Emerging natural flake graphite supplier to global markets
Volt Resources

ASX: VRC

Board and Management

Asimwe Kabunga  Non-executive Chairman
Trevor Matthews  Chief Executive Officer
Stephen Hunt  Non-Executive Director
Alwyn Vorster  Non-Executive Director

Capital Structure

Shares on Issue 1.46 billion

- 11.0% Kabunga Holdings Pty Ltd
- 1.8% Littlejohn Embrey Engineering
- 1.5% Daroc Pty Ltd
- 1.5% Chata Holdings Pty Ltd
- 1.5% Leticia Kabunga
- 82.7% Others

*Based on closing price of 18 November 2018

Location

Flagship asset is the Bunyu graphite project in southern Tanzania

All mining and environmental licenses have been granted by the government

ASX listed and headquartered in Perth, Australia

Share Price (A¢)

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Bunyu now **fully-approved** for both Stage 1 and 2 developments – all key environmental and mining licences received

**Stage 1 funding process advanced** - ~US$40M Tanzanian Note Issue Prospectus awaiting approval and Note investor roadshow in Q4 2018

Stage 1 development establishes **critical infrastructure, global market position and operations experience** to de-risk Stage 2 Expansion

Stage 1 production target is **23,700tpa** and Stage 2 target is **~170,000tpa of graphite products**

Stage 1 targeting **production late Q4 2019 and early cash-flows from Q1 2020**

Strong market appetite for Bunyu products - **key offtake agreements** already in place with US graphene producer and major Chinese partners
Graphite Uses and Demand Drivers

Flame Retardant Building Materials

• Larger mesh flake graphite can be processed into expandable graphite that has applications in FRBMs
• Expandable graphite has advantages over other FRBMs, as it is halogen and heavy metal free. Buildings might have to be retrofitted as building standards change
• The demand for FRBMs is set to increase as China has recently included mandatory use of FRBMs in its building standards, banning traditional brominate flame retardants
• After the Lacrosse Melbourne Docklands building fire in 2014, 5,000 buildings in Victoria alone were ordered to replace non-compliant building materials
• With no competitor product, China alone would require 2,000kt of expandable graphite per year

“China needs 40Mtpa of FRBMs which will contain 5% of graphite”
– Jioang Yang, Group Vice President China National Building Materials

Batteries

• Demand for small mesh natural flake graphite is projected to increase rapidly due to the continuing shift towards electric transportation
• The Chinese government is targeting 5m electric vehicles on the road by 2020 and 3m manufactured every year by 2025
• The country’s biggest producer of electric cars, BYD recently opened a new battery plant in north-western Qinghai province, set to be the world’s biggest once it reaches capacity at 24GWh
• The emergence of electric vehicles requires the establishment of energy storage and charging stations. GTM Research predicts 40 million individual charging points by 2030, another source of battery demand

“By the year 2025, [...] between 15 and 25 percent of the cars we make will have electric drivetrains”
– Oliver Zipse, Member of the Board of BMW
Growing Demand for Natural Flake Graphite

- **40%**
  - Flake graphite (high grade) share of the market
  - Lithium-ion battery market is the primary driver behind demand for small mesh flake graphite
  - Larger mesh sizes command a higher market price and are increasingly used in building materials, especially flame retardant building materials

- **14-23%**
  - The share of global demand for flake graphite attributed to the lithium-ion battery industry increased from 14% to 23% between 2014-2017
  - Per kWh of capacity, Lithium-Ion batteries require 10x as much graphite (1kg) as lithium (0.1kg)

- **167%**
  - Due to demand from the battery industry, demand for graphite is projected to increase 167% by 2025

Source: Industrial Minerals, Volt.
Graphite Market Supply Developments

Chinese flake graphite production is expected to have peaked

- Primarily due to increased environmental regulation
- Government led economic shift towards high value-add exports

Larger flake sizes usually demand a premium

- As many Chinese mines near the end of their mine lives, the supply for larger mesh graphite flakes has become increasingly inconsistent
- Of the 860kt of global graphite supply, less than 10% is large enough to be used in the FRBM market

Synthetic Graphite

- Only has a limited ability to compete with natural graphite in the battery market, due to high financial and environmental cost. BMI expects synthetic graphite to only account for 35% of global battery anode supply from 2017 onwards

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<th>Mesh Size</th>
<th>Price (US$) 2018</th>
<th>Price Forecast (US$) 2020-2025 average</th>
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<td>Jumbo</td>
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<tr>
<td>Fine Flake</td>
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Source: Industrial Minerals, Canaccord Genuity Estimates, Benchmark Mineral Intelligence
Volt Progress

