RM Research

Lithium Australia NL

Disrupting the lithium supply chain

19 December 2017

ASX CODE: LIT

Speculative Buy

Capital Structure

Sector	Materials
Share Price	A$0.205
Fully Paid Ordinary Shares (m)	343.57
Options (ex 15c, exp 01/07/19) (m)	4.32
Options (ex 20c, exp 01/07/19) (m)	7.86
Options (ex 30c, exp 01/07/19) (m)	9.20
Partly Paid Shares (m)	132.85
Market Capitalisation (undil) (m)	A$70.4
Share Price Yr High-Low	A$0.25-0.073
Approx Cash (m)	A$18m

Directors

George Bauk	Non-Executive Chairman
Adrian Griffin	Managing Director
Bryan Dixon	Non-Executive Director

Major Shareholders

JP Morgan Nominees	4.89%
Acuity Capital Investment	4.78%
Citicorp Nominees	3.15%
Adrian Griffin	2.73%
Parkway Minerals	2.33%

Analyst

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Share Price Performance

Maiden lithium Mineral Resource for Sadisdorf Project in Germany

- Inferred Mineral Resource estimate of 25Mt @ 0.45% Li_2O for Sadisdorf tin-lithium project in Saxony, Germany.
- Capable of producing a high-grade lithium mica concentrate.
- The resource has the potential to feed a 25,000tpa lithium carbonate plant for 10 years.
- SiLeach® hydrometallurgical process suited to unlocking the lithium value from Sadisdorf and similar historical tin deposits.

Lithium Australia enters $3b cathode market through its acquisition of VSPC

- Shareholders approved the acquisition of advanced cathode material producer, Very Small Particle Company (**VSPC**) at **LIT's** AGM on 30 November 2017.
- **VSPC**'s Lithium Iron Phosphate (**LFP**) cathode material tested by Independent laboratory in Germany outperforms reference standard.

Large-scale SiLeach® pilot plant on track for 2018

- Further optimisation studies and test-work continue with **LIT** on track to approve the construction of a Large-scale SiLeach® pilot plant (**LSPP**) early in 2018 and has recently stated its intention to fund construction off its own balance sheet.
- Pilot-testing of SiLeach® produced battery-grade lithium carbonate from sub-spec spodumene and lithium micas.
- Studies show that SiLeach® **LSPP** can be cash positive with additional cost reduction upside from further optimisation, scale up and by-product credits

Strategic Alliances

LIT continues to build out its network of strategic exploration projects and alliances globally. In the last quarter alone **LIT** has;

- Executed MOU for Lithium exploration-processing with ASX listed **Poseidon Nickel**.
- Expanded its North Queensland exploration footprint.
- Acquired a majority interest (54%) in its Mexican lithium clay project.

BlackEarth Minerals (BEM) prepares for IPO

- **LIT's** graphite focused subsidiary **BlackEarth Minerals Ltd** has raised more than $4.5m ahead of ASX listing. **LIT** to hold a minimum of **BEM** post listing valued at $2.2 million.

Recycling Strategy

- **LIT** has established subsidiary Resource Conservation and Recycling Corporation Pty Ltd (**RCARC**) and is currently undertaking advanced research programmes to evaluation cradle-to-grave cycles of Lithium Ion Batteries.

$18 million+ Cash at bank

- As at 1/12/2017, **LIT** held $18m in cash reserves which has likely continued to increase substantially through **LIT**'s use of the Controlled Placement Agreement (CPA) with **Acuity Capital**.

Action and Recommendation

- **RM Research** initiates coverage with a Speculative Buy recommendation.
- A number of significant events are expected to occur over the course of 2018 as **LIT** progresses key milestones including the SiLeach® LSPP, the recommissioning of **VSPC** cathode facilities and establishing a commercial pathway for lithium-ion recycling.

COMPANY OVERVIEW

Lithium Australia NL (**LIT** or **Lithium Australia**) is an Australian public company and is an innovator and developer of disruptive-lithium extraction and production technologies.

Over the last two years **Lithium Australia** has advanced the commercialisation of its proprietary and patented **SiLeach®** lithium processing technology.

SiLeach has the potential to produce battery chemicals in the lowest cost quartile

SiLeach® has the potential to disrupt the lithium supply chain by not only producing battery chemicals in the lowest cost quartile, but also by its ability to process non-conventional lithium sources that have historically been sub-economic and unable to be used as a feed source for lithium chemical production.

Lithium Australia's technology capabilities have been substantially enhanced and extended with the strategic acquisition of advanced lithium ion battery cathode material producer, the Very Small Particle Company (**VSPC**) (as approved by shareholders at **LIT**'s AGM held on 30 November 2017).

Closing the loop of the Energy Metal Cycle

The ability to produce advanced lithium ion cathode material not only moves **Lithium Australia** up the lithium value chain, it provides the opportunity to integrate the various technologies required to participate in all sectors of the energy metal cycle.

