

# Early cashflow rapid expansion...

(25

Butcherbird Project

# **Highlights**

## **Concentrate Ramp-up and Expansion**

- Milestone quarter with first shipment of Butcherbird ore in July 2021.
- Second shipment of **27,000 tonnes of high-quality manganese concentrate** departed Utah Point, Port Hedland for delivery to offtake partner OM Materials, a subsidiary of ASX-listed OM Holdings Ltd (**ASX: OMH**) in August 2021.
- E25 has moved to larger shipments of over 50,000 tonnes for significantly **more competitive shipping tariffs** and has established a laydown area in Port Hedland to build stockpiles. September and shipments to be combined in larger shipment anticipated November 2021.
- E25's Butcherbird project ramping up to steady state manganese concentrate production as plant is continuously optimised over first 6 months of production.
  Production operating at off-taker product specification and focus is now on reaching nameplate rated throughput.
- Revenue per tonne trending to PFS levels subject to successful ramp-up to nameplate, freight rates normalising to historic levels and phasing-in of substantial smelter credits for low impurities anticipated from Q1 2022.
- Stage 2 expansion of 3x production of manganese concentrate targeted in 1H 2022 primarily due to supply chain issues. Offtake interest is robust for expanded production.

## **Battery grade Manganese Project**

- Project team accelerating plant design and optimisation targeting a PFS release in H1 2022. Project scoping numbers are anticipated for release in December 2021.
- E25 granted an eight-year Innovation Patent for rapid atmospheric manganese extraction.
- Test programme utilising run-of-mine concentrate from Butcherbird, the planned feed for the commercial conversion facility, with HPMSM produced consistently within the specification range of up to 99.9% purity required by targeted offtake partners and achieved outstanding recoveries of over 97% Mn HPMSM.
- E25 is continuing flowsheet optimisation test work to further reduce reagent consumption, waste production, operating and capital costs and carbon intensity targeting lowest quartile global cost of production HPMSM.

CUMPANY SNA	PSHUI
Market Summary	
ASX code:	E25
Shares on issue:	1/QM

\$1.795

#### Board of Directors:

Seamus Cornelius Justin Brown John Ribbons

Chairman MD NED Element 25 Limited is developing the world class Butcherbird Manganese Project in Western Australia to produce high quality manganese concentrate and high purity manganese products for traditional and new energy markets.

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Share price:

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Element 25 Limited (E25 or Company) (ASX:E25) is pleased to provide an update on its activities during the September 2021 quarter, which included several milestones at the Company's 100% owned Butcherbird Project (Project).

Justin Brown, CEO said "this was an exceptional team effort to achieve first ore shipments from the Project in July after completing the PFS fourteen months earlier. This was an important milestone for the Company`s progress as it now optimises its production on the way to becoming a globally significant producer of high quality manganese concentrate. The team is also very advanced on PFS level specifications for the high purity battery grade manganese sulphate (HPMSM) operations. Recoveries are world class at 97%, and we are working with potential offtake partners to optimise final product specifications, as required by their respective cathode manufacturing processes. The September quarter has seen significant further flowsheet optimisation work to ensure the HPMSM facility will target the lowest quartile in terms of the global cost curve, a low environmental impact, outstanding ESG credentials, all of which will give E25 an unbeatable advantage over competitors in addition to our location in a Tier 1 jurisdiction."

The manganese concentrate processing plant commissioned earlier in 2021 is advancing towards nameplate throughput volumes and continues to deliver grades and impurity profiles within the specification detailed in the Company's offtake agreement.

Work throughout the quarter has also seen a renewed focus on the optimisation of the high purity manganese sulphate monohydrate (HPMSM) processing flowsheet. The Company also notes that high purity manganese prices continue to strengthen with Electrolytic Manganese Metal (EMM) prices reaching new highs of over USD\$6,500/t with some spot quotations touching \$7,000/t (reference: www.metal.com) which has a pull-through effect on HPMSM for which prices are also trending upwards.

#### Second Manganese Concentrate Shipment Successfully Sails

A second ship load containing approximately 27,000 tonnes of high-quality manganese concentrate from the Project departed Utah Point in Port Hedland, WA aboard the Handymax size vessel Taokas Wisdom in early September 2021 for delivery to offtake partner OM Materials (S) Pte Ltd **(OMS)**, subsidiary of ASX-listed company OM Holdings Limited **(ASX:OMH) (OMH)**<sup>1</sup>.



