

29 May 2018

ASX Announcement

EcoGrafi™ Launched for Li-ion Battery Market

German Government funding support for eco-friendly battery products

Kibaran Resources Limited (Kibaran or the Company) (ASX: KNL) is pleased to provide an update on the progress of its development program for the supply of battery (spherical) graphite products for the lithium-ion battery market.

Highlights

- **German piloting work confirms the positive results of the 2017 downstream processing feasibility study and supports the phased commercialisation strategy to produce battery graphite for the lithium-ion battery market**
- **Preliminary funding support received from the German Government**
- **EcoGrafi™ registered as trademark for the global brand name highlighting the eco-friendly purification products to differentiate from current available market products**
- **Application of the new eco-friendly purification process to existing graphite feedstocks from Africa, South America, Europe, India and Asia is underway using the piloting facilities**
- **Product sample qualification using proprietary eco-friendly process by potential battery group customers leads to advanced discussions**

The Company is pleased to report the initial results received from the piloting program are highly encouraging with test work indicating the potential to improve the efficiency of power, water and reagent consumption rates to achieve improved operating cost performance. The 2017 feasibility study (*refer ASX Announcement 5 December 2017*) demonstrated that the Company could produce purified spherical graphite products at a cost equivalent to existing Chinese suppliers and these results confirm the compelling market opportunity for the new eco-friendly purification process.

The German Government is providing financial support for the piloting program and initial applications have been submitted to secure co-funding of \$100,000 for processing equipment, including a spheronisation mill, specific surface area BET machine and scanning electron microscope, which will enable Kibaran to complete the program and prepare for commercial expansion. As part of the co-funding process, the German Chambers of Commerce and Industry recently visited the piloting facilities to review test work plans and progress. The Company is pursuing other grants and government funding initiatives in Germany.

Outlook for battery graphite products continues to increase with Europe's EU Commission launching the EU Battery Alliance. The alliance is a partnership between government and industry to promote the establishment of European lithium-ion battery manufacturing capabilities. The EU Commission forecasts that this market will be worth up to €250 billion by 2025 and the program is focussed on supplying batteries for European electric vehicle manufacturers. Kibaran's downstream processing plans include working closely with the German Government to support this new market initiative.

The Company has registered **EcoGrafi™** as the trademark for the global brand name marketing its eco-friendly battery graphite products given the positive feedback from its customer base. This branding compliments its existing registered **TANZGraphite®** trademark which is the global brand name used for marketing its natural large flake graphite from Tanzania.

Graphite feedstocks for testing within the piloting facilities have been procured from a number of existing sources of supply and if successful, will enable Kibaran to commence production and sale of spherical graphite products to the battery market in parallel with the development of natural flake mining operations at Epanko.



Figure: German Piloting Equipment (L - R) Laser Particle Sizer, Micronising Mill and Thermo Gravimetric Analyser

The Company has received positive feedback from customers supporting a phased commercialisation strategy as detailed in the following table.

Phase		Battery (Spherical) Graphite	Fines Products
Stage 1	Piloting Test Work Expansion¹	Epanko + other feedstocks 3,000tpa customers trials and sales	3,000tpa
Stage 2	Commercial Launch	5,000tpa	<5,000tpa
Stage 3	Commercial Expansion	20,000tpa	<20,000tpa

Note 1: Stage 1 expansion will also produce 2,500tpa of unpurified spherical graphite for commercial sale.

Customers confirmed that the performance of the Epanko purified spherical graphite products satisfied key criteria for future sales supply and requested additional samples so that performance testing can incorporate a variety of product sizing requirements and other graphite feedstocks purified with the Company’s non-hydrofluoric acid process. Discussions are on-going and include cooperation on product development and the future location of spherical graphite purification facilities.

The Company’s new eco-friendly purification process is attracting growing market support and potential customers reported that:

- Demand projections for purified battery (spherical) graphite from end users of lithium-ion batteries has increased significantly in the last 6 months;
- Under such conditions, anode manufacturers are seeking to diversify graphite sources of supply; and
- The value proposition presented by Kibaran’s new purification process will be attractive to end users who are increasingly seeking environmentally responsible supply chains, particularly in Europe.

EPANKO GRAPHITE PROJECT	DOWNSTREAM PRODUCTION FACILITY												
 <p>Natural Flake Graphite (NfG)</p> <table border="1"><tr><td>Production</td><td>60ktpa</td></tr><tr><td>NPV₁₀</td><td>US\$211m</td></tr><tr><td>EBITDA</td><td>US\$44.5m</td></tr></table> 	Production	60ktpa	NPV₁₀	US\$211m	EBITDA	US\$44.5m	 <p>Spherical Graphite (SpG) (F) Fines (UN) Unpurified (P) Purified</p> <table border="1"><tr><td>Production</td><td>20ktpa</td></tr><tr><td>NPV₁₀</td><td>US\$145m</td></tr><tr><td>EBITDA</td><td>US\$30.5m</td></tr></table> 	Production	20ktpa	NPV₁₀	US\$145m	EBITDA	US\$30.5m
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