

# MARKET ANNOUNCEMENT

## Graphene from Burke Graphite Project Opens Up Significant Lithium-Ion Battery Opportunity

### KEY HIGHLIGHTS

- The Burke Graphite Deposit is one of the highest grade graphite deposits globally, with a JORC Inferred Mineral Resource Grade of 16% Total Graphitic Carbon (**TGC**), within which there is a higher grade component 2.3Mt @ 20.6% TGC
- Graphene is a key additive for improving performance of lithium-ion batteries
- Test-work has confirmed the Burke Deposit is well suited for Graphene production via Electrochemical Exfoliation (**ECE**), due to its high grade nature and chemical composition
- The ECE process, which is not available to the vast majority of graphite deposits, is relatively low cost and environmentally friendly compared to other processes, yet it can produce very high purity Graphene products
- The ability to produce Graphene opens up a significant lithium-ion battery market opportunity for Lithium Energy's Burke Deposit
- Lithium Energy is planning to undertake further test-work to optimise the Graphene production process for lithium-ion battery use

Lithium Energy Limited (ASX:LEL) (**Lithium Energy or Company**) is pleased to confirm its plans to pursue commercial opportunities for using Graphene produced from its 100% owned Burke Graphite Deposit, in lithium-ion batteries.

### Burke Graphite Deposit

The Burke Graphite Deposit is located in northwest Queensland (125 km north of Cloncurry) and is one of the highest-grade graphite deposits in the world held by an Australian listed company.<sup>1</sup>

The exceptionally high-grade nature of the Burke Deposit and its chemical composition also lends itself to efficient Graphene production technology, which is not available for a majority of lower grade graphite deposits.

1 Refer Strike Resources Limited (ASX:SRK) Announcement dated 13 November 2017: Maiden Mineral Resource Estimate Confirms Burke Project as One of the World's Highest Grade Natural Graphite Deposits)



Previous drilling has defined an Inferred Mineral Resource for the Burke Deposit as follows:

- **6.3 million tonnes @ 16.0% TGC** (with a TGC cut-off grade of 5%) for **1,000,000 tonnes** of contained graphite;
- Within the mineralisation envelope there is included higher grade material of **2.3 million tonnes @ 20.6% TGC** (with a TGC cut-off grade of 18%) for **464,000 tonnes** of contained graphite which will be investigated further

Mineral Resource Category	Weathering State	Mt	TGC (%)	Contained Graphite (Mt)	Density (t/m)
Inferred Mineral Resource	Oxide	0.5	14.0	0.1	2.5
	Fresh	5.8	16.2	0.9	2.4
	<b>Total Oxide + Fresh</b>	<b>6.3</b>	<b>16.0</b>	<b>1.0</b>	<b>2.4</b>

*Note: The Mineral Resource was estimated within constraining wireframe solids defined above a nominal 5% TGC cut-off. The Mineral Resource is reported from all blocks within these wireframe solids. Differences may occur due to rounding. Refer Grade Tonnage Data in Table 2 of CSA Global Pty Ltd's Burke Graphite Project MRE Technical Summary dated 9 November 2017 (attached as Annexure A of the ASX Announcement released by Strike Resources Limited (ASX:SRK) dated 13 November 2017: Maiden Mineral Resource Estimate Confirms Burke Project as One of the World's Highest Grade Natural Graphite Deposits).*

The Burke Deposit is located in the relatively safe and mining friendly jurisdiction of Queensland, Australia with well-developed transport infrastructure and logistics nearby and is potentially amenable to low cost open-pit mining.

### Graphene from the Burke Graphite Deposit

Graphene usage in lithium-ion batteries is an emerging technology, where Graphene is used as an additive in the compound mix of the Cathode electrode terminal to effectively make the terminal more conductive. Graphene enhanced batteries allow for increased electrical density, more rapid recharge times, less weight, as well as having the ability to hold the charge longer which improves the battery's lifespan.

Graphene is technically defined as a single atom layer of crystalline carbon in a two dimensional 'honeycomb' type structure, but the term "Graphene" is often extended to include material made up of multiple stacked single layers of (single layer) Graphene. Material comprising up to 10 layers of Graphene is sometimes referred to as "Few Layer Graphene" (**FLG**), whereas material with between 10–150 layers of Graphene is known as "Graphene Nano Platelet" (**GNP**).

