



EV Battery Market Opportunity

16 April 2024

Paydirt Battery Minerals Conference | Perth



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Jupiter is the largest manganese miner on the ASX, with 49.9% ownership of Tshipi, a Tier 1 manganese mine.

Share Price A\$0.260	Market Cap A\$509m
NPAT A\$10m (6 months)	Cash in Hand A\$73m
Debt A\$0m	Net Assets A\$474m

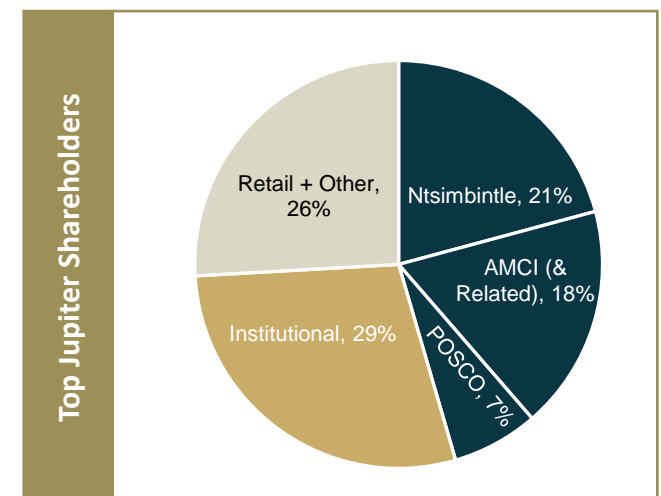
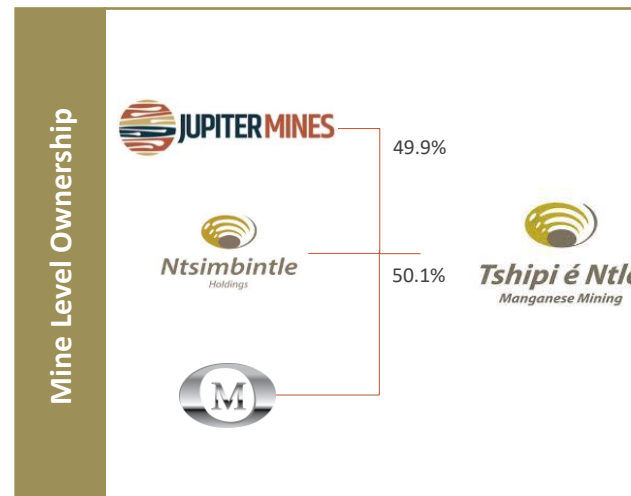
Dividends in Last Five Years:

Total of 20cps – 77% of current market cap

Dividend yield of 12% vs ASX Ave of 5%

Board of Directors

	Ilan Murray, Chairman <i>ex Gold Road MD</i>		Peter North, NED <i>Safika Resources Co-founder</i>
	Brad Rogers, MD <i>ex Bis Industries MD</i>		Patrick Murphy, NED <i>MD, AMCI Group</i>
	Scott Winter, NED <i>ex Perenti Surface CEO</i>		Ben Kim, NED <i>MD, POSCO Australia</i>

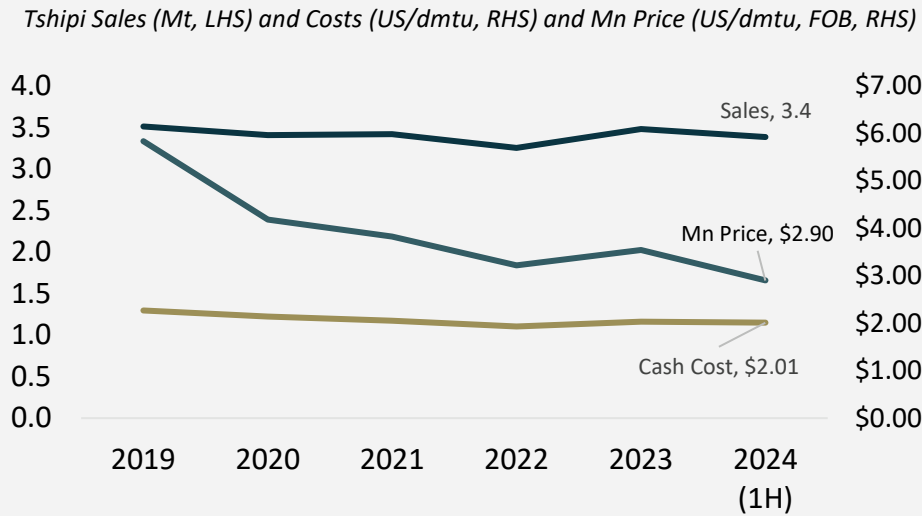


Notes: Cash, Net Assets and Debt as at 31 December 2023. Cash includes equity share of Tshipi cash. NPAT for 6 months ended 31 December 2023. Share Price and Market Cap as at 12 April 2024.

Tshipi is one of the world's best manganese mines...

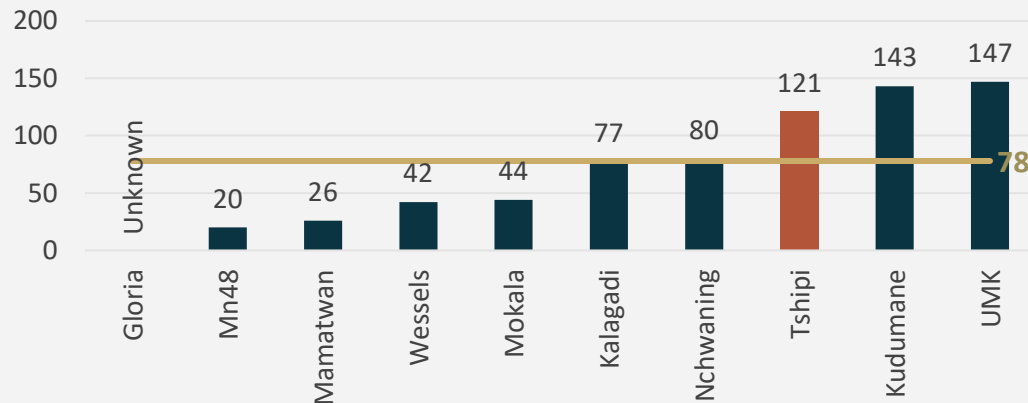
1 Material Production and Low Costs...

