BRIDGE STREET
CAPITAL PARTNERS

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Technology Metals (TMT AU, $0.44, market cap $54.2m)

Met. studies define a moderate capex, high return starter project for Gabanintha Vanadium Project. MOU with Sinosteel provides confidence

- TMT's 100% owned Tier 1 Gabanintha vanadium-bearing magnetite project is located some 40km south of Meekatharra, in WA's Murchison region. Gabanintha is amongst the higher grade deposits of its type outside the Bushveld in South Africa. Total resources are 137mt at 0.9% V_2O_5, within which is a higher grade resource of 75mt at 1.1% V_2O_5.
- Relatively simple geology of the two orebodies, the Northern and Southern (Yarrabubba) Blocks, allows straightforward open pit mining and concentration of a vanadium rich magnetite concentrate for subsequent treatment employing conventional salt-roast/water leach technology. DFS costs are estimated to be low (first quartile on the cost curve) at around US$4/lb.
- The project has attracted a great deal of interest from North Asian customers, with MOU's signed for up to 10,000t of V_2O_5, over 70% of projected production.
- However projected capital costs are high (A$454m, pre-production) with financing a significant challenge.
- Thinking laterally, TMT management have looked at opportunities to develop a project with lower capital intensity. Drilling of Yarrabubba has identified a 28mt, 39% Fe and 0.9% V_2O_5 resource. Initial test work of representative mineralisation has confirmed that a high iron (>64%) vanadium rich (1.7% V_2O_5) magnetite product can be produced at ca. 50% mass recoveries. This appears to be an attractive, high grade feedstock for one of the many North Asian steelmakers which produce a vanadium by-product.
- Our view of this project is as a low strip open cut, contract mined, with crushing/milling/beneficiation (using low-intensity magnetic separation). A mine life of around 7 years is inferred with further drilling required to confirm reserves. TMT aims to complete a DFS for Yarrabubba by 3Q21.
- We present a case –based only on our estimates – where the project delivers an NPV_8 of over A$300m with an IRR of over 60% on capex of A$160m. This would be more manageable for a modest balance sheet. Furthermore, it's possible that some of this capex could be outsourced (contract crushing/milling).
- EBITDA margins are inferred to be around 35-40% using realistic iron ore prices and bottom of cycle V_2O_5 prices, and assuming 25% payability for V_2O_5 credits. However, this type of product does not yet have transparent pricing.
- Commercial terms will be tested, with the signing of a non-binding letter of intent with Sinosteel Australia for the life of the Yarrabubba mine. TMT will also look to enter into an EPC contract with Sinosteel.
- We believe the Yarrabubba mine can deliver strong returns and a rapid payback at low C1 costs (ca. US$31/t after vanadium credits). This should pave the way for the development of Stage 2, the full V_2O_5 project as described in the DFS. Mining leases are granted; the projects await environmental approval.
- The Gabanintha project then retains full optionality over a much larger, 14,000tpa V_2O_5 operation, delivering raw materials to what we believe might become an increasingly scarce commodity outside the world's dominant source of supply, China. Growth in vanadium demand to fuel a new generation of battery storage (the 'flow batteries') remains a wildcard in the supply/demand outlook.

Investment Overview

- The Yarrabubba project presents itself as an attractive opportunity for a relatively low capex/quick start up, as a lead in to the full Gabanintha vanadium project. At the moment we can only see the potential for a 7 year mine life, but additional resource potential is possible.
- Based on our conceptual analysis, we see Yarrabubba as a stand-alone Stage 1, vanadium-magnetite project, potentially fundable by a small company, with attractive returns and a sub-2 year payback based on our commodity price assumptions (including a V_2O_5 price of US$7/lb and 25% payability for the V_2O_5).
- This we see as potentially an attractive starter for the larger, fully integrated project, centered on the larger Northern Block deposits. The initial spend for Stage 1 could lift an otherwise high capital burden for the project, covering the cost of the comminution and magnetic separation and infrastructure (water, TSF, roads, camp and office).
- The Stage 2 project has been the subject of a detailed DFS. Stand alone, the project offered fair economic returns (pre-tax IRR of 21% at a US$8.78/lb V_2O_5 price). Staging the capex, and cashflow from Stage 1/Yarrabubba should enhance these returns considerably.
- The projects are well located, close to the mining center of Meekatharra with access to gas from the MidWest Gas Pipeline and 30km from the sealed National Highway. Ample water is available.
- The next steps appear to be to finalise metallurgical studies, refine the process flowsheet, and to upgrade inferred resource to indicated and thereby increase the reserve base.
- A mining lease has been granted. Environmental permits are now on the critical path. A benefits agreement is currently being negotiated with Traditional Owners.
- An updated BFS is expected to be complete in 3Q21.
- At a market capitalisation of around A$40m, TMT looks like an attractive opportunity for (1) an economic high vanadium magnetite business, taking advantage of current high iron ore prices and (2) the longer term optionality associated with a fully integrated vanadium project.
- We envisage ongoing rerating of TMT as critical hurdles are achieved and as confidence in product pricing evolves.

