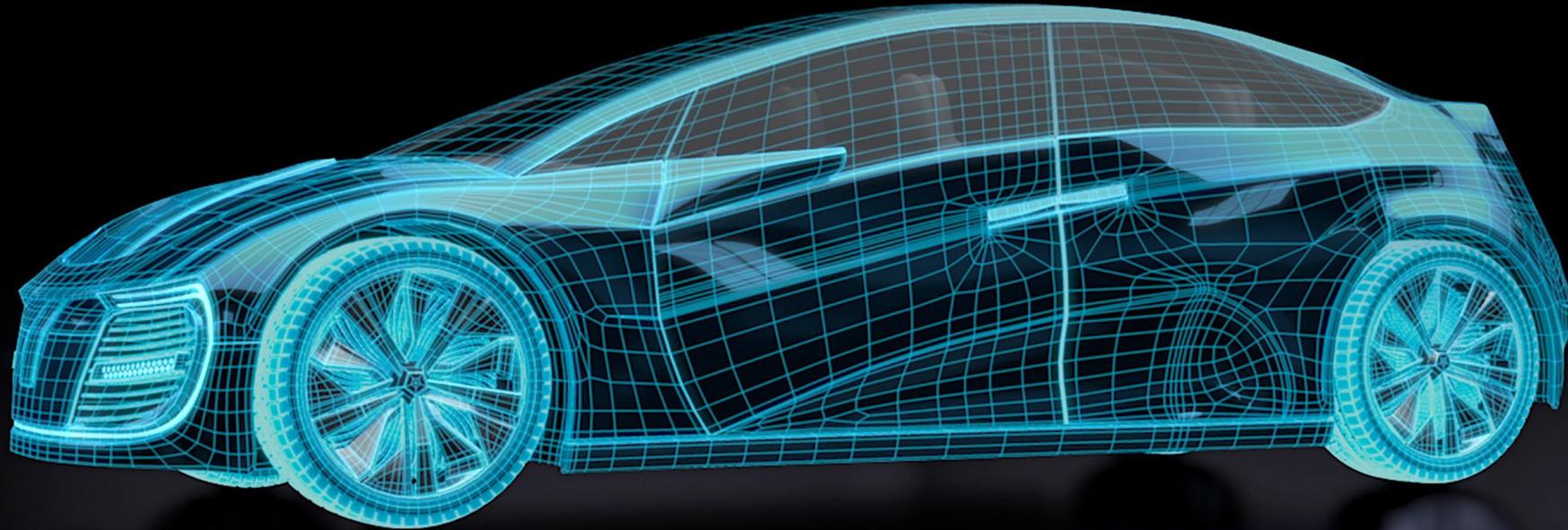


# Lithium Australia



**DELIVERING SUSTAINABILITY TO THE LITHIUM BATTERY INDUSTRY  
AND PROVIDING SOLUTIONS TOWARDS A ZERO CARBON ECONOMY**

Investor Presentation | July 2022

ASX:LIT

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# Why invest in Lithium Australia?

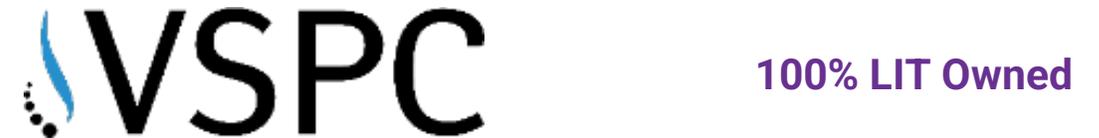


*Leading Australia's battery recycling industry*

**Opportunity:** Over 90%<sup>1</sup> of lithium-ion batteries are currently sent to landfill

**Current Status:** Operating since 2017, a nationwide network, battery processing facilities in Melbourne and a 99-year EPA licence

**Growth:** Increased volume and expand processing to all Australian cities, New Zealand and beyond



*Next generation cathode powders including LFP*

**Opportunity:** Increase in global battery demand, LFP becoming the preferred chemistry and opportunity to break China's domination

**Current Status:** 10+ years' experience in LFP chemistry. DFS in progress, to be completed in early 2023

**Growth:** Build LFP manufacturing facilities to leverage the 7-fold increase<sup>2</sup> in LFP demand estimated at 2030

# Corporate Snapshot

ASX Ticker	LIT
Share Price (as at 30 <sup>th</sup> June 2022)	\$0.051
Shares On Issue	1.03Bn
Market Cap	\$53M
Cash (as at 31 <sup>st</sup> March 2022)	\$8M
Enterprise Value	\$45M

