

## A low-risk, high-potential lead-silver play

### Metals & Mining

Boab Metals Limited (ASX: BML) is a Perth-based resources company developing the Sorby Hills open-pit mine. Based in the tier-1 mining jurisdiction of Western Australia (WA), the Project has one of Australia's largest undeveloped, near-surface lead-silver deposits. With the robust economics of the Definitive Feasibility Study (DFS) and increase in processing scale confirmed, BML is set to fast-track the mining operations with FEED work ongoing with GR Engineering.

### High-confidence DFS Mine Plan with robust economics

BML has spent 4 years drilling c.300 diamond-cut holes to increase the size and confidence levels in the Sorby Hills deposit as well as enhance the geotechnical and metallurgical understanding of the deposit. The DFS Mine Plan is based on c.80% of Ore Reserves, and 75% of all costs are tendered costs. A c.50% increase in the process plant capacity has been highlighted. DFS has demonstrated favourable economics of the project with a low cash cost. BML is targeting Final Investment Decision (FID) in Q3 2023 and first concentrate production by Q1 2025.

### Increasing energy transition demand for lead and silver

Technological advancement has supported lead and silver demand as critical materials for industrial applications, i.e. automotive applications, power storage batteries, solar panels etc. However, COVID has forcefully suspended a lot of investment on the supply side, thereby causing a wide demand-supply gap. According to the Silver Institute, the industrial demand for silver is expected to reach a historical high of 550 million ounce (Moz) in 2023. Similarly, global demand for lead is also expected to remain north of supply in foreseeable future. This is expected to provide BML with a substantial market opportunity.

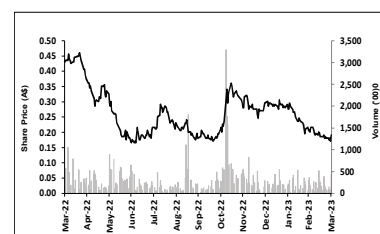
### Valuation range of A\$0.74–0.84 per share

Using the DCF approach and conservative assumptions on commodity prices, we have valued BML at A\$0.74 per share in a base-case scenario and A\$0.84 per share in a bull-case scenario. The target price range represents a Price/NAV of 0.25x, which we believe provides enough cushion for potential investors. We expect BML to get re-rated with the announcement of an offtake agreement or a debt funding arrangement prior to the FID and be able to raise equity capital at A\$0.35 per share (25% higher than the latest capital raising price of A\$0.28 per share in November 2022). Our valuation does not take into account the possible value-unlocking from non-core assets. The key risks include: funding risk, project delays and commodity price risk.

Year end (A\$m)	FY 21	FY 22	FY 23e	FY 24e	FY 25e
Revenue	0.5	0.3	0.2	0.3	222.2
EBITDA	(5.0)	(6.7)	(6.2)	(5.8)	68.6
EBITDA Margin (%)	NM	NM	NM	NM	30.9%
EPS (A\$ cents)	(3.6)	(4.4)	(3.6)	(3.2)	6.8
FCF	(4.6)	(6.5)	(6.5)	(222.6)	(31.1)
P/E (x)	NM	NM	NM	NM	0.03x
EV/EBITDA (x)	NM	NM	NM	NM	3.1x
EV/Sales (x)	NM	NM	NM	NM	1.0x

Current Price (A\$)	0.195
Target Price (A\$)	0.74-0.84
Price / NAV (x)	0.25x
Market Cap (A\$m)	34.0
52-week H/L (A\$)	0.47 / 0.165
Free Float (%)	75.5%
Bloomberg	BML AU
Reuters	BML.AX

### Price Performance (in A\$)



### Business description

Boab Metals Ltd (BML) is a Perth-based explorer and mine developer. Formerly known as Pacifico Minerals Limited, BML has been listed on ASX since 2004. It is mainly engaged in developing the Sorby Hills project site (75% ownership). Sorby Hills area has one of Australia's largest undeveloped and near surface lead-silver deposits. BML also owns the Manbarrum project site (100%) which is 25Km of Sorby Hills site. The company also has two non-core assets, one each in Western Australia and Columbia.

### Analyst

**Behzad Golmohammadi** Behzad  
@sharesinvalue.com.au

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# Investment Rationale

Boab Metals (ASX:BML) is a base and precious metal explorer and mine developer based in Perth, Western Australia (WA). The company's flagship asset is Sorby Hills lead-silver project, located in Kimberley region of WA. BML owns 75% stake in the project, and the remaining 25% is owned by the joint venture (JV) partner, Henan Yuguang Gold and Lead Co. Ltd. (China's largest lead smelter and silver producer).

The company has one more core asset, the Manbarrum project, located within the same geology of Sorby Hills. In addition, BML owns a portfolio of non-core assets, both in Australia and overseas in Columbia. Currently, BML is completely focused on developing the Sorby Hills project and has kept development of all other non-core assets on hold.

## Sorby Hill project offers multitude of economic benefits

BML's flagship Project, Sorby Hills, is located in a tier-1 mining jurisdiction. The Bonaparte Basin is a remote and under-explored mineral province prospective for carbonate-hosted for zinc-lead-silver mineralisation. The project site is one of Australia's largest undeveloped, near surface lead-silver deposit base. The Sorby Hills site comprises high-quality resources and reserves estimated at 1.5 million tonnes (Mt) of lead and 53 million ounces (Moz) of silver, 2/3rd of which are proven reserves. The mineralisation grade and size of resource estimation have improved substantially post the recent phase VI drilling programme. The ore extraction is relatively easy through a planned open-pit operation. The reserves are very near the surface at only 20m with further mineralisation remaining open at depth. The Sorby Hills project is located nearby the regional centre of Kununurra, which has existing road infrastructure to transport concentrate. The site lies just 150km away from Wyndham Port, Australia's closest port to Asia. The project's location provides an additional economic advantage as it will cost relatively lower for BML to ship the output to end-users. The management has also been able to secure grid power supply from Horizon Power — over **90% power supply will be obtained from renewable sources** of energy from the Ord River Hydroelectric Power Plant. This helps the project score higher on ESG parameters. Recently, BML has secured amended Environment Protection Authority (EPA) approval to quickly ramp up production. We believe that with the necessary environmental approvals in place, the power supply agreement done, the required infrastructure already existing and natural near-surface mining, Sorby Hills is a low-risk mining project having substantial upside valuation potential for investors.

## Completion of Definitive Feasibility Study (DFS) an added advantage

BML completed its Definitive Feasibility Study (DFS) of Sorby Hills in January 2023, demonstrating the compelling economics of the project. The project exhibits low-risk operations and reported a 78% increase in measured resources (compared with the result of PFS). After the study, the ore reserves saw a 12% increase to 15.2Mt. The estimated C1 cash cost (direct cash cost incurred at each processing stage) of US\$0.39 per pound of lead is one of the lowest in the current environment and is expected to deliver operating profitability of >40%. With c.80% of the production target underpinned by ore reserves, the project offers significant economic upside potential for investors. As per the DFS, with 8-10 years of mining life, the project offers a high potential return on investment (IRR of 35%), under current pricing assumptions.

## BML is swiftly progressing towards closing project financing

Post the completion of DFS, the company has initiated the next logical process of the assessment of financing options and has been engaging with various lenders, including the Northern Australian Infrastructure Facility (NAIF), Export Finance Australia (EFA) and other domestic and international banks. **Sorby Hills is a low-risk project with c.75% of the pre-production capital expenditure and direct mining costs supported by current tendered pricing. This minimises the risk of substantial cost increases, which is quite common in most mining projects these days due to the currently high inflationary macroeconomic environment.** As a result, the management is confident that the risk of cost overruns is minimal, and is maintaining the aim to achieve Final Investment Decision (FID) and a decision-to-mine in Q3 2023.

*Sorby Hills is a low-risk project with near surface open-pit mining, existing infrastructure and in-place regulatory approvals*

*With the recent A\$5.5m equity capital raised, BML is well-funded to commence on-site works*

BML has been able to secure a partnership with GR Engineering Services (GRES), Australia's leading engineering consulting and contracting company. GRES is going to take up the construction of the Process Plant. It has already initiated the front-end engineering & design work. The expected offsite and fabrication process is expected to commence immediately after closing the FID. Subject to successful funding, BML intends to produce its first concentrate by Q1 2025.

### **BML's strategic acquisition of Manbarrum project**

BML has acquired a 100% interest in the Manbarrum zinc-lead-silver project in July, 2021. The project is located in Northern Territory, 25km east of the Sorby Hills project site. It has 175 sq km of prospective tenements (including two granted mining leases) and has geology that is genetically related to that found at Sorby Hills. We believe this will allow BML to leverage its existing technical knowledge of the area's geology to maximise exploration and resource outcome of the project.

Strategic acquisitions of Eight Mile Creek (100% owned tenement with 217 sq km area within Sorby Hills project site) and Manbarrum project indicates management's intension to enhance regional exploration potential. This shows the company's strong inclination to expand in the high-potential region and increase its zinc-lead-silver resource base. This is expected to establish BML as a long-term mineral producer.

Of late, the company management has categorically rejected the idea of selling any acreage for raising funds. This highlights the confidence management has in the project economics. The management is optimistic about securing funding from leading institutions on favourable commercial terms.

### **Global demand-supply gap is fuelling offtake interest**

The onset of the pandemic and the subsequent stringent regulations by governments across countries have been compelling road users to shift towards sustainable mobility, i.e. hybrid vehicles, EVs etc. Despite the availability of alternative battery technologies (the most common one being the lithium-ion batteries), we believe the utility of lead-acid battery is not going to lose its charm. The Hybrid EVs (with a forecast 28.9% CAGR over 2022-30) still need lead-acid battery for ignition and other ancillary functions. In addition, as a result of the technological advancements, lead continues to be extensively used in renewable energy storage batteries, telecom tower power batteries, etc.

Similarly, despite global economy facing headwinds, technological advancement is supporting the industrial utility of silver. In addition to the traditional usage of the precious metal in jewellerys and ornaments, silver is increasingly being used in new-age industries of jet engines, solar panels, electronic devices, water purification, etc.

On the other hand, the under-investment in lead and silver production since COVID-19 has created a widening supply-demand gap for those metals, which creates a long-term market opportunity for BML.

### **BML is currently trading at a substantial discount to its intrinsic value**

Given the low-risk nature of the main project and the progress that has been made on the site with respect to the DFS outcome, we believe that BML is highly undervalued. Additionally, we believe the exposure to the silver market further increases the attractiveness of BML. Our DCF-based valuation across base-case and bull-case scenarios at a discount rate (WACC) of 11.6% yields a target price range of A\$0.74-\$0.84 per share. It is imperative to note that the value-unlocking from non-core assets is not included this valuation. The company is seeking partnerships for its non-core asset portfolio, which we believe makes sense to continue realising value whilst mitigating risks for shareholders. This is expected to provide further organic growth prospects, thereby supporting the idea of even higher upside potential to the stock's valuation.

Key risks to our investment thesis include a worsening inflation situation, which will hurt the economic growth across industries globally. In addition, a steep appreciation of the interest rates and uncertainty around the financial markets might restrict the company's ability to successfully close the funding plan on preferable terms, negatively impacting investor's potential return.

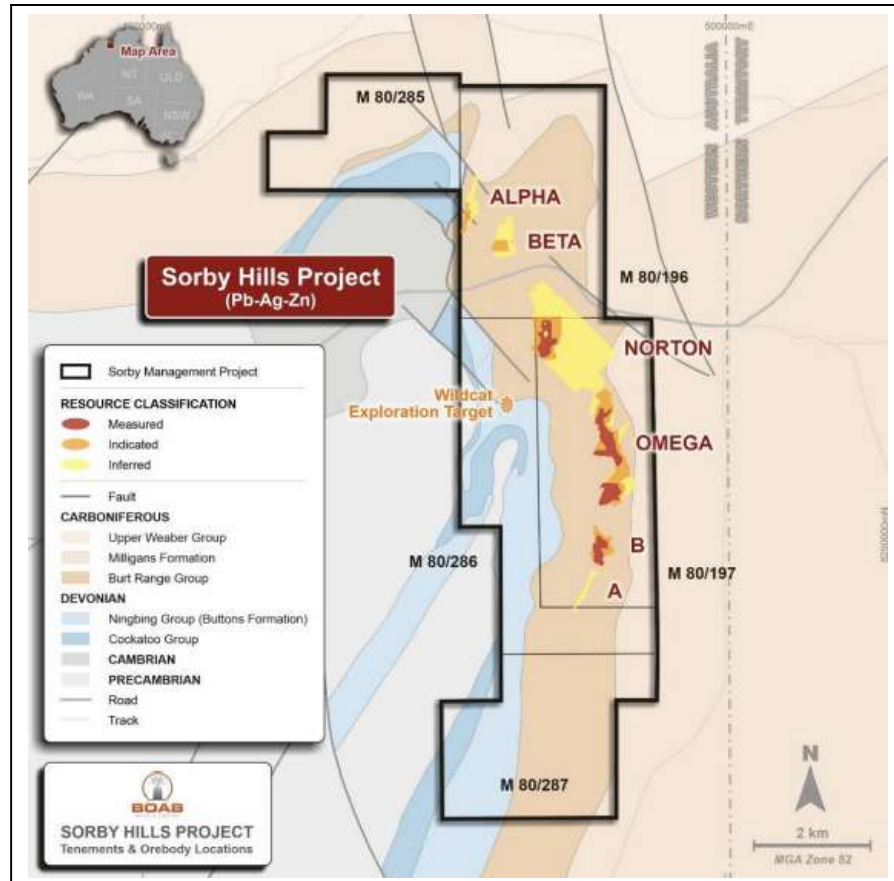
*Strategic acquisition shows the strong intention of the company to enhance its regional exploration potential*

*Higher-than-expected interest rates volatility pose risks to our investment thesis*

# Sorby Hills — the company's flagship project

The Sorby Hills project has one of the largest undeveloped, near-surface lead-silver-zinc deposits in Australia. BML acquired a 75% stake in the project in October, 2018 and the remaining 25% is owned by Yuguang (Australia) Pty Ltd., a wholly owned subsidiary of Henan Yuguang Gold and Lead Co. Ltd. (China's largest lead smelter and silver producer). Sorby Hills comprises granted mining leases covering six lead-silver-zinc deposits in the Kimberley region, WA (Figure 1).

**Figure 1: Sorby Hills project**



*Sorby Hills is one of the largest undeveloped, near-surface lead-silver-zinc deposits in Australia*

Source: Company

The project consists of five mining leases (M80/196-197 and M80/285-287) jointly held by BML and Yuguang (Australia). Additionally, BML has 100% ownership of the Eight Mile Creek project (E80/5317), located immediately south of the Sorby Hills.

