# Kookaburra Gully

An imminent new, world-class, high grade, low cost graphite mine on SA's southern Eyre Peninsula

Mining Lease Granted June 2016

13th South Australian
Exploration and Mining Conference
2 December 2016
ASX: LML

www.lincolnminerals.com.au

Kookaburra Gully proposed mine site



## Key investment appeal



# Mineral Lease granted 3<sup>rd</sup> June 2016 for flagship Kookaburra Gully project

- Located in South Australia's **world-class graphite-rich metallogenic province** of Eyre Peninsula 35kms north of export gateway of Port Lincoln region's graphite profile comparable to iron ore's dominant Pilbara profile
- Deposit hosts high grade flake graphite a global Top 10 graphite deposit
- Set to be Australia's premier and only producing graphite mine
- Targeting ~40,000 tonnes per annum high purity graphite concentrate (up to 98% TGC) from conventional flotation and easily upgraded to 99.9% TGC
- Targeting development start-up as soon as next year 2017
- Existing water, power, road/rail/sea export infrastructure close-by
- Entering a multi-billion dollar "new era" expanding global graphite market

Investment options: mine financing, off-take, direct equity or provision of environmental/engineering/mining/processing solutions & equipment

## **Project owner: Lincoln Minerals Limited**

Focused Board and Management
Considerable experience in Chinese investment & markets

Non-Executive Chairman - Mr Jin Yubo
Managing Director - Dr Allan John Parker
Non-Executive Director - Mr Eddie Lung Yiu Pang
Non-Executive Director - Mr James Tenghui Zhang



- Unwavering, long-term focus on owning, developing and profitably extracting the multi-commodity mineral wealth of South Australia's richly endowed Eyre Peninsula
- Graphite is the main strategic investment
- Other assets include substantial magnetite and hematite resources and copper targets in a region with a long history of graphite, iron ore and copper mining

ASX Code	LML			
<b>Market Capitalisation</b>	A\$16.2 million			
Shares on issue	368.4 million			
52 Week range	\$0.03 - \$0.08			
Cash at 30 Sept 2016	A\$2.43 million			
Debt	NIL			
Tenement holdings	2,980 km <sup>2</sup>			

# Kookaburra Gully: a world class address



Canada's renowned Fraser Institute (March 2016) put South Australia in the Top 10 mining jurisdictions in the world for its mining investment attractiveness (mineral endowments and public policy) for resources investors => VERY LOW SOVEREIGN RISK

#### **World Class Location**

SA hosts over 70% of Australia's JORC graphite resources

Eyre Peninsula: highly prospective for world-class graphite

Includes Lincoln's 100%-owned **Kookaburra Gully** 

SA graphite royalties 2% for the first 5 years (then 3.5%)

Memorandum of Understanding signed with District Council of Tumby Bay

## Legend **Graphite Occurrence** Flake-Amorphous Amorphous Queensland Western Australia 11% 16% South Australia Kookaburra Gully Uley Graphite Mine 250 500 Kilometres **GRAPHITE IN** SOUTH AUSTRALIA

#### **World Class JORC resource**

Highly sought after premium flake graphite

Kookaburra Gully 2.2 Mt @ 15.1% TGC\*

Adjoining Koppio 1.85 Mt @ 9.8% TGC\*

Total contained graphite 512,511 tonnes\*

Kookaburra Gully is a **Top 10 global graphite resource** including China based on grade

Mt = million tonnes TGC = Total Graphitic Carbon \* at 5% TGC cutoff

## **Kookaburra Gully - Key Mining Lease Granted**



Mineral Lease ML 6460

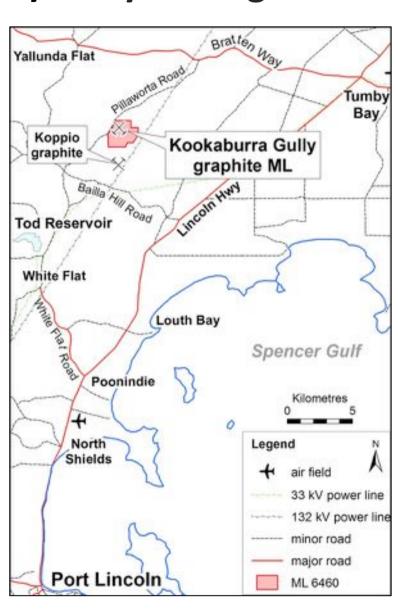
**Granted 3 June 2016** 

Preparation & approval of Program for Environment Protection & Rehabilitation (PEPR) is final approval process

