



 **EcoGraf**™

**Tanzanian  
graphite for a  
clean energy future**



**TANZGraphite**

Africa Down Under Conference  
Presentation  
4- 6<sup>th</sup> September 2024

## Securities Disclaimer

This document is for informational purposes only and does not constitute an offer to sell, or solicit to purchase, any securities. Such offer can be made only through proper subscription documentation and only to investors meeting strict suitability requirements. Any failure to comply with these restrictions may constitute a violation of applicable securities laws.

## Forward looking statements

Various statements in this document constitute statements relating to intentions, future acts and events. Such statements are generally classified as “forward looking statements” and involve known and unknown risks, uncertainties and other important factors that could cause those future acts, events and circumstances to differ materially from what is presented or implicitly portrayed herein. The Company gives no assurances that the anticipated results, performance or achievements expressed or implied in these forward-looking statements will be achieved.

## Production targets and financial information

Information relating to the Bankable Feasibility Study and Pre-Development Program conducted on the Epanko Graphite Project, including production targets and forecast financial information derived from the production targets, is extracted from ASX announcements dated 21 June 2017 “Updated Bankable Feasibility Study” and 28 April 2023 “Epanko Pre-Development Program Delivers Outstanding Results” available at [www.ecograf.com.au](http://www.ecograf.com.au) and [www.asx.com.au](http://www.asx.com.au). The Company confirms that all material assumptions underpinning the production targets and forecast financial information derived from the production targets set out in the announcements released on 21 June 2017 and 28 April 2023 continue to apply and have not materially changed.

The production targets referred to in this presentation are based on 45% Measured Resources, 38% Indicated Resources and 17% Inferred Resources for an 18-year life of mine. The Measured Resources, Indicated Resources and Inferred Resources underpinning the production target have been prepared by a competent person in accordance with the requirements in Appendix 5A (JORC Code). The Company has used Inferred Mineral Resources as part of the production target. There is a low level of confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised. The economic feasibility of the Project has been assessed excluding the Inferred material, confirming the use of Inferred mineralisation is not a determining factor in the viability of the Project.

## Competent persons

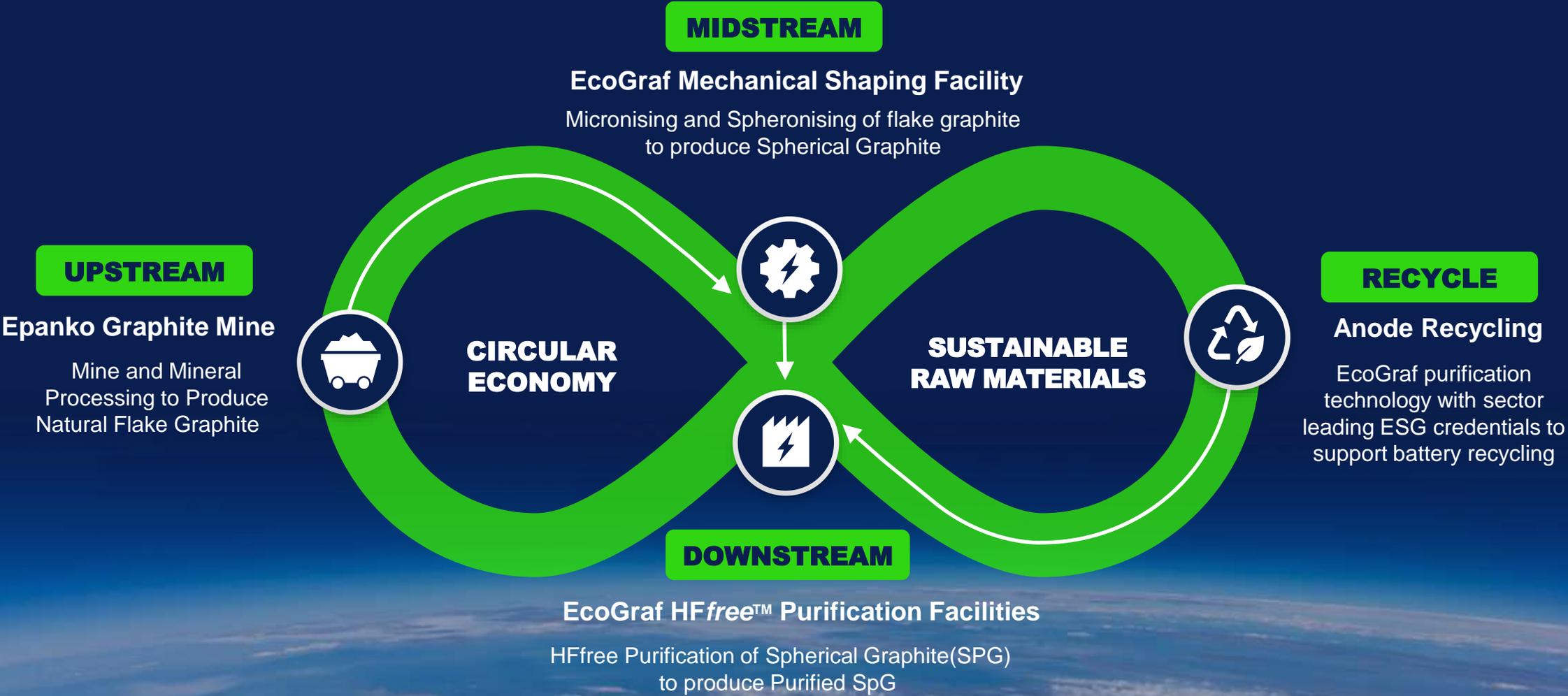
The information in this report that relates to Mineral Resources is based on, and fairly reflects, information compiled by Mr. David Williams and Mr. David Drabble. Mr. David Williams is a full-time employee of ERM and is a Member of the Australian Institute of Geoscientists (#4176)(RPGGeo). Mr. David Drabble is a full-time employee of EcoGraf Ltd and is a Member of the Australasian Institute of Mining and Metallurgy (#307348). Mr David Williams and Mr David Drabble have sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2012 Edition of the Australasian Code for the Reporting of Exploration Results, Mineral Resources and Ore Reserves (JORC Code). The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.

The information in this report that relates to the Ore Reserve has been compiled by Mr Steve O’Grady. Mr O’Grady, who is a Member of the Australasian Institute of Mining and Metallurgy (#201545), is a fulltime employee of Intermine Engineering and produced the Mining Reserve estimate based on data and geological information supplied by Mr Williams. Mr O’Grady has sufficient experience that is relevant to the estimation, assessment, evaluation and economic extraction of Ore Reserve that he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and all material assumptions and technical parameters underpinning the estimates, including production targets and forecast financial information derived from the production targets in the relevant market announcement continue to apply and have not materially changed.

This Presentation has been approved by the Board of EcoGraf Limited.

# Our business

Building a vertically integrated battery anode materials business to produce high purity graphite products for the lithium-ion battery and advanced manufacturing markets