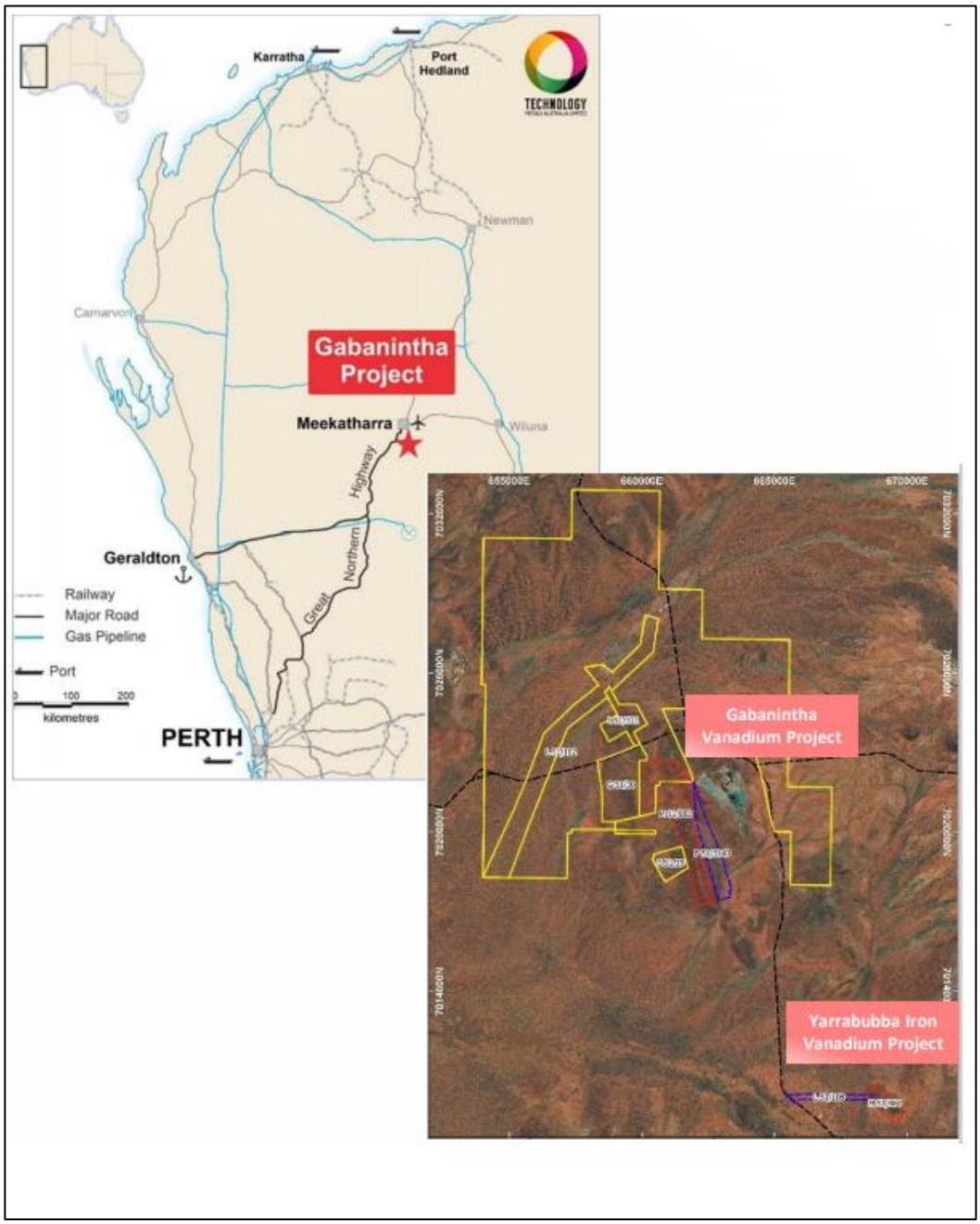
TMT's Gabanintha Vanadium Project

Technology Metals Australia's Gabanintha Project is located 40km south of Meekatharra in Western Australia. The project contains a 5.5 km strike length of high grade mineralised gabbro and is one of the highest-grade vanadium deposits globally. See over for the location of the Project.

The project consists of a series of exploration tenements and two mining leases divided between the Northern Block and the Southern ("Yarrabubba") Tenement. Vanadium mineralisation is hosted by a north west – south east trending layered mafic igneous unit. Mineralisation at Gabanintha is similar to the Windimurra Vanadium Deposit, located 270km to the south, and the Barrambie Vanadium-Titanium Deposit, located 155km to the south east. The key difference between Gabanintha and these deposits is the consistent presence of a high-grade massive vanadium-titanium-magnetite basal unit, which results in an overall higher grade for Gabanintha when compared to the other projects.

The global resource totals some 137mt at 0.9% V_2O_5. The Yarrabubba project contains 27.7mt at 38.7% Fe and 0.9% V_2O_5.

Within this resource is a higher grade zone of 75.1mt at 1.1% V_2O_5. Importantly the deposits held by TMT are characterised by relatively shallow depths of weathering. Highly weathered magnetite ore is not economic and will report to waste.



Gabanintha Resources

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**

Source: TMT presentation, 11 November, 2020

In 3Q19, TMT announced a definitive feasibility study (DFS) based on initially a 16 year mine life for the annual production of some 14ktpa of V_2O_5 with very attractive cash operating costs of just over US$4/lb. This would place the Gabanintha project in the lowest cost quartile globally. Follow up exploration in 2020 increased the reserve life to 22.5 years.

Other key outputs from the Gabanintha DFS include:

- Average feed grades of around 1% V_2O_5 for the first 12 years of the mine's operation, one of the highest grade mill feeds globally from a 3mtpa low strip (4.3:1) open cut operation.
- Pilot plant test work has shown that concentrates produced from Gabanintha ores are suitable for processing via a conventional salt roast/water leach process. The proposed upgrading technology is in use at several operations in Asia and Brazil (for example, Largo's Maracas Menchem operation which has been operating profitably for several years).
- Vanadium recoveries were estimate at 70% for the first 12 years.
- Pre-production capital costs were estimated at A$454m
- Using a US$8.78/lb V_2O_5 price assumption (the average for the prior 15 years), the DFS delivered a pre-tax NPV8 of A$663m with a rate of return (pre-tax) of 21%.
- The plan had been to commence production in 2022 with a 2 year ramp-up to full production.

While technically feasible, the project's economic returns were only modestly attractive. While TMT was able to attract plenty of interest from potential customers, financing of a high capex project such as Gabanintha by a small company would likely prove to be a challenge. Vanadium prices had been fairly subdued as well.

The Gabanintha project has derived a good deal of attention from potential Chinese off-takers, including:

- A binding offtake agreement (subject to the project proceeding) from CNMC (Ningxia) Orient Group Company Ltd: 2,000tpa V_2O_5.
- A non-binding MOU with Shaanxi Fengyuan Vanadium Technology Development Co., Ltd, a vanadium nitrogen producer (for use in steel alloys): 3,000tpa V_2O_5
- A non-binding MOU with Big Pawer Electrical Technology Xiangyang Inc. Co., Ltd. for the production of vanadium electrolytes for use in vanadium redox flow batteries, targeting a binding agreement: 5,000tpa V_2O_5.

