

# TNG LIMITED

*DEVELOPING THE NORTHERN TERRITORY,  
AUSTRALIA*



*THE 5<sup>th</sup> ANNUAL NORTHERN TERRITORY  
MAJOR PROJECTS CONFERENCE*

A close-up, angled view of a portion of the periodic table. The central focus is on Vanadium (V), atomic number 23, with its symbol 'V', atomic weight '50.9415', and electron configuration '[Ar]3d<sup>3</sup>4s<sup>2</sup>'. To its left is Titanium (Ti), atomic number 22, with its symbol 'Ti', atomic weight '47.867', and electron configuration '[Ar]3d<sup>2</sup>4s<sup>2</sup>'. To the right is Chromium (Cr), atomic number 24, with its symbol 'Cr' and atomic weight '51.9961'. Above Vanadium is Vanadium (V) with atomic number 23 and symbol 'V', and above Chromium is Chromium (Cr) with atomic number 24 and symbol 'Cr'. The table is tilted, and the background is a dark blue gradient.

	VB	
B	23	24
<sup>3</sup> F <sub>2</sub>	<sup>4</sup> F <sub>3/2</sub>	
Ti	V	Cr
Titanium	Vanadium	Chromium
47.867	50.9415	51.9961
[Ar]3d <sup>2</sup> 4s <sup>2</sup>	[Ar]3d <sup>3</sup> 4s <sup>2</sup>	[Ar]3d <sup>5</sup> 4s <sup>1</sup>
2281	6.7462	42
		<sup>6</sup> D <sub>1/2</sub>
	41	

# Disclaimer

## Forward-Looking Statements

This presentation has been prepared by TNG Ltd. This document contains background information about TNG Ltd current at the date of this presentation. The presentation is in summary form and does not purport to be all inclusive or complete. Recipients should conduct their own investigations and perform their own analysis in order to satisfy themselves as to the accuracy and completeness of the information, statements and opinions contained in this presentation.

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## Competent Person's Statement

### JORC 2004

The information in this report that relates to Exploration Results and Exploration Targets is based on information compiled by Paul Burton who is a Member of The Australasian Institute of Mining and Metallurgy and a Director of TNG Limited. Paul Burton has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Paul Burton 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 included in the 2012 PFS and is based on information compiled by Lynn Olssen who is a Member

of The Australasian Institute of Mining and Metallurgy and a full time employee of Snowden Mining Industry Consultants Pty Ltd. Lynn Olssen has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which she is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Lynn Olssen 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 Financial Analysis is based on information compiled by Jeremy Peters who is a Member of The Australasian Institute of Mining and Metallurgy and a full time employee of Snowden Mining Industry Consultants Pty Ltd. Jeremy Peters has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Jeremy Peters consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

Mr Damian Connelly, FAAusIMM, Chartered Processional (MET), tMMICA, MSME, MSAIMM was responsible for the preparation of the metallurgical test work results reported herein. Mr Connelly has sufficient experience to the activity which he is undertaking to qualify as a Competent Person as defined in the 2004 Edition of the "Australasian Code for Reporting of the Exploration Results, Mineral Resources and Ore Reserves". Mr Connelly consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

### JORC 2012

The information in this report that relates to 2013 Mineral Resource Upgrade for the Mount Peake project is based on and fairly represents, information and supporting documentation compiled by Lynn Olssen who is a Member of The Australasian Institute of Mining and Metallurgy and a full time employee of Snowden Mining Industry Consultants Pty Ltd. Lynn Olssen has sufficient experience relevant to the style of mineralisation and type of 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'. Lynn Olssen 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 Exploration Results and Exploration Targets for Mount Peake and Mt Hardy projects are based on information compiled by Exploration Manager Mr Kim Grey B.Sc. and M. Econ. Geol. Mr Grey is also a member of the Australian Institute of Geoscientists and a full time employee of TNG Limited. Mr Grey has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he 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'. Mr Grey consents to the inclusion in the report of the matters based on his information in the form and context in which it appear.

# Corporate Overview

## Major Shareholders

Ao-Zhong International Mineral Resources	10.23%
Aosu Investment & Development Co	10.16%
WWB Investments P/L	10.31%

*(Directors along with their related companies hold approximately 14% of issued capital)*

## Board of Directors

Michael Evans	Acting Chairman
Paul Burton	Managing Director
Stuart Crow	Non-executive Director
Rex Turkington	Non-executive Director
Jianrong Xu	Non-executive Director
Zhigang Wang	Non-executive Director

## Key Corporate and Financial Data

ASX code:	TNG
Market capitalization (at 22c):	\$125M
Shares on issue:	554M
Cash: (End June Qtr)	\$4.3M
Auditors: KPMG	
Lawyers: Clifford Chance	

