

## February 2017 PFS being updated

First product early 2019

### Recommendation

**Strong BUY, High Risk**

### Price

**1.8c**

### Valuation

**7.3c**

### Commodity

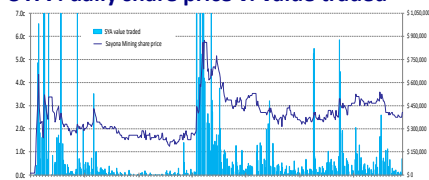
**Lithium / spodumene**

- **SYA announced the results of its PFS on 16 February**
  - Reserves of 10.2Mt, grading 1.02% Li<sub>2</sub>O, within Resources of 13.74Mt, grading 1.07% Li<sub>2</sub>O;
  - C\$ 66m project capital to process 700kt/yr of ore, to produce 99kt/yr of 5.75% Li<sub>2</sub>O concentrate;
  - Cash costs C\$ 367/t of conc.
- **SYA is currently updating parts of its PFS to**
  - Reduce waste movement and hence operating costs;
  - Increase reserves; and
  - Improve recoveries from 80%, and conc grade
- **Beer & Co.'s risk, base case valuation assumes that throughput is doubled, to 1.4Mt/yr after year 3, and a Long-Run price for 6.0% Li<sub>2</sub>O conc of US\$ 550/t.**

### Snapshot

Market Cap	\$16.8m
Cash on hand (31 March 2017)	\$1.04m
Shares on Issue	932.5m
52 Week High	5.2c
52 Week Low	1.7c
1 month / 6 month VWAP	2.0c / 3.0c

### SYA : daily share price v. value traded



In May 2016, the acquisition of the Authier spodumene project was announced, with the acquisition completed on 21 July. SYA also announced the commencement of a PFS to be completed by end of 2016.

In November, SYA announced an updated Mineral Resource Estimate of 13.74Mt grading 1.07% Li<sub>2</sub>O.

SYA announced the results of a PFS on Authier in February 2017, and is presently updating / optimising the work.

By developing a 700kt/yr project, Authier can be fast-tracked, with first product (spodumene concentrate grading up to 6.0% Li<sub>2</sub>O) targeted end 2018.

SYA also has a graphite prospect and spodumene projects in WA.

**Author :** Pieter Bruinstroop  
[pbruinstroop@beerandco.com.au](mailto:pbruinstroop@beerandco.com.au)

### Authier spodumene project

Authier has spodumene contained in out-cropping pegmatites. It is about 45km from the established mining centre of Val d'Or in Quebec, with sealed road and grid power nearly to site; and rail to ports on St Lawrence seaway.

### PFS announced 16 February 2017

- Reserves of 10.2Mt, grading 1.02% Li<sub>2</sub>O, within Resources of 13.74Mt, grading 1.07% Li<sub>2</sub>O
- C\$ 66m project capital to process 700kt/yr of ore, to produce 99kt/yr of 5.75% Li<sub>2</sub>O concentrate
- Cash costs C\$ 366/t of conc.

At a throughput rate of 700kt/yr, SYA is able to bring Authier quickly into production as the scope of the environmental studies is limited.

In Beer & Co.'s view, the extent of mineralisation warrants a higher throughput rate, and we allow for expansion after year 3, allowing for the extra 2 years of environmental studies and subsequent approvals.

### SYA updating PFS; expect results in July

SYA is updating the PFS work to increase resources, reserves, lower costs, improve recoveries and concentrate grade.

### Lithium pricing remains firm

Product prices have firmed slightly.

Recent spodumene concentrate pricing has been from US\$ 750/t to US\$ 905/t for 2017 and US\$ 880/t to Dec. 2019.

Beer & Co.'s analysis assumes that prices fall to US\$ 550/t in the long term.

### Beer & Co.'s risk, base case valuation is 7.3c/share

Beer & Co.'s valuation assumes that the production rate is increased to 1,400kt/yr after year 3. Our base case does NOT allow for any benefit from the current work to lower costs or improve metallurgical performance.

### Beer & Co initiates research with a Strong BUY, High Risk

This report was produced by Beer & Co Research, an independent research and advisory firm. Beer & Co is an authorised representative of Melbourne Venture Securities, which holds AFSL No. 224 313. This research is intended for wholesale investors ONLY. If you do not wish to receive our research, please email to [info@beerandco.com.au](mailto:info@beerandco.com.au) with "unsubscribe". If you wish to receive, free of charge, Beer & Co research, please register at <http://beerandco.com.au/all-research/>

## Sayona Mining (SYA)

### Introduction

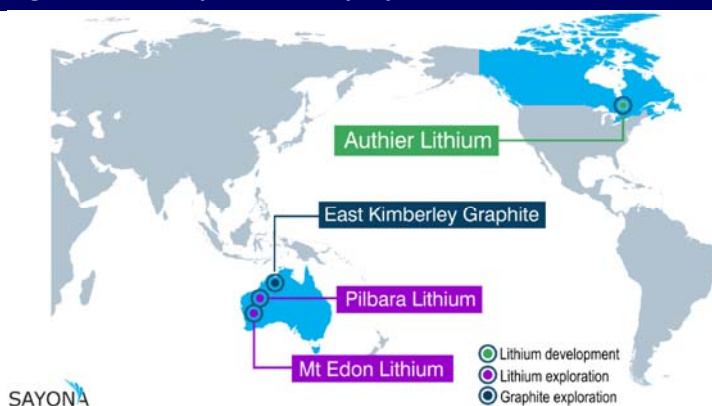
On 3 May, 2016, SYA announced the acquisition of an option to acquire the Authier spodumene project. The acquisition was completed on 21 July 2016.

**SYA is focussed on developing its Authier project in Quebec**

A Preliminary Economic Analysis (PEA) was completed on Authier in March 2013 by Glen Eagle Resources Inc (GER.TSX-V). Building on this work, SYA announced the results of a Pre-Feasibility Study (PFS) on 16 February 2017. SYA is now updating some parameters of that work.

While SYA has spodumene and graphite exploration projects in WA, as shown in Figure 1, its focus in the development of the Authier lithium project.

**Figure 1 : SYA's portfolio of projects**



SAYONA

Source : SYA presentation, November 2016

**SYA also has 3 spodumene prospects and 1 graphite prospect, all in WA**

### Authier

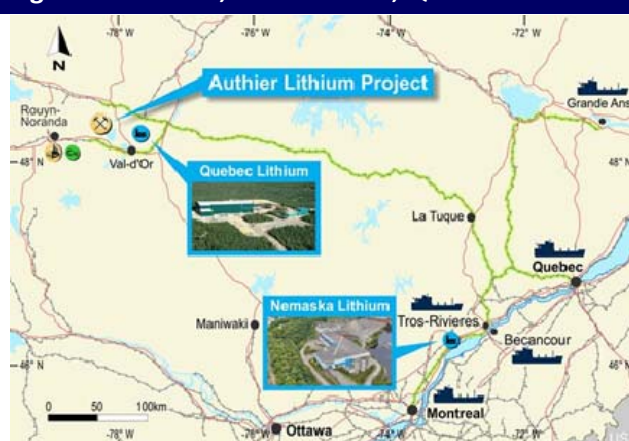
**Authier is in Quebec province, about 45km from Val d'Or, and connected by highway, rail and energy reticulation**

Figure 2 shows that Authier project is located about 45km from the established mining centre of Val d'Or, which has a population of 33,000 and is connected

- by major highway 525km to Montreal;
- by rail, 520km to the port of Quebec City, on the St Lawrence seaway; and
- by air, from Montreal to major airports in Canada and USA.

**Authier is only 60km from the Quebec Lithium plant, which is being re-commissioned.**

**Figure 2 : Authier, new Val d'Or, Quebec**



Source : Sayona Mining

## Resources

**Authier has 13.7Mt in resources, grading 1.07% Li<sub>2</sub>O**

Prior to SYA's acquisition, 150 holes for a total of 19,735m had been drilled into Authier.

On 23 November 2016 SYA announced an update of this estimate, following further drilling. This is shown in Figure 3.

**Figure 3 : Resource Estimate, 2017**

cut-off = 0.5% Li <sub>2</sub> O	volume	Li <sub>2</sub> O grade	contained Li <sub>2</sub> O
Measured	4.72 Mt	1.03 %	48,519t
Indicated	7.13 Mt	1.10 %	78,280t
	<b>11.85 Mt</b>	<b>1.07 %</b>	<b>126,799t</b>
Inferred	1.90 Mt	1.05 %	19,901t
<b>TOTAL</b>	<b>13.74 Mt</b>	<b>1.07 %</b>	<b>146,700t</b>

Source : SYA ASX announcement, 23 November 2016

**of which 11.85Mt is in the Measured + Indicated categories.**

## Pre-Feasibility Study

On 16 February, 2017, SYA announced the results of their PFS.

SYA is currently undertaking work on certain parameters used in the PFS and expect to announce the results in July, and the results of the DFS by the end of 2017.

**SYA expect to upgrade Resources and Reserves estimates after completing their current drill programme**

Figure 5 shows that of the 11.85Mt of Measured + Indicated Resources, grading 1.07%, the Reserves is estimated to be 10.2Mt, grading 1.02%, as shown in Figure 4.

**Figure 5 : Ore Reserves, Authier**

cut-off = 0.45% Li2O		Li2O grade	contained Li2O
Proven	4.9 Mt	0.97 %	47,530t
Probable	5.3 Mt	1.06 %	56,180t
<b>TOTAL</b>	<b>10.2 Mt</b>	<b>1.02 %</b>	<b>103,710t</b>

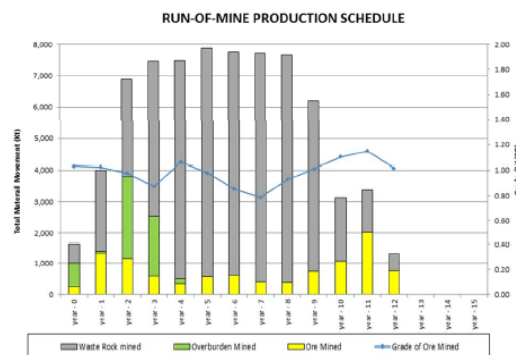
Source : SYA ASX announcement, 16 February 2017

**SYA announced the results of their PFS in February 2017, about 7 months after initial acquisition.**

Figure 6 shows the expected production from Authier.

It shows wide variation in the waste to ore ratio through the project life, though the total amount of material moved is relatively stable, around 7.5Mt/yr.

**Figure 6 : Authier production profile**



Source : SYA ASX announcement, 16 February 2017

**The PFS is based on 10.2Mt of reserves, but with significant variability in the amount of ore mined each year.**

The plan is to process 700kt/yr, as the permitting process at this rate is less onerous.

The expected capital cost to process 700kt/yr of ore is C\$ 66m as shown in Figure 7.

**Figure 7 : Cap.Ex**

Site Civil works	\$C 4.7m
Mine pre-strip	\$C 6.6m
Process Plant	\$C 34.9m
Plant infrastructure	\$C 1.1m
Other Infrastructure	\$C 4.8m
EPCM, working capital	\$C 9.2m
Contingency	\$C 4.3m
<b>TOTAL</b>	<b>\$C 65.6m</b>

Source : SYA ASX, 16 Feb 2017

**Project capital costs are expected to be C\$66m to bring into production a project processing 700kt/yr of ore to produce about 99kt/yr of 5.75% Li<sub>2</sub>O concentrate, at a cash cost of C\$ 367/t, FOB,**

In addition, SYA advised sustaining capital costs over the life of the project totalling C\$ 41m, of which C\$ 35m is for mine fleet leasing after the start of commercial production.

In their PFS announcement, SYA advised costs of

- C\$ 2.88/t of material mined;
- C\$ 20.9/t of ore processed; and
- C\$ 38/t of product trucked 20km to Val d'Or, the loaded onto train to be railed 525km to port and loaded onto a ship.

SYA also advised a royalty of about 2% to vendors. Figure 8 shows the detail of the expected cash costs of C\$ 367/t of 5.75% Li<sub>2</sub>O concentrate

## Lithium Prices

Prices for spodumene concentrate are difficult to determine as there are few trades.

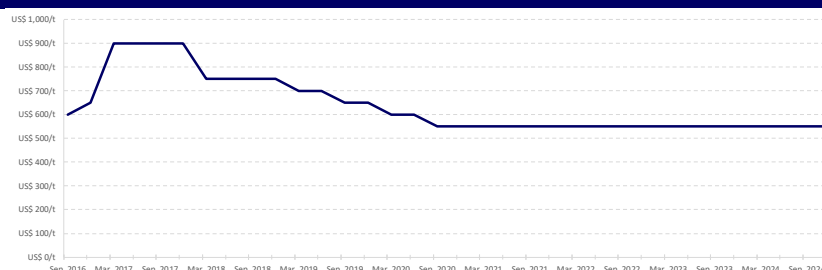
Nearly all of the conversion of spodumene concentrate into either  $\text{Li}_2\text{CO}_3$  or  $\text{LiOH}$  occurs in China, due to the strength of local demand and the development of a processing industry using local hard rock sources.

