

Developing The Worlds Next Primary Vanadium Mine



Gabanintha Vanadium Project
Advanced High-Grade Low Cost
Large Scale High Quality Long Life



TECHNOLOGY
METALS AUSTRALIA LIMITED

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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 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 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 Prentice 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 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 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 Louw 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 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 report that relates to the Processing and Metallurgy for the Gabanintha project is based on and fairly represents, information and supporting documentation compiled by Mr Brett Morgan and reviewed by Mr Damian Connelly, both employees of METS Engineering Group Pty Ltd. Mr Connelly takes overall responsibility for the Report as Competent Person. Mr Connelly 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 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'. The Competent Person, 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: Develop Gabanintha as High Purity V₂O₅ Supplier of Choice



DEFINITIVE FEASIBILITY STUDY¹ CONFIRMS LOW COST, LARGE SCALE, LONG LIFE

- Compares favourably to global vanadium producers
- Lowest quartile LOM cash costs of US\$4.04/lb V₂O₅
- Initial +16 LOM at average 12,800T V₂O₅ pa
- Capital payback in 3.2 years incl 2 year ramp up

NEXT STEPS

- DFS delivery a key milestone in partner discussions
- Progress offtake discussions with CNMNC and other potential offtake partners
- Engagement with strategic investors / financiers with regard to project funding

A GLOBALLY SIGNIFICANT VANADIUM DEPOSIT

- Large high-grade resource underpins Project economics
- Ore Reserve of 29.6Mt at 0.88% V₂O₅
- Global resource of 131Mt at 0.9% V₂O₅
- High purity product supports end-user engagement

GLOBAL PEER

- Largo Resources, Inc. (TSX:LGO CN\$755mn) operating Maracas Menchen Mine, Brazil, 2019 production guidance 10,000t to 11,000t V₂O₅

GABANINTHA VANADIUM PROJECT

– among the highest grade, high purity, large-scale, vanadium deposits in the world

¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

Corporate Overview

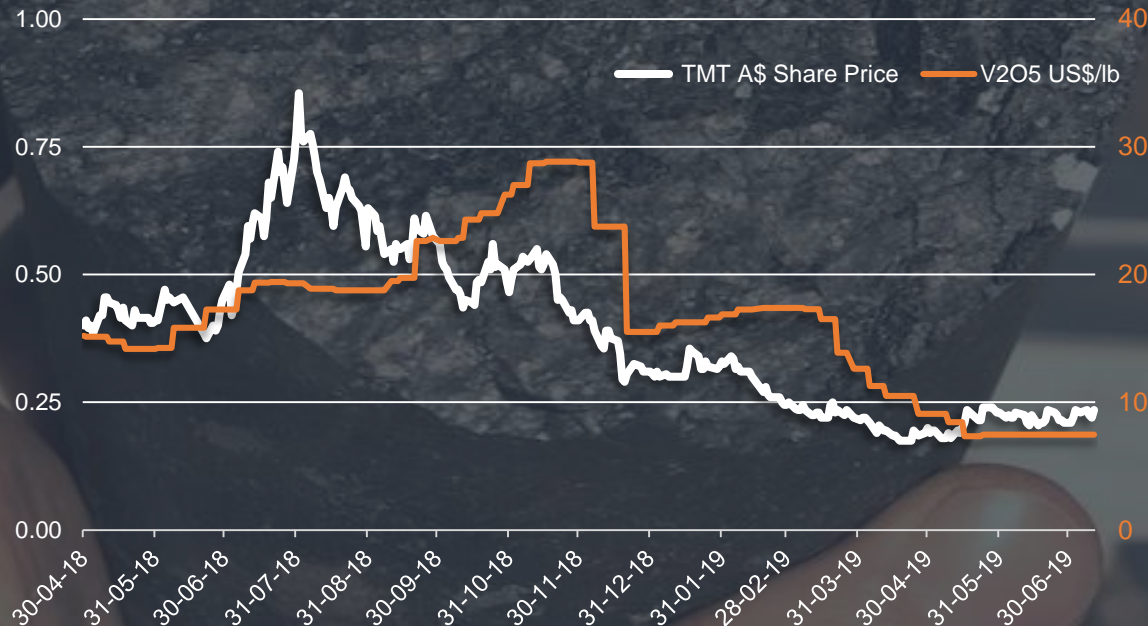
CAPITAL STRUCTURE

ASX Codes	TMT, TMT0
Cash as at 30 June 2019*	\$3.26m
Market Cap (as at 23 August 2019)	\$16.2m
Total Shares on Issue	87.5m
Unlisted Options (various)**	20.6m
Listed Options - (\$0.40 – 24/05/20)	14.9m

* \$1.84m cash plus \$1.42m undrawn R&D rebate finance facility

** 14.6m \$0.25, 31/12/19 expiry; 2.75m \$0.35 12/01/21 expiry; 3.26m \$0.40, 24/05/20 expiry

SHARE PRICE



ASX: TMT, TMT0; FRA: TN6



BOARD AND MANAGEMENT



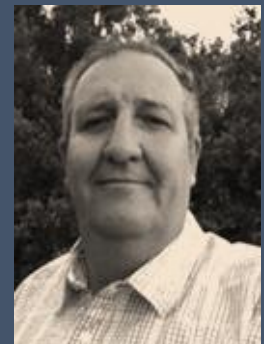
Michael Fry
Non-Executive
Chairman



Ian Prentice
Managing
Director



Sonu Cheema
Non-Exec Dir
Co Secretary



David English
Project Director

SUPPORTED BY INDUSTRY EXPERTS



A Short History



Completion of IPO &
ASX listing (Dec 16)

