

February 2015

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## **Company Information**

ASX Code	TNG
Share Price	A\$0.097
Ord Shares	623.4m
Options	70.8m
Market Cap	A\$67.3m
Cash (Dec 15)	A\$7.2m
Total Debt	A\$0m
Enterprise Value	A\$60.1m

#### **Directors**

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

#### **Substantial Shareholders**

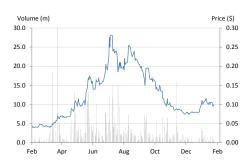
Ao-Zhong Int. Min Resources	9.99%
WWB Investments P/L, Mr & Mrs Brown	9.48%
Aosu Inv. & Develop. Co	9.03%
Mr Paul Burton	1.92%
JP Morgan Nom's	1.28%
Top 20	42%

Source: TNG

#### **Company Details**

Address	Level 1, 282 Rokeby Rd Subiaco, WA, 6008	
Phone	+618 9327 0900	
Web	www.tnglimited.com.au	

#### 1 Year Price Chart



## **TNG Limited (TNG)**

## All the Pieces Are Falling in Place

## Recommendation: Speculative **BUY**

## **Key Points**

- Flagship Mount Peake V-Ti-Fe Project DFS progressing well expected delivery mid-2015
- Key agreements signed with a number of potential project partners
- Front end design improvements of the TIVAN process should result in higher metal recoveries, significantly lower capex and improve project economics
- Exciting exploration results at McArthur River confirms the attractiveness of the proposed spin-out of non-core mineral assets through "Todd River Resources"
- Base case indicative value of \$0.365/share, contingent on successfully attracting an equity partner to fund and develop Mount Peake

TNG has made considerable progress towards finalisation of the BFS and commercialisation of its Mount Peake V-Ti-Fe Project in the Northern Territory of Australia. Key recent advancements include the signing of a number of agreements with potential off-take, strategic and financing partners, as well as progressing logistics solutions.

The final technical elements of the BFS are underway, with completion expected mid-2015. The key will be the pilot TIVAN® leach testwork, expected to commence by the end of Q1, CY2015.

Encouraging exploration results at McArthur River have boosted the potential of this project, with this set to be a key element of the proposed spin out of non-core assets.

We maintain our SPECULATIVE BUY recommendation for TNG, with price drivers including TIVAN® pilot plant success, returning a positive DFS and securing project finance and development partners.

## Company Overview

TNG is concentrating activities on the BFS for its flagship Mount Peake V-Ti-Fe project, located north of Alice Springs in the Northern Territory. The project has the potential to be a major global supplier of premium grade vanadium, as well as high purity iron and titanium products.

The TIVAN® hydrometallurgical process is being developed by TNG and partners to be a low cost method of leaching titano-magnetite concentrates to extract all valuable components, including vanadium, iron and titanium.

The Company also holds a number of other base and precious metals projects in the Northern Territory, which it plans to spin out, via IPO, into Todd River Resources.



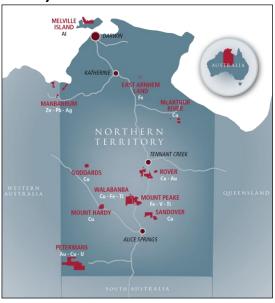
#### **Investment Thesis**

## **Background**

TNG Limited ("TNG" or "the Company"), in which Breakaway initiated coverage in October 2012, is an ASX listed explorer and developer.

Flagship project is the Mt Peake V-Ti-Fe Project in the NT The flagship project is the 100% owned Mount Peake V-Ti-Fe Project, located 235km north of Alice Springs in the Northern Territory ("NT") of Australia, which has resources of 160Mt grading  $0.28\%~V_2O_5$ ,  $5.3\%~TiO_2$  and 23% Fe (with significant upside), and the potential to become a major, low-cost global vanadium producer.

#### **TNG Project Locations**



Source: TNG

Positive PFS in 2012, reviewed in 2013

Portfolio of other attractive projects

The Company has responded well to difficult market conditions

Two-pronged strategy, with the focus on ferrous and strategic metals

Proposed spin-out of the portfolio of base metals projects

Coffers boosted by \$5.5 million in raisings, \$1.2m R & D refund

A positive Pre-Feasibility Study ("PFS") was completed in mid-2012, reviewed in early 2013, and TNG is now working steadily on the Definitive Feasibility Study ("DFS") due for completion in mid-2015.

The Company also has a portfolio of attractive base metal projects located in the NT which it plans to spin out into an IPO.

## **Corporate Strategy and Activities**

Despite the current difficult market conditions for the resources sector, TNG has continued to advance its projects, with Mount Peake being the key focus, and on which significant progress has been made.

Exploration activities have been undertaken on the base metals projects. Although these are prospective with excellent technical merit, they are not TNG's primary focus, and hence the Company has been actively looking at options to properly fund these properties. Depending on market conditions, the preferred option is a spin-out the base metals projects into a new vehicle — Todd River Resources. TNG would retain a large shareholding in the new vehicle, which would also, dependent upon regulatory approval, include an in-specie distribution to TNG shareholders.

TNG has recently raised \$5.5 million through an over-subscribed placement. In addition, the treasury was boosted by the receipt of a \$1.2 million Research and Development refund claim from the Federal Government. This has left the Company's finances in a healthy state of over \$7 million at the end of December 2014, enough to fund the completion of the DFS.



## **Key is The TIVAN® Process**

The key to Mount Peake is the TIVAN® hydrometallurgical process The key to the success of Mount Peake is the TIVAN® process, a hydrometallurgical process that produces three products – premium (>96%) battery grade vanadium pentoxide ( $V_2O_5$ ), titanium dioxide concentrate ( $TiO_2$ ) and high purity iron oxide powder ( $Fe_2O_3$ ).

Three products –  $V_2O_5$ , TiO<sub>2</sub>, Fe<sub>2</sub>O<sub>3</sub> The process is being developed jointly by TNG and Mineral Engineering Technical Services ("METS") of Perth, along with the CSIRO. The technology is owned 100% by TNG, and is currently being optimised for pilot-scale leach testwork, expected to commence in Q2, 2015.

Bench and pilot scale testwork has been successful Bench-scale and pilot-scale development testwork to date has been very successful; resulting in high recoveries to high grade products. The process uses well understood individual process technologies that have been applied globally for many years – it is the combining these into an overall flowsheet that is new.

Existing vanadium operations generally use complex and expensive processes

Optimisation testwork during 2014 indicated that a pre-leach roasting stage will be beneficial – this would significantly reduce capex (by ~\$100m) largely through changes in the acid regeneration plant design. Other results include the production of a higher grade concentrate through changes in the magnetic concentration circuit, which should result in higher leach recoveries in the TIVAN® circuit, all of which appreciably enhance the project economics.

Although the addition of a roasting stage brings TNG's processing closer to that of other vanadium producers, the leach stage with the extraction of the three products does differentiate it from other producers.

## **Potential Vanadium Industry Game-Changer**

TIVAN® could be a potential game changer in the vanadium industry

Should the scale-up and commercialisation of the TIVAN® process prove successful, it has the potential to be a game-changer in the vanadium industry. One key is that it has the potential to provide a reliable supply of high purity, battery grade  $V_2O_5$ , one thing that is apparently lacking in the current market – a point which is raised by some independent analysts.