Recently announced prices have included :

- US\$ 750/t for 6.0%  $\text{Li}_2\text{O}$  concentrates shipped by 30 June 2017 (with later shipments to be reviewed), from Mt Marion, announced by NeoMetals (NMT.SSX) and Mineral Resources (MIN.ASX) on 16 February 2017;
- US\$ 830/t for 5.5%  $\text{Li}_2\text{O}$  concentrate, equivalent to US\$ 905/t for 6.0%  $\text{Li}_2\text{O}$ , from Galaxy Resources (GXY.ASX) Mt Caitlin project, announced on 14 December 2016; and
- US\$ 880/t for 6%  $\text{Li}_2\text{O}$  concentrate, FOB Esperance, for deliveries from 15 March 2018 to 31 December 2019 by Tawana Resources (TAW.ASX), announced 26 April 2017.

Figure 9 shows the price projections used by Beer & Co in this analysis, showing that present prices hold for a period before falling as more supply comes on-line, to a long run price of US\$ 550/t, compared with current pricing of \$905 or \$880 or \$750 in 2017 and \$880/t for 2018.

**Figure 9 : Beer & Co.'s assumed price profile**



Source : Beer & Co estimates

Beer & Co.'s Long-Run price is at the low end of the range of other estimates.

## Beer & Co.'s cashflow projections for Authier

### Defining our base case

Figure 10 shows the mining inventory assumed by Beer & Co in this analysis, of 13.7Mt, and we test for the impact of larger and smaller inventory.

Figure 11 shows SYA's current drill programme, seeking to infill and extend the resource.

**Figure 10 : Beer & Co.'s mining inventory**

		Li <sub>2</sub> O		Waste : Ore
		grade	contained	
Reserves	10.20 Mt	1.02 %	103,710t	1.8 : 1
Resources	3.54 Mt	1.01 %	35,655t	6.0 : 1
Extension	3.00 Mt	1.05 %	31,455t	6.0 : 1
<b>TOTAL</b>	<b>16.74 Mt</b>	<b>1.02 %</b>	<b>170,820t</b>	<b>3.5 : 1</b>

Source : Beer & Co estimates

Beer & Co expects that SYA will be successful in its programme, which includes delineation of a pegmatite previously intersected to the north of the resource.

Prices for benchmark 6.0%  $\text{Li}_2\text{O}$  spodumene concentrate are not certain with current pricing ranging from US\$ 750/t to US\$ 905/t

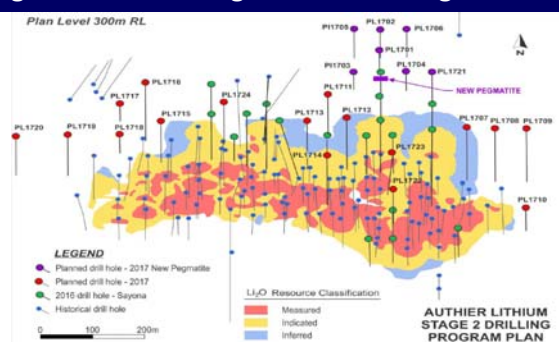
The only known pricing for 2018 is US\$ 880/t

Beer & Co expects prices to fall progressively, down to a long run price of US\$ 550/t in about 5 years, as supply from the plethora of current

SYA is reviewing and updating some aspects of its PFS.

Beer & Co expects that SYA will increase its current reserves estimate from its drill programme.

**Figure 11 : Extending Authier's mining inventory**



Source : SYA presentation, March 2017

SYA may also achieve other successes from its current drill programme

and its met test programme

but these are not in Beer & Co.'s base case

with the larger mining inventory, Beer & Co expects that processing capacity will be doubled in year 3

The drill programme should also result in a lower amount of waste moved

- From geo-technical work, steepening the hanging wall; and
- Infill re-classifying material from waste with zero Li<sub>2</sub>O.

In our base case, Beer & Co does not allow for lower waste movement, though we do test for the sensitivity of our results to changes in this.

SYA advised that QEMMSCAN analysis showed that amphibolitic material had been included in the product, reducing the Li<sub>2</sub>O grade. This deleterious material can be relatively easily rejected by a float circuit.

SYA is also undertaking testing to further reduce the iron level.

Beer & Co do NOT allow for any benefit from this in our analysis, but has assumed a product of 5.75% Li<sub>2</sub>O and 80% recovery, though we test for the impact of improved recovery.

## Authier Operations

Figure 12 shows Beer & Co.'s projected operational outcomes. It shows that we allow for a doubling of processing capacity in Year 3, at a capital cost of C\$ 27.5m, allowing time for a 2 year environmental monitoring programme.

**Figure 12 : Beer & Co's projected operations for Authier**

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Mining Inventory	13,568 kt	11,528 kt	10,308 kt	9,009 kt	7,595 kt	5,707 kt	4,596 kt	2,769 kt	0 kt	0 kt	0 kt	0 kt
	1.02 %	0.96 %	0.93 %	0.93 %	1.07 %	1.10 %	1.10 %	1.02 %	0.00 %	0.00 %	0.00 %	0.00 %
Ore mined	176 kt	2,041 kt	1,220 kt	1,299 kt	1,414 kt	1,888 kt	1,112 kt	1,827 kt	3,278 kt	0 kt	0 kt	0 kt
waste : ore	5.4 : 1	2.5 : 1	5.8 : 1	10.5 : 1	9.6 : 1	6.9 : 1	12.5 : 1	7.2 : 1	2.4 : 1	0.0 : 1	0.0 : 1	0.0 : 1
Waste moved	949 kt	5,178 kt	7,030 kt	13,701 kt	13,586 kt	13,112 kt	13,888 kt	13,173 kt	7,972 kt	0 kt	0 kt	0 kt
Ore Stockpile	66 kt	1,407 kt	1,716 kt	1,615 kt	1,629 kt	2,117 kt	1,828 kt	2,255 kt	4,133 kt	2,733 kt	1,333 kt	0 kt
Li <sub>2</sub> O grade	1.02 %	1.01 %	0.98 %	0.95 %	1.01 %	1.07 %	1.08 %	1.06 %	1.02 %	1.02 %	1.02 %	0.00 %
Ore Processed	110 kt	700 kt	910 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,333 kt
Li <sub>2</sub> O grade	1.02 %	1.02 %	0.99 %	0.96 %	0.96 %	1.03 %	1.07 %	1.08 %	1.04 %	1.02 %	1.02 %	1.02 %
Recovery	71 %	79 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %
Li <sub>2</sub> O recovered	798 t	5,602 t	7,234 t	10,788 t	10,752 t	11,565 t	12,024 t	12,044 t	11,645 t	11,474 t	11,474 t	10,924 t
Conc grade	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %
Li <sub>2</sub> O concentrate	13.9 kt	97.4 kt	125.8 kt	187.6 kt	187.0 kt	201.1 kt	209.1 kt	209.5 kt	202.5 kt	199.5 kt	199.5 kt	190.0 kt

Source : Beer & Co estimates

Beer & Co expects higher throughput to reduce unit operating costs by nearly 5%.

## Valuation of Authier

Beer & Co.'s modelled costs matching the advised costs at the 700kt/yr rate, but, as shown in Figure 13, unit costs are projected to be lower at the higher throughput rate.

Figure 14 shows Beer & Co.'s projected cashflows for Authier.

**Figure 13 : Estimated op costs**

	PFS	Beer & Co	
		700 kt	1,400 kt
Mining	\$C 141/t	\$C 141/t	\$C 139/t
Processing	\$C 137/t	\$C 137/t	\$C 128/t
Transport	\$C 38/t	\$C 38/t	\$C 38/t
Other	\$C 51/t	\$C 50/t	\$C 45/t
<b>TOTAL</b>	<b>\$C 367/t</b>	<b>\$C 367/t</b>	<b>\$C 350/t</b>

Source : Beer & Co estimates



Beer & Co.'s valuation of Authier is \$154m

It shows that the Beer & Co calculate that the NPV of the after-tax cashflows for Authier is \$154m.

**Figure 14 : Beer & Co.'s valuation of Authier**

CAD m	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
AUD-USD	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
Spodumene	US\$ 800 /t	US\$ 800 /t	US\$ 725 /t	US\$ 625 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t
Li2O concentrate	0.0 kt	13.9 kt	97.4 kt	125.8 kt	185.8 kt	192.2 kt	203.8 kt	210.1 kt	210.0 kt	202.7 kt	199.6 kt	199.6 kt	190.1 kt
Revenue	\$ 0.0m	\$ 13.3m	\$ 90.2m	\$ 99.6m	\$ 130.6m	\$ 135.1m	\$ 143.2m	\$ 147.7m	\$ 147.6m	\$ 142.4m	\$ 140.3m	\$ 140.3m	\$ 133.6m
Cash Costs	\$ 0.0m	(\$5.3m)	(\$31.3m)	(\$43.3m)	(\$64.8m)	(\$70.2m)	(\$69.0m)	(\$72.0m)	(\$72.7m)	(\$61.1m)	(\$63.3m)	(\$64.9m)	(\$61.8m)
Royalties	\$ 0.0m	(\$0.3m)	(\$1.8m)	(\$2.0m)	(\$2.6m)	(\$2.7m)	(\$2.9m)	(\$3.0m)	(\$3.0m)	(\$2.8m)	(\$2.8m)	(\$2.8m)	(\$2.7m)
Dep'n & Amort'sn	\$ 0.0m	(\$0.7m)	(\$5.2m)	(\$6.7m)	(\$10.3m)	(\$10.3m)	(\$10.3m)	(\$10.3m)	(\$10.3m)	(\$10.0m)	(\$8.9m)	(\$2.1m)	\$ 0.0m
EBIT	\$ 0.0m	\$ 7.0m	\$ 51.9m	\$ 47.5m	\$ 52.8m	\$ 51.8m	\$ 61.0m	\$ 62.4m	\$ 61.6m	\$ 68.5m	\$ 65.3m	\$ 70.5m	\$ 69.1m
Interest Expense	\$ 0.0m	\$ 0.0m	(\$2.0m)	(\$1.5m)	(\$0.8m)	(\$0.0m)	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m
Tax Expense	\$ 0.0m	(\$1.9m)	(\$14.3m)	(\$13.0m)	(\$14.2m)	(\$13.7m)	(\$16.2m)	(\$16.5m)	(\$16.3m)	(\$18.1m)	(\$17.3m)	(\$18.7m)	(\$18.3m)
NPAT	\$ 0.0m	\$ 5.1m	\$ 35.7m	\$ 33.1m	\$ 37.9m	\$ 38.1m	\$ 44.8m	\$ 45.9m	\$ 45.3m	\$ 50.3m	\$ 48.0m	\$ 51.8m	\$ 50.8m
Feasibility / permitting	(\$2.1m)												
Project Cap.Ex	(\$23.0m)	(\$42.6m)											
Expansion Cap.ex	\$ 0.0m	\$ 0.0m	(\$7.1m)	(\$4.8m)									
Sus Cap. Ex	\$ 0.0m	(\$0.3m)	(\$3.1m)	(\$1.9m)	(\$2.0m)	(\$2.2m)	(\$2.9m)	(\$1.7m)	(\$1.2m)	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m
Un-gear'd Net Cashflow	(\$25.1m)	(\$39.4m)	\$ 16.8m	\$ 21.5m	\$ 37.1m	\$ 42.5m	\$ 46.0m	\$ 51.7m	\$ 51.8m	\$ 51.1m	\$ 79.2m	\$ 76.2m	\$ 72.0m
Net Cashflow to Equity	(\$25.1m)	(\$6.6m)	\$ 6.3m	\$ 11.1m	\$ 26.7m	\$ 39.2m	\$ 46.0m	\$ 51.7m	\$ 51.8m	\$ 51.1m	\$ 79.2m	\$ 76.2m	\$ 72.0m

NPV, at 12.0% d.r. = \$ 154m

Source : Beer & Co estimates

## Beer & Co.'s base case SYA Valuation

Figure 15 shows Beer & Co.'s projected financial outcomes for SYA. It is based on the data shown in Figure 14, adjusted for corporate overheads and financing. It shows Beer & Co.'s projected increase in equity to finance the development of Authier.

**Figure 15 : Beer & Co.'s projected financial outcomes for SYA**

AUD m	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
AUD-USD	0.754	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
Spodumene	US\$ 688 /t	US\$ 800 /t	US\$ 800 /t	US\$ 725 /t	US\$ 625 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t
Sales revenue	0	0	13	90	100	131	135	143	148	148	142	140	140	134
Total Revenue	0	0	13	90	100	131	136	145	150	151	145	143	143	137
Cash Costs	0	0	(6)	(33)	(45)	(67)	(73)	(72)	(75)	(76)	(64)	(66)	(68)	(64)
Corporate Costs	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	0	0	0
Exploration Expense	0	0	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(0)	0	0	(1)
Dep'n & Amort'sn	0	0	(1)	(5)	(7)	(10)	(10)	(10)	(10)	(10)	(10)	(9)	(2)	0
EBIT	(1)	(1)	5	50	45	51	51	61	63	62	70	68	73	72
Interest Expense	0	0	0	(2)	(1)	(1)	(0)	0	0	0	0	0	0	0
Tax Expense	0	0	(2)	(14)	(13)	(14)	(14)	(16)	(17)	(16)	(18)	(17)	(19)	(18)
NPAT	(1)	(1)	3	34	31	36	37	44	46	46	52	51	55	53
Fully diluted shares on issue	1,279m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m
Earnings per Share	(0.1c)	(0.1c)	0.2 c	1.5 c	1.4 c	1.6 c	1.6 c	1.9 c	2.0 c	2.0 c	2.3 c	2.2 c	2.4 c	2.3 c

Source : Beer & Co estimates

Figure 16 shows Beer & Co.'s risk'd, base case valuation of SYA.

