

ASX: GSC

Rhyolite Ridge Lithium-Boron Project Pathway to Production Nevada, USA

Investor Presentation – August 2017

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# **Company Overview**

### **Corporate Overview**

| Capital Structure<br>as of 1 Aug, 2017 |         |  |  |  |  |  |
|--|---------|--|--|--|--|--|
| Shares                                 | 1,139M  |  |  |  |  |  |
| Options (unlisted)                     | 75M     |  |  |  |  |  |
| Performance Rights (unlisted)          | 28M     |  |  |  |  |  |
| Cash                                   | A\$7.4M |  |  |  |  |  |
| Share Price                            | A\$0.19 |  |  |  |  |  |
| Market Cap.                            | A\$216M |  |  |  |  |  |

| Directors        |                    |  |  |  |  |
|------------------|--------------------|--|--|--|--|
| James D. Calaway | Non-Exec. Chairman |  |  |  |  |
| Bernard Rowe     | Managing Director  |  |  |  |  |
| Alan Davies      | Non-Exec. Director |  |  |  |  |
| Patrick Elliott  | Non-Exec. Director |  |  |  |  |
| John Hofmeister  | Non-Exec. Director |  |  |  |  |



| Major Shareholders |     |  |  |  |  |
|--------------------|-----|--|--|--|--|
| Тор 20             | 60% |  |  |  |  |
| Directors          | 8%  |  |  |  |  |

### **Investment Highlights**



## **Rhyolite Ridge - Advantages Over Other Lithium Projects**



### **Rhyolite Ridge Project Overview**



#### Large 100%-owned property

- Sediment-hosted deposit
- Similar mineralisation in two basins
- Mineralisation outcrops over 3 km strike length

### Indicated & Inferred Resource

- Maiden Resource Oct 2016
- Resource open to the N, S and E
- 393Mt at 0.9% lithium carbonate (Li<sub>2</sub>CO<sub>3</sub>), 2.9% boric acid (H<sub>3</sub>BO<sub>3</sub>)

### **High-Grade Upper Zone**

- 65 Mt at 1.0% lithium carbonate, 9.1% boric acid contains:
  - $\circ~$  0.65 Mt lithium carbonate
  - $_{\odot}\,$  5.9 Mt boric acid

Further drilling likely to add substantially to initial Resource

## **Rhyolite Ridge – Simple Mining & Processing**

- Metallurgical testwork demonstrates:
  - Simple process route
  - Flotation to removed acid consuming carbonate from Li-B ore (>95% recoveries)
  - Acid leach to extract lithium and boron (>95% recoveries)
- Scalable production options
- No new technology required
- Two products (Lithium Carbonate and Boric Acid) of roughly equal value produced on site



### South Basin Cross-Section 4185600N



Upper Searlesite Zone shown in BLUE hosts high-grade Indicated and Inferred Resource of 65Mt at 1910ppm Li (1.0% Li<sub>2</sub>CO<sub>3</sub>) and 1.59% B (9.1% H<sub>3</sub>BO<sub>3</sub>)

### **The Lithium-Boron Advantage**



*Rhyolite Ridge is a near-term, cost-competitive, major producer of lithium carbonate and boric acid with scalable production options.* 

**Pre-Feasibility Study In Progress** 

### Lithium & Boron at Rhyolite Ridge



|   | Lithium Carbonate | Boric Acid |
|---|-------------------|------------|
| Initial high-grade 65Mt Resource contains:  | 0.65Mt            | 5.9Mt      |
| At a grade of:                              | 1.0%              | 9.1%       |
| Indicative overall recoveries:              | 80%               | 80%        |
| Sale price per tonne of product:            | >\$8,000/t        | >\$800/t   |
| Indicative revenue per tonne of ore mined:  | >\$64/t           | >\$58/t    |
| 1t of Lithium Carbonate to 9t of Boric Acid | \$8000            | \$7200     |

*Note: The Rhyolite Ridge PFS is currently undertaking further work to assess the above preliminary technical and cost parameters. Sale prices shown are less than current market prices.* 