First Drilling Program

2017

Delivered in 6 months

Maiden Southern
Tenement Resource

2018

Maiden Northern Block
Resource

Delivered Technically &
Financially Robust PFS

Global Resource
Updated

MASSIVE MAGNETITE
RESOURCE
71.2Mt
@1.1% V_2O_5

2019

Met Results Deliver
99.5% Purity

HIGH PURITY
PRODUCT

>99% V_2O_5

✓
Pilot Kiln Testwork
Confirms High
Vanadium Recovery

DFS DELIVERED
Pathway to Development

Updated
**MINING
RESERVE**
29.6Mt
@ **0.88% V_2O_5**

Offtake MOU Executed
with CNMNC



GABANINTHA


Vanadium Project



August 2019 DFS - Outcomes¹

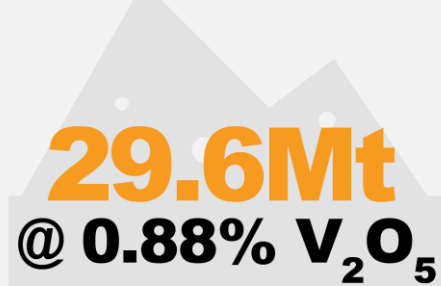
MASSIVE MAGNETITE RESOURCE

71.2Mt
@ 1.1% V_2O_5



MINING RESERVE

29.6Mt
@ 0.88% V_2O_5



PROCESSING PLANT



27.9Mlb
 V_2O_5 pa

MINE LIFE



+16years

OPEX



US\$4.04
/ lb V_2O_5

PAYBACK

\$ 
<3.2years

PRE PRODUCTION CAPITAL COSTS



US\$318M
A\$454M

PRE TAX NPV₈

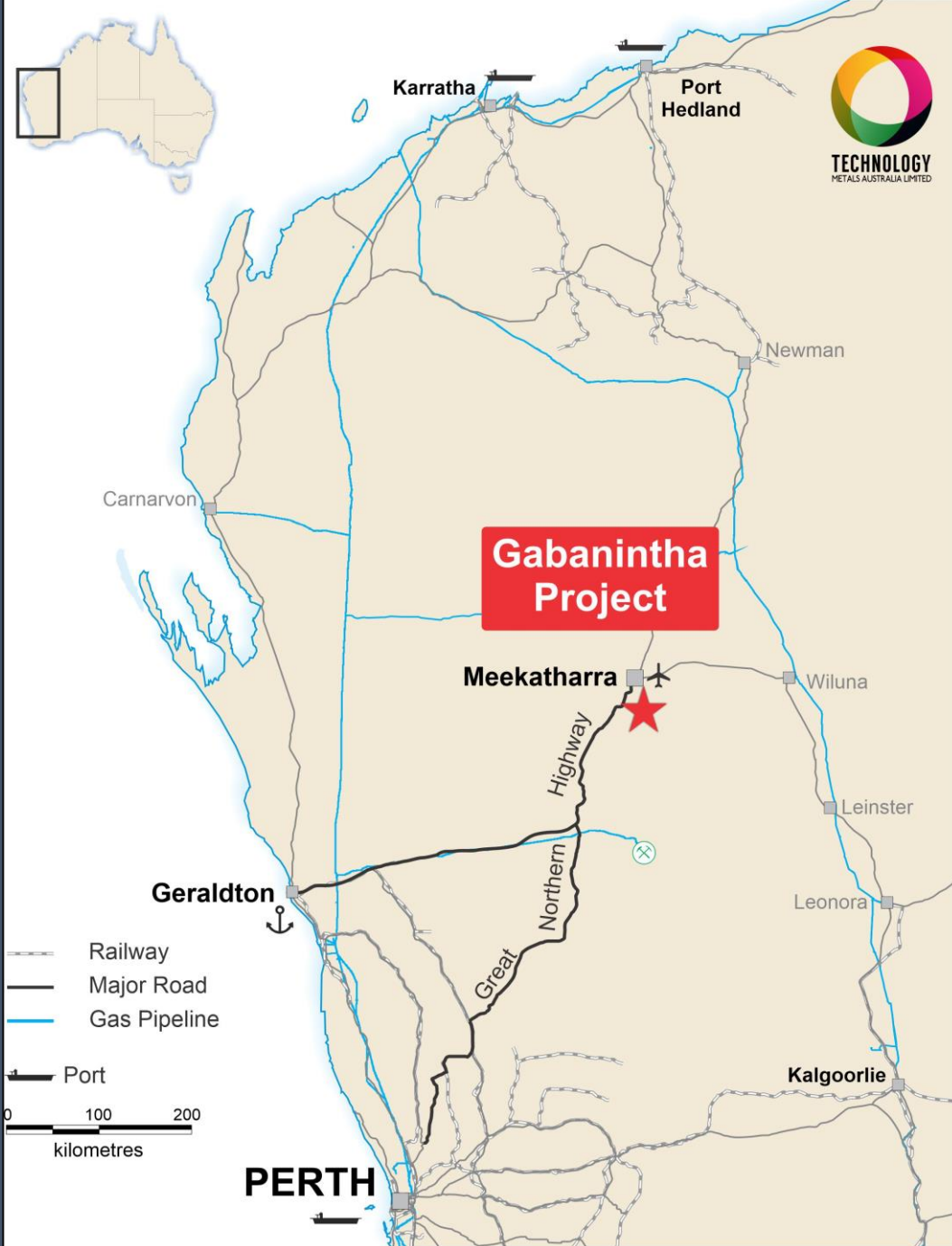


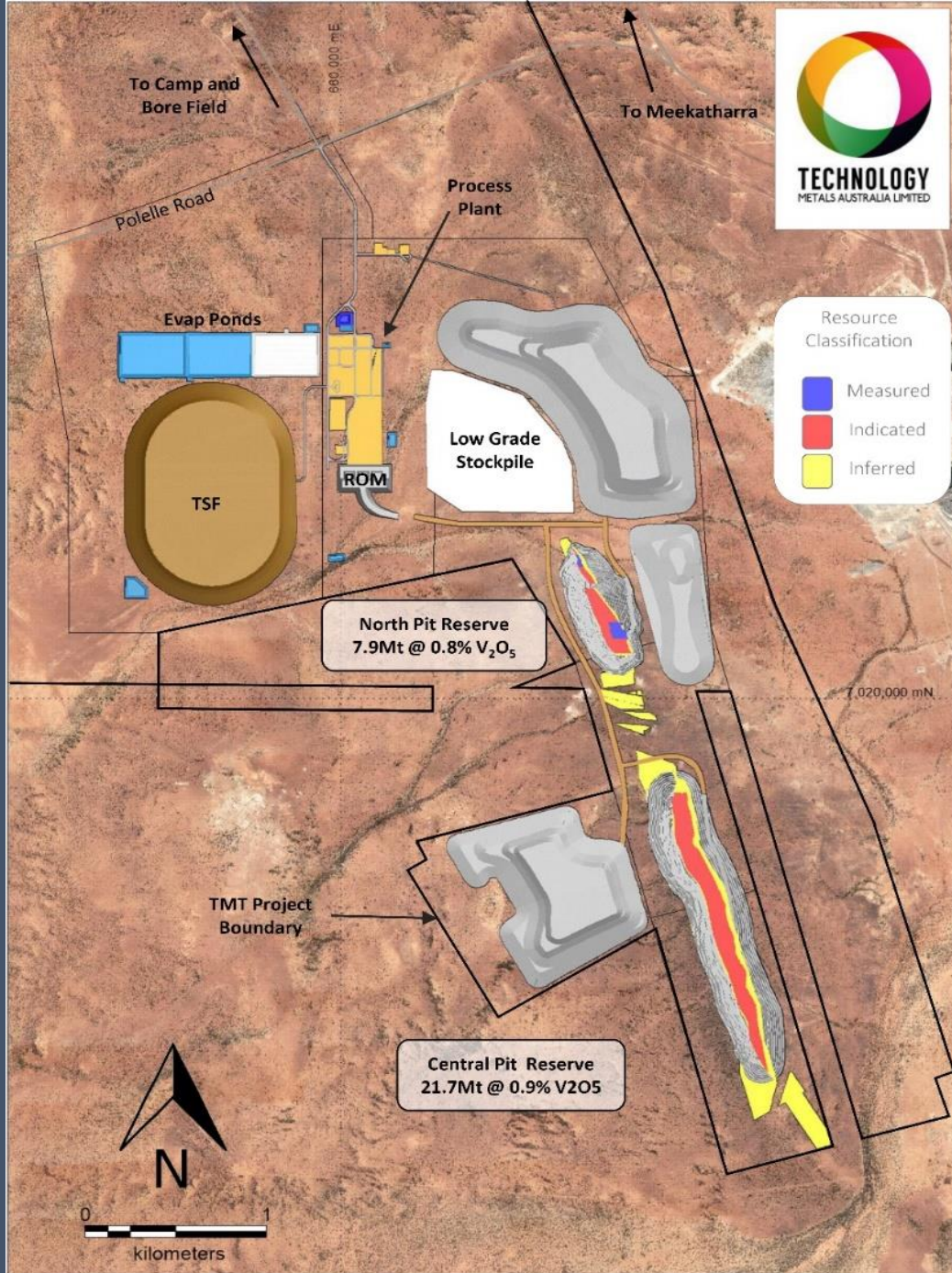
US\$924M
A\$1,320M
IRR 34%

¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

Outstanding Location

- 40km south of regional centre of Meekatharra in Murchison District of Western Australia.
- Excellent infrastructure – sealed National Highway from Perth passes within 30km of the project.
- Access to ports (Geraldton and/or Fremantle) via sealed highway.
- Gas pipeline – MOU with DDG Operating (AGIG) to investigate BOO proposition.
- Granted tenure with Mining Lease applications in place.
- Water supply to be sourced from borefield within northern paleochannel
- Workforce to be accommodated on site within 300 person village and flown into Meekatharra





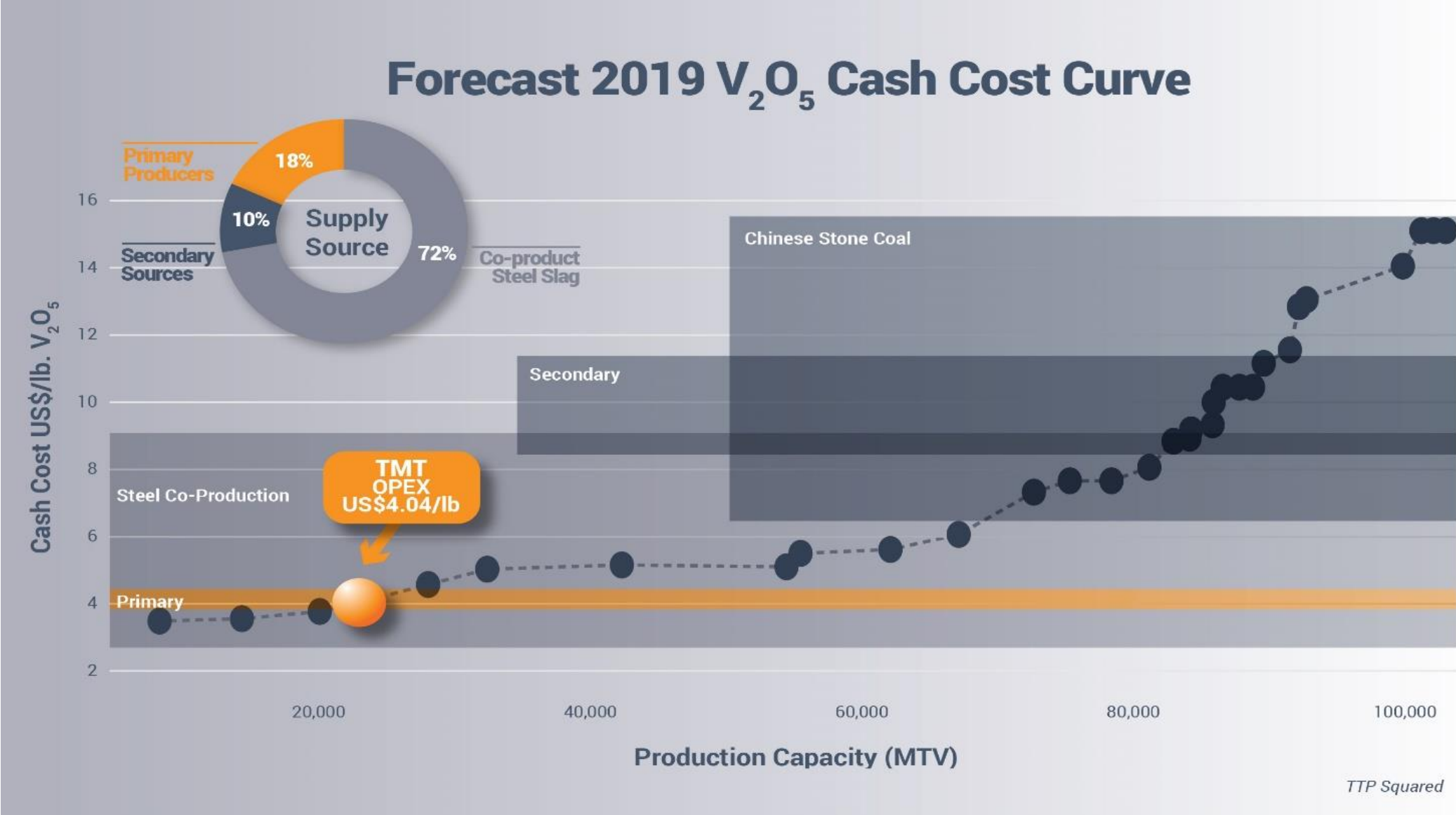
Low Cost, Long Life, Large Scale, High Value



- **Lowest quartile operating costs** - US\$4.04/lb V_2O_5
 - **Initial Mine Life** - in excess of 16 years based on Reserve of 29.6Mt at 0.88% V_2O_5
 - **Average Annual Production** - 27.9 Mlb (12,800 tonnes) V_2O_5 - would be World's largest primary producer
 - **High Grade Operation** – average feed grade of +1% V_2O_5 for first 12 years
 - **Pre-tax NPV_{8%}** - US\$924 million (A\$1,320 million)
 - **Pre-production process plant capex** - US\$318 million (A\$454 million)
 - **Payback period** - 3.2 years (including 2 year ramp-up)
 - **Product purity** - >99% V_2O_5
- **Strong interest from potential off-take partners**
 - **Significant mine life upside with over 100Mt of resources that have not been included in the study**

¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

Gabanintha - Emerging Tier One Producer



August 19 DFS – Project Financials*



Key Metric	Unit	DFS
Total Revenue¹	A\$m	7,019
Total EBITDA	A\$m	4,063
Average Annual EBITDA (Steady State)	A\$m	268
Total Pre-Production Process Plant Capex²	A\$m	454
Total Stage 2 / Deferred Capex³	A\$m	64
Total Operating Expenditure	A\$m	2,957
Average Operating Costs	US\$/lb V ₂ O ₅	4.04
Average All in Sustaining Costs	US\$/lb V ₂ O ₅	5.75
Net Present Value 8% Real (pre-tax)	A\$m	1,320
Internal Rate of Return (pre-tax)	%	34.2
Net Present Value 8% Real (post-tax)	A\$m	870
Internal Rate of Return (post-tax)	%	27.3
Anticipated Payback on Capital	Years	3.2

1 – US\$10.88/lb V₂O₅ average price (US\$10.59/lb V₂O₅ from 2028); A\$:US\$ exchange rate 0.70

2 – Includes A\$49.5m contingency, A\$64.9m EPCM, \$13.9m owners and indirect costs. Does not include \$16.0m mining pre-production capital.

