

# 'Nickel-Copper-Cobalt-PGE Discovery Creates Significant Growth Opportunity'

September 2017 RIU Investor Roadshow

St George Mining Limited | ACN 139 308 973

## St George's Investment Message



#### Nickel:

- An essential commodity with increasing use for electric vehicles and new-age batteries as well as stainless steel
- Market already in deficit
- Forecast is for a 200% increase in the nickel price by 2020
- Now is the time to gain exposure to a rebound in the nickel price

#### St George:

- High grade nickel-copper-cobalt-PGE discovery at Mt Alexander
- Growing resource inventory through the upswing in the nickel price cycle
- On track for high multiplier returns on investment

On right: drill core from MAD60 with large pentlandite crystals prominent in the core. This section of core is from an interval that returned assays of 3m @ 6.40%Ni, 3.55%Cu, 0.21%Co and 5.25g/t total PGEs from 159.38m



## **Overview of St George Mining**



## **High Quality Explorer**

#### **ASX listed: SGQ**

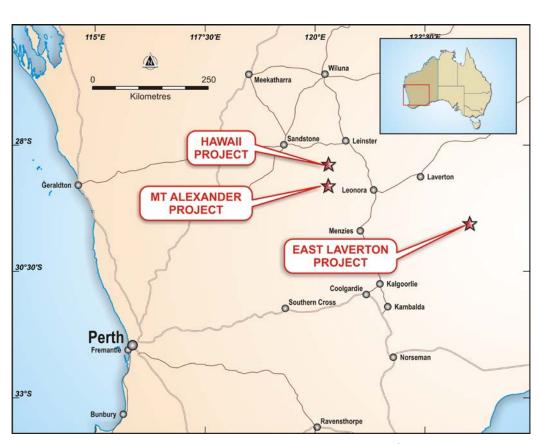
 Based in Perth, Western Australia

#### **Multiple Projects**

- Nickel sulphide and gold in mineral-rich Yilgarn Craton, Western Australia
- Projects with potential for discovery of world class deposits

#### **Creating Shareholder Wealth**

- Targeting high multiplier returns on investment
- Strong capital discipline from directors with 'skin in the game'



**East Laverton Project:** High priority targets for gold and nickel sulphide over three major greenstone belts **Hawaii Project:** Early stage exploration at recently recognised undercover and unexplored greenstones

## **Corporate Snapshot**



## Strong shareholder base and highly qualified team

#### **Capital Structure**

**Listed shares** (SGQ): 250,360,825 **Listed Options** (SGQOB): 25,036,083

 bonus issue being finalised; exercise price of 20c, expiring on 30 Sept 2020; trading on ASX scheduled for 3 October 2017

Market cap: \$30m (@12c per share)
Cash: \$4.7m (as at 30 June 2017)

**Largest Shareholders** 

Impulzive: 4.5% City Natural Res's: 4% John Prineas: 4.16% Oceanic Capital: 3%

**Share Ownership** 

Top 10: 21% Top 20: 30%

Directors: 6%

**Broad Shareholder Base:** Over 3,050 shareholders including retail investors, high net worths, Australian and overseas institutions

Oversubscribed capital raising in August 2016 by **Bell Potter**, **Argonaut** and **RM Capital** 

#### **Directors, Technical Team**

John PRINEAS, Executive Chairman – founding shareholder with over 25 years experience in banking and legal sectors servicing the resources industry.

**Tim HRONSKY, Technical Director** - over 25 years as a geologist in the global exploration and mining industry, including 15 years with Placer Dome Inc.

Sarah SHIPWAY, Non-executive Director/Company Secretary - Chartered Accountant with extensive experience in advising listed exploration companies.

Matthew McCARTHY, Exploration Manager - ex-BHP Billiton; part of the team that discovered the Venus nickel sulphide deposit (+200,000 Ni) at Leinster.

Charles WILKINSON, Technical Consultant – 32 years as a geologist. General Manager Exploration at Western Areas for 10 years; part of the team that developed Spotted Quoll and established WSA as Australia's No. 1 independent nickel producer.

**Newexco** - Leading geophysicists. Advisers on Nova-Bollinger deposit for Sirius Resources NL, and the Spotted Quoll and Flying Fox deposits for Western Areas.

