# TIRUPATI GRAPHITE PLC



## Building a Sustainable Global Graphite Operation for enabling the Energy and Mobility Transition



Listed in the Main Board of London Stock Exchange

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## MISSION & VISION

Multi Asset - Multi Jurisdiction - Sustainable Producer

#### Mission

Meeting the global needs for flake graphite, a critical material for energy transition and sustainability, and **to secure the world's needs of this Critical Mineral**. In doing so, contribute to improving the quality of life of the communities we work in, and minimize the impacts of our activities on the environment.

#### **Near-Term Target**

Become **the leading ex-China producer of graphite** for Li-ion batteries and the energy transition, by creating capacities in sync with market growth.

#### **Medium-Term Target**

Produce flake graphite to serve 8% of global flake graphite demand by 2030



## THE OPPORTUNITY



TG is one of the few producers of Natural Flake Graphite a classified critical mineral outside China

## DEMAND



Graphite is the largest material component of a Li-ion battery + has many other applications

Total demand expected to increase 5 times over the next 10 years<sup>1</sup>

## POLICIES



IRA (USA) and CRMA (EU) providing framework for development of ex-China supply chain for e-mobility

Global supply diversity a priority to reduce dependence on one nation, that is imposing restrictions too

## TG A FRONTRUNNER





The only company having consistently reported operational profits since inception (3+ years)

Second company globally to have brought significant new capacity in production ex-China

Expected to be the first amongst peers to be profitable at corporate level

## **KEY DIFFERENTIATORS**

Natural Flake Graphite is a classified critical mineral in USA, EU, UK and more locations

Quality Assets & Resources

Diversified & Multi-locational

Madagascar & Mozambique

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Scaling step

by step Producing commercially, supplying across continents – USA, Europe, Asia



Advanced Proven Technologies

**Sustainable** 

Producer

Much lower energy

consumption, lower waste,

high recovery, moving

towards renewable energy

Automated processes, proven at large scale



#### Experienced Team

>150 years cumulative experience in graphite



Serving across sectors Small & Large flakes available

across projects, serve all applications



Established at large scale, one of industry lowest due to efficient technologies

IRA & CRMA compliant materials One of the handful producers ex-China, a requirement for OEMs to

get benefits under these policies



Production

capacity

45%+

Operational Margins

### 150+ million

tons JORC resource

Complete

Product Basket

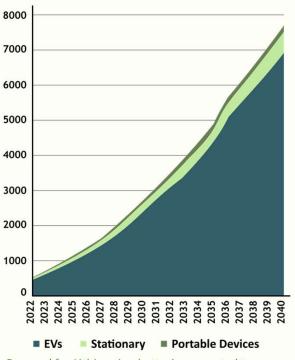
**Ex-China** 

Producing & Selling

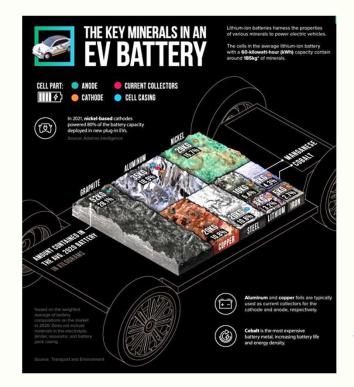
## **GRAPHITE - THE LARGEST BATTERY MATERIAL**



#### Lithium-ion Battery Capacity (GWh)



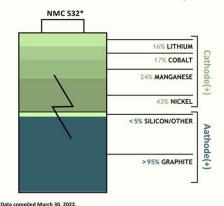
Demand for Lithium-ion batteries expected to grow drastically for EV adoption, being the primary commercial battery technology for EV adoption<sup>1</sup>



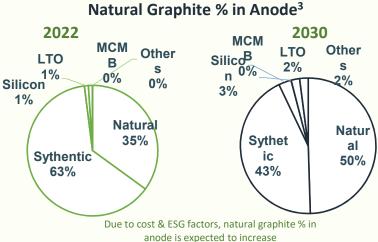
Graphite is the largest mineral constituent of a lithium-ion battery by weight

