



Australia's First LFP Battery Cathode Project Corporate Presentation

March 2023

ASX: AEV

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Compliance Statement

Information in this document relating to Exploration Results or estimates of Mineral Resources has been extracted from the reports listed below. The reports are available to be viewed on the company website at: www.avenira.com

14 October 2022: 2022 Annual Report Amendment

31 January 2023: December 2022 Quarterly Activities Report

Avenira confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Avenira confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement. The information in this report that relates to Wonarah Mineral Resources has been compiled by Jonathon Abbot, a Competent Person who is a Member of the Australian Institute of Geoscientists.



Disclaimer (con't)

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Cautionary and Forward-Looking Statements

The LFP Scoping Study referred to in this announcement has been undertaken to determine the economic and technical feasibility of an LFP Plant constructed in Darwin, and to reach a decision to proceed following more feasibility studies. The Scoping Study has been prepared to an accuracy level of -30% to +40% accuracy.

The LFP Scoping Study is based on material assumptions outlined elsewhere in this announcement ("Study Parameters"). These include assumptions about the key commercial terms of potential offtake arrangements, future commodity prices, technology licencing arrangements, property leasing arrangements, etc. While Avenira considers all the material assumptions contained within the LFP Scoping Study to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes put forward by the LFP Scoping Study will be achieved. The Study Parameters have been disclosed to provide investors with an intended scale and nature of the Project.

The LFP Scoping Study referred to in this announcement has been undertaken to assess the technical and financial viability of the Project. Further evaluation work, including a Bankable Feasibility Study ("BFS") is required before Avenira will be able to provide any assurance of an economic development case. Avenira has concluded there is reasonable grounds for providing the forward-looking statements included within this announcement and that there is a reasonable basis to expect it will be able to fund the development of the LFP Project. Investors should not make any investment decisions based solely on the results of the LFP Scoping Study. While Avenira considers all of the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by this LFP Scoping Study will be achieved.

To achieve the range of outcomes indicated in the LFP Scoping Study, additional funding in the order of A\$180m and A\$527m for a 10,000tpa and 30,000tpa scale plant, respectively, will be required.

Investors should note that there is no certainty that Avenira will be able to raise funding when needed. It is possible that such funding may only be available on terms that dilute or otherwise affect the value of existing shares of Avenira. It is also possible that Avenira may pursue other value realisation strategies such as sale, partial sale, or joint venture of the project. If it does, this could materially reduce Avenira's proportionate ownership of the LFP Project.

The Company has concluded it has a reasonable basis for providing the forward-looking statements included in this announcement and believes that it has a reasonable basis to expect it will be able to fund the development of the LFP Project. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the LFP Scoping Study.

This announcement contains certain financial measures relating to the LFP Scoping Study that are not recognised under International Financial Reporting Standards (IFRS). These metrics include (but are not limited to) Net Present Value (NPV), Internal Rate of Return (IRR) and EBITDA. Although the Company believes these measures provide useful information about the financial forecasts derived from the LFP Scoping Study, they should not be considered in isolation or as a substitute for measures of performance or cash flow prepared in accordance with IFRS. As these measures are not based on IFRS, they do not have standardised definitions and the way the Company calculates these measures may not be comparable to similarly titled measures used by other companies. Consequently, undue reliance should not be placed on these measures.

This presentation has been authorised for release by the Board of Avenira.



Company Overview



Avenira is a battery cathode and fertiliser focused project developer, aiming to supply premium quality products into the electric vehicle, agricultural and industrial chemical markets.

By establishing a local, integrated supply chain, Avenira will sell critical high-value products into the **electric vehicle**, **agricultural** and industrial chemical markets.

Avenira is targeting the production and sale of **THREE** highly valuable product streams:

 Direct Shipping (**DSO**) Phosphate, to supply into the fertilizer markets and for TPA production;

- 2. LFP Cathode Active Material (**LFP**); and
- 3. Thermal Grade Phosphoric Acid (**TPA**).