**Figure 2: Sorby Hills Tenement Summary**

Tenement	Area (sq km)	Boab ownership %	Granted	Expiry
M80/196	9.99	75%	22-01-1988	21-01-2030
M80/197	9.95	75%	22-01-1988	21-01-2030
M80/285	5.57	75%	29-03-1989	28-03-2031
M80/286	7.89	75%	29-03-1989	28-03-2031
M80/287	8.15	75%	29-03-1989	28-03-2031
E80/5317	217	100%	05-03-2020	04-03-2025

Source: Company



## Strategic benefits of the Sorby Hills project

Sorby Hills project offers multitude advantages, i.e. favourable geology, near to infrastructure, high quality resource base etc. All these factors offer multitude advantages making BML a low-risk high potential play.

### I. Favourable geology

The flagship project enjoys favourable regional geology as it is a part of the onshore Bonaparte Basin, which is an under-explored mineral province prospective for zinc-lead-silver mineralisation (Figure 3).

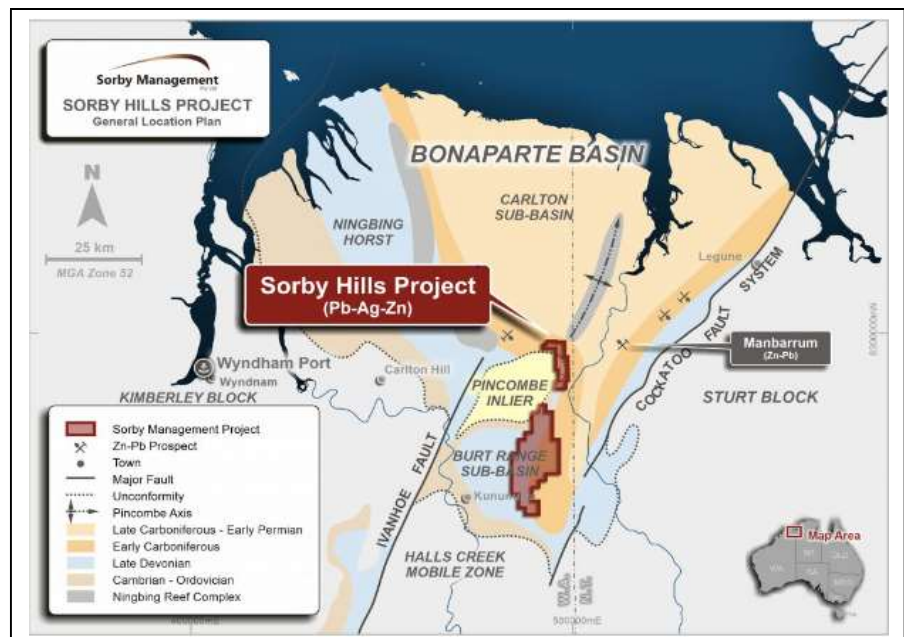
The Sorby Hills mineralisation is classified as Mississippi Valley Type (MVT), indicating replacement of carbonate and mixed carbonate siliciclastic rocks by Pb-Ag-Zn-Fe<sup>1</sup> sulphides. MVT mineralisation also referred to as carbonate-hosted zinc-lead (silver) mineralisation and is globally known to form mineral districts hosting millions of tonnes of base metals. Exploration across globe has vindicated that most MVT districts include multiple deposits ranging 0.5 Mt to 10 Mt. The smaller Burt Range Sub-basin within the Bonaparte Basin is analogous to global MVT districts in terms of size, source of metals, pathways for the expulsion of mineralisation and trap sites for mineralisation.

BML's exploration team takes the view that the Burt Range Sub-basin is highly prospective for MVT deposits and has significant remaining exploration potential.

Recent geological assessment has refined this to a sediment-replacement system, with mineralisation focused within an interval below the base of the Knox Sediments and the Sorby Dolomite (Transition Facies).

The mineralisation is largely stratabound and hosted mainly in the Transition Facies, an interval of about 20-25m. A massive micritic fossiliferous dolomite interval is located in the hanging wall. Strata generally dip shallowly, but variably to the east, southeast and northeast. The deposits form a curvi-linear north-trending belt extending over 7km, sub-parallel to the eastern margin of the Precambrian Pincombe Inlier with sub-economic mineralisation linking all deposits.

**Figure 3: Geology of Sorby Hills project**



Source: Company

<sup>1</sup> Pb is the symbol for lead, Ag is the symbol for silver, Zn is the symbol for zinc and Fe is the symbol for iron.

## II. Favourable location and infrastructure

The Sorby Hills project is strategically located and is only 50kms away from the regional centre of Kununurra and 150kms from the Wyndham port (Figure 4) in the Kimberley region in WA. Resource-rich WA is the most attractive region for mining investment, replacing the US state of Nevada, which fell to the third place in the 2021 annual survey of mining companies released by Fraser Institute<sup>2</sup>. The region has a rich mining and exploration history and is one of the world's largest exporters of raw materials such as iron ore, gold, lithium, copper, lead, and zinc.

The project has all the necessary infrastructure in place, which includes the following:

- **Port access and services agreement:** Agreement in place with Cambridge Gulf for access and stevedoring services at Wyndham port until April 2034 (Figure 5). Wyndham port is the only deep-water port between Broome and Darwin and serves as an important link within Northern Australia's primary and secondary industries' supply chains. The company believes that this agreement will secure a path to market for the concentrates that it will produce from Sorby Hills;
- **Power:** Heads of agreement (HOA) executed with Horizon Power in order to secure c.90% of the annual electricity consumed by the project. Sorby Hills will be supplied with low-cost, clean renewable energy from the Ord River Hydroelectric Power Plant for a period of 10 years;
- **Accommodation camp:** BML has purchased a 178-person accommodation camp to be used to house project employees and contractors on the project site. The camp comprises of 33 four-room buildings and 23 two-room buildings each and four laundry buildings;
- **On-site infrastructure facilities includes** tailings storage facility, mine water settling pond, water storage facility, evaporation ponds and a water treatment plant;
- **Off-site infrastructure facilities includes:** Accommodation and messing facilities in Kununurra (operations phase), road infrastructure, a concentrate container storage area and a container wash-down station at Wyndham Port.

Figure 4: Sorby Hills transport route



Figure 5: Wyndham port



Source: Company

<sup>2</sup> <https://www.mining.com/western-australia-is-worlds-new-top-mining-destination/>

### III. High-quality mineral resource base

BML has achieved outstanding drilling success, which revealed substantial resources of 47.3Mt at 4.1% of lead equivalent (3.1% Pb, 35g/t Ag) and 0.4% Zinc (Figure 6) containing 1.5Mt Pb, 53 Moz Ag and 0.21kt Zn. As per the latest update, there has been a 14% increase in measured and indicated resources versus the pre-feasibility study's indicated resources. BML also reported a 78% increase in measured resources and the project's ore reserves saw a 12% increase and reached 15.2Mt.

**Figure 6: Total mineral resource estimate**

Deposit	Classification	Tonnes (Mt)	Grade				Contained Metal		
			Pb %	Zn %	Ag g/t	PbEq <sup>1</sup> %	Pb kt	Zn kt	Ag koz
A	Inferred	0.6	5.3%	1.0%	23	6.1%	31	6	427
	<b>Sub Total</b>	<b>0.6</b>	<b>5.3%</b>	<b>0.1%</b>	<b>23</b>	<b>6.1%</b>	<b>31</b>	<b>6</b>	<b>427</b>
B	Measured	1.4	3.8%	0.3%	19	4.5%	52	4	859
	Indicated	1.3	3.4%	0.3%	21	4.1%	44	4	862
	<b>Sub Total</b>	<b>2.7</b>	<b>3.6%</b>	<b>0.3%</b>	<b>20</b>	<b>4.3%</b>	<b>97</b>	<b>8</b>	<b>1,720</b>
Omega	Measured	8.5	3.3%	0.4%	37	4.6%	279	32	9,995
	Indicated	5.8	3.5%	0.4%	34	4.7%	205	25	6,331
	Inferred	2.9	2.7%	0.4%	26	3.6%	76	13	2,414
	<b>Sub Total</b>	<b>17.2</b>	<b>3.3%</b>	<b>0.4%</b>	<b>34</b>	<b>4.5%</b>	<b>566</b>	<b>71</b>	<b>18,948</b>
Norton	Measured	2.8	4.1%	0.3%	75	6.7%	112	9	6,668
	Indicated	2.1	3.2%	0.5%	38	4.5%	68	11	2,617
	Inferred	16.2	2.5%	0.5%	27	3.4%	402	75	14,039
	<b>Sub Total</b>	<b>21.1</b>	<b>2.8%</b>	<b>0.4%</b>	<b>34</b>	<b>4.0%</b>	<b>590</b>	<b>96</b>	<b>24,090</b>
Alpha	Indicated	0.7	2.6%	0.5%	41	4.0%	18	4	923
	Inferred	0.8	3.6%	1.2%	86	6.6%	27	9	2,052
	<b>Sub Total</b>	<b>1.5</b>	<b>3.1%</b>	<b>0.9%</b>	<b>64</b>	<b>5.3%</b>	<b>45</b>	<b>13</b>	<b>2,975</b>
Beta	Indicated	1.0	4.1%	0.2%	42	5.6%	42	2	1,382
	Inferred	3.2	3.4%	0.4%	43	4.9%	109	14	4,474
	<b>Sub Total</b>	<b>4.2</b>	<b>3.6%</b>	<b>0.4%</b>	<b>43</b>	<b>5.1%</b>	<b>151</b>	<b>17</b>	<b>5,856</b>
Total Resource	Measured	12.6	3.5%	0.4%	43	5.0%	444	45	17,521
	Indicated	11.0	3.4%	0.4%	34	4.6%	377	46	12,114
	Inferred	23.6	2.7%	0.5%	31	3.8%	645	117	23,406
	<b>Total</b>	<b>47.3</b>	<b>3.1%</b>	<b>0.4%</b>	<b>35</b>	<b>4.3%</b>	<b>1,465</b>	<b>207</b>	<b>53,042</b>

Source: Company

### IV. Strong Joint venture partner

**BML's JV partner  
Henan Yuguang  
Gold and Lead Co.  
Ltd. is China's  
largest lead smelter  
and silver producer**

The Sorby Hills project remains a strong prospect as it is backed by Henan Yuguang Gold and Lead Co. Ltd. (Yuguang), China's largest lead smelter and silver producer, via a 75%/25% JV. Yuguang has fully endorsed the Sorby Hills' DFS programme and is providing its 25% contribution to the total DFS costs. Further, Yuguang is completely committed to work with BML in order to accelerate the project financing process, supporting the progress towards FID and a decision-to-mine.

### V. Significant regional exploration potential

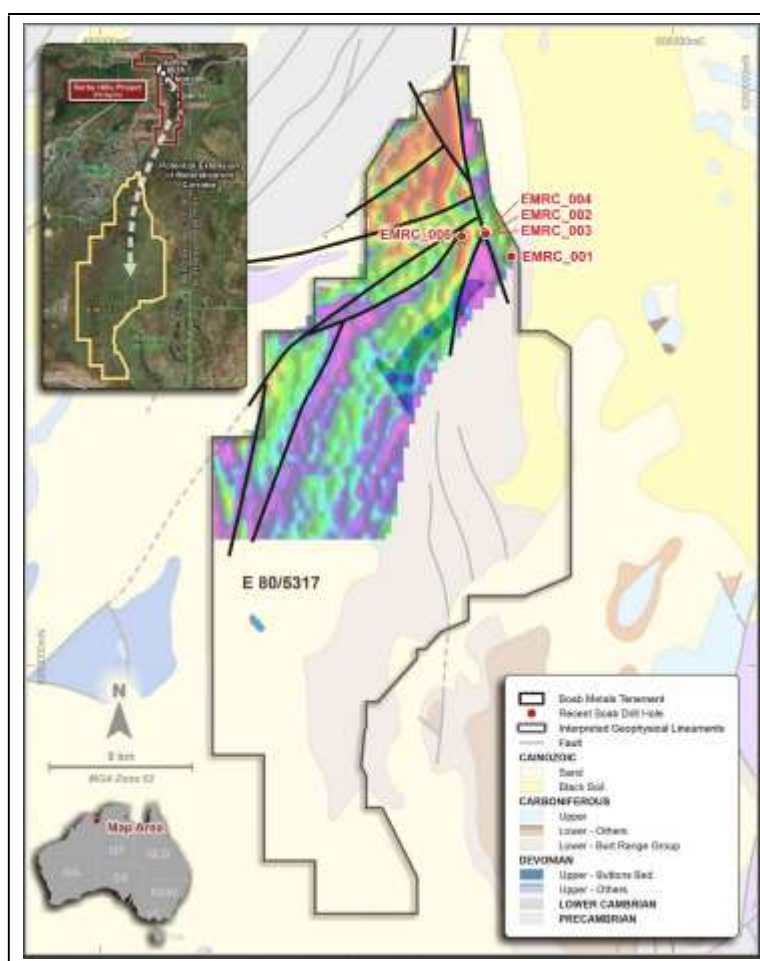
Strategic acquisitions of Eight Mile Creek and Manbarrum projects are indicative of the management's intension to enhance the regional exploration potential.

The Eight Mile Creek project (Exploration licence E80/5317) is 100% owned tenement and covers 206 sq km of underexplored tenure immediately south of Sorby Hills (Figure 7). The project has 30km of geology, prospective for deposits similar to those found at Sorby Hills. The 2022 drill programme targeted two locations to determine mineral prospects in the southern portion of Burt Range Sub-basin. The company has a strong inclination to expand in the high-potential region and increase its zinc-lead-silver resource base. The maiden drilling of the prospective Eight Mile Creek project is a step towards progressing on growth opportunities.

The company want to leverage its operational and geological synergies to create a regional mining camp in order to establish BML as a long-term mineral producer.



Figure 7: Location of Eight Mile Creek relative to the Sorby Hills project



Source: Company

## VI. Deep roots within the Kimberley community

BML understands the importance of establishing and maintaining relationship with communities in which they operate. That's why the company has become the Naming Rights Sponsor of the Ord Valley Muster for 2023 and beyond (Figure 8). The Ord Valley Muster is an annual festival of music, art and culture and attracts thousands of visitors to Kununurra to experience the stunning landscape, cultural diversity and Kimberley hospitality since the last 20 years. The sponsorship is an indication of the company's commitment to the town of Kununurra and the Kimberley community.