Tshipi is a top 5 global producer of manganese, with stable production and comparatively low costs.



2 ...(very) long mine life...

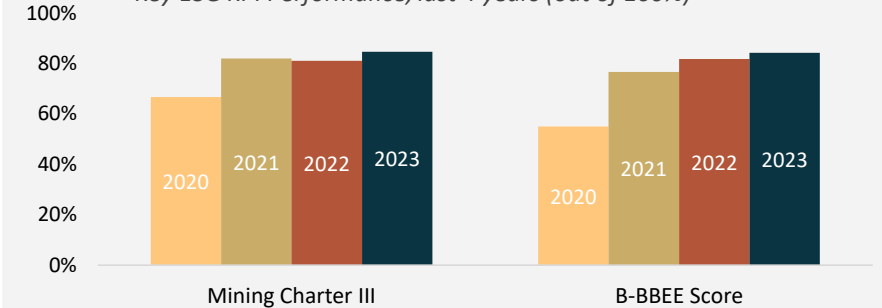
Mine Life Remaining (Kalahari Mn Field Mines (source: CRU, 2022 production))



Tshipi has more than 100 years of mine life remaining, making it one of the longest life producing manganese mines in the world.

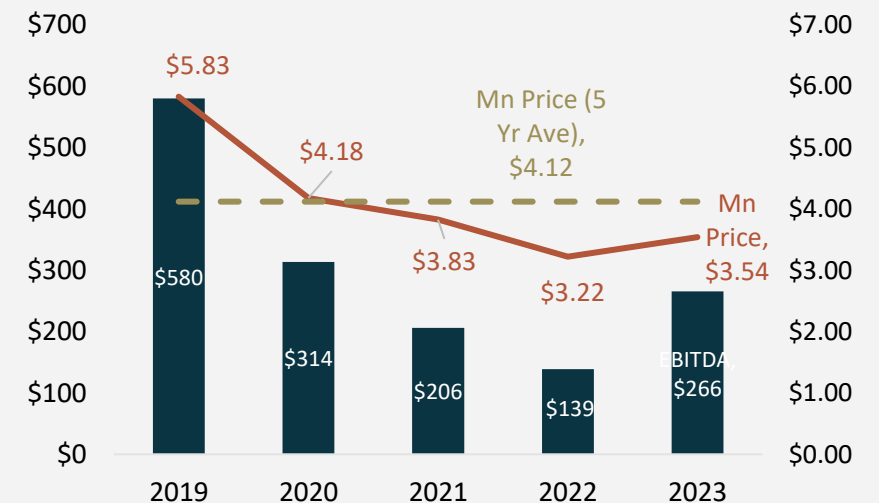
3 ...outstanding ESG performance.....

Key ESG KPI Performance, last 4 years (out of 100%)

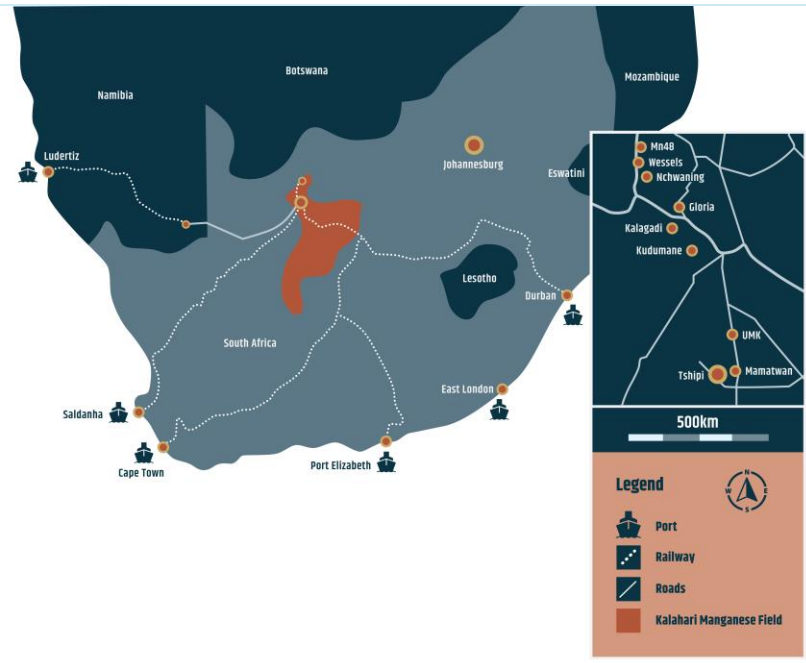


4 ..resulting in outstanding financial outcomes through the cycle.

