



**Breakaway
Research**

May 2016

Grant Craighead | Research Manager
gcraighead@breakawayinvestmentgroup.com

Mark Gordon | Senior Research Analyst
mgordon@breakawayresearch.com

www.breakawayresearch.com

Company Information

ASX Code	TNG
Share Price (19 May 2016)	A\$0.14
Ord Shares	714.5m
Options	7.5m
Market Cap UD	A\$100.0m
Cash (31 March 2016)	A\$4.9m
Total Debt	A\$0m
Enterprise Value	A\$95.1m

Directors

Managing Director	Paul Burton
Non-Executive Director	Rex Turkington
Non-Executive Director	Stuart Crow

Substantial Shareholders

WWB Investments P/L, Mr & Mrs Brown	11.11%
Aosu Inv. & Develop. Co	7.88%
Ao-Zhong Int. Min Resources	5.33%
Mr Paul Burton	1.85%
Todd Brower	1.40%
Top 20	36.89%

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



Source: IRESS

TNG Limited (TNG)

Key Offtake and Development Agreements Signed

Recommendation: Maintain Speculative BUY

Company Update

Key Points

- **Signing of key vanadium and iron offtake agreements underpins financing activities for the Mount Peake V-Ti-Fe Project in the Northern Territory**
- **Financing and development agreements reinforce relationship with strategic partner, the SMS Group of Germany**
- **Further additions to the highly skilled and experienced project management and development team**
- **Permitting advancing with EIS submittal and key Sacred Site Clearance Certificate being obtained**
- **We revise our base case valuation to \$0.80/share, largely due to lower forecast metals prices, however Mount Peake still remains relatively robust**

TNG has continued to progress the key Mount Peake V-Ti-Fe Project since our August 2015 update with the signing of a number of additional agreements relating to offtake, financing, development and permitting. These build on previous agreements as discussed in our earlier notes.

Of these, the signing of the offtake agreements for 60% of the life of mine iron and vanadium products are critical, in that these will be vital in helping secure finance through underpinning projected revenue. TNG is currently in negotiations on the crucial titanium product offtake.

The signing of financing and TIVAN™ plant development agreements with the SMS Group further cements the strong relationship with this longstanding key partner, and in Downer EDI and McMahon Services the Company has entered into agreements with world class potential development partners and project managers.

We maintain our SPECULATIVE BUY recommendation for TNG with a mid-point valuation of \$0.80/share. Key price drivers include securing titanium offtake and project finance, and completing permitting.

Company Overview

TNG is concentrating activities on financing and permitting 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 an IPO, into Todd River Resources.



