



PREMIUM QUALITY GRAPHITE / **UNIQUELY TANZANIAN**



ASX: KNL
FSE: FMK

BUILDING A SUSTAINABLE GLOBAL GRAPHITE BUSINESS

Annual General Meeting Presentation, 27 November 2018

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Information in this presentation 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 this presentation of the matters based on his information in the form and context in which it appears.

Information in this presentation 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 this presentation of the matters based on his information in the form and context in which it appears.

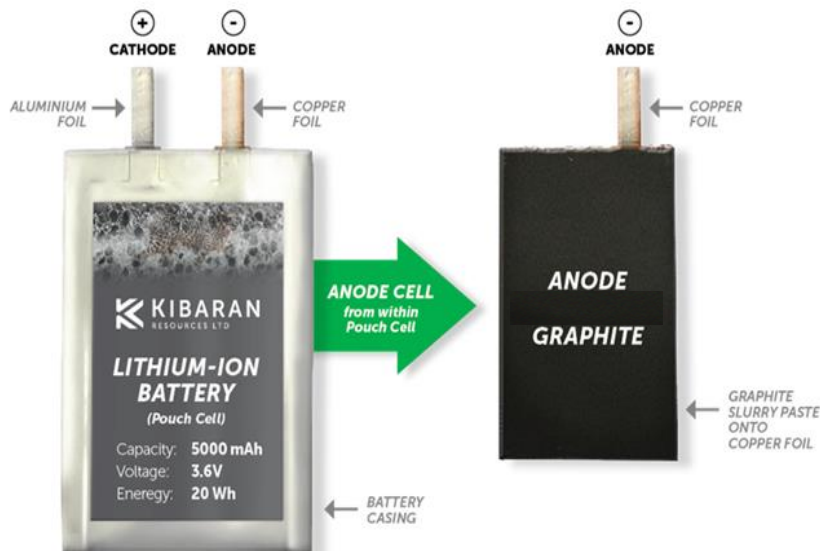
Information in this presentation that relates to Ore Reserves has been compiled by Mr Steve O’Grady, who is a Member of the Australasian Institute of Mining and Metallurgy. Steve O’Grady is a full time employee of Intermine Engineering and produced the Mining Reserve estimate based on data and geological information supplied by Mr Williams. Mr O’Grady has sufficient experience which is relevant to the estimation, assessment, evaluation and economic extraction of the 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”. Steve O’Grady consents to the inclusion in this presentation of the matters based on his information in the form and context in which it appears.



MARKET OPPORTUNITY FOR BATTERY GRAPHITE (EV)

Global expansion of Electric Vehicle (EV) markets forecast to drive a 700% increase in annual natural graphite demand by 2025 to over 800,000 tonnes per annum *Roskill, UBS*