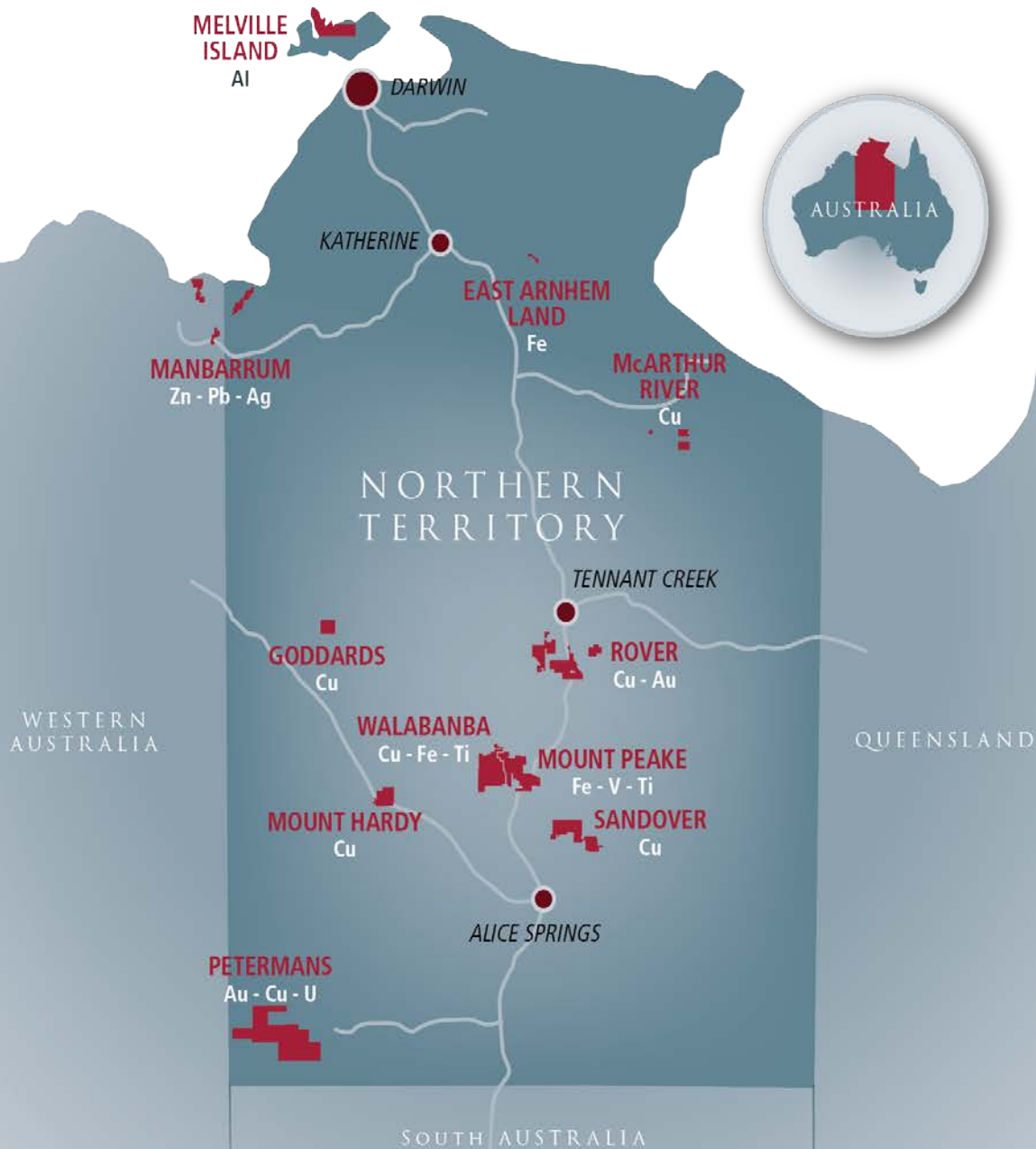
TNG Limited (ASX:TNG)

**0.140** 0.000 (0.00%)



TNG share price over past 6months as of October 15th, 2014

# TNG PROJECTS NT





# Vanadium in the News

October 2014

[A Change in the fortune of Vanadium-redox batteries](#)

3 October 2014

[Vanadium prices forecasted to rise with Chinese construction](#)

4 September 2014

[Vanadium operated CellCube used as energy storage solution in NYC](#)

4 July 2014

[AFR Article - Resources for batteries tipped to surge](#)

13 June 2014

[Metal Bulletin - TNG signs letter of intent for vanadium offtake with Woojin](#)

6 June 2014

[TNG on the march as Vanadium market heats up](#)

5 May 2014

[A Giant Leap for Energy Storage](#)



# Energy Storage:

The Japan Times 28 September 2013:

## Big battery eyed as green energy cure

Japan to build the world's largest storage battery system  
Six-story cell to keep power flowing.....