# Corporate snapshot

## Company Directors & Officers

**ROBERT PETT**  
Non-Executive Chair

**JOHN CONIDI**  
Non-Executive Director

**ANDREW SPINKS**  
Managing Director

**KEITH JONES**  
Non-Executive Director

**HOWARD RAE**  
Chief Financial Officer

**SHANNON COATES**  
Company Secretary

**CHRISTER MHINGO**  
Director Tanzania

## Capital Structure

Market capitalisation<sup>2</sup>

**A\$45.3M**

Share Price<sup>2</sup>

**A\$0.10**

Shares on issue<sup>1</sup>

**454M**

Cash balance<sup>1</sup>

**A\$25.5M**

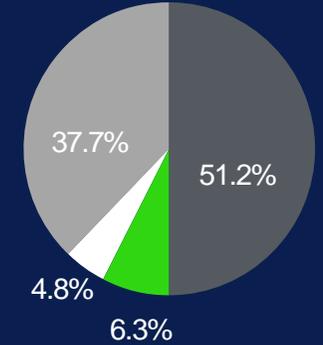
## Stock Listings

**ASX: EGR**  
Australian Securities Exchange

**FSE: FMK**  
Frankfurt Stock Exchange  
(Börse Frankfurt)



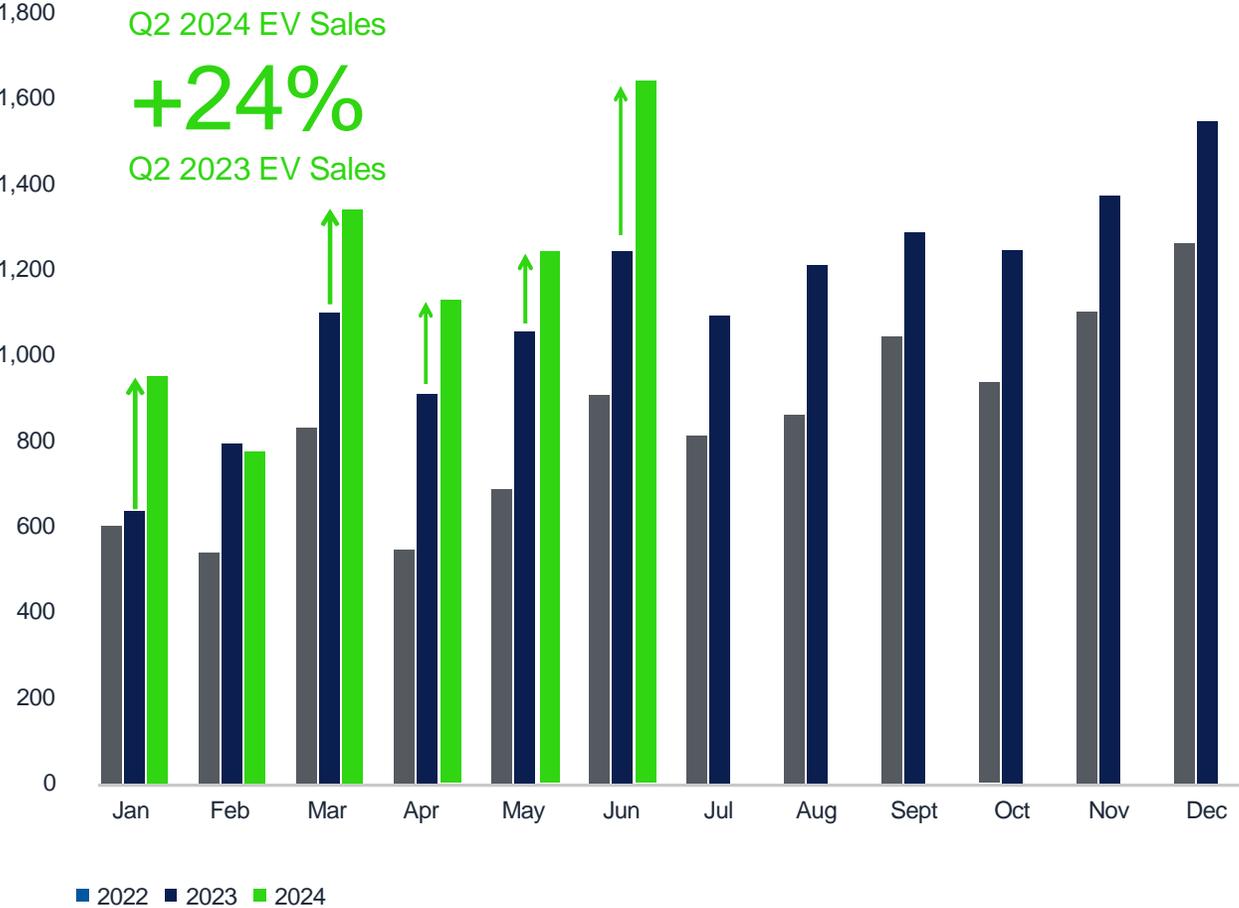
## Major shareholders



- Board & Management
- Comet Asia Holdings and KKR Fund
- Other shareholders
- Other Top 20  
- 30.8% BNP Nominee Account  
( FSE Shareholders)

# Geopolitical drivers for new anode material supply

## GLOBAL MONTHLY EV SALES ('000 UNITS)<sup>1</sup>

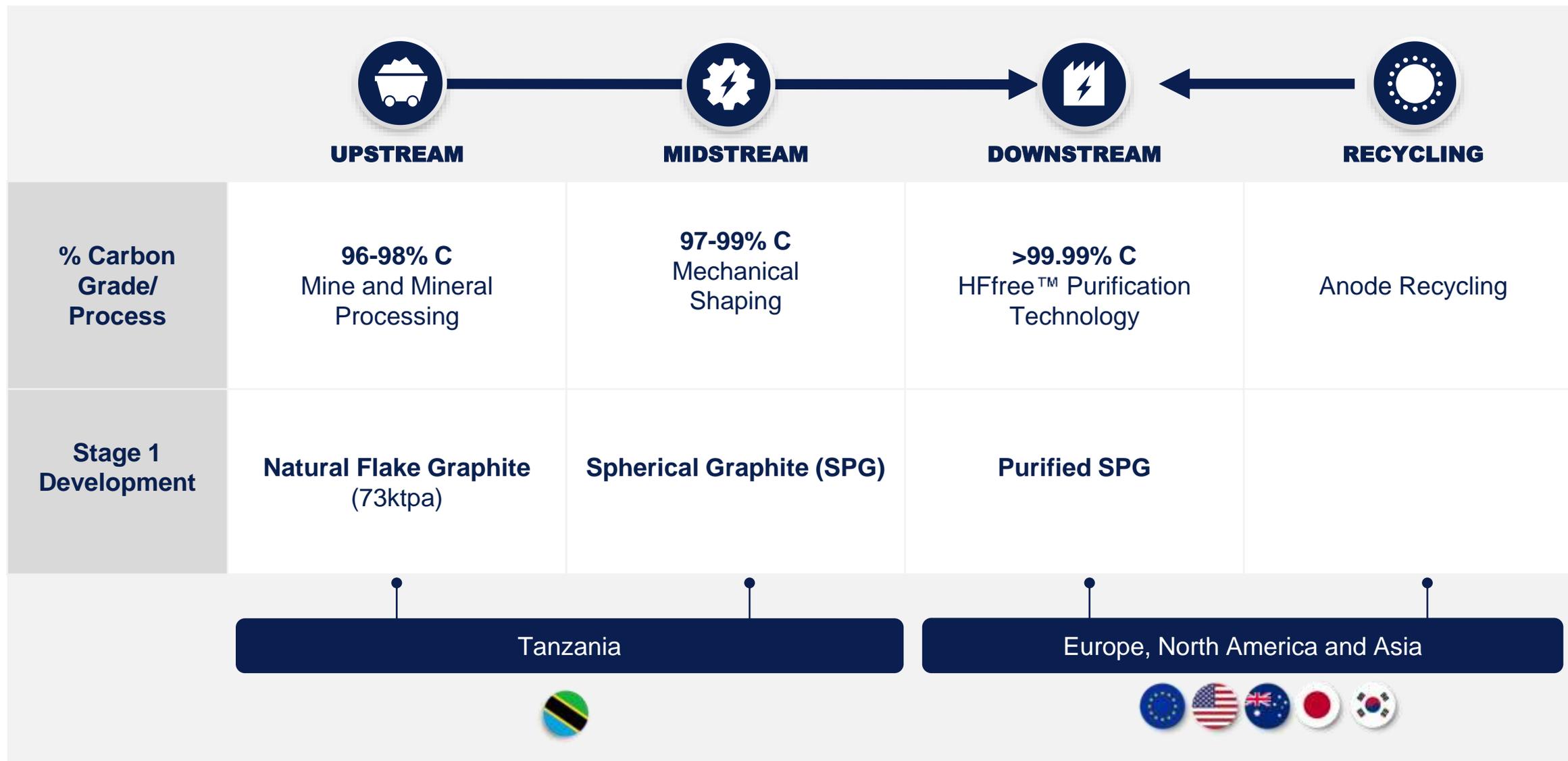


## GLOBAL LEGISLATION

- IRA, MS, DoE, DoD have pushed development and funding into localised resources in North America with tax credits supporting new supply chains. Exemptions end 2027. New 25% tariff on FEOC (China) anode
- The EU Green Deal and Critical Raw Materials Act support supply chains that satisfy green targets for mining, manufacturing and recycling. CRMA now law with Strategic Projects focus. Battery passport, localisation and CO<sub>2</sub> targets will restrict foreign synthetic
- Chinese Government export licence controls implemented from 1 December 2023 for designated graphite and anode products. Current anode manufacturing is heavily reliant on China.

1. Source: GlobalData.  
 2. Refer <https://www.state.gov/minerals-security-partnership/>, [https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials\\_en](https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/critical-raw-materials_en) <https://www.reuters.com/world/china/china-require-export-permits-some-graphite-products-dec-1-2023-10-20/>

