ASX : LTR

ASX ANNOUNCEMENT

22nd October 2020

Downstream Scoping Study
Kathleen Valley Lithium-Tantalum Project

Integrated Refinery shows exceptional economics from production of battery-grade products

New Scoping Study reveals further development upside for Kathleen Valley

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Highlights

- **Downstream Scoping Study (DSS) completed, leveraging off the recent Pre-Feasibility Study (PFS) on Liontown's 100%-owned Kathleen Valley Lithium-Tantalum Project in WA.**
- **DSS demonstrates the very favorable financial upside of an integrated *mining, processing and refining operation* based on the production of either Lithium Hydroxide monohydrate ($LiOH.H_2O$ "LHM") or Lithium Sulphate monohydrate ($Li_2SO_4.H_2O$ "LSM") using 6% Li_2O Spodumene concentrate (SC6.0) as feedstock from Kathleen Valley.**
- **Forecast average steady-state production of 430tpa tantalum (Ta_2O_5), unchanged from the PFS.**

Scoping Study Outcomes [1]

	PFS + LHM Refinery	PFS + LSM Refinery
Post-tax $NPV_{8\%}$ (real, post-tax)	A$4.8 B	A$3.2 B
Internal Rate of Return (IRR) %	41%	35%
LOM Free Cash-flow (post-tax)	A$19.5 B	A$13.7 B
Payback period (Years - Integrated projects)	3	3
Average LOM cash operating costs (US$/t) [2] [6]	US$4,744	US$2,649
Total CAPEX (SC6.0 Plant + Refinery) [3] [4] [5] [7]	A$1.1 B	A$0.9 B
Design production rate	58 ktpa (LHM)	88 ktpa (LSM)
Average steady state production	430 tpa (Ta_2O_5)	430 tpa (Ta_2O_5)
Life-of-mine (LOM) years	~40 years	~40 years

Cautionary statement: [1]The production targets and forecast financial information referred to in the DSS are 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 is 8.28Mt

@ 1.36% Li_2O & 120 ppm Ta_2O_5. The Inferred material has been 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. Refer to page 21 of PFS announcement released on 9th October 2020 for additional information.

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.

[2] Cash operating costs include all mining, processing, downstream refining, transport, state & private royalties, 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)

The scope of the DSS relates solely to the process design, capital and operating costs associated with an LHM or LSM refinery, however the financial analysis also uses information published as part of the PFS released on 9th October 2020.

Liontown Resources Limited (ASX: LTR; "Liontown" or "Company") is pleased to announce the results of a Downstream Scoping Study (DSS) for its 100%-owned **Kathleen Valley Project** in Western Australia which demonstrates the exceptional financial and economic returns that would be generated by the addition of an on-site, downstream processing plant to produce battery-grade products.

The recently published PFS, which was announced on 9th October, included an Ore Reserve of **71Mt @ 1.40% Li_2O and 130ppm Ta_2O_5** and a Production Inventory of **79Mt@ 1.4% Li_2O & 130 ppm Ta_2O_5** which underpins a 2Mtpa mining and processing operation over a ~40-year mine life.

Building on the PFS, Liontown engaged Lycopodium Minerals Pty Ltd (Lycopodium) to evaluate the impact of integrating the mine, process plant and a downstream refinery (Integrated Project) at Kathleen Valley to produce either battery-grade LHM or LSM based on the projected SC6.0 production.

Lycopodium determined scoping-level operating and capital cost estimates (+/-30% accuracy) for a downstream facility capable of processing feed of ~380ktpa SC6.0 spodumene concentrate to produce 58ktpa of battery-grade LHM or 88ktpa LSM on-site at Kathleen Valley.

As the financial analysis demonstrates, an Integrated Project is an attractive proposition, given the location of the Project relative to key infrastructure including power and gas, the supply of key consumables such as acid from the nearby mining and logistics centre of Kalgoorlie and, importantly, having a suitable area for tailings. Operating cost savings are also applicable through significantly reduced transport volumes of final product.

The DSS has provided a strong basis for further work illustrating the robust fundamentals and compelling economics of a downstream refinery at Kathleen Valley. ***The Integrated Project has the potential to make the Company a significant supplier of refined battery feedstock.***

Liontown's Managing Director, David Richards, said:

> *"Downstream processing to deliver battery-grade products is the portion of the global lithium-ion battery supply chain which generally sees a huge value uplift.*
>
> *"As a second-generation lithium-tantalum developer, we believe we have a unique opportunity to explore this scenario at Kathleen Valley, given the scale, grade and quality of our project and its location proximal to infrastructure, key logistics and supply chains in the North-Eastern Goldfields of WA.*
>
> *"The Integrated Project examined in the Downstream Scoping Study builds on the extremely robust financial outcomes of the recently announced PFS and clearly shows the substantial financial and economic returns that would be generated by developing an integrated project.*
>
> *"The location of the Kathleen Valley deposit is ideally suited to a long-life Integrated Project with excellent access to downstream inputs plus the significant benefits stemming from lower operating costs compared to a stand-alone spodumene plant.*
>
> *"Our primary objective is now to press ahead with the planned Definitive Feasibility Study including further engineering and testwork associated with developing an integrated project at Kathleen Valley. We are delighted with the initial results of the Downstream Study and intend to continue to vigorously pursue ongoing engineering, marketing and funding efforts to bring Kathleen Valley Lithium-Tantalum Project into production".*

Kathleen Valley Integrated Project – Project Background

The 100%-owned Kathleen Valley Lithium-Tantalum Project is located on four granted Mining Licences and one Mining Licence Application approximately 680km north-east of Perth and 400km north of Kalgoorlie in the Eastern Goldfields of Western Australia (***Figure 1***). The Project is readily accessible by sealed highways which connect with exporting ports at Geraldton and Fremantle.

Other infrastructure located close to the Project includes a power line, a natural gas pipeline and existing mine camps with sealed airstrips capable of accommodating large passenger aircraft.

Following a substantial increase in the Mineral Resource at Kathleen Valley, the Company released an updated PFS on 9th October 2020. The PFS studied the establishment of a 2Mtpa mining and Whole of Ore Flotation (WOF) processing operation. Key financial outcomes of the PFS included:

- LOM free cash flow after-tax of A$4.8B (averaging ~A$129M per annum during production)
- Project payback of approximately 3 years post-production
- Post-tax $NPV_{8\%(real)}$ of A$1.12B and IRR of 37%
- Pre-production and capital expenditure of A$325M
- LOM Cash costs of US$310 /dmt Li_2O concentrate (inclusive of tantalum credits, excluding royalties) (1) (2)
- Ore Reserve of **71 Mt @ 1.40% Li_2O and 130ppm Ta_2O_5**

[1] Cash operating costs include all mining, processing, transport, state, freight to port, port costs and site administration and overhead costs. Excludes sustaining capital.
[2] As royalties are predominantly sales-price dependent they have not been included in cash costs. At PFS Li_2O pricing of US$739/t royalties equate to $67/t for the base case presented above.

Refer to the Cautionary Statement on page 1 of this announcement for further information regarding the production targets and forecast financial statements in this announcement.

The DSS examined the integrated downstream refining of SC6.0 product on-site at Kathleen Valley. The refinery has been designed as a series of process trains that can be replicated for additional capacity to facilitate a future expansion to 4Mtpa WOF ore throughput with minimal impact on the operating project.

As outlined in the PFS, following conventional open pit/underground mining and delivery to the Run-of-Mine (ROM) pad, ore will be processed to produce SC6.0 and tantalum concentrates. Tantalum

concentrate/s will be transported off-site for further upgrade and delivery to downstream customers, while the SC6.0 would be refined on-site to deliver a battery-grade LHM or LSM.

The DSS was completed to an overall +/- 30% costing accuracy using the key parameters and assumptions defined both in the PFS and set-out in ***Table 2*** below and as further outlined in this announcement. By-product credits from the production of tantalum concentrate were considered in the analysis. ***Figure 2*** shows the proposed site layout including mining areas, WOF processing facilities, downstream refinery and non-process infrastructure.

