

**Liontown**

# **A unique opportunity to invest in a globally significant lithium company**

ASX: LTR

Kathleen Valley Lithium Project

Diggers & Dealers | August 2021



# Important information



## CAUTIONARY STATEMENT

<sup>1</sup> The production targets and forecast financial information referred to in the PFS & DSS were based on Proven Ore Reserves (19.7%), Probable Ore Reserves (69.8%) and Inferred Mineral Resources (10.5%). The Inferred material included in the inventory was 8.28Mt @ 1.36% Li<sub>2</sub>O & 120 ppm Ta<sub>2</sub>O<sub>5</sub>. The Inferred material was scheduled such that less than 1Mt is mined in the first ten years, with 6.44Mt at the end of the underground mine life and 0.84Mt after year 25 for the open pit.

The Inferred material does not have a material effect on the technical and economic viability of the project.

There is a low level of geological confidence associated with inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of indicated Mineral Resources or that the production target itself will be realised.

Note that a Mineral Resource Estimate update released on 8 April 2021 resulted in the reclassification of 4Mt from the Inferred category to the Indicated category.

## Forward looking statements

This Presentation contains forward-looking statements which are identified by words such as 'may', 'could', 'believes', 'estimates', 'targets', 'expects', or 'intends' and other similar words that involve risks and uncertainties. These statements are based on an assessment of present economic and operating conditions, and on a number of assumptions regarding future events and actions that, as at the date of this Presentation, are considered reasonable. Such forward-looking statements are not a guarantee of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of the Company, the Directors and the management. The Directors cannot and do not give any assurance that the results, performance or achievements expressed or implied by the forward-looking statements contained in this Presentation will actually occur and investors are cautioned not to place undue reliance on these forward-looking statements. The Directors have no intention to update or revise forward-looking statements, or to publish prospective financial information in the future, regardless of whether new information, future events or any other factors affect the information contained in this Presentation, except where required by law or the ASX listing rules.

## Disclaimer

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## Authorisation

This Presentation has been authorised for release by the Board.

## Competent person statement

The Information in this Presentation that relates to Ore Reserves, Production Target and Pre -Feasibility Study (PFS) for the Kathleen Valley Project is extracted from the ASX announcement "Updated Kathleen Valley Pre-Feasibility Study delivers substantial increase in NPV to A\$1.1 billion and mine life to ~40 years" released on 9<sup>th</sup> October 2020 which is available on [www.ltresources.com.au](http://www.ltresources.com.au)

The Information in this Presentation that relates to Mineral Resources for the Kathleen Valley Project is extracted from the ASX announcement "Strong progress with Kathleen Valley Definitive Feasibility Study as ongoing work identifies further key project enhancements " released on the 8th April 2021 which is available on [www.ltresources.com.au](http://www.ltresources.com.au)

The Information in this Presentation that relates to the Downstream Scoping Study (DSS) is extracted from the ASX announcement "Downstream Scoping Study: Kathleen Valley Lithium-Tantalum Project" released on 22 October 2020 which is available on [www.ltresources.com.au](http://www.ltresources.com.au)

The information in this Presentation that relates to Exploration Results for the Kathleen Valley Project is extracted from the ASX announcement "Kathleen Valley Lithium-Tantalum Project Advancing to the Next Level with Definitive Feasibility Study Underway" released on 11<sup>th</sup> January 2021 which is available on [www.ltresources.com.au](http://www.ltresources.com.au).

The information in this Presentation that relates to grade recovery curves for the Kathleen Valley Project is extracted from the ASX announcement "Liontown defines input criteria for updated PFS at Kathleen Valley Lithium-Tantalum Project, W.A." released on 9<sup>th</sup> June 2020 which is available on [www.ltresources.com.au](http://www.ltresources.com.au).

The Information in this Presentation that relates to Mineral Resources for the Buldania Project is extracted from the ASX announcement "Liontown announces maiden Mineral Resource Estimate for its 100%-owned Buldania Lithium Project, WA" released on the 8th November 2019 which is available on [www.ltresources.com.au](http://www.ltresources.com.au).

The Information in this Presentation that relates to Exploration Results for the Moora Project is extracted from the ASX announcement "Drilling defines multiple bedrock zones with potential for a significant discovery at the Moora Project, WA" released on the 13<sup>th</sup> April 2021 which is available on [www.ltresources.com.au](http://www.ltresources.com.au).

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements and that all material assumptions and technical parameters underpinning the estimates or production targets or forecast financial information derived from a production target (as applicable) in the relevant market announcements continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

# Liontown Resources are a WA-focused hard rock lithium developer

## Projects

**Kathleen Valley**  
(Lithium-Tantalum)

World-class scale and economics  
**156Mt @ 1.4% Li<sub>2</sub>O & 130ppm Ta<sub>2</sub>O<sub>5</sub>**  
 ~40 year mine life  
 High-grade  
 DFS due Q4 2021

**Buldan**  
(Lithium)

15Mt @ 1.0% Li<sub>2</sub>O  
 Resource upside

**Moora**  
(Gold-PGE-Nickel-Copper)

Emerging mineral province  
 Previously unexplored  
 Exceptional early results  
 43m @ 1.7g/t gold



## Corporate snapshot (30 July 2021) ASX: LTR

**Market Cap.**  
**A\$1.8bn**

**Share price (\$/s)**  
**A\$0.925**

**Shares on issue <sup>1</sup>**  
**1,899m**  
 ~21% held by Board and Executive Leadership Team

**Major shareholders**  
as at 30 June 2021  

■ Top 20  
 44%  
 (incl. 17% held by Chairman - Tim Goyder)

**Cash and liquid assets<sup>2</sup>**  
**A\$33m**

**Research coverage**

1: Post completion of July 2021 Capital Raising.  
 2: Includes ~\$31.7M in cash (post completion of KV Royalty termination) and ~\$1.5M in Lachlan Star Limited ordinary shares issued; LSA share price of \$0.038 as at 30 July 2021.  
 August 2021

# Liontown Investment Proposition



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## **Strong Lithium market fundamentals – supply gap from 2024**



## **Some of the best undeveloped spodumene deposits located in a reliable mining jurisdiction**

- Kathleen Valley – large, high grade and competitive cost structure
- Buldania – further potential to build on current resources



## **Well defined plan for development of the deposits**

- Strong ESG credentials - small environmental footprint
- Releasing DFS in Q4 2021



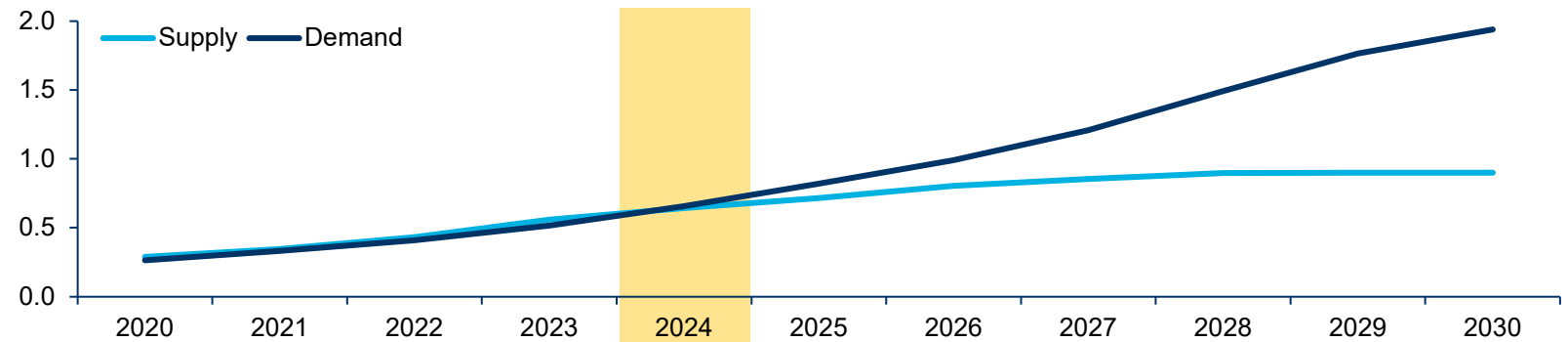
## **Developing and preserving valuable options**

- Full optionality tonnes
- Studying further value add opportunities - Refining

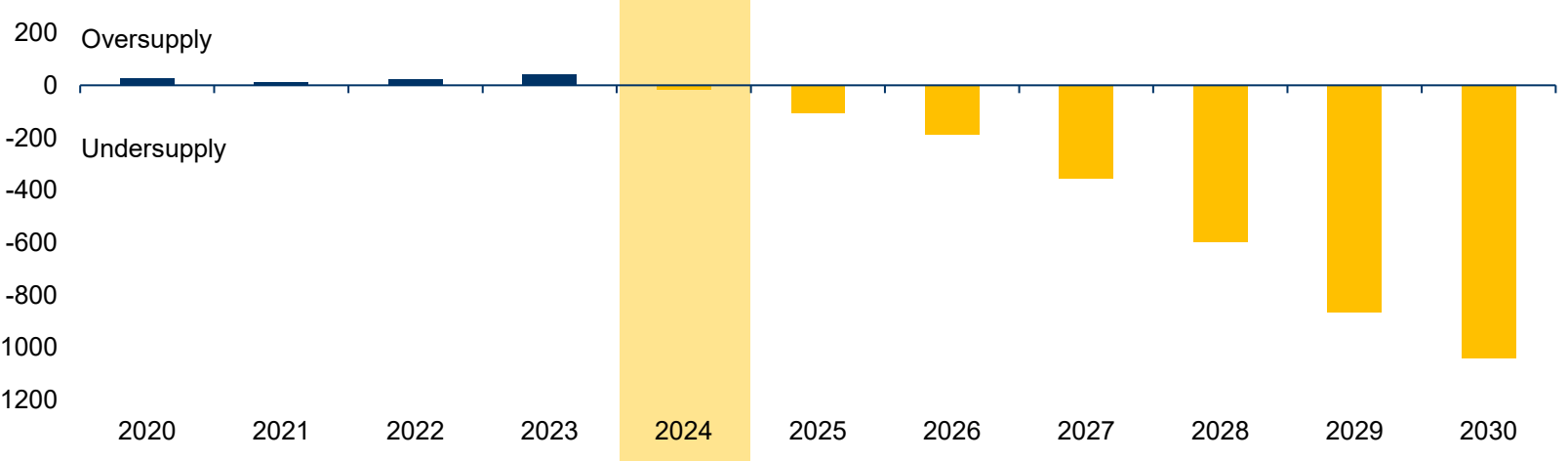


# Lithium market deficit expected by 2024

Global lithium market balance (battery grade), 2020-30, Mt LCE



Supply/demand balance, 2020-30, Kt LCE



>1 Mt

LCE shortfall in supply by 2030

~44kt<sup>1</sup>

LCE to be supplied by Kathleen Valley to meet expected market deficit

1: Based on average 350 ktpa SC6 production. LCE assumes 8t 6.0% Li<sub>2</sub>O concentrate per tonne lithium carbonate, including process losses.  
Source: Roskill

