

ASX ANNOUNCEMENT

FOR IMMEDIATE RELEASE TO THE MARKET

Li-S Energy Limited – ASX Code: LIS

Thursday, 31 August 2023

Investor Update presentation

Li-S Energy (ASX Code: LIS) is pleased to provide the following Investor Update presentation to be delivered to investors later today.

This announcement has been made and authorised by the Li-S Energy Board.

For further information contact:

Dr. Lee Finniear
Chief Executive Officer
Li-S Energy Limited
+ 61 (0)7 3054 4555

Investor Update

AUGUST 2023



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Introducing Li-S Energy

- Established in 2019, using technology from over 10 years of development at Deakin University near Melbourne
- IPO in September 2021, raising \$54.0M (incl. \$20.0M in a pre-IPO raise in April 2021)
- Unique patented technology to substantially increase the cycle life of lithium sulfur and lithium metal batteries using Boron Nitride Nanotubes (BNNTs) and Li-nanomesh
- Automated 2MWh production line nearing completion
- 200MWh commercial manufacturing factory being planned – location not determined
- Revenue to come from cell manufacturing, licensing patents and IP, and distributing nanomaterials essential for battery production
- \$33.5M in cash at 30 June 2023



Highlights

- A world leader in commercialisation of next generation lithium sulfur battery technology
- Strong balance sheet supports R&D and scale-up facilities in Geelong, Victoria
- Significant partners including Boeing and magniX Aero recognise the potential of our cells
- Use of BNNTs for cell longevity creates a competitive moat for our technology
- IP and manufacturing add to sovereign capability in the battery value chain
- Pathway to expected revenue through sample cells from our Phase 3 facility to be commissioned this calendar year



2023 – Enhancing competitive advantage



Developed semi-solid-state Li-S technology for improved performance and energy density



New eAviation & drone partners in place with projects to trial our cells



BNNT & Li-nanomesh unique IP to enhance cell performance



Phase 3 - 2MWh production & testing facility on track to complete November 2023



Strong fiscal management with \$33.5M in available cash at 30 June 23



Enhanced team with extensive scientific, engineering, and battery scale up experience



Our advisory panel

We've recently established a global advisory panel which will play a key role in guiding the company's international development, partnership acquisition and initiating production partnerships for Gigafactory scale.



BOB GALYEN

- 50 years' battery industry experience
- Formerly CTO of CATL – the largest lithium-ion cell manufacturer in the world
- Previous Chairman of International Battery Standards Steering Committee
 - Based in USA



ISOBEL SHELDON OBE

- 20-year veteran of the battery industry
- Trustee of UK's Faraday Institution
 - Senior executive roles in battery development and manufacturing
 - Worked with many of the world's leading automotive manufacturers
 - Based in Europe



GLENN MOLLOY

- Founder of PPK Group Limited and currently director of several PPK Group Limited's related companies
- Extensive experience on public company boards and as advisor for public and private entities
 - Based in Australia

Financial highlights

As at 30 June 2023:

- Total assets of \$50.1M
- Cash balance of \$33.5m
- Funds permit completion of Phase 3 facility, ongoing development of cell technology and partner & customer acquisition
- Effective supplier selection on Phase 3 resulted in significant cost reductions compared to original budget.



The Company finished the period with net assets of \$47.9M consisting of:

	30 June 2023 \$M
Assets	
Cash	33.5
Other current assets	0.3
Loan receivable from related party	2.0
Other non-current assets	14.3
Total Assets	50.1
Liabilities	
Trade and other payables	1.1
Provisions	0.1
Lease liabilities	1.0
Total Liabilities	2.2
NET ASSETS	47.9

Our market opportunity

Li-S Energy cells are highly differentiated for drones and electric aviation – markets where the most energy dense cells are projected to command 5-10 times the price of normal EV cells¹



DRONES

- Drones market size by 2027 - \$61B²
- 67% fixed wing with more than 5kg payload²
- Annual battery market by 2027 - \$12B²



eAVIATION

- Commercial passenger eAircraft sold per year by 2035 - 15,000³
- Annual battery market by 2035 - \$20B⁴



DEFENCE

- Substantial opportunities being explored



Industry Partners

Our current partners each represent a key target market:

Our focus is to build test battery cells to meet our current partner requirements (which are a proxy for the overall market sector needs).