As we know, Chinese MOU's are little more than gestures of goodwill between parties. That said, it is certainly encouraging that the Gabanintha product is achieving profile in North Asia.

The Yarrabubba project: potential supply of iron-vanadium concentrate to Asian steel mills

In April 2020, TMT geologists went back to the project with drill rigs, successfully identifying higher grade zones at Gabanintha to potentially enhance the project economics. A series of diamond drillholes not only helped define wide, relatively high grade vanadium-bearing massive magnetite mineralisation, but also demonstrated that a high V_2O_5 magnetite concentrate could be prepared at reasonable met recoveries.

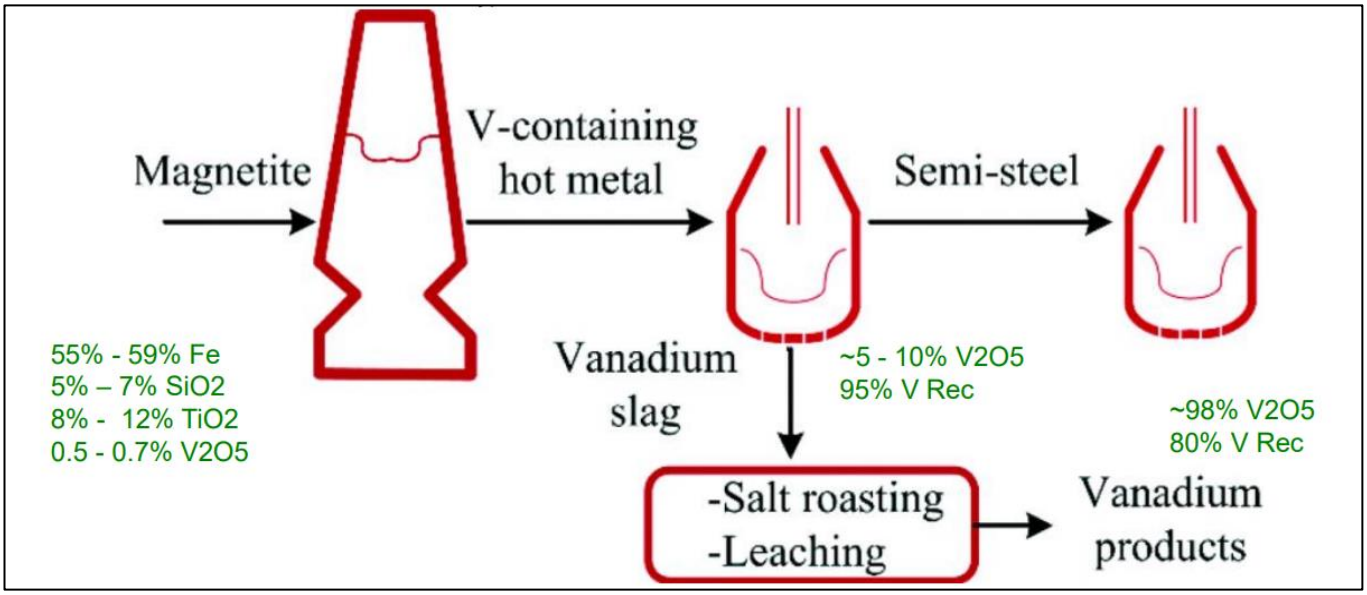
In October 2020, TMT announced the results of preliminary test work from the massive magnetite unit within the Yarrabubba project. Initial batches of representative samples of Yarrabubba mineralisation (including massive magnetite and enclosing disseminated mineralisation) were subjected to magnetic separation of finely ground samples. This test work has identified the opportunity to produce a high grade, high purity iron-vanadium concentrate containing up to 66% Fe and 1.7% V_2O_5, using low intensity magnetic separation (LIMS).

This has significantly repositioned the project, which may now have the opportunity of producing vanadium-bearing magnetite using a simple crush-grind-magnetic separation flowsheet. The capital costs associated with this down-scaled project will be significantly less. As well, some of the capital can possibly be outsourced (certainly contract mining and power supply, and possibly contract crushing, milling and beneficiation). Reduction in capital costs would, of course, be offset by higher operating costs.

Given the strength – and quite possibly ongoing strength – of iron ore prices, and the potential for significantly lower project capex, this proposition could be very much more attractive to equity markets.

What might the Yarrabubba Fe-V concentrate product look like and where will it be sold?

Initial test work has demonstrated that Yarrabubba can produce an attractive high iron, relatively high vanadium product which could be in good demand from several Chinese steel mills. A number of mills (such as Pangang, Tranvic, HBIS and Jianlong) are designed to concentrate vanadium within blast furnace slag, a by-product of smelting vanadium-bearing magnetite. This is largely sourced from Chinese domestic hard rock mining operations. The following chart describes the smelting process and the point at which the vanadium slag is tapped and then concentrated to produce vanadium products using a conventional salt roasting and leaching process.



Source: Resource Development Partners, September 2020

Can Yarrabubba produce a vanadium-rich magnetite concentrate suitable for sales to these mills? The table below is an example of recent metallurgical test work which shows that at fine to very fine grind sizes (32 to 75 micron) the Yarrabubba massive magnetite can, produce a high-grade concentrate containing 65-66% Fe with around 1.7% V_2O_5 at excellent recoveries. This example is of massive magnetite which offers the most attractive metallurgical response. Note that some 81% of the iron and an impressive 90% of the V_2O_5 is recovered into a magnetite concentrate.