# Kathleen Valley is a uniquely positioned, globally significant Tier 1 lithium resource

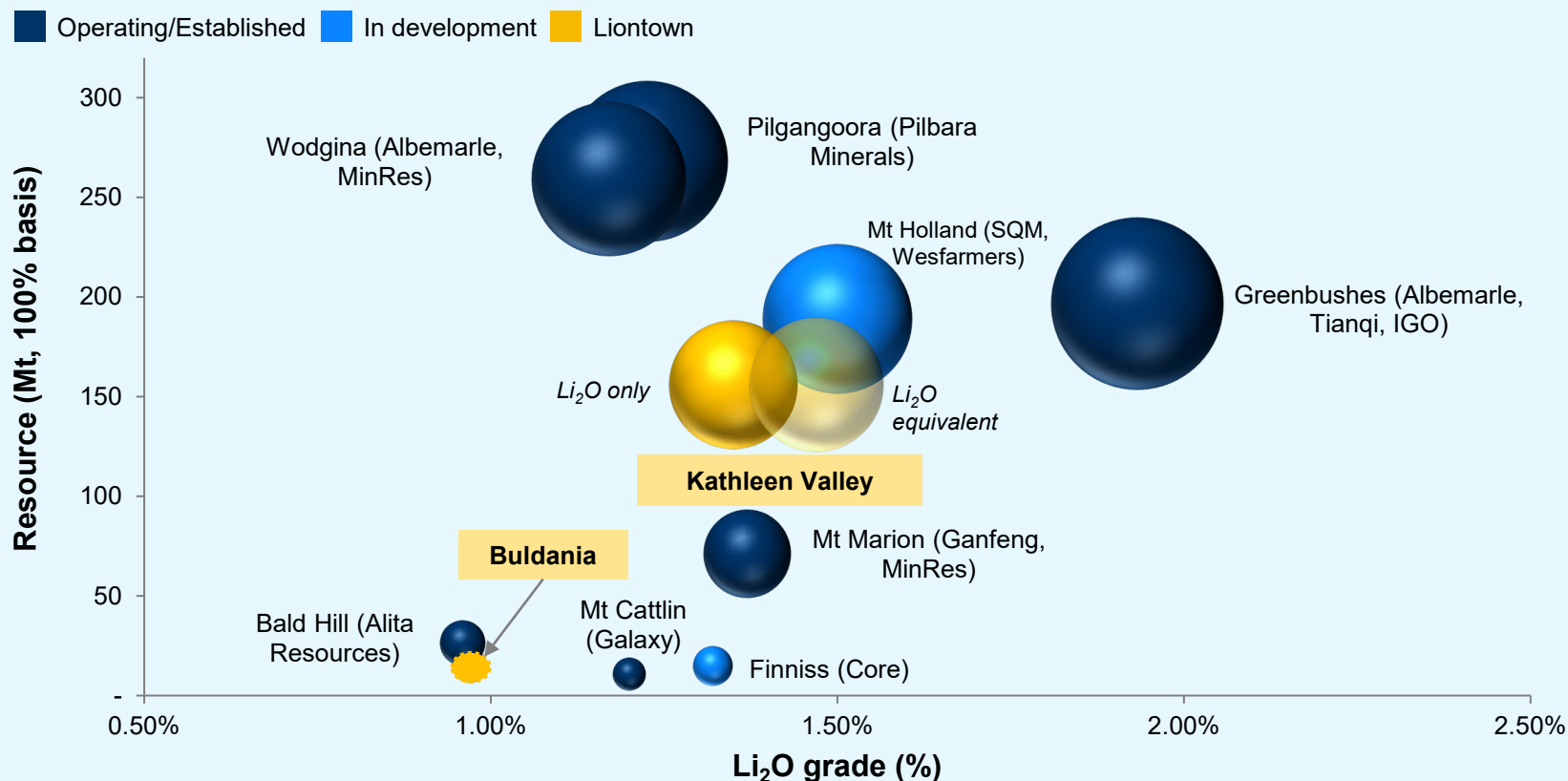
- **156Mt** – one of world's largest hard rock lithium resources, with reserves already defined
- **1.4% Li<sub>2</sub>O** – high-grade resource
- **40-year lifespan** – long-term, allowing for downstream options
- **Simple, robust resource** – potential for premium product
- **Competitive cost structure**- resilient through the lithium commodity cycle

1: Operating costs for years 1-5 = US\$261 including all mining, processing, transport, freight to port, port costs, site administration & overhead costs and includes tantalum credits + US\$62/dmt state and private royalties (prior to termination of KV Royalty – ASX Announcement 2 August 2021) + US\$30/t Sea freight. Excludes sustaining capital. | 2: Roskill, Historical Spodumene Prices (SC6.0 CIF) for Q12016 to Q42020.



## Australian hard rock lithium operations and advanced projects

By project, size, and grade



First five year average production cost **US\$353/dmt** of SC6 (CIF inclusive royalties)<sup>1</sup>

Average spodumene price over the last five years **US\$588/t<sup>2</sup>**

Refer to Appendix 1 for Peer Comparison information including Resource Classifications; refer to Appendix 1 for Li<sub>2</sub>O equivalents parameters and calculations.

# Stable, established and well-governed mining jurisdiction



**Major Nickel and Gold Mines**



**Town of Leinster**



**Goldfields Highway (access to Geraldton port)**



**Natural gas pipeline**



**Powerline**



**Sealed airstrips**

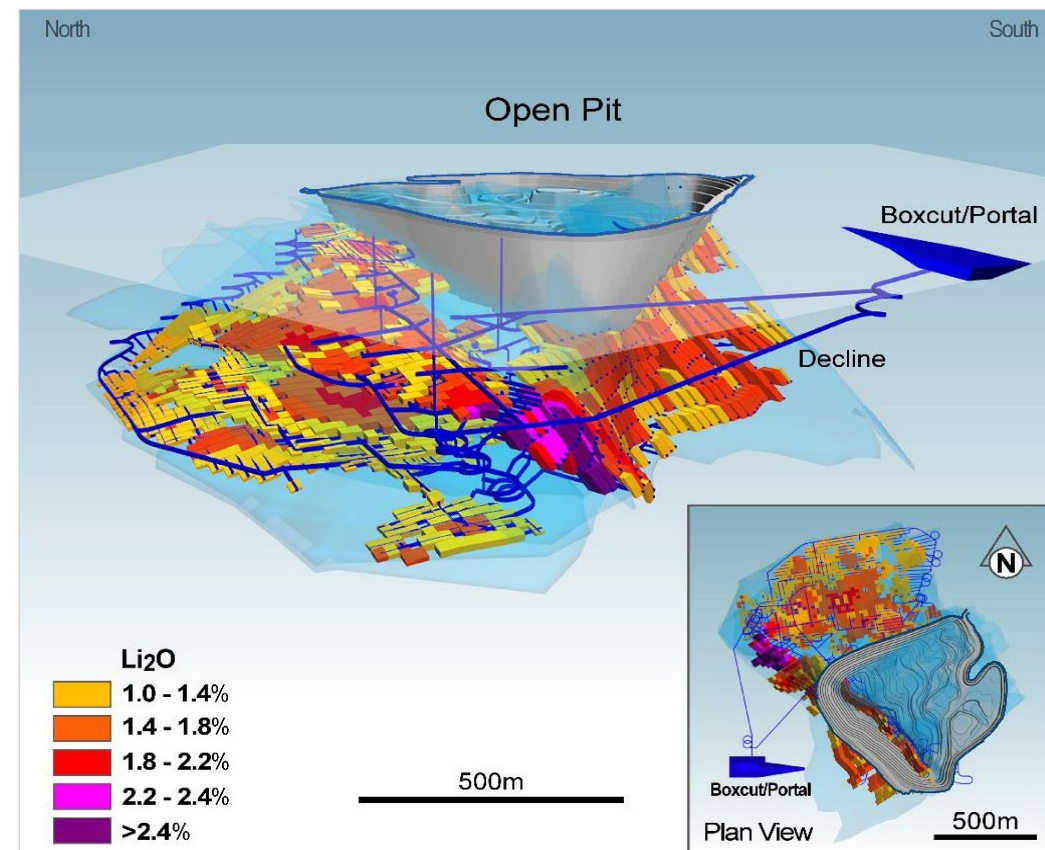
# The Definitive Feasibility Study (DFS) and optimisation are well advanced to maximise value

## DFS update

- On track to conclude Q4 2021
- Assessing technology adoption to minimise Scope 1 and Scope 2 emissions
- Ongoing test work including ~5 tonne pilot program
- Continued engagement with Traditional Owners to strengthen social licence

## Additional optimisation effort to maximise optionality

- **Mine schedule optimisation** to improve project economics
- Examining options to **increase throughput** (2Mt +)
- **Final concentration/grade optimisation** (with potential for >6%  $\text{Li}_2\text{O}$  premium concentrate)
- **Design schedule accelerated** to meet the market – targeting 3 year development timeline





# Lithium developers are moving underground

## Rationale for underground lithium mining

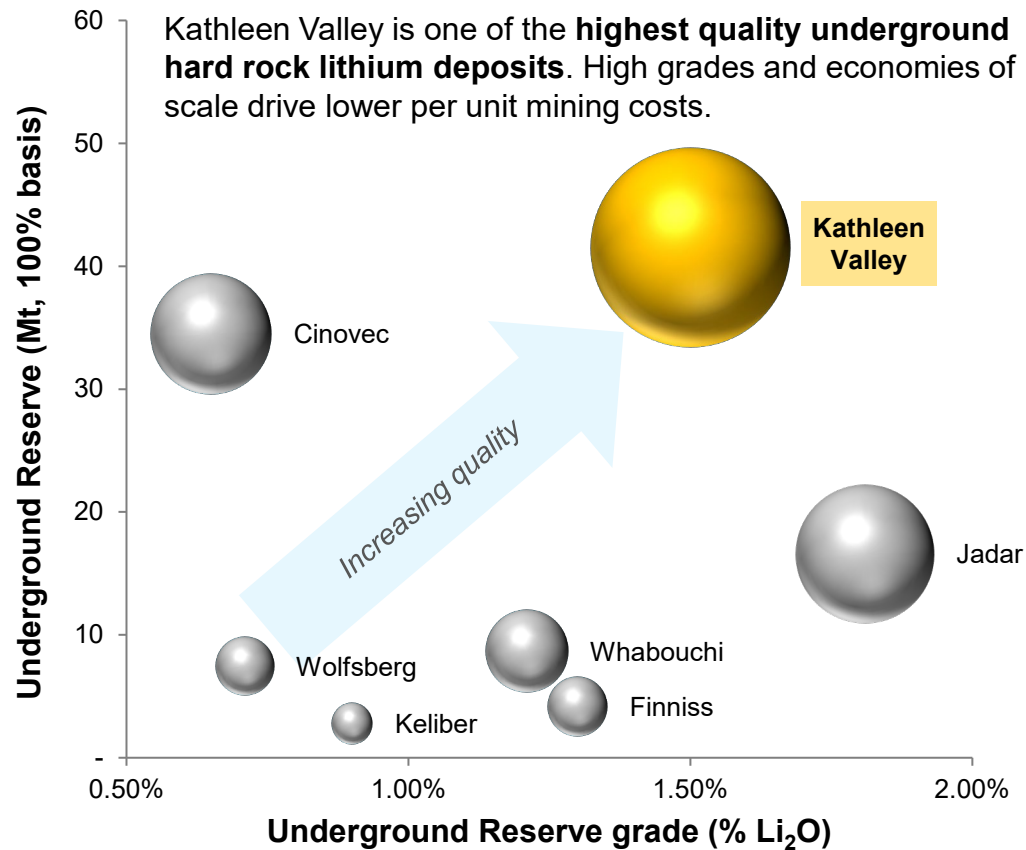
	<b>Reduces environmental and social impacts</b> associated with open-pit mining - <b>Best-in-class Scope 1 and 2 emissions</b>
	<b>Improves ore quality</b> resulting in <b>lower impurities, improved recoveries</b> and <b>reduced operating costs</b>
	Provides early access to <b>higher grades</b> , resulting in greater blend optionality for <b>optimum processing</b>
	<b>Minimises waste rock</b> managed and stockpiled on surface - including tailings disposal underground

Note: Refer to Appendix 1 for Peer Comparison information.



