

13 April 2023

## Element 25 Limited (E25)

### Manganese Meets the Mighty Mississippi

E25 has released a Feasibility Study (FS) on its proposed Battery Manganese Plant in Louisiana. The plant will upgrade ore from its operating Butcherbird mine in WA to manganese for use in the US EV auto supply chain. The FS delivered a higher NPV than the scoping study, due to higher production rates and increased revenue from the sale of co-products. The impact on a per share basis was somewhat offset by higher capital costs and an increase in equity funding. Our price target increases modestly to A\$3.06/sh (prev. A\$3.04/sh). This represents 285% upside and we expect the gap to close as more offtake is announced this month and project FID approaches mid '23.

#### Higher production and pricing offsets higher costs

- High grade HPMSM represents 100% of production, up from 75% in the Jan-22 Scoping Study
- The Scoping Study envisaged 25% of production as low priced fertiliser manganese (50% price achievement) - flowsheet optimisation has allowed for 100% HPMSM
- While we had forecast capital and operating costs 30% higher than the scoping study due to sector inflation, capital and operating costs came in 102% and 113% ahead of the scoping study respectively (Figure 1)
- Combining these changes lifts our NPV, our battery manganese NPV increases 78% to A\$654m (Figure 2)

#### Funding and offtake

- We expect binding offtake to be announced this month, which will likely include debt funding for the project
- We forecast 60% debt gearing on capex for A\$243m, with a further A\$100m in equity in addition to the existing cash balance and interim operating cashflow
- Despite an increase to the project NPV, on a per share basis this is offset given the additional equity required to fund the higher capex (prev. equity raising of A\$35m)

#### Manganese is an essential battery material

- Manganese is the cheapest of the NMC cathode materials (nickel, manganese and cobalt). NMC make up the majority of battery designs (Figure 3)
- E25's maiden 130ktpa line could satisfy 4% of 2030 global battery quality manganese demand (Figure 4)
- E25 is getting strong interest in offtake given over 95% of current battery manganese is sourced from China and E25's processing is less carbon intensive (Figure 5)

#### Key Dates Ahead

- April.23 – Battery manganese offtake expected
- Jun.Q'26 – First production of battery grade Mn

Buy

Share Price: **A\$0.80**

Target Price: **A\$3.06**

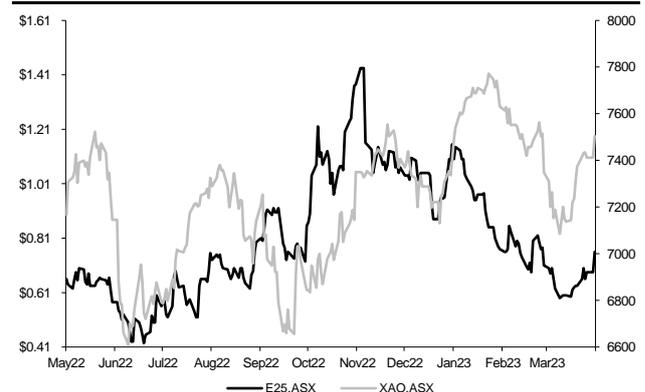
#### Company Data

Shares – ordinary (M)	184
Market capitalisation (\$M)	146
12 month low/high (\$)	0.43/ 1.44
Average monthly turnover (\$M)	4.9
GICS Industry	Metals & Mining

#### Financial Summary (fully diluted/normalised)

Year End June	2022A	2023F	2024F	2025F	2026F
Revenue (\$m)	27.3	38.9	148.4	214.7	220.4
Costs (\$m)	42.9	44.8	104.6	146.2	155.3
EBITDA (\$m)	-15.6	-5.8	43.8	68.6	65.1
NPAT (\$m)	-17.6	-5.9	36.4	39.3	34.2
EPS (cps)	-11.7	-3.5	12.6	12.7	11.1
EPS growth (%)	62.8	-237.9	127.5	0.5	-12.8
PER (x)	-6.8	-22.9	6.3	6.3	7.2
Free Cashflow (\$M)	-19.5	-4.8	40.4	47.8	38.8
FCFPS (¢ps)	-10.6	-2.6	21.9	26.0	21.1
PFCFPS (x)	-7.5	-30.2	3.6	3.1	3.8
Enterprise Value (\$M)	131	122	131	247	334
EV / EBITDA (x)	-8.4	-20.8	3.0	3.6	5.1
Payout ratio (%)	0.0	0.0	0.0	0.0	0.0
Dividend (cps)	0.0	0.0	0.0	0.0	0.0
Yield (%)	0.0	0.0	0.0	0.0	0.0
Franking (%)	0.0	0.0	0.0	0.0	0.0