**Figure 16 : Beer & Co's risk'd Valuation of SYA**

VALUATION				
discount rate = 12.0 %				
		30 June 2016		22-May-17
	risk :	100%	Product	per share
Authier - Reserves	80 %	\$ 106m	\$ 85m	3.7 c
Authier - Extensions	65 %	\$ 26m	\$ 17m	0.7 c
East Kimberley Graphite	nom	\$ 3m	\$ 3m	0.1 c
Pilbara Lithium	nom	\$ 3m	\$ 3m	0.1 c
Mt Edon Lithium	nom	\$ 1m	\$ 1m	0.0 c
Exploration	100 %	(\$ 2m)	\$ 0m	0.0 c
Corporate	100 %	(\$ 9m)	(\$ 9m)	(0.4c)
Cash at Corporate level	100 %	\$ 0m	\$ 0m	0.0 c
Equity raisings	100 %	\$ 36m	\$ 36m	1.6 c
<b>TOTAL</b>		<b>\$ 163m</b>	<b>\$ 135m</b>	<b>5.9 c</b>
Shares on issue		537.3m	F P O shares	315.3m
		427m	FY 17	12.0m
		1,319m	Later	Options

Source : Beer & Co estimates

Beer & Co.'s valuation of SYA is based on Authier, with extra corporate costs and nominal value for SYA's exploration.

Beer & Co has risk'd the value of the Authier project, with the extensions having a higher risk

Figure 16 shows that Beer & Co has allowed a nominal valuation for SYA's assets outside of Authier, which is its focus.

## Sensitivities

Beer & Co has tested our base case, risked, valuation for its sensitivity to a range of inputs.

Beer & Co.'s base case valuation is tested for a range of sensitivities. In each case, we also show the value of the Authier project being delivered in the manner we expect, which is the "un-risked" case.

### Price

Figure 9 and Figure 14 showed Beer & Co.'s price projections, which show price falling from current levels to a long-run price of US\$ 550/t. Figure 17 shows the impact of long run prices \$50/t higher and \$50/t lower than Beer & Co.'s assumption.

Commodity prices have a big impact

**Figure 17a : Price sensitivities, risked**

Throughput	Long-Run Price		
	\$ 500/t	\$ 550/t	\$ 600/t
PFS Case	3.7 c	4.4 c	5.2 c
Base Case	6.2 c	<b>7.3 c</b>	8.5 c

Source : Beer & Co estimates

**Figure 17b : Price sensitivities, un-risked**

Throughput	Long-Run Price		
	\$ 500/t	\$ 550/t	\$ 600/t
PFS Case	4.2 c	5.1 c	6.1 c
Base Case	7.3 c	8.6 c	10.1 c

Source : Beer & Co estimates

There is little benefit to extra Resources if the processing rate remains 700kt/yr

### Mining inventory / project life

Figure 10 showed Beer & Co.'s mining inventory. In Figure 18, our base case corresponds to Resources, while the Extension case is 16.7Mt of ore.

Figure 18 shows no benefit from a larger mining inventory at the 700kt/yr processing rate, but there is benefit at the 1.4Mt/yr rate.

If the processing rate is increased to 1.4Mt/yr, then larger resources have a significant benefit

**Figure 18a : Project life, risked**

Throughput	Mining Inventory		
	Reserves	Resources	Extension
PFS Case	4.3 c	4.4 c	4.5 c
Base Case	6.7 c	<b>7.3 c</b>	8.3 c

Source : Beer & Co estimates

**Figure 18b : Project life, un-risked**

Throughput	Mining Inventory		
	Reserves	Resources	Extension
PFS Case	5.0 c	5.1 c	5.2 c
Base Case	7.8 c	8.6 c	9.8 c

Source : Beer & Co estimates

Our valuation benefits from a lower strip ratio

### Waste : Ore (Strip ratio)

SYA's current programme expects to be able to reduce the amount of waste moved, by about 10%. Figure 19 shows that this has a much bigger impact in the higher throughput case.

In all cases, there is a significant benefit from successful project delivery

**Figure 19a : strip ratio, risked**

Throughput	Waste : Ore	
	PFS case	Lower
PFS Case	4.4 c	4.6 c
Base Case	<b>7.3 c</b>	7.5 c

Source : Beer & Co estimates

**Figure 19b : strip ratio, un-risked**

Throughput	Waste : Ore	
	PFS case	Lower
PFS Case	5.1 c	5.2 c
Base Case	8.6 c	8.9 c

Source : Beer & Co estimates

### Recoveries

Base case recoveries are 80% of the Li<sub>2</sub>O in ore to concentrate. Figure 20 shows that if recoveries are increased from 80% to 82.5%, the impact is meaningful, while falling to 77.5% also has a noticeable impact.

Beer & Co.'s valuation is sensitive to changes in recovery

**Figure 20a : recoveries, risked**

Throughput	Recoveries		
	low	base case	high
PFS Case	4.1 c	4.4 c	4.8 c
Base Case	6.8 c	7.3 c	7.8 c

Source : Beer & Co estimates

**Figure 20b: recoveries, un-risked**

Throughput	Recoveries		
	low	base case	high
PFS Case	4.7 c	5.1 c	5.5 c
Base Case	8.0 c	8.6 c	9.2 c

Source : Beer & Co estimates

## Conclusions

SYA formally acquired the Authier lithium project in July 2016. SYA's share price chart shows no discernible reaction to this announcement.

SYA has since announced the results of a PFS, which has also failed to stir interest.

SYA has further prospects, but SYA is focussed on the development of its Authier project.

In Beer & Co.'s view, the prospects for spodumene are much better than is reflected in share prices.

SYA also has potential further improvements at Authier, though our analysis shows that the greatest addition to value is to be able to increase the throughput from the base case of 700kt/yr.

## Final Comments

Beer & Co.'s base case valuation is more than 3x the current share price, and we see significant further upside potential.

Beer & Co initiates research with a Strong BUY, High Risk, recommendation.

Beer & Co.'s risked, base case valuation is more than 3x the current share price

There is significant further upside potential to our valuation.

Beer & Co initiates research on SYA with a

Strong BUY

High risk

recommendation



## SYA - Introduction

### Background

The predecessor company to SYA, Diamonex (DON.ASX) first listed on the ASX in March 2004. It completed a BFS on a diamond project in Botswana in 2005 and then proceeded to develop the project producing first product in October 2008. Development had been delayed by wet weather, exacerbated by a collapse in the price for diamonds in the wake of the GFC, which meant that DON was unable to cover its financial shortfall.

DON was suspended from trading on the ASX in January 2009. New management was installed in November 2009, with Denis O'Neill becoming the MD. The diamond project was sold in April 2011.

DON changed its name to SYA in May 2013 and was re-admitted to the ASX on 30 July 2013, with most of the present Board joining in August 2013.

On 8 July 2015, the appointment of Corey Nolan as CEO was announced.

### Corkwood

On 8 July, 2015, SYA also announced the acquisition of the Corkwood graphite project in the Kimberley region, through a series of deferred payments. Completion of the acquisition was announced on 21 August 2015.

### Mt Edon and Tabbatabba

On 17 March 2016, SYA announced that it had been granted Exploration Licences at Tabbatabba and Mt Edon in WA that had known pegmatites prospective for spodumene.

### Authier

On 3 May, 2016, SYA announced the acquisition of an option to acquire the Authier spodumene project, near Val d'Or in Quebec, Canada. The acquisition was completed on 21 July 2016.

A Preliminary Economic Analysis (PEA) was completed on Authier in March 2013. Building on this work, SYA announced the results of a Pre-Feasibility Study (PFS) on 16 February 2017.

### Mallina

On 21 December 2016, SYA announced it had secured an option to acquire a package of 871km<sup>2</sup> of tenements in the Pilgangoora district of the Pilbara, near Tabbatabba, with the focus being the Mallina prospect

- rock chip samples had been collected, grading up to 2.13% Li<sub>2</sub>O, with an average of the 10 rock chip samples collected of 1.28% Li<sub>2</sub>O;
- spodumene crystals over 20 centimetres in diameter identified within the pegmatite, along a 500 metre strike zone; and
- the existence of further, unexplored, pegmatite swarms.

### Currently

SYA is now focussed on the development of Authier.

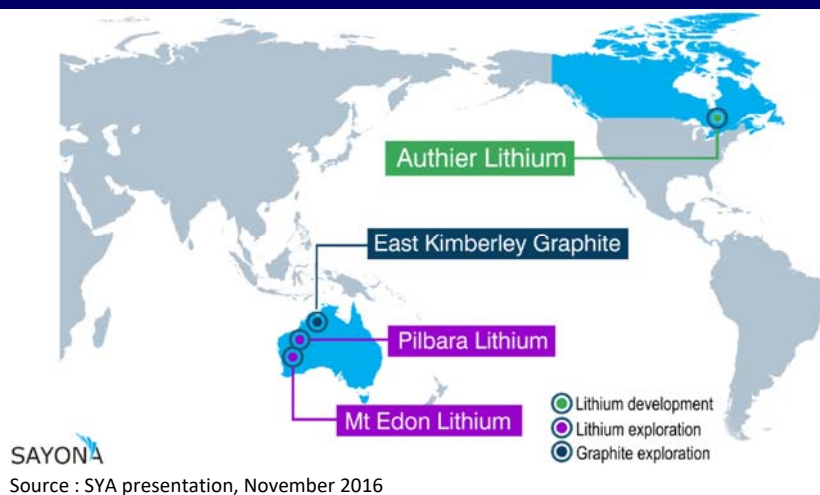
SYA recently announced the results of preliminary fieldwork at Mallina and is now seeking approvals for a first pass drill programme.

Tabba Tabba and Mt Edon have significant exploration potential, but further work will be required. Work on these projects will be kept at low, required, levels until SYA has sufficient financial substance to do more.

Corkwood is a potential project, but the geology needs to be better understood.

Figure 21 shows the location of SYA's projects.

**Figure 21 : SYA's portfolio of projects**



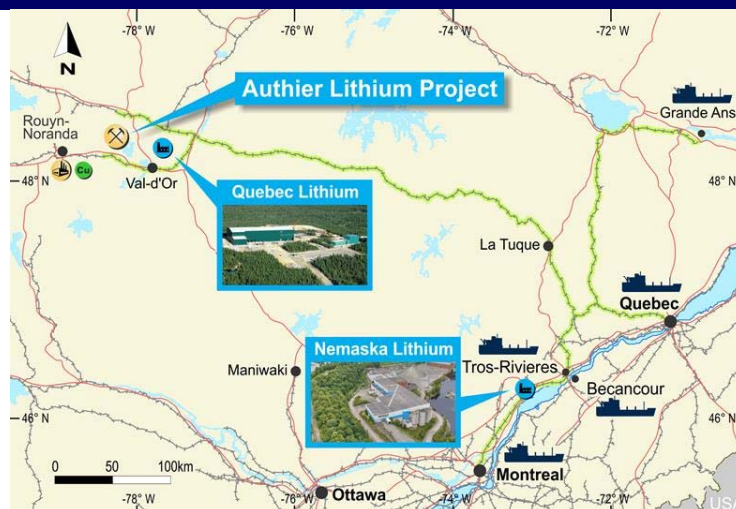
## **Authier spodumene (lithium) project**

### **Location**

Figure 22 shows that Authier project is located about 45km from the established mining centre of Val d'Or, which has a population of 33,000 and is connected

- by major highway 525km to Montreal;
- by rail, 520km to the port of Quebec City, on the St Lawrence seaway; and
- by air, from Montreal to major airports in Canada and USA.

**Figure 22 : Authier, new Val d'Or, Quebec**



Source : Sayona Mining

Figure 22 also shows that Authier benefits from

- relatively low cost labour, currently living in the city of Val d'Or; and
- low cost energy, both gas and electricity.

In addition, North American Lithium currently has a plant, about 50km from Authier, to process spodumene concentrate into lithium carbonate. The plant (then Quebec Lithium) was idled in October 2014 due to issues associated with mining, while new owners are looking to re-start the plant in late 2017.

## Background / History

First exploration in the area was conducted in 1956, seeking magmatic sulphides. Work carried out from 1966 to 1969, designed for magmatic sulphides, outlined the main spodumene-bearing pegmatite at Authier. The work included magnetic and electromagnetic surveys, and 23 diamond drill holes totalling 2,611.37 metres.

In 1969, the Quebec Department of Natural Resources carried out a series of floatation tests on two drill core composite samples. The tests produced spodumene concentrate assaying between 5.13% and 5.81%  $\text{Li}_2\text{O}$  with  $\text{Li}_2\text{O}$  recovery ranging from 66.8% and 82.2%.

From 1991 to 1991, Raymor Resources carried out resource assessment and metallurgical test-work. In 1991, an 18.3kg sample grading 1.66%  $\text{Li}_2\text{O}$  was tested, returning a concentrate grade of 6.3%  $\text{Li}_2\text{O}$  with recovery rate of 72.6%.

In 1997, two bulk tests, on samples of 18.05t, grading 1.32%  $\text{Li}_2\text{O}$ , and 12.3t grading 1.10%  $\text{Li}_2\text{O}$  generated concentrates grading 5.61%  $\text{Li}_2\text{O}$ , after magnetic separation, with a recovery 60.8% and 5.16%  $\text{Li}_2\text{O}$  with a recovery of 58.3%.