Lithium Australia has a clear vision of creating a 'circular economy' by participating in multiple stages of the Lithium Supply

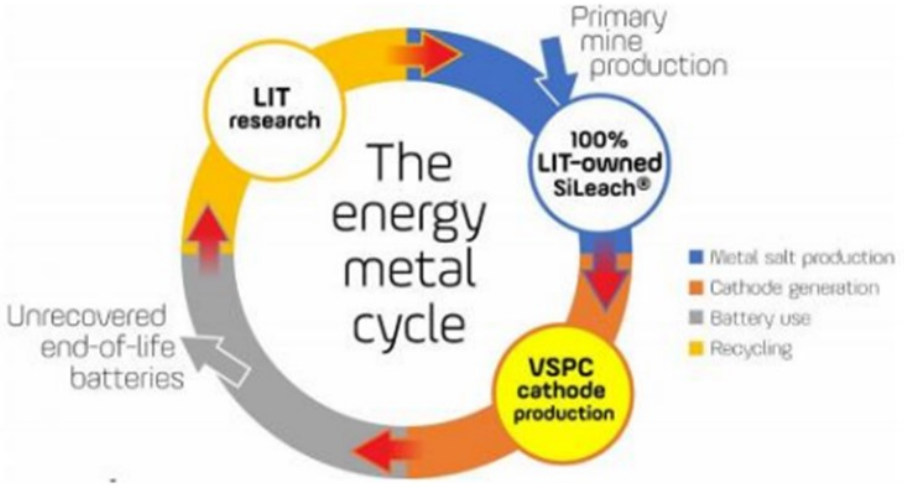

FIGURE 1: The energy metal cycle (source: LIT, Announcement Sep 2017

This underpins **LIT's** vision of a 'circular economy' through the production and utilisation of lithium ion batteries and the integration of the best technologies to achieve this.

Recycling— the missing link in global lithium supply chain

RCARC has been established as an R&D company to evaluate cradle-to-grave cycles for lithium ion batteries

LIT has identified recycling of lithium-ion batteries as the 'missing link' in achieving a truly 'circular economy'. The Company's expanded portfolio of technologies provides not only the opportunity to enter but also the potential to drive the fledgling and under-developed lithium-ion battery recycling sector.

In pursuit of this strategy, **Lithium Australia** has established a wholly owned subsidiary Resource Conservation and Recycling Corporation Pty Ltd (**RCARC**).

SiLeach®

LIT's flagship lithium processing technology, **SiLeach®** is a halogen based lithium processing technology which eliminates the expensive roasting step used in conventional lithium processing.

SiLeach® is able to treat all lithium silicates including micas and low-spec and contaminated spodumene concentrates that are currently being disposed as waste from mining operations around the world.

***Lithium Australia** is the only company globally with the ability to process all lithium silicates without roasting.*

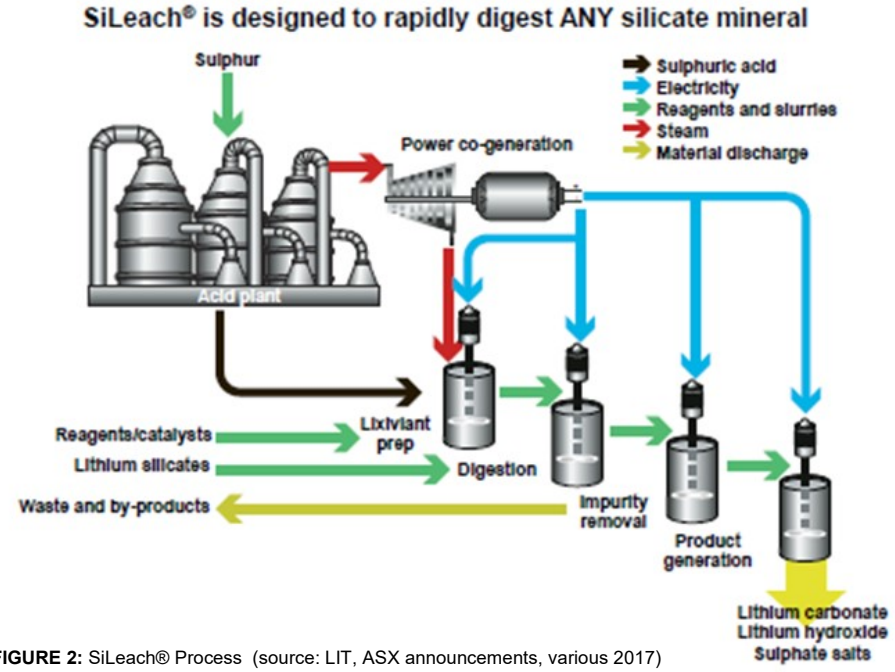

FIGURE 2: SiLeach® Process (source: LIT, ASX announcements, various 2017)

Commercialisation roadmap

LIT has defined a commercialisation roadmap for SiLeach® which it has progressed significantly over the last financial year.

Further optimisation studies and test-work continue with **Lithium Australia** on track to approve the construction of a Large-scale S**iLeach®** pilot plant (**LSPP**) early in 2018

During FY2017, SiLeach® advanced from bench scale laboratory testing to the commissioning of the SiLeach™ pilot plant at ANSTO Minerals (a division of Australian Nuclear Science and Technology Organisation).

ANSTO operated a continuous pilot plant processing both lithium micas and sub-spec spodumene. The mica was sourced from the Lepidolite Hill deposit, near Kalgoorlie in Western Australia. That deposit is part of the Goldfields Lithium Alliance, in which **LIT** has a 40% interest. The spodumene was sourced from **Pilbara Minerals'** Pilgangoora deposit.

FIGURE 3: SiLeach® Commercialisation path (source: LIT ASX Announcement Sep 2017)

Subsequently, engineering studies commenced for a large scale pilot plant (**LSPP**) —with a target capacity to produce 2,500tpa of lithium carbonate. In July 2017, **LIT** announced that the **LSPP** study exceeded its design criteria, was capable of being cash positive with additional upside through further optimisation, scale up and by-product credits.