# EcoGraf's vertically integrated BAM strategy



Refer to ASX announcement "Updated Epanko Ore Reserve" dated 25 July 2024

# UPSTREAM



## Mine and Mineral Processing Facility to Produce Natural Flake Graphite

### Priorities

Debt financing program

Equator Principles 4.0 update and RAP implementation

Front End Engineering Design

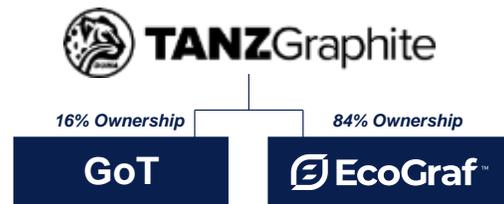
Expansion options to 300,000tpa

# Epanko Graphite Development



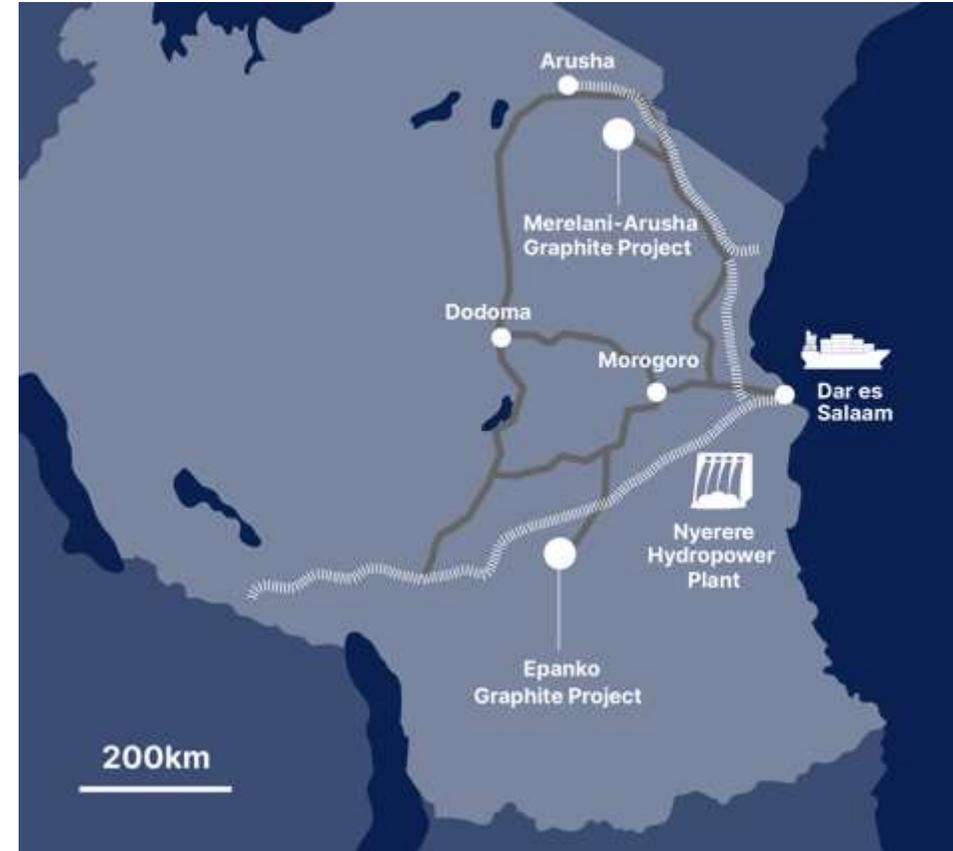
## Epanko

- KfW IPEX-Bank Mandated for UFK Loan of up to US\$105m for Development of Epanko
- Bank appointed SRK Independent Engineers' review underway
- Compliance with Equator Principles 4 and IFC Performance Standards
- Development ready - defined and de-risked, commencing at 73,000tpa with potential to significantly expand production to meet forecast market demand
- Framework Agreement signed with Government of Tanzania and grant of life-of-mine Special Mining Licence expected shortly



## Merelani-Arusha

- Supportive Government with plans for additional development of the Merelani-Arusha mining sector



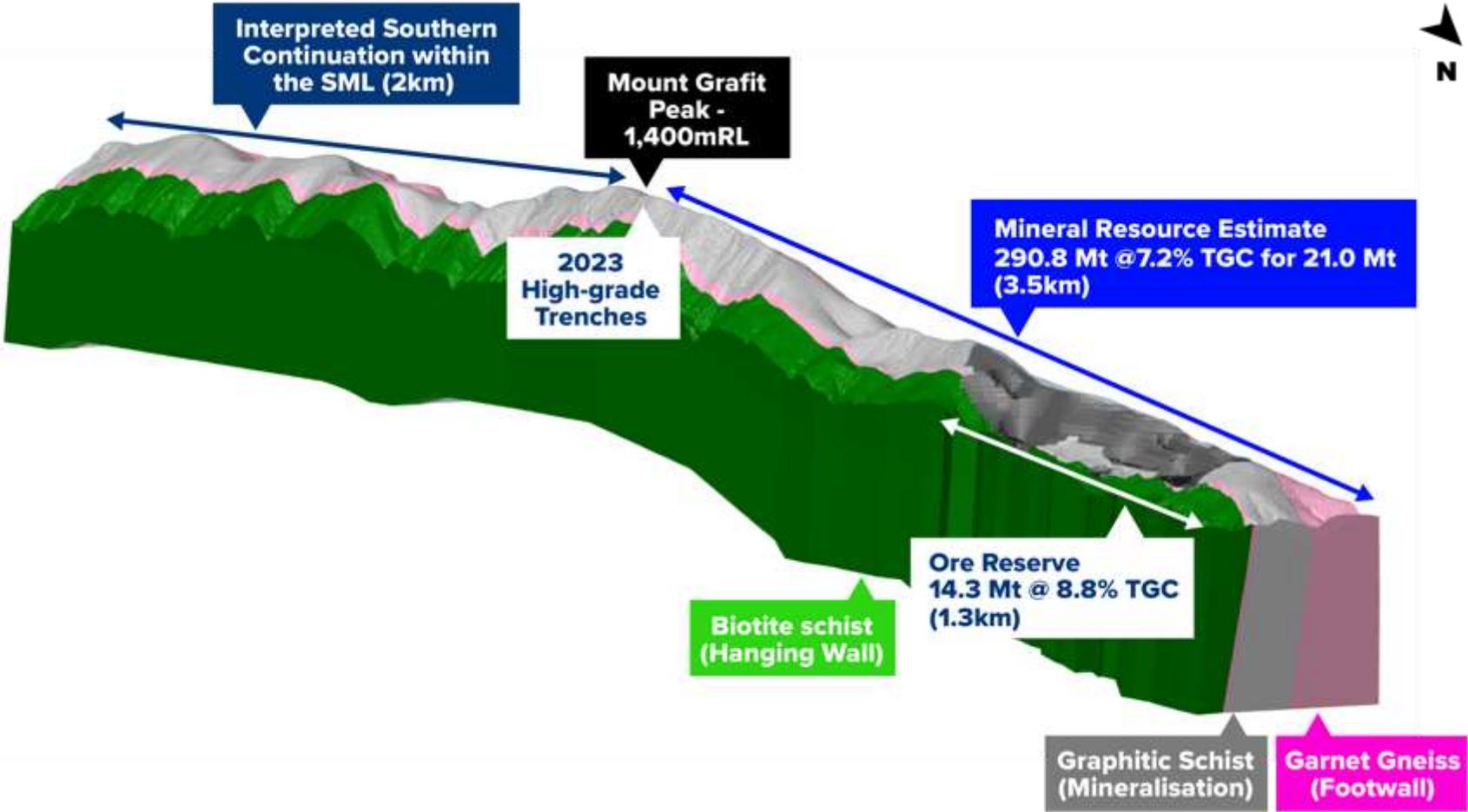
## Key partners and support



# Ore Reserve update



## Largest development ready graphite project in Africa



Industry-leading 82% of total Ore Reserves classified as Proven, delivering increased confidence on metallurgical factors such as process recoveries, flake size distribution and concentrate grades

Refer to ASX announcement "Updated Epanko Ore Reserve", dated 25 July 2024

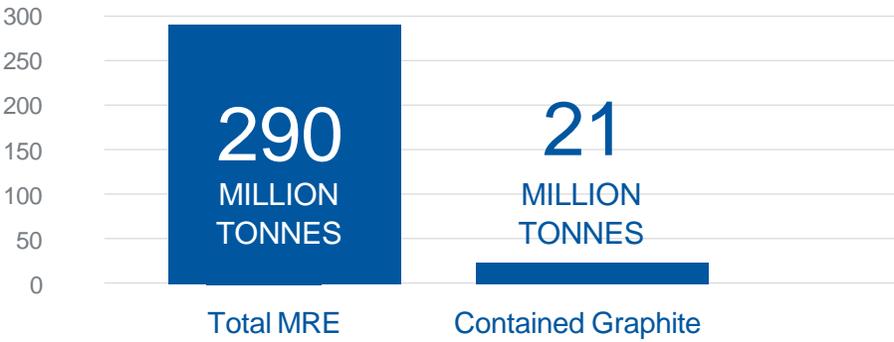
# Epanko project advantages

Key advantages to drive lowest cost feedstock for lithium-ion battery market

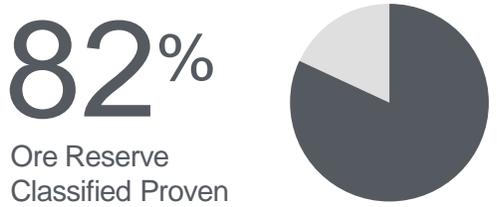
## TRANSPORT DISTANCE



## MINERAL RESOURCE ESTIMATE (MRE)



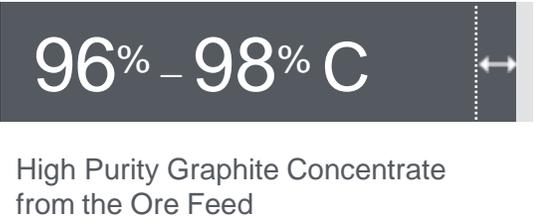
## ORE RESERVE



## AVERAGE THICKNESS



## CONCENTRATION GRADE



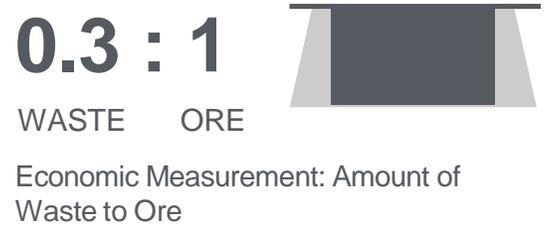
## PROCESS RECOVERY



## FLAKE SIZE DISTRIBUTION



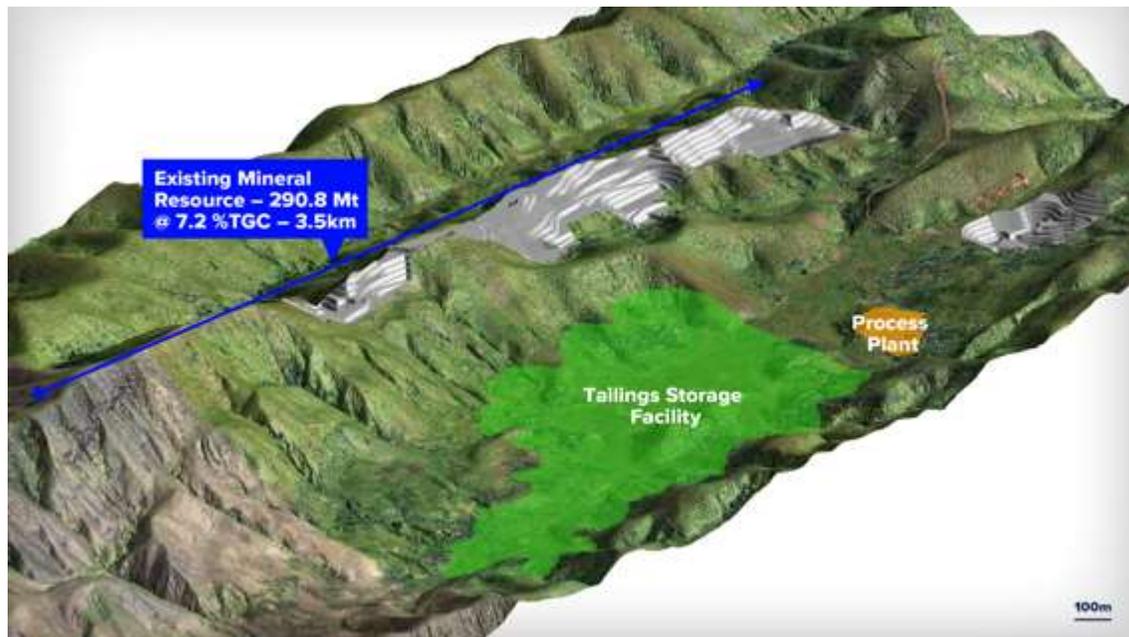
## STRIP RATIO



Refer to ASX announcement "Update Epanko Ore Reserve", dated 25 July 2024 and "127% Increase in Epanko Mineral Resource", 11 March 2024