Corporate Snapshot



Board of Directors



Brett Clark Executive Chairman

Engineer and Investment Banker with +30 years of Board and Senior Management/ Executive experience. Extensive exposure to financial/capital markets, project development and operations having previously worked in senior management and/or board roles with Rio Tinto, WMC Resources, Barrick Gold/ Antofagasta and Mitsubishi Development/ Murchison Metals in a variety of commodities including Iron Ore, Gold, Copper, Coal, Graphite, Nickel, Cobalt, Potash, Phosphate and oil and gas.



Kevin Dundo Non-Executive Director

Practicing lawyer, specialising in commercial and corporate law and in particular, mergers and acquisitions, with experience in the mining services and financial services industries. Chairman of Red 5 Limited (ASX:RED).



Winnie Lai Hadad Non-Executive Director

Australian qualified lawyer and a CPA. Established history of engagement between China based entities and Australian mining projects.



Dr Geoffrey Xue Non-Executive Director

PhD & Masters in Economic Geology. Experienced mining and investment banker in Australia. Significant experience in gold project development. Currently the Project Manager at Anova Metals Ltd.



Roger Harris Non-Executive Director

B App Science. Founding director / owner of a large service-based company with branches in Western Australia and SE Asia. Operates a family office for 30 years investing in the natural resources sector.



Senior Management Team



Steve Harrison **Chief Geologist**

Mr Harrison has extensive experience across multiple commodities and varied parts of the geological "supply chain". Senior roles have been held within Newmont, BHP and MZI (now Doral). Steve completed a B.Sc. (Hons) at Curtin University and an MBA at UWA.



Brian Campbell Project Director - DSO, LFP/TPA

Mr Campbell has deep experience leading engineering teams specialising in phosphate projects for global engineering organisations. Companies include Worley (Director Mined Fertilizers), Advisian (Strategy Consultant), BHP and Thyssenkrupp



Capital Structure	
Shares on issue (ASX:AEV)	1,245M
Listed Options	145M
Unlisted Options	160M
Top 20 Shareholders (10 February 2023)	~21%
Market Capitalisation (2 March 2023)	A\$17.4M
Market Capitalisation – Fully Diluted (2 March 2023)	A\$21.7M
Cash (31 December 2022)	A\$1.4M
·	

Capital Structure

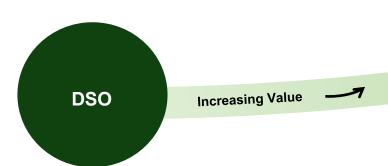
Debt (31 December 2022)

A\$3.0M

Our Value Creation Strategy

Avenira is aiming to become one of the first worldscale LFP producers outside of China, Taiwan and

Japan



Potential for DSO Phosphate

- Offtake negotiations to sell Wonarah Minerals for regional TPA and fertiliser production
- Feasibility Study and Mine Management plan close to finalisation
- Existing mining and transportation infrastructure available

LFP Project Development

Develop LFP Project

- Scoping Study completed
- Strategic Partnership with Aleees
- Advancing discussions with stakeholders
- Advance financing discussions



Expansion

Increasing Value Expansion Plans¹

Scope to expand LFP manufacturing capacity in phases:

- Phase 1 10,000 tpa
- Phase 2 30,000 tpa

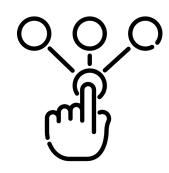
Avenira intends to initially develop the LFP Plant as a standalone project, with feedstock (including TPA) secured from third party providers. The details of the phased capacity program should not be construed as production targets, as further work is required to determine whether there is a reasonable basis for AEV to expect it can extract commercially sufficient high grade phosphorous from the Wonarah project for the LFP plant to achieve those phases.

Avenira's Value Proposition





One of Australia's Largest High-Grade Phosphate Mineral Deposits¹



Optionality to build either TPA³, LFP or both plants to capitalise on the LFP battery or industrial market



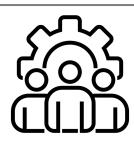
Close Proximity to Rail and Road Infrastructure



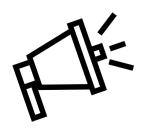
Competitive renewables (solar and wind) and gas pipeline



Strong Government² support to develop a Battery Supply Chain and Project in N.T.



