

# Volt Resources

# An Integrated Battery Material Producer

Critical Minerals | Battery Materials October 2023

**ASX: VRC** 





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#### **Competent Person statement**

The information in this announcement which relates to exploration results is based upon details compiled from the available documentation by Mrs Christine Standing, who is a Member of the of the Australian Institute of Geoscientists. Mrs Christine Standing is an employee of Optiro Pty Ltd and has sufficient experience which is relevant to the style of mineralisation and the deposit under consideration, and to the activity which she 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 (the JORC Code). Mrs Christine Standing confirms that the information included in this announcement in respect of the mineralisation at Jadar North, Ljig and Petlovaca is an accurate representation of the available data and studies.

Where information in this presentation relates to exploration results, mineral resources, ore reserves, production targets or forecast financial information that has previously been disclosed to the ASX, reference is made to the applicable ASX announcements where such information was first disclosed. Volt confirms that it is not aware of any new information or data that materially affects the information included in those announcements.

#### **Volt Resources HQ**

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#### Capital Structure. Listed on ASX

ASX Code

**VRC** 

#### **Major Shareholders**

**Major Shareholders** 

14.59% Kabunga Holdings Pty Ltd

4.90% PR & E Notman

2.81% D Virgara

2.38% 10 BOLIVIANOS PTY LTD

1.90% Bosswhat Pty Ltd

Others

76.71% Others

#### **Key Executive Team**

Executive Chairman
Managing Director & CEO
Non-Executive-Director
Business Development Europe
Company Secretary

Asimwe Kabunga Prashant Chintawar "PC" Jack Fazio Michael Prassas Robbie Featherby

## **Our Strategy**





Capitalize on the opportunities presented by the implementation of the <u>Inflation Reduction Act</u> in the United States/North America and the <u>EU Critical Raw Material Act</u> in <u>Europe</u>

Use two high-quality graphite assets to become an "integrated" natural graphite anode producer – a critical material used in lithium-ion batteries

- Zavalievsky Graphite LLC (ZG) is the only significant operational graphite mine and processing plant in the European catchment area, and
- Bunyu graphite project in Tanzania is one of the world's biggest undeveloped greenfield natural graphite projects.

Provide highest purity (long life) and one of the lowest carbon supply chain solutions for a critical raw material.

Localized & de-risked supply chain solution, resulting in a true win-win situation for all stakeholders.

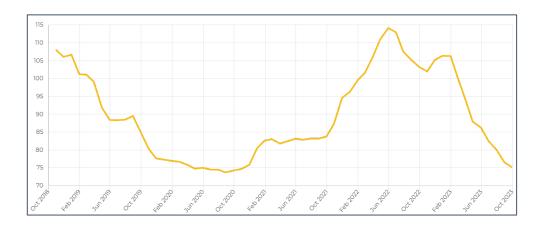
### **Volt Resources Investment Case**



- Clear strategy: Focus on graphite and natural graphite anode due to large addressable market, strong USP (backward integration), and market tailwinds (demand vs supply gap, double digit market growth, Government policies).
  - Proven graphite producer with two assets: Zavalievksy Graphite, a producing mine in Europe; and Bunyu, one of the world's largest graphite deposits in Tanzania.
  - Two binding offtakes for Bunyu graphite with industry leaders; commercial and technology partnerships for natural graphite anode secured and growing.

Entrepreneurial global team with Fortune-100 experience and a track record of battery material, mining, and specialty chemical business management, creation, and scale-up.

# **Graphite Poised for next bull market**



- Graphite price down 29% in 2023, however the fundamentals of graphite demand vs supply haven't changed and remain supportive
- While China (not our focus market) is likely to be dominated by synthetic graphite, in NA and EU markets (our focus) <u>natural graphite</u> will dominate
- There is no substitute for graphite!