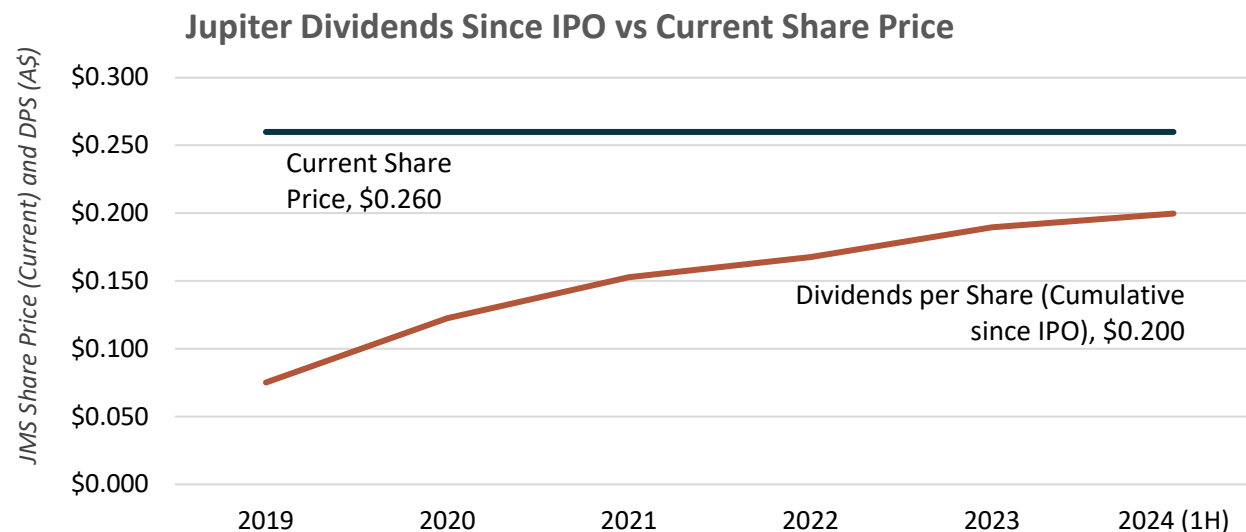
Tshipi EBITDA (A\$m, LHS) vs Manganese Price (US\$/dmtu, RHS)



...located in the world's leading manganese field.



Jupiter recently declared another dividend at the end of the 6-month interim period ended 31 December 2023, continuing its outstanding dividend payment track record.



Jupiter (49.9%, A\$m) Year End 28 Feb (1)	2019	2020	2021	2022	2023	2024 (1H)
Share of Tshipi NPAT	\$189	\$98	\$63	\$43	\$86	\$16
NPAT	\$138	\$95	\$66	\$54	\$77	\$10
Dividends Declared	\$147	\$93	\$59	\$29	\$43	\$20
Dividends per Share	\$0.075	\$0.047	\$0.030	\$0.015	\$0.022	\$0.01
Average Share Price	\$0.33	\$0.33	\$0.27	\$0.26	\$0.21	\$0.19
Dividend Yield	23%	14%	11%	6%	10%	5%

- Jupiter has a dividend yield of 12% since IPO, which is well above the ASX average (ASX average: 5.2% over the same period)²**
- 77% of current share price declared in dividends over past 5.5 years³** (A\$391m dividends declared since 2019)
- Most recent interim dividend (for 1HFY24) declared on 28 Feb 2024

