



Australia's Next Phosphate Producer

Australian Potash & Phosphate Conference

22 November 2022

ASX: AEV

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Compliance Statement

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

Wonarah Project

15 March 2013: Technical Report Mineral Resource Estimation for the Wonarah Phosphate Project, Northern Territory, Australia

30 April 2014: Quarterly activities report

14 October 2022: Annual Report Amendment

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 or Ore Reserves, 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.

Wonarah - 400,000T Bulk Sample Project



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 JV in a variety of commodities including Iron Ore, Gold, Copper, Coal, Graphite, Nickel, Cobalt, Potash and oil and gas.



Kevin Dundo
Non-Executive Director

Experienced corporate lawyer with +20 years gold sector experience. Chairman of Red 5 Limited (ASX:RED) and NED of Imdex Ltd.



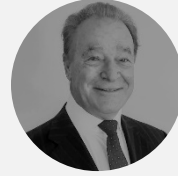
Winnie Lai Hadad
Non-Executive Director

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



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.



Capital Structure

Shares on issue (ASX:AEV)	1,229M
Listed Options	145.0M
Unlisted Options	182.3M
Top 20 Shareholders (30 June 2022)	~30%
Market Capitalisation (21 November 2022)	A\$45.5M
Cash (30 September 2022)	A\$2.1M
Debt (30 September 2022)	A\$3.0M

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. This included roles with Worley as Director Mined Fertilizers, Advisian as a Strategic Consultant and Thyssenkrupp.

Company Overview

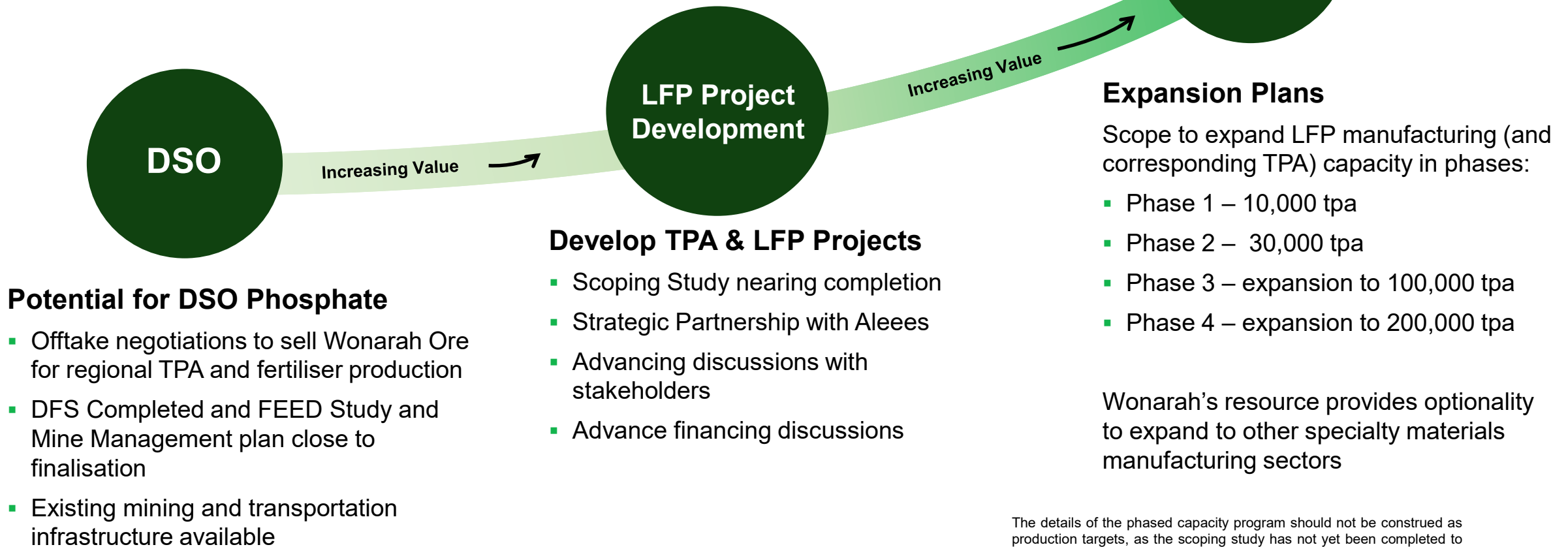
Avenira is a fertiliser and battery cathode focused project developer, aiming to supply premium quality products into the electric vehicle, agricultural and industrial chemical markets.