Top Shareholders (as at 23 <sup>rd</sup> June 2022)	%
BNP Paribas Nominees ACF Clearstream	5.4
Acuity Capital Investment Management	4.4
Top 20 Shareholders	24.1

12-Month Share Price (cents)



## Board of Directors



**George Bauk**  
Non-Executive  
Chairman

More than 30 years' experience in the resource industry and 15+ years as a listed company director involved in mining exploration and production both within Australia and overseas. George has a demonstrated background in strategic management, business planning, team building, finance, and capital/debt raising (more than \$350 million), and his expertise encompasses a variety of commodities; in particular, critical minerals such as rare earths, lithium, graphite, gold and uranium.



**Kristie Young**  
Non-Executive  
Director

Over 20 years' experience in industry and business across technical engineering, project evaluation, strategy, business development (BD), growth, marketing, commercial, education, executive search and governance. Over 15 years' experience on boards and committees, including ASX M&A sell side. Diverse background includes BD director roles with PwC and EY, executive search director, senior lecturer in mine finance, mining engineer (underground and open cut).



**Phil Thick**  
Non-Executive  
Director

Over 30 years' experience as a senior executive across oil and gas, mining and chemical processing sectors within large multinational, as well as smaller companies. Phil has had a 20-year career with Shell, five years as a director and CEO of Coogee Chemicals, then four years as CEO of New Standard Energy. Phil headed up Tianqi Lithium Australia, one of the world's largest lithium companies and built the world's largest lithium hydroxide plant in Kwinana, south of Perth, an investment of nearly A\$1 billion.



**Recruitment  
In progress**  
Chief Executive  
Officer

Global executive search commenced by Derwent Executive for a highly experienced operator with connections in the battery materials industry.

## Management team



**Stuart Tarrant**  
Chief Financial  
Officer

Stuart is a senior finance professional of more than 20 years' experience, most gained in rapidly growing or changing environments. He has worked within a range of industries, including mineral extraction, mineral exploration, finance and agribusiness. Stuart has specific expertise in fundraising, strategic analysis, governance, and compliance, with a focus on value creation.



**Andrew Mackenzie**  
GM - Recycling  
 **envirostream**

Andrew is responsible for the operation and expansion of Envirostream. With over 22 years of industrial processing, recycling, and manufacturing experience and a strong focus on building a circular economy of the Australian battery industry. Andrew has developed the industry best practice for safety and production through continuous innovation.



**Andrew Skalski**  
GM - Batteries  
 **VSPC**

Responsible for progressing VSPC's implementation of its global expansion plans. A mining industry professional with 40 years' international experience in operations and greenfield project development. Andrew graduated from the WA School of Mines with a science degree in extractive metallurgy, he has accumulated extensive experience in project management for gold, copper, magnetite, phosphate, and lithium industries.



**Andrew Napier**  
GM – Technical  
Development

A minerals engineer with 25 years experience in project and operations roles in the resources industry. Andrew has held several leadership roles in the design, construction, and commissioning of Greenfields and Brownfields process facilities. He is experienced in hydrometallurgical and pyrometallurgical processes in battery material commodities including nickel, cobalt, rare earths, lithium, graphite, and titanium.