Also, through BML's partnership, the Teach Learn Grow rural programme reached the children of the East Kimberley community for the first time in 2021.

BML supports the local communities in a wide range of areas, it seeks to negotiate an agreement with the MG Corporation to provide employment, contracting opportunities and other benefits through the Sorby Hills project to Miriuwung and Gajerrong people.

*Consistent engagement with local community is highly important for mitigating social risks and BML is following the pattern*

Figure 8: Ord Valley Muster



Source: Company

*EPA approval is a breakthrough as it paves the way for clearance of the Biodiversity Conversation Act 2016 and to begin with early works*

## VII. Substantial leap forward with early works approval

In July 2022 BML received its amended EPA (Environmental Protection Authority) approval for early Works at Sorby Hills. The EPA initially approved BML for the Project's development in 2014. More recently, BML obtained approval for the amendments under section 45C(1) of the Environment Protection Act, allowing the company to increase its permitted development area. This will enable the company to begin the expansion, prepare the site to accommodate all-weather access to the project, and develop a materials laydown and hardstand area to facilitate the construction of its expanded processing plant. The approval also permits the establishment of the accommodation village.

The approval of the EPA amendment is a breakthrough as it paves the way for the final clearance of the Biodiversity Conversation Act 2016 and assessing the mining proposal of the Early Works.

## DFS depicts robust project economics

The company recently released its DFS in January 2023. The main highlights of the study are:

- On the operational front, the open-pit production target stands at 18.3Mt at an average grade of 3.4% lead and 39g/t silver supported 83% by ore reserves, including 10.4Mt proved ore reserves.
- 2.25Mtpa capacity conventional flotation process plant producing an average of 103ktpa of lead-silver concentrate containing 67kt of lead and 2.2 Moz of silver.
- Impressive project financials, including a net cash flow of A\$705m and an NPV<sub>8</sub> of A\$370m. An average annualised EBITDA of A\$119m with an internal rate of return (IRR) of 35%.
- In terms of costs, a pre-production capital expenditure (CAPEX) of A\$245m is required to put Sorby Hills into production.
- As per the study, more than 50% of capex will go into the processing plant's engineering, procurement, and construction (EPC), A\$40m has been set aside for early works and related infrastructure and A\$21m has been set aside for contingency.
- C1 cash cost of US\$0.39/lb of payable lead, including a net silver credit of US\$0.38/lb payable lead, delivering an average operating margin of 41%.

*Exploration results at the project have led to a 78% increase in measured resource and a 12% jump in ore reserves as compared to the PFS*

The DFS proposes open-pit mining over an initial period of 8.5 years and processing of 18.3Mt of ore from five of the six deposits, namely Omega, A, B, Beta<sup>3</sup> and Norton. Mined ore will be treated via a simple crush-mill-flotation circuit at an initial rate of 1.5Mtpa (will expand to 2.25Mtpa after first year of production) to deliver an average 103ktpa of concentrate containing 64ktpa of payable lead and 2Moz pa of payable silver. Concentrate produced at the project will be transported via road in sealed half-height containers to Wyndham Port from where it will be shipped to end users.

As per the findings of the study, Sorby Hills is a low-risk project as c.75% of the pre-production capital expenditure and direct mining costs are underpinned by current tendered pricing. This lowers the risk of cost overruns, which is quite evident in other mining projects currently.

## **Sorby Hills swiftly moving towards production**

The comprehensive Sorby Hills DFS has significantly increased the level of confidence in the project, and the strong results further support the progress towards a decision-to-mine, consequently leading to production. Some of the key milestones achieved as per the study are:

- An updated mineral resource estimate depicted a 78% increase in measured resources and a 12% increase in ore reserves to 15.2Mt;
- A metallurgical programme validating high metal recoveries and providing strong input for the design of the process plant was completed;
- The process plant capacity increased 50%, expanding from an initial rate of 1.5Mtpa to 2.25Mtpa, and helped maximise concentrate production and optimise unit operating costs;
- Independent technical due diligence on the mineral resource, metallurgical test work programme and ESG status review against global environmental standards;
- Updated mine plan, including the incorporation of the beta deposit for the first time — Alpha and Beta were excluded from Sorby Hills PFS mine plan. The new schedule to allow for in-pit tailings deposition in B-pit and Omega South pit to minimise the cost of construction;
- Updated water management strategy based on hydrogeological and hydrological fieldwork and modelling;
- Selected GRES as the preferred EPC contractor for the process plant at Sorby Hills. GRES is a leading engineering firm that is highly regarded within the industry for its technical ability and track record of project delivery;
- Agreement in place with Cambridge Gulf for access and stevedoring services at Wyndham port till April 2034. Wyndham Port, through which concentrates produced from Sorby Hills will be shipped, is the only deep-water port between Broome and Darwin. The port is designed for the export of metal concentrates and bulk ore shipping and serves as a vital link within Northern Australia's primary and secondary industries' supply chains;
- Heads of agreement (HOA) executed with Horizon Power in order to deliver low-cost, clean renewable energy from the Ord River Hydroelectric Power Plant for a period of 10 years (Figure 9);
- Purchased a 178-person accommodation camp to be used to house project employees and contractors during the project construction and operational phases on the Sorby Hills site.
- Secured amendments to the existing EPA approval for the commencement of early works, including all-weather access, material laydown area and accommodation camp installation.

<sup>3</sup> Beta deposit has recently been included as per the Sorby Hills DFS mine plan

**Figure 9: Ord River Hydroelectric Power Plant is in close proximity to Sorby Hills project**



Source: Company

## DFS vs. PFS

As per the Sorby Hills PFS, completed in August 2020, the project had a pre-tax NPV<sub>8</sub> of A\$303m, an IRR of 46% and an average life of mine EBITDA of A\$75m pa. Since then, further exploration results at the project have led to a 14% increase in measured and indicated resources compared to the PFS, including a 78% increase in measured resources with significant upside potentials (Figure 10).

The results of the recent DFS suggest that the proposed project is highly lucrative. The study outlined a net cash flow of A\$705m, NPV<sub>8</sub> of A\$370m and an IRR of 35%. So far, the project appears to be exceptional, with an estimated initial 8.5 years of mine-life processing 18.3Mt of ore. The cash cost of production is also projected to be low at US\$0.39/lb payable Pb (including a net silver credit of US\$0.38/lb payable Pb), delivering an average operating margin of >40%. As such, the payback is expected to be 2.5 years from its first production. Accordingly, we could expect an average EBITDA of A\$119m annually.



**Figure 10: PFS vs. DFS**

Item	PFS		DFS	
Physicals	Unit	Value	Unit	Value
Life of Mine	Years	10	Years	8.5
ROM mined	'000 t	14,760	'000 t	18,263
Strip ratio	Waste:Ore (t:t)	8.0x	Waste:Ore (t:t)	7.5x
Processed tonnes	'000 t	14,760	'000 t	18,263
Lead grade	%	3.6	%	3.4
Silver grade	g/t	39.5	g/t	39.0
Lead recovery	%	93%	%	91%
Silver recovery	%	80%	%	82%
Concentrate produced	'000 dmt	807	'000 dmt	872
Avg. lead grade	%	-	%	65.5
Avg. silver grade	g/t	-	g/t	665
Payable lead	'000 t	475	'000 t	543
Payable silver	'000 oz	14,300	'000 oz	17,232

Source: Company and East Coast Research

### Production target and ore reserve estimate for Sorby Hills

As per the DFS, the open-pit mine contains a production target of 18.3Mt ore, at a grade of 3.4% Pb and 38.8g/t of Ag equating to 628kt of Pb and 22.8 Moz of Ag metal. The pits also contain 136Mt of waste material for an average strip ratio of 7.5:1 (Figure 11). The production target is supported by 15.2Mt of ore reserves, including 10.4Mt of proved reserves (Figure 12).

**Figure 11: DFS Production target**

Pit	Total (Mt)	Waste (Mt)	Ore (Mt)	Pb (%)	Ag (g/t)	Strip Ratio
Pit A	4.1	3.7	0.5	3.7	16.4	8.1
Pit B	14.8	12.6	2.3	3.2	17.4	5.5
Omega South	21.1	18.3	2.8	2.9	29.5	6.5
Omega Main	57.7	50.3	7.4	3.6	38.7	6.8
Norton	21.4	19.5	1.9	4.0	78.5	10.0
Beta	35.6	32.2	3.4	3.3	41.5	9.5
<b>Total</b>	<b>154.8</b>	<b>136.5</b>	<b>18.3</b>	<b>3.4</b>	<b>38.8</b>	<b>7.5</b>

Source: Company

**Figure 12: Sorby Hills ore reserve statement**

Ore Reserve Category	Ore (Mt)	Grade		Contained Metal	
		Pb (%)	Ag (g/t)	Pb (kt)	Ag (Moz)
B Pit	1.32	3.4%	18	45	0.7
Norton	1.87	4.0%	80	74	4.8
Omega Main	4.98	3.6%	42	179	6.7
Omega South	2.18	2.8%	27	61	1.9
Beta	-	-	-	-	-
<b>Proved</b>	<b>10.40</b>	<b>3.5%</b>	<b>42</b>	<b>358</b>	<b>14.1</b>
B Pit	0.94	3.0%	17	28	0.5
Norton	0.04	4.0%	40	2	0.1
Omega Main	2.30	3.8%	34	86	2.5
Omega South	0.62	3.2%	37	19	0.7
Beta	0.99	3.7%	38	37	1.2
<b>Probable</b>	<b>4.90</b>	<b>3.5%</b>	<b>32</b>	<b>172</b>	<b>5.0</b>
<b>Total Ore Reserve</b>	<b>15.20</b>	<b>3.5%</b>	<b>39</b>	<b>531</b>	<b>19.1</b>

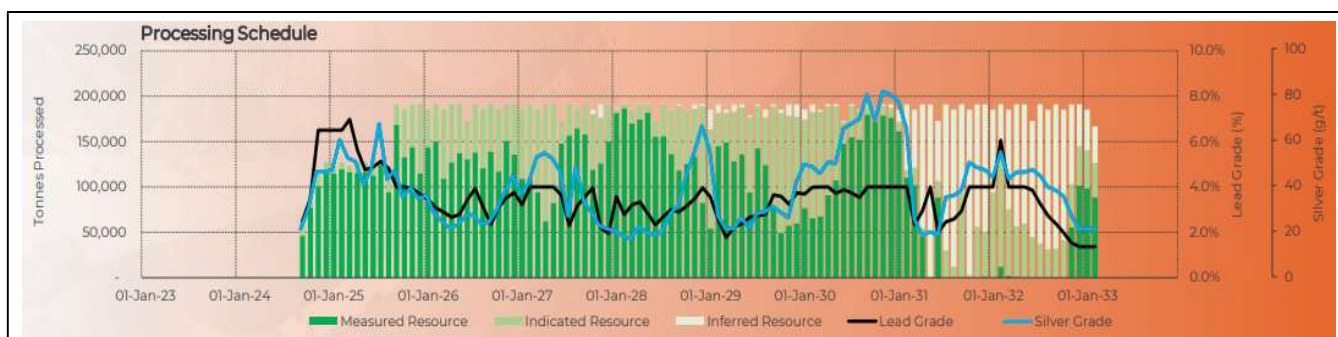
Source: Company

**Figure 13: Mining schedule**



Source: Company

**Figure 14: Processing schedule**



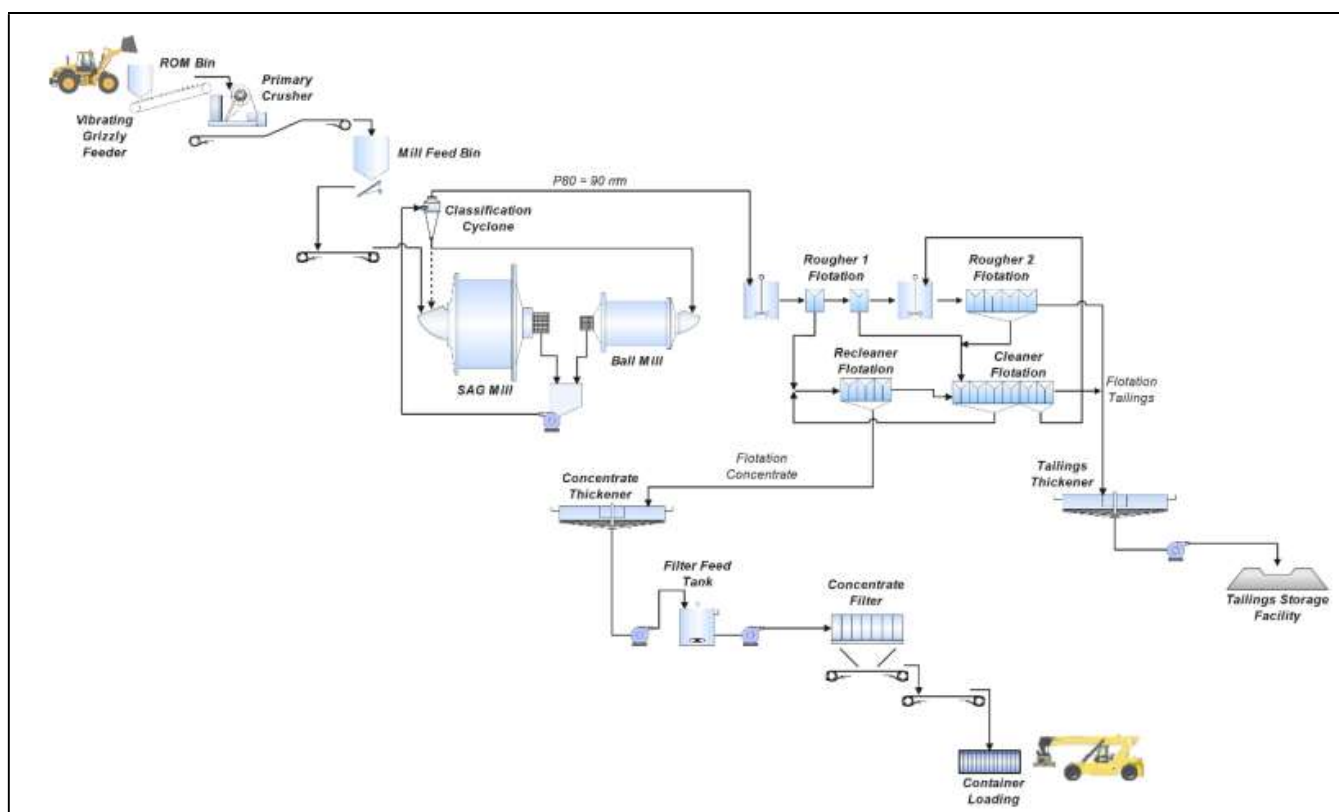
Source: Company

### Sorby Hills process flow sheet

The Sorby Hills process plant design criterion is supported by the DFS metallurgical test work and process engineering. Mined ore will be treated at the process plant via a simple crush-mill-flotation circuit (Figure 15) at an initial rate of 1.5Mtpa – the rate is likely to increase to 2.25Mtpa after 1 year of production. The feed capacity of 2.25Mtpa is a 50% increase from that proposed in the PFS and will maximise concentrate production and reduce unit operating costs.

