

## Carley Bore uranium project : NPV \$90m; pay-back 24 months

Start on 3.3Mt at 480ppm

### Recommendation

**BUY, High Risk**

### Price

**2.1c**

### Risked, NPV based valuation

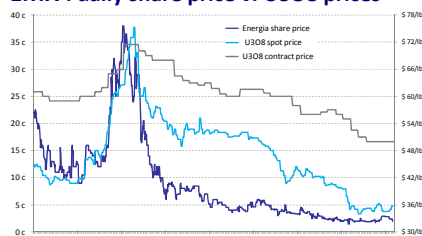
**8.7c**

- Beer & Co has estimated the NPV of EMX's Carley Bore project to be \$90m now, before a further \$10m is spent to get to a BFS standard.
- Due to a high grade start, with 3.3Mt at 480ppm. Beer & Co estimates a pay-back period of 24 months.
- Even at the current U<sub>3</sub>O<sub>8</sub> contract price, of \$50/lb, Beer & Co estimates that Carley Bore is a valuable project.
- EMX's share price moves with the spot U<sub>3</sub>O<sub>8</sub> price. We expect that U<sub>3</sub>O<sub>8</sub> prices will recover later in 2014 and in 2015, and the EMX share price to rise strongly.

### Snapshot

Last Price	2.1c
Market Cap	\$4.3m
Shares on Issue	202.6m
Prior to rights issue announced 17 Jan 2014	
52 Week High	3.8c
52 Week Low	1.5c
1 month / 6 month VWAP	2.19c / 2.16c

### EMX : daily share price v. U3O8 prices



EMX first listed in December 2009. Carley Bore, about 210km N-W of Carnarvon in WA was its focus project.

EMX has progressively increased its JORC Resources at Carley Bore and the current drill programme is expected to produce an increase in size, confidence and grade.

EMX also has highly prospective base metal and uranium projects in Italy and is actively managing its other Australian exploration.

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

### Carley Bore U3O8 project

Carley Bore is in WA, N-E of Carnarvon. It has a JORC Resource of 22.8Mt at 310ppm for 15.6Mlb of contained U<sub>3</sub>O<sub>8</sub>, of which 5.0Mlb is Indicated.

### Uranium Market

Spot U<sub>3</sub>O<sub>8</sub> prices are well below contract prices, which are unsustainably low. A surge in demand is expected from power plants currently under construction, as well as those being planned, so we expect U<sub>3</sub>O<sub>8</sub> prices to rise.

### Energia – other projects

EMX has a number of other projects in Australia. EMX is managing these projects by seeking to farm down its interests so that EMX is able to focus its people and financial resources on its nearer term projects.

Energia has a permitted base metals project in northern Italy, which was being mined until the Italian Government decided to exit mining. EMX also has applications covering 2 high grade uranium deposits in Italy.

### Carley Bore updates

EMX is seeking funding to complete a revised scoping study, updating the May 2013 results with further drilling that has yielded higher grades with better sample recovery. The current drilling also gives better information on porosity and fluid flows.

The revised scoping study will focus on prioritising the higher grade areas.

### Beer & Co conclusions

Beer & Co estimate that Carley Bore is a valuable project even at the current uranium contract price of \$50/lb.

We expect U<sub>3</sub>O<sub>8</sub> prices to rise and the EMX share price to rise with them and also as the Carley Bore project is progressively de-risked.

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## Energia Minerals : a Valuable U<sub>3</sub>O<sub>8</sub> project

### Carley Bore the focus

EMX is focussed on its Carley Bore U<sub>3</sub>O<sub>8</sub> project, in the Carnarvon Basin.

Energia Minerals (EMX) listed in December 2009. Its prime project, which is the basis of this report and valuation, is Carley Bore, which is 210km N-E of Carnarvon and 150km S-E of Exmouth, as shown in Figure 1.

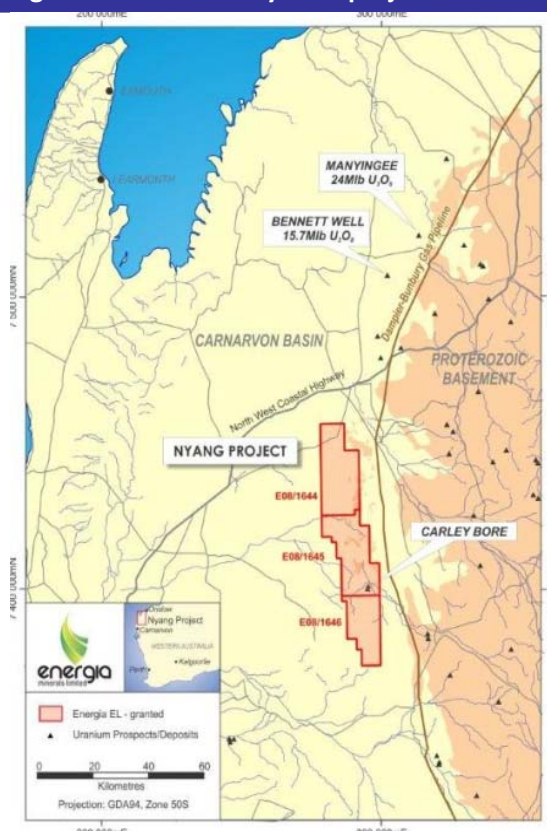
Figure 1 also shows that the project is only about 10km west of the Dampier – Bunbury Natural Gas Pipeline.

EMX has just announced an upgraded Resource, totalling 15.6Mlb of contained U<sub>3</sub>O<sub>8</sub>, of which 5.0Mlb is in the Indicated category.

Figure 2 shows that EMX has reported a global resource for Carley Bore of 22.8Mt grading 310ppm for 15.6Mlb of contained U<sub>3</sub>O<sub>8</sub>.

EMX noted that Zone 6 contains about 3.3Mt of ore grading 480ppm for 3.5Mlb of contained U<sub>3</sub>O<sub>8</sub>.

