



PREMIUM QUALITY GRAPHITE / UNIQUELY TANZANIAN



ASX: KNL  
FSE: FMK

121 CONFERENCE NEW YORK – 4<sup>th</sup> & 5<sup>th</sup> OCTOBER 2018

*Building a sustainable global graphite business*

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## Competent Persons

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.

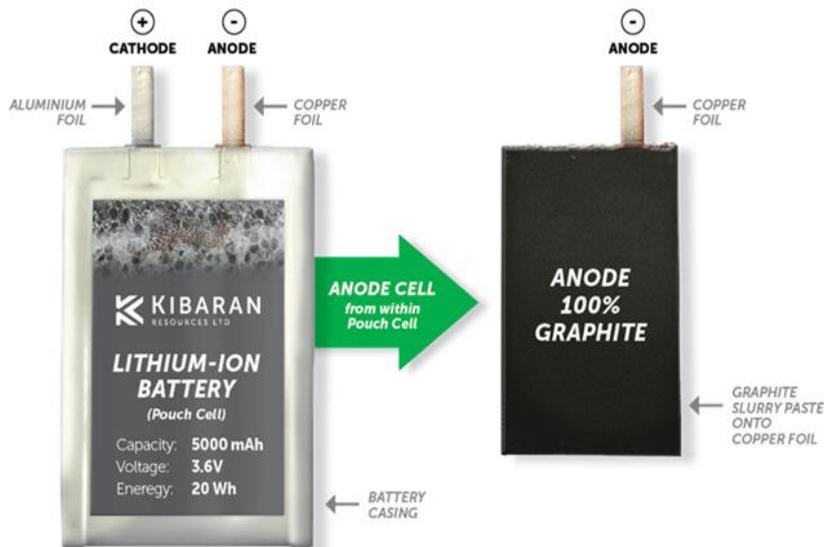
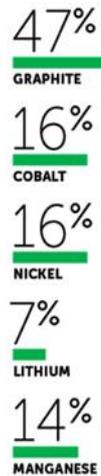
Information in this presentation that relates to Ore Reserves has been compiled by Mr Steve O’Grady, who is a Member of the Australasian Institute of Mining and Metallurgy. Steve O’Grady is a full time employee of Intermine Engineering and produced the Mining Reserve estimate based on data and geological 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

Global expansion of electric vehicle 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*

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

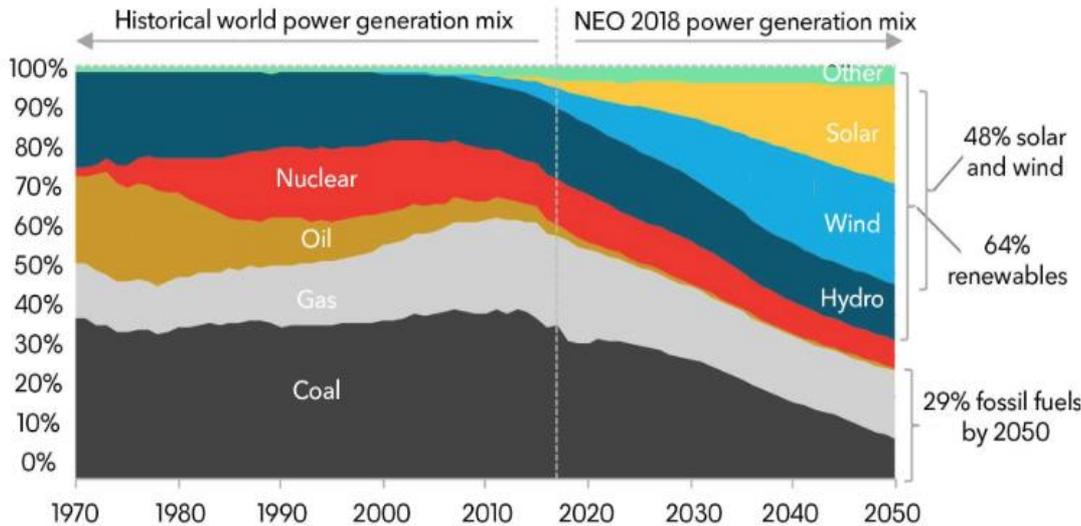


# MARKET OPPORTUNITY FOR BATTERY GRAPHITE

*Accelerating demand for lithium-ion battery storage from the energy industry*

> 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 villages in Mali and Niger

