



## Charging Ahead: The Kambale Graphite Project

January 2023

ASX: CDT

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**Competent Person Statement** - The scientific and technical information in this Report that relates to the geology of the deposits and exploration results is based on information compiled by Mr Stephen Stone, who is an Executive Director of Castle Minerals Limited. Mr Stone is a Member of the Australian Institute of Mining and Metallurgy 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'. Mr Stone is the Qualified Person overseeing Castle's exploration projects and has reviewed and approved the disclosure of all scientific or technical information contained in this announcement that relates to the geology of the deposits and exploration results. Castle Minerals Limited has a firm policy to only utilise the services of external independent consultants to estimate Minerals Resources. The Company also has established practices and procedures to monitor the quality of data applied in Mineral Resource estimation, and to commission and oversee the work undertaken by external independent consultants.

In all cases Mineral Resources are estimated and reported in accordance with the "Australasian Code for Reporting Exploration Results, Mineral Resources and Ore Reserves" (the JORC Code. Mineral Resources reported in accordance with the 2012 Edition (Kandia 8000 Zone and Kpali) were prepared by Castle Minerals Limited and reviewed by Runge Limited.

The Company confirms that all material assumptions underpinning the Mineral Resources and any forecast information continue to apply and have not materially changed. Further information on Castle Minerals Limited and its Ghana projects and Minerals Resources can be found on its website at [www.castleminerals.com](http://www.castleminerals.com) which contains copies of all continuous disclosure documents to ASX, Competent Persons' Statements and Corporate Governance Statement and Policies.

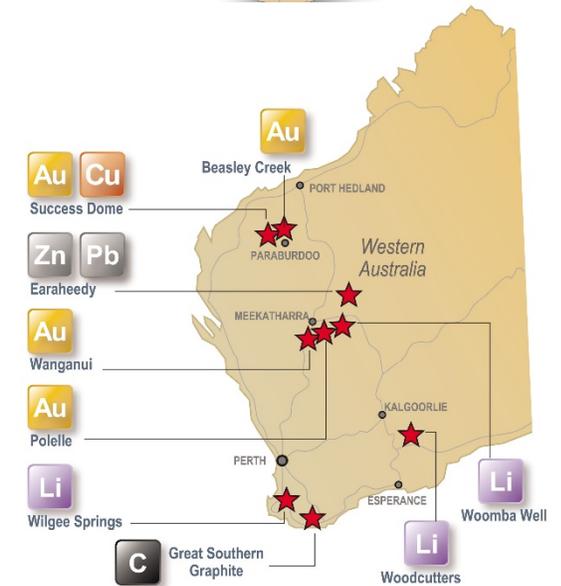
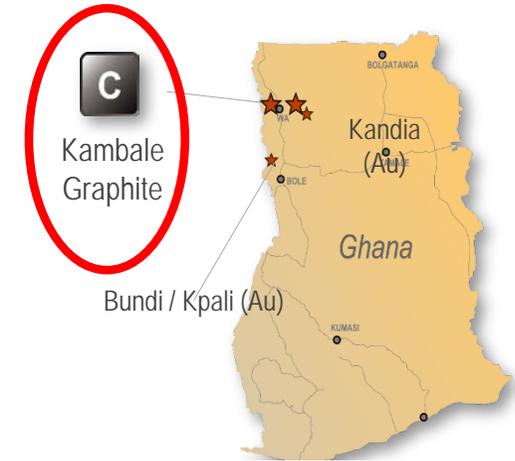
**Market and industry Data** - This presentation includes market share information and industry data and forecasts, which have been obtained from independent industry publications. Although these sources are believed to be reliable, no independent verification of the data has been made nor the underlying economic assumptions relied upon therein ascertained. Third-party sources generally indicate that they have obtained their information from sources believed to be reliable, but do not guarantee the accuracy and completeness of such information. It is believed that the market and industry data presented throughout this presentation is accurate, but no assurance as to the accuracy or completeness thereof is provided. Castle cannot and does not provide any assurance as to the accuracy or completeness of such included information. Market forecasts, in particular, are likely to be inaccurate, especially over long periods of time.

**Exploration Target** - The information contained in this presentation in respect to the Exploration Target is extracted from Castle's ASX release dated 28 November 2022 titled 'Independent Exploration Target Estimate Highlights Kambale as a Large-Scale Graphite Deposit' which is available to view at [www.castleminerals.com/announcements](http://www.castleminerals.com/announcements) ("original market announcement"). Castle confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

# Why Castle?



- Active, value-adding originator of quality exploration opportunities.
- Portfolio of Future and Battery Metals projects in Australia and Ghana.
- Fast-tracking the emerging 100% owned flagship **Kambale Graphite Project, Ghana**:
  - Graphite: Critical Mineral with increasing EV sales creating a looming supply deficit.
  - Exploration Target estimate (to 100m depth): **16.82Mt to 50.46Mt at between 6.74%TGC and 10.40%TGC<sup>1</sup>**.
  - Scale and grade to warrant evaluation for battery anode material (BAM) production.
  - Higher grade zones infill RC drilling completed end-Dec 2022.
  - Maiden JORC 2012 Mineral Resource estimate scheduled end-Q1 2023.
  - Positive Phase 1 test work. Phase 2 commenced January 2023.
  - Scoping Study commencement Q2 2023 (subject to drilling, resource and test work).
  - Excellent infrastructure. Ghana a safe, stable, mining friendly jurisdiction.
- Modest Enterprise Value (Market capitalisation less cash. No debt).
- Array of investment catalysts and high-level news flow in 2023.



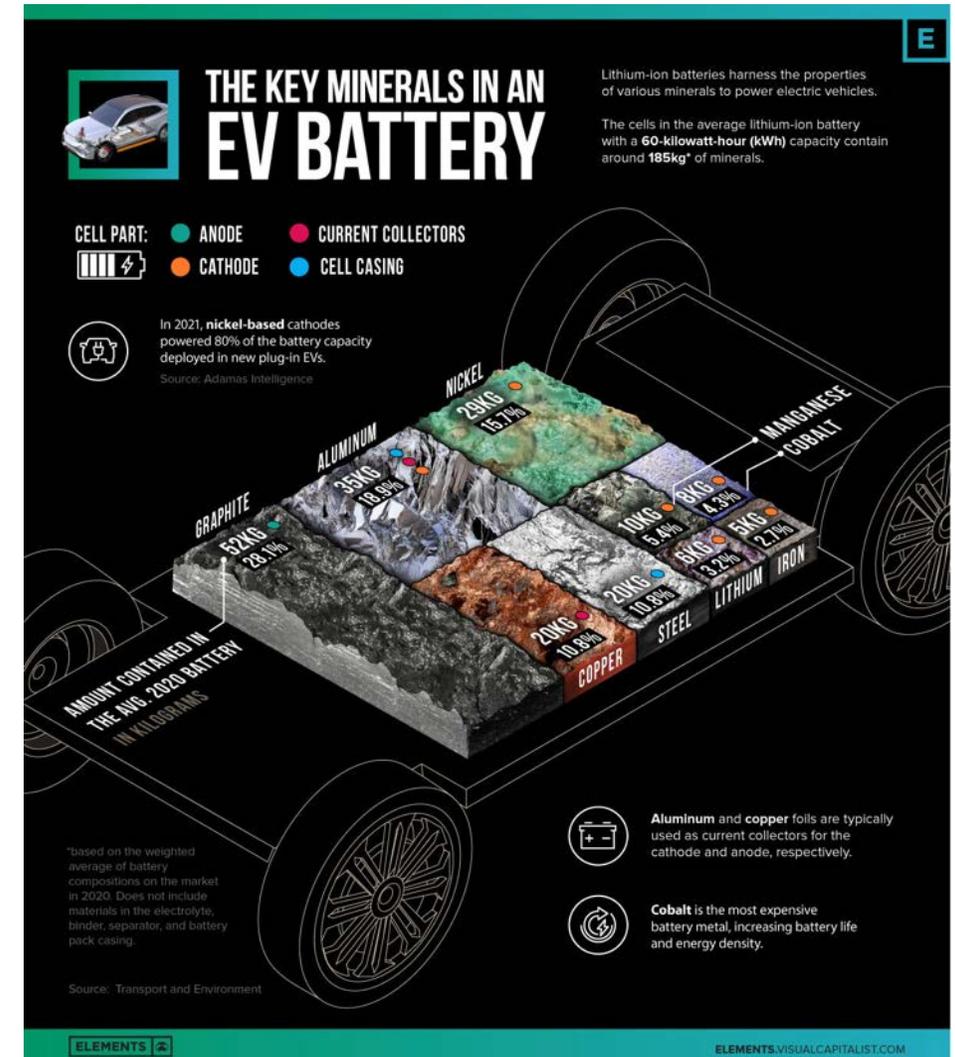
<sup>1</sup>The Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.

