



BAOBAB

STEEL AND VANADIUM

Addressing Global Pig Iron Supply Disruptions
Mining Indaba 2022

COMPANY OVERVIEW



OWNERSHIP

- 91% owned by AMED Funds.
- Active in Mozambique since 2005.
- US\$70m invested to date.



ASSETS

- Tier 1 – Iron Ore Resource.
- 759Mt grading 36% Fe (Iron).
- 0.39% V₂O₅ (Vanadium pentoxide).
- 13.27% TiO₂ (Titanium dioxide).
- 74.3Mt classified as proven reserve (JORC 2012).



PLANNED PRODUCTION

- 3 Mtpa run of mine iron ore.
- Beneficiated to 1.2 Mtpa concentrate (51% Fe).
- Converting to 1.1 Mtpa direct reduced iron (DRI).
- Producing 560 ktpa Pig Iron; and
- 2.5 ktpa Ferro-Vanadium (FeV₈₀).

PROJECT OVERVIEW



Base case:

- Pig iron ~560ktpa
- 2.5ktpa FeV80
- Definitive Feasibility Study completed
- US\$450m capex
- Fully permitted
- Construction ready
- Rail and port infrastructure in place
- Industrial Free Zone

NPV (US\$ '000) Sensitivity to changes in pig iron prices and Opex (US\$)

Pig Iron price

Operating Costs	Pig Iron price					
	400	450	500	550	600	
283	80	228	377	526	674	
260	150	299	448	596	745	
236	221	369	518	667	815	
212	291	440	589	737	886	
189	362	511	659	808	957	



Optimised for economies of scale:

- Pig iron ~1,100ktpa
- 5ktpa FeV80
- 759Mt iron ore resource supports increased production scenarios
- Modular technology allows expansion
- Improved economies of scale improves capex efficiencies
- Estimated US\$720m capex

NPV (US\$ '000) Sensitivity to changes in pig iron prices and Opex (US\$)

Pig Iron price

Operating Costs	Pig Iron price					
	400	450	500	550	600	
283	281	578	875	1,173	1,470	
260	422	719	1,016	1,314	1,611	
236	563	860	1,158	1,455	1,752	
212	704	1,001	1,299	1,596	1,893	
189	845	1,143	1,440	1,737	2,034	