This then may help drive the development of Vanadium Redox Batteries ("VRB"), which has been stymied partly by the lack of suitable  $V_2O_5$ , which is required for the battery electrolyte. These batteries have the capacity for grid-scale power storage, with trials being run in a number of countries.

#### **Simple Mineralisation**

Simple, flat-lying mineralisation, fresh rock

Other factors that differentiate Mount Peake from other vanadium operations include the simple, flat-lying nature of the ore body (low and consistent strip ratios over time) and largely fresh rock (no clays to affect processing). There are significant thickness of mineralisation in the magnetite gabbro sill, which should result in a low strip, low dilution open cut mining operation

## **Agreements in Place**

A number of key agreements in place with potential project partners As part of its progress towards production the Company has also signed preliminary agreements, including Memorandum's of Understanding (MoU's) and Letters of Intent (LoI's) with a number of potential development and off-take partners over the last ten months.

The signing of these agreements and ongoing negotiations adds significantly to the potential to finance and develop the project upon completion of a positive study.



These signatories and potential project involvement include:

- POSCO Engineering and Construction (project finance and development);
- WOOJIN Industrial Company (project finance, development and vanadium offtake);
- Gunvor Group (iron products off-take);
- Hyundai Steel (development and iron products off-take);
- Sinometal (magnetite concentrate off-take);
- Global Pacific Partners (logistics, project finance and titanium product off-take);
- Genesee and Wyoming Australia (rail transport logistics); and
- Port of Darwin (port access).

## **Project Development Options – Early Start up?**

Possible two stage development at Mount Peake, with early cash flow from sales of concentrate As part of the DFS process, TNG is investigating the possibility of a two-stage development at Mount Peake – an initial two to three year term producing titanomagnetite concentrate for export, followed by production of the high quality products using TIVAN®. This would possibly involve an initial relatively low capex 2.5mtpa mining operation, ramping up to 5mtpa to feed the TIVAN® plant once it is completed.

The two phase scenario will bring in early cash flow whilst the TIVAN® planning is finalised and the plant constructed.

Water and power requirements for the TIVAN® plant will not be known until the completion of the pilot plant optimisation work, with these factors impacting on the siting of the plant. The DFS for the full processing option cannot be completed until it is known where the plant will be sited.

Binding MoU for potential concentrate offtake

A binding MoU has been signed with Sinometal for the potential off-take of 500,000 to 1,000,000tpa of magnetite concentrate. A critical point here are the credits that can be negotiated for the vanadium – our view is that these are required for phase 1 to be feasible given current iron ore prices.

#### Infrastructure In Place

Ready access to existing infrastructure

A key requirement of any bulk commodities project is access to infrastructure. Although remote, the project is well placed in relation to infrastructure, being close to the Adelaide-Darwin railway, Alice Springs gas pipeline and Stuart highway. Negotiations are underway for port and rail access, with the plans to ship concentrate out of Darwin, initially to customers in Asia, and then to the proposed TIVAN® plant in Malaysia.

## Malaysia

Malaysia is the preferred location for the TIVAN® plant

Malaysia has been chosen as the preferred site for the processing plant, with the Company being offered two provisional site locations which are currently being reviewed.

## **Company Valuation**

DCF value of \$1,029 million for Mount Peake

We have updated our DCF cash flow model for Mount Peake, and from it derived a value to TNG based on a conceptual investment scenario. Revisions include a lower AUD/USD exchange rate, increased product recovery, reduced iron ore prices and reduced capital cost, which have resulted in an appreciable increase in value for Mount Peake.

Our project value, using an 8% real DR, is \$1,029 million, with an IRR of 35.5%. TNG's share, used in the table below, is based on a 40% free carried interest, with distributions commencing once capital has been paid out of cash flow. This includes an upfront payment of \$60 million for the sale of a 60% equity stake in the current resources.



Indicative valuation of \$0.365/share for TNG, based on a 40% FCI in Mount Peake

#### **Base Case Indicative TNG Valuation**

Project	Unrisked Value	Method	Risk Factor	Risked Value	Value/Share
<b>Mount Peake</b>	\$512 million	DCF, 8% real DR	40%	\$205 million	\$0.33
<b>Mount Hardy</b>	\$5 million	Estimate	100%	\$5 million	\$0.008
McArthur	\$5 million	Estimate	100%	\$5 million	\$0.008
Manburrum	\$5 million	Based on MoU	100%	\$5 million	\$0.008
Cash	\$7.2 million	December 31	100%	\$7.2 million	\$0.011
Total	\$534.2 million			\$227.2 m	\$0.365

Source: Breakaway Analysis

It has to be noted that the value ascribed to TNG for Mount Peake (90% of our NAV) is conceptual – this is totally dependent upon an off-take/equity partner signing up, and the terms of any agreement.

#### Risks

We see a number of key risks, particularly associated with Mount Peake.

Key risk is funding

Main technical risk is metallurgy, however results from work to date indicate a good chance of success

Market and commodity prices are risks, however the project should absorb moderate changes in prices and the terms of any such agreement. The terms of such an agreement are key drivers in TNG's value. The signing to date of preliminary agreements with potential financing, off-take and development partners is positive, and goes some way to mitigating this.

The major risk for the eventual development is attracting a partner to fund development,

The main technical risk is metallurgy, and success in commercialisation of the TIVAN® process. This is critical – without this the project will not work. However results to date indicate that there is a good chance that this will succeed.

As in all commodities projects prices and exchange rates are also key determinants of success. The Mount Peake Project, when TIVAN® is utilised is robust, and will be able to absorb moderate negative movements in these factors. Project economics have also been helped by the fall in the Australian dollar, also falls in oil prices have the potential to significantly cut operating costs – energy cost is a major input into resources projects.

Whilst on the market, what effect will the addition of over 15,000t of  $V_2O_5$  supply (above 10% of the current market) make on the vanadium market? Given that some operations, particularly in South Africa are nearing the end of their lives, and the concentration of remaining supply in China indicates that customers will be looking for alternative sources of supply.

In addition, developments in battery technology and higher intensity of use in steel may significantly increase demand over the coming years.

Interest in TNG's vanadium production has been shown by the signing of agreements with WOOJIN.

Our modelling indicates that the concentrate exporting phase of the proposed two phase development is not so robust – this will be highly sensitive to any changes in markets. In addition successful negotiation of vanadium credits for the first phase of the two phase operation is vital – these credits are required for this operation to be viable, particularly at current iron ore prices.

Infrastructure risk is largely mitigated

Transport and port infrastructure is in place, thus mitigating one key risk area of bulk commodities markets. The proximity to a gas supply is also a positive, which will help reduce operating costs.

The key risk with the other projects is exploration risk, typical for projects at this stage. Results to date however have shown the potential at Mount Hardy and MacArthur River.