Large Scale Pilot Plant on track for 2018

At the end of October 2017, **LIT** announced that the SiLeach® **LSPP** was in the final stages of design optimisation with a decision to move the project forward expected early in 2018 and was seeking expressions of interest for offtake of battery-grade lithium carbonate to be produced from the **LSPP**.

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SiLeach® - why it's a disruptive technology?

To understand why SiLeach® is a disruptive technology it is first important to understand how conventional lithium processing is undertaken.

Lithium Mining

Producing lithium carbonate from spodumene is expensive, costing around US$7,500 tonne,

Lithium as a feedstock for the battery industry originates from two primary sources: hard-rock and brines. Brine deposits are accumulations of saline groundwater that are enriched in dissolved lithium, are volcanic in origin and generally found in desert locations predominantly in Argentina, Bolivia and Chile. Brine processing results in the direct production of lithium chemicals, whereas hard-rock mining is primarily spodumene due to its high lithium content.

Hardrock Processing

Conventional processing of lithium mica's is highly sub-economic with costs of more than two times greater than processing spodumene

The first step in conventional processing requires the concentration of the ore by floatation and gravity separation. Concentrates are typically sold to chemical producers (known as converters) that are predominately based in China.

Conventional Processing is highly energy intensive

Production of lithium carbonate undertaken by the 'converter' is achieved by roasting and subsequent leaching. During the roasting phase the ore is heated to over 1100°C, usually in a rotary kiln using coal or gas. This is followed by a 'sulfation bake', a sulphuric acid process under-taken at about 250°C.

SiLeach has the potential to produce battery chemicals in the lowest cost quartile

SiLeach® the energy efficient alternative

As a hydrometallurgical process occurring entirely in solution, there is no requirement for the energy intensive roasting phase. Additionally, the process is undertaken at atmospheric pressure so only simple mechanical components are required.

Recovery of valuable by-products

Conventional processes can only recover lithium. **SiLeach®** efficiently digests and recovers all metals from the minerals processed has the capacity of recovering valuable by-products which conventional processing is unable to do.

SiLeach® has the potential to transform low-grade ore into viable sources of lithium feed—which may result in lower cut-off grades for resource calculations, expansion of existing resources and greater recovery of metal Inventories

Lowest Cost quartile

With its low energy footprint and the potential to recover valuable by-products, SiLeach® has the potential to produce battery chemicals in the lowest cost quartile on par to low cost brine producers.

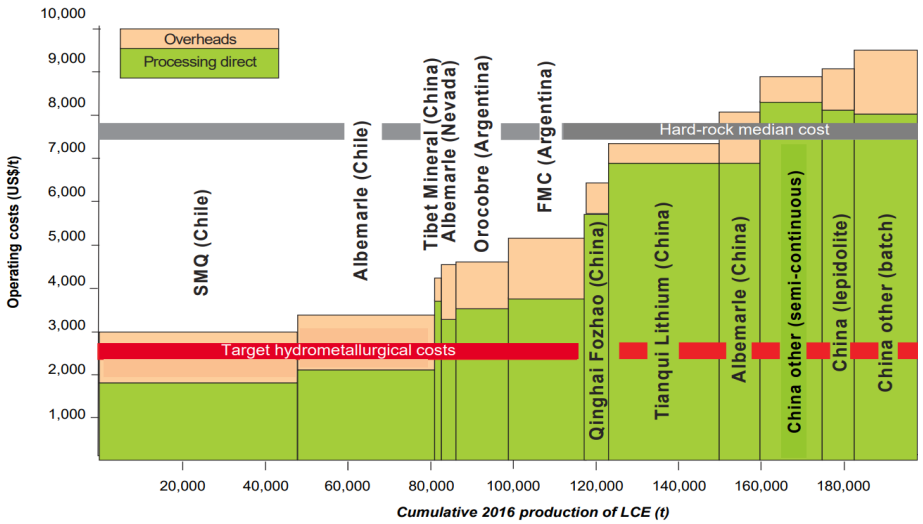

FIGURE 4: Global lithium carbonate operating costs and target hydrometallurgical costs (source: Roskill 2016)

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Very Small Particle Company

On 31 August 2017, **LIT** announced the proposed acquisition of Brisbane based cathode developer **Very Small Particle Company** (**VSPC**). Due diligence was completed in late October 2017, with the acquisition being approved by shareholders at **Lithium Australia's** AGM on the 30 November 2017. **VSPC** is a researcher and developer of some of the world's most innovative and respected new-era cathode materials for lithium-ion batteries.

VSPC develops and produces nano-scale complex metal oxides, using a proprietary scalable manufacturing process.

In recent years, **VSPC's** research and development work has resulted in supplying high-quality cathode materials into global test markets, in particular lithium-ion phosphate cathode material widely used in hybrid electric vehicles, e-buses, power tools and domestic storage batteries.

Australia's most advanced lithium-ion battery laboratory

The acquisition includes a decommissioned pilot plant in Brisbane. The plant incorporates Australia's most advanced lithium-ion battery laboratory and testing facility capable of maintaining the required quality, performance and reliability of materials using VSCP technology.

Patented process

VSPC has developed a proprietary and patented process to produce nanometre-sized grains of metal oxides and phosphates, which provides batch-to-batch consistency, ensures product quality and can be made in any quantity. The combination of complexity of the oxide materials and nano-sized grains makes complex metal oxide powders unique.

Lithium Iron Phosphate cathodes

VSPC primary focus has been the production of nanoscale lithium iron phosphate (LFP - $LiFePO_4$) material for use in the latest generation of rechargeable batteries for consumer electronics, and all types of electrically powered vehicles.

VSPC Lithium Iron Phosphate testing undertaken during due diligence proved to outperform benchmark testing.