Targeting Development

2017-18

(subject to Govt approvals & finance)



- Has green light from Commonwealth Government
   Department of the Environment – Not a Controlled Action
- Capex <A\$50 million</li>
- LOM Opex A\$630/t to A\$704/t concentrate (\*)
- Water: 10km from Tod Reservoir + pit dewater
- Power: 5km from grid &/or onsite generation
- Export from Port Lincoln (35km) or Port Adelaide

(\*) 90% recovery FOB Port Adelaide Refer 2015 Annual Report

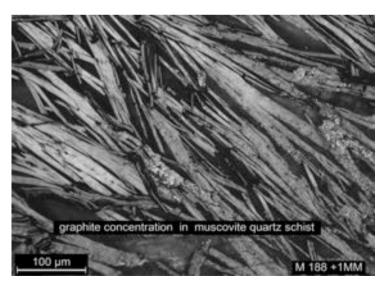
## **Kookaburra Gully: Clean-and-Green**





# Program for Environment Protection & Rehabilitation (PEPR) in progress

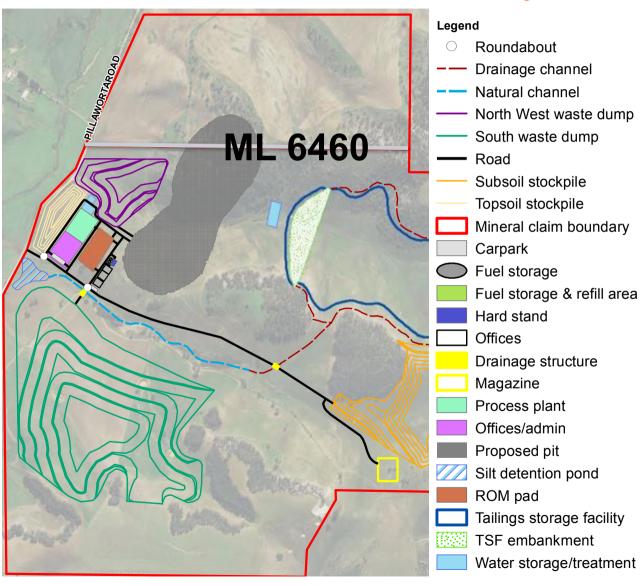
- Final stage in Government approvals process
- Includes environmental & options studies & management plans re power & water supply, transport, metallurgy, tailings facility design etc
- South Australia has very strict environmental regulations => clean-and-green outcomes



## **Small Mine Site Footprint**



- Small mine site footprint 103 hectares
- 700m long open pit graphite mine
- Conventional flotation plant operating 24/7
- Process 250,000 tpa ore
- Produce up to 40,000 tpa concentrate
- High metal recovery (>85%)
- Delivers high grade (94-98% TGC) concentrate
- Chemical leaching to 99.95% TGC
- Packaging bulka bags or containers



## **Kookaburra Gully – Simple Processing**



- Simple process flow sheet grind, float, regrind, clean, dry, screen & export
- Delivers high grade (94-98% TGC) flake graphite concentrate from a simple "clean-and-green" process
- Ongoing laboratory & pilot plant test work in Australia and China (2016) includes:
  - Larger samples (up to 25 tonnes)
  - Lock-cycle tests
  - High purity spherical graphite& expandable graphite tests