<sup>&</sup>lt;sup>1</sup> Reference: Company ASX release dated 28 January 2021



E25 has moved to larger shipments of to take advantage of significantly more competitive shipping tariffs at these larger cargo sizes. In order to facilitate the change in cargo sizes, the Company established a laydown area at Pippingarra in Port Hedland where the larger shipments will be established before secondary hauling into the Utah Point facility.

## **Process Plant Optimisation Works**

Data acquired from the first several months of operation has provided invaluable feedback on plant design limitations and opportunities. Several areas have been identified for improvement and the Company is implementing a modification plan which is expected to de-bottleneck the plant resulting in increased throughput. The plan is expected to be rolled out before the end of the year to allow nameplate production to be reached before final engineering decisions are made in relation to the Stage 2 expansion, scheduled for completion in the first half of calendar 2022.

High clay content initially caused some clogging of the grizzly, thereby reducing achievable throughput rates. The incorporation of a scalping screen in front of the crusher resulted in significant improvements, and throughputs have increased towards nameplate. The scalping screen has also been separated from the crusher as it is inherently able to operate at a higher throughput than the crusher and therefore on a single shift basis will be able to produce more than the required crusher feed, allowing stocks to build up on the ROM and allowing drying time to further improve the processability of the material. It is anticipated this approach will improve resilience to wet weather conditions where short term weather events may otherwise exacerbate the clay/crusher issues. Having scalped, dried material on the ROM should mitigate this potential challenge.

#### **Staff Shortages and Elevated Freight Rates**

Labour markets in Western Australia continue to be very tight which has impacted on the Company's ability to recruit sufficient skilled labour to fully complement the required rosters. As a result of COViD vaccination rates progressing towards Government targets, it is anticipated that border restrictions will begin to ease, opening up access to a more diverse pool of workers which should ease pressures in this aspect of the business.





Baltic dry freight rates have been at highly elevated levels in recent months which has impacted on costs given that the Company's offtake agreement includes a CIF manganese price index discounted for actual freight rates (long term average pricing is approximately USD\$18/t). To offset this the Company has moved to larger shipments utilising Supramax vessels which can offer reduced freight charges to minimise the impact of the these COViD related increases in freight costs.



There has been a slight easing of shipping rates in

Figure 1. Baltic Dry Index. Reference: tradingeconomics.com

recent weeks which are expected to further normalise as global shipping related COViD restrictions begin to ease.

#### High Purity Manganese flowsheet Optimisation Test Work

Test Number	Feed Size	Duration	Temp	Pulp Density	Relative Reductant	H2SO4 Stoichiometric	Feed Ore Conc (%)	Final Filtrate Conc Recovery ( (mg/L) Solids (				
Number (min)	(1111)	(C)	(%)	Addition	Ratio (%)	Mn	Fe	Mn	Fe	Mn	Fe	
HY10563	500 μm	60	90	20	1.5	200	33.7	10.5	104900	16800	97.1	52.99
HY10564	500 μm	60	90	20	1.0	200	33.7	10.5	84350	10860	86.6	34.73

During ongoing optimisation test work on the Company's innovative, HPMSM flowsheet, the Company confirmed run-ofmine concentrate product from the Stage 1 beneficiation plant at the Project can be successfully and repeatedly leached to produce a manganese sulphate solution as the first step in producing battery grade High Purity HPMSM for the manufacture of lithium-ion batteries for electric vehicles (EV).

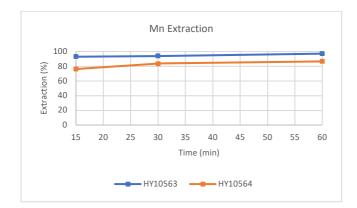
E25 intends to use material produced by its simple low-cost beneficiation process at the Project as feed material for the Company's rapid, simple leach process and test work to date continues to confirm this as a viable development pathway.