Nominal Grind Size (P_{80})	Mass Rec (%)	Fe		V_2O_5		TiO_2		SiO_2		Al_2O_3	
		Grade (%)	Dist'n (%)	Grade (%)	Dist'n (%)	Grade (%)	Dist'n (%)	Grade (%)	Dist'n (%)	Grade (%)	Dist'n (%)
1000 µm	77.3	58.3	89.3	1.45	94.5	11.60	67.9	1.40	21.2	2.82	44.2
700 µm	75.7	59.1	88.3	1.48	94.1	10.95	63.0	1.22	18.3	2.61	40.5
500 µm	74.0	59.9	87.6	1.50	93.7	10.15	58.9	1.00	14.6	2.35	35.5
250 µm	70.3	61.1	85.3	1.54	92.6	8.76	48.0	0.79	10.9	2.05	29.2
125 µm	65.3	63.3	82.3	1.64	91.0	6.80	33.9	0.44	5.9	1.55	21.5
75 µm	63.9	65.0	81.8	1.69	90.7	5.85	28.9	0.28	3.7	1.24	16.7
45 µm	62.4	65.2	80.7	1.70	90.1	5.05	24.6	0.22	2.8	0.96	12.5
32 µm	61.8	66.3	80.6	1.73	90.0	4.72	22.9	0.21	2.6	0.85	11.0

Source; TMT release, 26 October 2020

Not surprisingly the lower grade disseminated hanging wall mineralisation delivers lower recoveries. TMT have just released (11 November) a further five results from the testing of other types of mineralisation and conclude as follows:

"This work has confirmed the opportunity to produce a high grade, high purity iron-vanadium concentrate across all of the mineralised units at Yarrabubba, with a weighted average grade of 64.3% Fe, 1.71% V_2O_5, 6.34% TiO_2, 0.42% SiO_2 and 0.67% Al_2O_3 and an overall mass recovery of 47.6% at a 32 micron grind size. At a coarser grind size of 75 micron the weighted average grade of product was 62.8% Fe, 1.66% V_2O_5, 7.83% TiO_2, 0.62% SiO_2 and 0.96% Al_2O_3 with an overall mass recovery of 49.6%. The weighted average was calculated based on the proportion of the total MRE represented by each composite."

(Source: TMT release, 11 November 2020)

Attention should also be drawn to the very low levels of deleterious elements, including silica and alumina, enemies of the steelmakers, at under 1%, and very low phosphorous and sulphur. These attributes will be valued by steelmakers. TiO_2 is relatively high and could generate modest penalties from the buyers. However, see comments below regarding the potential for an economic by-product for the titanium.

What is vanadium worth in a magnetite concentrate?

We have seen specifications for Chinese domestic vanadium bearing concentrates which offer iron grades in the range of 52% to 61% and vanadium grades of 0.5% to 0.9%. Clearly the Yarrabubba material is significantly more valuable than these products, and should therefore sell at a significant premium to the domestic equivalents. As we discuss in our economic assessment below, we have assumed 25% payability for the V_2O_5.

It should be stressed that this is one of the greatest uncertainties in the present evaluation. There is no transparent market for vanadium-bearing magnetite ore. There does appear to be a market for this material, but the premium paid for a high V_2O_5 ore is uncertain. We present sensitivities to vanadium payabilities, below.

Testwork has drawn the attention of Sinosteel

The latest test work from TMT has attracted attention from one Chinese steelmaker. Sinosteel's Australian subsidiary has already locked in a non-binding MOU regarding the purchase of up to 1.5mtpa of Yarrabubba high Fe-V concentrate for the mine's life. Pricing is based on the Platts 65% Fe index price and the

Felloalloynet China V_2O_5 price. TMT state that it will enter into commercial negotiations which may lead to a binding offtake agreement. Central to these negotiations will be the payability of the V_2O_5.

Could there be value in a titanium-bearing by-product?

We note that the titanium content of the concentrate is relatively high (4.7% in the example above) and this may contribute to a modest discount to the magnetite product. (However, Ti is not generally regarded as a deleterious element in steelmaking). Note that this represents only 23% of the contained TiO2, with the balance extracted into the non-magnetics (presumably mainly as ilmenite). We wonder this might become an economic product in its own right.

In TMT's 11 November release the company comments as follows:

"This data indicates potential for a titanium product to be generated from the non-magnetic tails stream, with further testwork required to assess the opportunity and practicality of producing a saleable titanium product from this waste stream."

A 50% ilmenite product with low deleterious elements could possibly be sold to pigment manufacturers. One to watch.

What could the economics of a vanadium-iron ore concentrate operation look like?

TMT have yet to describe their vision for the Yarrabubba high V-magnetite project. It will be based on a resource of around 28mt (indicated + inferred) – or larger if future drilling identifies additional ore.

We imagine it may look like this:

- A mining inventory of 20-25mt at resource grades, allowing a mining rate of around 3mtpa for perhaps 7 year.
- Mining by contractor at low strip ratio.
- Crushing, grinding, magnetic separation, dewatering of a vanadium-bearing magnetite concentrate with a purpose-built plant.
- Loading into 'triple trailer' long haul trucks to the port of Geraldton, a distance of 580km.
- Loading at the port for shipment to steel mills in North Asia.

We have put together a 'what if' model for a project of this sort. It should be stressed that these are our estimates only. We are left to conclude that a scoping study for Yarrabubba can be justified for what might become an economically attractive project and one which could be financed by a small company, such as TMT.

We see this as a lead-in project to the larger, fully integrated vanadium project aimed at exploiting the resource of the Northern Block, some 110mt at 0.8% V_2O_5. The lead-in project will have taken the edge off a A$454m capex bill, having funded infrastructure and the front end of a 3mtpa plant to the tune of some $160m (our estimate).

For this analysis, we have looked at a somewhat comparable iron ore operation and have spoken with TMT management and its consultants to get our mind around the conceptual economics of a DSO project.

One example is WA developer, Fenix Resources, which has commenced construction of the Iron Ridge project in WA, aiming to produce some 1.25mtpa DSO high-Fe lump and fines iron ore project for 7-8 years. This looks to be a tidy little project, low capex (under A$12m), dig/crush/ship project but with relatively high cash

costs (A$86/t, ca. US$60/t), which appears destined to become a typical swing supplier during periods of high iron ore prices. We note that road haulage costs for the proposed Fenix operation makes up some 56% of the C1 FOB costs.