Figure 1 : EMX's Carley Bore project



Source : EMX presentation, January 2014

Figure 2 : Carley Bore's JORC Indicated and Inferred Resources

	Cut-off	U <sub>3</sub> O <sub>8</sub> grade	contained uranium		
Indicated	150 ppm	5.4Mt	420 ppm	2.3 kt	5.0 Mlb
Inferred	150 ppm	17.4Mt	280 ppm	4.8 kt	10.6 Mlb
<b>TOTAL</b>		<b>22.8Mt</b>	<b>310 ppm</b>	<b>7.1 kt</b>	<b>15.6 Mlb</b>

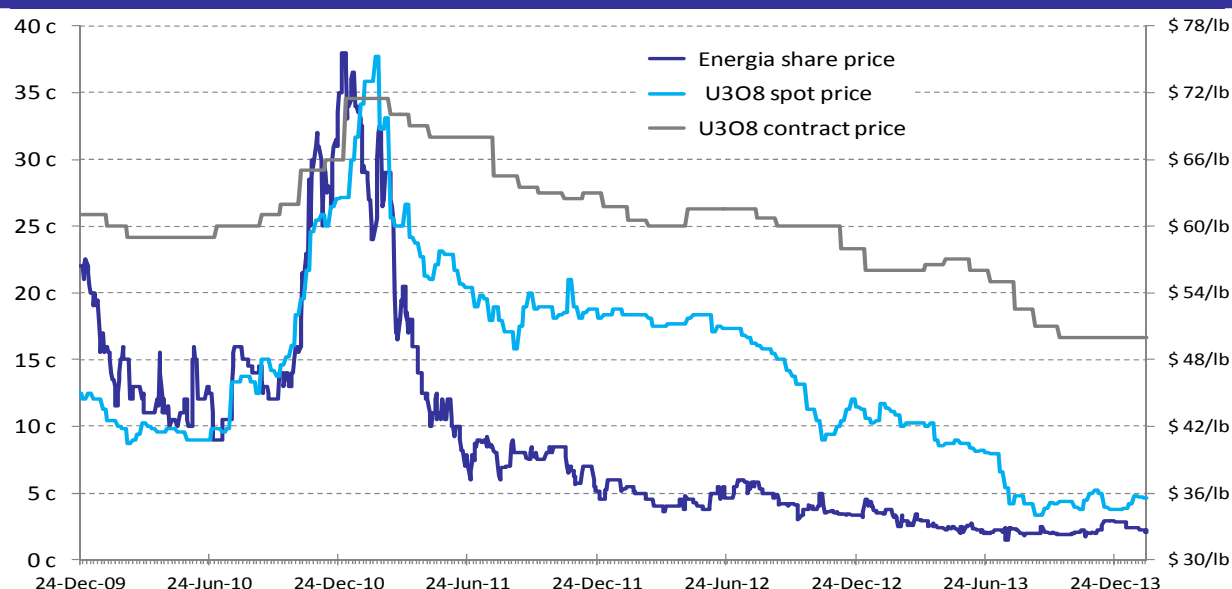
Source : EMX ASX announcement, 12 February 2014

### Uranium Market

Figure 3 shows that the EMX share price moves with the spot U<sub>3</sub>O<sub>8</sub> price, even though any sales from the project will be on the basis of the contract which is currently about \$50/lb, about \$15/lb, or 40% higher than the spot price.

Also, figure 3 shows that the EMX share price collapsed following the Fukushima incident on 11 March 2011, and that the spot price of U<sub>3</sub>O<sub>8</sub> followed with a lag.

Figure 3 : EMX share price v. U<sub>3</sub>O<sub>8</sub> price, spot and contract



Source : IRESS, Ux Consulting Company, Beer & Co

**EMX's share price moves with the spot U<sub>3</sub>O<sub>8</sub> price.**

**Current spot U<sub>3</sub>O<sub>8</sub> prices are unsustainably low.**

**Beer & Co is confident that U3O8 prices will rise over time, though this is a medium to longer term view**

**We are confident that U3O8 prices will rise as**

- Current spot prices are forcing mine closures;
- Demand is growing as there are 71 reactors under construction, compared with 435 in current operation
- There are a further 172 in planning

Beer & Co is confident that

- The price of U<sub>3</sub>O<sub>8</sub> will rise, back up to at least \$65/lb over the medium term (ie. by 2016, while we project that Carley Bore will not come into production until 2017); and
- The spot price and contract price of U<sub>3</sub>O<sub>8</sub> will converge.

Our reasons for this confidence include

- (i). U<sub>3</sub>O<sub>8</sub> demand currently exceeds mined supply, with about 65kt demand from 435 nuclear power station currently operating v. 58kt supply (in 2012)
- (ii). In addition to the 435 nuclear power stations in operation, there are currently 71 under construction, 172 planned (ie. either with funding in place or a major commitment has already been made), and while each plant requires about 150t for its annual operations, a new plant requires about 350t to start up, so demand is set to increase significantly;
- (iii). Mine supply is falling due to low prices; and
- (iv). The present price has been depressed by selling from stockpiles
  - Russia has been supplying 24Mlb/yr under the “Megatonnes to MegaWatts” program, which converted Highly Enriched (weapons grade) Uranium to Lowly Enriched (commercial use) Uranium, and the last shipment was made in November 2013; and
  - Following Fukushima in March 2011, Japan shut down all 54 of its nuclear power stations, so releasing some of the estimated up to 100Mlb held in stock, but 16 plants have applied to re-start.

In short, the U<sub>3</sub>O<sub>8</sub> market is currently short of supply, and mine supply is falling, while the price is soft due to selling from stocks, but the demand increases in place will wipe out this stock over-hang within about 2 to 3 years.

Carley Bore is intended to an In Situ Recovery (ISR), or leach, project.

45% of the world's U<sub>3</sub>O<sub>8</sub> is produced by ISR

Beer & Co expects first product from Carley Bore in early 2017

Beer & Co estimate peak production at 2.0Mlb.yr rate

## Carley Bore project

Carley Bore is being conceived as an acid leach project; the Beverley mine in South Australia, is the only currently operating In-Situ Recovery (ISR) project in Australia, though about 45% of the world's currently mined U<sub>3</sub>O<sub>8</sub> is extracted by ISR methods.

ISR has the advantage of a much lower initial capital cost as it avoids the need for crushing and grinding circuits and has low environmental impact.

EMX announced the results of a scoping study in May 2013. EMX is currently working on a revised scoping study.