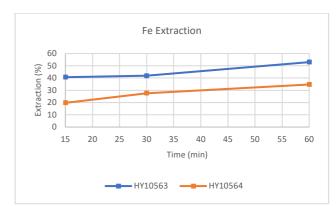
As in previous test work using material from the Project, E25 achieved **high extraction rates of up to 97%** in under 60 minutes with the bulk of the extraction taking place in the **first 15 minutes of the reaction**. The most recent tests utilised an alternative reagent which offers advantages over that used previously both from an availability, cost, process simplification and carbon intensity perspective, in keeping with the Company's objective of becoming a low cost Zero Carbon Manganese<sup>™</sup> producer.

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#### Figure 2. Manganese extraction over time



The test results also show the high selectivity the E25 process can achieve, with clear partitioning of iron and manganese into the liquor and waste residue streams. The next stage of the optimisation work is investigating the optimal approach to purify the leach liquor to both minimise cost and process complexity, whilst also meeting the requirements of potential offtake partners.

Further updates will be released to the market as this work progresses, including the PFS documentation that is expected to show the exciting commercial potential around the conversion of the Company's current concentrate product to battery grade HPMSM to help supply the battery materials required for the electrification of the global vehicle fleet.



#### **Innovation Patent Granted**

During the quarter, E25 confirmed the grant of an **Innovation Patent** for a flowsheet<sup>2</sup> it designed for the extraction of manganese from run-of mine concentrate from the Project.

The patent is based on a process-proven ambient temperature and atmospheric pressure leach with multiple rounds of testing successfully leaching Butcherbird ores to produce a manganese sulphate solution, achieving high recoveries and

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<sup>&</sup>lt;sup>2</sup> Reference: Company ASX Release dated 25 August 2021



excellent selectivity against undesirable impurities. This solution is further processed to produce battery-grade HPMSM for the manufacture of lithium-ion batteries for Evs.

# **Project team focus**

E25's Business Development team is focussing on the next stages of the multi-stage development strategy, including a Stage 2 expansion of the concentrate business followed by a Stage 3 development to convert the concentrate material into **HPMS** for electric vehicle **EV** batteries to power the global transition away from fossil fuel powered mobility.

**Manganese is emerging as an increasingly important ingredient** for EV batteries, with potential supply constraints for nickel and cobalt forcing battery manufacturers to look to high manganese cathodes to produce the vast amount of cathode material required by the EV industry in coming years<sup>3</sup>.

The Project is ideally placed to feed this potential demand, with **advanced flowsheet development** work undertaken in 2019 and 2020 confirming a simple leach process for E25 ores which, when combined with offsets, will target the world's first **Zero Carbon Manganese™** for EV cathode manufacture<sup>4</sup>.

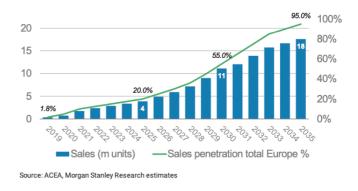


 <sup>&</sup>lt;sup>3</sup> https://thenextavenue.com/2021/01/22/svolt-opens-orders-for-its-nmx-nickel-manganese-batteries/
<sup>4</sup> Reference: Company ASX release dated 12 February 2019.



# **Battery EV Penetration Rate Forecast to Increase Further**

As battery electric vehicle (BEV) makers seek to increase the uptake of electric vehicles, one commercial driver is cost reduction. VW's Power Day suggested a 50% cost reduction for batteries with cell design (-15%), production process (-10%), **cathode/anode materials (-20%)** and battery systems (-5%) driving the change. Global BEV penetration is expected to rise to 15.2% by 2025 and 39.5% in 2030 – led by Europe and China, according to Morgan Stanley's latest report<sup>5</sup>. The main





driver in the cathode materials is a shift to a high manganese cathode material for the volume production, which is expected to underpin strong demand growth for battery-grade manganese sulphate. Current estimates put demand by 2030 at 13 times current supply and a deficit of 1.3Mt even factoring in planned supply increases<sup>6</sup>.

- <sup>5</sup> Morgan Stanley Research published 3 September 2021
- <sup>6</sup> Euromanganese company presentation dated September 2011

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# About the Butcherbird Manganese Project

E25's Butcherbird Manganese Project is a world-class manganese resource with current JORC resources of more than 263Mt of manganese ore<sup>7</sup>. In May 2020, the Company completed a Pre-Feasibility Study (PFS)<sup>8</sup> with respect to developing the deposit to produce manganese concentrate for export to generate early cashflow with a modest capital requirement<sup>9</sup>. Stage 1 of the Project development plan is complete and E25 has commenced shipping ore to offtake partners.

