

## **KIBARAN RESOURCES INVESTOR PRESENTATION**

**Kibaran Resources Limited** (ASX: KNL), ('Kibaran' or the 'Company') is pleased to announce that it will be joining battery industry experts and leaders as a featured speaker at the Benchmark Intelligence Battery Raw Materials & Supply Chain World Tour 2015. Mr Andrew Spinks, Managing Director and Mr Christoph Frey, Technical Graphite Specialist will be jointly presenting at the Sydney and Melbourne legs of the world tour.

The conference is expected to be attended by institutional fund managers, bankers, retail brokers and retail investors.

Registration is free for attendees and for more information please copy the following into your web browser:

Sydney 22 October 2015: [benchmarkminerals.com/sydney-2015](http://benchmarkminerals.com/sydney-2015)

Melbourne 29 October 2015: [benchmarkminerals.com/melbourne-2015](http://benchmarkminerals.com/melbourne-2015)

Further information, please contact:

**Managing Director**

Andrew Spinks

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Robert Hodby

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# DEVELOPING PREMIUM QUALITY GRAPHITE IN TANZANIA



## Benchmark - World Battery Tour 2015

Epanko graphite a long term stable supply of graphite  
for the emerging Battery Market

Presented by:

Mr Andrew Spinks, Managing Director

Mr Christoph Frey, Technical Graphite Specialist

ASX: KNL

*premium quality graphite uniquely tanzanian*



# DISCLAIMER

## Securities Disclaimer

This presentation is for informational purposes only and does not constitute an offer to sell, or solicit to purchase, any securities. Such offer can be made only through proper subscription documentation and only to investors meeting strict suitability requirements. Any failure to comply with these restrictions may constitute a violation of applicable securities laws.

## Forward looking Statements

Various statements in this presentation constitute statements relating to intentions, future acts and events. Such statements are generally classified as “forward looking statements” and involve known and unknown risks, uncertainties and other important factors that could cause those future acts, events and circumstances to differ materially from what is presented or implicitly portrayed herein. The company gives no assurances that the anticipated results, performance or achievements expressed or implied in these forward looking statements will be achieved.

## Competent Person

The information in this report that relates to Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Andrew Spinks, who is a Member of The Australasian Institute of Mining and Metallurgy included in a list promulgated by the ASX from time to time. Andrew Spinks is a director of Kibaran Resources Limited and has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. Andrew Spinks consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mr David Williams, a Competent Person, who is a Member of The Australasian Institute of Mining and Metallurgy. David Williams is employed by CSA Global Pty Ltd, an independent consulting company. Mr Williams has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 Edition of the “Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves”. David Williams consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to the Ore Reserve has been compiled by Mr Steve O'Grady. Mr O'Grady, who is a Member of the Australasian Institute of Mining and Metallurgy, is a full time employee of Intermine Engineering and produced the Mining Reserve estimate based on data and geological information supplied by Mr Williams. Mr O'Grady has sufficient experience that is relevant to the estimation, assessment, evaluation and economic extraction of Ore Reserve that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. Mr O'Grady consents to the inclusion in this report of the matters based on his information in the form and context that the information appears.



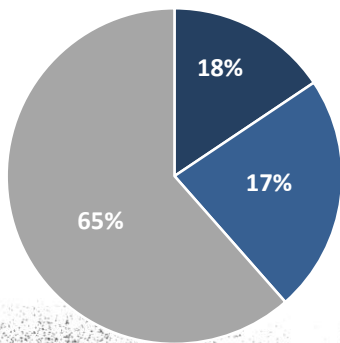
# COMPANY OVERVIEW

## Capital Structure

**KNL:ASX**

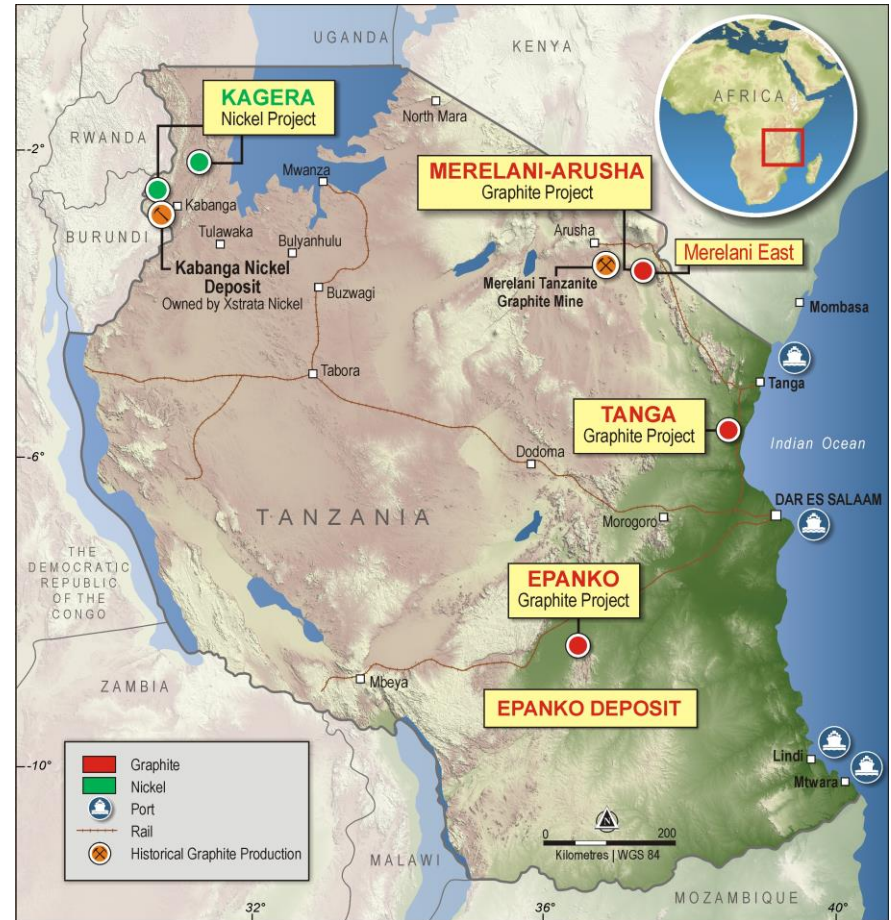
Shares on Issue	167.6m
Share Price (14 October 2015)	\$0.21
Market Capitalisation	\$35.2m
Net Cash (30 September 2015)	\$3.0m
Enterprise Value	\$32.2m
Options	
Unlisted Options	Various Exp, Various Ex Prices 12m
<b>TOTAL</b>	<b>12m</b>

## Shareholders



- Directors & Management
- Other Top 20 Shareholders
- Other Shareholders

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Focused strategy to become a major graphite producer