VSPC Lithium Iron Phosphate Cathode outperform benchmark

As announced on 7 November 2017, **Lithium Australia** commissioned Custom Cells Itzehose GmbH a leading independent laboratory in Germany to undertake test-work on Lithium Iron Phosphate coin-cells manufactured from **VSPC** cathode materials. The **VSPC** product demonstrated good cycling stability, higher potential and discharge capacities compared to the standard reference material.

VSPC's technology not only provides an entry point further up the lithium value chain but allows Lithium Australia to participate at multiple stages of the Lithium Supply chain

Transformational Acquisition

The acquisition of **VSPC** is transformational for **Lithium Australia.**

The ability to produce advanced lithium ion cathode material not only moves **LIT** up the lithium value chain, it provides the opportunity to integrate the various technologies required to participate in all sectors of the energy metal cycle.

This underpins **Lithium Australia's** vision of a 'circular economy' through the production and utilisation of lithium ion batteries and the integration of the best technologies to achieve this.

The Sadisdorf resource has the potential to feed a 25,000 tonnes per annum lithium carbonate plant for 10 years.

SiLeach® hydrometallurgical process has the potential to unlock the lithium value not only from Sadisdorf but also similar historical tin deposits across Europe.

Sadisdorf—Saxony, Germany

Maiden Lithium Mineral Resource

On 7 December 2017, Li**thium Australia** announced a maiden lithium Mineral Resource estimate of 25Mt @ 0.45% Li_2O for the Sadisdorf tin-lithium project in Germany.

This represents a major milestone for **Lithium Australia** and a significant step towards unlocking the potential of the Sadisdorf project.

The size of the Sadisdorf resource is significant, with the potential to feed a 25,000 tonnes per annum lithium carbonate plant for 10 years. It is expected that further exploration has the potential to expand the resource significantly.

FIGURE 5: Location of Sadisdorf project Saxony, Germany

Resource Estimate

Leading independent mining consultants **CSA Global** were engaged to undertake the re-analysis and re-interpretation of historic drilling and underground sampling at the Sadisdorf project.

In accordance with the JORC Code (2012), **CSA Global** has estimated an Inferred Mineral Resource of 25 million tonnes grading 0.45% Li_2O at a cut-off grade of 0.3% Li_2O.

Sadisdorf Tin and Lithium Project Mineral Resource Estimate, as at 23rd November 2017 Classified in accordance with the JORC Code (2012 Edition)			
Classification	**Domain**	**Tonnes (Mt)**	**Li_2O (%)**
Inferred	Inner greisen	17	0.47
Inferred	Outer greisen	8	0.43
Inferred	**Total**	**25**	**0.45**
Notes: MRE defined by 3D wireframe interpretation with sub-cell block modelling. Grades estimated using Ordinary Kriging. The MRE is reported at a cut-off of 0.15% Li (0.3% Li_2O). The block model has been depleted to reflect historical mining.			

TABLE 1: CSA Global MRE Estimate (Source: LIT ASX Announcement 7/12/17)

SiLeach® testwork confirmation

Metallurgical test work undertaken on bulk samples from Sadisdorf achieved lithium extractions of 91-97.4% with an average of 95% (as detailed in the table below).

While the SiLeach® test-work is preliminary, it confirms the suitability of the SiLeach® hydrometallurgical process to unlock the lithium value from Sadisdorf and similar historical tin deposits.

Sadisdorf greisen sample	Lithium head grade (ppm)	Li_2O equivalent head grade (%)	Lithium SiLeach® extraction (%)
Greisen 1	2,510	0.54	96.8
Greisen 2	2,250	0.48	97.4
Greisen 3	1,400	0.30	91.0
Average	2,053	0.44	95.0

TABLE 2: SiLeach® test results for Sadisdorf greisen samples (Source: LIT ASX Announcement 7/12/17).

About the Sadisdorf Joint Venture

In May 2017, **LIT** entered into a joint venture with **Tin International AG** whereby **LIT** is earning a 50% interest in the Sadisdorf project, upon completion of the farm-in, the partners are to share the project development costs equally or are diluted accordingly.

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BOARD & MANAGEMENT

Mr Bauk significant experience within the critical metals market provides global insight into the wider battery materials sectors.

Mr George Bauk, **NON-EXECUTIVE CHAIRMAN**

Mr Bauk's 25+ years of mining industry experience includes expertise in critical metals. Skilled in strategic management, business planning, the establishment of high-performing teams and capital-raisings, he has held senior operational and corporate positions with **WMC Resources Ltd**, **Arafura Resources Ltd** and was managing director of **Indigo Resources Ltd** (formerly **Western Metals**).

Since 2010, Mr Bauk has been managing director of ASX listed **Northern Minerals**, overseeing that company's heavy-rare-earth project in northern Australia. This has involved organising a successful green-fields exploration programme, obtaining government approvals for production and co-existence agreements with traditional owners, initiating a definitive feasibility study and establishing off-take agreements with international suppliers, as well as substantial fund-raising.

Adrian's a long track record across all stages of the exploration, project development and mining

Mr Adrian Griffin **MANAGING DIRECTOR**

Having spent more than 40 years in mining, Mr Griffin's expertise ranges from project identification, development and financing to overseeing the operation of integrated mining and processing facilities. His substantial international experience includes diamond exploration and production and being a founder and technical director of **Ferrum Crescent**, an iron-ore developer in South Africa.

Mr Griffin is a founding director of **Northern Minerals Ltd** and **Parkway Minerals Ltd** (developer of the K-Max™ process to recover potassium and other metals from glauconite) and is a non-executive director of **Reedy Lagoon Corporation**.

