



Nachu Graphite Project  
– BFS Update 2022



# Forward-looking Statements

All statements in this announcement, which address or could be inferred to address future economic returns, production, reserve or resource potential, exploration drilling, exploitation activities and events or developments that the Company expects to occur, and could be construed as forward-looking statements, such statements are not guarantees of future performance and actual results or developments may differ materially from those in forward-looking statements.

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**NPV<sub>10</sub> US\$1.2bn &  
51% IRR**

Strong Cash Flows driven by high operating margins



Attractive  
Project Returns

**99% TGC**

Very high purity is a key differentiator to other Graphite Projects



Very High Purity  
Concentrate

**Over 40% in Jumbo &  
Super Jumbo**

Coarse flake for Specialised Industrial Markets



Premium  
Flake Pricing

**Special Economic  
Zone License**

Significant Fiscal Benefits for Production and Export of Value-added Graphite Products



Advanced  
Graphite Products

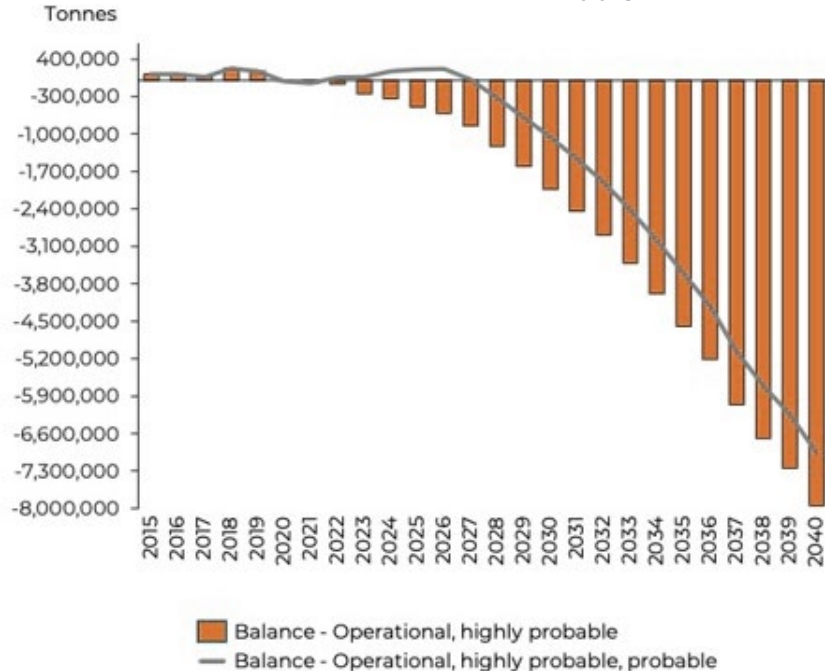
# Favourable Demand Supply Dynamics

## Prices Expected to Remain Attractive

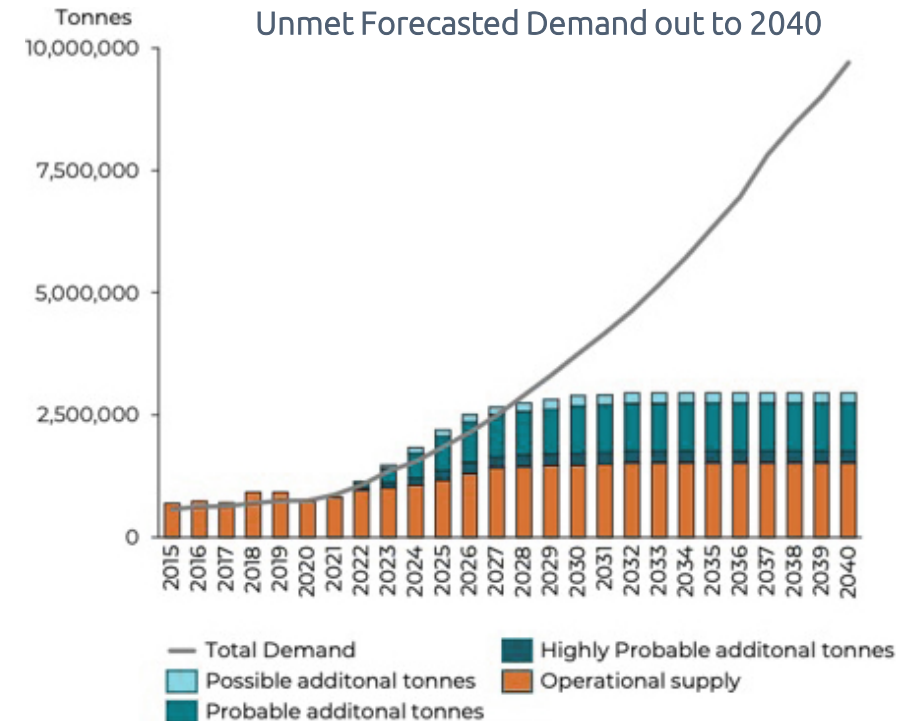
- BMI forecast a significant deficit in the supply of anode materials for the Li-ion battery industry from 2025 onwards based on:
  - Expected growth rates in Li-ion batteries; and
  - Lack of supply of raw materials including natural flake graphite
- To meet demand for anode materials, an estimated 97<sup>1</sup> natural flake graphite mines will need to be built by 2035.