After the 1999 PFS returned a marginal IRR, Raymor abandoned the project. The property was subsequently pegged by Glen Eagle Resources Inc (GER.TSX-V), which produced a NI 43-101 compliant Preliminary Economic Analysis in March 2013.

GER shifted their focus to gold in the wake of the collapse of Quebec Lithium and Galaxy Resources.

GER subsequently sold the property to SYA in 2016 for C\$ 4.0m in cash, with the sale being completed in July 2016.

## Geology

The deposit is hosted in a spodumene-bearing pegmatite intrusion. Drilling to the date of GER's NI43-101 had defined a deposit 825m in length, striking east-west. The drill defined thickness ranges from 4m to 55m, averaging 25m, dipping to the north at an angle of 40°.

The deposit outcrops in the eastern portion, with up to 10m of cover at the western end.

The lithium mineralisation is related to multiple pulses of spodumene bearing quartz-feldspar pegmatite. Higher lithium grades are related with high concentrations of mid-to-coarse spodumene crystals (up to 4 cm long axis) in a mid-to-coarse grained pegmatite facies.

## Resources

Figure 23 shows the Mineral Resource Estimate prepared for GER based on 69 holes drilled by GER and 81 holes prior to GER, for a total of 19,735m.

On 7 July 2016, SYA announced the results of a review of GER's estimate, updated to JORC 2012 requirements. On 23 November 2016 SYA announced an update of this estimate, following further drilling. This is shown in Figure 24.

**Figure 23 : Resource Estimate, 2013**

cut-off = 0.5% Li2O	volume	Li2O grade	contained Li2O
Measured	2,244kt	0.95 %	21,318t
Indicated	5,431kt	0.97 %	52,681t
	<b>7,675kt</b>	<b>0.96 %</b>	<b>73,999t</b>
Inferred	1,552kt	0.96 %	14,899t
<b>TOTAL</b>	<b>9,227kt</b>	<b>0.96 %</b>	<b>88,898t</b>

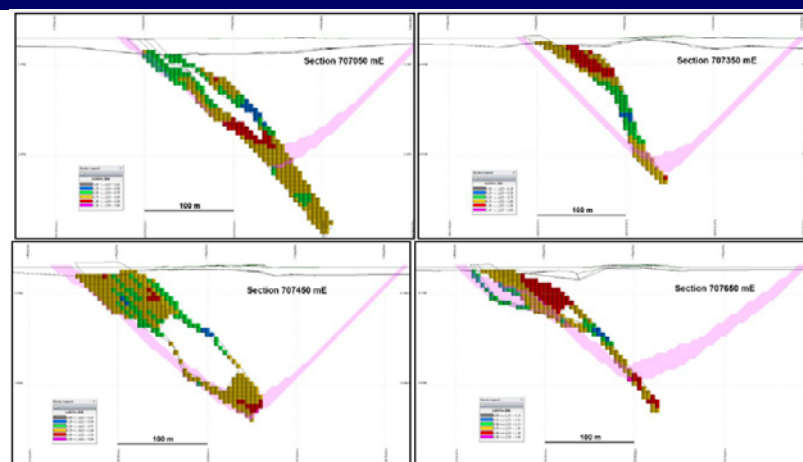
Source : GRE, NI43-101, March 2013

**Figure 24 : Resource Estimate, 2017**

cut-off = 0.5% Li2O	volume	Li2O grade	contained Li2O
Measured	4.72 Mt	1.03 %	48,519t
Indicated	7.13 Mt	1.10 %	78,280t
	<b>11.85 Mt</b>	<b>1.07 %</b>	<b>126,799t</b>
Inferred	1.90 Mt	1.05 %	19,901t
<b>TOTAL</b>	<b>13.74 Mt</b>	<b>1.07 %</b>	<b>146,700t</b>

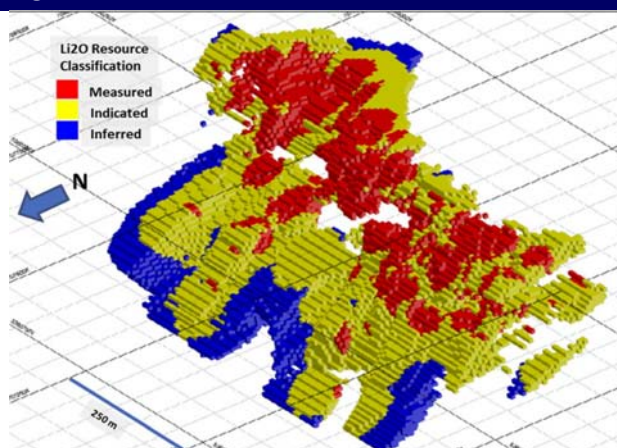
Source : SYA ASX announcement, 23 November 2016

Figure 25 shows 4 cross sections of the mineralisation included in the Resources estimate, showing that it outcrops and dips to the north.

**Figure 25 : Sections of block model of Resources**

Source : GRE, NI43-101, March 2013

SYA's update followed a programme of drilling 19 holes for 3,967m, supplementing the earlier drilling with SYA's own program enabled SYA to update its block model of Authier, which is shown in Figure 26.

**Figure 26 : SYA's block model of Authier resource**

Source : SYA ASX announcement, 23 November 2016

In executing this drill programme, SYA found another pegmatite to the north of the modelled Resource.

Figure 26 shows that the Measured Resource is near surface, and has intersections of less than 35m by 35m spacing, while the Indicated resource has drill spacing not more than 50m by 50m.

## Development of Authier

### Development Potential

As shown in Figure 22, Authier is well served by road, rail and work-force.

Figure 25 shows that the mineralisation can be relatively easily exploited as a modest sized open cut mine.

The area already been granted a Mining Licence. To renew the environmental approval, SYA requires 12 months of environmental monitoring, which began soon after SYA assumed formal ownership, provided that the volume of ore extracted is limited to 2,000t/day, which is 700kt/yr.

### Pre-Feasibility Study

On 16 February, 2017, SYA announced the results of their PFS.

SYA is currently undertaking work on certain parameters used in the PFS and expect to announce the results in July, and the results of the DFS by the end of 2017.

### Reserves

Figure 24 showed that the Mineral Resource estimate for SYA's Authier project totalled 13.74Mt.

Of this, 11.85Mt at an average grade of 1.07% Li<sub>2</sub>O was in the Measured + Indicated categories.

Figure 27 shows that of this, 10.2Mt, at an average grade of 1.02% Li<sub>2</sub>O was included in estimated Ore Reserves.

**Figure 27 : Ore Reserves, Authier**

	cut-off = 0.45% Li <sub>2</sub> O	Li <sub>2</sub> O grade	contained Li <sub>2</sub> O
Proven	4.9 Mt	0.97 %	47,530t
Probable	5.3 Mt	1.06 %	56,180t
<b>TOTAL</b>	<b>10.2 Mt</b>	<b>1.02 %</b>	<b>103,710t</b>

Source : SYA ASX announcement, 16 February 2017

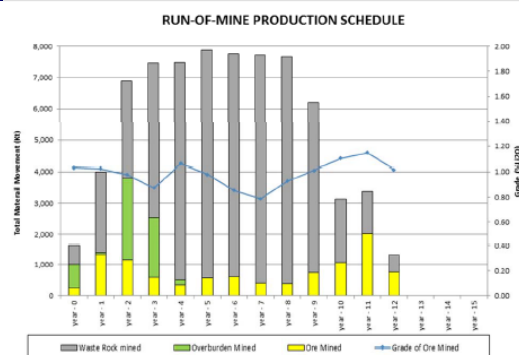
### Production

Figure 28 shows the production profile developed as part of the PFS for Authier.

It shows that while over the life of the project, about 6 tonnes of waste is moved for each tonne of ore, this ratio varies widely over the life of the project.

However, the total amount of material moved is relatively stable, around 7.5Mt/yr, though the volume of ore varies widely.

**Figure 28 : Authier production profile**



Source : SYA ASX announcement, 16 February 2017

Ore mined varies from about 400kt in years 4, 8 and 9, to nearly 2.0Mt in year 11, when very little waste is moved.

### Processing

Figure 29 shows the composition of the ore at Authier. The key mineral is spodumene, an ore of lithium ( $\text{LiAl}(\text{SiO}_3)_2$ ).

Figure 30 clearly shows the spodumene crystal in Authier drill core, with the deeper section showing coarser crystal.

**Figure 29 : Composition of Authier ore**

Mineral	Authier Li Deposit Drill Core Sample (wt %)
Albite	37.2
Quartz	26.5
Microcline	16.2
Spodumene	14.9
Muscovite	4.8
Magnetite	0.3
TOTAL	99.9

Source : GER NI43-101, March 2013

**Figure 30a : Spodumene crystal, , 45m down-hole**



Source : SYA presentation, September 2016

**Figure 30b : Spodumene crystal, , 63m down-hole**



Source : SYA presentation, September 2016

It is expected that coarser crystal will give better recovery of the spodumene.

Figure 31 compares the results of metallurgical tests on the Authier deposit over time, from 1969 to 2012.

**Figure 31 : Metallurgical Recoveries**

		Feed	Recovery	Conc. Grade
Quebec Dept. Natural Res.	1969 (i)		66.8 %	5.13 %
	1969 (ii)		82.2 %	5.81 %
Raymor Resources	1991	1.66 %	72.6 %	6.30 %
	1997 (i)	1.32 %	60.8 %	5.61 %
	1997 (ii)	1.10 %	58.3 %	5.16 %
Glen Eagle Resources	2012	1.23 %	88.0 %	6.09 %

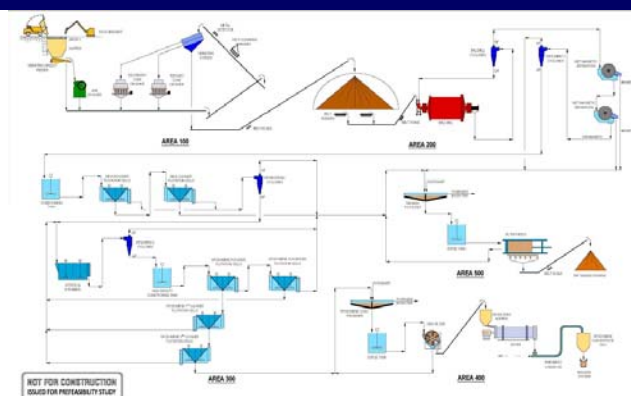
Source : GER NI43-101, March 2013, Beer & Co

Figure 31 shows that both the quality of the concentrate (ie. the  $\text{Li}_2\text{O}$  grade) and also the recovery of  $\text{Li}_2\text{O}$  contained in ore into concentrate have improved over time. It also shows that the results appear to be better for higher grade feed.

Figure 32 shows the flowsheet proposed by SYA. It shows :

- 3 stage crushing
- Ball mill for grinding
- Mica flotation
- Spodumene flotation, with rougher, cleaner and scavenging cells;
- Magnetic separation, to reduce the associated iron;
- Concentrate de-watering and drying; and
- Tailings filtering.



**Figure 32 : SYA's flowsheet**

Source : SYA ASX announcement, 16 February 2017

Beer & Co understands that the decision to go with 3 stage crushing and a ball mill was taken to give the quickest time to production; while High Pressure Grinding Rolls (HPGR) are well suited to ore which is hard, with strong fracturing, the lead time is also much longer.

### Capital Costs

Figure 33 shows the detail of the estimated project capital cost of C\$ 66m (AUD = 1.01 CAD).

The relatively low cost is attributable to

- Nearby power and transport;
- Nearby skilled workforce, removing any need for on-site accommodation;
- Simple deposit geology; and
- Low cost energy.

**Figure 33 : Cap.Ex**

Site Civil works	\$C 4.7m
Mine pre-strip	\$C 6.6m
Process Plant	\$C 34.9m
Plant infrastructure	\$C 1.1m
Other Infrastructure	\$C 4.8m
EPCM, working capital	\$C 9.2m
Contingency	\$C 4.3m
<b>TOTAL</b>	<b>\$C 65.6m</b>

Source : SYA ASX, 16 Feb 2017

In addition, SYA advised sustaining capital costs over the life of the project totalling C\$ 41m, of which C\$ 35m is for mine fleet leasing after the start of commercial production.

### Operating Costs

In their PFS announcement, SYA advised costs of

- C\$ 2.88/t of material mined;
- C\$ 20.9/t of ore processed; and
- C\$ 38/t of product trucked 20km to Val d'Or, the loaded onto train to be railed 525km to port and loaded onto a ship.

**Figure 34 : Op.Ex**

Mining	\$C 141/t
Processing	\$C 137/t
Transport	\$C 38/t
Other	\$C 51/t
<b>TOTAL</b>	<b>\$C 367/t</b>

Figure 34 shows these costs in terms of CAD per tonne of saleable product.

Source : SYA ASX, 16 Feb 2017

### Other Costs

Included in Other Costs in Figure 34 are royalties payable to vendors of the tenements. There are no royalties payable to the Government.

Corporate tax rates total 26.5%, of which 15% is due to the Canadian federal government and 11.5% to the Quebec provincial government.