Strong team of project development managers, advisors, and contractors



Strong pipeline of news flow expected over next 12-18 months



Primed to be a significant LFP producer globally with a derisked 4th Aleees technology plant

¹ See Avenira ASX Announcement 14 October 2022

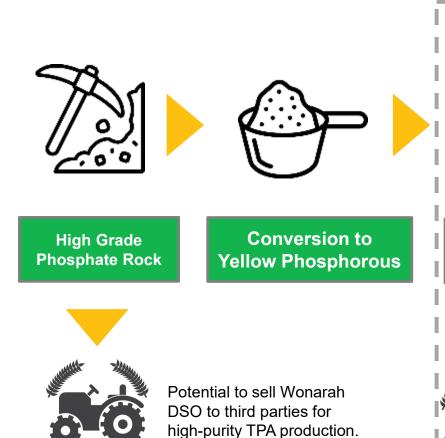
² See Avenira ASX Announcement 23 September 2022

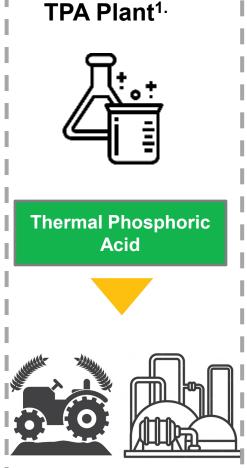
² Avenira intends to initially develop the LFP Plant as a standalone project, with feedstock (including TPA) secured from third party providers and further work is required to determine whether there is a reasonable basis for AEV to expect it can extract commercially sufficient high grade phosphorous from the Wonarah project for the LFP plant.

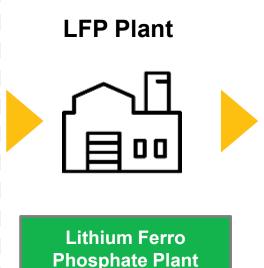
Project Integration Pathway



Avenira's Wonarah Project can¹ supply a steady source of high-grade Phosphorous, an essential precursor for LFP Battery Cathodes and a high value input into agriculture

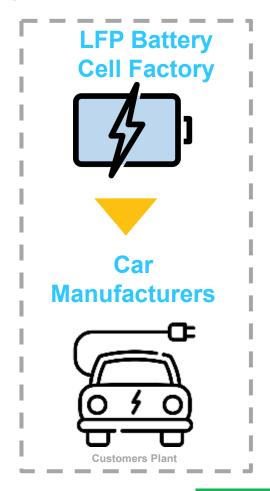






Avenira is proposing to initially source TPA from third party producers.

The TPA plant will provide Thermal Grade Phosphoric Acid to the LFP Plant, and Food Grade acid to **food and industrial chemical markets.**



¹ Avenira intends to initially develop the LFP Plant as a standalone project, with feedstock (including TPA) secured from third party providers and further work is required to determine whether there is a reasonable basis for AEV to expect it can extract commercially sufficient high grade phosphorous from the Wonarah project for the LFP plant.





Wonarah DSO Project

Wonarah Deposit and Mineral Resource



Wonarah has one of the largest Phosphate resources in Australia¹



Significant Phosphate Resources

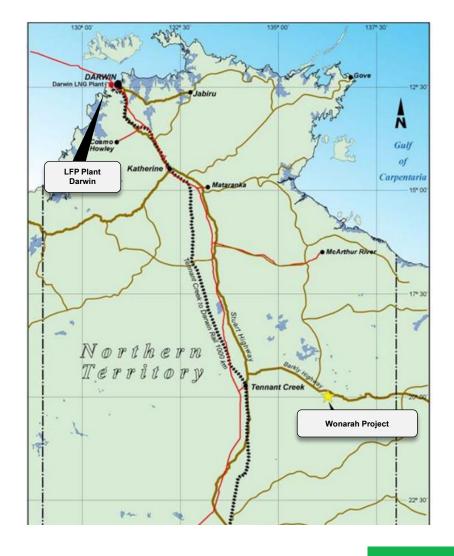
Total Resource 533Mt $(15\% P_2O_5 \text{ cutoff grade})^2$