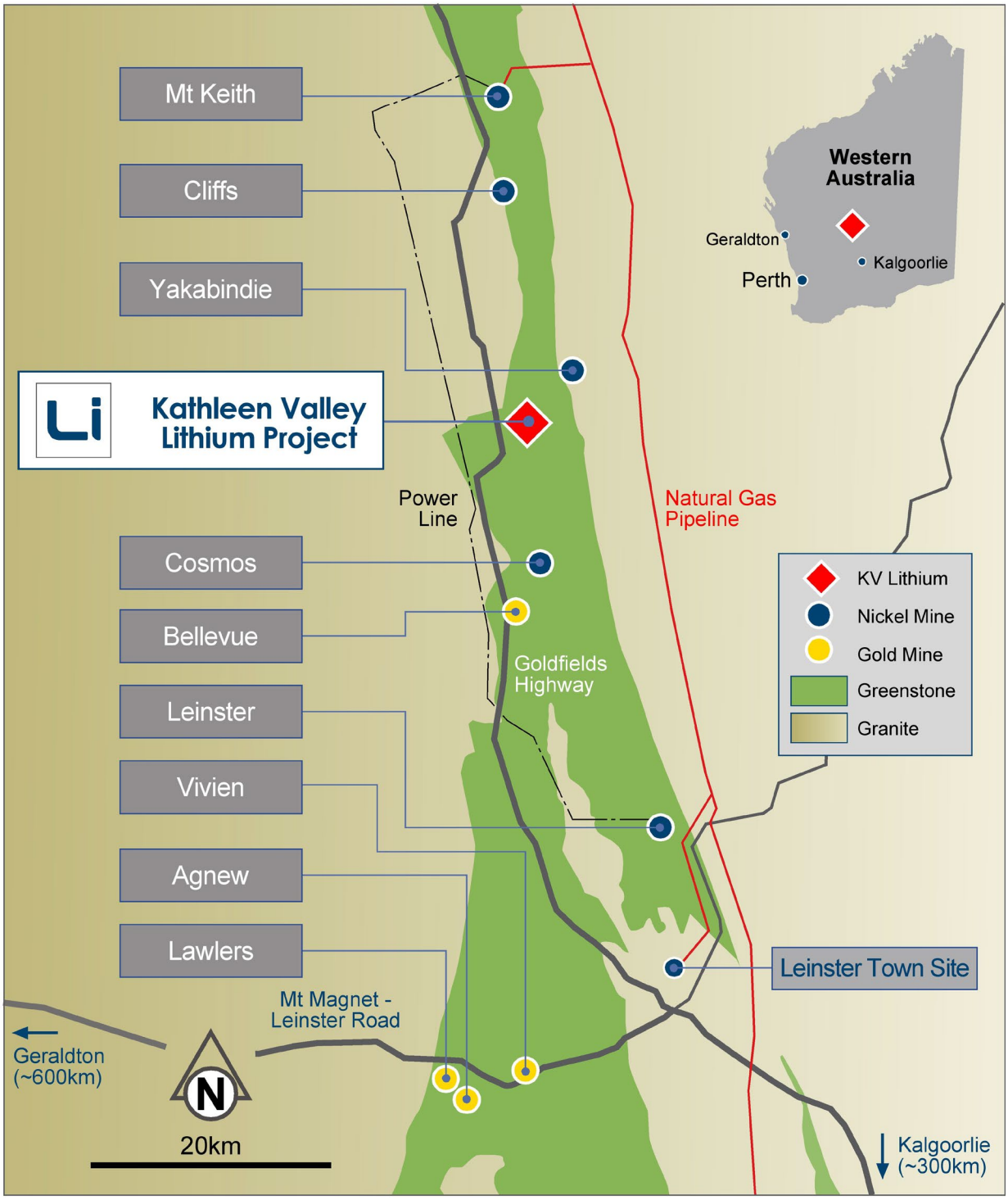


Figure 1: Kathleen Valley Project – Location, infrastructure, existing mines and regional geology

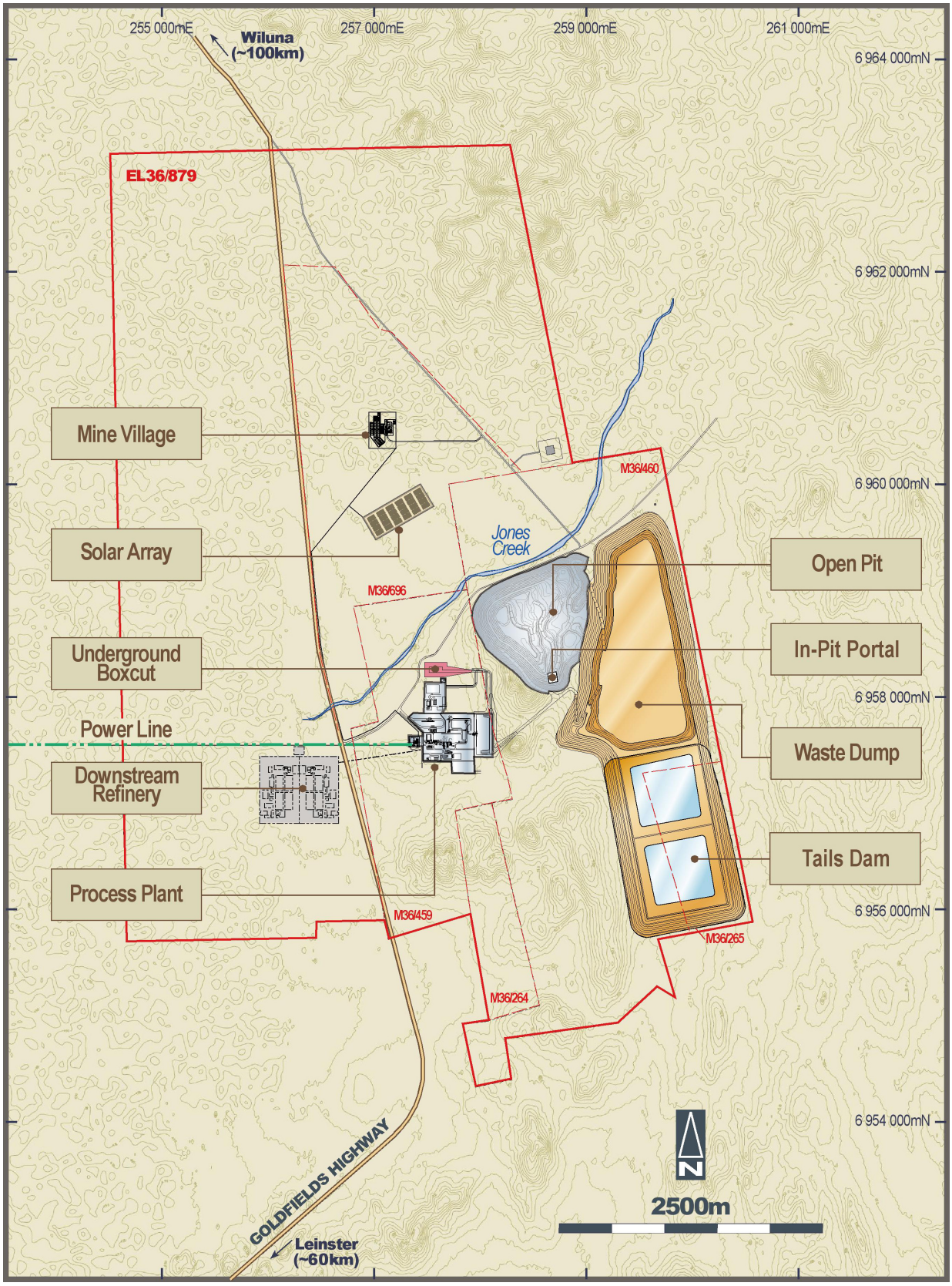


Figure 2: Kathleen Valley Project – Proposed Integrated Project mine site layout

Downstream Scoping Study Metallurgy & Process Flowsheet/s

The scope of the DSS relates solely to the process design, capital and operating costs associated with an LHM or LSM refinery; however, the analysis also uses information published as part of the PFS released on 9th October 2020.

Lycopodium was engaged by the Company to prepare a DSS to develop capital and operating cost estimates for the production of LHM and LSM lithium salt products from a SC6.0 WOF concentrate. The DSS assumes that the LHM and LSM processing plant options will be located at Kathleen Valley, adjacent to the proposed WOF plant detailed in the recently published PFS (***Figure 2***).

Two different WOF concentrator feed rates (2Mtpa and 4Mtpa) were evaluated to generate the concentrate feed into the downstream processing plant. Only the 2Mtpa option has been considered at this point, in-line with the PFS. Further options to generate LSM by Liontown, followed by third party treatment of this LSM to produce LHM, were also evaluated to gain an understanding of additional upgrade costs expected to be borne by third parties.

A summary of the options considered are as follows:

- An LHM refinery sized to process 380ktpa of SC6.0 comprised of two parallel processing trains to produce a nominal total of 57,600tpa of battery grade LHM. Fundamentally, the flowsheet will comprise SC6.0 calcination, followed by sulphation roasting, leaching, neutralisation, impurity removal, Pregnant Leach Solution (PLS) concentration, causticisation, Glauber's salt crystallisation, anhydrous sodium sulphate crystallisation, LHM crystallisation, product drying and packaging. Refer to **Figure 9**.
- An LSM refinery sized to process 380ktpa of SC6.0 comprised of two parallel processing trains to produce a nominal total of 87,900tpa LSM. The flowsheet will be identical to that proposed for LHM production up to and including the impurity removal stage. Thereafter, the PLS will undergo a further purification step, followed by two stages of LSM crystallisation, product drying and packaging. Refer to **Figure 9**.
- Separable costs to upgrade the LSM produced to LHM (by others) using the flowsheet and cost and recovery assumptions in the calculation of LHM above were also compiled to assist with pricing assumptions underlying the LSM modelling.