## Commodity Prices

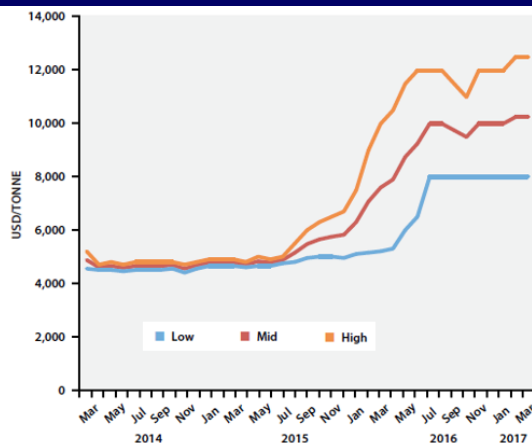
### Lithium - general

SYA's Authier project is expected to produce a spodumene concentrate grading 5.75%  $\text{Li}_2\text{O}$ . A low iron product can be used in the production of glass and ceramics that are to have a low (near zero) co-efficient of expansion (eg. office tower glass, cook ware and stoves).

The major demand is to produce either lithium carbonate ( $\text{Li}_2\text{CO}_3$ ) or lithium hydroxide ( $\text{LiOH}$ ), which are used in the production of lithium ion batteries.

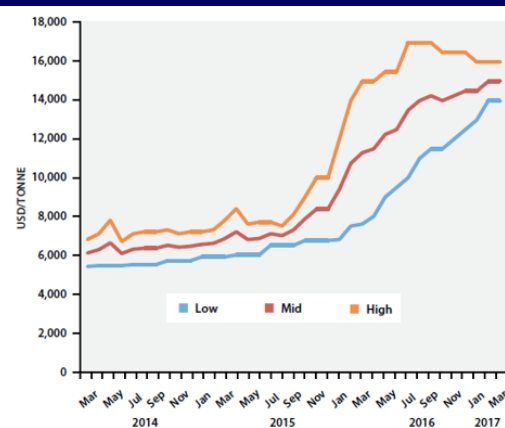
Figure 35 shows lithium carbonate prices, FOB South America, while Figure 36 shows lithium hydroxide prices, FOB, North America.

**Figure 35 : Lithium carbonate, South America**



Source : Benchmark Mineral Intelligence, April 2017

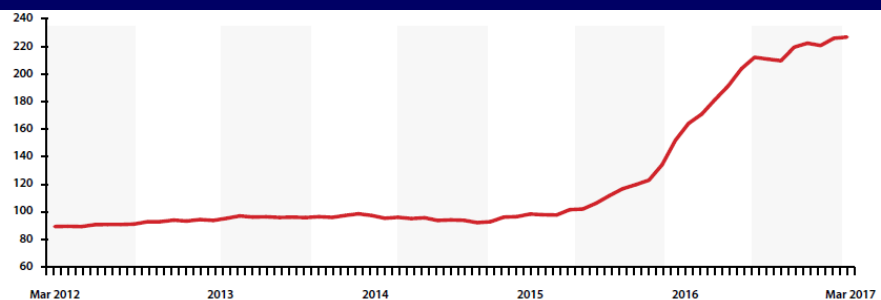
**Figure 36 : lithium hydroxide, North America**



Source : Benchmark Mineral Intelligence, April 2017

The data can be simply summarised in Figure 37, which shows that prices rose during 2015 and then rose steeply during 2016 and have since risen only slowly, but have still, nevertheless, risen further.

**Figure 37 : Lithium prices : Benchmark Mineral intelligence index**



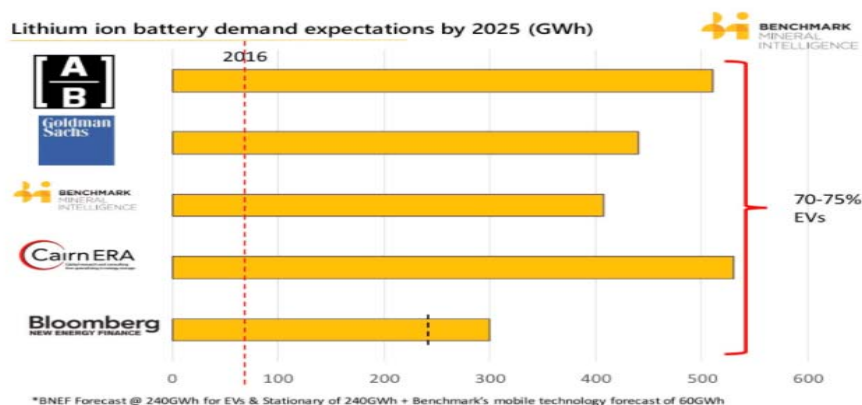
Source : Benchmark Mineral Intelligence, April 2017

In recent presentations, as part of their global tour, BMI have titled their presentation : *"Not enough lithium"*. Figure 38 shows the projections of the increase in demand from 2016 to 2025,

- From 70GWh, requiring 80kt of lithium carbonate equivalent (which would require 540kt of 6%  $\text{Li}_2\text{O}$  concentrate, if it were sourced from spodumene);
- To 170kt LCE by 2020; and
- Over 400kt LCE by 2025.

This is shown in Figure 38.

**Figure 38 : Projected growth in demand for Lithium ion batteries**



Source : Benchmark Mineral Intelligence, April 2017

## Spodumene prices

While LiOH has a price premium over  $\text{Li}_2\text{CO}_3$ , the cost of producing LiOH and  $\text{Li}_2\text{CO}_3$  from spodumene is about the same.

Beer & Co is very positive on the prices for lithium feedstocks as we are familiar with technologies that will significantly enhance the performance of lithium ion batteries, reducing the cost in terms of energy units. The impact is a multiple of current performance, not an incremental impact. Figure 16 shows the price profile assumed by Beer & Co. Despite our bullishness on price, we project a softening in the medium term with the potential for a significant increase in supply.

### Recent prices

Prices for spodumene concentrate are difficult to determine as there are few trades.

Nearly all of the conversion of spodumene concentrate into either  $\text{Li}_2\text{CO}_3$  or LiOH occurs in China, where :

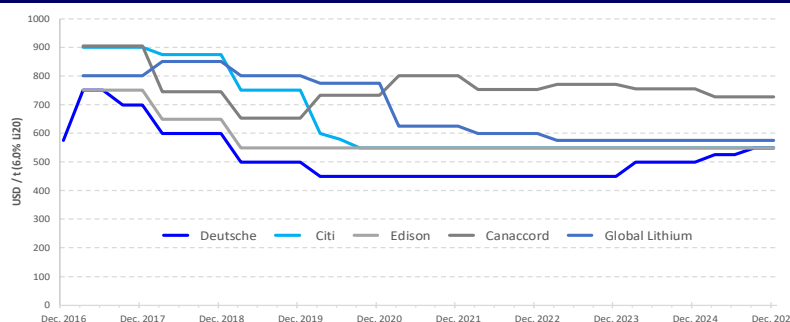
- Development of processing capacity is low cost and quick (check steel, aluminium and base metals, especially nickel);
- Domestic demand for transport is significant and growing rapidly, to ease pollution in major cities; and
- The domestic industry developed processing local, low grade spodumene.

Recently announced prices have included :

- US\$ 750/t for 6.0%  $\text{Li}_2\text{O}$  concentrates shipped by 30 June 2017 (with later shipments to be reviewed), from Mt Marion, announced by NeoMetals (NMT.SSX) and Mineral Resources (MIN.ASX) on 16 February 2017;
- US\$ 830/t for 5.5%  $\text{Li}_2\text{O}$  concentrate, equivalent to US\$ 905/t for 6.0%  $\text{Li}_2\text{O}$ , from Galaxy Resources (GXY.ASX) Mt Caitlin project, announced on 14 December 2016; and
- US\$ 880/t for 6%  $\text{Li}_2\text{O}$  concentrate, FOB Esperance, for deliveries from 15 March 2018 to 31 December 2019 by Tawana Resources (TAW.ASX), announced 26 April 2017.

### Projections

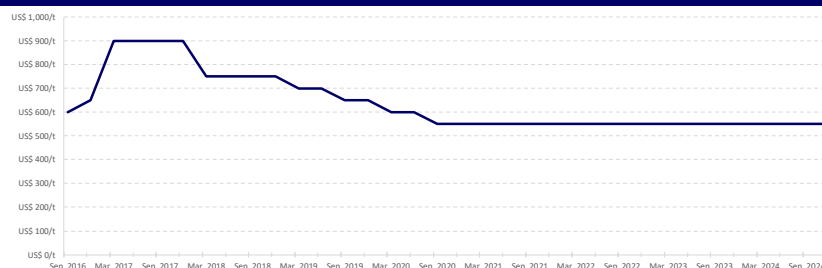
Figure 39 shows a range of projections for spodumene prices, from 4 brokers and an industry expert. All show weakening from current prices, and 4 of the 5 have Long run prices of \$550 - \$575/t.

**Figure 39 : Projections for spodumene prices**

Source : various (as cited); Beer &amp; Co

**Beer & Co projections**

Figure 40 shows the price projections used by Beer & Co in this analysis, showing that present prices hold for a period before falling as more supply comes on-line, to a long run price of US\$ 550/t.

**Figure 40 : Beer & Co's assumed price profile**

Source : Beer &amp; Co estimates

## Valuation of Authier project

**SYA Reviewing PFS**

On 9 May, SYA announced that it is in the process of updating its PFS. The particular areas being updated cover :

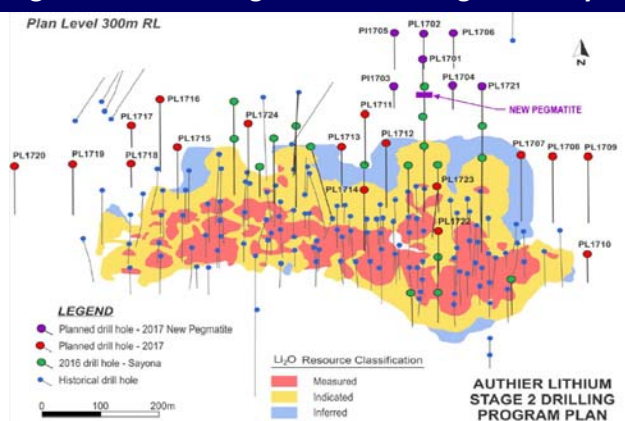
- Mining Inventory;
- Waste movement; and
- Metallurgical performance, both recovery and concentrate grade.

**Mining Inventory**

Figure 24 showed that the Authier project has 13.7Mt, and a Reserve of 10.2Mt, as shown in Figure 27. Figure 26 showed the block model which shows areas in the middle that are blank; some of this is due to lack of drill density, arising due to local topographical issues, and some of which is due to grades below cut-off.

Figure 41 shows the detail of SYA's current drill programme, which aims to :

- Infill those areas within the block model that are not part of the Resource estimate;
- Extend the resource to the east and the west; and
- Prove up the mineralisation previously intersected to the north.

**Figure 41 : Extending Authier's mining inventory**

Source : SYA presentation, March 2017

Given the evidence of mineralisation, Beer & Co expects that SYA will be successful in increasing its mining inventory. Figure 42 shows the mining inventory used by Beer & Co in this analysis.

**Figure 42 : Beer & Co.'s mining inventory**

		Li <sub>2</sub> O		Waste : Ore
		grade	contained	
Reserves	10.20 Mt	1.02 %	103,710t	1.8 : 1
Resources	3.54 Mt	1.01 %	35,655t	6.0 : 1
Extension	3.00 Mt	1.05 %	31,455t	6.0 : 1
<b>TOTAL</b>	<b>16.74 Mt</b>	<b>1.02 %</b>	<b>170,820t</b>	<b>3.5 : 1</b>

Source : Beer & Co estimates

Figure 42 shows that our base case is 13.7Mt, the current Resource, and we test for the value of further upside to that.

In our analysis, the mining inventory above 10Mt is given a heavier risk weighting.

#### Waste Movement

The PFS assumed, due to the lack of a sufficient amount of quantitative evidence of the geo-technical properties, a slope of the hanging wall of 45°, and 30° for the over-burden.

SYA is confident, based on the work to date, that at least 10% can be saved from the amount of material to be moved, changing the hanging wall from 45° to 55° – 60°. This can be increased more with success in the infill drilling and re-defining blocks that need to be extracted from zero grade to a positive grade.

Beer & Co does not include this in our base case, but we test for the sensitivity of our derived result for changes in the strip ratio.

#### Metallurgical testing

SYA advised that QEMMSCAN analysis showed that amphibolitic material had been included in the product, reducing the Li<sub>2</sub>O grade.

This deleterious material can be relatively easily rejected by a float circuit.

SYA is also undertaking testing to further reduce the iron level.

Beer & Co do NOT allow for any benefit from this in our analysis.

## Beer & Co.'s Analysis

The PFS is based on plant throughput of 700kt/yr, as this scale has an easier approval regime.

However, given that Beer & Co expects a significant mining inventory, of at least 13Mt, and potentially significantly more, and the area has many further prospects, Beer & Co.'s base case assumes :

- SYA begins the 2 year monitoring process for a higher throughput rate, as well as local consultations, about now;
- Approval will take about 3 years to obtain;
- Throughput is doubled from 700kt/yr to 1.4Mt/yr coming into production after the project has been in production for 3 years; and
- The capital cost for this increase in plant capacity s C\$ 30m.

Beer & Co.'s modelling matched the advised costs at the 700kt/yr rate but at the higher rate our costs are a little lower, as shown in Figure 43, due to fixity of some costs in

- Mine planning;
- Process plant operations; and
- Site overheads and fixed costs.