# Why Graphite?

- A 'Critical Mineral' in a de-carbonising world.
- World graphite production ~1.1Mtpa (~30 mines, 60% in China).
- 75% presently used for traditional uses (steel, foundry, lubricants etc).
- EV lithium-ion battery (LiB) anodes will soon require 100% of today's production with forecasts of multiples of that to 2050.
- +200 LiB 'gigafactories' planned worldwide.
- LiB anode almost entirely graphite which is largely not substitutable.
- Graphite ~30% of a LiB at ~30kg to 65kg/vehicle.
- 3t of fine-flake battery grade concentrate reqd. to produce 1t of micronised, spheronised, purified, coated battery anode material (BAM).
- Natural flake likely to exceed synthetic alternative which is more expensive, much higher CO<sub>2</sub> footprint and China dominated.

<sup>1</sup>Market commentary in this presentation is sourced from but not limited to:

- USGS: Feb 2022 list of critical minerals
- IEA: March 2022 'Role of critical minerals for clean energy transitions'.
- Fastmarkets: August 2022 'Graphite demand from EV battery sector forecast to rise over 35% in 2022'.
- FastMarkets: NewGen Long Term Forecast – 27.10.2022
- Benchmark Intelligence: Redcloud Mining Showcase 2022.



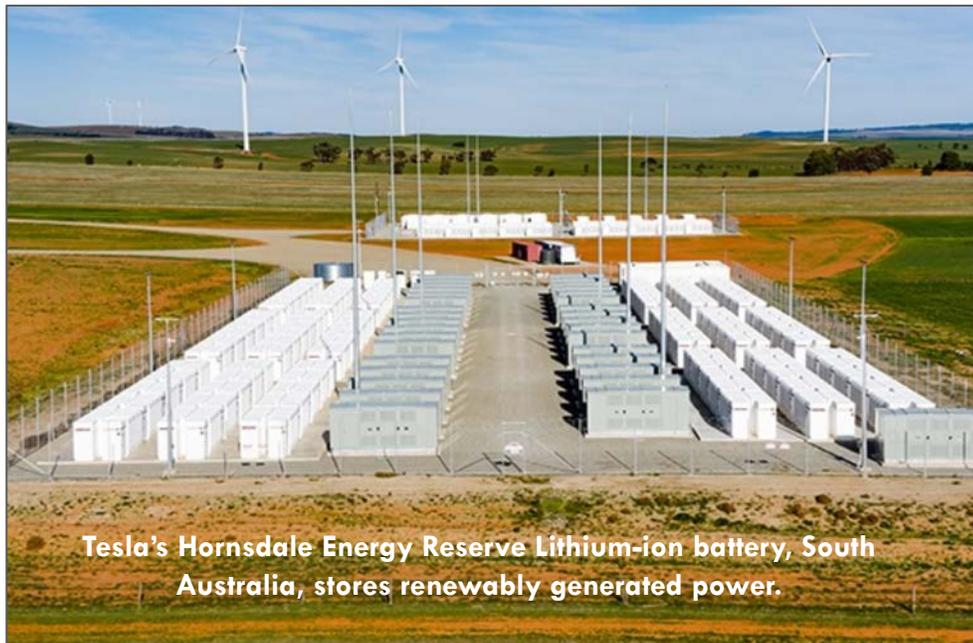
# Graphite: A Critical Mineral



Many countries now mandating phasing out of ICEs in favour of EVs.



Tesla's Berlin gigafactory



Tesla's Hornsdale Energy Reserve Lithium-ion battery, South Australia, stores renewably generated power.