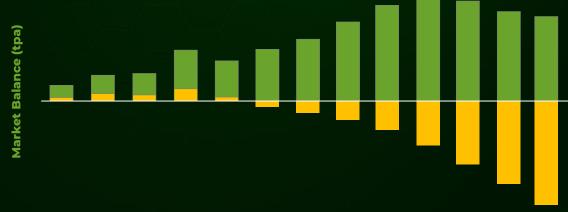


## **Graphite Demand Vs Supply**

**Synthetic Graphite Anode: Natural Graphite Anode:** 2022-2030 2022-2030 **Demand** Demand Supply Supply Growth Growth Growth Growth 150% 170% 95% 415%







2018 2019 2020 2021 2022 2023 2024 2025 2026 2027 2028 2029 2030

# Volt

Natural Graphite Anode



Bunyu + ZG

# Downstream Business (Natural Graphite Anode)

+

Upstream Business (Graphite Mining)

## **Natural Graphite Anode Business**







 Completed tentative site selection (33-acre site in US) and defined plant size (7,500 tpa)



· Filed for a patent on new graphite purification process

Proved superiority of our product for EV applications

CELL CAPACITY PLOT

CELL CAPACITY PLOT

CELL CAPACITY PLOT

COLUMNITY

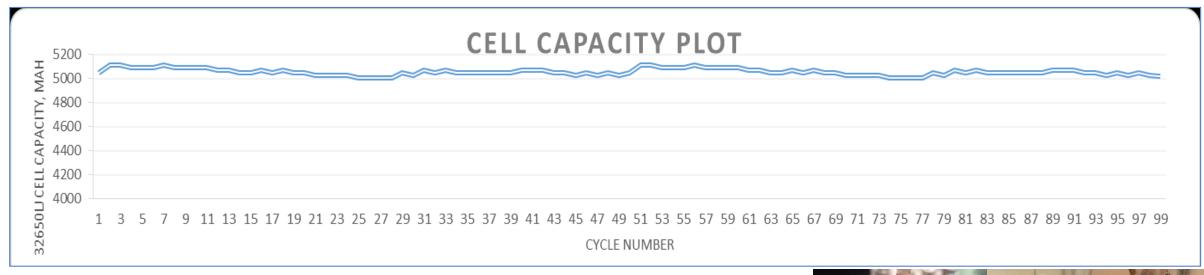
COLUMN

 Discussion underway for an offtake agreement with a US battery producer (in addition to agreement with 24M)

