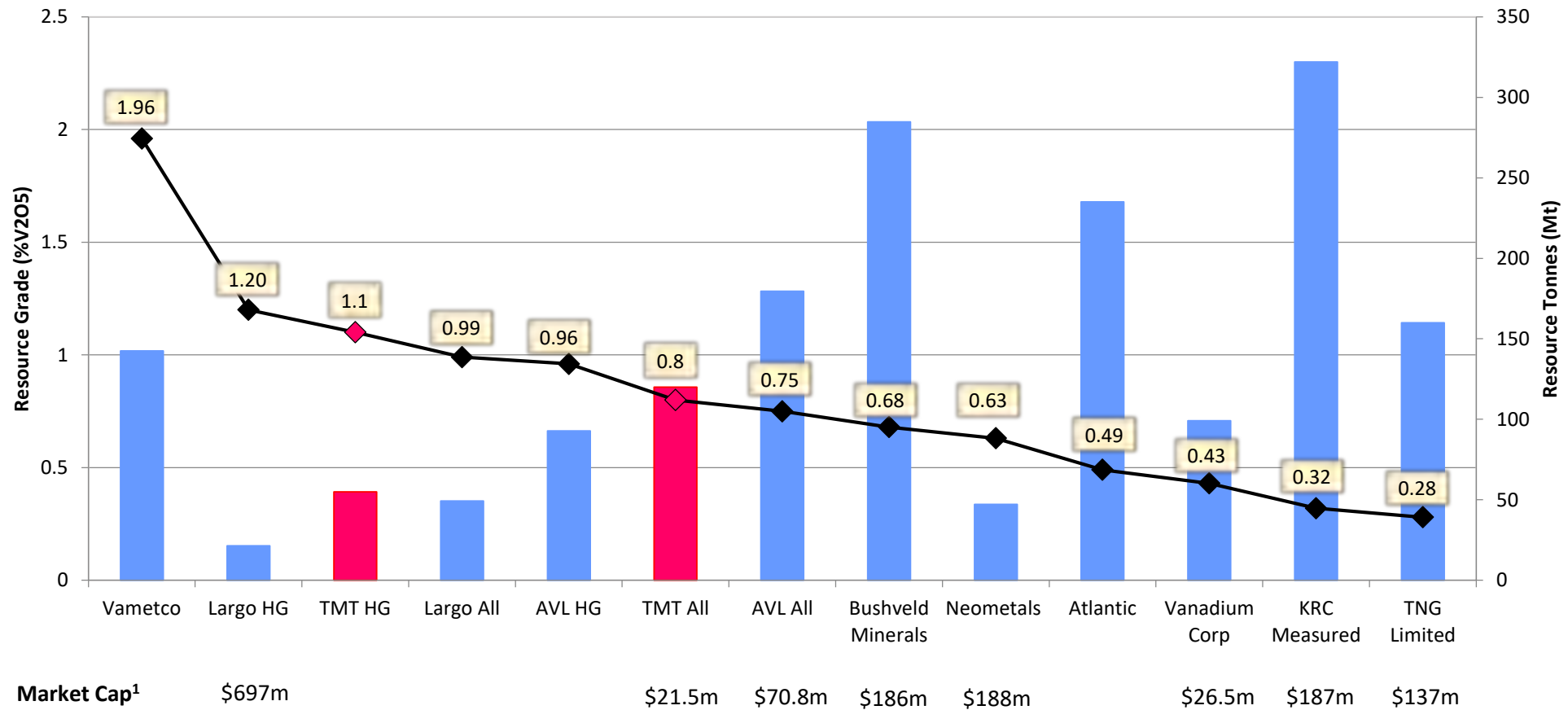
# Market Disruptor – VRB's

- Vanadium Redox Batteries (VRB's) are an efficient storage solution for renewable energy, suitable for large-scale applications – able to time-shift large amounts of previously generated energy.
- Vanadium ions in different oxidation states are used to store energy – vanadium is anode and cathode.
- Easily scalable into large MW applications; provide a grid scale solution – peak shaving, regulating load frequency, driving grid efficiency.
- Rongke Power developing a 200MW/800MWh battery in Dalian, China, using ~6,960 tonnes  $V_2O_5$ .
- Lifespan of +20 years with very high cycle life (up to 20,000 cycles) and no capacity loss.
- Can discharge to 100% with no performance degradation; excellent long term charge retention.
- Rapid recharge and discharge, with very fast response time (<70ms).