#### Graphite is 28%+ wt of a LiB

#### GRAPHITE >95% of the LiB anode is Graphite<sup>2</sup>



\* NMC 532 = nickel-manganese-cobalt lithium-ion battery. Percentages listed



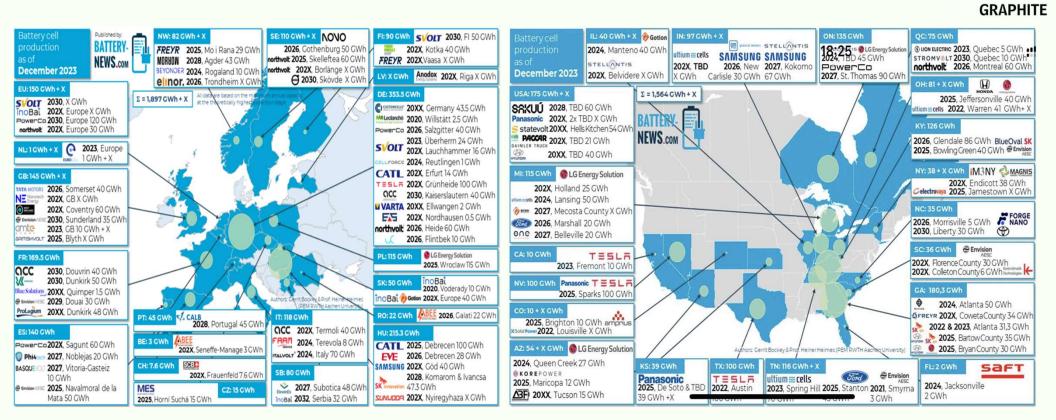
Source: Benchmark Mineral Intelligence Flake Graphite Forecast, Q3 2023. 2. Source: Visual Capitalist; Visualising the key minerals in an EV battery

Source: S&P Global Market Intelligence

Benchmark Mineral Intelligence Flake Graphite Forecast, Q3 2022

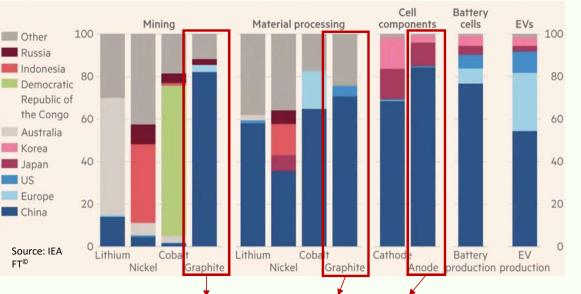
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## **BATTERY & EV CAPACITY LANDSCAPE**



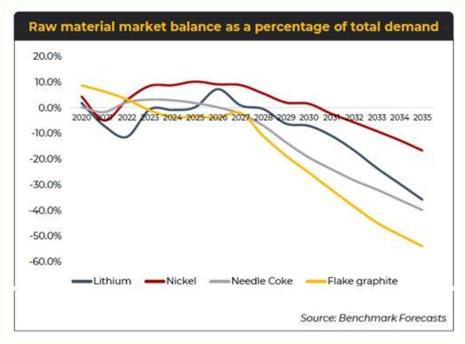
- → Upcoming Battery Capacity is >800 GWh by 2030 each in the USA & Europe.
- → USA followed by EU is moving to become the next large Battery manufacturing hub new mineral supply needed.