As shown in Figure 4, Beer & Co expects that this will lead to first product in early 2017.

The scoping study also advised :

- Expected capital costs of \$114m; and
- Total costs of \$A 39/lb

In this analysis, Beer & Co has attempted to optimise the results by focussing on high grade areas first. Figure 5 shows our projected production schedule.

**Figure 4 : Timetable**

Scoping	Feb. 2014
Leaching trials	Aug. 2014
PFS	Feb. 2015
BFS	Jan. 2016
Finance	Apr. 2016
Construct	Feb. 2017
First U	Mar. 2017

Source : Beer & Co estimates

**Figure 5 : Projected production for Carley Bore**

	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Mining Inventory	22,760 kt	22,595 kt	20,122 kt	16,816 kt	14,032 kt	11,394 kt	8,757 kt	6,119 kt	3,481 kt	844 kt	0 kt
grade	311 ppm	299 ppm	273 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm
Ore accessed		165 kt	2,473 kt	3,306 kt	2,784 kt	2,638 kt	2,638 kt	2,638 kt	2,638 kt	2,638 kt	844 kt
grade		480 ppm	480 ppm	357 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm	270 ppm
U3O8 produced		465k lb	1,862k lb	1,716k lb	1,047k lb	1,047k lb	1,047k lb	1,047k lb	1,047k lb	1,047k lb	785k lb

Source : Beer & Co estimates

Steady state production is estimated to be 1.1Mlb/yr

Total cash costs (AISC) are estimated to be US\$ 31/lb (AUD 36.5/lb)

Figure 6 shows the detail of Beer & Co's estimated cash costs for Carley Bore.

Figure 7 shows Beer & Co's estimated cash costs in terms of product costs. It shows that

- Costs are low in the first 2 years when the operations are focussed on the high grade Zone 6; and
- Total costs are estimated to be about \$31/lb, or AUD 36.5/lb.

**Figure 6 : Estimated cash costs for Carley Bore**

	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Well Costs	\$A 1.0m	\$A 12.5m	\$A 12.7m	\$A 13.0m	\$A 12.2m	\$A 12.2m	\$A 12.2m	\$A 12.2m	\$A 12.2m	\$A 11.2m
Acid	\$A 2.0m	\$A 7.9m	\$A 10.4m	\$A 7.9m	\$A 7.9m	\$A 7.9m	\$A 7.9m	\$A 7.9m	\$A 7.9m	\$A 0.6m
Peroxide	\$A 3.3m	\$A 13.2m	\$A 12.1m	\$A 7.4m	\$A 7.4m	\$A 7.4m	\$A 7.4m	\$A 7.4m	\$A 7.4m	\$A 5.6m
Labour	\$A 2.3m	\$A 6.8m	\$A 6.8m	\$A 6.8m	\$A 6.8m	\$A 6.8m	\$A 6.8m	\$A 6.8m	\$A 6.8m	\$A 5.1m
Other	\$A 0.5m	\$A 1.2m	\$A 1.2m	\$A 1.1m	\$A 1.1m	\$A 1.1m	\$A 1.1m	\$A 1.1m	\$A 1.1m	\$A 0.8m
Royalties	\$A 1.8m	\$A 7.1m	\$A 6.6m	\$A 4.0m	\$A 4.0m	\$A 4.0m	\$A 4.0m	\$A 4.0m	\$A 4.0m	\$A 3.0m
Sus.cap.ex	\$A 0.0m	\$A 1.0m	\$A 1.0m	\$A 1.0m	\$A 1.0m	\$A 1.0m	\$A 1.0m	\$A 1.0m	\$A 0.8m	\$A 0.0m
<b>TOTAL</b>	<b>\$A 11.6m</b>	<b>\$A 52.5m</b>	<b>\$A 53.6m</b>	<b>\$A 44.0m</b>	<b>\$A 43.2m</b>	<b>\$A 43.2m</b>	<b>\$A 43.2m</b>	<b>\$A 43.2m</b>	<b>\$A 43.0m</b>	<b>\$A 28.3m</b>

Source : Beer & Co estimates

**Figure 7 :Beer & Co's estimated cash costs for Carley Bore, in product terms.**

	Life of Mine	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Well Costs	<b>US\$ 8.5 /lb</b>	US\$ 1.9 /lb	US\$ 5.7 /lb	US\$ 6.3 /lb	US\$ 10.5 /lb	US\$ 9.9 /lb	US\$ 9.9 /lb	US\$ 9.9 /lb	US\$ 9.9 /lb	US\$ 9.9 /lb	US\$ 12.1 /lb
Acid	<b>US\$ 5.2 /lb</b>	US\$ 3.6 /lb	US\$ 3.6 /lb	US\$ 5.1 /lb	US\$ 6.4 /lb	US\$ 6.4 /lb	US\$ 6.4 /lb	US\$ 6.4 /lb	US\$ 6.4 /lb	US\$ 6.4 /lb	US\$ 0.6 /lb
Peroxide	<b>US\$ 6.0 /lb</b>	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb	US\$ 6.0 /lb
Power	<b>US\$ 1.9 /lb</b>	US\$ 1.3 /lb	US\$ 1.3 /lb	US\$ 1.4 /lb	US\$ 2.3 /lb	US\$ 2.3 /lb	US\$ 2.3 /lb	US\$ 2.3 /lb	US\$ 2.3 /lb	US\$ 2.3 /lb	US\$ 2.3 /lb
Labour	<b>US\$ 4.8 /lb</b>	US\$ 4.2 /lb	US\$ 3.1 /lb	US\$ 3.4 /lb	US\$ 5.6 /lb	US\$ 5.6 /lb	US\$ 5.6 /lb	US\$ 5.6 /lb	US\$ 5.6 /lb	US\$ 5.6 /lb	US\$ 5.6 /lb
Other	<b>US\$ 0.8 /lb</b>	US\$ 1.0 /lb	US\$ 0.5 /lb	US\$ 0.6 /lb	US\$ 0.9 /lb	US\$ 0.9 /lb	US\$ 0.9 /lb	US\$ 0.9 /lb	US\$ 0.9 /lb	US\$ 0.9 /lb	US\$ 0.9 /lb
Royalties	<b>US\$ 3.3 /lb</b>	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb	US\$ 3.3 /lb
Sus.cap.ex	<b>US\$ 0.6 /lb</b>	US\$ 0.0 /lb	US\$ 0.5 /lb	US\$ 0.5 /lb	US\$ 0.8 /lb	US\$ 0.8 /lb	US\$ 0.8 /lb	US\$ 0.8 /lb	US\$ 0.8 /lb	US\$ 0.6 /lb	US\$ 0.0 /lb
<b>TOTAL</b>	<b>US\$ 31.0 /lb</b>	<b>US\$ 21.2 /lb</b>	<b>US\$ 24.0 /lb</b>	<b>US\$ 26.5 /lb</b>	<b>US\$ 35.7 /lb</b>	<b>US\$ 35.1 /lb</b>	<b>US\$ 35.1 /lb</b>	<b>US\$ 35.1 /lb</b>	<b>US\$ 35.1 /lb</b>	<b>US\$ 34.9 /lb</b>	<b>US\$ 30.6 /lb</b>