....*“redox flow” battery system, produced by Sumitomo,*

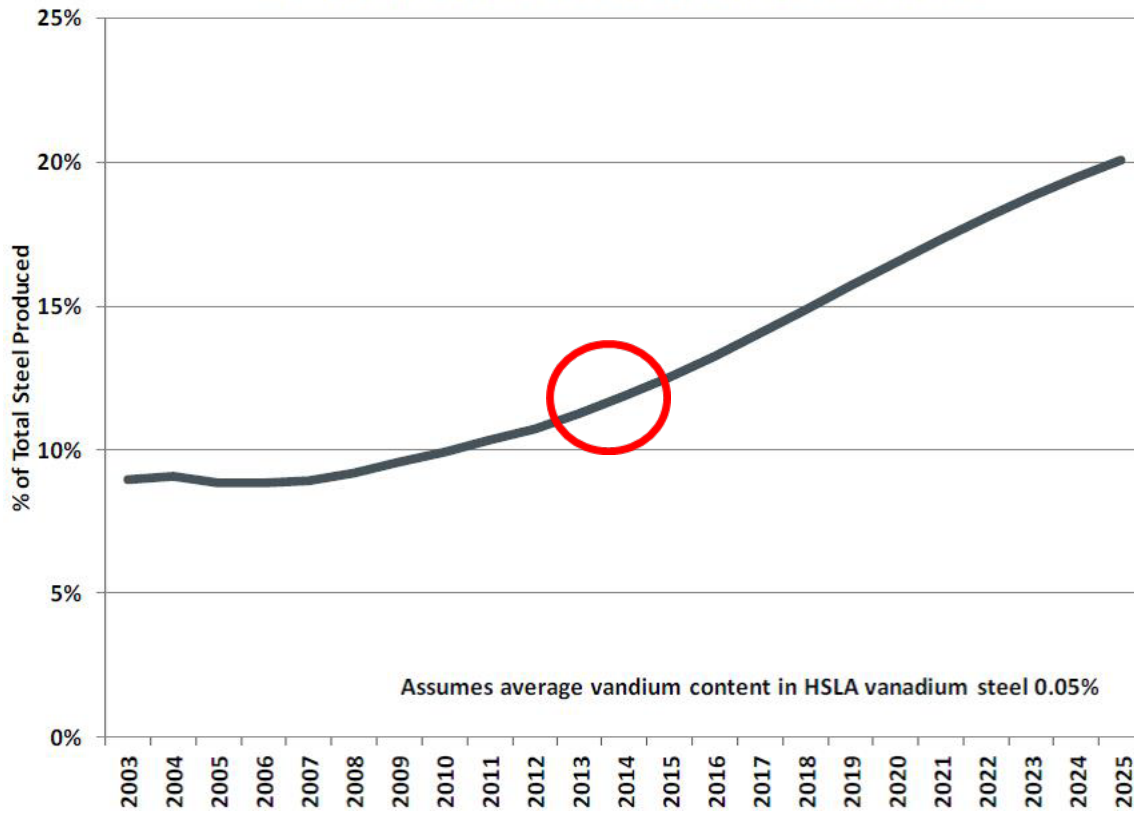
....*10 MW, using an electrolytic solution of **vanadium.***



# Vanadium demand

6% increase forecast in Vanadium for Steel, year on year

## Vanadium Steel Market Share



Source: Roskill



# Vanadium Supply:

Forecast to increase by 30% in 2017 to >120,000 tonnes

➤ Global Vanadium consumption 90,000 tonnes (source: Roskill)

➤ Current producers:

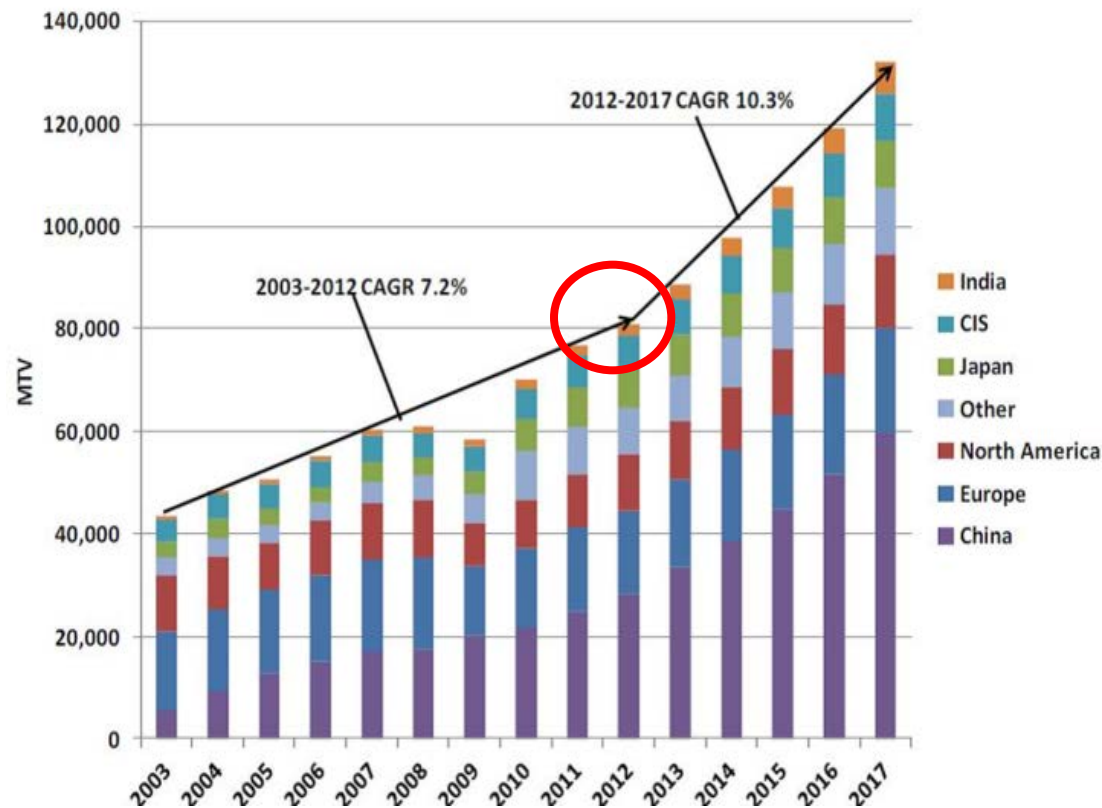
China – 15% export tariff on V205

S Africa – depleting resources

Russia – country Risk

S America – Largo Resources

## Global Vanadium Consumption



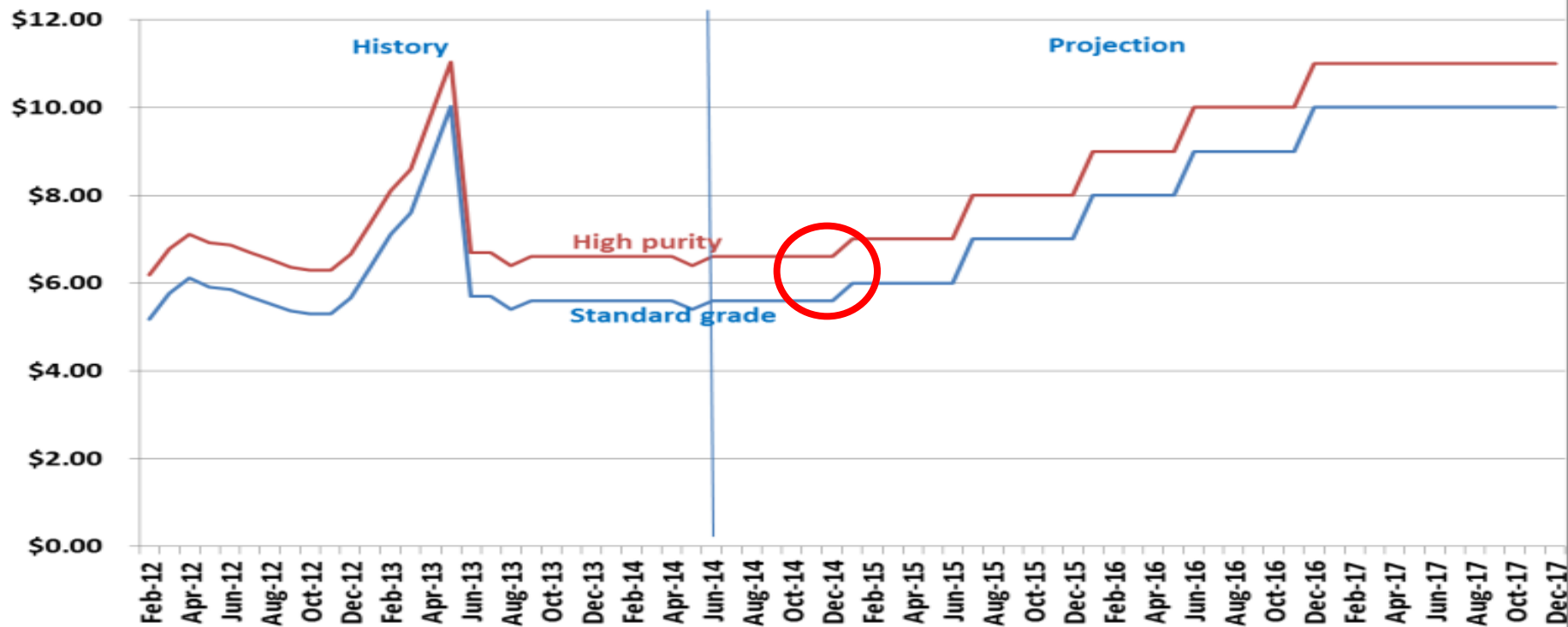


# Vanadium Price:

Current Price of  $V_2O_5$  approx. US\$6/lb  $V_2O_5$   
(approx. USD \$14,000 / Tonne)

Forecast to double by 2017 to  
US\$ > 25-30,000 / Tonne

## Metal Bulletin V2O5 Monthly Average Price 2012-2013 Historical, 2013-2017 Projection



# Vanadium Batteries

Increasing use in batteries and high technology metals

Batteries and storage cells could add exponential demand and growth!

## Vanadium Redox Flow Battery V

25,000

### Demand

Source: Camelot Ferroalloys, Inc.

23,730



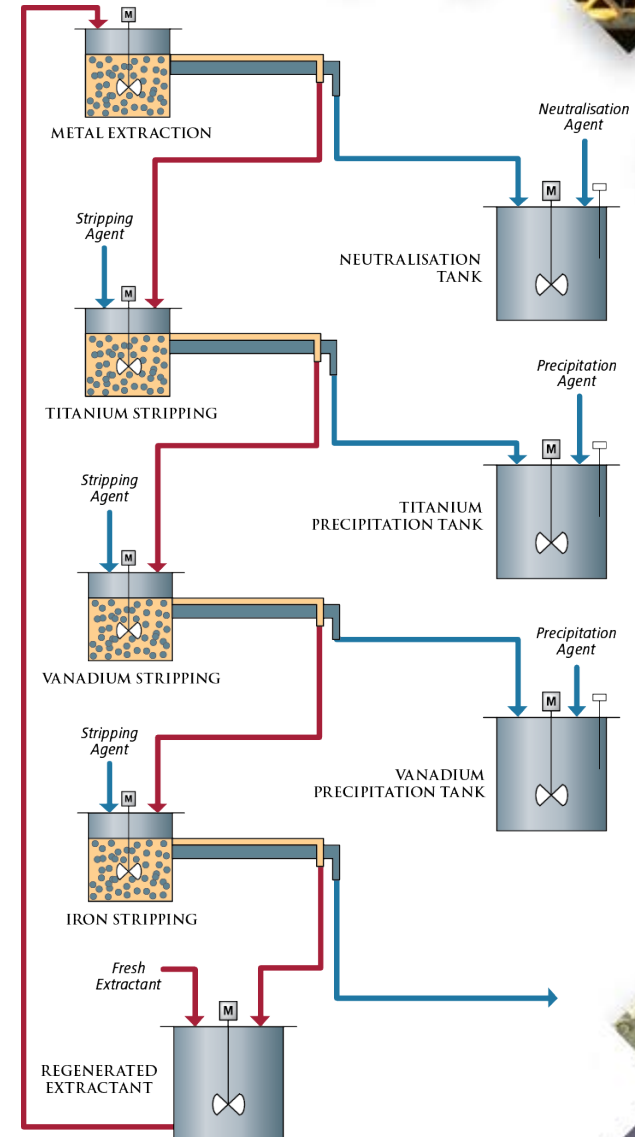
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# The TIVAN<sup>®</sup> Process

