# TNG LIMITED

#### 18 January 2017

# **December 2016 Quarterly Activities Report**

# TNG gears up for 2017 with highly successful capital raising and further key agreements advancing Mount Peake and base metals spin-off and IPO now imminent

# HIGHLIGHTS

# MOUNT PEAKE VANADIUM-TITANIUM-IRON PROJECT (NT)

- Memorandum of Understanding signed with leading global titanium trader, Wogen Pacific, for the long-term sales and marketing of titanium dioxide products from Mount Peake, covering the third and final product suite from the project.
- Memorandum of Understanding signed with Sumitomo and Energy Made Clean to develop the vanadium battery market in Australia.
- Environmental Impact Statement (EIS) progressing well, with supplemental work completed and under compilation and overall permitting process on track. The Supplement to the EIS is expected to be submitted in Q1 2017.
- All Traditional Owner approvals now in place, with authorisation received for the construction of causeways to provide haul road access to the site.

# **BASE METAL PROJECTS**

- Demerger of the Company's NT base metals assets to proceed following receipt of shareholder approval at an Extraordinary General Meeting on 29 November 2016.
- In-specie distribution relating to the demerger to occur in the first quarter of 2017 in conjunction with the proposed Initial Public Offer (IPO) of Todd River Resources Limited. An updated timetable for the in-specie distribution will be announced by the Company in the first quarter of 2017.

# **CORPORATE**

- Completion of fully-subscribed Share Purchase Plan (SPP), which raised A\$7M (before costs). The funds will be used to support the development of the Mount Peake Project and to provide working capital.
- Strategic Memorandum of Understanding signed with Japan's Sumitomo Electric Industries (SEI) and Perth-based Energy Made Clean (EMC) to jointly develop vanadium-based renewable energy in Australia.
- Receipt of Research & Development refund claim totalling \$962,600 before costs. The claim covers eligible testwork for the 2015/16 financial year under the Federal Government's R&D tax incentive scheme.
- Positive research report published by Patersons Securities, which can be found on the Company's website <u>www.tngltd.com.au</u> under Investor Centre > Reports.
- Cash reserves of \$10.4 M at Quarter-end, providing a strong foundation for ongoing pre-development activities.

# **SUMMARY**

Australian strategic metals company TNG Limited (ASX: TNG – "TNG" or "the Company") is pleased to report on an active and highly successful December 2016 Quarter, with work continuing on a number of fronts to progress the Company's flagship 100%-owned Mount Peake Vanadium-Titanium-Iron Project in the Northern Territory; plans well advanced to complete the demerger of the Company's non-core base metals assets via the spin-off and IPO of Todd River Resources; and a highly successful Share Purchase Plan ensuring that the Company is in a strong financial position to execute its growth strategy.

With Mount Peake now moving into the final stages of permitting and financing activities set to gather momentum in the first half of 2017, the restructure of the TNG Group via the Todd River demerger and IPO will ensure that shareholders have exposure both to the emerging strategic metals production opportunity at Mount Peake and the highly prospective zinc and base metals exploration portfolio in the Northern Territory at an opportune time in the zinc market.

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This amounts to an exciting and potentially transformational period for the Company as it executes the key elements of its long-term corporate strategy and brings to fruition the proposed financing and development of one of the most significant new resource projects in Australia.

At Mount Peake, the Company secured a key Memorandum of Understanding ("MoU") during the Quarter with the leading global titanium, mineral sands and other metals and minerals trader, Wogen Pacific Ltd, for the sale and marketing of titanium dioxide (TiO<sub>2</sub>) products produced from the project.

The MoU covers the third and final product suite from the Mount Peake Project, and follows the signing of binding off-take agreements for vanadium and iron ore products in 2015 and 2016 respectively.

TNG will now work closely with Wogen to secure binding sales and marketing agreements for titanium, which will represent one of the key final steps towards securing project finance.

The final phase of permitting for the Mount Peake Project also continues to progress well, with all field work required for the submission of a Supplement to the Environmental Impact Statement (EIS) completed during the Quarter, and the Supplement expected to be submitted late in the March 2017 Quarter.