# PROJECT HIGHLIGHTS

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## World-class Graphite Assets:

### Epanko Graphite Project

- Debt financing supported by **German Government Loan Guarantee (UFG)** with coverage up to **US\$40m**
- **German KfW Bank mandate letter signed**
- Bankable Feasibility Study completed with **Pre-tax NPV of US\$197.5m**
- Annual EBITDA of US\$33.6m for 15 years
- Annual production of 40,000tpa
- Mining licence granted with environmental approvals in place
- **Staged increase to 84,000tpa, then 150,000tpa increase with global demand**
- **75% planned production supported by offtake**
- Mine life of 25 years is based on Ore Reserve
- Significant mineralisation remains undrilled

## Graphite Offtake & Sales Agreement

- ThyssenKrupp for 20,000tpa
- European trader for 10,000tpa

## Value Add Growth Strategies Underway

### Merelani-Arusha Graphite Project

- Merelani East Deposit: Mineral Resource with outstanding metallurgy
- Advance to Pre-feasibility and position as second production province

### Battery Grade Graphite Manufacturing Study

- Scoping Study completed with **Pre-tax NPV of US\$115m**

### 3D Printing using Graphite & Graphene

- 3D Graphtech partnership with CSIRO

## Market Opportunity

- Growing global graphite demand plus market shortage of large flake product
- Strategic partnerships in Battery Market

*“Positioning Kibaran to be one of the first listed graphite focussed companies to progress to Production”*



## BOARD & MANAGEMENT TEAM

### Andrew Spinks - *Managing Director*

- Geologist with over 25 years experience
- Expertise in exploration, mining and management across a number of commodities
- Association with operations in Africa for the past 13 years
- Worked for Resolute Ltd, Plutonic Resources, Dominion Mining & Whim Creek Resources in diverse roles from exploration, project development & mining

### Grant Pierce OAM - *Executive Director Projects*

- Mining engineer with over 25 years experience
- Extensive management experience & knowledge of Tanzanian mining sector
- Senior operational management roles in mining and exploration projects in Africa
- Worked for Perseus Mining and in Tanzania Resolute Mining and Barrick Gold
- Awarded the Order of Australia Medal in 2003 for his personal contribution to social development in rural Tanzania. Her Majesty Queen Elizabeth II is the Sovereign Head of the Order. In 2006 he was also awarded Tanzania's Zeze Award, the highest accolade for outstanding contribution to Tanzania's cultural development.

### John Conidi - *Non-Executive Director*

- Bachelor of Commerce degree from Royal Melbourne Institute of Technology
- 14 years of experience in developing, acquiring and managing businesses in the healthcare industry with a focus on diagnostic imaging
- MD of ASX:CAJ increasing market capitalisation from \$20 million to more than \$500 million in 8 years
- Significant involvement in 3D Printing technologies



*His Excellency Jakaya Kikwete (R), President of Tanzania with Grant Pierce (L) and Andrew Spinks (C) at Mahenge on the 20 August 2014 discussing the significance of Kibaran's Epanko and Merelani Graphite Projects to Tanzania.*

20-plus years in-country  
experience with proven track record  
and technical expertise in graphite



## MANAGEMENT & TECHNICAL TEAM

### Robert Hodby - CFO/Company Secretary

- Bachelor of Commerce, Member of CPA Australia and Governance Institute of Australia
- Over 20 years industry experience in financing and administration of public and listed companies gathered at both operational and corporate levels
- Held roles in numerous executive and project level management as well as CFO, Board & Company Secretarial roles with a number of companies involved in the resource and energy industries

### Christoph Frey - Technical Graphite Specialist

- German based graphite industry professional
- Over 20 years graphite experience in Russia, Europe, Africa and China
- Involved with all facets of development and production of natural flake graphite
- Direct experience in production of battery grade graphite
- Use of graphite in high tech applications
- Production of nanoparticles and nanopowders
- From 2010 to 2013 he served as Technical Director at Graphit Kropfmuehl AG where he worked on the Ancuabe graphite mine in Mozambique



### Consultants Under Exclusivity Arrangements

- GR Engineering Services ~ Study Manager & Engineering Design
- CSA Global ~ Mineral Resource & Geology
- Knight Piésold ~ Hydrology & Infrastructure
- ECG Engineering ~ Power & Electrical Engineering
- Independent Metallurgical Operations ~ Metallurgy
- Intermine Engineers ~ Mining & Ore Reserves
- George Orr & Associates ~ Geotechnical Mine Design
- MTL Consulting ~ Environment
- Trinity Promotions ~ Social & Community

***“GR Engineering and all study consultants are considered leading experts with a proven history of developing project in Tanzania”***



## Key BFS Results

Conventional open cut mine and conventional flotation processing plant.

- Annual EBITDA of US\$33.6m for 15 years with 40,000tpa
- Pre-tax (NPV) of US\$197.4m
- Payback 2.7 years with 25 year mine life
- Strip Ratio (W:O) 1:1 LOM
- Revenue Price US\$1,466/t of concentrate
- Opex FOB Dar es Salaam \$570/t
- Nameplate throughput of 480,000 tpa
- Ability to increase production as market demand increases via a 2 stage growth strategy to 100ktpa

Items		Parameters (LOM)
Plant Throughput	(tpa)	434,000
Plant Recovery	(%)	93.3
Feed Grade	(%)	8.6
Carbon Grade	(%)	96.3
Production Concentrate	(tpa)	36,400
Base Price Assumption	(US\$/t)	1,446
Cost per Tonne of Concentrate	(US\$/t)	570
Mine Life	(Yrs)	25
Pre-Production Capital	(US\$m)	77.5
Strip Ratio	(W:O)	1:1
Discount Rate	(%)	10
Payback	(Yrs)	2.7
EBITDA/Annum (Avg)	(US\$m)	30.3
Pre-tax IRR	(%)	41.2
Pre-tax NPV	(US\$m)	197.4

### Notes:

- ~ FOB Dar es Salaam
- ~ Excluding Royalties (3%) and Taxes (30%)





# WHY TANZANIA

## Mining-friendly Country

Stable democratic Government committed to mining sector growth and development

- English speaking
- Common law system
- Friendly tax regime (30%) and low royalties (3%)
- Existing and developed mining activity in place
- Access to skilled and educated local workforce
- Established mining support services

## Commercial Advantages

- Access to grid power
- Emerging power source with major gas discoveries
- Extensive infrastructure network (road, rail and ports)
- Major infrastructure initiatives – Power doubling and Tanga Rail



*New Road and Bridge Constructions on route to Epanko*

***“Tanzania understands the benefits of mineral wealth through the development of minerals”***

Significant in-country knowledge, expertise and relationships established



# ABOUT GRAPHITE

## An industrial mineral with unique physical properties:

- Superior thermal/electrical conductivity
- Stable wide temperature range
- High melting point
- Excellent lubrication
- Malleable
- Resistant to chemical attack