100% owned Battery  
Recycling Facility,  
Laverton North, VIC

Lithium  
Australia

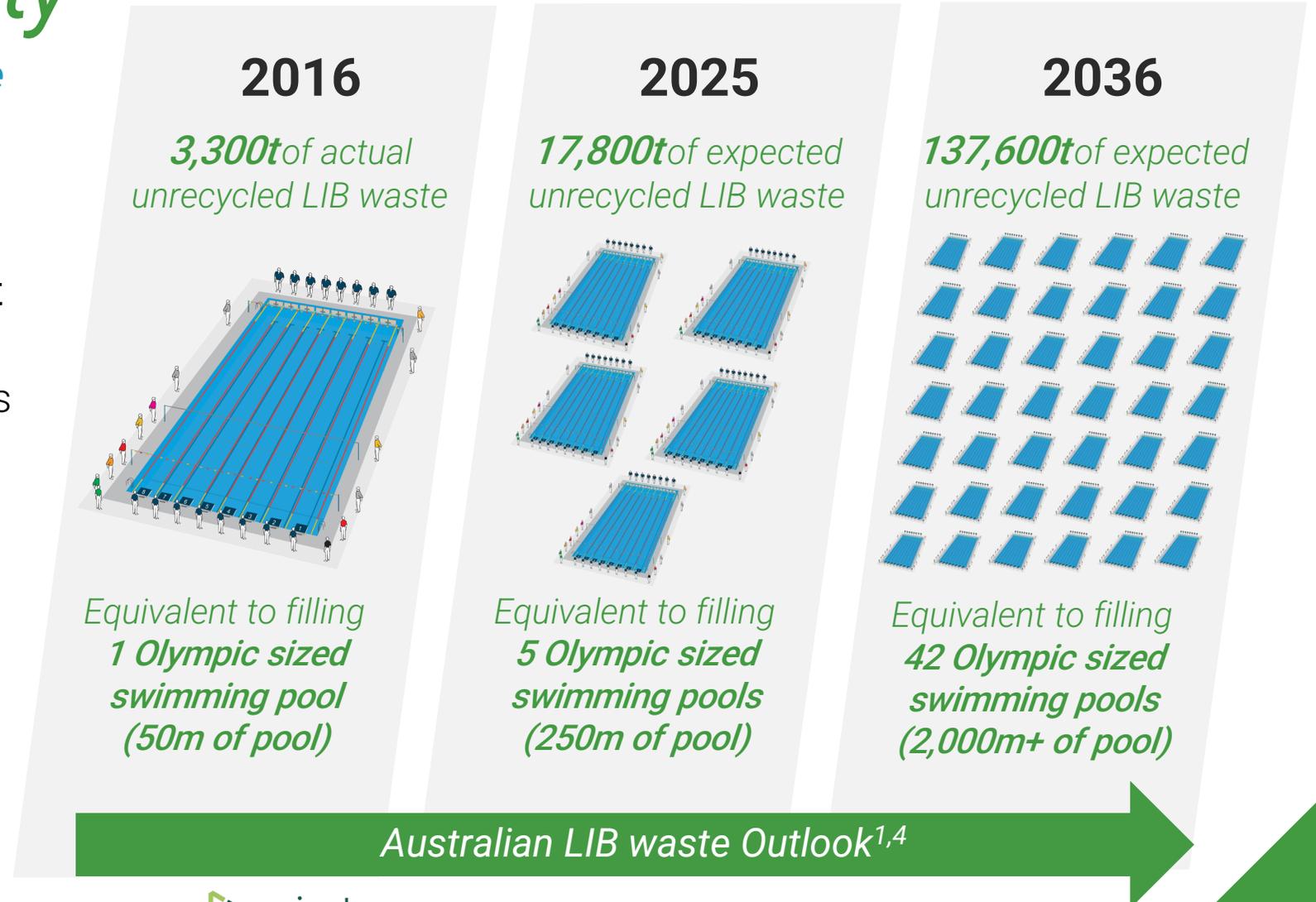


 envirostream

# The Opportunity

*Lithium-ion batteries (LIB) waste set to increase significantly*

- LIBs, when not in use, generate large amounts of energy and pose a **significant fire hazard**
- In 2016, only **2%** of Australia's LIB waste was recycled<sup>1</sup>
- LIB waste growing **20%p.a.** Could exceed 100,000t by 2036 (Low case)<sup>1,2</sup>
- Currently, **~9%** of Australia's LIB waste is recycled<sup>3</sup>
- **Significant potential** for additional recycling volumes for Envirostream



# *B-cycle partnership will promote volumes*

*B-cycle is placing accountability on the battery producers*

- **Australian government** recognises this opportunity with the B-cycle scheme via the Battery Stewardship Council
- **Rebates are provided** via the scheme to promote battery recycling
- **Benefits from the rebate scheme** as it is accredited by B-cycle to operate across all three collections, sorting, and processing divisions
- A **critical cog** in the operation of the B-cycle scheme



# The Solution

*Established recycling business with a national network*

- Launched in 2017, **Australia's only accredited B-cycle<sup>1</sup>** entity to operate battery processing services
- **Safe and efficient** recovery of critical materials from end-of-life batteries
- In partnership with VSPC to **produce new lithium-ion batteries**
- Envirostream **owns and operates** EPA-approved battery facilities in Melbourne
- To meet **surging demand**, Envirostream plans to expand processing activities nationally for all batteries



