EVOLUTION CAPITAL

ASX: FRB

Firebird Metals Limited

Equity Research

5th June 2024

SPECULATIVE BUY

Share Price	$0.165
Price Target	$0.640

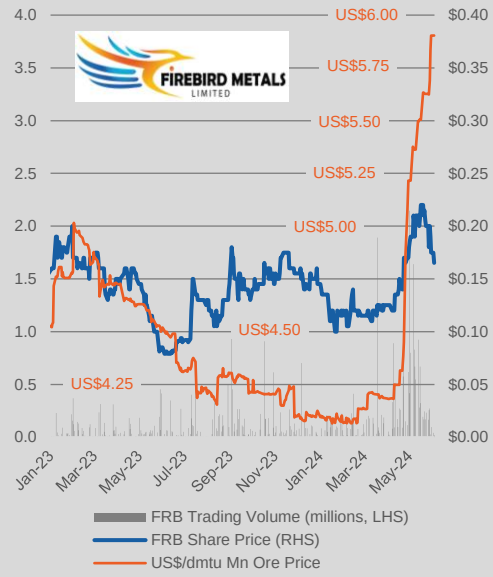
52-Week Range	$0.072 - $0.230
FRB Shares Outstanding	142.4m
Options ($0.30, expiry 2 Dec 2024)	9.25m
Options ($1.00, expiry 30 Nov 2026)	12.0m
Options ($0.30, expiry 6 Dec 2028)	12.5m
Options ($0.40, expiry 6 Dec 2028)	12.5m
Performance Rights	2.2m
Market Capitalisation	$23.5m
Cash (as at 31 Mar 2024)	$6.1m
Enterprise Value	$17.4m

Board & Management:

Evan Cranston	Non-Executive Chairman
Peter Allen	Managing Director
Wei Li	Executive Director & CFO
Ashley Pattison	Non-Executive Director
Brett Grosvenor	Non-Executive Director
Zhou Qiyun	COO, Hunan Project

Major Shareholders:

Canmax Technologies	9.7%
Tolga Kumova	9.5%
Mining Equities	3.2%
Board (inc. related parties) & management	15.1%



Firebird Metals Ltd (ASX:FRB) is a mineral resource company based in Australia focused on the development of two key manganese projects to meet the growing demand of high purity manganese sulphate monohydrate ($MnSO_4$ or HPMSM) for Lithium Manganese Iron Phosphate (LMFP) batteries: a processing facility fed by Oakover concentrate and/or third- party manganese concentrate in China where resides both the expertise and most of the demand for HPMSM and a mine and treatment plant at Oakover in Australia to potentially complement the feed source of the processing facility and/or feed the alloys market.

One a Roll towards High Purity Manganese Production

LMFP Market: Lithium Manganese Iron Phosphate (LMFP) batteries is forecast to become the dominant cathode for EV batteries. *Benchmark Mineral Intelligence (BMI)* forecast that 51% of all batteries will include manganese cathodes by 2030, with the actual proportion of Mn in the battery varying between 20% and 80%. Adding manganese to LFP batteries makes them safer, cheaper and provides more range. LMFP has a higher thermal run-away temperature than nickel-based batteries. LMFP are ~30% cheaper than nickel-based batteries as expensive metals such as cobalt or nickel are excluded. Finally, LMFP energy density is 15-20% higher than LFP, due to manganese higher voltage.

Chinese Largest Market: the Hunan Province is central to the lithium-ion battery industry in China. *BMI* estimates that Hunan and the surrounding provinces accounted for 26% of worldwide Gigafactory capacity in 2023 and is expected to maintain that position in the foreseeable future.

HPMSM Strategy: FRB is developing a processing facility in China to meet the growing demand of a high purity manganese sulphate monohydrate ($MnSO_4$ or HPMSM) for LMFP batteries. The facility will be fed by third-party manganese concentrate from overseas or in time with Oakover concentrate. The facility will process ore through a proprietary process consisting of grinding, roast reduction, leaching, filtration, impurity removal, crystallisation and precipitation stages to produce battery grade manganese products.

Technological Advantage: for developing its facility, FRB is able to access commercially proven processes as well as the latest technologies patented in China to produce HPMSM such as 5th generation crystallisation and energy saving calcining both environmentally friendly and very efficient.

Government Support and Permitting: the strong Chinese government support translates into a fast permitting process will all permits expected before the end of FY2024 and local tax incentives for the first six years of operation.

Funding Support: FRB has already received some indicative financing offer **from China Construction Bank for 50% of plant capex** (US$83.5m) and 70% of working capital (US$10.6m) and **China Chemical to defer payment, interest free of up to 20% of the plant construction and installation costs** (US$35m).

Speed to Market: FID could take place in Q4 2024. Considering a 12-15-months built time, the HPMSM facility could be operational in late 2025/early 2026.

Circular Economy: the plant location in a chemical park represents a key competitive advantage with regards to permitting, costs, as well as environmental credentials. Permitting is fast tracked as the whole park has been assigned to chemical facilities. Every co-product or waste product from a chemical facility can become a key input of another chemical facility. This means that all the reagents required for the HPMSM plant are readily available within the chemical park itself, reducing both capital costs and operating costs.

Project Benchmarking: we have compared the key financial parameters of the development studies of peers including Element 25 (E25.ASX), Euro Manganese (EMN.TSXV), Giyani Metals Corp. (EMM.TSXV) and Jupiter Mines (JMS.ASX). Firebird Metals and its Hunan HPMSM project accumulate a number of enviable characteristics: ① **Lowest capital expenditure**; ② **Lowest capital intensity**; ③ **Life of project not limited by a mineral resource**; ④ **Lowest operating cost**; ⑤ **Highest profitability index** (NPV/Capex) considering the ⑥ **Lowest HPMSM price assumption**.

Increased Valuation Catalysts: the intense news flow continues with final permitting expected before end of June 2024 and detailed feasibility studies, engineering assessments and financing arrangements before year end.

FRB valuation: our sum of the parts valuation considers 40% of the Hunan Project NPV and only 5% of the Oakover Project NPV to derive a company valuation of A$177 million giving a price target of $0.64, with Hunan Project financing made of 60% debt with indicative offers received and 40% equity.

Firebird Metals Ltd (ASX: FRB) Financial Summary
Strategy Focus on Battery Grade $MnSO_4$ and Mn_3O_4 Production

Key metrics

Market Information	Unit	Value
Number of Issued Shares	million	142.4
Unlisted Options ($0.30, expiry 2 Dec 2024)	million	9.3
Unlisted Options ($1.00, expiry 30 Nov 2026)	million	12.0
Unlisted Options ($0.30, expiry 6 Dec 2028)	million	12.5
Unlisted Options ($0.40, expiry 6 Dec 2028)	million	12.5
Performance Rights	million	2.2
Fully Diluted	million	190.8
Share Price	A$	0.165
12 month High-Low	A$	0.072 - 0.023
Market Capitalisation	A$m	23.5
Cash (31 Mar 2024)	A$m	6.1
Debt	A$m	0.0
Entreprise Value	A$m	17.4

Oakover Mineral Resources						
Category	**Tonnage**	**Mn**	**Fe**	**SiO2**	**Al2O3**	**P**
Indicated	105.78	10.1%	8.9%	39.2%	9.8%	0.10%
Inferred	70.87	9.6%	8.0%	36.5%	9.5%	0.09%
Total	176.65	9.9%	8.6%	38.1%	9.7%	0.10%

Oakover Project Scoping Study Results: 4 million tpa processing scenario		
Mn Concentrate Tonnes	Mtpa	1.2
Mn Concentrate Grade	%	30-32%
Processing: Crushing, Scrubbing and Dense Media Separation (DMS)		
Concentrate price for 30-32% Mn	US$/dmtu	4.8
Capital expenditure	A$m	123
AUD/USD exchange rate	x	0.70
EBITDA (annual average)	A$m	86.6
Net Present Value at 8% discount rate	A$m	741
Internal Rate of Return	%	73%