- **Battery** - essential component in lithium ion batteries (Electric Vehicle and Energy Storage Systems)
- **3D printing** – Revolutionise production of products
- **New Technologies**
- **Industrial** - nuclear, motor, aircraft, aerospace and metals processing industries applications including use in heavy machinery, refractories, construction materials, commercial printing and more
- **Graphene** - a derivative of graphite lauded as “the world’s next super material”

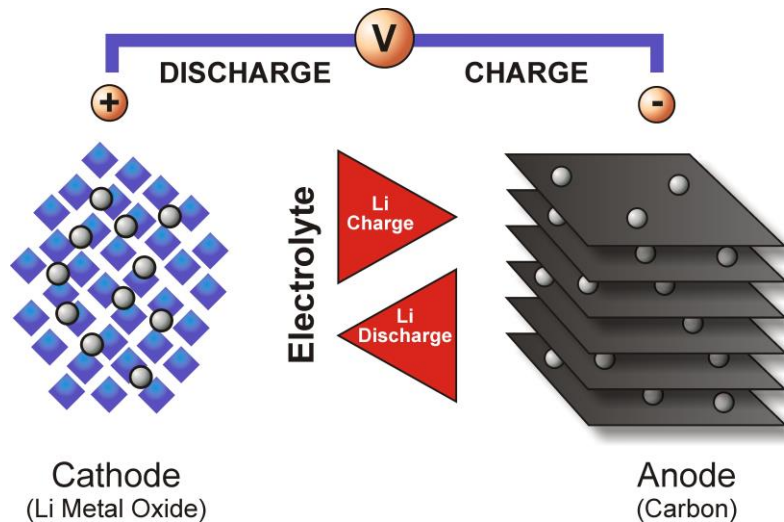


Supplying the raw material  
for the next industrial revolution



# BATTERY GRADE GRAPHITE

- High growth and demand expected
- Hybrid Vehicle (HV), Electric Vehicle (EV) and Plug-in(PHEV) will all use Lithium Ion Battery (LiB)
- Energy Storage Systems - Powerwall fed from Solar Energy
- LiB Anode a mixture of Synthetic and Natural Flake Graphite
- Natural large flake graphite is required for the power in EV and PHEV vehicles



## Lithium Ion Battery (LiB)

**Synthetic Graphite**  
(Provides long cycle life)

+

**Natural Graphite**  
(Provides higher energy density per volume = power)

LiB is expected to be a major growth driver and having one of the highest purity graphite is a market advantage





# EV'S: CURRENT MARKET SITUATION

## Arrangement of propulsion concepts into classes

### Combustion Engine

Diesel, Otto, optimized engine, alternative fuels.  
Concepts A, B, C, D

### Hybrids

Full Hybrids, Mild Hybrids  
Concepts E, F

### Electric Vehicle

PHEV, REEV, BEV  
Concepts G, H, I

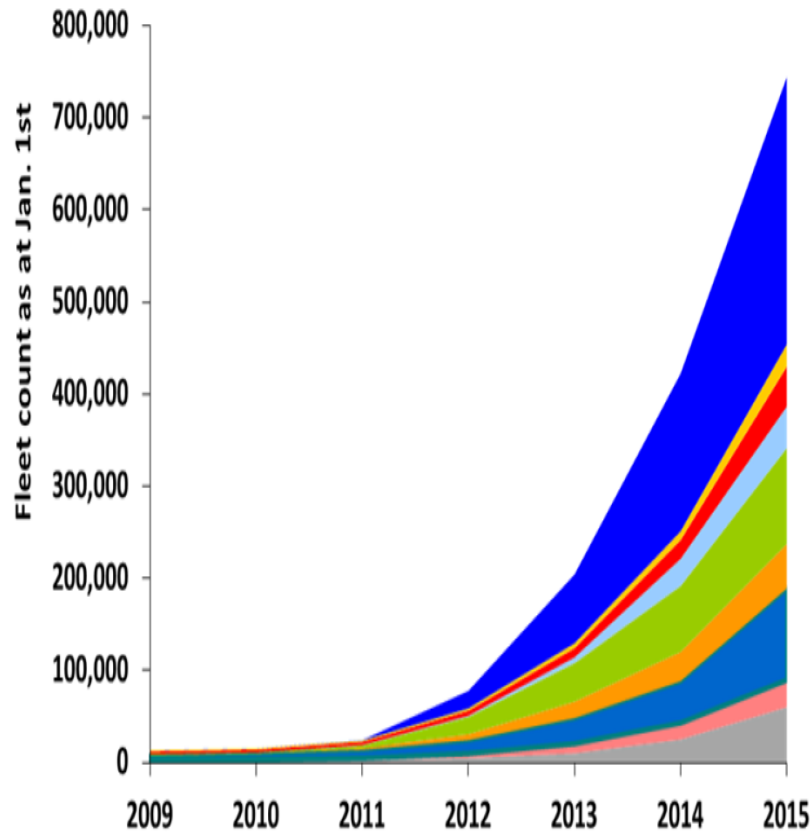
	A	B	C	D	E	F	G	H	I	J	K
Identifier	SI engine, conventional	CI engine, conventional	(HEV) Subhybrid	HEV Microhybrid	HEV Mild Hybrid	HEV Full Hybrid	PHEV Full Hybrid	PHEV Range Extender ICE	EV	PHEV Range Extender Fuel Cell	Fuel Cell Hybrid
Drivetrain Structure											
Primary Energy Source	Hydrocarbons	Hydrocarbons	Hydrocarbons	Hydrocarbons	Hydrocarbons	Hydrocarbons	Hydrocarbons	Electricity (from grid)	Electricity (from grid)	Electricity (from grid)	Hydrogen
	Advanced, high efficiency si- and diesel technology; alternative fuels: CNG, LPG and even more		Additionally to A or B: start-stop-function by conventional equipment	Additionally to A or B: start-stop-function, with belt driven starter-alternator	Additionally to A or B: regenerative braking, acceleration assistance by integrat. SA	Instead of E: electric launch, acceleration assistance electric driving	Additionally to F: larger battery, plug-in-capability	Propulsion energy stored in the battery, only small ICE to recharge onboard	No onboard recharge unit.	Energy stored in the battery, only small fuel cell and hydrogen to recharge	PEM fuel cell produces electricity from hydrogen