## **Project Review**

## **Background**

TNG has a diverse property and technology portfolio in two main streams:

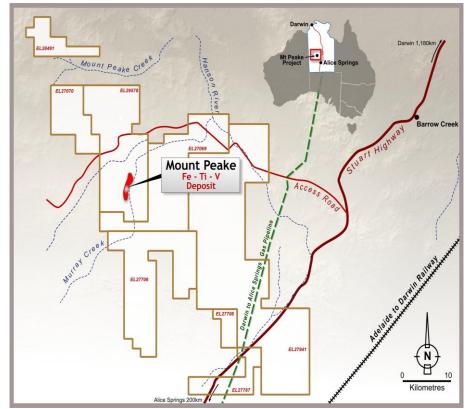
- Ferrous and Strategic Metals
  - Mount Peake V-Fe-Ti
  - TIVAN® V-Fe-Ti hydrometallurgical process technology
  - Legune Fe (part of the Manburrum tenements)
- Base Metals and Gold
  - Mount Hardy Cu-Au
  - MacArthur River Pb-Zn-Ag-Cu
  - Manburrum Pb-Zn-Ag
  - Sandover Cu
  - Various Cu-Au JV projects (not discussed here)

## Mount Peake V-Ti-Fe Project, TIVAN® Metallurgical Process (TNG 100%)

Mount Peake is TNG's key and most advanced project. It is being advanced in parallel with the TIVAN® metallurgical process, a solvent extraction process developed to extract high purity vanadium, iron and titanium oxides from magnetite concentrates.

Mount Peake is located approximately 235km north of Alice Springs, and close to key Central Australian infrastructure, including the Stuart Highway (40km), the Adelaide to Darwin Railway (60km, and 1180km to Darwin along the railway) and the Alice Springs gas pipeline (30km).

**Mount Peake Location and Infrastructure** 



Source: TNG

Two main streams – ferrous and strategic metals, base metals and gold

Mount Peake V-Ti-Fe is the most advanced project

Mount Peake is well located with regards to infrastructure



## **Development Strategy and Progress**

The overall strategy is to develop the Mount Peake Project, to produce high grade and purity V, Fe and Ti products using the TIVAN® technology. A DFS is currently underway, following completion of a robust PFS in October 2012 (which has been subsequently reviewed). It is expected that the DFS will be completed by the end of Q2, CY15.

The 2012 PFS assumed a fully integrated operation at Mount Peake; however the location of the TIVAN® process plant will be dependent upon power and water requirements, which will not be known until the completion of the pilot scale testwork currently underway – the preferred option is to locate the plant in Malaysia. This also feeds into the finalisation of the DFS – this cannot be completed until the plant location is also finalised.

A two stage project being considered –

- stage one involves selling magnetite cons
- stage 2
   processing using
   TIVAN®

Significant advances

on the DFS

As such, a staged start-up development is also being considered:

- Stage 1: Concentrate production (500,000 1,000,000tpa) and export through Darwin for two to three years whilst the plant site is finalised and plant constructed
- Stage 2: Processing of concentrates using TIVAN®

TNG has made considerable progress on the project since our June 2014 update, with key advances being the signing of the agreements with a number of potential partners.

Work and milestones completed to date as part of the DFS include:

- Resource upgrade 86% of the resource is in the Measured and Indicated categories
- Ongoing optimisation and pilot plant metallurgical testwork this has resulted in a number of improvements to the circuit, with the potential for significant economic outcomes
- Acquisition of 100% of the TIVAN® process, Q4, CY13
- GHD appointed to complete the EIS, with this study currently underway
- Internal and external PFS reviews, with positive economic outcomes
- "Major Project" status granted by the NT Government in Q3, CY13
- Notice of Intent ("NOI") lodged with the NT Government in Q2, CY13
- Heads of agreements signed with Darwin Ports (port access) and Genesee & Wyoming (logistical transportation study) in Q1, CY14 – Genesee and Wyoming agreement extended in October 2014
- Ongoing negotiations for a Mining Agreement with the NT Government
- Key agreements signed with potential offtake, finance and strategic partners throughout 2014
- Contracts for final DFS studies, including geotechnical and mining studies, awarded in January, 2014.

The "Major Project" status will provide a "whole of government" approach to the project development, and recognises that the project is one of significance to the NT. The NOI is a key step in the approvals project, giving the government formal notification that it intends to develop the project.

# Partners being sought to fund development

Robust PFS delivered in

2012

#### PFS Results and Reviews

A robust PFS was delivered by the Company in July 2012, which has subsequently been reviewed both internally and externally. The PFS assumed an open-cut mining operation, with on-site integrated processing.

Outcomes and assumptions from the original PFS, as delivered by Snowdens, Sinclair Knight



## Mount Peake - PFS parameters and outcomes

	Operating Parameters				
Total ore mined	75.9Mt				
Total waste movement	72Mt				
Total material moved	147.9Mt				
Strip ratio	0.95: 1				
Processing rate	2.5Mtpa expanding to 5Mtpa after 3 years				
Average head grade	0.39% V <sub>2</sub> O <sub>5</sub> , 27.09% Fe, 7.02% TiO <sub>2</sub>				
Average recoveries	80% V <sub>2</sub> O <sub>5</sub> , 66% Fe, 67% TiO <sub>2</sub>				
Average annual production	15,300tpa $V_2O_5$ , 1.13Mtpa $Fe_2O_3$ , 375ktpa $TiO_2$ con				
Life of mine	17.2 years + 2.8 years pre-production				
Financial	Financial Outcomes (pre-tax and financing)				
Total Revenue	A\$ 11.8 billion				
Surplus operating cash flow	A\$ 5.8 billion				
Net cash flow	A\$ 5 billion				
CAPEX	A\$560 million (2.5Mtpa), A\$151 million (expansion)				
Total operating costs	A\$75/tonne ore				
Net annual cash flow	A\$ 294 million				
Pre-tax IRR	31.8%				

Source: TNG

The reviews have enhanced the project economics, due to exchange rates changes, and also revenue from the iron product being significantly underestimated in the PFS. No operating parameters were changed during the reviews. The revised figures indicate an increase in project IRR from 31.8% to 47.5%, and an increase in NPV $_8$  from \$1.9 billion to \$3.7 billion as presented below.

Subsequent reviews have improved economics

#### **Revised Project Financials**

	Original PFS	Revised 09/13 AUD = 1.00 US	Revised 09/13, AUD = 0.85 US	Revised 03/14 AUD = 1.00 US	Revised 03/14, AUD = 0.90 US
Total Capex (2.5mtpa)	A\$563m	A\$563m	A\$563m	A\$520m	A\$520m
Expansion Capex ( 5mtpa)	A\$151m	A\$151m	A\$151m	A\$151m	A\$151m
LOM Cashflow	A\$5.8B	A\$6.79B	A\$9.13B	A\$7.22B	A\$8.53B
NPV <sub>8</sub>	A\$1.88B	A\$2.65B	A\$3.68B	A\$2.80B	A\$3.40B
Pre-Tax IRR	31.8%	38.7%	47.5%	43%	46%

Source: TNG

## Two Stage Strategy

As announced in July, 2013, TNG is considering a two stage operation for Mount Peake. This would involve an initial titano-magnetite concentrate production and sale phase, whilst finalising the development and location of the TIVAN® plant. The second stage would involve processing through TIVAN® to produce the high quality vanadium, iron and titanium products.

Binding MoU with

Sinometal for stage 1

Two stage strategy

being considered for

**Mount Peake** 

offtake

The Company has recently negotiated a binding MoU with Sinometal (see below) for between 500,000tpa and 1,000,000tpa of titano-magnetite offtake. Our modelling estimates annual net revenues of A\$40 million to A\$80 million, depending on throughput rates and product pricing assumptions. We have assumed a start-up capital of A\$100 million, and then A\$130 million to complete the ramp-up to the full 5mtpa mining and processing operation. This has been estimated from the PFS estimate of \$230 million.