Hunan Battery Grade Mangnese Facilty Financing Assumptions				
Equity	**Shares**	**Price**		**Amount**
Equity raising in FY2025	125.0 m @	$0.380	A$m	47.5
Options conv erison Dec 24	9.3 m @	$0.300	A$m	2.8
Number of shares post FY2025 financing			million	276.6
Debt	**Amount**	**Proportion**		**Amount**
CCB - Capex	US$83.5m	50%	A$m	61.4
CCB - Working Capital	US$10.6m	70%	A$m	10.9
China Chemical	US$35.0m	20%	A$m	10.3
Total debt funding package			A$m	82.6
* CCB = China Construction Bank				
Repayments: $10m in FY2027, $40m in FY2028. $32.6m in FY2029, 10% interest rate				

Hunan Battery Grade Manganese Project						
	$MnSO_4$	**Mn_3O_4**	**NPV @ 8%**	**40% Risked**	**AUDm**	**IRR**
	US$1,200/t	US$2,846/t	US$128m	US$51m	$75.17	29%
Base Case	US$1,419/t	US$3,365/t	US$217m	US$87m	$127.49	41%
	US$1,750/t	US$4,150/t	US$351m	US$140m	$206.56	60%
	US$2,000/t	US$4,743/t	US$453m	US$181m	$266.29	73%

FRB Sum of the Parts Valuation	A$m	Per Share
Hunan Battery Grade Manganese Project	127.5	$0.461
Oakover Mn Ore Project (5% of NPV)	37.1	$0.134
Options conv ersion	2.8	$0.010
Placement in FY2025	47.5	$0.172
Share of capital expenditure	(40.2)	($0.145)
Cash (31 Mar 2024)	6.1	$0.022
Corporate costs	(4.3)	($0.016)
Base Case Valuation	176.5	$0.64

Financial Statements

Financial Year ending 30 June

Profit & Loss (A$m)	2023A	2024F	2025F	2026F	2027F
Revenue	0.3	0.5	0.0	125.8	139.8
Operating Costs	(0.2)	(0.2)	0.0	(63.6)	(70.7)
Royalties	0.0	0.0	0.0	0.0	0.0
Overhead Costs	(1.1)	(2.2)	(2.3)	(2.3)	(2.4)
Other Income/Costs	0.0	0.0	0.0	0.0	0.0
EBITDA	**(0.9)**	**(2.0)**	**(2.3)**	**59.9**	**66.7**
Depreciation	(0.1)	(0.0)	0.0	(9.2)	(9.2)
Net Interest	(0.0)	0.0	0.0	(8.3)	(8.3)
Tax and Other	0.0	0.0	0.0	0.0	0.0
Profit	**(1.0)**	**(2.0)**	**(2.3)**	**42.4**	**49.2**

Cash Flow (A$m)	2023A	2024F	2025F	2026F	2027F
Net Profit	(1.0)	(2.0)	(2.3)	42.4	49.2
+/- Adjustments	0.1	0.0	0.0	17.5	17.5
+/- Working Capital	0.2	0.1	7.5	(33.7)	5.8
+/- Other	(0.1)	0.0	0.0	(6.3)	(0.7)
Cash Flow from Operations	**(0.7)**	**(1.8)**	**5.2**	**19.9**	**71.9**
Net Capital Expenditure	(1.7)	(0.7)	(138.4)	0.0	0.0
Cash Flow from Investing	**(1.7)**	**(0.7)**	**(138.4)**	**0.0**	**0.0**
Net proceeds from Debt	0.0	0.0	82.6	(8.3)	(18.3)
Changes in Share Capital	3.5	8.0	50.3	0.0	0.0
Dividends	0.0	0.0	0.0	0.0	0.0
Other Financing Casfhlow	(0.3)	(0.3)	(2.9)	0.0	0.0
Cash Flow from Financing	**3.2**	**7.7**	**130.0**	**(8.3)**	**(18.3)**
Net Cash Change	**0.8**	**5.2**	**(3.1)**	**11.6**	**53.6**

Balance Sheet (A$m)	2023A	2024F	2025F	2026F	2027F
Cash	1.3	6.5	3.3	15.0	68.6
Other Current Assets	0.1	0.0	5.2	32.1	41.5
Total Current Assets	**1.4**	**6.5**	**8.6**	**47.1**	**110.1**
Property, Plant & Equipment	0.0	0.0	138.4	129.2	119.9
Exploration, Evaluation & Dev.	5.3	5.9	5.9	5.9	5.9
Non-Current Assets	0.0	0.0	0.0	0.0	0.0
Total Non-Current Assets	**5.3**	**6.0**	**144.3**	**135.1**	**125.9**
Total Assets	**6.7**	**12.4**	**152.9**	**182.2**	**236.0**
Equity	12.8	20.5	67.9	67.9	67.9
Reserves	3.0	3.0	3.0	3.0	3.0
Retained Earnings	(9.5)	(11.4)	(13.7)	28.7	77.9
Total Equity	**6.4**	**12.1**	**57.2**	**99.6**	**148.8**
Current Debt	0.0	0.0	0.0	10.0	40.0
Account Payables	0.3	0.3	13.1	0.0	14.5
Other Liabilities	0.0	0.0	0.0	0.0	0.0
Total Current Liabilities	**0.3**	**0.3**	**13.1**	**10.0**	**54.5**
Lease Liabilities	0.0	0.0	0.0	0.0	0.0
Non-current Debt	0.0	0.0	82.6	72.6	32.6
Total Non-current Liabilities	**0.0**	**0.0**	**82.6**	**72.6**	**32.6**
Total Liabilities	**0.3**	**0.3**	**95.7**	**82.6**	**87.1**
Total Equity + Liabilities	**6.7**	**12.4**	**152.9**	**182.2**	**236.0**

Profitability indicators	2023A	2024F	2025F	2026F	2027F
EBITDA margin	0.0%	0.0%	0.0%	47.6%	47.7%
Liquidity	**2023A**	**2024F**	**2025F**	**2026F**	**2027F**
Quick Ratio	0.4	0.0	0.0	3.2	0.7
Current Ratio	0.4	0.0	0.4	3.2	0.8
Capital structure	**2023A**	**2024F**	**2025F**	**2026F**	**2027F**
Equity ratio	1.9	1.6	0.4	0.4	0.3
Debt / Assets	0.0	0.0	0.5	0.5	0.3
Debt / EBITDA	0.0	0.0	0.0	1.4	1.1
DSCR	n/a	n/a	n/a	3.3	1.4

Source: Evolution Capital estimates

TABLE OF CONTENTS

All currencies are in Australian dollars unless otherwise specified.

1. FRB Valuation

Battery-Grade $MnSO_4$ and Mn_3O_4 Project Valuation

We have modelled the Hunan Battery Grade Manganese Project based on the feasibility study released by Firebird Metals Ltd on 7th May 2024 with the following key parameters:

- Manganese ore feed from third-party: 66,000 tpa
- Plant capacity: 72,500 tpa battery grade manganese sulphate
- Production: 50,000 tpa $MnSO_4$ and 10,000 tpa Mn_3O_4
- Capex: US$83.5 million
- Working Capital US$10.6 million
- Operating cost: US$608/t $MnSO_4$ (including sustaining capital)
- Operating cost: US$1,763/t Mn_3O_4
- Mn ore feed price: US$5.50/dmtu CIF China
- $MnSO_4$ price (China): US$1,419/t
- Mn_3O_4 price (China): US$3,365/t
- Sales 80% domestic and 20% export with 20% price premium
- CNY/USD exchange rate 7.2
- AUD/USD exchange rate 0.68
- Company tax 25%, reduced to 16.7% years 1-3 and 20% years 4-6 (these are Chinese corporate tax rates)
- Discount rate: 8%
- Project modelled over 15 years

On a pre-tax basis, our model results in an NPV of US$281 million and an IRR of 48%. In the absence of relevant information in the feasibility study results ASX announcement (7th May 2024), our figures compare relatively well with the scoping study results announced by FRB on 21 November 2023: pre-tax NPV of US$331 million and IRR of 47%.

On a post-tax basis, our model results in a post-tax NPV of US$217 million and an IRR of 40%.

Based on only 15 years, the project delivers high profitability (NPV/Capex > 2.3) and adequate return.

Using various battery grade manganese prices, Table 1.1 summarises the valuation of the Hunan Project.