- ❑ By establishing a local, integrated supply chain, Avenira will sell critical high-value products into the **electric vehicle, agricultural and industrial chemical markets.**
- ❑ Feedstock from the Tier 1 Wonarah Phosphate Project will enable the production and sale of **THREE** highly valuable product streams:
 1. Direct Shipping Ore (**DSO**) Phosphate, to supply into the fertiliser markets and for TPA production
 2. Thermal Grade Phosphoric Acid (**TPA**)
 3. LFP Cathode Active Material (**LFP**)



Our Value Creation Strategy

Avenira intends to leverage its DSO operation to develop an integrated Battery Cathode Project

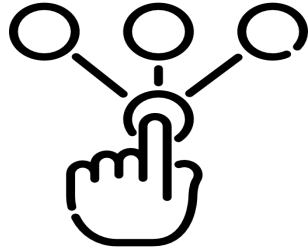


The details of the phased capacity program should not be construed as production targets, as the scoping study has not yet been completed to form the reasonable basis for AEV to expect that it can extract commercially sufficient high grade phosphorous from the Wonarah project for the LFP plant to achieve those phases

Avenira's Value Proposition



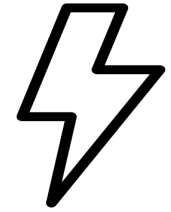
Significant Phosphate Ore Deposits¹



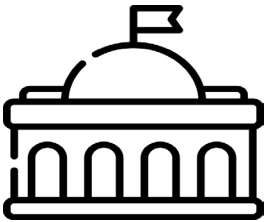
Optionality to build either TPA, LFP or both plants to capitalise on the LFP battery or industrial market



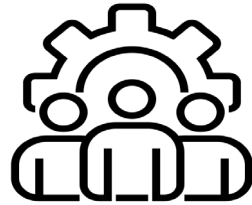
Close Proximity to Rail and Road Infrastructure



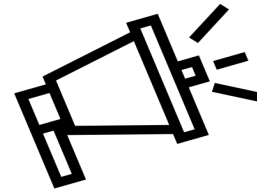
Wonarah Mine located adjacent to gas pipeline for competitively-priced energy to produce TPA