# Epanko mine layout and overview

- Proven Ore Reserve providing the highest level of confidence for Mineral Resource development
- New mine design delivers low-cost Oxide Ore first strategy over 1.3 km strike length
- Pending Special Mining License (SML) will cover the full 5.5 km strike length to support expansion



View of Proposed Mining Operation



View flyover video: <https://tinyurl.com/uh8cdaxp>

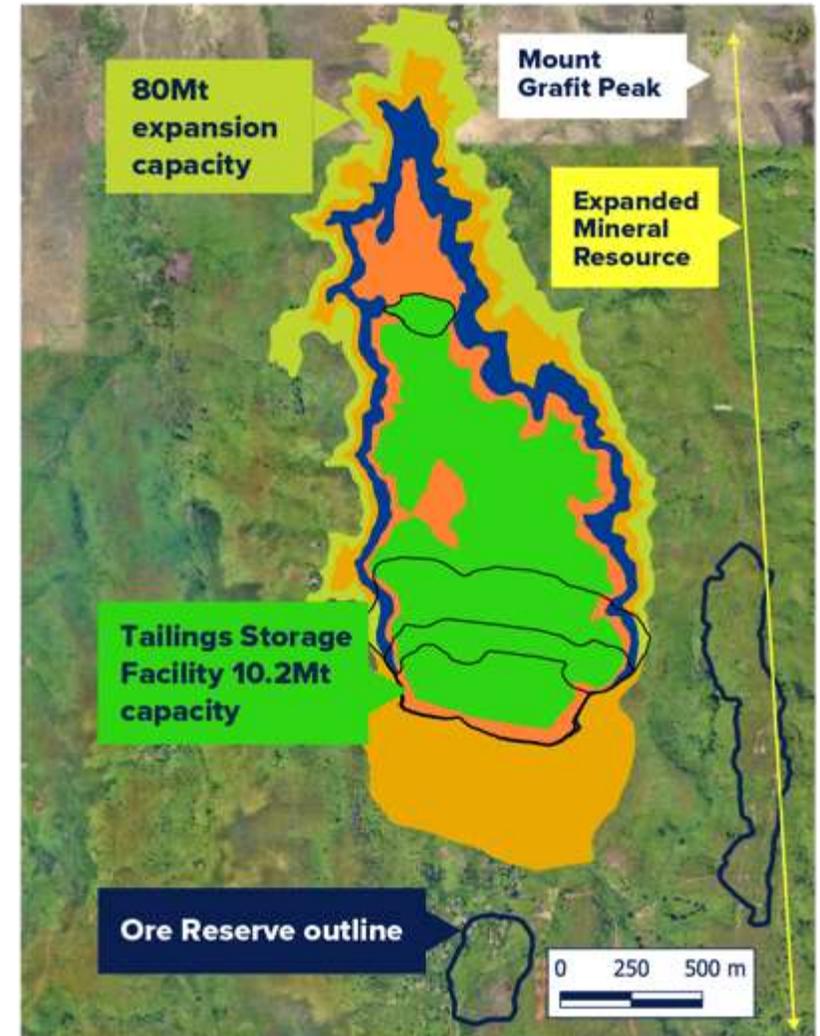
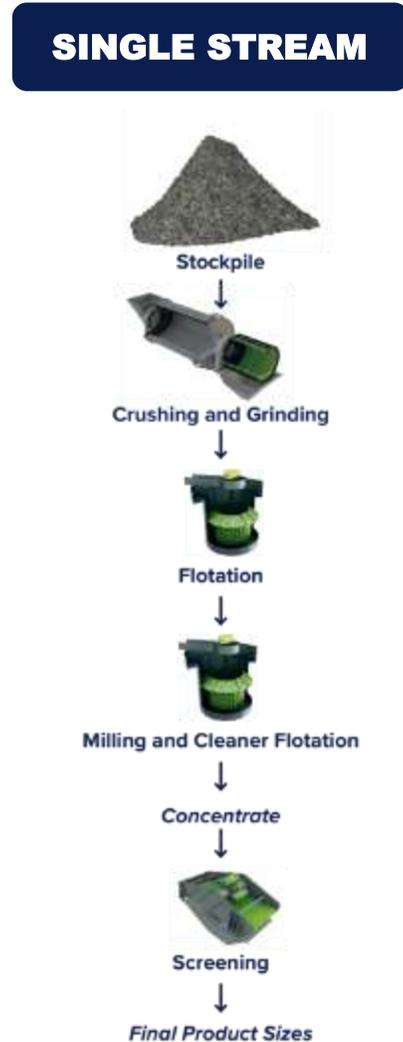
## PROCESSING PLANT



View flyover video: <https://tinyurl.com/ypmd7vme>

# Improved flowsheet design and TSF expansion capacity

- Process flowsheet based on rigorous testing and independent review of single stream
- Flowsheet design to produce graphite products for industrial and high growth lithium-ion battery markets
- Knight Piésold completed assessment of expansion capacity for tailings storage facility in the Epanko valley
- Epanko expansion supported by capability of 8-fold increase to +80Mt capacity in tailings storage facility (TSF)
- Participating in research organization Amira Global sustainable and innovative tailings dam research program that aims to eliminate mine tailings



## Platform for high value future expansion

Physicals	Unit	
<b>NPV (10%, pre tax)</b>	<b>US\$M</b>	<b>348</b>
<b>IRR (pre tax)</b>	<b>%</b>	<b>36</b>
<b>Payback Period (pre tax)</b>	<b>Years</b>	<b>4.25</b>
<b>Pre Production Capital</b>	<b>US\$M</b>	<b>134</b>
<b>EBITDA</b>	<b>US\$M</b>	<b>79</b>

Source: ASX announcement "Epanko Pre-Development Program Delivers Outstanding Results" dated 28 April 2023

Notes: Pre-production capital is in real terms, unescalated.

NPV and EPITDA are nominal terms. EBITDA is average first 10 years of production post ramp up.

## Key production metrics

Physicals	Unit	
<b>Initial years</b>	<b>Years</b>	<b>18</b>
<b>Strip Ratio</b>	<b>Waste : Ore</b>	<b>0.3</b>
<b>Annual Plant Feed</b>	<b>Ktpa</b>	<b>850</b>
<b>Average Head Grade</b>	<b>TCG %</b>	<b>8.33</b>
<b>Annual Concentrate Production</b>	<b>Ktpa</b>	<b>73</b>

Source: ASX announcement "Epanko Pre-Development Program Delivers Outstanding Results" dated 28 April 2023

Notes: Annual Plant Feed, Annual Concentrate Production and Product Specifications are for the first 10 years of production while processing oxide ore.

# Our Tanzanian team delivering results



# New Tanzanian infrastructure supporting Epanko



## Great Ruaha Bridge

Improving the transportation of agriculture and mining products.

## Ifakara Substation

Funded through the European Union to support new business in the region.



## Julius Nyerere Hydropower Station

Providing low-cost, renewable power with recent announcement now energising grid.



## Electric Train

Positioned to support new industries, given its location on the transport corridor.

# ESG contribution to Tanzania



## Economic growth

Direct contribution to the economy through procurement of goods and services, employment, royalties, taxes and dividends.

Multiplier effect with an estimated US\$9+ billion additional indirect benefits over 40+ years.



## Employment and Training

300 to be directly employed.  
4,500 indirect jobs + new industry technologies.



## Positive Impact

Transformational inter-generational financial and social upliftment for the Ulanga district.





