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ASX ANNOUNCEMENT

## EcoGrafi International Patent

### Highlights

- Successful completion of pilot plant program confirms advantages of **EcoGrafi** process
- International patent filed over optimised purification process flowsheet developed during the pilot plant test work program
- Market demand accelerating with Bloomberg New Energy Finance recently reporting the *'Battery Boom will Draw US\$620 Billion in Investment by 2040'*
- Research and development to be continued with Australia's Future Battery Industries Cooperative Research Centre

Kibaran Resources Limited ("Kibaran" or the "Company") (ASX: KNL) announces that it has taken another important step in its strategy to be a global supplier of eco-friendly natural flake and spherical graphite products, with an international patent lodged for the optimised **EcoGrafi** purification process flowsheet generated from the recent pilot plant test work program.

Results from this program are currently being incorporated into the previous feasibility study (refer ASX release 5 December 2017, *Battery Graphite Pilot Plant*) by GR Engineering Services Limited.

The **EcoGrafi** optimised flowsheet has demonstrated significant technical and commercial advantages, with on-going customer trials confirming the suitability of **EcoGrafi** products for lithium-ion battery and advanced carbon product applications in Asia and Europe. This milestone is the result of over five years of industry leading graphite processing test work and positions the Company as a future leader in the manufacture of non-hydrofluoric acid treated battery graphite for the e-mobility and energy storage markets.

As automobile and battery manufacturers increasingly focus on ensuring responsibly and sustainably sourced battery mineral supply chains **EcoGrafi** is attracting growing interest from potential customers and plans are being finalised to commence operations in 2019.



Pilot plant equipment and Christoph Frey inspecting battery graphite samples.

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## Research and Development

As previously reported (refer ASX release 2 October 2018, *Research and Development*) Kibaran is engaging with the Australian Taxation Office (“ATO”) and AusIndustry in relation to its research and development programs. A report detailing eligible expenditures incurred on experimental activity during the year ended 30 June 2017 has been provided to the ATO. The programs in question comprised cutting-edge ‘clean’ and ‘green’ graphite processing technology experimentation conducted in collaboration with industry leading expertise, including Australia’s Commonwealth Scientific and Industrial Research Organisation (“CSIRO”) and led to a break-through non-hydrofluoric acid purification process **EcoGraf** over which a patent application was first lodged in 2017.

The Company notes a report launched by the Australian Government on 11 December 2018 titled “The Lithium-Ion Battery Value Chain – New Economy Opportunities for Australia” in which the case is made by AusTrade and others for the public and private sectors to seize the opportunities emerging in new energy technologies and capitalise on Australia’s mining, processing and manufacturing expertise to capture an increased share of the international Battery Value Chain. Kibaran continues to embrace this objective and has been extending its research and development programs via collaboration with Australia’s Future Battery Industries Cooperative Research Centre at Western Australia’s Curtin University.

Separately, Kibaran is progressing its more recent 2018 Overseas Advance Finding submission with AusIndustry in relation to advance approval of research and development activities through to 30 June 2020 and is also finalising its refund claim for eligible research and development expenses incurred for the year ended 30 June 2018.

## International Patent Coincides with Forecast Massive New Investment in Electric Energy Capacity

Bloomberg New Energy Finance<sup>1</sup> recently reported that battery investment growth is exceeding previous expectations and the global energy-storage market is now projected to surge approximately 200 times its current size to reach over 900 Gigawatts by 2040, requiring approximately US\$620 billion in new investment.

This investment growth underpins industry forecasts that battery graphite demand will increase 700% by 2025 to over 800,000 tonnes per annum.



Employees work on the roof of an electric bus at the BYD Coach and Bus factory in Lancaster, California. Photographer: Patrick T. Fallon/Bloomberg

Note 1: <https://www.bloomberg.com/news/articles/2018-11-06/the-battery-boom-will-draw-1-2-trillion-in-investment-by-2040>

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