BATTERY RAW MATERIAL COMPOSITION



~55kg Mined natural flake graphite per EV

127,000 tonnes

Used in 2017 *Roskill*

Importance of ethically sourced battery materials increasing

EV penetration rates increasing from 2% in 2017 to 25% by 2025 *Roskill, UBS*

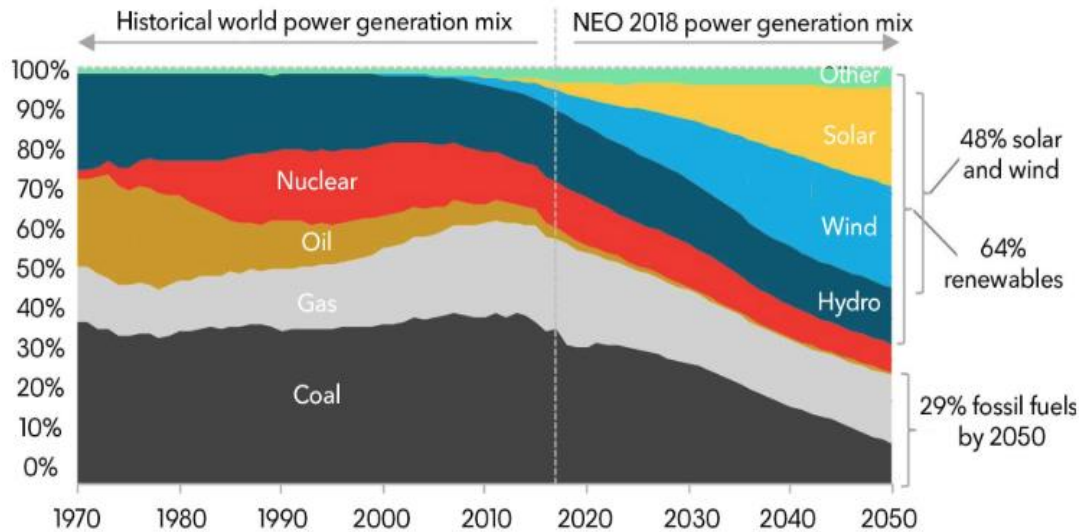


MARKET OPPORTUNITY FOR BATTERY GRAPHITE (ESS)

Accelerating demand for battery storage from renewable Energy Storage Systems (ESS)

> US\$8 trillion investment in wind and solar to 2050

> US\$500 billion in new battery storage capacity by 2050



Source: Bloomberg NEF, IEA.



Mobile solar powering rural and remote locations

Transported in sea containers set-up in 2 hours



NEW GRAPHITE MINING & MANUFACTURING BUSINESS POISED FOR DEVELOPMENT



Shares on issue		Key holders		Financial	
Listed 276m F-diluted 279m		Colonial 11% Board 10% Value-on-Gr. 4% GR Engineer. 2%		Share Price - A\$0.14 Mkt Cap - A\$38.6m Cash (1/10/18) A\$1.9m	
Scalable mining project for long term supply of graphite products		Value-add manufacturing of battery (spherical) graphite for lithium-ion batteries			
Development ready Epanko Graphite Project		Tanzania / Asia / Europe			
<p>Total pre-tax NPV₁₀ US\$356m <i>(geared, nominal terms)</i></p>					

➤ Strong mix of mining, commercial and graphite experience

- Kibaran Chairman Robert Pett, Managing Director Andrew Spinks and in-country Project Director Grant Pierce OAM established Tanzania's Golden Pride Mine and are recipients of the President's Award in Tanzania for environmental excellence. German-based non-executive director Christoph Frey (ProGraphite) is a globally recognised graphite expert
- Listed on the Australian and German (Frankfurt) stock exchanges



GRAPHITE BUSINESS SUMMARY

Total pre-tax NPV₁₀
 US\$356m
(geared, nominal terms)



EPANKO GRAPHITE PROJECT

Natural Flake Graphite (NfG)

Production	60ktpa
NPV₁₀	US\$211m
EBITDA	US\$44.5m



DOWNSTREAM PRODUCTION FACILITY

Spherical Graphite (SpG)
 (F) Fines
 (UN) Unpurified
 (P) Purified

Production	20ktpa
NPV₁₀	US\$145m
EBITDA	US\$30.5m

Products



Status

Feasibility study Jun 2017
 Bank technical review Aug 2017
 Debt financing

Feasibility study Dec 2017
 Non-HF purification IP developed
 Pilot plant optimisation completed

Pre-production cost

US\$89m

Pilot plant scale-up US\$4m
 5,000tpa US\$25m
 20,000tpa US\$41m

Early Works Construction

GR Engineering
 13mths

12mths

IRR

38.9%

34.3%

Payback

3.5yrs

3yrs

*Refer ASX Announcements 21 June 2017 and 5 December 2017.



EPANKO DEVELOPMENT READY

High quality development ready East African natural flake graphite project

- ✓ Bankable Feasibility Study (BFS) completed by GR Engineering;
- ✓ KfW IPEX-Bank appointed Independent Engineer's Review completed by SRK Consulting (UK), confirming that the BFS addresses all technical aspects of the proposed development and that the social and environmental planning aspects satisfy IFC Performance Standards and World Bank Group Environmental, Health and Safety Guidelines;
- ✓ Offtake commitments for the planned production secured in Asia (Sojitz Corporation) and Europe (Thyssen Krupp and European Trader);
- ✓ Resettlement Action Plan approved by the Tanzanian Government;
- ✓ Granted Mining Licence; and
- ✓ Letter of Intent signed with GR Engineering for early works program and EPC construction contract.