The PFS also highlighted the Project's potential for significant growth beyond the initial Stage 1 production volumes (the studies examined the potential for a 2X and 3X expansion to Stage 1 within 12 months of initial commissioning), and the Company expects to expedite the expansion of the Project in 2H FY2022.

In addition to the concentrate export business, the Company has completed extensive research & development and laboratory test work into the production of high purity manganese products including battery grade manganese sulphate **(HPMSM)** and High Purity Electrolytic Manganese Metal **(HPEMM)**. The work has highlighted that the Butcherbird ores are highly amenable to an ambient temperature, atmospheric pressure leach process, resulting in a very efficient extraction of the manganese into solution, the key requirement for the cost effective and sustainable production of HPMSM and HPEMM.

The Project straddles the Great Northern Highway and the Goldfields Gas Pipeline, providing turnkey logistics and energy solutions. The Company plans to integrate renewable energy into the power solution over time to target a zero-carbon footprint for the Project, which is expected to also reduce energy costs. A cleaner, lower carbon flowsheet and high penetration renewable energy will place Butcherbird at the forefront of sustainable high purity manganese production.

### **Mineral Resources**

Category	Tonnes (Mt)	Mn (%)	Si (%)	Fe (%)	Al (%)
Measured	16	11.6	20.6	11.7	5.7
Indicated	41	10.0	20.9	11.0	5.8
Inferred	206	9.8	20.8	11.4	5.9
Total	263	10.0	20.8	11.4	5.9

Notes:

• Reported at a 7% Mn cut-off for the Measured and Indicated categories and an 8% Mn cut-off for the Inferred categories.

• All figures rounded to reflect the appropriate level of confidence (apparent differences may occur due to rounding)

<sup>&</sup>lt;sup>7</sup> Reference: Company ASX release dated 17 April 2019.

<sup>&</sup>lt;sup>8</sup> Reference: Company ASX release dated 19 may 2020.

<sup>&</sup>lt;sup>9</sup> Reference: Company ASX release dated 3 December 2020



## **Mining Reserve**

Based on the results of the Pre-Feasibility Study completed in May 2020, E25 has published a Maiden Ore Reserve for the Project of 50.55Mt in the Proved and Probable categories<sup>10</sup>.

Classification	Tonnes (Mt)	Grade (Mn%)	Contained Mn (Mt)	Recovered Mn (Mt)
Proved	14.4	11.5	1.65	1.35
Probable	36.2	9.8	3.56	2.92
Total	50.6	10.3	5.21	4.27

# Corporate

## Investment Portfolio (as at 30 September 2021)

In addition to cash reserves, the Company also currently holds securities in the following listed entities:

Listed securities at market value:	No. Held	Closing Price	Market Value
Anova Metals Ltd (ASX:AWV)	7,000,000	\$0.021	\$147,000
Buxton Resources Ltd (ASX:BUX)	356,001	\$0.069	\$24,564
Duketon Mining (ASX:DKM)	1,450,000	\$0.385	\$558,250
Danakali Limited (ASX:DNK)	6,001,331	\$0.435	\$2,610,579
Total			\$3,340,375

## **Change of Principle Place of Business**

The Company's registered office, principal place of business and mailing address changed as of 31 August 2021 to:

Level 1, Building B Garden Office Park 355 Scarborough Beach Road Osborne Park WA 6017

PO Box 1167 Osborne Park DC WA 6916

All other contact details remain unchanged.

#### Justin Brown

#### Managing Director

Company information, ASX announcements, investor presentations, corporate videos and other investor material in the Company's projects can be viewed at: <u>http://www.element25.com.au</u>.



<sup>&</sup>lt;sup>10</sup> Reference: Element 25 Limited Reserve Statement lodged with ASX 19 May 2020.