Table 1.1 – Hunan Battery Grade Project NPV Valuation

$MnSO_4$ Price	Mn_3O_4 Price	$NPV_{8\%}$	40% Risked	AUDm	IRR
US$1,200/t	US$2,846/t	US$128m	US$51m	$75.2	29%
US$1,419/t	**US$3,365/t**	**US$217m**	**US$87m**	**$127.5**	**41%**
US$1,750/t	US$4,150/t	US$351m	US$140m	$206.6	60%
US$2,000/t	US$4,743/t	US$453m	US$181m	$266.3	73%

Source: Evolution Capital estimates

As expected, the valuation is highly leveraged to the manganese price.

In all scenarios, the IRR is excellent, thanks to the relatively low initial capital expenditure.

Oakover Project Valuation

On 30th August 2023, Firebird Metals released a Scoping Study for the Oakover Project. The key parameters are as follows:

- 18-year life of mine
- 4 million tpa ore feed
- Open pit mining with low strip ratio of 0.45:1
- Processing consisting of crushing, scrubbing and dense media separation (DMS)
- 1.2 million tpa of 30-32% manganese concentrate targeting the silicomanganese (SiMn) market
- Capital expenditure of A$123 million
- All In Cost of A$139.22/t or US$3.25/dmtu
- Mn concentrate price: US$4.80/dmtu or A$205.70/t
- AUD/USD exchange rate of 0.70
- NPV at 8% discount rate of A$741 million
- IRR of 73%

Considering the company strategy to focus on the development of the battery grade facility first, we have included the Oakover project at face value with a significant discount, taking into account only 5% of the NPV.

FRB Sum of the Parts Valuation

To derive our sum of the parts valuation, we have considered a total number of shares equal to 276.6 million including 125 million shares issued in FY2025 at $0.38 for $45.5 million, as well as the conversion of 9.25 million options exercisable at $0.30 expiring on 2nd December 2024.

Table 1.2 summarises the sum of the parts valuation for FRB.

Table 1.2 – FRB Sum of the Parts Valuation

Asset	Value Range	Preferred	Per Share
Battery-grade Project (40% of NPV)	$75m-$266m	$127.5m	$0.461
Oakover project (5% of NPV)		$37.1m	$0.134
Option conversion in December 2024		$2.8m	$0.010
Placement in FY2025		$47.5m	$0.172
Share of Capital Expenditure		($40.2m)	($0.145)
Cash (31st March 2024)		$6.1m	$0.022
Corporate costs		($4.3m)	($0.016)
Total		**$176.5m**	$0.64

Source: Evolution Capital estimates

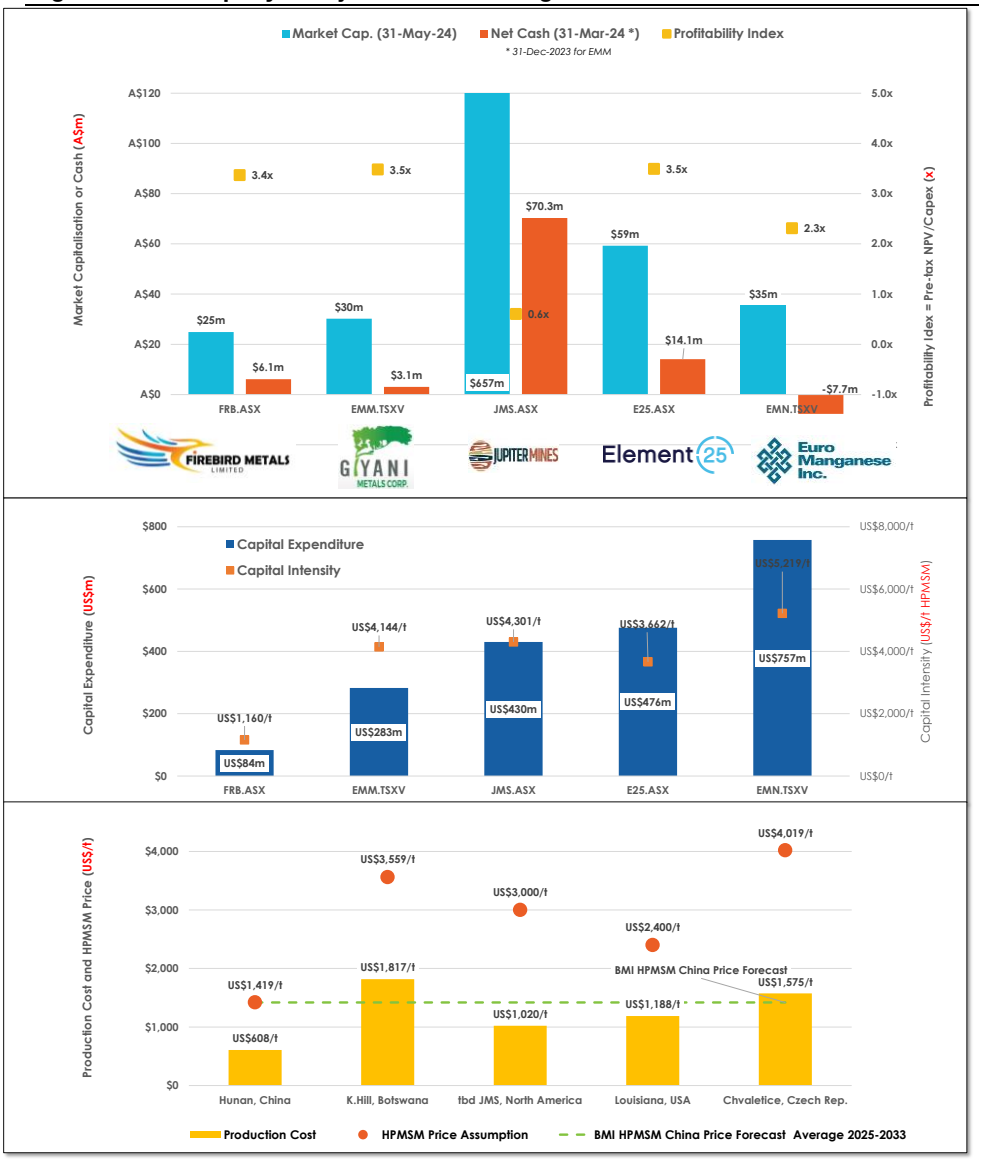
2. Company/Project Benchmarking

Rather than looking at each parameter individually, Figure 2.1 combines a number of parameters: market capitalisation, cash, profitability index (NPV/Capex, profitability index (NPV/Capex), initial capital expenditure, capital intensity, production cost and HPMSM price assumption.

Firebird Metals and its Hunan HPMSM project accumulate a number of enviable characteristics:

- Lowest capital expenditure
- Lowest capital intensity
- Life of project not limited by a mineral resource
- Lowest operating cost
- Highest profitability index (NPV/Capex) considering the
- **Lowest HPMSM price assumption**

Figure 2.1 – Company / Project Benchmarking of Peers



Source: company announcements.

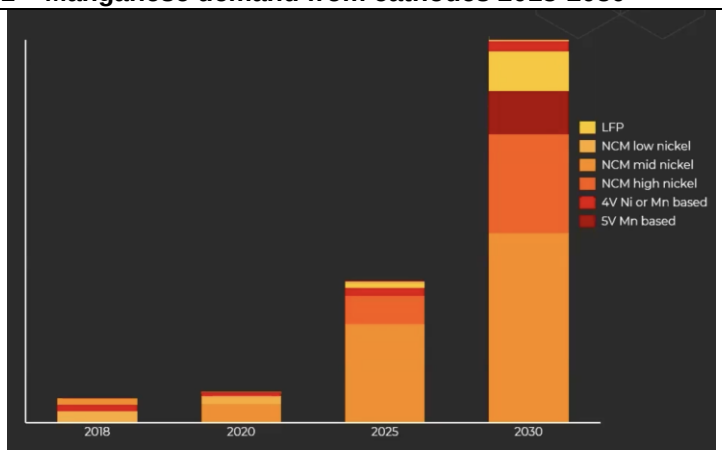
Our financial modelling indicates that using a HPMSM price of US$2,000/t which is still lower than any price assumption used by FRB peers, would result in a profitability index of 7.0x (pre-tax NPV of US$581 million).

3. Manganese in lithium batteries

Market Opportunity

Lithium Manganese Iron Phosphate (LMFP) batteries is forecast to become the dominant cathode for EV batteries. *Benchmark Mineral Intelligence* forecast that 51% of all batteries will include manganese cathodes by 2030. Adding manganese to LFP batteries makes them safer, cheaper and provides more range. LMFP has a higher thermal run-away temperature than nickel-based batteries. LMFP are ~30% cheaper than nickel-based batteries. No expensive metals such as cobalt or nickel contained. LMFP energy density is 15-20% higher than LFP, due to Mn higher voltage.