2015
Volt acquires a number of tenements either granted or under application. Drilling commences soon after

2016
The Bunyu Pre-Feasibility Study results are announced on December 15. It includes the largest JORC graphite resource in Tanzania

2017
The company publishes its revised development plan for the Bunyu project, dividing the development into two stages

2018
On August 1, a second binding offtake agreement is signed with Tianshengda for 9ktpa of product

2018
On October 22, the Mining Commission issues Volt its mining licences for stage 1 and stage 2 of the Bunyu graphite project

2015
Drilling identifies a large envelope of mineralization extending 3.2km in length

2017
Volt signs its first binding offtake agreement with Nano Graphene Inc for 1ktpa of product for a term of 5 years

2018
On July 31, the results of the Stage 1 Feasibility Study are announced

2018
On September 3, the company receives the Environmental Impact Assessment ('EIA') Certificate from the National Environment Management Council of Tanzania
**Bunyu Graphite Project**

**Overview**

- **Largest ore reserve amongst ASX listed peers of 127 Mt @ 4.4% TGC**

- **Flake distribution, suitable for building materials and battery anode end markets**

- **Environmental Impact Assessment Certificate and Mining Licences covering both Stage 1 and 2 have been issued**

- **Advanced funding process - US$40m Tanzanian Note’s prospectus pending approval and roadshow in Q4 2018**

- **Feasibility Study highlights positive start-up economics and production of ~23,700tpa of graphite products**

- **Strong market appetite for Bunyu products - key offtake agreements already in place with US graphene company and major Chinese partners**

- **Huge exploration upside – current JORC mineral resources are from only ~6% of the tenement area**

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**Bunyu Stage 1 - Project Layout**
Strategic Location and Infrastructure

- Located in south-east Tanzania 140km from Mtwara Port in the highly endowed East African graphite belt
- Sealed road from Bunyu to the deep water port at Mtwara
- Stage 1 power from diesel generators
- Safe to export graphite products and storage available at Port
- Water supply from bores and dams
- Stage 2 power potentially gas or diesel/solar/battery
Stage 1 Production

Building the Foundations

- Production of **23,700tpa** of graphite
- Near surface zone with **low strip ratio**
- Simple mining using conventional **drill and blast, load and haul method**
- Initial **7 year project life** with plans to expand to a **multi-decade project** via Stage 2 Development
- **Bunyu North product samples** have returned **excellent results** with good expansion performance, high conductivity, ease of purification and low impurities
- First cash-flows planned for **H1 2020**

Outline of ore processing to produce final graphite product

Refer to Volt’s ASX announcement titled “Positive Stage 1 Feasibility Study Bunyu Graphite Project” dated 31 July 2018. The Company confirms that it is not aware of any new information or data that materially affects the information included in this document and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.
Stage 2 Development

Unlocking the Upside

Feasibility Study for expansion to be undertaken in 2019

At least 22 year project life with potential multi decade project from current mineral resource

PFS based on 170,000tpa of graphite products supported by very robust economics

1.4 year payback, post tax NPV of US$890m, average annual EBITDA US$195m

Plan to be commissioned and in production by late 2021 to align with forecast increase in graphite demand

Refer to Volt’s ASX announcement titled “Pre-feasibility Study Completed” dated 15 December 2016. The Company confirms that it is not aware of any new information or data that materially affects the information included in this document and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed.
### Bunyu Graphite Project

#### Development Timeline

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Pipeline Building Offtake

**Binding Offtake Agreements**

- **Nanographene Inc. (‘NGI’) – US-based graphene producer**
  - 1,000 tpa (average) of flake graphite concentrate, fixed price binding 5 year offtake agreement signed
  - NGI’s Brooklyn-based plant commissioned and fully operational. Supply agreements being discussed including a major semiconductor producer and an emerging car manufacturer, both of which will utilise Volt’s Bunyu graphite product

- **Qingdao Tianshengda (‘TSD’) - One of China’s largest graphite processors and distributors**
  - 9,000 tpa of flake graphite product offtake over 5 year period with mutual option to extend for a further 5 years

**Non-binding Offtake and Cooperation Agreements**

- **CNBMGM: China’s largest building materials group (net assets of US$79bn).**
  - 10,000 - 15,000 tpa flake graphite concentrate
  - Expandable focused product offtake, construction support and financing