The targeted concentrate specifications are 1.2%  $V_2O_5$ , 56% Fe and 18%  $TiO_2$ , from a 30% DTR recovery. Our analysis indicates that this equates to recoveries of ~60% Fe, ~75% Ti and ~90% V to a titano-magnetite concentrate.

These are comparable with concentrates for which Aurox Resources successfully

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negotiated off-take agreements for their Balla Balla Project in 2009 with RockCheck Steel and Chengde Iron and Steel Group – we note the latter is a customer of Sinometal. These graded  $1\% V_2O_5$ , 58% Fe and 14% TiO<sub>2</sub>. Aurox was subsequently taken over by Atlas Iron.

High Ti concentrates have long been considered problematic, given that the Ti content does significantly increase viscosity in the blast furnace, but there are steel producers, as evidenced by Aurox's experience, that can treat these concentrates.

Credit for vanadium critical in concentrates

Malaysia offers a

for chemical

number of advantages

processing industries

Our view is that if the company was to pursue the 2 stage scenario the key to a successful off- take agreement for Mount Peake's concentrates is what percentage of value is paid for the vanadium in the concentrate – current low iron ore prices (although offset by the current exchange rate) and the long transport distance do make economics difficult.

We do note from Aurox (February 2009 presentation) that Aurox was to be paid for the iron content only. However, with a potential significant increase in vanadium demand on the horizon, there is a possibility of favourable terms being negotiated.

#### The Malaysian Option

The option of locating the TIVAN® plant in Malaysia is preferred, and is being actively pursued. According to the Company this option has a number of advantages for chemical-type processes, including:

• Direct access and proximity to deep water ports

- Availability of cost effective inputs, including power, water and acid
- Availability of land already environmentally zoned for such processing activities
- Potentially lower capex and opex
- Potential synergies with existing steel mills and titanium dioxide production plants

Should this option be advanced, TNG would produce a magnetite concentrate at the Mount Peake site, which would be then railed to Darwin and shipped to a port on the east coast of Malaysia.

To further advance this option, TNG has engaged ENVIRON Consulting Services (M) Sdn Bhd ("ENVIRON") to provide technical and scientific support, and facilitate meetings with government departments.

Two provisional sites offered by the Malaysian government

Two provisional sites have been offered by the Malaysian government, with these currently being reviewed. Acceptance is contingent upon completion of permitting and licencing, and agreement to terms. As part of the process a manufacturing licence application has been submitted.

## **Project Funding and Partners**

Mount Peake is funded to completion of the BFS

Unforeseen circumstances notwithstanding, Mount Peake (and TNG) are expected to be fully funded until the expected completion of the DFS, following the over-subscribed \$5.5 million placement in late 2014, and current cash of \$7.1 million.

As part of progress towards final project execution, over the last eight months TNG has made appreciable progress in signed both binding and non-binding agreements with a number of potential project partners. These agreements cover such areas as offtake, finance. Logistics and strategic partnerships, and with a number of global leaders in their fields.

## Genesee and Wyoming, and the NT Port Authority

TNG has non-binding MoU's in place with both Genesee and Wyoming (rail transport) and the NT Ports Authority (product storage and loading at Darwin Port.

Under the MoU Genesee and Wyoming completed a full logistics study for the transport of



Binding and nonbinding agreements are in place with a number of potential partners.

These cover aspects including offtake, financing, construction and infrastructure

TNG's products to Darwin, with this study showing acceptable results. The original agreement has now been extended to allow time for negotiations on preliminary terms and conditions for the transport of magnetite to Darwin.

#### WOOJIN IND. CO. Ltd. Lol

On March 28, 2014 TNG announced that it had signed a non-binding MoU with WOOJIN IND. CO. Ltd ("WOOJIN"), for long term strategic co-operation, including offtake, development and financing of Mount Peake. This was followed by a LoI, as announced to the market on June 12, 2014.

The Company is currently now in advanced negotiations and successful negotiations with WOOJIN may lead to binding agreements with regards to:

- Off-take of Mount Peake's products and by-products
- The marketing and sales of Mount Peake's products and by-products
- Technology exchange and development for added value products
- Other mutually beneficial arrangements

Any agreements will be structured in such a way that will allow TNG to finance the Project directly or through third parties. There may also be the option to attach a WOOJIN FeV plant to the proposed TIVAN® plant.

WOOJIN is a South Korean company, and one of the world's largest high grade ferrovanadium producers, with four operating plants in South Korea and two in China. WOOJIN was formed in 1990, and since then has grown significantly, with exclusive FeV supply contracts with a number of major manufacturers, inkling POSCO, Hyundai and Hitachi.

#### POSCO Engineering and Construction MoU

The second major MoU, as announced to the market on May 23, 2014, was signed as a three way agreement between POSCO Engineering and Construction ("POSCO E&C"), TNG, and METS Pty. Ltd., TNG's metallurgical consultants.

This again is a non-binding MoU, and may lead to binding agreements in regards to the following:

- Completion of the Mount Peake Feasibility Study
- The potential for assistance in obtaining project finance by POSCO E&C via the Korean Export Credit Agency or other agreed sources
- Potential for POSCO E&C to be awarded Engineering and Development contracts for the development of Mount Peake, and
- Other agreements relating to Mount Peake, including short and long term project development requirements

POSCO E&C, which is a member of the POSCO group of companies specialises in major project development, with over 8,000 employees globally, orders of US\$12 billion and sales of US\$8 billion in 2013.

The parent, the POSCO Group, is a major player in the Australian resources sector, including a 12.5% equity stake in the \$9.8 billion Roy Hill iron ore project and a major shareholder in Sandfire Resources (ASX: SFR). POSCO is also the world's 4<sup>th</sup> largest steel producer, producing some 37Mtpa of crude steel in 2013.

#### Global Pacific Partners Lol

Global Pacific Partners ("GPP"), is a leading global distributor of chemical products, including  $TiO_2$  products, and has relationships with  $TiO_2$  producers and customers globally. TNG signed a LoI with GPP in August, following an initial MoU in June.



The LoI has been signed with the aim to progress binding agreements for:

- The management of TNG's global logistical services for Mount Peake products by GPP, including transport, storage and stock management of products from the mine site to its TIVAN™ processing plant;
- GPP to review and consider pre-production funding of the Mount Peake Project
- GPP to distribute and market the off-take of Mount Peake's titanium dioxide products on a fixed rate basis to TNG

#### **Guvnor Group**

Guvnor Group ("Guvnor") is one of the world's largest independent commodities trading houses by turnover.

The Memorandum of Understanding (MoU) executed between the two companies envisages long-term strategic cooperation with respect to:

- The off-take, marketing and distribution of Mount Peake's iron products
- Product development and sales strategies to maximize bottom line value for TNG
- Funding for future development at Mount Peake
- Other mutually beneficial arrangements

#### Hyundai Steel Co. Ltd. /WOOJIN IND. CO. Ltd.

On July 14, 2014, TNG announced the signing of a three way non-binding development MoU with Hyundai Steel Co. Ltd ("Hyundai") and WOOJING, complementing and building on previously announced agreements. WOOJIN is a key FeV supplier to Hyundai, one of the world's largest electric arc furnace steel manufacturers, and part of the Hyundai Automotive Group global industrial conglomerate.