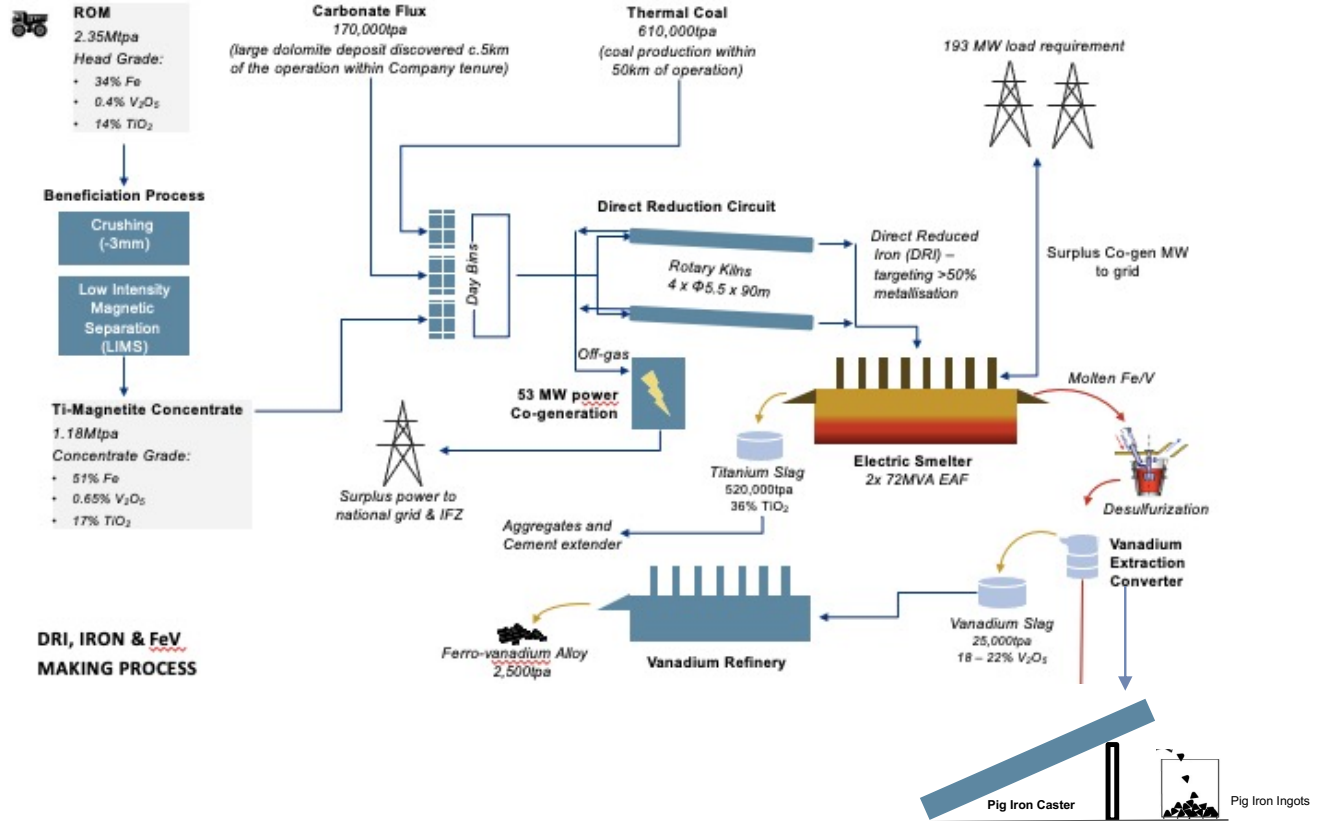
MARKET OPPORTUNITY

GEOPOLITICS CAUSING PIG IRON SUPPLY DISRUPTIONS

- Before the war **Russia** and **Ukraine** supplied **50%** of the **14mtpa** global Pig Iron trade.
- Brazil has historically been a swing producer – using highly polluting charcoal as energy source.
- Outside of China, the U.S., Turkey, and Italy are the largest importers.
- Duration of supply disruptions are uncertain – Western imposed sanctions likely to last for years.
- Baobab's co-products include Vanadium and potentially Titanium concentrate, both designated as critical minerals by the EU.
- Baobab's pig iron project will diversify a significant source of supply away from Russia & China.
- It is unlikely that the supply gap can be filled by current exporters.
- Constructing new pig iron production capacity has a 24 – 30 month lead time.
- At **US\$236/t** (ex-works) operating cost for the production of pig iron, Baobab at the bottom of the global cost curve, will be well insulated against long term price volatility.

PROVEN FLOWSHEET

DFS completed by MCC,
Hatch and SRK



PILOT SCALE TEST WORK

- Engineering flow sheet confirmed through large scale test work.
- 450t iron ore shipped from site for pilot scale test work at Shenyang lab in China.
- Comminution, beneficiation, reduction and smelting test work completed as part of DFS.

- Reduction and smelting test work campaign overseen by Hatch to ensure international standards.
- 157t DRI and 26t hot metal produced with Mozambican raw materials.
- Metallisation rates between 50-60% achieved.
- Stable conditions over an 8-day period.

97.5%

Fe recovery.

75%

V recovery.