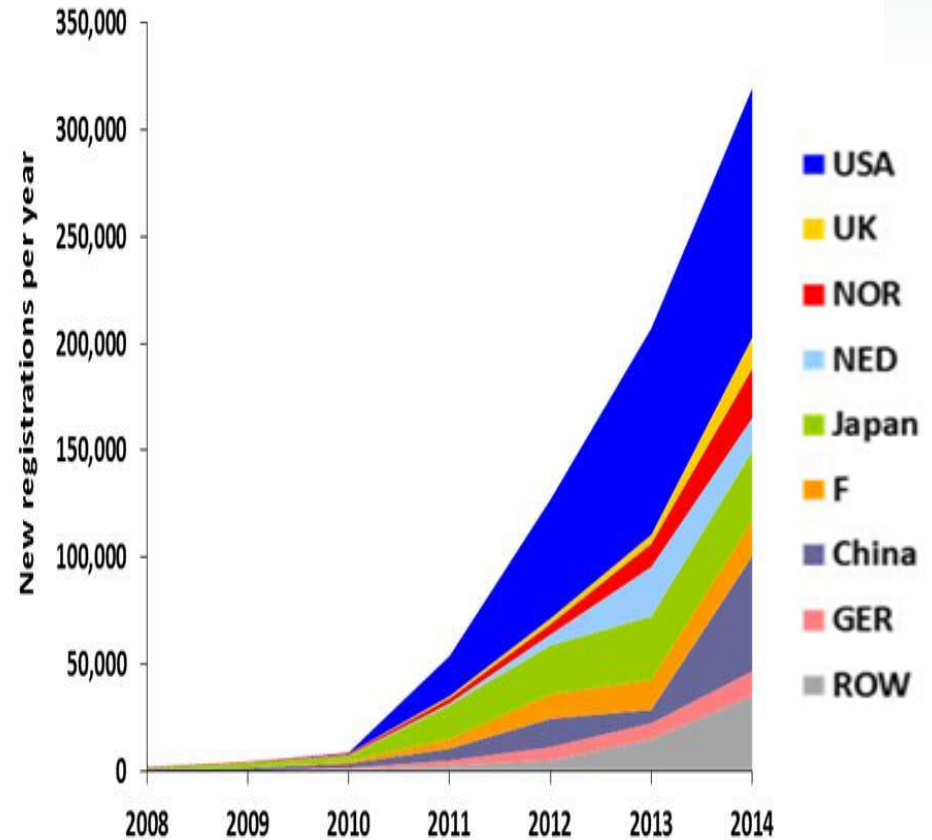


# EV'S: CURRENT MARKET SITUATION

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Number of electric cars worldwide on January 1, 2015

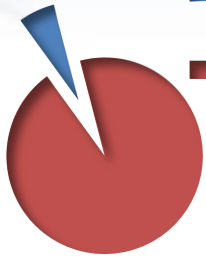


New registrations per year



# GRAPHITE IN LI-ION BATTERIES

■ cost active Anode material  
 ■ total cost per cell



The value share of the anode material will remain between 6 and 10% of the total cost of the LiB cell

Due to the growth of the LiB demand, the value for anode material will increase from currently \$1 billion to \$ 2,6 billion in 2025 (CAGR 10%)



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## Graphite is the dominant Anode Material for LiB

- Current market share of graphite above 90%
- Thereof: approx. 55% natural, 41% synthetic, 4% amorphous
- Currently oil price low => increase in usage of synthetic graphite, especially for consumer electronics
- Other anode materials include LTO, MCMB, hard and soft carbon
- Often mixture of different types of graphite / carbon in one cell
- Advantages Natural Graphite vs Synthetic Graphite: lower price, higher energy density (EV!), higher power output

Note: Synthetic Graphite more customisable and less swelling

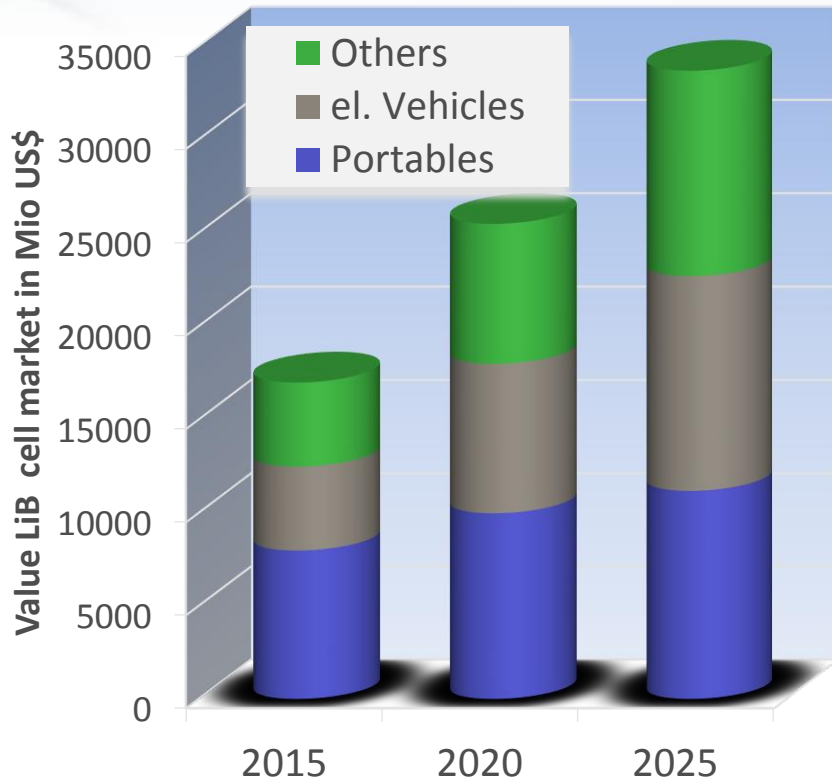
Material	Energy	Life	Power	Safety	Cost
Artificial Graphite	+	+	0	+	0
Natural Graphite *	++	0	0	+	++
Meso Phase Artificial Graphite	0	++	++	++	0
Hard Carbon	0	++	++	++	0
Soft Carbon	0	+	++	++	+



# EV'S: CURRENT MARKET SITUATION

## Li-Ion Batteries are not limited to Electric Vehicles

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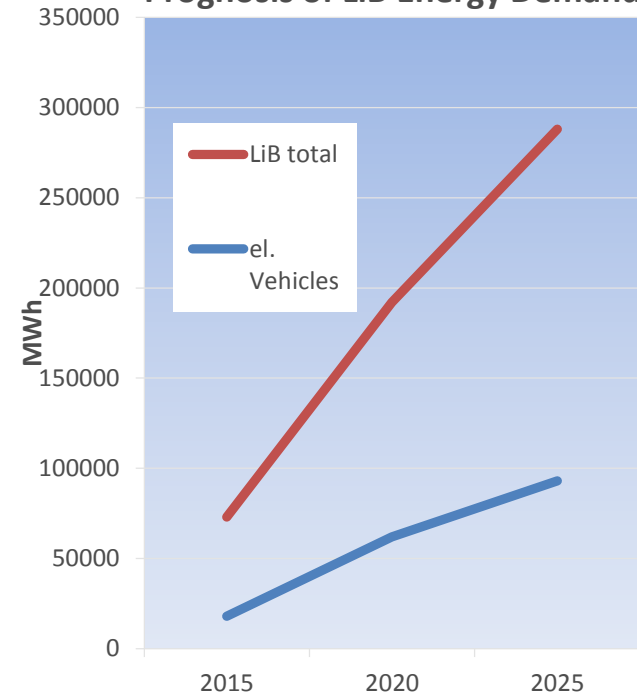