## Mechanical shaping of natural flake graphite to produce Spherical Graphite (SpG)

### Priorities

Finalise site engineering studies on preferred locations

Offtake arrangements to support development

# Mechanical Shaping Facility



Development supports the Tanzanian Governments ‘Vision 30’ value adding strategy

- Four locations identified as the preferred location along transport corridor
- Optimises supply chain logistics efficiencies for EV and Battery Customers
- Potential to process third party Tanzanian feedstock
- Access the new 2,115MW Nyerere Hydropower plant
- Modular plant design provides for a readily scalable development to support forecast demand
- Independent Life Cycle Assessment (LCA) studies conducted for EcoGraf confirm electricity accounts for 45-55% of CO<sub>2</sub> emissions



~1/4 of impacts come from the **mining and concentrating stages**

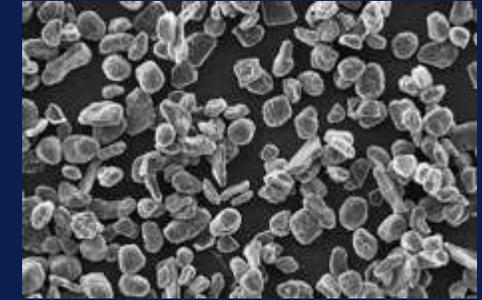
41% of impacts come from **mechanical shaping**

~1/3 of impacts come from the **purification stage**

# Development ready with extensive testwork completed

- Development to leverage off previously completed permitting, plant design, layout and equipment lists.
- High spherical graphite yield for Epanko graphite flake > 60%<sup>1</sup>
- Customised solution for potential customers specifications
  - ✓ Particle size distribution
  - ✓ Tap density
  - ✓ Surface area
- Extensive product evaluation by global customer base in EU, Asia and North America

**GRADE:  
EPANKO UNPURIFIED SPG16**



1. Refer to ASX announcement "Commercial Scale Program Delivers 20% Product Yield Increase", 14 July 2021 and "EcoGraf Expands BAM Facility Development Plans", 29 September 2022

# Tanzania open for investment

President Hassan is promoting increased cooperation with businesses to encourage more foreign direct investment in Tanzania

- Targeting mining to be 10% of GDP by 2025
- Attracting investment from majors, including BHP and Shell
- Accelerating major infrastructure projects bringing power stability and transport efficiency



“We have everything when we talk about green energy...”

Tanzanian President, Samia Suluhu Hassan, Speaking at the 2023 World Economic Forum



- US Department of State recognition of Tanzania’s role to support responsible development of critical minerals supply chains
- US\$560 million US Government assistance for Tanzania



- German President Frank Steinmeier met Tanzanian President for political talks and engaged in discussions regarding critical minerals
- Germany’s long-standing relationship with Tanzania



- Tanzania President recently visits Korea
- Agreement signed to facilitate greater cooperation between Tanzania and Korea





## HFfree Purification to produce Purified SPG

### Priorities

Product qualification facility  
successfully commissioned in  
Perth, WA

Formalise strategic partnerships  
for commercial scale production

Evaluate development options in  
Europe, North America and Asia

# EcoGraf HFfree™ purification facility



## Global expansion driven by EV demand and legislation to encourage new and sustainable critical mineral supply chains

Requirement for new suppliers of battery anode materials following  
launch of EU Green Deal, US Mineral Security Partnership and  
Inflation Reduction Act

- US patent granted 2023, others under assessment globally
- Product qualification facility co-funded with Australian Government grant and supported by collaboration with a leading Australian Government research organisation
- Benchmarking study by global engineering consultancy confirms capital and operating cost advantages of the EcoGraf HFfree™ process
- Extensive product testing with global anode, lithium battery and EV manufacturers
- Technical and commercial cooperation agreements in place
- Non-binding offtake commitment with POSCO



# Proprietary processing technology



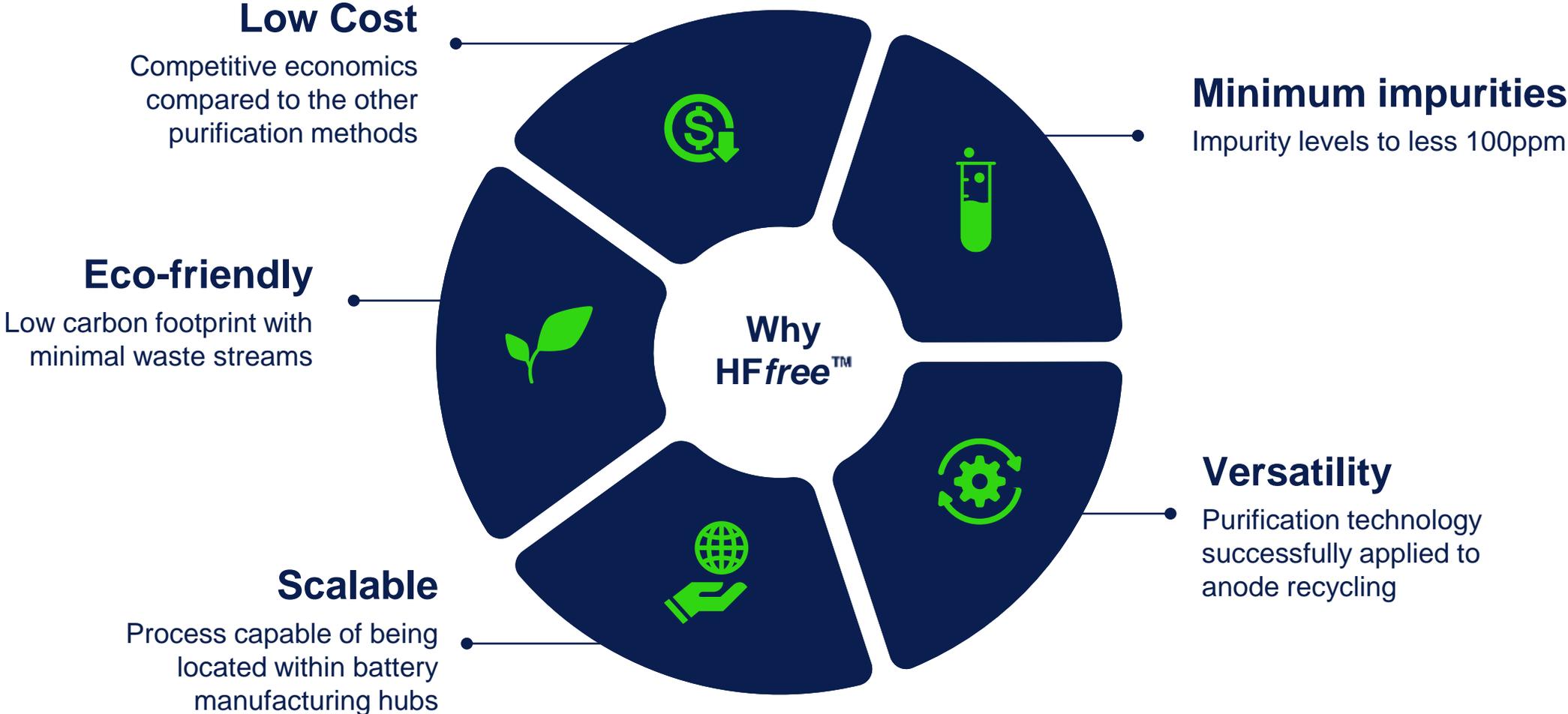
## Patent protection - International Examining Authority deems all 25 patent claims novel and inventive

- US Patent Granted.
  - ✓ Product made (outside of the US) by a patented process (patented in the US), would be an infringement when imported into the US
- Patent submissions have been lodged by EcoGraf in all key battery markets to protect the IP : EU, Korea, Malaysia, Vietnam, East Africa and South Africa.
- Filed a request to amend its claims into allowable form with respect to its Australian Patent application. The amendment request is currently being progressed at IP Australia

## Proprietary purification process provides cost competitiveness market materials

- High Purity Battery Anode Material - >99.99% achieved
- Patent covers 'anode recycling'

# EcoGraf HFfree™ process advantages



# EcoGraf HFfree™ purification cost advantage

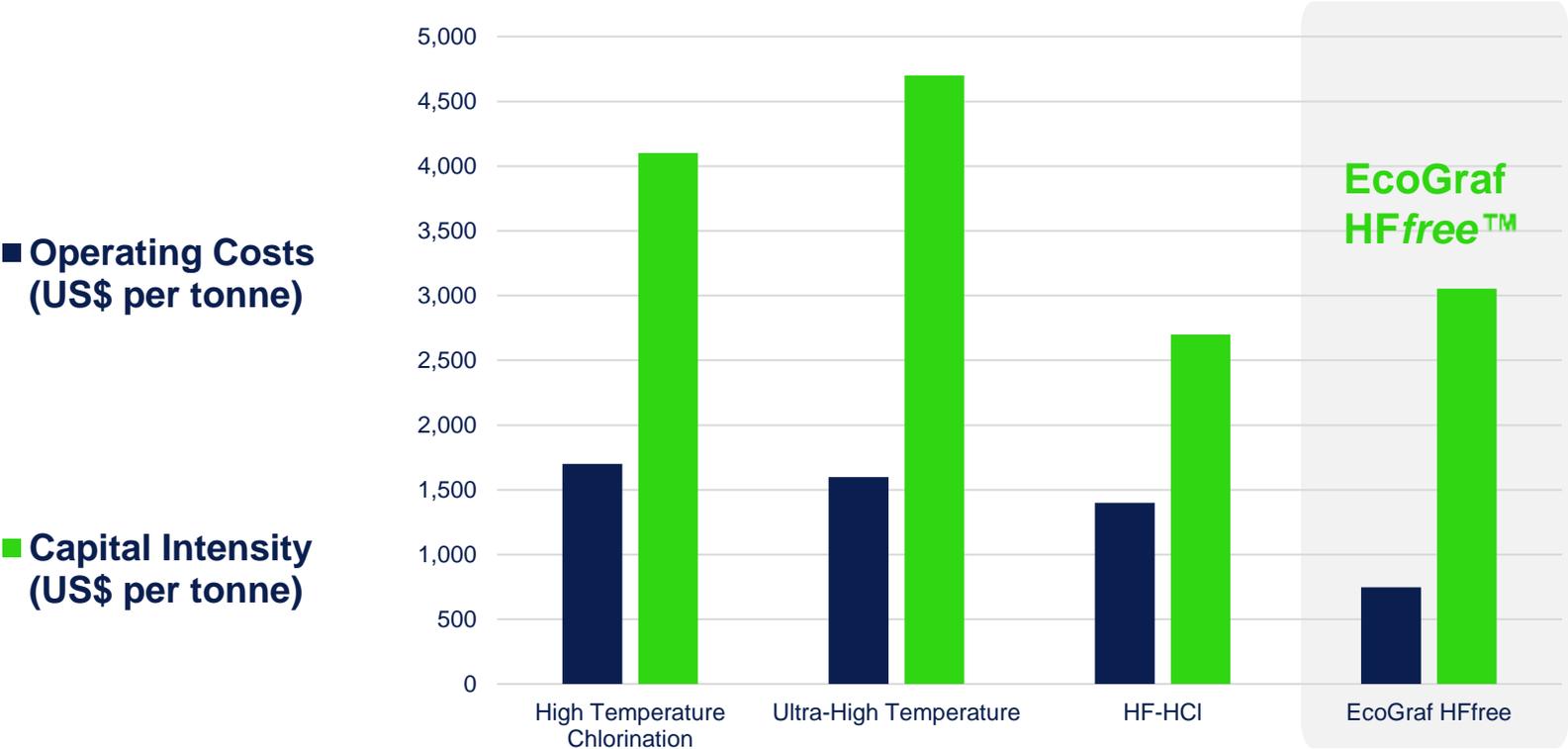


Cost comparison conducted by global engineering & construction consultancy, comparing EcoGraf HFfree™ purification vs three other technologies in use based on a 25,000tpa reference base