Company Update

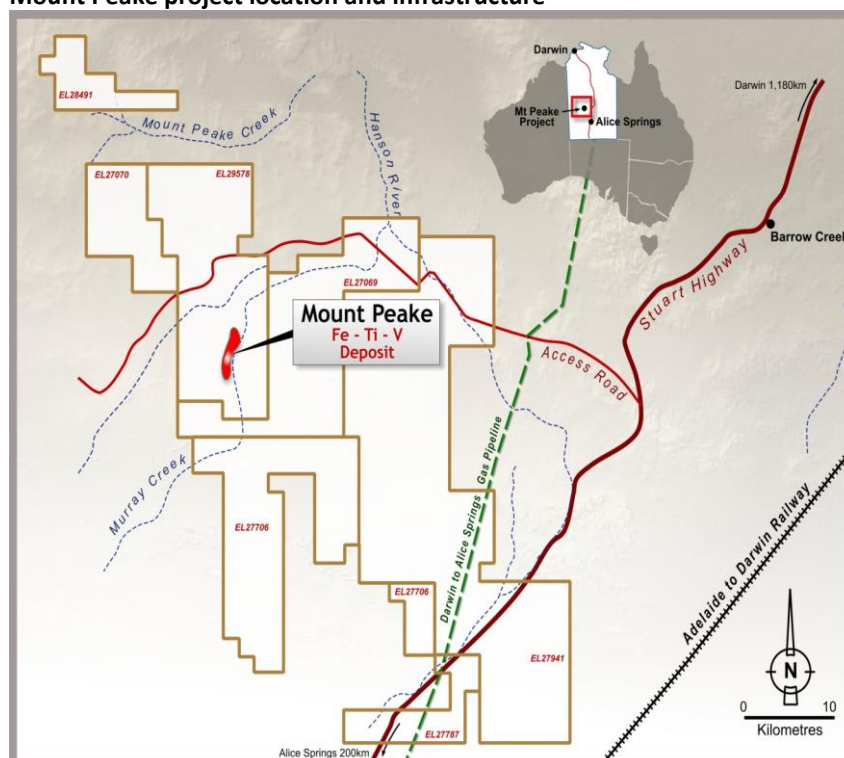
Background

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

Flagship project is the Mt Peake V-Ti-Fe Project in the NT

Its flagship project is the 100% owned Mount Peake V-Ti-Fe Project (“Mount Peake” or the “Project”), located 235km north of Alice Springs in the Northern Territory (“NT”) of Australia, which has resources of 160Mt grading 0.28% V₂O₅, 5.3% TiO₂ and 23% Fe (with significant upside), including probable reserves of 41.1Mt grading 0.42% V₂O₅, 7.99% TiO₂ and 28% Fe.

Mount Peake project location and infrastructure



Source: TNG

Positive DFS

In July 2015 the Company completed a positive and robust Definitive Feasibility Study (“DFS”) for Mount Peake, and is now concentrating activities on approvals and financing. The DFS (covered in our August 2015 update) returned an NPV of A\$4.9 billion, with an IRR of 41%. Pending approvals and financing, the Company is looking at commencing development in 2016, for a production start-up in 2018.

Plans for a two phase project to treat up to 1.8mtpa of concentrate

The DFS foresees a two phase development, with the first mining 3mtpa of ore at Mount Peake, beneficiating on site, and then shipping up to 0.9mtpa of concentrate to the TIVAN™ plant located near Darwin port for refining and downstream processing into vanadium pentoxide (V₂O₅), pigment grade titanium dioxide (TiO₂) and pig iron – expected capital requirements are A\$970m. The second phase envisages a doubling of output from year 5 with the DFS forecasting that the expansion capex requirements of A\$792m expected will be funded out of project cash flow.

Expansion expected to be funded from project cash flow

Processing is planned through the proprietary TIVAN® process

The key to the success of Mount Peake is the TIVAN™ process, an innovative hydrometallurgical process that produces three products – premium (>99%) battery grade V₂O₅, +65% TiO₂ concentrate and high purity iron oxide powder (Fe₂O₃), with the titanium and iron suitable to be further processed to higher value products.



The process has been developed jointly by TNG and METS Engineering (“METS”) of Perth, along with the CSIRO. The technology is owned 100% by TNG, and pilot scale testwork completed in June 2015 in conjunction with the German SMS Group (“SMS”) returned excellent results, confirming the viability of the proprietary processing route, with this incorporated into the DFS.

Plans are to spin out non-core projects

The Company also has a portfolio of attractive base metal exploration projects located in the NT which it plans to spin out into the proposed Todd River Resources IPO once market conditions allow, with shareholders approving the demerger at a meeting held on 20 May 2015.

Recent Events

Major milestones since our August 2016 update have been largely related to financing and development agreements

TNG has achieved a number of major milestones in the period subsequent to our August 2016 update. Key events (in reverse chronological order as announced to the market) include:

- MoU with SMS for TIVAN™ technology exchange (May 8, 2016)
- Binding term sheet for life of mine (“LoM”) offtake for 60% of iron products with Gunvor (Singapore) (“Gunvor”, March 23, 2016)
- Mount Peake mine site development MoU with Downer EDI Limited (“Downer”, February 23, 2016)
- Mount Peake mine EIS released for public comment (February 11, 2016)
- Binding Heads of Agreement signed with SMS for financing, engineering, design and construction of the Darwin TIVAN™ plant (February 2, 2016)
- McMahon Services (“McMahon”) appointed as Interim Project Manager for Mount Peake (October 21, 2016)
- MoU with Caterpillar Finance for Mount Peake mine site project and equipment finance (October 16, 2015)
- Binding LoM offtake agreement for 60% of vanadium products with WOOJIN IND. CO. Ltd (“WOOJIN”) (September 7, 2015)
- Traditional Owner Sacred Site Clearance Certificate for Mount Peake mine site (August 24, 2015).