Downstream Scoping Study Financial Outcomes

Based on a proposed 2Mtpa standalone mining, processing and refining operation, the DSS has demonstrated strong financial metrics for the Integrated Project (***Table 1 and Figures 3 -5***) as outlined below:

Table 1: Kathleen Valley Integrated Project – Key Metrics

	LHM	LSM
Post-tax $NPV_{8\%}$ (real, post-tax) [(1)]	**A$4.8 B**	**A$3.2 B**
Internal Rate of Return (IRR) %	**41%**	**35%**
LOM Free Cashflow (post tax)	**A$19.5 B**	**A$13.7 B**
Payback period (years)	**3**	**3**
Average LHM/ LSM pricing Real Spot (2025-2041, US$/t) [(8)]	**US$14,079**	**US$6,991**
Average LOM cash operating costs (US$/t) [(2) (6)]	**US$4,744**	**US$2,649**
Design production rate (ktpa)	**58 ktpa LHM**	**88 ktpa LSM**
Integrated Capex (SC6.0 Plant + Refinery) [(3) (4) (5) (7)]	**A$1.1B**	**A$0.9B**
Life of mine (LOM years)	**~40 years**	**~40 years**

[1] Refer to the Cautionary Statement on page 1 of this announcement for further information regarding the production targets and forecast financial statements in this announcement.

[2] Cash operating costs include all mining, processing, downstream refining, transport, state & private royalties, 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 include no contingency on SC6.0 operating costs, DSS included no contingency on operating costs
[7] PFS include 15% ($27M) capital contingency, DSS included 20% ($135M LHM & $109M LSM) contingency on capital costs
[8]LHM Pricing per Roskill September 2020 price estimates for years 2025-2040, LSM pricing scaled based on Roskill LHM price estimate. Refer to LHM and LSM Forecast Pricing section.