Notes

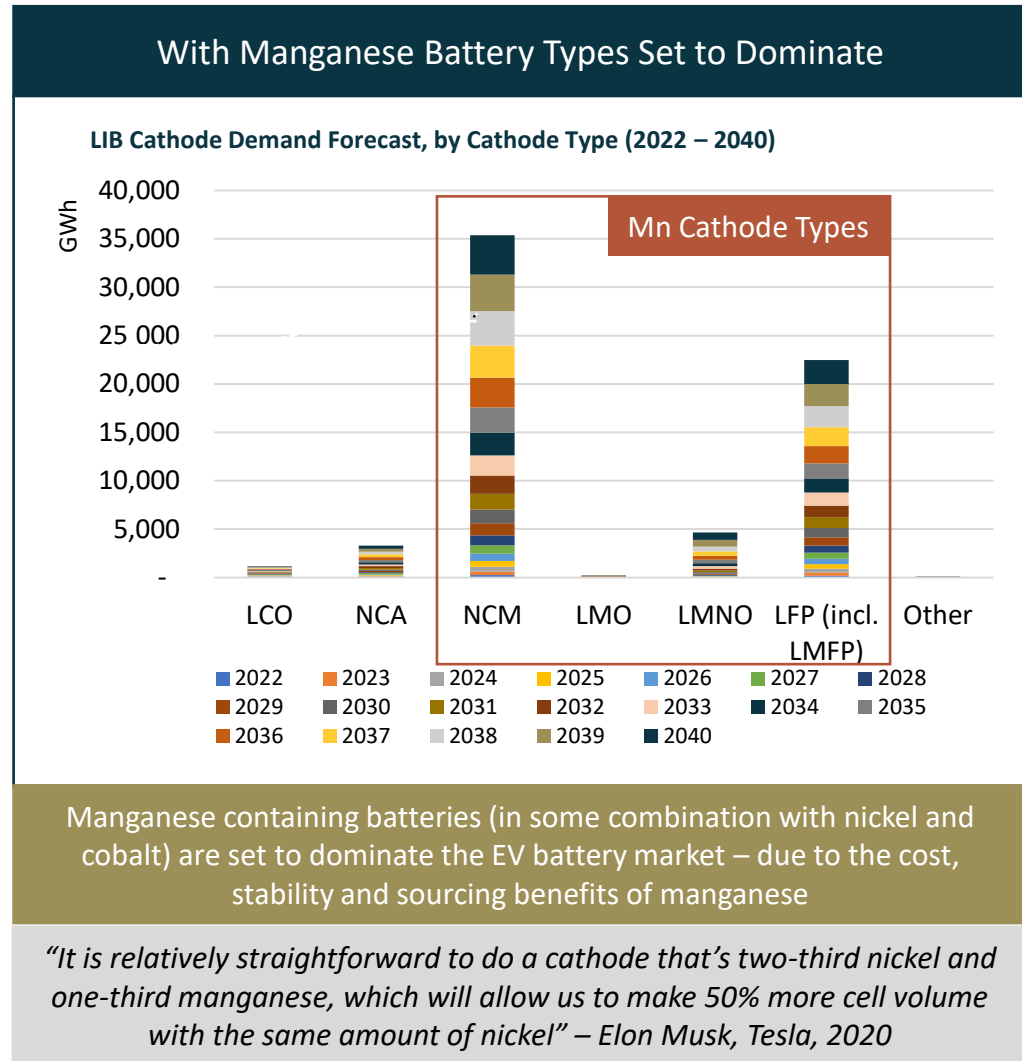
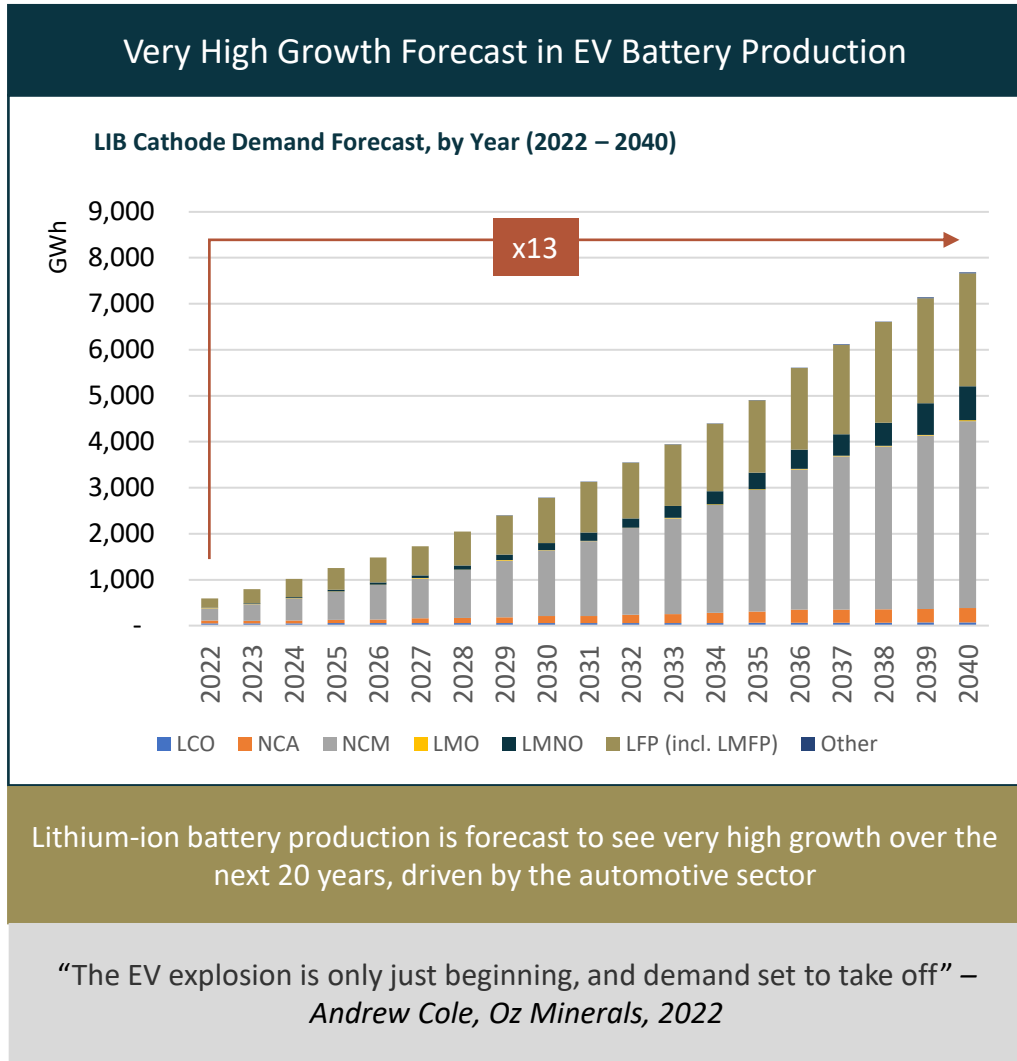
- Years Ended 28 Feb, 1H2024 is for 6 months ended 31 Dec 2023
- Source: Bloomberg
- Share Price as at 12 April 2024

Jupiter's strategy includes initiatives to improve operating efficiency, grow production volume and enter the EV battery market, while being accountable to a new ESG framework.

Five Year Strategy



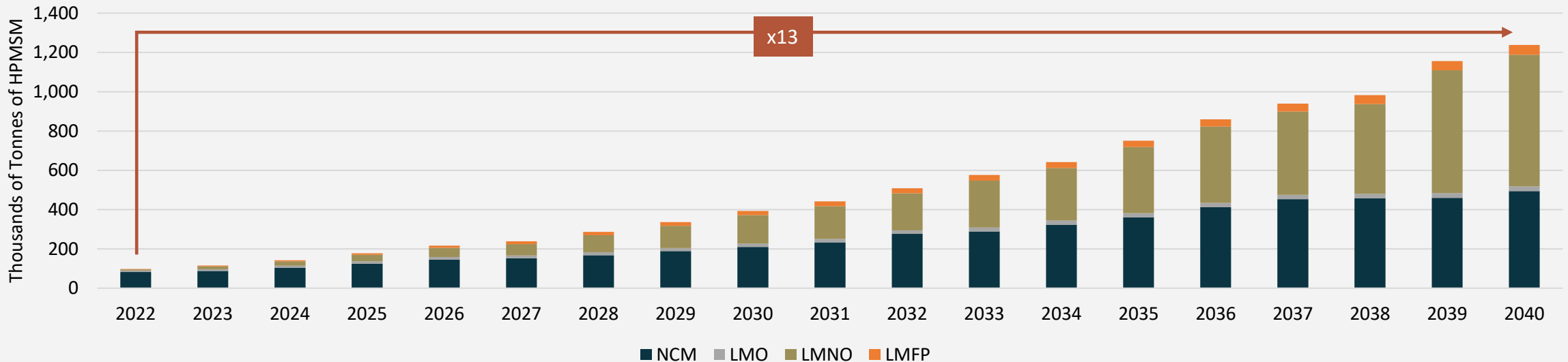
Strong demand growth in lithium-ion EV batteries is coming, with manganese containing battery types set to dominate...



