

## ASX RELEASE

### BLACKEARTH'S DOWNSTREAM GRAPHITE PROCESSING JV ADVANCES WITH DEVELOPMENT SET TO COMMENCE IN INDIA

#### Highlights

- Expandable Graphite Plant **Feasibility Study** concluded with Key Project outcomes (50/50 JV basis) to include<sup>1</sup>:
  - **NPV (post-tax): US\$78M**
  - **Net Cash flow (pre-tax): US\$219M**
  - **Payback Period (post-tax): 1.2 years**
  - **Project CAPEX: US\$3M (first stage)**
- JV Partners have acquired a 5-acre site in the Special Economic Zone in Pune, India with settlement scheduled to occur on 30 July 2022 following an extensive review.
- The JV shall be known as **Panthera Graphite Technologies Pvt Ltd** with branding and website development launched in the next few weeks
- Leading local Engineering Firm Shubhjyot Consulting Engineers Pvt Ltd appointed to manage the development.
- Site development to commence in September 2022, with planned completion in early 2023 and trial processing to be undertaken immediately thereafter.
- Plan to commence supply of Expandable Graphite in 2<sup>nd</sup> quarter, 2023
- The JV has secured a binding offtake agreement to supply all initial production to be sold to global graphite downstream processing leaders, Grafitbergbau.

The Board of BlackEarth is pleased to report that the JV Partners have confirmed the acquisition of a development site in the Pune Region of India. The JV has appointed leading local Engineers to oversee the development of the plant. This is a significant milestone in the JV's development and the JV partners are committed to fast-track development of the plant.

The JV's plan is to develop a plant that can produce, in the initial stages, 2,000 – 2,500 tpa of Expandable Graphite then expand production capacity to 4,000 – 5,000tpa. The cost of the development, including land, building and all CAPEX is scheduled to be US\$3m (stage 1) with gross revenue projected to be US\$7m in the first full year of production, growing to US\$18- US\$20.5m pa following plant expansion.

Executives of BlackEarth also completed a Feasibility Study to assess the robust commercial terms and all other factors relevant to the JV and a final investment decision has been approved by the Black Earth Board.

The financial analysis of the JV's projected performance is outlined below.

*Note 1 – See Project Financial Analysis charts and Appendix 1 Sensitivity Analysis provided*

## Strong and Robust Financial Returns Projected<sup>1</sup>

Metachem have been producing Expandable Graphite and supplying products into the worldwide market for a number of decades. They have a strong business model which provides a degree of commercial security to the JV.

The BlackEarth team will manage the marketing and sales of product produced utilising their strong logistics and global marketing network.

## Highlights of the JV Terms



- The JV operation is a low CAPEX business that will be established in a Special Economic Zone ("SEZ") in India
- The JV has forecast that production will commence at between 2,000Mt – 2,500tpa for years 1 – 3, increasing to 4,000 – 5,000tpa from year 4
- The JV has secured a license agreement with the JV operators for the forecast life of operations
- Proposed that graphite concentrate will be sourced from external parties for years 1 -2 of operations with product from Maniry supplying operations from years 3 onwards.
- Capex is scheduled to be US\$3m for the JV before production commences with BlackEarth committed to funding 50% of CAPEX and initial concentrate acquisition and other start-up costs
- Revenue and pricing assumptions are based on conservative price projections and up to 25% lower than other market participants
- OPEX and other costs have been made after a rigorous assessment of all factors and are consistent with Metachem current operations.
- The JV will largely employ local labour and is in the processing of concluding the appointment of a CEO and local management team.