EPANKO STATUS

Remaining milestone is to finalise debt and equity funding arrangements to enable construction to proceed in 2019

- Tanzanian Government has reaffirmed its desire to attract new mining investment.
- Company has worked with its proposed financiers and legal advisors to develop solutions to issues raised by the legislative changes so that an acceptable outcome can be achieved as soon as possible.
- Subject to the agreement of all stakeholders, debt financing targeting end of first quarter of 2019 enabling commencement of construction shortly thereafter and first Epanko production from mid-2020.

Action	2018	2019	2020
Government Discussion	■		
Debt Financing		■	
Construction		■	
Production			■

Finalising the debt financing for Epanko is the number 1 priority



- Meeting held with the Tanzanian Deputy Minister of Minerals Hon. Stanslaus Nyongo (MP) during the Africa Down Under conference in Perth



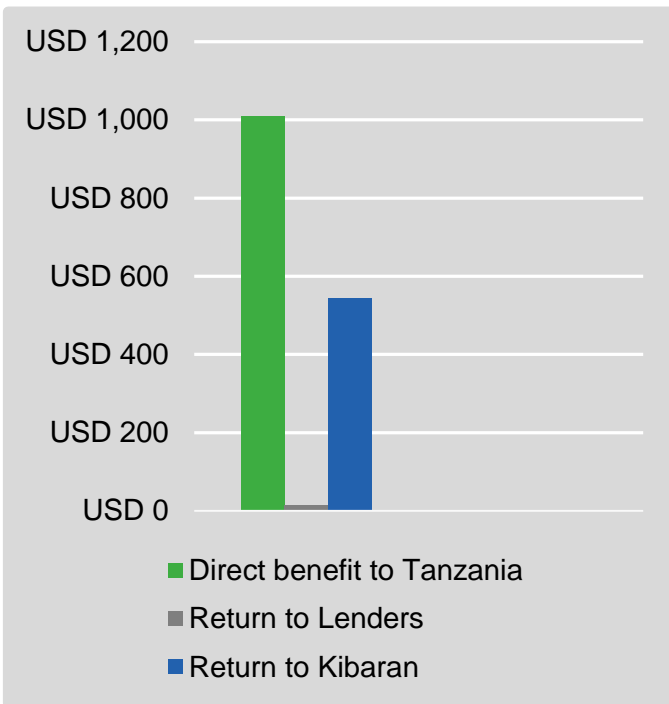
EPANKO CONTRIBUTION TO THE TANZANIAN ECONOMY

Over US\$1.0 billion in direct contribution to the economy over the first 20 years through local procurement of goods and services, employment, royalties, taxes and inspection fees

Direct employment of approximately 300 Tanzanians (over 95% of all staff) for 40+ years

4,500 indirect jobs + new industry

Community development via new housing, school, Church, medical dispensary, health insurance, training and positive engagement to build lasting social partnerships



- Direct contribution of over **US\$1.0 billion** to Tanzania over the first 20 years of operation
- Strong multiplier effect across the economy, with an estimated **US\$3 billion additional indirect economic benefits**
- New manufacturing technology
- Technological development in fastest growing global tech sector
- New trading and investment relationships with overseas partners