Hydrogen fuel cells use graphite plates

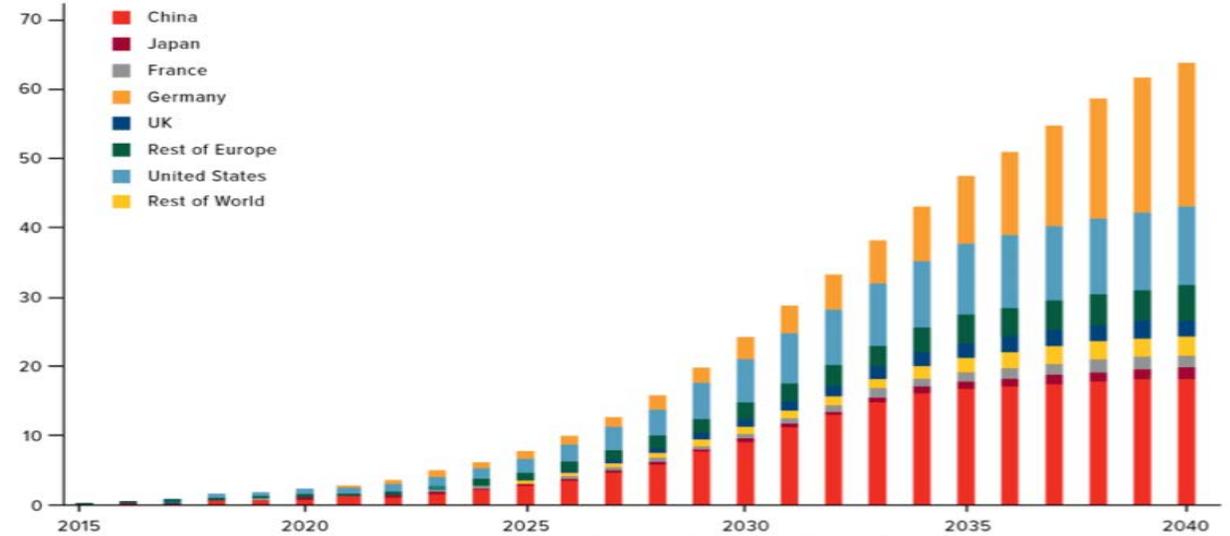
# Looming Supply Deficit



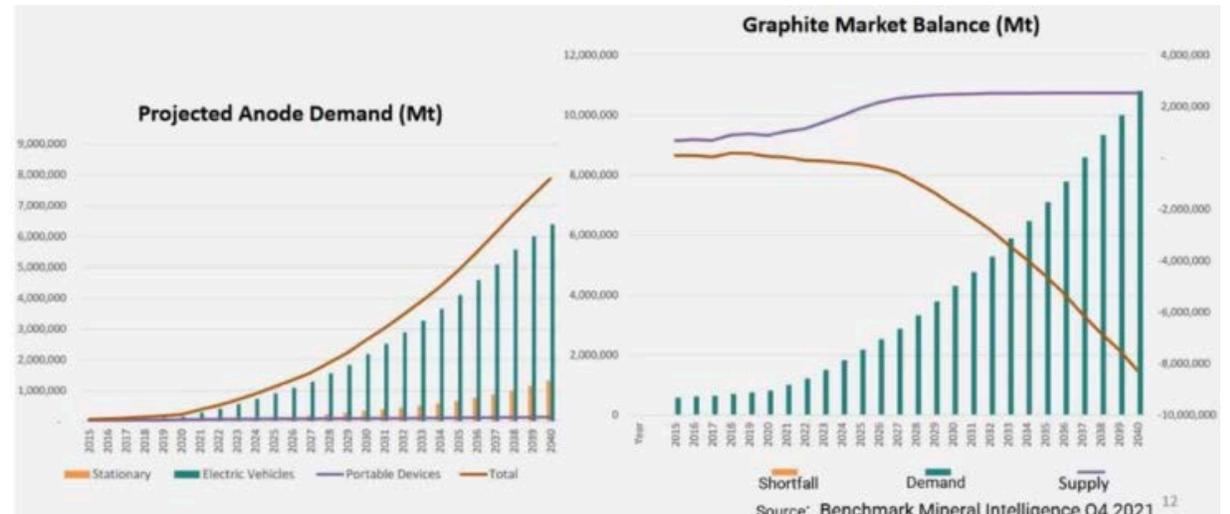
- Overall supply deficit forecast mid to late this decade.
- User supply expectations disconnected from supply reality.
- Timeline naivety. Gigafactories ~2yrs to build. Mines take many more years to discover, develop and commercialise product.
- Plus new mines, capacity upgrades and ‘qualification’ delays.
- Increasing market turbulence from straining supply chains and geographic supply-demand imbalance.
- Problematic over reliance on China (64% world mine flake production. 100% uncoated spherical concs and 90% anodes production).
- End-users (i.e. Tesla, GM, Panasonic etc) stepping down the supply chain.
- Pricing not transparent. No graphite spot or futures market.
- Forecast fine flake and uncoated spherical pricing trend is upwards for remainder of decade.
- Margin compression between traditionally higher value, large flake and lower value small / fine flake used in anodes.

**Projected Annual Global Electric Vehicle Sales**

Annual EV Sales In Millions



Source: Bloomberg New Energy Finance, Katasa Research, U.S. Global Investors



Source: Benchmark Mineral Intelligence Q4 2021

# Kambale: An Emerging Graphite Deposit

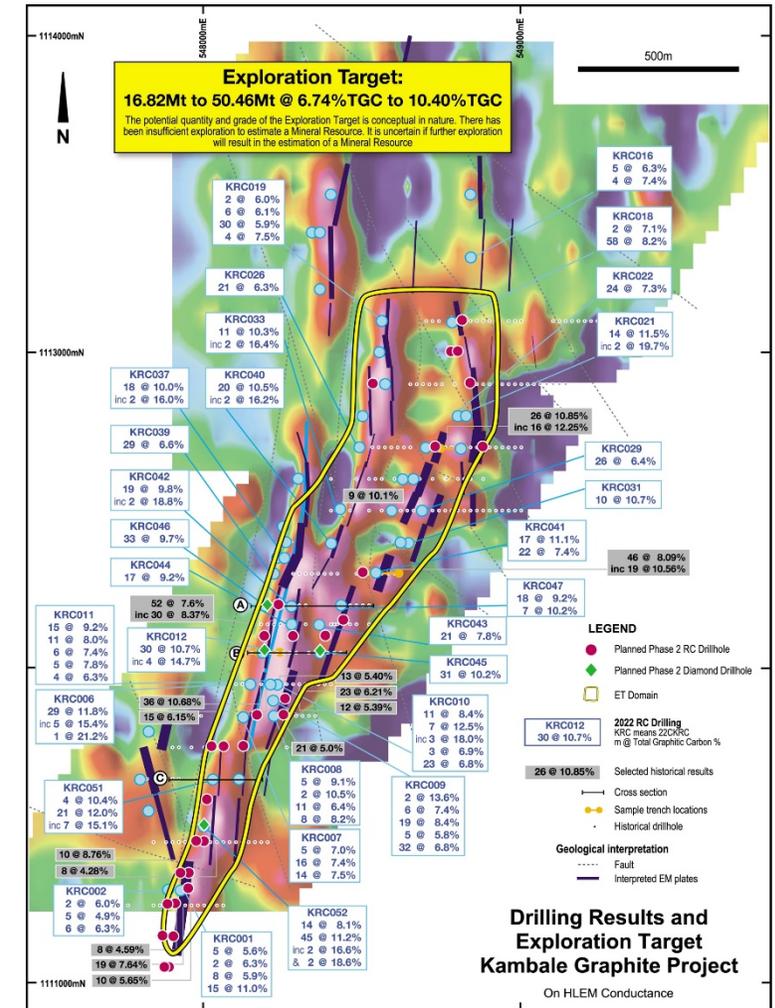


- Castle owns 100% Kambale Graphite Project<sup>1</sup>. Licence recently renewed.
- 356 holes for a total of 13,409m completed between 2012 and 2022 (combined RC, aircore, RAB and diamond core).
- Drilling included recent 52-hole, 5,323m RC program which extended deposit strike to 2.5km. Open to north, south and depth.
- Numerous sub-parallel, thick, high-grade graphitic zones from surface ranging over 0.5km E-W corridor.
- Exploration Target – November 2023 (to 100m depth only)<sup>2</sup>.

Min Tonnage (Mt)	Max Tonnage (Mt)	Min Grade (%TGC)	Max. Grade (%TGC)
16.82	50.46	6.74	10.40

- 30-hole, 2,290m high-grade zone definition RC drilling program completed end-December 2022.
- Maiden JORC 2012 Mineral Resource scheduled end-Q1 2023.

