

Pilbara Minerals (PLS.ASX)

14 July 2015

# PLS to move to 100% of Tabba Tabba

Tabba Tabba tantalite; Pilgangoora spodumene plus tantalite

#### Recommendation

### Strong BUY; High Risk

**Price** 

13c

Valuation

**29c** 

#### Products:

Tantalite (tantalum
and Spodumene (lithium

Snapshot	
Market Cap	\$86m
Shares on Issue	660.6m
Cash on hand (31 March 2015)	\$1.3m
52 Week High	15.5c
52 Week Low	1.7c
1 month / 6 month VWAP	11.9c/8.1c

#### PLS Share price v. volume



Pilbara Minerals acquired a 50% stake in the Tabba Tabba project in October 2013.

PLS published a feasibility study on Tabba Tabba in February 2014 and has since raised equity to bring it into production.

In May 2014, PLS announced the acquisition of 100% of Pilgangoora, 55km from Tabba Tabba in the Pilbara region.

PLS is progressing a feasibility study for Pilgangoora and is awaiting a permit to begin production at Tabba Tabba

**Author:** Pieter Bruinstroop pbruinstroop@beerandco.com.au PLS announced that it has agreed commercial terms to move to 100% of the Tabba Tabba project by buying the 50% stake held by its JV partner, Nagrom.

- However, there are contractual agreements with the tenement owner, Global Advanced Metals, which is also the customer, to be finalised.
- PLS continues to expect that the final approval for operations at Tabba Tabba is imminent, and that it will take about 6 to 8 weeks from approval to first product.
- While Tabba Tabba is early cashflow, the bulk of the value in PLS is at Pilgangoora, about 55km to the south.

### PLS moving to 100% of Tabba Tabba

PLS has agreed commercial terms with Nagrom to acquire Nagrom's 50% share in the JV between PLS and Nagrom to develop Tabba Tabba. Beer & Co assumes that Nagrom is paid a significant premium over tis investment to date.

This increased our valuation by about 5%.

However, contractual arrangements with GAM, which is the owner of the Tabba Tabba tenements, still need to be completed documented and completed.

#### Mining start at Tabba Tabba imminent

PLS have received all environmental approvals. Final approval is imminent.

Of the \$8m required to bring Tabba Tabba into production, \$7m has been spent, with plant transported to site and ready to be installed.

Beer & Co estimates 6 to 8 weeks from final approval to first product.

#### Main value is Pilgangoora

While Tabba Tabba is expected to provide neat term cashflow, it now accounts for about 10% of Beer & Co's valuation of PLS, with Pilgangoora the balance.

Pilgangoora's main value is its spodumene. Beer & Co sees further potential value from

- Progressive project de-risking; and
- The potential for lithium carbonate to be produced from lepidolite.

### Beer & Co valuation now 29c/share; affirm Strong BUY

PLS is funded to bring Tabba Tabba into operation and then Pilgangoora. Beer & Co confirms our Strong BUY, High Risk recommendation.

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**Pilbara Minerals has its** 

Tabba Tabba, and Strelly, are tantalite

Pilgangoora is a

spodumene resource,

with some tantalite

region.

resources.

operations in the Pilbara



### Pilbara Minerals

### In the Pilbara region

Figure 1 shows the locations of PLS's operations:

Tabba Tabba, which is about

90km by road from Pt Hedland;

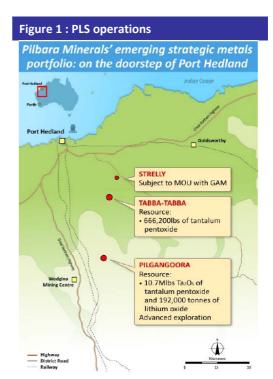
- Strelly, which is intended to be a satellite, or subsequent, operation to Tabba Tabba; and
- Pilgangoora, which is a large resource, about 55km further from Pt Hedland.

Tabba Tabba and Strelly tenements are owned by Global Advanced Metals (GAM) which previously operated the Wodgina mine.

GAM is one of only two major producers of tantalum (Ta), the major use of which is in electronics, to produce capacitors.

Refined Ta metal has a value of about US\$ 400 - \$500/kg.

It is produced from tantalite ( $Ta_2O_5$ ), which has a value about US\$ 200/kg.



Source : PLS presentation, June 2015

GAM, a major processor of tantalite, has a 5 year off-take agreement to take the product from Tabba Tabba and Strelly

PLS has a 5 year take or pay contract with GAM to produce a tantalite concentrate which it will sell at the mine gate to GAM.

### Tabba Tabba

### **Description**

PLS has a resource estimate of 318kt for 666,200 lbs of contained Ta<sub>2</sub>O<sub>5</sub>.

Figure 2 shows the current JORC resource estimate for Tabba Tabba.

The plant will have a processing capacity of 120kt/yr, on a one-shift basis.

