ASX ANNOUNCEMENT
30 November 2023

CHINA-BASED BATTERY GRADE MANGANESE SULPHATE AND LMFP BUSINESS UPDATE

HIGHLIGHTS

Following excellent results from the China-Based Battery Grade Manganese Sulphate Scoping Study, which demonstrated the potential of a very competitive low-cost CAPEX and OPEX operation, Firebird continues to efficiently progress key activities in China, which include the following:

- **Establishment and registration of the Company's Chinese subsidiary, which has been named Hunan Firebird Battery Technology Co Ltd**
  - Appointment of highly regarded and leading Manganese sulphate specialist Mr Zhou Qiyun as Chief Operating Officer (COO)
  - Key research & development, operational & administration personnel appointed, with the team to be led by Mr Zhou
- **Advanced and commercialised crystallisation technology secured, providing a key operation and cost advantage for Firebird**
  - Agreement to use patented technology entered into with Hunan Yuxiong Technology Co., LTD company, which is controlled by Mr Zhou
  - 5th generation technology is proven, in operation at other China-based plants and enables significant energy cost reductions for MnSO4 production
- **Pre-Feasibility Study (PFS) commenced, with excellent progress being made**
  - Experienced PFS & engineering design experts appointed
  - Preliminary engineering design & PFS expected to be completed in late Q1 2024
- **Research & Development (R&D) lab, including pilot plant design complete**
  - Procurement of all major equipment underway and Plant scheduled to be in operation in early Q1 2024
- **Ongoing discussions to finalise potential plant site nearing completion**

Advanced Manganese developer **Firebird Metals Limited (ASX: FRB, "Firebird" or "the Company")** is pleased to provide a progress update on its China-based Manganese Sulphate and Lithium Manganese Iron Phosphate **(LMFP)** battery strategy.

The recently completed in-house China-based Battery Grade Manganese Sulphate Scoping Study validated Firebird's focus to produce battery grade manganese sulphate in China, with impressive results highlighted by a **strong projected NPV of approximately US$331M, low-cost total capital expenditure of approximately US$82.3M, an internal rate of return of 47% and a payback period of less than two years.** (See ASX announcement: Excellent Results from China-Based MNSO4 Scoping Study, 21November 2023).

Since announcing the next phase of strategic growth in early September 2023, Firebird has moved quickly to assemble its in-country team and commence key workstreams, as the Company continues to work towards becoming a near-term producer of battery-grade manganese sulphate in China.

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Technical & Operational Team

Firebird has made its first major team appointment for its Chinese subsidiary, Hunan Firebird Battery Technology Co Ltd, with Mr Zhou Qiyun agreeing to join as Chief Operating Officer (COO).

Based in China, Mr Zhou is a highly regarded and leading MnSO4 expert, who has spent majority of his career across the development, optimisation and commercialisation of technologies for MnSO4 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 MnSO4 plant and has consulted to a large number of existing MnSO4 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.

As part of Mr Zhou joining Hunan Firebird Battery Technology Co Ltd, he has introduced several other technical experts, who also bring Mn3O4 process technology experience, to consult to and work for Hunan Firebird Battery Technology Co Ltd. The establishment of a leading, high-purity manganese team, places Firebird in a strong position to execute on a busy 12-month work program in China and ensure the level of experience required is in place to grow into a high-purity manganese producer.

The key near-term objectives for Mr Zhou and his team will be:

- Manage the setup of Firebird's R&D centre
- Assisting in the PFS process
- Provide the technical process flow sheet for MnSO4 & Mn3O4 and engineering design
- Ongoing development of new products for manganese rich PCAM materials, with a key focus on LMFP commercialisation
- Construction of the plant, sourcing equipment and operational production management once the plant is operational

Advanced Crystallisation Technology Secured for China Operation

Product quality and cost efficiency remain key focus areas for Firebird in developing a competitive, long-term high-purity manganese operation. The Company announced attractive low CAPEX numbers in the recent China-based Battery Grade Manganese Sulphate Scoping Study, however, remain focused on developing further cost advantages to operate further down the cost curve.

To support the development of a low-cost, high-margin operation, Firebird has secured Mr Zhou's energy saving technology patent. Mr Zhou has sold & installed this technology, which is currently in it's 5th generation, across all generations there are approximately 20 plants using the technology.

The patented 5th generation has being used in one operation in China, with the technology equipment currently being fabricated to be installed in another two MnSO4 factories.

The success of this technology derives from the utilisation of residual heat from the initial crystallisation process, to recycle and preheat solution feeding into crystallisation process, which ultimately leads to energy consumption of around 1/10th of existing standard crystallisation plants.

Mr Zhou also agreed that Firebird can use other patents & inventions which he is the owner/inventor or part owner/inventor. In securing Mr Zhou's leading patented technology, Firebird has entered into a head of agreement with Mr Zhou on the terms set out in Appendix A

Pre-Feasibility Study Underway and Leading Engineering Group Appointed

The China-based manganese sulphate Pre-Feasibility Study (PFS) is underway including preliminary engineering design, with the Company already making excellent progress on several key activities.

Firebird has appointed Hunan Chemical Engineering Design Institute (HCEDI) to complete key PFS workstreams. HCEDI will be responsible for all engineering design work & permitting documents.