Sources: Benchmark Mineral Intelligence

..such that growth in demand for HPMSM will grow as fast as demand for EV batteries.

HPMSM Demand Forecast (2022 – 2040)



1 High Growth Demand Forecast

The demand forecast for HPMSM closely mirrors the overall demand profile for EV batteries. This is because the forecast popular cathode types all use manganese

2 Why is Manganese Valuable in the Cathode?

Manganese has a naturally ionic chemical state, making it well suited to its role absorbing and discharging electrons in the cathode

3 Cathode Composition: Mn vs Ni, Co

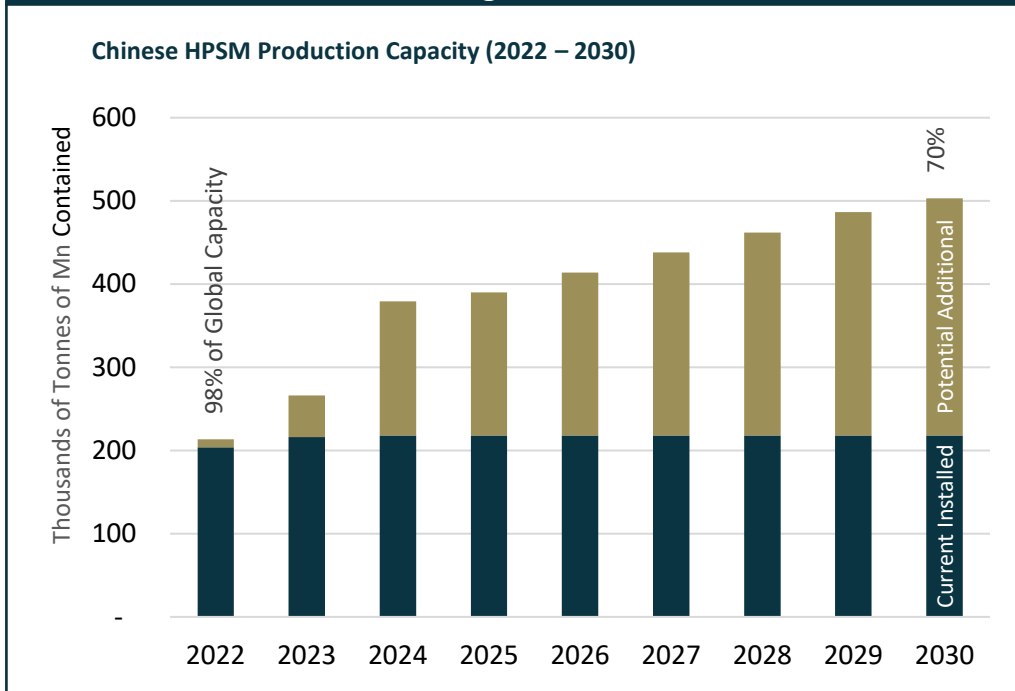
Manganese performs a similar function to nickel and cobalt in the cathode. Its relative advantage is that it is cheaper and more abundant than both nickel and cobalt. High manganese chemistries can also be safer than high nickel chemistries, but with a potential long term stability trade off

4 Upside to Demand Forecast?

Several companies are working on high lithium/high manganese chemistries. To the extent that these gain traction (or more manganese is used in Chinese LFMP batteries) the above forecast could be conservative

China's dominance in battery grade material supply will continue, but forecast growth in supply won't keep up with demand...

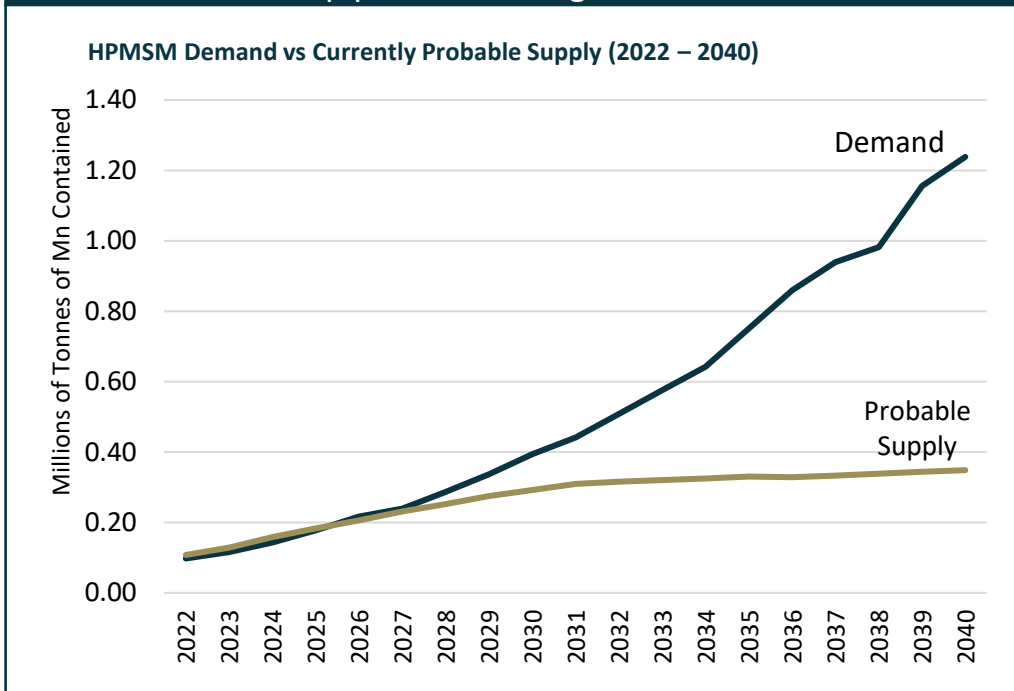
China is likely to remain the dominant supplier of battery grade manganese...