NT Government support² to develop the LFP and TPA projects



Strong team of Management and Advisors



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



Aim to be a significant LFP producer globally

¹ See Avenira ASX Announcement 14 October 2022

² See Avenira ASX Announcement 23 September 2022



Strategy No 1:
**Develop the Wonarah
DSO Project**

Wonarah Deposit and Mineral Resource

Wonarah has one of the largest Phosphate resources in Australia³



Significant Phosphate Resources

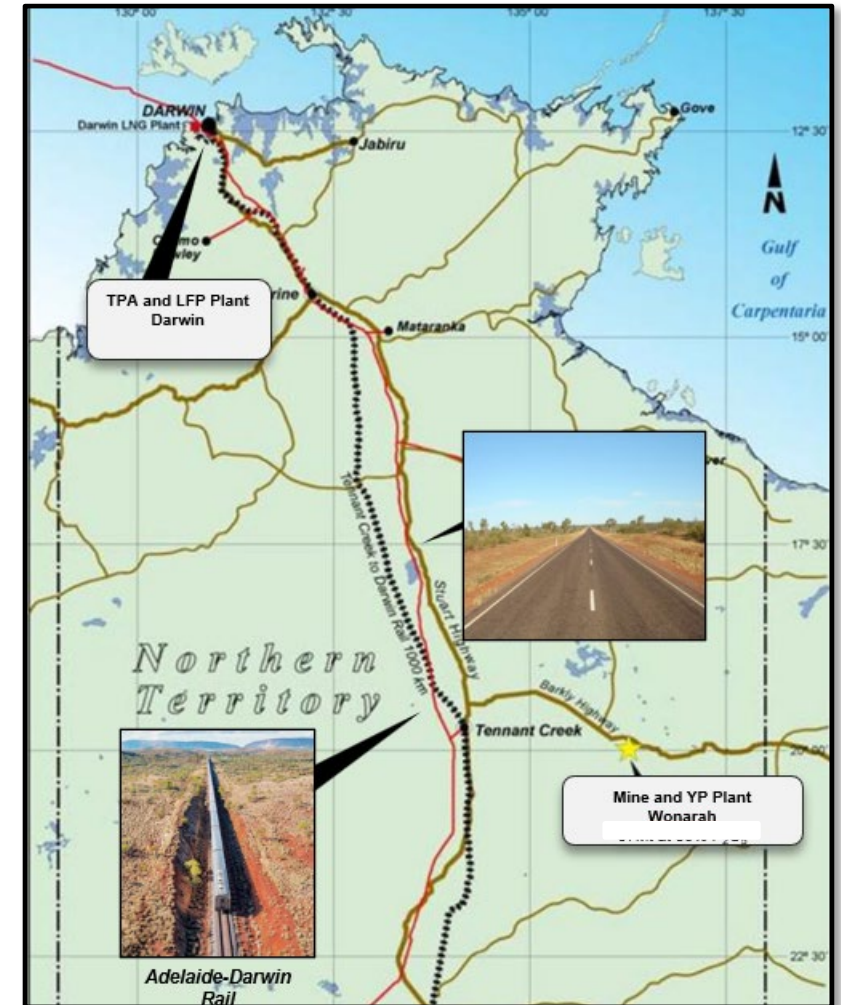
Total Resource 533Mt (15% P_2O_5 cutoff grade)⁴

- Measured Resource of 64.9 Mt @ 22.4% P_2O_5
- Indicated Resource of 133 Mt @ 21.1% P_2O_5