## Underground Reserve grade and tonnage

Bubble size represents underground Reserve LCE



# Whole-of-ore float processing provides high recoveries

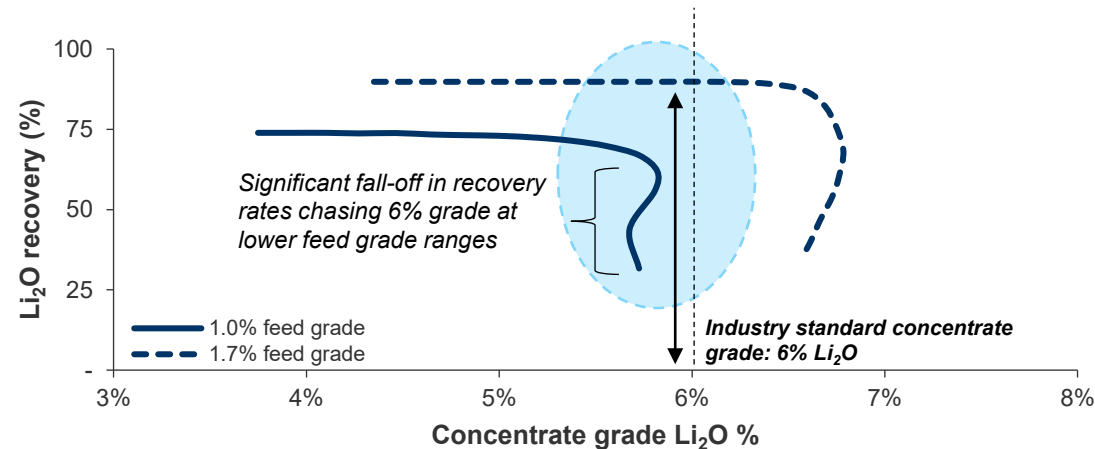
## Why whole-of-ore flotation?

- ✓ **Reduces operational challenges** associated with mixed DMS-flotation processing methods
- ✓ **Significantly improves consistency of recoveries**
- ✓ **Enhances flexibility** to vary head grade and produce a 6% concentrate product without compromising recovery performance

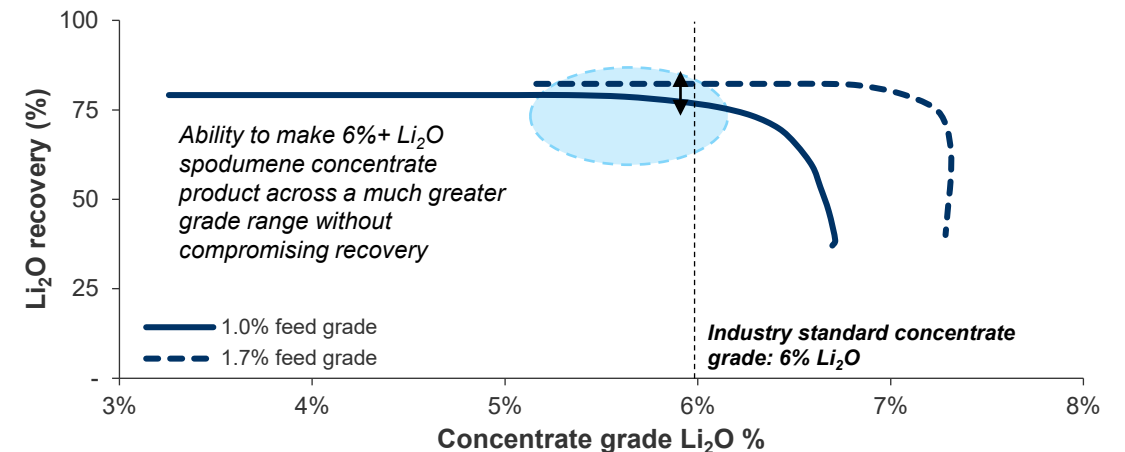
## Kathleen Valley Ore Processing Analysis - Supported by 400+ float tests and variability analyses



### Industry approach: Dense media separation + flotation



### Our approach: Whole-of-ore flotation only



## Kathleen Valley – positive ESG outcomes from day one!

### ESG commitments matter

#### Customers



- Automotive OEMs increasingly demand environmentally-friendly, low-carbon batteries to achieve Scope 1-3 targets
- Carbon footprint labelling and transparency will enable end-consumer choice for ESG

#### Communities



- Social licence fundamental to sustainable, long-term operation

1. Please refer to Appendix 2 for net zero definition.
2. Global Reporting Initiative, an internationally-agreed set of sustainability reporting standards.
3. Task force on climate related financial disclosures.
4. Sustainability Accounting Standards Board.
5. UG = Underground Mining



### We aspire to be on a net-zero trajectory<sup>1</sup>

#### Environment



- Best-in-class Scope 1 and 2 emissions and reduced impact on local surroundings due to UG<sup>5</sup> approach
- Greater than 50% renewable energy target to reduce Scope 2 emissions
- Designing for electrification of UG operations
- Minimising water usage through recycling

#### Social and corporate governance



- Working with Traditional Owners
- Integrated environmental and social benchmarks in our corporate governance, and best-in-class reporting aligned with GRI<sup>2</sup>, TCFD<sup>3</sup> and SASB<sup>4</sup> standards

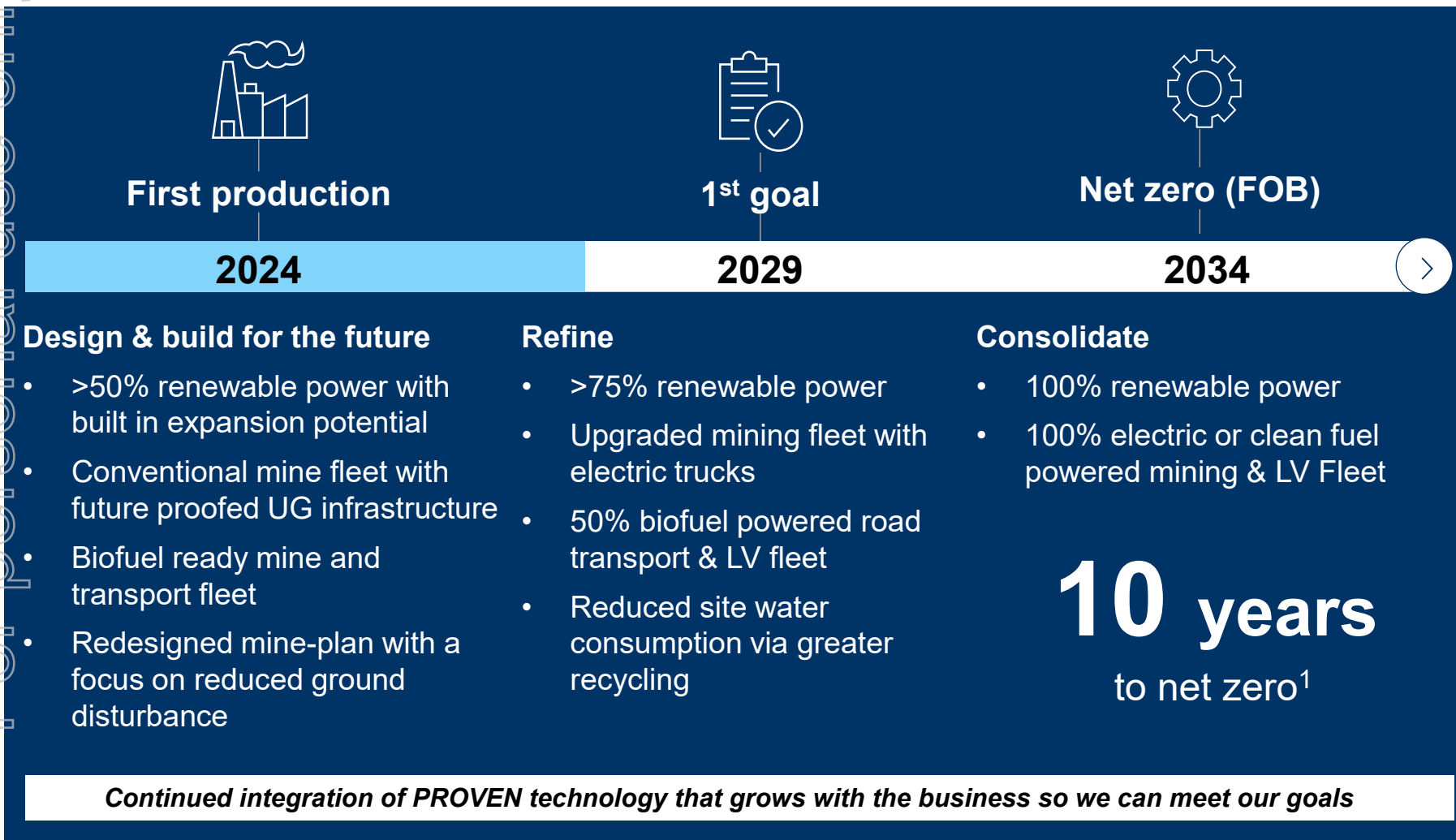
Inaugural sustainability report to be released in Q4 2021



# Climate strategy roadmap - a net zero trajectory

Proven technology, real time frame, no false promises and measurable

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## Measurable

**Inaugural sustainability report due Q4 2021**

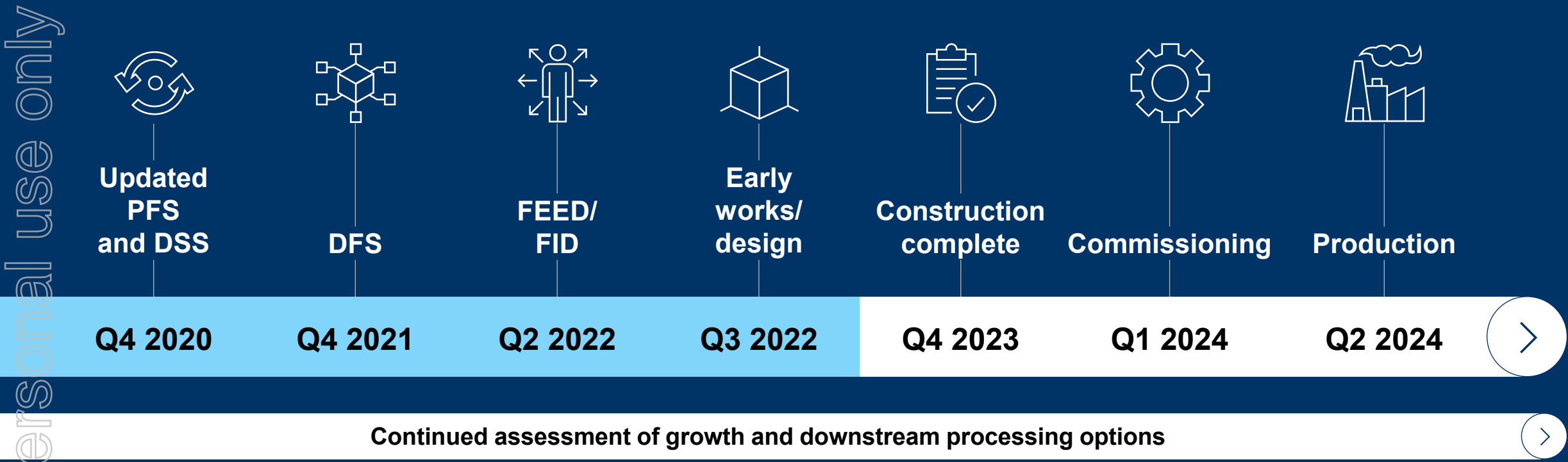
- ✓ Aligned to GRI standards

**Sustainability Report will be cross-linked to:**

- ✓ TCFD
- ✓ SASB

**... with target setting per identified SDG**

# We aim to accelerate the schedule to meet expected market shortfall



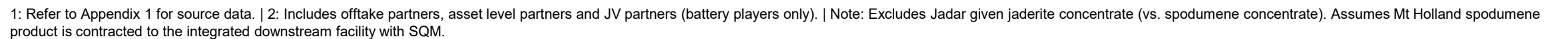
**3 years**

Target to production

## Opportunities to accelerate our entry to market through

- Securing near-term offtake agreements
- Accelerating project financing
- Orders placed for critical long lead items