- Measured Resource of 64.9 Mt @ 22.4% P₂O₅
- Indicated Resource of 133 Mt @ 21.1% P₂O₅
- Inferred Resource of 335 Mt @ 21% P₂O₅



Access to existing Infrastructure

- Access to established bulk commodity port at Darwin
- Adjacent to priority highway Barkly Highway
- Proximity to railway with spare freight capacity Tennant Creek to Darwin
- Natural gas pipeline adjacent to Wonarah tenements
- Highly suitable for solar energy, located in Australia's highest photovoltaic region
- Northern gas pipeline runs through the project area



¹ Source: https://www.ga.gov.au/digital-publication/aimr2021/commodity-summaries#potash-section

²Source: See Avenira ASX Announcement 14 October 2022

Wonarah DSO Project Update



Offtake negotiations progressing with regional TPA and fertiliser producers¹



Feasibility Study well advanced, pending the results of a proposed trial test pit



Approvals and **Mine Management Plan** well advanced



Existing Near-New Mining Camp on site



Road, Rail Haulage and port handling price negotiations nearing completion



Negotiations with Traditional Landowners are well advanced

¹ **Note:** While discussions on potential offtake are progressing well, there is no assurance that these discussions will result in a binding offtake agreement.







LFP Project

What is LFP Cathode Active Material?



Cathode Active Materials (CAM) are high purity chemicals that distinguish the application and output of different types of Lithium-ion batteries



LFP Cathode Active Material Powder





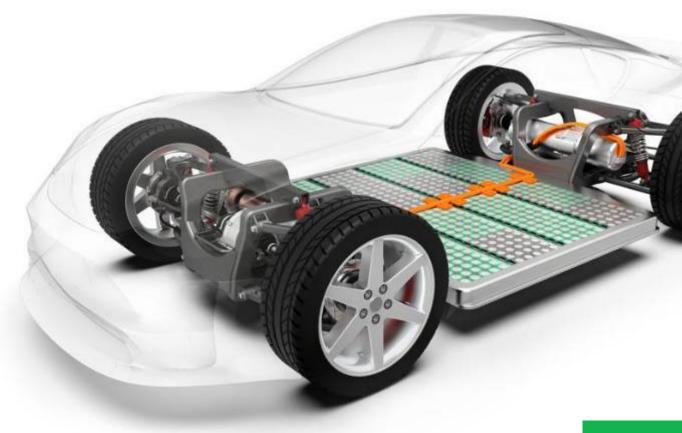
- Battery cell manufacturers are currently facing unprecedented demand for Lithium-ion batteries, with demand expected to grow exponentially over the next decade¹
- □ Cathode active materials within electric batteries determine the cost, durability, safety, efficiency and overall performance of Lithium-ion batteries
- Over the next decade two types of cathode active materials are expected to dominate the electric vehicle and renewable energy storage markets:
 - Lower priced density, LFP CAM
 - ☐ Higher energy density, **NCM CAM**
- In August 2022, UBS raised its outlook for LFP share of the global battery cathode market to 40% by 2030¹

Emergence of LFP Batteries



LFP is rapidly growing as the battery chemistry of choice for electric vehicles and stationary storage

- ✓ Lower Cost: low cost, surging nickel and cobalt prices
- ✓ **Safety:** safe, low toxicity and thermal stability, no fires
- ✓ Reliability: well-defined performance, longer life cycle
- ✓ Performance: long-term performance stability, higher discharge rate
- ✓ Faster Charge: cycle life for LFP batteries is significantly higher than other lithium ion batteries
- ✓ Light Weight: superior power-to-weight ratio, smaller battery packs
- Ethically Sourced: does not contain conflict metals, such as Cobalt
- ✓ Recyclable: Nickel and Cobalt-free, recycling friendly
- ✓ **Less Maintenance:** no memory effect from incomplete discharge before re-charging