Figure 3.1 – Manganese demand from cathodes 2018-2030

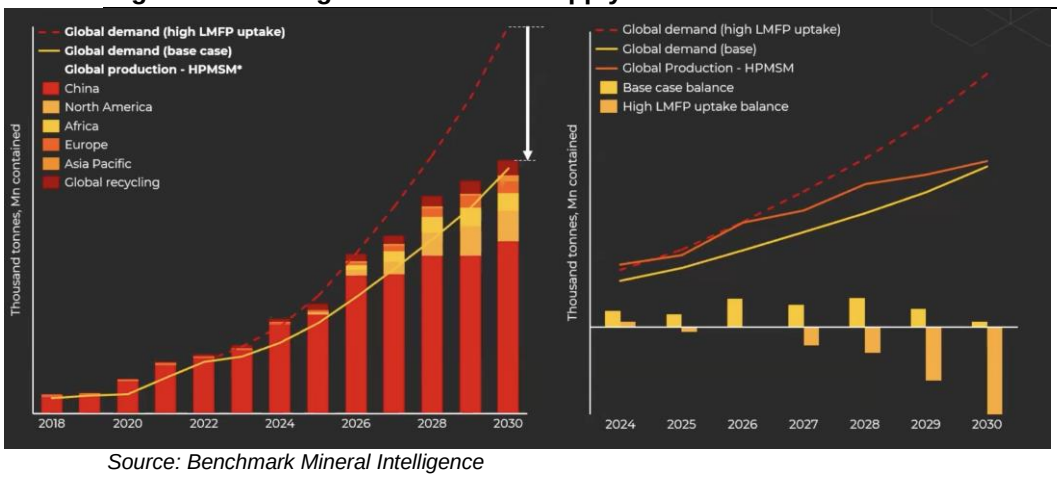


Source: Benchmark Mineral Intelligence

Supply - Demand

Market is slightly over supplied at present, but the expected uptake of LMFP batteries relies on significant supply expansion. This is where the opportunity lies for Firebird Metals. Furthermore, developing a HPMSM facility in China gives the company the opportunity to deliver its products to the largest market currently and the one with the most significant growth.

Figure 3.2 – Manganese chemical supply and demand



Source: Benchmark Mineral Intelligence

From a processing and engineering perspective, China can also provide both commercially proven and advanced technologies.

HPMSM Prices

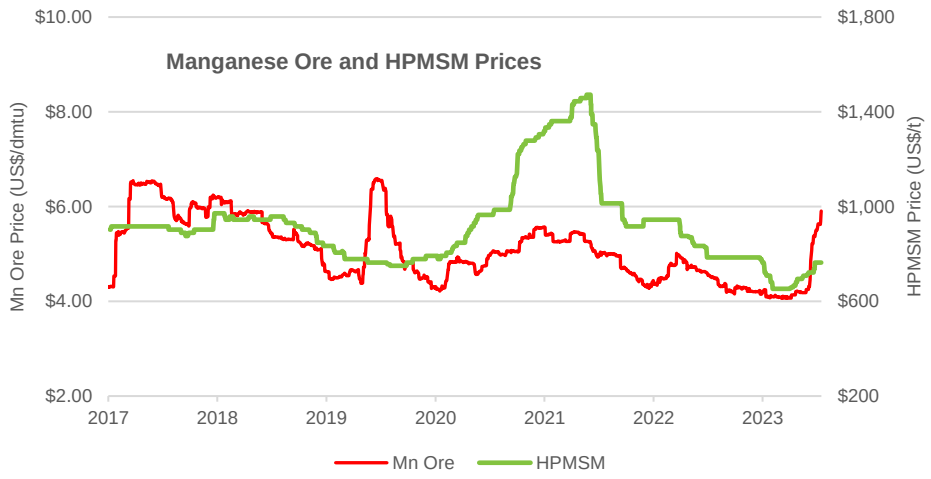
Figure 3.3 shows a relatively good correlation between HPMSM prices and the manganese ore as it should be expected. We note also that the SMM data may underestimate HPMSM actual prices as price spike up to RMB13,000/t or US$1,800/t have been achieved in recent times.

The recent manganese ore price spike is linked to the suspended operation at Groote Eylandt following a bulk carrier loaded with 41,000 tonnes of manganese ore crashing into mining company South32 (ASX: S32) loading wharf.

The Groote Eylandt mine represents about 12% about the world supply and around 18% when manganese units are taken into consideration as South 32's ore is significantly higher than the rest of the world with 43% Mn (ore reserve grade as at 30 June 2023).

We can reasonably expect the HPMSM to increase in the coming months as current stocks are exhausted and new production is based on higher price manganese ore.

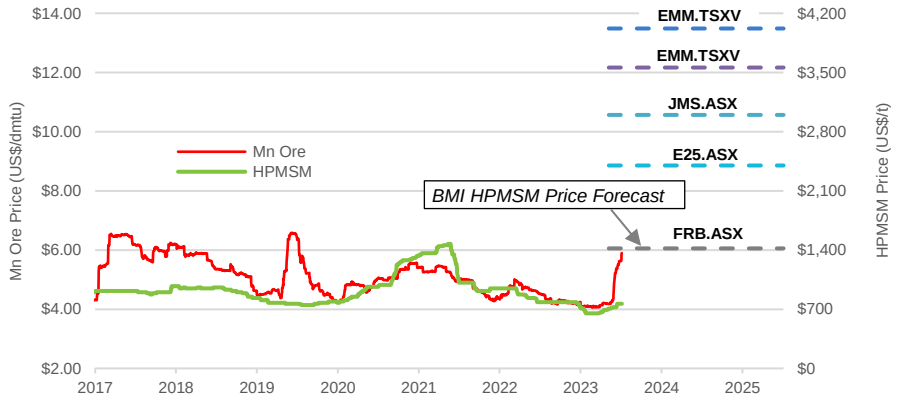
Figure 3.3 – Historical Manganese Ore and HPMSM Prices



Source: S&P Global Market Intelligence, SMM

Figure 3.4 includes the *BMI* price forecast average 2023-2033 used by Firebird Metals, as well as the various HPMSM price assumptions used by its peers.

Figure 3.4 – Historical Pricing and Price Forecast and Assumptions



Source: Company reports, S&P Global Market Intelligence, SMM

Considering the tremendous HPMSM demand increase, which requires a significant amount of new processing facilities to be built, *BMI* pricing model results in a price forecast which includes, in our view, an incentive component, a component for criticality and a premium for quality.

Market Developments

Demand for manganese from the battery industry (through precursor for cathode active material, or pCAM) continued expanding in 2023, driven by China. Although this segment of the industry only represents 3% of total manganese ore consumption (compared to 96% for steel and 1% for agricultural products).

In Q2 2023, Giyani Metals gains approval to export 100 tons of Manganese oxide from its K. Hill project in Botswana to a Johannesburg demonstration plant, showcasing its low- carbon process for battery-grade high- purity manganese sulphate monohydrate, crucial for lithium-ion battery cathodes.

In July 2023, Vibrantz Technologies (a private company) announced the construction of a new pilot plant to process high-purity Manganese sulfate (HPMSM) onsite at its facility in Tampico, Mexico, to meet the growing demand for battery-grade manganese sulfate.

High-purity manganese (battery grade) is listed as a strategic raw material, and manganese is listed as a critical raw material by the Critical Raw Materials Act which received final approval by the EU Council on 18th March 2024. Manganese is recognized for its importance in meeting Europe's decarbonization efforts and in defence and space applications. Manganese was listed as a critical raw material, which are those considered to be of high economic importance and high supply risk to the European Union.

Figure 2.1 – CRMA Strategic and Critical Raw Materials Lists

Source: European Commission

4. Battery-Grade $MnSO_4$ and Mn_3O_4 Project

Introduction

On 7th May 2024, Firebird Metals Ltd released the results of a Feasibility Study for a Battery Grade Manganese Sulphate Project Stage 1 in the Hunan province, China. The Feasibility Study looks to develop a plant with a total equivalent capacity of 72,500 tpa battery grade manganese sulphate producing 50,000 tpa of Battery Grade Manganese Sulphate ($MnSO_4$) and 10,000 tpa of manganese tetra oxide (Mn_3O_4) from 66,000 tpa manganese ore from a third-party supplier.