3 – includes crystallisation and ion exchange plants to reduce reagent (salt) consumption and increase recovery

A high quality, comprehensive study based on:

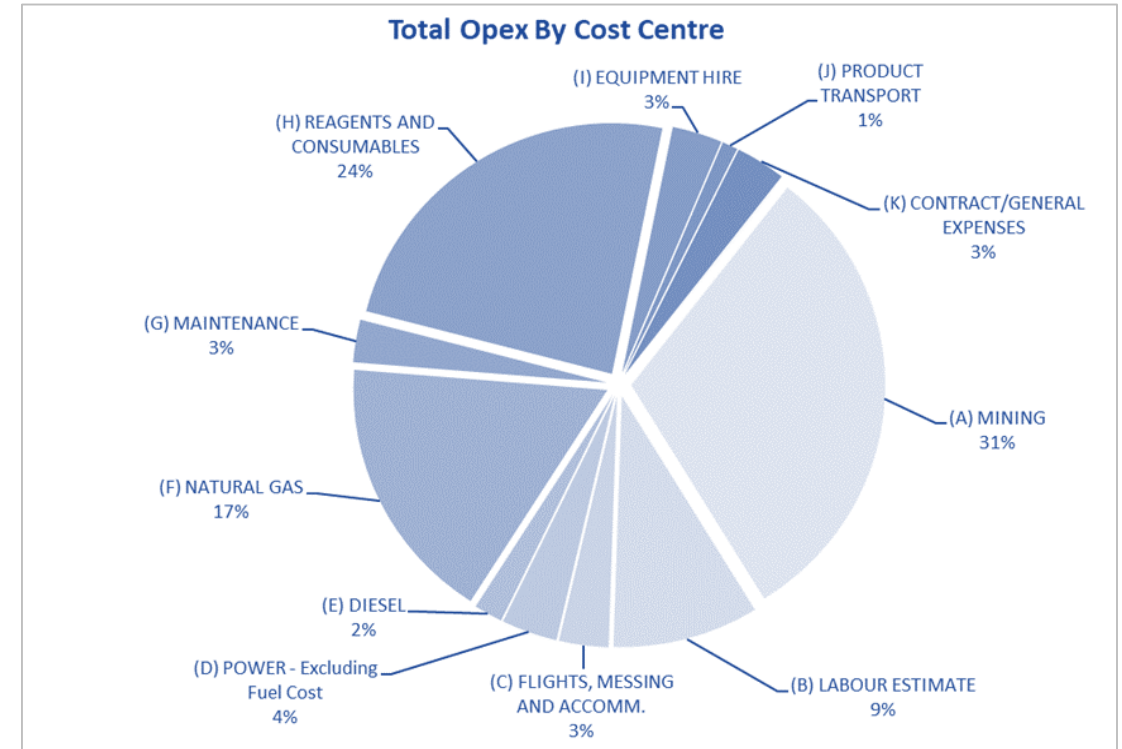
- High-grade, high quality ore body that supports very high levels of end-to-end recoveries of V₂O₅ (up to 77%)
- A very high mass recovery in to a magnetic concentrate at a coarse grind size and a very clean concentrate that supports efficient/lower cost salt roasting



*Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

Process Plant Capex and Operating Cost Breakdown

GVP DFS ¹ Major Capital Areas	Total (A\$)
Mining	185,107
Process Plant	169,269,827
Tailings Facility	21,568,006
Infrastructure	45,940,142
Services	28,660,977
Other Items (Spares, First Fills etc.)	6,354,685
Indirects (EPCM, Owners Costs, Insurances etc.)	132,341,850
CAPEX EXCLUDING CONTINGENCY	\$404,320,593
CONTINGENCY	\$49,485,583
CAPEX INCLUDING CONTINGENCY	\$453,806,176



GVP Operating Cost Estimate Breakdown

¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

– Material Physical Assumptions & Anticipated Outputs*

PRODUCTION



Key Metric	Unit	DFS
Average V ₂ O ₅ Production Rate	MIb Per Annum	27.9
Targeted Production Commencement	Year	2022
Estimated Mine / Processing Life	Years	+16
Life of Mine Production	MIb V ₂ O ₅	447.1
Processing Rate – ROM (Yrs 1 – 12)	Mtpa	1.7 - 2.3
Estimated mineralisation to be mined	Mt	35.7
Average LOM Strip Ratio		4.3
Average Diluted Mining Grade (LOM)	% V ₂ O ₅	0.83
Average Plant Feed Grade (Yrs 1 -12)	% V ₂ O ₅	1.04
Average Yield to Mag Con (Yrs 1 – 12) ¹	%	71
Average V Recovery (Yrs 1 – 12) ¹	%	70

¹Includes two year ramp up period, and blended transitional / partly oxidised feed in the early years

*Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

Conservative throughput and recovery ramp up assumptions of +2 years.

Operating parameters based on the lower end of the range of parameters defined from pilot scale test work.

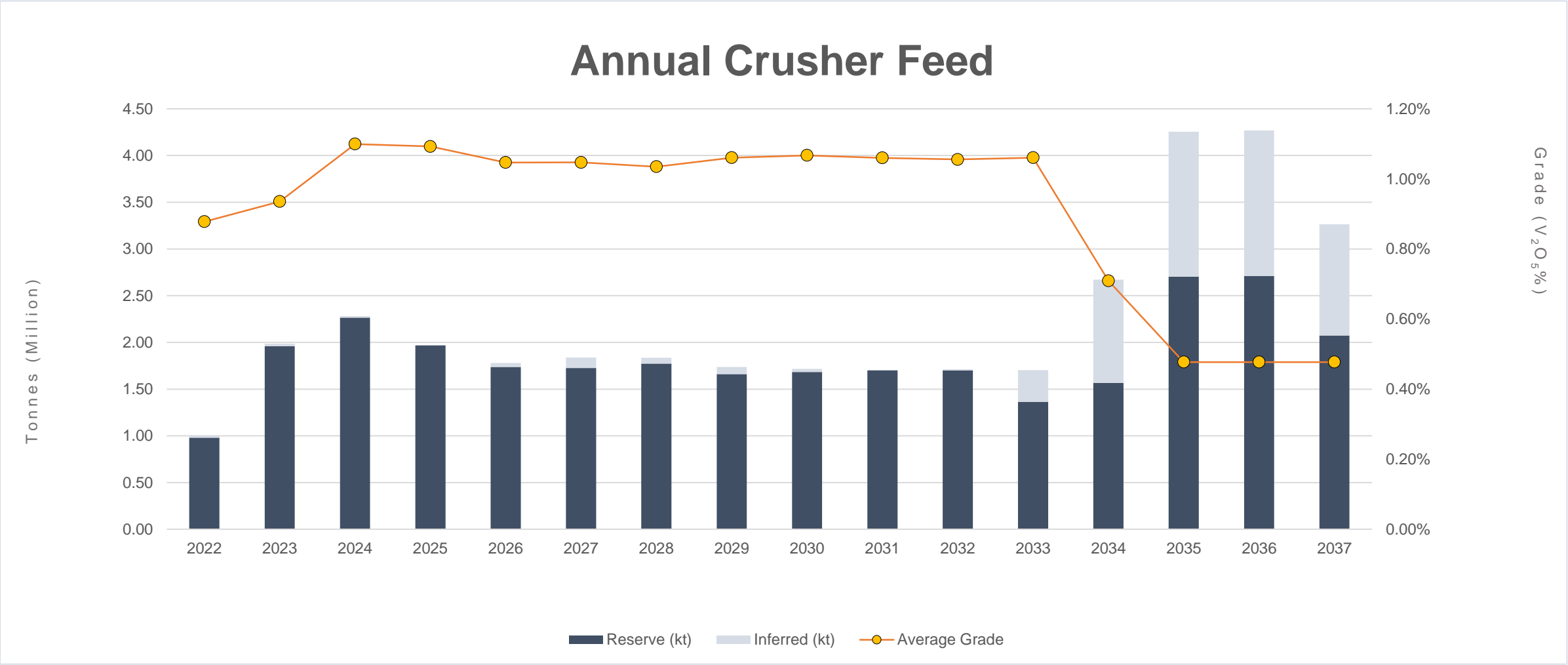
Kiln pilot scale test work completed by industry leading kiln supplier FLSmidth.



