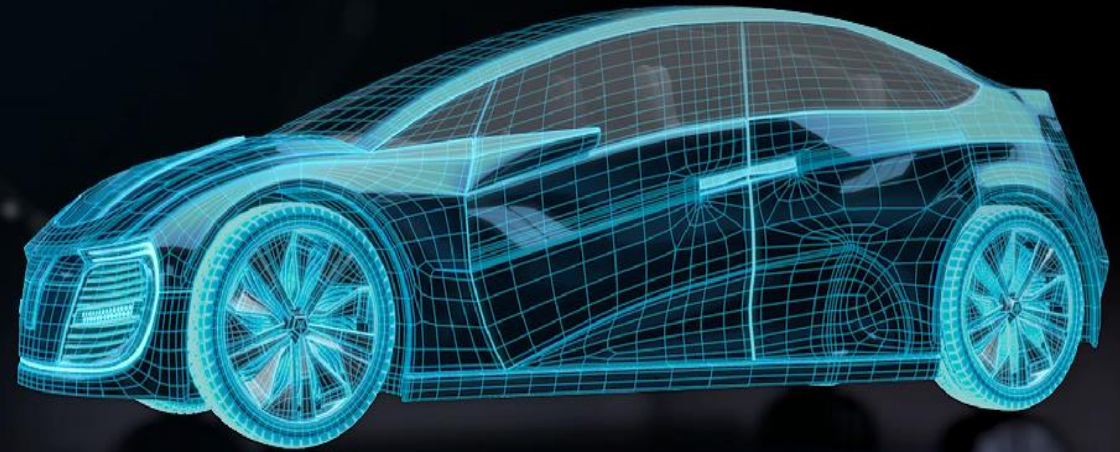




BUILDING WA'S NEXT MAJOR MANGANESE OPERATION

121 Mining Investment London
November 22-23 2022

ASX:FRB



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COMPETENT PERSONS STATEMENT

The information in this report that relates to Mineral Resources is based on information compiled by Mr Mark Pudovskis and Mr Aaron Meakin. Mr Mark Pudovskis is a full-time employee of CSA Global Pty Ltd and is a Member of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Aaron Meakin is a full-time employee of CSA Global Pty Ltd and is a Member and Chartered Professional of the Australasian Institute of Mining and Metallurgy (AusIMM). Mr Mark Pudovskis and Mr Aaron Meakin have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). Mr Mark Pudovskis and Mr Aaron Meakin consent to the disclosure of the information in this report in the form and context in which it appears. Mr Mark Pudovskis assumes responsibility for matters related to Sections 1 and 2 of JORC Table 1, while Mr Aaron Meakin assumes responsibility for matters related to Section 3 of JORC Table 1.

Dr Parry has sufficient experience of the ore sorting test work under consideration to be aware of problems that could affect the reliability of the data and to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Dr Parry consents to the inclusion in this report of the matters based on information in the form and context in which they appear.

EMERGING MANGANESE DEVELOPER

- **Successfully executing a growth strategy targeting production of:**
 - Manganese concentrate
 - High purity manganese sulphate
- **Well-positioned, Western Australian based portfolio, underpinned by a 229Mt Resource base, with significant growth upside**
 - **Flagship Oakover project 172Mt @ 9.9%Mn**
 - 58.7Mt @10.4% Mn in Indicated Resource
 - **Hill 616**
 - 57.5 Mt @12.2% Mn Inferred Mineral Resource
- **Firebird growth strategy underpinned by strong market forecasts:**
 - Growing manganese demand for battery minerals
 - Strong long-term infrastructure (steel) market demand
- **Advanced metallurgical test work and studies:**
 - Scoping Study results confirmed outstanding long-term potential of Oakover as a Manganese hub
 - Successful concentrate metallurgical test work programs provide a high-level of confidence that a commercial product can be produced at Oakover
- **Committed to advancing critical ESG objectives in alignment with development of Oakover**



CORPORATE SNAPSHOT



EVAN CRANSTON Chairperson

Mr Cranston is an experienced mining executive, with a background in corporate and mining law



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



WEI LI Finance Director

Mr Li is a Chartered Accountant with extensive experience in the resource industry. Mr Li managed a private base metal exploration company in the Northern Territory and assisted in commissioning a A\$150 million Electrolytic Manganese Dioxide (EMD) plant in Hunan China



ASHLEY PATTISON Non-executive Director

Mr Pattison has over 20 years' experience in the resources sector from both a corporate finance and operational perspective. Qualified as chartered accountant, he has extensive experience in operations, finance, strategy and corporate finance