- Inferred Resource of 335 Mt @ 21% P_2O_5



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



³ <https://www.ga.gov.au/digital-publication/aimr2021/commodity-summaries#potash-section>

⁴See Avenira ASX Announcement 14 October 2022

Wonarah DSO Project Update



Offtake negotiations progressing well with regional TPA and fertiliser producers⁵



FEED Study nearing completion, leveraging the original feasibility study completed in 2010



Mine Management Plan nearing completion



Existing Near-New Mining Camp on site



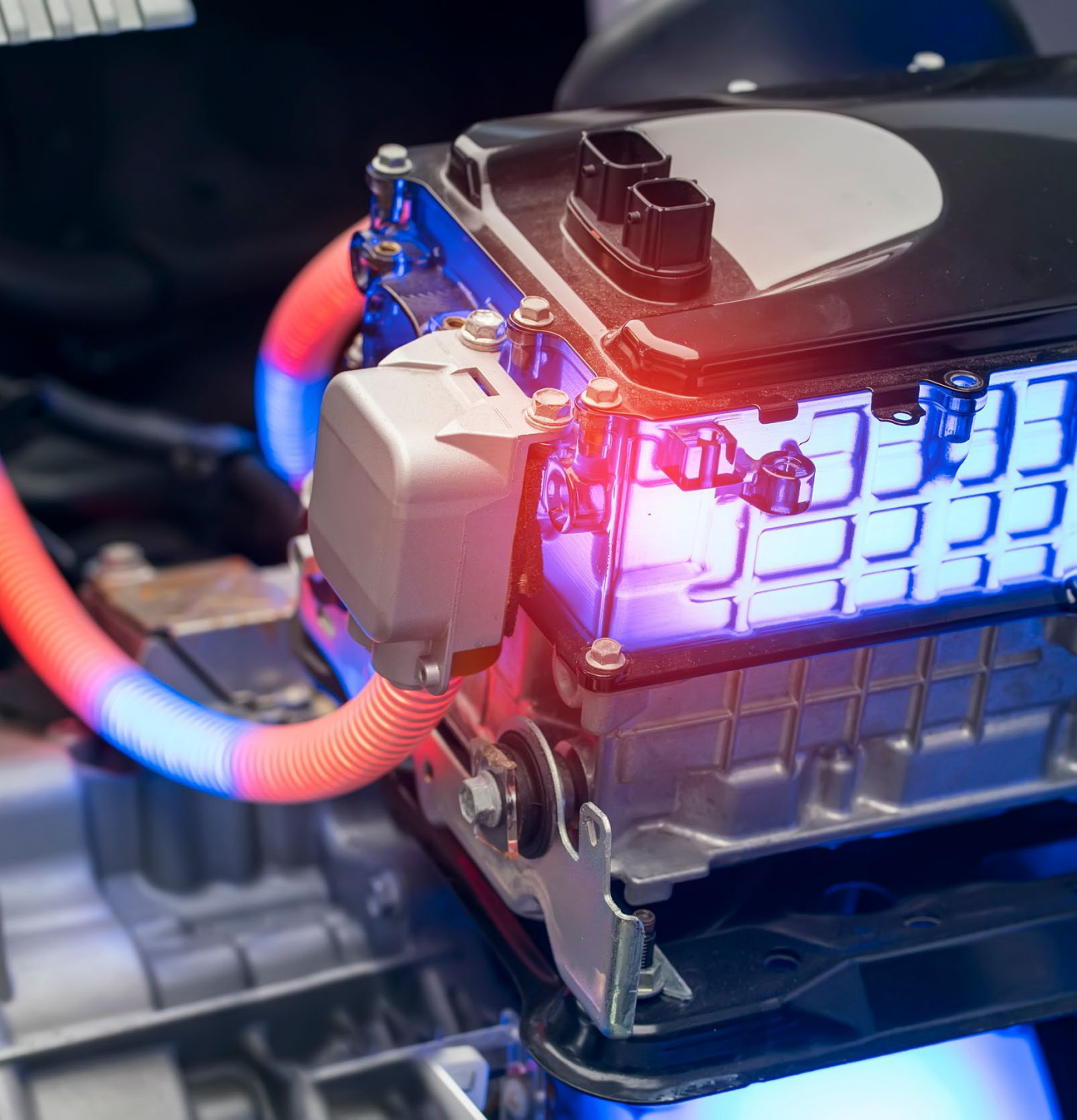
Road, Rail Haulage and port handling price negotiations nearing completion