August 19 DFS – ROM Feed in Excess of 1%¹



Annual Crusher Feed



Annual Crusher Feed Showing Feed Grade and Tonnage plus Distribution of Inferred Mineral Resources
(Process feed post 2033 sourced from low grade stockpiles built up over LOM)

¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study

Pilot Scale Test Work De-Risks Project and Confirms Scalability



PILOT SCALE TESTWORK CONFIRMS VERY HIGH RECOVERY RATES

11.5T bulk sample processed through
Crushing Milling Beneficiation pilot plant

Confirmed very high yield to magnetic
concentrate with low deleterious
elements



PILOT SCALE TESTWORK CONFIRMS VERY HIGH RECOVERY RATES

7.5T of magnetic concentrate processed
through pilot scale rotary kiln delivered
average vanadium recovery of 88.6%

Confirms end-to-end vanadium recovery
of 77% for fresh massive magnetite ore



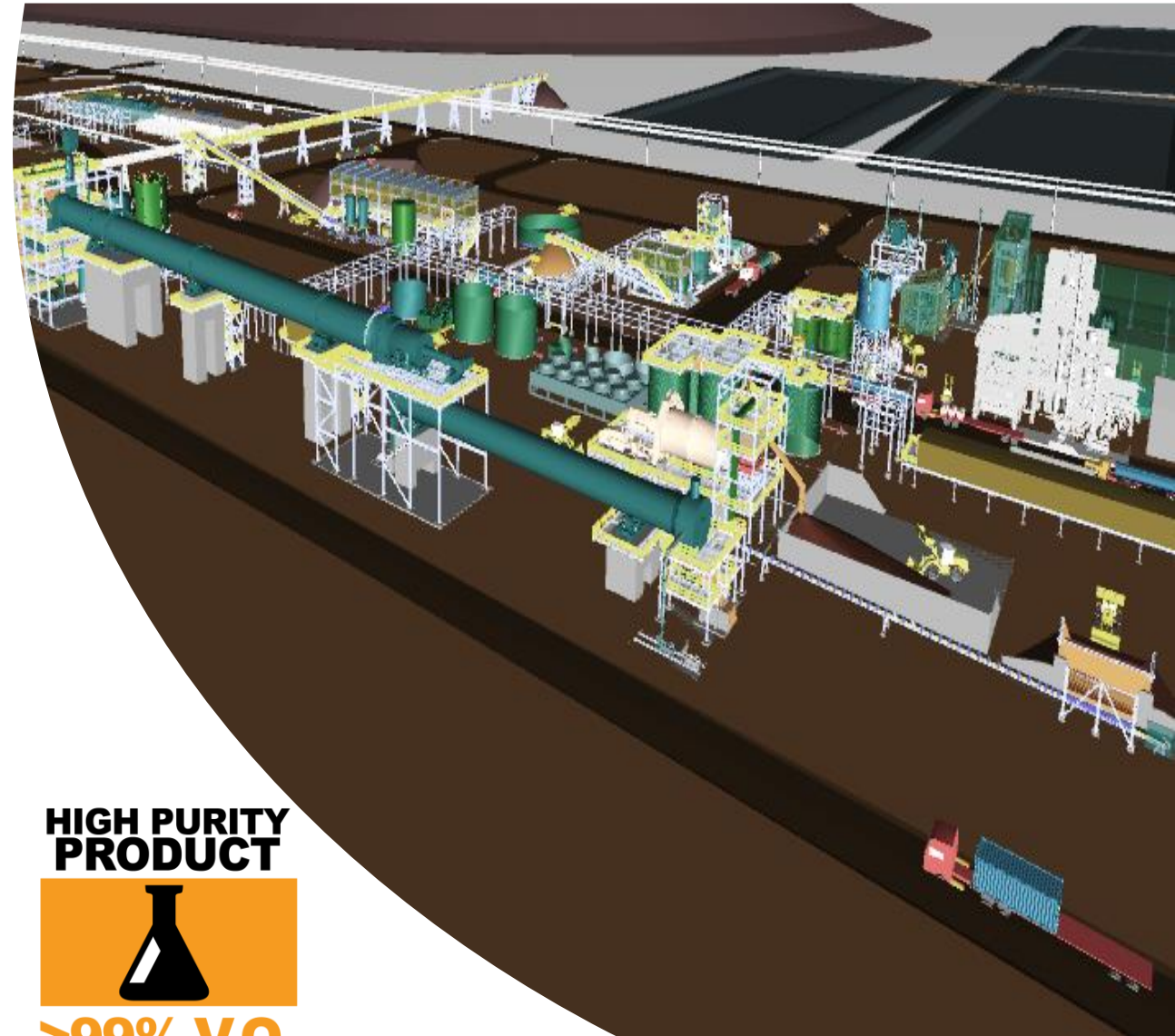
DFS INCORPORATES KILN DESIGN AND OPERATING PARAMETERS

Pilot scale salt roast / kiln testwork
completed by kiln experts FLSmidth

FLSmidth provided kiln design and
operating parameter inputs for DFS

August 19 DFS – Processing¹

1. **Crushing & Screening** - ROM ore is crushed down to an 80% passing size of 8mm
2. **Grinding & Wet Magnetic Separation** - material ground down to an 80% passing size of 0.25mm, followed by wet magnetic separation to remove finely liberated gangue from the vanadium-bearing magnetite
3. **Roasting** – the vanadium-bearing magnetite concentrate is roasted with a sodium-based salt to convert the V₂O₅ to water soluble sodium metavanadate. Pilot scale kiln test work completed by FLSmidth informed engineering and operating parameters
4. **Leaching & Precipitation** - the sodium metavanadate is leached out of the roasted product with water followed by re-precipitation of the vanadium in the form of ammonium metavanadate
5. **De-ammoniation & Calcination** - the ammonia is removed from the precipitated product to form a vanadium pentoxide powder / flake product
6. **Packaging** - package the saleable product to meet the requirements for offtake



**HIGH PURITY
PRODUCT**

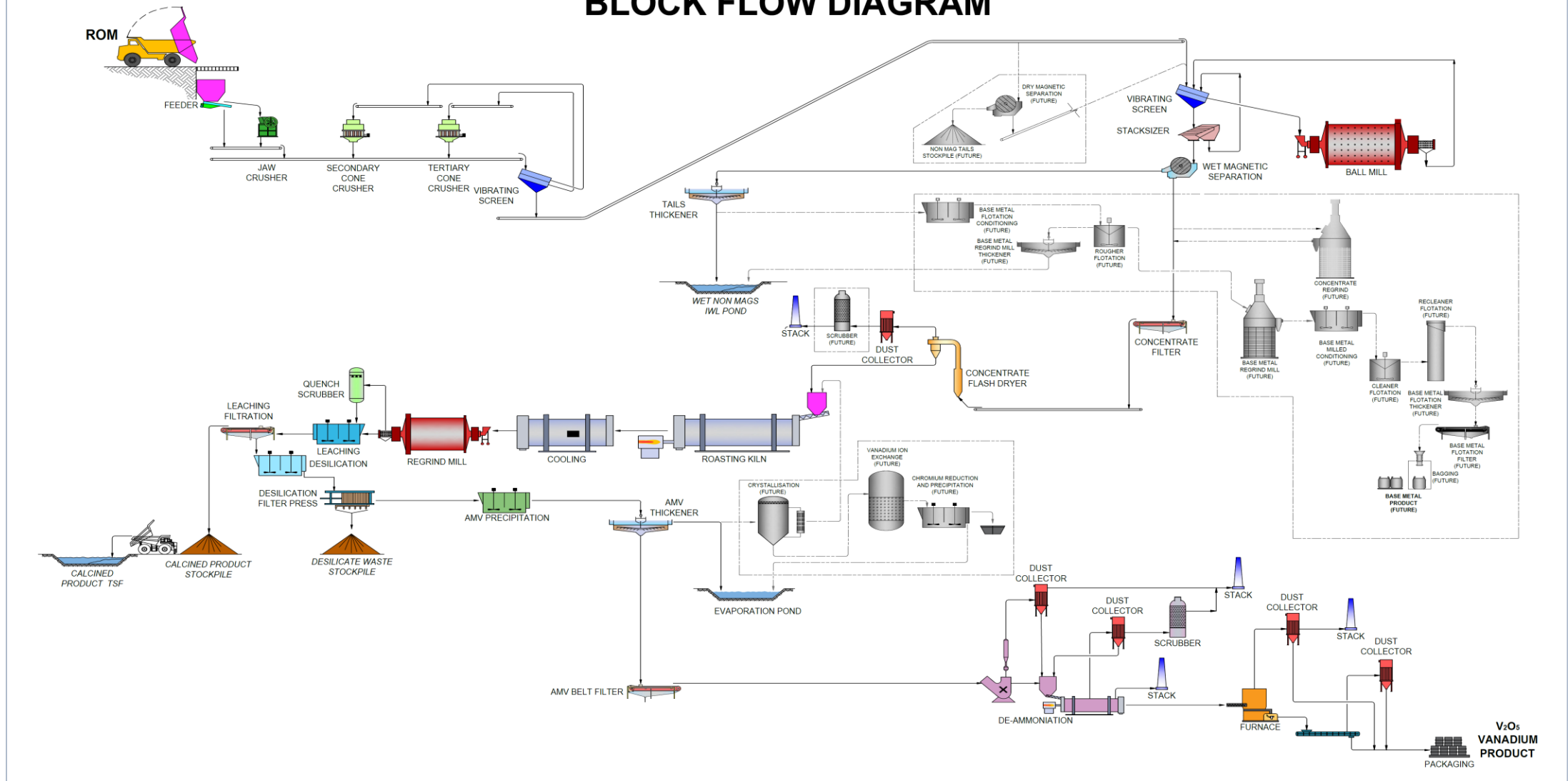


>99% V₂O₅

¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study
ASX: TMT, TMT0; FRA: TN6

Proposed Processing Flow Sheet

BLOCK FLOW DIAGRAM



Schematic Flow Sheet Block Diagram

Geological Setting

MINING RESERVE

29.6Mt
@ **0.88% V₂O₅**

HIGH VALUE MASSIVE MAGNETITE ZONE¹

98% conversion from Measured and Indicated Resource

Reserve Category	Tonnes (Mt)	Grade V ₂ O ₅ %	Contained V ₂ O ₅ Tonnes (Mt)
Proven	1.1	0.96	0.01
Probable	28.5	0.88	0.25
Total	29.6	0.88	0.26

FAVOURABLE SETTING

- Mineralisation hosted by a layered mafic igneous unit.
- Magnetite enriched layers host high grade vanadium.
- High grade basal unit drives project economics.

