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TECHNOLOGY
METALS AUSTRALIA LIMITED

2020 AGM PRESENTATION

YARRABUBBA PROJECT TO SUPPORT DEVELOPMENT OF GVP

November 2020

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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 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.

Corporate Overview

TMT
ASX Code

$2.2m
Cash
(as at 30 September 2020)

$40.6m
Market Cap
(as at 6 November 2020)

123.2m
Total Shares on Issue

9.60m
Unlisted Options (various exercise)

8.25m
Unlisted Options * ($0.20 – 10/05/23)

CAPITAL STRUCTURE

TOP SHAREHOLDERS

Holder	Holdings
Great Southern Flour Mills P/L	11.4%
Mr Chris Retzos	6.2%
Buxiao Yu	5.3%
Colin David Iles	4.5%
Station Nominees P/L	4.1%

* Director and employee options – 50% vested on grant of mining licence, 50% to vest on Gabanintha FID

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Board and Management

TECHNOLOGY METALS AUSTRALIA LIMITED

Ian Prentice
Managing Director

Michael Fry
Non-Exec Chairman

Sonu Cheema
Non-Exec Director / Co Secretary

David English
Technical Adviser

CSA

wave international
DETERMINE · DESIGN · DELIVER

integrate SUSTAINABILITY
environment safety community

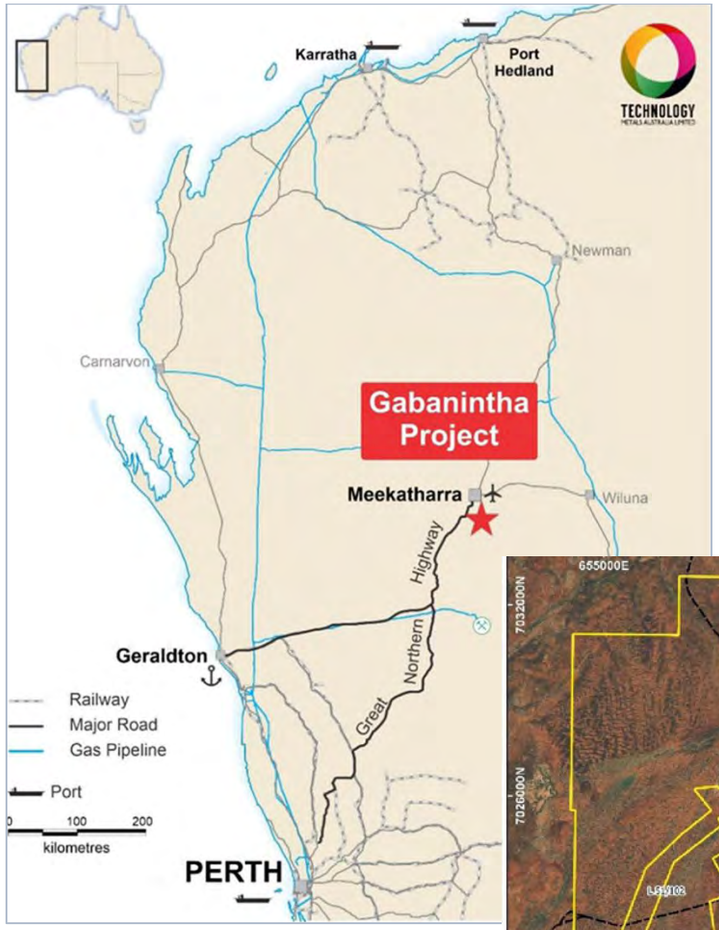
METS ENGINEERING
PROCESS + INNOVATION

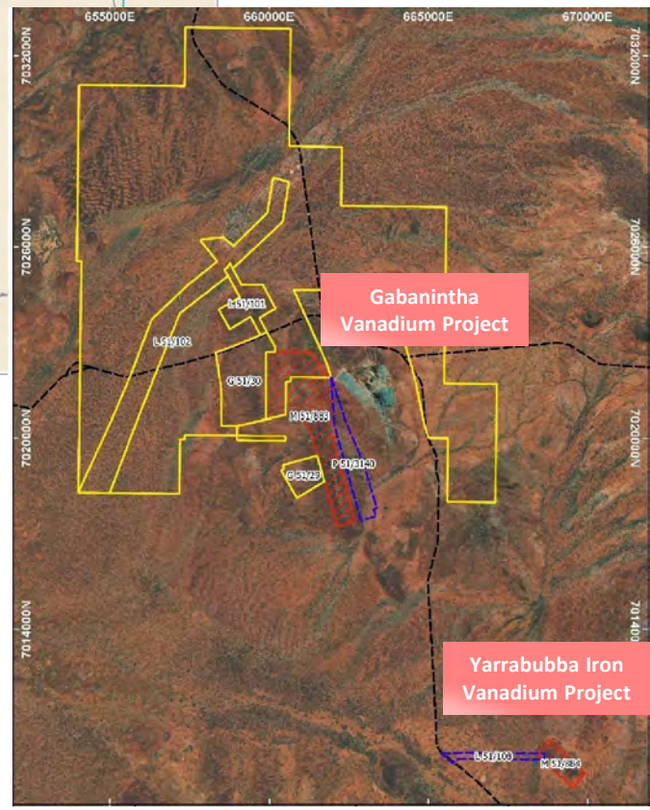
BLACKBIRD PARTNERS

BRIDGE STREET CAPITAL PARTNERS

Pre-eminent Location

- **Excellent infrastructure** – sealed National Highway from Perth passes within 30km of the project.
- **Granted** mining leases.
- **Water** supply from northern paleochannel borefield in TMT tenure confirmed.
- **Gas** pipeline – MOU with APA Group to negotiate gas transportation agreement.
- Access to **ports** (Geraldton and/or Fremantle) via sealed highway.
- **Regionally and nationally** significant development projects.
- **Staged** development approach to minimise initial capital maximises benefits for all stakeholders.





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THE EMERGING OPPORTUNITY
YARRABUBBA IRON-VANADIUM PROJECT

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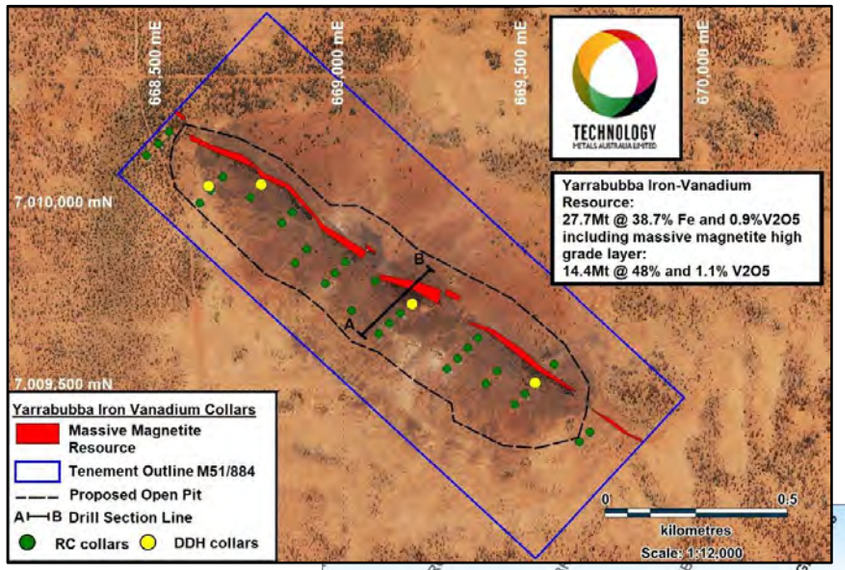
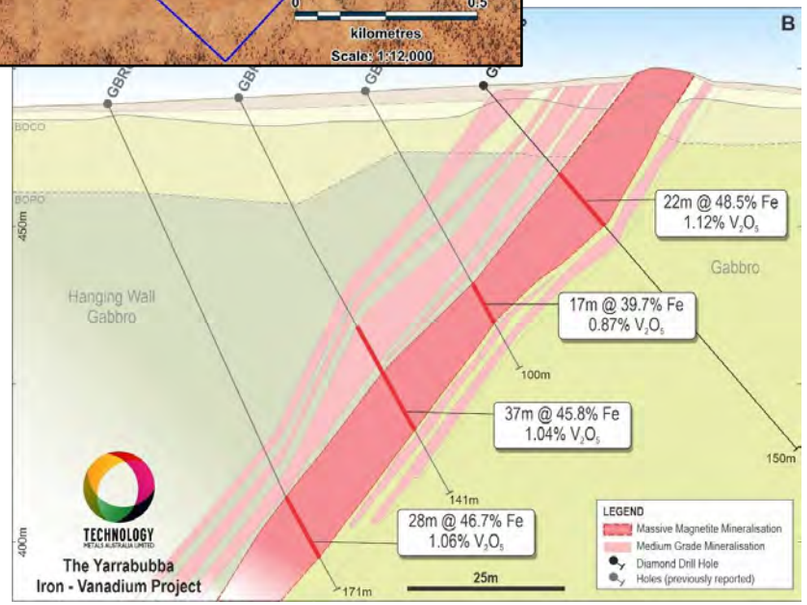
Premium Iron-Vanadium Magnetite Concentrate

- Initial testwork confirms scope to produce a high grade, high purity iron-vanadium magnetite concentrate.
- Up to 66.3% Fe at 80.6% recovery and 1.73% V_2O_5 at 90% recovery at 32 micron.
- Average of 64.9% Fe and 1.66% V_2O_5 across two massive fresh composites.
- Very low levels of deleterious elements with average 0.18% SiO_2, 0.99% Al_2O_3, 0.012% S and <0.001% P.
- Results of remaining five (5) composites expected in coming weeks.