In addition, there has been the retirement or resignation of three directors, and in December 2015 the Company received a \$1.8 million Research and Development rebate from the Federal Government.

Mount Peake – Financing, Development and Permitting

Key agreements include binding offtake agreements for 60% of the LoM vanadium and iron products

Key milestones have been the signing of binding offtake agreements for the vanadium and iron products, which are critical steps in the financing process. Agreements have also been signed with a number of parties relating to the development and financing of both the proposed Mount Peake mine site and Darwin refinery.

Vanadium Binding Offtake Agreement – WOOJIN

TNG has signed a binding LoM offtake agreement with WOOJIN to purchase a minimum of 60% of the V₂O₅ and other vanadium products produced from Mount Peake on a take or pay basis, helping underpin project revenue. Prices will be set annually based upon the market price, with a floor price of 20% above the estimated cost of production.

An agreement has also been made giving TNG access to WOOJIN’s technology to convert V₂O₅ to ferrovandium, with a plant to be installed at the Darwin refinery. This will allow TNG to diversify the product portfolio by production of the value added ferrovandium, which is directly saleable to steel mills.



Iron Products Binding Offtake Term Sheet – Guvnor

TNG has signed an agreement with Guvnor for the LoM offtake of 60% of iron products produced from Mount Peake. Prices will be on an FOB basis, with a fixed commission for global distribution, with Guvnor also being able to provide logistics support.

Guvnor is one of the world's largest independent commodity traders, with a turnover of US\$93 billion in 2012, and the Company will now work towards completion of the final binding agreements with Guvnor.

Two agreements have been signed with strategic partner SMS, relating to financing and the TIVAN® process

SMS Agreements

The Company has two agreements with SMS regarding development, licencing and financing of the proposed Darwin TIVAN™ refinery. The first of these, a binding HoA was announced to the market in February, and covers the following development and financing facets:

- Undertake full due diligence of all relevant aspects of the Mount Peake DFS relating to the TIVAN™ refinery
- Provide detailed engineering, design and final costings for the tender for construction of the refinery; and
- Provide assistance for arranging the funding the construction of the TIVAN™ refinery which includes the Export Credit Agencies (ECA's) or other structured finance.

The second agreement, an MoU announced in May, covers the joint commercial exploitation of the TIVAN™ technology, with key points listed below:

- SMS group to grant TNG the right to use its TIVAN™ IP in TNG's wholly or majority owned refineries for the processing of titaniferrous ores on the condition that those refineries are supplied by SMS
- In the event that TNG elects to procure such a refinery from another vendor, SMS shall grant TNG a license to use its TIVAN™ IP against payment of an adequate royalty (to be discussed) in each case
- TNG shall grant SMS as an equipment supplier and plant builder, as well as its respective customers the right to use TNG's TIVAN™ IP against payment of an adequate royalty (to be discussed) in each case
- Any future inventions and or any other IP by the Parties applicable to the processing of titaniferrous ores based on a hydrochloric acid or ferric chloride leach shall be disclosed to each other and licensed under the conditions outlined above.

The MOU builds on the binding Heads of Agreement signed earlier, and allows for the pooling of both parties' IP in relation to the TIVAN™ process - SMS has developed significant IP in TNG's 100% owned TIVAN™ technology through its work on the development of the process with TNG.

Caterpillar Finance

The Company has signed an MoU with Caterpillar Finance for the provision of project and/or equipment financing for the proposed Mount Peake operation. Any project financing would be in conjunction with other financier, and under the terms of the MoU TNG will also consider the procurement of Caterpillar mobile mining equipment and power equipment from Caterpillar's NT dealerships, Hasting Deering (Australia) Ltd (mobile equipment) and Energy Power Systems Australia (power equipment).

Finance MoU with Caterpillar Finance



McMahon appointed as interim Project Manager

Appointment of McMahon Services as Interim Project Manager

McMahon Has been appointed as the interim Project Manager for the Mount Peake mine site and associated infrastructure until such a time that a final construction commitment and project financing has been obtained. The scope of the appointment, which will have McMahon playing the leading role in the pre-development work will include, amongst others:

- Mount Peake mine site and camp development
- Liaise with Government departments and statutory authorities on permitting, logistics and infrastructure related to both the mine site and refinery
- Selection of the Darwin refinery site.