Source : Beer & Co estimates

Figure 8 shows the cashflows estimated by Beer & Co for the Carley Bore project.

**Figure 8 : Projected cashflows for the Carley Bore project**

	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
Uranium oxide	\$ 53/lb	\$ 63/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb	\$ 65/lb
AUD - USD rate	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850	0.850
U3O8 produced	0k lb	0k lb	465k lb	1,862k lb	1,716k lb	1,047k lb	1,047k lb	1,047k lb	1,047k lb	1,047k lb	1,047k lb	785k lb
Net Revenue	\$A 0m	\$A 0m	\$A 36m	\$A 142m	\$A 131m	\$A 80m	\$A 80m	\$A 80m	\$A 80m	\$A 80m	\$A 80m	\$A 60m
Cash Costs	\$A 0m	\$A 0m	(\$A 10m)	(\$A 44m)	(\$A 46m)	(\$A 39m)	(\$A 38m)	(\$A 38m)	(\$A 38m)	(\$A 38m)	(\$A 38m)	(\$A 25m)
Royalties	\$A 0m	\$A 0m	(\$A 2m)	(\$A 7m)	(\$A 7m)	(\$A 4m)	(\$A 4m)	(\$A 4m)	(\$A 4m)	(\$A 4m)	(\$A 4m)	(\$A 3m)
Dep'cn & Amort	\$A 0m	\$A 0m	(\$A 5m)	(\$A 20m)	(\$A 19m)	(\$A 11m)	(\$A 11m)	(\$A 11m)	(\$A 11m)	(\$A 11m)	(\$A 11m)	(\$A 11m)
E B I T	\$A 0m	\$A 0m	\$A 19m	\$A 71m	\$A 60m	\$A 26m	\$A 26m	\$A 26m	\$A 26m	\$A 26m	\$A 26m	\$A 31m
Interest Expens	\$A 0m	\$A 0m	(\$A 3m)	(\$A 4m)	(\$A 2m)	(\$A 1m)	(\$A 0m)	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m
Tax Expense	\$A 0m	\$A 0m	(\$A 5m)	(\$A 20m)	(\$A 17m)	(\$A 7m)	(\$A 8m)	(\$A 8m)	(\$A 8m)	(\$A 8m)	(\$A 8m)	(\$A 9m)
<b>N P A T</b>	<b>\$A 0m</b>	<b>\$A 0m</b>	<b>\$A 11m</b>	<b>\$A 47m</b>	<b>\$A 40m</b>	<b>\$A 17m</b>	<b>\$A 18m</b>	<b>\$A 18m</b>	<b>\$A 18m</b>	<b>\$A 18m</b>	<b>\$A 18m</b>	<b>\$A 22m</b>
Feasibility / per	(\$A 6m)	(\$A 3m)	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m
Project Cap.Ex	\$A 0m	(\$A 68m)	(\$A 45m)	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m	\$A 0m
Sus. Cap. Ex	\$A 0m	\$A 0m	\$A 0m	(\$A 1m)	(\$A 1m)	(\$A 1m)	(\$A 1m)	(\$A 1m)	(\$A 1m)	(\$A 1m)	(\$A 1m)	\$A 0m
<b>Net Cashflow</b>	<b>(\$A 6m)</b>	<b>(\$A 71m)</b>	<b>(\$A 27m)</b>	<b>\$A 69m</b>	<b>\$A 60m</b>	<b>\$A 28m</b>	<b>\$A 29m</b>	<b>\$A 29m</b>	<b>\$A 29m</b>	<b>\$A 29m</b>	<b>\$A 29m</b>	<b>\$A 22m</b>

Source : Beer & Co estimates

**Beer & Co estimate the NPV of the Carley Bore project to be \$A 90m.**

Using a discount rate of 10% on the after-tax cashflows generates an NPV of \$A 90m, as at 31 December 2013.

The scoping study advised a capital cost of \$114m, after a further \$10m is spent before the project is able to be financed.

EMX presently has a market cap of \$4.3m and it is seeking a further \$2.2m through a 1 for 1 rights issue

Beer & Co has assumed that EMX sells a 40% stake in the project, which assists with development, off-take and finance.

Beer & Co's base case valuation is 8.7c/share.

We have allowed for further equity raisings

And have heavily risked our value for Carley Bore

## Energia Minerals - Valuation

Figure 8 shows that Carley Bore is a valuable project.

Figure 9 shows the detail of the capital cost, which is estimated to total \$114m, to which a further \$10m required before the project can be financed.

EMX has a current market cap of \$4.3m. It is presently seeking to raise \$2.2m through a 1 for 2 rights issue.

In our view, EMX may be able to access the capital required to develop Carley Bore on its own and may need to bring in either a cornerstone investor or a strategic investor in the Carley Bore project.

As shown in Figure 10, Beer & Co projects that if EMX were to sell a 40% stake in the Carley Bore project, for 90% of its value, to a suitable investor, it would then be able to raise 40% to 60% in debt finance.

These figures can be juggled to reduce the size of the final equity raising required.

However, we have allowed for a final equity raising of \$15m.

Figure 11 shows Beer & Co's derived valuation of EMX of 8.7c/share.