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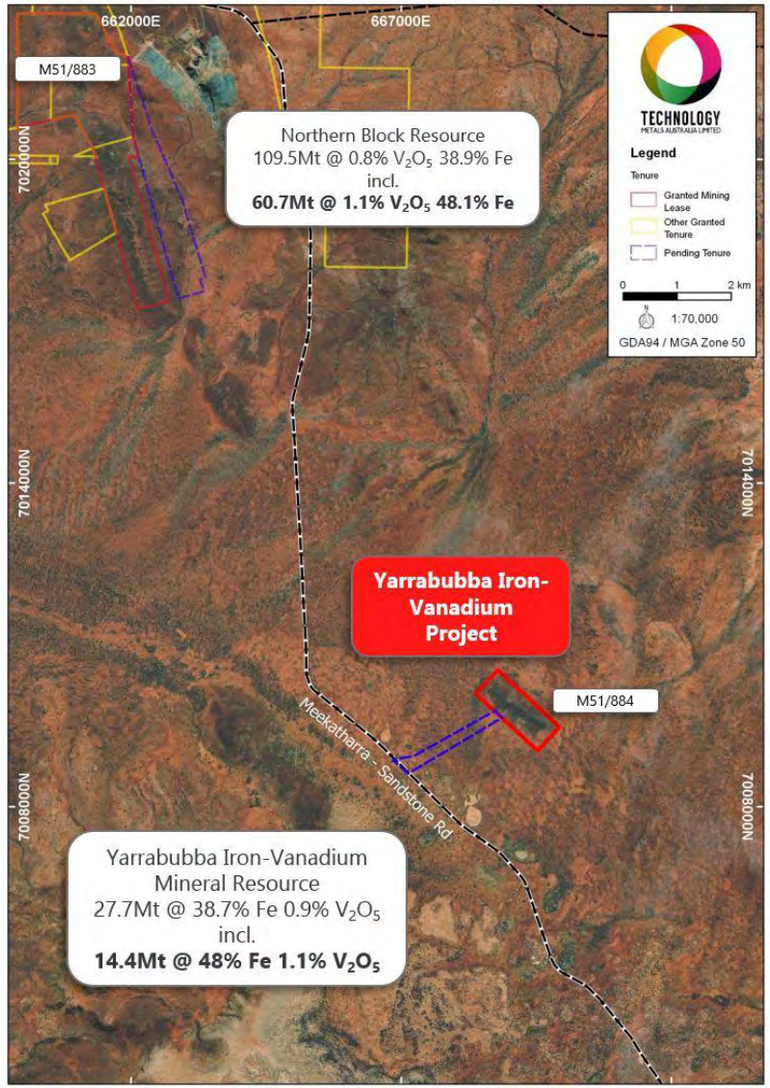
Low Development Capital Opportunity

- Low entry cost Project complimentary to, and expected to reduce funding and development risk for, the Gabanintha Project.
- Mining, crushing, grinding and beneficiation circuit to produce magnetic concentrate.
- Concept is to build beneficiation circuit at Gabanintha Project which will benefit the longer term development.
- Probable Ore Reserve of 9.4Mt at 45.3% Fe and 0.97% V_2O_5 within Mineral Resource of 27.7Mt at 38.7% Fe and 0.9% V_2O_5.



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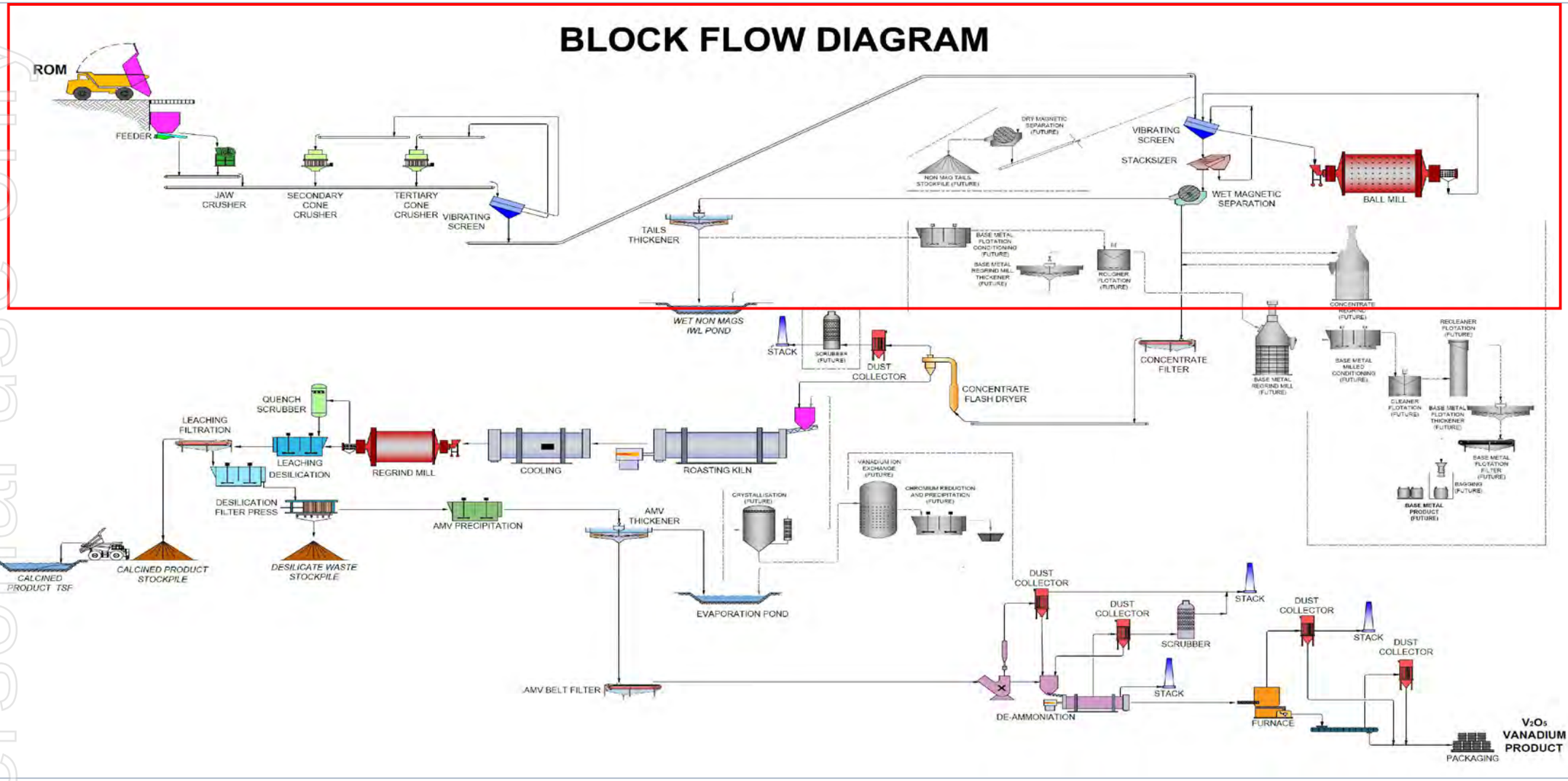
Processing Flow Sheet



GVP Schematic Flow Sheet Block Diagram

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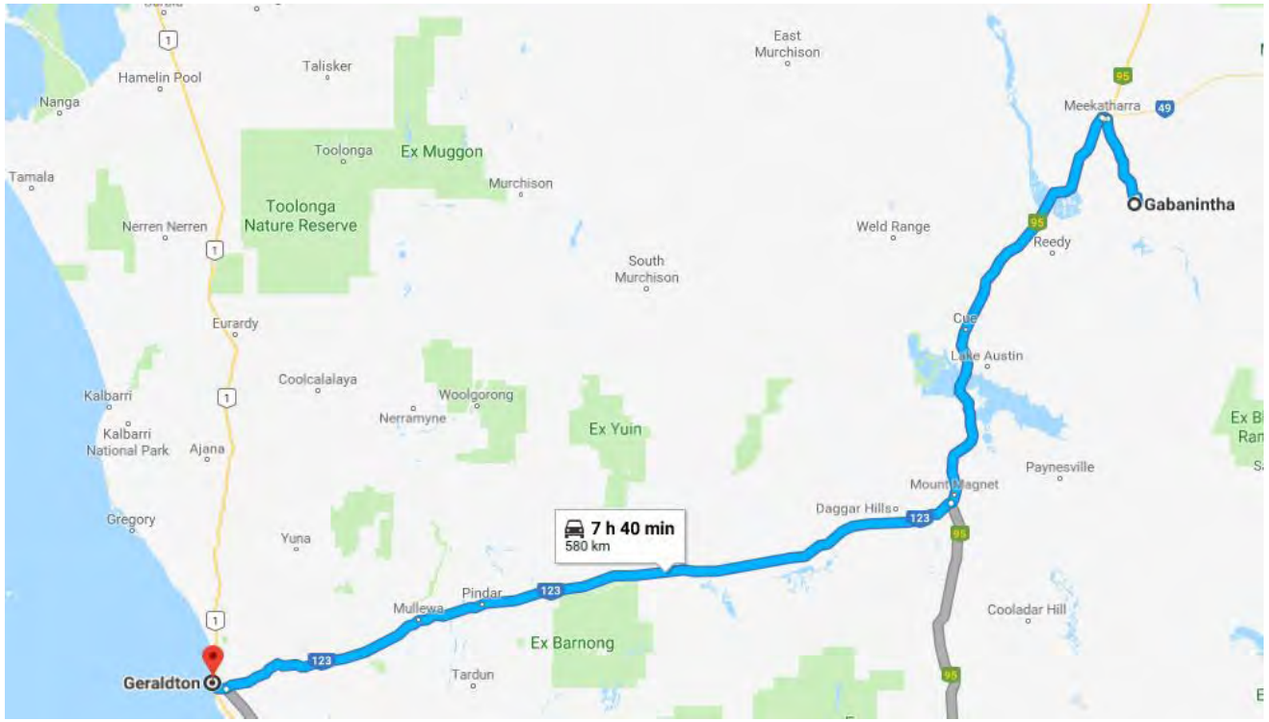
Logistics For Export of High Value Iron-Vanadium Concentrate

- Concept based on road train transport of product to Geraldton.
- Export through the bulk materials port at Geraldton which already exports iron ore product.
- Logistics study underway to optimise efficiency and costs.