This appointment will allow TNG management to focus on the key aspects of securing offtake, obtaining project finance and concentrating on negotiations with other stakeholders.

Mine site development and operating MoU with Downer EDI

Mine Site Development MoU with Downer EDI

The Company has signed a non-binding development and operations MoU with the ASX-listed Downer (ASX: DOW), a leading provider of services, including EPCM, to a wide range of industries including mining and mineral processing. The agreement is broad ranging, covering such items as:

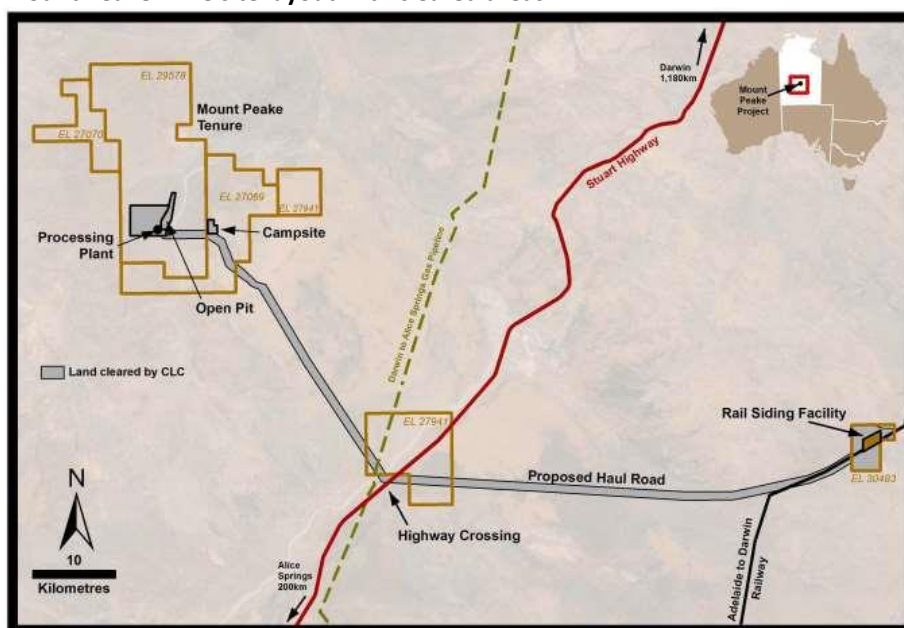
- Construction, operation and maintenance of the mine site processing plant
- Building, ownership and operation of non-process infrastructure at the mine site
- Construction of the Darwin refinery
- Drill, blast load and haul of ore and waste at the mine site.

Key advances in mine site permitting

Permitting

Key advances in permitting have been the signing of the Sacred Site Clearance Certificate with the Traditional Owners and the Central Lands Council, and lodgement of the Mount Peake mine EIS.

Mount Peake mine site layout with cleared areas



Source: TNG

The Sacred Site Clearance Certificate is an integral part of the overall Native Title Agreement (“NTA”), which is now in the final stages of negotiation, and given the strong relationship between the parties so far we foresee no serious issues in finalising the



agreement, and hence proceeding to grant of the Mining Lease for the Mount Peake mine site.

With regards to the EIS, this has now been back to the Company following the public exposure period, with the final version now submitted with approval expected within the next month or so. The Company has stated that there were no issues raised in the Government or public comments.

Corporate

Board Changes

The period since our last update has seen the resignation of Mr. Michael Evans (Acting Chairman) and Mr. Mr. Jianrong Xu (Non-Executive Director). The same period also saw the retirement of Non-Executive Director Mr. Zhigang Wang at the 2015 AGM.

The Company is currently looking at the composition of the Board, including the appointment of a new Chairman.

Todd River Resources

The de-merger of Todd River Resources, as approved at a meeting of shareholders on May 20, 2015 is still planned once market conditions improve. This will then allow the projects to be sufficiently funded to allow effective exploration.

Planned and Current Activities

Work now is continuing on permitting and financing activities, to lead towards the development of the Project, which TNG has stated could commence in 2016.