Negotiations with Traditional Landowners are well advanced

⁵While discussions on potential offtake are progressing well, there is no assurance that these discussions will result in a binding offtake agreement.

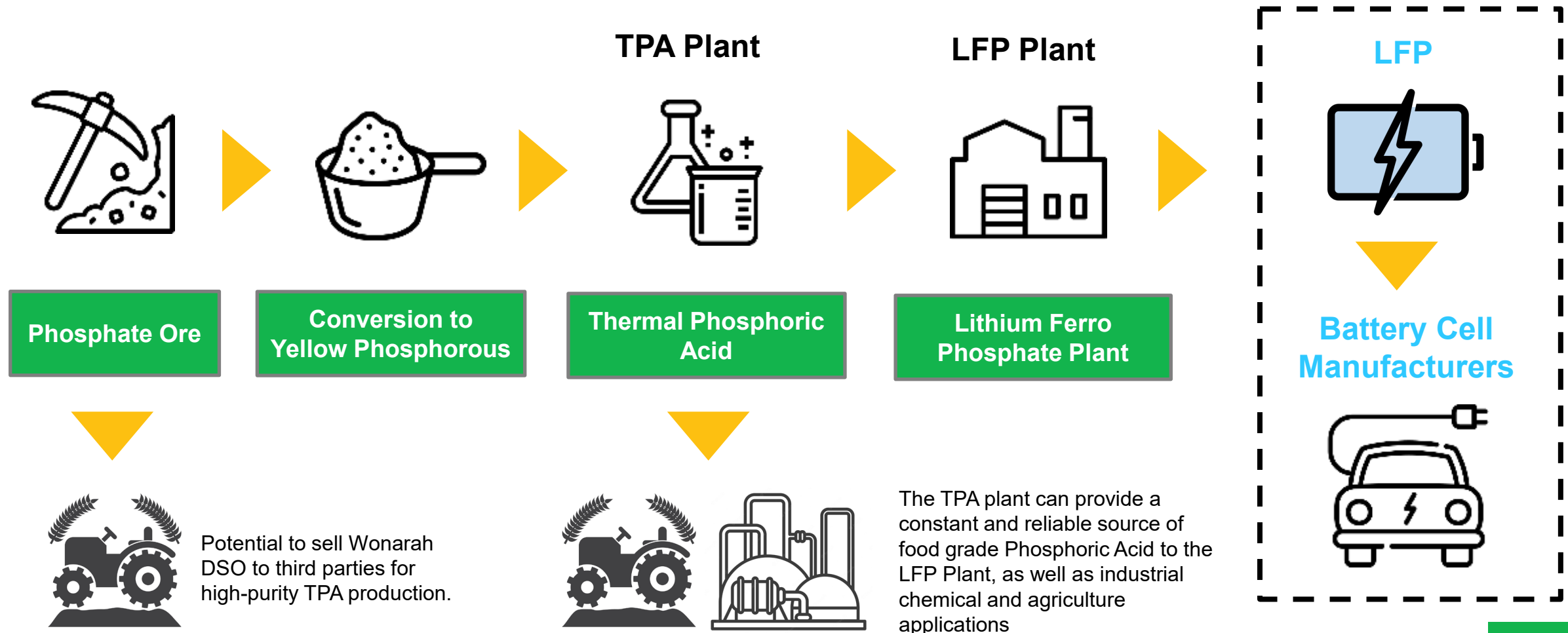




Strategy No 2:
**Develop the LFP Cathode
Active Material Project**

Our Path to LFP Production

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



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

- Battery cell manufacturers are currently facing **unprecedented demand for Lithium-ion batteries**, with demand expected to grow exponentially over the next decade⁶
- **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 energy 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 2030**⁷



LFP Cathode Active Material Powder



and



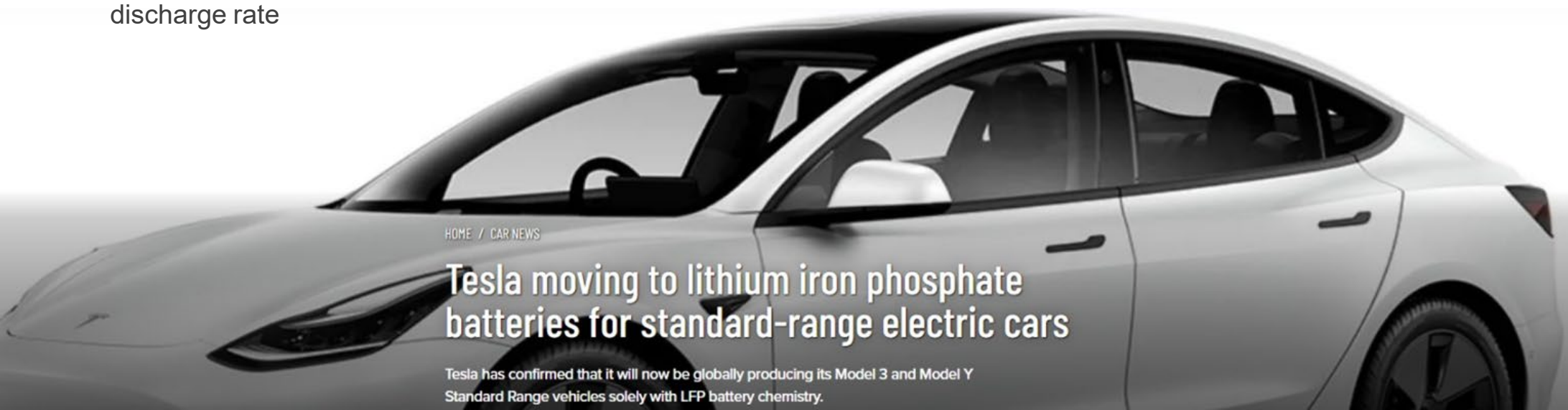
^{6,7}S&P Global: Commodity Insights, “UBS raises LFP global battery market share outlook to 40% by 2030” dated 16th Aug-22

Source: <https://www.spglobal.com/commodityinsights/en/market-insights/latest-news/energy-transition/081622-ubs-raises-lfp-global-battery-market-share-outlook-to-40-by-2030>

The Rise of LFP Batteries

Lithium Ferro Phosphate batteries are growing rapidly in popularity for electric vehicles⁸ and stationary storage

- ✓ **Lower Cost:** low cost, effective vs surging nickel and cobalt prices
- ✓ **Safety:** safe, low toxicity and thermal stability, no fires
- ✓ **Reliability:** well-defined performance, longer life cycle
- ✓ **Energy Density:** four times the energy density of lead acid batteries
- ✓ **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