## Mt Alexander

#### **Favourable Location**

#### **Established Mining Region**

- South-west of world class nickel and gold mines of the Agnew-Wiluna belt
- Access to existing roads, infrastructure and processing plants (Right: regional location map set over TMI magnetics)

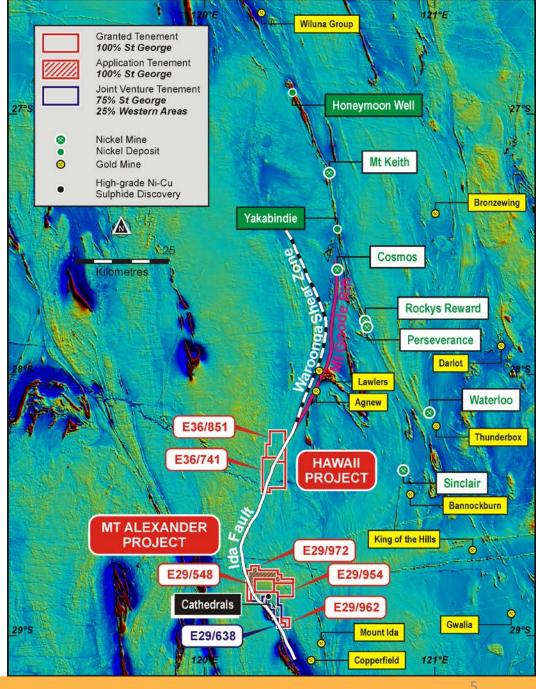
#### **Underexplored Project**

- first Massive Ni-Cu sulphides discovered by BHP in 2008
- Project remained under-explored until St George acquisition in 2016

#### **Significant Exploration Potential**

- Current exploration is focused on the Cathedrals Belt
- Broader 200 sq km project area offers more exploration potential

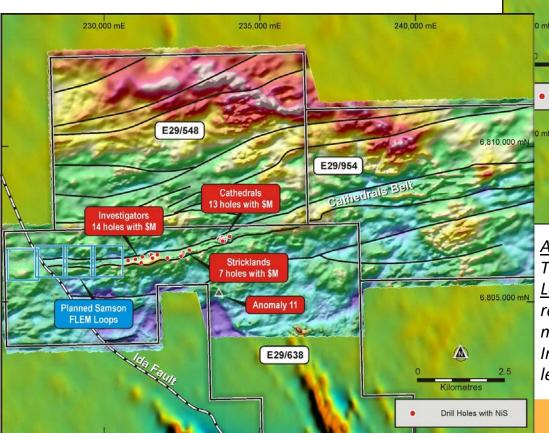
The Cathedrals, Stricklands and Investigators Prospects are located on E29/638, which is held in joint venture by Western Areas Limited (25%) and St George (75%). St George is the Manager of the Project with Western Areas retaining a 25% non-contributing interest in the Project (in regard to E29/638 only) until there is a decision to mine. St George has 100% of all other tenements at Mt Alexander.

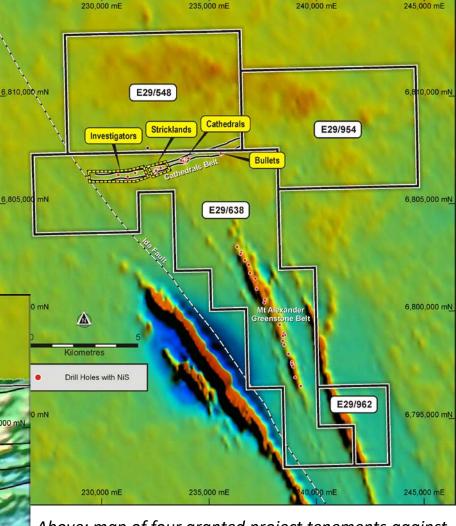


## **Drilling Success**

### **Mineralisation is Extended**

- ✓ Recurrent mineralisation now over 3.5km strike on east-northeast Cathedrals Belt
- ✓ Drilling intersects nickel-copper sulphides in every EM conductor drilled
- ✓ High grade mineralisation from 30m below surface





<u>Above</u>: map of four granted project tenements against TMI RTP magnetics)

<u>Left:</u> map of the Cathedrals Belt (against high resolution TMI) showing the multiple intersections of massive nickel-copper-cobalt-PGE sulphides ("\$M") at Investigators, Stricklands and Cathedrals over a strike length of 3.5km.