## **Excellent 32650 Full Cell Cycling Results**

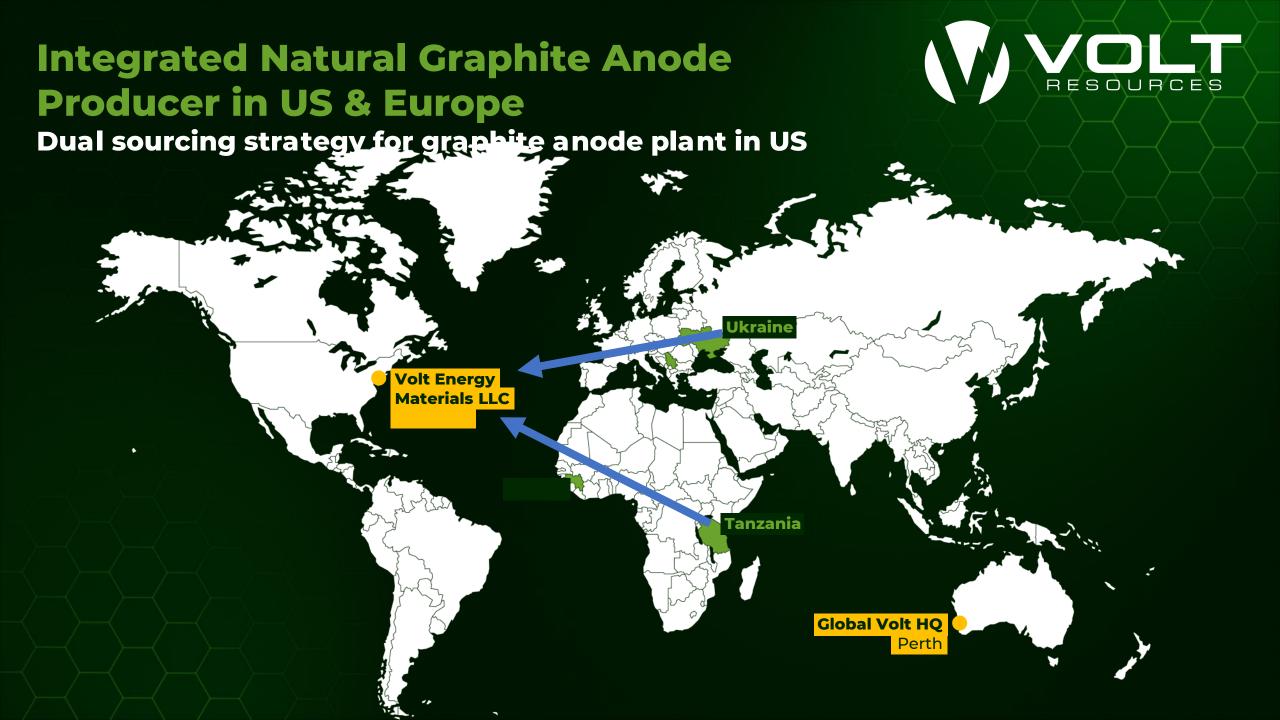


**Volt Natural Graphite Anode (US Produced)** 



Capacity Loss over 100 Cycles	1.5%
Extrapolated Life of Volt Natural Graphite Anode	1,331 Cycles
EV Target for Cycle Life	1,000 Cycles





# **US Natural Graphite Anode Plant**

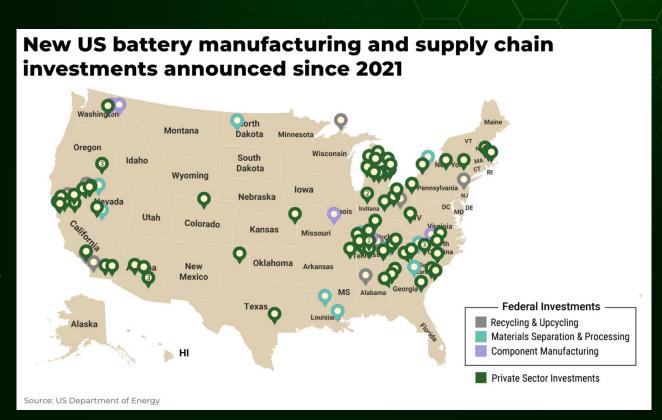
**Plant Design Study with Worley Ltd** 

- 7,500 tonnes per annum expected capacity
- To meet domestic demand, US will need
   ~980 kTPA graphite anode by 2030



## **US Natural Graphite Anode Plant**

- Evaluated multiple states for plant location
- Site selection criteria
  - Lowest capital and operating cost
  - Access to labour
  - Connectivity via rail, port
  - access to renewable or low carbon and low-cost energy
- Identified a 33-acre site in South-East, USA.



## **JDA and MOU with 24M**



News January 06, 2020

Kyocera and 24M Develop World's First SemiSolid Lithium-ion Battery System with Improved Safety, Longer Life, and Lower Cost

Plans to Build Full-Scale Mass Production System Following Initial Success with Pilot

FREYR and 24M sign licensing and services agreement for mass production of Li-ion battery cells; Glencore for raw materials

25 December 2020

InsideEVs

#### Volkswagen Group Acquires 25% Stake In 24M Technologies

24M has just announced that the agreement has been finalized and Volkswagen Group acquired a 25% stake in the company.



#### EV Battery Maker Freyr Set For Major Global Expansion

.. Massachusetts-based 24M Technologies and Volkswagen (OTCMKTS:VWAGY) to ... lithium-ion EV batteries utilizing 24M's SemiSolid platform.

https://www.businesswire.com > news > home > 24M-T...

#### 24M Technologies Finalizes Deal With Volkswagen Group to

18 Jan 2022 - VWAG acquired a 25% stake in 24M and will establish a wholly owned subsidiary that will, in cooperation with 24M, develop a SemiSolid<sup>TM</sup> battery ...

Fujifilm invests \$20m more into U.S. developer of semisolid batteries

Investment in Volkswagen-backed 24M includes licensing deal

## **Breaking** News

#### 24M and Volt sign a graphite supply MOU

27 October 2022

Volt signs an MOU with 24M Technologies to collaborate & qualify Volt's graphite for anode and/or cathode use in 24M's SemiSolidTM manufacturing platform.

24M to evaluate a potential investment into Volt Energy Materials LLC.