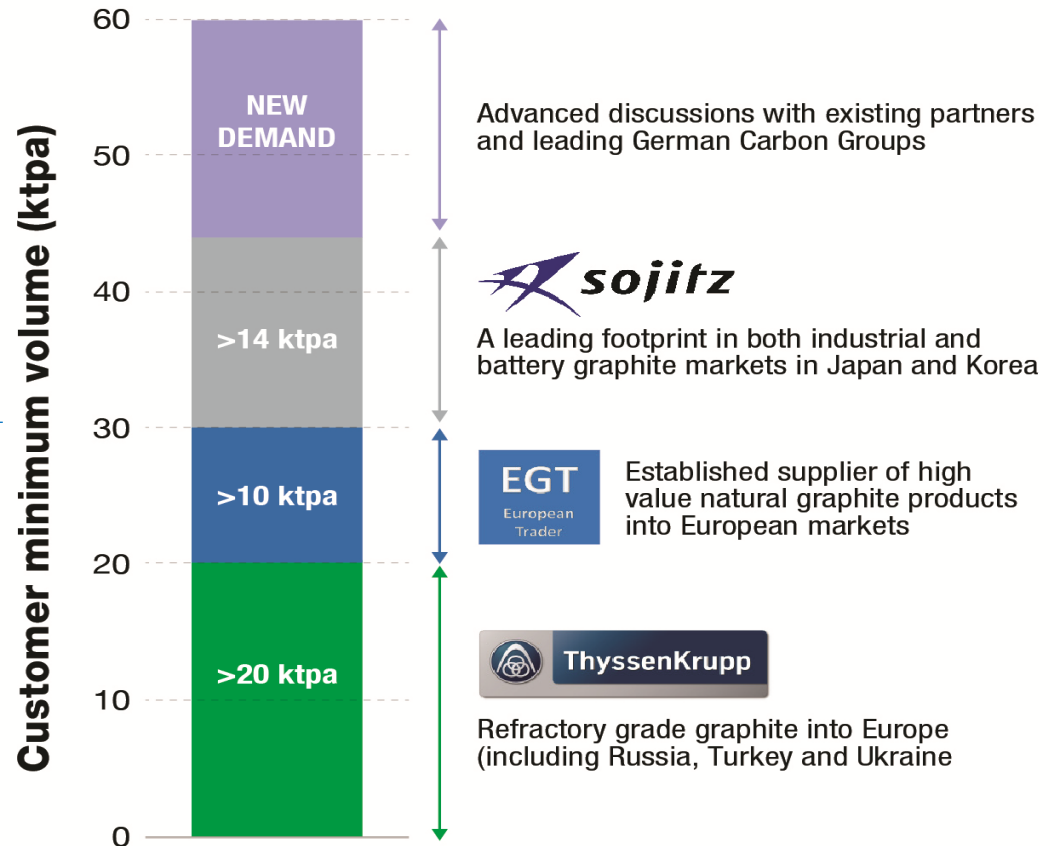


NATURAL FLAKE GRAPHITE OFFTAKE SUMMARY

Battery Markets



Traditional Markets



GRAPHITE MARKET AND PRICING

Outlook for further price increases is positive given forecast strong demand



Traditional Market - Flake Graphite Prices

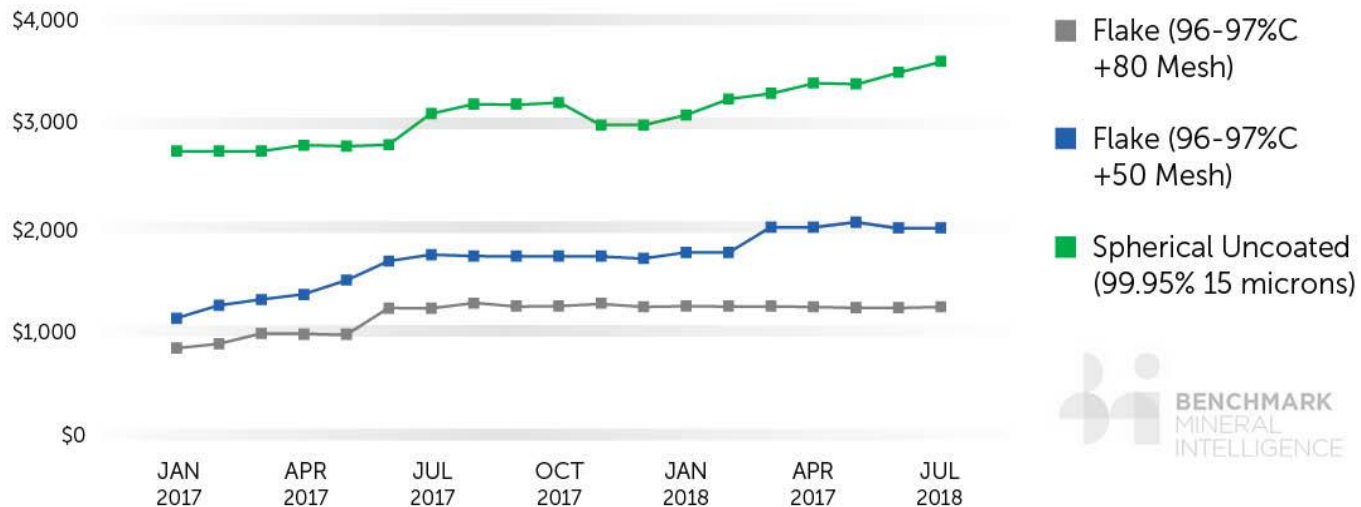
- +50 mesh now increasing over 60% and breaking through US\$2,000/t.
- +50 mesh and +80 mesh (96-97% C) have both increased over the past 12 months.