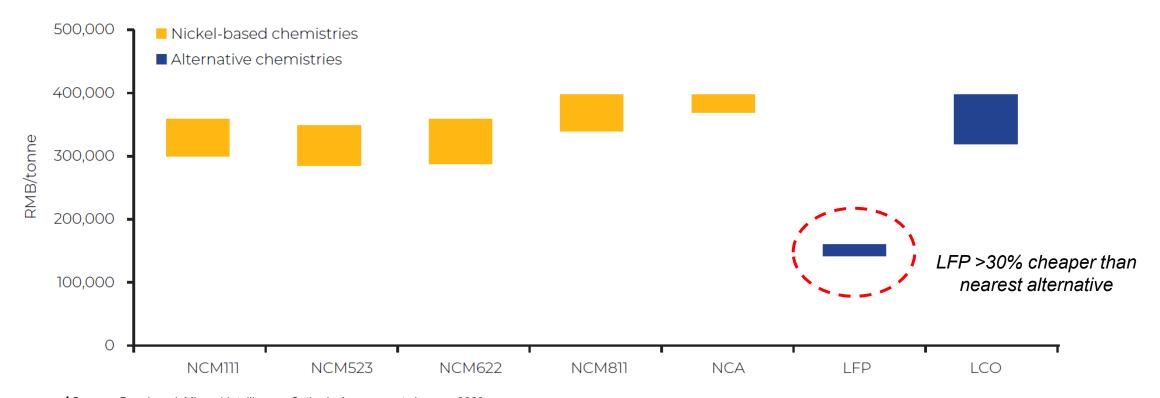


Market Shift in Preferred Chemistries



Superior cost structure, safety characteristics and an improving driving range are the key factors propelling the markets rapid adoption of LFP, displacing other battery chemistries