- **Guangxing Electrical Materials (‘GEM’): One of China’s largest graphite processors and distributors**
  - 5,000 tpa flake graphite concentrate
  - Value add graphite products, mainly expandable graphite

- **Aoyu Graphite: One of China’s leading graphite groups**
  - 10,000 - 20,000 tpa flake graphite concentrate
  - Battery anode material processing and product offtake
Stage 1 Funding Strategy

Tanzanian Note Issue to raise ~US$40 million currently awaiting approval by the Tanzanian Capital Markets and Securities Authority ("CMSA")

Funding advisors Exotix Capital, specialise in natural resources and debt and equity capital markets in emerging markets with a particular focus on Africa

Completion of Note Issue to fully-fund Stage 1 development of Bunyu Graphite Project targeting production start-up end CY2019
Near-term Catalysts to unlock Value

**Funding for Stage 1** through to first production

**Targeting Stage 1 production** by Q4 2019

Binding and indicative offtake commitments for **100% of Stage 1 capacity**

**Scalable project through expansion to +170,000tpa graphite products** with excellent economics

**Strong community and government support** for Bunyu project development

**Volt’s short-medium term development plans** backed by **strong market forecasts**
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The information in this report that relates to Exploration Targets, Exploration Results is based on information compiled by Mr Matt Bull, a Competent Person who is a member of Australian Institute of Geoscientists. Mr Bull has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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’. Matt Bull consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Mineral Resources is based on information compiled by Mark Biggs, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mark Biggs is a Director of ROM Resources Pty Ltd. Mark Biggs has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken 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’. Mark Biggs consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in this report that relates to Ore Reserves is based on information compiled by Mr Andrew Law, a Competent Person who is a Fellow and Chartered Professional of the Australian Institute of Mining and Metallurgy. Mr Law is a Director of Optiro. Mr Law has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration to qualify as a Competent Person as defined in the 2012 Edition of the ‘Australasian Code for Reporting of Mineral Resources and Ore Reserves’. Mr Law consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

The information in the Stage 1 Feasibility Study for the Bunyu Graphite Project Tanzania dated 30 July 2018 that relates to Mineral Resources is based upon information compiled by Mrs Christine Standing who is a Member of the Australasian Institute of Mining and Metallurgy and a Member of the Australian Institute of Geoscientists. Mrs Standing is an employee of Optiro Pty Ltd and has sufficient experience relevant to the style of mineralisation, the type of deposit under consideration and to the activity undertaken 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. Mrs Standing consents to the inclusion in this annual statement of a summary based upon her information in the form and context in which it appears.

The information in the Stage 1 Feasibility Study for the Bunyu Graphite Project Tanzania dated 30 July 2018 that relates to Ore Reserves was compiled by Mr Ross Cheyne who is a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Cheyne is a Director of Orelogy Consulting Pty Ltd and has sufficient experience relevant to the style of mineralisation, the type of deposit under consideration and to the activity undertaken 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 Cheyne consents to the inclusion in the report of a summary based upon his information in the form and context in which it appears.
Stage 1

Project Development Schedule

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Key Approvals and Land Access Granted

**Bunyu Environmental Approval**

- Environmental Impact Assessment ('EIA') Certificate for Bunyu granted by the National Environment Management Council of Tanzania to 100% wholly-owned subsidiary Volt Graphite Tanzania ('VGT')
- EIA Certificate represented the final pre-requisite for granting of Volt’s Mining Licence and a final milestone for Government permitting

**Land Access**

- Resettlement Action Plan ('RAP') completed
- Surveys, communication, valuations and report completed
- Compensation report lodged and approved by authorities
- Once financed and ML’s approved, ready to commence relocating people

**Bunyu Mining Licence**

- Formally received Mining Licences ML 591/2018 and ML 592/2018 from Mining Commission of the Ministry of Minerals of Tanzania
- Granted ML’s cover a combined area of 17.71km² which envelopes both Stage 1 and Stage 2 developments
- ML’s are effective for a 10 year period with a right to a further 10 year renewal under section 53 of the Mining Act
Forging Strong Community Relationships

Social Investment Program

- Building village offices
- Supplying school desks
- Replacement roof sheeting for community buildings following storm damage
- Payment of Nursery teachers salaries

Village Land Use Plan (‘VLUP’)

- VGT have sponsored the development of a formal VLUP

Community Engagement

- Local communities are updated regularly on development activities via monthly reports
- Lindi District Council’s Economic Committee has visited site and is very supportive of Bunyu’s development
Contact

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