The MoU covers strategic co-operation to deliver a cornerstone investment in TNG (considering all of TNG's resource projects), project financing and potential offtake of TNG's Mount Peake iron products.

## Sinometal (Shanghai) Co., Ltd

In support of the proposed first stage concentrate export of TNG's two stage strategy for Mount Peake,, TNG has signed a binding HoA with Sinometal (Shanghai) Co., Ltd ("Sinometal"), one of China's leading suppliers of steel-related raw materials, with customers including Chengde Iron and Steel.

The binding HoA covers:

- The off-take of 500,000tpa to 1Mtpa of Mount Peake's titano-magnetite concentrate
- The marketing and sales development of Mount Peake's magnetite concentrate with a focus toward Chengde Iron and Steel Group
- Pre-production financing of up to A\$5 million in return for the subsequent delivery of cargo on favourable terms

A 100kg concentrate sample has been sent to Sinometal, who are now completing due diligence. A key strength of an agreement with the group is that they will be able to provide access to a number of potential customers throughout Asia.

#### **Geology and Resources**

The Mount Peake deposit is located within outliers of sediments of the Neoproterozoic Georgina Basin, which unconformably overlies units of the Aileron Provence, a subdivision of the Palaeoproterozoic Arunta Group. The mineralisation is hosted within a flat-lying magnetite-bearing gabbro-norite sill, believed to be of Neoproterozoic to Cambrian age

Mineralisation in a flat-lying gabbronorite sill, contains large thicknesses of mineralisation that is continuous between holes

86% of the resource is in the Measured and Indicated categories

Excellent exploration potential

that has intruded the older units. Drilling has indicated large thicknesses of mineralisation (up to 170m), and exhibits good lateral continuity between drillholes.

The gabbro hosting the mineralisation is part of a 20km long x 10km wide NW trending sill or sill complex, with the mineralisation in the uppermost parts of the sill. The identified JORC- resources are confined to one part of the complex, with other areas now being explored.

Current resources (which were upgraded in 2013) are presented in the table below, with 74% of the 160Mt deposit in the JORC Measured category, and 86% in the Measured and Indicated categories. In addition there is an exploration target for the project.

**Mount Peake JORC-Compliant Resources** 

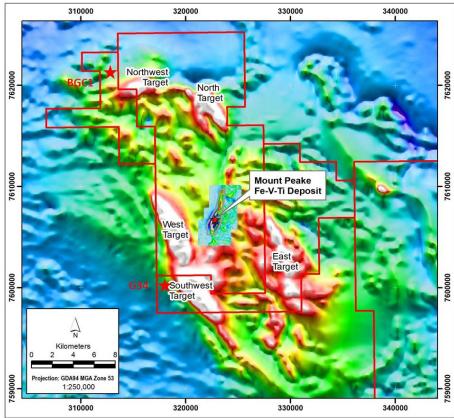
Category	Tonnes (Mt)	V <sub>2</sub> O <sub>5</sub> %	TiO₂ %	Fe%	Al <sub>2</sub> O <sub>3</sub> %	SiO <sub>2</sub> %
Measured	118	0.29	5.48	23.64	8.18	32.81
Indicated	19.5	0.28	5.33	22.05	9.09	33.98
Inferred	22	0.22	4.41	19.06	10.38	37.79
TOTAL	160	0.28	5.31	22.81	8.6	33.64
Target	500-700	0.2-0.4	-	25-35	-	-

Source: TNG

The potential for significant additional resources has been confirmed by the discovery of magnetite-bearing gabbros in regional targets. One of these, the Eastern Target, has a strike length of four kilometres, and surface rock chip sampling returned values up to  $0.634\%~V_2O_5$ ,  $24.6\%~TiO_2$  and 48%~Fe. These are the highest values noted to date outside of the Mount Peake resource.

Subsequent drilling on these targets in 2014 confirmed the potential of the East Target, intersecting V-anomalous gabbros, however downgraded the potential of the West and Southwest targets, which results indicate are magnetite-bearing granites.

#### **Mount Peake Deposit and Targets**



Source: TNG



Work in 2014 demonstrated the graphite potential of the Mount Peake area

#### **Graphite Potential**

Recent work by TNG has included assessing the graphite potential of the Mount Peake area, with drilling (holes BGC1 and G34 above) and metallurgical testwork completed in 2014. This is a follow up to the intersection of graphitic material in drilling in 2010.

The BGC1 target comprises a 1,000m x 600m late time EM conductor, with the RC drilling in 2010 intersecting 46m of graphite mineralisation. Recently drilled hole 14MPBGC1W1 was drilled to obtain samples for metallurgical testwork, and returned **39.7m @ 5.13% graphitic carbon from 246m**. Hole G34 intersected 1.60m @ 4.67% graphitic carbon from 181.40m.

Flotation testwork was carried out on these samples as summarised below.

#### Metallurgical Results - Mount Peake Graphite

Composite	Feed Grade (%TCG)	Concentrate Grade (%TGC)	Concentrate Recovery
BGC1	4.26%	92.0%	78.0%
BGC1 HG	7.92%	93.2%	52.6%
Source: TNG			

Flake sizes, determined by optical work, are generally fine grained, ranging generally from 50 to 150 microns, with some material to 200 microns.

#### TIVAN® and Metallurgy

The key to the success of Mount Peake is proving the viability of the revolutionary TIVAN® metallurgical process. This is being jointly developed jointly by TNG and Mineral Engineering Technical Services ("METS") of Perth. The technology is owned 100% by TNG, and is currently being optimised for pilot-scale testwork. TNG has signed an MoU with a major Austrian/German based international group to commercialise and licence the process, and potentially being provided with the EPCM contract for the processing plant.

The TIVAN® process is a hydrometallurgical process that produces three high purity products – battery grade (>96% purity) vanadium pentoxide powder (V<sub>2</sub>O<sub>5</sub>), titanium dioxide concentrate (TiO<sub>2</sub>) and high purity (99.9%) iron oxide powder (Fe<sub>2</sub>O<sub>3</sub>). Bench scale and pilot scale development testwork to date has been very successful; resulting in high metallurgical recoveries from concentrate to high purity products:

- Up to 96% V₂O₅ recovery to a 99.6% product at the leach stage
- >85% Fe<sub>2</sub>O<sub>3</sub> recovery to a 99.9% product at the leach stage
- >75% TiO<sub>2</sub> recovery to a maximum grade of 70% at the leach stage

Optimisation testwork during 2014 resulted in the decision to add a roasting stage to the pre-leach circuit, as well as utilise a rare-earth magnetic separation unit at the concentrating stage. These changes have resulted in a number of improvements to the process:

- Cleaner magnetic concentrate feed to the processing circuit
- Use of a different acid at the leaching stage, reducing the size of the downstream acid regeneration phase, and a reduction in capital of A\$100 million
- Higher leach recoveries of vanadium and iron, and a higher grade final titanium product

Operating costs for the revised process are still in line with those used in the PFS, at around A\$52/tonne of concentrate, with an additional A\$26 for mining and comminution. The Company's view is that these are around 40% cheaper than other global producers.