- MoU with 24M provides a pathway for Volt to supply Graphite Anode to 24M licencees such as Volkswagen, Freyr, Kyocera, Fujifilm
- 24M to promote Volt as the preferred supplier for anode and/or cathode additive products to 24M's licensees

# Robust Pipeline to Secure <u>Non-Dilutive Funds</u> Over 12 Months







Project	Estimated Non- Dilutive Funds	
Natural Graphite Anode Development		
Natural Graphite Anode Production Plant	A\$ 97 million	
ZG Improvement		

 US Department of Energy to Award about USD 3.5 billion in battery grants in 2024. Award size USD 50-300 million.

# Downstream Business (Natural Graphite Anode)

+

# Upstream Business (Graphite Mining)

# Volt is a Proven Graphite Producer with a Mine in Operation Since 1934

- Zavalievsky Graphite (ZG) is 65 km from Moldova border and 300 km from conflict zone
- Our assets and personnel are safe.
- Large portion of graphite is fine mesh suitable for lithium-ion batteries
- Flotation + Concentration +
   Purification to 99.5% done at mine
- Permits for subsoil use (mining licence equivalent) valid until November 2035.
- Excellent transport infrastructure covering road, rail, river and sea freight combined with reliable grid power.
- **Project KPIs**
- Ownership70% Volt, 30% Ukraine entities
- Long-life: producing graphite mine that has been in operation for over 89 years, with exploration upside

- Resources: 22.9 million ton at a grade of 6.8% carbon – subset of overall deposit based on south-east zone only¹ (Non-JORC and approximately 20% of Russian code resources)
- Production: average 7,300 TPA graphite production from 2017 to 2021. 1980s – 60 kTPA

#### **Upcoming Milestones**

- Increase product purity to 99.95+%
- Become a supplier to lithiumion battery cell makers based in Europe and North America







### 2023 Highlights

- Growth opportunity in garnet ore
  - We have garnet in stockpile and in mine; estimated opportunity size of over \$100 million revenue
  - Positive feedback from a large customer, 500 kg sample requested
- LOI signed with M2i Global, Inc. for potential supply of up to 20 ktpa graphite to US Government
- Generated revenue of €992k during January July 2023
- ZG won €600k Government grant & was identified as a strategic asset by EIT (European Institute of Technology) and ERMA (European Raw Materials Association)
- First production campaign was successful (1,015 tonne produced), 2nd underway with 400 tonne produced



wholly owned subsidiary of Volt Resources Limited, Australia

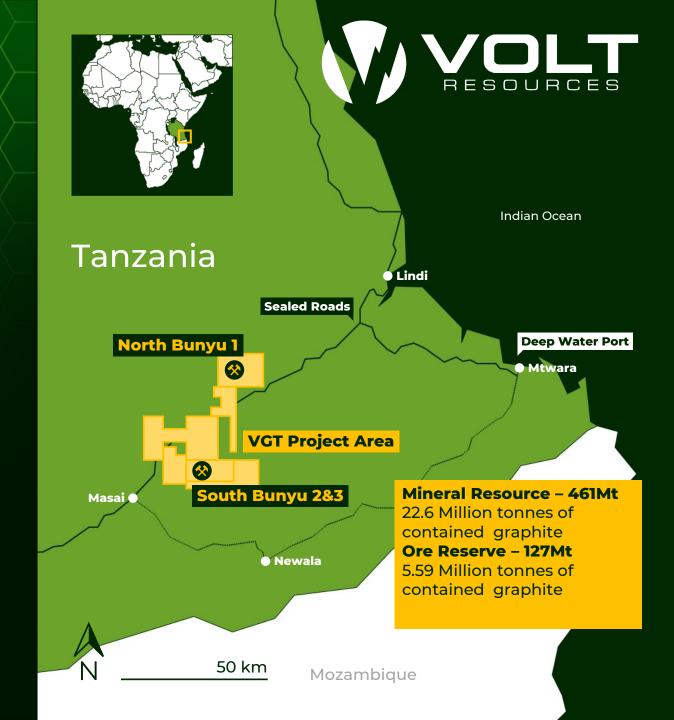
# Tanzania Bunyu Graphite Enough to power 2.8 million EVs per year