97.8% TGC coarse flake graphite from Kookaburra Gully



Screened concentrate	Assay TGC%	Dist'n	
+300 μm	97.3	0.1	
+177 μm, -300 μm	97.3	3.7 4.9 10.1	
+150 μm, -177 μm	97.7		
+106 μm, -150 μm	97.3		
+75 μm, -106 μm	97.4	13.7	
+20 μm, -75 μm	03.0	67.4	
-20 μm	93.9		

**Lincoln Minerals Limited** 

**Emerging Graphite Producer** 

# **Kookaburra Gully Graphite Project World Class Resource Upside**

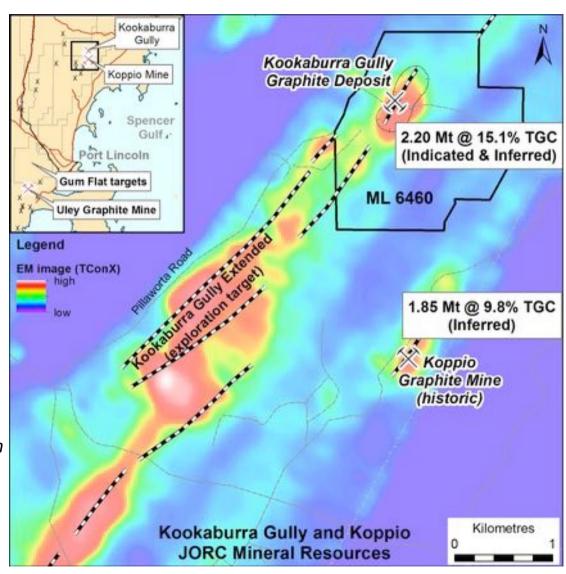


### **Exploration Targets:**

- Kookaburra Gully Extended
   Exploration Targets:
   22 Mt 44 Mt @ 10%-15% TGC
- Up to 10,000m drilling program planned for early 2017
- Other <u>Exploration Targets</u>:
   Gum Flat-Uley area & further along strike from Kookaburra
   Gully

## Long Project Mine Life and Enhanced Production Rate

It is emphasised that Exploration Target tonnage estimates are entirely conceptual in nature. There has been insufficient or no drilling in the immediate areas of those targets and it is uncertain if further exploration will result in the estimation of a Mineral Resource.



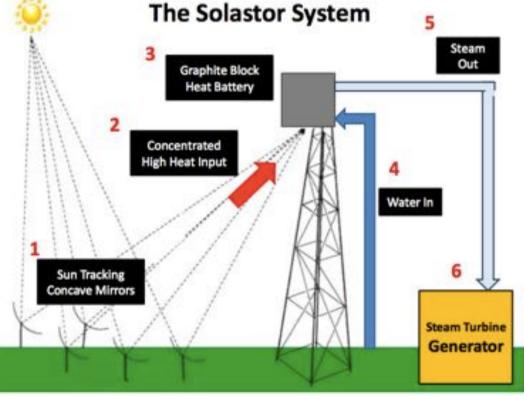
## **Graphite Market Fundamentals**



- Spherical Graphite: a key input in the manufacture of lithium-ion batteries for electric vehicles, smart phones and more battery backup for solar powered homes
- Expandable Graphite used in fire extinguishers and for making graphite foil
- Graphite Foil widely used for gaskets (eg engine head gaskets), as a thermal barrier in electrical applications, fuel cells and linings
- Graphite is also used in pencils, for dry lubricants, steelmaking and much more including:

# New generation solar-thermal power systems

• In the proposed Solastor system, a tower mounted, 10 tonne graphite block is heated to 800°C and used to convert water to steam to generate electricity. For the Port Augusta solar-thermal power station proposal, at least 1700 graphite blocks or more than 17,000 tonnes of HP graphite would be required.