Transported in sea containers ..... set-up in 2 hours



# NEW GRAPHITE MINING & MANUFACTURING BUSINESS POISED FOR DEVELOPMENT



Shares on issue	Key holders	Market cap
Listed 276m F-diluted 279m	Colonial 11% Board 10% Value-on-Gr. 4% GR Engineer. 2%	A\$55m Cash A\$2.9m (1/7/18)



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

**Total pre-tax NPV<sub>10</sub> US\$356m**  
*(geared, nominal terms)*

## 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 NPV<sub>10</sub>  
US\$356m  
*(geared, nominal terms)*



## EPANKO GRAPHITE PROJECT

Natural Flake Graphite (NfG)

Production	60ktpa
NPV <sub>10</sub>	US\$211m
EBITDA	US\$44.5m



## DOWNSTREAM PRODUCTION FACILITY

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

Production	20ktpa
NPV <sub>10</sub>	US\$145m
EBITDA	US\$30.5m

### Products

 **TANZGraphite**

 **EcoGrafi**

### Status

Feasibility study Jun 2017  
Bank technical review Aug 2017  
Debt financing

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

### 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.



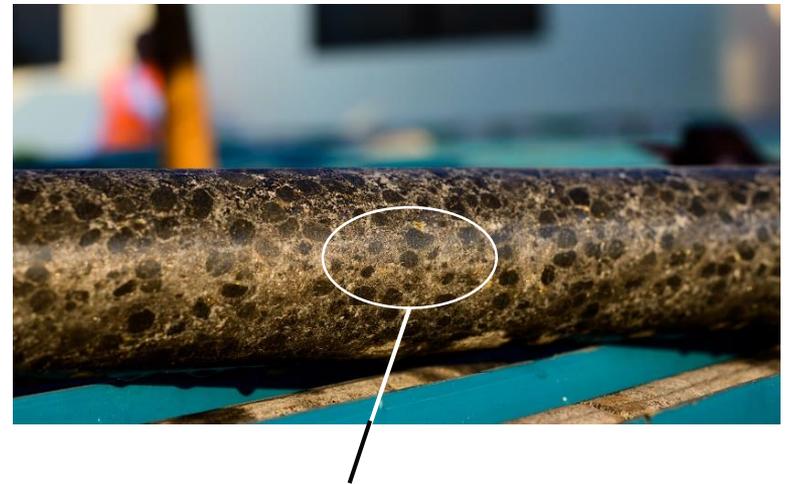
# A HIGH QUALITY GRAPHITE DEPOSIT WITH SCALE

- Mineral resource supports potential for depth and strike extensions of the Ore Reserve pit shells
- Mineralisation commences at surface with minimal cover
  - Average LOM strip ratio 0.4:1
- Favourable mineralogy delivers quality and drives robust project economics
  - High proportion of large flake sizes
  - Graphite is easily liberated and delivers high yield
  - Higher carbon grade achieved through simple processing
  - Low levels of in-situ deleterious elements

## *Epanko Mineral Resource Estimate >8% TGC*

JORC Classification	Tonnage (Mt)	Contained Graphite (t)
Measured	7.5	738,900
Indicated	12.8	1,280,000
Inferred	10.4	1,030,600
<b>Total</b>	<b>30.7</b>	<b>3,049,500</b>