During FY24, with Phase 3 in place, we will expand and deepen our portfolio of key industry partners.

¹ Source IDTechEX Report: Solid-State and Polymer Batteries 2021-2031

² Source Precedence Research – Unmanned Aerial Vehicle (UAV) Drones Market 2022 – 2027

³ Source IDTechEX Report : Manned Electric Aircraft: Smart City and Regional 2021-2041

⁴ Based on an estimated average pack size of 1500KWh @ \$900 per KWh
eAviation EAP advanced subsonic aircraft image courtesy of NASA

R&D progress summary

- 45% increase in volumetric energy density using GEN3 semi-solid-state cell technology
- High safety electrolytes under test
- Designed and commissioned automated cell stackers to handle fragile lithium metal anode material during cell stacking
- Substantive cycle life increase on lithium metal cells with enhanced safety



Potential benefits of Semi-Solid-State

Benefit Type	Traditional lithium sulfur	Li-S Semi-solid-state technology
Increased gravimetric energy density	400Wh/kg	Currently achieving over 400Wh/kg – anticipating significantly higher with optimisation
Increased volumetric energy density	Requires highly porous cathode, making the cell a higher volume – typically achieving 350-400Wh per litre	Currently achieving over 540Wh per litre , anticipating significantly higher with optimisation
Improved safety	While the traditional system is safer than lithium-ion as it is less prone to thermal runaway, it still uses a flammable ether-based electrolyte, which can catch fire if exposed to an ignition source.	Intrinsically safer due to the use of a low flammability electrolyte , meaning its electrolyte is less likely to catch fire even if exposed to an ignition source.
Reduced cost	Higher cost due to higher costs of materials and potentially more difficult cathode manufacturing processes.	Elimination of high-cost graphene in the cathode reduces overall cost of materials. Reduced porosity cathode results in less electrolyte being needed (which is an expensive part of the battery bill of materials) The low porosity cathode also has potential to reduce manufacturing costs.
Easier to mass manufacture	Cathode coating needs to be highly porous – making it difficult to achieve consistent quality control	Cathodes are far lower porosity, making them easier to produce at the required quality on roll-to-roll cathode coating and calendaring equipment designed for lithium-ion production
More reliable integration into operational battery packs and systems	Very difficult to balance cells within the battery pack due to inconsistencies in performance between cells, leading to lower overall energy stored	Cells behave more predictably and are easier to match, leading to higher overall energy stored consistently in the battery pack.
Ability to store the cells fully charged	Liquid system Li-S cells cannot be stored fully charged for long periods without electrolyte breakdown and cell destruction.	Can be stored at 100% state of charge for most practical purposes.

Meeting partner test requirements

To satisfy the needs of our key partners, and our target markets, our cells need to meet a range of performance and safety requirements.