The process uses well understood individual process technologies that have been applied globally for many years – it is the combining these into an overall flowsheet that is new.

Key is proving the viability of the hydrometallurgical TIVAN® process

Testwork to date has given excellent results, with high recoveries of V, Fe and Ti to quality products

Estimated treatment costs 40% cheaper than conventional pyro-metallurgical processing



Comminution optimisation test work, using "off the shelf" technology has given very encouraging results

Final pilot scale leaching testwork about to commence at CSIRO Comminution optimisation testwork indicates that standard off the shelf technology can be used, including grinding by high pressure grinding rolls ("HPGR") and magnetic separation using a rare earth magnetic separator as mentioned above.

Pilot scale leaching testwork will be carried out at the CSIRO's facilities in Perth. A plant, costing around \$1 million is to be constructed following completion of final comminution optimisation tests, expected this quarter. A 15 tonne bulk sample has been prepared and sent to the CSIRO to be used in the pilot scale leach test, which is expected to be carried out as a continuous 15 day run.

This work will allow completion of the commercialisation of the TIVAN® process, and development of the full-scale flowsheet. As mentioned earlier, completion of this work and analysis of the results is a key part of advancing the DFS.

### **Project Valuation**

We have revised our DCF modelling of the base case staged development scenario, to arrive at an indicative value for the Mount Peake Project, and then a conceptual idea of the value to the Company.

#### Mount Peake - Financials

We have completed a DCF model for Mount Peake

These are significantly higher than our previous estimate – due largely to depreciation of the Australian dollar, reduction in capital costs and potential improvements in metal recoveries.

Costs are largely as for the PFS

We have generally used Company guidance in our inputs; however have verified figures where possible.

**Operating Parameters** 

#### **Mount Peake – Operating Parameters**

Production Profile	2 years construction, 2 years concentrate sale, 16 years TIVAN® processing
Dracoccing rate	2.5Mtpa ore, 750ktpa concentrate – phase 1
Processing rate	5Mtpa ore, 1.5Mtpa concentrate – phase 2
Total ore mined	85Mt
Total waste movement	80.75Mt
Total material moved	165.75Mt
Strip ratio	0.95: 1
Average head grade	0.39% V <sub>2</sub> O <sub>5</sub> , 27.09% Fe, 7.02% TiO <sub>2</sub>
Recoveries to concentrate	30% DTR, 90% V <sub>2</sub> O <sub>5</sub> , 60% Fe, 75% TiO <sub>2</sub>
Concentrate Grade	1.20% V <sub>2</sub> O <sub>5</sub> , 56% Fe, 18% TiO <sub>2</sub>
TIVAN® Recoveries from Con	90% V <sub>2</sub> O <sub>5</sub> , 85% Fe, 70% TiO <sub>2</sub> - Revised
Average annual production	Phase 1 – 750ktpa concentrate
Average annual production	Phase 2 - 16,250tpa $V_2O_5$ , 1.01Mtpa $Fe_2O_3$ , 300ktpa $TiO_2$ con
Canay	A\$100m – phase 1, A\$100m mining and concentrating phase 2
Capex	expansion, A\$420m TIVAN plant phase 2
	Prices and Terms
Equity Partner Torms	TNG keep a 40% FCI, collect 40% of profits once capital has been paid
Equity Partner Terms	back, up-front payment of A\$60 million
$V_2O_5$	US\$18,000/tonne - LOM
FeV	US\$25,500/tonne - LOM
Iron Ore	US\$1.00/dmtu CFR - LOM
TiO2	US\$400/tonne - LOM
AUD to USD Exchange Rate	0.78 – LOM - Revised
Sales Terms	100% Fe, 15% FeV , Stage 1 concentrate sales
Sales Terris	100% all products, TIVAN® processing
Source: Breakaway Analysis	

We have used lower metals prices than in the PFS to reflect current and forecast prices

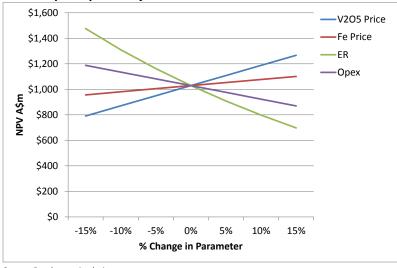


TNG's share of value based on a 40% FCI, with distributions after payment of capital, The value to TNG will rely on terms reached with any potential/offtake partner, and thus what we propose is indicative only. Our base case is:

- Equity partner takes an 60% stake, funds development, TNG remains with a 40% free carried interest
- Initial payment of \$60 million on signing, based on 10% of our modelled NPV/tonne of resource
- Payments of 40% of free cash flow to TNG only after capital has been paid back from cash flow this occurs in year 5 of production.

We have carried out a sensitivity analysis of the Project, with results presented below. As expected the project remains most sensitive to the AUD: USD exchange rate, with costs in Australian dollars and revenues in US dollars.

Sensitivity Analysis – Project Basis



Sensitivity analysis indicates project is most sensitive to exchange rate and opex

and an upfront

payment for equity

stake in resource

Source: Breakaway Analysis

## **Key Base Metals/Gold Projects**

TNG holds or has interests in a number of base metals (and one bauxite project). Work has been concentrated on two of these. More recent exploration work has been concentrated on McArthur and Manburrum.

As outlined above, TNG is looking at a spin out of these properties into a new vehicle, "Todd River Resources", with the proposed structure presented below.

Proposal to spin-out non-core assets includes an in-specie distribution to shareholders

## **Proposed Todd River Resources Structure**



Source: TNG



As part of the IPO, TNG would:

- Raise \$2.5 million by the issue of 25 million 10c seed shares to a new cornerstone investor
- Raise \$5 million by the issue of 25 million 20c IPO shares to new investors
- Distribute 50 million shares in an in-specie distribution to TNG shareholders
- Hold 25 million shares as the project vendor

The proposed spin out will allow the non-core projects to be explored effectively, and also allow TNG to concentrate on its core ferrous metals business.

## Mt Hardy Copper-Gold Project (TNG 100%)

Mount Hardy is interpreted as being shear hosted mineralisation The project is located over the historic Mount Hardy Copper Field, approximately 100km NW of Alice Springs. The project covers units of the Proterozoic Aileron Province within the Arunta Block, Originally interpreted as being possibly VMS, it may actually be shear hosted mineralisation, possibly related to nearby granites.

Recent work has included EM surveying and RC/diamond drilling Work at Mount Hardy has included both reverse circulation ("RC") and diamond drilling programmes, which intersected encouraging hypogene copper mineralisation. This work targeted geophysical anomalies, with a number still remaining untested. These include offhole EM and HELITEM EM conductors, with the HELITEM being flown by TNG. Intersections of up to 13m @ 1.17% Cu and 1.82% Zn were drilled, and the final holes intersected broad zones of poly-metallic mineralisation.

Work by TNG, which is the first explorer to apply modern techniques over the copper field, indicates the potential for a large scale system., with the following conclusions being drawn:

- Extensive mineralisation at surface and at depth in a 2km by 2km area
- Poly-metallic mineralisation has been intersected at depth in zones of structural and geophysical control, and,
- Re-interpretation of the 2012 HELITEM work has identified that eight of the remaining targets are priority areas for further work.
- If VMS in style, it is possibly similar polymetallic mineralisation being intersected by Kidman Resources (KDM: ASX) and KGL Resources (KGL: ASX) to the NE of Alice Springs

Project requires additional drilling and

A number of EM

tested

geophysics

targets remain to be

Given the results to date, this project requires significant further work, including geophysics and drilling.