EcoGraf HFfree™ products will be produced at competitive cost and provide a high purity, low emission alternative to existing supply chains.

Following extensive product testing with leading battery market participants, EcoGraf intends to evaluate development options in Europe, North America and Asia

Cost advantage confirmed via independent benchmarking study



Refer to ASX announcement "Study Confirms EcoGraf HFfree™ Process Cost Advantages", dated 11 July 2024

# Product Qualification Facility (PQF)

## Facility located in Perth, Western Australia

PQF piloting facility developed for purification of Spherical Graphite (SpG) feedstock - capability 5kg/hr

- ✓ PQF successful commissioning
- ✓ The first continuous run using unpurified spherical graphite concentrate completed
- ✓ Systems in place for commercial campaign runs



## CAUSTIC TREATMENT SECTION

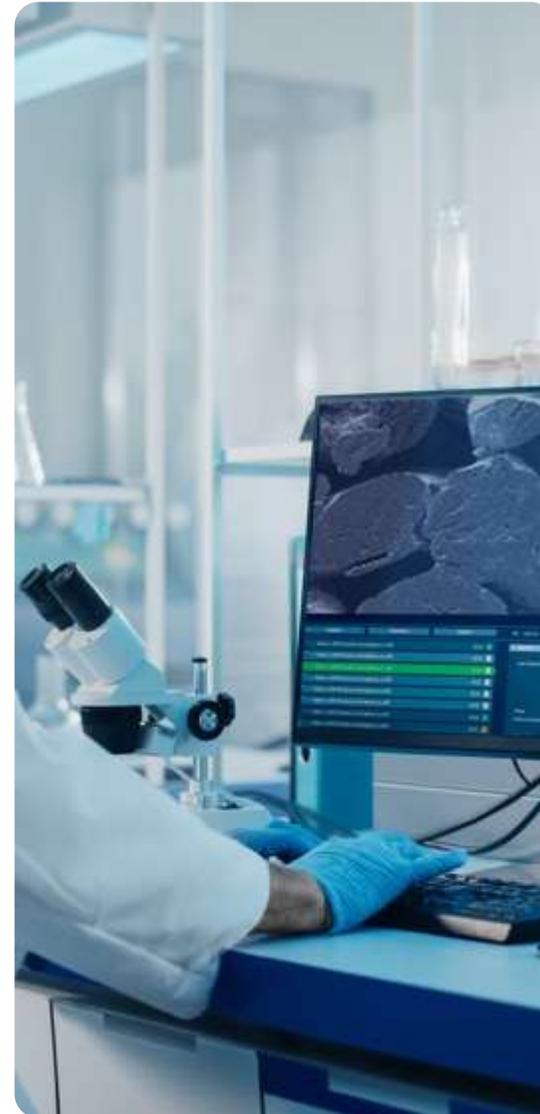


## ACID TREATMENT SECTION

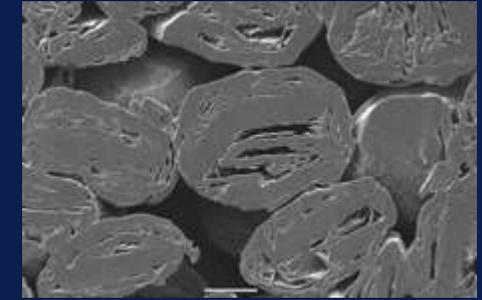


## Achieved 99.99% C demonstrating efficiency of purification process

- Purification of natural spherical graphite (SPG) has recently achieved 99.99% carbon, which exceeds the standard customer industry requirement of 99.95% carbon for natural spherical graphite.
- Optimisation testwork expected to result in further process efficiencies.



**GRADE:  
EPANKO PURIFIED SPG15**



Total impurity levels are less than 100ppm and now higher purity than synthetic

# RECYCLE



EcoGraf™ purification technology applied to lithium-ion battery recycling

## Priorities

Testwork programs with feedstocks supplied by EV and battery manufacturers

Collaboration with battery and EV market participants

# Anode Recycling



EcoGraf HF<sup>free</sup>™ purification supports closed loop recycling and circular economy

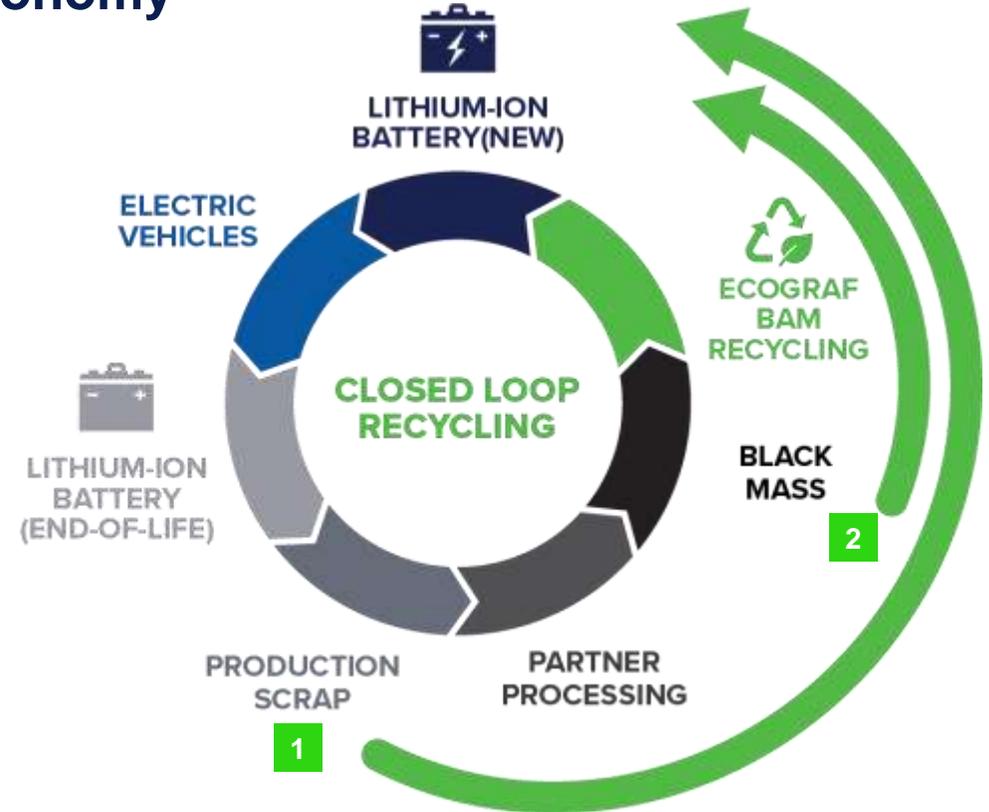


- Recovery of battery anode materials to provide customers with lower battery costs and support a reduction in battery and EV CO<sub>2</sub> emission footprints:

**1** Production Anode Electrode:

**2** Leached Black Mass:

- EV and battery manufacturers actively responding to recent EU and US legislation to encourage battery recycling



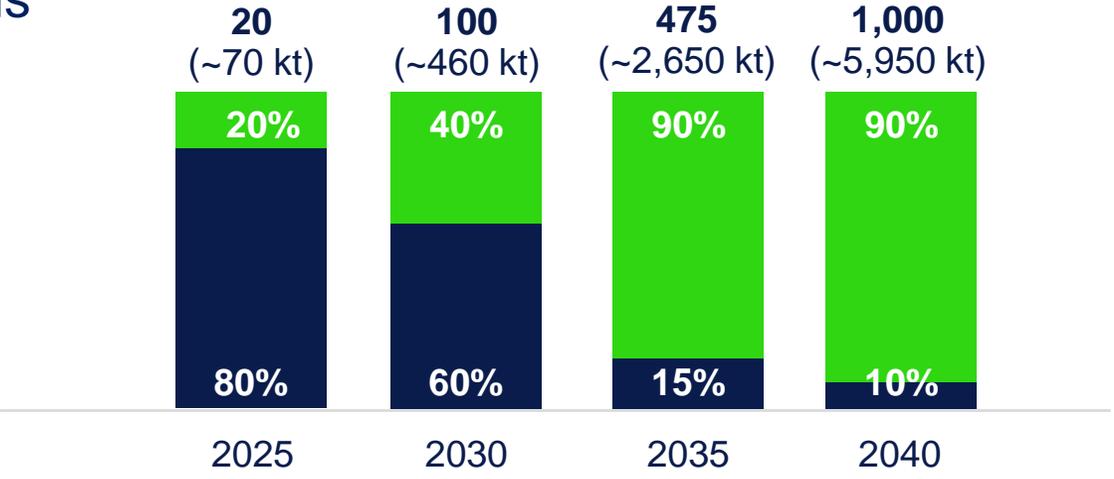
## Collaborating with



# Europe's lithium-ion battery recycling market

EcoGraf's strategy on production anode scrap is aligned with Europe's forecast recyclable materials.