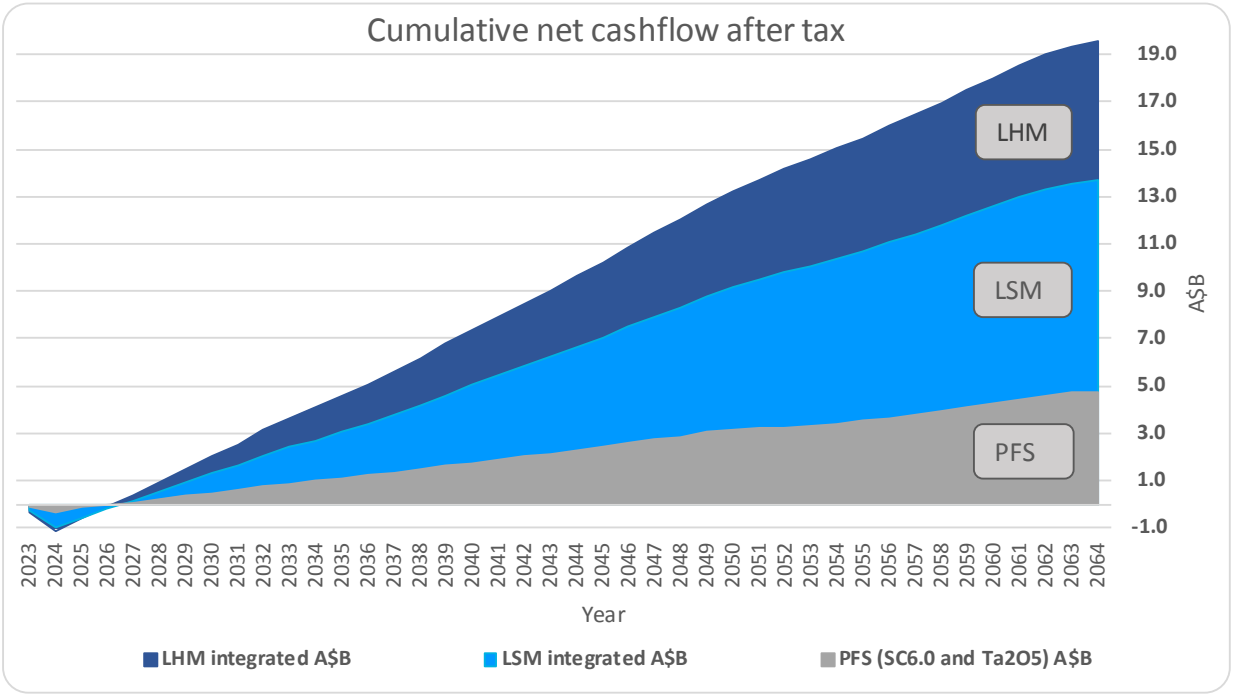


Figure 3: Integrated Project Cumulative Free Cash Flow and Payback Period

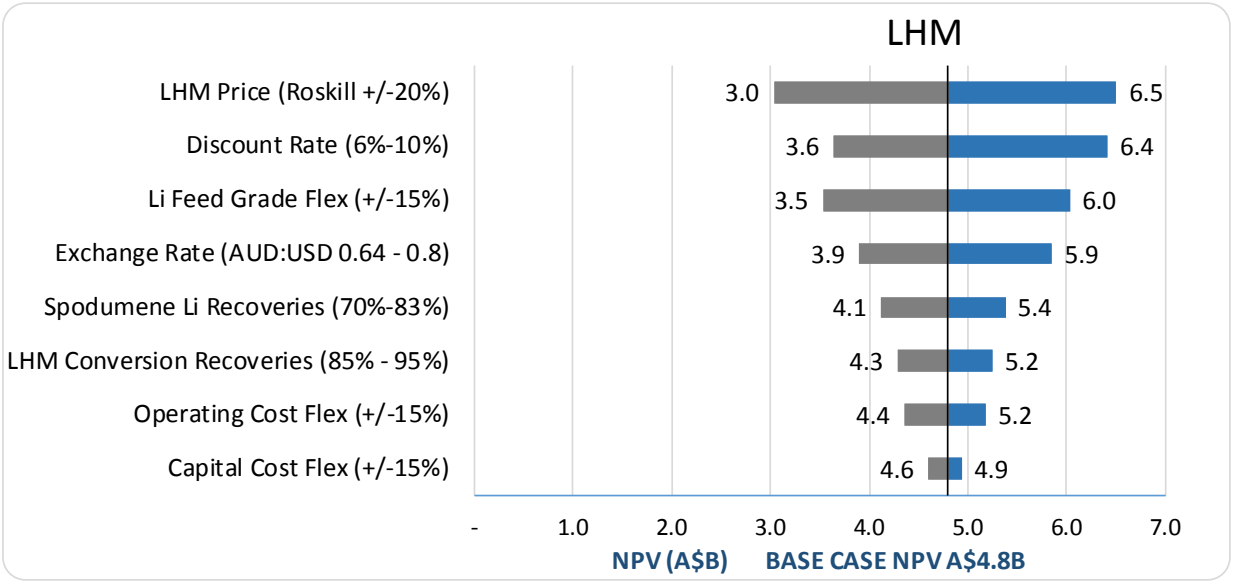


Figure 4: Kathleen Valley LHM Integrated Project – NPV Sensitivity Analysis

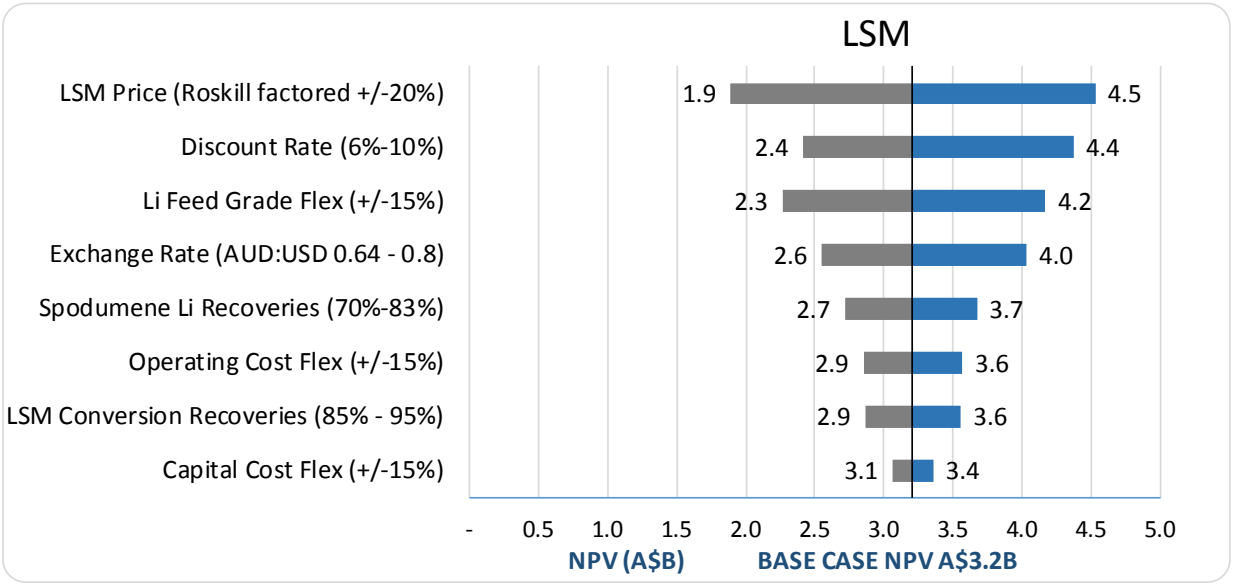


Figure 5: Kathleen Valley LSM Integrated Project – NPV Sensitivity Analysis

The DSS is based on the material assumptions outlined in ***Table 2***. While the Company considers all the material assumptions to be based on reasonable grounds, there is no certainty that they will prove to be correct or that the range of outcomes indicated by the DSS will be achieved. Given the uncertainties involved, investors should not make any investment decisions based solely on the results of the DSS.

In accordance with ASX Listing Rules 5.16 and 5.17, the Company confirms the following in respect of the production targets and forecast financial information resulting from the DSS:

- The production targets and forecast financial information referred to in the DSS comprise Proven Ore Reserves (19.7%), Probable Ore Reserves (69.8%) and Inferred Mineral Resources (10.5%). The Inferred material included in the inventory is 8.28Mt @ 1.36% Li_2O & 120 ppm Ta_2O_5. The Inferred material has been 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.

Table 2: Integrated Project Key Parameters

Parameter	LHM	LSM
General and Economic		
Discount rate (real, post-tax)	8%	8%
Average LHM Price (US$ per tonne FOB Fremantle 2025-2040)	US$14,079/t	N/A
Average LSM Price (US$ per tonne FOB Fremantle 2025-2040)	N/A	US$6,991/t
Tantalum concentrate price (US$ per pound FOB Fremantle 2025-2040)	US$69.9/lb	US$69.9/lb
Exchange rate – AUD/USD	0.72	0.72
Mining and Production SC 6.0 WOF concentrate		
WOF Processing rate	2 Mtpa	2 Mtpa
Ore Reserve	71Mt @1.4% Li_2O & 130ppm Ta_2O_5	71Mt @1.4% Li_2O & 130ppm Ta_2O_5
Life-of-Mine Production Target	79 Mt ore	79 Mt ore
LOM average Li_2O & Ta_2O_5 grades (diluted)	1.40%/ 130ppm	1.40%/ 130ppm
Average Li_2O Concentrate overall average recovery (%)	76%	76%
Ta_2O_5 average overall recovery (% includes offsite upgrade losses of ~6%)	50%	50%
Concentrate grade (% Li_2O)	6%	6%
Moisture content of SC 6.0	9%	9%
LOM Li_2O SC6.0 production (ktpa per PFS, Avge 380ktpa years 1-10 forms basis of design for DSS)	350k	350k
Downstream Integrated Refinery		
Number of processing Trains (#)	2	2
Recovery Li (%)	90%	90%
Calcination Temperature (°C)	1,100	1,100
Sulphuric Acid Addition (mol/mol)	1.25(H_2SO_4: Li_2O)	1.25(H_2SO_4: Li_2O)
Acid Roast Temperature (°C)	250	250
Acid Leaching Residence Time (minutes)	120	120
Lithium Sulphate Crystalliser Stages (per train)	2	2
LHM production (average ktpa at 380ktpa SC6.0 feed rate)	58 ktpa	N/A
LSM production (average ktpa at 380ktpa SC6.0 feed rate)	N/A	88 ktpa
Cost Assumptions		
LOM average processing cost (US$/dmt SC6.0 Concentrate) (1)	US$310	US$310
LOM average processing cost incl. SC6.0 costs (US$/t LHM) (2)	US$4,744	N/A
LOM average processing cost incl. SC6.0 costs (US$/t LSM) (2)	N/A	US$2,649
Upgrade cost LSM to LHM (US$/t LHM)	N/A	US$1,509/t LHM
Transport cost (LHM to Fremantle incl. Port Charges)	A$86/t	N/A
Transport cost (LSM to Fremantle incl. Port Charges)	N/A	A$86/t
WA State royalty (based on spodumene feedstock market value)	5%	5%
Other royalties (does not apply to MLA 36/696) (based on spodumene feedstock market value for gross sales)	3% gross sales & A$0.5/t ore mined	3% gross sales & A$0.5/t ore mined
Native Title Agreement	Under Negotiation	Under Negotiation
Corporate tax rate	30%	30%
NPV Date	Start of Construction	Start of Construction
Estimated opening tax losses	A$35M	A$35M

(1) *Excludes Royalties and sustaining capital*
(2) *Includes Royalties, excludes sustaining capital*

LHM and LSM Forecast Pricing

LHM or LSM are not currently sold on exchange traded markets and are largely transacted under contractual arrangements between the producer and its customers.

Liontown has used the services of leading industry commodity forecasting experts Roskill for its price forecast assumptions for LHM as applied in the DSS.

Roskill has provided annual forecast pricing through to 2040 on a real, US$/dmt CIF China basis for "Spot" LHM prices (***Figure 6***).

At this stage, future production from Kathleen Valley remains 100% uncommitted in order to maintain maximum flexibility and independence over funding and development options. For the purposes of the DSS, it has been assumed that Liontown will sell 100% of its downstream production at spot prices on a yearly basis.

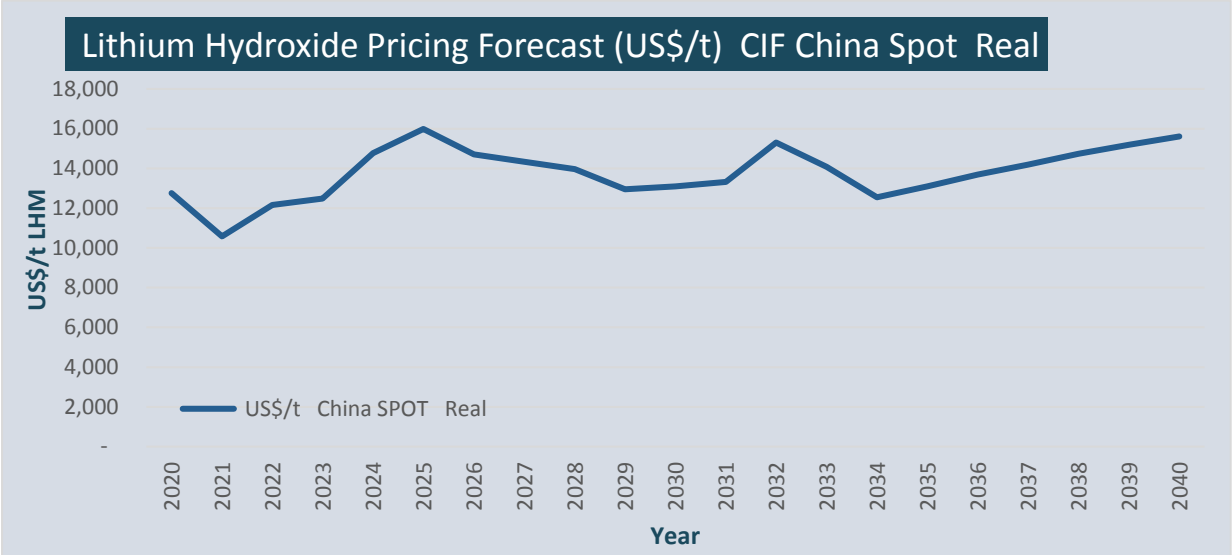
The Roskill forecast LHM pricing results in an average price of US$14,176dmt CIF China for the period 2025 - 2040 (noting that, while the DSS extends beyond Roskill's 2040 forecasts, Liontown has assumed it reasonable to use the 2040 price of US$15,609 as the basis from 2041 - 2064).

Liontown has assumed that LHM and LSM will be bagged and exported via the Port of Fremantle.

Liontown has adjusted Roskill's CIF China LHM prices to an FOB Fremantle price by deducting US$97 per tonne to reflect the estimated costs of shipping in sea containers to China from Australia, as the ultimate destination of LHM produced from the Kathleen Valley Project is not known at this stage. This results in an FOB Fremantle 2025 - 2040 average LHM price of US$14,079/dmt and US$15,512/dmt for 2041 - 2064.