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Sinosteel Australia Letter of Intent

- Sinosteel Australia part of the WA business community since 1991.
- LoI covers negotiation of a life-of-mine iron-vanadium offtake.
  - Annual quantity of up to 1.5Mtpa
  - Pricing based on the Platts 65% Fe Index Price and the FerroAlloyNet China V_2O_5 Index Price
- EPC contract to be negotiated with Sinosteel Equipment & Engineering Co., Ltd (MECC).

SINOSTEEL

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GABANINTHA VANADIUM PROJECT

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August 2019 DFS - Outcomes[1]

MASSIVE MAGNETITE RESOURCE

71.2Mt
@ 1.1% V_2O_5

MINING RESERVE

29.6Mt
@ 0.88% V_2O_5

PROCESSING PLANT

SALT ROAST WATER LEACH

27.9Mlb
V_2O_5 pa

HIGH PURITY PRODUCT

>99% V_2O_5

OPEX

US$4.04
/ lb V_2O_5

MINE LIFE

+16years

PRE PRODUCTION CAPITAL COSTS

US$318M
A$454M

PAYBACK

<3.2years

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

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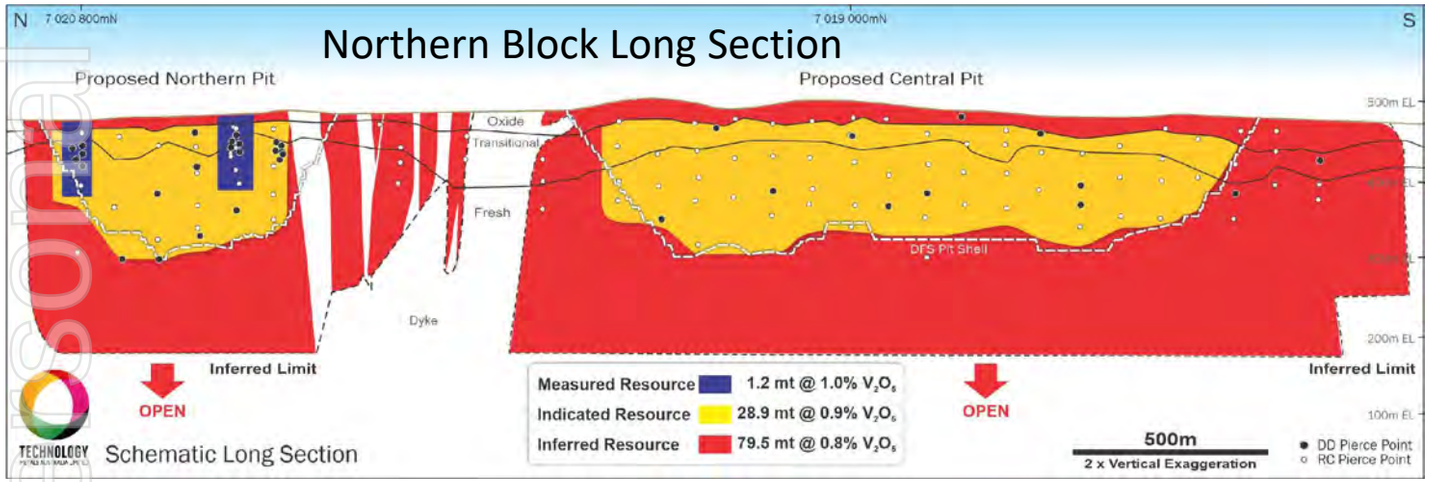
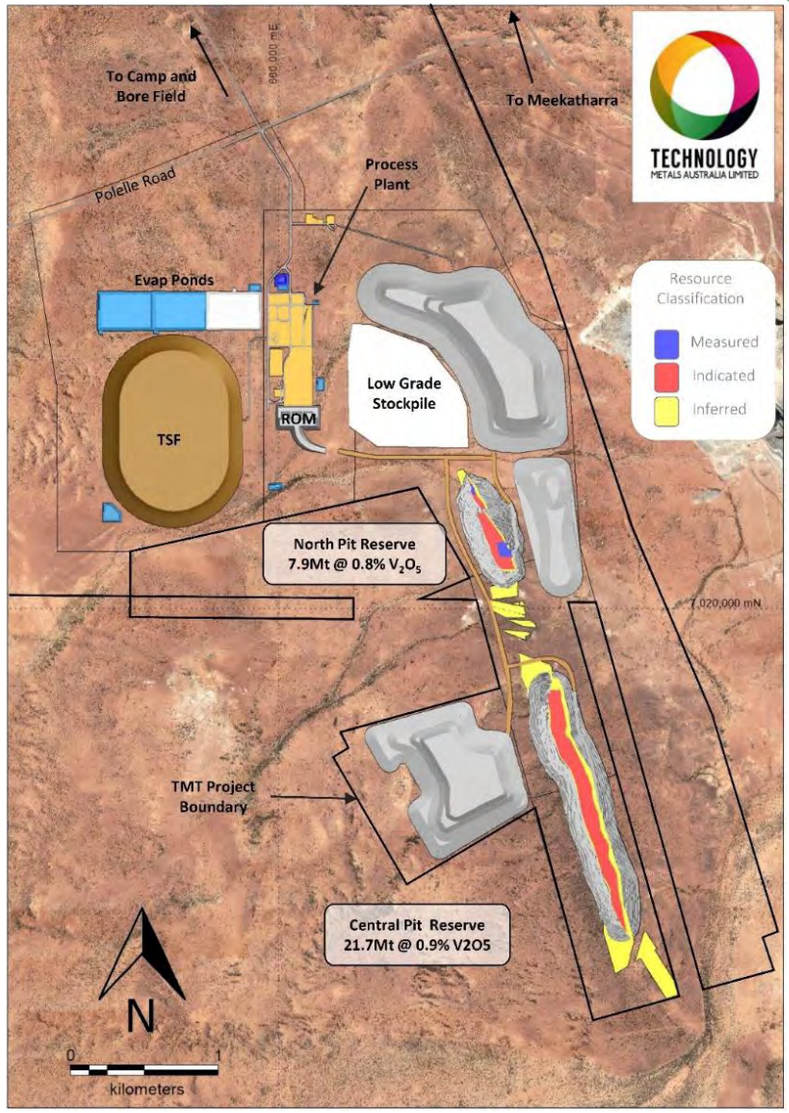
World Class Resource – Simple Open Pit Mining

- DFS mine life of 16 years based on Northern Block Ore Reserve of 29.6Mt at 0.88% V_2O_5.
- High grade mineral resource of 60.7Mt at 1.1% V_2O_5 within total mineral resource of 109.5Mt at 0.8% V_2O_5
- Northern Block open pits limited by drilling at depth and on strike to the south.
- Considerable scope to increase mine life through upgrade of inferred mineral resources.





