

E25 Provides HPMSM Location Update

- Element 25 is currently undertaking a **Feasibility Study (FS)** into the production of **HPMSM** via the hydrometallurgical processing of Butcherbird manganese concentrate.
- As part of the FS, **multiple locations** are being assessed with respect to the preferred location for the first HPMSM module.
- The Feasibility design philosophy is one of “**design one – build many**” (DOBM).
- This DOBM approach will optimise design so that the core elements of the plant can be reproduced globally whilst minimising the level of localisation required.
- Sarawak Malaysia is one of the potential sites for the construction of the first plant and the FS is undertaking localisation studies to assess suitability.
- The FS will assess the logistics, infrastructure, reagent availability, site specific civil engineering and government incentives for which Element 25 may be eligible.
- Discussions are also ongoing with potential offtake partners with respect to an **EU or USA** based location for either the first or subsequent conversion facility builds.



Element 25 Limited (**E25** or **Company**) (**ASX:E25**) is pleased to provide an update with respect to the planned production of high purity battery grade manganese sulphate monohydrate (**HPMSM**) from manganese oxide concentrates currently produced at the Company’s 100% owned Butcherbird Project (**Project**).

As recently reported in Malaysian news publication The Star¹, Borneo Post and others, E25 are currently in discussions with the Malaysian Investment Development Authority (**MIDA**) and the Sarawak State Government in relation to building the first planned conversion plant in Sarawak to produce **HPMSM** for lithium-ion batteries used by electric vehicles (**EVs**).

HPMSM is the highest purity “battery grade” manganese chemical used in lithium-ion batteries and demand for this specialty material is expected to grow rapidly in coming years in line with the growth in production of EV’s.

¹ <https://www.thestar.com.my/business/business-news/2022/07/11/aussie-firm-plans-rm1bil-plant-in-sarawak>

COMPANY SNAPSHOT

Market Summary

ASX code: E25
 Shares on issue: 153M
 Share price: \$0.52

Board of Directors:

Seamus Cornelius Chairman
 Justin Brown MD
 John Ribbons 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.

Company executives and technical team members visited Sarawak in May 2022 to meet with Sarawak Deputy Premier and Minister of International Trade and Investment Datuk Amar Awang Tengah Ali Hasan as well as MIDA delegates and local consulting groups who can assist in project delivery once a site is finalised.

The Sarawak Deputy Premier and his delegation subsequently met with E25 senior project team members in Perth Western Australia. During the meeting, Element 25 further briefed the Sarawak delegation on the proposed investment in the manufacturing plant (subject to regulatory approvals and project financing).

Manganese is emerging as an increasingly important ingredient for EV batteries, with the 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 for the EV industry.



Figure 1. Samalaju Industrial Park, Sarawak Malaysia

The Company is currently completing a Feasibility Study for the Project. The FS is examining the potential to design a location agnostic conversion facility which can potentially be built in multiple locations to match growing demand from the battery industry, with a “design one – build many” (DOBM) philosophy. The FS is also undertaking location specific investigations into the suitability of a Malaysian location for the first of the proposed HPMSM conversion facilities.



Figure 2. Element 25 is adopting a “design one-build many philosophy with respect to implementing its HPMSM conversion technology.

In welcoming the Company’s proposal to prioritise Sarawak as the project construction location, Awang Tengah said the adoption of environmentally friendly technologies, including lithium-ion batteries for EV, is gaining popularity due to decarbonisation. “Sarawak welcomes manufacturing activities as they are in line with our Post-Covid-19 Development Strategy 2030 that aims to achieve a high-income economy¹.”

The proprietary flowsheet for the E25 HPMSM conversion process utilises innovative approaches to reducing energy consumption and carbon emissions, using alternative plant-based reagents and minimising residue streams by generating co-products that can be consumed in other industrial processes to eliminate waste wherever possible.

E25 Managing Director Mr Justin Brown commented, *“Element 25 is moving rapidly towards achieving its goal of becoming a world class, low-carbon battery materials manufacturer to supply the world’s growing need for sustainable battery materials. We look forward to working closely with the Malaysian authorities to determine whether Sarawak is the optimal location for the development of our first processing facility as we pivot Element 25 to be a key participant in this emerging industry.”*



Figure 3. Samalaju Industrial Park bulk port, Sarawak Malaysia



Figure 4. Roundtable discussion in Sarawak Malaysia between the Bintulu Development Authority and Element 25 executives.

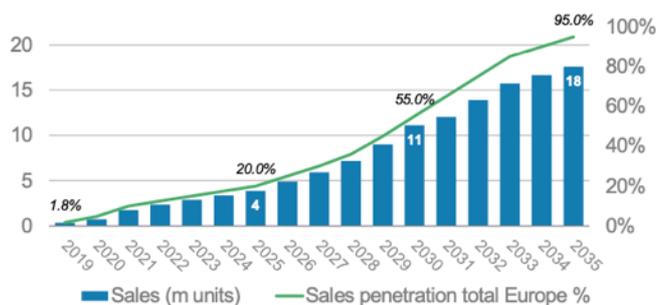
Project Team Focus

E25's Operations team continues to focus on delivering sustained nameplate production. The Business Development team is focussing on E25's multi-stage development strategy, including a Stage 2 expansion of the concentrate business in parallel with the Stage 3 development of a conversion facility to convert the concentrate material into HPMSM 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 years².

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 manufacture³.

The Company released a Scoping Study (**Study**) in January 2022⁴ to update the market prior to the release of the Feasibility Study (**FS**) which is currently being completed.



Source: ACEA, Morgan Stanley Research estimates

Table 1. Europe BEV sales volumes (m) and penetration (%)

Battery EV Penetration Rate Forecast to Increase

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 report⁵. 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 increases⁶.

² <https://thenextavenue.com/2021/01/22/svolt-opens-orders-for-its-nmx-nickel-manganese-batteries/>

³ Reference: Company ASX release dated 12 February 2019

⁴ Reference: Company ASX release dated 18 January 2022

⁵ Morgan Stanley Research published 3 September 2021

⁶ Euromanganese company presentation dated September 2021

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 ore⁷. In May 2020, the Company completed a Pre-Feasibility Study (PFS)⁸ with respect to developing the deposit to produce manganese concentrate for export to generate early cashflow with a modest capital requirement⁹. 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)

⁷ Reference: Company ASX release dated 17 April 2019.

⁸ Reference: Company ASX release dated 19 May 2020.

⁹ 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 categories¹⁰.

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

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: <http://www.element25.com.au>.

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.

¹⁰ Reference: Element 25 Limited Reserve Statement lodged with ASX 19 May 2020.