All required approvals from the Traditional Owner Group (TOG) for the Mount Peake Project are also now in place, following the approval during the Quarter for the construction of causeways required for the project's haul roads.

Corporately, the December 2016 Quarter delivered a number of very positive outcomes, culminating in the completion of a fully subscribed Share Purchase Plan (SPP), which raised \$7 million before costs. The Company had initially set out to raise \$4 million, but increased the SPP cap following an exceptionally strong response from shareholders.

These funds will underpin the next important phase of development at Mount Peake Project, and the Company would like to sincerely thank all shareholders who participated in the SPP, which was fully subscribed.

Also during the Quarter, the Company secured a key Memorandum of Understanding with Sumitomo Electric Industries ("SEI") and Energy Made Clean ("EMC"), a subsidiary of Carnegie Clean Energy (ASX: CCE), to collaborate on the promotion, development and growth of Australia's Vanadium Redox Flow Battery ("VRF") market.

The MoU follows TNG's announcement in October 2016 that it had successfully produced high-purity, commercial grade vanadium electrolyte using vanadium pentoxide from Mount Peake. The ability to produce commercial grade vanadium electrolyte opens up an exciting new growth area for TNG, positioning it to supply the fast-growing Vanadium Redox Flow Battery (VRF) industry.

This represents a highly attractive potential market for TNG, and is in line with TNG's strategy for full vertical integration of its vanadium supply chain.

Under the MoU, TNG will work together with SEI and EMC to review all of the potential applications of VRF in Australia with a view to subsequently co-operating on the marketing and sales of VRF. In addition, the parties have agreed to jointly establish a demonstration VRF of commercial size in Australia to showcase SEI's technology.

Positive progress was also made in relation to the proposed demerger of the Company's base metals assets in the Northern Territory, with the demerger approved by shareholders at an Extraordinary General Meeting. With this approval now in place, the Company intends to complete the in-specie distribution during the March 2017 Quarter, in conjunction with the Initial Public Offering (IPO) of Todd River Resources Limited. A timetable for the demerger will be provided in the coming weeks.

# PROJECTS

#### VANADIUM-TITANIUM-IRON

#### Mount Peake Project: TNG 100%

The Mount Peake Project is a world-scale strategic metals project located 235km north-west of Alice Springs in the Northern Territory close to existing key power and transport infrastructure including the Alice Springs-Darwin Railway and the Stuart Highway. With a JORC Measured, Indicated and Inferred Resource totalling 160Mt (118Mt Measured, 20Mt Indicated, 22Mt Inferred), grading 0.28% V<sub>2</sub>O<sub>5</sub>, 5.3% TiO<sub>2</sub> and 23% Fe, Mount Peake is one of the largest undeveloped vanadium-titanium-iron projects in the world. The area under licence covers a highly prospective, but poorly explored part of the Western Arunta geological province which offers significant exploration upside for TNG within an extensive 100%-owned ground-holding. TNG completed a Feasibility Study on the Mount Peake Project in July 2015, paving the way for project financing and development





to proceed. Results of the DFS were provided in full in the Company's June 2015 Quarterly Report.

#### MOU for titanium off-take with Wogen Pacific

TNG has signed a key Memorandum of Understanding ("MoU") with leading global titanium, mineral sands and other metals and minerals trader, Wogen Pacific Ltd, for the sale and marketing of titanium dioxide (TiO<sub>2</sub>) products from the Mount Peake Project.

The MoU, which has been signed at a time of improving market conditions for the titanium dioxide sector, covers key aspects of a proposed life-of-mine Sales and Marketing Agreement and also provides for potential pre-financing of TiO<sub>2</sub> products from Mount Peake.

The agreement supports TNG's strategic plan to become a major player in the global  $TiO_2$  supply chain, securing a long-term partnership with one of the world's leading traders in the sector.

The Wogen Group of companies have for several decades been proud participants in the global titanium and mineral sands supply chains, handling on a pan-global scale raw materials like ilmenite and rutile, intermediates and finished products in the pigment, welding, FeTi and titanium metal sectors. Wogen Titanium was twice the recipient of a Queen's Award – once in 1990 for Export Achievement, and once in 2006 for International Trade.