BRETT GROSVENOR Non-executive Director

Mr Grosvenor is an experienced mining executive, with over 25 years' experience in the Mining and Power industry. Holding a dual tertiary qualification in Engineering and a Master in Business

Firebird Metals Limited **ASX:FRB**

Share price as of 14/11/22 \$0.20

67.5 M

Shares on issue

* Excludes pending Tranche 2 of 5.6 M shares to be issued late November

Market capitalisation **\$13.5 M**

Options @ \$0.30 8 M

Options @ \$1 10 M

Performance rights 3.3 M

Cash on Hand (30 Sept 2022) **\$2.4 M**

* Excludes pending Tranche 2 - Raising of \$0.92M to be completed late November

Major Shareholders

Tolga Kumova 8.4%

Mining Equities 5.57%

Board (incl related parties) & management 7.6%

Top 20 shareholders 51%

MANGANESE MARKET

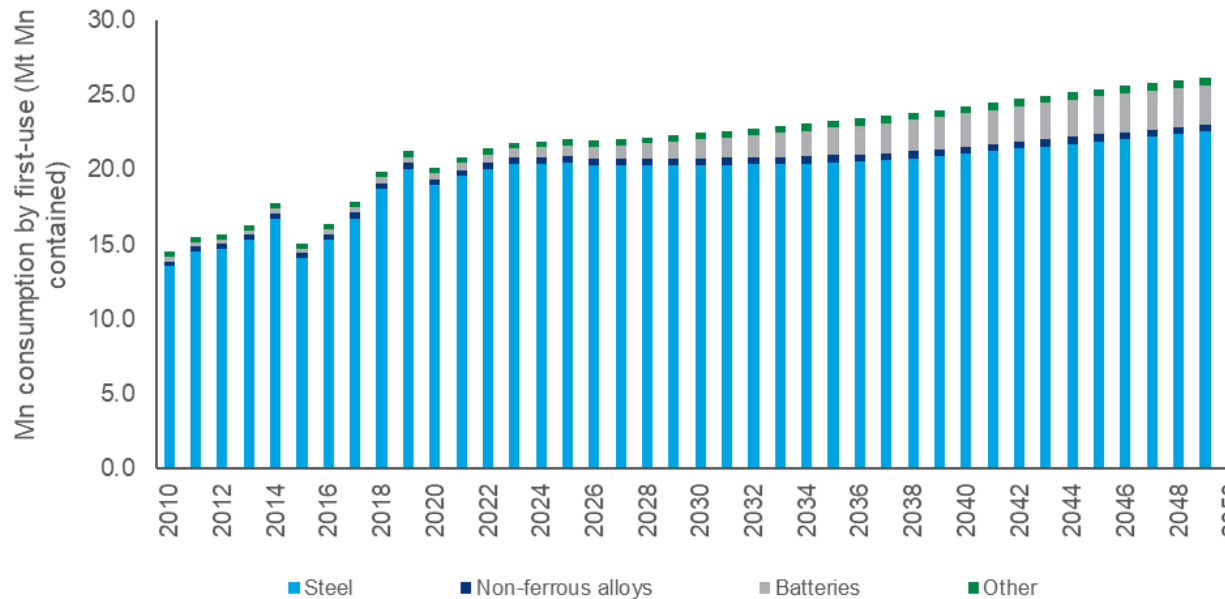
BATTERIES

- ✓ Importance and critical role of manganese in battery cathodes continues to grow

EMD



Manganese Sulphate



Source: Wood Mackenzie.

Mn consumption by first-use

The foregoing graph was obtained from Bulk Steel Alloys, a product of Wood Mackenzie, see disclaimer

STEEL

- ✓ Strong long-term infrastructure (steel) market fundamentals
- ✓ No substitute for manganese in Steel production
- ✓ Manganese consumed in form of manganese alloys