> 100 YEARS LIFE OF MINE

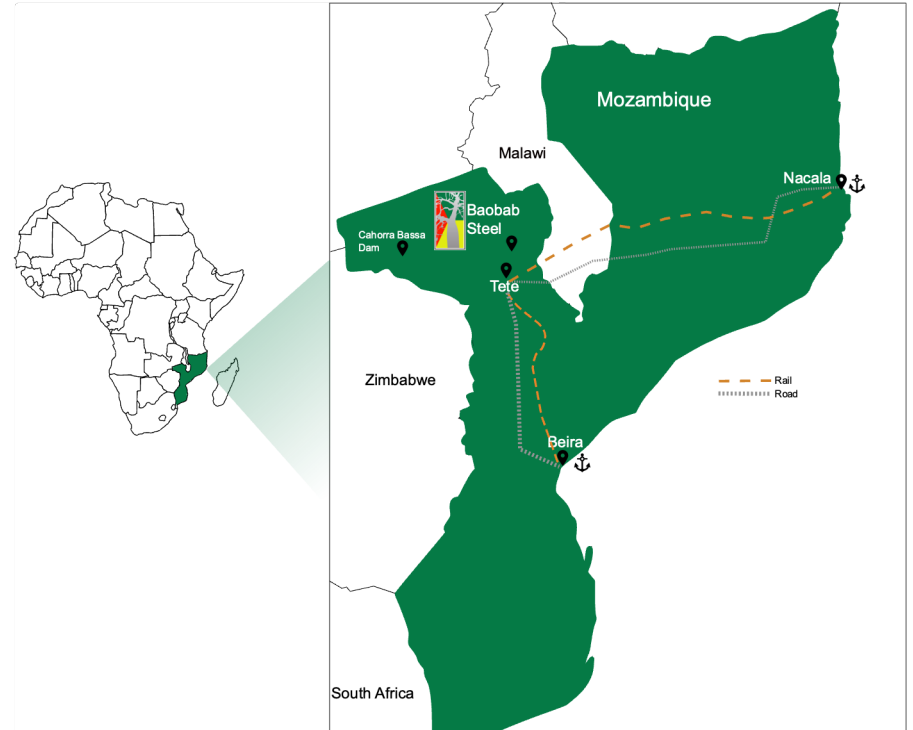
RESOURCE AND RESERVE STATEMENT

TOTAL RESOURCE CLASSIFICATION (JORC 2004, 2012)	TONNAGE (MT)	Fe (%)	V ₂ O ₅ (%)	TiO ₂ (%)
MEASURED	155.9	37.79	0.41	14.13
INDICATED	166.0	35.59	0.39	13.13
INFERRED	436.3	31.71	0.31	11.71
TOTAL	759.1	33.81	0.35	12.52
TENGE RESERVE CLASSIFICATION (JORC 2012)	TONNAGE (MT)	Fe (%)	V ₂ O ₅ (%)	TiO ₂ (%)
PROVEN (SRK 2017)	74.3	33.76	0.39	13.27
TENGE RESOURCE CLASSIFICATION (JORC 2012)	TONNAGE (MT)	Fe (%)	V ₂ O ₅ (%)	TiO ₂ (%)
MEASURED	155.9	37.79	0.41	14.13
INDICATED	65.7	34.45	0.37	12.54
INFERRED	-	-	-	-
TOTAL	221.5	36.80	0.41	13.66

ACCESS TO RAIL AND PORT

MOZ INFRASTRUCTURE HAS SEEN LARGE INVESTMENT

- The Sena (560km) and Nacala (912km) rail lines, link Tete to deep water ports on the Indian Ocean.
- The Nacala Corridor has 22mtpa bulk capacity of which 4mtpa is allocated for bulk break cargo, other than coal.
- Tete is a logistics hub connecting Mozambique with Malawi, Zambia and Zimbabwe with a well developed high-way network.
- The Revuboe Industrial Free Zone offers down stream industrial opportunities.

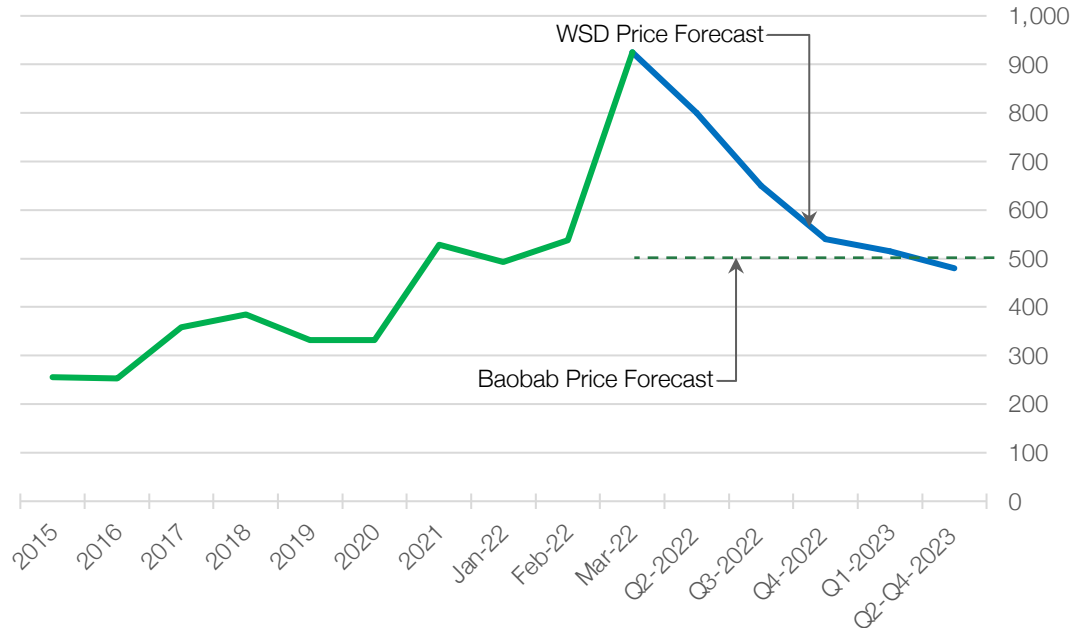


IMPACT ON PRICE AND SUPPLY

EU DESIGNATED CRITICAL MINERALS

- Pig Iron – **37%** price increase since the start of Russia – Ukraine war.
- Vanadium – Russia supplies ~ **20%** of global Vanadium production.
- Ferro-titanium – **123%** price increase since the war started.