# Global Vanadium Projects (ex China)

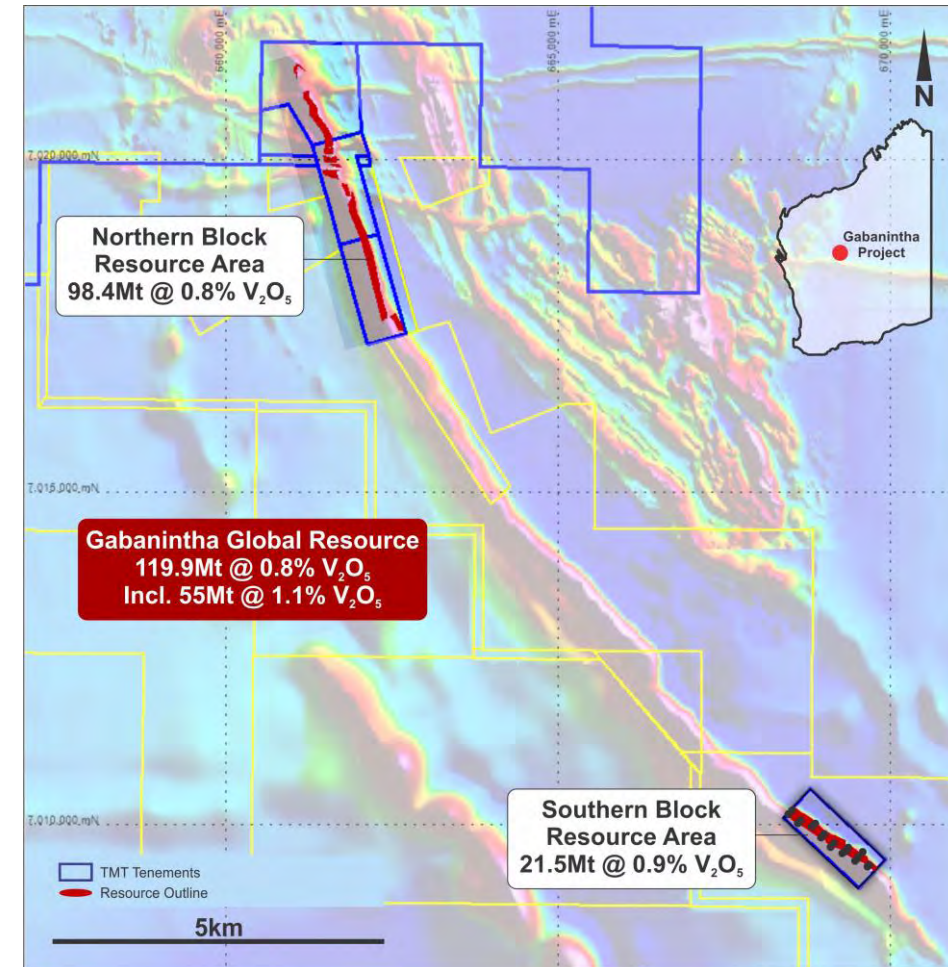
## TMT at the Right End of the Chart



1 – Market capitalisation of listed entities as at 19 March 2018. Bushveld Minerals and Neometals hold other significant resource assets. Vametco 59.1% owned by Bushveld Minerals. Atlantic Limited not listed.