- ✓ Hydrometallurgical process
- ✓ PFS Pilot plant test work  
(refer ASX announcement 15/5/2012)
  - >99% V<sub>2</sub>O<sub>5</sub> (+80% recovery)
  - 99.9% Fe<sub>2</sub>O<sub>3</sub> (69.2% Fe) (80% recovery)
  - >55% TiO<sub>2</sub> (+75% recovery)
- ✓ Low Capex and Opex
- ✓ Now Registered in over 20 countries





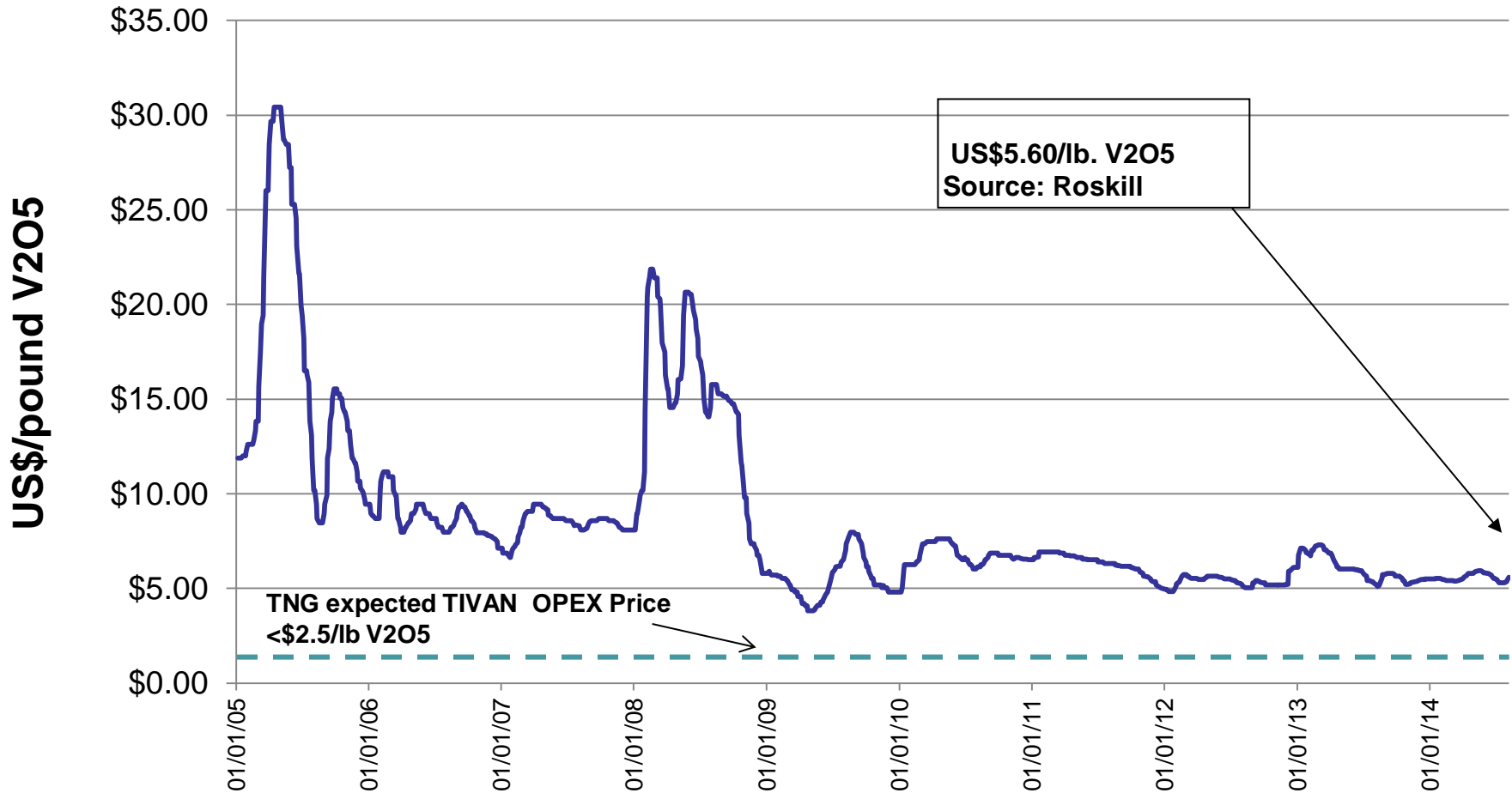
**TNG:** Aiming to be the worlds lowest cost and highest grade producer of vanadium pentoxide

- TIVAN expected to produce 1 tonne of high purity  $V_2O_5$  for approximately \$5000 USD  
Equivalent to <\$2.5USD / lb
- $V_2O_5$  with over 99% purity is the key raw material to Vanadium Redox Flow Batteries (VRB).
- Combining VRB energy storage with renewable energy



# TIVAN's Operating Cost

## HISTORICAL V205 PRICE AND TNG's FORECAST PRODUCTION COST



# Mount Project: Key Metrics (PFS)

Mine life:	20 years
Total revenue (LOM):	A\$13.6 billion
NPV:	A\$2.6 billion
Net annual cash flow:	A\$339M
IRR Pre-tax:	38%
CAPEX :	\$ 560M AUD

Exchange rate: **USD\$1:AUD\$1**

Annual Production (at 5Mt / annum )

11,000T	V <sub>2</sub> O <sub>5</sub>
290,000T	TiO <sub>2</sub>
900,000T	Fe <sub>2</sub> O <sub>3</sub> .