FRB will process ore through a proprietary process consisting of grinding, roast reduction, leaching, filtration, impurity removal, crystallisation and precipitation stages to produce key Battery Grade $MnSO_4$ and Mn_3O_4 products. The Feasibility Study has been completed by Hunan Chemical Engineer Design Institute Co.,Ltd ("HCEDI") to Chinese feasibility study standards. HCEDI have completed several similar studies for the Chinese manganese sulphate industry.

HCEDI is the leading $MnSO_4$ project design institute in the world and Firebird's technical team have worked with HCEDI closely in the past.

With the completion of the Feasibility Study, FRB now focuses on preliminary engineering and civil work design, with more than 50% of the preliminary design work completed. The Company has engaged several high-quality equipment suppliers with equipment costs being fed into the design work and detailed estimates.

Once completed, the design work will be reviewed by the relevant government department for preliminary permitting of the construction process.

Plant Location – Circular Economy

The plant location in a chemical park represents a key competitive advantage with regards to permitting, costs, as well as environmental credentials. Permitting is fast tracked as the whole park has been assigned to chemical facilities. Every co-product or waste product from a chemical facility can become a key input of another chemical facility. This means that all the reagents required for the HPMSM plant are readily available within the chemical park itself. And concurrently, any waste product from the HPMSM plant can be either sold or used by another chemical plant. Overall, this has the effect of reducing both capital costs and operating costs.

Permitting

There are a total of 8 major permits required to commence construction, with the key permits being environmental, safety & energy.

- The **Environmental Impact Assessment report** should be completed during April and will be put to Expert Panel review, full approval is expected before the end of the financial year.
- The **Safety report** has been approved by the Expert Panel and changes in design have been incorporated to reflect the Panel's review comments and permit is likely to be received at the end of April.
- The **Energy consumption report** is being drafted and expected completion is mid-April. Expert Panel review and permitting is expected to be received before the end of June.

On 28th May 2024 (only one month after the expected date), FRB announced that the Safety Permit was granted.

At the same date, the status of each permit is summarised in the table below.

	PERMIT	STATUS
1	**Project Initiation Permit** by the NDRC (National Development and Reform Committee)	**Received**
2	**Project Environmental Permit** via the Environmental Impact Assessment (EIA) Document	**EIA report complete** and has gone through initial Expert Panel review; Full approval expected by end of June
3	**Project Safety Permit**	**Received**
4	**Project Energy Permit** via Energy Technology Evaluation Document	**Energy consumption complete**, has been lodged with Government and expected to be approved in the June quarter
5	**Water and Soil Monitoring Permit**	30% Complete, awaiting detailed design
6	**Workplace Health and Safety Permit**	30% Complete, awaiting detailed design
7	**Social Stability Permit**	TBC
8	**Building and Construction Permit**	TBC

Project Financing

On 14th May 2024, FRB announced very substantial debt financing for the Hunan Project. The combined indicative and non-binding agreements (all at advanced stages) up to US$56M account for approximately 60% of the estimated financing requirements for Firebird to construct and commission the Hunan plant:

- Non-binding indicative offer from China Construction Bank (Jinshi Division) to provide to a maximum of 50% of estimated plant CAPEX requirements of US$83.5 million (subject to conditions precedents), at very attractive terms, plus 70% of required estimated working capital of US$10.6 million;
- Non-binding agreement with China Chemical to provide up to 20% of construction and installation costs (approximately US$35 million) on a deferred payment basis, interest-free and repayable 12 months after the commencement of commercial production; and
- Binding Agreement with Jinshi local Government to receive a 62.5% rebate (totalling ~US$4.2 million) on the ~US$6.8 million land purchase. Rebate has been accounted within total CAPEX requirements.

Subject to further improvement in the FRB share price, financing of the remainder of the project capex is feasible through equity capital. We assumed that FRB would raise $47.5 million at $0.38 representing 125 million shares.

Final Investment Decision

Once all key permits are obtained, with the expectation that the remaining two permits will be received before the end of the financial year and following the anticipated Final Investment Decision in the second half of 2024, Firebird Metals will be ready to immediately begin construction on its battery-grade manganese sulphate plant.

Construction is projected to take only 12-15 months, with operations expected to commence in late 2025.

5. Oakover Manganese Ore Project

Work Programme

FRB's primary focus is on the execution of its China-based LMFP battery strategy; however, development and environmental work at the Oakover Project will continue over next 12 to 18 months with key activities including:

- Environmental surveys and studies to be completed in H1 2024
- Diamond drill program for ongoing metallurgical test work to be completed in H2 2024
- PFS metallurgical test work program
- Hydrology/water monitoring
- Finalisation of the Mining Lease Application, including native title and heritage negotiations

Location

The Oakover Project comprises one granted exploration license (E52/3577) and two exploration licence applications (E46/1372 and E52/3891). The project covers 118 blocks or approximately 360km^2. The Oakover Project is located 85 km east of Newman in the Eastern Pilbara region of Western Australia and about 100 km south of the Ant Hill manganese deposit and about 50 km from the Nicholas Downs (formerly known as Balfour Downs) manganese deposit.

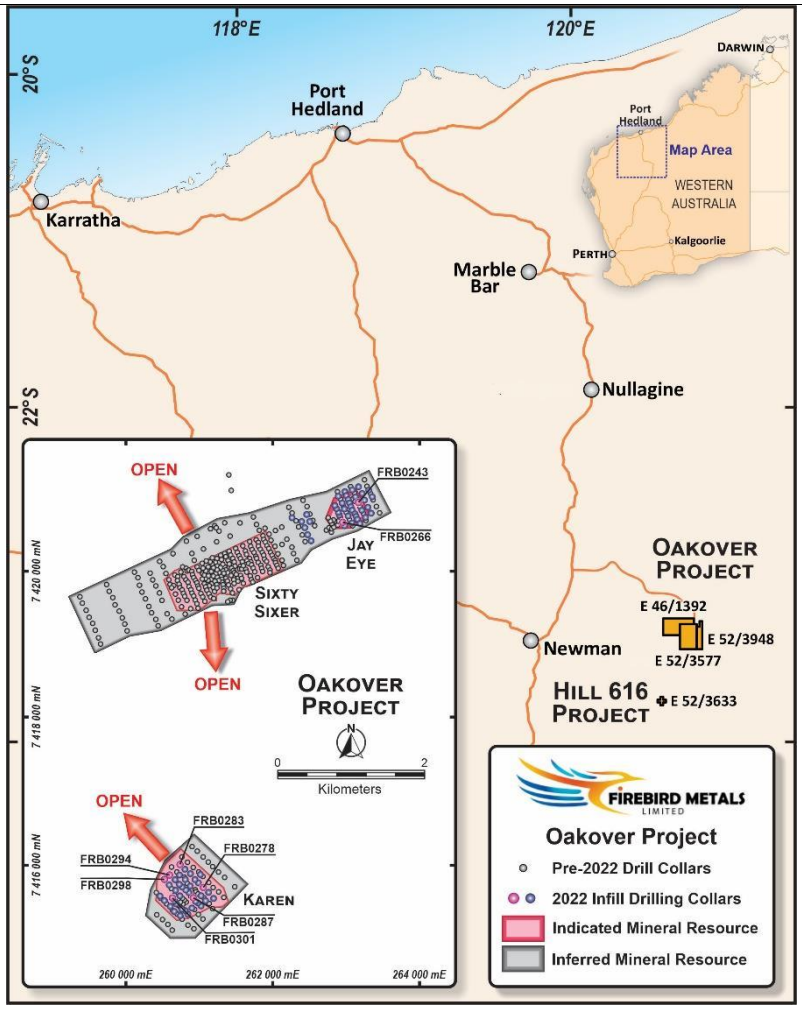
Geology and Mineralisation

Oakover is situated in the Collier Basin near the edge of the Pilbara Craton. A major portion of the tenement is covered by Quaternary cover with some calcrete along drainages. Several outcrops of the Middle Proterozoic Bangemall Group (Manganese subgroup), including various sediments of the Balfour Formation, Jigalong Formation and the Stag Arrow Formation are found on E52/3577 (Rohde, 2010).