SiMn



HCFeMn



EMM



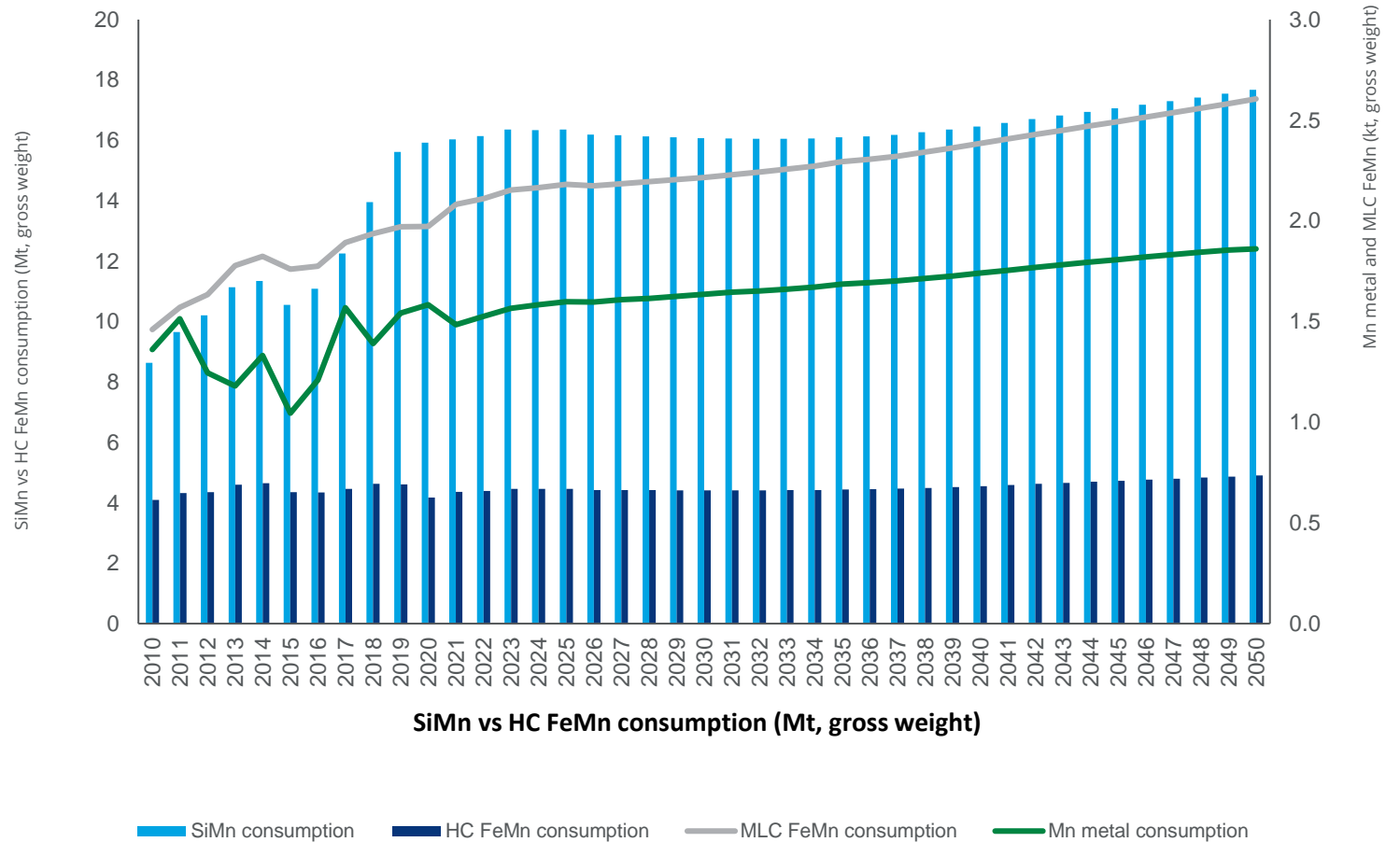
MLC FeMn





- ✓ SiMn is the largest manganese alloy market
- ✓ Manganese concentrate expected to be produced from Oakover suitable for SiMn production

Manganese Alloy consumption



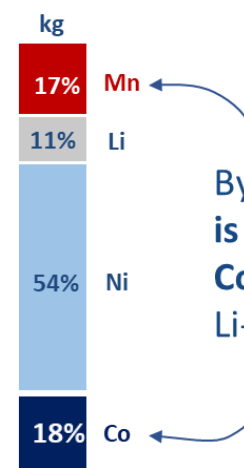
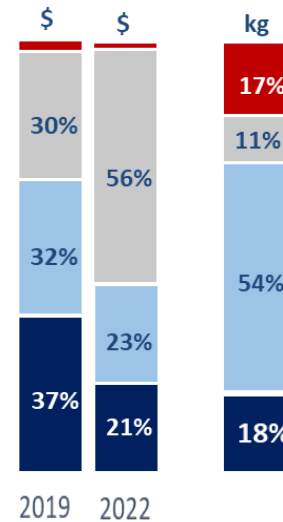
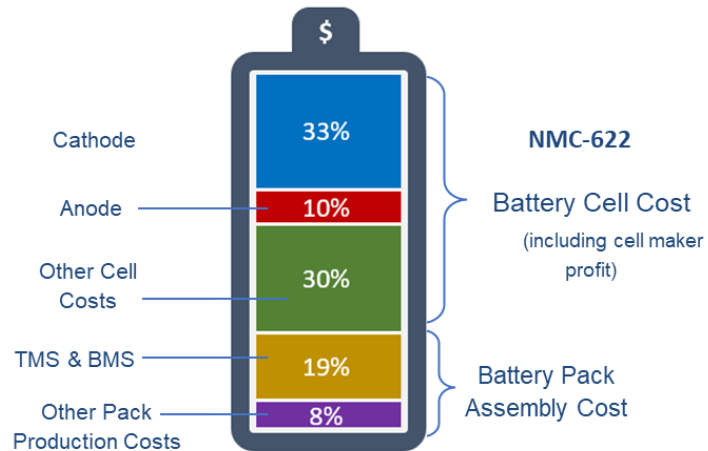
Source: Wood Mackenzie, AlloyConsult