#### Highlights

- One of the largest graphite deposits in the world. 100% owned; Greenfield project; Bunyu is the largest JORC Mineral resource in Tanzania
- Only 140 km from Mtwara port
- Two stage development strategy with Stage 1 significantly de-risking the development of Stage 2 Expansion Project
- Stage 1 to produce 24,780 tpa flake graphite (@ 6.26% TGC feed grade)<sup>2</sup> and Stage 2 expansion increases annual production to 170,000 tpa flake graphite.
- Environmental Impact
   Assessment Certificate and
   Mining Licences received
   covering both Stage 1 and 2
- Africa is set to become graphite production leader

#### **Upcoming Milestones**

- Subject to financing, Stage 1 start of production in 2025
- Stage 2 graphite production is enough for about 2.8 million EVs per year



Refer to ASX announcement "Pre-feasibility Study Completed" 15/12/2016

Refer to ASX announcement titled "Positive Stage 1 Feasibility Study Bunyu Graphite Project" 31/07/2018

## Bunyu Natural Flake Graphite Product Specifications

Stage 1 Bunyu natural graphite typical product specification

- Flexibility to produce higher TGC grade products if required
- Bunyu natural graphite product suitable for a range of end use applications including battery anode material, refractories, foils, gaskets, dry lubricants, graphene and other applications
- Planned two stage development and large-scale resource provides for multidecade supply of graphite products



#### **Concentrate Typical Quality**

Size (micron)	Size (#)	% Distribution	Туре
+300	+50	12	54%
+180	+80	27	Coarse
+150	+100	15	Coarse
-150	-100	46	46%
			Fine

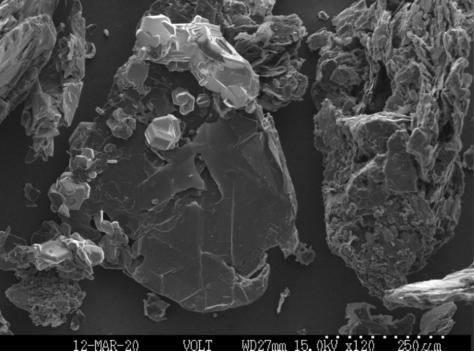
#### Impurities (Indicative)

Analyte	Unit	Indicative
Fe	%	0.28
Ca	%	0.25
S	%	0.02
SiO <sub>2</sub>	%	3.1
Al	%	0.64
Cu	ppm	15
Zn	ppm	15
V	ppm	50

# Bunyu Graphite is Ideal for Li Ion Battery Anode

- ➤ The Scanning Electron Microscopy image is of the concentrate-purity Bunyu graphite.
- ➤ It shows pale inclusions attributed to gangue, clearly located either on the surface of larger flakes or on edge planes.
- Typically, impurities are embedded as gangue in between flake layers of classic graphite. However, Bunyu flakes are unique in their impurity topography, allowing for easier removal of impurities and therefore lowered processing costs.





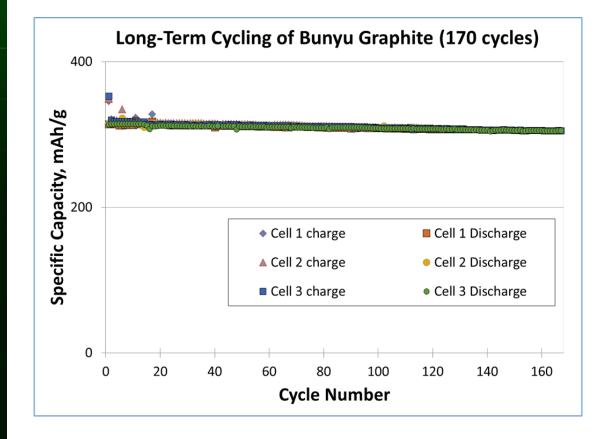
## Bunyu Graphite is Ideal for Li Ion Battery Anode

High Purity Graphite leading to High Purity

Anode and Longer Life Battery

Supplier A, Natural Graphite Anode	Fe	30	ppm
Supplier B, Natural Graphite Anode	Fe + other	40	ppm
Supplier C, Natural Graphite Anode	Fe + Ni	35	ppm
	Fe	7	ppm
Bunyu Natural Graphite Anode	Fe + Ni + Co	17	ppm
	S	63	ppm