SUITED TO OPEN PIT MINING

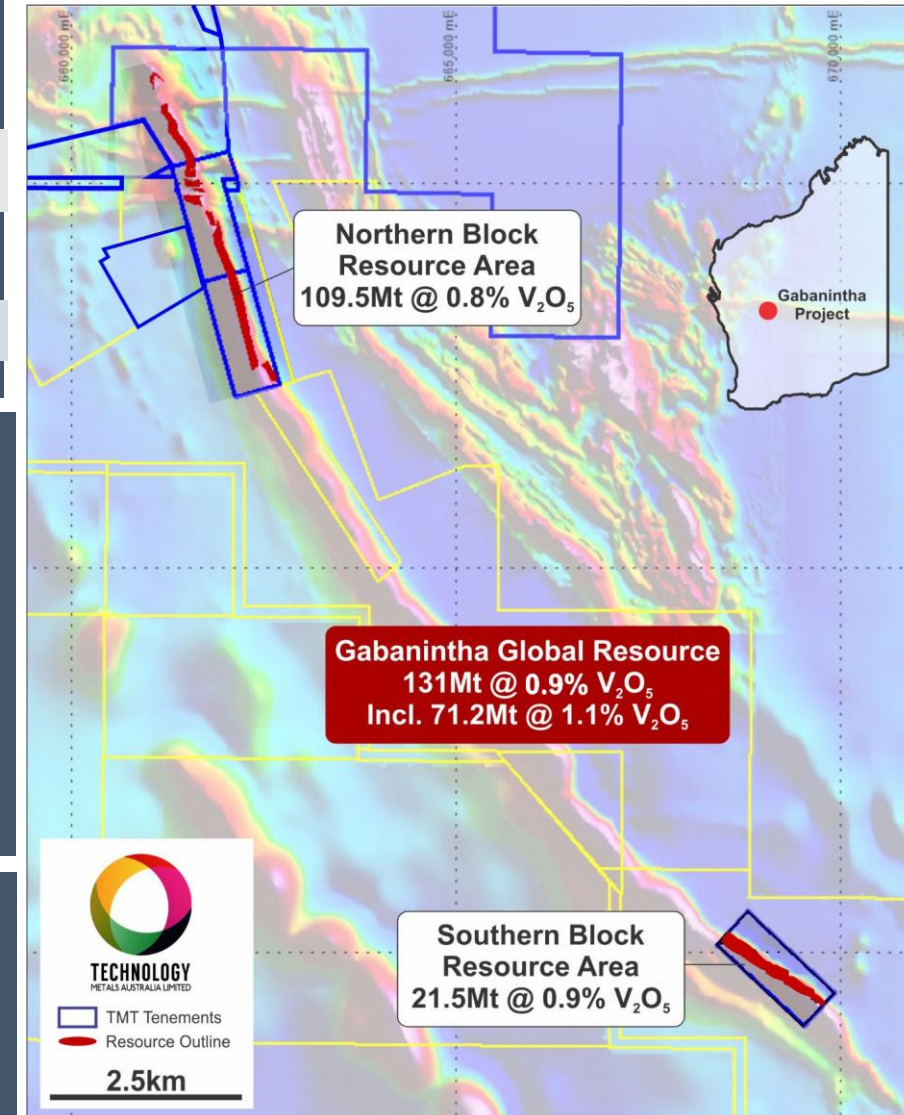
- Mineralisation outcrops along majority of strike and dips to west / south west at 55° to 60°.

THE RIGHT ROCKS ACROSS LARGE GROUND POSITION

- Outstanding consistency of grade and continuity of mineralisation in broad high grade massive magnetite zone – over 5.5km strike of the mineralised unit.

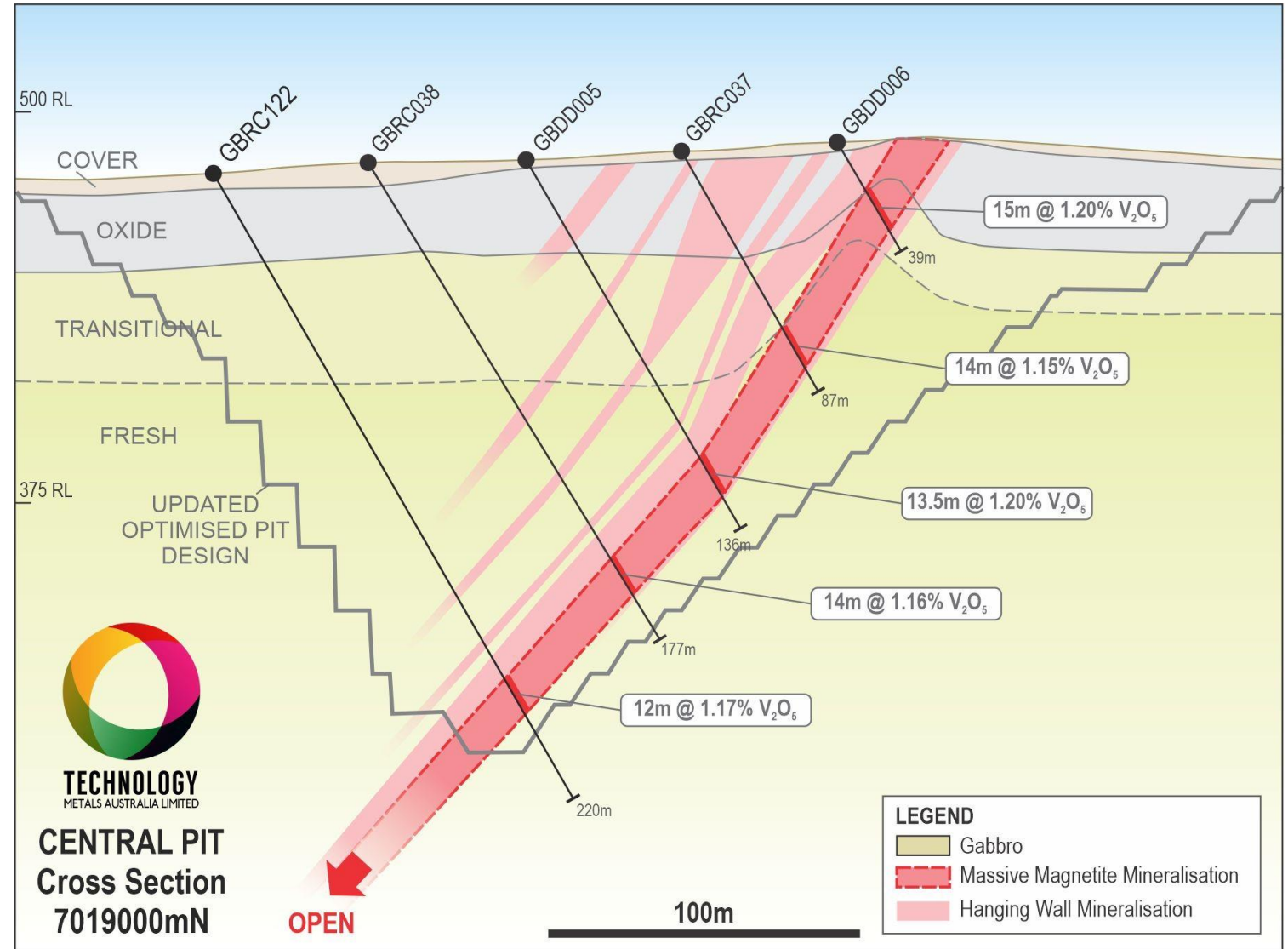
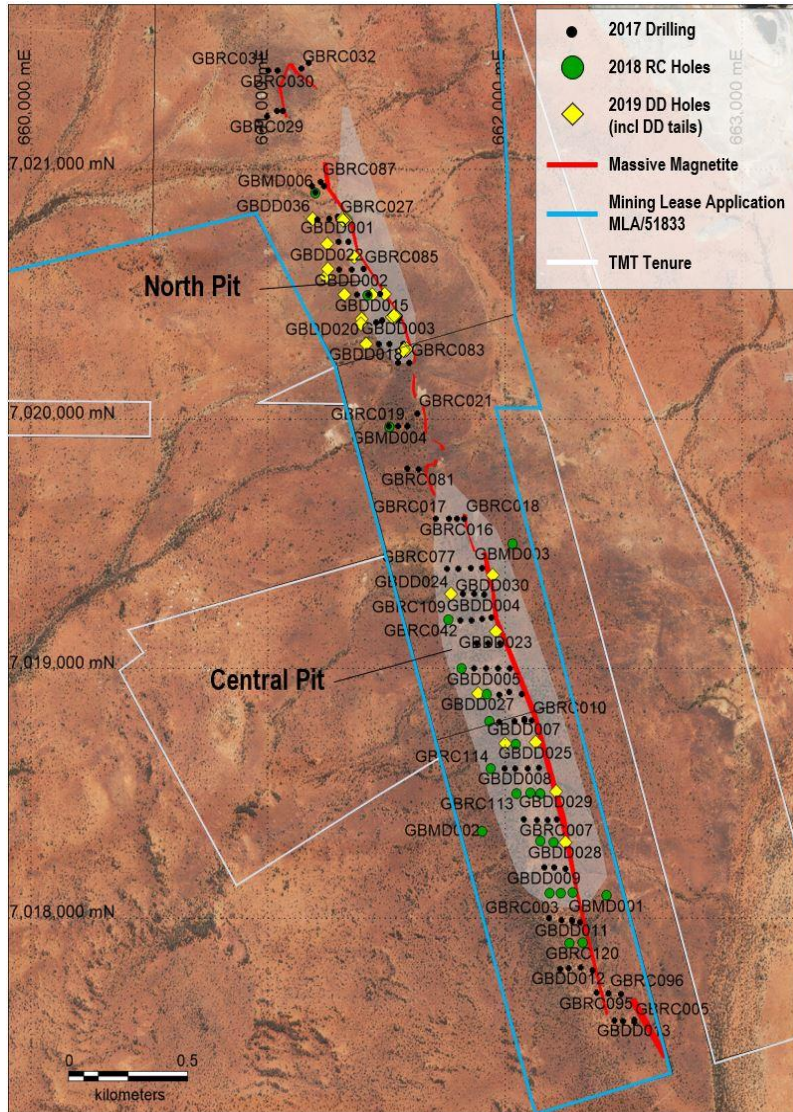
SIGNIFICANT UPSIDE

- High grade M&I resource open at depth and along strike.
- Southern Block not in DFS.