Chinese HPMSM production could more than double in the lead up to 2030.

China dominates current HPMSM production market share (98%). They have plans to more than double production by 2030.

...but even very high supply growth (in China and elsewhere) will not keep pace with the growth in demand...



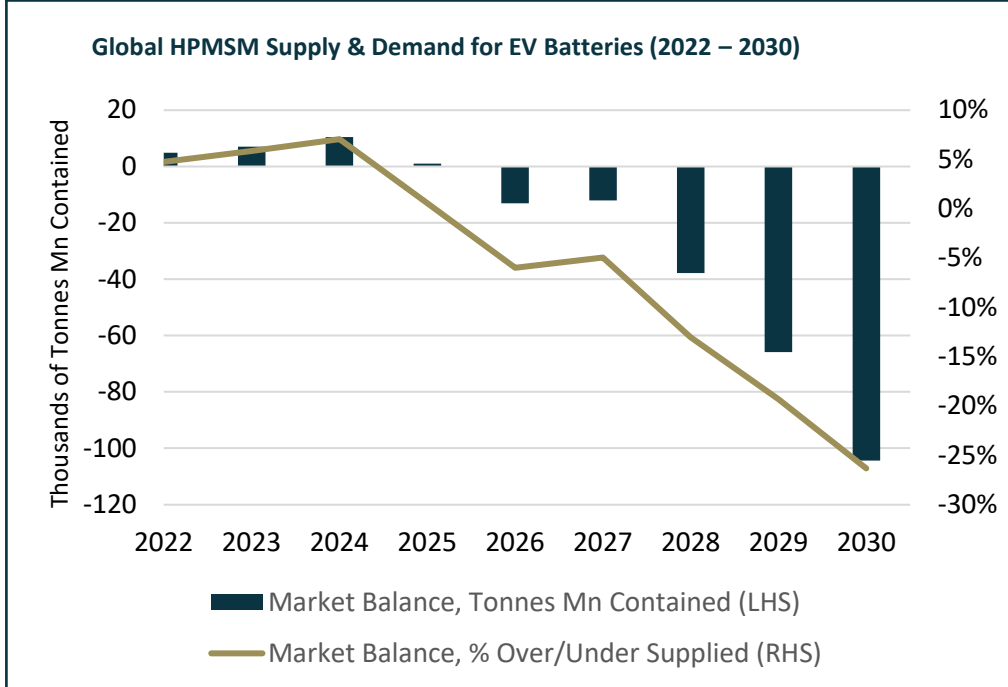
Significant increases in HPMSM production in China, plus expected new ex China supply, will not be enough to keep pace with growth in HPMSM demand.

There will be a significant and growing HPMSM supply deficit, starting in about 2026, based on currently probable growth in supply.

Sources: Benchmark Mineral Intelligence

...leading to a mid decade supply deficit, which will be particularly acute in North America and Europe.

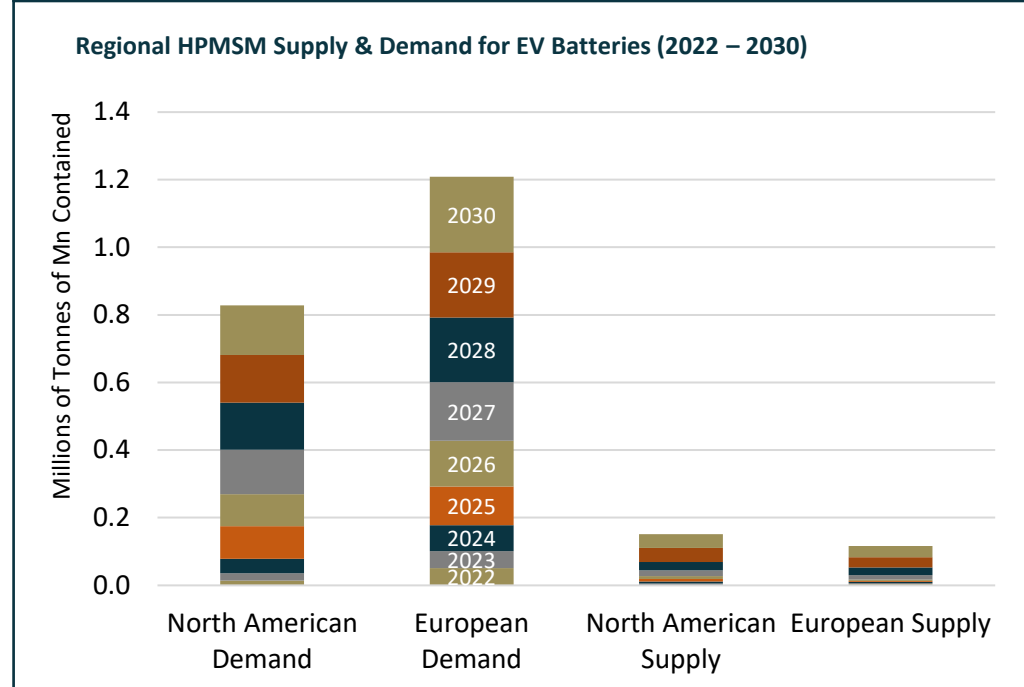
An HPMSM supply deficit is likely, starting in 2026 and increasing year on year...



A growing HPMSM supply deficit is forecast late this decade and growing at pace.

There is an opportunity for new HPMSM supply, starting in about 5 years from now.

...which is currently forecast to be seen most acutely in North America and Europe.



The supply deficit is forecast to be most pronounced in Europe and North America (based on known/probable demand vs supply in those regions).