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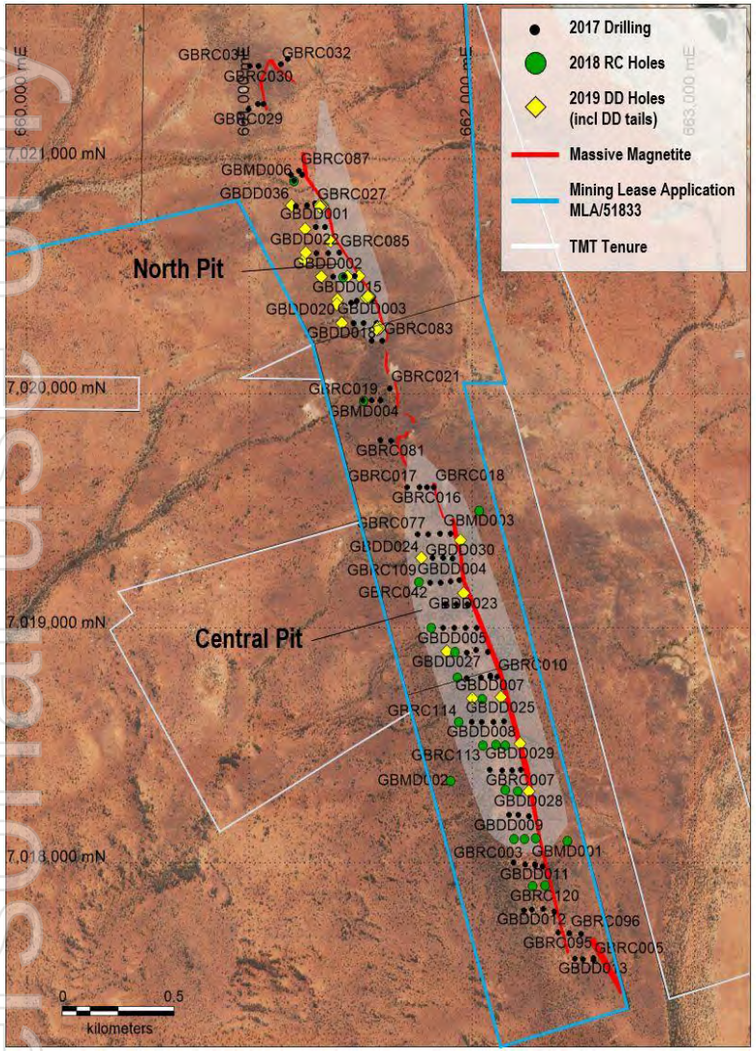
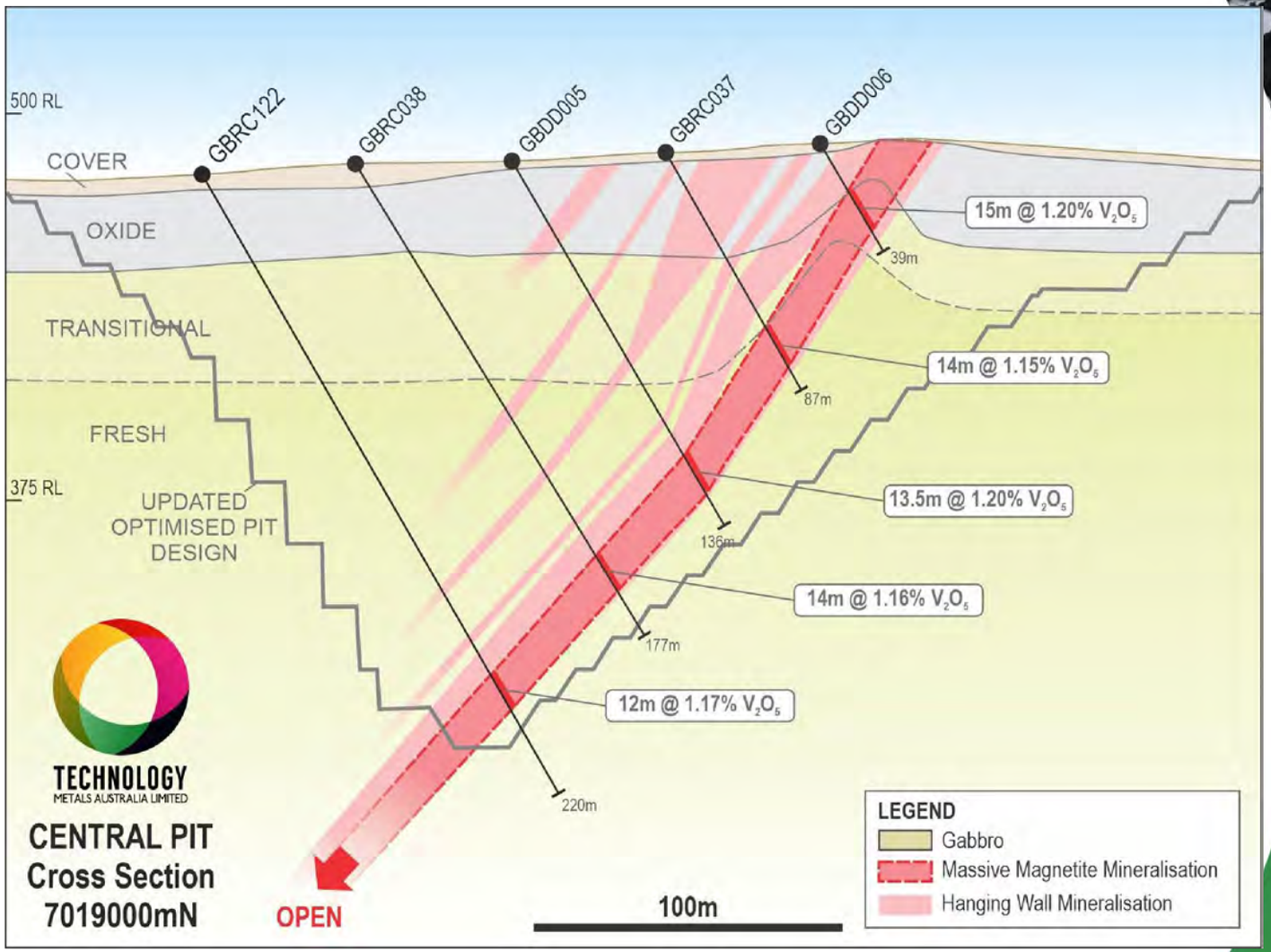
Shallow Oxidation – Consistent High Grade Basal Unit





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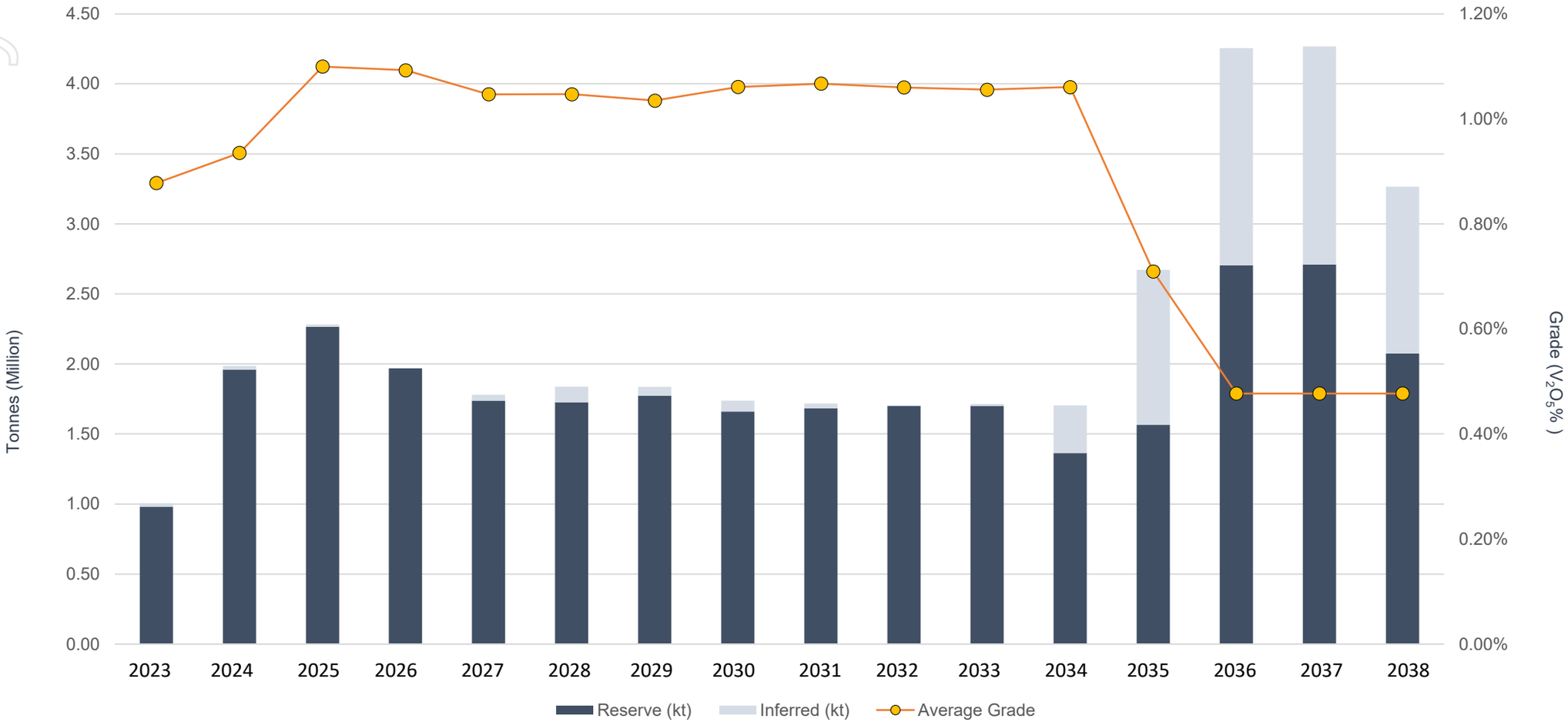
ROM Feed in Excess of 1%[1]



Annual Crusher Feed Showing Feed Grade and Tonnage plus Distribution of Inferred Mineral Resources
(Process feed post 2034 sourced from low grade stockpiles built up over LOM – to be displaced with high grade feed from Southern Tenement)

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

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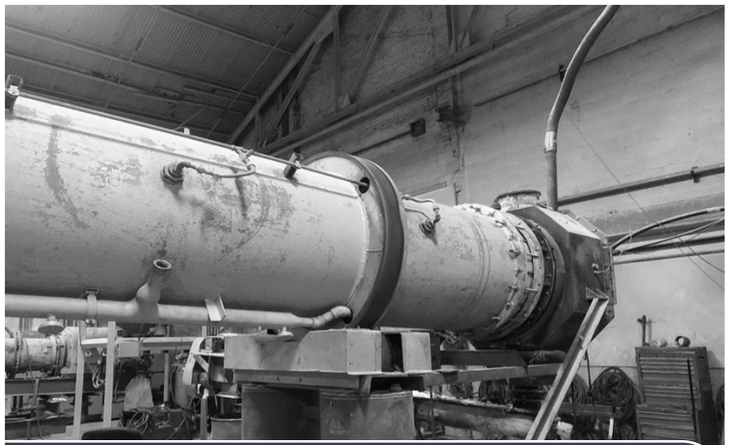
Pilot Test Work De-Risks Project and Confirms Scalability

CONFIRMS VERY HIGH YIELD TO MAGNETIC CONCENTRATE

11.5T bulk sample processed through Crushing Milling Beneficiation pilot plant

Confirmed very high yield to magnetic concentrate with low deleterious elements



PILOT SCALE KILN 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 continuous salt roast / kiln testwork completed by kiln experts FLSmidth

FLSmidth provided kiln design and operating parameter inputs for DFS

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Offtake Agreements – Binding and MoU

CNMNC a subsidiary of China Nonferrous Metal Mining Group Company.