Portables: Laptops, Tablets, Mobile Phones, Camcorders etc.  
 Others: E-Bikes, Powertools, Telecom, ESS, Medical Devices etc  
 Electric Vehicles: HEV, PHEV and EV

## Growth rate for value of LiBs

	2020	2025
Portables	5%	3%
Electric Vehicles	12%	10%
Others	11%	9%
<b>LiB total</b>	<b>8%</b>	<b>7%</b>

## Prognosis of LiB Energy Demand

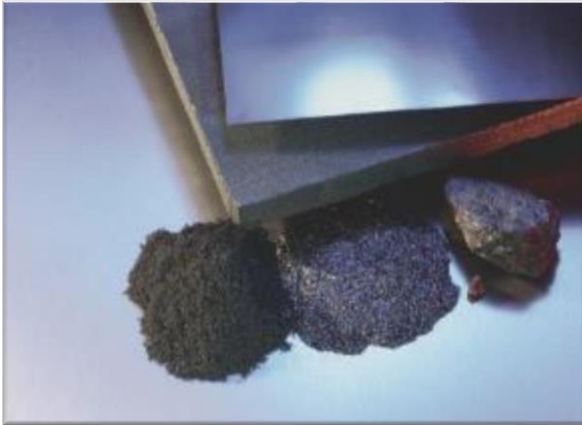


Energy demand: CAGR > 10% => US\$/kWh is decreasing from \$300-400 to \$200 in 2020



# EXPANDABLE GRAPHITE

## Ecophit® - SGL Carbon



Ecophit® Expanded graphite can be manufactured into thermally conductive panels for energy efficient buildings. (Source: [www.sglcarbon.com](http://www.sglcarbon.com))

## Neopor® - BaSF



Neopor® is produced by BASF and composed of small black beads of polystyrene (EPS) containing particles of graphite (Source: [www.Basf.com](http://www.Basf.com))

- Demand for graphite for the thermally efficient building market potentially higher growth than LiB market
- Expanded graphite is a high value premium priced product
- Increased use as fire retardant - non-burnable insulating layer
- European building codes leading the world in design and evolution of new products

Climate change expected to demand new building codes requiring the increased use of thermally efficient building products

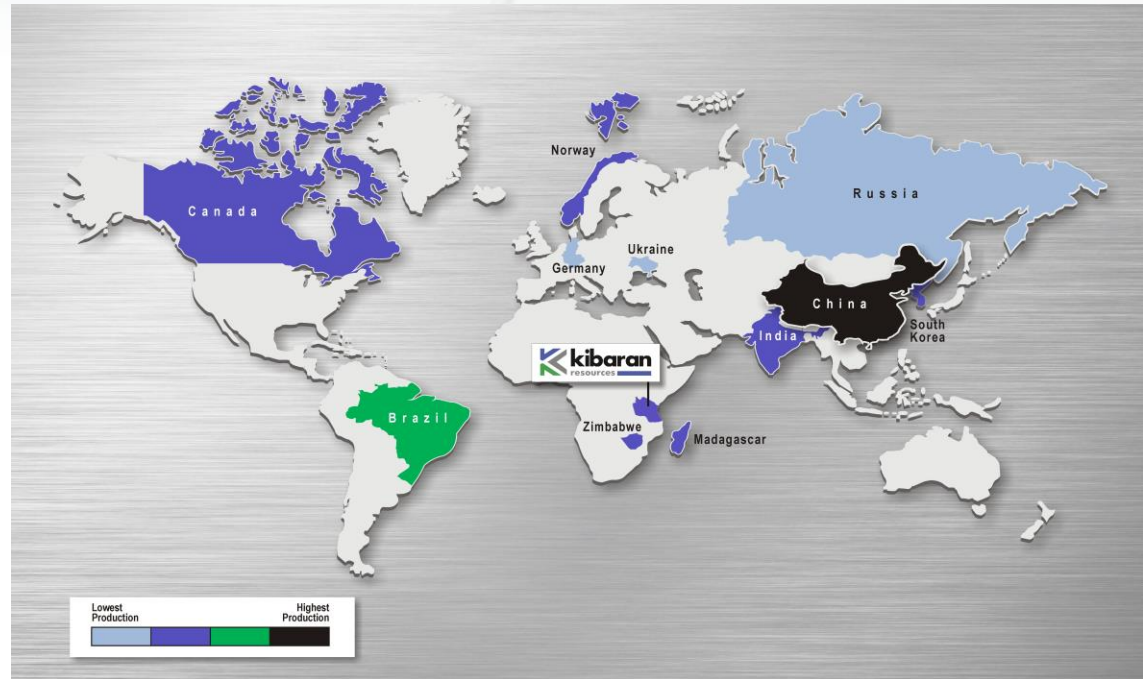




# WORLD – DEMAND / SUPPLY

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- Total market is **1.2Mtpa with China the largest producer and consumer**
- Natural flake demand outside of China is 320ktpa and largely sourced from China
- Traders and end users seeking diversity away from Chinese supply
- China seeking to import Large Flake Graphite
- China has 20% Export duty and 17% Vat on natural flake graphite
- China costs are rising
- World seeking eco-friendly supply



US, Japan, Korea, Taiwan and Europe are seeking alternative sources to China

China currently produces 73% of the world natural flake graphite supply

Opportunity to develop new mines that are cost competitive and have technical advantages to existing supply



## Commercial Advantage over Existing Supply

- Expansion Rates for Jumbo (+50 mesh) flake is 490 ml/g which is up to 30% higher than Chinese supply
- Ultra High purity of 99.98 % Carbon
- Very low percentage of fine flake (< 75micron)
- Testwork confirmed no limitation on industrial uses
- Extremely High percentage of large flake provides higher basket prices and increased saleability
- High Crystallinity expected to generate higher conductivity and densities which is important for LiB market