Most recently, he has been instrumental in identifying the global opportunity to establish lithium micas as a source feed for the lithium chemical industry.

Bryan has considerable experience in the mining sector including project development, acquisition and financing.

Mr Bryan Dixon **NON-EXECUTIVE DIRECTOR**

Mr Dixon boasts substantial experience in the mining sector and the management of public and listed companies. He previously held positions with **KPMG**, **Resolute Samantha Limited**, **Société Générale** and **Archipelago Resources Plc**.

Currently, Mr Dixon is also a non-executive director of **Hodges Resources Limited** and **Blackham Resources Limited**. A chartered accountant, his project development, project acquisition, financing and corporate skills are of significant benefit to the Company.

Barry is CFO with significant international commercial and public company experience.

Mr Barry Woodhouse **COMPANY SECRETARY AND CFO**

For some 25 years, Mr Woodhouse has been involved in manufacturing, mining services, exploration, mine production (gold, oil and gas, iron ore, bauxite, lithium, copper, uranium and manganese) and information technology in his roles as, variously, chairman, director, CFO, financial controller and/or company secretary of a number of listed and private entities.

His career has granted him exposure to a number of jurisdictions, including the US, Indonesia, China, Vietnam, Europe and India. In general, Mr Woodhouse involves himself with a company while it is establishing or redefining its investment strategy.

Global Exploration Footprint

Lithium Australia has exposure to all the world's major lithium provinces

In addition to commercialising its disruptive technology portfolio, **Lithium Australia** continues to develop a strong international exploration footprint, not only to develop its own resources but also to utilise existing sources of lithium concentrates to feed future lithium chemical production hubs.

To this end, **Lithium Australia** has established a number of alliances with companies securing access to a diverse supply of lithium resource across the world's major lithium provinces.

These alliances include **Pilbara Minerals Ltd** (ASX: **PLS**) **Poseidon Nickel Ltd** (ASX: **POS**), **Venus Metals Corporation Ltd** (ASX: **VMC**), **Focus Minerals Ltd** (ASX: **FML**), **MetalsTech Ltd** (ASX: **MTC**), **Alix Resources Corporation** (TSX-V: AIX) and **Tin International AG** (Germany).

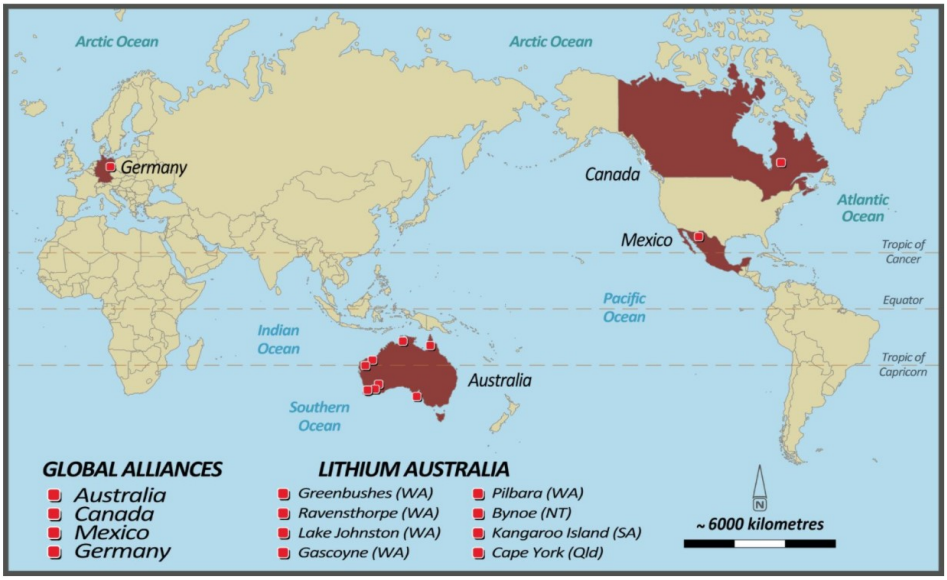

FIGURE 6: Global projects and alliances (Source: LIT ASX Announcements, various)

The revolutionary SiLeach® process successfully produced battery grade Li_2O from sub-economic spodumene sourced from Pilbara Minerals Pilgangoora deposit.

Pilbara Minerals - SiLeach® Joint Venture

In June 2016, **LIT** entered into a SiLeach® joint venture (the "SJV") with **Pilbara Minerals** to assess the feasibility of establishing a carbonate plant to produce both lithium carbonate and lithium hydroxide from spodumene sourced from **Pilbara Minerals** Pilgangoora deposit (Western Australia).

In May 2017, **LIT** announced the production of 99.8% Li_2O from a sub-economic spodumene concentrate of 3.4% sourced from **Pilbara Minerals'** Pilgangoora deposit.

The partnership between LIT and Poseidon enhances the progress towards establishing Lake Johnston as a central lithium processing hub.

Poseidon Nickel – joint exploration and lithium processing

In September 2017, **LIT** and **Poseidon Nickel** signed an MOU to evaluate joint exploration and processing opportunities at Lake Johnson in Western Australia, where **Poseidon's** 1.5 million tonne per annum nickel processing plant is located.

Lake Johnson is known to be rich in pegmatites and the joint exploration ground (1,000km^2) lies only 70km west of the substantial Earl Grey Lithium discovery.

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APPENDIX—LITHIUM ION BATTERY MARKET

Lithium consumption by sector

Lithium-ion batteries are rapidly becoming the dominant rechargeable battery technology.