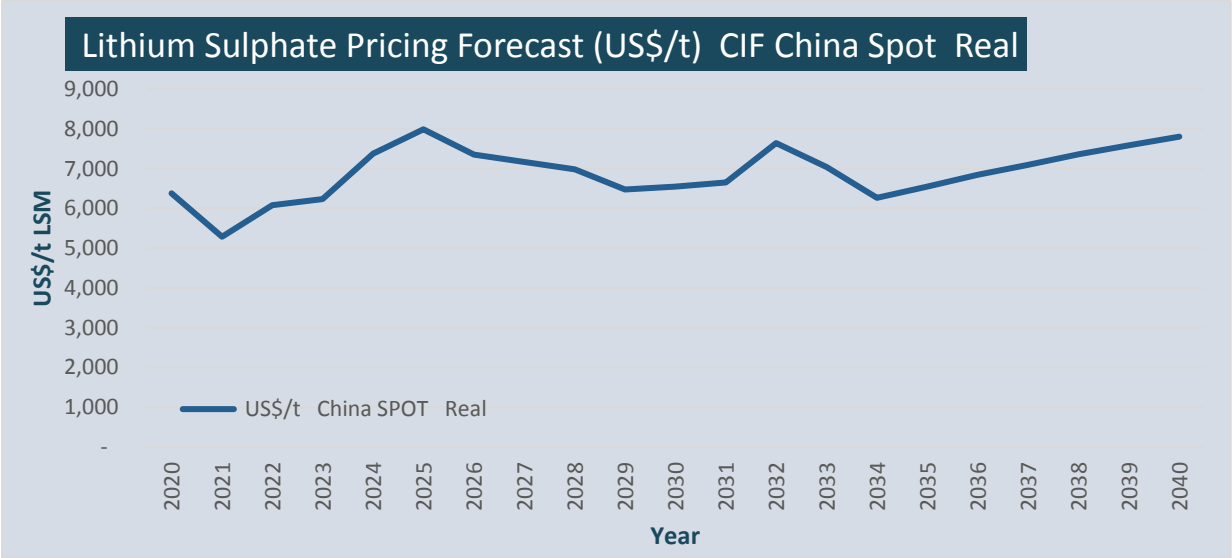
The LSM market is new/developing with no trading data for this intermediate product, therefore taking into consideration the LSM to LHM upgrade cost derived by Lycopodium, Liontown has factored the LHM pricing at an average of 50% of the Roskill-supplied LHM pricing to arrive at the LSM price (***Figure 7***).

Liontown has adjusted Roskill's CIF China prices to an FOB Fremantle price by deducting US$97 per tonne to reflect the estimated costs of shipping in 40' sea containers to China from Australia, as the ultimate destination of LSM produced from the Kathleen Valley Project is not known at this stage. This results in an FOB Fremantle 2025 - 2040 average LSM price of US$6,991/dmt and US$7,707/dmt for 2041 - 2064.



**Source: Roskill September 2020 China Spot Prices 2020 – 2040*

Figure 6: Roskill Forecast LHM Prices



**Source: Liontown Assumed Prices as a factor of Roskill September 2020 China Spot Prices 2020 – 2040*

Figure 7: Forecast LSM prices based on 50% factored Roskill LHM Prices

Further Work

The compelling economic upside to the DSS justifies Liontown now focusing on progressing the planned Definitive Feasibility Study which will further evaluate the strategy of developing an integrated processing and refining operation based on the production of either LHM or LSM using SC6.0 as feedstock from Kathleen Valley.

In order to progress the DSS, further considerable engineering is required to better estimate material quantities to the required level of accuracy (A scope of work has been defined and a quotation to progress the work has been received). In addition, metallurgical testwork using representative Kathleen Valley SC6.0 concentrate will be necessary to confirm DSS-assumed recoveries, reagent consumptions and to validate equipment size, quantity and material selection.

Subject to funding and Board approval, ongoing metallurgical and process engineering work is envisaged in Q2, 2021 to further develop the DSS.

This announcement has been authorised for release by the Board.

DAVID RICHARDS

Managing Director

22nd October 2020

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Table 3: Kathleen Valley Project – Ore Reserve Estimate (October 2020)

Category	Tonnage (Mt)	Li_2O (%)	Li_2O (T)	Ta_2O_5 (ppm)	Ta_2O_5 (T)
Underground					
Proved	3.9	1.4	56,000	130	**500**
Probable	37.6	1.5	572,000	120	**4700**
Sub-Total	**41.5**	**1.5**	**628,000**	**120**	5100
Open Pit					
Proved	11.7	1.2	142,000	140	**1,700**
Probable	17.6	1.2	205,000	130	**2,300**
Sub-Total	**29.3**	**1.2**	**346,000**	**130**	3,900
TOTAL	**70.8**	**1.4**	**974,000**	**130**	9,100

Notes: *Tonnages and grades are diluted and reported at Li_2O cut-off grade of 0.7-0.75% (open pit) and 1.2 -1.5% (Underground). Tonnages and grades have been rounded.*

Competent Person Statements

The Mineral Resource estimates referred to in this announcement were first reported in accordance with Listing Rule 5.8 in the Company's announcement of 11 May 2020 titled "Kathleen Valley Confirmed as world class Lithium deposit as Mineral Resource increases to 156Mt @ 1.4% Li2O". The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous announcement and that all material assumptions and technical parameters underpinning the estimates in the previous announcement continue to apply and have not materially changed.

The Ore Reserve estimates referred to in this announcement were first reported in accordance with Listing Rule 5.9 in the Company's announcement of 9th October 2020 titled "Updated Kathleen Valley Pre-Feasibility Study delivers substantial increase in NPV to A$1.1 billion and mine life to ~40 years" The Company confirms that it is not aware of any new information or data that materially affects the information included in the previous announcement and that all material assumptions and technical parameters underpinning the estimates in the previous announcement continue to apply and have not materially changed.

The information in this announcement that relates to the DSS was reviewed by Alastair Holden is an employee of Lycopodium Minerals Pty Ltd and a Fellow of the Australasian Institute of Mining and Metallurgy. Alastair Holden has provided his prior written consent to the form and context in which the outcomes of the DSS and the supporting information are presented in this announcement.

The production targets and forecast financial information in this announcement that relates to the PFS were first reported in accordance with Listing Rule 5.16 and Listing Rule 5.17 in the Company's announcement of 9th October 2020 titled "Updated Kathleen Valley Pre-Feasibility Study delivers substantial increase in NPV to A$1.1 billion and mine life to ~40 years" The Company confirms that all material assumptions underpinning the production targets and forecast financial information derived from the production targets in the previous announcement continue to apply and have not materially changed.

Forward-looking statements

This report 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 report, 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 report 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 report, except where required by law or the ASX listing rules.

Kathleen Valley Integrated Project

Material Assumptions and Additional Information

1. Flowsheet

The Kathleen Valley Integrated Project process is proposed to consist of a WOF concentrator with associated services/ancillaries (as outlined in the PFS) and a separate downstream refinery (***Figure 8***). The overall facilities include:

- Three-stage crushing (including an HPGR);
- Low and high intensity magnetic separation combined with sequential gravity separation to produce a tantalum concentrate (which also removes ferrous impurities);
- Ball-milling of the tantalum circuit non-magnetics;
- Flotation thickening and filtration to produce SC6.0 spodumene concentrate;
- LHM or LSM Refinery[1]; and
- Tails disposal.

[1] The proposed LHM / LSM refinery at Kathleen Valley (**Figure 9)** includes:

Common Processes

- Calcination (α-β);
- Acid Roasting;
- Leaching & Filtration;
- Neutralisation, Impurity Removal & Filtration;
- Waste Disposal; and
- Reagents and Services.