Battery Market - Spherical Graphite (SPG) Prices

- SPG15 grade has increased 20% in the last six months.
- SPG10 grade now reaching levels close to US\$4,400/t.

GRAPHITE PRICES (US\$/Tonne) : JAN 2017 - JUL 2018



GERMAN LED EUROPEAN BATTERY ALLIANCE

European battery manufacturing to drive new demand for Battery Graphite



German Government announcement on 18 September confirming massive financial support for the development of a lithium-ion battery production facility in Germany.



European Commission announced major progress in establishing battery manufacturing in Europe.

Germany - Significant change underway, all car manufacturers investing billions into EV's, EV infrastructure

German EV factories

- Increased adoption of EV expected due to Government incentives and restrictions on diesel vehicles
- Lithium-ion battery cells including Graphite are considered critical components by the EU
- Increasing customer demand for more environmentally sustainable battery raw material supply chains



GERMAN LED EUROPEAN BATTERY ALLIANCE



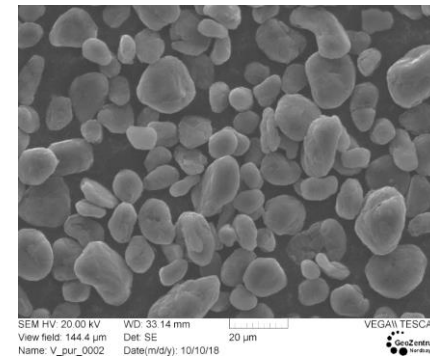
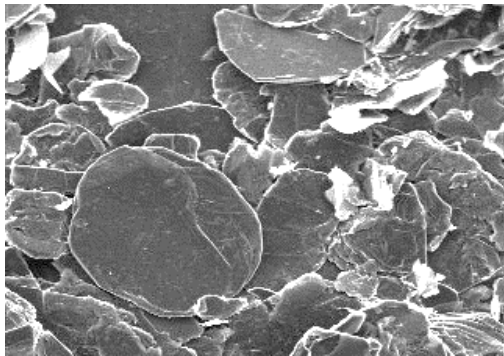
Volkswagen needs 150 GWh battery capacity by 2025 for their cars, this equals approx. 3 million EV's

Source: Bloomberg New Energy and Bench Mark Minerals



BATTERY GRAPHITE

Production chain of Spherical Graphite



■ Key issue of current supply of natural spherical graphite


- Existing purification process is not environmentally sustainable with the usage of hydrofluoric (HF) acid