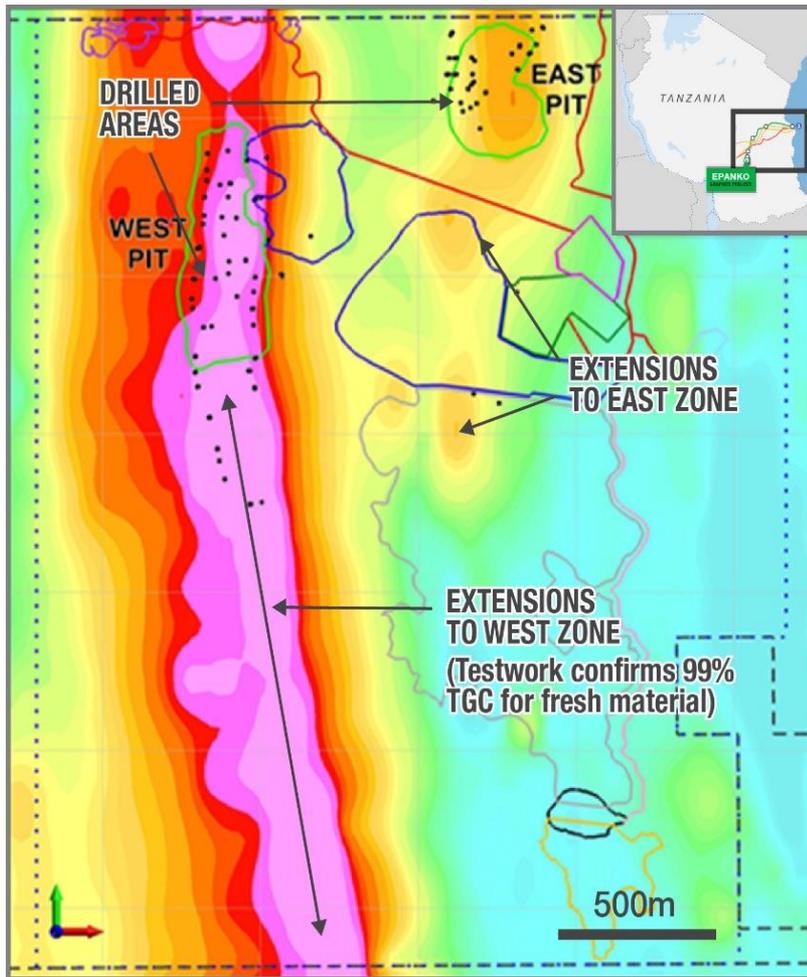
## *Epanko Drill Core Rock Texture*



Epanko rocks have undergone extremely high metamorphic pressure and temperature forces that have created unique 'cheetah' like rock textures.



# VTEM SHOWS HIGHLY CONDUCTIVE UNDRILLED WESTERN ZONE WITH SIGNIFICANT POTENTIAL



- Significant mineralisation exists outside of the Mineral Resource estimate modelled on an 8% TGC cut-off compared to the 5% TGC cut-off utilised for the Ore Reserve
- High conductivity identified in VTEM survey indicates the potential for the delineation of additional mineralisation along strike and at depth
- Only 1.13km of the 4km strike identified by VTEM survey has been drilled in the West Pit
  - Remains open at depth with the deepest reported graphite intersection at 200m
  - Potential to provide significant tonnages of additional graphite mineralisation