The manganese mineralisation occurs as multiple seams or bands of varying thickness within a highly weathered shale (Balfour Formation). The mineralisation was generally found to be shallow (mostly within 20 m of the surface), gently dipping and laterally extensive across the target area. The lateritic profile and subsequent manganese mineralisation show the zonation within the regolith and distribution of manganese mineralisation. The higher-grade (or nearer-surface supergene/lateritic) manganese material is generally located within the upper portion of the regolith profile at shallow depths (0–15 m).

Mineral Resource

Figure 5.1 – Oakover Mineral Resource Location



Source: FRB

On 23 Mar 2023, FRB announced a 80% increase in Indicated Mineral Resources at the Oakover Project from 58.7 million tonnes to 105.8 million tonnes using a 7% Mn cut off. The mineral resource upgrade is the result of the 82-hole 2,828m infill drilling program completed at the Jay Eye and Karen deposits in October 2022.

Additionally, the results have also grown the total Oakover Mineral Resource from 172.3Mt to 176.7Mt.

Table 5.1 – Oakover Mineral Resource Estimate

Mineral Resource Classification	Tonnes (Mt)	Mn (%)	Fe (%)	SiO_2 (%)	Al_2O_3 (%)	P (%)
Indicated	105.78	10.1	8.9	39.2	9.8	0.10
Inferred	70.87	9.6	8.0	36.5	9.5	0.09
Total	**176.65**	**9.9**	**8.6**	**38.1**	**9.7**	**0.10**

Source: FRB. Reported at a cut off grade of 7% Mn.

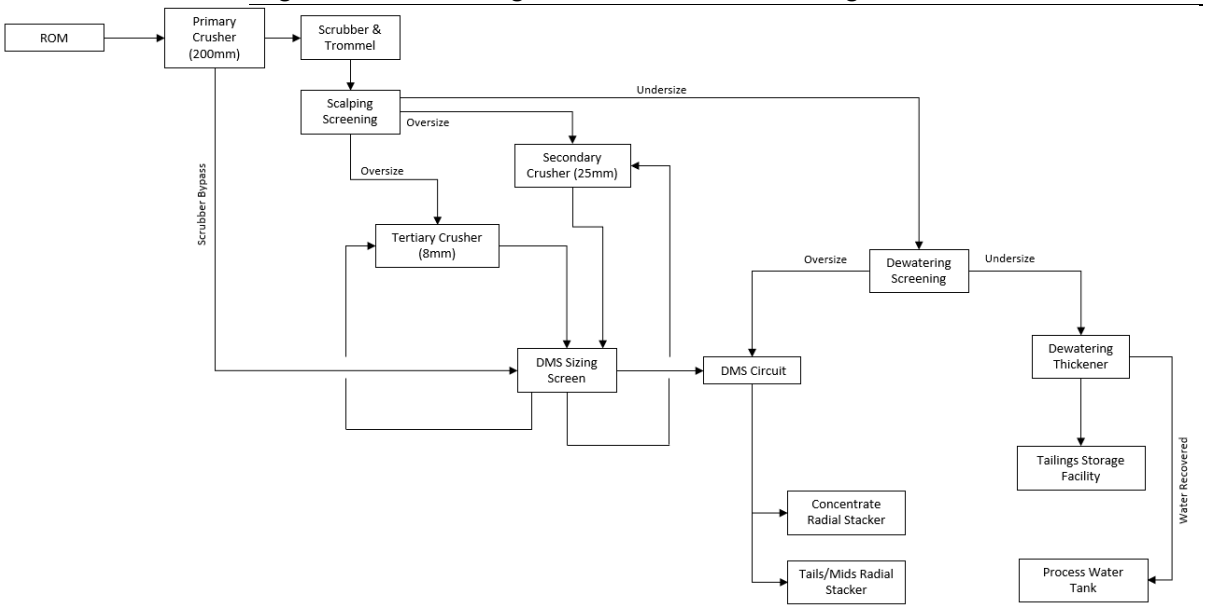
Metallurgical Testwork

Metallurgical testing included ore sorting trials on two composite samples sourced from diamond core. Scrubbing and screening was employed to generate feedstock (-32+8mm) for ore sorting test work, which delivered excellent product grades up to 31% Mn. Preliminary heavy liquid beneficiation test work was completed on -8+1mm material, which also delivered excellent product grades up to 32.8% Mn.

Processing

The Scoping Study evaluated a manganese concentrator including crushing, scrubbing and DMS recovery with an initial smaller plant built to minimise capex and optimise the process and transport and logistics allowing for a subsequent upgrade.

Figure 5.2 – Crushing and DMS Block Flow Diagram



Source: FRB

Scoping Study Results

On 30th August 2023, FRB released the results of a Scoping Study for the Oakover project.

Table 5.2 – Scoping Study Key Results

Item	Value
AUD/USD exchange rate	0.70
30% Lump Concentrate Price CIF basis	A$205.70/t – US$4.80/dmtu
Life of Mine	18 years
Strip ratio	0.45:1
Throughput	4 Mtpa
Production	1.2 Mtpa
Concentrate Grade	30-32% Mn
Initial Capex	A$123.0m
Sustaining Capex	A$59.7m
30% concentrate All In Cost – CIF basis	A$139.22/t – US$3.25/dmtu
EBITDA (per annum)	A$86.6m
NPV @ 8%	A$741.3m
IRR	73.1%
Payback	< 1.3 years

Source: FRB

The recommended mining method is conventional open cut mining using truck and shovel, to focus on the two current economical rock domains.

Indicated material accounts for 99.2% of the material processed, approximately 70.95Mt, with Inferred making up the remaining 0.8%.

Environment, Native Title and Heritage

Oakover is located within lands of the Nyiyaparli People. Heritage surveys have been undertaken as part of the approval process for exploration activities. Future heritage studies will continue to include the Traditional Owners, archaeological and ethnographical expertise, to identify and assess the significance of Aboriginal heritage in all areas that may be impacted should the Project be developed.