To produce LHM

- PLS Concentration
- Causticisation & Filtration
- Glauber's Salt Crystallisation & Melting
- Sodium Sulphate Crystallisation
- Sodium Sulphate Drying & Packaging
- LHM Crystallisation
- LHM Drying & Packaging

To produce LSM

- Ion Exchange
- PLS Concentration
- LSM Crystallisation
- LSM Drying & Packaging

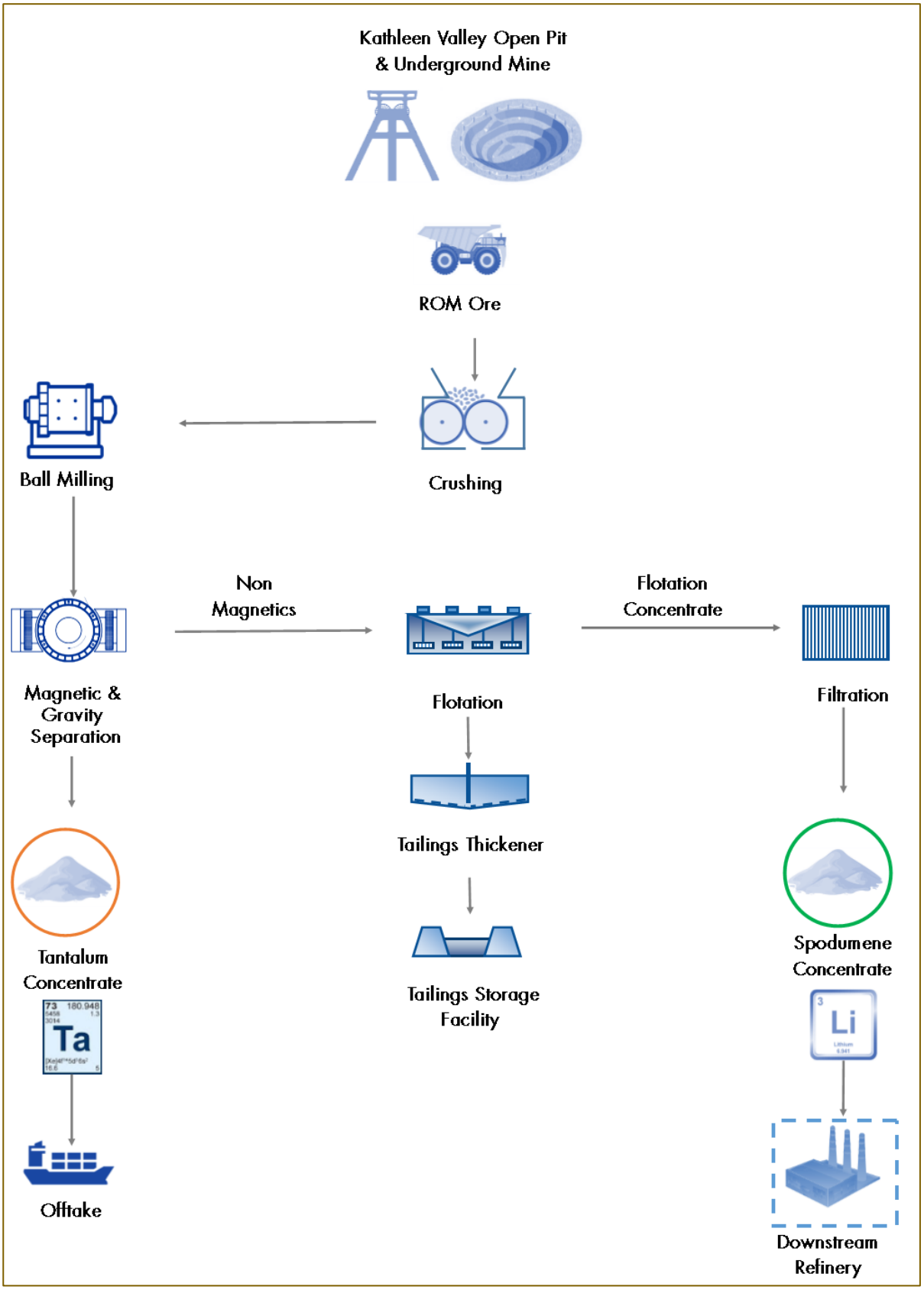

Figure 8: Kathleen Valley Project Overall Integrated Flow Sheet

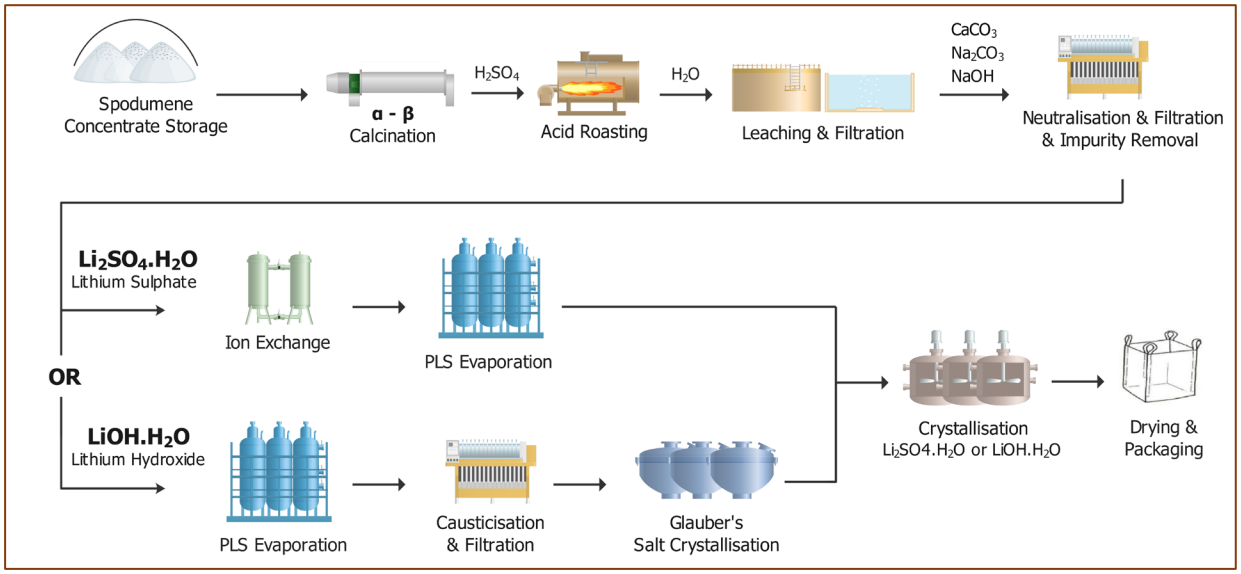

Figure 9: Kathleen Valley Refinery Flow Sheet (LHM or LSM) excludes Sodium Sulphate extraction stages for simplicity

2. Process Description

It is proposed that the LHM or LSM processing facility will comprise two identical processing trains for treating the concentrate from the 2Mtpa WOF concentrator (and four identical processing trains in the case of a 4Mtpa WOF concentrator). The following narrative provides a description of the process for one processing train unless otherwise noted. All reagents, services, and utilities will be common for two trains. Note also that the two circuits are identical up to and including the Impurity Removal stage and thereafter the unit operations specific to the separate production of LHM and LSM are described.

Feed Receipt and Handling

Spodumene concentrate will be delivered onto a stockpile within a concentrate storage shed using a conveyor from the WOF concentrator. The concentrate will be fed into individual feed hoppers dedicated to each processing train, which in turn will discharge to the pre-heat section of the calcination circuit.

Calcination

The objective of the calcination process is to convert the SC6.0 from the natural monoclinic α-form to the tetragonal β-form, thereby improving lithium solubility.

The calcination kiln will operate at 1,100°C and provide an approximate 3 hours total residence time to maximise conversion to the β-spodumene form. The cooled β-spodumene will be delivered to a dry milling circuit to yield a product target particle size P_{80} of 75µm. Milled solids will be transferred to an intermediate storage silo and thereafter to acid roasting.

Acid Roasting

The purpose of the acid roasting stage is to generate a soluble lithium sulphate product which will be leached in water and the pregnant leach solution separated from the bulk of the gangue minerals (unaffected by acid roasting) in a subsequent solid / liquid separation step.

Milled solids from the storage silo will be mixed with concentrated sulphuric acid and fed into an acid roaster kiln. Roaster solids will be cooled and discharged into the acid leach repulp tank.

Leaching

Slurry from the acid leach repulp tank will be diluted with water and leached in agitated tanks. Leach discharge slurry will then be delivered to a series of filter presses to effect separation of the un-leached solids from the leach liquor. The solids will be washed before being either back-loaded into trucks and removed from site or returned to the concentrator plant for blending with flotation tailings prior to disposal in a Tailings Storage Facility (TSF).

Neutralisation

Acidic filtrate from the acid leach filtration stage will be contacted with limestone slurry to neutralise residual acid, forming gypsum and precipitating the bulk of the soluble iron and aluminium as hydroxides. Neutralisation discharge slurry will then be filtered, and the resulting solids washed, back-loaded into trucks and returned to the concentrator plant for blending with flotation tailings prior to disposal in a TSF.

Impurity Removal

Filtrate from neutralisation filtration will be indirectly pre-heated using hot condensate and steam in a series of heat exchangers before reporting to the first of two mechanically agitated impurity removal tanks.

Sodium hydroxide solution will be dosed into the first tank to neutralise residual acid and to precipitate magnesium as a hydroxide. The slurry will then flow to the second tank and sodium carbonate solution will be added to precipitate calcium. The impurity removal discharge slurry will be filtered and the solids recycled to the neutralisation stage, while the clarified filtrate will advance either to PLS evaporation (for subsequent production of LHM) or to Ion Exchange (for production of LSM).