*Epanko will operate for decades*

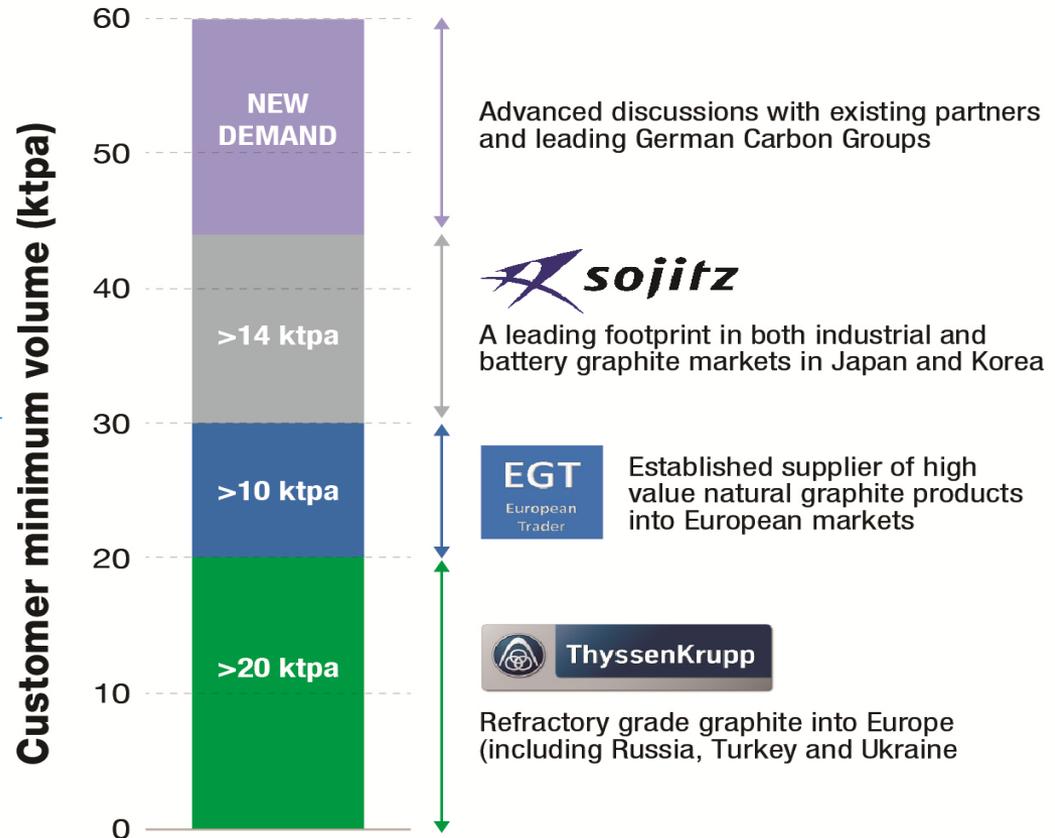


# NATURAL FLAKE GRAPHITE OFFTAKE SUMMARY

## Battery Markets

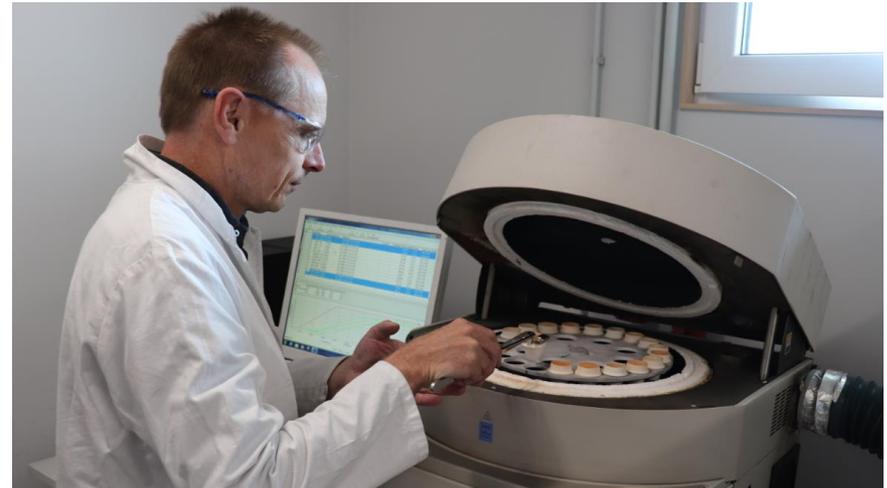
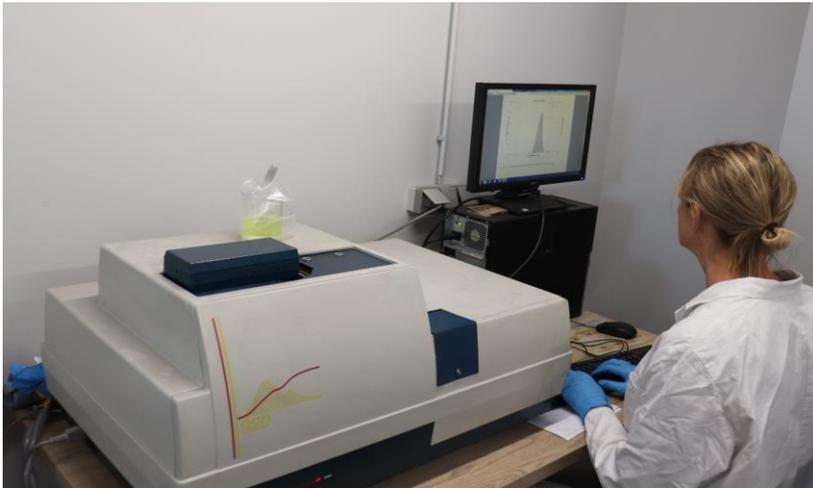