Supporting data in Appendix. Refer ASX announcements 12/7/2012;13/02/2013  
Source: Refer ASX announcements 09/092013 ;19/09/13

<i>Metal Purity</i>	
V <sub>2</sub> O <sub>5</sub>	99%
TiO <sub>2</sub>	55%
Fe <sub>2</sub> O <sub>3</sub>	99.9%

<i>Total Metal Productio</i>	<i>Tonnes</i>
V <sub>2</sub> O <sub>5</sub>	236,000
TiO <sub>2</sub>	5,822,000
Fe <sub>2</sub> O <sub>3</sub>	17,400,000

## Graphite

5km from Mount Peake resource

40m intercept of continuous graphite mineralisation

Potential for an extensive resource of graphite mineralisation

- Very large coincident EM target 1km x 0.5km
- Analytical and Met test work commenced

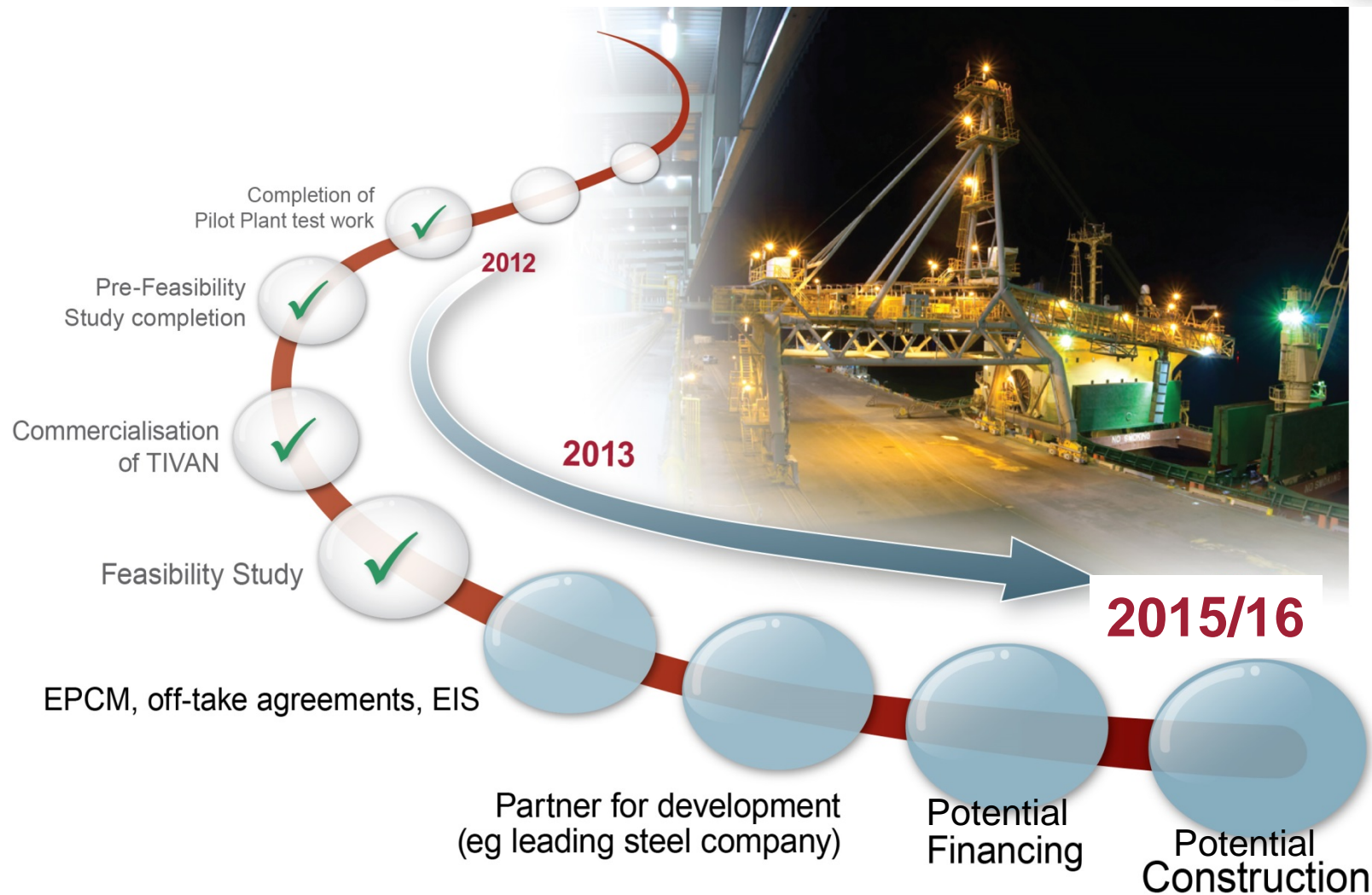


(Refer ASX release 21 July 2014, 21 October 2010  
20 August 2014, 17 September 2014)





# Development Pathway Clear



# Driving Development in 2014:

Landmark Agreements with:

**HYUNDAI STEEL**

**POSCO E&C**

**WOOJIN METALS**

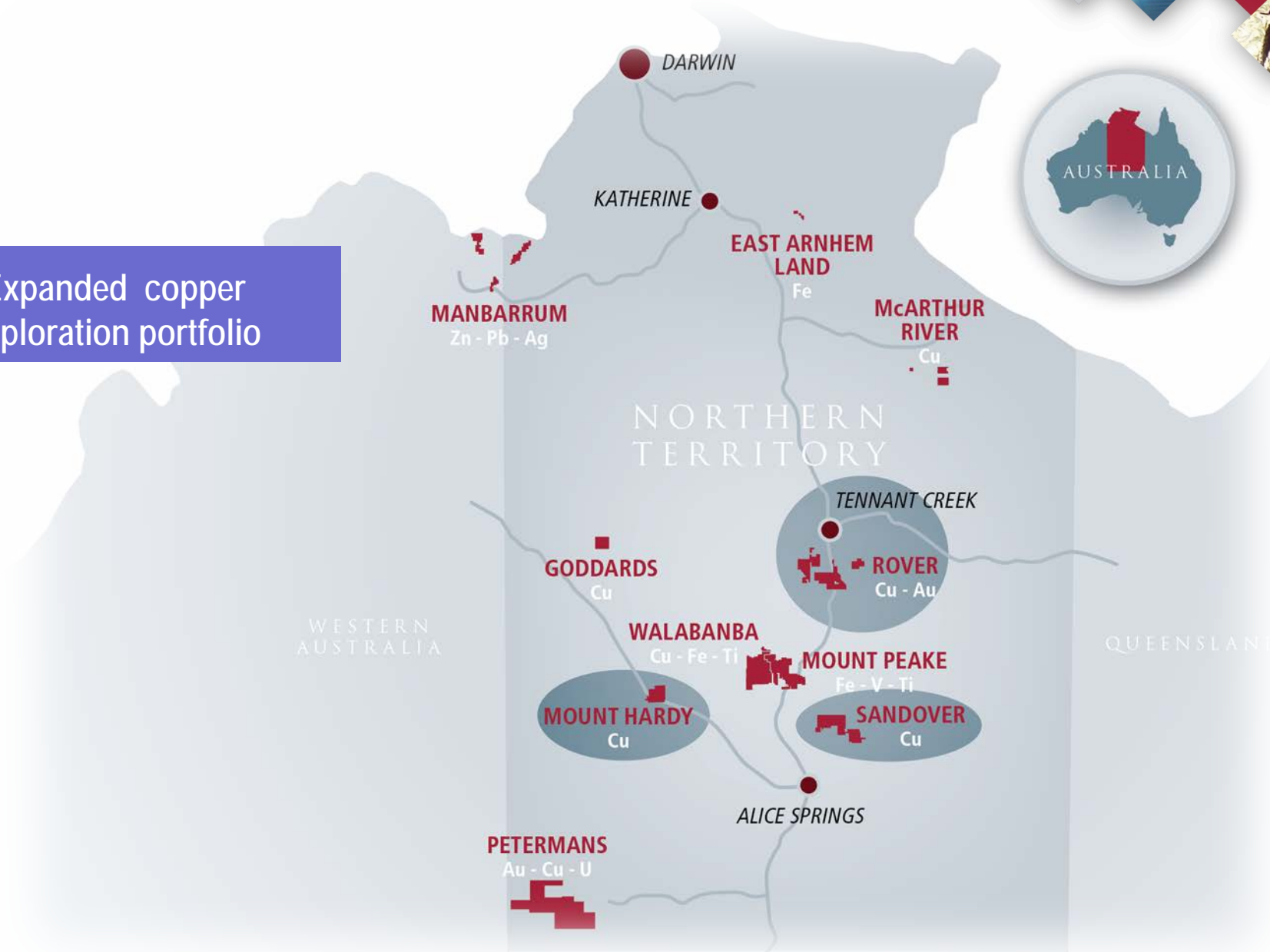
**GUNVOR**

**GLOBAL PACIFIC**



# Other Assets 100% Owned: Copper

Expanded copper exploration portfolio



# *Mt Hardy: Copper*





## McArthur River Copper / base metals Project

60Km SW of Major mines

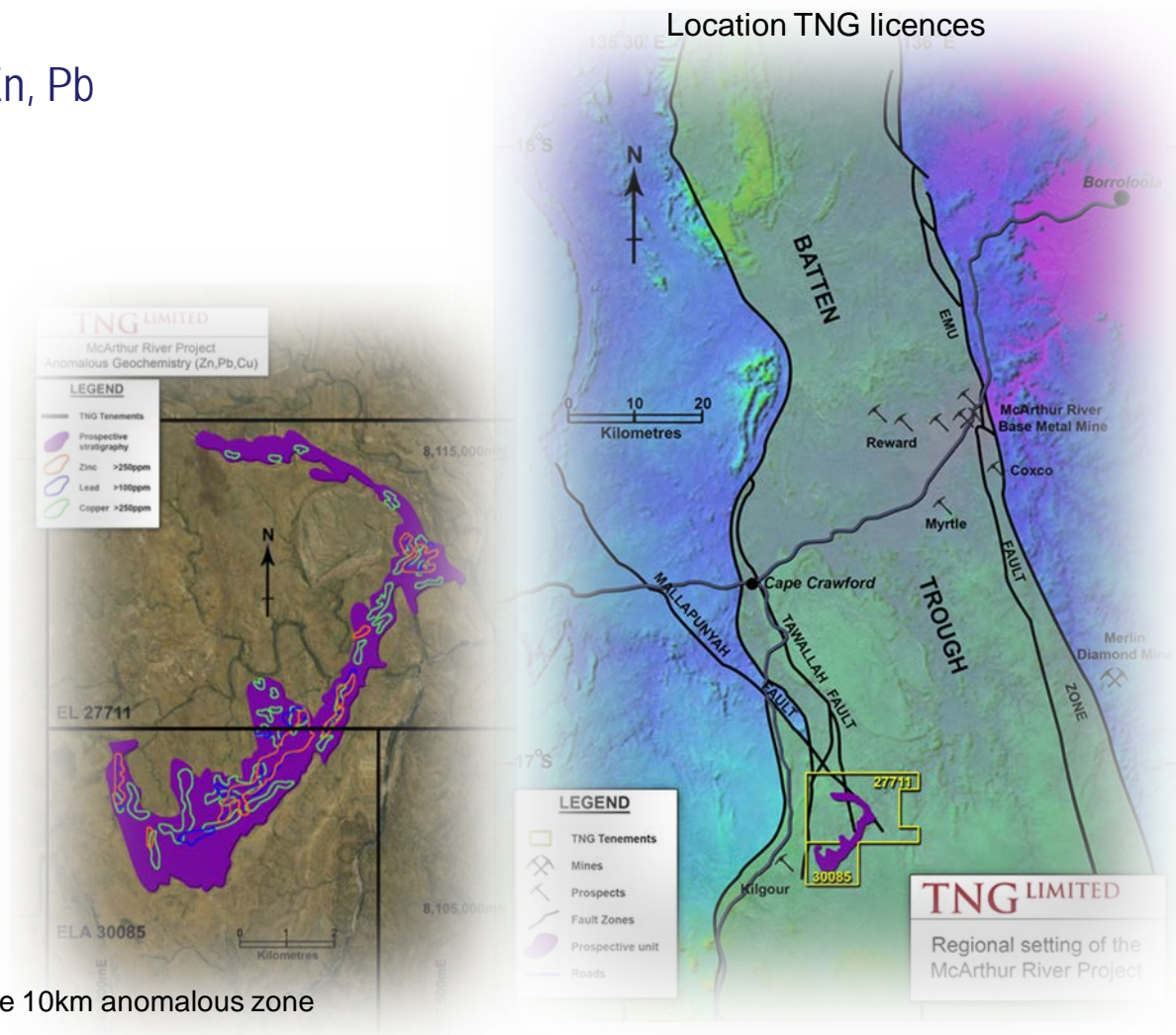
Extensive high-grade surface Cu, Zn, Pb

Rock chips up to 3% Cu,

10km zone

Large IP targets

Drill results pending



Extensive 10km anomalous zone

# TNG Highlights

- Mineral-asset rich project portfolio in NT
- Developing a world-class Vanadium-Titanium-Iron Project
- Vanadium poised for growth
- Production potential 2017
- Lowest cost producer @ <\$2.5/lb v205
- Huge upside to resource potential
- Quality graphite and base metal projects to add value
- \$2.6B NPV v Market Cap: <\$100M = Huge Disconnect



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ASX: TNG



# THANK YOU

Paul Burton – Managing Director



# Appendix – Supporting Data

## Mineral Resources and Exploration Targets:

The Pre-Feasibility Study (PFS) is based on the updated Indicated and Inferred Resource for Mount Peake published on 12 October 2011 of 160Mt @ 0.3% V<sub>2</sub>O<sub>5</sub>, 5% TiO<sub>2</sub> and 23% Fe (Indicated 110Mt @ 0.29% V<sub>2</sub>O<sub>5</sub>, 5.3% TiO<sub>2</sub> and 23% Fe; Inferred 48Mt @ 0.24% V<sub>2</sub>O<sub>5</sub>, 4.5% TiO<sub>2</sub> and 21% Fe). The Pre-Feasibility assumptions the financial model is based on mining 75.9 Mt of the 160 Mt Mineral Resource Of this amount 20.4% is from the Inferred Mineral Resource category. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.