- Binding take-or-pay offtake for **2,000Tpa** (4.4Mlb pa) ~16% of annual production.
- Three year term with three-year extension.
- Pricing referenced to the published European and Chinese domestic prices.
- Progressing discussions with sister company, **NFC**, on EPC and scope for funding solutions.

Shaanxi Fengyuan offtake MOU over 3,000Tpa.

- Take-or-pay ~24% of annual production.
- Five-year term with five-year extension.

Big Pawer offtake MOU over 1,000Tpa take-or-pay and up to 5,000 Tpa

Offtake discussions progressing with a range of other counterparties across a range of industries and jurisdictions.

6,000 to 10,000 tonnes of TMT's proposed production of 12,800Tpa V_2O_5 covered under Binding Offtake and MoU

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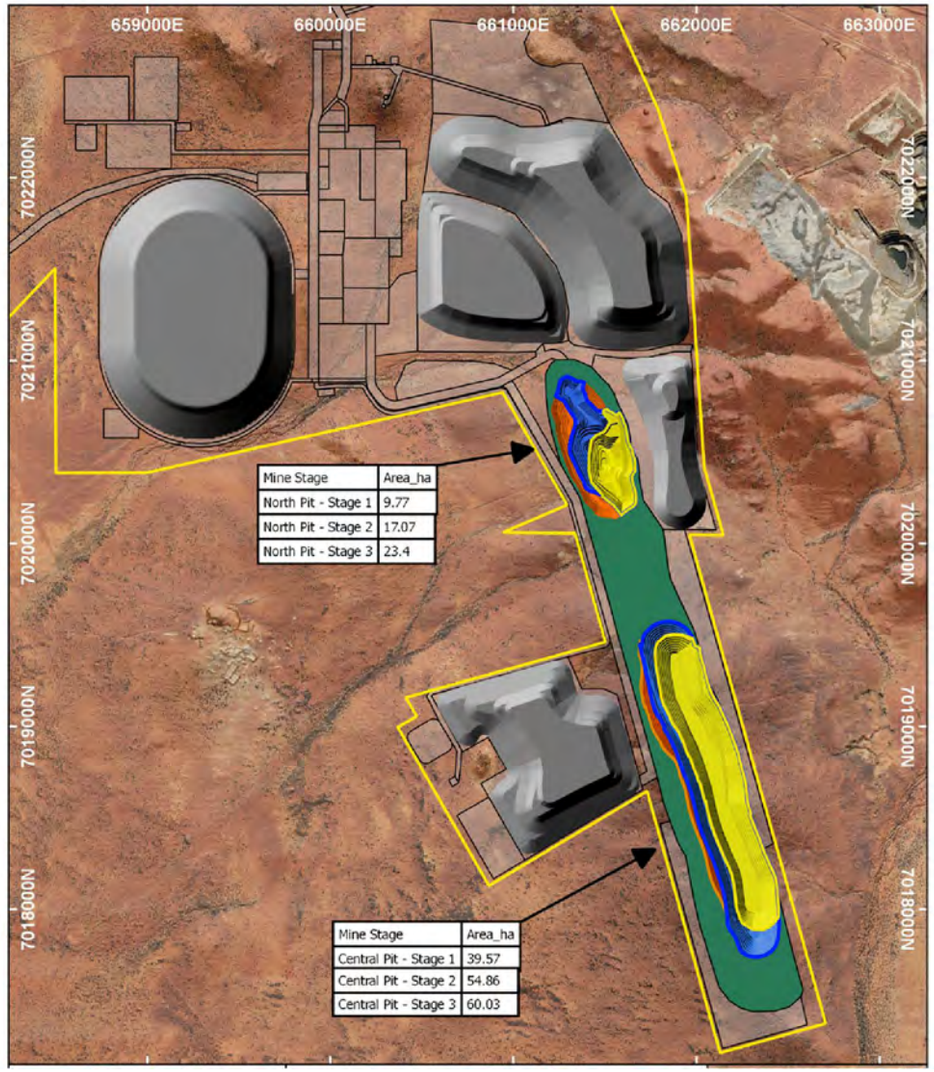
Project Development Activities

- Mining Leases granted for initial 21-year period.
- Yarrabubba reserve estimation / open pit design to be updated based on Fe-V product**.**
- Sinosteel Australia life-of-mine Fe-V offtake and EPC LoI for Yarrabubba.
- Gabanintha environmental approvals progressing with ERD to be lodged early Q1 2021.
- Expanding offtake volumes, vanadium market engagement, VRFB strategy.
- Western Australian Government Lead Agency Support - Future battery industry strategy supporting downstream processing options.
- Northern Australia Infrastructure Facility (NAIF) engagement – part of strategic funding approach.
- Equipment vendor engagement – FLSmidth kiln supply agreement.
- MOU with APA Group to progress development of gas pipeline infrastructure.



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Investment Case

- ✓ **Leveraged** to demand for premium iron product and structural change in the vanadium industry.
- ✓ **Delivering** offtake and partner engagement 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.

ASX: TMT; FRA: TN6

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APPENDICES

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One of The Highest Grade Deposits in the World*

- Global combined resource of **137.2Mt at 0.9% V_2O_5**
- High grade resource of **75.1Mt at 1.1% V_2O_5** in consistent basal massive magnetite
- Northern Block **Proven and Probable Reserve of 29.6Mt at 0.88% V_2O_5** at extremely high 98% tonnage conversion
- Measured and Indicated Resource expanded by 32% to **39.6Mt at 0.9% V_2O_5** – reserve update pending

MINING RESERVE

29.6Mt
@ 0.88% V_2O_5

Material Type	Classification	Mt	V_2O_5%	Fe%	Al_2O_3%	SiO_2%	TiO_2%	LOI%	P%	S%
Massive Magnetite	**Measured (North)**	**1.2**	**1**	**44.7**	**6.2**	**10.4**	**11.4**	**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
	Indicated (South)	7.3	1.1	49.2	5.1	5.8	12.6	-0.6	0.004	0.3
	Total Indicated	**25.8**	**1.1**	**49.1**	**5.1**	**5.8**	**12.8**	**-0.3**	**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)	7.1	1.1	46.9	5.6	7.4	12.1	0.5	0.005	0.3
	Total Inferred	**48.1**	**1.1**	**47.6**	**5.6**	**7.2**	**12.5**	**0.3**	**0.008**	**0.2**
	Massive Global	**75.1**	**1.1**	**48.1**	**5.5**	**6.8**	**12.6**	**0.1**	**0.007**	**0.2**
Disseminated / Banded Magnetite	Indicated (North)	10.3	0.6	28.6	13.1	25.5	7.5	3	0.03	0.2
	Indicated (South)	2.3	0.7	33.1	9.5	20.6	8.5	2.3	0.014	0.3
	Total Indicated	**12.6**	**0.6**	**29.5**	**12.5**	**24.6**	**7.7**	**2.8**	**0.027**	**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	0.6	27.7	13	25.9	7	2.7	0.015	0.3
	Total Inferred	**49.5**	**0.5**	**27.2**	**12.8**	**27.1**	**6.9**	**3.2**	**0.024**	**0.2**
	Diss / Band Global	**62.1**	**0.6**	**27.7**	**12.7**	**26.6**	**7.1**	**3.1**	**0.025**	**0.2**
Combined	**Global Combined**	**137.2**	**0.9**	**38.9**	**8.7**	**15.7**	**10.1**	**1.5**	**0.015**	**0.2**

*Note: The Mineral Resources were estimated within constraining wireframe solids using a nominal 0.9% V_2O_5% lower cut-off grade for the massive magnetite zones and using a nominal 0.4% V_2O_5% lower cut-off grade for the banded and disseminated mineralisation zones. The Mineral Resources are quoted from all classified blocks within these wireframe solids above a lower cut-off grade of 0.4% V_2O_5%. Differences may occur due to rounding.

* – Refer TMT ASX announcements dated 29 March 2019 and 1 July 2020 for full details of the mineral resource estimation.