On the permitting side, the Project has Major Project status from the NT Government so permitting is expected to be fast tracked. Current permitting activities include:

Activities to be concentrated on advancing and finalising financing and permitting

- Finalisation of the Native Title Agreement (“NTA”) is currently under way with the Traditional Owners and the Central Land Council – the Company foresees no obstacles to this, supported by the recent signing of the Sacred Site Clearance Certificate
- TNG is now awaiting approval of the EIS, following lodgement of the final version
- Granting of the Mining Lease for the Mount Peake mine site and associated infrastructure is expected within a month after completion of the NTA
- Approvals with the NT Government for the lease of land and with the Port Authority for shipping are expected by year end.

On the financing side the Company is working towards the key titanium dioxide offtake agreement – this is critical given that the bulk of the revenue comes for the titanium products – as well as progressing negotiations with potential project financiers.

Valuation

We have updated our valuation, incorporating lower metal prices and now assuming 100% ownership

We have significantly changed our valuation, largely in response to falling commodities prices since our August 2015 update. Also, our previous valuation used a conceptual funding scenario, with TNG retaining a 40% ownership in the project, and free carried through construction. Our valuation is now predicated on TNG developing the Project itself and retaining 100% ownership.

A summary of our valuation is given below, which includes the midpoint of our DCF valuation for Mount Peake, an estimate for the other exploration assets and cash as at March 31, 2016. The valuation of \$0.80 is significantly above the current share price of \$0.14, and there is upside in this with ongoing de-risking of Mount Peake.



Base Case TNG Valuation - AUD

Project	Unrisked Value	Method	Risk Factor	Risked Value	Value/Share
Mount Peake	\$1,119 million	DCF, 8% real DR	50%	\$560 million	\$0.78
Todd River Resources	\$10 million	Estimate	100%	\$10 million	\$0.01
Cash	\$4.9 million	March 31, 2016	100%	\$4.9 million	\$0.01
Total	\$1,134 million			\$575 million	\$0.80

Source: Breakaway Analysis

We have applied current or conservative forecast commodity prices to our Mount Peake DCF valuation model. This uses costs as in the 2015 DFS, and we have used an 8% real DR and an AUD/USD exchange rate of 0.75 on a pre-tax, pre-financing basis. Our preferred value range is highlighted in the tables below – the corresponding IRR range is in the order of 16-20%.

The project is most sensitive to the V₂O₅ and TiO₂ prices, and thus our preferred valuation range takes the form of a sensitivity table for these products. We have used a pig iron price of US\$220/tonne. Our modelling supports the results (including the published NPV of A\$4.9 billion) of the 2015 DFS if we use similar revenue projections to those used at that time.

Mount Peake – Indicative DCF Valuation

Un-risked Mount Peake Value – 100% Ownership					
TiO ₂ \V ₂ O ₅	\$10,000/t	\$12,000/t	\$13,000/t	\$14,000/t	\$15,000/t
\$2,000/t	-\$182m	\$132m	\$289m	\$446m	\$602m
\$2,250/t	\$312m	\$626m	\$782m	\$939m	\$1,096m
\$2,500/t	\$806m	\$1,119m	\$1,276m	\$1,433m	\$1,590m
\$3,000/t	\$1,299m	\$1,613m	\$1,770m	\$1,927m	\$2,083m
\$3,500/t	\$1,793m	\$2,107m	\$2,263m	\$2,420m	\$2,577m
Per Share Value - Mount Peake Risked at 50% for Financing Risk - 100% Ownership					
TiO ₂ \V ₂ O ₅	\$10,000/t	\$12,000/t	\$13,000/t	\$14,000/t	\$15,000/t
\$2,000/t	-\$0.13	\$0.09	\$0.20	\$0.31	\$0.42
\$2,250/t	\$0.22	\$0.44	\$0.55	\$0.66	\$0.77
\$2,500/t	\$0.56	\$0.78	\$0.89	\$1.00	\$1.11
\$3,000/t	\$0.91	\$1.13	\$1.24	\$1.35	\$1.46
\$3,500/t	\$1.25	\$1.47	\$1.58	\$1.69	\$1.80

Source: Breakaway Analysis

Mount Peake is sensitive to V₂O₅ and TiO₂ prices, and we have a preferred range in our valuation

Key considerations in the revised valuation are current and forecast metals prices with low prices now facing most developers. In the case of TNG, we are currently seeing historically anomalously low V₂O₅ prices, (although these have recovered somewhat in recent months), low titanium dioxide and low iron prices. One thing mitigating US commodity price falls are the falls in the Australian Dollar over recent years.