### **Milestones & Upcoming Catalysts**



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# **Market Overview**

### **Global Lithium & Boron Market**



#### Uses of Boron, Borates, Boric Acid

- Energy insulation, solar, wind turbines (magnets)
- Urbanisation glass, ceramics, electronics
- Agriculture critical element for crop yields

### **Supply and Demand**

- Rio Tinto (USA) and Eti Maden AS (Turkey) dominate supply
- China, USA, South Korea and Japan are largest consumers
- Demand of circa 2mtpa B<sub>2</sub>O<sub>3</sub> eq = \$3B
- Only one major mine in production in the USA (Boron, CA)
- Boric acid (H<sub>3</sub>BO<sub>3</sub>) price circa \$800t, 4-5% CAGR predicted

#### **Current Lithium Supply**

- Five companies currently produce 85% of world supply
- Most production comes from brine deposits in Chile and Argentina (ex Greenbushes)
- Large portion of future supply is unfunded

#### **Rapid Growth in Demand Predicted**

- Driven by Electric Vehicles and Energy Storage
- Demand of circa 200ktpa in 2016 = \$2B market (at \$10,000/t)
- Demand predicted to grow to 300-350kt by 2020 and 550-750kt by 2025



## Lithium Supply/Demand – Will Required Supply Take Longer?



- Development of many proposed new sources of lithium supply are not yet committed
- Recent experience is that much of this expected supply will take longer than expected
- Rhyolite Ridge has all the key factors to attract development funding:
  - Low capital intensity, low-cost production, revenue from two saleable products, proximity to major customers, stable jurisdiction, 100% ownership

## **Electric Vehicle Revolution on Fast Charge**

### Targets announced by car companies recently:

- Volvo new models only EV or HEV, 0.6M units from 2019
- VW 25% EV mix by 2025, 1M EV's p.a.
- Mercedes 10 EV models, 15-25% EV by 2025
- **BMW** 0.4M EV's by 2020
- **Porsche** 50% EV's by 2023
- Ford 13 EV/PHEV models by 2020
- **GM** 10 EV/HEV models by 2020
- **Tesla** 1M units by 2020



### Total globally by 2020:

- 150 EV models today increasing to >225 EV models
- 0.8M units p.a. today increasing to 2.1M units

#### **Recent country announcements:**

- **France** 100% HEV and EV by 2040
- UK 100% EV by 2040
- Norway 100% EV by 2025
- India 100% EV by 2030
- China 2M EV and PHEV p.a. by 2020



#### Abbreviations:

- EV Electric Vehicles
- HEV Hybrid Electric Vehicles
- PHEV Plug-in Hybrid Electric Vehicles

**In Summary** 

Largest lithium-boron Resource in N. America

Team with skills & expertise to develop a mine

Pathway to low-cost production at PFS stage

Strong economics from Li-B co-products

Major advantages over other lithium deposits

Emerging major player in global lithium-boron

# Thank you

# GLOBAL GEOSCIENCE

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# Appendix

### **Recent Board Additions Provide Expertise for Li-B Development**

#### James D. Calaway | Non-Exec Chairman

- Former non-exec chairman of Orocobre Ltd
- Track record in building junior companies into successful commercial enterprises in sectors including lithium, oil and gas, solar and software

#### John Hofmeister | Non-Exec Director

- Former President of Shell Oil Company, the US-based subsidiary of Royal Dutch Shell
- Highly successful company executive with diverse industry experience and a focus on the broader energy sector

#### Patrick Elliott | Non-Exec Director

- 30 years experience in investment and corporate management specialising in the resources sector
- Former head of corporate finance for Morgan Grenfell Australia Limited

#### Bernard Rowe | Managing Director

- Qualified geologist with over 25 years international experience in mineral exploration and management including over 10 years in Nevada
- Managing Director of GSC since IPO in 2007