## Offtake availability of key assets (ktpa)<sup>1</sup>



# Kathleen Valley is just the beginning...

## Liontown has additional growth opportunities



### Liontown has optionality around future growth...

#### Growth dimension 1: organic growth with current assets

- Increase resources/reserves at Kathleen Valley
- Expand production capacity at Kathleen Valley
- Develop additional lithium assets – Buldania

#### Growth dimension 2: downstream in lithium value chain

- Precursor material processing and production

#### Growth dimension 3: new projects

- Secure additional high quality lithium mining opportunities
- Continued exploration opportunity in battery materials



### ... and is actively assessing high potential opportunities

#### Downstream Scoping Study key metrics<sup>1</sup> for processing plants

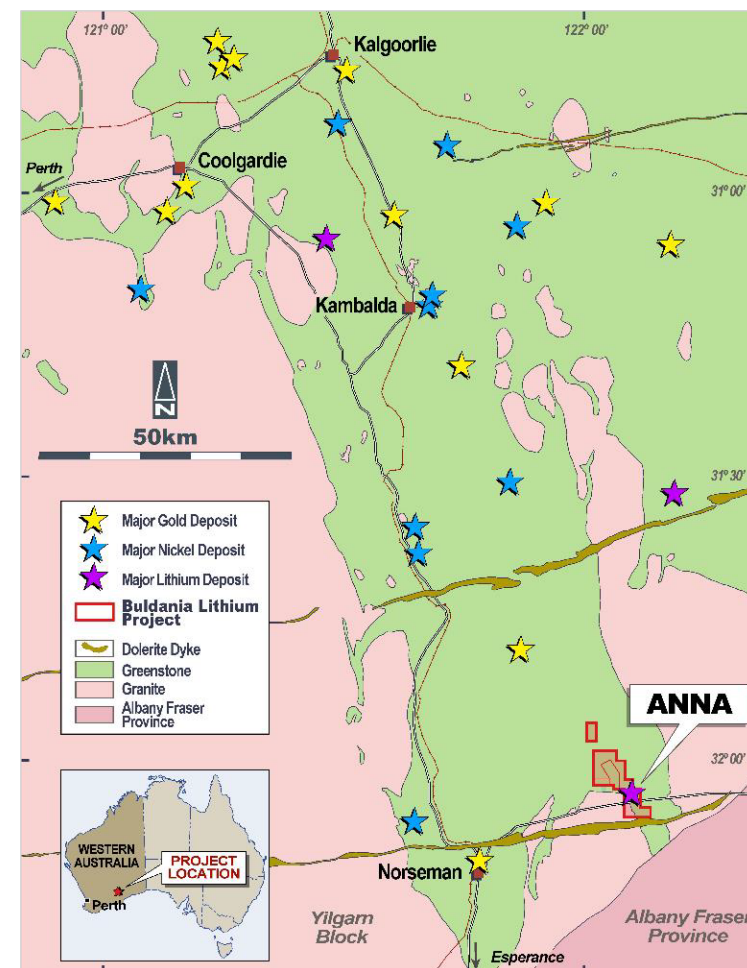
	Lithium hydroxide (LHM)	Lithium sulphate (LSM)
NPV (post tax/8% real)	A\$4.8B	A\$3.2B
IRR	41%	35%
LOM Free Cash Flow	A\$19.5B	A\$13.7B
Payback	3 years	3 years
LoM Opex <sup>2,6</sup>	US\$4,744/t	US\$2,649/t
Price (2025-2040) <sup>8</sup>	US\$14,079/t	US\$6,991/t
Design Production	58kpta	88kpta
Capex <sup>3,4,5,7</sup>	A\$1.1B	A\$0.9B

1: Refer Cautionary Statement on Slide 2 | 2: Cash operating costs include all mining, processing, downstream refining, transport, state & private royalties (prior to termination of KV Royalty – ASX Announcement 2 August 2021), freight to port, port costs and site administration and overhead costs. Excludes sustaining capital | 3: Integrated Capex for LHM production includes \$325M for the mine/ SC6.0 processing plant (PFS) and \$785M for the downstream refinery. | 4: Integrated Capex for LSM production includes \$325M for the mine/ SC6.0 processing plant (PFS) and \$625M for the downstream refinery | 5: SC6.0 plant capital to PFS level +/-25% accuracy, DSS to +/-30% accuracy. | 6: PFS included no contingency on SC6.0 operating costs, DSS included no contingency on operating costs | 7: PFS included 15% (\$27M) capital contingency, DSS included 20% (\$135M LHM & \$109M LSM ) contingency on capital costs | 8: LHM Pricing per Roskill price estimates, LSM pricing scaled based on Roskill LHM price estimate (Sept. 2020). Refer to Appendix 1 for full assumptions.

# Buldania Overview

## Buldania is in a lithium-rich mineral province

- 1 Outcropping, fresh, spodumene-related mineralization
- 2 Mineralisation at Anna extends to the SE under shallow cover – strike length >1.4km and open
- 3 Similar geology to the Mt Marion and Bald Hill lithium deposits (71Mt<sup>1</sup> and 26Mt<sup>2</sup> respectively)
- 4 Good infrastructure – located on Eyre Highway ~30km east of Kalgoorlie-Esperance railway
- 5 Lione town has 100% of the lithium and related metal rights
- 6 Mining Lease Application lodged over Anna deposit



1: Mt Marion – Refer to Peer Comparison table in Appendix 1.  
 2: Bald Hill source: <http://www.allianceminerals.com.au/projects/>

# Liontown Investment Proposition



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## **Strong Lithium market fundamentals – supply gap from 2024**



## **Some of the best undeveloped spodumene deposits located in a reliable mining jurisdiction**

- Kathleen Valley – large, high grade and competitive cost structure
- Buldania – further potential to build on current resources



## **Well defined plan for development of the deposits**

- Strong ESG credentials - small environmental footprint
- Releasing DFS in Q4 2021



## **Developing and preserving valuable options**

- Full optionality tonnes
- Studying further value add opportunities - Refining

# Thank You

Visit [www.ltresources.com.au](http://www.ltresources.com.au)

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# APPENDIX 1



Kathleen Valley Project  
Additional Information





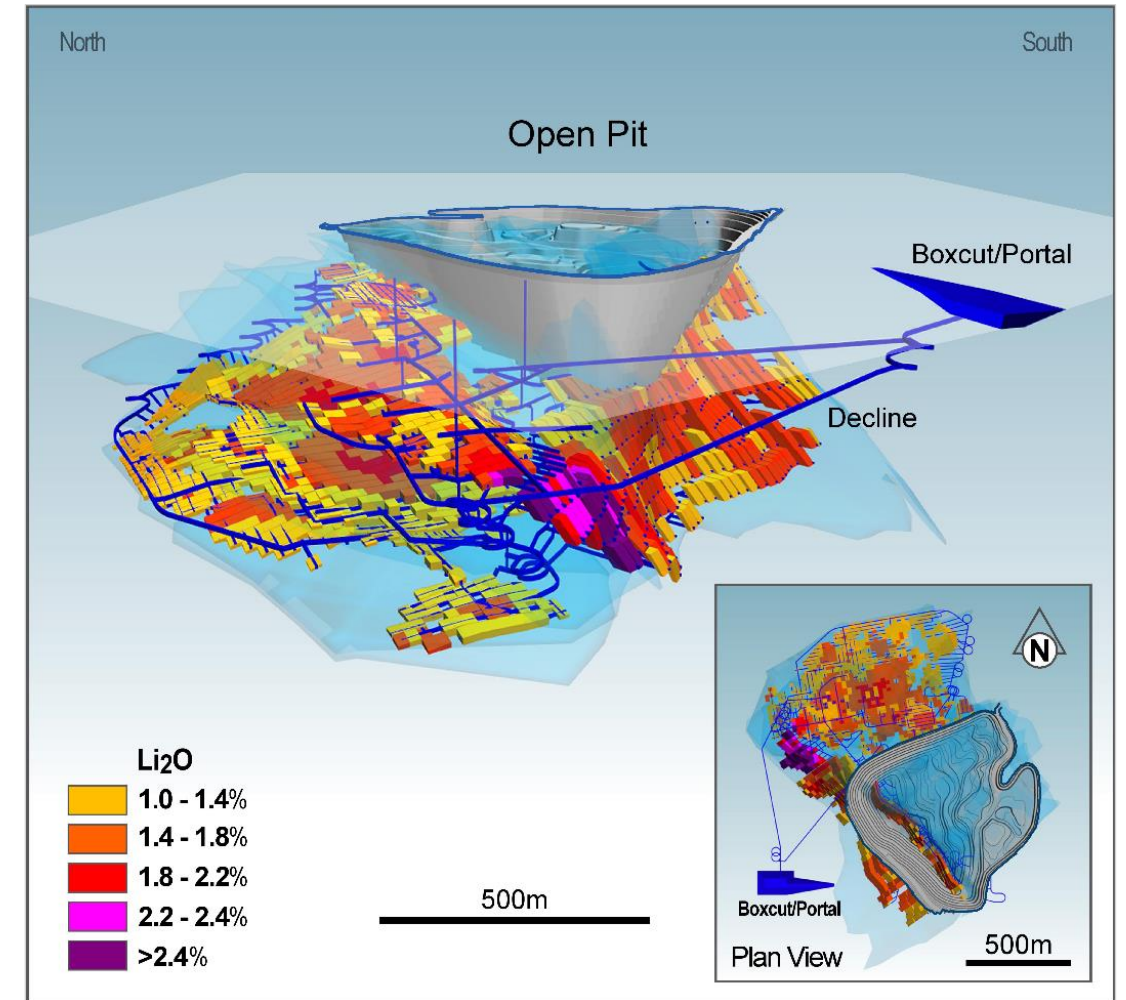
# Resources & Reserves

## Mineral Resource Estimate<sup>1</sup> – April 2021

Cut-off Li <sub>2</sub> O%	Resource Category	Million Tonnes	Li <sub>2</sub> O%	Ta <sub>2</sub> O <sub>5</sub> (ppm)
0.55	Measured	20	1.3	145
	Indicated	109	1.4	130
	Inferred	27	1.3	113
<b>TOTAL</b>		<b>156</b>	<b>1.4</b>	<b>129</b>

## Ore Reserve – October 2020

Category		Million Tonnes	Li <sub>2</sub> O%	Ta <sub>2</sub> O <sub>5</sub> (ppm)
Underground	Proven	3.9	1.4	130
	Probable	37.6	1.5	120
	Sub Total	41.5	1.5	120
Open Pit	Proven	11.7	1.2	140
	Probable	17.6	1.2	130
	Sub Total	29.3	1.2	130
<b>TOTAL</b>		<b>70.8</b>	<b>1.4</b>	<b>130</b>



1: Inclusive of Ore Reserve



# Kathleen Valley

## Lithium Equivalency (Li<sub>2</sub>O + Ta<sub>2</sub>O<sub>5</sub>) Parameters

Inputs				Outputs	Li <sub>2</sub> O%
Tantalite (Ta <sub>2</sub> O <sub>5</sub> ) \$/lb	69.9	(B2)	US\$ (Roskill 2025 – 2040 average price adjusted to FOB)		
Spodumene \$/tonne	739	(B3)	US\$ (Roskill 2025 – 2040 average price, adjusted to FOB)		
Tantalite recovery	50%	(B4)	Per LTR testwork inc off site losses ie 90% of 56%	Ta <sub>2</sub> O <sub>5</sub> =	0.107 (F4)
Spodumene Recovery	76%	(B5)	Per LTR testwork		
Ta <sub>2</sub> O <sub>5</sub> Grade	30%	(B6)		Equiv Li2O grade =	1.5%
Li <sub>2</sub> O Grade	6%	(B7)		(Li <sub>2</sub> O% +Ta2O5)	
Grade Ta <sub>2</sub> O <sub>5</sub> in resource	130	(B9)	ppm ( per resource)		
Grade Li <sub>2</sub> O in resource	1.35%	(B10)	(per resource)		

