

**Commodity Overview - Lithium** 

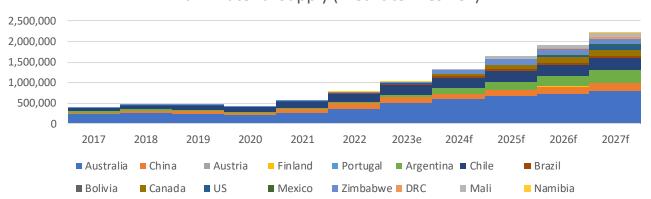
September 2023

## Macro demand: EV adoption driving structural shift in demand for Lithium

- The lithium market is poised for significant growth in the coming years, driven by the increasing adoption of electric vehicles and the transition to clean energy.
- Australia is the premier place for lithium investment due to its abundant hard rock resources, favourable regulatory
  environment, and strong mining expertise.
- China is the world's largest processor of lithium, responsible for refining over 70% of the world's raw products. As geopolitical tensions continues to increase, the west is aggressively supporting initiatives in aligned countries.
- The US Inflation Reduction Act and the European Green Bill are two major pieces of legislation in the West that are providing significant support for the lithium industry. These bills provide billions of dollars in tax credits and other incentives to produce lithium and other battery materials.

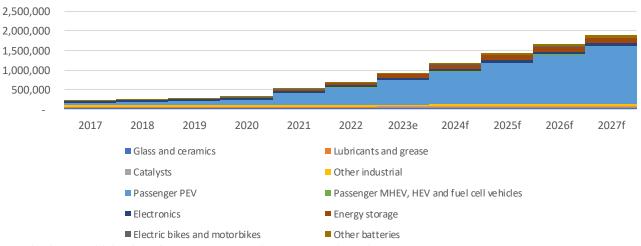
#### Supply

## Raw material supply (metric tonnes LCE)



#### Demand

## Lithium consumption (metric tons of LCE)



Source: Bloomberg, S&P Global Market Intelligence, Investing.com, Trading Economics, MarketWatch, NASDAQ, KME



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## **Products and Pricing**

## Types of Lithium deposits:

**Hard rock** lithium deposits are formed by the crystallization of magma. The most common lithium-bearing mineral in hard rock deposits is spodumene. Hard rock deposits are typically mined using conventional underground or open-pit mining methods.

**Brine** lithium deposits are formed by the evaporation of ancient saltwater lakes. The lithium content of brines is typically lower than that of hard rock deposits, but brines are more widespread and easier to mine. Brine lithium is extracted by pumping the brine from underground aquifers and evaporating it in large ponds.

**Clay** lithium deposits are formed by the accumulation of weathered volcanic ash. The lithium content of clay deposits is typically lower than that of hard rock or brine deposits, but clay deposits are more abundant and easier to mine. Clay lithium is extracted using a variety of methods, including leaching and flotation.

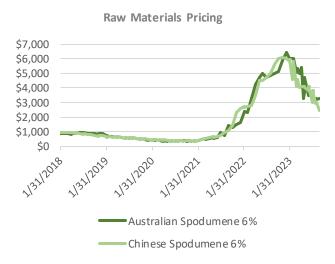
#### **Lithium Products**

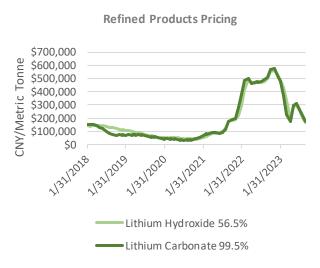
**1% Spodumene(Direct Shipping Operations)** - DSO Operations are shipping raw ore from Australia to processing facilities, often in China. This is a faster route to revenue for many budding producers. However, These operations are shipping 99% waste. This is carbon intensive and inefficient from an emissions perspective.

**5% - 6% Spodumene Concentrate –** This is Australia's largest Lithium export. After the Spodumene is mined (often at a lithium content of 0.5-1.5%) it is sent to a concentrator before being shipped offshore to be refined to a final product.

**Lithium Hydroxide** – Most commonly derived from Spodumene concentrate, Lithium Hydroxide is produced through a complex chemical process which refines to 56.5% lithium. Hydroxide is the preferred battery material due to it decomposing at a lower temperature enabling a more sustainable battery making process and more durable batteries.

**Lithium Carbonate** – Most commonly derived from brines, Lithium carbonate is an almost pure (99.5%) Lithium product. Carbonate is used in rechargeable batteries as well as other industrial use cases. Lithium Carbonate is also used in a medical setting to treat Bipolar disorder.





Source: S&P Global Market Intelligence, Investing.com, Trading Economics, MarketWatch, NASDAQ, KME



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## Western Australia: Hard Rock Lithium Capital of the World

Western Australia is home to 3 Distinct lithium provinces. Some well-developed and others emerging.

#### **Pilbara**

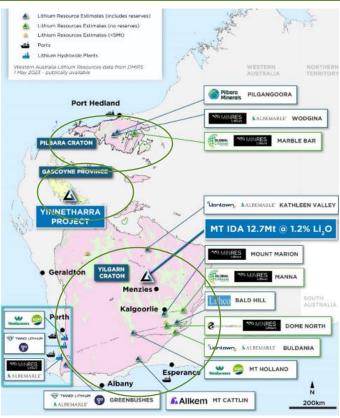
- The Pilbara area, in particular the West Pilbara has received most of the attention over the past year with Pilbara Minerals proving how profitable a lithium operation can be and Azure Minerals in the process of uncovering another tier 1 resource in the region.
- The Pilbara region has well established infrastructure and logistics due to its extensive history as an Iron Ore mining region.