This MoU with Wogen follows the signing of binding off-take agreements for a minimum of 60 per cent of the Mount Peake Project's projected vanadium output with major Korean ferro-vanadium group, WOOJIN (see ASX Announcement – 7 September 2015), and its iron products with global commodity trader, Gunvor (Singapore) (see ASX Announcement – 23 March 2016).

#### **Environmental Impact Statement (EIS)**

All field-related activities required for the completion of additional studies to be included in the submission of the Supplement for the Environmental Impact Statement (EIS) for the Mount Peake Project were completed during the Quarter.

During the last few months, a number of field and office based activities have been undertaken and completed in order to address questions raised during the government and public review of the Draft EIS in 2016. TNG submitted the EIS in late 2015 with the EIS being released for public comment in February 2016 (refer ASX Release, 11 February 2016).

The EIS can be accessed through the TNG website: http://www.tngltd.com.au/sustainable\_development/environmental\_impact\_assessment.phtml

Following the review, supplemental studies were requested on required flora, fauna, and ecological surveys, water aquifer and acid-mine drainage (AMD) risk. All work associated with these studies has now been completed, and no issues have been noted in the results of any of the work.

#### Flora, Fauna and Ecological Surveys

The field, water and ecological work was completed by TNG's Environmental consultants, GHD, with the assistance of several local Aboriginal Rangers sourced from Ti-Tree township through the Central Land Council (CLC).

A number of new matters were addressed during this work, namely:

- Targeted searches for specific rare/endangered/vulnerable species in areas of planned ground disturbance; and
- Vegetation surveys along the transport corridor and within the bore-field area (Figure 1).



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Figure 1: Project location plan, showing the mine, camp, transport corridor, railway, and bore-field areas

#### Water Aquifer and Flooding Risk

Additional water bore drilling and pump testing has also been completed to provide greater certainty in the calculation of sustainable yield from the aquifer to provide water to the mine and associated infrastructure at Mount Peake.

Data is being collated and GHD will provide a reworked model of the aquifer system. GHD will then refine the design of the production holes in the bore-field and pipeline to the mine.

TNG now has three 8" steel-cased production bores at Mount Peake (Figure 2) and has conducted extended pump tests late in the Quarter (Figure 3). Each bore is capable of sustainably providing several litres per second of good quality (ca. 4000-5000 ppm TDS) water.

The last hole (16MPWB017) has yielded an impressive 18 L/s over the 11-day Constant Rate test with only a five metre drawdown – much higher than noted in the Feasibility Study. A final aquifer study and water supply and design report will be provided to TNG by GHD in early 2017.



Figure 2: Running in casing, hole 16MPWB017

Figure 3: Measuring draw-down during the 48-hour Constant Rate pump test on hole 16MPWB015



#### Surface Water Study

An additional surface water study was completed in September 2016 which utilised newly acquired high-resolution topographic data (Worldview3 satellite imagery and 0.5m contour data). This work modelled the 10, 20, 50, and 100-year Average Recurrence Interval (ARI) 72-hour storm events for both the Murray Creek (near the mine site) and Hanson River (crossing required on the access road from the Stuart Highway).

The 100-year ARI rainfall event could result in flooding into the pit, but this can/will be mitigated by a low levee bank constructed along a section of the eastern side of the pit. The recommendations of this work have been incorporated in mining construction and design plans.

#### Acid Mine Drainage Risk

Significant testwork has also been conducted during 2016 to address Acid Mine Drainage (AMD) questions raised from the Draft EIS. A total of 409 ore, waste and tailings samples have now been analysed for metals content and a number of static and kinetic AMD related factors and results have been assessed by GHD consultants.

This report, completed in November, concluded that there is a general lack of sulphide material in the ore and waste rock, and the risk of acid leachate generation is very low.

All NAPP (Net Acid Producing Potential) results were negative, indicating that the material is either acid-consuming or non-acid forming. Kinetic Net Acid Generation and Acid Buffering Characterisation Curve testwork results, on selected higher sulphide samples, indicate that all materials have adequate acid neutralising capacity.