#### E25 – performance over one year



#### Disclosure and Disclaimer

This report must be read with the disclosure and disclaimer on the final page of this document. The analyst preparing this report has a beneficial interest in 78,044 shares in this company. Petra Capital was lead manager and bookrunner for this company's placement to raise \$35m at A\$1.12/sh on 15 November 2022, for which fees were received.

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## Analysis

### Element 25 Limited (E25)

Year end 30 June

#### Recommendation

Price	\$	0.80	<b>Buy</b>
Target Price (12-month)	\$	<b>3.06</b>	
Upside / (Downside)	%	285%	
52 week high / low	\$	1.44 - 0.43	
Market capitalisation	\$m	<b>146</b>	
Shares on issue	no.	184	
Options + Future Equity	no.	157	
Shares on issue (diluted)	no.	341	



PROFIT & LOSS	2022A	2023E	2024E	2025E	2026E
Revenue	\$M 27	39	148	215	220
Operating Costs	\$M (38)	(40)	(100)	(142)	(151)
Exploration	\$M (1)	(1)	(1)	(1)	(1)
Other	\$M (4)	(4)	(4)	(4)	(4)
<b>EBITDA</b>	<b>\$M (16)</b>	<b>(6)</b>	<b>44</b>	<b>69</b>	<b>65</b>
Dep. & Amort.	\$M (2)	(1)	(2)	(3)	(4)
EBIT	\$M (17)	(6)	42	66	61
Net Interest	\$M (0)	1	(4)	(10)	(12)
Pre-Tax Profit	\$M (18)	(6)	38	56	49
Tax	\$M -	-	(2)	(17)	(15)
<b>Net Profit</b>	<b>\$M (18)</b>	<b>(6)</b>	<b>36</b>	<b>39</b>	<b>34</b>
Abnormal	\$M -	-	-	-	-
Reported Profit	\$M (18)	(6)	36	39	34

ASSUMPTIONS	2022A	2023E	2024E	2025E	2026E
A\$/US\$ exchange rate	\$ 0.73	0.68	0.70	0.73	0.75
Mn Conc ref price (44%)	US\$/dmu 5.83	5.68	5.98	6.20	6.20
Realised Mn price	US\$/dmu 3.24	3.83	4.44	4.67	4.66
Realised Mn conc price	US\$/t 94	124	148	155	154
High Purity Mn price	US\$/t 1,725	2,250	2,550	2,550	2,550

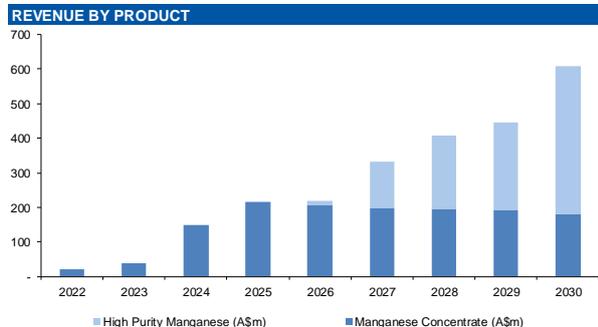
BUTCHERBIRD MINE LIFE	Contained Mn	Grade (%)	Years
Reserves	4.3	10%	13
Resources	21.6	10%	65
<b>Petra Mining Inventory</b>	<b>8.9</b>	<b>10%</b>	<b>20</b>