LI-ION BATTERIES AND MANGANESE IMPORTANCE



Manganese Sulphate

Manganese accounts for only 1-2% of the cost of cathode materials



By weight **Manganese** is as important as **Cobalt** in a modern Li-ion EV battery...

CPM estimate approximately 90kgs of High Purity Manganese Sulphate is required per EV battery

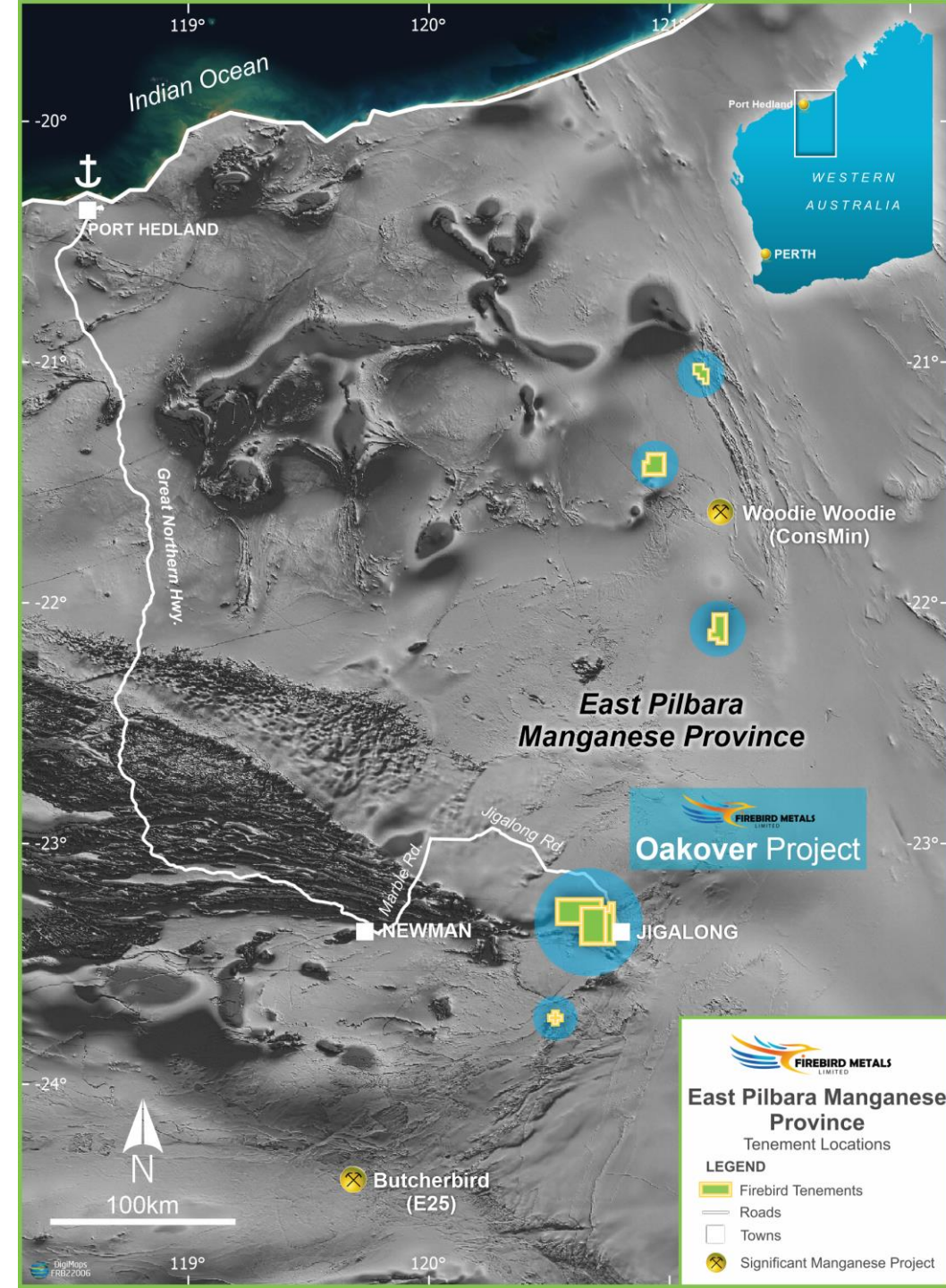
Manganese importance and content growing in both major cathode configurations NMC and LFP (new LMFP)