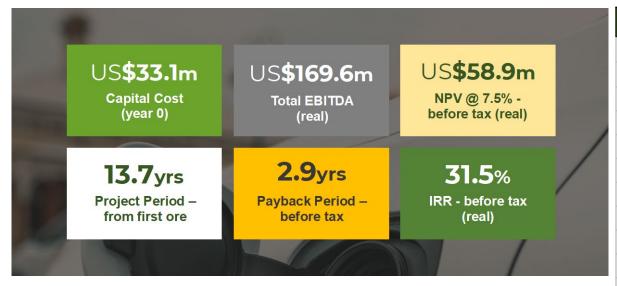




Lithium-ion battery life >1,175 cycles is possible with Bunyu graphite (Exceeds USABC target of 1,000 cycles)

## **Improved Bunyu Stage 1 Financials**

2023 vs 2018 feasibility study comparison



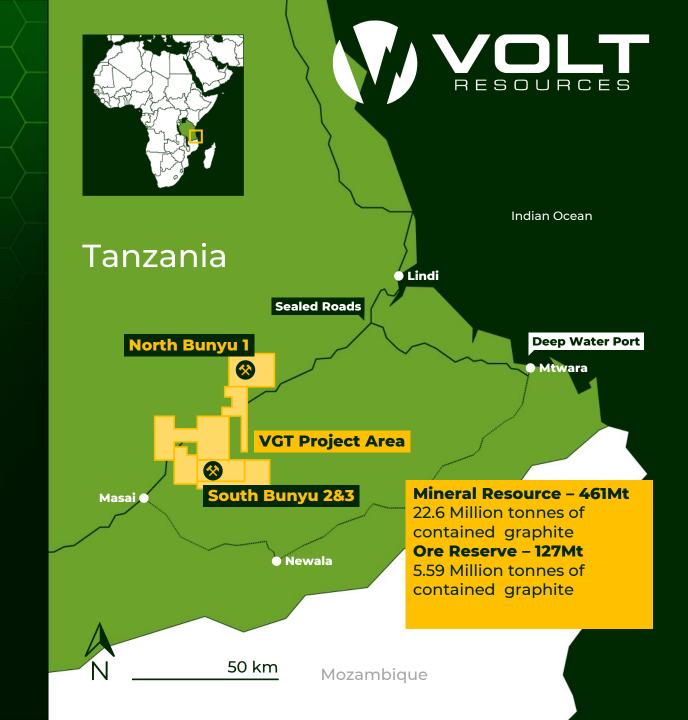
Stage 1 Project	Unit	Financial Performance	
		2023	2018
Project Period - from first ore	years	13.7	7.1
Total Net Revenue	US\$ M, real	433.2	268.6
Total EBITDA	US\$ M, real	169.6	93.6
IRR - before tax	%, real	31.5	21.0
IRR – after tax*	%, real	23.6	19.3
NPV @ 7.5% - before tax	US\$ M, real	58.9	18.6 <sup>1</sup>
NPV @ 7.5% - after tax*	US\$ M, real	36.4	14.7 <sup>1</sup>
Capital Cost (year 0)	US\$ M, real	33.1	31.8
Payback period, before tax – from first ore	years	2.9	
Payback Period - after tax - from first ore	years	3.9	4.4

<sup>\*</sup> Tanzanian corporate income tax rate of 30% has been applied to the project plus minimum tax (MTA) of 0.5% of sales revenue in loss years. Payments of corporate tax on profits are estimated to commence from year 1 of production, after utilising the benefits of carried forward income tax losses.

A discount rate of 10% was used to determine NPV for the 2018 study.

# Bunyu financing is progressing

- Very few graphite projects in the world can simultaneously meet customer demands of
  - Quantity
  - Quality
  - Cost
  - Compliance with Inflation Reduction Act
- Due diligence ongoing



# Stage 1 Bunyu Graphite sold under Binding Offtakes

#### **Graphex Group Limited**

Binding offtake agreement signed with global battery anode material producer Graphex Group Limited subsidiary, Graphex Michigan 1 LLC. Graphex Group is listed on Hong Kong Stock Exchange and the NYSE.