Pig Iron Price in US\$/t

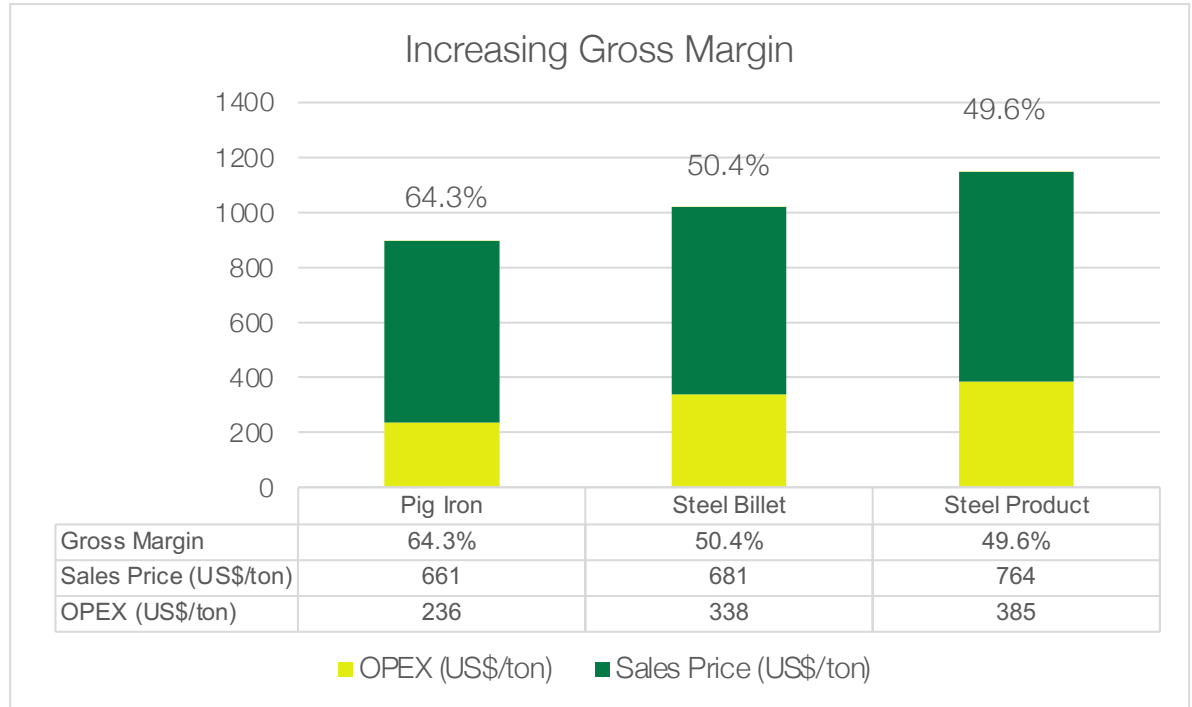


Source: World Steel Dynamics, 31 March 2022
Prices: FOB Black Sea

VALUE CHAIN OPPORTUNITY

BAOBAB HAS PRODUCT OPTIONALITY

- Steel mills will have to reduce capacity utilization to satisfy pig iron supply shortages.
- Pig Iron is substituted with scrap in the interim, but quality issues will make this unsustainable.
- Supply disruptions causing historic high Pig Iron gross margin



Source: World Steel Dynamics, 31 March 2022
Prices: FOB Black Sea

ESG INVESTMENT



ENVIRONMENT

- Adherence to strictest EU emission standards.
- Studies ongoing to incorporate green steel technology.
- Potential to access Hydro electricity.



SOCIAL

- Creation of 3,500 jobs during construction.
- 2,500 skilled jobs during operation.
- x10 multiplier - 25,000 direct and indirect jobs.
- < 50 households resettled.



GOVERNANCE

- Operations in accordance with IFC performance standards.
- Signatory to UN Global Compact.
- Investment in education of affected communities.
- Strict adherence to UK Anti-Bribery Act.

TRANSITION TO LOW CARBON FOOTPRINT

GREEN STEEL A POSSIBILITY



- LOI'S received from Independent Power Producers (IPP's) to supply Baobab's 193MW power requirements through LNG technology.
- Pilot scale pelletising and gas reduction test work planned to replace thermal coal with LNG as the iron ore reductant in the iron making process.
- The 1,500MW Mphanda Nkuwa hydro power and Green Hydrogen project only 50km from the Revuboe Industrial Free Zone offers the opportunity for Baobab to study and establish Africa's first **Green Steel** operation.

CEO

Deon van der Mescht
deon@baobab-steel.com

CFO

Frank Eagar
frank@baobab-steel.com

www.baobab-steel.com



BAOBAB
STEEL AND VANADIUM