#### Alan Davies | Non-Exec Director

- Former CEO, Energy and Industrial Minerals, Rio Tinto
- Highly successful natural resources and industrial executive including 20-year career with Rio Tinto
- Led Rio's borax division and the development of the Jadar lithium-boron deposit in Serbia

### **Technical Team and Partners**

#### Silvio Bertolli

Chemical engineer with over 40 years of experience in process design and technology development in the chemicals and metallurgical industries for lithium, uranium, base and rare metals

### Peter Ehren

Chemical engineer with extensive experience in process development and optimization for lithium, boron and potassium including with SQM and Orocobre











# **RPMGLOBAL**

## Located in Nevada, USA

- Mining-friendly jurisdiction
- Well serviced by infrastructure
- Skilled mining workforce
- Centre for Electric Vehicle manufacture
- 350km from Reno
- 100% owned by GSC





### Lithium-Boron Mineralisation in Searlesite is the Key

- Lithium and boron present in acid-soluble minerals
- Over 40% of the rock is made up of the mineral searlesite
- Solid, competent rock but soft (hardness 3.5)
- Carbonate minerals removed by flotation = lower acid consumption
- Low clay content





### **CONCEPTUAL FLOW-SHEET**



# Rhyolite Ridge - Mineral Resource Estimate

### Mineral Resource estimate at 0.6% LCE cut-off:

|           | Tonnage | Li    | Li <sub>2</sub> CO <sub>3</sub> | D    |                                  |                                | Contained                       |        |           |
|-----------|---------|-------|---------------------------------|------|----------------------------------|--------------------------------|---------------------------------|--------|-----------|
|           |         |       |                                 | D    | - н <sub>3</sub> вО <sub>3</sub> | K <sub>2</sub> 30 <sub>4</sub> | Li <sub>2</sub> CO <sub>3</sub> | Boric  | Potassium |
|           | Mt      | ppm   | %                               | %    | %                                | %                              | kt                              | kt     | kt        |
| Measured  |         |       |                                 |      |                                  |                                |                                 |        |           |
| Indicated | 160.9   | 1,550 | 0.8                             | 0.58 | 3.3                              | 1.7                            | 1,330                           | 5,330  | 2,710     |
| Inferred  | 232.4   | 1,700 | 0.9                             | 0.45 | 2.6                              | 1.7                            | 2,100                           | 6,020  | 4,030     |
| Total     | 393.3   | 1,640 | 0.9                             | 0.51 | 2.9                              | 1.7                            | 3,430                           | 11,340 | 6,740     |

### Mineral Resource estimate at 1.8% LCE cut-off:

| Tonnage   | Toppago | .:    | Li <sub>2</sub> CO <sub>3</sub> | В    | H <sub>3</sub> BO <sub>3</sub> | K <sub>2</sub> SO <sub>4</sub> | Contained                       |       |           |
|-----------|---------|-------|---------------------------------|------|--------------------------------|--------------------------------|---------------------------------|-------|-----------|
|           | ronnage | LI    |                                 |      |                                |                                | Li <sub>2</sub> CO <sub>3</sub> | Boric | Potassium |
|           | Mt      | ppm   | %                               | %    | %                              | %                              | Kt                              | kt    | kt        |
| Measured  |         |       |                                 |      |                                |                                |                                 |       |           |
| Indicated | 24.3    | 1,820 | 1.0                             | 1.64 | 9.4                            | 2.0                            | 240                             | 2,280 | 500       |
| Inferred  | 40.3    | 1,960 | 1.0                             | 1.57 | 9.0                            | 2.3                            | 420                             | 3,620 | 920       |
| Total     | 64.6    | 1,910 | 1.0                             | 1.59 | 9.1                            | 2.2                            | 650                             | 5,900 | 1,420     |

For further information on this Mineral Resource estimate, see GSC announcement titled "Maiden Resource for South Basin at Nevada Lithium-Boron Project", released 10 October 2016.

### **Global Boron Supply and Demand**

Global Borates Demand Cumulative kt B<sub>2</sub>O<sub>3</sub> equivalent



#### Imports



#### Exports