www.solastor.com.au

**Emerging Graphite Producer** 

**Lincoln Minerals Limited** 

## **Spherical Graphite Fundamentals**

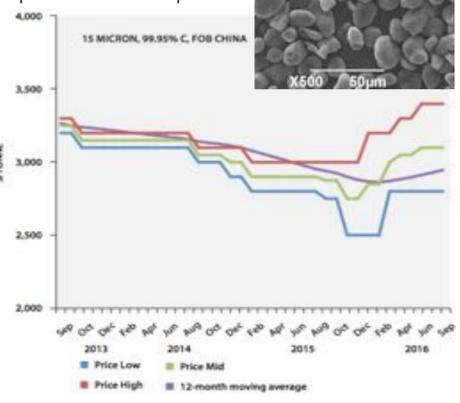
#### **BATTERY & ENERGY STORAGE COMMERCIALISATION**

- Newgen electric cars 705,000 EV sales in 2015 growing to 13 million per annum in 2025 – mostly PEV not hybrids
- Huge expansion of electric buses in China (>110,000 sales in 2015 growing to >400,000 in 2025)
- Massive emerging market for non-mobile battery storage systems for homes

 It takes about 2.5 tonnes of natural flake graphite to produce 1 tonne spherical graphite

- Spherical graphite is high purity >99.9% C
- About 50-60% of spherical graphite comes from natural flake graphite
- Major global expansion of spherical graphite production (eg Tesla, USA & Pride, China)





Source: Benchmark Mineral Intellig

## **Timescale to Production**





**Commence shipping product** 

**Start mining** 

**Mine Development** 

**PEPR** approval

2017

**Mining Lease Granted** 

**Commonwealth EPBC approval** 

**Lodge Mining Lease Proposal 2015** 

**Peg Mineral Claims** 

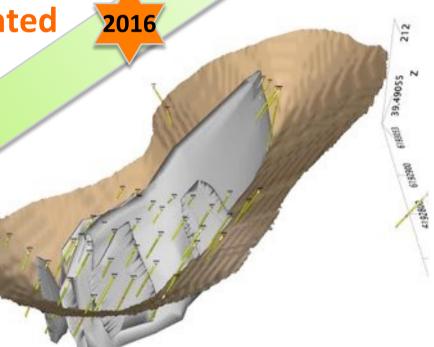
**Environmental studies 2014** 

JORC Resource **2013** 

Scoping Study 2012

Discovery 1980s

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**Emerging Graphite Producer** 

## **Summary and Key Deliverables**



- Lincoln Minerals: focused graphite developer
- Kookaburra Gully: Australia's highest quality world-class graphite deposit
  - Milestone Mining Lease granted
  - Crystallises offtake/project funding opportunities
  - Australia's next graphite mine (subject to government approvals and finance)
  - High purity concentrates up to 98% TGC from conventional flotation
  - Readily upgraded to 99.9% TGC
  - Located in recognised mining friendly jurisdiction with low sovereign risk
  - Close proximity to necessary infrastructure (water, power, transport and shipping)
  - Low capital investment and estimated operating costs
- Near-term "clean-and-green" production
- Experienced Directors with considerable experience in international Chinese investment & markets

# 2017 in a nutshell....

Kookaburra Gully to become....

South Australia's newest mine in one of the
hottest global commodities
The only producing graphite mine in Australia
in a soaring new era global market

# **THANK YOU**

Dr A. John Parker
Managing Director
+61 8 8274 0243

Kookaburra Gully proposed mine site



## **Important Notice**



This presentation has been prepared by Lincoln Minerals Limited ("LML") and Australian Graphite Pty Ltd ("AGL") as an aid to a spoken explanation. It should not be considered as an offer or invitation to subscribe for or purchase any securities in LML or AGL nor as an inducement to make an offer or invitation with respect to those securities. AGL is a wholly-owned subsidiary of LML; all rights and interests in graphite minerals and associated minerals in certain tenements are assigned to AGL. Information in this presentation is a professional opinion only but is given in good faith.

#### **Forward-Looking Statements**

This presentation contains forward looking statements concerning the Kookaburra Gully Graphite Project. Statements concerning Mineral Resources, mine plans and project economics may be deemed to be forward looking statements in that they involve estimates based on specific assumptions. Forward-looking statements are not statements of historical fact, and actual events and results may differ materially from those described in the statements as a result of a variety of risks, uncertainties and other factors. Forward looking statements are based on AGL's and LML's beliefs, opinions and estimates as of the date the statements are made and no obligation is assumed to update forward looking statements if these beliefs, opinions and estimates should change or to reflect other future developments. Data and amounts shown in this presentation relating to capital costs, operating costs, graphite prices and project timelines are based on consultant reports and internally generated estimates and are best estimates only. Accordingly, AGL and LML cannot guarantee the accuracy and/or completeness of the figures or data included in the presentation. All dollar amounts are in Australian dollars unless otherwise stated.