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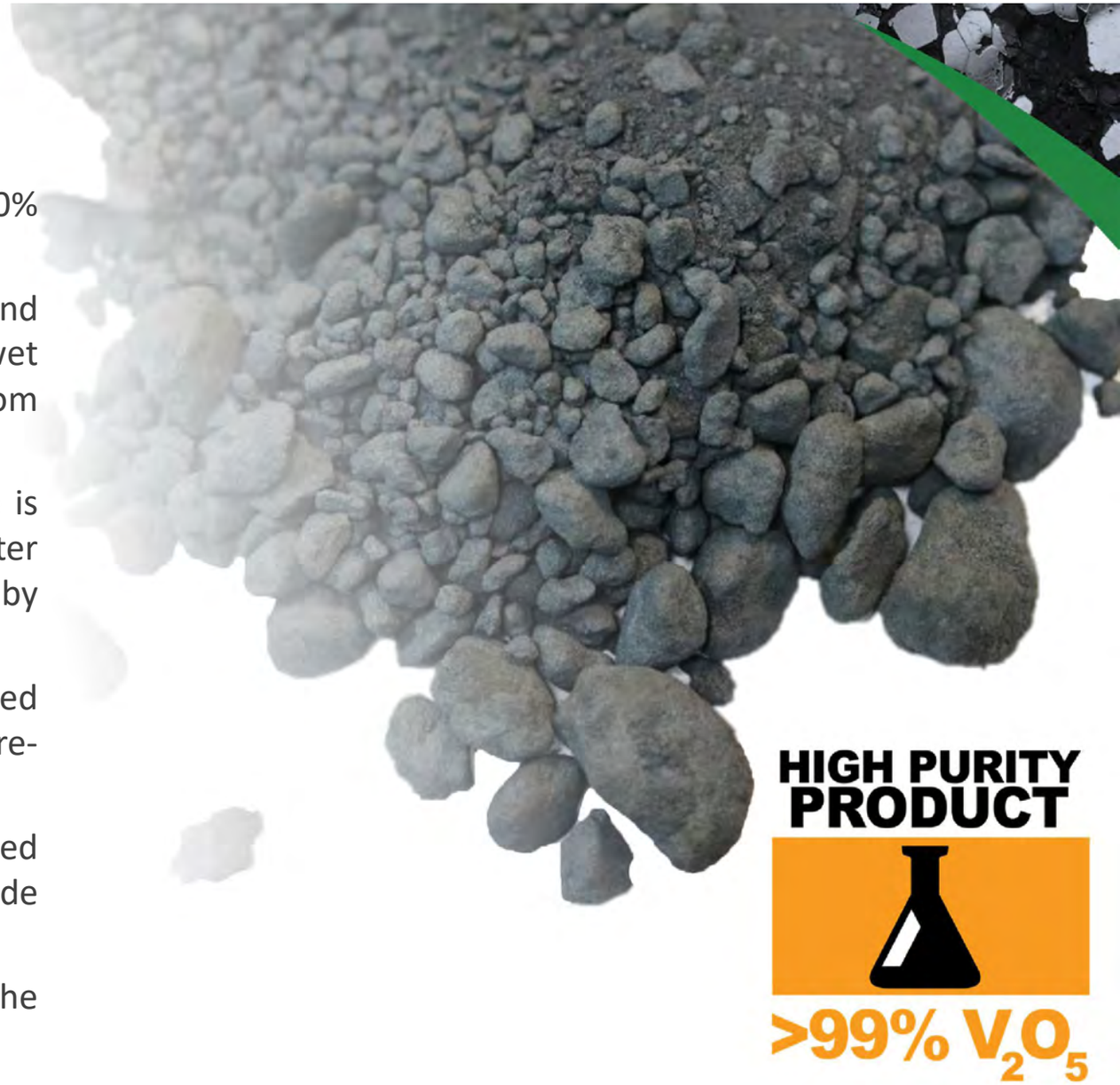
August 19 DFS – Processing[1]

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 sodium-based salt to convert V_2O_5 to water soluble sodium metavanadate. Pilot scale kiln testwork by FLSmidth informed engineering and operating parameters
4. **Leaching & Precipitation -** sodium metavanadate is leached out of the roasted product with water followed by re-precipitation of vanadium into 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



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

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August 19 DFS – Material Physical Assumptions & Anticipated Outputs*

PRODUCTION

Key Metric	Unit	DFS
Average V_2O_5 Production Rate	Mlb Per Annum	27.9
Targeted Production Commencement	Year	2022
Estimated Mine / Processing Life	Years	+16
Life of Mine Production	Mlb V_2O_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_2O_5	0.83
Average Plant Feed Grade (Yrs 1 -12)	% V_2O_5	1.04
Average Yield to Mag Con (Yrs 1 – 12)[1]	%	71
Average V Recovery (Yrs 1 – 12) [1]	%	70

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.

[1]Includes 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

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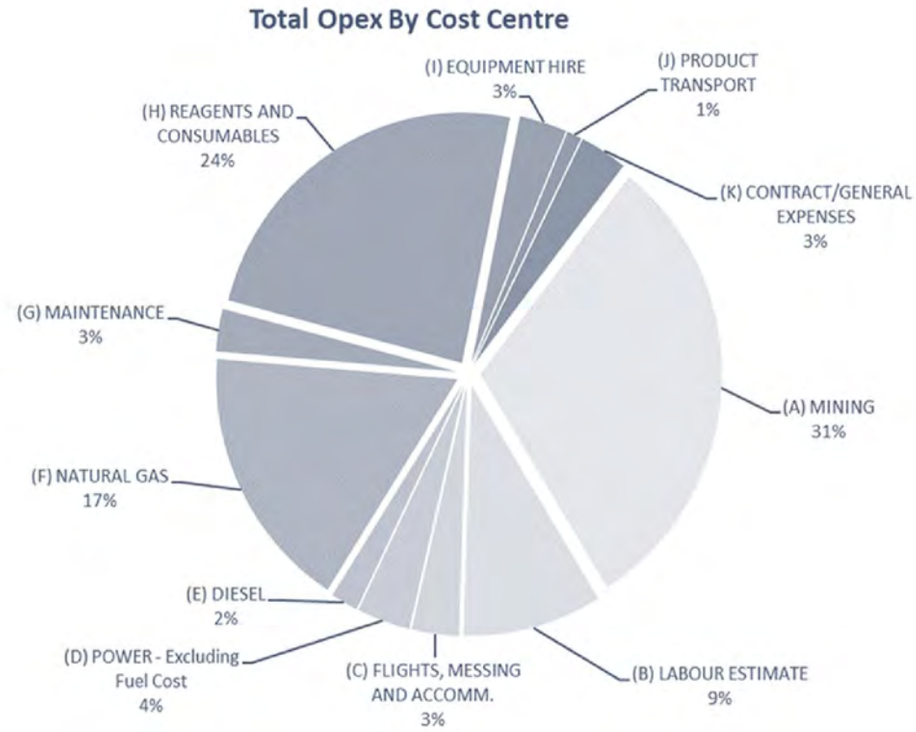
Process Plant Capex and Operating Cost Breakdown

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



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

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Major Use is in Steel – Batteries Rapidly Emerging