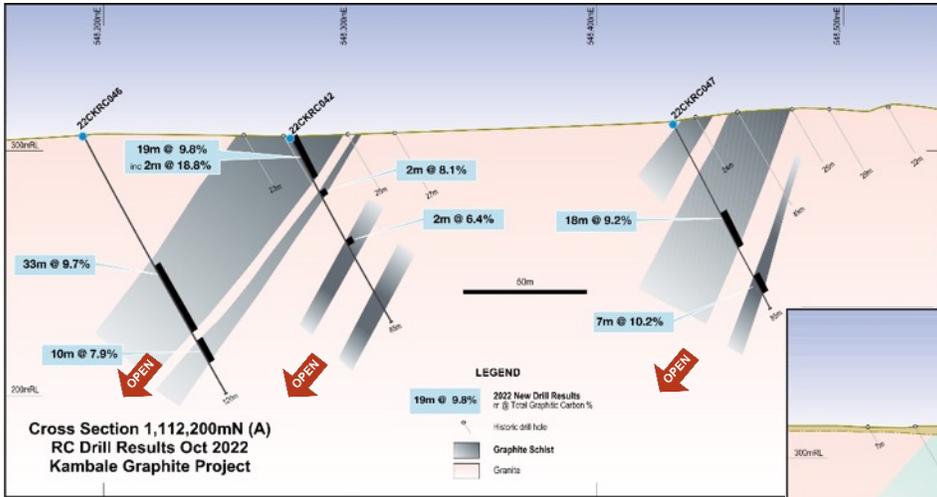
<sup>1</sup> Castle owns 100% of the Kambale Graphite project via its wholly owned subsidiary Kambale Graphite Limited.  
<sup>2</sup> Exploration Target has been prepared and reported in accordance with the 2012 edition of the JORC Code. The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource. It is uncertain if further exploration will result in the estimation of a Mineral Resource.



<sup>1</sup>Government of Ghana has the right to acquire 10% free carried interest in all licences and entitled to 5% Gross Royalty on production. All 'gold' licences held in 100% owned Ghana subsidiary, Carlie Mining Limited. Where reqd, Castle has lodged applications to divide certain retention licences into small licences, for extensions to licence terms and/or renewals under the Ghana Mining Act.

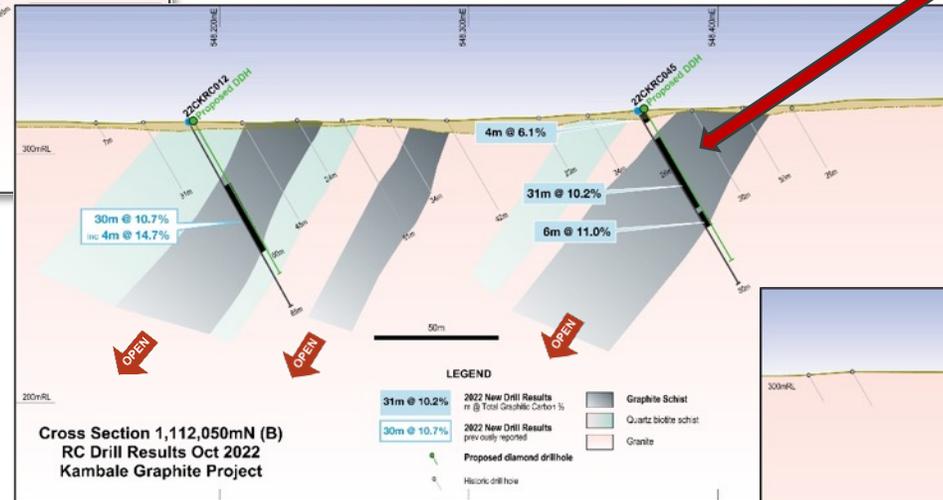


# Stacking-Up Nicely....



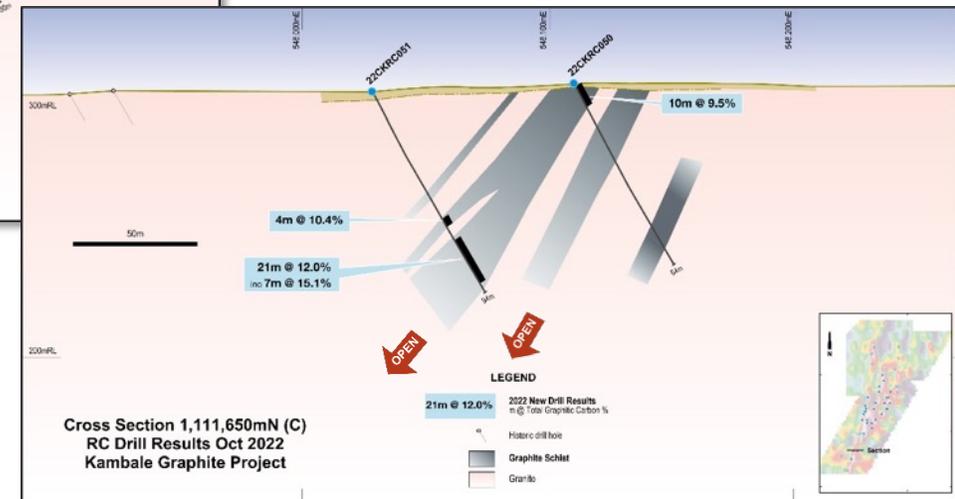
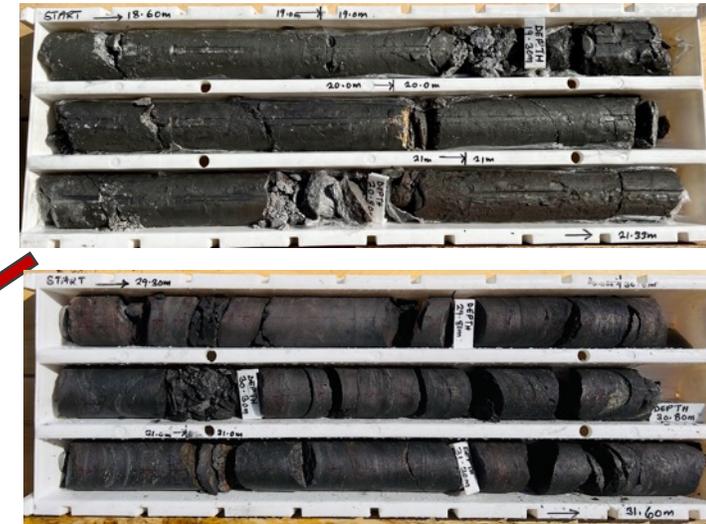
Mineralisation from surface

Open at depth



Multiple, robust, thick intercepts with high-grade zones

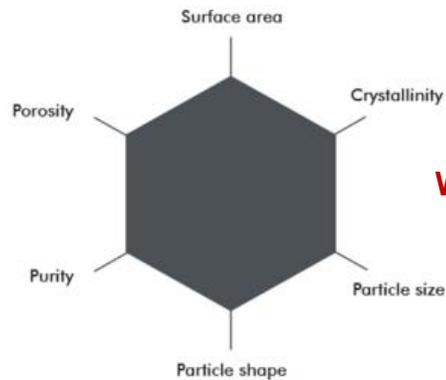
Core runs from 22CKDD001: 18.6m to 21.3m and 29.3m to 36.1m. (Refer ASX release 23.12.22)



# Positive Phase 1 Test Work

## Phase 1 - Completed

- Three trench excavated and composited samples - 12.56%, 16.09% and 17.16%.
- Conventional crush, grind and flotation cycles by IMO Perth.
- Achieved dominantly fine flake (<75um) concentrate grade up to 96.4% (approx. commercial grade) and TC recovery of <88% (Non-optimised).