Source: Cairn ERA, American Manganese Inc., Bloomberg, CPM Group
 Prices used (per kg of battery-grade material, metal contained):
 Jan 2019: Li=\$85, Ni=\$18, Mn=3.2, Co=62; May 2022: Li=\$386, Ni=\$31, Mn=3.5, Co=\$84

FLAGSHIP OAKOVER PROJECT

- ✓ Located 85km East of Newman
- ✓ Excellent geological characteristics, highlighted by near surface / shallow mineralisation
- ✓ 482 holes for 22,800 m completed through historical exploration and drilling by Firebird
- ✓ **Mineral Resource of 172 Mt at 9.9% Mn**
 - ✓ 108 Mt increase from historical resource, delivering an uplift of 170%
 - ✓ 58.7 Mt @10.4% Mn in Indicated Resource category
 - ✓ 80.7 Mt Resource defined as Massive & Supergene
- ✓ 82-hole, 2,828m Infill drill program completed October 2022
 - ✓ Primary objective of upgrading Inferred Resources at Karen and Jay-Eye to Indicated – Updated MRE expected Q1 2023
- ✓ Significant metallurgical test work completed, with excellent results achieved
- ✓ Impressive Scoping Study completed, with significant NPV growth potential

Refer to ASX Release 10th March 2022 "Game Changing Resource Upgrade at Oakover" for full details

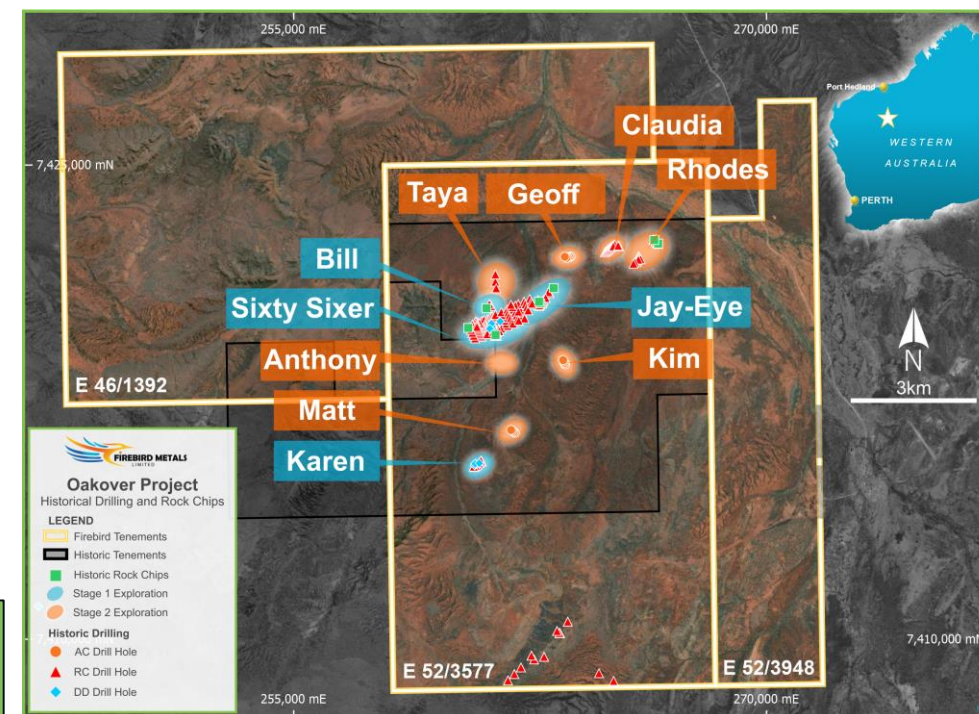
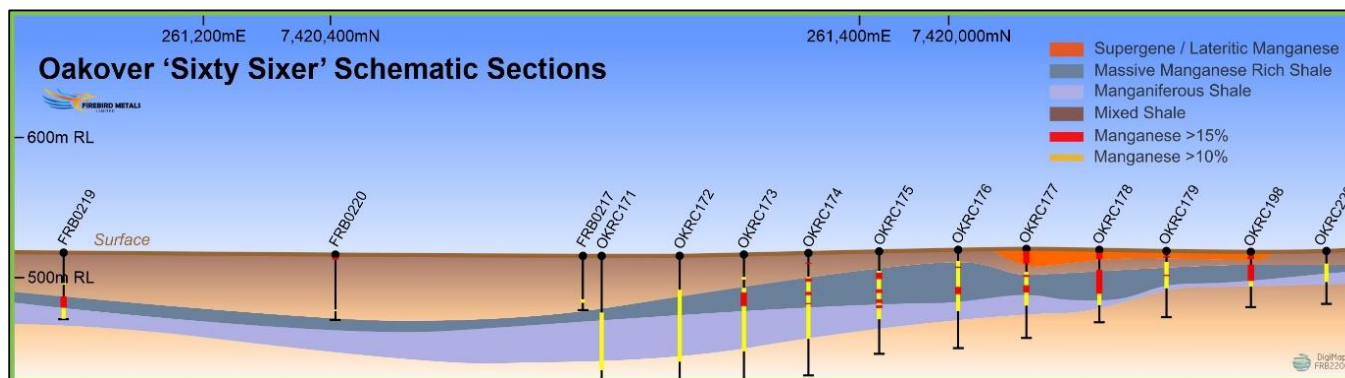