#### **ASX Additional Information**

#### Appendix 5B Quarterly Report and Statement of Cash Flows

The ASX Appendix 5B quarterly report covering the 3-month period from 1 July 2021 to 30 September 2021 is attached to and lodged with this report. The Company recognised revenue of \$5,443k from its first two shipments of manganese concentrate. Exploration and evaluation expenditure was \$106k, associated with tenement compliance costs. Mining development activities totalled \$175k predominantly associated with stage 2 expansion plan costs. Production costs, including mining, processing, haulage, port, royalties and site administration, totalled \$8,924k. Production costs along with staff costs reflect a full quarters costs and receipts reflect two months shipments only. The inventory has been produced for the September shipment with cash receipts timed to the larger shipment now anticipated in November 2021. Operating costs reflected in over 20,000 tonnes of unshipped inventory on hand costs. Staff costs in the quarter totalled \$1,107k. Corporate and administration expenses totalled \$438k. In addition, \$82k was moved from restricted to non-restricted cash in relation to the release of a number of bank guarantees. Net cash outflows from investing activities was \$118k for expenditure on items of property, plant and equipment. Net cash outflows from financing activities was \$109k in relation to lease payments.

#### Payments to Related Parties and their Associates

In accordance with ASX Listing Rule 5.3.5, payments to related parties of the Company and their associates during the quarter totalled \$86k to the directors including salary, directors' fees, consulting fees and superannuation. This amount is included at Item 1.2(d) of the Appendix 5B.

## **Competent Persons Statement**

The company confirms that in the case of estimates of Mineral Resource or Ore Reserves, all material assumptions and technical parameters underpinning the estimates in the market announcements dated 17 April 2019 and 19 May 2020 continue to apply and have not materially changed. The company confirms that the form and context in which the competent person's findings are presented has not been materially modified from the original market announcements.

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled by Mr Justin Brown who is a member of the Australasian Institute of Mining and Metallurgy. At the time that the Exploration Results and Exploration Targets were compiled, Mr Brown was an employee of Element 25 Limited. Mr Brown is a geologist and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Brown consents to the inclusion of this information in the form and context in which it appears in this report.

This announcement is authorised for market release by Element 25 Limited's Board of Directors.





# ASX Additional Information for Quarterly Report to 30 Sepember 2021

	Tenement reference	Location	Interest at beginning of quarter	Acquired/ Disposed	Interest at end of quarter
The mining tenements	E09/2415	Isle Bore WA	100%	N/A	100%
held at the end of the quarter and their	E20/659	Eelya Hill WA	10%	N/A	10%
location	E20/953	Sunday Well WA	100%	Disposed	0%
	E28/2577	Pinnacles WA	100%	N/A	100%
	E28/2761	Flanker South WA	100%	N/A	100%
	E46/1366	Black Hill WA	100%	N/A	100%
	E52/1529	Mt Padbury WA	100% (Note 1)	N/A	100% (Note 1)
	E52/2350	Butcher Bird WA	100%	N/A	100%
	E52/3606	Yanneri Bore WA	100%	N/A	100%
	E52/3706	Yanneri Pool WA	100%	N/A	100%
	E52/3735	Limestone Bore WA	100%	N/A	100%
	E52/3738	Mt Padbury WA	100%	N/A	100%
	E52/3769	Kumarina WA	100%	N/A	100%
	E52/3779	Beyondie Bluff WA	100%	N/A	100%
	E52/3788	Neds Gap WA	100%	Disposed	0%
	E52/3789	Coner Bore WA	100%	N/A	100%
	E52/3840	Woolgatharra Pool WA	100%	N/A	100%
	E52/3858	Yanneri Well WA	100%	N/A	100%
	E52/3947	Weelarrana WA	100%	N/A	100%
	E52/3973	Neds Gap WA	0%	Acquired	100%
	L52/211	Limestone Bore WA	100%	N/A	100%
	L52/215	Butcherbird East 1 WA	100%	N/A	100%
	L52/216	Butcherbird East 2 WA	100%	N/A	100%
	L52/217	Butcherbird East 3 WA	100%	N/A	100%
	L52/218	Butcherbird East 4 WA	100%	N/A	100%
	L52/220	Butcherbird East 5 WA	100%	N/A	100%
	L52/221	Butcherbird East 6 WA	100%	N/A	100%
	L52/225	Butcherbird East 7 WA	100%	N/A	100%
	M52/1074	Yaneri Ridge WA	100%	N/A	100%
	E57/1060	Victory Well WA	20%	N/A	20%
	E63/2027	Lake Johnston WA	100%	N/A	100%
	E80/5056	Eileen Bore WA	100%	N/A	100%

S.M.

Notes:

1) 100% interest held in all minerals other than iron ore and manganese.

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