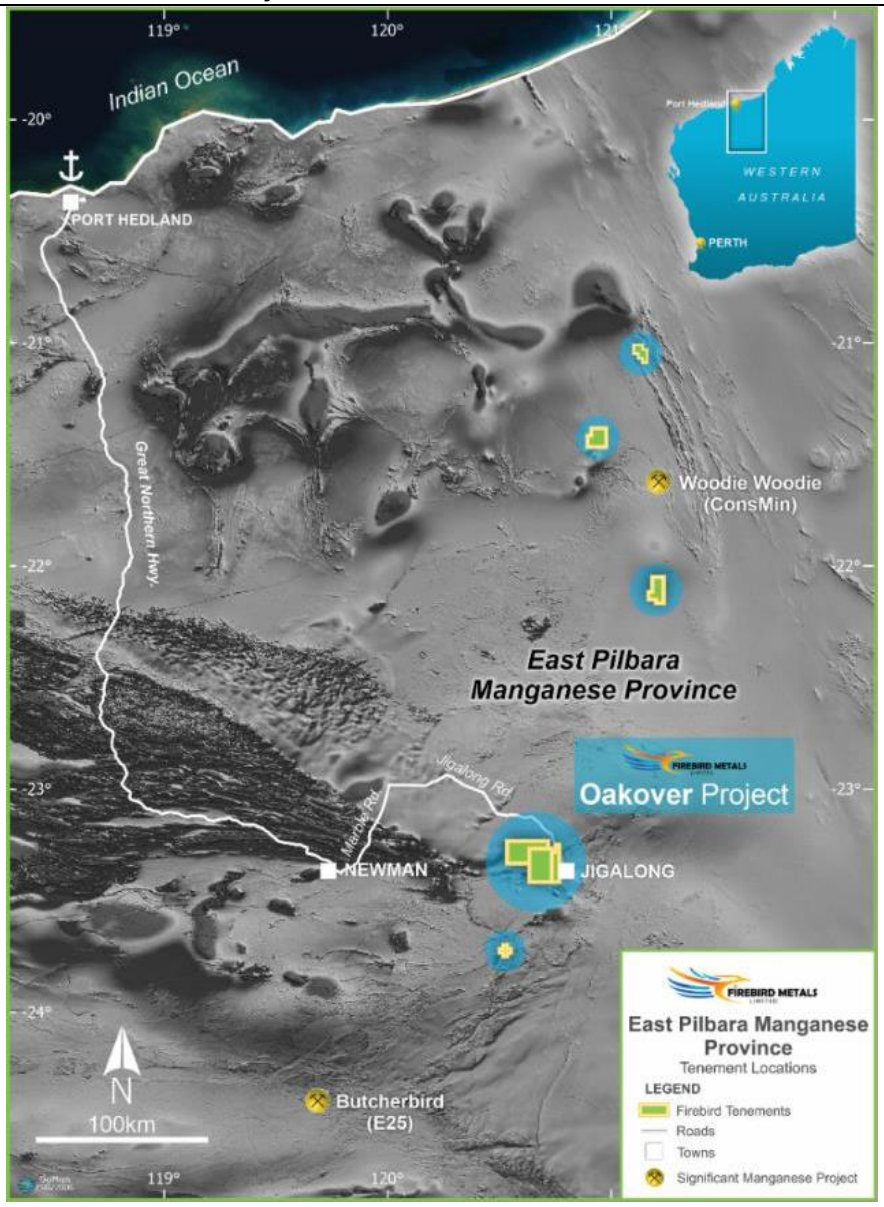
Logistics

The Logistics Study explored the requirements to transport approximately 0.5 to 1.2 Mt per annum of bulk manganese concentrate from the Oakover mine site to Port Hedland export facilities.

The Port of Port Hedland is the world's largest bulk export port, with exports including iron ore, lithium and salt and is located approximately 600 kilometres from the Oakover mine accessed via the Great Northern Highway, Marble Bar road and the Jigalong Road.

The tenement and processing plant will be located approximately 6 kilometres from the well-formed gravel Jigalong road.

Figure 5.3 – Oakover Project to Port Hedland Access Route



Source: FRB

Manganese Market

South Africa, Australia, Brazil, Ghana and Gabon are major producing countries of global manganese ore. It is generally accepted that seaborne manganese can be classified as high, medium and low grades in terms of their manganese contents. Below is a summary of their classification:

- High grade > 44% Mn
- Medium grade between 30% and 44% Mn; and
- Low grade < 30% Mn.

China is the largest importer of manganese ore and concentrates and is also the largest producer of manganese alloys. According to International Manganese Institute, China imported more than ~30 million tonnes of manganese ore in 2022. This is a substantial increase from around 10 million tonnes of manganese 10 years earlier. The significant increase in import is mainly due to a combination of depleting domestic mines and stricter environmental regulations. The concentrate produced at Oakover is expected to fit into the medium grade classification.

Manganese is an industrial metal that has a wide range of applications. The most significant use of manganese is in steel production (about 90%) where every tonne of steel requires approximately 1-2% of manganese in the form of manganese alloys.

Manganese acts as deoxidiser and desulfuriser agents in steel production, to remove oxygen and sulphur to increase the quality of steel products. Specifically, manganese helps to prevent corrosion, make steel more resistant to abrasion and increases the hardenability rate.

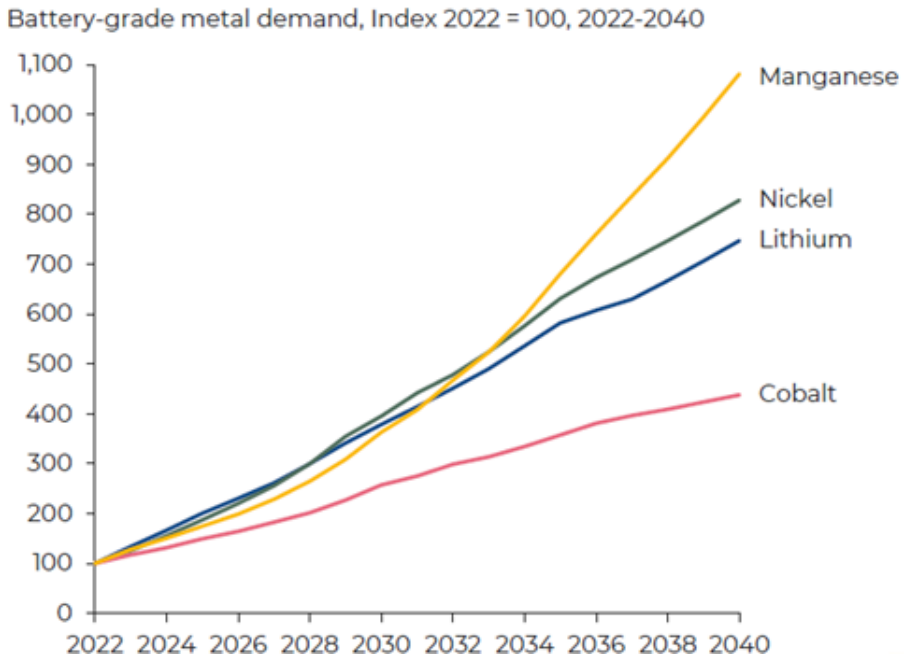
Manganese ore is predominantly mined in the form of carbonate, semi-carbonate or an oxide and is smelted into a manganese alloy, with the main types of manganese alloys being:

- Silicomanganese (SiMn) – Most common alloy consumed and is used principally in the production of construction steels, such as long steels products like rebar. Typically contains up to 2% carbon
- High carbon ferromanganese (HCFeMn) – Used mainly in flat-steel products destined for manufacturing and consumer appliances. Typically contains up to 8% carbon
- Refined Alloys being Medium carbon (MCFeMn) and Low carbon ferromanganese (LCFeMn) – Used mainly in higher-quality steels sector where impurities need to be closely controlled

The concentrate produced at Oakover is expected to be very suitable as feed stock in the production of SiMn.

Importantly, the use and demand for manganese in batteries for EVs is growing rapidly. Manganese is a key and critical element required in the production of cathodes for lithium-ion batteries, which are at the centre of the clean energy transition. The use of these batteries in EVs continues to grow exponentially, forming a major market for supply and consumption of battery grade manganese sulphate (MnSO4). Historically the main consumption and use of MnSO4 has been within Ternary cathodes, for example Nickel Cobalt Manganese (NCM) and Lithium Manganese Oxide (LMO) cathodes.

Figure 5.4 – Battery-Grade Metal Demand Forecast



Source: FRB, Benchmark Mineral Intelligence 2023

Project Funding

The Oakover Project's low risk, technically simple and strong economic fundamentals provide a strong platform for Firebird to source traditional financing through debt and equity markets, in addition to pursuing other financing strategies should this be to the benefit of shareholders.

There is, however, no certainty that Firebird will be able to source funding as and when required. No formal funding discussions have commenced; however, Firebird has engaged with a number of financial institutions which have expressed a high level of interest in being involved in the funding of the Project. To achieve the range of outcomes indicated in the Scoping Study, pre- production funding of approximately $123 million. It is envisioned that a working capital / shipment financing of approximately $35 million will be required during commencement of mining and processing, finance costs of these funds have been built into the financial model. Typical project development financing would involve a combination of debt and equity. Firebird has formed the view that there is a reasonable basis to believe that requisite future funding for development of Oakover will be available when required.

6. Directors & Management Team

Evan Cranston, Non-Executive Chairman

Mr Cranston is an experienced mining executive with a background in corporate and mining law. He is the principal of corporate advisory and administration firm Konkera Corporate and has extensive experience in the areas of equity capital markets, corporate finance, structuring, asset acquisition, corporate governance and external stakeholder relations.

Mr Cranston holds both a Bachelor of Commerce and Bachelor of Laws from the University of Western Australia. He is currently the Non-Executive Chairman of Carbine Resources (ASX:CRB), Vital Metals (ASX:VML), African Gold (ASX:A1G) and Benz Mining Corp (TSXV:BZ, ASX:BNZ).

Peter Allen, Managing Director

Mr Allen is a mining executive with more than 20 years experience in marketing of manganese, lithium and a range of other commodities.

He previously held the MD of Marketing for Consolidated Minerals Limited which operates Woodie Woodie mine in WA and Nsuta Manganese mine in Ghana.

He assisted manganese focused explorer Element 25 (ASX.E25) and Gulf Manganese Corporation (ASX.GMC) with PFS & product marketing. More recently, he was the marketing manager for AVZ Minerals (ASX.AVZ), a company focussed on the Manono lithium project.