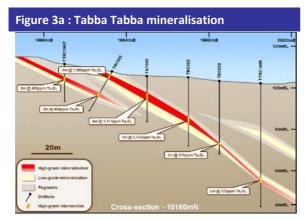
The Resources shown in Figure 2 are not sufficient for a 5 year contract at 120kt/yr.

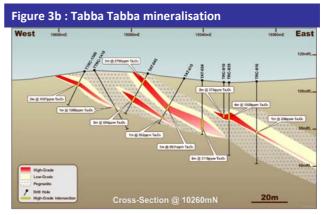
riguie 2.		a nesource	ρ
		Ta <sub>2</sub> O <sub>5</sub> grade	contained Ta <sub>2</sub> O <sub>5</sub>
Measured	35.1 kt	1,380 ppm	107,125 lb
Indicated	187.0 kt	1,020 ppm	418,925 lb
Inferred	96.0 kt	660 ppm	140,150 lb
ΤΟΤΔΙ	318.1 kt	950 nnm	666 200 lb

Source: PLS ASX announcement, 15 January 2015



As indicated in Figure 3, the mineralisation at Tabba Tabba is contained within steeply dipping pegmatites.





Source: PLS ASX announcement, 15 January 2015

Source: PLS ASX announcement, 15 January 2015

There are many further out-cropping pegmatites in the area that have yet to be drilled.

PLS has reported reserves of 133kt for Tabba Tabba

### **Reserves and Mining Inventory**

Figure 4 shows that, from a resource of 318kt, PLS has 133kt, or just over 12 months of production, in Reserves.

Figure 4: Tabba Tabba Reserves											
_		Ta₂O₅ grade	contained Ta <sub>2</sub> O <sub>5</sub>	Nb <sub>2</sub> O <sub>5</sub> grade co	ontained Nb <sub>2</sub> O <sub>5</sub>						
Proved	32.0 kt	1,420 ppm	100,178 lb	294 ppm	92,454 lb						
Probable	101.0 kt	1,249 ppm	278,111 lb	292 ppm	230,394 lb						
Total Reserves	133.0 kt	1,290 ppm	378,289 lb	1,101 ppm	322,848 lb						
Pit Design	162.2 kt	1,240 ppm	443,411 lb								

Source: PLS ASX announcement, 19 February 2014

GAM projects significant growth in demand for tantalum, and hence tantalite In Beer & Co's view, the fact that GAM has signed a 5 year off-take agreement implies that the mining operations have a life of more than 12 months.

Further, given the expected growth in the tantalum market, as GAM estimates demand will rise from about 1,300t in 2013 to 2,000t in 2016, Beer & Co expects that the Tabba Tabba operations will be

Figure 5 : Bee	r & Co's	mining inv	entory
		Ta <sub>2</sub> O <sub>5</sub> grade	contained Ta <sub>2</sub> O <sub>5</sub>
Reserves	133 kt	1,290 ppm	378k lb
In Pit + Resource	80 kt	1,100 ppm	195k lb
near pit	50 kt	900 ppm	99k lb
Along strike	500 kt	750 ppm	827k lb
Strelly, high grad	500 kt	600 ppm	661k lb
Strelly, balance	900 kt	450 ppm	892k lb
TOTAL	2,162 kt	640 ppm	3,052k lb

Source: Beer & Co estimates

expanded to maintain product output even as grades fall over time.



## **Tabba Tabba: Operations**

Figure 6 shows Beer & Co's projections for operations at Tabba Tabba. It shows increasing volume, by adding a second shift, to maintain product output as grades fall.

Beer & Co projects ore tonnes to increases to compensate for falling grades over time

Figure 6: Beer & Co's projected operations for Tabba Tabba										
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22			
Ore mined	98 kt	150 kt	240 kt	240 kt	240 kt	240 kt	300 kt			
waste : ore	10:1	5:1	6:1	10:1	10:1	10:1	10:1			
Waste moved	1,004 kt	753 kt	1,416 kt	2,472 kt	2,472 kt	2,472 kt	3,090 kt			
Ore Processed	98 kt	150 kt	240 kt	240 kt	240 kt	240 kt	300 kt			
grade	1,290 ppm	864 ppm	618 ppm	600 ppm	600 ppm	600 ppm	505 ppm			
Recovery	75 %	82 %	82 %	82 %	82 %	82 %	82 %			
Ta2O5 recovered	208,508 lb	234,368 lb	268,260 lb	260,322 lb	260,322 lb	260,322 lb	273,934 lb			

Source: Beer & Co estimates

It also shows a high strip ratio, as suggested by Figure 3.

Figure 7 shows Beer & Co's projected costs. Note that costs are projected to rise over time and the mine life cease when cash costs get too close to revenue.