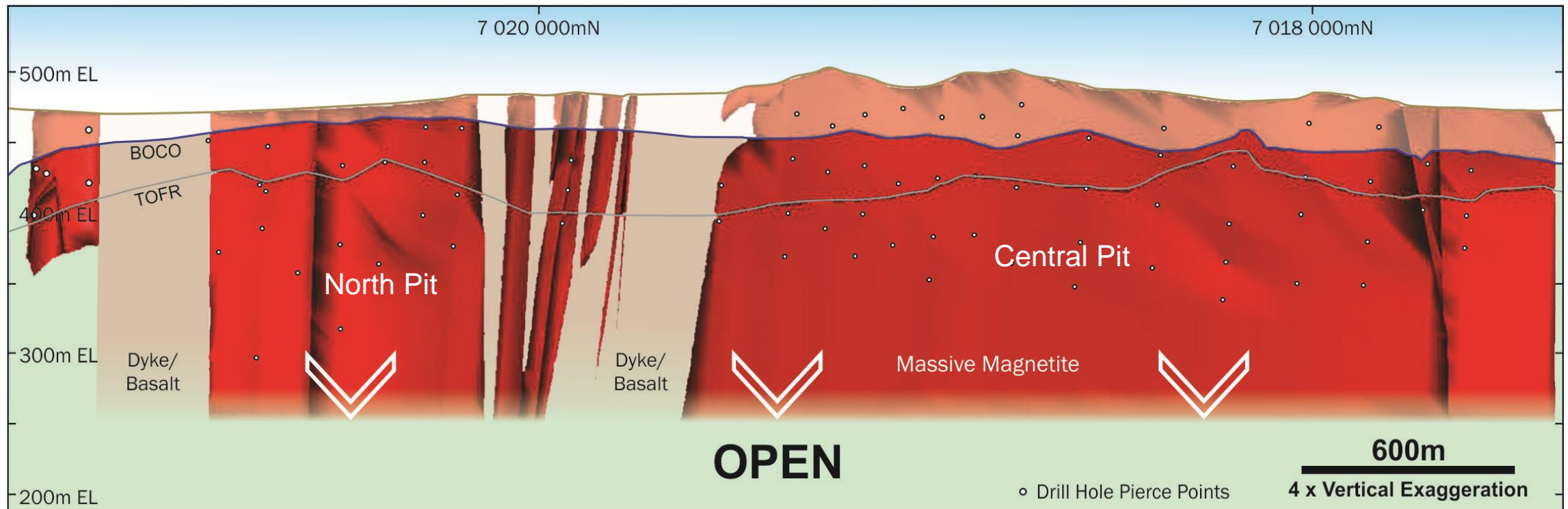
¹Refer TMT ASX announcement dated 21 August 2019 for full details of the Definitive Feasibility Study & Appendix

Wide Consistent High Grade Basal Unit



Oxidation Profile – a Key Point of Differentiation

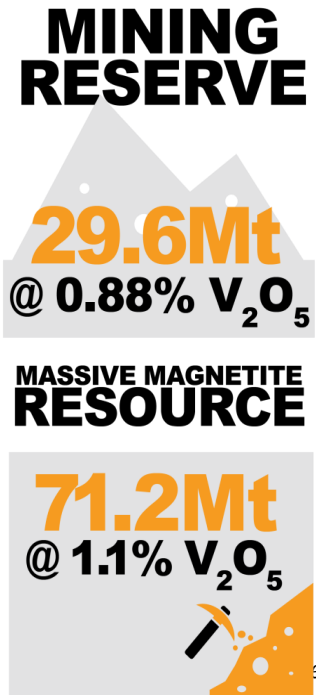
- Very shallow oxidation profile in North Pit area – reflected in negligible oxide ore in Northern Block resource.
- Early access to higher yielding transitional and fresh material – positive impact on project economics.
- Higher yield equates to lower ore mined per tonne of final product.
- Southern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



Long Section – Northern Block – Massive Magnetite Zone

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) delivers **Proven and Probable Reserve of 29.6Mt at 0.9% V₂O₅** an extremely high 98% tonnage conversion
- Northern Block Resource of 109.5Mt at 0.8% V₂O₅ with **96.5% high yielding transitional and fresh ore**



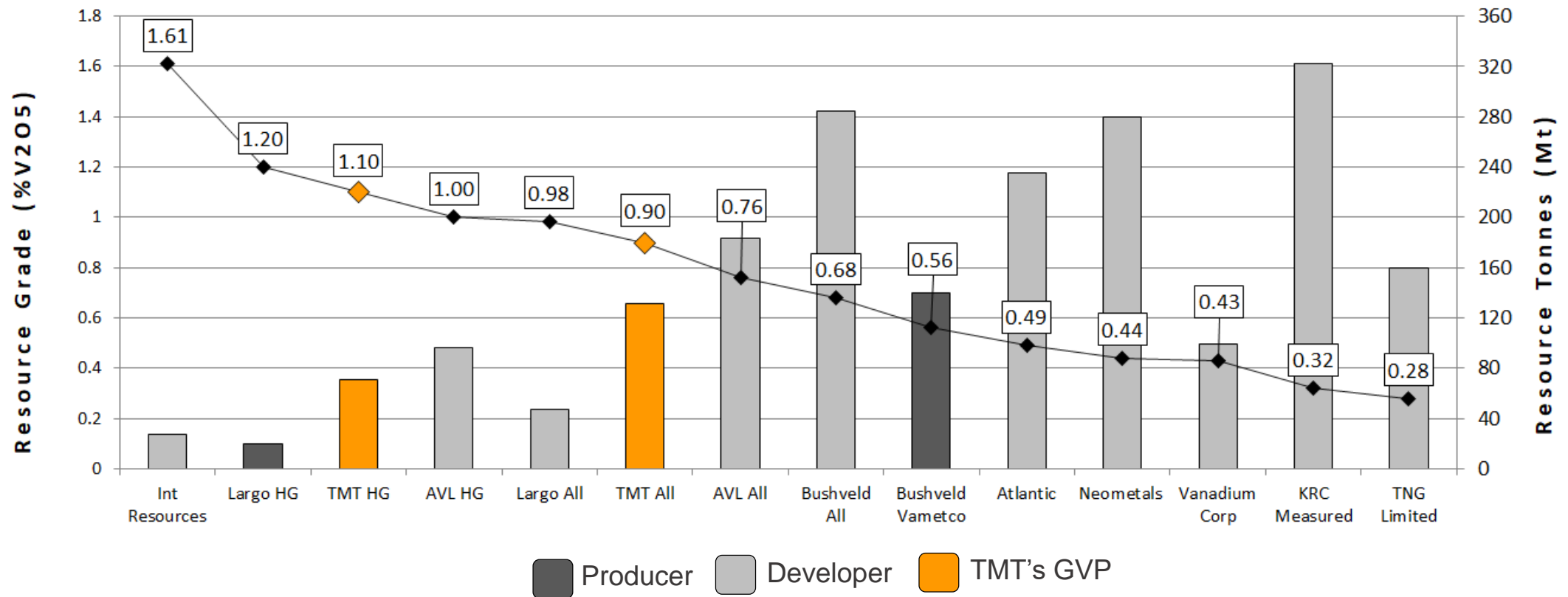
Material Type	Classification	Tonnage (Mt)	V ₂ O ₅ %	Fe%	Al ₂ O ₃ %	SiO ₂ %	TiO ₂ %	LOI%	P%	S%
Massive Magnetite	Measured (North)	1.2	1.0	44.7	6.2	10.4	11.4	0.0	0.009	0.2
	Indicated (North)	18.5	1.1	49.1	5.2	5.8	12.9	-0.1	0.007	0.2
	Inferred (North)	41	1.1	47.7	5.6	7.1	12.6	0.3	0.008	0.2
	Inferred (South)	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.

Global Vanadium Projects (ex China)

TMT at the Right End of the Chart



*Chart compares resources reported under different codes and companies at different stages of development as detailed in Appendix.

Next Steps – Offtake, Funding & Project Development

- Delivery of the high quality DFS is a key milestone in progressing partner and financier discussions
- Continued engagement with potential offtake partners and industry participants, including progression of discussions with CNMC Ningxia Orient Group Company Ltd (CNMNC)
 - Progress offtake framework MOU with CNMNC through to binding agreement
- Working with the Joint Financial Advisers to progress engagement with strategic investors / project development partners
- A wide range of funding options under consideration inclusive of cornerstone equity involvement, direct project investment, vendor participation, debt funding, sovereign backed project finance
- Environmental studies and heritage work progressing in support of advancing mining lease grant and statutory approvals



Indicative Implementation Schedule



*Subject to Board Approval

**Subject to Final Investment Decision

Gabanintha Project Schedule

Indicative Timetable



Investment Case



- ✓ **Leveraged** to structural change in the vanadium industry.
- ✓ **Progressing** offtake discussions underpinned by high quality DFS.
- ✓ **Globally Significant** low cost, large scale and long life vanadium project.
- ✓ **Stable** operating environment with excellent infrastructure and access to services.
- ✓ **Team in place** focused on progressing the project to maximise shareholder value.