OAKOVER MINERAL RESOURCE ESTIMATE

Highlighted by near-surface, gently dipping geology and multiple processing options, providing an exciting production pathway to deliver superior value to shareholders

Area	Mineral Resource classification	Tonnes (Mt)	Mn (%)	Fe (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	P (%)	LOI (%)
Sixty Sixer	Indicated	58.7	10.4	9.2	40.2	10.1	0.10	13.2
Sixty Sixer	Inferred	50.7	9.6	8.5	38.9	9.9	0.11	15.0
Sixty Sixer	Sub-Total	109.4	10.1	8.9	39.6	10.0	0.11	14.1
Jay Eye	Indicated	-	-	-	-	-	-	-
Jay Eye	Inferred	22.0	9.5	8.5	40.0	9.8	0.11	14.2
Jay Eye	Sub-Total	22.0	9.5	8.5	40.0	9.8	0.11	14.2
Karen	Indicated	-	-	-	-	-	-	-
Karen	Inferred	40.9	9.5	9.3	42.7	10.5	0.11	12.0
Karen	Sub-Total	40.9	9.5	9.3	42.7	10.5	0.11	12.0
Oakover	Indicated	58.7	10.4	9.2	40.2	10.1	0.10	13.2
Oakover	Inferred	113.6	9.6	8.8	40.4	10.1	0.11	13.8
Oakover	Grand Total	172.3	9.9	8.9	40.4	10.1	0.11	13.6

OAKOVER RESOURCE TABLE



Large number of exploration prospects remain within tenement, providing excellent growth upside

OAKOVER – ADVANCED METALLURGICAL TEST WORK

MANGANESE CONCENTRATE TEST WORK

Gravity Separation – Work Completed

- Preliminary heavy liquid beneficiation test work on -8+1 mm material delivered excellent beneficiated grades up to 32.8% Mn

Ore Sorting - Work Completed

- Excellent results, with beneficiated product grades up to 31% Mn (11.4% Mn feed)
- Importance of multi-sensor sorting (incl XRT which approximates DMS density upgrade), not dependent on colour and total surface cleaning
- Key focus on screening and scrubbing for future studies to alleviate feed prep issues

Further Work to be Completed

- Evaluating processing options through:
 - Larger scale bulk metallurgical test work - program underway
 - Further work planned for Ore Sorting, Scrubbing Optimisation, Gravity Separation incl DMS,
 - Expected completion expected by Q4 2022

HIGH PURITY MANGANESE SULPHATE TEST WORK

- Test work ongoing and delivering positive results:
 - Amenable to Reductive Leaching using SO₂, with excellent initial leach results
 - Achieving outstanding Mn extraction
 - Heat generated by reaction
 - High Mn solubility
 - Typical impurities (Fe, K, Al, Ca, Mg, etc) require removal before crystallisation
 - Precipitation and crystallisation test work ongoing

OAKOVER – CONCENTRATE SCOPING STUDY RESULTS

Mining & Production Profile (Based on MRE at Sixty Sixer)

- Processing plant throughput of ~4 Mtpa, to produce ~900 ktpa of 30% Mn concentrate annually
- 10-year Life of Mine
 - First ~6.5 years of production based on 30.5Mt Indicated Resource
 - Last ~3.5 years based on 11.9Mt Inferred Resource
- Low mine strip ratio of 0.9:1