- Graphite has been declared a critical mineral in the USA, EU, UK, Japan and Australia given its importance to the global transition to clean energy and high supply risk.
- A strong increase in demand for graphite sourced from Africa is expected, particularly East Africa, where several projects are currently under development and will need to come online to meet projected demand

### Forecasted Natural Flake Supply Deficit



### Unmet Forecasted Demand out to 2040



1. BMI calculations assuming an average plant size of 56,000 tonnes a year and no contribution from recycling.





Magnis has a long history in Tanzania (> 10 Years) and our Nachu Graphite Project is a significant asset, involving :

- Proposed Mine development
- Production of advanced graphite products



Uranex and Magnis Technologies are owned by Magnis Energy Technologies Ltd

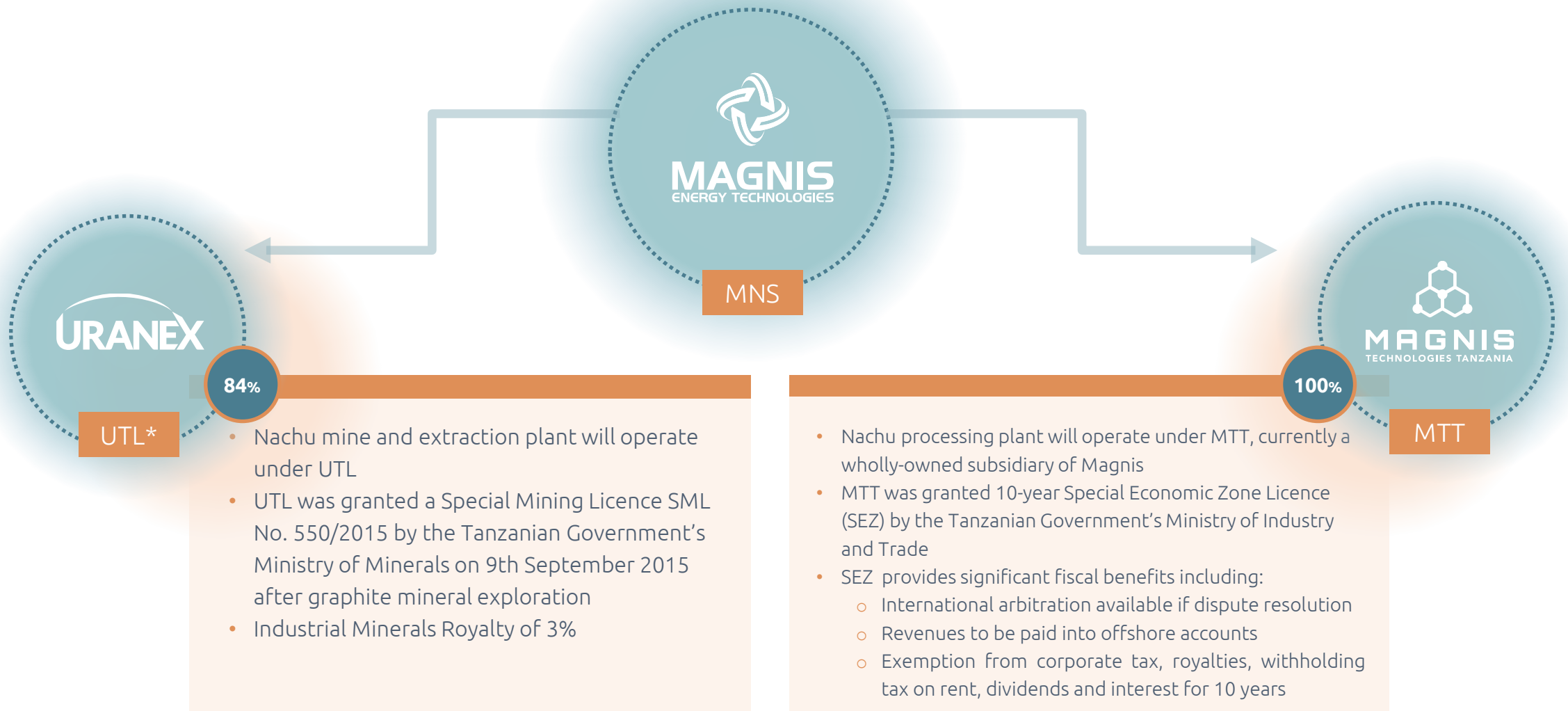


Our Nachu Project is located in Ruangwa District, Lindi region covering an area of 29.77 km<sup>2</sup> approximately 220 km by road from the port of Mtwara.