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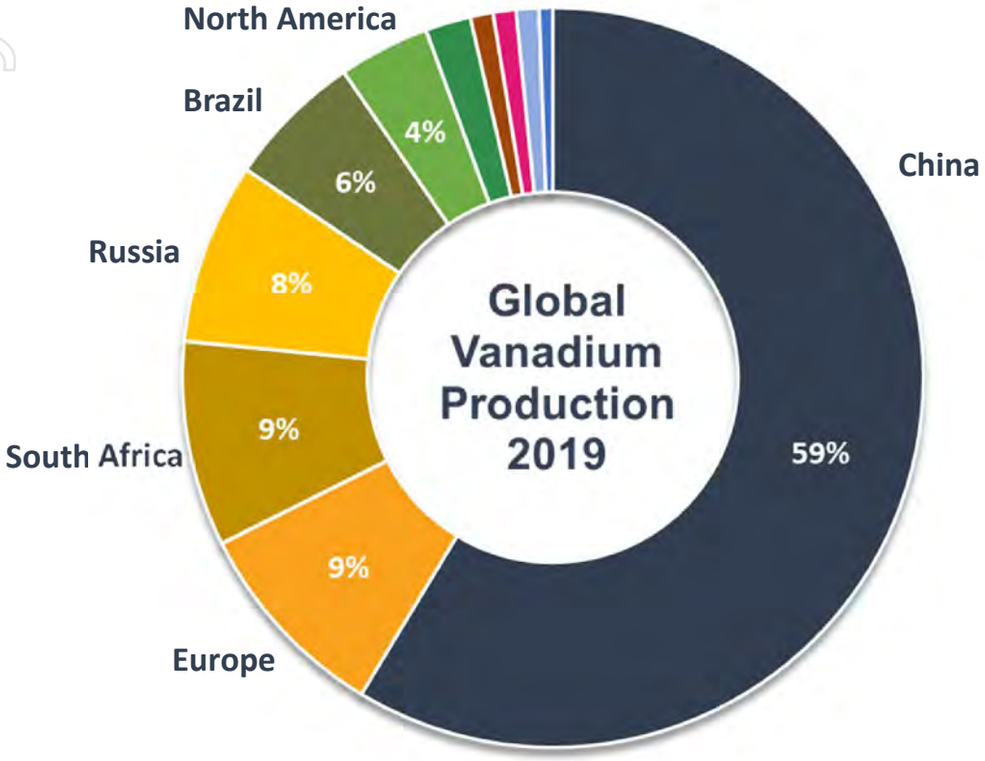
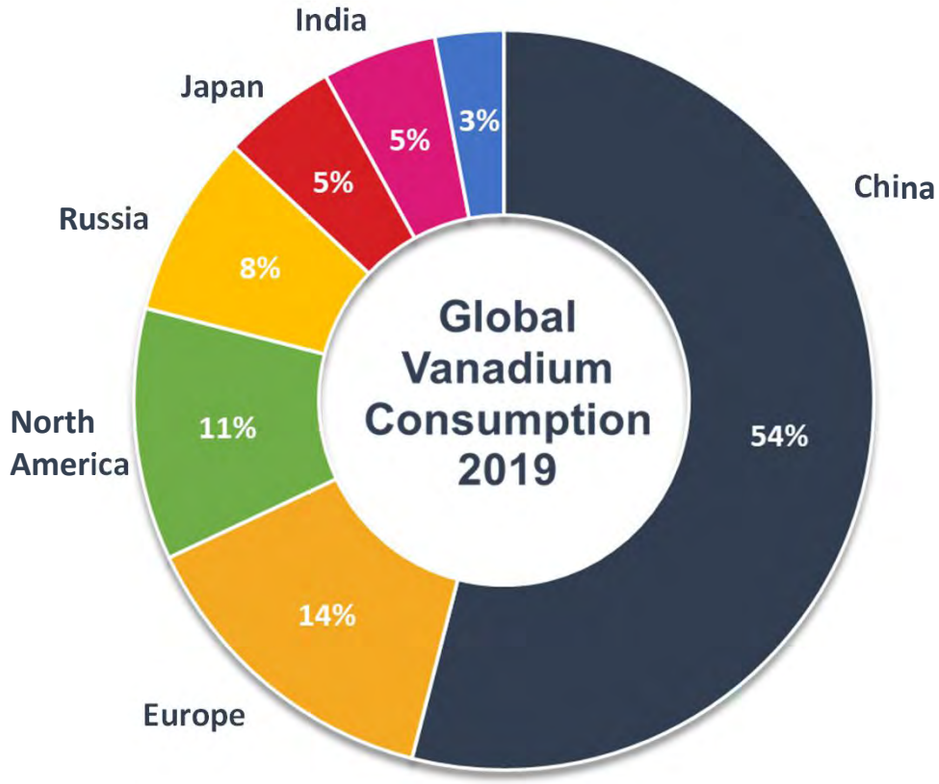
Vanadium Supply / Demand





- Europe, North America, Japan and India net importers.
- Indian consumption set to grow significantly in near to mid term.
- Currently no production from Australia

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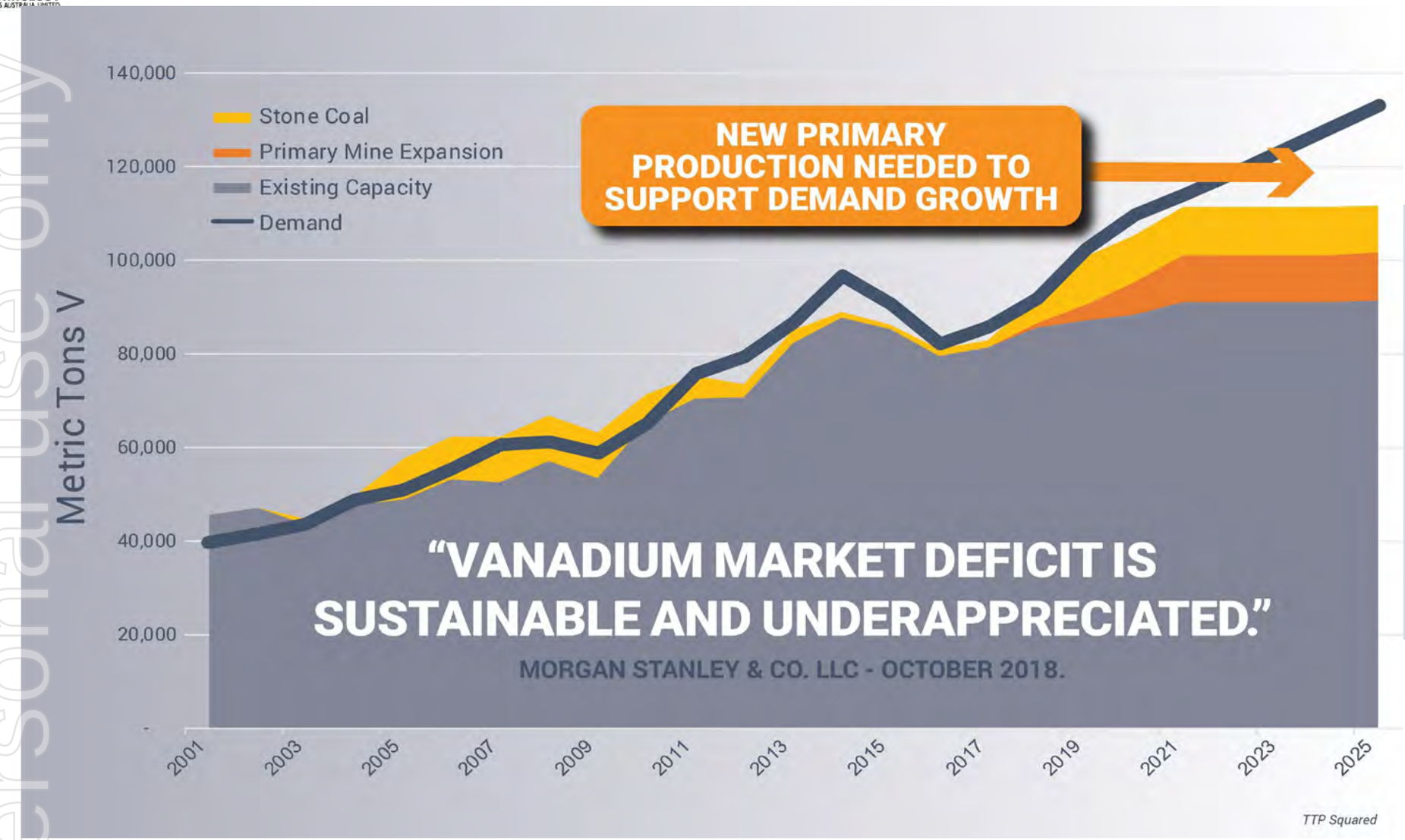
The Emerging Deficit



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)

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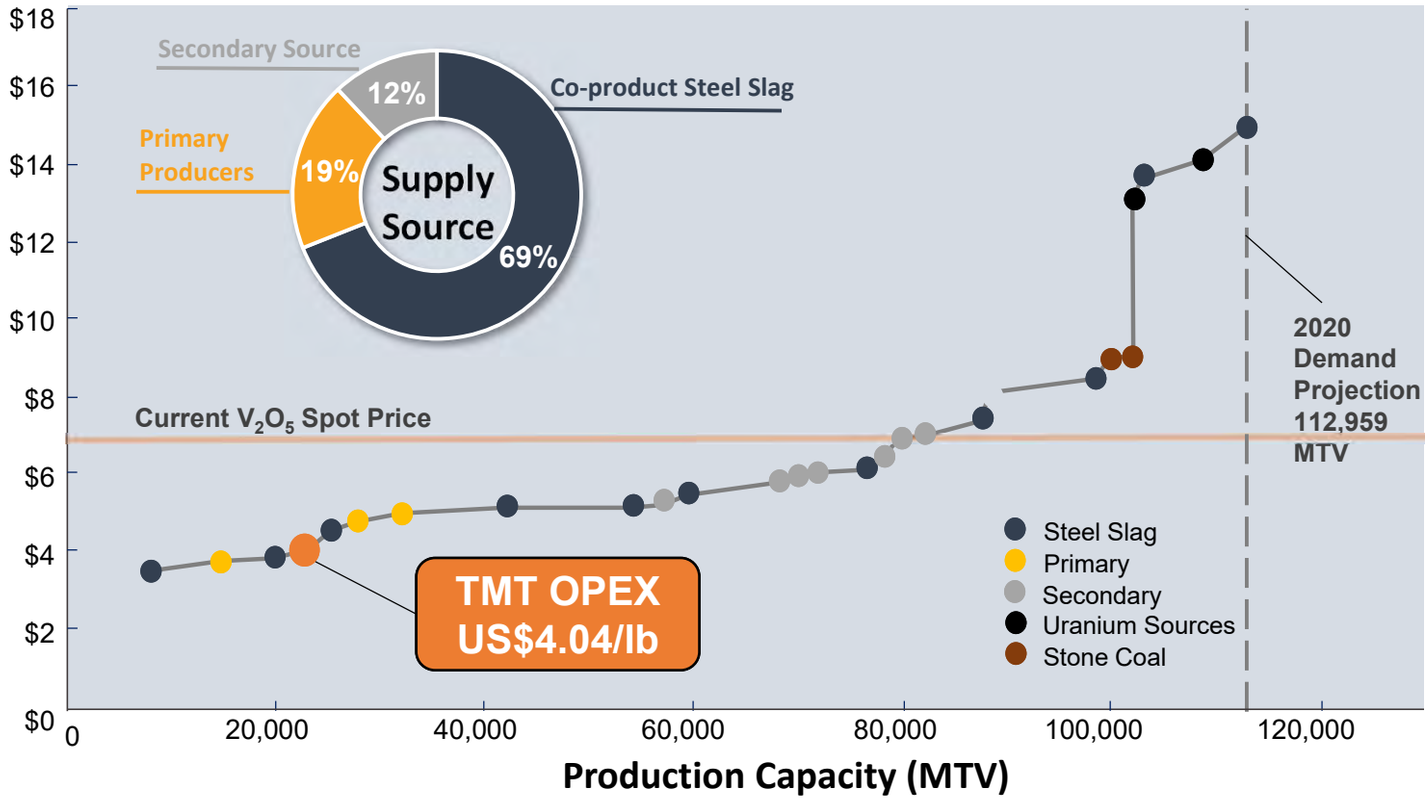
Vanadium Market Dynamics

- China net importer of vanadium in late 2019 – first time in 10 years.
- Price environment removed some of the higher cost / highly polluting Chinese supply.
- Tightening domestic Chinese market due to increased consumption in steel.
- COVID-19 impacts – expecting further stimulus spending on infrastructure.
- Current pricing very supportive of VRFB roll out – Dalian, Hokkaido batteries!
- Gabanintha lowest quartile costs at US$4.04/lb* V_2O_5.
- All In Sustaining Cost estimate of US$5.75/lb V_2O_5.