Price Ranges: Cathodes Mid-Dec 2022 to Mid-Jan 2023¹

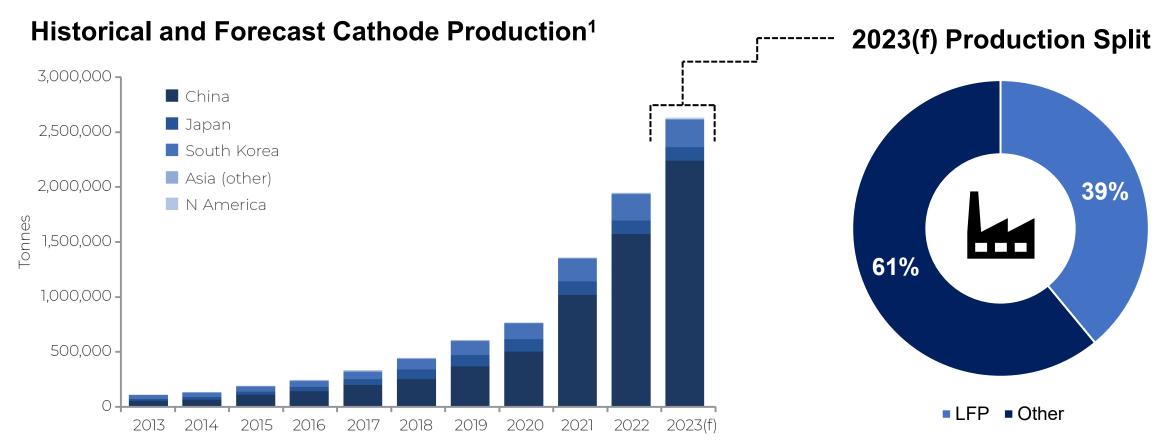


¹ **Source:** Benchmark Mineral Intelligence Cathode Assessment, January 2023

Investment into LFP Cathode



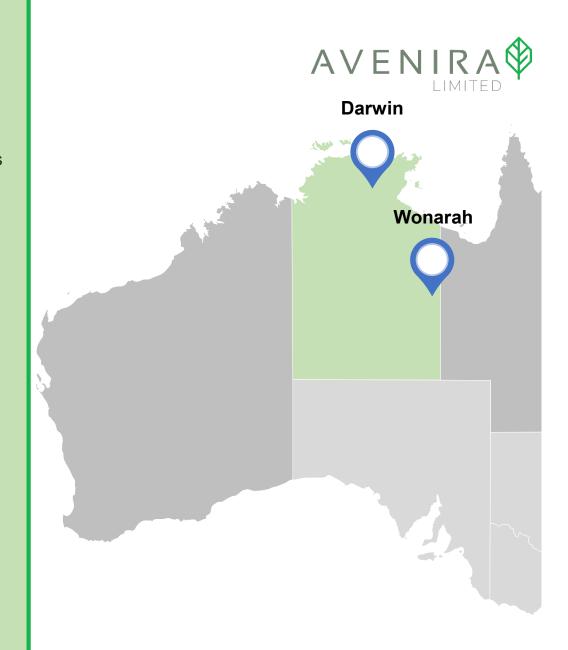
Surging demand for cathodes continues to spur investment into new production capacity, with 74% of all plants under construction targeting the production of LFP cathode, reflecting the direction of the market



¹ Source: Benchmark Mineral Intelligence Cathode Assessment, January 2023

LFP Scoping Study

- ✓ Scoping Study confirms the **technical and commercial potential** of an LFP Plant to be based in Darwin, Australia
- ✓ Modular plant design enables flexibility to scale and fund the project in stages.
- ✓ Economics of the project have been considered at two scales of production:
 - ✓ One-train plant, 10,000tpa
 - ✓ Three-train plant, 30,000tpa
- ✓ Design and flowsheet based on our technology partner, Aleees' operating plant in Taiwan, **derisking the project**
- ✓ Standalone project, with **optionality to later use phosphate rock from** our 100% owned Tier-1 **Wonarah** deposit
- Exposure to Lithium prices. Cost plus margin pricing structure provides positive exposure Lithium prices, the largest cost component of LFP CAM
- ✓ Alignment With Offtake Partners. Australian sourced and produced LFP cathode product provides a commercially viable alternative to Chinese supply
- ✓ Trialed and Proven Process Design utilising Aleees' proprietary technology and flow sheet, based on Taiwanese operating plant, significantly derisking the project
- ✓ Strong Government Support from the Northern Territory State Government, with discussions continuing to progress



Results: Lithium Upside, Scalability



The economics of the LFP Project has been considered at two scenarios, a one-train plant with capacity of 10,000tpa and a three-train plant with capacity of 30,000tpa, under both spot and forecast Lithium prices

One-train

10,000tpa



Three-train

30,000tpa

Base Case

NPV_{10%} IRR Cashflow

\$138M

Net Present Value Post tax 22.0%

Ungeared, Post Tax

Total Free

\$682M

Undiscounted Free Cashflow Upside Case - USD\$80,000/t LiOH & Li₂CO₃

NPV_{10%}

\$548M

Net Present Value Post tax

\$1,640M

Net Present Value

Post tax

IRR

44.2%

Ungeared. Post Tax

Total Free Cashflow

\$1,772M

Undiscounted Free Cashflow

NPV_{10%}

\$413M

Net Present

Value Post tax

IRR

22.4%

Ungeared,

Post Tax

Total Free Cashflow

\$2,005

Undiscounted Free Cashflow **NPV**_{10%}

45.1%

IRR

Ungeared, Post Tax

Total Free Cashflow

\$5,267M

Undiscounted Free Cashflow

Note: Information presented is based on the Scoping Study for the LFP Cathode Manufacturing Plant Announcement, dated 2 March 2023.

