

## Battery Related Growth Strategy Underway

### Key highlights:

- Commencement of high level study for the production of battery grade spherical graphite.
- Study to include feasibility of a battery grade spherical graphite manufacturing facility in Tanzania.
- Market research shows competitive advantage in EV battery market with high energy density using ultra-high purity graphite.

The company is pleased to announce that it has commenced a high level study to evaluate the production of battery grade graphite from its Epanko Graphite Project for the emerging electric vehicle (EV) and other battery markets. The study will include an evaluation of the feasibility of establishing a manufacturing facility in Dar es Salaam, to produce battery grade spherical graphite that can be shipped directly to the battery producers. This is a unique opportunity for Kibaran that provides a long-term value driver and compelling business case, given the emergence of the electric car market and its future growth.

The development of Kibaran’s graphite projects will provide an attractive alternative to the current graphite supply from China and a long-term term stable supply of a premium high end product, at a competitive cost.

Recent testwork has confirmed both Epanko and Merelani graphite projects are of spherical grade with one of the highest purities known, being 99.98% carbon. The ultra-high purity of Kibaran’s graphite has resulted from the enormous heat and pressure during the African (rift valley) deformation and volcanic activity. These combined geological events created unique crystallinity with superior conductivity that is expected to provide greater energy density efficiency compared to other graphite occurrences globally.

### EV BATTERY MARKET AND GROWTH

Sales figures for EV battery manufacturers in 2014 provide further insight into this rapidly growing market, with an increase of 54% over the previous year’s sales.

Lithium ion batteries (LiB) are now being used in hybrid electric vehicles (“HEV”), electric vehicles (“EV”) and fuel cell vehicles (“FCV”) where the batteries are large and hence the potential demand for quality graphite is very significant. LiB Batteries for the EV market have the anode electrodes fabricated from a mixture of both Synthetic and spherical Natural graphite to enhance cell performance (refer figure 1).

Natural large flake graphite is required for the power output in both EV and FCV vehicles and at present there are no substitutes, as spherical graphite within the LiB is the key component required for the ability to transfer the energy. Synthetic graphite contributes to the long cycle life of the battery. Approximately 10-15 times more graphite by weight than lithium goes into a lithium ion battery and with losses in the manufacturing process it actually requires 30-40 times as much graphite. The opportunity for Kibaran to increase modelled production and capture market share is enormous, there being up to 50 kilograms of graphite in an EV car battery.

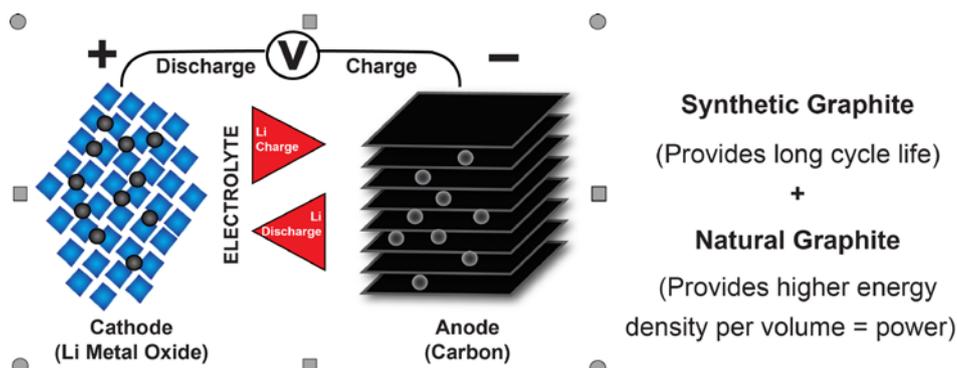
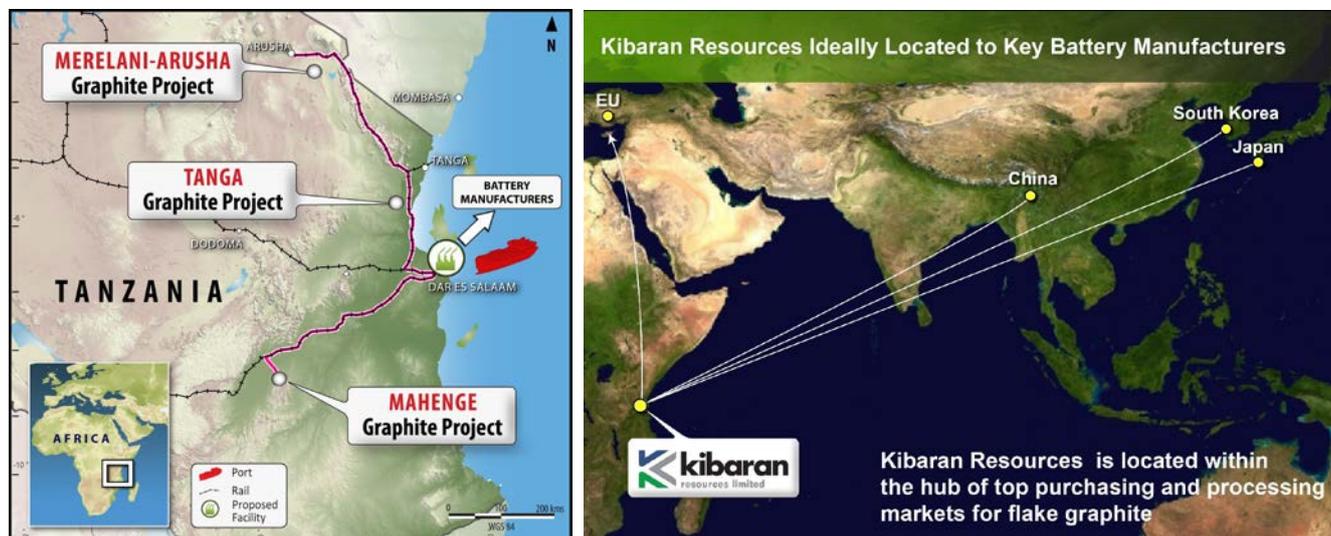