EV Manufacturers are Shifting to LFP

A desire for more cost-effective and safer battery cells has led major global automakers to turn to LFP as an alternative to standard Nickel-Cobalt-Manganese (NCM) and Nickel-Cobalt-Aluminum (NCA) based cells

- **Tesla** announced in October 2021 that it would be transitioning to LFP battery cells in its standard-range vehicles⁸
- Since then, **Ford, Volkswagen, Mercedes** and other major automobile manufacturers have also stated their intentions to work on implementing LFP cells in their electric vehicle models^{8,9}

Electric Vehicle Manufacturers Transitioning to LFP



Tesla Model III with Lithium Iron Phosphate (LFP) Battery Cell

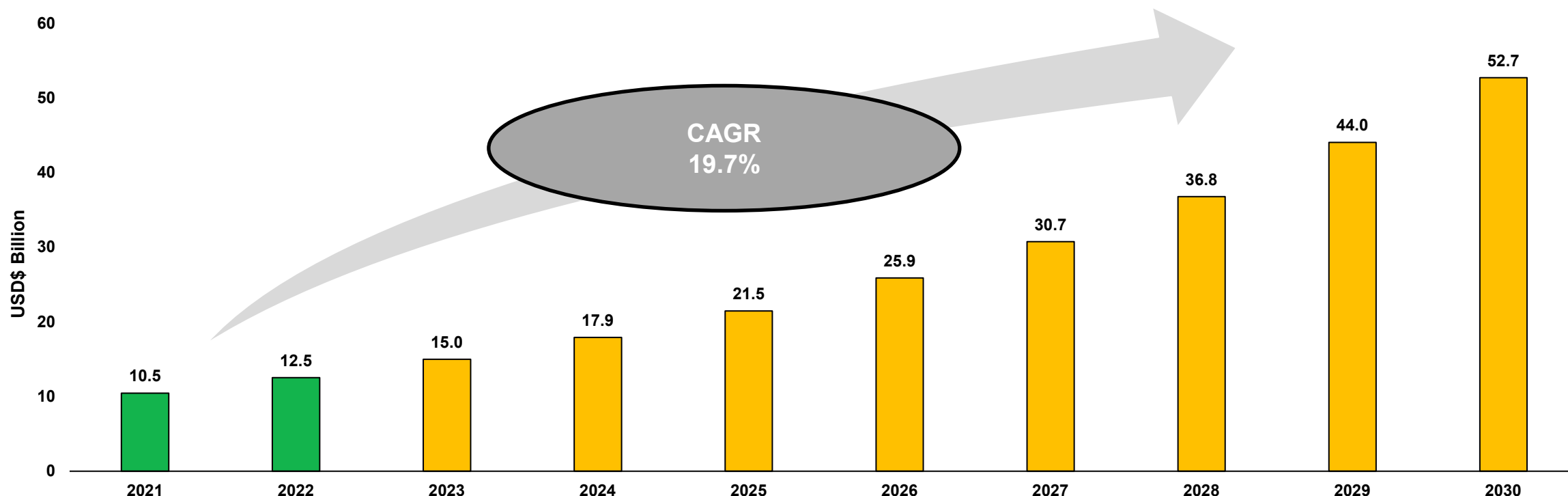
⁸Environmental Leader, "Ford, VW, Tesla Lean in to LFP Battery Technology for EV" dated 3 August 2022
Source: <https://www.environmentalleader.com/2021/08/ford-vw-tesla-lean-in-to-lfp-battery-technology-for-evs/>

⁹InsideEVs, "Mercedes-Benz to Launch LFP-Powered BEVs from 2024" dated 31 October 2021
Source: <https://insideevs.com/news/544432/mercedes-launch-lfp-bevs-2024/>

Strong LFP Market Outlook

Forecast rapid LFP demand growth is likely to see it become one of the dominant Li-ion battery chemistries in the next few years, due to its superior safety and performance characteristics, ESG values and more cost-effective structure.