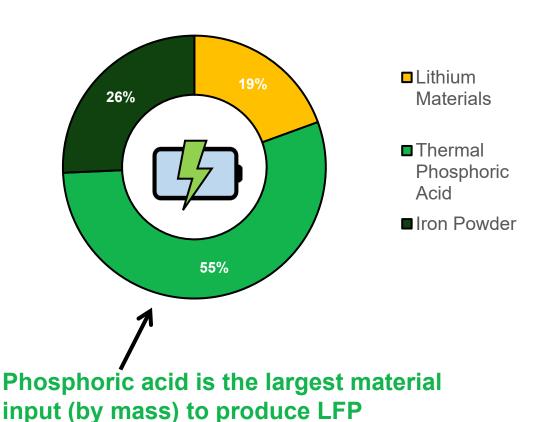
Avenira's Cost and Logistical Advantages AVENIRA



Geographic proximity to the under-supplied raw materials required to produce LFP, enables Avenira to have significant cost and logistical advantages relative to other LFP producers

- Australia supplies approximately 50% of the world's Lithium¹, the largest raw material cost component of LFP. Regional proximity and access to the worlds predominant Lithium producers will facilitate significant transport cost benefits and supply-chain security
- Global supply disruptions in Phosphate markets have driven the price of Phosphate rock to record highs². The Wonarah Project is one of the largest high-grade Phosphate rock deposits in Australia, and can potentially³ provide a **secure supply of feedstock** to a TPA plant (Avenira owned or 3rd party), in turn supplying the LFP Plant
- LFP battery production capacity and intellectual property resides almost exclusively in China (>99% of global LFP). Avenira has partnered with Aleees, for the intellectual property rights to produce LFP in Australia.
- Electric vehicle manufacturers are diversifying their supply chains into non - Chinese jurisdictions, with potential premiums for non-Chinese cathode providers
- In July 2022, the US Inflation Reduction Act was passed, which contained tax credits and incentives to reduce demand for Chinese battery imports, benefitting US trading partners

Components of LFP CAM by Raw Material Mass



¹Source: BBC, "How Australia became the world's greatest Lithium supplier" dated 11 November 2022

² Source: UTS, "Hidden casualty of Russia's war, global phosphorous security" dated 9 June 2022

³ Avenira intends to initially develop the LFP Plant as a standalone project, with feedstock (including TPA) secured from third party providers and further work is required to determine whether there is a reasonable basis for AEV to expect it can extract commercially sufficient high grade phosphorous from the Wonarah project for the LFP plant.

Our Partnership with Aleees



Aleees is only one of three companies outside China with complete LFP cathode manufacturing capabilities, and patents for electric vehicle and stationary storage batteries

- Signed MOU with Aleees providing technology and operational and marketing support.
- Aleees is a pioneer in the battery cathode market, with more than 120 exclusive patents worldwide on various types of products
- Our plant will emulate the process configuration, flowsheet and operations manual of Aleees' LFP plant operating in Taiwan, significantly derisking the development and on-going operations of the LFP Project
- The LFP plant intends¹ to be the third Aleees technology plant and fourth in total after Aleees (Taiwan), FRYER (Norway) and ICL (USA). Being the fourth plant significantly reduces our technical and execution risk.
- □ The selected Aleees Licensed LFP Product is currently sold into electric vehicle (EV) and energy storage (ES) markets to 40 globally recognised name brand customers across Europe, U.S., Japan and Korea