# *Our Process: 5 key battery recycling steps*

**1.**  
Collection



**2.**  
Storage



**3.**  
Sorting



**4.**  
Processing



**5.**  
Sales



# Step 1: Collection

## Scalable collection solutions

- Innovative collection equipment developed by Envirostream to manage the risks of fire and leakage, including:
  - Bespoke collection bags; and
  - Deposit bins to manage thermal leakage
- Storage solutions demonstrate Envirostream's ethical approach to operations
- The EPA-compliant collection solutions have assisted in growing Envirostream's Collection Network by over 500% in the last 18 months
  - January 2021: ~115 drop-off/collection points
  - June 2022: ~715 drop-off/collection points



Top Left: Collection bags, Top Right: Bunnings deposit bin  
Bottom Left: Envirostream deposit bin, Bottom Right: Deposit bin for FUTURE FORWARD™ initiative

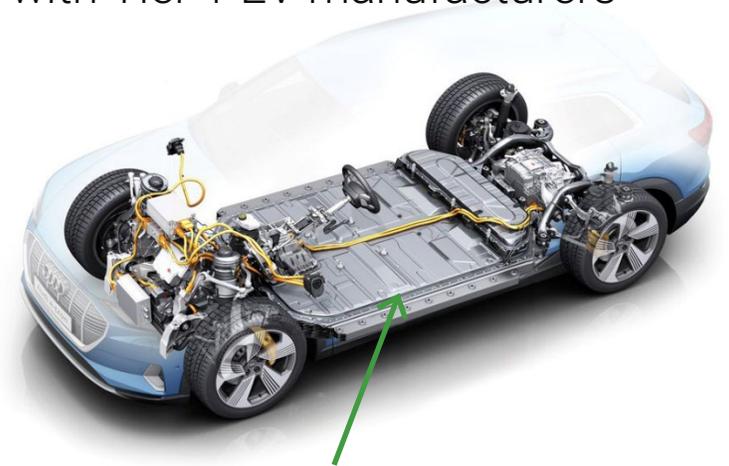
# Step 1: Collection *(cont'd.)*

## *Key partnerships established*

- Envirostream has a current network of reputable partners
- Partners highly engaged and supportive of Envirostream battery recycling initiatives
- Partners offer convenient, widely available deposit destinations for the general public



- Envirostream is also in partnership with Tier 1 EV manufacturers



*Battery system weight  
~700kg (Audi e-tron)<sup>1</sup>*

# Step 2: Storage

*Leading the industry with innovative solutions*



- Incorrect storage of spent batteries can lead to fire risks
- Collected batteries delivered to Envirostream's Melbourne facilities are stored to the highest standards
- Safety procedures and systems are continuously improved to further reduce associated fire risk

## EPA Approval

- EPA Victoria-issued operating license in 2021, **valid for 99 years<sup>1</sup>**, allowing processing of **more than 500tpa** of specified electronic waste
- The following unique environmental and safety enhancements assisted Envirostream to obtain approval:
  - Thermal-imaging cameras
  - Firewall protection systems



*Top: Fireproof box, Bottom: Firewalls at Berwick Road facility*

# Step 3: Sorting

*Established processes for sorting of mixed batteries*

- Consumers are unable to separate battery types resulting in the collection of mixed batteries
- An efficient, semi-automated process has been developed to sort mixed batteries into categories including:
  - Lithium-ion batteries
  - Nickel metal hydride batteries
  - Alkaline batteries
  - Nickel cadmium batteries
- Innovative solutions are the key to enhance sorting capacity