FOLLOW US AS WE CREATE VALUE FOR SHAREHOLDERS



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APPENDICES



Comparison Chart References

Company	Code	Project	Stage	Resource Category	Resource (Mt)	Resource Grade (% V2O5)	Information Source
International Resources	Private	Mapochs	Care and Maintenance	Indicated	27	1.61	Evraz Mineral Resource & Mineral Reserve Statement 2013
Largo Resources	TSX:LGO	Maracas	Production	Measured, Indicated & Inferred (43 101)	49	0.99	Independent Technical Report 2017
Technology Metals Australia	ASX:TMT	Gabanintha	Development	Measured, Indicated & Inferred	131	0.90	Company Presentation July 2019
Australian Vanadium	ASX:AVL	Gabanintha	Development	Measured, Indicated & Inferred	184	0.76	Company Presentation July 2019
Bushveld	LSE:BMN	Vametco	Production	Indicated and Inferred	187	0.78	Company Presentation May 2019
Atlantic	Private	Windimurra	Development	Indicated and Inferred	235	0.49	Company Website
Neometals	ASX:NMT	Barrambie	Development	Measured, Indicated & Inferred	280	0.44	Definitive Feasibility Study May 2019
Vanadium Corp	TSXV:VRB	Lac Dore'	Development	Inferred	14	0.42	Company Presentation 2019
King River Resources	ASX:KRR	Speewah	Development	Measured, Indicated & Inferred	4,712	0.30	Company Announcement April 2019
TNG Limited	ASX:TNG	Mt Peak	Development	Measured, Indicated & Inferred	159	0.28	Company Presentation June 2019

VANADIUM

The Metal You Need to Know About

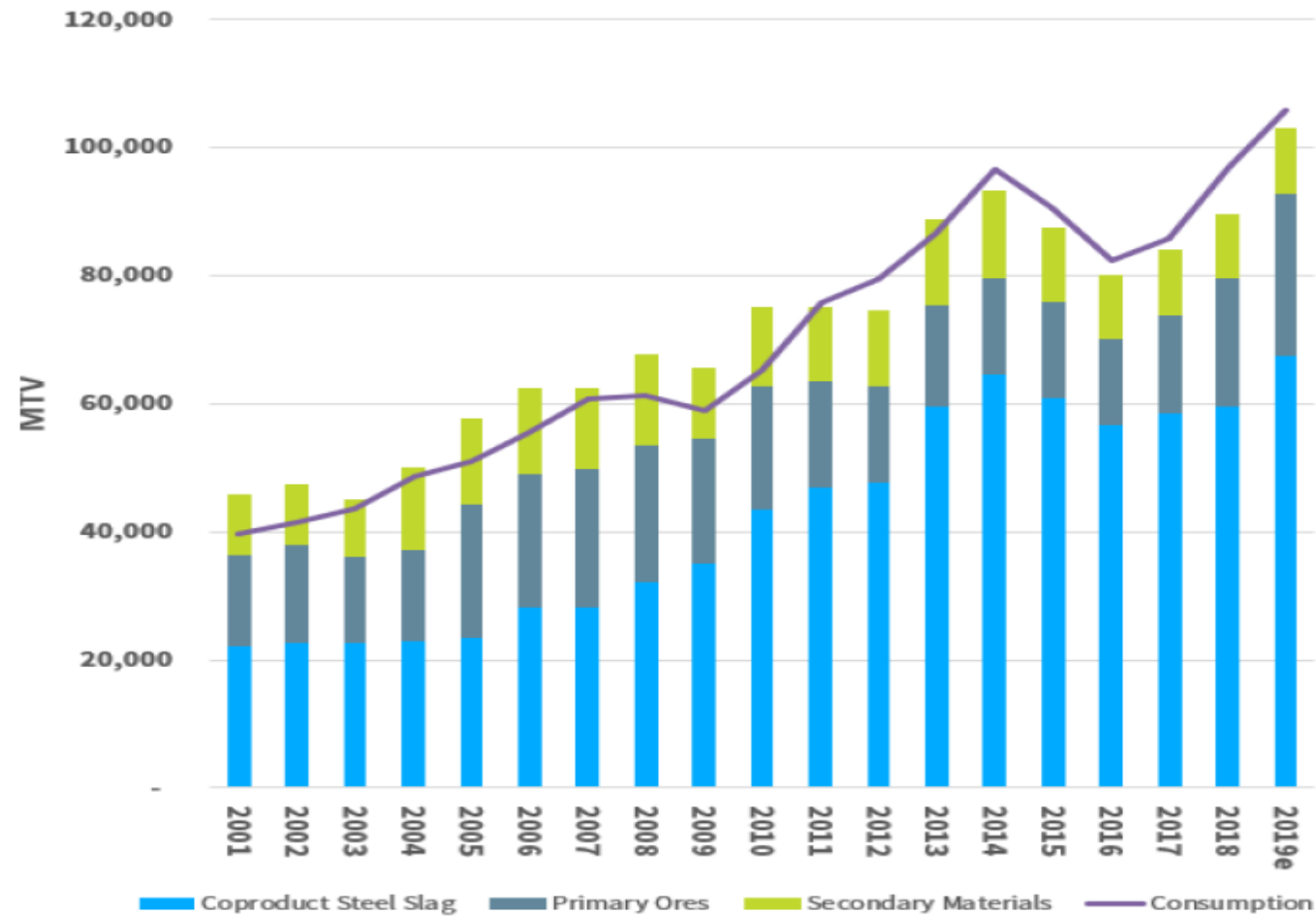


Primary Use of Vanadium



Vanadium Supply Constraints

Vanadium Production by Raw Material



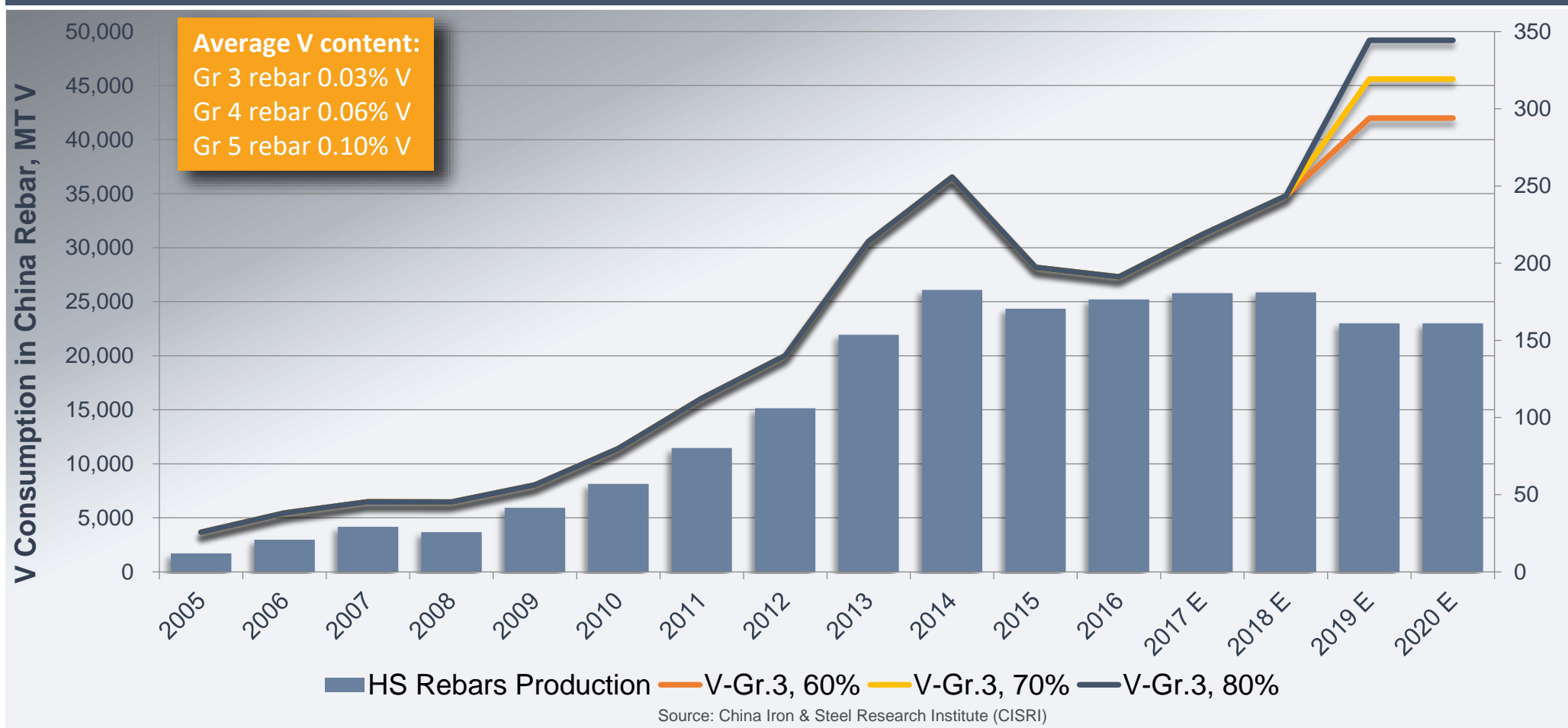
(Source: TTP Squared and Largo Resources)

Production from existing sources forecast to reach ~107,600t V metal by 2028

(Source: Roskill, 2019)

Vanadium Consumption Increasing

Vanadium Consumption in Chinese Rebar



Global consumption forecast to increase to 135,300t V metal by 2028

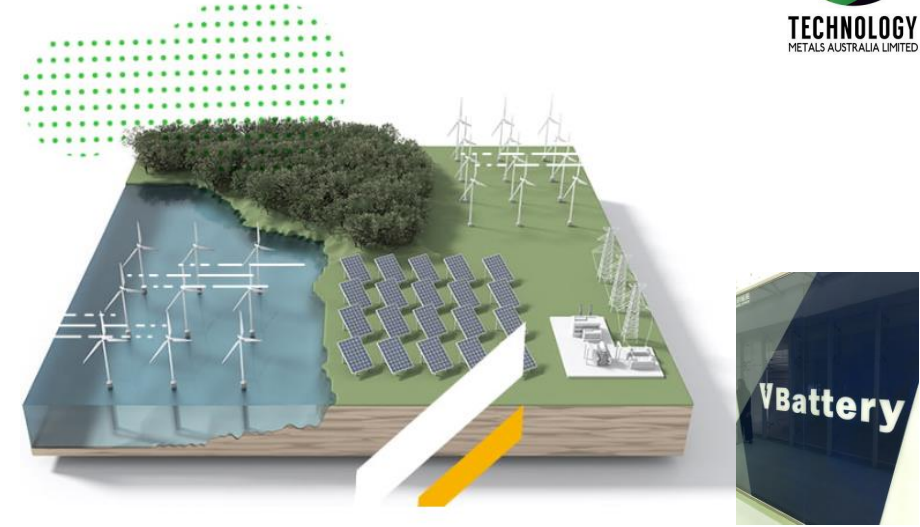
(Source: Roskill, 2019).