**Figure 43 : Estimated op costs**

	PFS	Beer & Co	
		700 kt	1,400 kt
Mining	\$C 141/t	\$C 141/t	\$C 139/t
Processing	\$C 137/t	\$C 137/t	\$C 128/t
Transport	\$C 38/t	\$C 38/t	\$C 38/t
Other	\$C 51/t	\$C 50/t	\$C 45/t
<b>TOTAL</b>	<b>\$C 367/t</b>	<b>\$C 367/t</b>	<b>\$C 350/t</b>

Source : Beer & Co estimates

## Operations

Figure 44 shows Beer & Co's projected operational outcomes for SYA's Authier project, clearly showing :

- The increase in the throughput rate in Year 3;
- The growth and consumption of ore stockpiles, with the variation in strip ratio;
- Assumed average recovery of 80% of Li<sub>2</sub>O in ore to concentrate.

**Figure 44 : Beer & Co's projected operations for Authier**

	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Mining Inventory	13,568 kt	11,528 kt	10,308 kt	9,009 kt	7,595 kt	5,707 kt	4,596 kt	2,769 kt	0 kt	0 kt	0 kt	0 kt
	1.02 %	0.96 %	0.93 %	0.93 %	1.07 %	1.10 %	1.10 %	1.02 %	0.00 %	0.00 %	0.00 %	0.00 %
Ore mined	176 kt	2,041 kt	1,220 kt	1,299 kt	1,414 kt	1,888 kt	1,112 kt	1,827 kt	3,278 kt	0 kt	0 kt	0 kt
waste : ore	5.4 : 1	2.5 : 1	5.8 : 1	10.5 : 1	9.6 : 1	6.9 : 1	12.5 : 1	7.2 : 1	2.4 : 1	0.0 : 1	0.0 : 1	0.0 : 1
Waste moved	949 kt	5,178 kt	7,030 kt	13,701 kt	13,586 kt	13,112 kt	13,888 kt	13,173 kt	7,972 kt	0 kt	0 kt	0 kt
Ore Stockpile	66 kt	1,407 kt	1,716 kt	1,615 kt	1,629 kt	2,117 kt	1,828 kt	2,255 kt	4,133 kt	2,733 kt	1,333 kt	0 kt
Li <sub>2</sub> O grade	1.02 %	1.01 %	0.98 %	0.95 %	1.01 %	1.07 %	1.08 %	1.06 %	1.02 %	1.02 %	1.02 %	0.00 %
Ore Processed	110 kt	700 kt	910 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,400 kt	1,333 kt
Li <sub>2</sub> O grade	1.02 %	1.02 %	0.99 %	0.96 %	0.96 %	1.03 %	1.07 %	1.08 %	1.04 %	1.02 %	1.02 %	1.02 %
Recovery	71 %	79 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %	80 %
Li <sub>2</sub> O recovered	798 t	5,602 t	7,234 t	10,788 t	10,752 t	11,565 t	12,024 t	12,044 t	11,645 t	11,474 t	11,474 t	10,924 t
Conc grade	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %	5.75 %
Li <sub>2</sub> O concentrate	13.9 kt	97.4 kt	125.8 kt	187.6 kt	187.0 kt	201.1 kt	209.1 kt	209.5 kt	202.5 kt	199.5 kt	199.5 kt	190.0 kt

Source : Beer & Co estimates

## Valuation of Authier

Figure 43 showed Beer & Co.'s summary cost estimates and Figure 44 our production profile while Figure 20 showed our commodity price assumptions.

Figure 45 shows Beer & Co's projected cashflows for SYA's Authier project. It shows that the Beer & Co calculate that the NPV of the after-tax cashflows for Authier is \$154m.



Figure 45 : Beer &amp; Co's valuation of Authier

CAD m	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
AUD-USD	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
Spodumene	US\$ 800 /t	US\$ 800 /t	US\$ 725 /t	US\$ 625 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t
Li2O concentrate	0.0 kt	13.9 kt	97.4 kt	125.8 kt	185.8 kt	192.2 kt	203.8 kt	210.1 kt	210.0 kt	202.7 kt	199.6 kt	199.6 kt	190.1 kt
Revenue	\$ 0.0m	\$ 13.3m	\$ 90.2m	\$ 99.6m	\$ 130.6m	\$ 135.1m	\$ 143.2m	\$ 147.7m	\$ 147.6m	\$ 142.4m	\$ 140.3m	\$ 140.3m	\$ 133.6m
Cash Costs	\$ 0.0m	(\$5.3m)	(\$31.3m)	(\$43.3m)	(\$64.8m)	(\$70.2m)	(\$69.0m)	(\$72.0m)	(\$72.7m)	(\$61.1m)	(\$63.3m)	(\$64.9m)	(\$61.8m)
Royalties	\$ 0.0m	(\$0.3m)	(\$1.8m)	(\$2.0m)	(\$2.6m)	(\$2.7m)	(\$2.9m)	(\$3.0m)	(\$3.0m)	(\$2.8m)	(\$2.8m)	(\$2.8m)	(\$2.7m)
Dep'n & Amort'n	\$ 0.0m	(\$0.7m)	(\$5.2m)	(\$6.7m)	(\$10.3m)	(\$10.3m)	(\$10.3m)	(\$10.3m)	(\$10.3m)	(\$10.0m)	(\$8.9m)	(\$2.1m)	\$ 0.0m
E B I T	\$ 0.0m	\$ 7.0m	\$ 51.9m	\$ 47.5m	\$ 52.8m	\$ 51.8m	\$ 61.0m	\$ 62.4m	\$ 61.6m	\$ 68.5m	\$ 65.3m	\$ 70.5m	\$ 69.1m
Interest Expense	\$ 0.0m	\$ 0.0m	(\$2.0m)	(\$1.5m)	(\$0.8m)	(\$0.0m)	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m
Tax Expense	\$ 0.0m	(\$1.9m)	(\$14.3m)	(\$13.0m)	(\$14.2m)	(\$13.7m)	(\$16.2m)	(\$16.5m)	(\$16.3m)	(\$18.1m)	(\$17.3m)	(\$18.7m)	(\$18.3m)
N P A T	\$ 0.0m	\$ 5.1m	\$ 35.7m	\$ 33.1m	\$ 37.9m	\$ 38.1m	\$ 44.8m	\$ 45.9m	\$ 45.3m	\$ 50.3m	\$ 48.0m	\$ 51.8m	\$ 50.8m
Feasibility / permitting	(\$2.1m)												
Project Cap.Ex	(\$23.0m)	(\$42.6m)											
Expansion Cap.ex	\$ 0.0m	\$ 0.0m	(\$7.1m)	(\$4.8m)									
Sus Cap. Ex	\$ 0.0m	(\$0.3m)	(\$3.1m)	(\$1.9m)	(\$2.0m)	(\$2.2m)	(\$2.9m)	(\$1.7m)	(\$1.2m)	\$ 0.0m	\$ 0.0m	\$ 0.0m	\$ 0.0m
Un-gear'd Net Cashflow	(\$25.1m)	(\$39.4m)	\$ 16.8m	\$ 21.5m	\$ 37.1m	\$ 42.5m	\$ 46.0m	\$ 51.7m	\$ 51.8m	\$ 51.1m	\$ 79.2m	\$ 76.2m	\$ 72.0m
Net Cashflow to Equity	(\$25.1m)	(\$6.6m)	\$ 6.3m	\$ 11.1m	\$ 26.7m	\$ 39.2m	\$ 46.0m	\$ 51.7m	\$ 51.8m	\$ 51.1m	\$ 79.2m	\$ 76.2m	\$ 72.0m

NPV, at 12.0% d.r. = \$ 154m

Source : Beer &amp; Co estimates

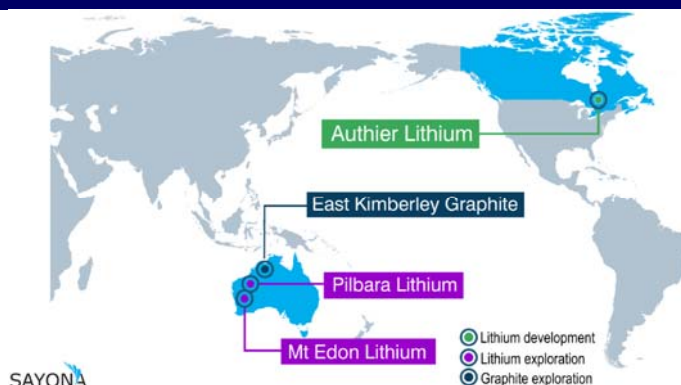
In Figure 45, Beer & Co has assumed that as SYA purchased the Authier project, SYA does not have any carried forward tax losses to offset against tax expenses. Beer & Co has also assumed that all expenditures by SYA are being capitalised and will be amortised.

As a result, the NPV of the tax payments is high.

Despite this, Authier has a high return and a quick pay-back of capital.

## Other Assets in SYA

Figure 46 : SYA's portfolio of projects



Source : SYA presentation, November 2016

As shown in Figure 21, and in Figure 46, SYA has further assets than Authier, although the focus is on Authier as it is a development project.

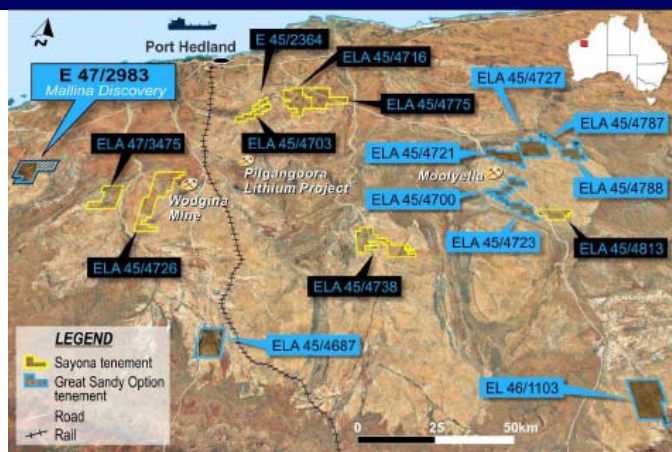
## Other spodumene prospects

In addition to Authier, SYA has 3 spodumene prospects, all in WA:

- Mallina, for which an option to acquire was announced on 21 December, 2016;
- Tabbatabba, for which the original acquisition was announced on 17 March, 2016; and
- Mt Edon, the acquisition of which was announced in the same 17 March announcement.

Mallina and Tabba Tabba are both in the Pilbara region, as shown in Figure 47, which shows that SYA's tenements are not too distant from the 2 developments at Pilgangoora.

**Figure 47 : SYA's Pilbara lithium prospects**



Source : SYA ASX announcement, 3 May 2017

## Mallina

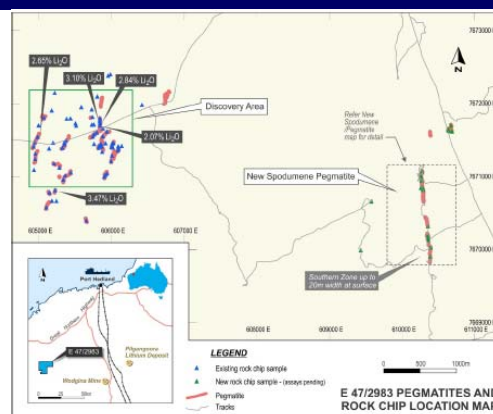
As shown in Figure 48, SYA's Mallina project has many areas of out-cropping pegmatites.

SYA has only recently acquired the prospect and has done only preliminary geological assessment and is progressing the permitting required to enable drilling to start.

SYA has reported an outcrop of 1,300m in strike, with widths up to 20m.

Other areas have yielded rock chips grading up to 3.47% Li<sub>2</sub>O.

**Figure 48 : SYA's Mallina project**

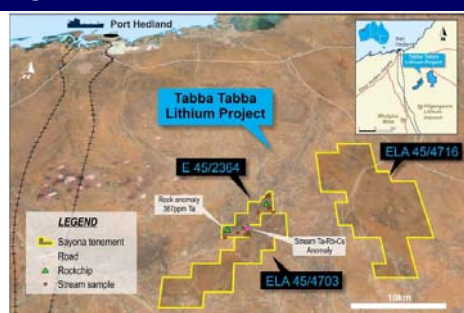


Source : SYA ASX announcement, 3 May 2017

## Other WA Lithium

On 17 March 2016, SYA announced that it had secured interests in 2 tenement areas containing pegmatites prospective for spodumene, as shown in Figure 49.

**Figure 49a : SYA's Tabba Tabba**



Source : SYA ASX announcement, 17 March 2016

**Figure 49b : SYA's Mt Edon, WA**



Tabba Tabba is to the west of operations of Pilbara Minerals (PLS) and Altura Mining (AJM). It has known pegmatites and known occurrences of associated mineralisation.

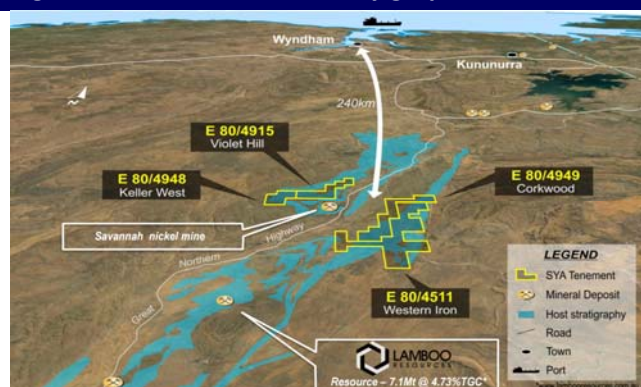
Mt Edon is near Mt Magnet, and sampling at Mt Edon yielded up to 2.2% Li<sub>2</sub>O

SYA's lithium prospects in WA are early stage and have been de-prioritised following the acquisition of the Authier project.