While the world is forecast to be short HPMSM by 2027, North America and Europe will be most affected. Market entry strategies focused on these locations are likely to make most sense.

EV Battery Strategy: Why is Jupiter Interested?

1 Market Entry Opportunity

Battery Metals Market Balance (2023, 2030)

Metal	2023	2030
Lithium carbonate	-63,000 tons LCE	+268,000 tons LCE
Lithium hydroxide	+82,000 tons LCE	-47,000 tons LCE
Cobalt sulfate	+6,000 tons contained metal	+22,000 tons contained metal
Nickel sulfate	+312,000 tons contained metal	-7,000 tons contained metal
Manganese sulfate	+14,000 tons contained metal	-453,000 tons contained metal

Source: BloombergNEF. Note: Note: Negative values indicate deficit. LCE is lithium carbonate equivalent.

High growth in demand for battery grade manganese (HPMSM) is expected to outpace growth in supply in the second half of this decade, leading to a market deficit.

Jupiter believes that there will be an opportunity to enter the market...

2 + Competitive Advantage

Jupiter's Ore Feedstock Advantage

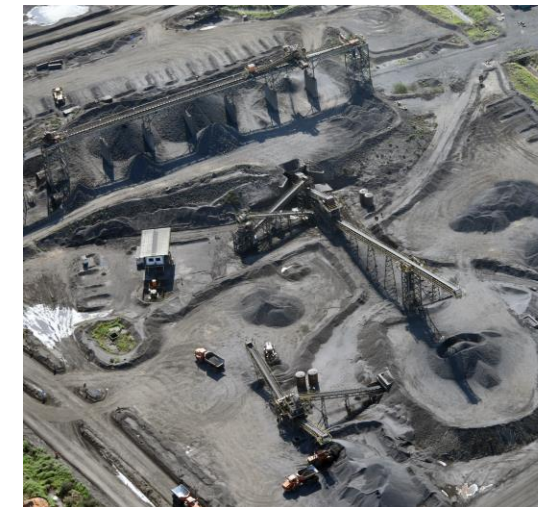
HPMSM Feedstock Production Process	Typical HPMSM Project		Jupiter's HPMSM Project	
	Incremental Cost?	Typical Mn Grade %	Incremental Cost?	Typical Mn Grade %
1 Mining	Yes	10 - 12%	No - By Product	30% - 32%
2 ROM Stockpile	Yes	10 - 12%	No - By Product	30% - 32%
3 Crushing/Screening	Yes	10 - 12%	No - By Product	30% - 32%
4 Ore Stockpile	Yes	10 - 12%	No - By Product	30% - 32%
5 Beneficiation	Yes	30% - 32%	No - Unnecessary	30% - 32%
6 HPMSM Feed Stockpile	Yes	30% - 32%	No - By Product	30% - 32%

Jupiter has access to available, plentiful and suitable by-product ore feedstock. This should provide Jupiter with an operating cost advantage of around 19%.

Jupiter is a large, existing Mn producer, with existing strategic relationships. This presents Jupiter as a low risk potential supplier.

...and that Jupiter will have a competitive advantage...

3 + Attractive Value Upside



By value upgrading Tshipi by-product to HPMSM, there is potential to derive meaningful incremental value, without diminishing returns from continuing to sell Tshipi high grade ore into steel markets.

...as well as the ability to materially value add to its existing business.

Jupiter's Scoping Study Outcomes

1 JMS Can Produce Battery Grade Mn

Battery Grade HPMSM Produced by Jupiter Using Tshipi Ore



The completed Scoping Study, established laboratory proof of concept of Jupiter's technical process.

Discussions commenced with potential HPMSM offtake customers.

Technical proof of product was achieved, and discussions commenced with potential offtake customers...

2 North America Makes Most Sense

Potential HPMSM Plant Locations

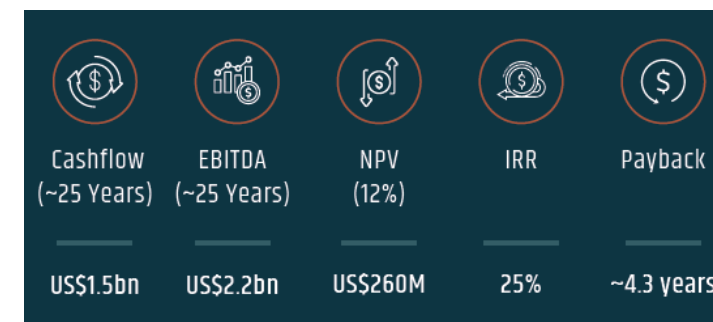


A global location study selected several potential locations in North America (mostly in the USA) as optimally suited for Jupiter's HPMSM business.

...and several sites in North America were selected as ideally suited for a future Jupiter HPMSM facility.