Production Options

- Ore sorting and traditional gravity separation

Potential Near-Term Upside to NPV

- Significantly extend Life of Mine through conversion of Inferred Resource to Indicated at Jay-Eye and Karen, which combined host 62.9 Mt of Inferred Resources
- 82-hole, 2,828m Infill drilling program at Jay-Eye and Karen completed in October 2022
- High level of confidence in increasing Indicated Resources
 - Following strong success of 2021 infill drilling program, which converted 96% of Sixty Sixer Inferred Resource to Indicated by incorporating Hill 616

Total CAPEX \$A143.8m

- A\$73.4M for plant
- A\$70.4M for renewable power plant, road upgrades and other infrastructure

Strong Financials

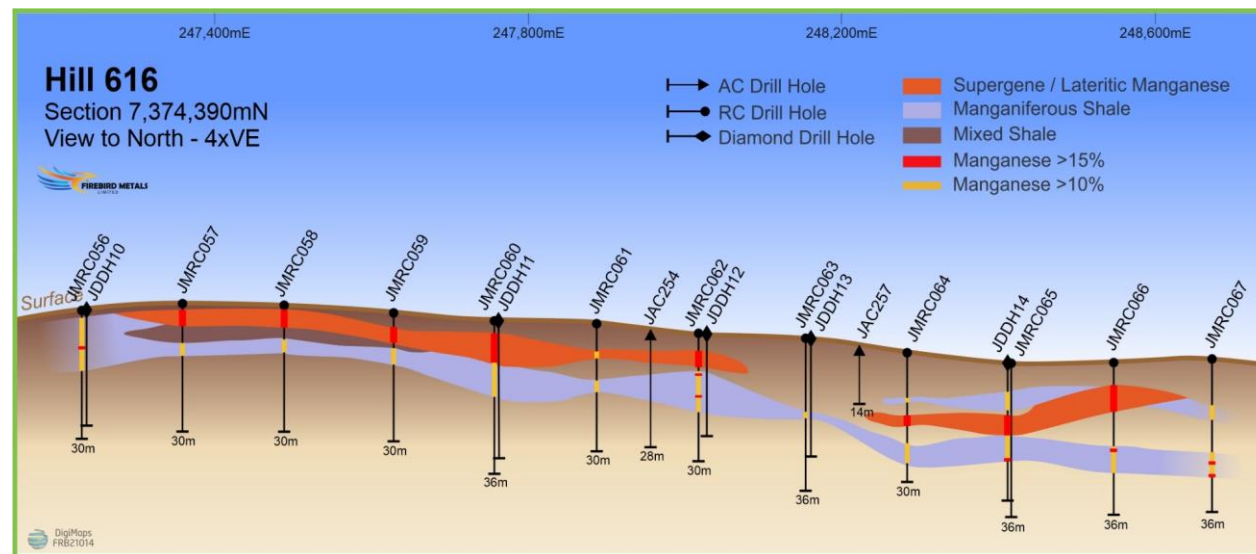
- NPV@8% ~A\$329m
- IRR of 47%

Refer to ASX Release 20 July 2022 “Impressive results from Manganese Concentrate Scoping Study at Oakover” for full details