#### **Competent Person's Statement**

Information in this presentation that relates to exploration activity, mineral resources and results was compiled by Dr A J Parker who is a Member of the Australasian Institute of Geoscientists. Dr. Parker is Managing Director of and has shares in Lincoln Minerals Limited. He has sufficient experience relevant to the styles of mineralisation and to the activities which are being presented to qualify as a Competent Person as defined by the JORC code, 2012. Dr. Parker consents to the release of the information compiled in this presentation in the form and context in which it appears.

## **Appendix**



This presentation has been prepared by Lincoln Minerals Limited ("LML") as an aid to a spoken explanation. The information contained in this presentation is based on a number of public statements, Quarterly Reports and ASX releases made by LML:

#### References

- Lincoln Minerals, 2013. Updated Graphite Mineral Resources for Lincoln's world-class Kookaburra Gully project in South Australia's Eyre Peninsula. Lincoln Minerals Limited, ASX Announcement 19 December 2013.
- Lincoln Minerals, 2015. Maiden graphite resource for second Lincoln deposit in SA's Eyre Peninsula lifts total inventory by >50% in this world-class province. Lincoln Minerals limited, ASX Announcement 13 July 2015
- Australian Graphite Limited, 2015. Community Information Update No.4, Kookaburra Gully Graphite Mine,
   Mining Lease Proposal. Lincoln Minerals Limited website, September 2015
- Lincoln Minerals, 2015. 2015 Annual Report. Lincoln Minerals Limited 26 October 2015
- Lincoln Minerals, 2016. 2016 Annual Report. Lincoln Minerals Limited 30 September 2016

Information extracted from previously published reports identified in this report is available to view on the Company's website www.lincolnminerals.com.au. 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 and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. 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.

## **Experienced Chinese Directors**



#### Mr Jin Yubo: Non-Executive Chairman

Has a Master of International Law from National Chi Nan University, a chairman or board member of investment and real estate companies in China and Australia, a former committee member of a major Chinese city's People's Political Consultative Council, familiar with Chinese investment laws and regulations and has a wide range of political and business networks in mainland China, Hong Kong and other eastern and South East Asian countries.

### Mr Eddie Pang: Non-Executive Director

Has a Bachelor of Science with Honours degree in Chemistry, operates a Shanghai trading business supplying the Chinese market with Australian wool and wine, Chilean iron ore, cathode copper and timber, and exports Chinese products to Vietnam, the UAE and Canada. He is currently the Executive Chairman of ASX-listed mineral exploration and development company, Genesis Resources Limited.

### Mr James Zhang: Non-Executive Director

Over 20 years in real estate development and business management in mainland China, Hong Kong and Australia with extensive experience in funding real estate, infrastructure and property development and enterprise management. He is Director of Shanghai Jihai Investment Ltd Co. and member of Asset Management Association of China (AMAC).

## Considerable experience in international Chinese investment & markets

## **Kookaburra Gully & Koppio Mineral Resources**



Total combined Mineral Resources for Kookaburra Gully and Koppio

Mineral Resource Classification	Cutoff Grade (% TGC)	Tonnes (Mt)	Grade (% TGC)	Contained Graphite (tonnes)	Density (g/cc)			
Kookaburra Gully								
High-grade Core (Domain 1) - Indicated	5%	1.45	13.74	199,193	2.56			
Low-grade Halo (Domain 2) - Indicated	2%	0.62	3.04	18,984	2.54			
High-grade Core (Domain 1) – Inferred	5%	0.73	16.17	117,964	2.50			
Low-grade Halo (Domain 2) – Inferred	2%	0.40	2.91	11,538	2.54			
Koppio								
High-grade Core (Domain 1) – Inferred	5%	1.85	9.76	180,733	2.67			
Low-grade Halo (Domain 2) – Inferred	2%	1.21	3.18	38,560	2.80			
TOTAL (>2% TGC)		6.26	9.05	566,972	2.63			