## **GRAPHITE SUPPLY DYNAMICS**



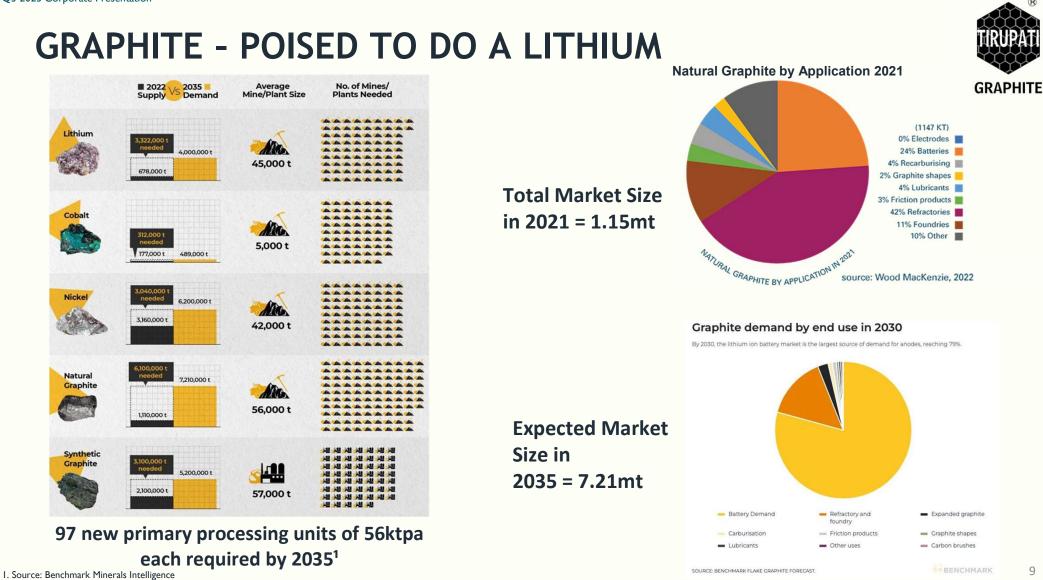
#### **Current Supply Chain for Li-ion Batteries:**

- China dominates the entire downstream processing value chain for battery minerals to the EV production, with 100% of downstream processing concentrated in China & East Asia
- Strikingly, for the anode, China controls the entire supply chain from mine to anode. Graphite is the only mineral which is fully dominated and controlled by 1 single nation.



Flake Graphite supply is expected to go into deep deficit within a few years





# GRAPHITE

## TG AHEAD IN THE RACE

#### **GESTATION & TIMELINE**



- TG strategy made it a producer just at the right time and in the right size
- TG is ready to expand with markets

#### **TECHNOLOGY & KNOW HOW**

- ✤ TG has a team with >150 years in the industry.
- \* TG started commercial sales from it projects within weeks of start of commissioning
- Has the ability to set up modular units at its projects both in Madagascar and Mozambique
- Historically, China, India and Brazil have been the main producers of natural graphite globally, experience is minimal in other locations
- Flake graphite is a niche mineral, processing and finishing controls require a learning curve

#### **FINANCIAL PRUDENCE**

- Low CAPEX requirements & C1 level profitability since inception
- Funding of growth organically and through debt within reach with significant operations at the cusp or profitability.

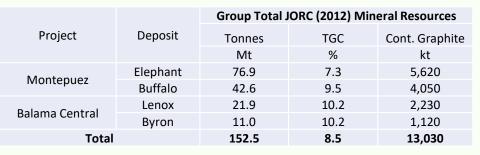
## MADAGASCAR PROJECTS

Sahamamy 8km<sup>2</sup> mining permit 18,000 tpa capacity operations Vatomina Project 25km<sup>2</sup> mining permit 12,000 tpa capacity operations 30 to 36ktpa - immediate term. 36 to 90ktpa - grow per market growth