Our Nachu resource is one of the largest mineral resources of flake graphite in the World. 59% in Fine, Medium & Large Flake, 32% in Jumbo and 9% in Super Jumbo





UTL\*

84%

- Nachu mine and extraction plant will operate under UTL
- UTL was granted a Special Mining Licence SML No. 550/2015 by the Tanzanian Government's Ministry of Minerals on 9th September 2015 after graphite mineral exploration
- Industrial Minerals Royalty of 3%

MNS

100%

MTT

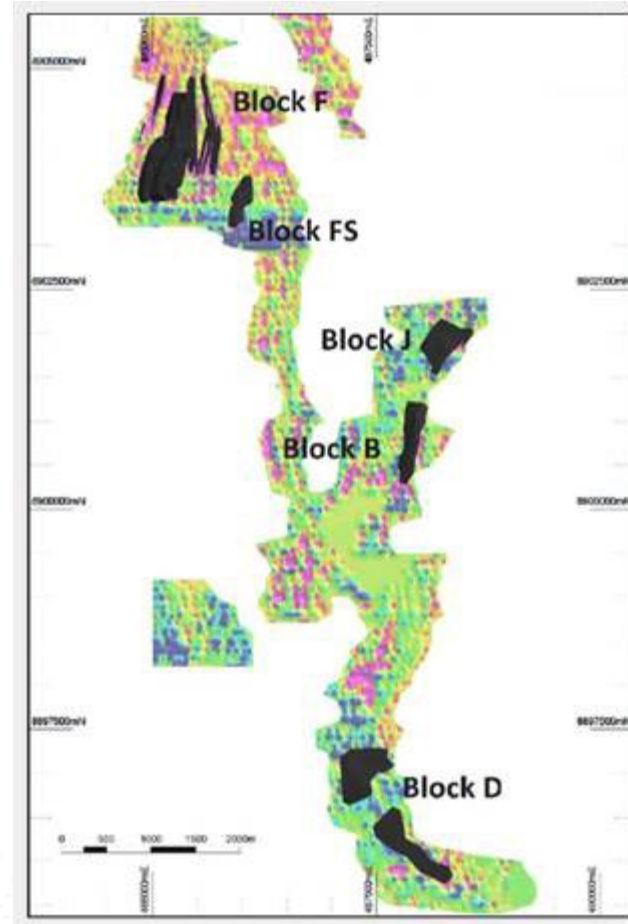
- Nachu processing plant will operate under MTT, currently a wholly-owned subsidiary of Magnis
- MTT was granted 10-year Special Economic Zone Licence (SEZ) by the Tanzanian Government's Ministry of Industry and Trade
- SEZ provides significant fiscal benefits including:
  - International arbitration available if dispute resolution
  - Revenues to be paid into offshore accounts
  - Exemption from corporate tax, royalties, withholding tax on rent, dividends and interest for 10 years

\*16% stake in this entity expected to be granted to the Government of Tanzania as Free Carried Interest