## East Kimberly Graphite

As shown in Figure 50, SYA has an area of 278km<sup>2</sup> in 4 different Exploration Leases, about 240km south of the port of Wyndham, in N-E WA.

**Figure 50 : SYA's East Kimberly graphite - locations**



Source : SYA presentation, January 2016

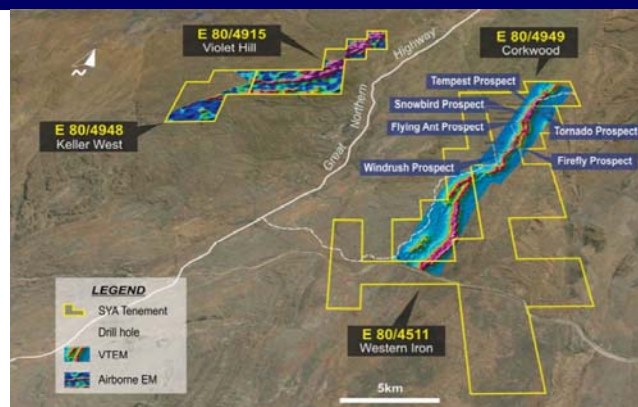
Figure 50 also shows that SYA's tenement area covers a significant area of prospective host stratigraphy, and is also along strike from Hexagon Resources' (HXG; formerly Lamboo Resources, LOO.ASX) McIntosh project.

Figure 51 shows 2 very strong, clearly identified structures in SYA's tenement areas, from a VTEM survey and an airborne EM survey.

SYA executed a programme of 33 RC holes for 2,949m over 6 prospects, identified in Figure 51, late in 2015, along a 7km strike extent of a 25km geophysical anomaly.

Every hole intersected coarse visual flake graphite mineralisation. The results have defined broad, near surface coarse flake graphite mineralisation, with a broadly tabular geometry and shallow dip.

**Figure 51 : SYA's East Kimberley graphite - EM**



Source : SYA presentation, January 2016

However, the grades and the continuity were not as good as expected. SYA believes that this may have been due to drilling by RC and SYA intended to test this by a small round of diamond core drilling, noting that other projects reported improved grades from core drilling over RC.

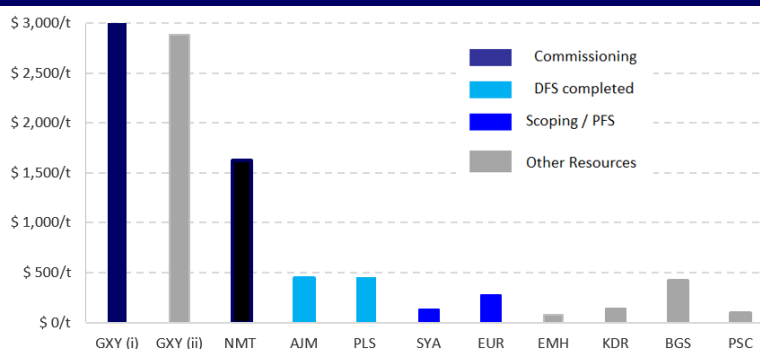
## SYA Valuation

### Comparative

In our analysis, Beer & Co has identified 76 ASX listed companies that have at least a major portion of their operations focussed on lithium, plus 13 others for which lithium is a secondary interest. For comparison, in late 2015, there were fewer than 10 ASX listed companies focussed on lithium.

Of these, Beer & Co has been able to identify only 13 companies that have reported a JORC compliant Resource estimate. Figure 52 shows 12 of these, omitting Orocobre (ORE.ASX) which, as it is a producer, has a much higher valuation than those that are yet to achieve that status.

**Figure 52 : ASX lithium companies, EV/M+I**



Source : SYA ASX announcement, 17 March 2016

Figure 52 shows the 12 identified ASX listed lithium companies, based on the metric of Enterprise Value per tonne of contained Li<sub>2</sub>O within Measured + Indicated Resources, with by-products being given an equivalent value based on product value, metallurgical recovery and any treatment charges.

As suggested by the legend in Figure 28, the order from left to right reflects time to first product; it omits Tawana Resources, which has yet to publish a Resource estimate

GXY(i) is based purely on GXY's Mt Caitlin operations, with GXY(ii) including the Resources at GXY's Sal de Vida brine project and its James Bay hard rock project.

NMT relates the value of the sale of their interest in Mt Caitlin.

Figure 52 shows that SYA is very low cost, especially when time to production is taken into account.

### SYA – Cashflow based Valuation

Figure 45 showed Beer & Co.'s projected cashflows for SYA's Authier project. This needs to be adjusted for corporate and other costs to for the company overall, as shown in Figure 53.

**Figure 53 : Beer & Co's projected financial outcomes for SYA**

AUD m	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
AUD-USD	0.754	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750	0.750
Spodumene	US\$ 688 /t	US\$ 800 /t	US\$ 800 /t	US\$ 725 /t	US\$ 625 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t	US\$ 550 /t
Sales revenue	0	0	13	90	100	131	135	143	148	148	142	140	140	134
Total Revenue	0	0	13	90	100	131	136	145	150	151	145	143	143	137
Cash Costs	0	0	(6)	(33)	(45)	(67)	(73)	(72)	(75)	(76)	(64)	(66)	(68)	(64)
Corporate Costs	(1)	(1)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(1)	0	0	0
Exploration Expense	0	0	(0)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(0)	0	0	(1)
Dep'n & Amort'sn	0	0	(1)	(5)	(7)	(10)	(10)	(10)	(10)	(10)	(10)	(9)	(2)	0
EBIT	(1)	(1)	5	50	45	51	51	61	63	62	70	68	73	72
Interest Expense	0	0	0	(2)	(1)	(1)	(0)	0	0	0	0	0	0	0
Tax Expense	0	0	(2)	(14)	(13)	(14)	(14)	(16)	(17)	(16)	(18)	(17)	(19)	(18)
NPAT	(1)	(1)	3	34	31	36	37	44	46	46	52	51	55	53
Fully diluted shares on issue	1,279m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m	2,283m
Earnings per Share	(0.1c)	(0.1c)	0.2 c	1.5 c	1.4 c	1.6 c	1.6 c	1.9 c	2.0 c	2.0 c	2.3 c	2.2 c	2.4 c	2.3 c

Source : Beer &amp; Co estimates

## Risked, Base Case Valuation

Figure 54 shows Beer &amp; Co's risked, base case valuation of SYA.

**Figure 54 : Beer & Co's risked Valuation of SYA**

VALUATION				
discount rate = 12.0 %				
		30 June 2016		22-May-17
	risk :	100%	Product	per share
Authier - Reserves	80 %	\$ 106m	\$ 85m	3.7 c
Authier - Extensions	65 %	\$ 26m	\$ 17m	0.7 c
East Kimberley Graphite	nom	\$ 3m	\$ 3m	0.1 c
Pilbara Lithium	nom	\$ 3m	\$ 3m	0.1 c
Mt Edon Lithium	nom	\$ 1m	\$ 1m	0.0 c
Exploration	100 %	(\$ 2m)	\$ 0m	0.0 c
Corporate	100 %	(\$ 9m)	(\$ 9m)	(0.4c)
Cash at Corporate level	100 %	\$ 0m	\$ 0m	0.0 c
Equity raisings	100 %	\$ 36m	\$ 36m	1.6 c
<b>TOTAL</b>		<b>\$ 163m</b>	<b>\$ 135m</b>	<b>5.9 c</b>
Shares on issue		537.3m	F P O shares	315.3m
		427m	FY 17	Options
		1,319m	Later	ex'd

Source : Beer &amp; Co estimates

Figure 54 shows that Beer & Co's valuation is dominated by Authier; we have given a value for SYA's East Kimberley graphite of less than 10% of the value implied by HXG's neighbouring project which is on the same trend of mineralisation. SYA's other projects have been given a nominal value, with no value assigned for exploration.

## Sensitivity Analyses

SYA has announced the results of its PFS, and is currently updating some parameters of that work.

Beer & Co.'s analysis assumes operating and capital costs as shown in the PFS, but adjusted for our assumption that throughput will be increased.

Beer & Co also assumes in the base case that the amount of ore treated will be greater than the reserves in the PFS, given the number of occurrences of mineralisation outside of the existing reserves.

SYA's update of its PFS is working to

- Improve metallurgical recoveries from 80%, as used in the PFS, and also improve concentrate grade;
- Increase the amount of ore; and
- Reduce the amount of waste to be moved.



Beer & Co expects that SYA will have some success, but we do not include expected success in our base case, but test for the impact that this could have on our valuation.

We also test for the sensitivity of our derived result to different prices, as well for project delivery in line with our expectations.

### Price

Beer & Co.'s base case assumptions on price were shown in Figure 40 and in Figure 45:.

- Current prices range from \$750 to \$950/t, with the only 2018 price indicator being \$880/t;
- Beer & Co has assumed \$750/t for 2017 and \$850/t for 2018, and then \$750/t for 2019; and then
- falling by \$50/t each 6 months to our long run price of US\$ 550/t.

Figure 55 shows the impact of assuming a higher long run price, for both the PFS case, processing 700kt/yr of ore, and Beer & Co.'s base case of an expansion to 1,400kt/yr in about year 3.

**Figure 55a : Price sensitivities, risked**

Throughput	Long-Run Price		
	\$ 500/t	\$ 550/t	\$ 600/t
PFS Case	3.7 c	4.4 c	5.2 c
Base Case	6.2 c	<b>7.3 c</b>	8.5 c

Source : Beer & Co estimates

**Figure 55b : Price sensitivities, un-risked**

Throughput	Long-Run Price		
	\$ 500/t	\$ 550/t	\$ 600/t
PFS Case	4.2 c	5.1 c	6.1 c
Base Case	7.3 c	8.6 c	10.1 c

Source : Beer & Co estimates

Figure 55b shows the extra value generated if the project is delivered as we expect.

Figure 55 shows that our valuation is very sensitive to the price assumed.

### Mining Inventory

Figure 56 shows the sensitivity of Beer & Co.'s valuation to changes in the mining inventory. It shows that in the PFS case, increasing the mining inventory adds almost no value due to the impact of the discount rate on long dated cashflows.

This contrasts with the extra value at higher throughput rates.

**Figure 56a : Project life, risked**

Throughput	Mining Inventory		
	Reserves	Resources	Extension
PFS Case	4.3 c	4.4 c	4.5 c
Base Case	6.7 c	<b>7.3 c</b>	8.3 c

Source : Beer & Co estimates

**Figure 56b : Project life, un-risked**

Throughput	Mining Inventory		
	Reserves	Resources	Extension
PFS Case	5.0 c	5.1 c	5.2 c
Base Case	7.8 c	8.6 c	9.8 c

Source : Beer & Co estimates

### Waste : Ore (Strip ratio)

SYA's current programme expects to be able to reduce the amount of waste moved, by about 10%. Figure 57 shows that this has a much bigger impact in the higher throughput case.

**Figure 57a : strip ratio, risked**

Throughput	Waste : Ore	
	PFS case	Lower
PFS Case	4.4 c	4.6 c
Base Case	<b>7.3 c</b>	7.5 c

Source : Beer & Co estimates

**Figure 57b : strip ratio, un-risked**

Throughput	Waste : Ore	
	PFS case	Lower
PFS Case	5.1 c	5.2 c
Base Case	8.6 c	8.9 c

Source : Beer & Co estimates



### Recoveries

Base case recoveries are 80% of the Li<sub>2</sub>O in ore to concentrate.

Figure 58 shows that if recoveries are increased from 80% to 82.5%, the impact is meaningful, while falling to 77.5% also has a noticeable impact.

**Figure 58a : recoveries, risked**

Throughput	Recoveries		
	low	base case	high
PFS Case	4.1 c	4.4 c	4.8 c
Base Case	6.8 c	<b>7.3 c</b>	7.8 c

Source : Beer & Co estimates

**Figure 58b : , un-risked**

Throughput	Recoveries		
	low	base case	high
PFS Case	4.7 c	5.1 c	5.5 c
Base Case	8.0 c	8.6 c	9.2 c

Source : Beer & Co estimates

## Conclusions

### Re-cap

SYA formally acquired the Authier lithium project in July 2016. SYA's share price chart shows no discernible reaction to this announcement.

SYA has since announced the results of a PFS, which has also failed to stir interest.

SYA has further prospects, but SYA is focussed on the development of its Authier project.

In Beer & Co.'s view, the prospects for spodumene are much better than is reflected in share prices.

SYA also has potential further improvements at Authier, though our analysis shows that the greatest addition to value is to be able to increase the throughput from the base case of 700kt/yr.

### Final Comments

Beer & Co's base case valuation is more than 3x the current share price, and we see significant further upside potential.

Beer & Co initiates research with a Strong BUY, High Risk, recommendation.