BML has advanced to the next stage of project engineering and design at its Sorby Hills project. On 13 March, 2023, it executed an agreement with GRES to begin the front end engineering & design (FEED) work for the process plant. The work is expected to be completed by Q3 2023. Subject to a FID on the project, BML and GRES will progress to sign an EPC contract and start full detailed design for the plant.

**Figure 15: Sorby Hills process flow sheet**



*Source: Company*

## Encouraging results from the Phase VI drilling programme

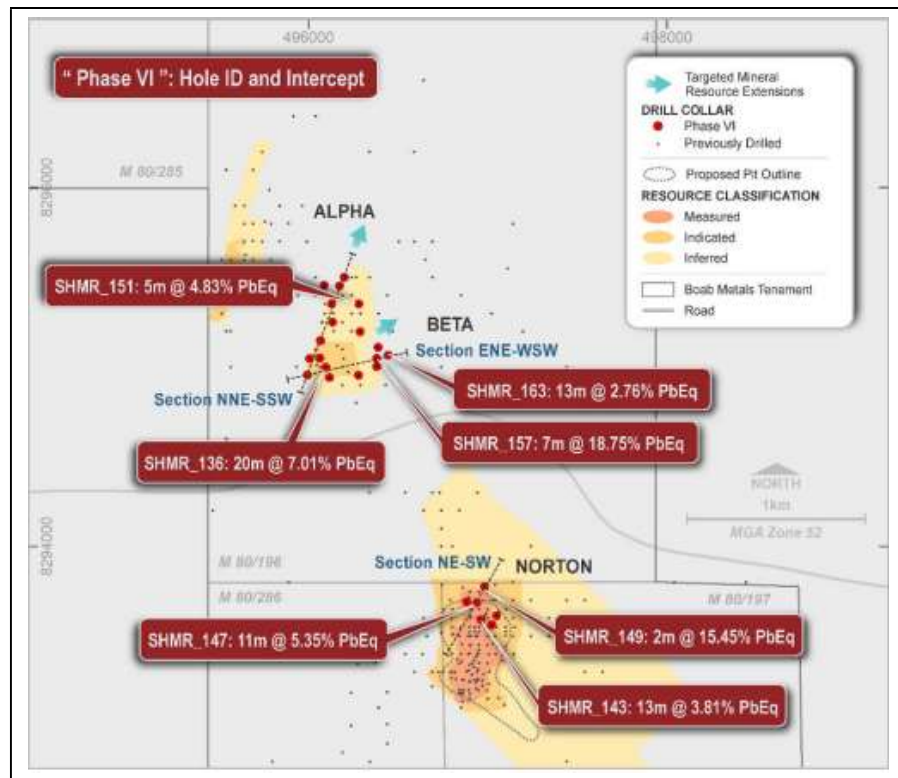
BML recently announced positive drilling results from its Phase VI drilling programme undertaken at the Sorby Hills Project. Additional results from the Beta deposit confirmed the current mineralisation model and opened the prospect for mineralisation extensions.

The drill programme comprised cumulative drilling of 3,020m across 28 Reverse Circulation (RC) drill holes (Figure 16). The programme allows the company to facilitate an increase in the proportion of the Beta and Norton deposits categorised as ore reserves. Alongside this key objective, BML also tested an exciting conceptual exploration target within the current mining lease. Moreover, the company also finalised a maiden drill programme at its 100% owned Eight Mile Creek project, not far from the South of the Sorby Hills mining tenements.

BML produced a total of c.1,700 drill samples submitted to Intertek Laboratories in Darwin for a broad spectrum of element analysis, including lead, silver and zinc. BML's Phase VI drilling programme was designed to enhance value and increase the project's mining inventory, consequently extending the mine's life.

**Phase VI drilling program facilitated an increase in the proportion of Beta and Norton deposits categorized as ore**

Figure 16: Drill hole plan for the Beta and Norton North area



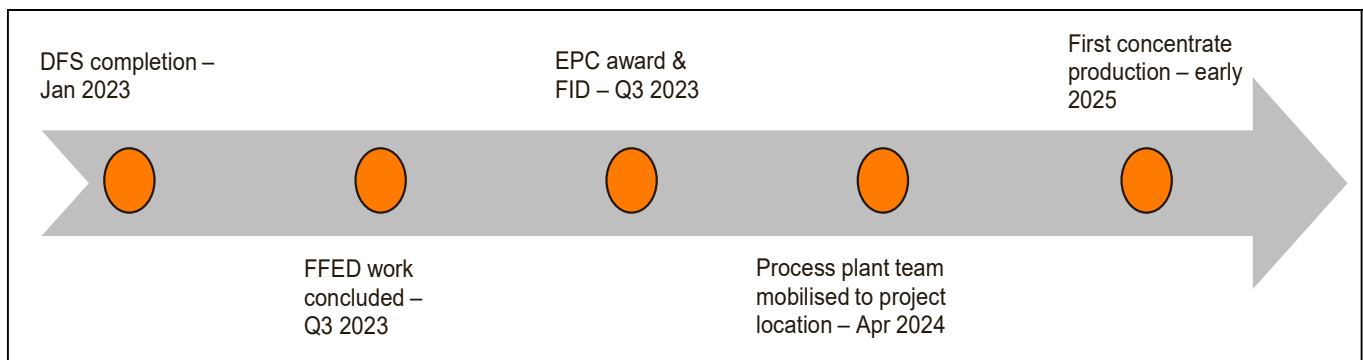
Source: Company

## Decision-to-mine expected in Q3 2023

BML saw some exciting activities this year on the project finance and offtake front. NAIF and other commercial banks undertook site visits and stage one of the lender's independent technical due diligence process has also been concluded. Sorby Hills lead-silver concentrate has received strong offtake proposals from a host of international and domestic lead concentrate smelters and traders. The company intends to proceed with project financing activities before making a FID.

BML is working closely with its JV partner, Yuguang, towards a decision-to-mine to bring Sorby Hills into production. The company plans to begin with procurement and offsite fabrication process immediately after closing the FID by the end of Q3 2023. The process plant construction team will be mobilised to the project site in April 2024 and BML intends to produce its first concentrate by early 2025 (Figure 17).

Figure 17: Indicative timeline to production



Source: Company

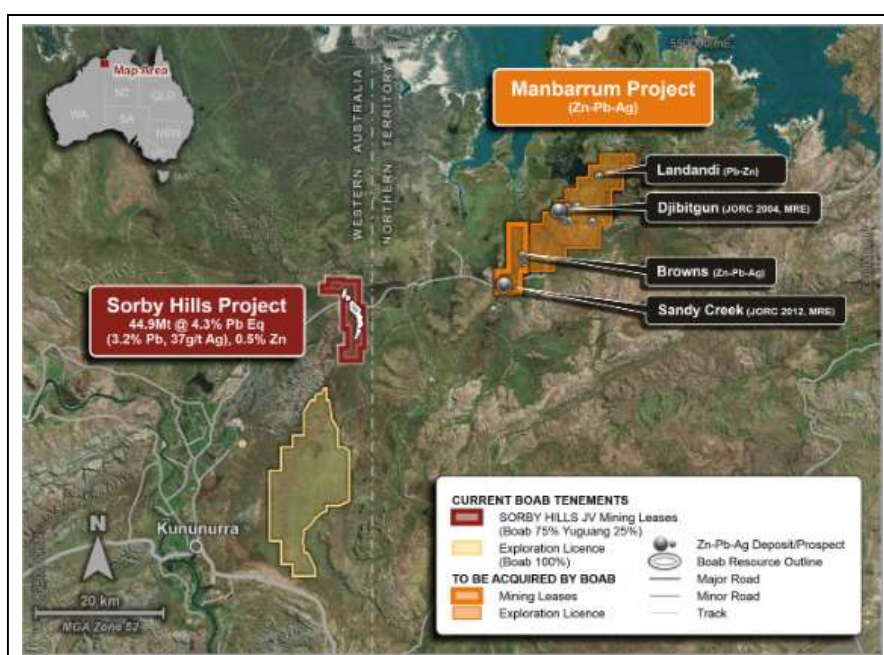


# Strategic acquisition of the Manbarrum project

BML acquired a 100% interest in the Manbarrum zinc-lead-silver project from Todd River Resources in July 2021. The project is located in the Northern Territory, 25km east of the Sorby Hills. It has 175 sq km of prospective tenements (including two granted mining leases) and has geology that is genetically related to that found at Sorby Hills (Figure 18).

Conceptual open-pit mining studies were conducted by CSA Global in 2018, wherein CSA Global identified the opportunity to improve project economics via toll treating at a future plant located at Sorby Hills. Toll treatment provides a chance to companies to process their ore at another company's mill so they do not have to build their own mill, which is an economically viable option.

**Figure 18: Manbarrum project area is in the same vicinity to the Sorby Hills project**

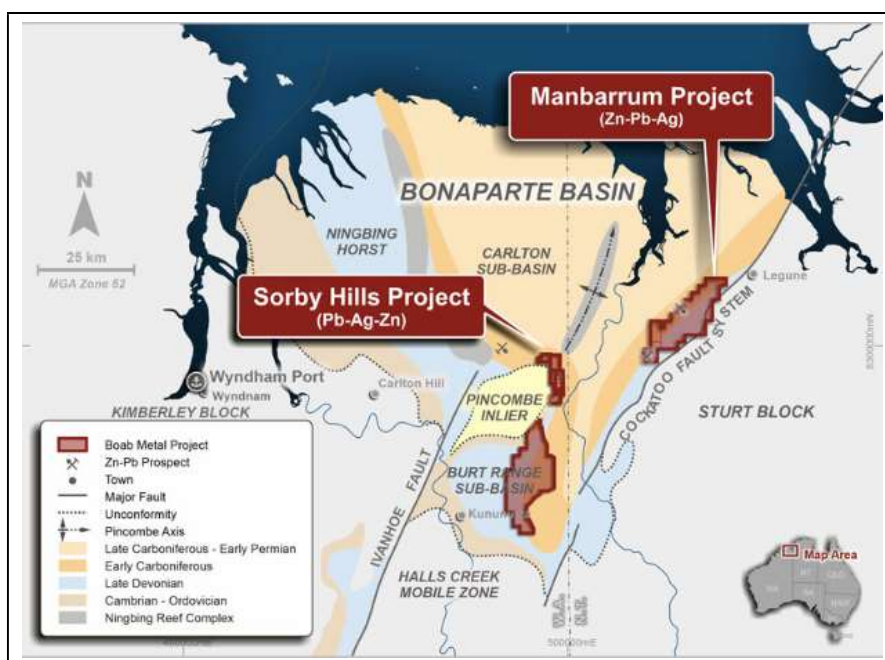


Source: Company

## Favourable geology

The Manbarrum project has geology that is genetically related to that found at Sorby Hills. Zinc-dominated mineralisation has been discovered and delineated by drilling at two locations, Sandy Creek and Djibitgun, within the Manbarrum project. Both occurrences are located along the eastern margin of the onshore Bonaparte Basin (Burt Range Sub-basin) with Sorby Hills being the geographical counterpart on the western margin of the sub-basin (Figure 19).

Figure 19: Regional geology where BML has assets is highly favourable

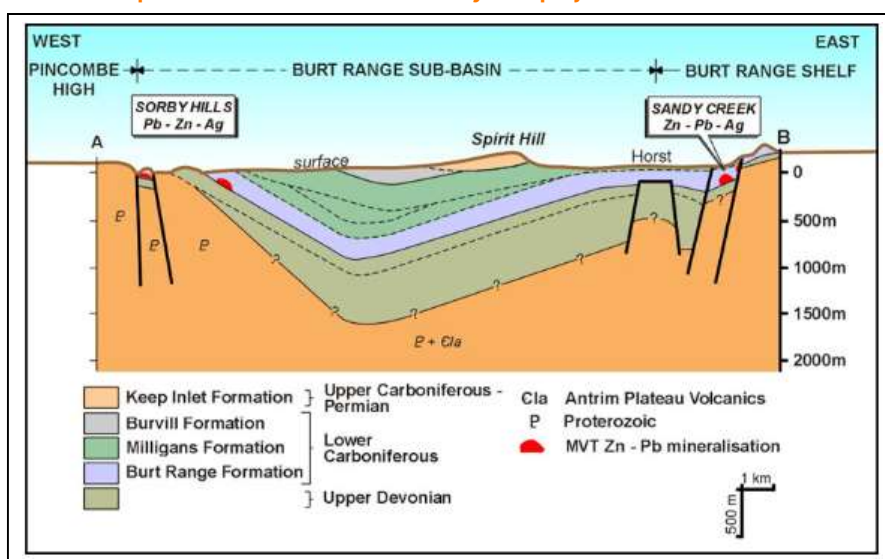


Source: Company

Both mineralisation districts are a part of the MVT mineral system. A cross-section of the Burt Range sub-basin geology that shows relationship between the Manbarrum project and Sorby Hills is depicted below (Figure 20). There are mineral resources declared at two prospects, Sandy Creek and Djibitgun, within the Manbarrum Project area. The zinc-dominated, Sandy Creek resource consists of mineralisation that has resulted in exceptional intercepts in the past.

BML management believes that these high-grade zones will prove to be attractive exploration targets, and it can leverage exploration knowledge gained from its Sorby Hills project to increase the resource size of the Sandy Creek project with subsequent drilling programmes.

Figure 20: Cross-section of the Burt Range sub-basin geology shows close relationship between Manbarrum and Sorby Hills project



Source: Company

## BML's exploration strategy remains regional

BML has a clear exploration plan for the projects in the region. The company intends to integrate all the technical data into a basin-wide exploration model and define priority target areas in the medium to long term. This will follow by assessing the untested geochemical, geophysical and structural geological anomalies within Manbarrum. The company will then combine mineralisation settings across the sub-basin whilst reviewing the scope for re-interpretation and targeting the high-grade mineralisation at Sandy Creek and Djibitgun.