## Graphite Endowment

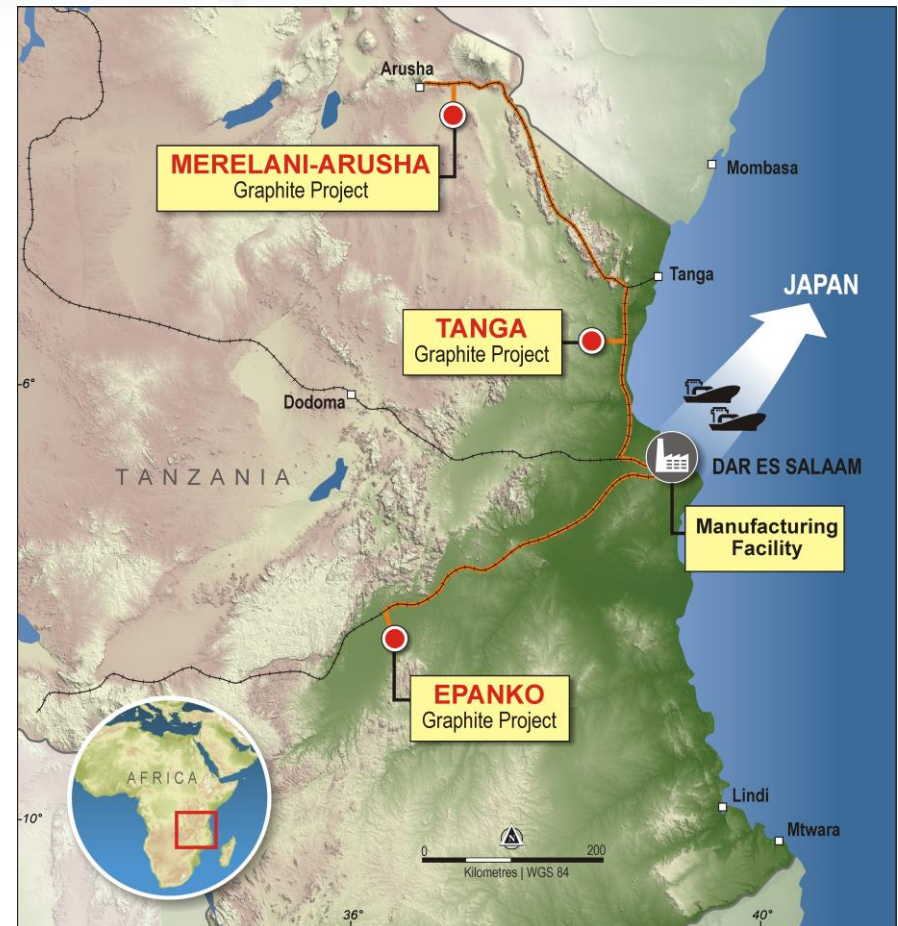
- Largest flake sizes in East Africa
- Africa's largest historical production centre
- Cost competitive with existing (Chinese) supply
- Considerable technical advantages compared with current supply

## Geological Reason

- High metamorphic gradient is the key factor to graphite crystallinity - large flake size distribution and high purity

## Significant Commercial Opportunity

- Long term stable supply of graphite to the existing and emerging markets
- Potential to become a manufacturing hub with direct shipment of value add products to end markets



A pipeline of outstanding quality projects and value add strategies





## Metallurgical Results

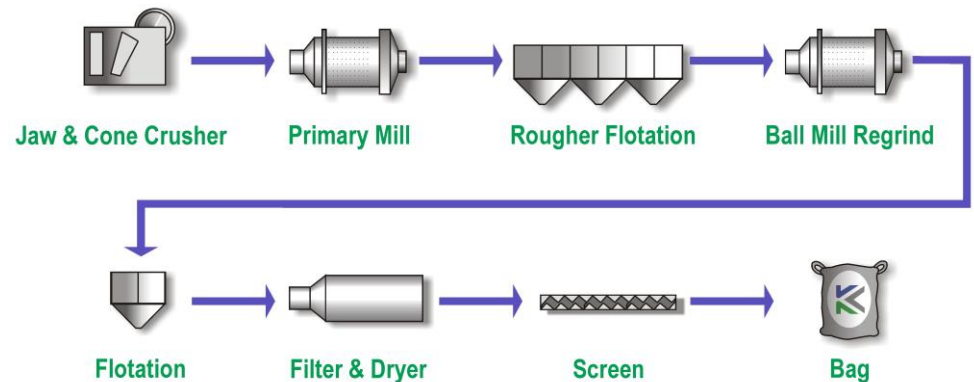
- 85.7% of distribution > than 106 micron
- Final carbon conc. of 96.3% TGC

## Flowsheet

- Simple flowsheet design
- Flotation circuit - rougher, scavenger, primary cleaner and secondary cleaner flotation stages
- Graphite concentrate will be filtered and dried
- Dry graphite concentrate will be screened into various product sizes and bagged for shipping

\* Micron ( $\mu\text{m}$ ) and Millimetre (mm).  $1\text{mm} = 1000\mu\text{m}$  and fixed carbon content determined by loss on ignition method (LOI)

EPANKO FLAKE SIZE DISTRIBUTION				
Name	Microns ( $\mu\text{m}$ )	Mesh Size	Portion Retained (%)	Carbon Grade (%)
Jumbo	>300	>48	20.0	97.1
Large	>180	>80	35.4	96.7
Medium	>106	>150	30.3	96.2
Small	>75	>200	7.4	95.3
Fine	<75	<200	6.9	92.6
			<b>100%</b>	<b>96.3%</b>