Sorting line



Conveyor

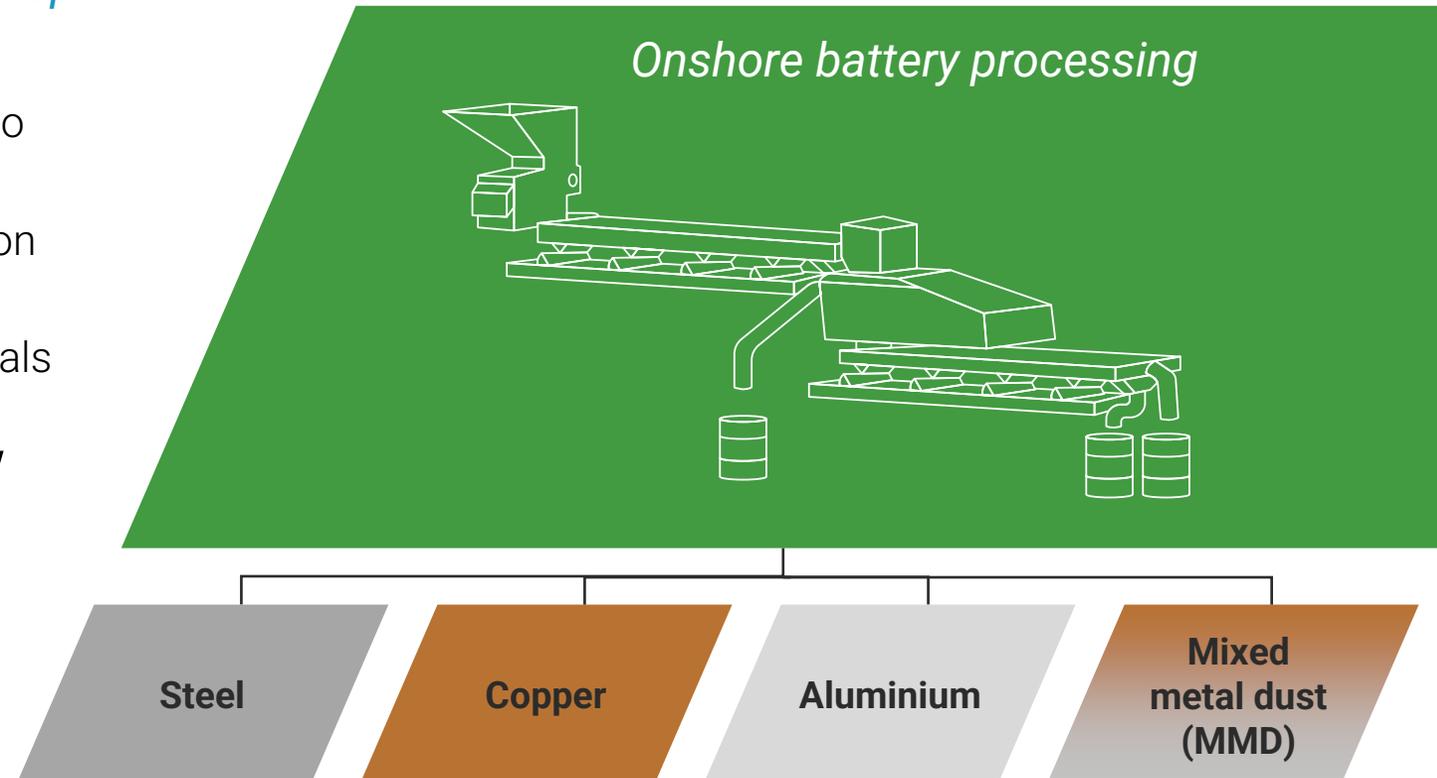


Sorting bins

# Step 4: Processing

*Unique processes to maximise recovery of spent batteries*

- Envirostream offers a **sustainable solution** to the **increasing volume** of spent batteries
- Its process **recovers over 90%** of a lithium-ion battery
- Recovered materials include the active metals which are amalgamated into a mixed metal dust (MMD) sold to be repurposed into **new lithium-ion batteries**
- Current R&D programs are planned to:
  - Build higher recovery from the current process and enhance product value
  - Build processing for other chemistry batteries



# Step 5: Sales

*Maximising value from industry leading processes*



*MMD from Envirostream operations*

- Saleable product from Envirostream's process includes:
  - MMD (including cobalt and nickel)
  - Copper
  - Aluminium
  - Steel
- The high-value **mixed metal dust** (MMD) is shipped from Envirostream facilities
- MMD is sold for further treatment by :
  - Tier 1 mining companies; and
  - International battery recycling companies

# Envirostream

*A significant opportunity for growth*

## The Market



## Seizing the Opportunity



## Positioned for Growth



- More than ~90% of lithium-ion battery waste currently goes to **landfill** in Australia
- LIB waste growing 20%p.a.<sup>1</sup>
  
- **Permitting** is no longer a significant **barrier to volumes** for Envirostream
- Invested heavily and early into a **highly innovative battery recycling** solution
- **Partnerships** with reputable **brands/tier 1 EV OEMs** have been developed
  
- **High barriers to entry** for competition due to stringent requirements for permitting
- **Established partnerships** will **drive volume** increases towards Envirostream

100% owned Battery  
Materials pilot plant,  
Brisbane, QLD

Lithium  
Australia



 VSPC

# The Opportunity

*The world is moving from NCM to LFP as the preferred battery chemistry.....*

Lithium ferro phosphate (LFP) is the most stable cobalt and nickel free cathode active material and has the following benefits relative to NCM chemistries.