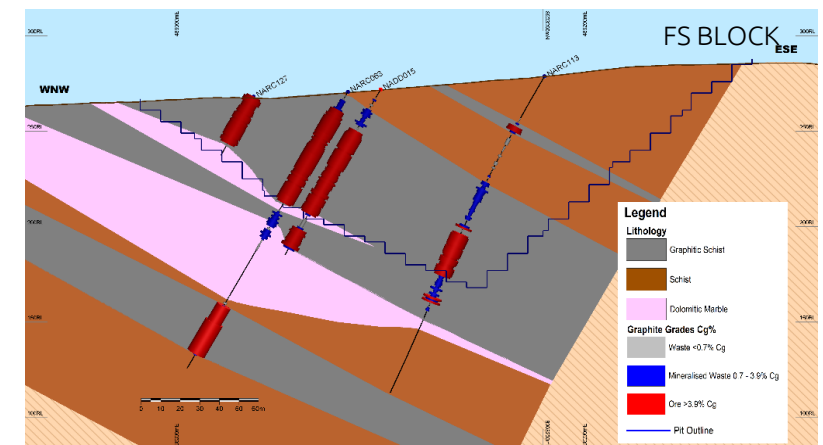
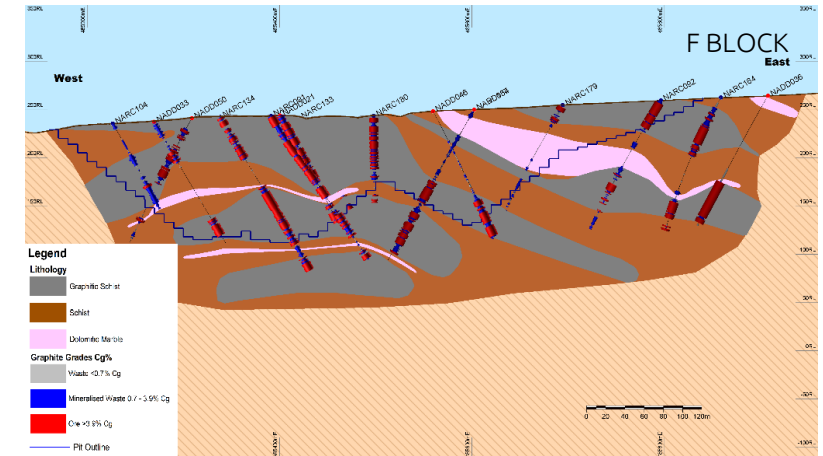


- Over 85% of the total Mineral Resource is less than 150 m from the surface and no greater than 250 m maximum depth.
- Two open pits – F & FS with F block as the major deposit
- F & FS blocks both exhibit coarse flake properties with impurities on the surface, not within the crystalline structure
- Graphitic schist with later stage dolomite intrusives resulting in high purity and ordered crystal structure
- Impurities on the surface not within the crystalline structure

Five deposits – Blocks B, D, F, FS & J



Two ore bodies – Blocks F and FS



## Mineral Resource

- 174mt at 5.4% Total Graphitic Carbon (TGC) for 9.3mt contained graphite
- Potential mine life of 40 years
- 71% Measured and Indicated
- Current resource covers only 2% of prospecting licence area

## Ore Reserves

- F and FS block have 76mt 4.8% TGC LoM for 3.7mt contained graphite with steady state production from years 2 to 12 at 5.2% TGC
- Mine life of 15.5 years
- Significant further high-grade resource conversion potential
- Contains material amounts of high value super jumbo and jumbo flake graphite