Figure 11 shows that Beer & Co has :

- applied a discount rate of 12% to the real, after tax cashflows to the equity holders;
- risked the derived value of Carley Bore;
- allowed for a further \$9m in equity, after the current \$2m raising, to be undertaken in FY 15, to take EMX through to project finance; and
- allowed a nominal value for EMX's Gorno base metals project, in Italy, but nothing for any other of EMX's projects.

### Figure 9 : Capital costs estimate

Plant	\$ 75m
Well Field	\$ 6m
Power	\$ 13m
Village	\$ 5m
Civils	\$ 5m
Contingency, EPCM	\$ 9m
Studies / Permitting	\$ 10m
<b>TOTAL</b>	<b>\$ 124m</b>

Source : EMX 16 May 2013, Beer & Co

### Figure 10 : Project finance

Project NPV	(Dec 2015 basis)	\$ 99m
Project stake	40 %	\$ 40m
Value received	90 %	\$ 36m
Project Cap.Ex		\$ 114m
EMX to fund		\$ 68m
plus working capital		\$ 5m
Funded :		
from sale of project stake		\$ 32m
Debt finance	40 %	\$ 27m
<b>Net Equity to raise</b>		<b>\$ 15m</b>

Source : Beer & Co estimates

**Figure 11 : Estimated value of EMX is 8.7 c**

Beer & Co's base case valuation is 8.7c/share.

Our valuation of Carley Bore is heavily risked

This includes a nominal value for Gorno, but nothing for all of EMX's other projects.

	discount rate = 12.0 %	30-Jun-13		13-Feb-14	
		risk :	100%	Product	per share
Carley Bore	50 %	\$A 44m	\$A 22m	2.9 c	3.7 c
fanking credits	33 %	\$A 19m	\$A 6m	0.8 c	1.1 c
Asset sale	50 %	\$A 23m	\$A 11m	1.5 c	1.9 c
Gorno	nominal	\$A 5m	\$A 5m	0.7 c	0.8 c
Exploraiton	100 %	\$A 0m	\$A 0m	0.0 c	0.0 c
Corporate	100 %	(\$A 12m)	(\$A 12m)	(1.6c)	(1.6c)
Cash / debt	100 %	\$A 2m	\$A 2m	0.2 c	0.1 c
cash to be raised	100 %	\$A 20m	\$A 20m	2.7 c	2.6 c
<b>TOTAL</b>		<b>\$A 100m</b>	<b>\$A 54m</b>	<b>7.1 c</b>	<b>8.7 c</b>
Shares on issue		176.3m	FPO shares	32.2m	options
		127.6m	issued 2014	0.0m	op. ex'd
		291.8m	issued 2015		
		165.0m	issued 2016		

Source : Beer & Co estimates

Beer & Co's estimated valuation is a precise outcome to a range of variables.

## Sensitivity

There is some uncertainty around the capital cost estimate, and greater uncertainty around operating costs and recoveries, with the greatest uncertainty being the price for uranium oxide.

In our sensitivity analyses, we have kept constant the assumptions

- that EMX sells a 40% stake in the Carley Bore project; and
- the Carley Bore project partners are able to secure debt financing of 40% of the project capital cost, which is \$114min the base case.

However, we have varied the amount of equity raised and the price at which it is raised as the project value has varied with changes in key assumptions.

## Cap.Ex and Op.Ex

Significant changes in capital and operating costs impact our valuation, but the result is still above the current share price

Figure 12 shows that our valuation is quite sensitive to changes in estimated capital costs and even more so to operating costs.

**Figure 12 : Sensitivity to Cap.ex and cash costs**

Cap.Ex	Operating Costs		
	+ 25 %	base	(20%)
+ 20 %	4.5 c	7.2 c	9.6 c
base	5.7 c	<b>8.7 c</b>	11.3 c
(20%)	7.0 c	10.3 c	12.6 c

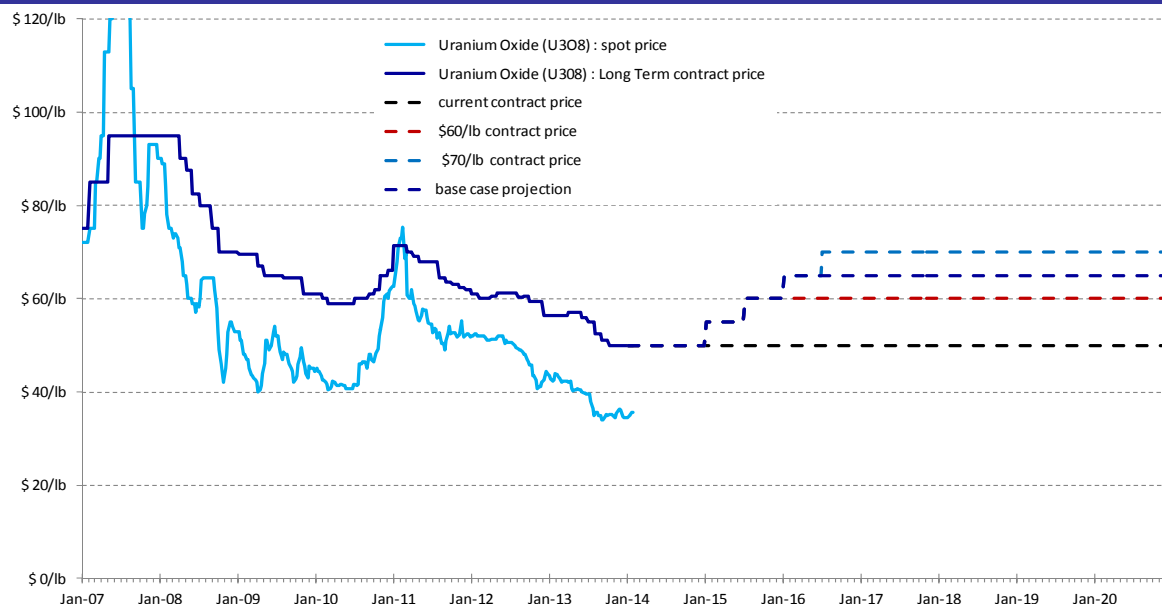
Source : Beer & Co estimates

As Carley Bore is not in operation, higher cap.ex increases the equity that needs to be raised, while higher op.ex reduces the value of the project and hence the value received from the sale of a stake in the project, which then requires that more equity be raised.