It is worth noting that the Manbarrum site hosts multiple zinc-lead-silver soil anomalies along the eastern basin margin, coincident with faults mapped from seismic and gravity data that have yet to be drilled and tested.

We see strong synergies that could develop between Manbarrum and Sorby Hills projects. The Manbarrum project and its similar geology to Sorby Hills will allow further exploration and economic evaluation of a highly prospective and underexplored geological domain.

While BML remains focussed on the development of its Sorby Hills project, the strategic acquisition of the Manbarrum project provides an opportunity to investigate a broader regional production strategy that leverages the clear synergies between the two projects.

BML is fully focussed on its strategic growth opportunities. The company want to create a regional mining camp in order to establish BML as a long-term mineral producer.

*The company want to create a regional mining camp in order to establish BML as a long-term mineral producer*

**Figure 21: Recently completed road upgrades connecting the Manbarrum project and the Sorby Hills project**



Source: Company

## BML's non-core assets

Besides the Sorby Hills and Manbarrum projects, the company has two non-core assets located in the Northern Territory and one overseas in Columbia.

BML is fully focused on developing its Sorby Hills Project and has decided to put its non-core assets on hold. The company is currently seeking joint ventures, partnerships and buyers for its non-core asset portfolio, which we believe makes sense to continue realising value whilst mitigating risks for shareholders.



## Borrooloola West JV project

The Borrooloola West JV project is located in the McArthur and Mt. Isa Basins in the Northern Territory and comprises nine exploration licences and one mining licence. BML owns 51% interest in the project with the remaining 49% interest held by Sandfire Resources NL. The project consists of an exceptional package of ground with high potential for the discovery of base metal deposits. The prospects mentioned below are part of the package:

*BML is currently seeking JVs, partnerships and buyers for its non-core asset portfolio*

- Coppermine Creek consists of impressive copper, cobalt and silver mineralisation with an outcrop length of 700m.
- The Lorella prospect lies 100km northeast of the McArthur river mine and consists of oxide copper mineralisation.
- The Mariner prospect comprises Barney Creek Formation, which is host to the McArthur River zinc-lead deposit, and there is potential for the discovery of further zinc-lead deposits.
- BML also owns 100% of Limestone Creek (EL31354), which lies north of the Coppermine Creek prospect within the Borrooloola West JV project. The area is considered to be highly prospective for zinc-lead mineralisation.

## Colombian projects

BML commenced activities in Colombia in 2011 and has developed a portfolio of Berrio, Natagaima, and Urrao Projects. These Projects are prospective for Copper-Gold deposits.

# Project Financing: availability of multiple options; management remains judicious

Post the completion of the DFS study in January 2023, the management of the company is now focussed on arranging the project financing for pre-production capital expenditure. The management is exploring various options to get the financing locked in at the earliest. To help them in this endeavour, BML has engaged BurnVoor Corporate Finance — a Sydney-based independent financial, commercial and strategic advisor. The management aims to achieve final investment decision by the end of Q3 2023. Despite cost escalations and ongoing inflationary environment, BML's management has reconfirmed that they are still looking to raise A\$245m only for pre-production expenditure (Figure 22), inclusive of \$20.9m contingency capital.

**Figure 22: Initial pre-production cost schedule for Sorby Hill project**

Item	Pre-production (A\$M)	Sustaining (A\$M)	Total (A\$M)
Early Works / Bulk Earthworks / Road Construction	9.9	15.7	25.6
Process Plant and Non-Plant Infrastructure (NPI)	130.5	-	130.5
Tailings Storage and Evaporation Pond	18.0	1.9	19.9
Mine Water Settling Pond & Water Storage Facility	12.4	21.3	33.7
Accommodation refurbishment	4.1	-	4.1
Communications	0.9	-	0.9
Fuel Tanks	-	1.3	1.3
Testing Laboratory	-	0.0	0.0
Concentrate Transport & Containers	7.9	-	7.9
Owners Cost	25.3	5.8	31.0
Project Development Contingency	20.9	-	20.9
Pre-Production Operating Costs	14.6	-	14.6
Mine Closure	-	9.3	9.3
<b>Total</b>	<b>244.6</b>	<b>55.2</b>	<b>299.8</b>

*Source: Company*

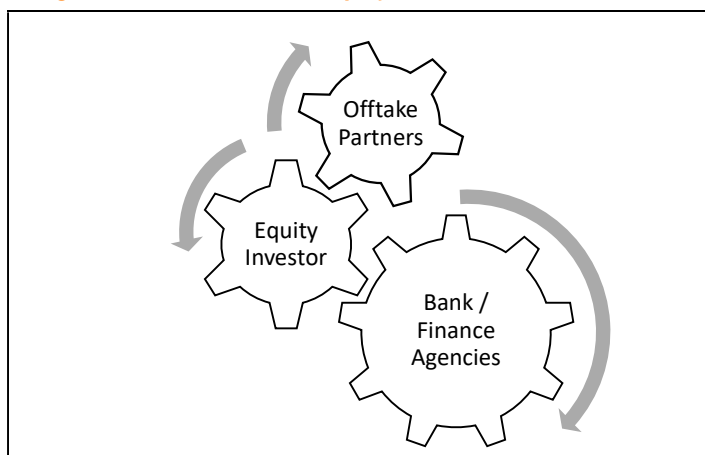
Following is the explanation of some of the potential financing sources for Sorby Hill Project's initial pre-production funding requirements:



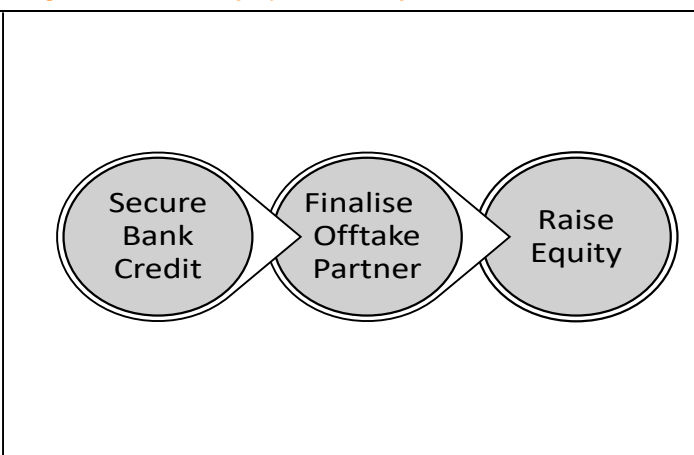
- **Government financing agencies:** The company management has been engaging with Australia's government-owned premier project financing agencies, i.e. Northern Australian Infrastructure Facility (NAIF) and Export Finance Australia (EFA). This engagement with the premier institutions have now been going on for c.2 years. Currently, the agencies have completed independent technical due diligence on the mineral Resource and metallurgical test work programme for the project. As a next step, the agencies will be sharing their thoughts with the management. This feedback is expected to provide the level of debt the agencies are willing to offer (and the conditions) and the parallel quantum of equity BML will have to raise to get those funds (if any). While finalising a deal with any such government agency is always a time taking process, it is imperative to note that they are one of the most experience financiers of such large-scale mining projects.
- **Private Banks:** The company management has acknowledged that some of the leading private banks have been showing a keen interest in funding the project, including some of the big Chinese banks. The question is the conditions, i.e. interest rates etc. For pre-production expenses the capital cost will be relatively higher from these institutions, something which management intends to keep low.
- **Private Infrastructure/Debt Funds:** This is a less favoured option mainly due to relatively higher capital costs. In addition, with mining now finding low preference on ESG parameters, a lot of funds are expected to shy away.
- **Offtake partners:** We believe the company's management at some stage will have to go for an offtake agreement. The question is at what stage the management will decide to do this. Typically, any offtake/participating partner would want to lock in a lot of production proceeds at a significant discount, forcing management to decide on the risk-reward proposition. As per the BML management, the company is holding off any offtake agreement/discussion until they hear back from the government financing agencies.
- **Equity Investors:** Considering that the equity market has gone soft, we believe this is not a lucrative option as of now. However, BML would have to raise equity at some stage as no financial institution would ideally commit entire funding in a pre-production project. In our model, we have assumed equity capital will be raised after the stock's price experiences a re-rate following an announcement of a successful government agency funding arrangement or an offtake agreement.
- **Acreage sell-off:** This is the least favoured route for any equity / fund raising programme. Additionally, the company's leadership is not looking to part-sell any project site (except non-core assets) at this stage. The leadership feels that the company has many options to raise funds and is not in favour of taking extreme steps.

*The clear vision of the management about its debt funding prospects gives us confidence about the availability of financing options and the probability of their success.*

**Figure 23: The conundrum of project finance**



**Figure 24: Idealistic project finance path for BML**



Source: Company and East Coast Research

While management has confirmed that it is taking its time to explore all the options judiciously, some shareholders are getting nervous about the pace of developments on the funding side. We believe that the main debate is not around the project's feasibility but around the project's financing. We think the company's management is trying to maintain the favourable economics of the project by not rushing and working at a certain pace with potential offtake partners.

Ideally, the company will try to lock-in the debt before finalising an offtake agreement and then raise equity, but banks might want to see money on the table before opening their chest. This might force the management to go for offtake first and then raise equity and bank debt simultaneously. We believe a critical flashpoint for the stock price to move ahead will be the way this vicious circle is broken. Timing of the end-result will remain critical ceteris paribus.

## Lead will continue to be a key battery metal

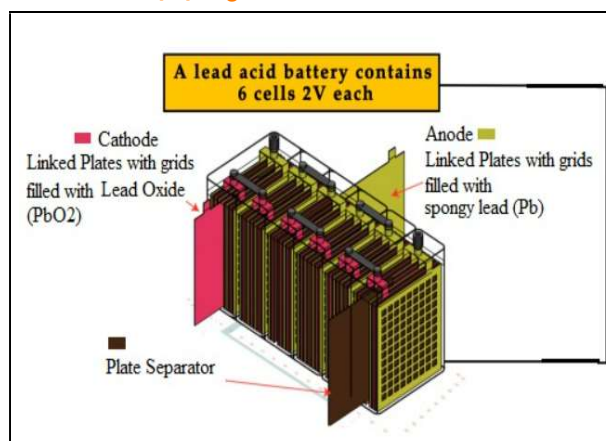
**Lead is the only low-cost and low-maintenance battery metal known till date**

Since its invention in 1859 by French physicist Gaston Plante, lead-based battery has been used for commercial purposes. In 1970, the first maintenance free lead-acid battery was introduced, and it transformed the power supply landscape for stationed and wheeled applications, i.e. automobiles, forklifts, heavy commercially used electric equipment, etc.

One of the main reasons for the success of lead-acid battery is its low initial cost and lower maintenance cost. Lead-acid batteries are very high on reliability and performance, i.e. they can sustain long-terms of inactivity and work effectively even in extreme conditions. Lead-acid has one of the highest power, energy and value per kilo-watt hour (kWh). Among all the known materials globally, lead is one of the most recycled material (c.99%) and adequately supports sustainable development. Consequently, it has multiple uses worldwide.

**Figure 25: 12V lead-acid battery as used in an internal combustion (IC) engine**

**Figure 26: Advantages-disadvantages of lead-acid battery**



<u>Advantages of lead-battery</u>	<u>Disadvantages of lead-battery</u>
It is a low cost product that is available in all shapes and sizes	Heavier than other alternatives
Being a mature technology, it has a very high capability and reliability. It can withstand any speed of charging (slow, fast and even overcharging)	Poor weight to energy ratio limits usage to stationary and wheeled applications
Offers high power, energy and value per KWH	Not friendly to the environment - hazardous contents
Offers equally good performance in extreme conditions, i.e. low and high temperature	Repeated deep discharge cycling reduces battery life
Low maintenance requirements	Has transportation restrictions

Source: RF Wireless World and East Coast Research

Technically, one of the most important types of lead-acid battery is SLI (starting, lighting and ignition) batteries (Figure 25). These batteries have been designed to maintain the power supply. While automobiles are the biggest end-users of SLI batteries, the technological advancement has catapult the lead-acid battery usage as the preferred choice for powering telecom towers, hospital equipment, emergency lighting and uninterrupted power supply (UPS) systems.

### Contrary to common perception, lead has an important role in EVs

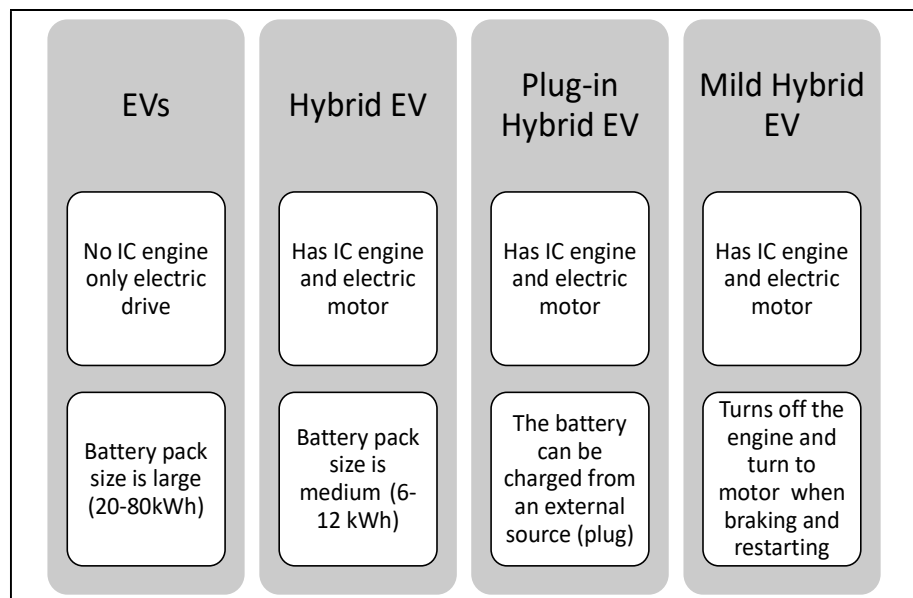
Of late, with the advent of alternative battery technologies which use different metals (lithium, Nickel, cobalt etc.), questions have been raised on the growth prospect of lead. We think this

debate is neglecting the continual and growing utility of lead-acid battery. While lithium is definitely gaining a lot of traction as the main battery metal for electric vehicles (EVs), it is important to note that technological advancements have also been made into lead-acid batteries, expanding the usability of these batteries.