- Production scrap to dominate 2025 to 2030 volumes
- End-of-life batteries increase market volumes from 2030
- Long-term production scrap rates targeting ~10% battery manufacturers
- EU legislating the use of sustainably produced raw materials and lower carbon emissions



## LITHIUM-ION BATTERY ANODE MATERIAL STREAMS

- 1 Scrap > Production anode scrap (copper + graphite)
- 2 EoL > End of life batteries

Source: [www.strategyand.pwc.com/de/en/industries/automotive/recycling-european-battery.html](http://www.strategyand.pwc.com/de/en/industries/automotive/recycling-european-battery.html)

# Purification results for anode recycling



## Positive results achieved over last 3-years

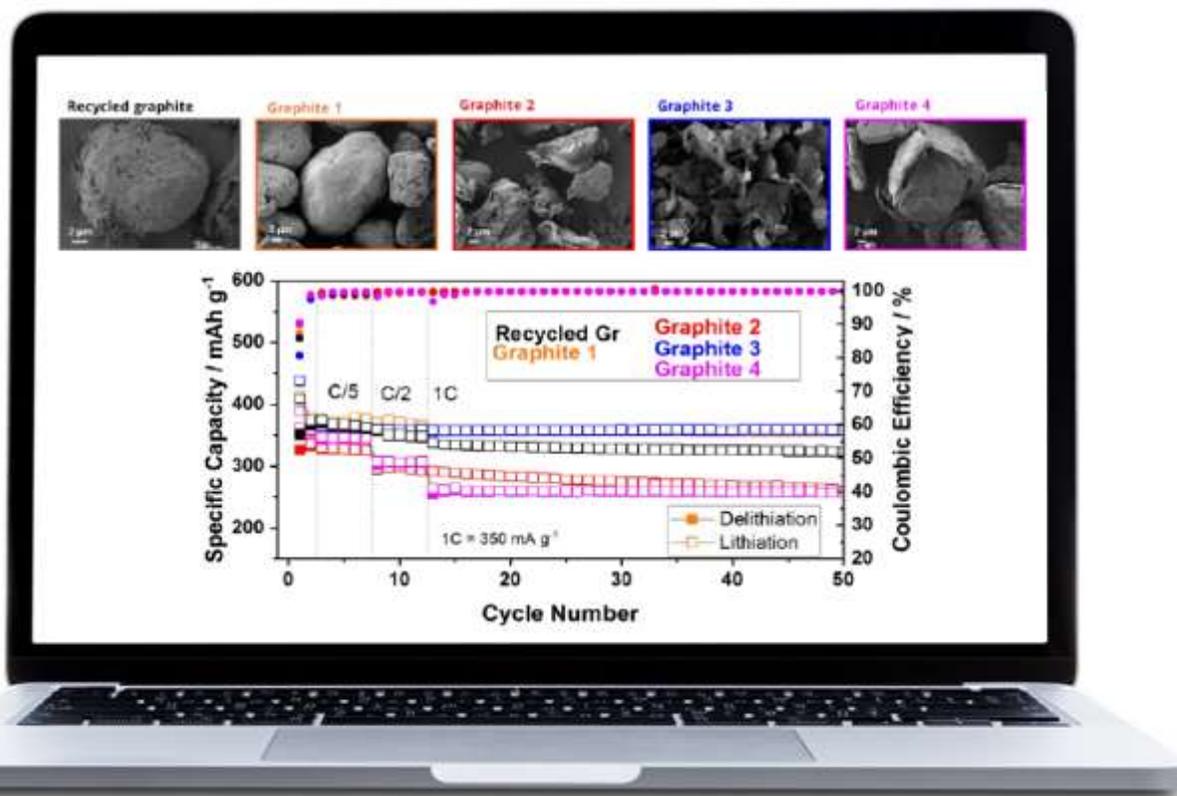
Company	Product	Carbon Grade after EcoGraf HFfree™ Purification	High Purity Industrial Markets	Li-ion Battery Anode Market (>99.95)
Recycler	End of Life	99.80%	●	
EV	Production Scrap	99.97%		●
EV	Production Scrap	99.92%	●	
Battery	Production Scrap	99.98%		●
Recycler	End of Life	99.50%	●	
Recycler	Production Scrap	99.98%		●
Chemical	End of Life	99.17%	●	
Research	End of Life	99.20%	●	
Recycler	Production Scrap	99.77%	●	
Recycler	End of Life	99.80%	●	

Refer to ASX announcement "Lithium-ion Battery Anode Recycling Pilot Plant", 16 August 2021

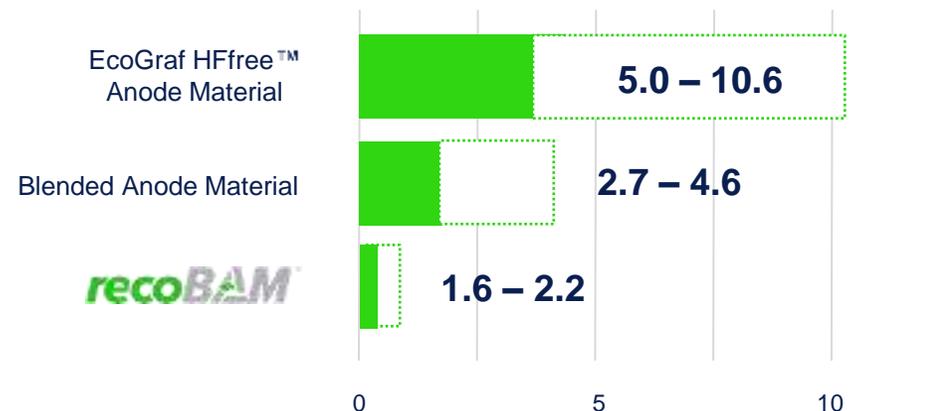
# Recycled anode material performance & recognition

Helmholtz - Institute: EIT award winning German research program confirms RecoBAM™ matches the electrochemical performance of newly manufactured commercial battery graphite

Electrode contains: **95% recycled graphite** (+3% SBR, 1% CMC, 1% C45)  
Olutogun *et al.* Manuscript in preparation

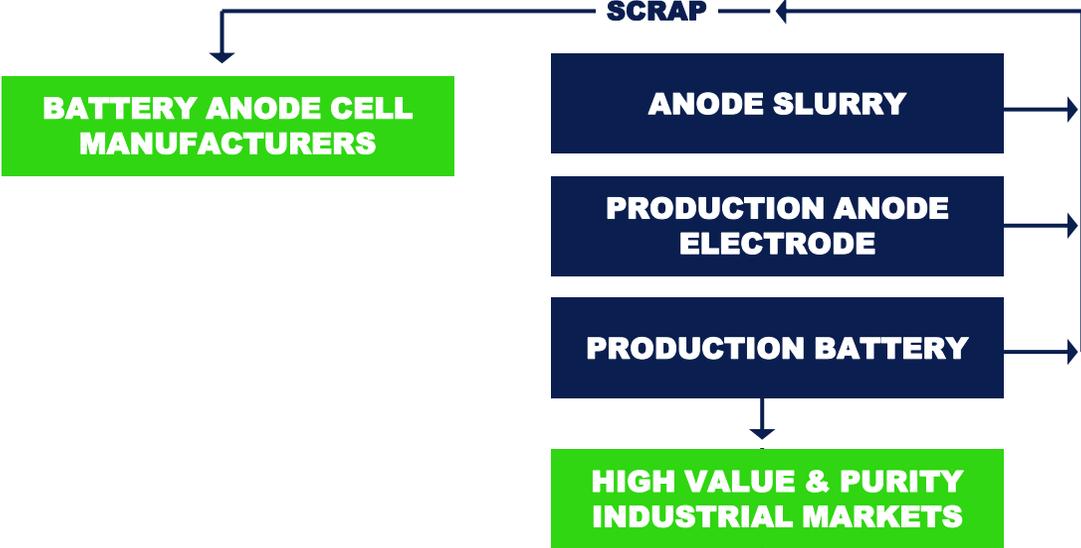


## GLOBAL WARMING POTENTIAL KG CO<sub>2</sub> EQ. PER KG CSPG

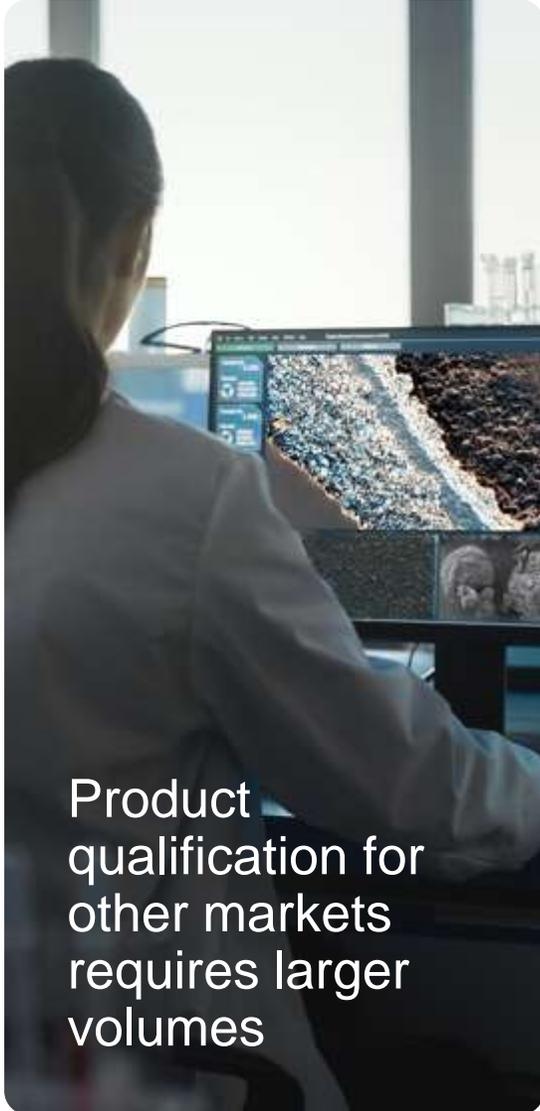


- recoBAM almost zero levels of CO<sub>2</sub>
- Blending (2:1) significantly lowers the CO<sub>2</sub>
- 1000 cycles to now achieved in cells