## Traditional Markets



# BATTERY GRAPHITE MANUFACTURING UPDATE

- Pilot test work underway in Germany to produce commercial quantities of spherical graphite with financial support from German Government
- A new clean green processing technology developed and patented under trademark **K EcoGraf** is cost competitive and avoids toxic hydrofluoric acid
- Samples from pilot work tested by customers and meets stringent standards of major anode manufacturers
- **K EcoGraf** process successfully applied to third party graphite from mines in Africa, Asia, Americas and Europe delivering consistent carbon purities of 99.95% or above
- New processing breakthrough 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 and co-investment



# BATTERY GRAPHITE SCHEDULE

- Phased commercialisation strategy for 

Phase	Battery (Spherical) Graphite	Incremental Capital	2018	2019	2020	2021
<b>Stage 1 Pilot Plant</b>	Epanko + Other existing feedstocks	In-progress	██████████			
<b>Expansion</b>	3,000tpa customer trials and sales	US\$4m		██████████		
<b>Stage 2</b>	5,000tpa	US\$25m		██████████		
<b>Stage 3</b>	20,000tpa	US\$41m			██████████	██████████



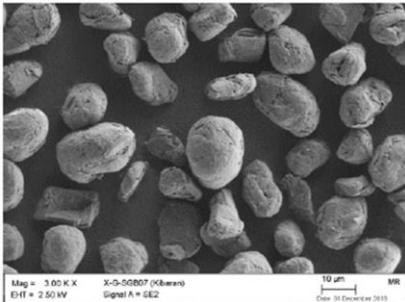
# NATURAL BATTERY GRAPHITE SUPPLY CHAIN

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)