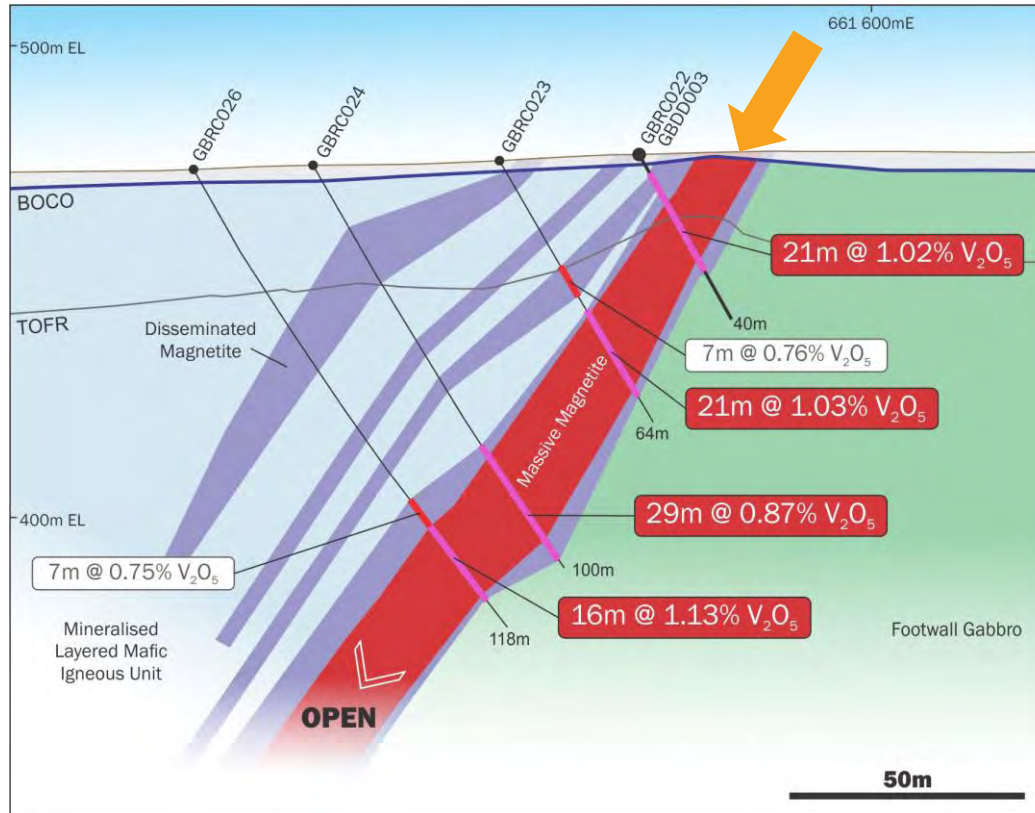
# Gabanintha Vanadium Project

- Midwest of Western Australia, 40km south of Meekatharra gold mining centre, 700km north east of Perth.
- Excellent infrastructure – Great Northern Highway from Perth passes within 30km of the project.
- Port of Geraldton 500km to the south west accessible via sealed highway.
- Mineralisation hosted by a layered mafic igneous unit – magnetite enriched layers host high grade vanadium and titanium.
- Project contains over 5.5km strike length of the mineralised unit – divided in to Northern Block and Southern Tenement.
- Mineralisation outcrops along majority of strike length, with outstanding consistency of grade and continuity of mineralisation.





# Geological Control



Section 0400N – Wide High Grade Mineralisation with Very Shallow Oxidation Profile

- Orebody geometry expected to have a very positive impact on project economics.
- Broad continuous high grade basal zone overlain by multiple medium grade zones.
- Resource remains open at depth – high grade mineralisation intersected at in excess of 170m vertical.
- Thickening of high grade mineralisation evident in +700m long northern zone.
- Very shallow oxidation profile in northern zone of Northern Block likely to enable early access to transitional and fresh material.
- Southern Tenement appears to have similar very shallow oxidation profile.

# Metallurgical Testwork



- Detailed testwork underway on diamond drilling composite samples.
- Outstanding recoveries of up to 97.8% V in to magnetic concentrate with very high weight recoveries of up to 85.6%.
- Concentrate grades of +1.3%  $V_2O_5$  delivered for transitional and fresh high grade massive magnetite zone.
- Exceptional rejection of deleterious elements Si and Al results in very high quality magnetic concentrate.
- Vanadium recovery to a magnetic concentrate not sensitive to grind size.
- Ongoing work assessing downstream processing focused on the extraction of vanadium using traditional salt roast / leach processing.