#### Heritage Clearance

All site-related heritage clearances have also been received by TNG, following the CLC arranged clearance surveys during the year and the Traditional Owner meeting on site in October (see below).

GHD will now collate all this work into the Supplement to the EIS. The Supplement will address all key points raised by both public and NT Government bodies during the Draft EIS public review period (see ASX Release 11 February 2016). The Supplement to the EIS will be submitted by GHD in early 2017. No issues have been identified in the EIS or in the work done to feed into the Supplement.

#### Traditional Owner Approvals

All Traditional Owner approvals are now in place for the development of Mount Peake Project, with the Mount Peake Traditional Owners providing TNG with approval for the construction of causeways to provide haul road access to the site across two creeks.

A meeting with the Traditional Owners was arranged in October through the Central Land Council (CLC), the Alice Springsbased legal representatives of the Traditional Owner Group (TOG) for the proposed Mount Peake Project area.

In attendance at this landmark meeting were CLC representatives and over 200 traditional owners (see Figure 4) who had gathered together from the Wilora, Anmatjere, Ti-Tree and Willowra Aboriginal communities which make up the TOG.

TNG's representatives, Mr Eddie Fry (TNG's heritage consultant and Chairman of Indigenous Business Australia) and Mr Leo Janssen, the General Manager Engineering for Downer EDI, presented to the groups at the meeting. Downer which is TNG's EPCM partner for the Mount Peake Project (see ASX Announcement – 23 February 2016), developed and supplied the causeway design drawings for presentation at the meeting.



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Figure 4: CLC Traditional Owner meeting at Mount Peake

Over the last 18 months the CLC has been intimately involved with the TOG in obtaining Sacred Site Clearances for the planned Mount Peake mining operation. Clearance was obtained in July 2015 for the mine area, camp, rail siding, and the transport corridor (see ASX Announcement – 24 August 2015). Clearance over the bore field and water pipeline route was obtained in January 2016 (Sacred Site Clearance Certificate 2015-169).

Further consultation and approval was required specifically for the creek crossing areas (designated Restricted Work Areas), as a condition of the Sacred Site Clearance for the transport corridor obtained in mid-2015. A result of the meeting was that the TOG had no objections to the proposed creek-crossing causeway designs outlined and were in full favour of TNG proceeding with construction.

TNG is now well advanced in negotiating a Mining Agreement with the TOG through the CLC, after which the Mining Licence can be issued by the Northern Territory Minister for Mines. The clearances obtained to date are an essential part of this agreement.

#### Other prospects at Mount Peake

The Company has identified significant other mineralisation potential in the Mount Peake area.

#### Graphite

The graphite potential of the Mount Peake Project is also continuing to emerge. This work is still at an early stage, however the graphite prospectivity at Mount Peake represents an exciting emerging opportunity for TNG, which will be further tested during 2017.

# **OTHER PROJECTS**

TNG has numerous projects outside of Mount Peake, all of which offer outstanding prospectivity. TNG has announced plans to de-merge these projects into a new listed entity, to be named Todd River Resources (*see ASX Announcement dated 25 July 2016*).

The proposed spin-off would see TNG emerge with an approximate 10.8 per cent cornerstone stake in the new company, with TNG shareholders to hold 43 per cent of the shares via an in-specie distribution.

Approval for the demerger was obtained at an Extraordinary General Meeting of shareholders on 29 November 2016 (see Corporate Section below).



### CORPORATE

#### Completion of fully-subscribed Share Purchase Plan

During the Quarter, TNG raised \$6.985 million (before costs) via its fully subscribed Share Purchase Plan (SPP). Under the terms of the SPP, eligible shareholders were offered the opportunity to subscribe for up to \$15,000 worth of fully-paid ordinary TNG shares at an issue price of 13.5c per share, including a free attaching listed option on a 1-for-2 basis. The options will have an exercise price of 20c per share and an expiry date of 15 June 2018.

The Company had initially sought to raise up to \$4 million, however following an exceptionally strong response from shareholders, the Board resolved to increase the SPP cap to \$7 million.