## **McArthur Project (TNG 100%)**

The McArthur Project, located 50km south of McArthur township and covering units of the McArthur Basin, is considered prospective for Zn-Pb-Cu-Ag mineralisation, similar to that at the McArthur River Mine some 60km to the north. The tenements re located on the west side of the Batten Trough, adjacent to the western bounding structures, considered as potential fluid pathways. The Batten Trough is also host to the Teena discovery of Rox/Teck.

Drilling at the McArthur project has intersected base metal anomalous sulphides Following a review of historic exploration data, TNG completed a two hole reconnaissance drilling programme in late 2014, with very encouraging results. This tested two areas of a 9km long zone of anomalous soil geochemistry and low resistivity/high chargeability IP areas over prospective stratigraphy.



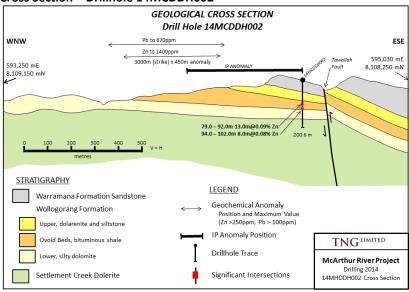
The geology and mineralisation shows similarities to that at the McArthur River Mine, 60km to the NE

The drilling intersected up to 20m thick zones of zinc anomalous sulphidic material, exhibiting similarities to the mineralisation at the McArthur River Mine:

- Fine grained pyrite dominated sulphides within bituminous black shales
- Zn-Pb-Ag element association with low copper
- Strong IP geophysical anomalies
- Stacked lenses

Some supergene copper was also intersected – the Company is of the view this is not related to the stratiform zinc mineralisation.

## Cross Section - Drillhole 14MCDDH002



Source: TNG

Our view is that these results are very encouraging, and highlight the potential of this area to host a McArthur River like system.

#### **Manburrum Project (TNG 100%)**

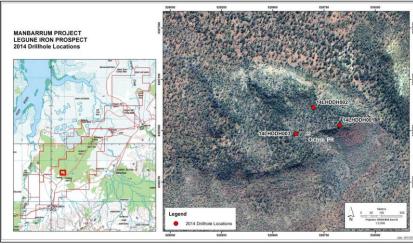
The Manburrum Project, located 80km NE of Kununurra, includes a number of Mississippi Valley Type ("MVT") Pb-Zn-Ag deposits discovered by TNG in 2007, which contain around 35Mt of mineralisation. The area also contains a number of untested targets, with an exploration target of 80-100Mt at 1.5% - 2.5% Zn.

Manburrum is in an MVT province

Manburrum also contains the Legune Fe prospect, which has returned encouraging

drill results

**Legune Iron Prospect** 



Source: TNG

A second target is iron ore – TNG tested the Legune Iron Prospect with three holes, intersecting up to 4.3m @ 59.1% Fe in hole 14LHDD001, and 3.9m @ 59.4% Fe in hole



14LHDD002. These holes also returned low silica and aluminium, and the Company believes that there is the potential for several million tonnes of flat lying hematite mineralisation.

## Sandover Project (TNG 100%)

The Sandover tenements, which were granted in late 2012, are considered prospective for copper-gold mineralisation. They are located over high grade metamorphics of the Aileron Province, and are located in the vicinity of known mineral occurrences, including Kidman Resources Home of Bullion polymetallic deposit.

## Breakaway's View

TNG has continued to make excellent progress at Mount Peake

A number of agreements have been signed with potential partners, including a binding agreement with Sinometal for

concentrate deliveries

Results from the *upcoming pilot scale* test work will be critical for Mount Peake

Outlook for vanadium is positive, with the VRB batteries providing significant blue sky in demand

We maintain a speculative buy for **TNG** 

TNG has continued to make excellent progress on the Mount Peake Project, with the signing of MoU's and LoI's, although mostly non-binding, with a number of potential partners being a key step towards development. This in part works towards mitigating one of what we perceive as a key risk – funding for development.

The binding agreement with Sinometal for potential concentrate offtake gives TNG access to a number of customers and markets, and should terms be agreed, and the first stage project prove viable, should go a long way to making the concentrate export operation bankable.

The viability of the two phase scenario is contingent upon offtake terms and what credits the Company will get for the vanadium content in the titano-magnetite concentrate - in our view the first stage is not viable on iron content alone given prices and transport distances.

The raising of funds for the completion of the BFS has also been encouraging in what is a dismal resources market.

As we have stated previously, results from the upcoming final TIVAN® pilot scale work will be critical – this will need to work for the project to be viable. Given that the individual processes within the overall flow sheet are well proven, and that bench scale and previous pilot testwork was successful, we are confident that there is a high probability of success in this next pilot scale work, and that the process will be successfully commercialised.

We note that the Company has now added a roasting stage to the pre-leach process.

A number of independent research commentators see the outlook for vanadium as being very positive. Although ~85% of the current 65,000tpa production is used as an alloy in steel production, there is a growing market for its use in high capacity batteries, particularly for electric cars. In addition there is the issue of the current supply with South African mines nearing end of term and production issues with other operations.

There is the potential for use in utility scale batteries – successful developments in this field would lead to a significant growth in demand for the high purity battery grade V<sub>2</sub>O<sub>5</sub> that TNG is looking at producing. There is the possibility that the availability of this product will actually drive development of the technology - until now there has been no reliable supply.

We maintain our rating of TNG Limited as a Speculative Buy. We see potential short to medium term price appreciation with success in the TIVAN® pilot plant, as well as, upon the delivery of the BFS, finalising agreements with the potential partners (the key to driving value).

Exploration results from the other projects have proven very encouraging, and, dependent upon market conditions, make the proposed Todd River Resources IPO a very attractive investment proposition.



#### The Vanadium Market

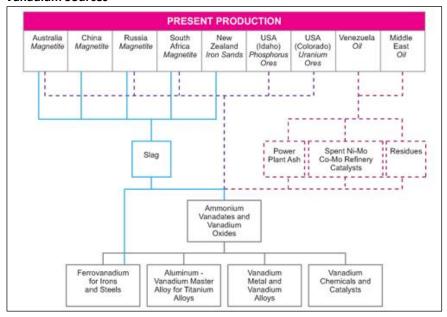
The main use for vanadium is as a steel strengthening additive

Largest source is as a byproduct from steel making The main use of vanadium is as a steel additive in high-strength steel, which accounts for about 85% of the current global demand of  $^{\sim}65,000t$  of contained vanadium. Other uses include chemicals, catalysts and in batteries. Vanadium is produced as two main products – FeV for steel-making and  $V_2O_5$  for chemical and battery applications.

The largest source for vanadium is as a by-product from slag produced from the smelting of titaniferous magnetite ores for steelmaking – it is estimated that this accounts for ~60% of supply, with the rest being derived from mining as a primary product.

Over 90% of vanadium is produced in China (55%), South Africa (28%), and Russia (11%), with Xstrata and Evraz being the main producers.