### Uranium Oxide prices

Figure 13 shows historical U<sub>3</sub>O<sub>8</sub> prices and our base case projection and other potential scenarios used in this analysis.

**Figure 13 : Historical and projected contract and spot uranium oxide prices, and projections**



Source : IRESS, Ux Consulting Company, Beer & Co

The recovery of U<sub>3</sub>O<sub>8</sub> in the ground to product is a key variable :

- The results from metallurgical tests reported on 4 April 2012 showed that the bottle roll tests gave an average 90% uranium recovery over 48 hours with most extraction achieved in first 12-24 hours;
- EMX has yet to undertake its own hydro-geological assessment so the recovery of the in-ground mineralisation is assumed to be about 70% based on other ISR operations.

**We jointly test for recovery and u3O8 prices.**

In this analysis, Beer & Co has assumed an overall recovery of 66.7%, comprising

- 72.5% recovery of in-ground mineralisation to the leach
  - this will vary with the length of time a well is kept in operation, though the increase in recovery is at a declining rate; and
  - the longer a well is kept in operation, the lower the operating costs will be, so balancing the higher production from a new well against its costs will be key;
- 92.5% recovery in the plant.

**Our valuation is very sensitive to assumptions made on recoveries.**

Figure 14 shows that our valuation of EMX is very sensitive to the U<sub>3</sub>O<sub>8</sub> price and even more sensitive to assumptions made on recovery.

**Our analysis indicates that the market is currently pricing in \$50/lb U<sub>3</sub>O<sub>8</sub>.**

This sensitivity is exaggerated on the downside by the financing needs as a lower project valuation reduces the value at which a 35% stake is able to be sold and hence increases the volume of equity that needs to be raised.



**Figure 14 : Sensitivity of EMX to U<sub>3</sub>O<sub>8</sub> prices and recoveries**

<u>recovery</u>	<u>\$ 50 /lb</u>	<u>\$ 60 /lb</u>	<u>base case</u>	<u>\$ 70 /lb</u>
60 %	1.0 c	3.9 c	5.9 c	8.1 c
67 %	1.9 c	6.4 c	<b>8.7 c</b>	11.0 c
71 %	2.7 c	8.0 c	10.6 c	13.1 c

Source : Beer &amp; Co estimates

CXU announced a bid for EMX in March 2013.

This bid has been extended and is still open.

EMX shareholders have ignored the bid as it offers poor value for EMX shareholders.

## Bid by Cauldron Energy (CXU.ASX)

In March 2013, following the announcement of EMX's upgraded Resource in February 2013, CXU announced a scrip bid of 1 CXU for 8 EMX.

CXU's Yanrey project is immediately north of EMX's Nyang project. However, while CXU's latest resource estimate, of 15.7Mlb is comparable to EMX's resource of 15.6Mlb, Yanrey has an average grade of 270ppm, which is significantly lower than the average grade at Carley Bore, of 310ppm.

CXU's current share price is 9.2c, which is just over 4x the EMX share price, while the bid is 1 for 8, so EMX share holders, would be significantly diluted.

To date, only about 0.18% of EMX shares have accepted, and Beer & Co feels that CXU's bid can be ignored.

## Conclusions

Energia Minerals has a suite of projects. This analysis has given only a nominal value to Gorno, but not to any of EMX's other projects as the value of Carley Bore dominates; ie. an investment decision relating to EMX is determined by the value perceived in Carley Bore.

EMX is working to generate value in the other parts of EMX's portfolio.

Beer & Co has modelled Carley Bore. Our major assumptions are :

- Carley Bore will be brought into production in early 2017;
- The capital cost from now to bring Carley Bore into production is \$114m;
- U<sub>3</sub>O<sub>8</sub> prices are expected to recover and we have used \$65/lb in this analysis, with an AUD-USD rate of 0.850;
- Beer & Co has estimated total operating costs of about \$A 36/lb;
- Beer & Co has modelled the project assuming that EMX will be able to attract a strategic investor, either in the project itself or in EMX, at a value that is much closer to the value of the project than the current share price.

Beer & Co's base case valuation of EMX is 8.7c/share.

We have assumed U3O8 price of US\$ 65/lb and an AUD-USD of 0.850

We estimate operating costs of \$30/lb (AUD 36.5/lb)

We conclude that Carley Bore is a valuable project, even at \$50/lb, and that the current share price reflects this value and is further risked

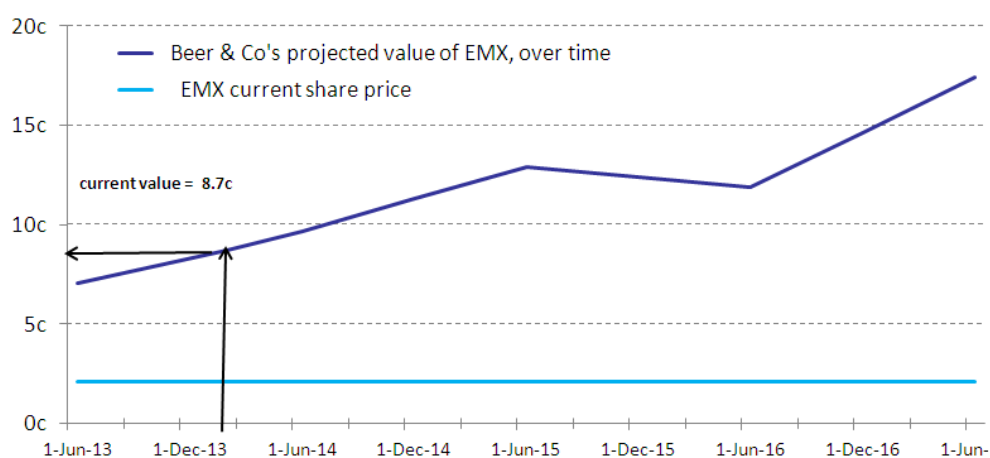
Our major conclusions are :

- Carley Bore is a valuable project even at current U<sub>3</sub>O<sub>8</sub> contract prices, which are \$50/lb, a 40% premium to the spot price of \$35/lb
- The EMX share price moves with the spot U<sub>3</sub>O<sub>8</sub> price; and
- The EMX share price heavily discounts both project execution, where EMX management has a proven record, and the U<sub>3</sub>O<sub>8</sub> price.