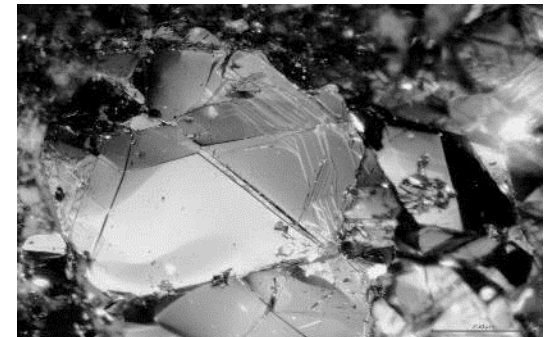
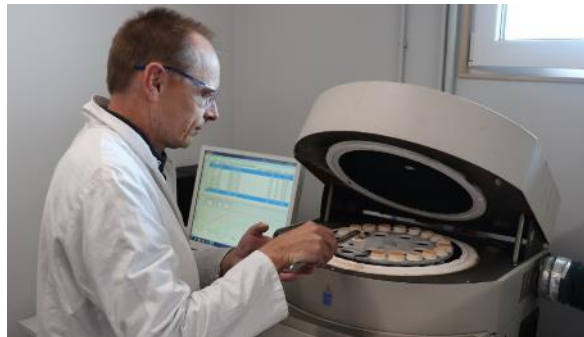
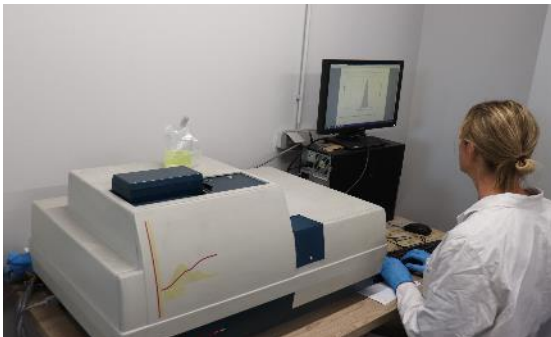
=> KNL Solution: 

- HF-free purification method, with low energy consumption and low environmental footprint



Environmentally sustainable (“green”), hydrofluoric acid (HF) free and cost competitive with existing HF supplies

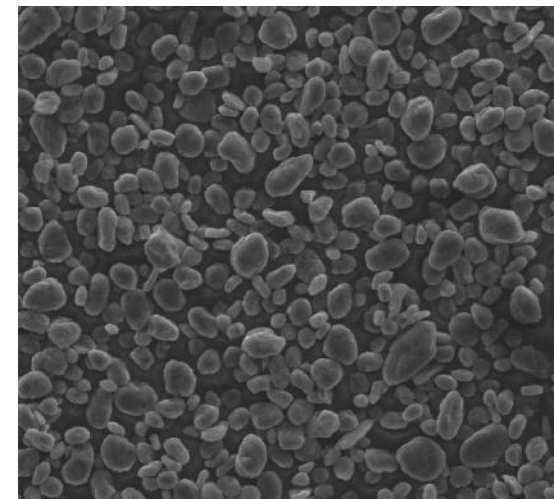
- Pilot plant optimisation completed in Germany to produce commercial quantities of spherical graphite, with financial support from German Government
- Key achievements:
 - ✓ Treatment of graphite from Kibaran’s Epanko Project in Tanzania, including battery (spherical) graphite and fines from spheronization (by-product) produced up to 99.98% carbon
 - ✓ Graphite from 10 other global sources produced up to 99.98% carbon
 - ✓ Seven large natural flake graphite samples produced carbon levels above 99.95%
- A new clean green proprietary processing technology developed under trademark  EcoGraf that is cost competitive and avoids toxic hydrofluoric acid
- Agreement finalised for long-term supply of standard grade graphite (minus 100 mesh at 94% carbon) which will be used as feedstock to support stages 1 and 2 of a stand-alone downstream business



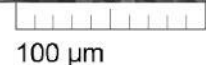
Results support Kibaran's strategy to establish battery graphite processing business with key competitive product advantages

	EcoGraf	Existing Supply
Purification grades	>99.98%	>99.95%
Purification of fines	Yes	No
Excludes toxic hydrofluoric acids	Yes	No
Ethical and environmentally friendly	Yes	No

- Samples from pilot work tested by and meets stringent standards of major anode manufacturers
- **EcoGraf** technology separates spherical graphite development from timing of Epanko Project and can proceed independently of Tanzanian production
- Pilot plant scalable from piloting to commercial production to meet market demand
- Strong interest from Europe and Asia for product supply and co-development




WD: 33.16 mm
 Det: SE
 Date(m/d/y): 10/10/18



PURIFICATION RESULTS

Battery product samples meet global battery anode manufacturers specification

- Outstanding results: very robust method, almost all samples reach carbon content of above 99.95%
-  purification applied to spherical graphite (SpG15)

SPG15		
Particle Size		
d10	micron	10.3
d50	micron	15
d90	micron	22.1
Tap density	kg/l	0.98
Surface Area (SSA)	m ² /g	7.4