#### **Vanadium Sources**



Source: Vanitec

## **Demand Drivers**

Key demand driver is the steel industry

The key demand driver at the current time is as an additive in steel – demand closely follows the production of steel. This includes two factors – firstly the natural organic growth in steel production and secondly increasing vanadium intensity in steel to further drive demand with high strength steels replacing lower strength carbon steels.

This second factor is particularly relevant in China, where there is increasing vanadium intensity in rebar due to changes in building standards. Also, China has applied a 15% tariff on vanadium exports, with the potential to drive demand for non-Chinese supplies.

The blue sky in demand is in automotive and grid scale battery usage. The key here will be the adoption of vanadium redox batteries ("VRB's) that have the capacity for multi-megawatt scale storage. This makes them useful for grid scale applications, including grid balancing, and storing energy from variable output sources, including wind turbines and solar cells.

Development of these has been partly hamstrung by the lack of a suitable battery grade  $V_2O_5$  supply – something which TNG may help solve. Some commentators see the potential for a 5,000 to 10,000tpa deficit in supply by 2017, largely driven by this "blue sky" forecast demand for batteries, with a forecast  $V_2O_5$  price of up to US\$12/lb by 2017.

There is blue sky demand in battery applications – motor vehicle and grid scale VRB's



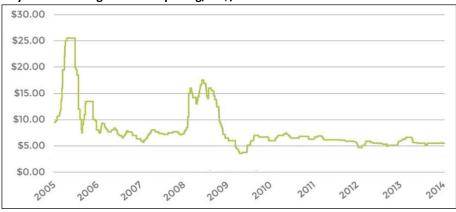
## **Pricing**

 $V_2O_5$  has recently traded at between US\$5 and US\$7.50/lb.

We can see from the chart below that the  $V_2O_5$  price has traded between US\$5 to US\$7.50/lb since the end of the GFC, equating to a price of US\$11 to US\$16.50/kg. High purity  $V_2O_5$  trades at a premium of ~US\$2.20/kg over the standard grade product.

The market is not particularly transparent, and also prices do not correlate with steel production, even though this is the key demand driver.

## 10 year standard grade V2O5 pricing, US\$/lb



Source: Largo Resources presentation



## **Board and Management**

Acting Chairman

Michael Evans

executive based in Perth who has extensive executive and board level experience with publicly listed companies in the natural resource sector. He was until recently the founding Executive Chairman of oil explorer and producer FAR Limited (formerly First Australian Resources), a position he held from 1995. Under Mr Evans' stewardship, FAR established and built up an extensive international oil and gas portfolio spanning Africa, North America and Australia — with industry partners including Amoco, Shell, BHP, BP, Exxon, CNOOC and Woodside. Prior to that, Mr Evans was Director of a private Asian Investment company based in Hong Kong pursuing resource opportunities in China.

Mr Evans, a Chartered Accountant, is an experienced mining and resource industry

Between 1983 and 1991, he was Joint Managing Director of Forsayth Group, which he, and his co-Managing Director, built from a junior explorer to become a significant gold producer with interests in five producing mines and two projects mines in Australia and overseas.

Mr Burton is a highly experienced Exploration Geologist and Geochemist with over 20 years' experience in exploration and mining throughout Australia and overseas. He previously held the positions of Exploration Manager and Exploration Director with the company and has been involved in the discovery and development of the company's main projects, including their Flagship project Mount Peake and in developing the company's extensive project portfolio. He has managed successful mineral exploration and feasibility study programs for a range of different commodities, with previous career appointments including senior and executive roles at Anglo American/De Beers Ltd, Normandy Mining Ltd and Minotaur Exploration Ltd. Mr Burton is a graduate of the University of Plymouth, UK (B.Sc. Honours Geology), and of McGill University, Canada (M.Sc.).

Mr Burton is a current Member of Australian Institute of Mining and Metallurgy (Aus IMM), Graduate of the Australian Institute of Company Directors (GAICD), Member of the Canadian Institute of Mining, Metallurgy and Petroleum (CIM), a Fellow of the Association of Exploration Geochemists (AAG) and a Member of the Institute of Directors, London (IoD).

Mr Turkington is an experienced corporate advisor and economist who has worked extensively in the financial services and stockbroking industry in Australia, specializing in the exploration and mining sectors. He has extensive experience with equities, derivatives, foreign exchange and commodities, and has participated in numerous corporate initial public offerings and capital raisings for listed exploration and mining companies. Mr Turkington is currently a Director of an Australian corporate advisory company, offering corporate finance and investor relations advice to listed companies. He holds a first class Honours Degree in economics, BCA. GAICD. AAFSI. ADA1. (ASX), and is an Associate of the Securities Institute of Australia.

Mr Wang is Chairman of Aosu which is part of the Wanlong Group of companies (Wanlong Group) comprising Suzhou Wanlong Electric Group Co. Ltd (Wanlong) and Suzhou Beijia Investment Co Ltd. (Beijia). Wanlong holds 51% of the issued capital of Aosu and Beijia holds the remaining 49%. Mr Wang also holds appointments as Director of Technology Management Department of Wanlong, and is a Director of Beijia. Mr. Wang completed his Bachelor degree in Electrical engineering and automation from Shanghai Electric Power University in 2007, and has gained significant professional experience with major industrial groups in China prior to joining Wanlong and Beijia

**Managing Director** 

**Paul Burton** 

Non-executive Director

**Rex Turkington** 

Non-executive Director

**Zhigang Wang** 



Non-executive Director

Jianrong Xu

Non-executive Director

Stuart Crow

Company Secretary

Simon Robertson

**Mr** Xu is Deputy Director-General of the East China Mineral Exploration and Development Bureau (ECMED). Mr Xu is the current General Manager of ECE, Deputy Managing Director of Jiangsu Geophysical Society, the Chairman of HK ECE, Hong Kong East China Non-Ferrous International, Mineral Development Co Ltd, Namibia East China Non-ferrous Investments Pty Ltd and other OCMED wholly owned subsidiaries. Mr Xu is also a director of AIM-listed Company, China Africa Resources Plc.

**Mr Crow** has more than 25 years' experience in all aspects of corporate finance and investor relations in Australia and international markets, and has owned and operated his own businesses in these areas for the last twelve years. He brings extensive working knowledge of capital markets to the Board.

**Mr Robertson** gained a Bachelor of Business from Curtin University in Western Australia and Master of Applied Finance from Macquarie University in New South Wales. He is a member of the Institute of Chartered Accountants and the Chartered Secretaries Australia. Mr Robertson currently holds the position of Company Secretary for a number of publically listed companies and has experience in corporate finance, accounting and administration, capital raisings and ASX compliance and regulatory requirements.



#### **Analyst Verification**

We, Grant Craighead and Mark Gordon, as the Research Analysts, hereby certify that the views expressed in this research accurately reflect our personal views about the subject securities or issuers and no part of analyst compensation is directly or indirectly related to the inclusion of specific recommendations or views in this research.

#### **Disclosure**

Breakaway Investment Group (AFSL 290093) may receive corporate advisory fees, consultancy fees and commissions on sale and purchase of the shares of TNG Limited and may hold direct and indirect shares in the company. It has also received a commission on the preparation of this research note.

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