While the world aims to move towards 100% electric mobility, carbon neutral battery options have still not gained mass production/usage. Instead, hybrid vehicles have strongly emerged. Hybrid vehicles offer the best alternatives, bridging the gap between electric and gasoline powertrains. Hybrid vehicles combine the functionality of a gas-powered traditional IC engine and an electric vehicle technology. Each hybrid vehicle uses a 12-Volt lead-acid battery while also pulling energy from a traction battery (energy storage battery that supplies power to the electric motor). The vehicle can switch seamlessly between power sources.

*To ignite an IC engine a significant amount of power is required for a short period of time, which only lead-acid battery can provide. Lead-acid batteries have extremely low internal resistance (~50mΩ; indicator of difficulty for flow of current), hence can deliver high output, while Lithium batteries have high internal resistance so can deliver only 1/10th of the peak current.*

**Figure 27: Different types of EVs and use of lead-acid battery in them (IC engine)**

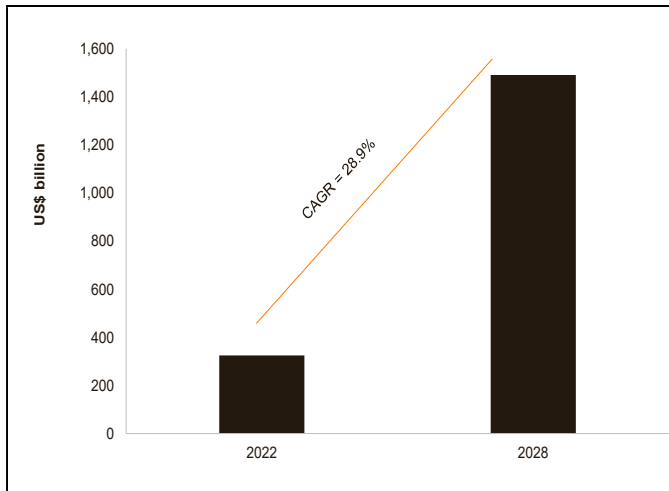


Source: Synergy Files and East Coast Research

Revenue for lead-acid battery forms 14.3% of the global EV battery market revenue and is expected to grow at a 23.3% CAGR over 2022-30

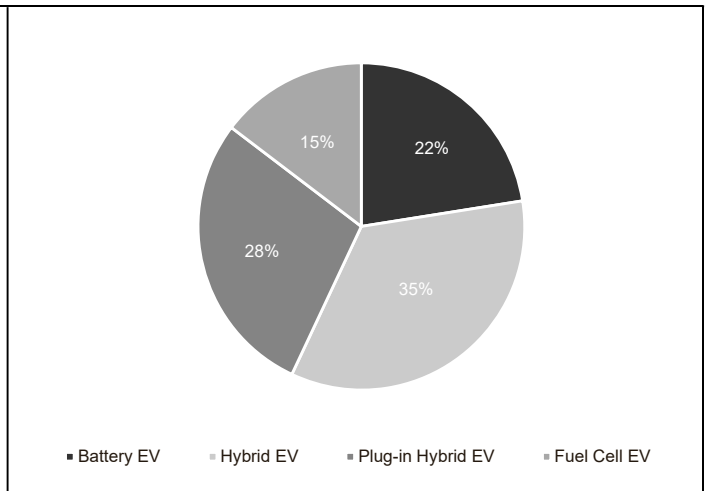
In fact, the lead-acid battery in hybrid vehicles is not merely for ignition and has other responsibilities as well. One of the roles is to provide a power supply for low-energy components, such as lights, cooling systems and clocks. The high-power components run off the main lithium-ion battery and all the usual accessories run from the 12-volt lead-powered supply. When the car's engine is turned off, accessories still need power. The most important function of the lead-acid battery in Hybrid EVs is to enable the main traction battery. According to Mordor Intelligence, a market research and business intelligence solution provider, the global Hybrid EV market is expected to grow at a 28.9% CAGR over 2022-28. This is expected to be beneficial for upcoming lead mining sites such as Sorby Hills.

**Figure 28: Hybrid EV's Global market value is expected to grow significantly**



Source: Mordor Intelligence and East Coast Research

**Figure 29: Hybrid Vehicles hold significant revenue share within the global EV battery market (by propulsion)\***

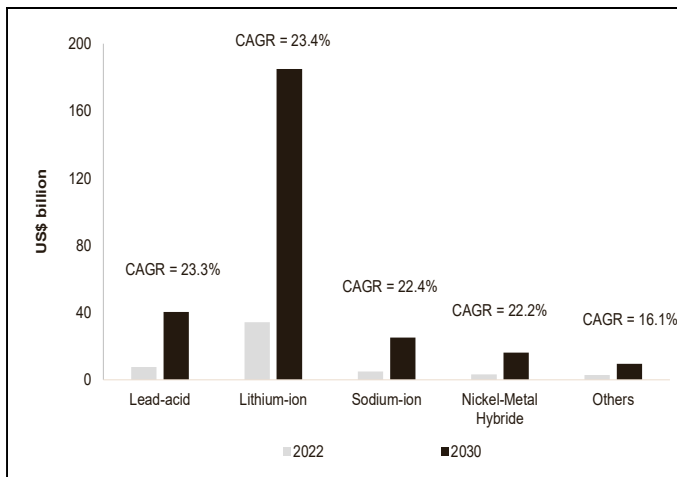


Note: 2021

Source: Precedence Research and East Coast Research

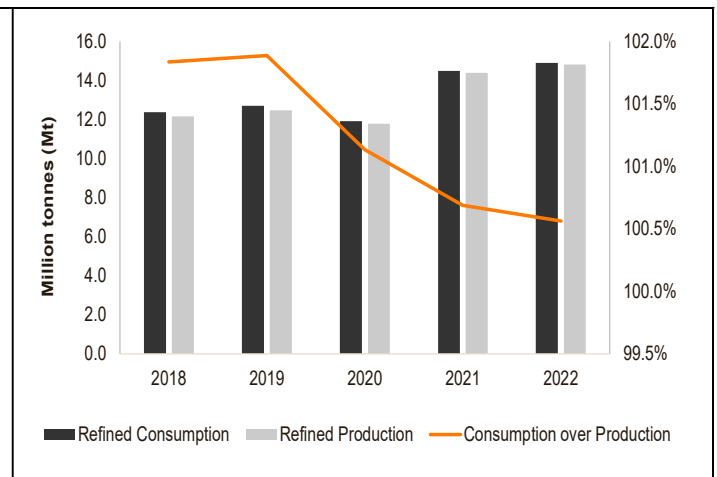
In the last few years, the increasingly stringent environmental protection regulations by governments across many countries have been compelling users to shift towards sustainable mobility, i.e. hybrid vehicles. In addition, the growth in global lead supply has not been able to keep pace with the burgeoning demand (Figure 31). The consequent rise in demand and supply constraints are expected to continue after BML starts production.

**Figure 30: Within the global EV battery market, revenue of lead-acid battery is expected to grow consistently**



Source: Precedence Research and East Coast Research

**Figure 31: Supply has not been able to keep pace with global lead demand**



Source: World Bureau of Metal Statistics and East Coast Research

## Utility and telecom sectors will reinforce growth for lead-powered batteries

While the entire focus has been the viability of lead as a battery metal within the personal mobility space, it is imperative to note that the lead-powered battery has wider usage.

1. **Data centres:** With the onset of digitalisation across working environment, in order to disseminate data, there has been massive investment globally in IT infrastructure, i.e. enterprise cloud computing, data centres etc. Most of these infrastructure establishments



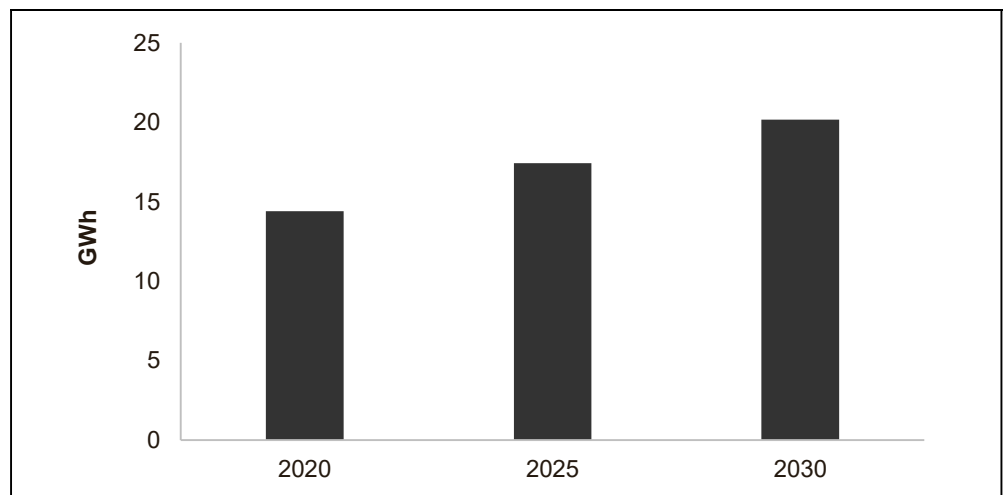
*5G deployments along with fulfillment of deferred orders (due to COVID) is expected to drive the lead-based battery demand within the telecom sector globally*

require large amount of uninterruptible power supply (UPS) systems. This is expected to proliferate the use of lead-powered batteries.

2. **Telecom network:** Another social change is the consumption of mobile data. With the rapid roll-out of the 5G network, exponential increase in mobile traffic is expected — according to Ericsson, a global networking and telecommunications company, an average of 46GB data per smartphone will be consumed globally by 2028 at a CAGR of 21% across 2022-2028. Such a significant jump will also require the telecom networks to consume a lot of power. With energy being ~90% of telecom network cost (power storage and related applications), low-cost energy options are imminent, thereby increasing reliance on lead-powered batteries for distributed energy storage systems. Lead-powered batteries are preferred over other alternatives for telecom tower network mainly due to the following reasons: (a) combination of reliability and durability; (b) the ability of the batteries to act as an active component within back-up power applications; (c) the capability to support very long operating lifetimes and (d) ability to operate within high temperatures.
3. **Utility:** With rising urbanisation and industrialisation, there has been an increase in the requirement for low-cost uninterrupted power supply. For residential, commercial and industrial applications, there exists massive demand for energy storage systems (ESS). In addition, the renewable energy sources also require ESS. For the integration of all these, a wide range of batteries will be required, each with their different strengths. And without doubt, lead batteries are one of the dominant choices for energy storage.

As a result of the wideness of usage and increasing demand, we believe lead as a battery metal will continue to shine and survive in the long term.

**Figure 32: 5G deployment to drive Telecom power demand globally**



Source: ILZSG and East Coast Research

*According to a report by Fitch Solutions Group, the growth in lead consumption across 2022-2031 will be 700bps more than the annual growth rate achieved in 2012-2021*

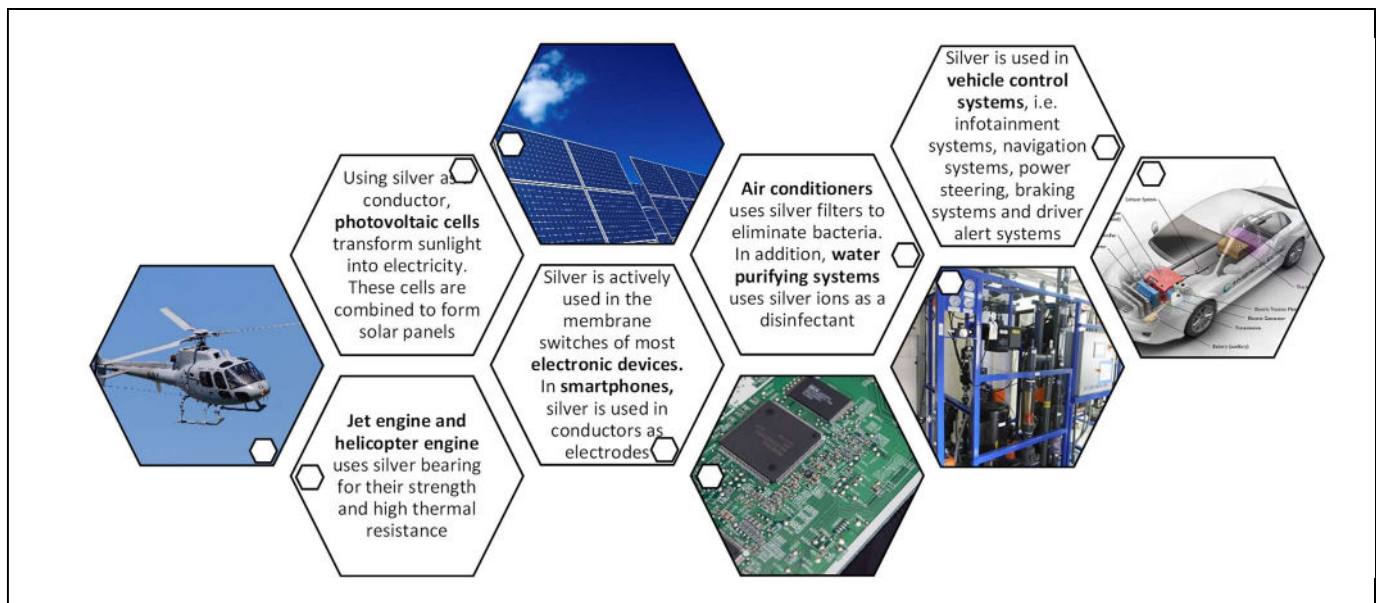
*According to International Lead and Zinc Study Group (ILZSG), a global think tank for international trade of lead and zinc formed by the UN in 1959, increases in the requirement for energy storage systems and industrial applications will provide incremental demand for lead. Globally, the total power demand is expected to increase at a CAGR of 21.3% over 2020-2030, thereby supporting demand for power storage batteries, including lead batteries.*

## New-age usage is expected to boost demand for silver

Since time immortal, silver has been regarded as one of the precious metals. Its place as a trading element and a metal to store value is well appreciate globally. Due to its selective properties silver has long been used for making coins, ornaments and jewellery, i.e. malleable, ductile, shiny white in colour and highly resistant to atmospheric oxidation.

However, it's the other intrinsic properties of the metal that are particularly appealing. Silver is a highly versatile metal and has high thermal and electric conductivity. As a result, it is suitable for power generation industries, such as batteries and conductors. Additionally, the antimicrobial and non-toxic nature makes silver useful in medicine and consumer products. Its high sensitivity to light is also getting explored in new-age industries, like solar panels and photovoltaics cells. Another advantage of silver is that it is not only mined but also generated as a by-product of other minerals, i.e. 75% of the silver is globally generated as a by-product of copper, zinc, lead and gold.