Figure 7: Beer & Co's projected costs, over time, for Tabba Tabba										
	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22			
Mining and Waste	\$ 4.1m	\$ 3.5m	\$ 6.2m	\$ 9.9m	\$ 10.0m	\$ 10.2m	\$ 12.4m			
AUD /t material	\$ 3.7/t	\$ 3.8/t	\$ 3.7/t	\$ 3.6/t	\$ 3.7/t	\$ 3.7/t	\$ 3.7/t			
AUD/t ore	\$ 42/t	\$ 23/t	\$ 26/t	\$ 41/t	\$ 42/t	\$ 42/t	\$ 41/t			
Processing	\$ 1.9m	\$ 2.6m	\$ 3.8m	\$ 3.8m	\$ 3.8m	\$ 3.8m	\$ 4.7m			
AUD/t ore	\$ 19/t	\$ 17/t	\$ 16/t							
Admin & Obverhead	\$ 1.7m	\$ 2.1m	\$ 3.1m	\$ 3.1m	\$ 3.1m	\$ 3.1m	\$ 3.3m			
AUD/t ore	\$ 18/t	\$ 14/t	\$ 13/t	\$ 13/t	\$ 13/t	\$ 13/t	\$ 11/t			
TOTAL	\$ 79/t	\$ 54/t	\$ 54/t	\$ 70/t	\$ 71/t	\$ 71/t	\$ 68/t			
	\$ 37.0 /lb	\$ 34.7 /lb	\$ 48.7 /lb	\$ 64.3 /lb	\$ 65.1 /lb	\$ 65.5 /lb	\$ 74.7 /lb			

Source: Beer & Co estimates

Figure 8 shows Beer & Co's resulting projected cashflows for Tabba Tabba.

Beer & Co projects a quick payback on capital invested

Figure 8 : Beer & Co projected cashflows, Tabba Tabba												
AUD m	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24			
Ta2O5	2,085k lb	2,344k lb	2,683k lb	2,603k lb	2,603k lb	2,603k lb	2,739k lb	2,929k lb	2,846k lb			
Net Revenue	17.2	19.3	22.1	21.5	21.5	21.5	22.6	24.2	23.5			
Cash Costs	(7.7)	(8.1)	(13.1)	(16.7)	(16.9)	(17.1)	(20.5)	(23.9)	(23.2)			
Dep'cn & Amort'sn	(4.3)	(2.0)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)			
EBIT	5.2	9.2	8.5	4.1	3.9	3.8	1.5	(0.3)	(0.4)			
Sus. Cap. Ex	(0.5)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	(0.6)	0.0			
Un-geared Net Cashflow	6.5	7.9	5.9	2.9	2.8	2.7	1.1	(0.2)	0.4			

Source: Beer & Co estimates

Figure 8 shows a payback period of about 15 months on the \$8m invested to bring Tabba Tabba into operation.



# Pilgangoora

### **Pilgangoora Resources**

On 2 June, 2015, PLS announced an upgraded Mineral Resources estimate and Exploration Target, as shown in Figures 9 and 10. The resource announcement includes drilling only to the end of March 2015.

PLS has a significnat volume in resources at Pilgangoora

Figure 9 : Pilgangoora Resource estimate, June 2015										
Category		T	a <sub>2</sub> O <sub>5</sub> grade	Contair	ned Ta <sub>2</sub> O <sub>5</sub>	Li <sub>2</sub> O grade Contained Li <sub>2</sub> O				
Indicated	Ta <sub>2</sub> O <sub>5</sub>	6.0 Mt	233 ppm	1,396 t	3.1 Mlb					
	Li <sub>2</sub> O	4.7 Mt				1.36 %	64,300 t			
Inferred	Ta2O5	17.8 Mt	208 ppm	3,710 t	8.2 Mlb					
	Li <sub>2</sub> O	15.7 Mt				1.10 %	172,800 t			
TOTAL	Ta <sub>2</sub> O <sub>5</sub>	23.8 Mt	214 ppm	5,107 t	11.3 Mlb					
	Li <sub>2</sub> O	20.5 Mt				1.16 %	237,100 t			

Source: PLS ASX announcement, 2 June 2015, Beer & Co

The difference between the volume for tantalite and for spodumene arises as the estimate includes some drilling, before PLS acquired the tenements, which sought only tantalite and so the samples were not assayed for spodumene.

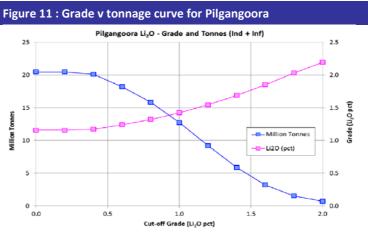
PLS has an even larger Exploraiton Target at Pilgangoora