Our conceptual view of the Yarrabubba project

In the table below we present a 'what if' model for the Yarrabubba magnetite option, and make the following comments on our assumptions:

- We assume a long term magnetite price of US$90/t (FOB, priced off 65% Fe ore). Note comments below on the nature of magnetite concentrate, with low Al and Si contents, desirable attributes in the blast furnace.
- Critical to this valuation is an assumption that the mills will pay around 25% of the contained vanadium. This number has been derived from discussions with consultants RDP, who have some experience with the marketing of domestic vanadium-bearing magnetite in China.
- A 7 year mine life is assumed for the project, with a common production and cost profile for each year.
- Mining costs of around A$31/t (concentrate basis) reflects a 3.2:1 strip ratio and earthmoving costs of $4/t (grossed up for a 50% recovery of magnetite). The orebody is geologically quite simple, and we see no problems TMT achieving this mining cost.
- There is some risk with our A$25/t processing cost estimate, based on a comparably sized gold processing plant (ca. $14-15/t) with a premium to cover the extra power costs associated with the magnetic separation of the magnetite, but offset with the lack of need for any reagents.
- Haulage and port costs are based on those quoted by Fenix Resources from the Iron Ridge DFS.
- In all, we estimate cash costs for the main product, ca. 65% iron ore concentrate as coming in around US$31/t (FOB) after vanadium credits. This is higher than the major WA iron ore operators (which seem to lie in a US$25-30/t range), but not much higher. It is certainly significantly lower than, for example Fenix's costs, which are estimated at US$60/t. Yarrabubba could therefore withstand a dramatic drop in iron ore prices.
- There is also considerable uncertainty in our capex estimates. Here, Fenix's project can provide little indication as Iron Ridge is simply a crush and screen operation. At Yarrabubba, we would expect the capex associated with crush/grind mill and magnetic separation to be around one third to one half of the process plant cost in the full scale DFS, say around $60-70m. Add to this ca. $20-30m for infrastructure (water, power line from a BOO/BOOT gas powered power station), $10m for a tailings dam and perhaps $10m for a modest road upgrade. Add to this a 25% contingency and capex could perhaps be in the range $130-170. We have used $160m for this analysis.
- As we have said above, its possible that some of this capex could be outsourced to contractors. The offset would be higher unit operating costs.

In summary, the Yarrabubba project seems to present itself as an attractive opportunity for a relatively low capex/quick start up, and potential as a lead in to the full Gabanintha vanadium project. At the moment we can only see the potential for a 7 year mine life, but additional resource potential is possible.

The ore types of the Northern Block are not as compliant as those from the South (Yarrabubba). So, a full processing plant will ultimately be required to extend the mine's life toward 20 years, and possibly beyond.

YARRABUBBA Fe-V project.										
Year		0	1	2	3	4	5	6	7	8
Iron ore price (65%)	US$/t (FOB)		90	90	90	90	90	90	90	90
Vanadium price	US$/lb		7.0	7.0	7.0	7.0	7.0	7.0	7.0	7.0
Vanadium payability (x%)	%		25%	25%	25%	25%	25%	25%	25%	25%
FX			0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.70
Fe content of ROM	%		49%	49%	49%	49%	49%	49%	49%	49%
V2O5 content of ROM	%		1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%	1.10%
Production rate	Ktpa		3000	3000	3000	3000	3000	3000	3000	3000
Recovery of concentrate	%		50%	50%	50%	50%	50%	50%	50%	50%
Production of concentrate	Ktpa		1500	1500	1500	1500	1500	1500	1500	1500
Fe content of concentrate (recovered)	%		65%	65%	65%	65%	65%	65%	65%	65%
V2O5 grade of concentrate (recovered)	%		1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%	1.70%
V2O5 production	Klbpa		56228	56228	56228	56228	56228	56228	56228	56228
Revenue										
Magnetite	A$m		192.9	192.9	192.9	192.9	192.9	192.9	192.9	192.9
Vanadium (at x% payability)	A$m		140.6	140.6	140.6	140.6	140.6	140.6	140.6	140.6
Total	A$m		333.4	333.4	333.4	333.4	333.4	333.4	333.4	333.4
Strip ratio	:		3.2							
Costs (ROM basis)										
Mining cost, material moved	A$/t		4.00							
Mining costs	A$/t		16.8							
Processing	A$/t		15							
Costs (concentrate basis)										
Mining & processing	A$/t		63.6							
Road haulage	A$/t		52.2							
Port charges, loading, etc	A$/t		9.27							
G&A	A$/t		2.0							
C1 costs (FOB)	A$/t		127.1	127.1	127.1	127.1	127.1	127.1	127.1	127.1
C1 costs (FOB)	A$m		190.6	190.6	190.6	190.6	190.6	190.6	190.6	190.6
State royalties	%		5%	5%	5%	5%	5%	5%	5%	5%
Royalties	A$m		16.7	16.7	16.7	16.7	16.7	16.7	16.7	16.7
Total costs	A$m		207.3	207.3	207.3	207.3	207.3	207.3	207.3	207.3
Total costs/t iron ore, net of V2O5 credits	A$/t		44.5							
	US$/t		31.1							
EBITDA	A$m		126.1	126.1	126.1	126.1	126.1	126.1	126.1	126.1
D&A	A$m		21.4	21.4	21.4	21.4	21.4	21.4	21.4	21.4
EBIT	A$m		104.7	104.7	104.7	104.7	104.7	104.7	104.7	104.7
Tax rate	A$m		30%	30%	30%	30%	30%	30%	30%	30%
Tax	A$m		0.0	31.4	31.4	31.4	31.4	31.4	31.4	31.4
NPAT	A$m		104.7	73.3	73.3	73.3	73.3	73.3	73.3	73.3
Capex/sustaining	A$m	-160.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0
Net cashflow	A$m	-160.0	124.1	92.7	92.7	92.7	92.7	92.7	92.7	92.7
NPV(8), post tax	A$m	$325.83								
IRR	%	64%								

Source: BSCP estimates

Sensitivities

The table below demonstrates moderate sensitivities to commodity prices and costs, and negligible sensitivity to capital cost:

	Base NPV (A$m)	+10%	-10%
Iron ore price (US$)	325.8	20.3%	-20.5%
Vanadium price (US$/lb)	325.8	14.8%	-15.0%
Costs (A$/t)	325.8	-23.1%	23.1%
Capex (A$m)	325.8	-4.6%	4.7%

Note that these are approximate only as our model does not split fixed and variable costs.