**F4=B9\*((B2)/(B3/B7))\*(B4/B5)\*2204\*0.0001**

**Equiv. Li<sub>2</sub>O grade (Li<sub>2</sub>O% + Ta<sub>2</sub>O<sub>5</sub>%) = F4/(100+B10)**



# Kathleen Valley – Underground Mining Assessment

Considered on a gold equivalent resource basis, Kathleen Valley would have a grade of ~2.8 g/t and a Resource of ~14Moz

## Calculation of Gold Equivalent Prices

### Gold Equivalent Prices

Commodity Prices		US\$	Unit		
Gold		1,800	oz		
Spodumene		740	t		
Tantalum		154,000	t		

Price Per Assay Unit		US\$	Unit	Conversion	
Gold	(1,800 ÷ 31) =	58.1	1 gram Au	31	oz to grams
Spodumene	(740 ÷ 6) =	123.3	1 % Li <sub>2</sub> O	6	t to %
Tantalum	(154,000 ÷ 100) =	1,540.0	1 % Ta <sub>2</sub> O <sub>5</sub>	100	t to %

Recovered Price Per Assay Unit		US\$	Unit	Recovery	
Gold	(58.0 x 85%) =	49.4	1 gram Au	Gold	85%
Spodumene	(123.3 x 76%) =	93.7	1 % Li <sub>2</sub> O	Spodumene	76%
Tantalum	(1,540 x 50%) =	770.0	1 % Ta <sub>2</sub> O <sub>5</sub>	Tantalum	50%

Gold Equiv Price Per Recovered Assay Unit		US\$	Unit		
Gold					
Spodumene	(92.5 / 49.3) =	<b>A</b> 1.90	%		
Tantalum	(770.0 / 49.3) =	<b>B</b> 15.60	%		

## Gold Equivalent Calculation

### Kathleen Valley

Resource	156,000,000	t
Li <sub>2</sub> O <sub>5</sub> % Grade	1.35	%
Ta <sub>2</sub> O <sub>5</sub> % Grade	0.013	%

### Gold Equivalent Outcomes

Spodumene - Au Equiv Price Per Recovered Assay Unit	<b>A</b> 1.90	%
<b>x</b> Li <sub>2</sub> O <sub>5</sub> % Grade	1.35	%
<b>Gold Equivalent Grade</b>	<b>2.56</b>	<b>g/t</b>

Tantalum - Au Equiv Price Per Recovered Assay Unit	<b>B</b> 15.60	%
<b>x</b> Ta <sub>2</sub> O <sub>5</sub> % Grade	0.013	%
<b>Gold Equivalent Grade</b>	<b>0.20</b>	<b>g/t</b>

<b>Total Gold Equivalent Grade</b>	<b>2.77</b>	<b>g/t</b>
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Resource	156,000,000	t
<b>x</b> Total Gold Equivalent Grade	2.77	<b>g/t</b>
<b>Gold Equivalent Resource</b>	<b>431,605,098</b>	<b>grams</b>

<b>÷</b> Conversion - grams to oz	31	
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<b>Gold Equivalent Resource</b>	<b>13,922,745</b>	<b>oz</b>
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<b>Gold Equivalent Resource</b>	<b>13.92</b>	<b>Moz</b>
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# Kathleen Valley – Underground Mining Assessment

Company	Code	Project name	Announcement title	Announcement date	Recovery	Grade (g/t) <sup>1</sup>
BHP	BHP	Nickel West <sup>2</sup>	Diggers & Dealers 2019 Presentation 2020 Annual Report	5 August 2019 14 September 2020	88% (Ni)	5.96
Liontown	LTR	Kathleen Valley	Kathleen Valley Lithium Project - DFS Update 2	8 April 2021	76% (Li), 50% Ta <sub>2</sub> O <sub>5</sub>	2.77 <sup>3</sup>
Newcrest	NCM	Cadia Ridgeway UG	Technical Report on Cadia Operations Newcrest Resources and Reserves Statement	14 October 2020 11 February 2021	80% (Au), 85% (Cu)	0.67
Northern Star	NST	UG Operations	Quarterly Activities Report – March 2021 Resources, Reserves and Exploration Update	21 April 2021 3 May 2021	91% (Au)	2.93
29Metals	29M	Golden Grove	Replacement Prospectus – Part 1	2 July 2021	86% (Cu), 75% (Au), 30% (Pb), 79% (Ag), 88% (Zn)	5.27
		Code	Source	Announcement date	Main mining level	Ore Tonnes / Vertical Metre
Typical WA Au Mine			Snowden internal database.		400 – 600m	15,000 – 43,000
Typical WA Ni / Cu Mine			Snowden internal database.		300 – 400m	34,000 -100,000
Kathleen Valley	LTR	ASX Announcement: Kathleen Valley Lithium Project - DFS Update 2	8 April 2021		200 - 400m (NW) 200 - 300m (MM)	100,000 – 206,000 (NW) 38,000 – 150,000 (MM)

Note: Gold-equivalent grade calculation is based off the following metal prices: Cu US\$4.48/lb, Ag US\$24.80/oz, Pb US\$2,370/t, Zn US\$2,952/t, Ni US\$19,583/t and Au US\$1,800/oz.

1. Reported underground grade, adjusted for recovery.

2. Leinster UG.

3. Refer to previous slide for Kathleen Valley gold equivalent calculation.

4. Mount Mann (MM) and Northwest (NW) mining zones.



# Peer Comparison Information

## Global hard rock (spodumene) resources

Company	Code	Project name	Announcement title	Announcement date	MRE	Li <sub>2</sub> O%
Alita Resources	Private	Bald Hill	121 Mining Conference Presentation	20 March 2019	26	0.96%
AMG	AMG (AMS)	Mibra	Lithium and Tantalum Mineral Resources Upgrade	3 April 2017	25	1.05%
AVZ Minerals	AVZ	Manono	Updated Mineral Resource Estimate	24 May 2021	401	1.65%
Core Lithium	CXO	Finniss	Definitive Feasibility Study Investor Presentation	26 July 2021	15	1.32%
Critical Elements	CRE (TSX)	Rose	Rose Lithium Project Feasibility Study	6 September 2017	35	1.03%
Dakota Minerals	DKO (delisted)	Sepeda	Largest Pegmatite-Hosted JORC Lithium Resource in Europe	20 February 2017	10	1.00%
Essential Metals	ESS	Dome North	Investor Presentation - Paydirt Battery Minerals Conference	2 June 2021	11	1.20%
European Lithium	EUR	Wolfsberg	Company Presentation	27 May 2021	11	1.00%
European Metals	EMH	Cinovec	Annual Report to shareholders	30 September 2020	696	0.42%
Firefinch / Ganfeng	FFX	Goulamina	Annual Report to shareholders	1 April 2021	109	1.45%
Frontier Lithium	FL (TSX)	PAK Lithium	Corporate Presentation	1 April 2021	9	2.04%
Frontier Lithium	FL (TSX)	Spark	Corporate Presentation	5 April 2021	19	1.36%
Galaxy Resources	GXY	James Bay	Corporate Presentation - James Bay Development Plan	9 March 2021	40	1.40%
Galaxy Resources	GXY	Mt Cattlin	Scheme Booklet registered by ASIC	5 July 2021	11	1.20%
Infinity Lithium	INF	San Jose	Company Presentation	16 February 2021	111	0.61%
IronRidge	IRR (LON)	Ewoyaa	February 2021 - Benchmark Minerals Africa Day Presentation	4 February 2021	15	1.31%
Keliber Oy / Sibanye	Private	Ostrobothnia	Company Website	28 July 2021	16	1.05%
Kodal Minerals	KOD (LON)	Bougouni	Company Presentation	18 March 2021	21	1.11%
Liontown	LTR	Kathleen Valley	Kathleen Valley Lithium Project - DFS Update 2	8 April 2021	156	1.35%
Liontown	LTR	Buldanía	Maiden Lithium Mineral Resource Estimate at Buldanía	8 November 2019	15	0.97%
Mineral Resources / Albemarle	MIN	Wodgina	Wodgina Mineral Resource and Ore Reserve Update	23 October 2018	259	1.17%
Mineral Resources / Ganfeng	MIN	Mt Marion	Mt Marion Mineral Resource Update	31 October 2018	71	1.37%
Nemaska Lithium	Private	Whabouchi	N 43-101 Technical Report for the Whabouchi Lithium Mine	31 May 2019	56	1.40%
Piedmont Lithium	PLL	La Come	Piedmont & Sayona Receive Court Approval for Acquisition of NAL	30 June 2021	58	1.05%
Nova Minerals	NVA	Thompson Brothers	Thompson Brothers Lithium Project Resource Upgrade	3 June 2021	11	1.00%
Piedmont Lithium	PLL	Carolina Lithium	Piedmont Increases Lithium Resources by 40%	8 April 2021	39	1.09%



## Peer Comparison Information

### Global hard rock (spodumene) resources (cont.)

Company	Code	Project name	Announcement title	Announcement date	MRE	Li <sub>2</sub> O%
Pilbara Minerals	PLS	Pilgangoora	PLS 2020 Annual Report, AJM Corporate Presentation	16 October 2020, 9 March 2020	268	1.23%
Premier African Minerals	PREM (LON)	Zulu	Corporate Presentation February 2020	5 February 2020	20	1.06%
Prospect Resources	PSC	Arcadia	Investor Presentation - March 2021	2 March 2021	73	1.11%
Rio Tinto	RIO	Jadar	Rio Tinto Declares Maiden Ore Reserve at Jadar	10 December 2021	139	1.78%
Savannah	SAV (LON)	Mina Do Barosso	Corporate Presentation	9 April 2021	27	1.00%
Sayona Mining	SYA	Authier	Annual Report to Shareholders	30 September 2020	21	1.01%
Sigma Lithium	SGMA (TSX)	Grota de Cirilo	Sigma Corporate Presentation	1 February 2021	52	1.43%
SQM / Wesfarmers	WES	Mt Holland	KDR: Registration of Scheme Booklet	1 August 2019	189	1.50%
Tianqi / Albemarle / IGO	IGO	Greenbushes	IGO invests in Global Lithium JV with Tianqi	9 December 2020	197	1.93%

### Global hard rock (spodumene) underground Reserves

Company	Code	Project name	Announcement title	Announcement date	UG Reserve (Mt)	UG Li <sub>2</sub> O%	UG LCE (Mt) <sup>1</sup>
Core Lithium	CXO	Finniss	Stage 1 DFS and Updated Ore Reserves	26 July 2021	4.2	1.30%	0.1
EMH	EMH	Cinovec	Quarterly Activities Report – March 2021	30 April 2021	34.5	0.65%	0.6
European Lithium	EUR	Wolfsberg	European Lithium Completes Positive PFS	5 April 2018	7.4	0.71%	0.1
Keliber Oy / Sibanye	Private	Keliber	Company Website	28 July 2021	2.8	0.90%	0.1
Liontown	LTR	Kathleen Valley	Updated Kathleen Valley PFS	9 October 2020	41.5	1.50%	1.5
Nemaska Lithium	Private	Whabouchi	N 43-101 Technical Report for Whabouchi Lithium Mine	31 May 2019	8.7	1.21%	0.3
Rio Tinto	RIO	Jadar	Jadar Project Ore Reserves and Mineral Resources	10 December 2020	16.6	1.81%	0.7

1: Lithium Carbonate Equivalent (LCE) assumes multiple of 2.473 of Li<sub>2</sub>O (British Geological Survey).