Wei Li, Executive Director & CFO

Mr Li is a Chartered Accountant with extensive professional experience across several key sectors which include the resource industry, international trade, capital markets, project manage IPOs and spin-outs and financial accounting. His experience includes being employed by, and acting as, Director and CFO of several companies, predominantly in the resources sector. Prior to these roles, he managed a private base metal exploration company in the NT of Australia and assisted in commissioning an AUD 150 million Electrolytic Manganese Dioxide (EMD) plant in Hunan China.

Ashley Pattison, Non-Executive Director

Mr Pattison brings over 20 years' experience in the resources sector across corporate finance and operational roles. Qualified as chartered accountant, he has extensive experience in operations, finance, strategy and corporate finance. Mr Pattison has been the Managing Director of a number of listed and private

mining companies over the past 10 years and also CEO of a listed mining service company.

Mr Pattinson is currently the Executive Chairman of PC Gold Pty Ltd and a Non-Executive Director of Industrial Minerals Ltd (ASX.IND).

Brett Grosvenor, Non-Executive Director

Mr Grosvenor is an experienced executive with over 25 years' experience in the Mining and Power industry. Holds a dual tertiary qualification in Engineering and a Master in Business, and prior to this was the Director of Development of Primero Group, focused on the development of projects from an initial concept through to contract delivery and operation.

He is currently a director of ASX listed Perpetual Resources Ltd and Firebird Metals Limited. He is a member of the Project Steering Group for Patriot Battery Metals and also the Australian Industry Consultation Group for Battery and Critical Minerals.

Zhou Qiyun, Chief Operating Officer Hunan Firebird Battery Technology

Based in China, Mr Zhou is a highly regarded and leading $MnSO_4$ expert, who has spent majority of his career across the development, optimisation and commercialisation of technologies for $MnSO_4$ processing (including patents), with a key focus on energy saving optimisation processes through evaporation and crystallisation stages.

Mr Zhou was previously a part-owner of a battery grade $MnSO_4$ plant and has consulted to a large number of existing $MnSO_4$ plants in China, principally advising on technical processing issues. Mr Zhou also consults to the Central South University as an expert in manganese sulphate processing.

7. Investment Risks

FRB is exposed to a number of risks including:

Hunan Project

- **Market risk**: Market studies demonstrate significant growth in demand over this decade, which is directly linked to the growth in EV sales and lithium-ion batteries. Within this market, China is the single largest consumer and contributes to mitigating that risk.
- **Design and process risks**: The technology used by the Hunan facility is based on a combination of standard chemical processes commonly used within the Chinese manganese chemical industry and a recently patented iteration of energy-saving technology to which FRB's subsidiary has secured rights. Those risks are mitigated by the Company's in house experts led by the appointment of Mr Zhou Qiyun who has vast manganese sulphate experience spanning over 20 years in the production, development, and optimisation of manganese sulphate plants in China.
- **Manganese ore supply risk**: this risk is mitigated by the sizeable Chinese manganese market which imports approximately 30 million tonnes of various grades of manganese ore annually and has port stocks principally sold by trading companies for domestic consumption of approximately 5.6Mt every month providing significant optionality for supply sourcing.
- **Construction cost and schedule risk**: construction cost risk is mitigated by the experience HCEDI has had with various similar plants, plus the extensive experience of FRB's Chinese technical team. The capital estimate contains a contingency of +/- 15%. Implementation of the project within the proposed schedule is a key risk. The transition through feasibility phase and subsequent phases requires continuous momentum to enable schedule success. Delays and gaps will increase schedule risk.

Oakover Project

- **Geological risk**: the actual characteristics of an ore deposit may differ significantly from initial interpretations.
- **Resource risk:** all resource estimates are expressions of judgement based on knowledge, experience and industry practice. Estimates, which were valid when originally calculated may alter significantly when new information or techniques become available. In addition, by their very nature, resource estimates are imprecise and depend to some extent on interpretations, which may prove to be inaccurate.
- **Commodity price risk:** the revenues FRB will derive mainly through the sale of manganese products exposing the potential income to commodity price risk. The price of manganese products fluctuates and is affected by many factors beyond the control of FRB. Such factors include supply and demand fluctuations, technological advancements and macro-economic factors.
- **Exchange Rate risk:** The revenue FRB derives from the sale of manganese products exposes the potential income to exchange rate risk. International prices of manganese products are denominated in United States dollars, whereas the financial reporting currency of FRB is the Australian dollar, exposing the company to the fluctuations and volatility of the rate of exchange between the USD and the AUD as determined by international markets**.**
- **Mining risk:** A reduction in mine production would result in reduced revenue.
- **Processing risks:** A reduction in plant throughput would result in reduced revenue. In all processing plants, some metal is lost rather than reporting to the valuable product. If the recovery of metal is less than forecast, then revenue will be reduced.
- **Operational cost risk:** an increase in operating costs will reduce the profitability and free cash generation of the project.
- **Management and labour risk**: an experienced and skilled management team is essential to the successful development and operation of mining projects.

Evolution Capital Pty Ltd
Level 8, 143 Macquarie Street
Sydney, NSW 2000
Tel: +61 2 8379 2960
www.eveq.com

Disclosure & Disclaimer

Evolution Capital Pty Ltd (ACN 652 397 263) is a corporate Authorised Representative (number 1293314) of Evolution Capital Securities Pty Ltd (ACN 669 773 979), the holder of Australian Financial Services Licence number 551094.

The information contained in this report is only intended for the use of those persons who satisfy the Wholesale definition, pursuant to Section 761G and Section 761GA of the Corporations Act 2001 (Cth) ("the Act"). Persons accessing this information should consider whether they are wholesale clients in accordance with the Act before relying on any information contained.

Any financial product advice provided in this report is general in nature. Any content in this report does not take into account the objectives, financial situation or needs of any person, or purport to be comprehensive or constitute investment advice and should not be relied upon as such. You should consult a professional adviser to help you form your own opinion of the information and on whether the information is suitable for your individual objectives and needs as an investor.

It is important to note that Evolution Capital, or its agents or representatives, engaged and received a financial benefit by the company that is the subject of the research report. The financial benefit may have included a monetary payment or certain services including (but not limited to) corporate advisory, capital raising and underwriting. In addition, the agent or representative drafting the advice may have received certain assistance from the company in preparing the research report. Notwithstanding this arrangement, Evolution Capital confirms that the views, opinions and analysis are an accurate and truthful representation of its views on the subject matter covered. Evolution Capital has used its best endeavours to ensure that any remuneration received by it, or by an agent or representative, has not impacted the views, opinions or recommendations set out in this research report.

The content of this report does not constitute an offer by any representative of Evolution Capital to buy or sell any financial products or services. Accordingly, reliance should not be placed solely on the content of this report as the basis for making an investment, financial or other decision.

Recipients should not act on any report or recommendation issued by Evolution Capital without first consulting a professional advisor in order to ascertain whether the recommendation (if any) is appropriate, having regard to their investment objectives, financial situation and particular needs. Any opinions expressed are subject to change without notice and may not be updated by Evolution Capital.

Evolution Capital believes the information contained in this report is correct. All information, opinions, conclusions and estimates that are provided are included with due care to their accuracy; however, no representation or warranty is made as to their accuracy, completeness, or reliability.

Evolution Capital disclaims all liability and responsibility for any direct or indirect loss, or damage, which may be incurred by any recipient through any information, omission, error, or inaccuracy contained within this report.

The views expressed in this report are those of the representative who wrote or authorised the report and no part of the compensation received by the representative is directly related to the inclusion of specific recommendations or opinions.

Evolution Capital and / or its associates may hold interests in the entities mentioned in any posted report or recommendation.

Evolution Capital, or its representatives, may have relationships with the companies mentioned in this report – for example, acting as corporate advisor, dealer, broker, or holder of principal positions. Evolution Capital and / or its representatives may also transact in those securities mentioned in the report, in a manner not consistent with recommendations made in the report.

Any recommendations or opinions stated in this report are done so based on assumptions made by Evolution Capital.

The information provided in this report and on which it is based may include projections and / or estimates which constitute forward-looking statements. These expressed beliefs of future performance, events, results, or returns may not eventuate and as such no guarantee of these future scenarios is given or implied by Evolution Capital. Any forward-looking statements are subject to uncertainties and risks that may mean those forecasts made by Evolution Capital are materially different to actual events. As such, past performance is not an indicator of future performance.