**What's important with graphite?**

## Phase 2 - Commenced

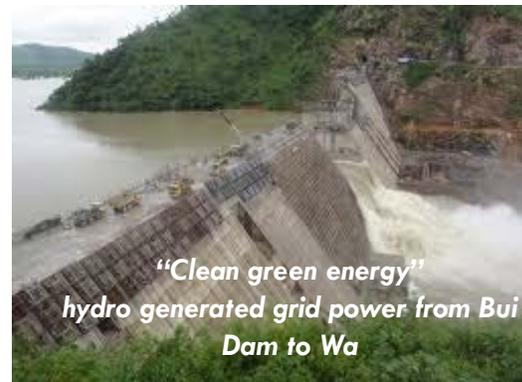
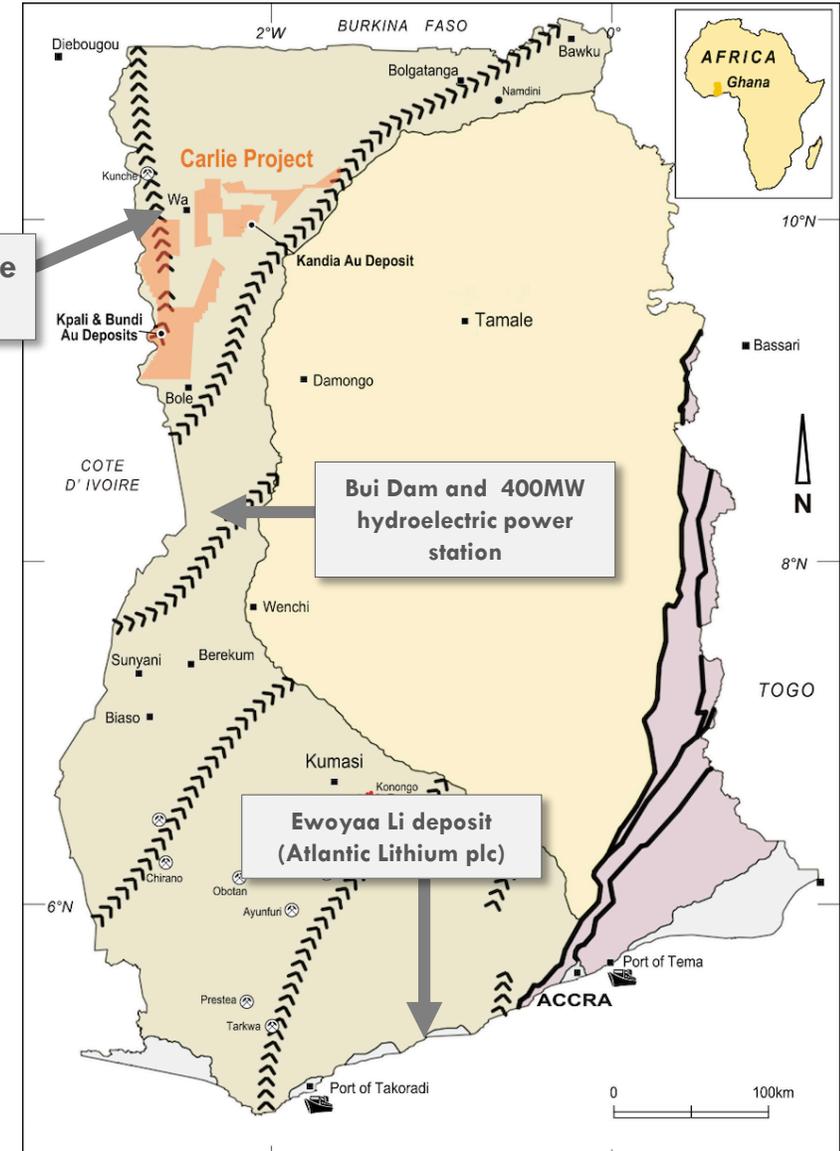
- Conventional crush, grind and flotation cycles on unweathered composited diamond core (IMO / Metallurgy P/L, Perth).
- Aiming for a commercial benchmark ~95%/96%TC concentrate and development of preliminary flow sheet for Scoping Study.
- Concentrate will be evaluated for ability to be micronised, spheronised, purified, and coated for use in EV and stationary LiB anode manufacture and other applics.



# Strong Development Credentials

- ‘Clean Green Energy’ grid power to Wa from 400MW Bui hydroelectric dam.
- Sealed and unsealed roads to site. Daily commercial flights from Accra.
- Long established resources industry, skilled workforce and support services.
- Strong community and Ghana government endorsement.
- Resources focused, politically stable jurisdiction keen to participate in the emerging EV sector (NB: Atlantic Lithium’s advancing Ewoyaa lithium deposit).
- USA bill for US\$369Bn investment in climate change and energy security must comprise 40% (increasing to 80% by 2027) from countries that have a Free Trade Agreement. Ghana has a Free Trade Framework Agreement with the USA and similar with EU, UK etc.

**Kambale Graphite Project**



# Ghana: Gold Assets

## 100% Carlie Mining Limited

- One of largest consolidations (4,392km<sup>2</sup>) of Birimian geology tenure in West Africa.
- Adjacent to Azumah Resources Limited's Wa Gold Project (2.8Moz Mineral Resource and 1.1Moz Ore Reserve)<sup>1</sup>.

## Royalty:

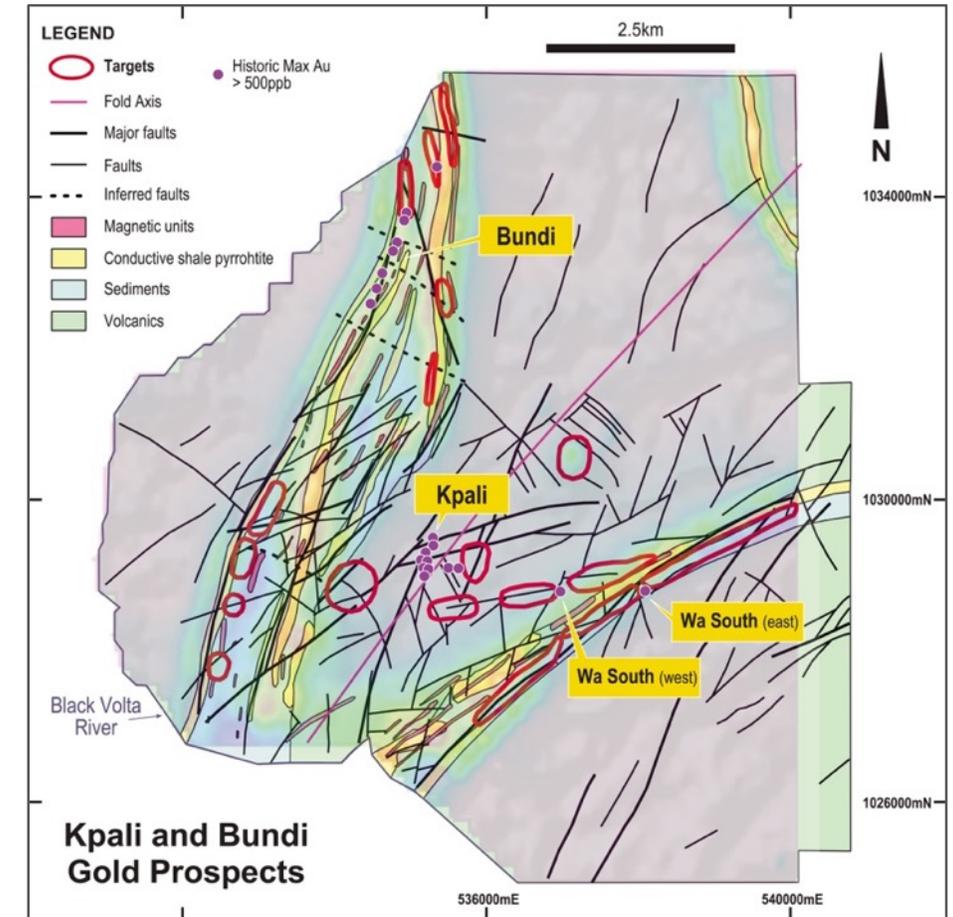
- **4% net smelter royalty** on Azumah's Julie West project's 73,100oz Ore Reserve (Measured & Indicated)(@ US\$1,250/oz and 1g/t Au lower cut-off)<sup>1</sup>.