CASH FLOW	2022A	2023E	2024E	2025E	2026E
Revenue	\$M 21	39	148	215	220
Costs	\$M (41)	(44)	(104)	(146)	(155)
Tax Payable	\$M -	-	-	(11)	(14)
Other	\$M 1	1	(4)	(21)	(27)
Operating Cashflow	\$M (19)	(5)	40	48	39
Capex	\$M (2)	(20)	(149)	(164)	(125)
Exploration	\$M -	(1)	(1)	(1)	(1)
Acquisitions	\$M -	-	-	-	-
Other	\$M -	-	-	-	-
Investing Cashflow	\$M (2)	(20)	(149)	(164)	(126)
Equity Issues	\$M 1	35	100	-	-
Debt Raised / (repaid)	\$M -	-	243	-	-
<b>Free Cashflow</b>	<b>\$M (21)</b>	<b>(25)</b>	<b>(109)</b>	<b>(116)</b>	<b>(87)</b>
Surplus Cash Flow	\$M (20)	10	234	(116)	(87)

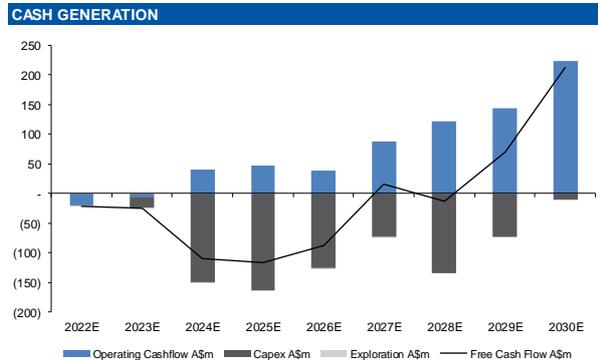
PRODUCTION & COSTS	2022A	2023E	2024E	2025E	2026E
Tonnes processed	Mtpa 0.9	1.1	2.7	3.9	3.9
Grade	g/t 10.8%	10.3%	10.3%	10.3%	10.3%
Recovery	% 77%	78%	83%	83%	83%

Mn Conc Production	kt	2022A	2023E	2024E	2025E	2026E
Mn Conc Sales	kt	<b>162</b>	<b>212</b>	<b>700</b>	<b>1,007</b>	<b>1,003</b>
Operating Costs	US\$/t	104	114	100	102	105
HP Mn Sales	kt	-	-	-	-	4
Operating Costs	US\$/t	-	-	-	-	1,800

BALANCE SHEET	2022A	2023E	2024E	2025E	2026E
<b>Cash</b>	<b>\$M 15</b>	<b>25</b>	<b>258</b>	<b>142</b>	<b>55</b>
Other Current	\$M 16	16	16	27	42
Total Current	\$M 31	41	274	169	96
PP&E & Exploration	\$M 22	41	188	349	471
Other	\$M 2	2	2	2	2
Total NC Assets	\$M 24	43	190	351	473
Total Assets	\$M 55	84	465	521	570
Current Liab	\$M 8	8	8	8	8
Non Current Liab	\$M 1	1	243	243	243
Total Liabilities	\$M 9	9	252	252	252
<b>Net Assets</b>	<b>\$M 46</b>	<b>75</b>	<b>213</b>	<b>269</b>	<b>318</b>
Equity	\$M 46	75	213	269	318
Total Debt	\$M -	-	243	243	243
Net Debt	\$M (15)	(25)	(16)	101	188



RATIO ANALYSIS	2022A	2023E	2024E	2025E	2026E
EPS	¢ (11.7)	(3.5)	12.6	12.7	11.1
PER	x (6.8)	(22.9)	6.3x	6.3x	7.2x
EPS Growth	% 63%	(238%)	127%	1%	(13%)
EV/EBITDA	x (8.4)	(20.8)	3.0x	3.6x	5.1x
<b>EV/OCF</b>	<b>x (6.7)</b>	<b>(25.1)</b>	<b>3.2x</b>	<b>(11.6)</b>	<b>(12.5)</b>
FCFPS	¢ (11.4)	(13.7)	(59.3)	(63.3)	(47.4)
<b>FCF Yield</b>	<b>% (14%)</b>	<b>(17%)</b>	<b>(75%)</b>	<b>(80%)</b>	<b>(60%)</b>
DPS	¢ -	-	-	-	-
Yield	% -	-	-	-	-
Franking	% -	-	-	0%	0%
Payout Ratio	% -	-	-	-	-
Gearing D/E	% -	-	114%	90%	76%
Interest Cover	x (221)	n.m.	11	7	5
<b>EBITDA Margin</b>	<b>% (57%)</b>	<b>(15%)</b>	<b>29%</b>	<b>32%</b>	<b>30%</b>
EBIT Margin	% (64%)	(17%)	28%	31%	28%
Return On Assets	% (81%)	(16%)	22%	19%	13%
Return On Equity	% (38%)	(8%)	17%	15%	11%
Eff Tax rate (cash tax)	% -	-	-	30%	30%