# Peer Comparison Information

## Production capacity

Company	Code	Project name	Announcement title	Announcement date	Production capacity (ktpa 6.0 SC)
AVZ Minerals	AVZ	Manono	Investor Presentation	26 May 2021	700
Core Lithium	CXO	Finniss	Definitive Feasibility Study Investor Presentation	26 July 2021	173
Firefinch / Ganfeng	FFX	Goulamina	Joint Venture with Ganfeng - Overview	16 June 2021	436
Galaxy Resources	GXY	James Bay	Corporate Presentation - James Bay Development Plan	9 March 2021	330
Galaxy Resources	GXY	Mt Cattlin	Mt Cattlin Production & Technical Update	17 March 2021	193 <sup>1</sup>
Keliber Oy / Sibanye	Private	Keliber	Keliber Updated Definitive Feasibility Study	28 February 2019	113
Liontown	LTR	Kathleen Valley	Updated Kathleen Valley PFS	9 October 2020	350
Mineral Resources / Albemarle	MIN	Wodgina	Bank of America – Metals, Mining and Steel Conference Presentation	18 May 2021	750
Mineral Resources / Ganfeng	MIN	Mt Marion	Bank of America – Metals, Mining and Steel Conference Presentation	18 May 2021	475
Nemaska Lithium	Private	Whabouchi	NI 43-101 Technical Report – Whabouchi Lithium Mine	31 May 2019	215
Piedmont Lithium	PLL	Carolina Lithium	Company Presentation – June 2021	9 June 2021	248
Pilbara Minerals	PLS	Pilgangoora	Corporate Presentation Investor Strategy and Outlook Forum	11 May 2021	580 <sup>2</sup>
Premier African Minerals	PREM (LON)	Zulu	Corporate Presentation February 2020	5 February 2020	84
Prospect Resources	PSC	Arcadia	Investor Presentation – May 2021	25 May 2021	173
Sayona Mining	SYA	Authier	Presentation to Noosa Virtual Conference	17 July 2020	114
Sigma Lithium	SGMA (CVE)	Grota de Cirilo	Sigma Lithium PEA Results	2 June 2021	220 <sup>3</sup>
SQM / Wesfarmers	WES	Mt Holland	KDR: Registration of Scheme Booklet	1 August 2019	411
Tianqi / Albemarle / IGO	IGO	Greenbushes	IGO invests in Global Lithium JV with Tianqi	9 December 2020	1,350

1: Mt Cattlin capacity based off midpoint of 2021 forecast production range. | 2: Pilgangoora production inclusive of Pilgan Stage 1 improvements and Ngungaju Plant. | 3: Assumes base production rate (no expansion).



# Peer Comparison Information

## Offtake availability

Company	Company code	Project name	Announcement title	Date	Offtake availability (ktpa 6.0 SC)
AVZ Minerals	AVZ	Manono	Capital Raising Presentation	2 July 2021	160 <sup>1</sup>
Core Lithium	CXO	Finniss	Definitive Feasibility Study Investor Presentation	26 July 2021	98 <sup>2</sup>
Firefinch / Ganfeng	FFX	Goulamina	Joint Venture with Ganfeng over the Goulamina Lithium Project	16 June 2021	0
Galaxy Resources	GXY	James Bay	James Bay Development Plan	9 March 2021	330
Galaxy Resources	GXY	Mt Cattlin	Scheme Booklet Registered by ASIC	5 July 2021	0
Keliber Oy / Sibanye	Private	Keliber	Definitive Feasibility Study Report	28 February 2019	113
Liontown	LTR	Kathleen Valley	Investor Presentation – Kathleen Valley Lithium Project	17 May 2021	350
Mineral Resources / Albemarle	MIN	Wodgina	Wodgina Lithium Project – Sale Process Agreement	14 December 2018	0
Mineral Resources / Ganfeng	MIN	Mt Marion	Discposal of Mt Marion Offtake Rights for A\$30m (NMT)	3 June 2021	0
Nemaska Lithium	Private	Whabouchi	Nemaska Management Discussion and Analysis	41 March 2019	0
Piedmont Lithium	PLL	Carolina Lithium	Piedmont Lithium Signs Sales Agreement with Tesla	28 September 2020	195 <sup>3</sup>
Pilbara Minerals	PLS	Pilgangoora	Corporate Presentation Investor Strategy and Outlook Forum	11 May 2021	215
Premier African Minerals	PREM (LON)	Zulu	Corporate Presentation June 2021	6 July 2021	84
Prospect Resources	PSC	Arcadia	Corporate Presentation March 2021	2 March 2021	133 <sup>4</sup>
Sayona Mining	SYA	Authier	March 2021 Quarterly Activities Report	28 April 2021	54 <sup>5</sup>
Sigma Lithium	SGMA (CVE)	Grota de Cirilo	Sigma Lithium Feasibility Study	1 October 2019	0
SQM / Wesfarmers	WES	Mt Holland	Liontown assumption	n/a	0
Tianqi / Albemarle / IGO	IGO	Greenbushes	IGO / Tianqi Lithium JV Presentation	9 December 2020	0

1: Production capacity of 700ktpa subtract 180ktpa offtake with Chengxin, 160ktpa offtake with Ganfeng and 200ktpa offtake with Yibin Tianyi. | 2: Production capacity of 173ktpa subtract 75ktpa offtake agreement with Yahua. | 3: Offtake agreement with Tesla covers a fixed commitment representing approximately one-third of Piedmont's planned SC6 production of 160ktpa. Piedmont has not clarified whether offtake has increased since production capacity was upgraded to 248ktpa. Availability calculated as 248ktpa subtract 53ktpa (one-third of 160ktpa). | 4: Production capacity of 173ktpa subtract 40ktpa offtake agreement with Sinomine Resources. | 5: Production capacity of 114ktpa subtract 60ktpa offtake agreement with Piedmont.



# PFS Key Parameters And Assumptions

## General and Economic

	PFS <sup>1</sup>
Discount rate (real, post-tax)	8%
SC6.0 (US\$ per tonne FOB Geraldton)	US\$739/t <sup>4</sup>
Tantalum 30% conc. (US\$ per lb FOB Fremantle)	US\$69.9/lb <sup>5</sup>
Exchange rate – AUD/USD	0.72

## Mining and Production

Average LOM strip ratio (Open Pit)	8.4:1
Processing rate	2Mtpa
Life-of-Mine Production Target (49Mt UG & 30Mt OP)	79 Mt ore
Li <sub>2</sub> O & Ta <sub>2</sub> O <sub>5</sub> grades (diluted) years 1-10	1.5%/120 ppm
LOM average Li <sub>2</sub> O & Ta <sub>2</sub> O <sub>5</sub> grades (diluted)	1.4%/130ppm
LOM average Li <sub>2</sub> O recovery <sup>2</sup>	76%
Overall Ta <sub>2</sub> O <sub>5</sub> recovery (% including offsite upgrade losses of ~6%)	50%
SC6.0 grade	6%
Ta <sub>2</sub> O <sub>5</sub> Concentrate final grade	30%
Moisture content of SC6.0	9%
Avg annual Tonnes of SC6.0	350ktpa
Avg annual Tonnes of 30% Ta <sub>2</sub> O <sub>5</sub> concentrate	430tpa

## Cost Assumptions

	PFS <sup>1</sup>
LOM avg open pit mining costs <sup>3</sup> (\$/dmt ore processed)	A\$43
LOM avg U/G mining costs (\$/dmt ore processed)	A\$55
LOM average processing cost (\$/dmt ore processed)	A\$20
Logistics and transport (\$/wmt conc. incl. Port Charges)	A\$65/wmt
General and admin (\$/dmt ore processed incl. mining)	A\$6.0
Western Australia State royalty	5%
Private royalties (prior to termination of KV Royalty – ASX Announcement 2 August 2021) (does not apply to MLA M36/696)	3% gross sales & A\$0.5/t ore mined
Corporate tax rate	30%
Estimated opening tax losses	A\$35M

1: Refer Cautionary Statement on Slide 2. | 2: Based on testwork derived grade recovery relationship for PFS mine plan grades of Li<sub>2</sub>O (inclusive Ta<sub>2</sub>O<sub>5</sub> extraction Li<sub>2</sub>O losses). | 3: Includes ROM rehandle. | 4: Per Roskill September 2020 Report for average arms length prices (2025-2040), adjusted to FOB. \$US795/t FOB for 2041-2064. | 5: Per Roskill September 2020 Report for avg arms length prices (2025-2040), adjusted to FOB. \$US65/lb FOB for 2041-2064.



# PFS – Operating & Capital Summary<sup>1</sup>

## Life of Mine Financials

	(A\$B)
Revenues (lithium)	14.7
Operating costs <sup>2</sup>	5.9
Capital expenditure	
• pre-production	0.3
• sustaining	0.4
Royalties <sup>3</sup>	1.3
Corporate tax	2.0
Life of Mine Free Cash flow	4.8

## Capital Costs Summary

Main Area	Capital (A\$M)
Treatment Plant	84.8
Reagents & Plant Services	16.0
Infrastructure – general	53.3
Mining Infrastructure	2.0
Construction Indirects	23.8
<b>Subtotal</b>	<b>179.9</b>
Management Costs	23.0
Owners Project Costs	19.8
Mining Pre-production (U/G & open pit)	67.1
Owners Pre-production	8.5
<b>Subtotal</b>	<b>298.3</b>
Contingency	26.8
<b>Project Total</b>	<b>325.1</b>

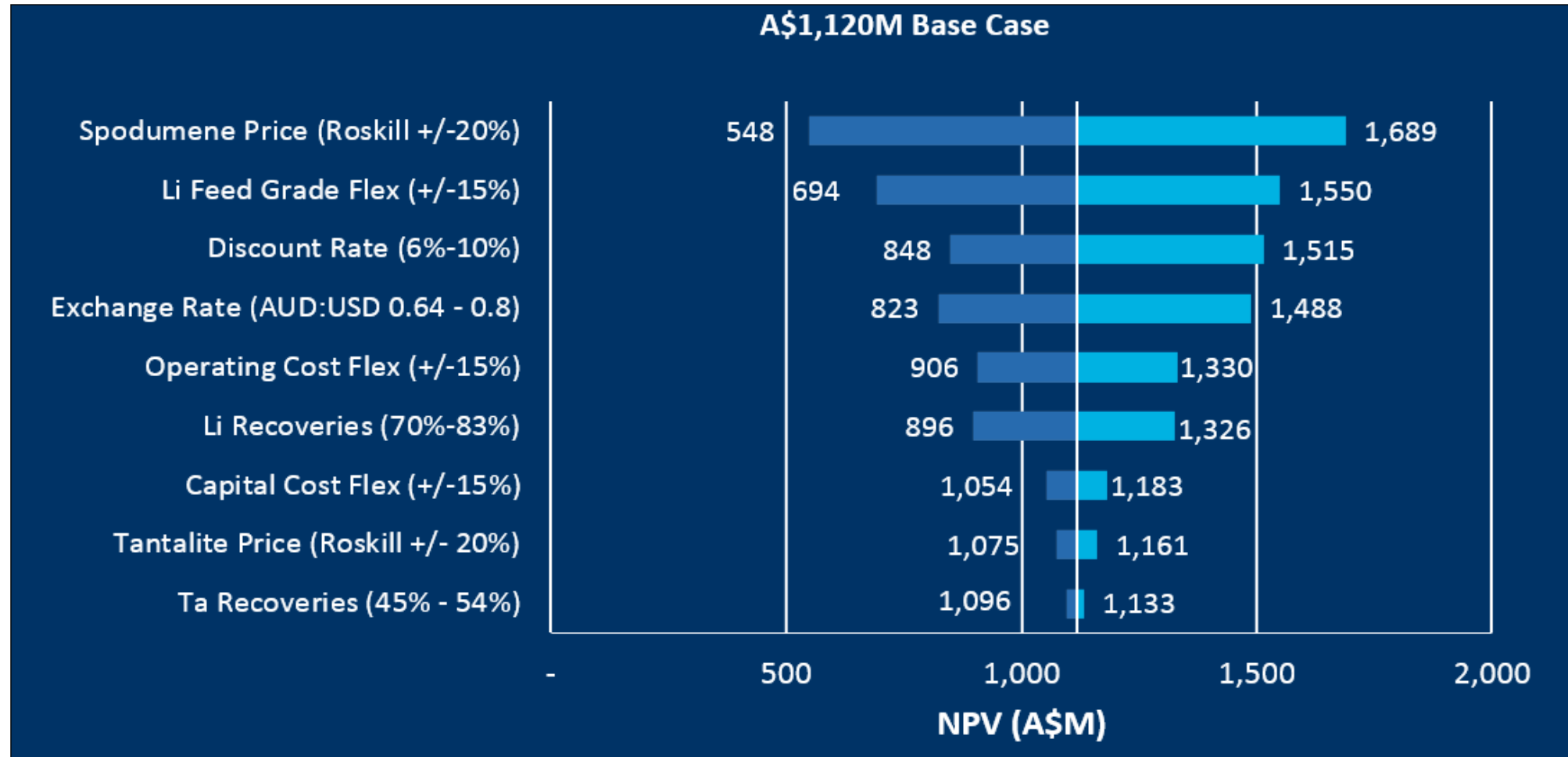
1: Refer Cautionary Statement on Slide 2.