Figure 10 : Pilgangoora Exploration Target, June 2015												
		<u>Li₂</u> O grade	Ta	0 <sub>5</sub> g	rade							
20 Mt -	25 Mt	1.2 % - 1.5	% 200 ppm	-	250 ppm							
30 Mt -	35 Mt	1.2 % - 1.5	% 150 ppm	-	200 ppm							
50 Mt -	60 Mt	1.2 % - 1.5	% 175 ppm	-	225 ppm							
	20 Mt - 30 Mt -	20 Mt - 25 Mt 30 Mt - 35 Mt	Li <sub>2</sub> O grade  20 Mt - 25 Mt 1.2 % - 1.5  30 Mt - 35 Mt 1.2 % - 1.5	Li <sub>2</sub> O grade     Tag       20 Mt     -     25 Mt     1.2 % -     1.5 %     200 ppm       30 Mt     -     35 Mt     1.2 % -     1.5 %     150 ppm	Li <sub>2</sub> O grade     Ta <sub>2</sub> O <sub>5</sub> g       20 Mt     - 25 Mt     1.2 % - 1.5 %     200 ppm - 30 Mt       30 Mt     - 35 Mt     1.2 % - 1.5 %     150 ppm - 30							

Source : PLS ASX announcement, 2 June 2015, Beer & Co

# **High Grade Zone**

Grade – tonnage curve shows a smaller, high grade zone



Source: PLS ASX announcement, 2 June 2015.

We model Pilgangoora as a 1.0Mt/.yr operation. The key to valuation is grade rather than tonnes.



Figure 11 is a tonnage – grade chart from PLS's 2 June 2015 resource announcement. PLS state that using a cut-off grade of 1.0%  $\rm Li_2O$ , the resulting resource is

#### 12.73Mt at 1.42% Li<sub>2</sub>O.

Figure 12 shows the revised mining inventory used for Pilgangoora in this analysis, which is based on the resources shown in Figure 9 and Figure 11, plus the Exploration target shown in Figure 10.

Figure 12 : Mining Inventory used in Beer & Co's analysis										
Grade Contained m										
		Li <sub>2</sub> O	$Ta_2O_5$	Li <sub>2</sub> O	Ta <sub>2</sub> O <sub>5</sub>					
High Grade	12.73 Mt	1.42 %	225 ppm	181 kt	6.3 Mlb					
Other Resources	11.10 Mt	1.27 %	202 ppm	141 kt	4.9 Mlb					
Other Mineralisation _	52.88 Mt	1.27 %	200 ppm	672 kt	23.3 Mlb					
TOTAL	76.71 Mt	1.30 %	204 ppm	993 kt	34.6 Mlb					

Source: PLS ASX announcement, 2 June 2015, Beer & Co

### **Metallurgical Testwork**

There are 2 forms of metallurgical testwork being done:

- Work to produce a concentrate, grading at least 6%, for sale to consumers; and
- Consumers are testing the resulting concentrate to determine how well the Pilgangoora product can fulfil their needs.

On 25 May, 2015, PLS reported test results relating to the former.

To produce a saleable concentrate, it must:

- Have a minimum 6% Li<sub>2</sub>O content; and
- An iron (Fe) content of 0.116% (or 0.17% Fe<sub>2</sub>O<sub>3</sub>).

The 25 May 2015 announcement referred to a 100kg bulk sample of Pilgangoora material tested by the German industrial minerals specialists, ANZAPLAN.

There were two stages to the testwork: the first being flotation testing, and the second stage being magnetic separation, followed by screening.

The flotation stage:

- Recovered 90% of the assayed Li<sub>2</sub>O; and
- Produced a concentrate assaying 5.7% Li<sub>2</sub>O and 0.37% Fe<sub>2</sub>O<sub>3</sub>.

Magnetic separation reduced the Fe<sub>2</sub>O<sub>3</sub> from 0.37% to 0.11%.

Screening out the fines, to produce a product of 100 to  $300\mu m$  (ie. 1/10 to 3/10 of a millimetre) gave a final specification of

- 6.5% Li2O; and
- 0.09% Fe



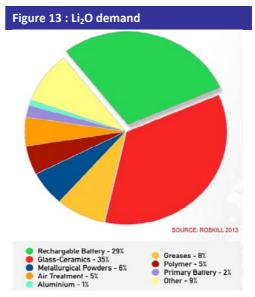
PLS's Li<sub>2</sub>O is directed at the glass-ceramics segment, which is still the largest user, though rechargeable batteries are expected to become a larger user

#### **Markets**

PLS has received requests from 5 different companies to test the concentrate.

Figure 13 shows the range of demands for  $\text{Li}_2\text{O}$ , of which glass – ceramics is the most significant;  $\text{Li}_2\text{O}$  has a zero co-efficient of expansion making it necessary as an additive for large panes of glass, especially as used in high rise buildings.

While Figure 13 shows that the major demand is glass – ceramics, Figure 14 shows that the projected demand for re-chargeable batteries, based on lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>), is projected to grow strongly and soon dominate.



Source: PLS June 2015 presentation

### **Conclusions**

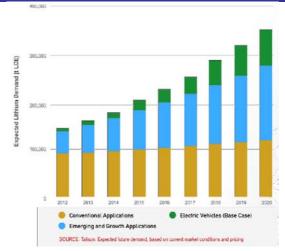
Met tests results show a high grade concentrate, with low iron and good recoveries

The results reported show that the Pilgangoora ore can be upgrade to a good to high quality feed for glass – ceramics production.