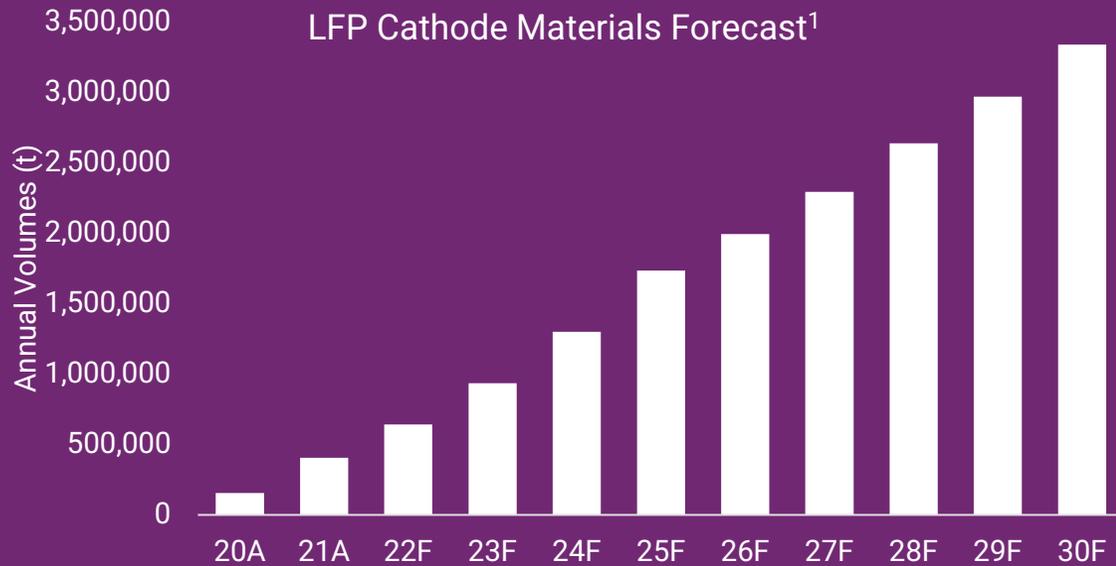
- **Performance:** LFP has an improved cycle life and a higher discharge rate
- **Superior safety:** LFP has minimal thermal runaway risks
- **Ethical Supply Chain:** LFP does not contain conflict metals such as cobalt
- **Lower cost:** LFP has lower raw materials and manufacturing costs

*.....and the following EV OEMs have started the shift*



# The Opportunity

The industry is seeking a move away from Chinese dominance due to geopolitical pressures



VSPC's initial development of 10,000tpa is modest relative to the market, allowing for further expansion



Premiums for non-Chinese cathode powders

**>99%**

Global LFP currently produced in China



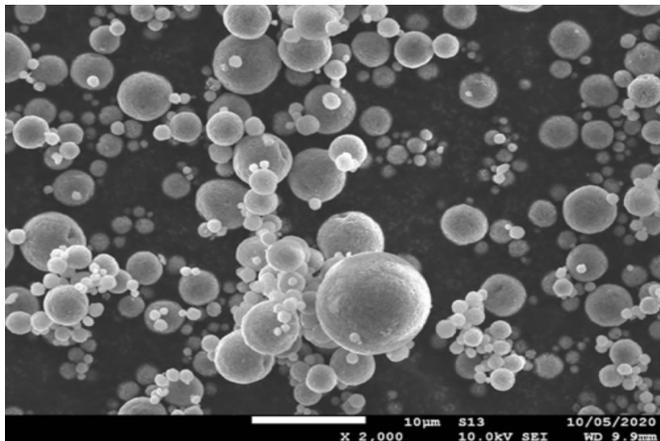
Government policies and funding seek to secure future access to critical materials

# The Solution

*LFP is currently being produced using a proprietary flowsheet for safe, long life lithium-ion batteries*



*High level overview of VSPC's LFP cathode powder flow sheet*



*LFP produced by VSPC (bar = 10 microns).*

- VSPC seeks to **disrupt China's LFP dominance** through commercialising its flowsheet
- The VSPC flowsheet is expected to have the following advantages:
  - Lower costs of production
  - Deliver a **consistent product**
  - Provide improved **ESG fundamentals**: No significant process waste-water or solid waste streams