The following points are relevant:

- At spot iron prices (US$120/t FOB) the project might deliver a strong post tax IRR (100%) and an attractive NPV_8 (A$547m).
- Assuming 40% payability for vanadium our modelled NPV increases by to $617m and the IRR increases to 111%.
- Assuming 10% payability for vanadium our modelled NPV decreases to $35m, and the IRR drops to 15%. As we discuss above, this is a critical aspect for the Yarrabubba project.
- At an iron ore price of US$60/t the modelled NPV is $104m and IRR is 27%.
- The project is cashflow breakeven without vanadium credits at US$90 iron ore within the cost structure we propose. So the project, as configured, is not a stand-alone iron concentrate operation.

Where to next?

We see the following work as critical to progress Yarrabubba to a DFS by 3Q21:

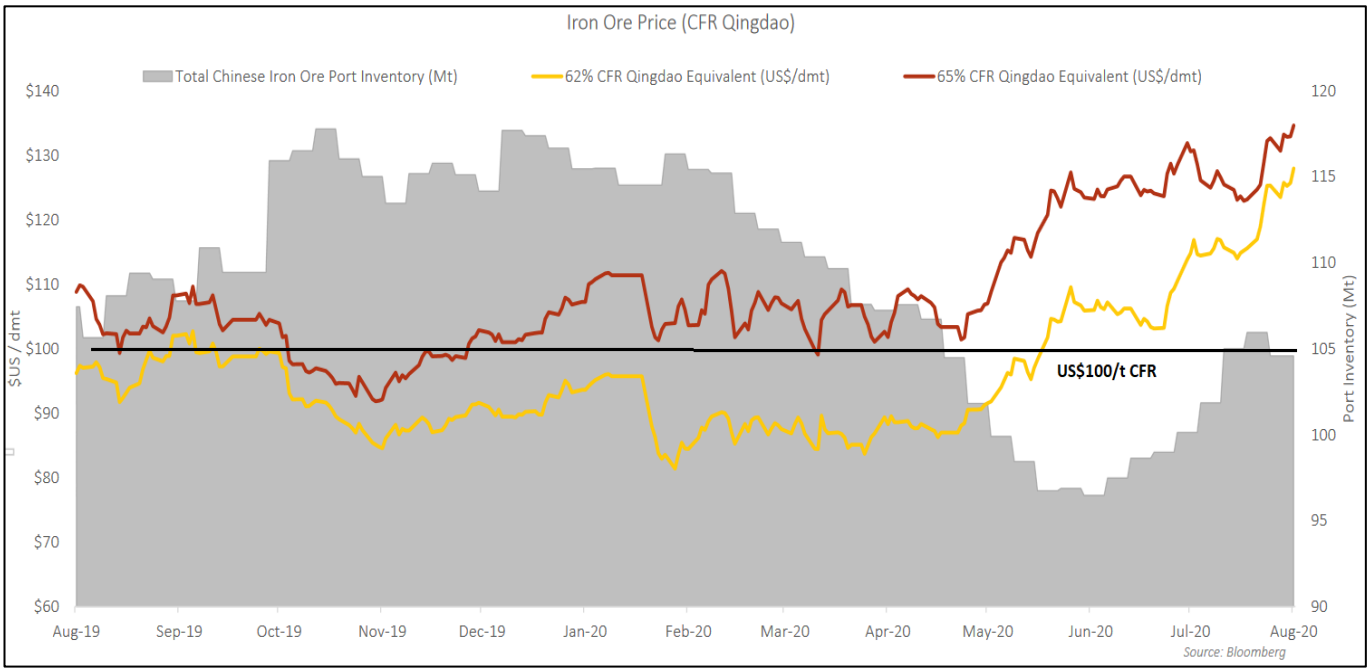
- Infill drilling to expand reserves to around 25mt and for geotechnical studies.
- Ongoing test work to assist with initial flowsheet definition.
- Bulk sample collection for pilot test work.
- A review of potentially economic components of the non-mag tailings (eg ilmenite).
- Incorporation of Yarrabubba into DFS.
- Evaluation of logistics options.
- Completion of a marketing study to understand the payability of vanadium in magnetite.
- Completion of environmental studies, and final project permitting.

A budget of around $4.0 to $5.0M is likely required to move Yarrabubba to a completed DFS by August / September 2021. Subject to financing (debt, equity and perhaps offtake funding) a final investment decision could be made during 2H21.

Commodity assumptions: Iron ore

We have chosen a price of around US$100/tonne (delivered basis; US$90/t FOB) for what we assume will be a +65% Fe magnetite concentrate. There are few publicly available datapoints for magnetite ores of this type, let alone with significant vanadium credits. As discussed above, we have seen specifications for Chinese domestic V-bearing magnetite concentrates, but none of such high grade.