VALUATION (10% discount rate)	A\$m	A\$/Sh	%
Butcherbird Manganese Conc	386	1.13	
High Purity Manganese	654	1.92	
Exploration	10	0.03	
Net Cash	25	0.07	
Corporate	(33)	(0.10)	<b>P/NPV</b>
<b>Group NPV</b>	<b>1,042</b>	<b>3.06</b>	<b>0.26</b>

Source: Petra Capital

## Study Results - Higher production and prices offset cost inflation

E25 has released a feasibility study for its High Purity Battery Manganese Plant in Louisiana. Compared to prior studies, key differences include:

- E25 has improved its flowsheet such that 100% of production is now battery grade product. The scoping study envisaged lower grade product (FGMSM)
- In addition, the company will produce a sulphate fertiliser as a by-product. Compared to the scoping study this has increased both costs and revenue (fertiliser revenues not broken out)
- Capital and operating costs have increased materially. The Scoping Study was premised on a Malaysian location, which has lower operating and capital costs than Louisiana. In addition, broader sector inflation has had an impact in the 14 months since the prior study was released
- The Louisiana location also allows E25 to access the tax credits from the Inflation Reduction Act, which positively impact the NPV. In addition, the location is preferred by tier one customers which improves the funding outlook for the project
- The net result is a 45% increase in the study NPV

**Figure 1: E25 High Purity Battery Manganese Study Output**

	Scoping Study (Jan-22)	Feasibility Study (Apr-23)	Variance
Ore Purchased (ktpa)	157	140	-11%
<b>HPMSM Produced (ktpa)*</b>	<b>100</b>	<b>130</b>	<b>30%</b>
FGMSM Produced (ktpa)	33	-	n.m.
<b>HPMSM Price (Received)</b>	<b>1,950</b>	<b>2,557**</b>	<b>31%</b>
FGMSM Price (Received)	900	n.m.	n.m.
Undiscounted Cashflow (US\$m)	141	155	10%
Project Life (Years)	20	28	40%
NPV <sub>8</sub> Real (pre-tax)	890	1,662	87%
NPV <sub>8</sub> Real (post-tax)	801	1,161	45%
IRR (Pre-tax) (%)	45	29	-36%
<b>Operating Cost (US\$/t)</b>	<b>558</b>	<b>1,188</b>	<b>113%</b>
<b>Capital Cost (US\$m)</b>	<b>236</b>	<b>476</b>	<b>102%</b>

Source: Company Reports, HPMSM = High Purity Manganese Sulphate, \*\*Back calculated revenue, includes co-product revenues

## Changes to our earnings and valuation

We make material changes to our earnings and NPV, including:

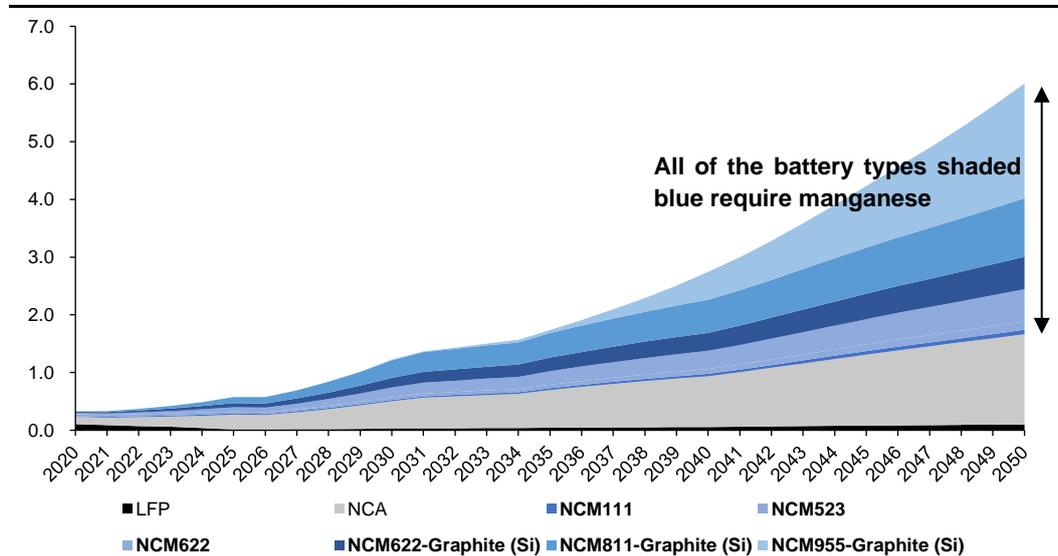
- Materially higher capital and operating costs for the HPMSM business (we had assumed capital and operating costs would be 30% above the scoping study)
- Higher HPMSM production rates in line with the base case study results – we had previously assumed a first train of 65ktpa only as per the base case in the scoping study. The base case for the Feasibility Study is 130ktpa, with a second 65ktpa train entering production in Year 5
- Higher assumed revenue per tonne of US\$2,550/t in line with E25's study (prev. US\$1,950/t)
- First HPMSM production delayed by three quarters to June Q 2026
- Overall, our HPMSM plant NPV increases 78% from A\$365m to A\$654m
- We assume A\$100m in equity is required at FID (prev. A\$35m) due to the higher capital costs, assuming the project can be 60% debt financed
- While our NPV increases, due to the dilutive nature of additional capex, our NPV/sh increases modestly to A\$3.06/sh from A\$3.04/sh
- Our valuation remains lower than the study due to a higher discount rate (10% real) and additional conservatism on ramp up and costs – despite this we still have 285% upside to our price target from the current share price

**Figure 2: Changes to earnings and price target**

		FY23			FY24			FY25		
		New	Old	% var	New	Old	% var	New	Old	% var
Revenue	A\$m	39	39	-	148	148	-	215	215	-
EBITDA	A\$m	(6)	(6)	-	44	48	(8%)	69	74	(7%)
EBIT	A\$m	(6)	(6)	-	42	46	(8%)	66	71	(7%)
NPAT	A\$m	(6)	(6)	-	36	40	(9%)	39	45	(12%)
EPS	Ac/sh	(3.5)	(3.4)	1%	12.6	18.3	(31%)	12.7	20.4	(38%)
DPS	Ac/sh	0.0	0.0	-	0.0	0.0	-	0.0	0.0	-
NPV	A\$m	1,042	761	37%						
<b>NPV/sh</b>	<b>A\$/sh</b>	<b>3.06</b>	<b>3.04</b>	<b>1%</b>						