# VSPC History

*From making very small particles to advanced cathode materials*

- Established in 1999, 100% acquired by Lithium Australia in 2017
- 20+ yrs. researching, developing and patenting processes for the manufacture of high-purity, **nano-scale materials**
- 10+ yrs. developing **advanced cathode materials** including LFP
- VSPC assets include:
  - An **R&D facility** (pilot plant) in Brisbane currently capable of producing 1-2tpa LFP
  - An integrated, **laboratory-scale** battery production and testing facility
  - **Protection** with IP that includes three families of patents



Battery Materials pilot plant, located in Brisbane, Queensland

# Steps towards commercialisation

Engineering in progress towards a production target of 2026

- Definitive feasibility study (DFS) is in progress with lead engineer Lycopodium
- DFS activities include early-stage, LFP production expansion
- Production target is 2026 with locations assessed including Australia and North America



Laboratory at Brisbane's R&D facility

## PFS Outcomes<sup>1</sup>

LFP production rate	10,000tpa
Life of operation	13 years
Net Present Value (NPV)	US\$253m
Internal Rate of Return (IRR)	33%
Payback Period	5 years
LFP sales revenue	US\$140m p.a.
EBITDA	US\$66m p.a.
Free cashflow	US\$56m p.a.
Plant investment	US\$113m p.a. in 2 stages

# VSPC

## *A significant opportunity*



- LFP market expected to grow from ~400,000tpa to ~3,300,000tpa by 2030 (700% change)
- The electrification of vehicles and benefits of LFP are **driving the shift**
- Significant experience (20+ yrs.) researching, developing and patenting processes
- A **proprietary process flowsheet** underpinning **robust PFS project economics**
- DFS for LFP manufacturing facility **in progress**
- LFP **product testing** has **commenced** through cell manufacturers

# *Additional Opportunities*

## LieNA®

- Proprietary technology to significantly improve metallurgical recovery of lithium from fine and low-grade spodumene
- Produces lithium phosphate, a direct feed for LFP production
- A\$1.3m grant received to advance the process towards commercialisation
- Developed by Lithium Australia in conjunction with ANSTO
- LieNA® patent application granted
- Preparation for pilot plant operation of LieNA® processes is well underway

## SiLeach®

- Proprietary technology provides for low-energy recovery of lithium from micas
- Produces lithium phosphate, a direct feed for LFP production
- Developed by Lithium Australia in conjunction with ANSTO
- SiLeach® patent application granted

## Investments

### Charger Metals NL (ASX: CHR):

- 9.6 million shares (18.8%<sup>1</sup>)
- 30% free carried interest in:
  - Coates (Ni-Cu-PGE),
  - Lake Johnston (Li-Au-Ni)
  - Bynoe (Li-Au) projects

### Galan Lithium Ltd (ASX: GLN):

- 20% free carried interest in Greenbushes South lithium JV
- 0.6 million shares owned

### BlackEarth Minerals NL (ASX: BEM):

- 13.1 million shares owned

Lithium  
Australia

Perth  
(Head Office)

Brisbane

VSPC

Melbourne

envirostream

Next Steps

# Next Steps



## *Leading Australia's battery recycling industry*

- Increase battery **volumes** through additional **partnership** agreements and support by **B-cycle**
- Arrange longer term **offtake** agreements for **MMD**
- Continue **collaboration with EV OEMs** to enhance dismantling capabilities ahead of higher volumes
- Expand processing to all **Australian cities, New Zealand and beyond**

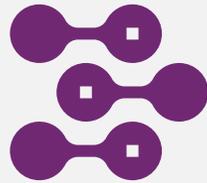


## *Next generation cathode powders including LFP*

- **Completion of DFS** for a 10,000tpa LFP manufacturing facility
- Development of LFP **offtake agreements**
- Targeting production in **2026**
- Continue to investigate the production of **key raw materials**, to further increase **cost competitiveness**



# *The investment proposition*



An **outstanding portfolio** of technologies to **improve** the **supply and security** of energy metals to the **battery industry**



A **favourable position** to take advantage of **significant expansion** in the **demand** for and **disposal** of lithium-ion batteries



A **high-performing** board and management, **ready for the next phase**, with a track record of **successful** project development

# References

- Page 3
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  2. Source: ICCSino, Nov 2021 forecast, Company analysis
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# Lithium Australia

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