2: Net of tantalum credits.

3: Prior to termination of KV Royalty – ASX Announcement 2 August 2021.



# NPV Sensitivity Analysis (PFS)<sup>1</sup>



1: Prior to termination of KV Royalty – ASX Announcement 2 August 2021.



# 2020 Downstream Scoping Study (DSS)

## Key Parameters And Assumptions<sup>1</sup>

General and Economic	LHM	LSM
Discount rate (real, post-tax)	8%	8%
Ave. Price (US\$/t FOB Fremantle 2025-2040)	US\$14,079/t <sup>5</sup>	US\$6,991/t <sup>6</sup>
Tantalum 30% conc. (US\$/lb FOB Fremantle)	US\$69.9/lb <sup>7</sup>	US\$69.9/lb <sup>7</sup>
Exchange rate – AUD/USD	0.72	0.72
<b>Downstream Integrated Refinery</b>		
Number of processing trains	2	2
Recovery Li (%)	90	90
Calcination temperature (oC)	1,100	1,100
Sulphuric Acid Addition (mol/mol)	1.25 (H2SO4:Li2O)	1.25 (H2SO4:Li2O)
Acid Roast Temperature (oC)	250	250
Acid Leaching Residence Time (minutes)	120	120
Lithium Sulphate Crystalliser Stages (per train)	2	2
Design Production	58ktpa	88ktpa

Cost Assumptions	LHM	LSM
LOM avg operating cost (US\$/dmt SC6) <sup>2</sup>	US\$310	US\$310
LOM avg operating costs inc. SC6 costs <sup>3</sup>	US\$4,744	US\$2,649
LOM average processing upgrade cost LSM to LHM	NA	US\$1,509/t LHM
Transport costs (A\$/t to Fremantle)	A\$86	A\$86
Western Australia State royalty <sup>4</sup>	5%	5%
Private royalties <sup>4</sup> (does not apply to MLA M36/696)	3% gross sales & A\$0.5/t ore mined	3% gross sales & A\$0.5/t ore mined
Corporate tax rate	30%	30%
Estimated opening tax losses	A\$35M	\$35m

1. Refer Cautionary Statement on Slide 2.

2. Excludes royalties.

3. Includes royalties (prior to termination of KV Royalty – ASX Announcement 2 August 2021)

4. Based on spodumene feedstock market value for gross sales (prior to termination of KV Royalty – ASX Announcement 2 August 2021).

5. Per Roskill September 2020 Report for avg China Spot Prices (2025-2040), adjusted to FOB. \$US15,512/t FOB for 2041-2064.

6. LTR assumed prices based on 50% factored Roskill LHM prices (2025-2040), adjusted to FOB. \$US7,707/t FOB for 2041-2064.

7. Per Roskill September 2020 Report for avg arms length prices (2025-2040), adjusted to FOB. \$US65/lb FOB for 2041-2064.



# DSS – Cash Flows

## Integrated Life of Mine Financials<sup>1</sup>

	LHM (A\$B)	LSM (A\$B)
Revenues (lithium)	43.2	32.6
Operating costs <sup>2, 4</sup>	(12.5)	(10.4)
Capital expenditure		
• pre-production	(1.1)	(0.9)
• sustaining	(0.4)	(0.4)
Royalties (All) <sup>6</sup>	(1.3)	(1.3)
Corporate tax	(8.4)	(5.9)
Life of Mine Free Cash flow	19.5	13.7

## Capital Costs Summary<sup>3</sup>

Main Area	LHM (A\$M)	LSM (A\$M)
WOF Plant & Mine Dev.	298	298
<b>DSS Refinery and Infrastructure</b>		
Plant site/Earthworks	7.1	7.1
Treatment Plant	377.2	292.3
Reagents/Plant Services	37.2	30.5
Plant Buildings	6.5	6.5
Camp Expansion	12.6	11.8
Distributable	69.6	55.1
Preproduction Costs and Spares	39.8	32.5
Mobile Equipment	5.0	5.0
<b>Subtotal</b>	<b>853.0</b>	<b>738.8</b>
EPCM Management Costs (DSS)	76.5	60.5
Owners Costs (DSS)	19.1	15.1
<b>Subtotal</b>	<b>948.6</b>	<b>814.4</b>
Contingency (DSS+PFS) <sup>5</sup>	161.5	135.6
<b>Project Total</b>	<b>1,110.1</b>	<b>950.0</b>

1. Refer Cautionary Statement on Slide 2

2. Net of tantalum credits

3. SC6.0 plant capital to PFS level +/-25% accuracy, DSS to +/-30% accuracy

4. PFS included no contingency on SC6.0 operating costs, DSS included no contingency on operating costs

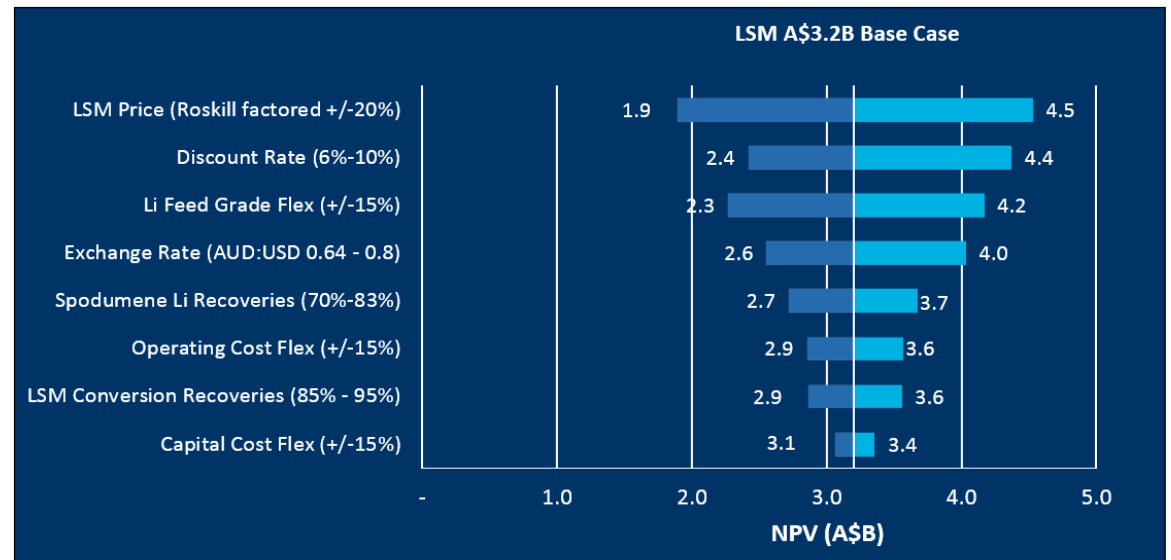
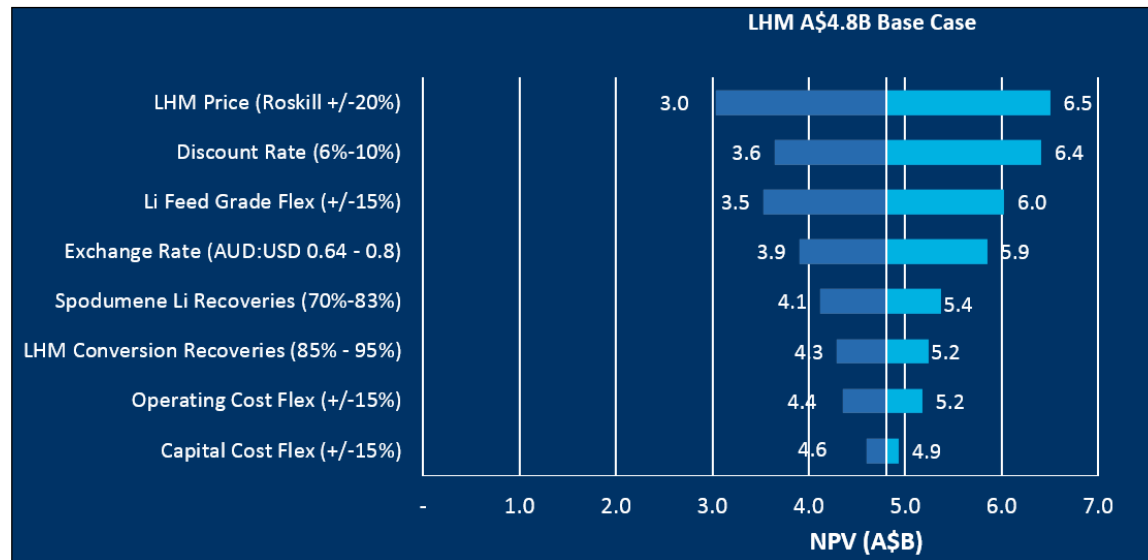
5. PFS included 15% (\$27M) capital contingency, DSS included 20% (\$135M LHM & \$109M LSM ) contingency on capital costs