The Burke Deposit contains graphite from which Graphene Nano Platelets (**GNP**) have been successfully extracted via Electrochemical Exfoliation (**ECE**).

The ECE process is relatively low cost and environmentally friendly compared to other processes, yet it can produce very high purity Graphene products. The ECE process is however not applicable to the vast majority of worldwide graphite deposits as it requires a TGC of over 20% and accordingly the Burke deposit has potentially significant Graphene processing advantages over other graphite deposits.

In 2017<sup>2</sup>, a test was successfully undertaken on a sample of Burke graphite diamond drill hole core through a process known as "Electrochemical Exfoliation" (**ECE**) by Independent Metallurgical Operations Pty Ltd (**IMO**), to produce pure GNP material from raw Burke graphite.

In ECE, a lump of graphite is inserted as an anode in a chemical solution and then an electric current is passed through the solution, using the graphite as an anode. Layers of Graphene then "peel off" and can be collected through a relatively simple process.

<sup>2</sup> Refer Strike Resources Limited (ASX:SRK) dated 16 October 2017: Test-work confirms the potential suitability of Burke graphite for Lithium-ion battery usage and Graphene production

The ECE process is relatively low cost and environmentally friendly compared to other processes - yet it can produce very high purity Graphene. It is particularly suited to naturally occurring high-grade graphite such as Burke graphite, where the exceptionally high-grade raw material (~20% TGC) and natural conductivity allow it to be used directly as an anode in the ECE process without the need for any grinding, flotation or other processing steps.

In order to capitalise on the commercial opportunities for using Graphene produced from the Burke Deposit in lithium-ion batteries, Lithium Energy is planning to undertake further test-work to optimise the production ECE process for producing high quality GNP, FLG and/or single layers of Graphene in commercial quantities.

#### AUTHORISED FOR RELEASE - FOR FURTHER INFORMATION:

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#### ABOUT LITHIUM ENERGY LIMITED (ASX:LEL)

Lithium Energy Limited is an ASX listed battery minerals company which is developing its flagship Solaroz Lithium Brine Project in Argentina and the Burke Graphite Project in Queensland. The Solaroz Lithium Project (LEL:90%) comprises 12,000 hectares of highly prospective lithium mineral tenements located strategically within the Salar de Olaroz Basin in South America's "Lithium Triangle" in north-west Argentina. The Solaroz Lithium Project is directly adjacent to or principally surrounded by mineral tenements being developed into production by Orocobre Limited (ASX/TSX:ORE) and Lithium Americas Corporation (TSX/NYSE:LAC). The Burke Graphite Project (LEL:100%) contains a high grade graphite deposit and presents an opportunity to participate in the anticipated growth in demand for graphite and graphite related products. LEL was spun out of Strike Resources Limited (ASX:SRK) via a \$9 million IPO; Strike remains a major (43%) shareholder of the Company.

#### JORC CODE COMPETENT PERSON'S STATEMENTS

The Competent Persons named below have been previously engaged by Strike Resources Limited (ASX:SRK) (**Strike**), the former parent company of Lithium Energy Limited (and subsidiaries) that hold the interests in the Burke Graphite Project. Lithium Energy Limited was spun out of Strike into a new ASX listing in May 2021.

- (a) The information in this document that relates to Mineral Resources in relation to the Burke Graphite Project is extracted from the following ASX market announcement made by Strike dated:
- 13 November 2017 entitled "Maiden Mineral Resource Estimate Confirms Burke Project as One of the World's Highest-Grade Natural Graphite Deposits".

The information in the original announcement (including the CSA Global MRE Technical Summary in Annexure A) that relates to these Mineral Resources is based on information compiled by Mr Grant Louw under the direction and supervision of Dr Andrew Scogings. Dr Scogings takes overall responsibility for this information. Dr Scogings and Mr Louw are both former employees of CSA Global Pty Ltd, who had been engaged by Strike to provide mineral resource estimate services. Dr Scogings is a Member of AIG and the Australasian Institute of Mining and Metallurgy (**AusIMM**) 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 JORC Code. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement (referred to above).