Figure 1 LiB Battery showing graphite anode (referenced and after Handbook on Rechargeable Batteries, 3<sup>rd</sup> Edition)

The company’s initial focus will be to produce battery grade spherical graphite for the battery manufacturers which involves mechanical machining of natural flake graphite and then purification. The value upgrade is in the order 3-4 times more than prices for graphite concentrate with prices greater than \$4000/t expected.

The study will evaluate the feasibility of a battery grade spherical graphite manufacturing facility in Tanzania that can directly supply the battery manufactures globally.



**Figure 2 and 3** Location of graphite projects, proposed facility in Tanzania and access to battery manufacturers

**HIGH ENERGY DENSITY GRAPHITE**

The development of a better battery product with higher energy efficiency, longer charge life or shorter recharge times has enormous commercial implications. Based on confidential market research, Kibaran believes its graphite from its unique occurrences with its ultra-high purity can play a major role in this very exciting new market.

Additional graphite production and processing plants will be required for the expanding EV battery market and Kibaran is developing production scenarios based on the projected increases in this EV battery vehicle market.

Kibaran is positioning the Company to participate in the EV market and is currently in discussion with a number of traders and potential strategic partners within the high value manufacturing chain to secure a significant market share for its graphite

**EXPANDED GRAPHITE AND GRAPHITE FOILS**

Expanded graphite in graphite foils is a premium priced product and the company has been evaluating its expanded graphite market over the past 2 years and was one of the reasons why the company attracted its first binding offtake from a sophisticated trader. The demand for graphite from the thermally efficient building market using expanded graphite foils is potentially larger than the LiB market.

European building codes are leading the world in design and evolution of new products and the company believes climate change debate is expected to increase demand on new building codes, requiring the increased use of thermally efficient building products such as Germany’s SGL’s Ecophit® product.



Ecophit® Expanded graphite manufactured into thermally conductive panels (Source: www.sglcarbon.com)



Expanded graphite foil produced from Kibaran large flake graphite

The company looks forward to providing further updates on its vertical integration strategy as the company moves towards development of its projects in Tanzania.

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**About Kibaran Resources Limited:**

*Kibaran Resources Limited (ASX: KNL or “Kibaran”) is an exploration company with highly prospective graphite and nickel projects located in Tanzania.*

*The Company’s primary focus is on its 100%-owned Epanko deposit, located within the Mahenge Graphite Project. Epanko currently has a total Indicated and Inferred Mineral Resource Estimate of 22.7Mt, grading 9.8% TGC, for 2.2Mt of contained graphite, defined in accordance with the JORC Code. This initial estimate only covers 20% of the project area. Metallurgy has found Epanko graphite to be large flake and expandable in nature.*

*Kibaran also has rights to the Merelani-Arusha Graphite Project, located in the north-east of Tanzania. Merelani-Arusha is also considered to be highly prospective for commercial graphite.*

*Graphite is regarded as a critical material for future global industrial growth, destined for industrial and technology applications including nuclear reactors, lithium-ion battery manufacturing and a source of graphene.*

*In addition, the Kagera Nickel Project remains underexplored and is located along strike of the Kabanga nickel deposit, owned by Xstrata, which is considered to be the largest undeveloped, high grade nickel sulphide deposit in the world*



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 Exploration Results and Mineral Resources is based on information compiled by Mr David Williams, who is a Member of The Australasian Institute of Mining and Metallurgy included in a list promulgated by the ASX from time to time. David Williams is employed by CSA Global Pty Ltd 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”. 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.