There are more tests to be done, including some by a firm that believes it has a process to produce battery grade Li<sub>2</sub>CO<sub>3</sub> from spodumene, which requires 99.9% Li<sub>2</sub>CO<sub>3</sub>.

The recovery of 90% of  $\rm Li_2O$  at the flotation stage, suggests that overall recoveries are likely to be higher than the 80% assumed in Beer & Co's analysis.

### Figure 14: Historical and projected Li2O demand



Source: PLS June 2015 presentation



# Valuation of PLS

### **Financial Projections**

Figure 15 shows Beer & Co's projected financial outcomes for PLS. It shows

- Pilgangoora ramps up to 1,000kt/yr, with the extra being PLS's share of Tabba Tabba
- Production of Li<sub>2</sub>O is zero until Pilgangoora begins production;
- Production of Li<sub>2</sub>O falls away after 2023, when the high grade material at Pilgangoora (refer to Figure 12) is exhausted.

Figure 15 : Beer	& Co p	rojected	l financ	ial outo	omes								
AUD m	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2027-2	2028-29	2029-30	2030-31	2031-32
Ore Mined	0 kt	49 kt	75 kt	795 kt	1,120 kt	1,120 kt	1,120 kt	1,150 kt	1,000 k	1,000 kt	1,000 kt	1,000 kt	1,000 kt
Ta <sub>2</sub> O <sub>5</sub> sold	0k lb	209k lb	234k lb	521k lb	678k lb	682k lb	682k lb	695k lb	421k II	421k lb	421k lb	376k lb	376k lb
Li <sub>2</sub> O sold	0.0M lb	0.0M lb	0.0M lb	15.1M lb	24.8M lb	25.0M lb	25.0M lb	25.0M lb	25.0M II	25.0M lb	25.0M lb	22.5M lb	22.4M lb
Ta <sub>2</sub> O <sub>5</sub> revenue	0.0	17.2	19.3	43.0	55.9	56.2	56.2	57.3	34.8	34.8	34.8	31.0	31.0
Li2O revenue	0.0	0.0	0.0	45.2	74.4	75.1	75.1	75.1	75.	75.1	75.1	67.6	67.2
Total Revenue	0.2	17.8	20.3	89.2	131.3	132.4	132.4	133.5	110.9	110.9	110.9	99.7	99.2
Cost of Goods Sold	0.0	(7.7)	(8.1)	(49.2)	(67.7)	(68.8)	(69.8)	(73.8)	(53.9	(54.0)	(54.0)	(54.1)	(54.2)
Corporate Costs	(1.0)	(1.3)	(1.3)	(1.5)	(1.5)	(1.5)	(1.5)	(1.5)	(1.5	(1.5)	(1.5)	(1.5)	(1.5)
Dep'cn & Amort'sn	0.0	(7.5)	(3.2)	(1.4)	(2.8)	(2.8)	(2.8)	(2.8)	(2.2	(2.2)	(2.2)	(2.2)	(2.2)
EBIT	(0.8)	1.3	7.8	37.0	59.3	59.2	58.2	55.3	53.	53.2	53.1	41.8	41.3
Interest Expense	0.0	0.0	0.0	(0.9)	(0.7)	(0.5)	(0.3)	(0.1)	(0.0)	(0.0)	(0.0)	(0.0)	(0.0)
Tax Expense	0.0	(0.5)	(2.3)	(10.8)	(17.6)	(17.6)	(17.4)	(16.6)	(16.0	(16.0)	(15.9)	(12.5)	(12.4)
NPAT	(0.8)	0.8	5.4	25.3	41.0	41.1	40.5	38.6	37.	37.2	37.2	29.3	28.9
Ordinary shares - year e	618.5m	685.0m	803.4m	803.4m	803.4m	803.4m	803.4m	803.4m	803.4n	803.4m	803.4m	803.4m	803.4m
Earnings per Share	(0.1c)	0.1 c	0.7 с	3.1 c	5.1 c	5.1 c	5.0 c	4.8 c	4.6	4.6 c	4.6 c	3.6 c	3.6 c

Source : Beer & Co estimates

### **Valuation of PLS**

Figure 16 shows the detail of Beer & Co's revised valuation of PLS.