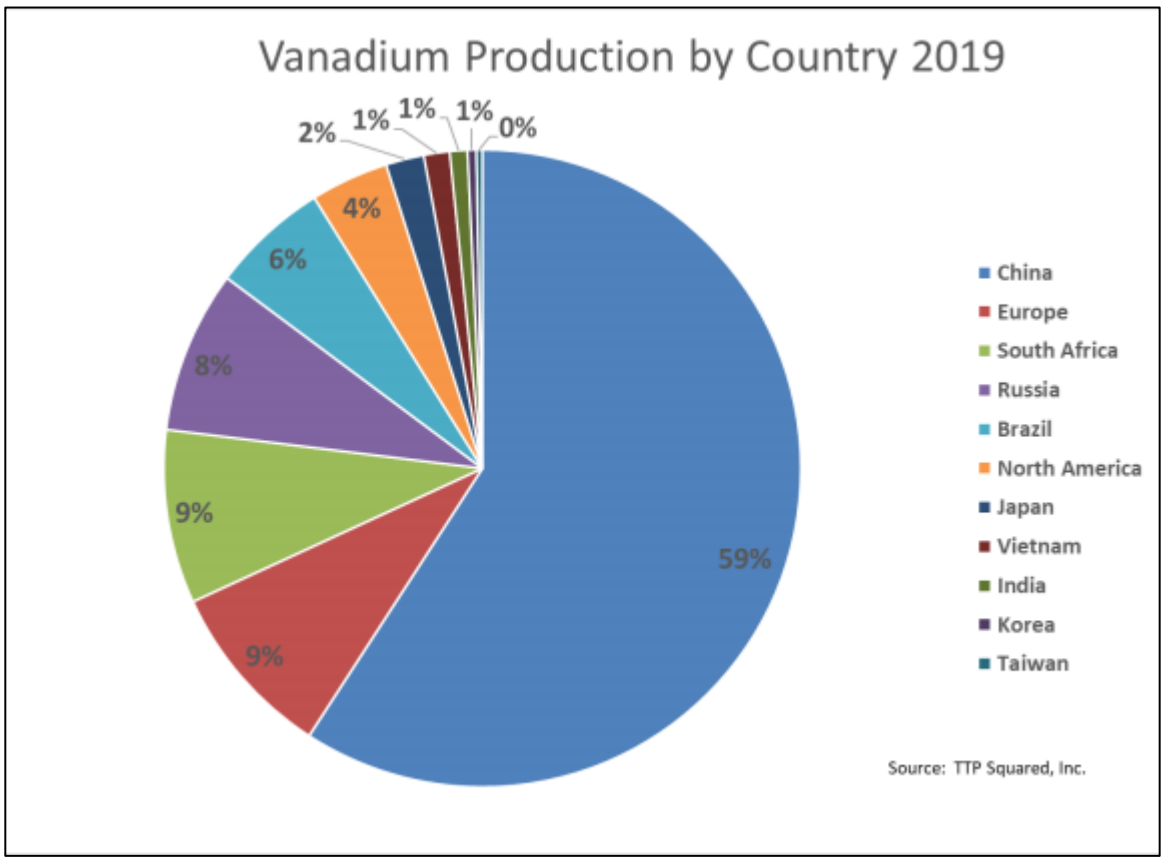
The Yarrabubba concentrate contains very low levels deleterious elements, especially silica, alumina, sulphur and importantly phosphorus, so this should be highly attractive to steelmakers.



Source: modified from Fenix Resources presentation, August 2020

Commodity assumptions: Vanadium

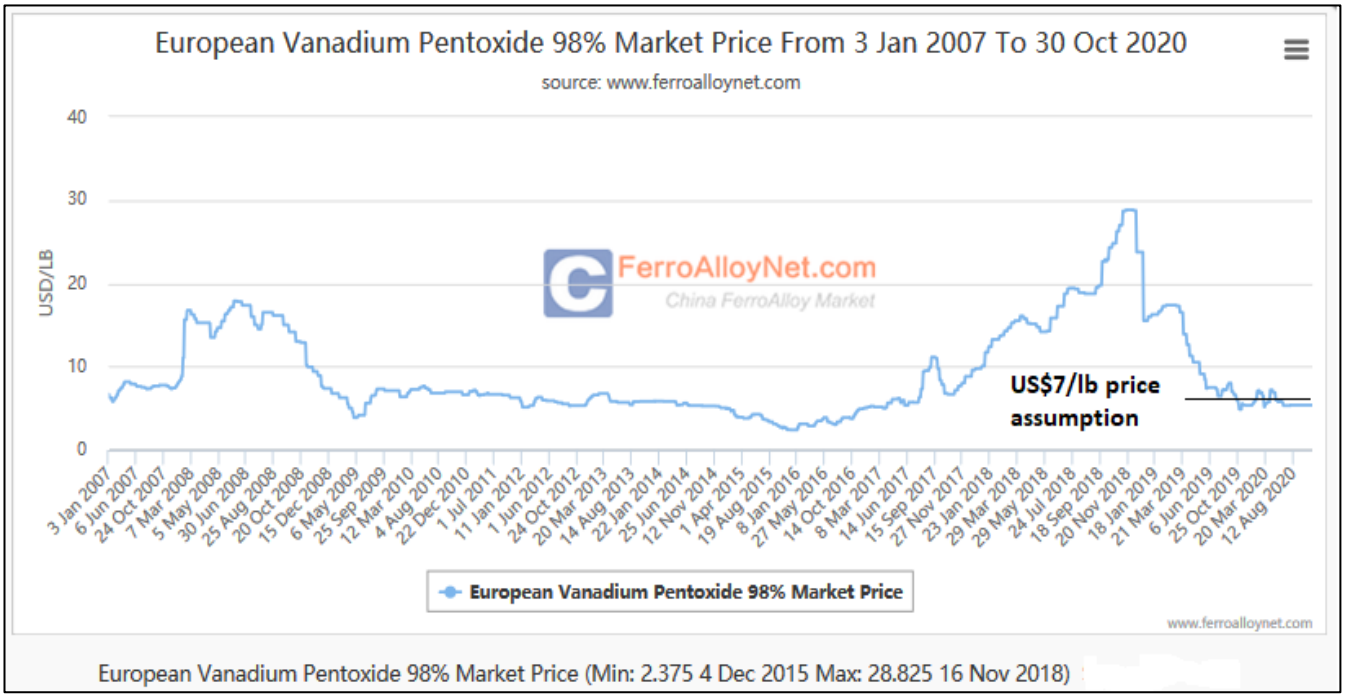
The main use of vanadium is in the steel industry where it is primarily used in metal alloys such as rebar and structural steel, high-speed tools, titanium alloys and aircraft. The addition of a small amount of vanadium can increase steel strength by up to 100% and reduces weight by up to 30%. Vanadium high-carbon steel alloys contain in the order of 0.15 to 0.25% vanadium while high-speed tool steels, used in surgical instruments and speciality tools, contain in the range of 1 to 5% vanadium content. Global economic growth and increased intensity of use of vanadium in steel in developing countries will drive near term growth in vanadium demand. Supply is dominated by China.