Emerging Vanadium Market



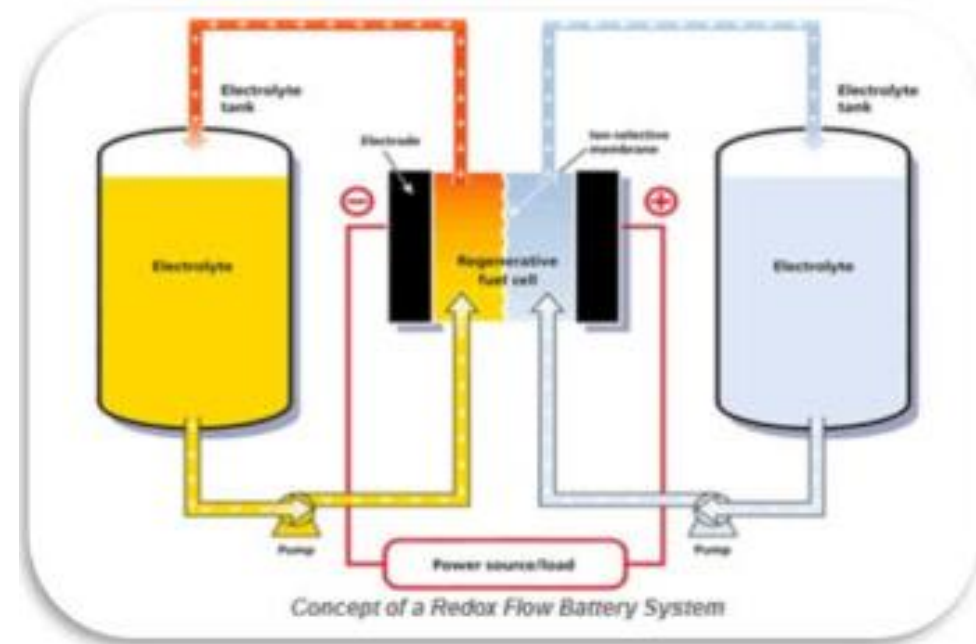
Market Disrupter – VRB's

- 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

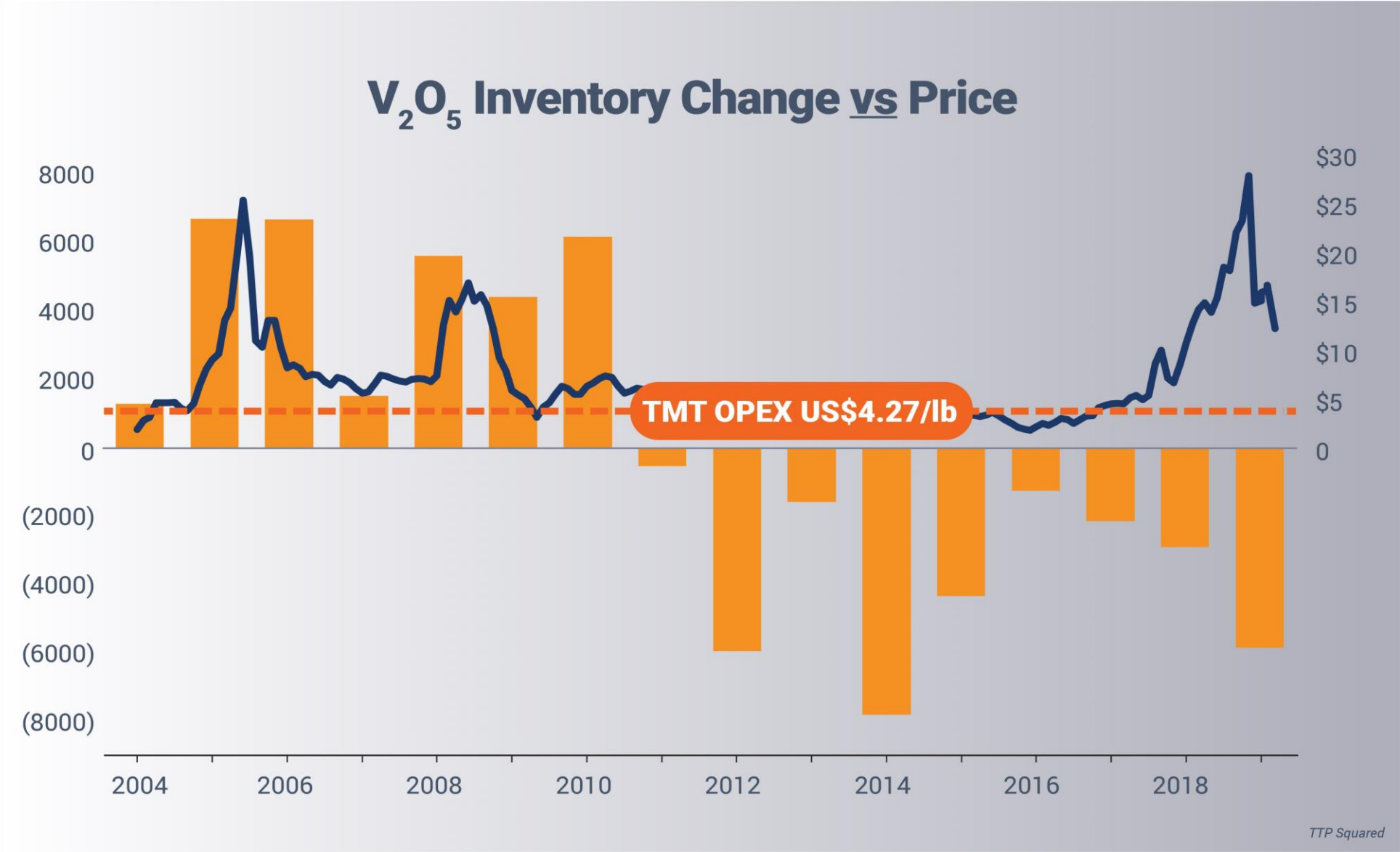


Advantages of VRB's

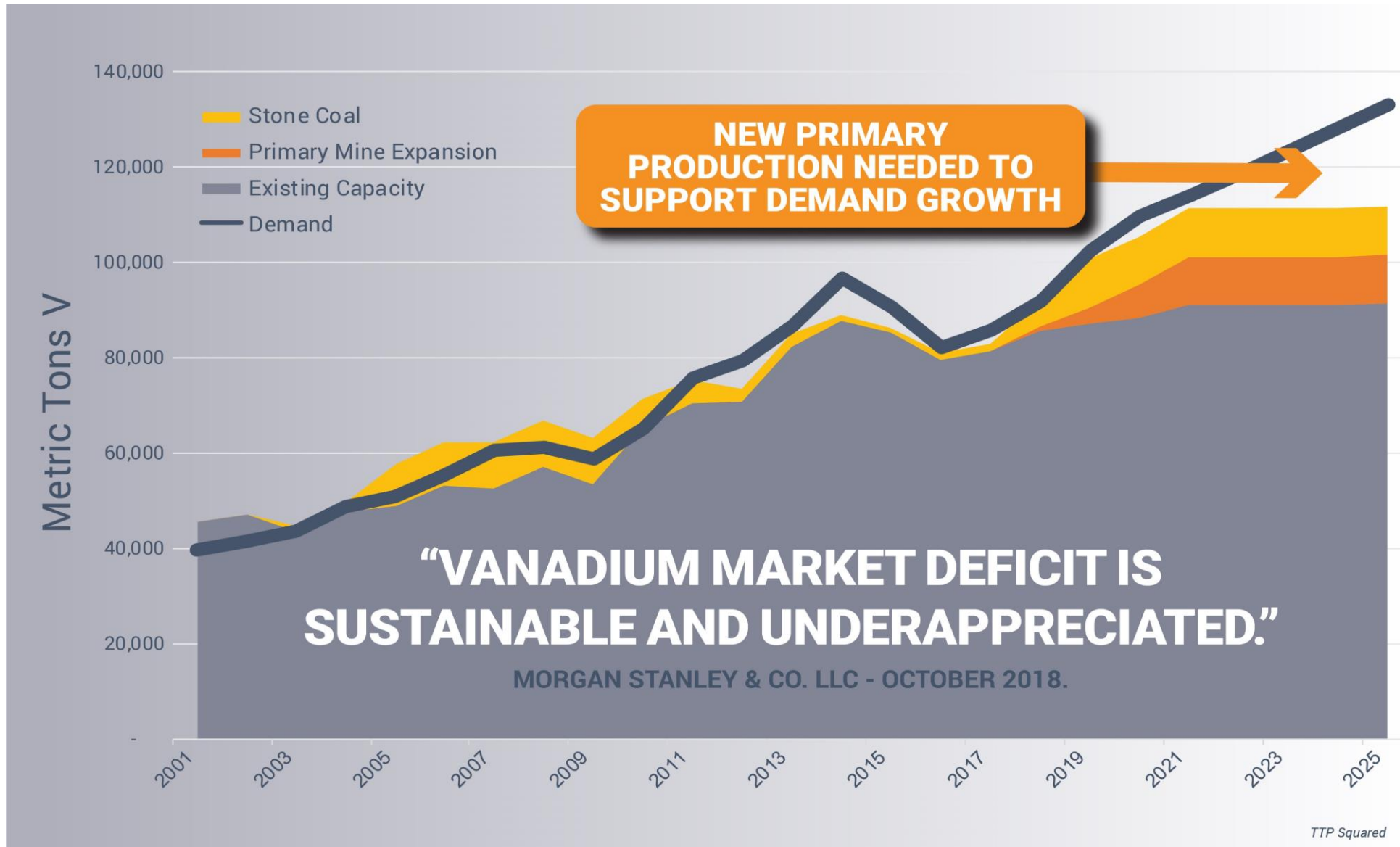
- Lifespan of +20 years with very high cycle life (up to 20,000 cycles) and no capacity loss.
- Rapid recharge and discharge, with very fast response time (<70ms).
- Can discharge to 100% with no performance degradation with excellent long term charge retention.
- Only one battery element – vanadium 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



Consumption forecast to increase to 135,300t V by 2028 delivering a forecast deficit of 27,700t V (49,450t V_2O_5) without production expansions and new mine developments.

(Source: Roskill, 2019)