## JV Revenue and OPEX Projections (1)

The following are the Key Feasibility Financial assumptions used to assess the projected returns for the JV:

Financial Metric	Unit	Panthera Graphite JV	BlackEarth's Share
BlackEarth Ownership	(%)	100%	<b>50%</b>
Project Life	(Yrs)	25	<b>25</b>
Total Gross Revenue	(US\$ M, real)	477.7	<b>238.8</b>
Total EBITDA	(US\$ M, real)	226.0	<b>113.0</b>
Total Net Cash Flows Before Tax	(US\$ M, real)	218.5	<b>109.3</b>
Total Net Cash Flows After Tax	(US\$ M, real)	174.8	<b>87.4</b>
Discount rate	(%)	<b>6.50%</b>	
NPV - before tax	(US\$ M, real)	100	<b>50</b>
NPV - after tax	(US\$ M, real)	77.7	<b>38.9</b>
IRR - after tax	(%, real)	<b>571%</b>	
Project Capital Expenditure - Stage 1 (Year 0)	(US\$ M, real)	2.96	<b>1.48</b>
Project Capital Expenditure - Stage 2 (Year 3)	(US\$ M, real)	1.59	<b>0.8</b>
Sustaining Capital Expenditure - (life of project)	(US\$ M, real)	2.89	<b>1.45</b>
Payback Period - after tax - from 1st feed	(Yrs)	<b>1.2</b>	

## Key JV Revenue and Cost Assumptions (1)

Price Assumptions		US\$/t
	Grade 1	\$4,500
	Grade 2	\$4,000
	Grade 3	\$3,500
Grade (to spec)		95%
Recovery rate - phase 1		95%
Recovery rate - phase 2		100%
<b>OPEX Costs</b>		
	Concentrate	\$1,100
	Processing	\$700

Price Assumptions		US\$/t
	Packing Costs	\$30
	Sustaining Capex	\$25
Other Costs		
	Transportation	\$40
	Logistics	\$70
	Duties	\$10
	General & Administration	\$30

## Demand for Expandable Graphite Growth and Projections

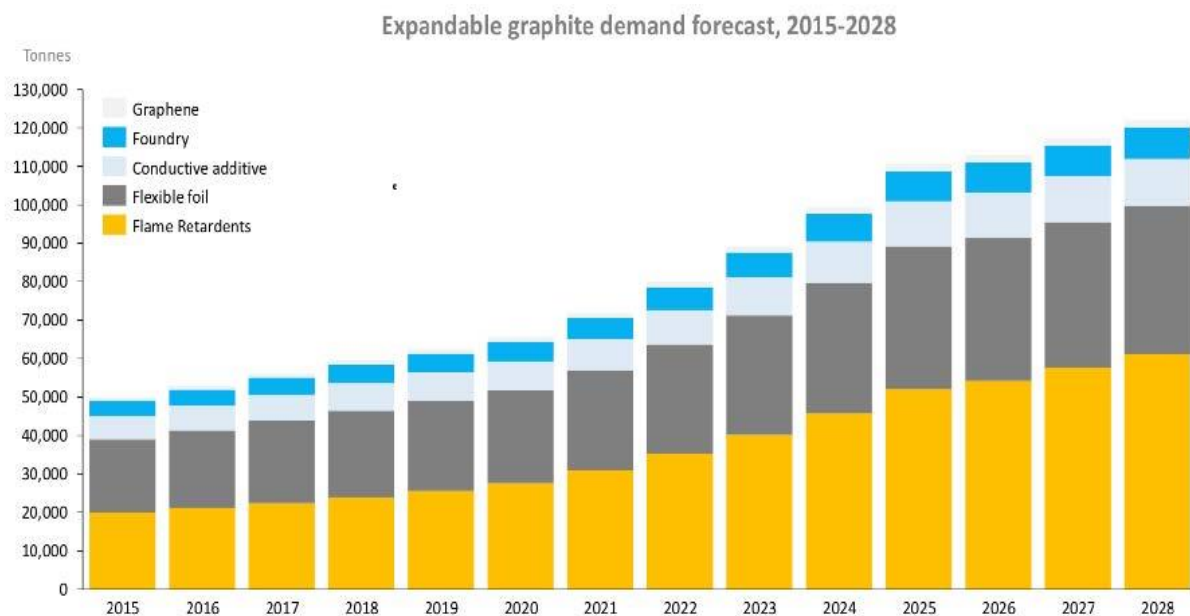


Figure 1 – Expandable Graphite demand and growth – Source:- Benchmark Mineral Intelligence

Expandable graphite is one of the fastest growing markets along with Li ion batteries. It is the only graphite market to have experienced price increases over the last couple years and is largely based on Jumbo and Large flake material.