PLS Evaporation (LHM Production)

Filtrate from the impurity removal circuit will now comprise a pure PLS of predominantly lithium sulphate and sodium sulphate. Prior to the causticisation process, it will be required to pre-concentrate the PLS in an evaporator.

PLS will be introduced to the recirculating liquor stream of an evaporator while a stream of concentrated PLS will be continuously withdrawn from the evaporator via a heat exchanger to a surge tank.

Process condensate from the PLS evaporator will report to a process water tank.

Causticisation (LHM Production)

Concentrated PLS will be pumped from the evaporator product tank to a series of lithium hydroxide reactors. Sodium hydroxide solution will be dosed into the reactors to effect conversion of the lithium sulphate to a solution of lithium hydroxide and sodium sulphate at elevated temperature (~100°C). Any residual calcium will also be precipitated as a hydroxide.

Glauber's Salt Crystallisation (LHM Production)

The intention of the Glauber's salt crystallisation circuit is to take advantage of the different solubilities of lithium hydroxide and sodium sulphate to effect preferential crystallisation of the sodium sulphate as Glauber's salt.

The process feed liquor stream, containing predominantly dissolved salts of lithium hydroxide and sodium sulphate, will be pumped from the causticisation circuit to the Glauber's salt feed tank. Thereafter the solution will be delivered via a series of heat exchangers to the first of two Glauber's salt crystallisers.

The first stage will cool the feed such that the liquor is just saturated with respect to sodium sulphate, and a small quantity of Glauber's salt will begin to crystallise. The dilute slurry will then be pumped to the second stage where it will be cooled further, resulting in crystallisation of the balance of the Glauber's salt. The resulting magma will then be centrifuged to separate the Glauber's salt crystals from the liquor, providing a natural 'break' between the lithium hydroxide and sodium sulphate circuits.

Sodium Sulphate Crystallisation (LHM Production)

Glauber's salt from the centrifuge will be fed to a melter to produce a dilute slurry of anhydrous sodium sulphate which will then feed a sodium sulphate crystalliser. Slurry will be extracted from the wash leg of the crystalliser and centrifuged to yield anhydrous sodium sulphate crystals.

By product Sodium Sulphate Drying and Packaging (LHM Production)

Anhydrous sodium sulphate crystals from the centrifuge will be dried in a fluid bed dryer to remove residual moisture, cooled, and packaged into bulk bags for potential sale/ export.

LHM Crystallisation (LHM Production)

Three stages of LHM crystallisation, with intermediate centrifugation and crystal dissolution, will be used to sequentially enhance the purity of the LHM product. Pre-heated centrate from the Glauber's salt centrifuge will be delivered to the first stage LHM crystalliser to produce a crude LHM crystal which will be recovered on a centrifuge. Hot process condensate will then be used to dissolve the crystal solids and the resulting solution will be pumped to the second stage LHM crystalliser.

Redissolved crude LHM crystals, together with the purge stream from the third stage LHM crystalliser, will be pumped to the second stage LHM crystalliser. Hot process condensate will again be used to dissolve the crystals recovered from a centrifuge, and the resulting solution will be pumped to the third stage crystalliser.

Redissolved LHM crystals from the second stage centrifuge will be pumped to the third and final LHM crystalliser, while a continuous purge liquor stream will be recycled to the feed of the second stage LHM crystalliser.

Lithium Hydroxide Drying and Packaging (LHM Production)

The pure LHM crystal product from the centrifuge of the third crystallisation stage will discharge to a low temperature dryer to remove residual moisture, before being packaged into bags in a clean-room environment and despatched for export.

Ion Exchange (LSM Production)

Filtrate from the impurity removal circuit will be treated through a series of ion exchange columns to remove residual contaminants. The strip and resin wash solutions will be diverted to a waste water treatment plant, while the purified PLS will report to a PLS evaporator for subsequent concentration.

PLS Evaporation (LSM Production)

Purified PLS from the ion exchange circuit will be pre-concentrated in a falling film evaporator. Evaporated vapours will be condensed and recycled as clean process condensate, while concentrated liquor will be discharged continuously at a controlled rate and concentration and pumped to the first stage of the LSM crystallisation circuit.

LSM Crystallisation (LSM Production)

The LSM crystallisation process will comprise two crystallisation stages with intermediate centrifugation and dissolution to generate a pure LSM crystal product. The first stage crystalliser will be a forced circulation evaporative (DTE) crystalliser, with a draft tube inlet, designed with high recirculation rates and ample volume to enhance crystal growth. The discharged slurry will be fed to a pusher centrifuge where the lithium sulphate crystals will be dewatered and washed with process condensate. Dewatered and washed crystals will be re-dissolved and pumped to the second crystalliser.

The second stage crystalliser will be designed as an identical unit to the first. The discharged slurry will be pumped to a pusher centrifuge where the lithium sulphate crystals will be dewatered and washed with high purity process condensate. Dewatered, washed crystals will be conveyed to a lithium sulphate dryer.

LSM Drying and Packaging (LSM Production)

The LSM crystal product from the centrifuge of the second LSM crystallisation stage will discharge to a low temperature rotary dryer to remove residual moisture, before being packaged into bags in a clean-room environment and despatched for export.

3. Site Infrastructure

The proposed refinery layout will comprise two identical processing trains, with shared reagents, services, and utilities. It is proposed to locate the processing plant at Kathleen Valley adjacent to the proposed WOF processing plant and to the west of the Goldfields Highway. This proposed site is relatively flat and within the Company's exploration lease boundary (**Figure 2**).

Site infrastructure previously detailed as part of the PFS will be supplemented as follows:

Site Development and Access Roads

The sealed Goldfields Highway is ~0.5 km east of the proposed refinery site and will provide the main access to the Project. A new sealed access road will connect the plant-site to the highway.

Power Supply

It has again been assumed that the main power supply to the refinery will be from the same 132 kV line as that proposed for the WOF processing plant. A separate main switchyard will be provided for the refinery and emergency power will also be provided.

Water Supply

The borefield developed as part of the WOF processing plant will be supplemented by additional bores on current mine licences, exploration licences and regional targets.

Dedicated potable and demineralised water treatment plants for the refinery will be installed.

Refinery Wastewater Treatment

Blowdown water from the cooling towers, demineralised water plant and steam boiler, together with reject water from the water treatment plant and general sump spillage, will be collected and treated through a dedicated wastewater treatment plant.

Steam

Saturated steam used for various heating duties throughout the refinery will be generated on site in a natural gas-fired boilers. Natural gas will be accessed from the nearby gas pipeline.

Accommodation

An allowance has been included to increase the accommodation village proposed as part of the PFS by ~60% from a 300 to 470-person camp complete with single ensuite rooms.

Refinery Buildings

Several plant buildings have been allowed including administration office, clinic/ First Aid, plant office, ablutions, crib room, maintenance workshop, warehouse, reagent store, laboratory, emergency response and control room.

Final Products Transportation and Shipping

Kathleen Valley is located adjacent to the Goldfields Highway allowing for the transport of LHM or LSM on sealed roads to the Port of Fremantle and subsequent export overseas.

Covered storage for all products will be provided on site with offsite storage to be provided by contractor/s.

4. Financial Information

A financial evaluation was completed using the Base Case Production Target of 79 Mt of potential mill feed at an average WOF process plant feed grade of 1.40% Li_2O (per the PFS). Per ***Table 2*** anticipated design refinery feed on the basis of 2Mtpa WOF feed rate is 380 ktpa of SC6.0. ***Tables 4 – 8*** summarise the results.

Life of Mine Financials

Table 4: Integrated Project Life of Mine Cash Flows

	LHM Cash flow (A$B)	LSM Cash flow (A$B)
Lithium Revenues	43.2	32.6
Operating costs (net of Tantalum credits)	(12.5)	(10.4)
Capital expenditure - pre-production	(1.1)	(0.9)
- sustaining	(0.4)	(0.4)
Royalties (State & Private)	(1.3)	(1.3)
Corporate tax	(8.4)	(5.9)
Life of Mine Project Free Cash flow (after tax)	$19.5B	$13.7B

Integrated Project Capital Expenditure

The Project capital cost estimate was compiled by Lycopodium and reflects the assumptions and parameters outlined in both the PFS and the DSS ***(Table 5).***

Table 5: Integrated Project Capital Cost Estimate Summary (A$, 2Mtpa WOF throughput)

Main Area	LHM Capital (A$M)[1]	LSM Capital (A$M)[1]
WOF Plant & Mine Development		
WOF Processing plant & Mine Pre-production (Per PFS all costs exc. Contingency)	$298	$298
DSS Refinery and Associated Infrastructure		
Plant Site and Bulk Earthworks	$7.1	$7.1
Treatment Plant	$377.2	$292.3
Reagents and Plant Services	$37.2	$30.5
Plant Buildings	$6.5	$6.5
Accommodation 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
Subtotal	$853.0	$738.8
EPCM Management Costs (DSS)	$76.5	$60.5
Owners Costs (DSS)	$19.1	$15.1
Subtotal	$948.6	$814.4
Total Contingency (DSS +PFS)	$134.5 + $27	$108.6 + $27
Project Total	$1,110.1M	$950.0M

[1] *Note PFS capital estimate to +/- 25% accuracy, DSS to +/-30% accuracy*

Sustaining capital is estimated at A$430M over the LOM for the integrated project.