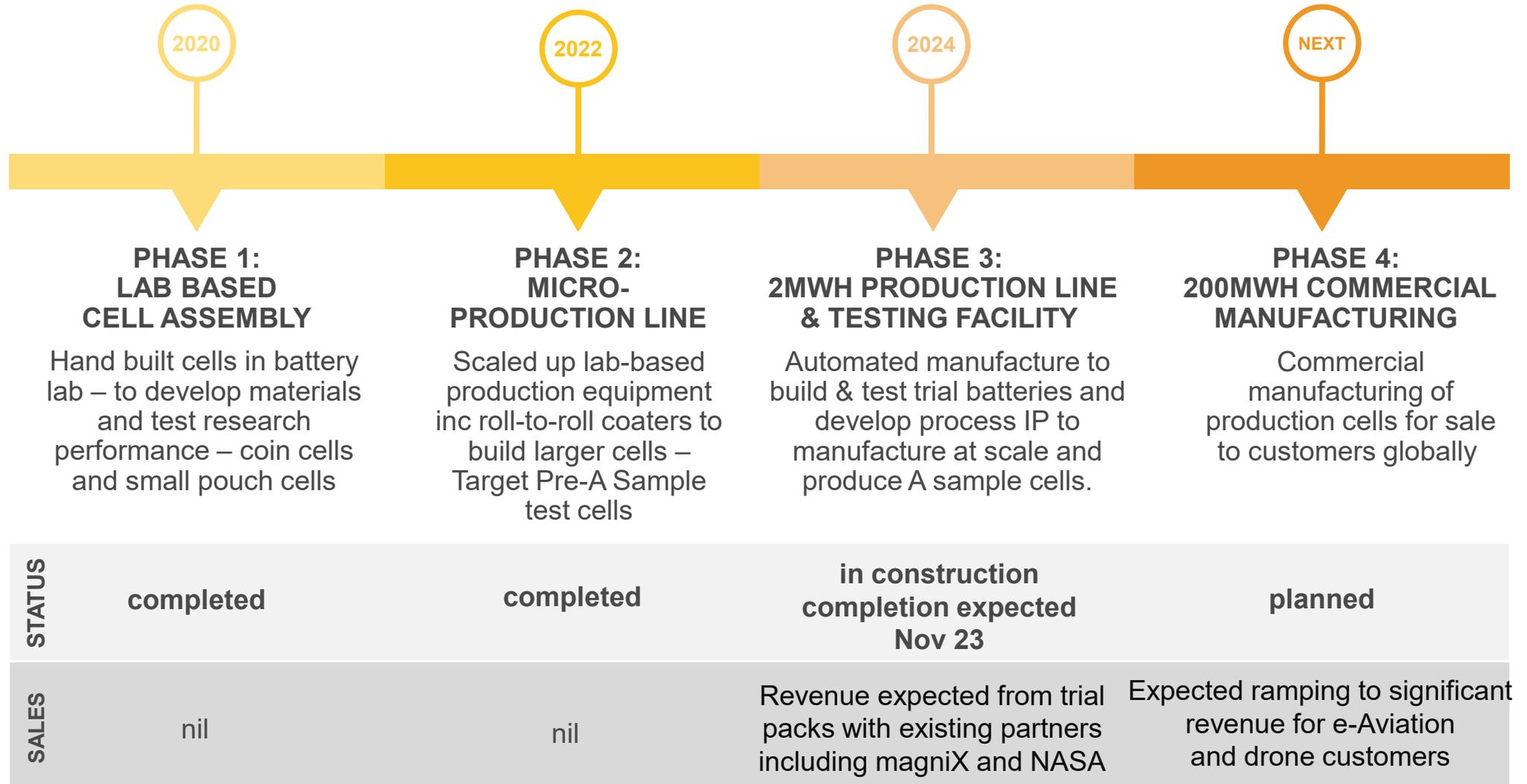
We are currently commissioning one of the most advanced and comprehensive battery testing facilities in Australia to test high capacity commercial cells including:

- Nail penetration & crush tester
- Drop tester
- Short circuit & overcharge tester
- Temperature & high altitude chamber
- Vibration tester
- Advanced cell cyclers able to simulate cell loadings in mission profiles as they would experience them in partner vehicles
- Advanced automated systems for real-time test data harvesting and production data integration, enabling AI based performance analysis.



Fireproof test chambers

Production scale-up





Phase 3 2MWh plant approaching commissioning

- Automated production equipment currently being manufactured for commissioning in Q3 2023.
- Our \$10M 2MWh production facility is well advanced
- Will scale up automated manufacturing processes, and deliver batteries for customer trials
- The dry room has been completed, with clean rooms, blast proof battery testing facilities and additional offices in progress



FY2024 key outcomes expected



Cell data sheet and test cells issued to key partners



Additional eAviation & drone partners in place with projects to test our cells



Increase global reach, leveraging advisory panel



Phase 3 facility fully operational



Prudent use of cash to drive growth and develop new commercial opportunities



Enhanced team with extensive scientific and battery scale up experience