Development of Expandable Graphite involves treating flake graphite and heating it to cause the flakes to split apart, expand and increase hundreds of times in volume. This material is pressed into sheets to create a foil which can be cut into shapes and used in many applications including consumer electronics, high end gaskets that are heat and corrosion resistant, fire retardants, smart building products, flow batteries and fuel cells.

Fuel cells are already a billion-dollar industry with commercial buses, forklift trucks, standby power plants, etc. already in operation. There are commercial fuel cell cars now and many observers expect them to become more popular more quickly than EVs.

Because of the growth in demand, and declining production from Shandong Province, China, there are now shortages of large and jumbo flake concentrates. Prices and margins for Expandable Graphite are high and expected to grow further as demand increases.

***Rapid demand growth is also forecast due to the increasing use of high energy density batteries in mobile devices.***

## **Recent Growth in the Expandable Graphite Market**

Amid the COVID-19 crisis, the global market for Expanded Graphite estimated at US\$203 Million in the year 2020, is projected to reach a revised size of US\$352 Million by 2027, growing at a CAGR of 8.2% over the period 2020-2027.

The Expanded Graphite market in the U.S. is estimated at US\$55 Million in the year 2020. China, the world`s second largest economy, is forecast to reach a projected market size of US\$80 Million by the year 2027 trailing a CAGR of 12.3% over the analysis period 2020 to 2027.

Among the other noteworthy geographic markets are Japan and Canada, each forecast to grow at 4.4% and 7.3% respectively over the 2020-2027 period. Within Europe, Germany is forecast to grow at approximately 5.3% CAGR (source – Businesswire.com).



*Figure 2 – Directors of JV Partners, Jayant Pawar and Jonas Pawar (Directors of and representing Metachem) and David Round (Finance Director of and representing BlackEarth Minerals NL) signing agreements at their recent meeting.*

## India's Rapidly Developing Industrial Sector

The Pune Region in India offers our JV many strategic and operational advantages including :-

- A well established technology and chemical production area
- Several decades of experience in graphite production
- Strategic logistical advantages with extensive networks to Asia, Europe and the US established
- BlackEarth can utilise the benefits of a Special Economic Zone including access to port, making it easier to bring in feed material or reagents and export the product(s).
- Favourable fiscal terms for foreign investors



*Figure 3 – Map of India highlighting the major Port City of Mumbai and Pune*

This announcement is authorised for release by the Boards disclosure committee.

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## **Forward Looking Statements**

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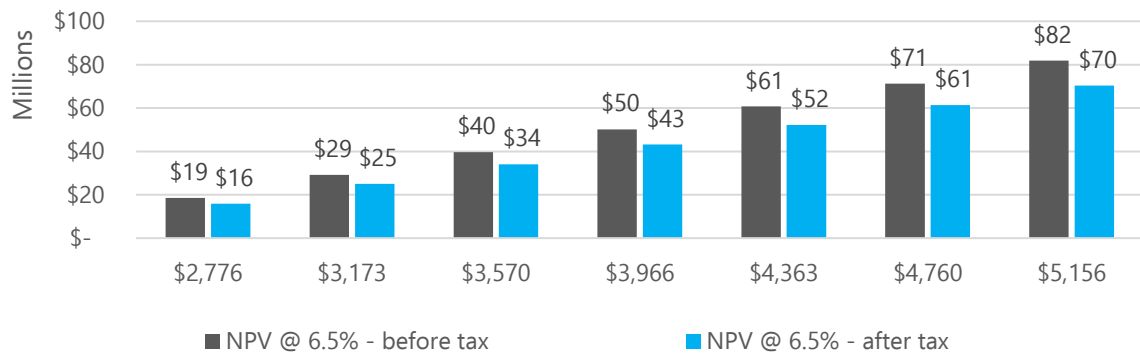
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## Appendix 1 – Project Assessment Sensitivities

Commodity Price Sensitivity Analysis- Changes in average sales price and impact on NPV  
(NPV US\$, real)



Sensitivity Analysis -  
Changes in Porcing, CAPEX and OPEX and impact on NPV  
(NPV before tax, US\$ real)