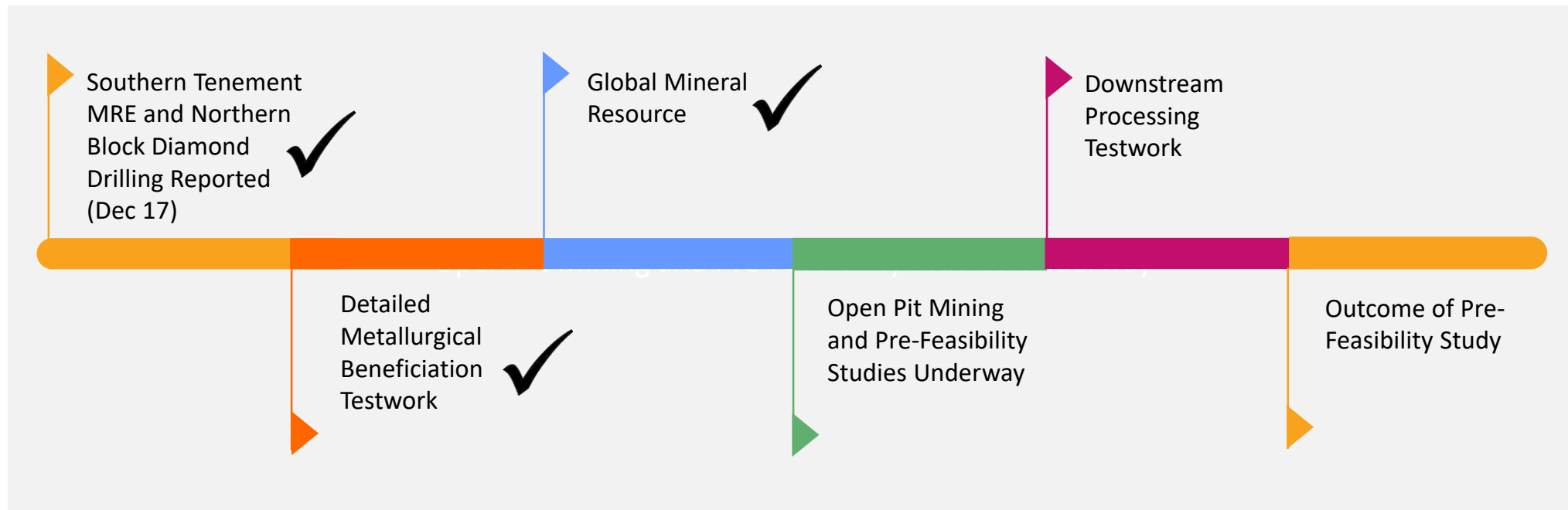
# Gabanintha Development Strategy



***“Aggressive development timeline; momentum to be maintained”***

*January 2018*

*June 2018*



# Corporate Overview



Company Snapshot	
ASX Code	TMT
Pro forma cash as at 19 March 2018	\$3.5m
Market Cap (as at 19 March 2018)	\$21.5m
Tradeable Shares on Issue	32.75m
Escrowed Shares on Issue*	22.5m
Total Shares on Issue	55.25m
Options (\$0.25 – 31/12/19 expiry)*	14.85m
Options (\$0.35 – 12/01/21 expiry)	3.0m
Options (\$0.40 – April 2020 expiry)*	10.0m
Enterprise Value	\$18.0m

Top Shareholders – Pro Forma	
Twentieth Century Motor Company	30.1%
Station Nominees PL	10.2%



Rongke Power's VRB Factory in Dalian, China (up to 3GW capacity by 2020)

*"We think there's a revolution coming in vanadium redox flow batteries.....You'll have to get into the mining business and produce ultra-pure vanadium electrolyte for those batteries on a massive scale"*

**- Robert Friedland, May 2017**

\* - 22.5m shares and 13.7m \$0.25 options subject to restriction until 21 December 2018, 10m \$0.40 options subject to shareholder approval



# Company Board and Management



**Michael Fry**  
**Non-Executive Chairman**

Michael Fry 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**  
**Executive Director**

Mr Prentice is a Member of the Australasian Institute of Mining and Metallurgy and holds a Bachelor of Science (Geology) from the University of Western Australia.