## Beer &amp; Co. Research

Sayona Mining (SYA.ASX)

May 2017

Year ended June	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23
<b>Section 1 - P&amp;L</b>								
Sales revenue	\$A m	0	0	0	13	90	100	131
Interest revenue	\$A m	0	0	0	0	0	0	1
Other revenue	\$A m	0	0	0	0	0	0	0
<b>Total Revenue</b>	\$A m	0	0	0	13	90	100	131
Cost of Goods Sold	\$A m	0	0	0	(5)	(31)	(43)	(65)
Royalties	\$A m	0	0	0	(0)	(2)	(2)	(3)
Corporate Costs	\$A m	(1)	(1)	(1)	(2)	(2)	(2)	(2)
Exploration Expense	\$A m	(1)	0	0	(0)	(1)	(1)	(1)
Other Operating Expenses	\$A m	(0)	0	0	0	0	0	0
<b>Total Operating Expenses</b>	\$A m	(3)	(1)	(1)	(7)	(35)	(48)	(70)
<b>EBITDA</b>	\$A m	(3)	(1)	(1)	6	55	52	61
Dep'n & Amort'n	\$A m	0	0	0	(1)	(5)	(7)	(10)
<b>EBIT</b>	\$A m	(3)	(1)	(1)	5	50	45	51
Interest Expense	\$A m	0	0	0	0	(2)	(1)	(0)
Other	\$A m	0	0	0	0	0	0	0
<b>Pre-Tax Profit</b>	\$A m	(3)	(1)	(1)	5	48	44	51
Tax Expense	\$A m	0	0	0	(2)	(13)	(14)	(14)
<b>NPAT</b>	\$A m	(3)	(1)	(1)	3	34	31	36

## Section 2 - Key Data

Ordinary shares - year end	m	537.3	964.0	2,283.0	2,283.0	2,283.0	2,283.0	2,283.0
Fully diluted shares on issue	m	666.8	1,279.3	2,283.0	2,283.0	2,283.0	2,283.0	2,283.0
Weighted # shares	m	522.5	862.8	1,347.5	2,283.0	2,283.0	2,283.0	2,283.0
Earnings per Share	(0.5c)	(0.1c)	(0.1c)	0.2 c	1.5 c	1.4 c	1.6 c	1.6 c
Dividends Per Share	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c

## Section 3 - Balance Sheet

Cash	\$A m	0	2	12	3	8	17	41
Receivables	\$A m	0	0	0	4	8	12	11
Other	\$A m	0	0	0	0	2	3	2
<b>CURRENT ASSETS</b>	\$A m	0	2	12	8	17	31	55
Receivables	\$A m	0	0	0	0	0	0	0
P, P & E	\$A m	0	0	23	65	66	57	48
Mining Properties / Exploration	\$A m	1	9	11	11	10	9	7
Other	\$A m	0	0	0	1	12	26	35
<b>NON-CURRENT ASSETS</b>	\$A m	1	9	34	76	90	101	91
<b>TOTAL ASSETS</b>	\$A m	2	10	45	84	107	133	185
Payables	\$A m	0	0	0	1	3	5	6
Debt	\$A m	0	0	0	10	10	10	3
Other	\$A m	0	0	0	0	0	0	0
<b>CURRENT LIABILITIES</b>	\$A m	0	0	0	12	13	16	9
Long Term Debt	\$A m	0	0	35	24	14	3	0
Other	\$A m	0	0	0	0	0	0	0
Provisions	\$A m	0	0	0	0	0	0	0
<b>NON-CURRENT LIABILITIES</b>	\$A m	0	0	35	24	14	3	0
<b>TOTAL LIABILITIES</b>	\$A m	0	0	35	36	27	19	9
<b>NET ASSETS</b>	\$A m	1	10	11	48	80	114	146
Accumulated Profit (Loss)	\$A m	(52)	(53)	(54)	(51)	14	50	87
Reserves	\$A m	0	2	(33)	1	(0)	3	(2)
Contributed Equity	\$A m	53	61	97	97	97	97	97
<b>Total Equity</b>	\$A m	1	10	11	48	80	114	146

## Section 4 - Cashflow

Net Cashflow from operations	\$A m	(3)	(1)	(1)	6	55	52	61
Net Interest Paid	\$A m	0	0	0	0	(2)	(1)	(0)
Taxes Paid	\$A m	0	0	0	(2)	(14)	(13)	(14)
Change in Working Capital	\$A m	0	(0)	0	(2)	(3)	(1)	(1)
<b>OPERATING CASHFLOW</b>	\$A m	(2)	(1)	(1)	2	36	36	48
Exploration + Feasibility	\$A m	(1)	(7)	(2)	(0)	(1)	(1)	(1)
Maintenance Capex	\$A m	0	0	0	(0)	(3)	(2)	(2)
Expansion Capex	\$A m	0	0	(23)	(43)	(7)	(5)	0
<b>PPE Acquisitions (Total Capex)</b>	\$A m	(1)	(7)	(25)	(43)	(11)	(7)	(3)
PPE Divestments	\$A m	0	0	0	0	0	0	0
<b>INVESTING CASHFLOW</b>	\$A m	(1)	(7)	(25)	(43)	(11)	(7)	(3)
Change in Equity	\$A m	3	8	36	0	0	0	0
Dividends Paid	\$A m	0	0	0	0	0	0	0
Change in Debt	\$A m	0	0	35	0	(10)	(10)	(3)
<b>FINANCING CASHFLOW</b>	\$A m	3	8	71	0	(10)	(10)	(3)
<b>Free Cashflow</b>	\$A m	(3)	(9)	(26)	(41)	26	29	45
<b>Net Cashflow</b>	\$A m	0	(0)	45	(41)	15	19	42

## Commodity price assumptions

Year ended June	2016-17	2017-18	2018-19	2019-20	2020-21	L-R
AUD/USD	0.754	0.750	0.750	0.750	0.750	0.750
Spodumene, 6.0% Li2O (USD/t)	688	800	800	725	625	550

## Mine Production / Sales, contained product

Spodumene, 6% Li2O, conc. '000 t	13.9	97.4	125.8	185.8	192.2
Lithium Carbonate Equiv. (LCE) (tonnes)	1,973	13,854	17,884	26,415	27,328

## Resources, Reserves and assumed mining inventory

## Authier Mineral Resources

Resources	cut-off	Li2O	grade	contained
Category	Li2O	grade	contained	
Measured	0.50 %	4.72 Mt	1.03 %	48.5 kt
Indicated	0.50 %	7.13 Mt	1.10 %	78.3 kt
Inferred	0.50 %	1.90 Mt	1.05 %	19.9 kt
<b>TOTAL</b>		<b>13.7 Mt</b>	<b>1.07 %</b>	<b>147 kt</b>

## Beer &amp; Co estimated mining inventory, Authier

	Li2O	grade	contained	Waste : Ore
Reserves	10.20 Mt	1.02 %	103,710t	5.8 : 1
Resources	3.54 Mt	1.01 %	35,655t	5.8 : 1
Extension	3.00 Mt	1.05 %	31,455t	5.8 : 1
<b>TOTAL</b>	<b>16.74 Mt</b>	<b>1.02 %</b>	<b>170,820t</b>	<b>5.8 : 1</b>

## Asset based Valuation

discount rate = 12.0 %	30 June 2016	22-May-17
	risk : 100%	Product per share
Authier - Reserves	80 %	\$ 106m \$ 85m 3.7 c 4.8 c
Authier - Extensions	65 %	\$ 26m \$ 17m 0.7 c 1.1 c
East Kimberley Graphite	nom	\$ 3m \$ 3m 0.1 c 0.1 c
Pilbara Lithium	nom	\$ 3m \$ 3m 0.1 c 0.1 c
Mt Edon Lithium	nom	\$ 1m \$ 1m 0.0 c 0.0 c
Exploration	100 %	(\$ 2m) \$ 0m 0.0 c 0.0 c
Corporate	100 %	(\$ 9m) (\$ 9m) (0.4c) (0.4c)
Cash at Corporate level	100 %	\$ 0m \$ 0m 0.0 c 0.1 c
Equity raisings	100 %	\$ 36m \$ 36m 1.6 c 1.4 c
<b>TOTAL</b>		<b>\$ 163m \$ 135m 5.9 c 7.3 c</b>
Shares on issue	537.3m	F P O shares 315.3m Options
	426.8m	FY 17 12.0m ex'd
	1,319.0m	FY 18

## Financial Ratios

Year ended June	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
Revenue	\$A m	0	0	13	90	100
EBITDA	\$A m	(3)	(1)	(1)	6	55
EBIT	\$A m	(3)	(1)	(1)	5	50
NPAT (reported)	\$A m	(3)	(1)	(1)	3	34
Adjusted EPS (cps)	(0.5c)	(0.1c)	(0.1c)	0.2 c	1.5 c	1.4 c
EPS Growth (%)		73 %	32 %	264 %	866 %	(8%)
DPS (c)	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c	0.0 c
Dividend Yield (%)	0 %	0 %	0 %	0 %	0 %	0 %
PE adj. (x)	x	(4.0)	(14.6)	(21.6)	13.1	1.4
EV / EBITDA (x)	x	(7)	(58)	(65)	10	0.8
EV / EBIT (x)	x	(6)	(15)	(15)	13	2
Gearing (%)	0 %	76 %	41 %	23 %	10 %	2 %
Return on Assets	(11%)	(3%)	6 %	47 %	34 %	33 %
Return on Equity	(11%)	(11%)	7 %	42 %	27 %	25 %
EBITDA Margin (%)	n/a	n/a	n/a	45 %	61 %	52 %
Interest Cover (x)	x	n/a	n/a	n/a	25.1	31.2

## Shareholdings

## Board &amp; Management

Denis O'Neill	MD	70.255m	8.0 %
Paul Crawford	Ex Dir / CFO	83.885m	9.5 %
Allan Buckler	NED	83.081m	9.5 %
James Brown	NED	2.084m	0.2 %
Corey Nolan	CEO	6.000m	0.7 %
<b>TOTAL</b>		<b>245.306m</b>	<b>27.9 %</b>

## Options on Issue

Expiry Date	Number	Exercise Price
30 June 2017	6.0m	1.5 c
30 June 2017	18.5m	3.0 c
<b>TOTAL</b>	<b>24.5m</b>	

## Important Information

### **Confidential**

This document is for the confidential use of the recipients only and is not to be reproduced without the authority of Beer & Co Pty Ltd. It has been prepared at the request of Sayona Mining Limited and Beer & Co Pty Ltd will receive a fee for its preparation.

### **Disclaimer**

The persons involved in or responsible for the preparation and publication of this report believe that the information herein has been obtained from reliable sources and that any estimates, opinions, conclusions or recommendations are reasonably held at the time of compilation. No warranty is made as to the accuracy of the information in this document and, to the maximum extent permitted by law, Beer & Co Pty Ltd and its related entities, their respective directors and officers disclaim all liability for any loss or damage which may be suffered by any recipient through relying on anything contained or omitted from this document.

### **General Advice**

The content is of a general nature and is based on a consideration of the securities alone, and as such is conditional and must not be relied upon without advice from a securities adviser as to the appropriateness to you given your individual investment objectives, financial situation and particular needs. Whilst this document is based on information and assessments that are current at the date of publication, Beer & Co Pty Ltd has not undertaken detailed due diligence on the information provided and has no obligation to provide revised assessments in the event of changed circumstances.

### **Disclosure**

Beer & Co Pty Ltd has been engaged by Sayona Mining Limited to prepare this research report and is being paid a fee for its preparation. In the future, Beer & Co Pty Ltd may provide capital raising services to Sayona Mining Limited on commercial terms.

Beer & Co Pty Ltd seeks to do work with those companies it researches. As a result, investors should be aware that Beer & Co Pty Ltd may have a conflict of interest that could affect the objectivity of this report.

### **Analyst Certification**

The analyst responsible for this research report certifies that all of the views expressed reflect his personal views about the securities and the issuer.

Report prepared by : Pieter Bruinstroop [pbruinstroop@beerandco.com.au](mailto:pbruinstroop@beerandco.com.au)

### **Beer & Co Recommendation**

Beer & Co provide general recommendations only and do not consider the specific interests of the recipient of this report. Beer & Co generally provides a 2 part recommendation and both need to be considered together.

**Recommendation :** Beer & Co's investment recommendation is driven by the difference between our base case, riskd valuation and the share price at the time. A Strong BUY recommendation means a very large difference (eg. over 100%), while BUY means a significant difference and Accumulate means a small, but positive difference. The recommendation is not independent of the uncertainty in Beer & Co's valuation.

**Risk :** Risk relates to the potential, over the long run, for an investor to lose money; it is a function of both the difference between our base case valuation and the uncertainty in our valuation due to the degree of estimation and/or uncertainties about project execution. Speculative means a high chance of loss; High risk means a good chance of loss and medium means some chance of loss, given the company size.

---

Beer & Co Pty Ltd, ABN 88 158 837 186, <b>Authorised Representative of</b> <b>Melbourne Venture Securities Pty Ltd</b> <b>AFSL No. 224 313</b>	Suite 4, Level 2, Bank House 11 - 19 Bank Place Melbourne, Vic, Australia 3000	Tel : (+613) 9600 3599 Fax : (+613) 9602 2291 e : <a href="mailto:info@beerandco.com.au">info@beerandco.com.au</a> W: <a href="http://www.beerandco.com.au">www.beerandco.com.au</a>
------------------------------------------------------------------------------------------------------------------------------------------------------------	--------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

---