The 2015 DFS used higher prices than current – these were based on comprehensive forecasting for the first eight years of the proposed project life at that time.

As shown above however our modelling using conservative forecast prices indicates that Mount Peake is still viable, and still generates significant operating cash flows.

Vanadium: Forecasters see an improvement in vanadium prices over the next few years, with an increase in demand and decrease in existing supply. Demand is forecast to be driven by the take up of VRB technology, natural growth in the steel industry and increased vanadium intensity in steels amongst others. The V₂O₅ price traded at around US\$5-6/lb (US\$11-13.20/kg) for the five years before the recent dramatic falls, and could be expected to return to similar levels.

Titanium: Titanium is critical to the project economics, with titanium demand largely following global economic conditions, with prices retreating over the last few years from highs of around US\$3,500/t in 2012 to around US\$2,300/tonne now, where they appear



to have stabilised. Given global economic conditions we do not expect any dramatic price action, however may expect prices to trade around US\$2,500/tonne in the medium term.

Pig Iron: The price of pig iron is driven by the price of iron ore, with falls in prices largely paralleling those in iron ore over the last few years. We do not see significant improvements in prices.

Breakaway's View

TNG has continued to make excellent progress with the signing of key agreements for the development of Mount Peake. Our view is that the two offtake agreements, for vanadium and iron products are the most important of these to date, in that they underpin a part of projected revenue, and hence are an integral part of securing project finance.

Key risks now include securing financing and permitting

The Company is currently in negotiations for titanium offtake, which, given that it provides some 60% of our modelled revenues, is now the critical element in progressing financing, which is the key risk for the Project. Through their tie up with SMS, reinforced with the recent agreements, debt funding for the Darwin refinery potentially falls under the purview of German ECA debt insurance cover, and hence, should the Company qualify for cover, provides access to financing on favourable terms with German and European Union financiers.

The other important non-technical risk we see is in permitting, although developments, including the signing of the Sacred Site Clearance Certificate demonstrate that this is progressing well.

The key technical risk now will come with project development and start-up, and full scale implementation of the TIVAN® process – this includes meeting opex expectations; otherwise Mount Peake is largely de-risked technically. However, as discussed in previous notes, the pilot scale testwork of the TIVAN® process exceeded expectations, with this success reinforced with the continuing and strengthening relationship with SMS.

A key consideration has been falling metals prices and, as discussed earlier, we have incorporated what in our view are reasonable and conservative figures in our valuation. This has resulted in a significantly lower NPV than that in the DFS, however it still shows that Mount Peake is viable, and with sales of 100% of its output could provide up to \$400 million of free cash flow (before tax and financing) per year.

The other key change in the valuation is that we are now assuming 100% ownership of Mount Peak for TNG, whereas before we had a scenario where TNG gave away 60% of the Project in return for financing and development of the operation.

We maintain our Speculative Buy rating with an revised price target of \$0.80/share

Given the above we maintain our rating of TNG Limited as a **Speculative Buy, with a revised mid-point base case target price of \$0.80/share.**

As we discussed in our previous note, the current price is at a significant discount to our valuation (and any valuation that could be deduced from the results of the DFS), and has not moved with recent announcements. Our view is that this is largely due to current tight capital markets, with companies requiring significant project finance being severely discounted. The key price movers now will be signing of offtake agreements for the titanium products and material developments in financing.

Exploration results from the other projects, particularly McArthur River, have proven encouraging and should make the proposed Todd River Resources IPO an attractive investment proposition when market conditions allow for the spin-out.



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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Breakaway Investment Group

AFSL 290093 ABN 84127962387

T+61293928010

F+61292792727

PO Box H116 Australia Square

Sydney, NSW 2001

Suite 505, 35 Lime Street,

Sydney, NSW 2000