**Figure 33: Technological advancement is supporting usage of silver across different industries**

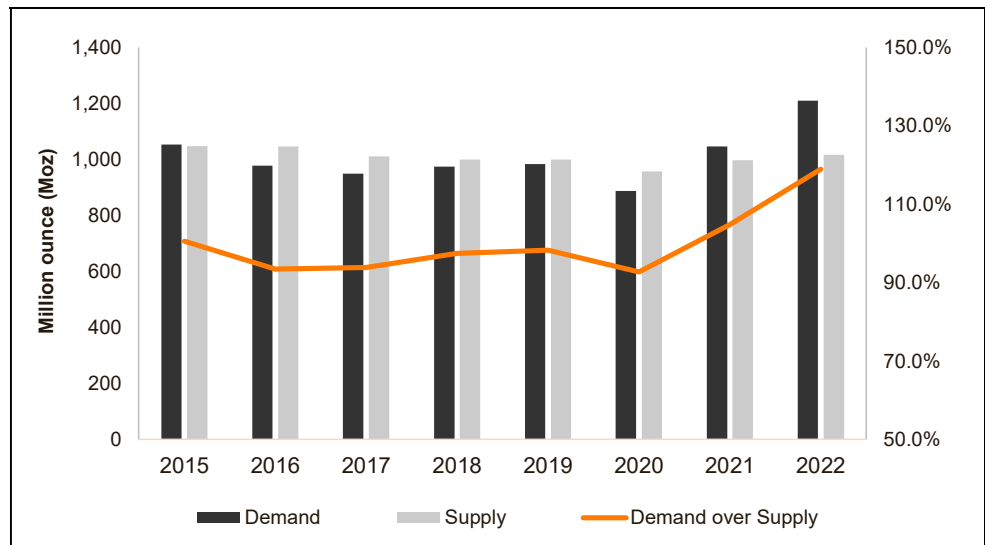


Source: Silver Institute and East Coast Research

**According to Silver Institute, global automobile industry is expected to consume ~90Moz. of silver by 2025 (~60Moz. in 2021)**

According to Silver Institute, a non-profit international association of silver industry players, the global demand for silver increased 15.7% YoY and reached 1.2bn ounce in 2022. While some may argue that this is pent-up demand post the pandemic, it is imperative to note that the supply also has not been able to keep pace with the overall growth. The global silver demand was 119% of the industry supply in 2022 vs. 104.8% in 2021 and 93.9% in 2017. We believe that while personal usage (jewellery) and physical investment might take a backseat in the current inflationary environment (-10% YoY and -16% YoY in 2022, respectively), the increasing areas of industrial usage will continue to guide silver demand globally. According to the Silver Institute, the industrial demand for silver metal is expected to be 550Moz in 2023, a lifetime high, +2.0% YoY. This steadily growing demand is expected to provide BML a readymade market once the first ore is mined.

**Figure 34: Industrial usage has been the chief demand growth driver for silver metal**

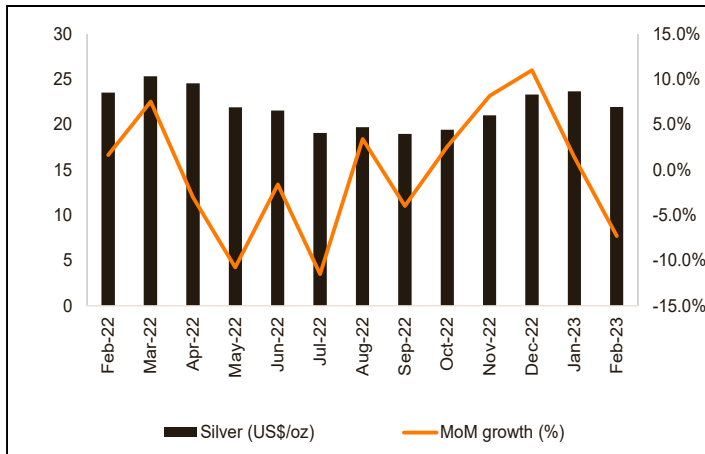


Source: Silver Institute and East Coast Research

### Current volatility in metal prices could benefit BML

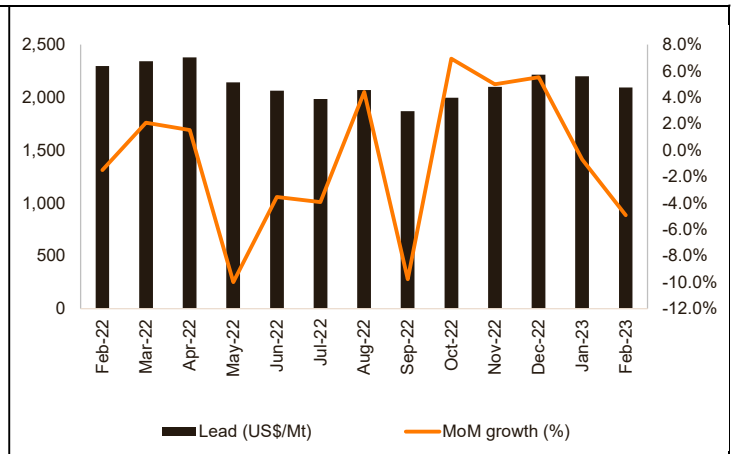
Constant volatility in metal prices over the last year has forced many miners to rationalise operations — deferring mine construction, resizing operations, revaluating financing terms etc. We believe this situation could turn out to be advantageous for BML. Due to its low-cost structure, BML is relatively better placed compared to its competitors. In addition, being closer to the end market (mineral guzzling Asia-Pacific region) means that BML can transport the final product relatively quickly. This is expected to help BML gain market share at the expense of more costly and far-off mines.

**Figure 35: Prices of silver is witnessing a revival**



Source: World Bank and East Coast Research

**Figure 36: Lead prices have remained range-bound**



Source: World Bank and East Coast Research

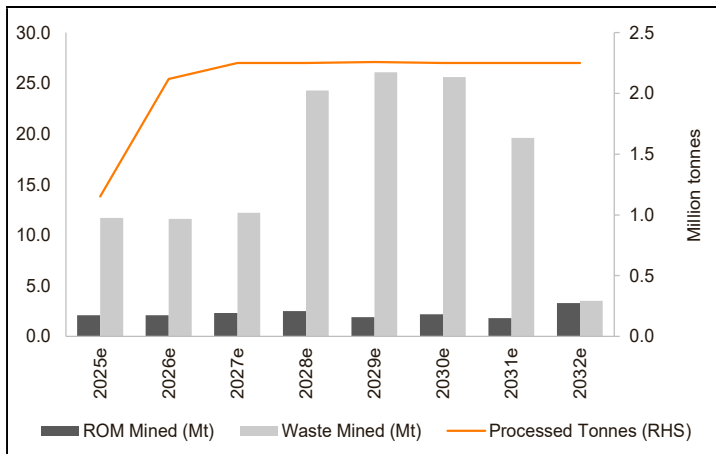
## Valuation: DCF-based approach indicates significant upside

We value BML at A\$0.74 per share in base-case scenario and A\$0.84 per share in bull-case scenario. Our target price range indicates substantial upside potential to the current share price of A\$0.195 per share. Our basic valuation methodology has the following key indicators:

- Our DCF model for the Sorby Hills Project is broadly based on the assumptions of DFS released in January 2023. We have assumed the business operations to continue beyond year 9 as BML develops the Manbarrum zinc-lead-silver project and uses the same proposed processing facility at the Sorby Hills Project.
- To account for a possible shift in timelines due to a possible delay in finalisation of funding plans, we have assumed that BML will start production in Q1 2025 — this includes a gestation period before commencement of commercial production.
- We have assumed forecasted revenues to be net of royalty. The volume of mined ores has been forecasted in line with project economics.
- We have assumed a discount rate (WACC) of 11.6% and a terminal growth rate of 2%.
- Other assumptions included a 30% corporate tax rate and a royalty rate of c.4%.

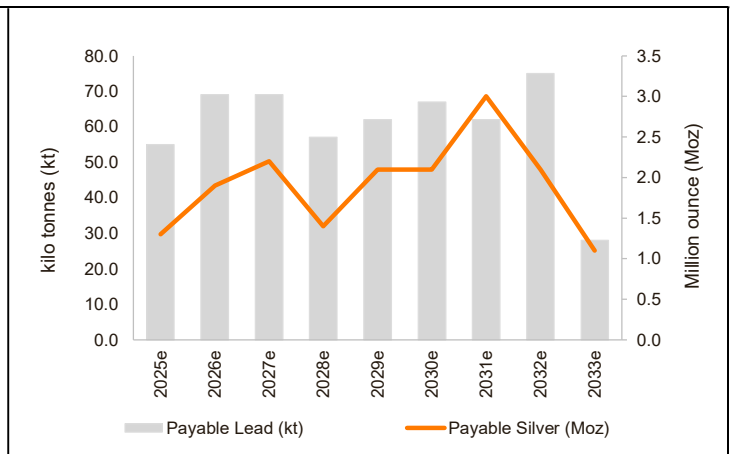
**Ores extracted and production:** We have used the total measured, indicated and inferred resources for our assumption. Since Sorby Hills area is an open-pit site with near surface resources, it's unlikely to require a lot of additional development costs in excess of the current contingency capital. For both of the scenarios, the volume of extraction has been kept in sync with the DFS conducted in January 2023. We have used a total ROM resource of c.18.3Mt.

**Figure 37: ROM, Waste and Processed mineral (Mt)**



Source: Company and East Coast Research

**Figure 38: Payable Lead and payable silver**



Source: Company and East Coast Research

**Commodity price:** We believe that lead prices will remain volatile over the next decade. In base case we have assumed the lead metal price range of US\$2,094-2,249 per tonne. Similarly the silver prices will stay within the range of US\$22.75-25.25 per ounce. These commodity price assumptions are considerably more conservative than the DFS assumptions. Across our two scenarios, we have assumed conversion rates in a range of A\$1=US\$0.66-0.70.

**Operating costs:** Across our two scenarios, we have assumed an average total operating cost of A\$82.6/t of ROM mined ore. This is a bit more than what the management has guided through DFS as we believe that the project could face additional inflationary pressure especially in the second half of the mine life. This includes the mining cost, processing costs, logistic costs, administrative cost and treatment costs. We have considered royalty rate of c.4% on the revenue.



**Capital costs and project funding:** As highlighted in the DFS, our model also assumes a pre-production capital cost of A\$245m to be incurred in the next couple of years. We have assumed that BML would raise c.A\$245m by early Q1 2024 through debt and equity issuance. We have used a 50:50 debt-equity ratio to fund the capital requirement. Post the commencement of production, the company should be able to fund its operations through internally generated cash flow.

Below is the summary of our final valuation range (Figure 39). Considering that we have not taken into account the value of the company's non-core assets, we believe that the DCF valuation represents a conservative estimate for BML. We have not considered the option to acquire more tenements and assets. We believe this will be undertaken by the management at a suitable time in medium-to-long time frame. The target price range represents a Price/NAV of 0.25x which we believe provides significant cushion for potential investors. The intrinsic value is highly sensitive to changes across WACC, exchange rate and the metal prices movement. The sensitivity across these key indicators have been represented below (Figure 40, Figure 41 and Figure 42).

**Figure 39: DCF-based valuation for BML (post equity dilution)**

BML Valuation (A\$ m)	Base Case	Bull Case
Present value of FCF	101.7	145.5
PV of Terminal FCF	218.6	219.6
Net deb (cash)	(6.2)	(6.2)
<b>Firm value (A\$ m)</b>	<b>326.5</b>	<b>371.3</b>
Diluted Shares (m)	444.0	444.0
Implied price (A\$ cents)	73.5	83.6
Current price (A\$ cents)	19.5	19.5
Upside (%)	277.0%	328.8%
<b>Mid-point Target Price (A\$ cents)</b>	<b>78.6</b>	
Price / NAV (X)	0.25x	

Source: East Coast Research

**Figure 40: Sensitivity of intrinsic share price to discount rate and terminal growth rate**

		WACC						
		10.1%	10.6%	11.1%	11.6%	12.1%	12.6%	13.1%
Terminal Growth Rate	0.74	0.94	0.86	0.78	0.72	0.66	0.61	0.56
	1.7%	0.95	0.86	0.79	0.72	0.66	0.61	0.56
	1.8%	0.96	0.87	0.80	0.73	0.67	0.62	0.57
	1.9%	0.96	0.88	0.80	<b>0.74</b>	0.67	0.62	0.57
	2.0%	0.98	0.89	0.82	0.75	0.68	0.63	0.58
	2.2%	1.00	0.91	0.83	0.76	0.69	0.64	0.58
	2.4%	1.01	0.92	0.84	0.76	0.70	0.64	0.59

Source: East Coast Research

**Figure 41: Valuation sensitivity to lead prices and exchange rate**

AUD : USD	0.74	Average Lead Price (US\$/t)						
		2,099	2,149	2,199	2,249	2,274	2,284	2,297
	0.60	0.96	0.97	0.97	0.97	0.97	0.98	0.98
	0.61	0.93	0.93	0.93	0.94	0.94	0.94	0.94
	0.62	0.89	0.89	0.90	0.90	0.90	0.90	0.90
	0.67	0.73	0.73	0.74	0.74	0.74	0.74	0.74
	0.69	0.67	0.68	0.68	0.68	0.68	0.68	0.69
	0.71	0.62	0.62	0.62	0.63	0.63	0.63	0.63
	0.72	0.59	0.60	0.60	0.60	0.60	0.60	0.60

Source: Company and East Coast Research

**Figure 42: Valuation sensitivity to silver prices and exchange rate**

AUD : USD	0.74	Average Silver Price (US\$/oz)						
		23.8	24.0	24.5	25.0	26.0	27.0	27.5
	0.60	0.97	0.97	0.97	0.97	0.98	0.98	0.98
	0.61	0.93	0.93	0.94	0.94	0.94	0.94	0.94
	0.62	0.90	0.90	0.90	0.90	0.90	0.91	0.91
	0.67	0.74	0.74	0.74	0.74	0.74	0.74	0.75
	0.69	0.68	0.68	0.68	0.68	0.68	0.69	0.69
	0.71	0.62	0.63	0.63	0.63	0.63	0.63	0.63
	0.72	0.60	0.60	0.60	0.60	0.60	0.61	0.61

Source: Company and East Coast Research

## Where our assumptions stands different?

Compared with contemporary belief and DFS representation, we have few key differences:

- **Metal prices:** Within our two scenarios and across the mining life we have assumed a wider range of metal prices. We believe that inflationary pressure will continue to hamper demand resulting in greater price volatility for most of 2023 and 2024.
- **Cost Inflation:** We are a bit conservative on the overall operating cost. We believe that the cost inflation will be higher in the second half of the project life mainly due to deep-rooted mining.
- **FID timing:** We have assumed that the final funding decision will only get executed in 1Q 2024. This is a major deviation from the current timelines as highlighted by the management and is much more conservative. The recent volatility in the capital markets globally is expected to impact management's equity raising plan in immediate future. This in turn is expected to further delay the fund release by financial institutions.