An emerging and potentially significant use for vanadium is the rapidly developing energy storage (battery) sector with the expanding use and increasing penetration of the vanadium redox flow batteries ("VRFB's"). VRFB's are a rechargeable flow battery that uses vanadium in different oxidation states to store energy, using the unique ability of vanadium to exist in solution in four different oxidation states. VRB's provide an efficient storage and re-supply solution for renewable energy – being able to time-shift large amounts of previously generated energy for later use – ideally suited to micro-grid to large scale energy storage solutions (grid stabilisation). Some of the unique advantages of VRB's are:

- a lifespan of 20 years with very high cycle life (up to 20,000 cycles) and no capacity loss,
- rapid recharge and discharge,
- easily scalable into large MW applications,
- excellent long-term charge retention,
- improved safety (non-flammable) compared to Li-ion batteries, and
- can discharge to 100% with no damage.

Global economic growth and increased intensity of use of vanadium in steel in developing countries will drive near term growth in vanadium demand.



We have chosen to use what we see as quite a conservative V_2O_5 price at US$7.00/lb, recognizing the potential for a strong price response should demand for vanadium increase unexpectedly. This will likely be driven by growth in the VRB industry. It was undoubtedly speculation of strong demand growth which drove V_2O_5 prices towards US$30/lb in late 2018.

During this time, high vanadium prices saw substitution by niobium, with significant loss of vanadium's market share, so we'd imagine V_2O_5 prices to be capped at perhaps US$15-20/lb. This would be a pricing level which would likely incentivise new capacity.

Consultants TPP conclude as follows:

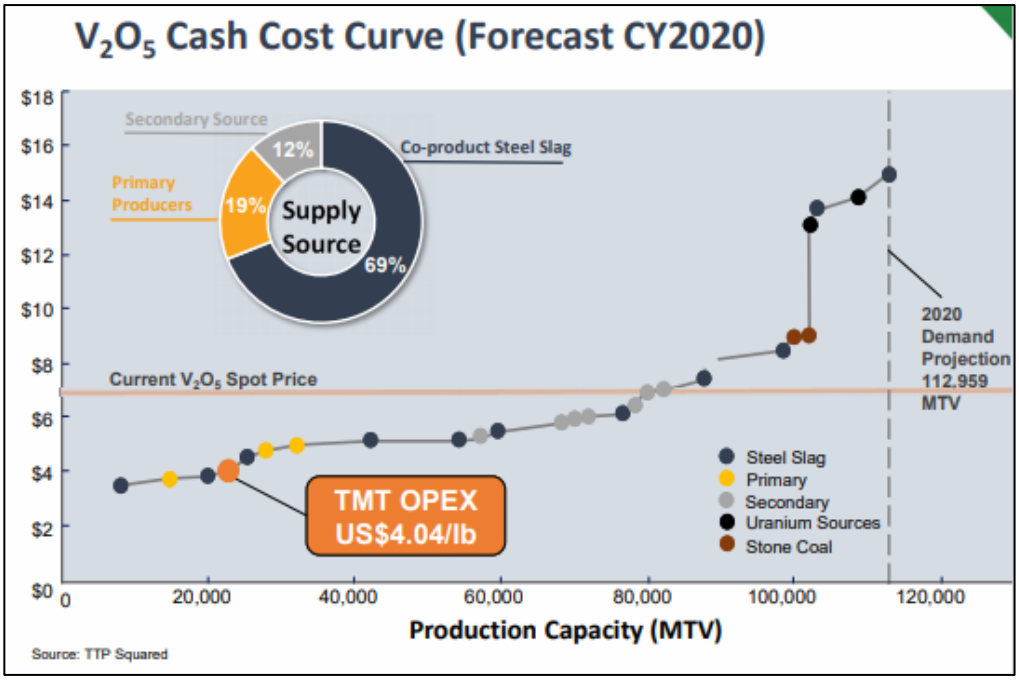
- *Essentially all the growth in both consumption and production of vanadium from 2011-2019 occurred in China.*
- *Production of vanadium in 2019 was slightly higher than consumption while in the years 2016-2018 consumption exceeded production.*
- *If we look at Q42019 we see once again consumption rising above production globally.*
- *The world ex China consistently has a deficit in vanadium production as compared to consumption, and as a result Chinese exports are required to keep the market in balance.*
- *Growing consumption of vanadium in China is having a huge impact on the availability of Chinese exports.*
- *In history China has only been a net importer of vanadium in one time period – 1Q-2004 – which precipitated the vanadium price spike of 2004- 2005.*

As with other critical commodities, the world may wish to lessen its dependence on Chinese supply, which could be positive for pricing and for the Gabanintha project.

No sign of tightness in supply just yet, but we are emerging from a period of global recession so there are likely producer and end-user inventories which need to be run down. Ferroalloynet.com comment in their

latest weekly that the vanadium price has stabilized in China and that many of the small stone coal producers have been shuttered.

TMT has published a vanadium cost curve from consultants TTP Squared.



The steep curve above current levels shows why vanadium prices behave the way they do when demand exceeds supply. Significantly higher prices are required to incentivise supply.

TMT's Stage 2 project is well positioned on the cost curve, sitting comfortably within the first quartile.

Demand for vanadium above global GDP growth will likely be driven by VRFB technology and applications. This industry is still in its infancy, but represents potentially the source of significant demand going forward.

(Source: TMT release and presentation, 11 November 2020; TPP, Ferroalloynet.com)

Capital structure and board

TMT Capital structure		
Issued capital	m	123.2
Options*	m	17.85
Share price	$	0.44
Market capitalisation	$m	54.2
Cash (at 9/20)	$m	2.2
Enterprise value	$m	52.0
Board		
Michael Fry, Non-executive Chairman		
Ian Prentice, Managing Director		
Sonu Cheema, Executive director		

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Dr Chris Baker, an authorised representative of BSCP, certifies that the advice in this report reflects his honest view of the company. He has 29 years investment experience in wholesale capital markets. He worked as a mining analyst for brokers BZW and UBS for 11 years and has a further 16 years' experience as a mining analyst and portfolio manager with Colonial First State and Caledonia Investments. He now provides independent financial advice on a part time basis. He may own securities in companies he recommends but will declare this when providing advice. He currently does not own shares in TMT. He is remunerated by BSCP but is not paid a specific fee for providing this report. BSCP, its directors and consultants may own shares and options in TMT and may, from time to time, buy and sell the securities of TMT.

Appendix 1

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