## Kandia prospect:

- **62,900oz** Indicated and **44,600oz** Inferred in two zones<sup>2</sup> incl.
- 15m at 2.39g/t Au from surface and 40m at 1.17g/t Au from 20m.

## Kpali & Bundi prospects:

- **107,200oz Inferred<sup>3</sup>**.
- Castle intercepts incl: **28m at 2.26g/t Au from 81m, 15m at 2.08g/t Au from 87m, 3m at 6.52g/t Au from 97m, 14m at 2.29g/t Au from 98m, 16m at 3.23g/t Au from 9m and 10m at 2.10g/t Au from 22m.**



1. Refer Azumah Resources Limited ASX release 30 January 2019 (NB: Azumah is now delisted from ASX).

2. Refer ASX release dated 2 July 2014 re reporting of Kandia 8000 Zone Mineral Resource and appended JORC Code, 2012 Edition – Section 3

3. Refer ASX release dated 2 July 2014 re reporting of Kpali Mineral Resource and appended JORC Code, 2012 Edition – Section 3

1. Refer ASX release dated 18 January 2014 re “Kpali Drilling Results” incl. of JORC Code, 2012 Edition - Table 1

# Social Licence to Operate

Management has 14yrs successful Upper West Region operational experience through:

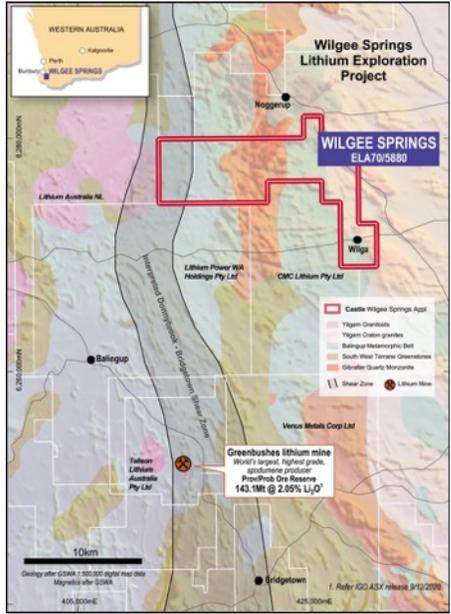
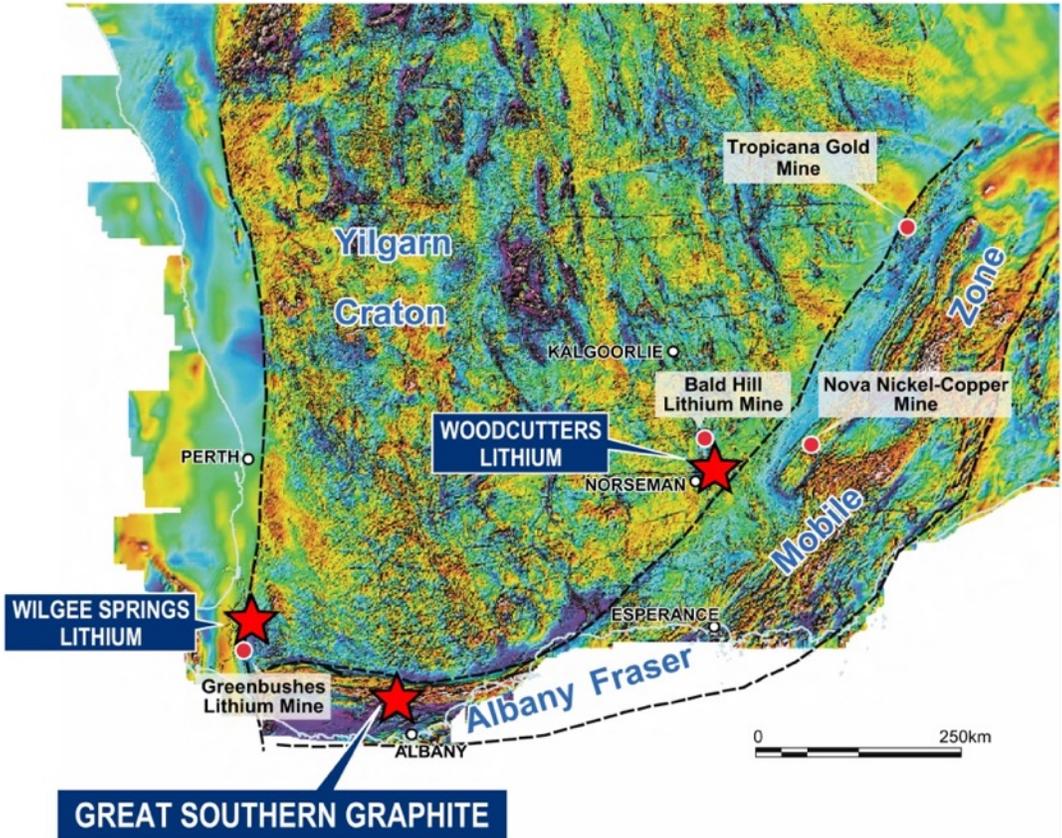
- Acting and communicating respectfully, transparently, inclusively and constructively with all stakeholders.
- Maximising cultural awareness and honouring traditions, heritage and rural practices.
- Minimising environmental impact, operational footprint and continuously rehabilitating.
- Conducting operations safely and minimising risk to all parties.
- Maximising local content, local employment, education and training opportunities.



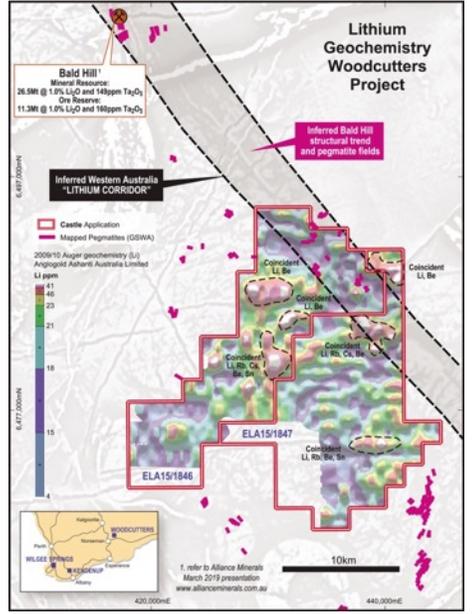
# Australia: Battery Metals Project



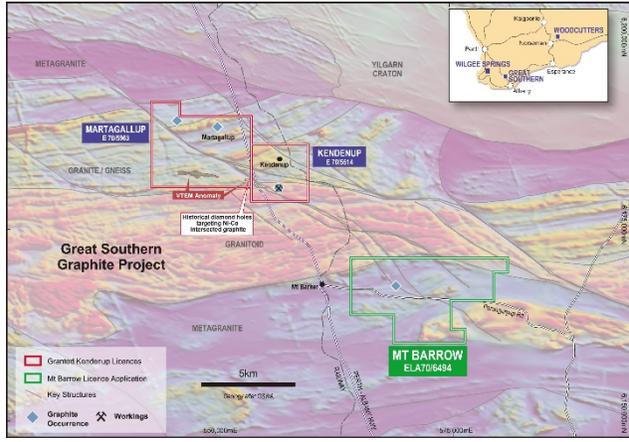
“Castle has moved quickly in Western Australia to participate in the forecast increases in demand for graphite and lithium for use in the electric vehicle and power storage sectors.”