6. Prior to termination of KV Royalty – ASX Announcement 2 August 2021.



# NPV Sensitivity Analysis (DSS)<sup>1</sup>

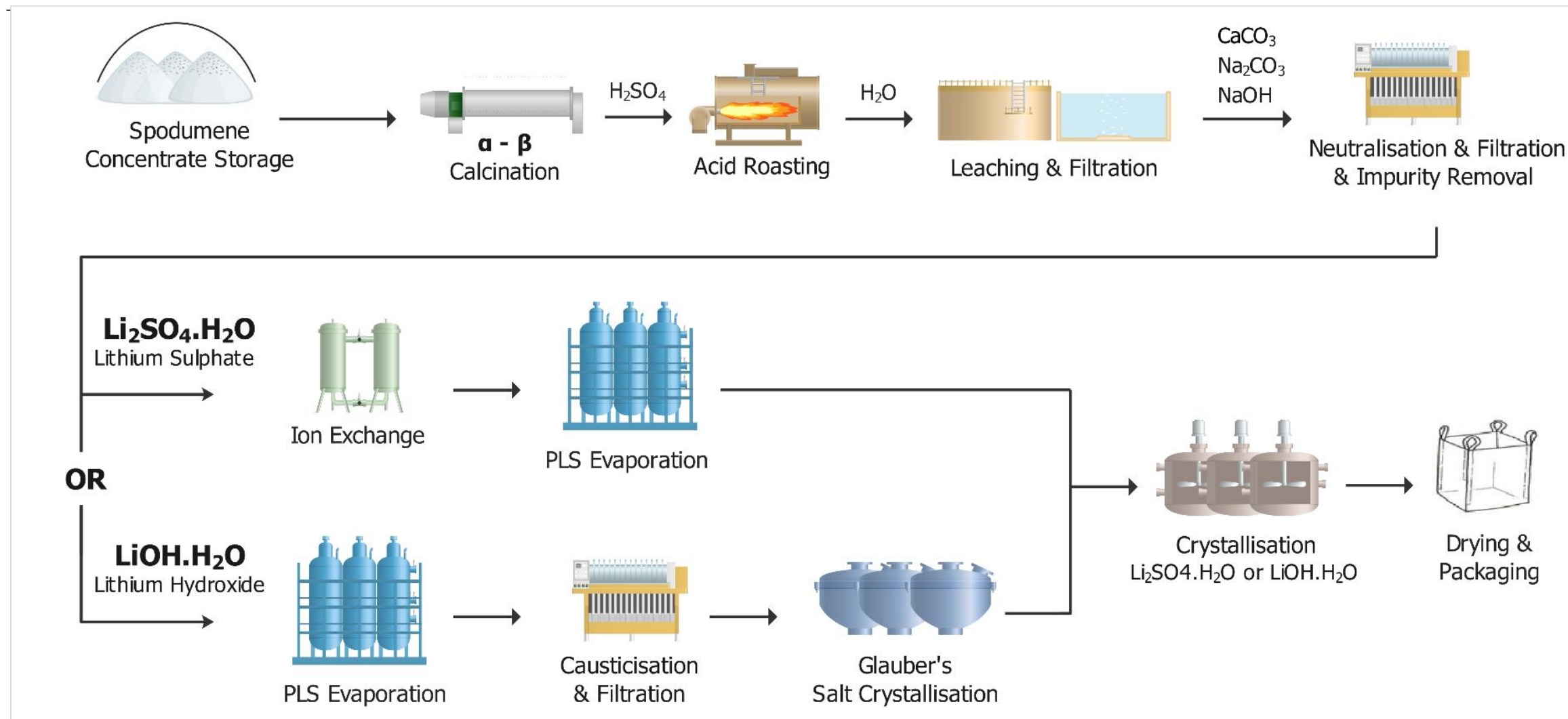
For personal use only



1: Prior to termination of KV Royalty – ASX Announcement 2 August 2021.



# DSS | Refinery Flow Sheet



## APPENDIX 2

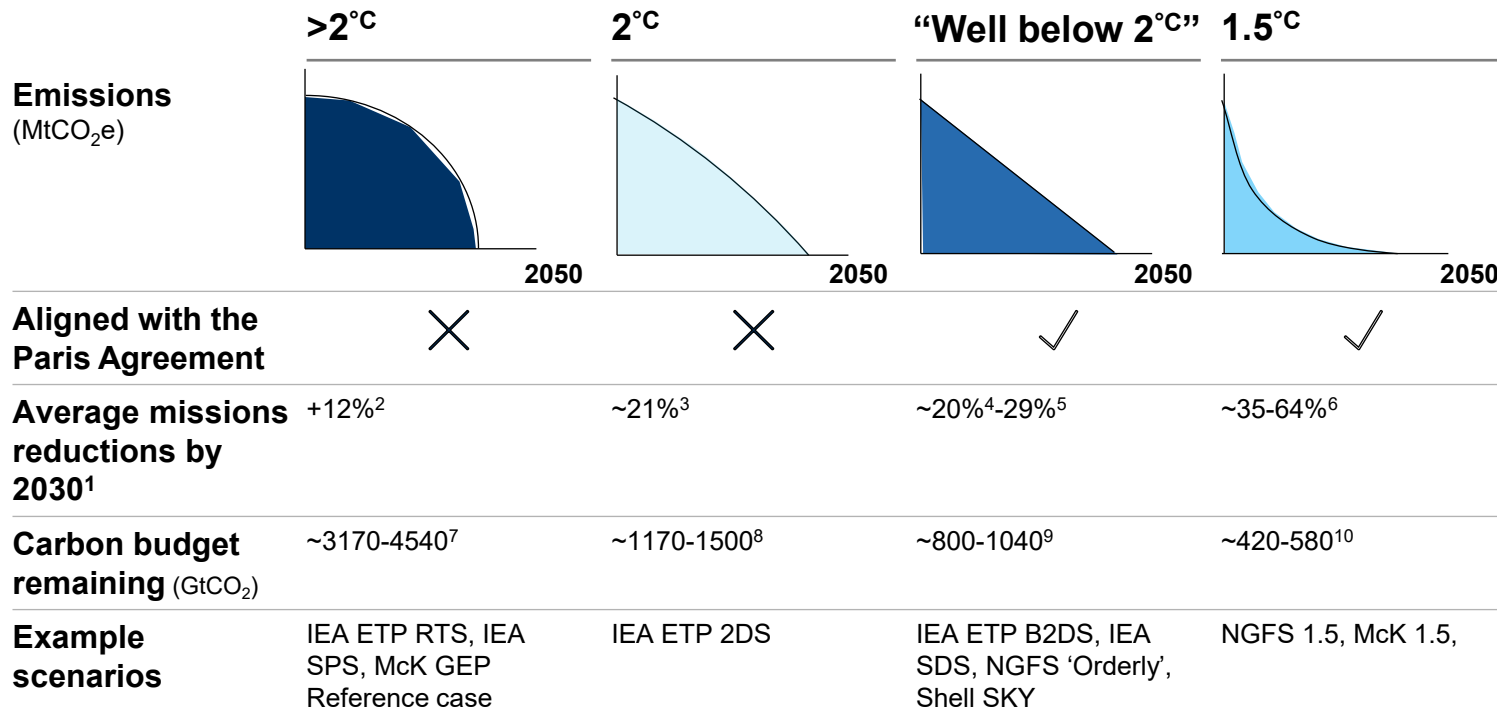


Net-Zero definition



# Liontown will firm up its net-zero trajectory aspiration before FID

Selected examples of different “net zero” pathways



Sector-specific emission path for lithium still being developed as a “green growth” sector

There are many different ways to meet “net zero” by 2050

1: Approximations, compared to 2020, based on published scenarios | 2: IEA ETP 2017 RTS (assuming 33.5 GtCO<sub>2</sub> direct emissions from energy in 2020) | 3: IEA ETP 2017 2DS (assuming 33.5 GtCO<sub>2</sub> direct emissions from energy in 2020) | 4: Based on IEA 2020 WEO SDS scenario, direct CO<sub>2</sub> emissions from energy, global | 5: NGFS 2020 ‘Orderly’ (CO<sub>2</sub>) | 6: NGFS 2020 1.5 with CDR and with limited CDR respectively | 7: IPCC AR5, RCP6.0, 720-1000ppm CO<sub>2</sub>e, cumulative emissions 2011-2100: 3620-4990, minus 9 years emissions of ~50GtCO<sub>2</sub>e/year since 2011 = 3170-4540, approximation of 50GtCO<sub>2</sub>e/yr based on Climatewatch data | 8: IPCC SR15 report, budget starting from 2018, for 2C, at 67<sup>th</sup> and 50th percentile | 9: IPCC SR15 report, budget starting from 2018, for 1.75C, at 67th and 50th percentile | 10: IPCC SR15 report, budget starting from 2018, for 1.5C, at 67th and 50th percentile

## APPENDIX 3



Buldania





## Resource

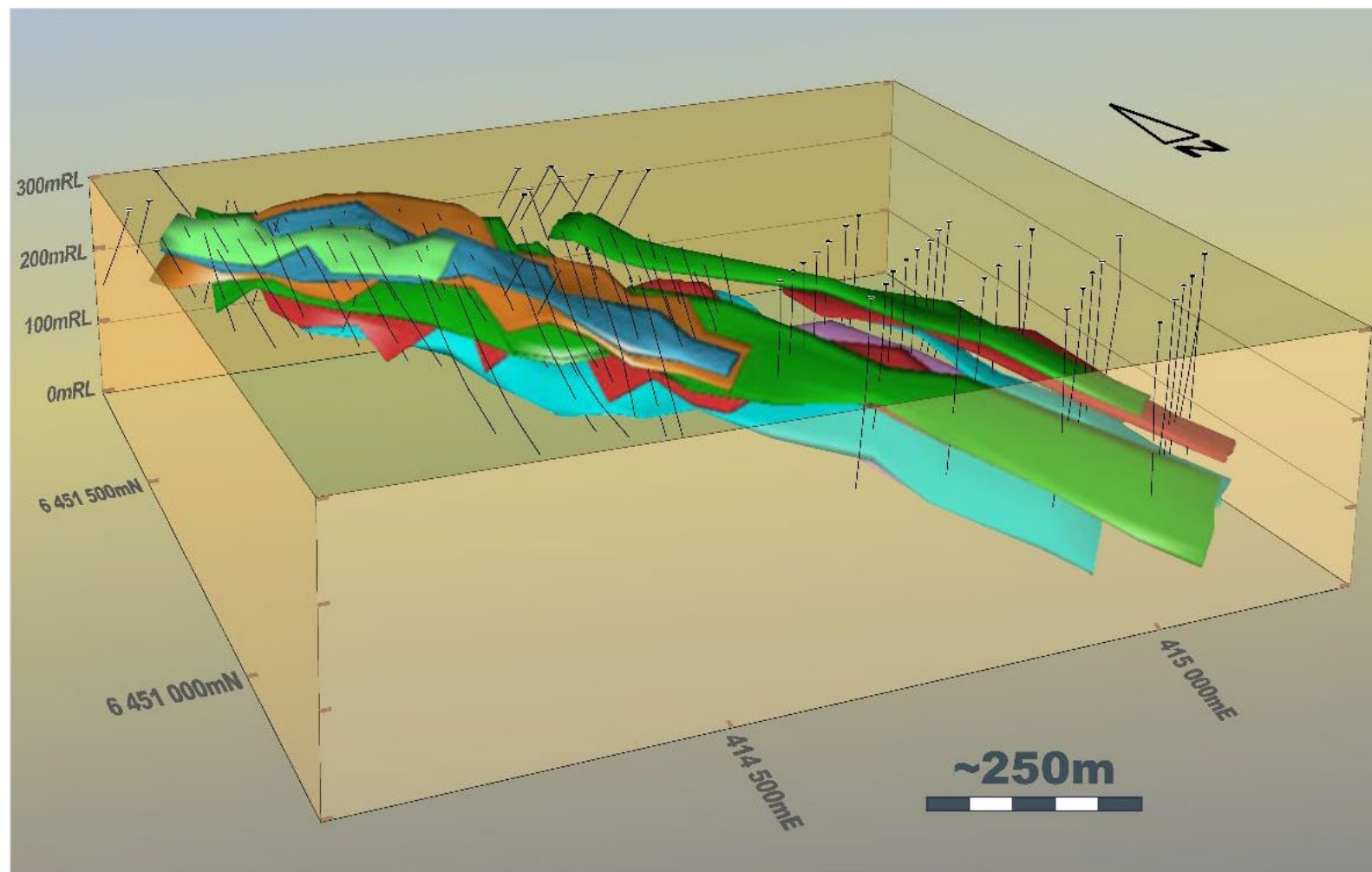
### Maiden Mineral Resource Estimate

14.9Mt @ 1.0% Li<sub>2</sub>O

The MRE complements Liontown's flagship Kathleen Valley Lithium Project

### Mineral Resource Estimate – November 2019

Cut-off Li <sub>2</sub> O%	Resource Category	Million Tonnes	Li <sub>2</sub> O%	Ta <sub>2</sub> O <sub>5</sub> (ppm)
0.5	Indicated	9.1	0.98	45
	Inferred	5.9	0.95	41
<b>TOTAL</b>		<b>14.9</b>	<b>0.97</b>	<b>44</b>





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