- In 2015 approximately one-third of all lithium consumed was in batteries.
- By 2020 batteries are expected to represent 50% of lithium demand.

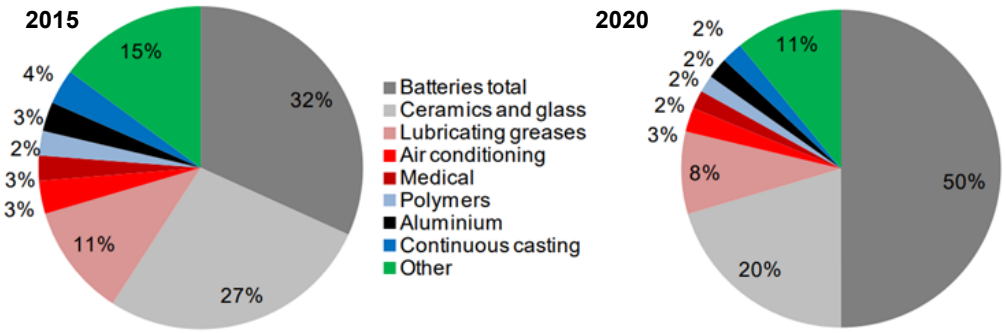

FIGURE 7: Lithium consumption by Sector 2015 v 2020 (Source: Deutsche Bank 2016)

Lithium-ion battery growth

Demand for li-ion batteries is primarily driven by the growing global demand for electric vehicles

- Lithium ion is rapidly becoming the dominant rechargeable battery technology.
- Demand growth is primarily being driven by electric vehicle uptake.
- Energy Storage Systems are an emerging area of demand.

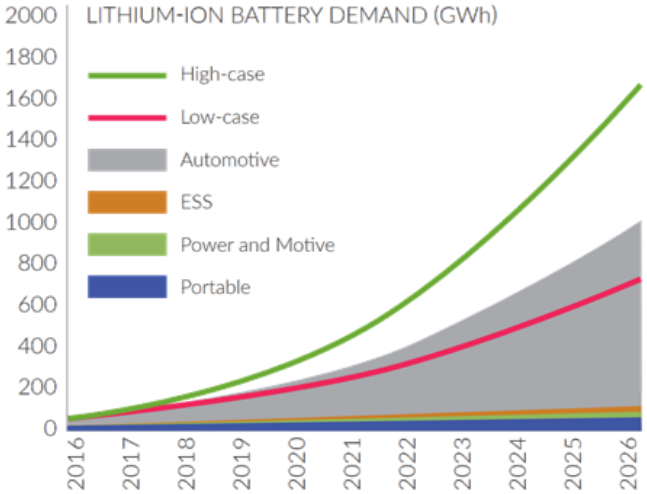

FIGURE 8: Li-ion battery growth (Source: Roskill 2017)

Lithium-ion battery capacity under construction

China is expected to dominate the global lithium-ion battery market

- More than $20 billion has been committed to building new lithium-ion cell capacity.
- China represents more than 70% of this capacity.

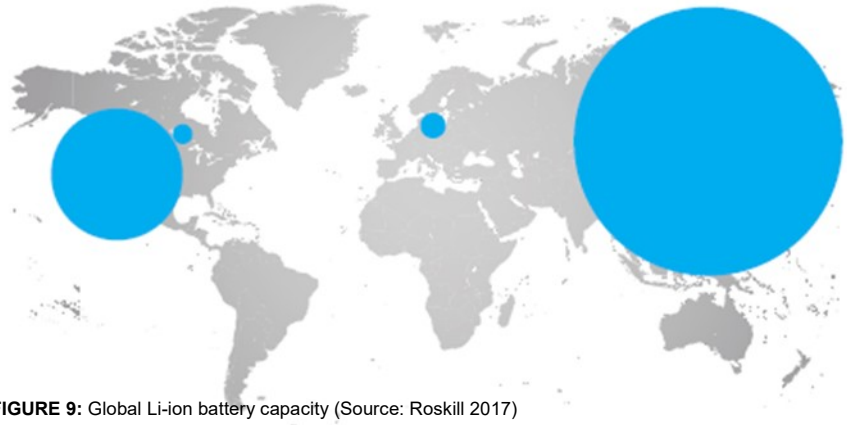

FIGURE 9: Global Li-ion battery capacity (Source: Roskill 2017)

Technology, scale and competition are the main drivers for diminishing costs of li-ion battery production

Lithium-ion Battery Pricing

- Driven by technology improvements, economies of scale and competition between manufacturers.
- The price of lithium-ion batteries fell by 73% between 2010 and 2016 and it is expected prices will fall further by 2030.

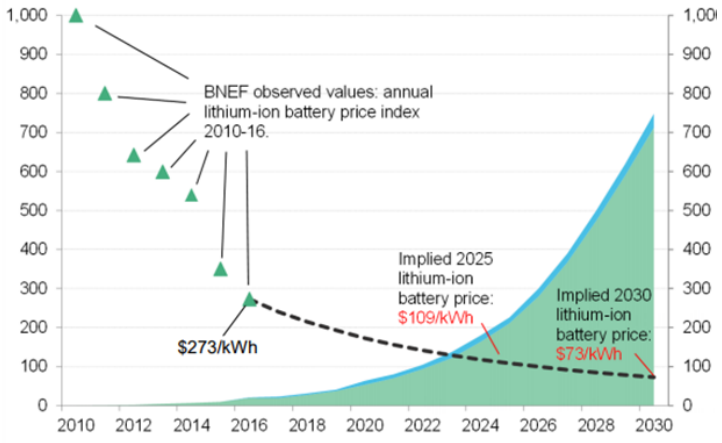

FIGURE 10: Li-ion battery pricing outlook (Source: BNEF Sep 2017)

Lithium-ion battery breakdown

- Battery cell assembly is a complex supply chain of largely unrelated product groups.
- Lithium-ion batteries are made of cathodes, anodes, electrolytes and separators.
- Li-ion batteries are normally specified by cathode chemistry.