#### **Yilgarn Craton**

- The Yilgarn is by far the most proven Lithium Province in Western Australia, home to the country's oldest lithium mine, Greenbushes and 10 of the 14 known JORC resources in the country.
- The Yilgarn has been historically a great place to find many commodities such as gold, copper and nickel

## Gascoyne

The Gascoyne region is an emerging lithium and rare earths district with many junior and mid cap mining companies looking to make a discovery.



Source: ASX, Delta Lithium(DLI) Announcement, 8/8/23

## **Corporate Activity**

## 2023 so far: Takeovers, strategic investments and conglomerates locking up supply.

- Albermarle makes \$6.6 billion offer for Liontown Resources (LTR). This is an improved offer of \$3 per share after Albermarle's initial bid of \$5.5 Billion (\$2.50 per share) was rejected by the board in early 2023.
- Gina Rinehart (Australia's richest woman, net worth: \$30B+) acquires 17% stake in Liontown. Gina has entered Liontown whilst the Albermerle bid has been supported by the board in absence of a better offer.. Watch this space.
- Develop Global (DVP) bids \$155 million to acquire Essential Metals (ESS). This marks Develop's entry into lithium.
   Acquiring ESS' Dome North project in the Yilgarn. Dome North has a current resource of 8.6Mt at 1.23% Li<sub>2</sub>0.
- SQM lobs \$900 million offer to Azure Minerals (AZS) as they drill out their Maiden Resource Estimate. Not officially announced but rather leaked to the media and then confirmed by the company in August 2023. Azure's main asset is their 60% stake in the Andover Lithium and Nickel Project in the West Pilbara.
- Allkem and Livent agree a \$15 billion dollar merger of equals. The Merged co. will represent one of the largest lithium producers in the world with assets across Western Australia, Canada, South America and Europe.
- Future Battery Minerals raises \$7.6 million with cornerstone investment by Hancock Prospecting (Australia's largest private mining company, owned by Gina Rinehart). Funds raised going towards developing 2 mineral resource estimates across their projects in Western Australia and Nevada.
- Mineral Resources increase Delta Lithium stake to 17% adding founder Chirs Ellison to the board. Chris will join
  as non-executive chairman alongside Joshua Thurlow, Mineral Resources CEO of Lithium joining as non-exec director.

Source: ASX, Bloomberg, S&P Global Market Intelligence, Investing.com, Trading Economics, MarketWatch, NASDAQ, KME



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#### **Valuations**

# Companies involved in Production, Development & Exploration of Lithium in Western Australia:

Company (ASX CODE)	Project(s)	Province	Stage	Resource	Market Cap (\$M)
Mineral Resources (MIN)	Wodgina Mount Marion	Pilbara Yilgarn	Production	233Mt @ 1.21% Li20 51.4 @ 1.45% Li20	13,250
Pilbara Minerals (PLS)	Pilgangoora	Pilbara	Production	413Mt @ 1.13% Li20	11,999
IGO Itd (IGO)	Greenbushes	Yilgarn	Production	294.4Mt @ 1.5% Li20	9,072
Allkem (AKE)	Mt Cattlin	Yilgarn	Production	7.1Mt @ 1.2% Li20	7,438
Liontown (LTR)	Kathleen Valley Buldania	Yilgarn Yilgarn	Development	156Mt @ 1.4% Li20 14.9Mt @ 1.0% Li20	6,606.8
Azure Minerals (AZS)	Andover	Pilbara	Exploration	N/A	1,156.2
Delta Lithium (DLI)	Mt Ida Yinnetharra	Yilgarn Gascoyne	Development Exploration	12.7Mt @ 1.2% Li20 N/A	423.5
Global Lithium (GL1)	Manna Marble Bar	Yilgarn Pilbara	Production Development	14.9Mt @ 1.0% Li20 18Mt @ 1.0% Li20	378.1
Wildcat Resources (WC8)	Tabba Tabba	Yilgarn	Exploration	N/A	266.2
Essential Metals (ESS)	Dome North	Yilgarn	Development	8.6Mt @ 1.23% Li20	126.4
Raiden Resourcees (RDN)	Andover South	Pilbara	Exploration	N/A	71
Future Battery Minerals (FBM)	Kangaroo Hills Nevada Lithium Project	Yilgarn Nevada	Exploration Exploration	N/A	58.6
Reach Resources (RR1)	Morrissey Hill	Gascoyne	Exploration	N/A	47.3
GreenTech Metals (GRE)	Ruth Well	Pilbara	Exploration	N/A	29.7
Metals Australia (MLS)	Manindi	Yilgarn	Exploration	N/A	20.6
Voltaic Strategic Resources (VSR)	Ti Tree	Gascoyne	Exploration	N/A	18.6
Everest Metals Corp (EMC)	Rover	Yilgarn	Exploration	N/A	14.7
Zeus Resources (ZEU)	Mortimer Hills	Gascoyne	Exploration	N/A	6.9
Forrestania Resources (FRS)	Forrestania	Yilgarn	Exploration	N/A	4.7

Source: Bloomberg, as at 26/09/23



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September 2023

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The Fund aims to achieve long-term growth by investing in equities in the global natural resources sector, incorporating the metals and mining, energy and agriculture sectors

ESG considerations are core to Eden's investment process, and potential investments which do not meet required ESG measures will be excluded from the Fund's investment universe. Eden employs a combination of negative/exclusionary screening, positive/best-in-class screening, ESG integration, and corporate engagement plus shareholder action

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