# Piloting next steps



Anode material recycling supports the circular economy and provides a near zero carbon footprint



Product qualification for other markets requires larger volumes



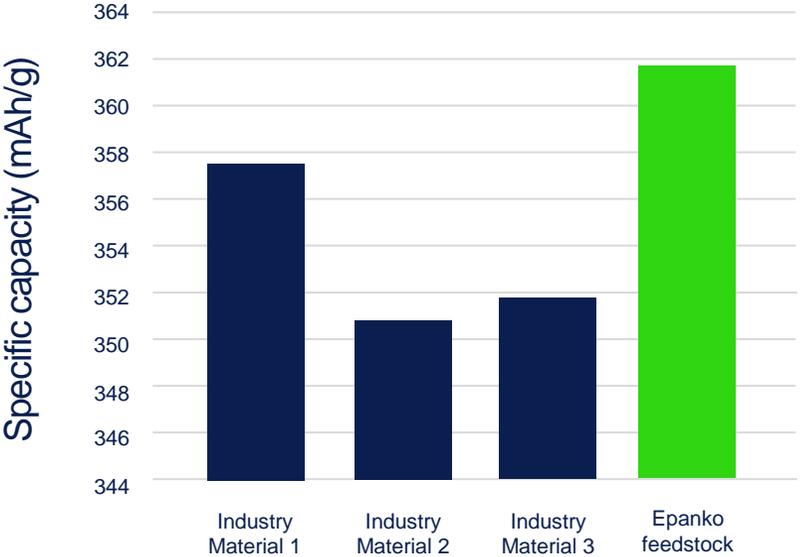
NATURAL	SYNTHETIC	
✓	✓	Alkaline and zinc carbon batteries
✓	-	Friction materials
✓	-	Refractories
-	✓	Carbon additives

# High performance graphite with low emissions



EcoGraf HFfree™ anode material delivers improved battery performance and significantly lower CO<sub>2</sub>

## SUPERIOR BATTERY PERFORMANCE



## LOW CO<sub>2</sub> FOOTPRINT



(LCA Study at ISO)

# Government recognition



THE WHITE HOUSE  
WASHINGTON

- EcoGraf included in US White House briefing room statement.
- Epanko included in Joint Statement of the Minerals Security Partnership (MSP) in Press Release by US Department of State noting the KfW IPEX-Bank US\$105m funding



- EcoGraf invited to round table discussion with German President, Frank-Walter Steinmeier and President of Tanzania H.E Samia Hassan

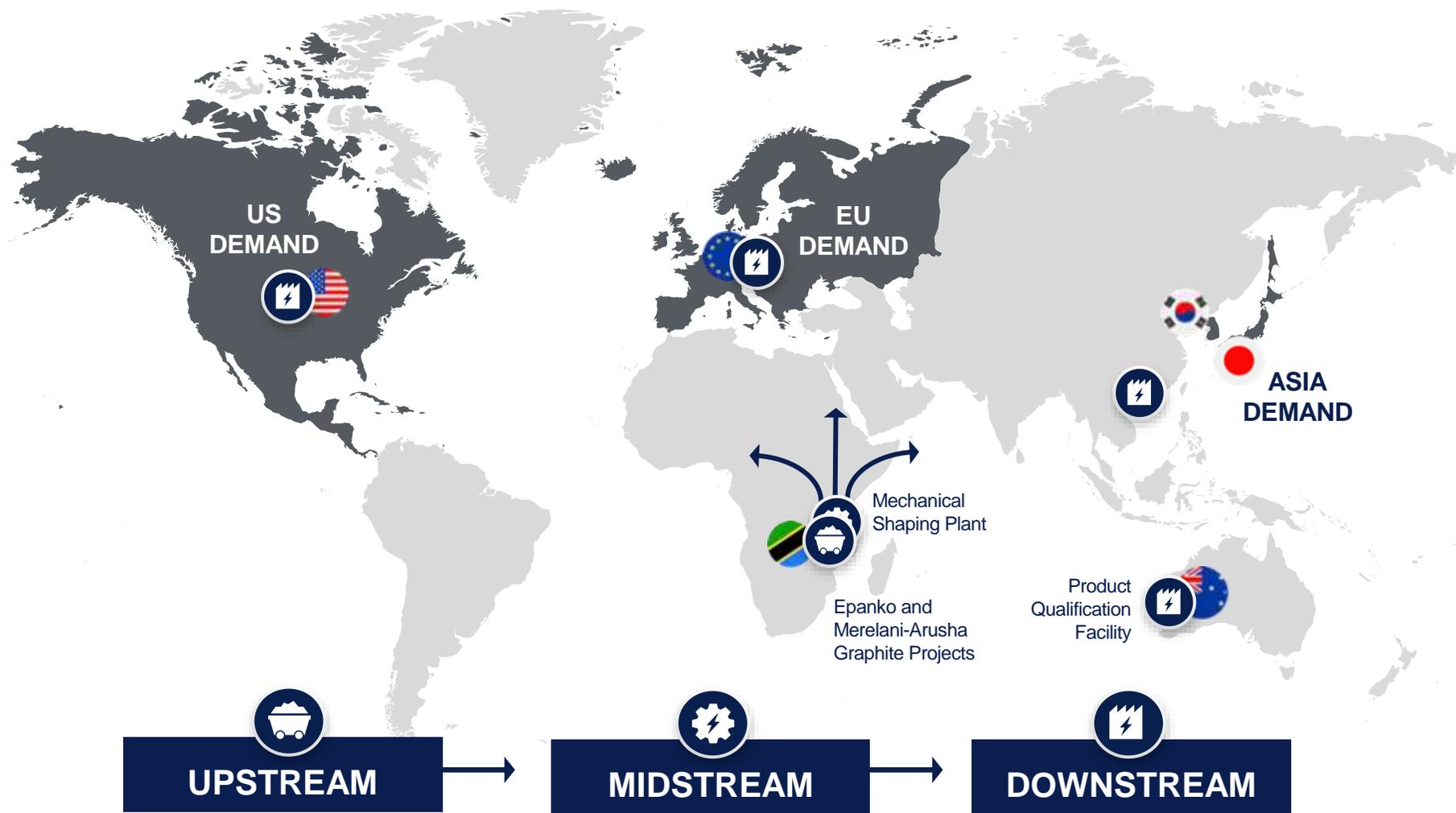


- Major Project Status
- Australian Minister for Resources, Hon Madeleine King visits EcoGraf at IMARC event to discuss latest developments.

Recognition and support from US, Germany, Tanzania and Australia

# Compelling value and investment proposition

Significant value in each business development stream with value multiplier expected on delivering the vertically integrated business



## KEY ADVANTAGES

Vertically Integrated

Cost Competitive

ESG Position

Expansion Potential

# Other value drivers

AngloGold Ashanti **US\$9.0m (A\$13.5m)** Gold 5-year Farm-in Agreement on EcoGraf's Golden Eagle Project

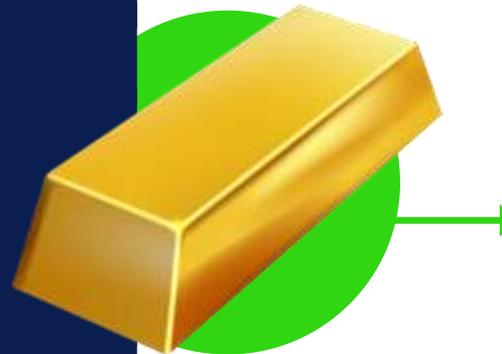
- Project located in the world class +70 Moz gold Lake Victoria Goldfields<sup>1</sup>
- Area covers the direct interpreted northeast continuation of the Banded Iron Formation (BIF) that hosts the high-grade Winston gold deposit- **16m @ 55.23g/t gold from 116m<sup>2</sup>**
- Several highly prospective untested gold prospects identified

Provides upside exposure to the rising gold price for our shareholders

Tanzania is Africa's third largest gold producer

AngloGold is one of the world's largest gold miners and owner of Tanzania's largest gold mine, the 9.9Moz Geita gold mine.

EcoGraf holds further gold, nickel and lithium exploration assets in Tanzania



1. Refer [www.anglogoldashanti.com/portfolio/Africa/geita](http://www.anglogoldashanti.com/portfolio/Africa/geita)

2. Refer Tanga Resources Limited ASX announcement 17 July 2017 and ASX announcement "127% Increase in Epanko Mineral Resource, 11 March 2024



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