## **Grade is King**

## **2017** Drilling Delivers Best Intersections to Date



#### **MAD56 (Cathedrals Prospect):**

7.5m @ 3.90%Ni, 1.74%Cu, 0.12%Co and 3.32g/t total PGEs from 57.8m including

3.15m @ 6.36%Ni, 2.92%Cu, 0.20%Co and 5.03g/t total PGEs from 61.81m

#### MAD55 (Cathedrals Prospect):

4.28m @ 2.75%Ni, 1.21%Cu, 0.09%Co and 2.59g/t total PGEs from 60.67m including

1.05m @ 5.91%Ni, 2.63%Cu, 0.21%Co and 2.57g/t total PGEs from 63.9m

#### **MAD60 (Investigators Prospect):**

5.3m @ 4.95%Ni, 2.75%Cu, 0.16%Co and 4.55g/t total PGEs from 157.9m including

3m @ 6.40%Ni, 3.55%Cu, 0.21%Co and 5.25g/t total PGEs from 159.38m

(<u>On right</u>: Drill core from MAD56. The section of core is from an interval that returned assays of **3.15m** @ **6.36%Ni**, **2.92%Cu**, **0.20%Co** and **5.03g/t total PGEs** from **61.81m** 

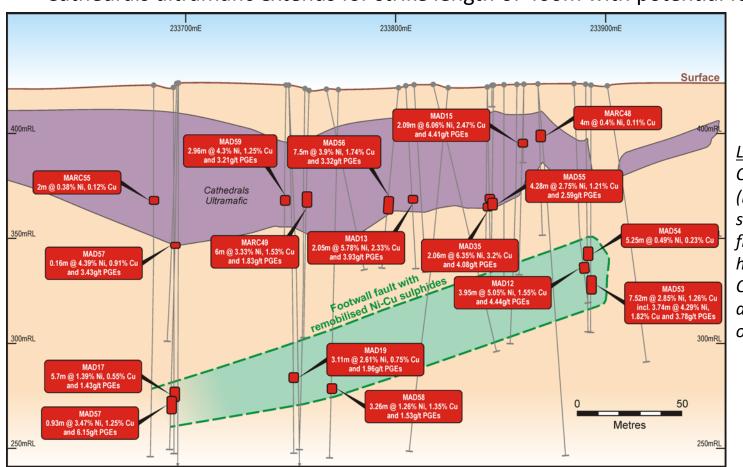


## **Cathedrals Prospect**

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## **High Grade Mineral System**

- Numerous intersections of high grade mineralisation on two surfaces the Cathedrals ultramafic and the footwall fault below – with infill and extensional drilling ongoing
- Cathedrals ultramafic extends for strike length of 400m with potential for extensions



Left: a long section of the Cathedrals Prospect (looking north) showing significant intersections from both recent and historic drill holes. The Cathedrals ultramafic and footwall fault outlines are also shown.

## **Metallurgical Testwork**

## **High Value Concentrate**

#### **Positive Results from Initial Test**

Preliminary metallurgical testwork on a sample of massive nickel-copper sulphide indicates that Mt Alexander will produce a high value saleable concentrate that will be sought after

#### **High Recoveries from Ore**

>99% recoveries of Ni and Cu to concentrates
No deleterious elements like MgO or arsenic
(on right: copper being floated in the metallurgical test
completed by Strategic Metallurgy Pty Ltd)

#### **High Grades**

Nickel concentrate with 18%Ni (Nova is 13.5%Ni\*)
Copper concentrate with 32%Cu (Nova is 29%Cu\*)
Cobalt grade of 0.55%Co in nickel concentrate
PGEs + Au of 13.5 g/t in nickel concentrate
PGEs + Au of 3.2 g/t in copper concentrate

<sup>\*</sup> Nova Optimisation Study announced by IGO in ASX Release dated 14 December 2015



## **Favourable Project Economics**

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## **Opportunity for a High Margin Mining Operation**

Low Cost Mining	Low Development Capex	Concentrate will sell at a premium
✓ Shallow mineralisation	✓ Access to nearby plants	✓ High grade Ni and Cu plus cobalt and PGEs
✓ Well defined zones	✓ Existing infrastructure	✓ Excellent metallurgy