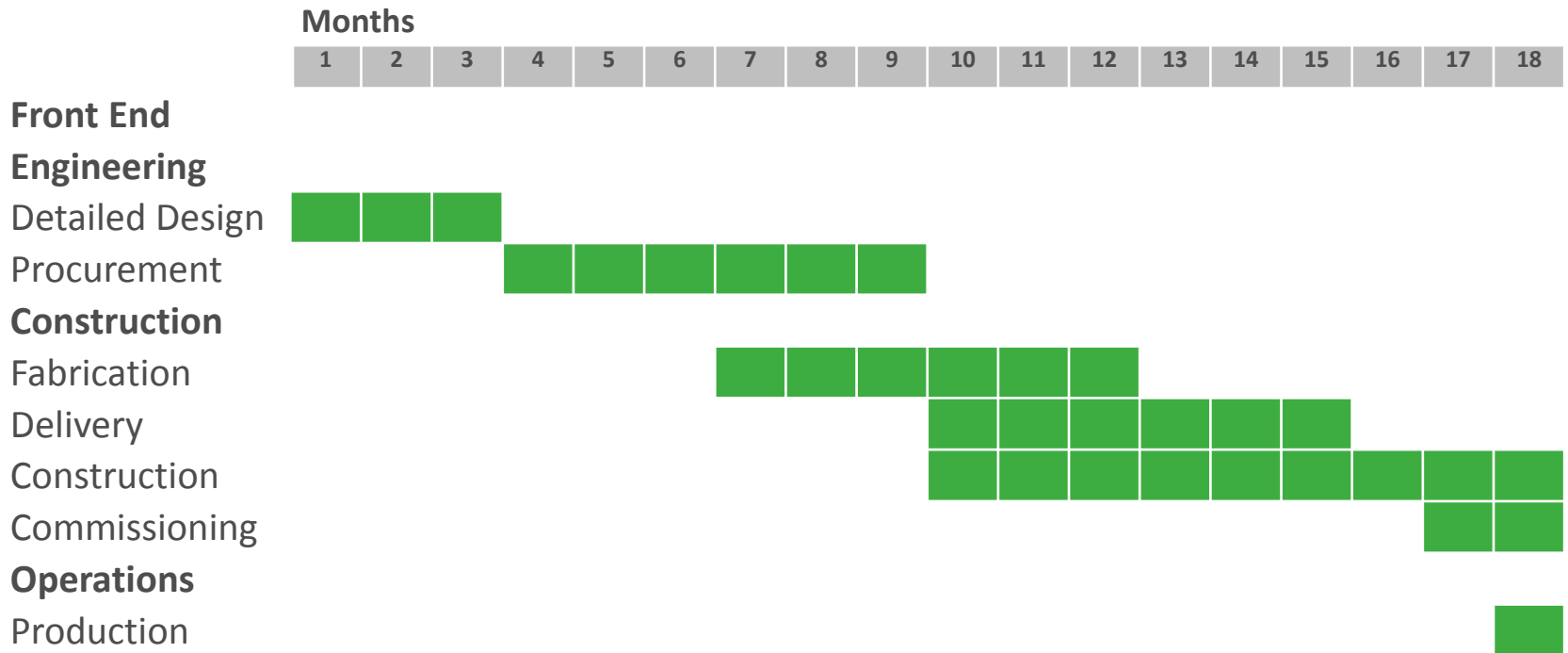
Competitive advantage  
in highest large flake distribution  
and lowest fines fraction





## Timeline to Production

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Strategic advantages of being one of the first into production

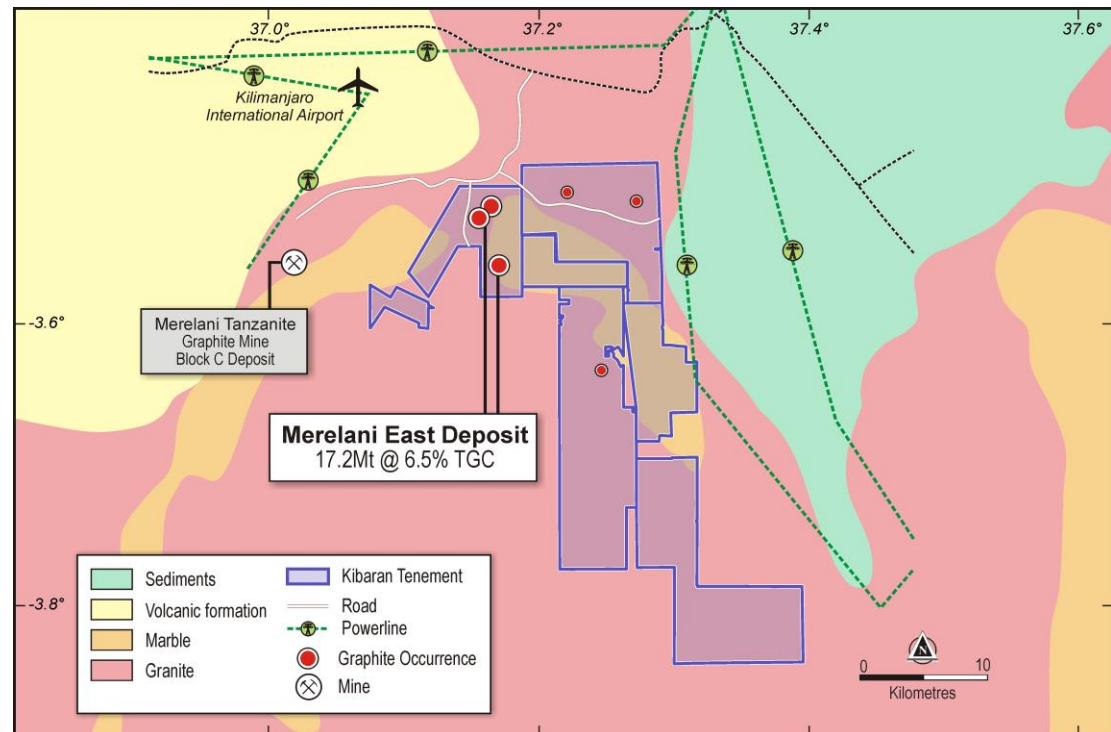


## Merelani East Deposit

- Mineral Resource estimate of 17.7Mt at 6.5% TGC for 1,140,000 tonnes of contained graphite
- Located within the Merelani – Arusha Graphite Project with a recognised production and sales history
- Excellent access to infrastructure - 380km to Tanga port and 15km to grid power
- Merelani East to advance to Pre-Feasibility Study