Integrated Project Operating Cost Estimate

The Project has an estimated cash cost, FOB (inclusive of royalties) as detailed in ***Table 6*** below. This includes credits for tantalum concentrate produced.

Table 6: Integrated Project LOM Operating Cost Estimate - Lithium Hydroxide

LHM Operating Cost	Total Cost US$/t
SC 6.0 Concentrate (per PFS incl net Tantalum credit and Royalties) [(1)]	$2,134
LHM Upgrade costs:	
Consumables	$1,227
Power	$355
Labour	$466
Maintenance	$354
Laboratory	$63
G&A	$75
Transport	$62
Other	$8
Total Cash Operating Cost US$/t LHM	**US$4,744/t**

(1) Excludes spodumene PFS transport costs and other costs which are not applicable when spodumene is being further processed on site at Kathleen Valley

Table 7: Integrated Project LOM Operating Cost Estimate - Lithium Sulphate

LSM Operating Cost	Total Cost US$/t
SC 6.0 Concentrate (per PFS incl net Tantalum credit and Royalties) [(1)]	$1,406
LSM Upgrade costs:	
Consumables	$544
Power	$151
Labour	$232
Maintenance	$164
Laboratory	$49
G&A	$35
Transport	$62
Other	$6
Total Cash Operating Cost US$/t LSM	**US$2,649/t**

(1) Excludes spodumene PFS transport costs and other costs which are not applicable when spodumene is being further processed on site at Kathleen Valley

Table 8: Lithium Sulphate to Lithium Hydroxide Upgrade Costs (For reference/ by others)

LSM - LHM Operating Cost	Fixed Cost US$/p.a.	Variable Cost US$/t	Total Cost US$/t
Consumables	$30	$808	$838
Power	$32	$256	$288
Labour	$169	-	$169
Maintenance	$109	$27	$136
Laboratory	$40	$10	$50
G&A	$28	-	$28
Total Cash Operating Cost (LSM to LHM Upgrade)	**US$408/t**	**US$1,101/t**	**US$1,509/t**

Integrated Project Life of Mine Cash Flows

Figure 10 illustrates the net cash flows after tax per annum associated with the Integrated Project's and the PFS. This demonstrates a potential payback period of ~3 years (from commencement of production of the Integrated Project).

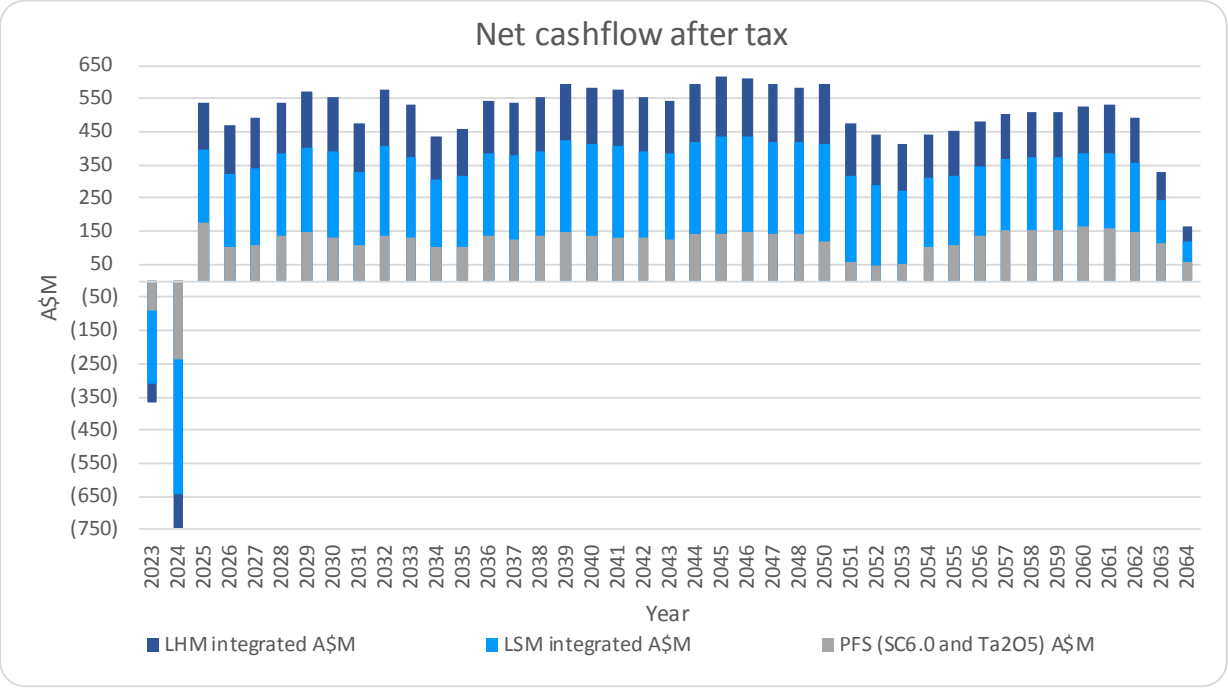

Figure 10: Integrated Project Net Cashflow After Tax

Foreign Exchange

A long-term FX value of A$1=US$0.72 was used in converting USD to AUD.

Commodity Pricing

See discussion in main body of report.

Funding

As disclosed in ***Table 5,*** funding in the order of A$1B - A$1.1B is required to achieve first production indicated by the PFS & DSS.

Based on the strong financial metrics presented as part of the DSS Integrated Project results, there are reasonable grounds to believe that the Kathleen Valley Project can be financed in future.

In particular, it is noted that 89.5% of the production targets and forecast financial information referred to in the DSS are based on Ore Reserves. The balance of 10.5% is comprised of Inferred Mineral Resources. The Inferred material has been 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. Refer to page 21 of PFS announcement released on 9th October 2020 for additional information.

It is most likely that any financing would be undertaken via a combination of debt and equity, similar to a number of comparable projects in Western Australia which have been funded in the past five years.

Under current market conditions and given recent precedents in the industry, debt may be secured from several sources including Australian banks, international banks, the high yield bond market and resource credit funds.

Over the past 18 months the Company has had preliminary discussions with several strategic parties regarding advancing the Project, including possible financiers, offtake partners and joint venture partners. Detailed discussions regarding possible financing or strategic partnerships will commence following release of the DSS and recent PFS.

There are several factors that will influence the ability of Liontown to secure funding including (but not limited to) a requirement to have “bankable” lithium offtake agreements and favourable prevailing market conditions (being both the lithium market and the wider equity and debt market). There is a reasonable possibility that the Company will have an offtake partner invest in the Project.

The DSS financial, economic and marketing metrics are robust and the resource base at Kathleen Valley has the potential to deliver a multi-decade production opportunity. In addition, the Project’s location is within a mature, low sovereign risk mining jurisdiction which is also very attractive to these interested parties.

Since listing on ASX in late 2006, the Company has experienced strong growth in investor interest and has grown its market capitalisation from approximately A$17 million to approximately A$475 million (as at the date of this announcement). The Company has a simple ownership structure, “clean” capital structure and does not carry material debt on its balance sheet. All of these factors are expected to be attractive to potential strategic partners and provide flexibility with potential debt funding structures.

The Board has sought the advice of a suitably qualified financial advisory firm who, taking into consideration a number of key criteria, has confirmed that, provided a definitive feasibility study arrives at a result not materially worse than the DSS and subject to the lithium market and global capital market conditions being favourable at the time of financing, the Company should be able to raise sufficient funding to develop the Project in the manner proposed.

The Company has formed the view that there are reasonable grounds to assume that a combination of offtake, finance, debt and equity will likely be successfully raised and be sufficient to cover the estimated capital and working capital costs as and when required. Investors should however note that there is no certainty that the Company will be able to raise the amount of funding required when needed.

It is possible that funding may be dilutive to, or otherwise affect the value of the Company’s existing shares. It is also possible that the Company could pursue other strategies to provide alternative funding options including undertaking a corporate transaction, seeking a joint venture partner or asset sales.