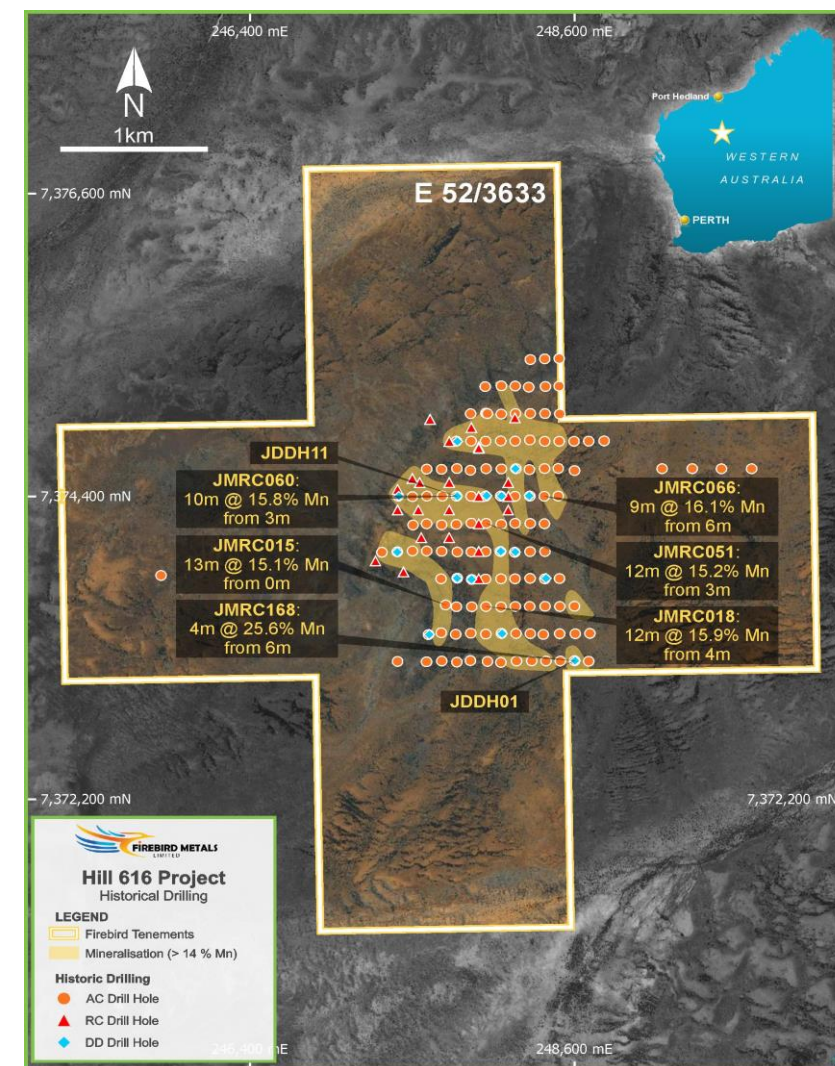
Firebird is not aware of any new information or data that materially affects the information included in its announcement dated 20 July 2022, and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

HILL 616

- ✓ 35km south of Oakover
- ✓ Shallow, gently dipping geology, similar to Oakover
- ✓ Historical drilling of 116 holes for 4,900m completed, over a strike of 2.2km
- ✓ **57.5 Mt @12.2% Mn Inferred Mineral Resource**



Zone	Mineral Resource Classification	Tonnes (Mt)	Mn (%)	Fe (%)	SiO ₂ (%)	Al ₂ O ₃ (%)	P (%)
Manganiferous shale	Inferred	49.3	11.4	17.3	40	8.5	0.13
Supergene manganese	Inferred	8.1	17.4	16.8	30.1	9.4	0.09
Grand Total	Inferred	57.5	12.2	17.2	38.6	8.6	0.13



Source: Firebird ASX announcement "Hill 616 Technical Review Complete, CSA Global engaged for Resource Work" dated 11/11/21 and "Maiden Resource at Hill 616" dated 1/12/21







STRONG COMMITMENT TO ESG OBJECTIVES

- Committed to developing Oakover in line with ESG strategy and objectives
- Key focus on integration of clean energy technologies where possible through development and operational stages
- Energy management plan will ensure local community and environment are of core consideration
- Dedicated and ongoing focus to support local Jigalong community:
 - Local band, Local school, Weather station
 - Utilising community services where possible
 - Develop training and apprenticeship programs
 - Endeavour to employ local personnel wherever possible
- Regular ESG reporting
- Maiden report released in 2021, year of ASX-listing



DEVELOPING WA'S NEXT MANGANESE OPERATION

- ✓ Total Mineral Resource Estimate across Oakover and Hill 616 increased by 350% to 229Mt
 - ✓ Indicated Resource of 58.7Mt @ 10.4% Mn at Oakover
- ✓ Successfully progressing Manganese hub strategy, targeting manganese concentrate and high purity manganese sulphate
 - ✓ Excellent concentrate metallurgical test work results to date, programs ongoing
 - ✓ Excellent Hydrometallurgical test results for manganese sulphate , programs ongoing
 - ✓ Scoping Study results confirmed strong fundamentals and significant growth upside at Oakover
- ✓ Firebird's growth strategy underpinned by strong, long-term demand forecasts from the battery minerals and steel markets
- ✓ Well-funded to execute a busy work program over the next 6-12 months
- ✓ Led by a proven Board and management team, who hold all the required skills to successfully build a quality, long-term manganese operation

Activity – Next 6 Months	CY2022		CY 2023	
	Q3	Q4	Q1	Q2
89 hole, ~3,000m Infill Drilling Program at Jay-Eye And Karen				
Updated Oakover Mineral Resource Estimate				
Concentrate test work – DMS and Ore Sorting				
High Purity Manganese Sulphate – Hydrometallurgy test work				
Environmental Baseline Surveys				
Feasibility Study				



THANK YOU

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