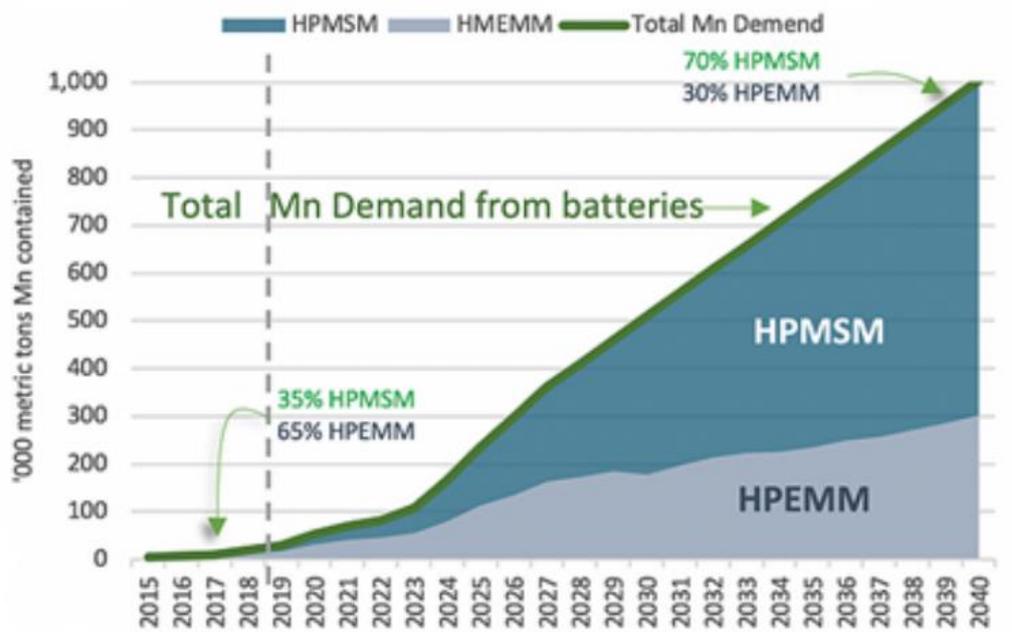
Source: Petra Capital

**Figure 3: EV battery capacity by type (TWh) – Manganese is in most cathodes**



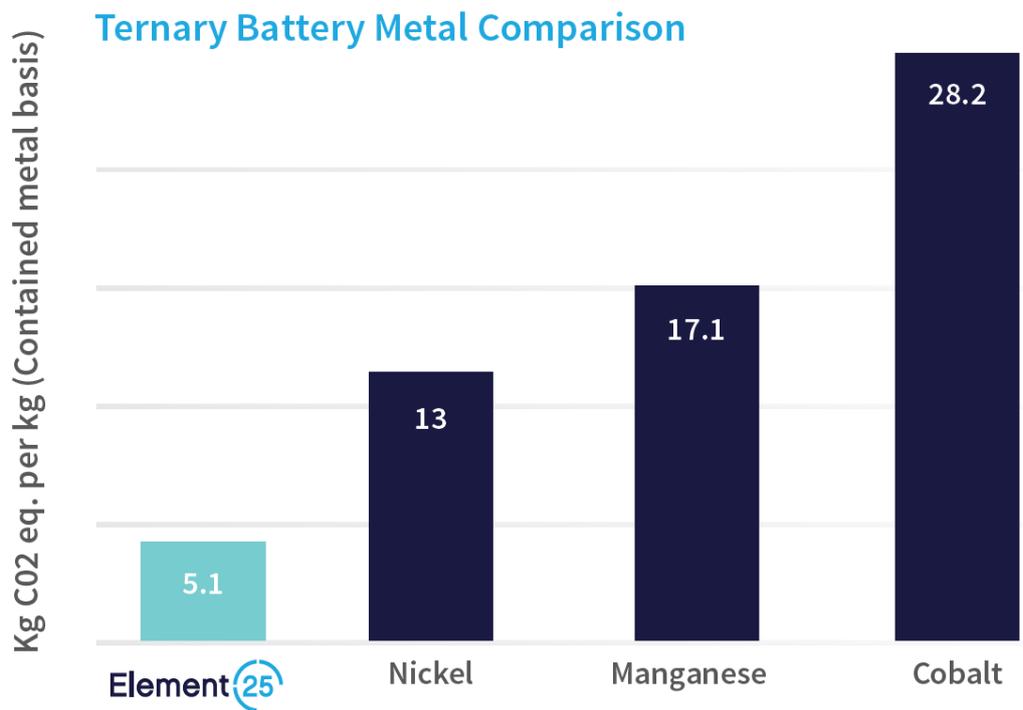
Source: Future material demand for automotive lithium-based batteries - Chengjian Xu, Qiang Dai, Linda Gaines, Mingming Hu, Arnold Tukker & Bernhard Steubing

**Figure 4: Manganese demand from Li-ion batteries**



Source: Company Reports

**Figure 5: E25's processing route is significantly less carbon intensive**



Source: Company Reports

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