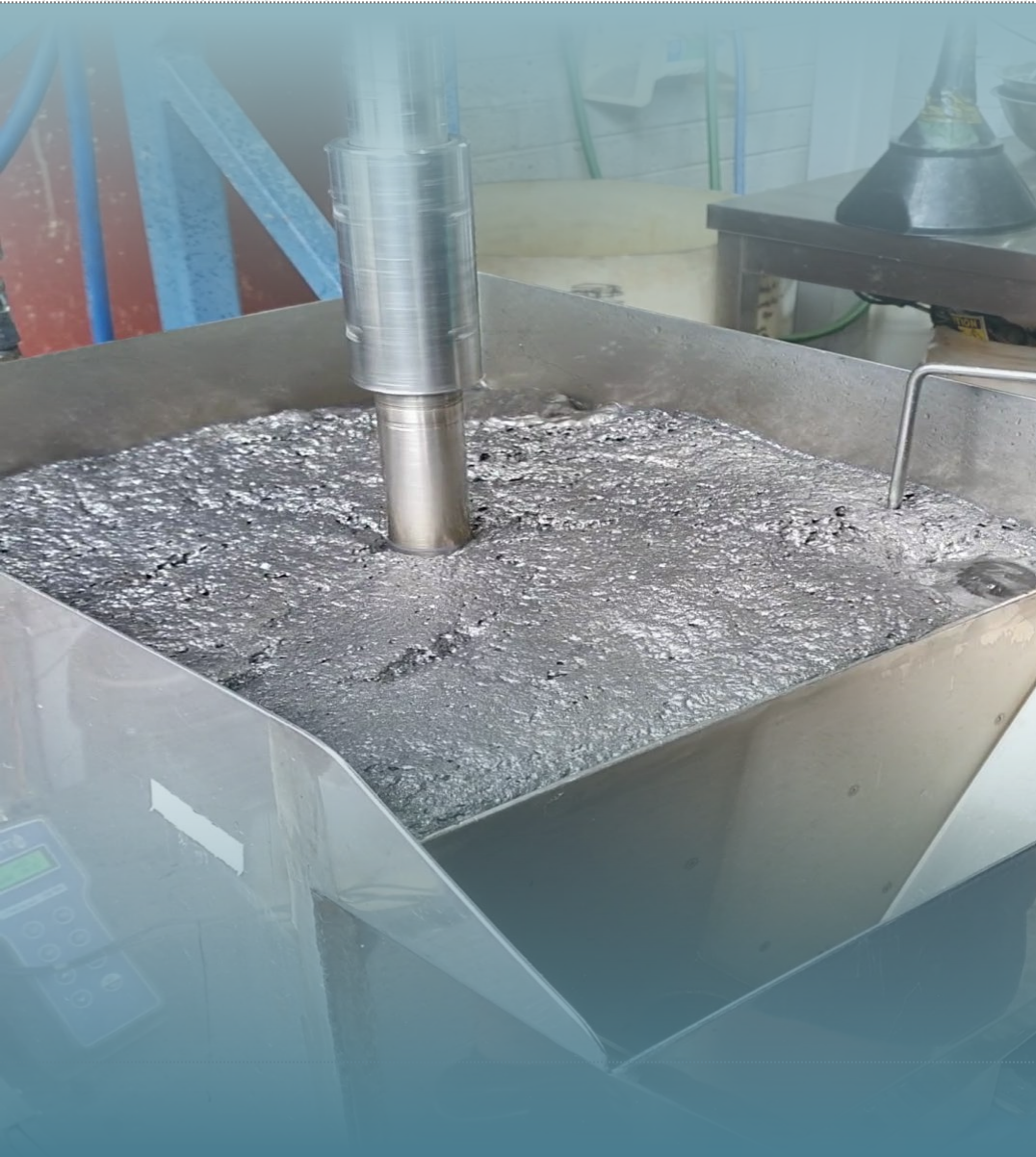
### Nachu mineral resource estimate

Classification	Tonnes (mt)	Grade (% TGC)	Graphite (mt)
Measured	63	4.7	3.0
Indicated	61	5.7	3.5
Inferred	50	5.8	2.9
<b>Total mineral resources</b>	<b>174</b>	<b>5.4</b>	<b>9.3</b>

### Nachu ore reserve estimate

Classification	Tonnes (mt)	Grade (% TGC)	Graphite (mt)
Proved	50.5	4.6	2.3
Probable	25.7	5.1	1.3
<b>Total ore reserves</b>	<b>76.3</b>	<b>4.8</b>	<b>3.7</b>





- Simple and proven process flowsheet – crushing and screening, grinding, flotation, filtration, drying
- The objective of the processing plant is to :
  - Produce a concentrate of saleable high-grade graphite
  - Maximise the recovery of coarse graphite flake
- Key processing parameters
  - Front end throughput of 5mtpa ore
  - Feed grade: avg 5.2% TGC first 12 years and avg 3.9% TGC next 3 years (LG stockpiles). Avg 4.8% LoM
  - Processing recovery of 89.6%
  - Final average concentrate purity of 98.8%
- Extensive test work already conducted validates Nachu product characteristics and robust processing approach :
  - ~99% TGC from basic flotation for sub-300 microns concentrate
  - Results repeated throughout Blocks F and FS
  - Core sample tests from every diamond hole