Also, as shown in Figure 15, Beer & Co projects significant growth in the value of EMX has the project is progressively de-risked over time, if it is delivered in line with our base case expectation.

**Figure 15 : Beer & Co's projected rise in EMX's value over time**

Beer & Co projects that EMX's value will rise over time as the project is progressively de-risked.



Source : Beer & Co estimates

Beer & Co is confident that

- U<sub>3</sub>O<sub>8</sub> prices will rise;
- Carley Bore is a good, though modest sized project, that is able to be delivered.

As Beer & Co is confident that

- The U<sub>3</sub>O<sub>8</sub> price will rise over the medium term due to a current mined shortage, exhaustion of stocks that have depressed the spot price and strong demand growth; and
- Carley Bore is a very good, though currently modest sized, project, with significant upside resource potential; and
- EMX will be able to deliver Carley Bore.

Beer & Co has a risked, base case valuation of 8.7c, a large multiple of the current share price. Our valuation rises to over 18c/share by 2017 if the project can be successfully delivered in the manner we have assumed.

We rate EMX as a BUY, with a High risk rating.

Beer & Co initiates research on EMX with a Buy, (Very) High Risk recommendation.

Beer & Co Research

Energy Minerals (EMX.ASX)

February 2014

Year ended June	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
<b>Section 1 - P&amp;L</b>								
Sales revenue	\$Am	0	0	0	21	85	79	48
Interest revenue	\$Am	0	0	0	0	0	1	1
Other revenue	\$Am	0	0	0	0	0	0	0
<b>Total Revenue</b>	\$Am	0	0	0	21	86	79	49
Cost of Goods Sold	\$Am	0	0	0	(6)	(27)	(28)	(23)
Royalties	\$Am	0	0	0	(1)	(4)	(4)	(2)
Exploration Expense	\$Am	0	0	0	0	0	0	0
Corporate Costs	\$Am	(2)	(2)	(2)	(2)	(2)	(2)	(2)
Other Operating Expenses	\$Am	0	0	0	0	0	0	0
<b>Total Operating Expenses</b>	\$Am	(2)	(2)	(2)	(9)	(33)	(34)	(28)
<b>EBITDA</b>	\$Am	(2)	(2)	(2)	12	53	46	21
Dep'n & Amort'n	\$Am	0	0	0	(3)	(12)	(11)	(7)
<b>EBIT</b>	\$Am	(2)	(2)	(2)	9	41	34	14
Interest Expense	\$Am	0	0	0	(2)	(2)	(1)	(1)
Other	\$Am	0	0	32	0	0	0	0
<b>Pre-Tax Profit</b>	\$Am	(2)	(2)	30	8	38	33	13
Tax Expense	\$Am	0	0	0	(3)	(12)	(10)	(4)
<b>NPAT</b>	\$Am	(2)	(2)	30	5	27	23	9
<b>Reported NPAT</b>	\$Am	(2)	(2)	30	5	27	23	9

Section 2 - Key Data

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
Ordinary shares - year end	m	303.9	595.7	760.7	760.7	760.7	760.7	
Fully diluted shares on issue	m	303.9	595.7	760.7	760.7	760.7	760.7	
Weighted # shares	m	246.7	510.6	678.2	760.7	760.7	760.7	
Earnings per Share		(0.9c)	(0.4c)	5.0 c	0.7 c	3.5 c	3.0 c	1.2 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

Section 3 - Balance Sheet

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
Cash	\$Am	2	0	2	3	7	30	41
Receivables	\$Am	0	0	0	0	5	11	9
Other	\$Am	0	0	0	0	0	0	0
<b>CURRENT ASSETS</b>	\$Am	2	0	2	3	12	41	50
Receivables	\$Am	0	0	0	0	0	0	0
P, P & E	\$Am	0	1	7	50	75	63	52
Mining Properties / Explor	\$Am	2	2	2	2	2	2	2
Other	\$Am	0	0	0	0	0	0	0
<b>NON-CURRENT ASSETS</b>	\$Am	2	3	9	52	76	65	54
<b>TOTAL ASSETS</b>	\$Am	4	3	10	55	89	106	104
Payables	\$Am	0	0	0	0	2	8	14
Debt	\$Am	0	0	0	0	0	0	0
Other	\$Am	0	0	0	0	0	0	0
<b>CURRENT LIABILITIES</b>	\$Am	0	0	0	0	2	8	14
Long Term Debt	\$Am	0	0	0	0	19	11	3
Deferred Tax Liability	\$Am	0	0	0	0	0	0	0
Other	\$Am	0	0	0	0	0	0	0
Provisions	\$Am	0	0	0	0	0	0	0
<b>NON-CURRENT LIABILITIES</b>	\$Am	0	0	0	0	19	11	3
<b>TOTAL LIABILITIES</b>	\$Am	0	0	0	0	21	19	16
<b>NET ASSETS</b>	\$Am	3	3	10	55	67	86	88
Accumulated Profit (Loss)	\$Am	(14)	(16)	(18)	12	17	43	67
Reserves	\$Am	1	(0)	(0)	(0)	7	(0)	(22)
Contributed Equity	\$Am	17	19	28	43	43	43	43
<b>Total Equity</b>	\$Am	3	3	10	55	67	86	88