Wilgee Springs (Lithium)

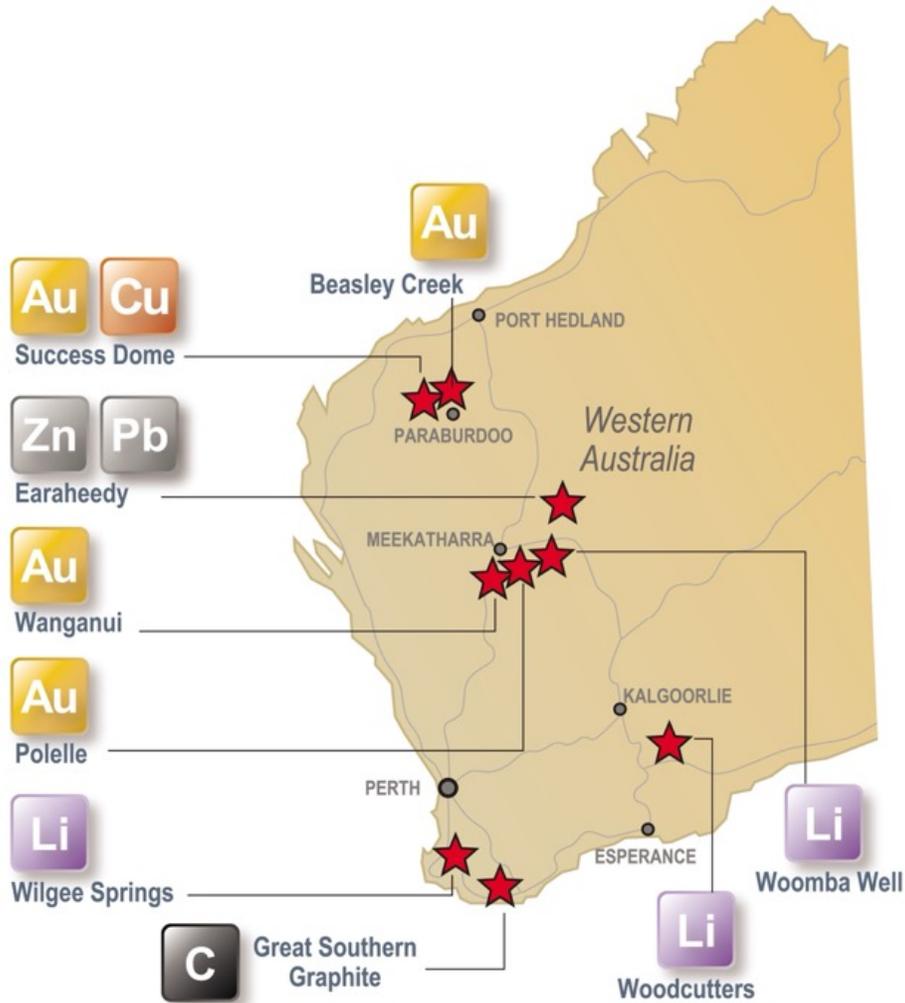


Woodcutters (lithium)



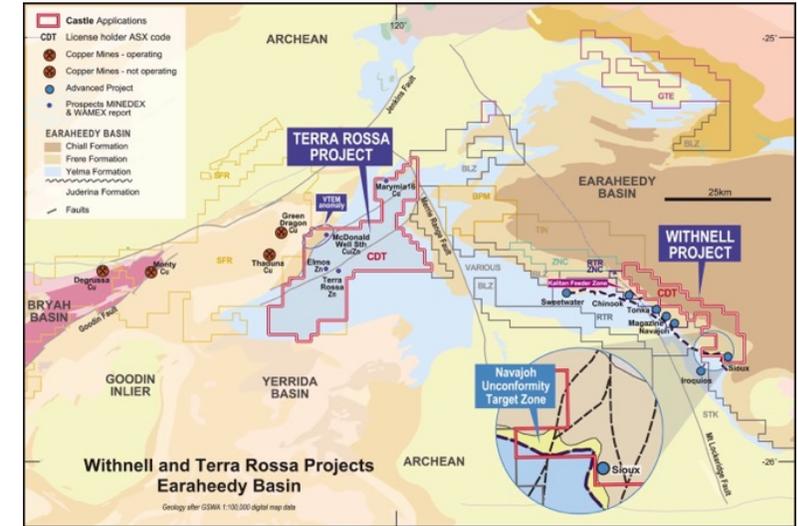
Kendenup, Martagallup and Mt Barrow (graphite)

# Australia: Future Metals & Gold Projects

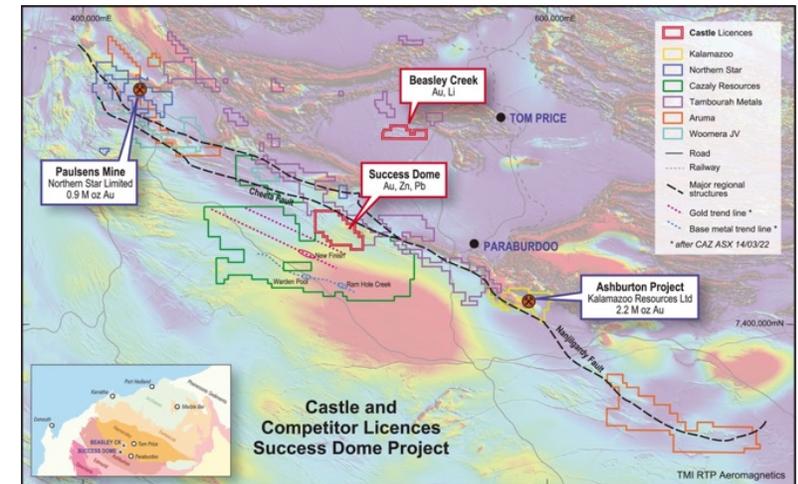


*“Castle has accumulated an enviable position in the rapidly emerging Earraheedy Basin base metals province where Rumble Resources Limited has revealed a large-scale, open-ended SEDEX and MVT-style zinc-lead-copper discovery.”*

*“Success Dome, Beasley Creek and Polelle / Wanganui provide additional quality base metals and gold exposure with several drill targets close to finalisation.”*