Aleees' Existing Licensees







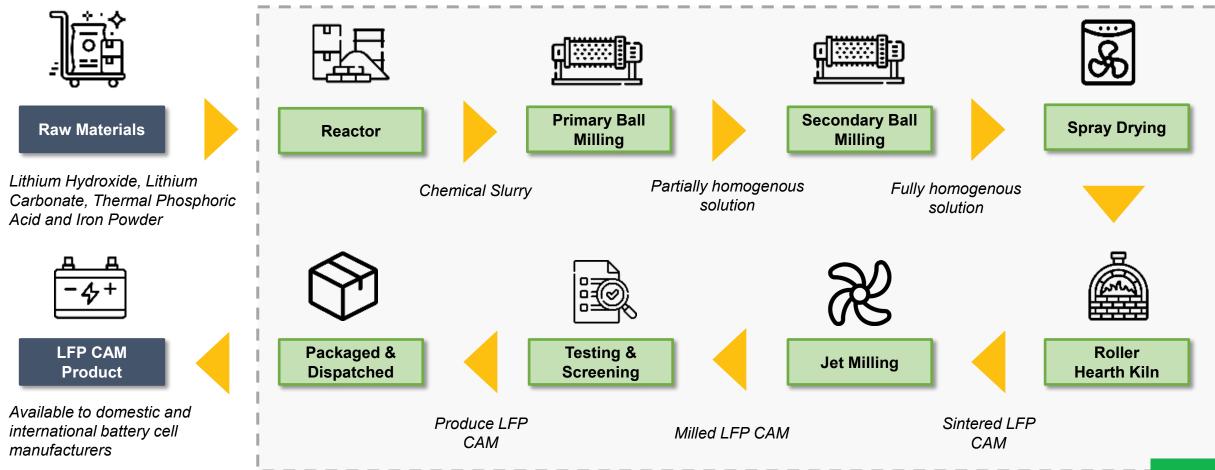


¹ Discussions with Aleees for the right to use its intellectual property to synthesise LFP CAM are ongoing. The LFP Scoping Study has assumed a licence arrangement that is consistent with current negotiations and with the requirements of both parties

LFP Project Process Flow Sheet



Avenira's LFP Plant intends to adopt the patented LFP CAM synthesis process developed by its technology partner, Aleees. The following simplified block flow diagram illustrates the stages of the manufacturing process:



LFP Project Funding Strategy



Avenira aims to secure funding to develop the one-train, 10,000tpa LFP Plant, and subsequently leverage the cash flows generated to finance and develop subsequent trains

- Avenira aims to explore the following sources of capital to finance the one-train LFP Plant:
 - Equity financing via public markets;
 - Commercial debt from banks, credit funds and other sources; and
 - Concessional debt funding from government agencies, including NAIF and EFA.
- Avenira may also consider strategic investments from:
 - □ Strategic offtaker parties, such as battery and car manufacturers seeking to secure LFP cathode materials for the production of LFP batteries; and/or
 - Key raw material suppliers, such as Spodumene and Lithium Hydroxide producers looking for downstream operational exposure to processed materials.

Next Steps



Multiple near-term value drivers and exciting news flow anticipated:

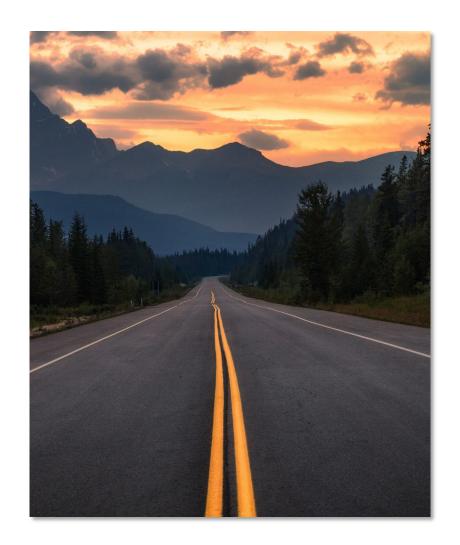
Avenira's Lithium Ferro Phosphate (LFP) Project:

- ✓ advancement of feasibility studies;
- ✓ negotiations with Aleees to progress a binding technology licencing agreement;
- ✓ site selection, permitting requirements and regulatory approvals;
- ✓ product qualification;
- ✓ funding discussions, including engaging with government funding agencies.

"The LFP Scoping Study demonstrates the technical and economic viability of the Company's modular train design to progressively scale production to meet the demand for electric vehicles and stationary storage"

"We look forward to providing shareholders with future updates as we progress"

- Avenira Chairman, Brett Clark





Avenira Limited
ABN 48 116 296 541
www.avenira.com

PO Box 1704 West Perth WA 6872 AUSTRALIA

Media/Investor Queries:
Citadel-MAGNUS
Michael Weir 0402 347 032
Jono van Hazel 0411 564 969

+61 8 9264 7000 | frontdesk@avenira.com