### Key Highlights of the Nachu Graphite Project<sup>1</sup>

Project Metrics	Units	Value
Project NPV <sub>10</sub> LOM (Post Tax)	US\$	\$1.2bn
Project IRR LOM (Post Tax)	%	51%
Payback Period	Months	19
Operating Expenditure	US\$/t	\$639
Concentrate Basket FOB Mtwara	US\$/t	\$1847
Operating Margin (incl. 3% Royalty)	US\$/t	\$1150
Average LOM Annual EBITDA	US\$	\$309mn
Initial Project Capital Cost	US\$	\$364mn
Special Economic Zone Period	Years	10
Concentrate Total Graphitic Carbon (TGC)	%	98.5% - 99%
Process Plant Capacity	t/year	5,000,000
Steady State Graphite Production	t/year	~236,000

- Magnis engaged global engineering firm Ausenco Services Pty Ltd and various other parties to update the previous BFS published in 2016
- BFS Update confirms Nachu as a world class graphite project driven by strong technical and financial viability combined with impactful sustainability outcomes
- Steady state 236ktpa high purity graphite concentrate produced over years 2 to 12
- Initial reserve-backed 15.5 year mine life with further high-grade resource conversion potential
- Post-tax NPV<sub>10%</sub> of US\$1.2b and project IRR of 51% driven by outstanding forecast operating margin of ~US\$1,150/t or 62%

**\$US 1.2bn**



**51%**



**\$US 309<sub>m</sub>**



**\$US 1150<sup>~</sup>/t**



1. Refer to ASX Announcement Nachu Graphite Project BFS Update and Supplementary Information to BFS update for further details on Sep 27<sup>th</sup> 2022 and Sep 30<sup>th</sup> 2022 respectively



### Capital Cost Estimate

- Pre-production capital costs of US\$364m
- Pre-production mining of US\$34m
- Sustaining capex of ~US\$7m p.a.

#### Nachu pre-production capital cost estimate

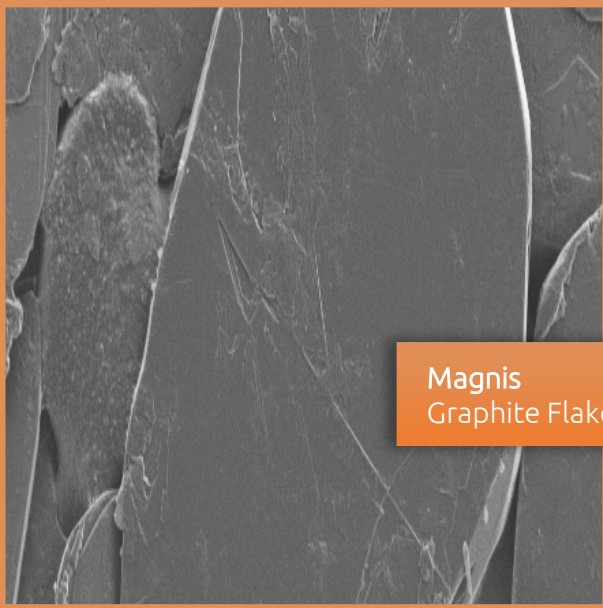
Capital activity	Capex (US\$m)
Process plant	174
Infrastructure	83
Construction Indirect Costs	23
Project Delivery	37
Contingency and escalation	40
Other	7
<b>Total pre-production capital cost</b>	<b>364</b>

### Operating Cost Estimate

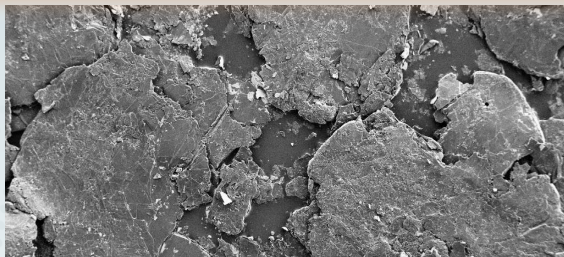
- US\$639/t concentrate FOB Mtwara across steady state production
- Significant opex savings and lower carbon footprint by using natural gas rather than heavy fuel oil
- Contract mining and product transport