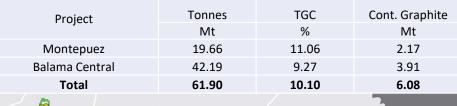




## MOZAMBIQUE PROJECTS - ADDS 12X RESOURCE + SMALL FLAKES



#### Group JORC (2012) Probable Ore Reserves





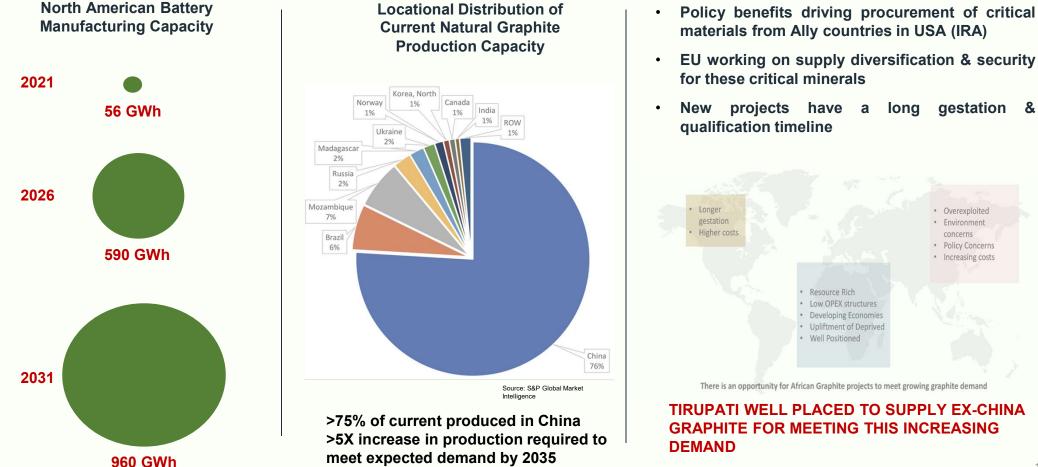
*	158,000tpa Natural Flake Graphite production permits can expand TG expects to have first 50,000 plant up and running H1 2025	٠	Complements TG's graphite majority large flake product basket in Madagascar with mix of 60-70% small flakes in Mozambique
*	Lays the foundation for TG to capitalise on the visible market opportunities	*	Provides extensive resource to meet long- term customer requirements for EVs
*	Adding mineral Resources of 152MT @ 8.5% TGC, Reserves of 62MT @ 10.1% TGC	*	Largest Natural Graphite producing region outside China



## AIMS TO SERVE 8% OF GLOBAL GRAPHITE DEMAND



GRAPHITE



- materials from Ally countries in USA (IRA)
- EU working on supply diversification & security for these critical minerals
- New projects have a long gestation & qualification timeline



There is an opportunity for African Graphite projects to meet growing graphite demand

TIRUPATI WELL PLACED TO SUPPLY EX-CHINA **GRAPHITE FOR MEETING THIS INCREASING** 

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## FINANCIAL STRENGTH



Financial Parameter	Tirupati's Unique Position	
CAPEX	Built 30,000 tpa production capacity in Madagascar at total CAPEX of £13.5 million including project infrastructure, exploration and evaluation. This is the lowest CAPEX intensity amongst planned and existing listed peers.	
OPEX and BASKET PRICE	Reported OPEX of $\pounds$ 321/MT for 4770 tons produced in FY23 and basket price realisatiion of > $\pounds$ 600/MT consistently for 3 years	
OPERATING MARGINS	>45% operating margins for FY23, EBIDTA positive at corporate level expected near term.	
DEVELOPMENT COSTS	In house exploration and drilling, evaluation and engineering, and development throughout its journey key to its industry lowest cost ecosystem.	
DEBT POSITION	Build its stage 1 with equity –no significant debt obligations. With growing operations future investment through debt is visible and preferred	
EBITDA	TG is on the brink of being EBITDA positive at the corporate level as it expects to surpass the break even level ramping up production in Q3FY24	



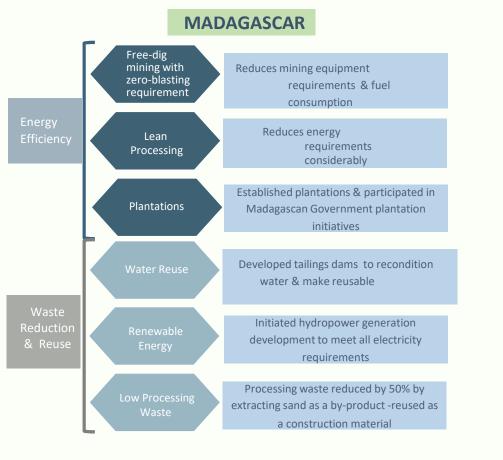
## FINANCIAL PERFORMANCE

With operating profits from inception, TG expects to report profitability at corporate level in the near term

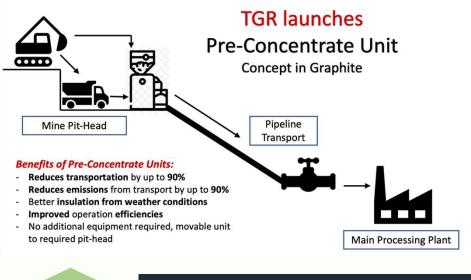
Particulars	Units	FY March23	FY March22	FY March21
Total Production	МТ	4,770	2,996	1,718
Mining & Processing costs	£	1,512,563	935,604	304,975
Human Resources costs	£	326,783	378,671	228,731
Logistics utilities & plant admin costs	£	368,061	308,278	52,784
(Increase) / Decrease in inventory of inputs	£	(676,058)	(485,357)	(98,407)
Total Costs of Production (Excl. Depreciation)	£	1,531,349	1,137,196	488,083
Cost per MT of Production	£	321	380	284
Total Sales Volume	MT	3,982	2,662	1,857
Total Revenues	£	2,890,010	1,645,308	1,123,426
Average Selling price per MT of Production	US\$ / £ per MT	875 / 726	841 / 618	801 / 605
Gross Profit before Depreciation	£	1,358,661	508,112	635,343
Gross Margin on Sales	%	47%	31%	57%