SPG15		
Carbon	%	99.98
Impurities		
Al	ppm	2.7
Ca	ppm	4.6
Fe	ppm	5.5
Mg	ppm	0.5
S	ppm	5
Si	ppm	15.4
Zr	ppm	0.5



EcoGraf DEVELOPMENT SCHEDULE

Phased 20,000kta commercialisation strategy for EcoGraf

Phase	Battery (Spherical) Graphite	Capex	Feedstock (tpa)	2018	2019	2020	2021
Stage 1	3,000tpa (unpurified) customer trials and sales	US\$4m	6,000		■		
Stage 2	5,000tpa (purified)	US\$25m	10,000			■	
Stage 3	20,000tpa (purified)	US\$41m	40,000				■



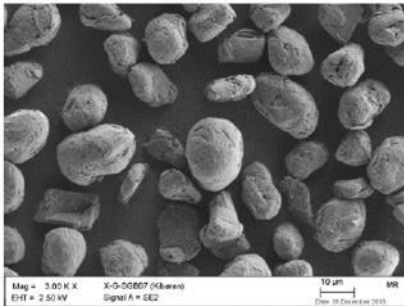
NATURAL BATTERY GRAPHITE SUPPLY CHAIN

Natural Graphite
(Purified Spherical Graphite)



 **EcoGrafi**

Development of European and Asian production hubs to produce battery product



Battery Anode Cells
(Coated Spherical Graphite)








Working On Wonders


power your life

 杉杉科技
Shanshan Technology



Battery Systems
(Integrated Cathode/Anode Cell)