#### Nachu cash operating cost steady state estimate

Production activity	Opex (US\$/t conc FOB)
Mining	296
Processing	116
Power Supply	59
Maintenance	45
Product Logistics	81
Maintenance, G&A and other	42
<b>Total cash operating cost (FOB Mtwara)*</b>	<b>639</b>



Magnis  
Graphite Flakes



Competitor's Graphite Flakes

- In-situ grade is just one of the relevant factors in graphite project analysis
- Graphite project economics predominantly driven by realised basket price
  - Final concentrate purity and flake size distribution are therefore critical and need close evaluation
- Exceptional final concentrate grade of +99% TGC for sub-300 micron product **solely** from flotation = very rare at ~90% process recovery
  - Driven by Nachu being coarse flake with impurities on the surface, not within the crystalline structure
  - High value, high appeal as removes/minimises need for expensive downstream chemical purification (HF/HCl treatment) for use in Li-ion battery anodes and expanded graphite material
- Over 40% of Nachu product in high value Super Jumbo (+500 microns) and Jumbo (+300 microns) flake size





### High Purity Natural Flake Graphite

Exceptional final concentrate grade of 99% TGC product from flotation alone. Intrinsic quality of the flake in the Nachu ore along with proprietary processing technology



### Resettlement Program

The resettlement action plan was developed in conjunction with the local community and government. Some 800 Project Affected People were compensated. Only 59 families live on the Mining Lease area and a further 11 defined as vulnerable. The resettlement village is being designed with sustainable power supply options. Currently there are no power options in the area.



### Environmentally Compliant to International Standards

The environment certificate is based on NEMC approval of the Environmental & Social Impact Assessment (ESIA) which was completed to international standards i.e. IFC requirements and Equator Principles



### Community Engagement

The Company has developed strong relationships with communities and local governments over the last several years. Identified and executed on key social projects in conjunction with local needs across education, infrastructure and the environment



### Local Employment

Committed to local communities and the Government of Tanzania to maximize local employment through the employment of skilled workers and also training of the unskilled. Our feedstock project is based in southeast Tanzania, one of the lowest socio-economic regions in Tanzania



### Tailings Design

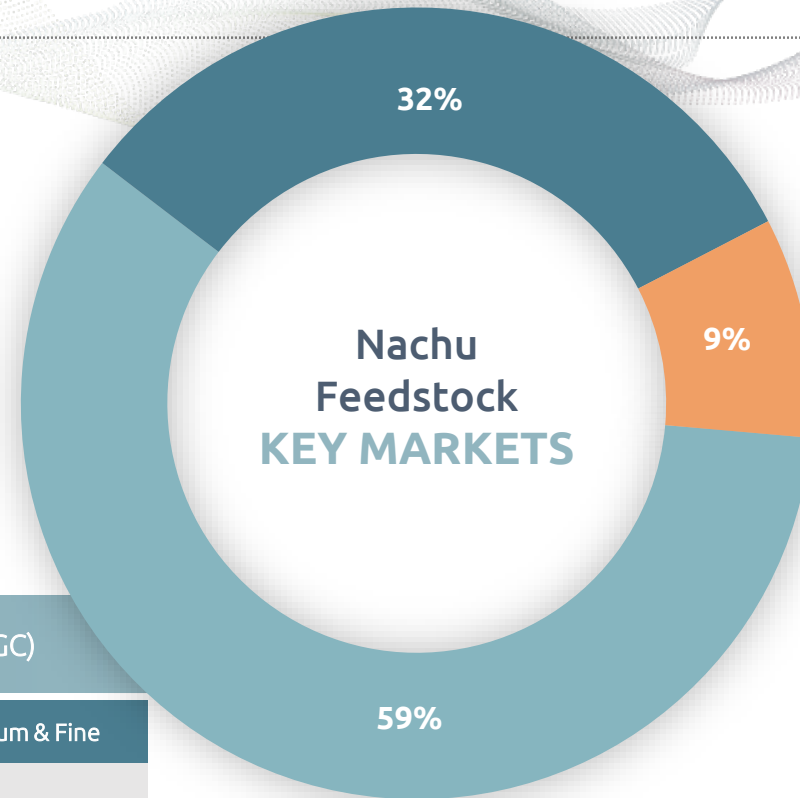
Design philosophy of the tailings storage facility is to dispose of tailings in a manner that complies with current best design international practices. Benign tailings solids and solutions. Tailings dam design, water balance, water dam design done in conjunction with geochemical reports completed by Knight Piesold, an Internationally recognised consultancy firm specialising in tailings dam design and operations



Magnis has secured a binding offtake for 600k tonnes of graphite concentrate over 6 years with Traxys Europe for all flake sizes. Further offtake discussions are underway.