  
SAMSUNG SDI

  
TESLA

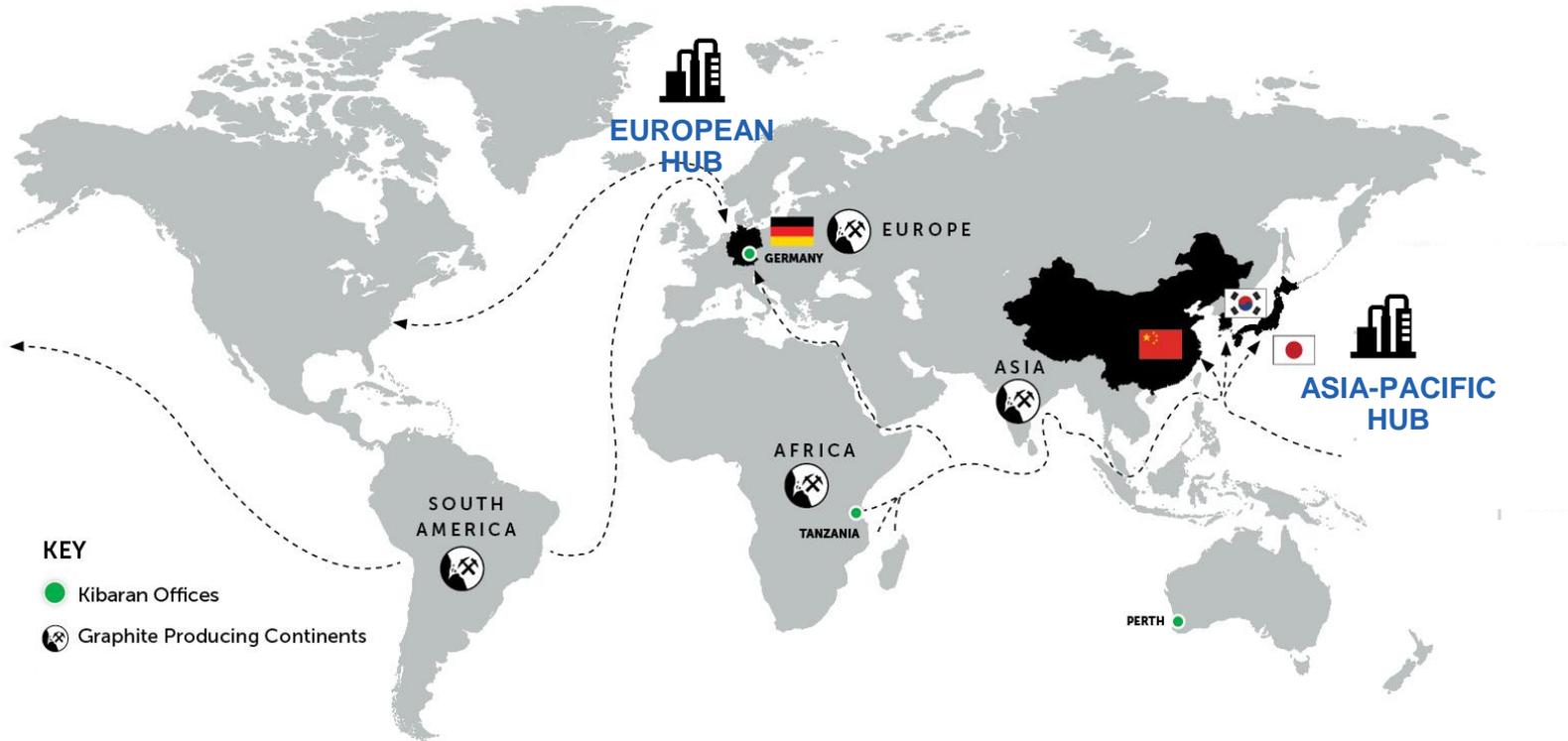






# ESTABLISHING A GLOBAL GRAPHITE SUPPLY NETWORK

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



## KEY

- Kibaran Offices
- ⚒ Graphite Producing Continents

Continent	Product Samples
Europe	2
Africa	2
Asia	3
Americas	2

<b>Tanzania</b>	Mining and production of natural flake graphite (initially 60ktpa) Micronising and spheronising of battery graphite (Dar es Salaam)
<b>Germany</b>	Spherical graphite - pilot plant and expansion up to 3,000tpa
<b>Europe/Asia</b>	Spherical graphite - commercial plant(s) <ul style="list-style-type: none"> <li>5-20,000tpa purified spherical graphite</li> <li>4-17,000tpa unpurified fines</li> </ul>