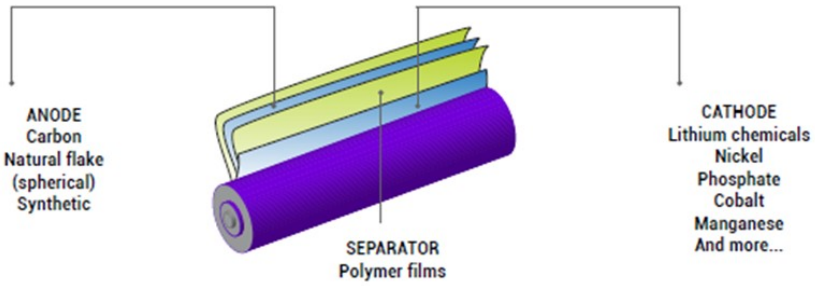

FIGURE 11: Li-ion battery cell assembly (Source: Benchmark Mineral Intel, 2016)

Cathode innovation is the key to improving battery performance

Lithium-ion battery cost structure

- Cathodes are the most expensive of all battery materials representing up-to 25% of total material cost.
- Cathode innovation is the key to improving battery performance.
- There are a range of cathodes used in lithium-ion batteries that offer different strengths and weaknesses.

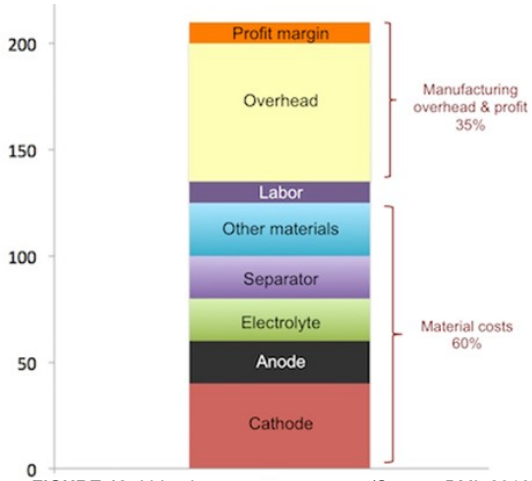

FIGURE 12: Li-ion battery cost structure (Source: BMI, 2016)

Li-ion batteries are specified by cathode chemistry.

Each type of cathode provides different strengths and weaknesses

Types of lithium-ion batteries

- There are five major types of cathodes used in lithium-ion batteries.
- Each provides different strengths and weaknesses.

Name	Material Components	Uses	Characteristics
LCO	Lithium Cobalt Oxide	Mobile phones, laptops	Incumbent technology first introduced in 1991, high energy density but incurs longer charge times and shelf life of 1-3 years, can be dangerous if damaged.
LMO	Lithium Manganese Oxide	Power tools, medical instruments	Low internal cell resistance allows fast recharging and high current discharging but 1/3 of LCO's energy capacity
NCA	Nickel Cobalt Aluminium	Electric powertrains for vehicles, energy storage	High specific energy and long-life span; safety and cost have been historical concerns but are being resolved
NMC	Nickel Manganese Cobalt	Electric powertrains for vehicles, power tools	Can be tailored to high specific energy or high specific power; most Japanese and Korean producers sell NMC
LFP	Lithium Iron Phosphate	Electric powertrains for vehicles, ebikes, ESS	LFP batterie offer a safe alternative due to thermal and chemical stability, the Chinese government promotes LFP over NCA/NMC

TABLE 3: Li-ion batteries by types and uses

Cathode Materials

- A range of elements are used in different rechargeable battery chemistries.
- Lithium Iron Phosphate (LFP) is the only cathode that does not require cobalt and is considered the safest of all lithium-ion batteries.

LFP cathodes are considered conflict free as they are the only li-ion batteries that do not require cobalt

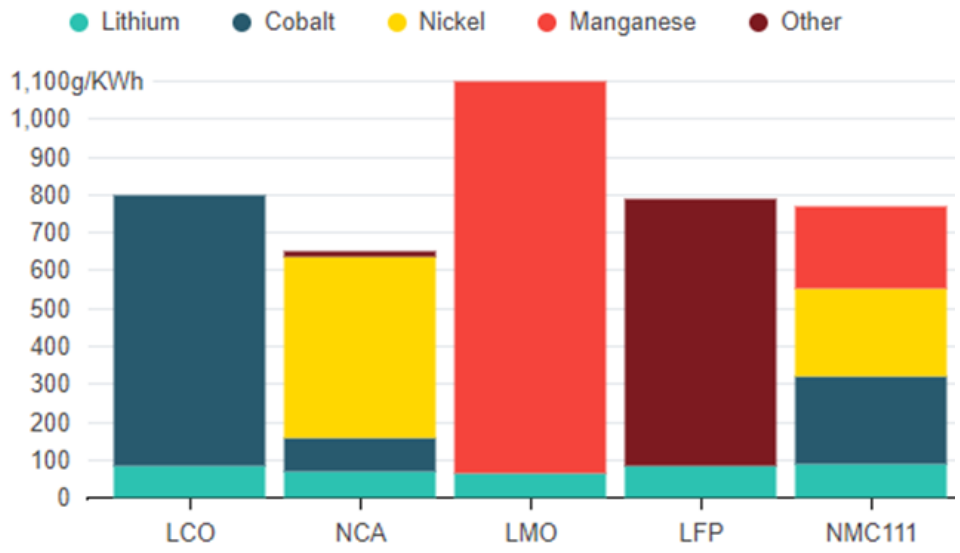

FIGURE 13: Li-ion batteries by cathode materials (Source: Pulead Technology Mar 2017)

LFP and NMC are expected to be the dominant technologies over the next 10-15 years.