Earraheedy Basin: Withnell and Terra Rossa



Beasley Creek and Success Dome

## Experienced Board



**Michael Atkins**  
Non-Executive Chair  
(corporate & finance)



**Stephen Stone**  
Managing Director  
(corporate, finance & geology)



**James Guy**  
Non-Executive Director  
(geology and mining)

### Paul Amoako Atta

Ghana Country Manager  
(geology, ex Ghana -Minerals Commission)  
Founding Director Carlie Mining Limited

### Jade Styants

Company Secretary

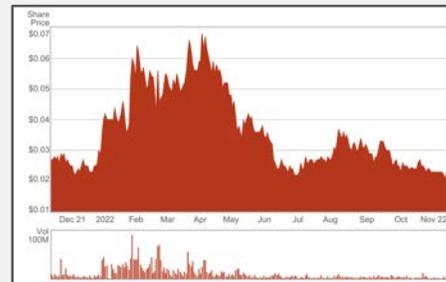
**999.5M**

Ordinary Shares (CDT)

**A\$25M**

Market Cap (\$0.025/ share)

### Share Price



### Major Shareholders (grouped)

Stephen Stone	5.2%
G A Bonney	4.0%
Citicorp Nominees	2.6%
Michael Atkins	2.1%

Top 20	23.6%
Total Shareholders	3,465

**107.1M**

Options Listed (CDTO & CDTOA)

**A\$2.5M**

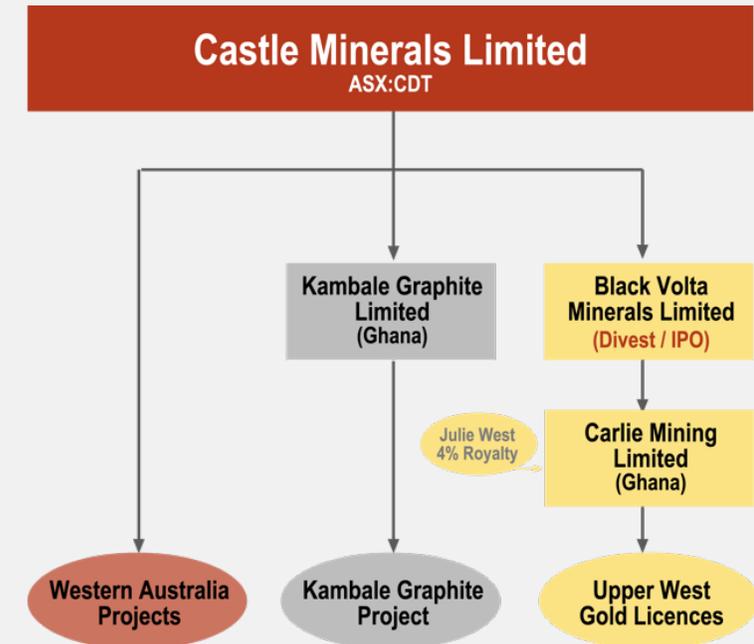
Working Capital

**55.5M**

Options (Unlisted)

**A\$22.5M**

Enterprise Value



# Why Invest In Castle Now?

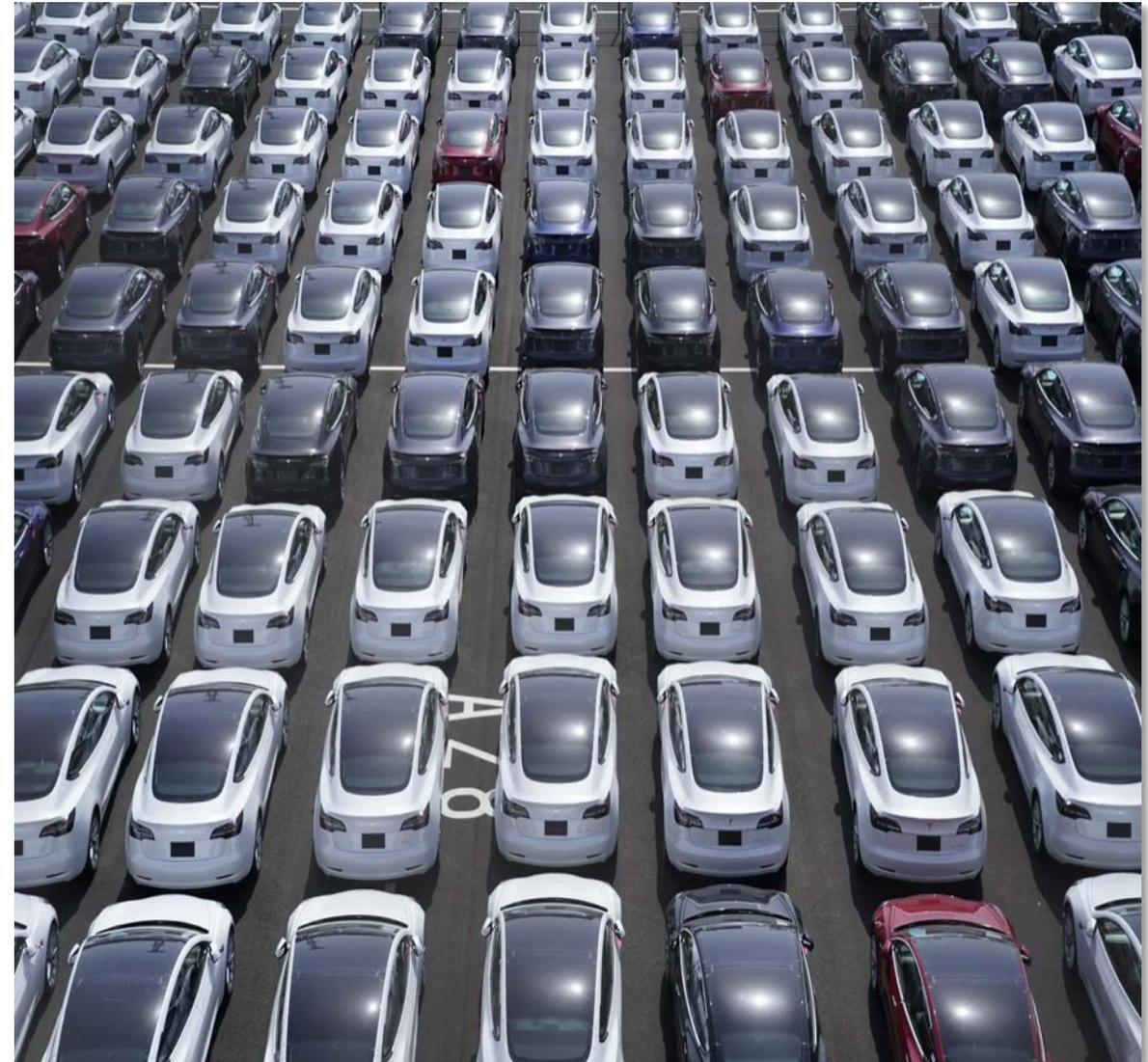
*“Castle is a very active, cost-effective originator of quality, early-stage exploration opportunities providing investors with excellent cross-jurisdictional exposure to the Battery and Future Metals sectors.*”

*The Kambale graphite project is fast emerging as a credible proposition at a time when graphite is now firmly on the critical minerals list.”*

*“Castle’s investors can look forward to a very interesting journey in 2023 bolstered by a high-level of news flow and investment catalysts.”*



**Stephen Stone**  
**Managing Director**



# CASTLE



Thank You

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