<u>Left</u>: Tim King Pit at Spotted Quoll mine at Forrestania (owned 100% by Western Areas Limited) where high grade nickel sulphides were mined from 60m below surface

## **Drilling Recommences Soon**

#### **Potential for Further Discoveries**

#### **SAMSON EM Survey**

- High powered SAMSON EM survey is underway over the 3km western extension of the Cathedrals Belt
- Includes the intersection of the Cathedrals Belt and Ida Fault, which may have acted as a control on mineralisation
- Magnetic data indicates potential for similar mineralised ultramafics to those successfully drilled along strike at Investigators, Stricklands and Cathedrals Prospects

#### **Drill Programme**

- Drilling to commence mid-October 2017
- New EM targets to be tested
- Continue extensional drilling
- First ever deep drill holes (+400m) to test mineralisation at depth





## **Nickel Price Cycle**



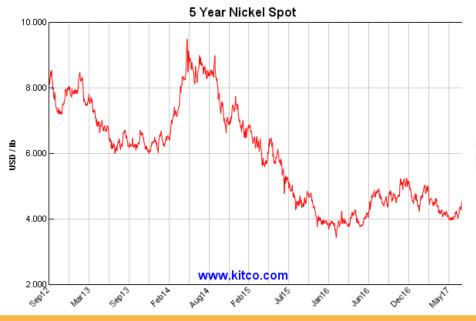
## **Upswing in Cycle is Underway**

#### **The Analyst says:** Wood Mackenzie:

"By 2020 there will be a need for new project development. We estimate that the promise of a **long-term nickel price of US\$22,000/t** (US\$10.00/lb) should be enough to incentivise those new projects." *Dec 2016* 

"Growing market perception of material tightness at the front end of an electric vehicle powered demand boom." Aug 2017

□ 5 year price graph shows that the long term trend is changing; 6 month price graph shows clear upswing



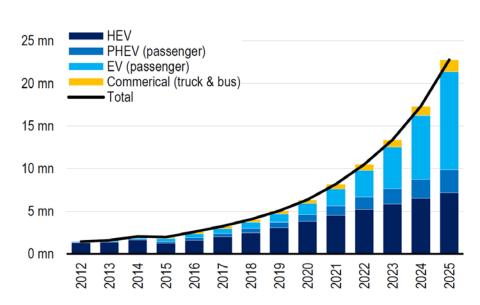


## **Electric Vehicle Revolution**



## Nickel Sulphide Poised to be a Big Winner

- Approx. 50kg of nickel in every lithium-ion EV battery
- Nickel-rich batteries have superior energy density and increased range
- Tesla uses a Nickel-Cobalt-Aluminium (NCA) cathode for its batteries which is 80% nickel
- Only high grade nickel can be used in batteries nickel laterite, nickel pig iron and ferronickel are not suitable



Above: Growth in EV's will grow exponentially, fuelling strong battery and nickel demand

(Source: Roskill/UBS)

## **Elon Musk, CEO of Tesla** or lithium-ion batteries:

"....lithium is 2% of our batteries....... really, our batteries should be called nickel graphite batteries as they are mostly nickel and graphite ...."

<u>Credit Suisse:</u> Musk's comment was meant to allay concerns about Tesla's heavy dependence on lithium; it actually highlights the potential for a squeeze in nickel prices.

## **EV Demand for Nickel**



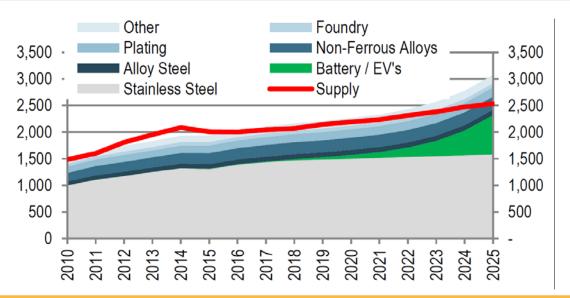
## **Market Dynamics About to Change**

#### **Demand Growth**

- Growth in EV battery manufacture may increase nickel demand by 300,000 to 900,000 tonnes of nickel per year by 2025
- Incremental demand for nickel from the EV market will continue to rise rapidly after 2025