- **7,500-10,000** tpa fine flake graphite for five years
- An option to extend a further five years
- All Stage 1 fine graphite product is sold

#### Qingdao Baixing Graphite Company Ltd

Binding offtake agreement signed with established producer of graphite products

- 12,000-90,000 tpa coarse flake graphite for five years
- An option to extend a further five years
- All Stage 1 coarse graphite product is sold



# Tanzania & Ukraine Graphite Projects are IRA Compliant



Inflation Reduction Act, US
Consumer Tax Credit, \$7,500 per EV
Eligibility Requirements

\$3,750

Critical Minerals are extracted, processed, or recycled in US or a country with a Free Trade Agreement

<u>\$3,750</u>

Battery Components are manufactured or assembled in North America

- To get Inflation Reduction Act benefits, from 2024, battery components can not be manufactured or assembled in a Foreign Entity of Concern
- 2. From 2025, Critical Minerals can not be extracted, processed, or recycled in a Foreign Entity of Concern
- 3. Foreign Entity of Concern China, Russia, N Korea, & Iran
- 4. The US Geological Survey reaffirmed graphite as a Critical Mineral in its 2021 Review and Revision of the US Critical Minerals List, ranking graphite higher than manganese, lithium, nickel, and copper in overall supply risk

## **ESG – Community Engagement in Tanzania**



Infrastructure contributions such as roads connecting villages, maintenance of roads, Village Office buildings, and borehole wells. Temporary
employment, buildings,
donations of building
materials, maintenance
of schools, furniture
donations to the
schools and offices,
and support of local
sporting clubs.

Volt's sponsorship of remuneration for early-years educators is an important contribution to allow the safety and education of the next generation, while enabling the economic activity of parents.







## Major milestones reached for Bunyu, ZG and Battery anode plant

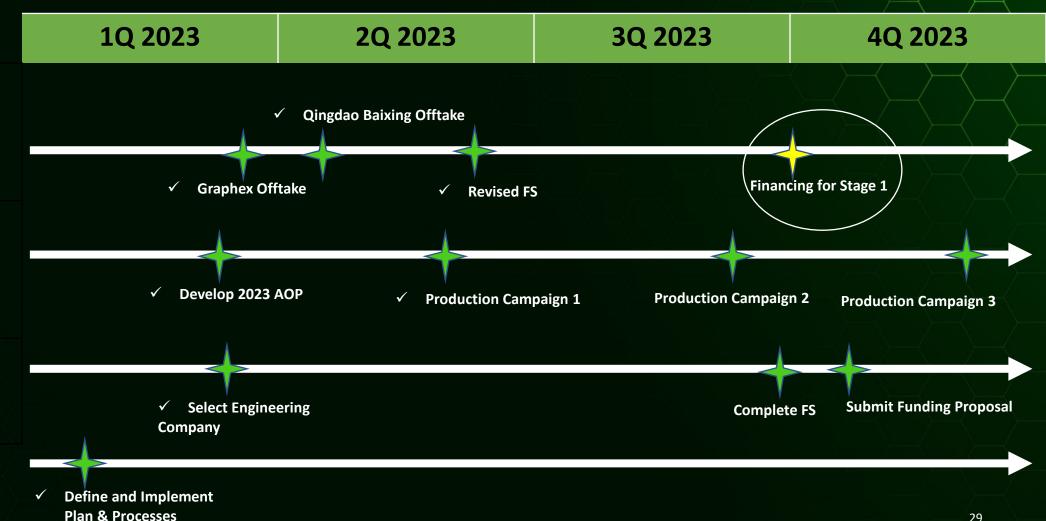


**Bunyu Graphite Project** (Tanzania)

Zavalievsky Graphite **Operation** (Ukraine)

**Battery Anode Material Plant** (USA)

**Fiscal Discipline** 



## **Transformation of Volt is Underway**



#### **Natural Graphite Anode Business**

- 1. Growing list of offtakes, partnership, and Joint Development Agreements with top tier customers
- 2. On track to become a world-class producer

#### <u>Bunyu</u>

- 1. Revised feasibility (2023) study is a significant improvement over 2018.
- 2. Due diligence ongoing

#### **ZG**

- 1. Production campaign #2 underway
- 2. Garnet growth opportunity progressing

#### **Financing**

Robust pipeline of non-dilutive funding to capitalize on Government incentives

### **Contact**



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