Mr Prentice has served as a Director for a number of ASX-listed resource companies, with activities ranging from exploration and project acquisition in Asia and Africa through to gold production in Australia.



**Sonu Cheema**  
**Non-Executive Director and Company Secretary**

Mr Cheema has completed a Bachelor of Commerce majoring in Accounting at Curtin University and is a member of CPA Australia.

Mr Cheema holds the position of Accountant and Company Secretary for Cicero Corporate Services and has over 10 years' experience working with public and private companies in Australia and abroad.



# Summary

**Experienced Board / Management** team focused on delivering shareholder returns.

**Minimal geological / resource risk** with the Project amongst the highest grade deposits in the World; pre-feasibility study underway.

**Well placed** to take advantage of structural change in the industry with expected demand growth in a reducing supply environment.

**Stable, well resourced** Western World mining environment to support project development, with excellent infrastructure and access to services.

**Team in place** to rapidly progress the project through development phases.



**Come and see us at Mining Hub M6**

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# Appendix: Mineral Resources<sup>2</sup>

- Project sits comfortably amongst the highest grade vanadium deposits in the World.
- Exceptional high grade resources of **55.0Mt at 1.1% V<sub>2</sub>O<sub>5</sub>** within consistent, continuous basal massive magnetite zone across the Northern Block and the Southern Tenement.
- Global resource of 119.9Mt at 0.8% V<sub>2</sub>O<sub>5</sub> including an **Indicated Resource of 21.6Mt at 0.9% V<sub>2</sub>O<sub>5</sub>** (Northern Block only).
- Northern Block resource increased by 50% to 98.4Mt at 0.8% V<sub>2</sub>O<sub>5</sub> including a high grade core of 44.6Mt at 1.1% V<sub>2</sub>O<sub>5</sub>.

Technology Metals Gabanintha Vanadium Project - Global Mineral Resources as at March 2018										
Material	Classification	Tonnage (Mt)	V2O5%	Fe%	Al2O3%	SiO2%	TiO2%	LOI%	P%	S%
Massive magnetite	Indicated	14.5	1.1	49.2	5.1	5.8	12.8	-0.2	0.007	0.2
	Inferred	40.5	1.1	48.3	5.5	6.5	12.7	0.2	0.007	0.2
	<b>Indicated + Inferred</b>	<b>55.0</b>	<b>1.1</b>	<b>48.5</b>	<b>5.4</b>	<b>6.3</b>	<b>12.7</b>	<b>0.1</b>	<b>0.007</b>	<b>0.2</b>
Disseminated magnetite	Indicated	7.1	0.6	29.9	12.6	24.4	7.8	2.9	0.032	0.1
	Inferred	57.7	0.6	27.2	13.7	26.7	7.2	4.0	0.024	0.2
	<b>Indicated + Inferred</b>	<b>64.9</b>	<b>0.6</b>	<b>27.5</b>	<b>13.5</b>	<b>26.4</b>	<b>7.2</b>	<b>3.9</b>	<b>0.025</b>	<b>0.2</b>
<b>Combined</b>	<b>Indicated + Inferred</b>	<b>119.9</b>	<b>0.8</b>	<b>37.1</b>	<b>9.8</b>	<b>17.2</b>	<b>9.7</b>	<b>2.1</b>	<b>0.016</b>	<b>0.2</b>

\* Note: The Mineral Resource was estimated within constraining wireframe solids using a nominal 0.9% V2O5 lower cut-off for the Massive magnetite zone and using a nominal 0.4% V2O5 lower cut-off 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.