Magnis' internal Li-ion anode material development program over the last 6 years with our US based technology partner, C4V LLC has produced CSPG >99.95% purity levels without chemical or thermal purification using Nachu feedstock (Sub 500 microns)



- Li-ion Anode Feedstock
- Expandable graphite, composites & electronics
- Aerospace, composites & niche markets

### Flake Graphite Concentrate with an average of ~99% Total Graphitic Carbon (TGC)

23ktpa - Super Jumbo Flake	75ktpa - Jumbo Flake	138ktpa – Large, Medium & Fine
Size: +500 microns, +35 mesh	Size: 300-500 microns, +50/-35 mesh	Size: Sub 300 microns, -50 mesh
Purity: up to 98.5% TGC	Purity: up to 98.5% TGC	Purity: >99% TGC
Key markets: Aerospace, composites & niche markets	Key markets: Expandable graphite, composites & electronics	Key markets: Spherical graphite for use in Li-ion battery anodes

The following markets for medium to super jumbo flake;

- a. Refractories
- b. Nuclear Reactors
- c. Manufactured fluids – gaskets / brake pads
- d. Cast electrodes – conductivity enhancement
- e. Foils / thermal controlled devices – e.g. 100 inch TVs



## In-country transport

- Bagged concentrate trucked to port and loaded into containers
- 220km by road; 200 km sealed by the time production commences
- Road infrastructure suitable for construction

## Port access

- Mtwara facility has recently been upgraded to 1Mtpa capacity and with a 130-140ktpa current utilisation

## Water availability

- Bore-field on-site; comprehensive water management system designed by Knight Piesold consultants

## Power sourcing

- Nachu process has relatively low power intensity
- Power supply will be generated from a natural gas fired power station located on site.



MTWARA PORT

ACTIVITY*	2022		2023						
	N	D	J	F	M	A	M	J	J
Negotiate further offtake agreements	■	■	■	■	■	■	■		
Appoint Debt Financing Advisers (Financial / Legal / Tax / Insurance)	■	■							
Prepare Debt Financing IM		■							
Negotiate Debt Financing			■	■	■	■	■	■	
Submit ESIA for SEZ	■								
ESIA Approval for SEZ		■	■	■	■	■	■		
Construction Optimisation Study	■	■							
FEED			■	■	■	■			
EPCM Contract Negotiation				■	■	■	■		
Complete Resettlement	■	■							
Final Investment Decision & Financial Close								■	
Commence EPCM Phase									■

\*Anticipated Upcoming milestones as per management's expectations around commencement and completion. Subject to change based on a variety of factors. Please refer to forward looking statements at the beginning of this presentation.





High purity, premium grade Graphite

- Consistent intrinsic high-grade and quality of crystal structure with minimal imperfections lends itself to produce high purity Li-ion battery anode feedstock (99% purity)
- Super Jumbo (98.5% purity) and Jumbo Flakes (98.5% purity) for industrial applications attracts a significant premium to smaller flake sizes given scarce supply globally



Compelling Project Economics

- Attractive project economics driven by high margins and strong free cash flows
- Favourable demand supply dynamic for Natural Flake Graphite to keep pricing high
- Premium pricing achieved due to large portion of premium flake size and high purity



Strong Project Viability

- Conventional drill and blast, truck and shovel open pit mining techniques
- Attractive infrastructure arrangements, including water, energy supply, ample port capacity, storage, road infrastructure and proximity to port



Permitting and Licensing

- Special Mining Licence granted in 2015 and Environmental Impact Assessment Certificate in line with IFC standards
- Only special economic zone granted graphite project due to strong research focus for export of advanced graphite products



Environmentally & Socially Responsible

- Significant job creation in Tanzania with large local workforce
- Environmental & Social Impact Assessment (ESIA) completed to international standards - IFC requirements and Equator Principles

# Thank You

## CONTACT US



[info@magnis.com.au](mailto:info@magnis.com.au)



[@magnisenergytec](https://twitter.com/magnisenergytec)



+61 2 8397 9888



Suite 11.01, 1, Castlereagh St  
Sydney NSW, 2000, Australia