R&D development of Li-sulphur and Li -air are not expected to be commercialised before 2030

Cathode Market Share

- Historically LCO has been the incumbent lithium-ion technology.
- Key considerations are safety and energy density (kWh/kg).
- LFP and NMC are expected to be the predominant technologies moving forward.
- Further technological advancement is driven by more complex chemistry.
- R&D investments in Li-sulpher and Li-air are not expected to be commercialised prior to 2030.

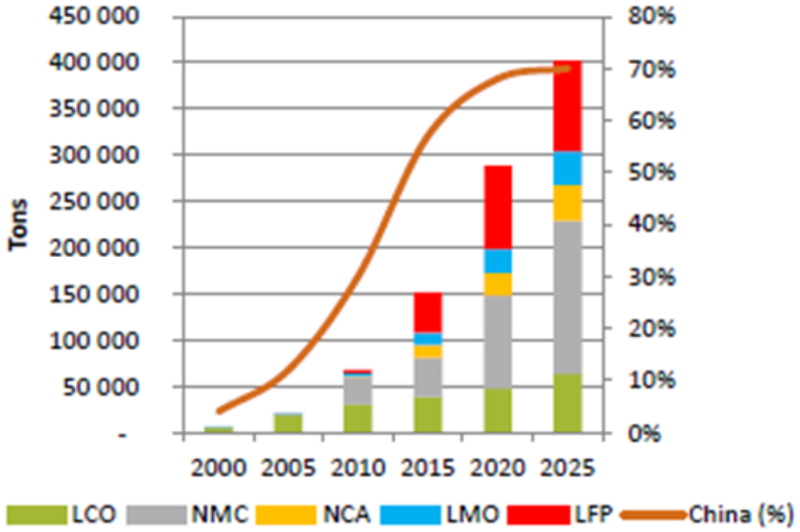

FIGURE 14: Li-ion battery cathode outlook (Source: Avicenne Energy Mar 2017)

LFP is the technology of choice for electric buses due to its lower cost and enhanced safety, which is the primary consideration for large battery sizes.

Lithium Iron Phosphate (LFP) Demand

- LFP demand is expected to grow by 8% year on year.
- Chinese battery manufacturers dominate LFP demand which has historically been driven by government regulations and incentives.
- LFP is the technology of choice for electric buses due to its lower cost and enhanced safety-the primary consideration for large battery sizes.

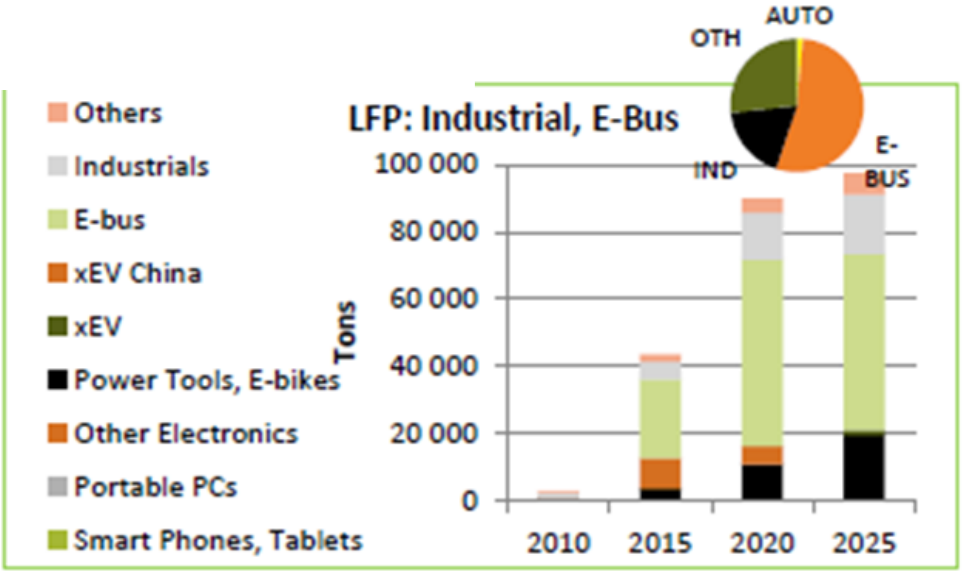

FIGURE 15: LFP outlook (Source: Avicenne Energy Mar 2017)

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RM Research Recommendation Categories

Care has been taken to define the level of risk to return associated with a particular company. Our recommendation ranking system is as follows:

Buy	Companies with 'Buy' recommendations have been cash flow positive for some time and have a moderate to low risk profile. We expect these to outperform the broader market.
Speculative Buy	We forecast strong earnings growth or value creation that may achieve a return well above that of the broader market. These companies also carry a higher than normal level of risk.
Hold	A sound well managed company that may achieve market performance or less, perhaps due to an overvalued share price, broader sector issues, or internal challenges.
Sell	Risk is high and upside low or very difficult to determine. We expect a strong underperformance relative to the market and see better opportunities elsewhere.

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