# SUPPORTED BY KEY STAKEHOLDERS

## Investment and financing



## Customers



## Technical expertise



# 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.

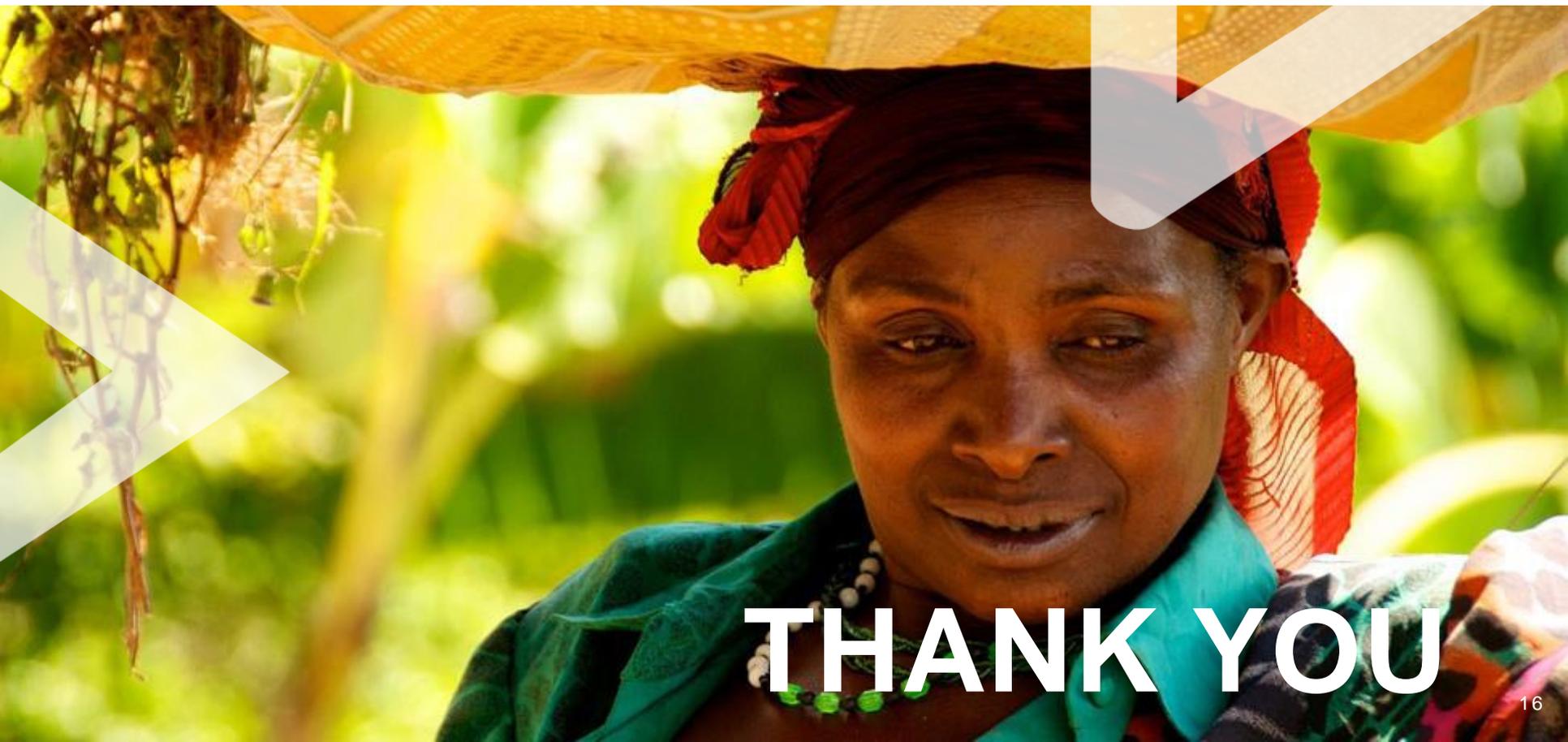
### **Nassor Said (Commercial Manager)**

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





[www.kibaranresources.com](http://www.kibaranresources.com)



**THANK YOU**