- (b) The information in this document that relates to metallurgical test work results in relation to the Burke Graphite Project is extracted from the following ASX market announcements made by Strike dated:
- 16 October 2017 entitled "Test-work confirms the potential suitability of Burke graphite for lithium-ion battery usage and Graphene production".
  - 13 November 2017 entitled "Maiden Mineral Resource Estimate Confirms Burke Project as One of the World's Highest-Grade Natural Graphite Deposits".

The information in the original announcements that relates to these metallurgical test work matters is based on, and fairly represents, information and supporting documentation prepared by Mr Peter Adamini, BSc (Mineral Science and Chemistry), who is a Member of AusIMM. Mr Adamini is a full-time employee of Independent Metallurgical Operations Pty Ltd, who had been engaged by Strike to provide metallurgical consulting services. Mr Adamini has the requisite 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 JORC Code (2012). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcements (referred to above). The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements (referred to above).

- (c) The information in this document that relates to Exploration Results in relation to the Burke Graphite Project is based on, and fairly represents, information and supporting documentation prepared and compiled by Mr Peter Smith (BSc (Geophysics) (Sydney) AIG ASEG), including information extracted from the following ASX market announcements made by Strike dated:

- 21 April 2017 entitled "Jumbo Flake Graphite Confirmed at Burke Graphite Project, Queensland".
- 13 June 2017 entitled "Extended Intersections of High-Grade Graphite Encountered at Burke Graphite Project".
- 21 June 2017 entitled "Further High-Grade Intersection Encountered at Burke Graphite Project".
- 16 October 2017 entitled "Test-work confirms the potential suitability of Burke graphite for lithium-ion battery usage and Graphene production".
- 13 November 2017 entitled "Maiden Mineral Resource Estimate Confirms Burke Project as One of the World's Highest-Grade Natural Graphite Deposits".
- 26 June 2018 entitled "Burke Graphite Project – New Target Area Identified from Ground Electro-Magnetic Surveys".

Mr Smith is a Member of AIG and a consultant to Strike (and also a Director of the Company (since 18 March 2021)). Mr Smith has the requisite 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 JORC Code (2012). The Company confirms that it is not aware of any new information or data that materially affects the information included in, and the form and content in which the Competent Person's findings are presented have not been materially modified from, the original market announcements (referred to above). Mr Smith consents to the inclusion in this document of the matters based on his information in the form and context in which it appears.

## FORWARD LOOKING STATEMENTS

This document contains "forward-looking statements" and "forward-looking information", including statements and forecasts which include without limitation, expectations regarding future performance, costs, production levels or rates, mineral reserves and resources, the financial position of the Company, industry growth and other trend projections. Often, but not always, forward-looking information can be identified by the use of words such as "plans", "expects", "is expected", "is expecting", "budget", "scheduled", "estimates", "forecasts", "intends", "anticipates", or "believes", or variations (including negative variations) of such words and phrases, or state that certain actions, events or results "may", "could", "would", "might", or "will" be taken, occur or be achieved. Such information is based on assumptions and judgements of management regarding future events and results. The purpose of forward-looking information is to provide the audience with information about management's expectations and plans. Readers are cautioned that forward-looking information involves known and unknown risks, uncertainties and other factors which may cause the actual results, performance or achievements of the Company and/or its subsidiaries to be materially different from any future results, performance or achievements expressed or implied by the forward-looking information. Such factors include, among others, changes in market conditions, future prices of minerals/commodities, the actual results of current production, development and/or exploration activities, changes in project parameters as plans continue to be refined, variations in grade or recovery rates, plant and/or equipment failure and the possibility of cost overruns.

Forward-looking information and statements are based on the reasonable assumptions, estimates, analysis and opinions of management made in light of its experience and its perception of trends, current conditions and expected developments, as well as other factors that management believes to be relevant and reasonable in the circumstances at the date such statements are made, but which may prove to be incorrect. The Company believes that the assumptions and expectations reflected in such forward-looking statements and information are reasonable. Readers are cautioned that the foregoing list is not exhaustive of all factors and assumptions which may have been used. The Company does not undertake to update any forward-looking information or statements, except in accordance with applicable securities laws.