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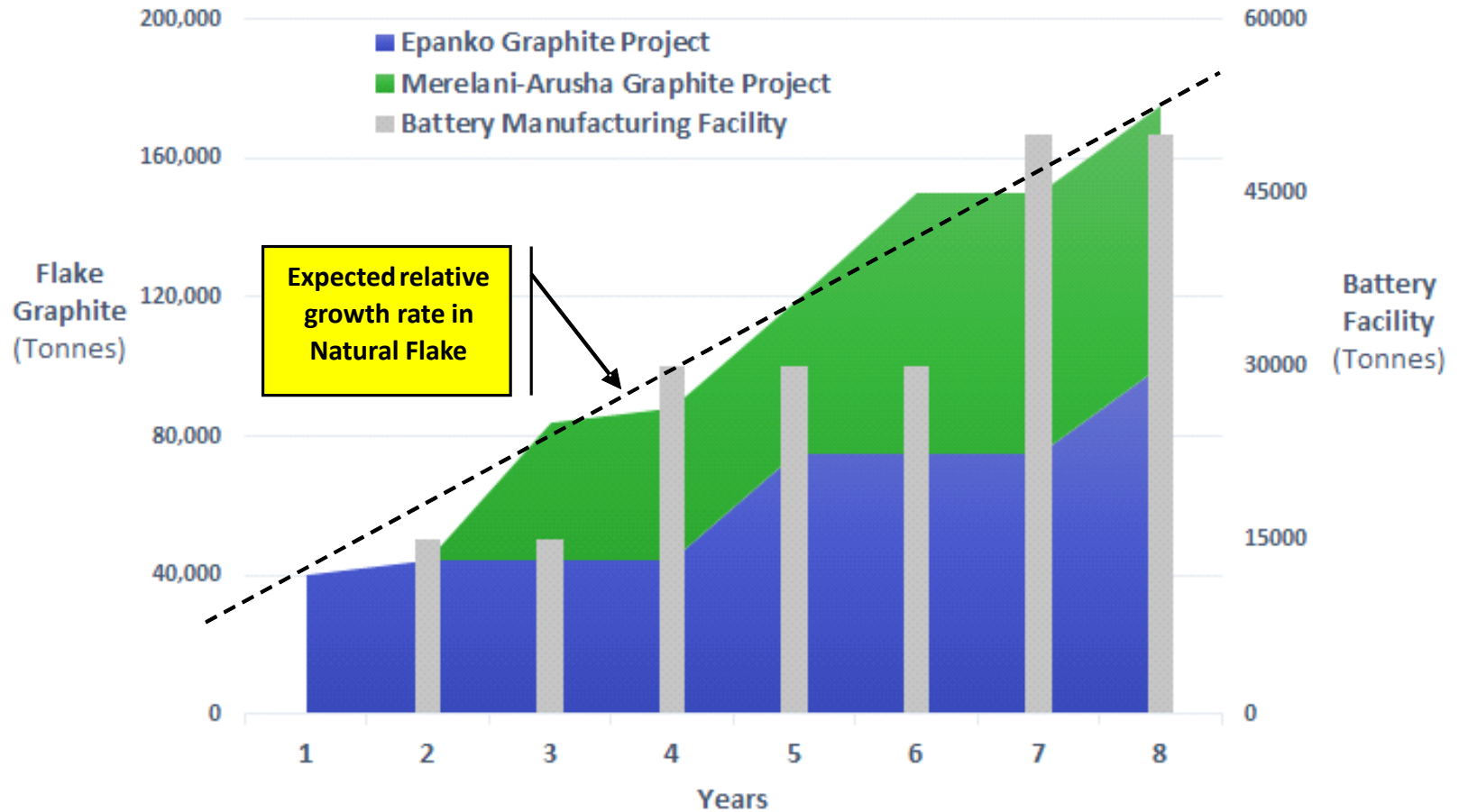
*“Results highlight stand-alone project potential and support Kibaran’s strategy of establishing a second production centre”*





# PRODUCTION GROWTH STRATEGY

## Two Fold Growth via Diversity



Kibaran is leading Tanzania to become the world's second largest graphite producer





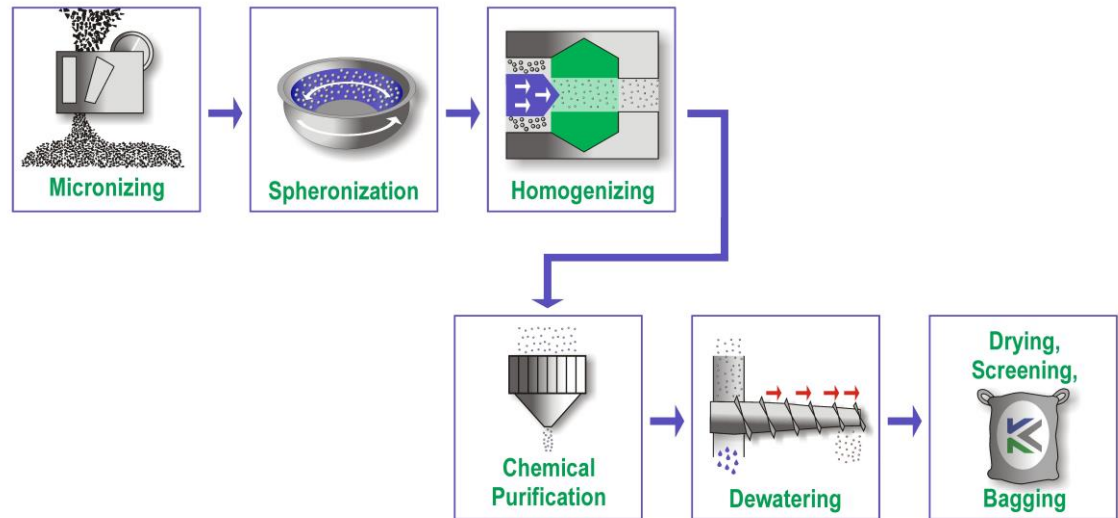
## Scoping Study Key Results

Production of Spherical, Expanded Graphite and other purified graphite products

## Key Study Results

- Pre-tax NPV10 of US\$115m
- Pre-IRR of 51%
- Capital Expenditure of US\$35m
- Annual pre-tax cashflow of US\$18 based on Stage 1
- Payback 1.9 years
- Manufacturing of first battery grade Spherical Graphite is scheduled to commence 12 to 18 months into Stage 1 Epanko Graphite Project expanded production

*“Exponential growth in graphite demand forecasted over the next 5 years from Electric Vehicle (EV) and Battery Storage industries”*



**Initial production to commence at 15,000tpa, increasing to 50,000tpa**



## School Desk Donation to Local Community

In August 2014 Kibaran donated 148 school desks to Epanko Primary School.

His Excellency President Jakaya Kikwete was present to receive the donation on behalf of the school.

## Wheelchairs for Special Needs Children

In October 2014 Kibaran donated 30 wheelchairs to vulnerable children within the Ulanga District. The wheelchairs were made in Australia by volunteer organisation Wheelchairs for Kids.

The District Community Development Officer and the Association for the Disabled identified the special needs children who ranged in age from 5 to 14 years. All wheelchairs were adjusted by a trained technician to fit each child's individual needs.



*“Development of Kibaran’s graphite project will be to the benefit of all key stakeholders including the local community”*

Genuine and lasting benefits  
for the local community



## KIBARAN'S KEY DRIVERS TO SUCCESS

- Strategic Partners – ThyssenKrupp AG + German Government
- Epanko striving to be the first graphite project into production in Africa
- Positioning Merelani to be the second graphite mine into production
- Maximise our significant cost competitive advantage due to our superior quality graphite
- Construct the first battery grade downstream processing plant in Africa for the EV battery market
- Staged growth strategy in place to 150,000tpa to meet future demand
- Develop 3D Graphtech Industries as a stand alone supplier of 3D printed products exclusively using TanzGraphite® as the raw material for graphite inks
- TanzGraphite® to become an industry standard and household name in the global graphite sector

Registered Trademark –  
TanzGraphite® to value add +  
growth strategies





## **Kibaran Resources Limited**

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 **TanzGraphite<sup>®</sup>**  
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