Section 4 - Cashflow

	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
Net Cashflow from operatio	\$Am	(2)	(2)	(2)	12	53	46	21
Hedging	\$Am	0	0	0	0	0	0	0
Net Interest Paid	\$Am	0	0	0	0	(2)	(1)	(1)
Taxes Paid	\$Am	0	0	0	0	0	(3)	(11)
Change in Working Capital	\$Am	0	0	0	0	(4)	0	7
Other	\$Am	0	0	0	0	0	0	0
<b>OPERATING CASHFLOW</b>	\$Am	(2)	(2)	(2)	13	48	41	16
Exploration Expenditures	\$Am	0	0	0	0	0	0	0
Maintenance Capex	\$Am	0	0	0	0	0	(1)	(1)
Expansion Capex	\$Am	0	(1)	(6)	(3)	0	0	0
<b>PPE Acquisitions (Total Capex)</b>	\$Am	0	(1)	(6)	(3)	0	(1)	(1)
PPE Divestments	\$Am	0	0	0	32	0	0	0
<b>INVESTING CASHFLOW</b>	\$Am	0	(1)	(6)	29	0	(1)	(1)
Change in Equity	\$Am	2	3	9	15	0	0	0
Dividends Paid	\$Am	0	0	0	0	0	0	0
Change in Debt	\$Am	0	0	0	0	19	(8)	(9)
Other	\$Am	0	0	0	0	0	0	0
<b>FINANCING CASHFLOW</b>	\$Am	2	3	9	15	19	(8)	(9)
<b>Free Cashflow</b>	\$Am	(2)	(3)	(8)	42	48	40	16
<b>Net Cashflow</b>	\$Am	0	(0)	1	57	67	32	16

Commodity price assumptions

Year ended June	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
AUD-USD	1.027	0.894	0.850	0.850	0.850	0.850	
U3O8 - contract	US\$ / lb	58	52	53	63	65	65

U3O8 produced	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	
100% basis	000 lb	0	465	1,862	1,716	1,047	1,047
EMX share	60 %	0	279	1,117	1,030	628	628

Inferred Resources

Zone	cut-off ppm	Ore m. tonnes	av. grade ppm	contained U3O8	
				tonnes	million lb
Zone 6	100	3.3	490	1.60	3.53
Zone 1	100	15.6	310	4.82	10.63
Zone 7	100	0.9	270	0.25	0.55
Zone 3	100	3.7	250	0.95	2.09
Zone 2	200	0.1	240	0.03	0.07
<b>TOTAL</b>		23.6	324	7.65	16.87

Asset based Valuation

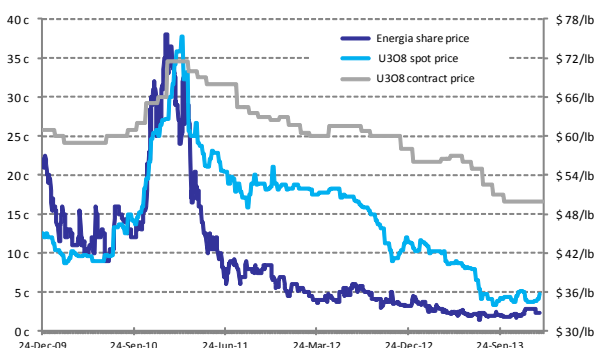
discount rate = 12.0 %	30-Jun-13		13-Feb-14		
risk :	100%	Product	per share		
Carley Bore	50 %	\$A 44m	\$A 22m	2.9 c	3.7 c
franking credits	33 %	\$A 19m	\$A 6m	0.8 c	1.1 c
Asset sale	50 %	\$A 23m	\$A 11m	1.5 c	1.9 c
Gorno	nominal	\$A 5m	\$A 5m	0.7 c	0.8 c
Exploration	100 %	\$A 0m	\$A 0m	0.0 c	0.0 c
Corporate	100 %	(\$A 12m)	(\$A 12m)	(1.6c)	(1.6c)
Cash / debt	100 %	\$A 2m	\$A 2m	0.2 c	0.1 c
cash to be raised	100 %	\$A 20m	\$A 20m	2.7 c	2.6 c
<b>TOTAL</b>		\$A 100m	\$A 54m	7.1 c	8.7 c
Shares on issue		176.3m	FPO shares	32.2m	options
		127.6m	issued 2014	0.0m	op. ex'd
		291.8m	issued 2015		
		165.0m	issued 2016		

Assumed Cash Costs, US \$/lb

	LoM	2016-17	2017-18	2018-19	2019-20	2020-21
Well Costs	8.5	1.9	5.7	6.3	10.5	9.9
Consumables & power	5.2	3.6	3.6	5.1	6.4	6.4
Labour	4.8	4.2	3.1	3.4	5.6	5.6
Other	0.8	1.0	0.5	0.6	0.9	0.9
Royalties	3.3	3.3	3.3	3.3	3.3	3.3
Sus.cap.ex	0.6	0.0	0.5	0.5	0.8	0.8
<b>TOTAL</b>		US\$ 23 /lb	US\$ 14 /lb	US\$ 17 /lb	US\$ 19 /lb	US\$ 27 /lb

Financial Ratios

Year ended June	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	
Revenue	\$Am	0	0	21	86	79	49
EBITDA	\$Am	(2)	(2)	12	53	46	21
EBIT	\$Am	(2)	(2)	9	41	34	14
NPAT (reported)	\$Am	(2)	30	5	27	23	9
Adjusted EPS (cps)		(0.4c)	5.0 c	0.7 c	3.5 c	3.0 c	1.2 c
EPS Growth (%)			1,376 %	(87%)	437 %	(14%)	(60%)
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	(5.3)	0.4	3.2	0.6	0.7	1.7
EV / EBITDA (x)	x	(6.2)	(8.0)	1.1	0.5	(0.1)	0.0
EV / EBIT (x)	x	(6.2)	(8.0)	1.4	0.7	(0.1)	0.0
Gearing (%)		0 %	0 %	0 %	22 %	11 %	3 %
Return on Assets		(64%)	(17%)	17 %	46 %	33 %	13 %
Return on Equity		(71%)	297 %	9 %	40 %	27 %	10 %
EBITDA Margin (%)		n/a	n/a	58 %	62 %	58 %	43 %
Interest Cover (x)	x	n/a	n/a	5.7	18.9	23.4	19.1



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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.

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

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BEER & CO PTY LTD ABN 88 158 837 186,  
AUTHORISED REPRESENTATIVE MELBOURNE VENTURE SECURITIES PTY LTD AFSL No. 224 313

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Melbourne Office:  
Suite 4, Level 2, Bank House  
11 - 19 Bank Place,  
Melbourne, Vic, Australia 3000  
Telephone: (+613) 9600 3599  
Facsimile: (+613) 9602 2291  
Email: [info@beerandco.com.au](mailto:info@beerandco.com.au)  
Web: [www.beerandco.com.au](http://www.beerandco.com.au)