Global LFP Battery Market Size, 2021 to 2030 (USD Billion)



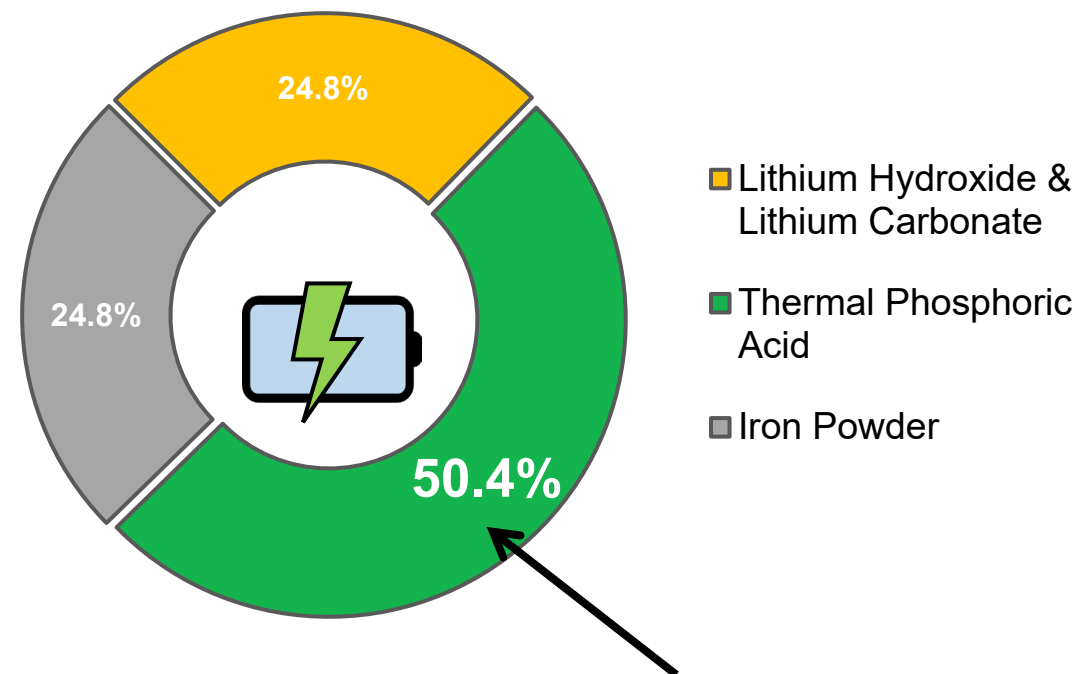
Source: Precedence Research, Lithium Iron Phosphate Battery Market <https://www.precedenceresearch.com/lithium-iron-phosphate-battery-market>

Avenira's Cost and Logistical Advantages

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 Lithium¹⁰, 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 highs¹¹. The Wonarah Project will provide a **secure supply of feedstock** to 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 Volume



Phosphoric acid is the largest material input (by volume) to produce LFP

¹⁰BBC, "How Australia became the world's greatest lithium supplier" dated 11 November 2022, <https://www.bbc.com/future/article/20221110-how-australia-became-the-worlds-greatest-lithium-supplier>; USGS <https://pubs.usgs.gov/periodicals/mcs2022/mcs2022-lithium.pdf>

¹¹UTS, "Hidden casualty of Russia's war, global phosphorus security" dated 9 June 2022 – Source: <https://www.uts.edu.au/news/health-science/hidden-casualty-russias-war-global-phosphorus-security#:~:text=Global%20phosphate%20prices%20have%20spiked,widespread%20pollution%20and%20global%20scarcity.>

Avenira's Relationship with Aleees

- **Advanced Lithium Electrochemistry Ltd (Aleees) is only one of two companies outside China with complete LFP cathode material manufacturing capability and patents for EV and stationary storage batteries.**
- **The MOU establishes Aleees as Avenira's preferred technology partner, with Aleees licensing its technology and providing operational, management, and research and development support for the establishment and operation of the LFP Plants.**

Aleees is listed on the Taiwan Stock Exchange (TWSE: 5227) and is a globally recognised LFP battery material manufacturer

- More than 120 exclusive patents worldwide on various types of LFP products
- 40 global customers across Europe, U.S., Japan, Korea, and Asia, specialising in high-quality, low-cost, and long life-cycle LFP cathode materials

Aleees' Other Partners & Licensees:



Thank you



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Michael Weir 0402 347 032
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