Beer & Co's revised valuation is now 29c/share

Figure 16: Beer & Co's valuation of PLS now 29c												
discount rate = 12.0 %			30-Jun-14									
	risk :	100%	Product	per share								
Tabba Tabba Resources	85 %	\$ 8m	\$ 7m	0.9 с	1.4 c							
Tabba Tabba Extensions	65 %	\$ 7m	\$ 4m	0.6 c	0.9 с							
Strelly	45 %	\$ 3m	\$ 2m	0.2 c	0.3 c							
franking credits	50 %	\$ 3m	\$ 1m	0.2 c	0.2 c							
Pilgangoora Indicated	50 %	\$ 157m	\$ 79m	10.2 c	16.4 c							
Pilgangoora Inferred	40 %	\$ 28m	\$ 11m	1.5 c	2.5 c							
Pilgangoora Extension	20 %	\$ 7m	\$ 1m	0.2 c	0.4 c							
franking credits	20 %	\$ 80m	\$ 30m	3.9 c	6.8 c							
Corporate	100 %	(\$8m)	(\$8m)	(1.0c)	(1.0c)							
Cash / debt	100 %	(\$0m)	(\$0m)	(0.1c)	(0.1c)							
cash raised	100 %	\$ 12m	\$ 12m	1.6 c	1.2 c							
TOTAL		\$ 297m	\$ 139m	18.2 c	29.0 с							
Shares on issue		330.3m	FPO shares	88.5m d	ptions							
		288.2m	issued FY15	88.5m d	p. ex'd							
		60.9m	CN conversion									

Source : Beer & Co estimates



#### Figure 16 shows

- While the focsus may be on Tabba Tabba to get into produiction, it is only a very small part of the overall value of PLS, which is focussed on Pilgangoora;
- PLS's accounts for June 2014 treated the convertible notes on issue at that time as debt, though most have since been converted into equity.

### Conclusions

Beer & Co maintains a Strong BUY, High Risk recommendation Beer & Co initiated research on PLS in September 2014. At that time the share price was 2.5c and our valuation was 10c.

Despite the delays to Tabba Tabba, Beer & Co has progressively upgraded our valuation, as we have suggested was possible.

Beer & Co sees further upside potential from :

- Successful project delivery and hence de-risking;
- Further upgrades to the Pilgangoora estimate;
- The potential to produce Li<sub>2</sub>CO<sub>3</sub> from lepidolite, which is being trialled by Cobre Montana (CXB.ASX), and which has had success with its testwork at Lepidolite Hill; and
- Reduced costs through lower waste to ore for Pilgangoora, as our analysis assumes
   10t of waste per tonne of ore, and Figure 6 shows the potential for a lower ratio.

Beer & Co maintains our Strong BUY, High Risk recommendation.