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## **TIRUPATI'S GREEN TECHNOLOGIES**



#### **Innovative Processing Technology: PCUs**





#### Initial 100Kw hydropower facility operational

Additional 500 Kw hydropower capacity studies completed for implementation

Further studies for prospects c. 500Kw to be initiated

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GRAPHITE

## **OUR ESG PROFILE**





CARBON EMISSIONS REDUCTION & MITIGATION

- Natural flake graphite emissions footprint lower than synthetic graphite (over lifecycle)
- Continuous re-planting and seeding of vegetation nurseries and slope stabilisation
- Renewable energy growing as source of project power



LEADING REPORTING FRAMEWORKS

- Sustainability reporting under GRI standards & UN SDG
- Overseen by sustainability committee comprised of members across the company
- Internal framework adopted for anticipating and mitigating risks across company for ESG components



#### TRACEABILITY

- Simple auditable chain of custody with products shipped straight from site
- All processing in-house on site
- Extensive QC/QA systems tailor designed per plant operations
- TQM framework in process

## POLICY DRIVEN, EX-CHINA GRAPHITE A NECESSITY



#### USA POLICIES / ACTS TO SECURE & BATTERY SUPPLY CHAIN

>US\$130B has been deployed for developing battery supply chain by USA

#### **1. Inflation Reduction Act (IRA):**

IRA makes new and used EVs more affordable for consumers with tax credits supporting using critical minerals and battery components from the United States and allied nations.

This is driving cell manufacturers to replace their source of these critical raw minerals from China to Ally countries of USA.

Tirupati is one of the very few producers of Natural Flake Graphite outside China, which makes us ready for commercial qualifications.

#### EU POLICIES / ACTS TO SECURE BATTERY SUPPLY CHAIN

The EU has formed a European Battery Alliance to facilitate diversification of the battery supply chain & manufacturing

1. <u>Critical Raw Materials Act (CRMA)</u>: Providing incentives to on-shore raw materials extraction and midstream processing

2. <u>Green Deal Industrial Plan</u> Supporting the scale-up of Europe's manufacturing industries

#### 3. Minerals Security Partnership:

14 nations collaborating to improve diversity of supply and security of supply for Critical Minerals

## **TIRUPATI'S UNIQUE POSITION**



EX-CHINA INDUSTRY LEADING CAPEX & OPEX <u>CURRENT PRODUCER</u> ONLY c.£25M INVESTED TO DATE	POSITIONED TO GROW INTO GLOBAL UPCOMING DEMAND - ALREADY EARNING EX- CHINA MARKET SHARE	SUSTAINABLE FOCUSED ALTERNATIVE SUPPLY SOURCE SUSTAINABILITY STRATEGY REDUCING OPEX COSTS AND INCREASING CUSTOMER INTEREST	QUALITY ASSETS & RESOURCE PROVIDING EX- CHINA DIVERSITY OF SUPPLY • MADAGASCAR • MOZAMBIQUE	
CAPACITY Mozambique:	000TPA; TARGETING 84,000TPA ON INITIATED & PERMITTED JDIES UNDERWAY	<ul> <li><u>PROVEN_OPERATIONAL TRACK RECORD</u></li> <li>DECADES OF GRAPHITE LEADERSHIP &amp; MANAGEMENT EXPERIENCE</li> <li>SUCCESSFUL CONSTRUCTION AND COMMISSIONING OF BROWNFIELD AND GREENFIELD PROJECTS</li> <li>QUICKLY IMPROVING OPERATIONAL AND FINANCIAL PERFORMANCE OPENING DEBT OPTIONS FOR GROWTH</li> </ul>		

#### CONTACT

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Thank You

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