## Re-rating of BML

BML's stock is currently trading below our mid-point target valuation. The following activities will enable a re-rating on the stock, thereby increasing the shareholder value:

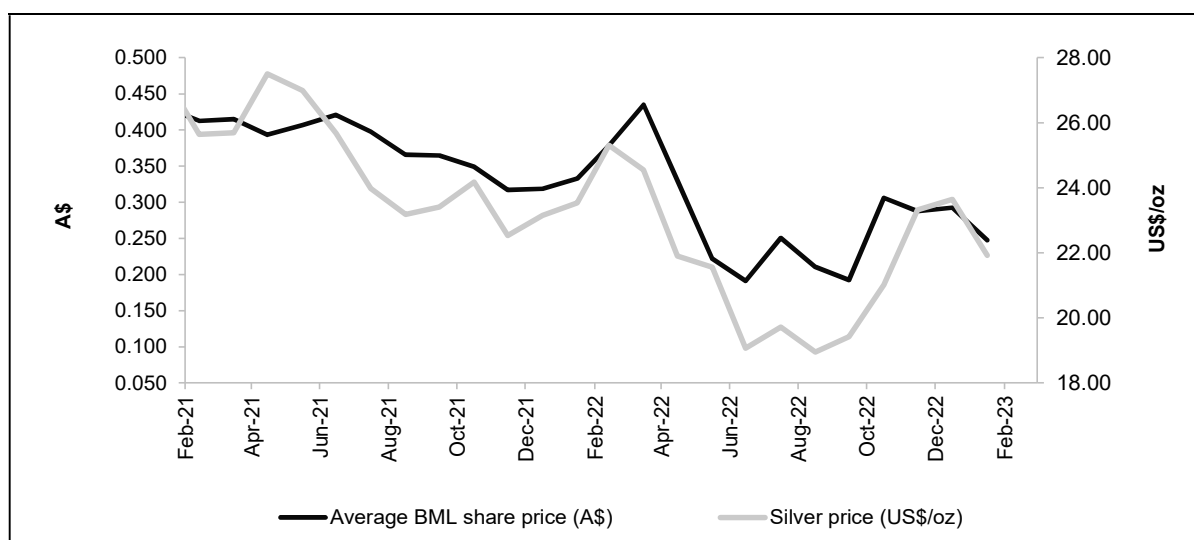
- An announcement of **a successful offtake agreement** will increase confidence in the economics of the project as well as debt funding prospects.
- An announcement of **a successful debt funding arrangement** will be a major step towards closing the funding requirements of the project and will increase investors' confidence in the project.
- **Successful completion of the funding plan:** The biggest catalyst for a value uplift would be successfully closing a favourable financing plan within the expected timelines (end of Q3 2023; we have conservatively assumed it to happen only in Q1 2024). We believe this will be a testimony of the project's economics.
- **Timely commencement** of production from Sorby Hills will enhance the management's reputation of delivering on promise and consequently attract more investors.
- Any increase in lead and silver prices will have a direct bearing on the cash flow of project and its expected return profile.
- Further, **value engineering and process improvement initiatives** will enhance the expected profitability from the project and the shareholder's return.
- An **increase in the indicated and inferred reserves** in any further studies will expand the life of the mine enhancing the project value.

## Risks

We foresee following key risks to our investment thesis for BML:

- **Underlying commodity price risk:** Historically, the BML share price has stayed in tandem with the global silver prices (Figure 43). This exposes BML to commodity price risk, which depends on macroeconomic factors and demand and supply dynamics of the underlying metal, i.e., lead and silver. Any prolonged drop in prices will detrimental to our investment thesis.
- **Funding risk:** BML is required to raise substantial amount for the commencement of mining developments. Raising funds on favourable terms (both debt and equity), along with timeliness continues to be the biggest challenge for the company as of today.
- **Project delays:** Any potential delay in the initiation of mining activity, either due to funding or operational challenges will negatively affect the cash flow and potential shareholder's return.
- **Geological risk:** For a mining company such as BML, there exists a perennial risk of downward estimates of reserve figures. There also exists a risk of re-categorisation of the indicated reserves to inferred reserves in further studies. Any such incident will negatively impact the stock's valuation.

Figure 43: BML's share price moves in tandem with global silver prices



Source: Refinitiv, World Bank and East Coast Research

## Appendix I: BML SWOT analysis

Figure 44: SWOT analysis

Strengths	Weakness
<p>(1) This is a low-risk project as it is backed by strong JV partner Henan Yuguang Gold and Lead Co. Ltd., China's largest lead smelter and silver producer</p> <p>(2) Updated Mineral Resource Estimate depicting a 78% increase in measured resources and a 12% increase in ore reserves to 15.2Mt</p> <p>(3) The project is located in Western Australia, which is one of the most attractive regions for mining investment</p> <p>(4) Increase in the process plant capacity by 50%, from an initial rate of 1.5Mtpa to 2.25Mtpa</p> <p>(5) Updated mine plan: This includes the incorporation of the Beta Deposit for the first time</p> <p>(6) Efficient project work stream execution: (a) GRES has been selected as preferred EPC contractor, (b) Horizon Power is designated to deliver low-cost, clean renewable energy from the Ord River Hydroelectric power plant; (c) an agreement is already in place with Cambridge Gulf for access and stevedoring services at Wyndham port till April 2034</p> <p>(7) Highly experienced leadership team in place</p>	<p>(1) Economic problems leading to lower industrial usages</p> <p>(2) Delay in debt financing will impact investors' confidence</p>
Opportunities	Threats
<p>(1) Manbarrum and Eight Mile Creek projects offer significant regional exploration potential.</p> <p>(2) Potential to further improve resource and production target as a result of the final Phase V and Phase VI drilling that have not yet been incorporated into the resource model.</p> <p>(3) Potential to further optimise costs by reducing mining costs and identifying CAPEX and OPEX savings.</p> <p>(4) Possibility to enhance metal recoveries at Norton deposit with additional testwork.</p>	<p>(1) Global recession leading to high interest rates and low capital markets activity for financing exploration and development.</p> <p>(2) Lithium being preferred over lead for auto battery.</p> <p>(3) Inflationary pressures increasing cost of the project.</p> <p>(4) Volatility in lead and silver prices.</p>

Source: East Coast Research



## Appendix II: Highly experienced and diverse leadership

The current board and management members of BML possess rich and diverse experience, with expertise across exploration and mining industry and also in strategic management, business planning, finance, corporate advisory and capital raisings (Figure 45).

**Figure 45: BML's management and board members**

	Name and Designation	Profile
	Mr. Gary Comb <b>Chairman</b>	<ul style="list-style-type: none"> <li>Mr. Comb has more than 30 years of experience in the Australian mining industry. He has a strong track record in successfully commissioning and operating base metal mines.</li> <li>He has held a variety of senior roles, including the Chairman of Finders Resources Ltd., the Managing Director of Jabiru Metals Ltd. and the CEO of BGC Contracting Pty Ltd.</li> </ul>
	Mr. Simon Noon <b>Managing Director and CEO</b>	<ul style="list-style-type: none"> <li>Mr. Noon has 12 years of experience in strategic management, business planning, finance and capital raising across a variety of commodities.</li> <li>He was the Managing Director co-founder of West Rock Resources Ltd. Eventually, the company was acquired by Boab Metals Ltd in 2013.</li> <li>Prior to being the Managing Director of Rock Resources Ltd., he was managing Groote Resources Ltd. from a Market Cap of under \$10m to market highs in excess of \$200m.</li> </ul>
	Mr. Andrew Parker <b>Non-Executive Director</b>	<ul style="list-style-type: none"> <li>Mr. Parker has significant experience in the exploration and mining industry and also in corporate advisory, strategic consultancy and capital raisings.</li> <li>He previously held the position of Managing Director at Trident Capital Pty Ltd, a corporate advisory and venture capital firm that he co-founded.</li> <li>He is also the Chairman of Widgie Nickel Pty Ltd.</li> </ul>
	Mr. Richard Monti <b>Non-Executive Director</b>	<ul style="list-style-type: none"> <li>Mr. Monti is a geologist with more than 30 years of experience in many facets of the exploration and mining industry, including technical, commercial, marketing, and finance.</li> <li>He has held roles at several international and Australian companies, including Anaconda Nickel, Azimuth Resources Ltd., The North Group, Normandy Group, and RTZ Exploration.</li> <li>He is currently a director at Black Dragon Gold Ltd.</li> </ul>

Source: Company

## Appendix III: Financial Statement

<b>Profit &amp; Loss (A\$m)</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023e</b>	<b>2024e</b>	<b>2025e</b>	<b>2026e</b>	<b>2027e</b>
<b>Total Revenue</b>	<b>0.3</b>	<b>0.5</b>	<b>0.3</b>	<b>0.2</b>	<b>0.3</b>	<b>222.2</b>	<b>291.5</b>	<b>306.9</b>
Mining and Processing cost	0.0	0.0	0.0	0.0	0.0	(136.0)	(154.7)	(161.1)
Operating expenses	(3.4)	(5.5)	(7.0)	(6.5)	(6.0)	(17.5)	(21.1)	(21.3)
<b>EBITDA</b>	<b>(3.1)</b>	<b>(5.0)</b>	<b>(6.7)</b>	<b>(6.2)</b>	<b>(5.8)</b>	<b>68.6</b>	<b>115.7</b>	<b>124.5</b>
Depreciation	(0.0)	(0.1)	(0.1)	(0.1)	(0.0)	(17.7)	(31.3)	(29.6)
<b>EBIT</b>	<b>(3.1)</b>	<b>(5.0)</b>	<b>(6.8)</b>	<b>(6.3)</b>	<b>(5.8)</b>	<b>51.0</b>	<b>84.4</b>	<b>94.9</b>
Tax expense	0.0	0.0	0.0	0.0	0.0	(13.0)	(23.2)	(26.6)
<b>Net Profit</b>	<b>(3.1)</b>	<b>(5.0)</b>	<b>(6.8)</b>	<b>(6.3)</b>	<b>(14.2)</b>	<b>30.3</b>	<b>54.2</b>	<b>62.1</b>
<b>Cash Flow (A\$m)</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023e</b>	<b>2024e</b>	<b>2025e</b>	<b>2026e</b>	<b>2027e</b>
Profit after tax	(3.1)	(5.0)	(6.8)	(6.3)	(14.2)	30.3	54.2	62.1
Depreciation	0.0	0.1	0.1	0.1	0.0	17.7	31.3	29.6
Changes in working capital	(0.3)	0.5	(0.7)	(0.3)	(0.0)	(7.1)	(4.2)	(0.7)
Other operating activities	0.1	(0.1)	0.9	0.0	0.0	0.0	0.0	0.0
<b>Operating cashflow</b>	<b>(3.3)</b>	<b>(4.6)</b>	<b>(6.5)</b>	<b>(6.5)</b>	<b>(14.2)</b>	<b>40.9</b>	<b>81.4</b>	<b>91.0</b>
Payments for exploration and evaluation	(0.0)	(0.0)	(0.0)	0.0	(208.4)	(36.3)	0.0	0.0
Other investing activities	(0.1)	0.2	0.0	0.0	0.0	(35.7)	(6.8)	(2.0)
<b>Investing cashflow</b>	<b>(0.1)</b>	<b>0.1</b>	<b>(0.0)</b>	<b>0.0</b>	<b>(208.4)</b>	<b>(72.0)</b>	<b>(6.8)</b>	<b>(2.0)</b>
Equity raised (repurchased)	4.6	10.2	0.0	5.7	91.7	0.0	0.0	0.0
<b>Financing cashflow</b>	<b>4.3</b>	<b>14.4</b>	<b>(0.1)</b>	<b>5.6</b>	<b>234.2</b>	<b>19.0</b>	<b>(1.7)</b>	<b>(12.5)</b>
Net change in cash	0.9	10.0	(6.6)	(1.0)	11.7	(12.1)	72.8	76.5
<b>Cash at End Period</b>	<b>2.9</b>	<b>12.9</b>	<b>6.3</b>	<b>5.4</b>	<b>17.0</b>	<b>5.0</b>	<b>77.8</b>	<b>154.3</b>
<b>Balance Sheet (A\$m)</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023e</b>	<b>2024e</b>	<b>2025e</b>	<b>2026e</b>	<b>2027e</b>
Net Cash	2.8	12.9	6.2	5.3	(95.0)	(126.1)	(51.6)	37.4
Total Assets	8.5	18.7	11.7	10.3	230.4	290.9	344.9	395.1
Total Liabilities	0.9	1.7	1.1	0.4	112.4	142.6	142.4	130.4
Shareholders' Funds	7.6	17.0	10.6	9.9	117.9	148.2	202.5	264.6
<b>Ratios</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>2023e</b>	<b>2024e</b>	<b>2025e</b>	<b>2026e</b>	<b>2027e</b>
Total Cash / Total Assets	34.3%	69.1%	54.1%	52.0%	7.4%	1.7%	22.6%	39.0%
Return on Assets (%)	NM	NM	NM	NM	NM	20.1%	18.9%	18.1%
Return on Equity (%)	NM	NM	NM	NM	NM	38.3%	33.8%	30.1%

Source: East Coast Research

## Appendix IV: Analyst's Qualifications

Behzad Golmohammadi, lead analyst on this report, is an equity research analyst at Shares in Value (East Coast Research).

- Behzad has a bachelor's degree in Engineering (Industrial) and a master's degree in Applied Finance (Investing) from Sydney Business School where he was the top performer in his cohort. He has also passed the first two levels of the CFA Program.
- Behzad has several years of experience working as an Equity Research Analyst and Technical Analyst in Australia and overseas and has a broad knowledge of ASX listed companies. He has been a speaker at the Australian Technical Analysts Association (ATAA).

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### FINANCIAL SERVICES GUIDE

Shares In Value Pty Ltd (East Coast Research)

ABN: 56 643 558 436

Corporate Authorised Representative (AFSR No. 001283429) of Havana Financial Services Pty Ltd

ABN: 90 619 804 518

AFSL: 500435