HCEDI has more than 60 years' experience across all facets of engineering work, including consulting, design, survey, supervision and general contracting of engineering construction.

HCEDI has a team of more than 200 engineering and technical personnel and is seen as one of China's leading specialist engineering firms, having completed work on several previous manganese sulphate plants. HCEDI has successfully designed 3 MnSO4 plant that are currently in operation.

Firebird expects the PFS to be completed by the end of Q1 2024.

Figure 1: HCEDI and Hunan Firebird Battery Technology staff including Mr Zhou

R&D Lab progress

The Company is making strong progress on the development of the R&D lab. The design layout of the lab is now complete and all specialised equipment is being ordered.

Firebird expects the lab to be operational in January 2024. Initially the lab will produce samples for MnSO4 & Mn3O4 for potential customers and for PFS work.

Plans to complete testing on several other potential manganese rich PCAM materials is underway and expected to be produced soon after. The R&D centre costs are on time and budget.

Plant Location Site

The Company has carried out extensive due diligence on possible factory locations within China, visiting 10 industrial park sites in different provinces.

Firebird has considered various facets of the Manganese Sulphate and LMFP battery strategy when visiting these industrial parks, including availability of sulphuric acid, steam, key reagents, proximity to customers, transportation routes, factory residue consumers and the ability to accommodate future expansion plans. The Company will announce is preferred location during the PFS study.

Commenting on the strong progress being made in China, Firebird Managing Director Peter Allen said, *"I would like to welcome Mr Zhou to the Firebird team and along with Executive Director and CFO Wei Li, look forward to working closely with Mr Zhou as we continue to progress our China LMFP battery strategy.*

To attract someone of the calibre and experience of Mr Zhou is an excellent result for Firebird and shows that we have established the right strategy and platform for success in China to build a tier-one, high-purity manganese sulphate operation. The significant value that Mr Zhou's will bring to the Company, his knowledge of manganese sulphate production and his patented and proven technology processes, truly elevates Firebird China based manganese sulphate plant aspirations to a world class level.

"We continue to make excellent strides with our LMFP battery strategy and look forward to executing a busy 12-month work program, which once completed, will place the Company in a strong position to grow into a near-term producer of battery-grade high-purity manganese sulphate."

This announce has been approved for release by the Board.

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Appendix A

Mr Zhou (including his Company) and Firebird have entered into a Binding Heads of Agreement to grant Firebird an exclusive licence to use Mr Zhou and his company's technology, including for the purpose of producing manganese sulphate, manganese oxide and LMFP (Lithium Manganese Iron Phosphate) P-CAM, the exclusive license includes key patents and intellectual property.

Terms include A$100,000 cash on signing and A$500,000 paid in FRB shares within 30 days of signing.

A further A$2,500,000 equivalent to be converted into Chinese subsidiary "Hunan Firebird Battery Technology Co Ltd " shares on successful completion of the following key performance indicators;

a) Completion of China Based Battery Grade Manganese sulphate PFS;
b) Set up and running of Chinese Pilot Plant and R&D centre:
c) Final Investment Decision made by Firebird Metals Board of Directors on China Based Battery Grade Manganese sulphate plant; and
d) Agreed production levels achieved

It is expected that Mr Zhou holding in Firebird's Chinese subsidiary, Hunan Firebird Battery Technology Co Ltd post full construction investment will be in the order of approximately 1-2%.

About Firebird Metals Limited

Firebird Metals is a manganese developer focused on its advanced, 100% owned project portfolio, located in the renowned East Pilbara manganese province of Western Australia. The portfolio boasts a total Resource of 234Mt, with exciting exploration and development growth upside.

The Company's flagship Oakover Project holds a Mineral Resource Estimate[1] of 176.7Mt at 10% Mn, with 105.8Mt in an Indicated category. A Scoping Study completed by Firebird at Oakover highlighted the outstanding long-term potential of the Project as a manganese operation. This potential was further strengthened through production of >99.8% purity manganese sulphate monohydrate crystal, which confirmed Oakover manganese ore can be processed into battery grade HPMSM.

The Company's other key Projects are Hill 616 and Wandanya which provide Firebird with compelling growth opportunities.

Hill 616 contains an Inferred Mineral Resource[2] of 57.5Mt @ 12.2% Mn and shares similar geological traits to Oakover. Wandanya is a high-grade exploration opportunity, with Direct Shipping Ore potential.

Importance of manganese within EV's, due to its cost reduction abilities without reducing energy density and range, along with growing demand for battery grade manganese sulphate, highlights the critical need for projects like Oakover to become operational mines. With a limited number of advanced ASX manganese developers, Firebird is in a strong position to develop Oakover and supply a high-quality product into a growing and supply-constrained market.

The Company is committed to generating sustainable long-term value and growth for stakeholders, through the implementation of best practice exploration methods while prioritising the well-being, health and environmental protection of its employees and communities it operates in.

JORC Compliance Statement

This announcement contains references to Exploration Results and Mineral Resource Estimates, which have been extracted from previous ASX announcements as referenced. For full details of Exploration Results and Mineral Resource Estimates in this release that have been previously announced, refer to those announcements.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the said announcements, and in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

[1] For full details refer ASX announcements dated 10/3/2022 and 23/3/2023

[2] For full details refer ASX announcement dated 1/12/2021