#### Supply Constraint

- Nickel supply in 2017 is 2,200,000 tonnes of nickel, growing to 2,500,000 tonnes by 2025
- Approx. 50% of supply is nickel pig iron, ferro-nickel or other nickel feedstocks which are not suitable for battery manufacture
- Battery makers are already engaging with high grade nickel producers to secure supply



Left: Sources of nickel demand with EV/battery demand growing strongly (Source: Roskill/UBS)

## **East Laverton Project**

## **Nickel and Gold Prospects**

#### **Important Regional Location**

Near the two most recent world class gold discoveries in WA – Tropicana +8MozAu and Gruyere +6MozAu

#### **Underexplored for Gold**

Shallow drilling has identified widespread anomalous gold confirming prospectivity

#### **Favourable Structural Features**

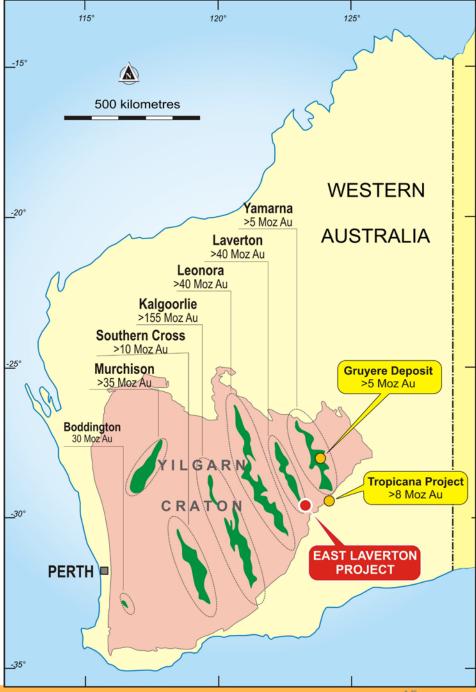
Fundamental structures/faults that control gold and nickel mineralisation are prominent

#### **Large Scale Gold Potential**

Large gold systems identified with potential for significant deposits

#### **Nickel Discovery**

BHP (under a concluded farm-in arrangement) discovered nickel sulphides within +40km of ultramafic belts, with ongoing exploration



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- -may include, among other things, statements regarding targets, estimates and assumptions in respect of mineral reserves and mineral resources and anticipated grades and recovery rates, production and prices, recovery costs and results, capital expenditures, and are or may be based on assumptions and estimates related to future technical, economic, market, political, social and other conditions:
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#### **COMPETENT PERSON STATEMENT:**

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves is based on information compiled by Mr Tim Hronsky, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Mr Tim Hronsky is employed by Essential Risk Solutions Ltd which has been retained by St George Mining Limited to provide technical advice on mineral projects.

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources or Ore Reserves regarding the Hawaii and Mt Alexander Projects is based on information compiled by Mr Matthew McCarthy, a Competent Person who is a Member of The Australasian Institute of Geoscientists. Mr McCarthy is employed by St George Mining Limited.

This ASX announcement contains information extracted from the following reports which are available on the Company's website at <a href="https://www.stgm.com.au">www.stgm.com.au</a>:

- 22 September 2016 Assays Confirm Significant Nickel-Copper Mineralisation
- 20 October 2016 Strong Results Continue at Mt Alexander
- 6 April 2017 Drilling Success Continues at Mt Alexander
- 1 May 2017 Thick Mineralisation Intersected at Mt Alexander
- 4 May 2017 Major Gold and Nickel Drill Programme at East Laverton
- 5 May 2017 Drilling Extends High Grade Nickel-Copper Sulphides
- 10 May 2017 Further Significant Intersections at Mt Alexander
- 18 May 2017 Drilling Underway at east Laverton
- 2 June 2017 Drilling at Windsor Nickel Sulphide target
- 5 July 2017 High Grade Nickel-Copper-Cobalt-PGEs at Investigators
- 6 July 2017 Nickel Sulphide Exploration at Windsor is Escalated
- 19 July 2017 High Grade Nickel-Copper-Cobalt-PGEs at Investigators
- 27 July 2017 Gold Drilling at East Laverton
- 12 September 2017 Mt Alexander Exploration Update

The Company confirms that it is not aware of any new information or data that materially affects the exploration results included in any original market announcements referred to in this report and that no material change in the results has occurred. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.



## St George Mining: creating shareholder wealth through exploration success