V_2O_5 Cash Cost Curve (Forecast CY2020)



Source: TTP Squared

* TMT operating costs do not incorporate any revenue benefits that may be generated from by-product credits, such as base metal production

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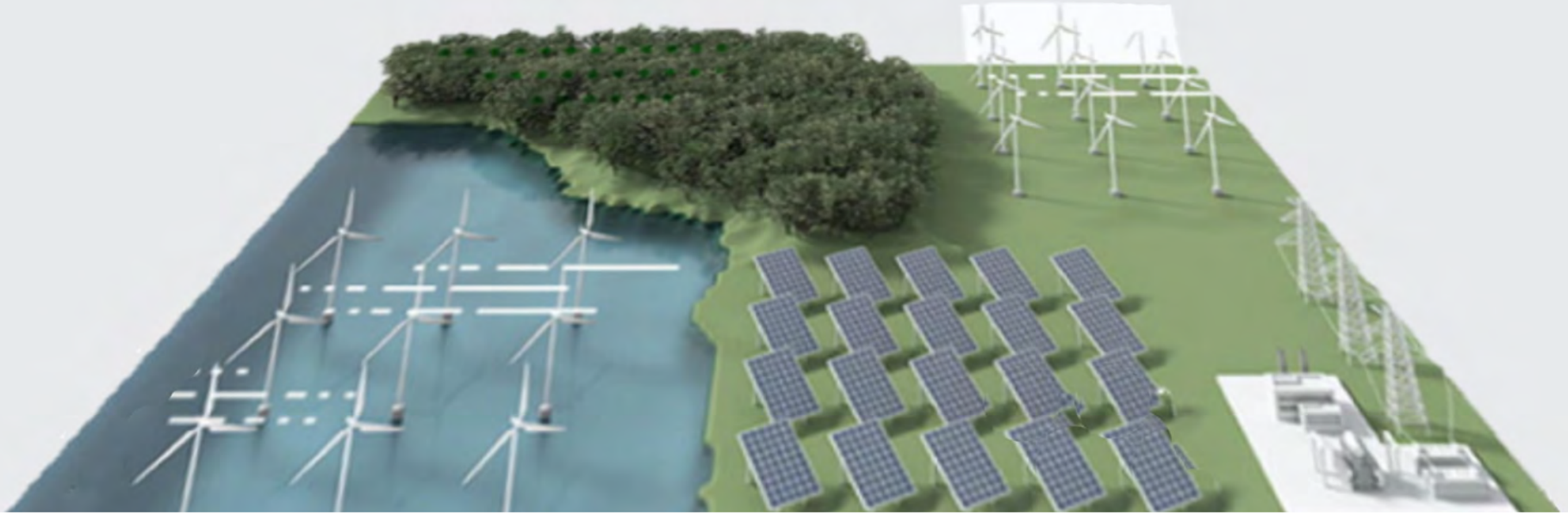
VRFBs – The Solution for Grid Storage



- Grid scale stationary storage solutions – peak shaving, regulating load frequency, driving grid efficiency.
- Ideally suited to renewable energy – contributing to the efficient roll out of green energy – able to time-shift large amounts of previously generated energy.
- 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 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; expandable by simply adding more electrolyte storage capacity.
- Non-flammable – enhanced safety.

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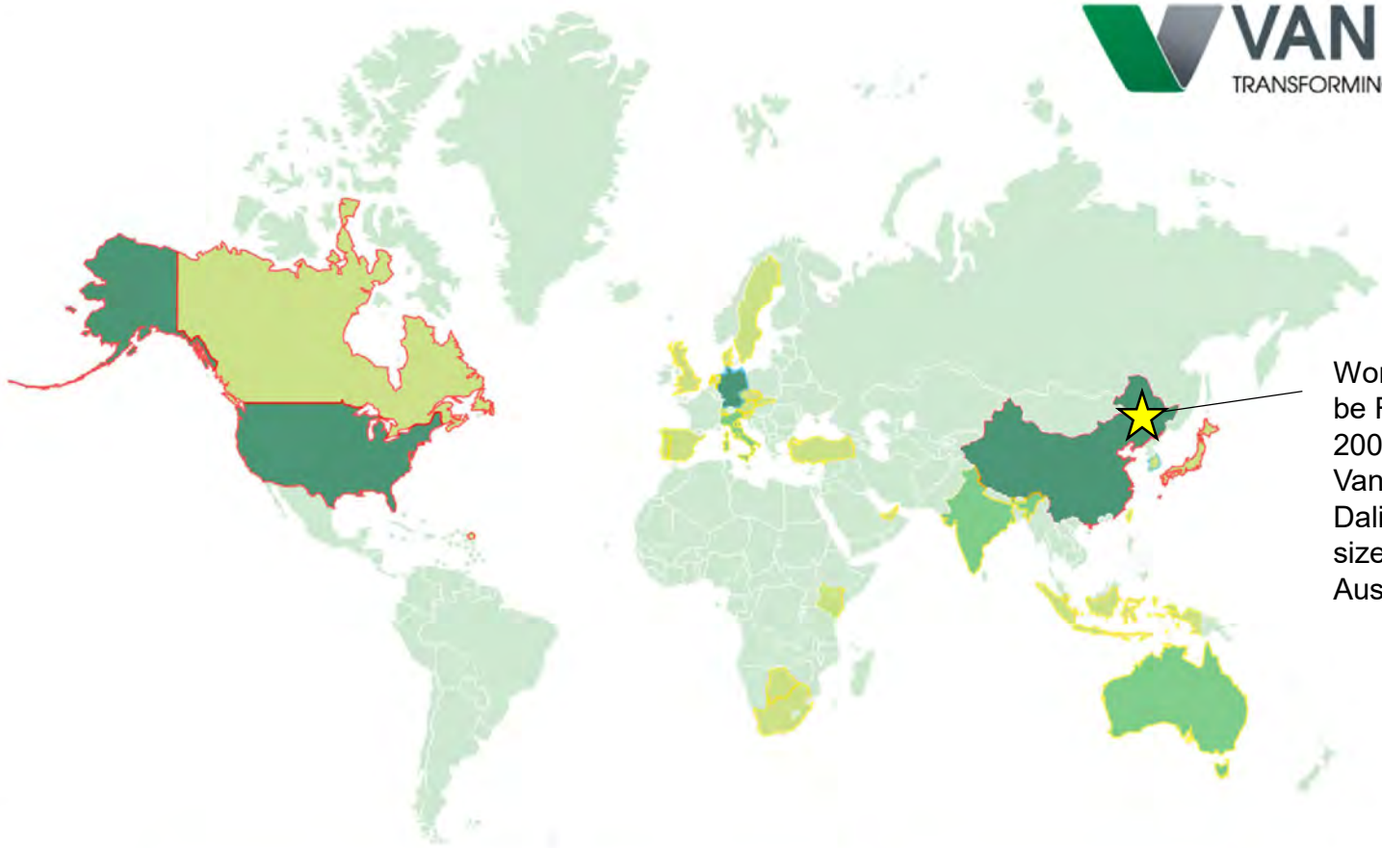
Globally - 113 VRFB Installations and growing

Country	VRFBs	kW	kWh
Australia	7	945	4,629.90
Barbuda	1	3,000	12,000.00
Botswana	1	112	560.00
Canada	3	2,500	10,000.00
China	17	15,825	48,005.00
Czech Rep.	3	47	209.90
Denmark	3	40	260.00
Germany	15	1,530	86,190.00
India	4	155	740.15
Indonesia	2	400	500.00
Italy	5	631	2,610.00
Japan	5	2,330	7,481.00
Netherlands	1	10	80.00
Portugal	5	5	60.00
Singapore	1	250	2,000.00
Slovenia	1	10	45.00
South Africa	2	745	2,950.00
South Korea	5	1,250	4,900.00
Spain	4	220	800.00
Sweden	1	800	1,800.00
Switzerland	2	210	460.00
U. Kingdom	5	805	5,180.00
USA	17	7,418	33,173.70
Austria	1	14	84.00
Kenya	1	140	84.00
Slovakia	2	107	640.00
UAE	1	10	40.00
Taiwan	1	125	750.00
Turkey	1	10	40.00

Last updated 30- 04 - 2019



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