In addition to this resource, TNG has published an Exploration Target of 500-700Mt grading 0.2-0.4% V<sub>2</sub>O<sub>5</sub> and 25-35% Fe. The potential quantity and grade is conceptual in nature, there has been insufficient exploration to define a Mineral Resource and that it is uncertain if further exploration will result in the determination of a Mineral Resource.

## Pre-Feasibility Study:

Reference to the PFS is to the ASX announcement 9 July 2012, which was prepared based on the Company's presently delineated mineral resource estimate. Any investment decision should be considered based on this information. Full details of the Mount Peake Pre-Feasibility Study are available in the Company's ASX Announcements 9 July 2012 and 19 September 2013. Mining is based on the PFS financial analysis which includes 20.4% of Inferred Resource material (there is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised).

## Key assumptions of 2012 PFS include:

- Operating costs and pit slope angles related to mining estimated to a Pre-Feasibility Study level ( $\pm 25\%$ )
- V<sub>2</sub>O<sub>5</sub> price of US\$20,305/tonne (> 90% grade)
- TiO<sub>2</sub> price of US\$400/tonne (> 55% grade)
- Fe<sub>2</sub>O<sub>3</sub> price of US\$200/tonne (> 69% grade)
- Royalty rate of 2.5% per tonne of plant feed
- Discount rate of 8%
- AUD\$/US\$ exchange rate of 1 US\$ = 1AUD\$

## Nett Annual Cash Flow:

Is defined as the average discounted cash flow per annum after all CAPEX (pre-strip CAPEX, initial CAPEX, and expansion CAPEX) has been deducted, but ignores cost or source of capital, hedging, tax, depreciation, rehabilitation and salvage.