Mt = million tonnes TGC = Total Graphitic Carbon

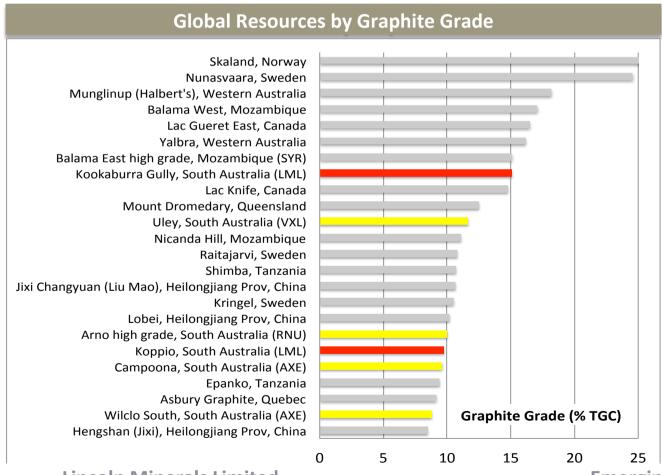
#### Reference:

Lincoln Minerals 2016 Annual Report. Lincoln Minerals Limited, ASX Announcement 30 September 2016.

# In world Top 10 graphite deposits by grade



Kookaburra Gully is a high grade coarse flake graphite deposit and is capable of delivering near-term production at low cost in addition to graphene development research with Melbourne's Monash University and Guangdong University of Technology in China



"Kookaburra Gully is within the Top 10 global resources including China based on graphite grade."

TGC = Total Graphitic Carbon

**Lincoln Minerals Limited** 

**Emerging Graphite Producer** 





Metallurgical test results for drill core samples (LMC9) and trench samples (C and D). AHD is Australian Height Datum Standard Sieve/Mesh Sizes are:  $80\# = 177 \,\mu\text{m}$ ;  $100\# = 150 \,\mu\text{m}$ ;  $200\# = 75 \,\mu\text{m}$ 

Metallurgical test r	esults for	diamond	drill core	and trend	h sample	s
	Drill Core LMC9		Trench C-1		Trench D	
Depth below ground level	40-119 m		1–2 m		2-5 m	
Graphite recovery	<u>ca</u> . 90⁺%		75.5%		86.6%	
Total Concentrate Grade	95.04% TGC		97.3% TGC		92.2% TGC	
Screened concentrate	Assay TGC%	Dist'n %	Assay TGC%	Dist'n %	Assay TGC%	Dist'r
+300 μm	97.3	0.1	97.8	8.9	93.4	1.1
+177 μm, -300 μm	97.3	3.7			93.4	6.4
+150 μm, -177 μm	97.7	4.9			93.4	4.5
+106 μm, -150 μm	97.3	10.1	97.5	14.1	94.0	11.0
+75 μm, -106 μm	97.4	13.7	97.1	23.1	94.1	16.7
+20 μm, -75 μm	02.0	93.9 67.4	96.7	47.3	94.2	49.1
-20 μm	93.9		94.5	6.6	79.8	11.1

#### Reference:

Lincoln Minerals 2016 Annual Report. Lincoln Minerals Limited, ASX Announcement 30 September 2016.

## **Corporate Directory**

#### **Directors**

Mr Jin Yubo, Chairman
Dr A John Parker, Managing Director
Mr Eddie Lung Yiu Pang, Non Executive
Mr James Tenghui Zhang, Non Executive

### **Company Secretary**

Jaroslaw (Jarek) Kopias

### **Registered and Principle Office**

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#### **Banker**

National Australia Bank

#### **Auditor**

**Grant Thornton** 

**ASX code** LML **ABN** 50 050 117 023