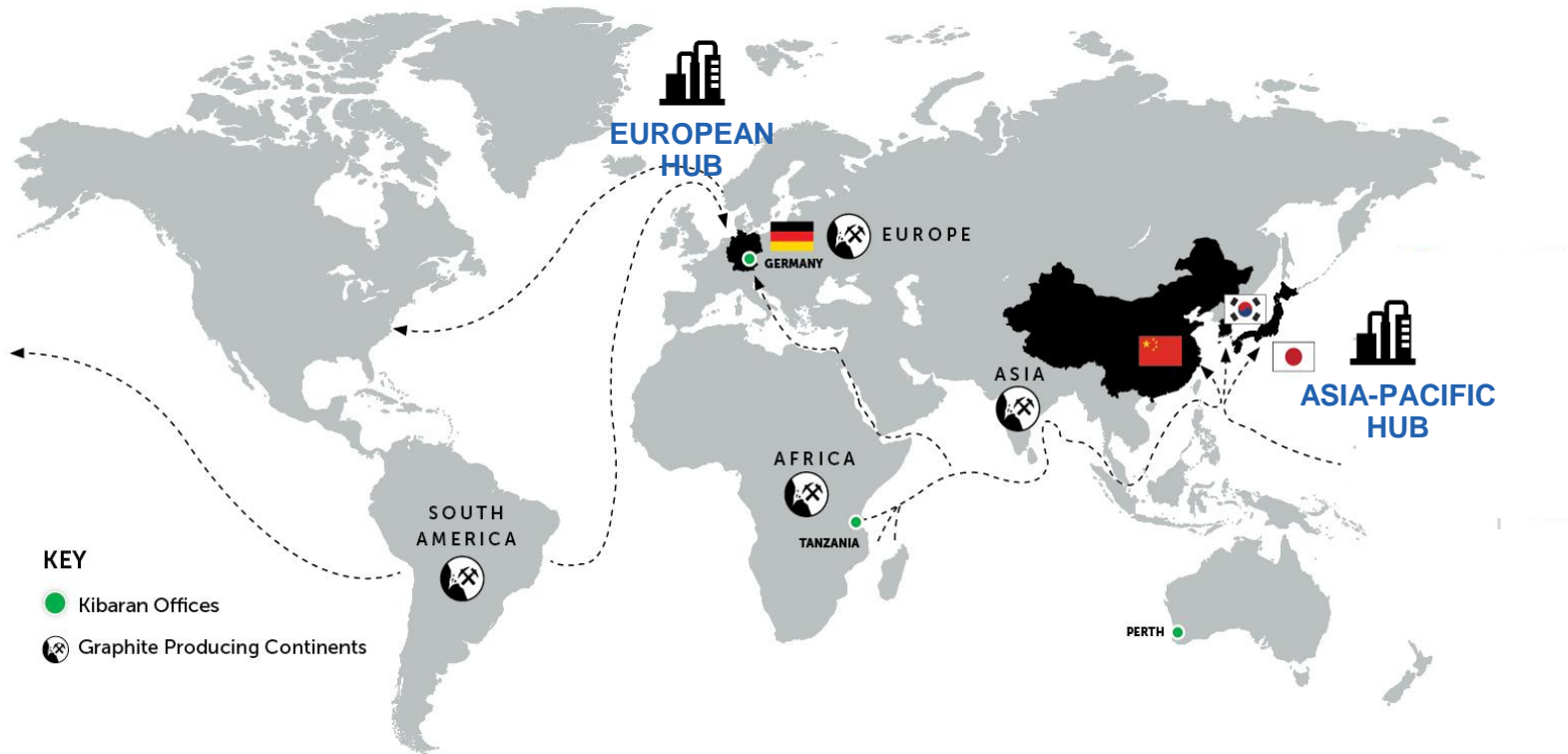






ESTABLISHING A GLOBAL GRAPHITE SUPPLY NETWORK

Awareness from customers is driving demand for environmentally sustainable raw material supply chains



Continent	Product Samples
Europe	2
Africa	2
Asia	3
Americas	2

Tanzania	Mining and production of natural flake graphite (initially 60ktpa) Micronising and spheronising of battery graphite (Dar es Salaam)
Germany	Spherical graphite - pilot plant and expansion up to 3,000tpa
Europe/Asia	Spherical graphite - commercial plant(s) • 5-20,000tpa purified spherical graphite • 4-17,000tpa unpurified fines



CATALYSTS TO UNLOCK VALUE

Building a Sustainable Global Graphite Business

UPSTREAM BUSINESS EPANKO GRAPHITE PROJECT



Natural
Flake
Graphite
(NfG)

DOWNSTREAM BUSINESS BATTERY GRAPHITE FACILITY

Spherical Graphite (SpG)
(F) Fines
(UN) Unpurified
(P) Purified



- Finalise EPC Contract
- Project financing

- Updating business cases with pilot plant optimisation results
- Formalise strategic partnerships
- Project financing

Total pre-tax , NPV₁₀ US\$356m
(geared, nominal terms)



BOARD AND MANAGEMENT

Board and Management

A strong mix of mining, commercial and graphite experience

Robert Pett (Non-Executive Chairman)

Mineral economist with over 30 years' experience developing projects and mines in Australia and Africa. Founding Chairman of Resolute Mining Limited, with a strong track record of board governance and leadership in listed resources and energy companies.

Andrew Spinks (Managing Director)

Geologist with over 25 years' experience. Expertise in exploration, mining and resources management across a range of commodities and geographies. Former resident of Tanzania at the Golden Pride mine.

Grant Pierce OAM (Executive Director)

Mining engineer with over 25 years' experience, including development of African mines Tulawaka, Golden Pride and Edikan. Order of Australia Medal 2003 for social development in rural Tanzania.

Christoph Frey (Non-Executive Director)

German-based graphite industry professional with over 25 years' graphite experience in Russia, Europe, Africa and China. Direct experience in both traditional and evolving graphite markets including the production of purified spherical graphite.

John Conidi (Non-Executive Director)

Certified Practising Accountant with 20 years' experience acquiring, developing and managing publicly listed businesses, particularly in the technology sector.

Howard Rae (Chief Financial Officer)

Chartered Accountant with over 20 years' experience across the resources industry in Australia, Asia and Africa, focussing on business development and financing new mining operations.

Marshall Hestelow (Consultant)

Certified Practising Accountant with over 30 years' experience in the resources sector in corporate roles with Resolute Mining Limited in Australia and Africa.

Nassor Said (Commercial Manager)

Resources and logistics professional with substantial experience in regulatory and commercial operations within Tanzania.





www.kibaranresources.com



THANK YOU