Control Process   Control Pr	Beer& Co Rese								July 2015								
Martine   Mart	Year ended June		2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	Commodity price ass	cumption	10					
Section   Sect		\$A m	0	0	17	19	88	130	131		sumption		2015-16	2016-17	2017-18	2018-19	2019-2
Tree former form	nterest revenue	\$A m															0.75
Martine   Mart																	8
Seminonicage of the continue o	lotal kevenue	ŞA m	U	U	18	20	89	131	132	Spodumene	US\$ / ID	3.0	3.0	3.0	3.0	3.0	3.
Marging Section	Cost of Goods Sold	\$A m	0	0	(8)	(8)	(49)	(68)	(69)	Mine Production, PL	S share,	'000 pounds	8				
Commonwork   Common						-											26
Mathematic																	
Martine   Mart										Pligarigoora Spodume	ne	U	U	U	15,050	24,810	25,044
Martine   Mart	Total Operating Expenses	\$A m	(1)				(51)			Resources, Reserves	s and as	sumed mini	ng inventor	у			
The service of the se										Tabba Tabba Ore Res	serves						
Second										Proved					a <sub>2</sub> O <sub>5</sub>		
Tree Property of Service 1982 1982 1982 1982 1982 1982 1982 1982	EBIT																
Transferment S. Am   10   00   01   02   01   01   01   01	Interest Expense	\$A m			0					Total Reserves							
Part	Other	\$A m								Pit Design		162 kt	1,240 ppm	443k lb			
Marting	Pre-Tax Profit									Table Dable Mines	I D						
Part										Tabba Kabba Minera	resour		205 grade	contained Ta	205		
Secondary Seco	Reported NPAT									Measured		-					
Section										Indicated		124 kt		346k lb			
Part	Section 2 - Key Data																
Marting set 9	Ordinary shares - year end									TOTAL		213 kt	1,220 ppm	572k lb			
Martine   Mart	Fully diluted shares on issue Weighted # shares									Beer & Co estimated	mining	inventory, Ta	abba Tabba	1			
Part	Earnings per Share											Ta			a205		
Section   Sect	Dividends Per Share			0.0 c	0.0 c	0.0 c	0.5 c	2.3 c	2.6 c			133 kt	1,290 ppm	378k lb			
Carlo   Carl	Continu 2 Delege 01 :																
Martine   Mart		¢A m	1	1	10	22	52	66	68								
Seminary	Receivables																
The contains	Other		0									500 kt					
Secondary   Seco	CURRENT ASSETS	\$A m	1	1	22	26	66	82	84								
			_	_	_	_	_	_	_	TOTAL		2,217 kt	589 ppm	2,881k lb			
Montpage   Facility										Pilgangoora Mineral	Resourc	es.					
Monthe-Quality   Mont											Resourc		2O5 grade	Containe	d Ta2O5	Li2O grade (	Contained Li2O
Properties   See   10   27   47   88   103   104	Other		0	0	0	0	0	0	0		Ta2O5	6.0 Mt	233 ppm	1,396 t	3.1 Mlb		
Probable   Sem	NON-CURRENT ASSETS															1.36 %	64,300 t
Part	TOTAL ASSETS	\$A m	- 8	10	27	47	88	103	104	Inferred			208 ppm	3,710 t	8.2 Mlb	4 400	472.000
See	Pavahles	SA m	0	0	1	1	7	7	7	-	LIZO	15.7 Mt				1.10 %	1/2,800 t
Commendation   Sam   Commend	Debt									Beer & Co estimated	mining	inventory, P	ilgangoora				
Companies   Comp	Other	\$A m	0	0	0	0	0	0	0			Ta	a2O5 grade	Li2O grade			
Contemple   S.A.	CURRENT LIABILITIES	\$A m	0	2	1	2	9	10	9								
Content Labelling   S.Am   0	Long Torm Dobt	CA m	2	0	10	ā	6	2	1								
Colling																	
MON-CURRENT MABILITIES   SAm   2   2   0   10   9   6   3   1	Other		0	0	0	0	0	0	0								
Section 4 - Cashflow from operations   Sam   Cash	Provisions									Asset based Valuation	on						
NET ASSETS SAM 6 8 16 37 73 89 93  Tabba Tabba Tabba Resources 85 % 58m 57m 0.9 c 1.4 c 1.													2	0.1		42 1:145	
Commission   Com										discount rate = 12.0	)%	eick :				13-Jul-15	
Accomalabed route (Loss) S.A. m.   12   13   12   16   19   47   68   Tabha Tabha Extensions   65 %   57m   54m   0.6c   0.9c   Reserves   54m   1   0   (1)   10   20   9   (8)   57m   54m   0.2c   0.3c   Reserves   54m   1   0   (1)   10   20   9   (8)   57m   54m   0.2c   0.3c   Reserves   54m   6   8   16   37   73   89   93   Reserves   54m   6   8   16   16   17   10   10   0   Reserves   54m   6   100 %   52m   51m   10.2c   Research   54m   6	NEI ASSEIS	3A III	0	۰	10	37	/5	65	33	Tabba Tabba Resourc	es					1.4 c	
Contributed Equity   SA m   17   20   29   33   33   33   33   33   33   33	Accumulated Profit (Loss)	\$A m	(12)	(13)	(12)	(6)	19	47	68			65 %					
Minority Interest   SAm	Reserves	\$A m															
Manual   M	Contributed Equity																
Post	Minority Interest																
Franking credits   Sam   Corporate   Sam   Cor			_								n						
Corporate   Corporate   Corporate   Corporate   Corporate   100 %   (SRm)   (SRm)   (SRm)   (Loc)	• •																
Net Interest Paid	Section 4 - Cashflow																
Take Spid   SA m   0   0   0   0   0   0   0   0   0	Net Cashflow from operations																