3 Economics Look Attractive

Scoping Study Summary Outcomes

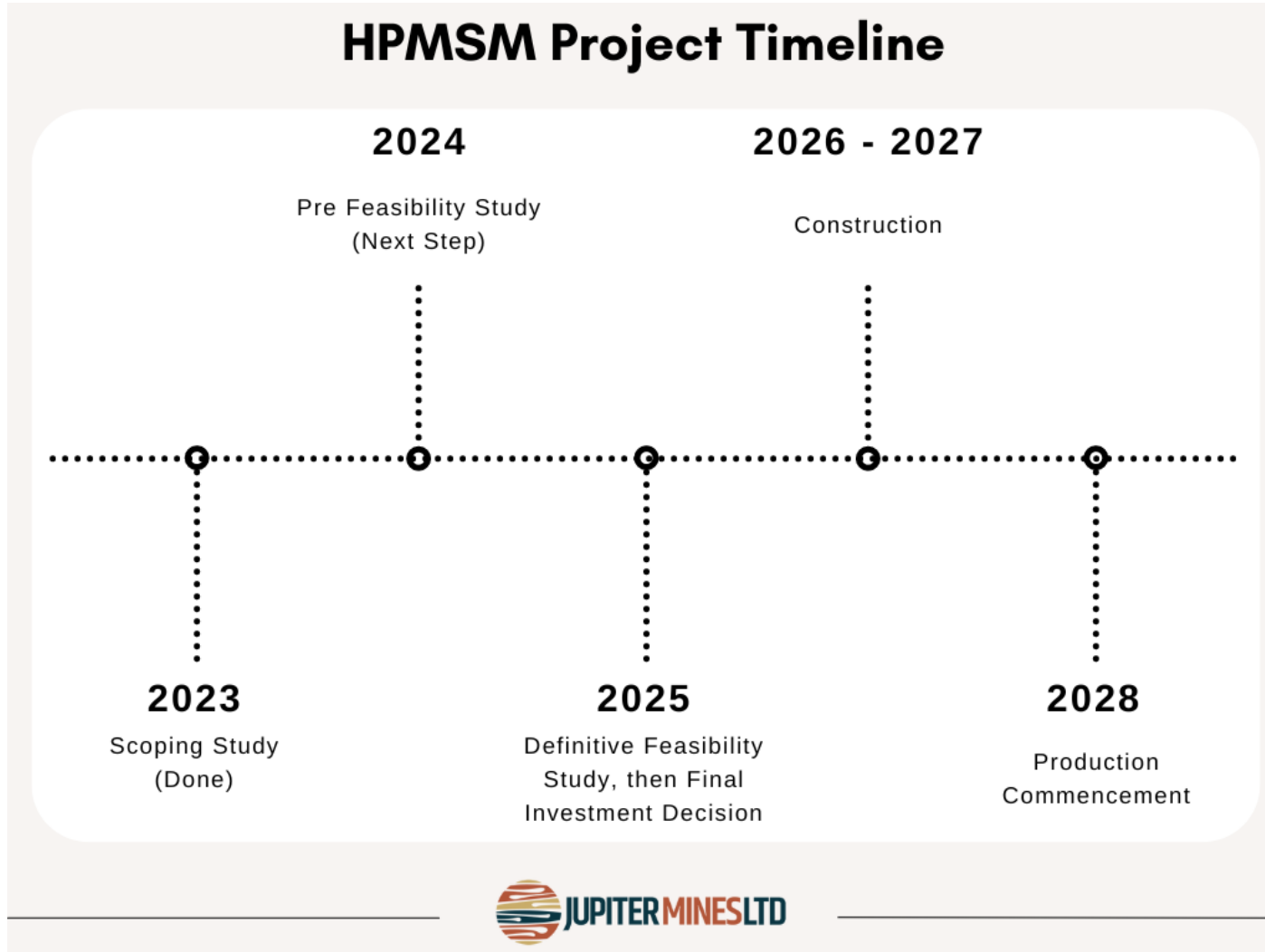


Scoping study returns look attractive, notwithstanding Jupiter's assumptions are relatively conservative.

Jupiter is planning a 100ktpa HPMSM plant, with an estimated development cost of US\$430m (US\$415m upfront). Pending supportive further study work, Jupiter would invest alongside partners.

Modelling of Jupiter's Scoping Study business case revealed an attractive economic opportunity.

Next Steps, Costs and Overall Timing



Next Step: PFS

A PFS phase has started and will be completed within 12 months

Focus Areas for the PFS are:

- Technical: pilot plant development and operation, to optimise HPMSM flow sheet
- Commercial: detailed MOU discussions with offtake partners, including sample sharing, aimed at underwriting the capital payback period with offtake commitments for 5+ years
- Market: bottom-up cost curve construction for post payback period
- Location: selection of a specific location
- Funding: complete funding model design

PFS costs will be up to US\$2.9m and funded through Jupiter's overheads

Jupiter is progressing its strategy to potentially produce battery grade Manganese in the future.

<p>1 Jupiter Mines (“Jupiter”) is the major investor in Tshipi...</p>	<p>2 ...which is one of the world’s premier manganese mines.</p>	<p>3 Jupiter has a strategy to pursue the production of battery grade manganese...</p>
<ul style="list-style-type: none"> • Jupiter Mines (JMS: ASX) is the largest publicly traded manganese miner in the world. • Jupiter is a 49.9% investor in Tshipi, an open cut manganese mine in South Africa. 	<ul style="list-style-type: none"> • Tshipi is one of the world’s best manganese mines. • Top 5 producer (by annual production), with more than 100 years of resources remaining. 	<ul style="list-style-type: none"> • Jupiter has announced a strategy to explore the production of High Purity Manganese Sulphate Monohydrate (“HPMSM” (battery grade manganese)) using ore from the Tshipi mine.
<p>4 ...due to its value adding opportunities.</p>	<p>5 A Scoping Study has recently been completed...</p>	<p>6 ..and a Pre-Feasibility Study is now underway.</p>
<ul style="list-style-type: none"> • Jupiter has several competitive advantages in the sustainable production of HPMSM. • These include low costs, low risk (already in production, long term, sustainable feedstock supply), financial capacity, strong capability in the production of pure manganese products and existing relevant relationships. 	<ul style="list-style-type: none"> • Jupiter has published a summary of its Scoping Study for this strategy. • The Scoping Study outlines that Jupiter has successfully produced industry compliant HPMSM using its own process. • The Scoping Study also outlines attractive economics based on Jupiter’s business case design, with a processing plant to be developed, likely in the USA. 	<ul style="list-style-type: none"> • A PFS is underway, scheduled for completion within 12 months. It will be funded as overheads by Jupiter. • The PFS will include a small pilot plant development and operation, as well as focussed development in the areas of customer offtake, funding, site selection and engineering cost refinement.



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