Change in Working Capital   SAm   (0)   1   (22)   (4)   (46)   (16)   (2)   Shares on issue   330.3m   FPO shares   88.5m options   288.2m   issued FP15   88.5m op. ex'd   FPO shares   60.9m   CN conversion   FINAL CASHFLOW   SAm   (4)   (3)   (17)   (3)   (19)   10   20   FINAL CASHFLOW   SAm   (4)   (3)   (17)   (3)   (19)   10   20   FINAL CASHFLOW   SAm   (4)   (3)   (17)   (3)   (19)	Net Interest Paid											100 %					
Comparating CASHFLOW   SAm   (4)   (3)   (17)   (3)   (19)   10   20   20   20   20   20   20   20																	
Financial Ratios   Financial R	OPERATING CASHFLOW									Silates oil Issue							
Naminerace Capex					,	,-,	,,										
Per Acquisitions (Total Capex)   SA m   2   2   1   19   0   0   0   Revenue   SA m   0   18   20   89   131   13   13   13   13   14   15   15   15   15   15   15   15	Exploration Expenditures	\$A m	0	1		0	0			Financial Ratios							
PPE Acquisitions (Total Capex) SA m 2 3 3 20 2 2 2 2 EBITDA SA m (1) (1) 9 11 38 6 6 PPE Divestments SA m 0 0 0 0 0 0 0 0 0 0 0 EBIT SA m (1) (1) 1 8 37 5 Nevestiments SA m 2 3 3 20 2 2 2 2 NPAT (reported) SA m (1) (1) 1 5 25 4 Adjusted EPS (cps) (0.3c) (0.1c) 0.1c 0.7c 3.1c 5.1. 5.1. 5.1 5.1 5.1 5.1 5.1 5.1 5.1 5	Maintenace Capex																2019-20
PRE Divistments	Expansion Capex																132
NPAT (reported)   SA m   (1)   (1)   1   5   25   4																	62 59
Adjusted EPS(cps) (0.3c) (0.1c) 0.1c 0.7c 3.1c 5.1 EPS Growth (%) 60% 185% 50% 351% 625	INVESTING CASHFLOW																41
Change in Equity SA m 2 4 7 4 0 0 0 EPS Growth (%) 60% 185% 506% 351% 629 (Dividends Paid SA m 0 0 0 0 0 (13) (21) DPS (c) 0.0 c 0.0 c 0.0 c 0.0 c 0.0 c 0.5 c 2.3 c 2.6 (Anage in Detha SA m 2 0 0 8 0 (1) (3) (3) Dividend Yield (%) 0 % 0 % 0 % 4 % 16 % 185 (FINANCING CASHFLOW SA m 3 4 16 4 (1) (15) (23) PE adj. (k) x (6) (103) 122 20 4 (100) PE excession (%) (100) 122 20 4 (100) PE excession (%) (100) 122 20 (100) (13) 17 (17) (1) 1 EV / EBIT (k) x (7) (106) 10 9 2 (100) (100) PE excession (%) (100) SA m 2 4 2 21 (18) (4) (2) Gearing (%) 15% 36% 20% 10% 65% 339 (100) SA m 2 (100) PE excession (%) 15% 36% 20% 10% 65% 339 (100) SA m 2 (100) PE excession (%) 15% 36% 20% 10% 65% 339 (100) PE excession (%) 15% 36% 20% 10% 65%																	5.1 c
Change in Debt SAM 2 0 8 0 (1) (3) (3) Dividend Yield (%) 0% 0% 0% 0% 4% 16% 1858  FINANCING CASHRUW SAM 3 4 16 4 (1) (15) (23) PE adj. (k) x (6) (103) 122 20 4  Free Cashflow SAM (2) (0) (13) 17 (17) (1) 1 EV/EBIT (k) x (7) (106) 68 13 2  Net Cashflow SAM 2 4 2 21 (18) (4) (2) Gearing (%) 15% 36% 20% 11% 65% 579  Return on Assets (8%) 5% 16% 42% 58% 579  Shareholdings  Neil Biddle 34.438m 5.6% 5 EBITDA Margin (%) n/a n/a 51% 57% 44% 488	Change in Equity	\$A m	2	4		4	0	0	0								62 %
FINANCING CASHFLOW SAM 3 4 16 4 (1) (15) (23) PE adj. (x) x (6) (103) 122 20 4  EV/EBITDA (x) x (7) (106) 10 9 2  EV/EBITCH (x) x (7) (106) 68 13 2  Vet Cashflow SAM (2) (0) (13) 17 (17) (1) 1 EV/EBIT (x) x (7) (106) 68 13 2  Vet Cashflow SAM 2 4 2 21 (18) (4) (2) Gearing (x) 15% 36% 20% 10% 6% 33  Return on Assets (8%) 5% 16% 42% 58% 57  Shareholdings  Neil Biddle 34.438m 5.6% EBITDA Margin (x) n/a n/a 51% 57% 44% 488	Dividends Paid																2.6 c
EV/EBITDA (x) x (7) (106) 10 9 2	Change in Debt							1-7									18 %
Free Cashflow SA m (2) (0) (13) 17 (17) (1) 1 EV/EBIT (x) x (7) (106) 68 13 2  Net Cashflow SA m 2 4 2 21 (18) (4) (2) Gearing (%) 15% 36% 20% 10% 6% 33  Return on Assets (8%) 5% 16% 42% 58% 57%  Return on Equity (10%) 5% 15% 35% 46% 44%  Neil Biddle 34.438m 5.6% EBITDA Margin (%) n/a n/a 51% 57% 44% 488	FINANCING CASHFLOW	ŞA m	3	4	16	4	(1)	(15)	(23)								3
Net Cashflow     SAm     2     4     2     21     (18)     (4)     (2)     Gearing (%)     15%     36%     20%     10%     6%     34       Return on Assets     (8%)     5%     16%     42%     58%     57       Shareholdings     Return on Equity     (10%)     5%     15%     35%     46%     44*       Neil Biddle     34.438m     5.6%     EBITDA Margin (%)     n/a n/a     51%     57%     44%     48	Free Cashflow	\$A m	(2)	(0)	(13)	17	(17)	(1)	1								1
Return on Assets         (8%)         5 %         16 %         42 %         58 %         57 %           Shareholdings         Return on Equity         (10%)         5 %         15 %         35 %         46 %         44 %           Neil Biddle         34.438m         5.6 %         EBITDA Margin (%)         n/a n/a         51 %         57 %         44 %         48 %	Net Cashflow																3 %
Neil Biddle 34.438m 5.6% EBITDA Margin (%) n/a n/a 51 % 57 % 44 % 48 °										Return on Assets		(8%)	5 %	16 %	42 %		57 %
	Shareholdings								-								44 %
																	48 % 80.3



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

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