The offer was strongly supported and applications were received for more than the increased SPP cap of \$7 million, which is an outstanding result for TNG and reflects the positive outlook for its and Mount Peake vanadium-iron-titanium project in the Northern Territory, its TIVAN<sup>TM</sup> technology and proposed demerger of other assets.

Following the exclusion of a number of applications that did not comply with the provisions of the ASIC Class Order or the terms of the SPP Offer, a total of \$6,985,107.57 (before costs) was raised, resulting in the issue of 51,741,501 Shares and 25,870,437 attaching Options.

Following completion of the SPP, the Company had 803,514,214 ordinary shares on issue; 25,870,437 listed options on issue (exercisable at 20 cents and expiring 15 June 2018); and 17,500,000 unlisted options on issue (various exercise prices and expiry dates).

#### Strategic Agreement to Jointly Develop Vanadium Redox Flow Battery Market in Australia

During the Quarter, TNG signed a key Memorandum of Understanding with Sumitomo Electric Industries ("SEI") and Energy Made Clean ("EMC"), a subsidiary of Carnegie Clean Energy (ASX: CCE), to collaborate on the promotion, development and growth of Australia's Vanadium Redox Flow Battery ("VRF") market.

The MoU follows TNG's announcement that it had successfully produced high-purity, commercial grade vanadium electrolyte using vanadium pentoxide from its flagship 100%-owned Mount Peake Vanadium-Titanium-Iron Project in the NT (see ASX Announcement – 10 October 2016). The ability to produce commercial grade vanadium electrolyte opens up an exciting new growth area for TNG, positioning it to supply the fast-growing Vanadium Redox Flow Battery (VRF) industry.

Under the MoU, TNG will work together with SEI and EMC to review all of the potential applications of VRF in Australia with a view to subsequently co-operating on the marketing and sales of VRF. In addition, the parties have agreed to jointly establish a demonstration VRF of commercial size in Australia to showcase SEI's technology.

TNG will also assess the feasibility and implementation of a Vanadium Electrolyte production facility in either Perth or Darwin.

Sumitomo Electric Industries is a global leader in the manufacture and sale of automotive, electronics, info-communications, industrial materials, and environment and energy products. Established in 1897 with over 240,000 employees worldwide and a turnover exceeding A\$32 billion in 2016, SEI has been leading the VRF market since 1996 and installed the world's largest VRF with 60MWh power in Hokkaido, Japan; for more information: <u>http://global-sei.com/</u>

EMC is wholly-owned by ASX-listed company Carnegie Wave Energy (ASX: CWE); for more information: https://carnegiewave.com/. Energy Made Clean is a leading Perth-based renewable energy company providing off-grid power and utility scale solutions. TNG signed an MoU with EMC last year (see ASX Announcement – 19 June 2015) to establish the feasibility of Vanadium Redox batteries. EMC has a very broad experience with and extensive project portfolio of off-grid applications and is ideally placed to support the development of VRF in Australia; for more information: http://www.energymadeclean.com/.

#### De-merger of Base Metals Assets

During the Quarter, TNG held an Extraordinary General Meeting to enable shareholders to vote on the proposed demerger of its non-core portfolio of zinc, copper and base metal assets in the Northern Territory.

The resolution was successfully passed on a show of hands, and the Company now intends to proceed with the in-specie distribution in the first quarter of 2017 in conjunction with the proposed initial public offer of Todd River Resources Limited.





An updated timetable for the in-specie distribution will be announced by the Company in the first quarter of 2017.

#### R&D Rebate

TNG received the full amount of its Research & Development refund claim during the Quarter, totalling \$962,600 before costs.

The claim covers eligible test work for the 2015/16 financial year under the Federal Government's R&D tax incentive scheme.

Under the R&D tax incentive scheme, companies with a turnover of less than \$20 million which undertake research & development activities are entitled to a cash refund of 45 cents per dollar spent on eligible research and development in Australia.

This incentive provides direct assistance for companies like TNG to continue their research and development activities with a view to potentially building further value for shareholders.

TNG's research relates to the commercial extraction of high purity vanadium, titanium and iron from vanadiferoustitanomagnetite using its TIVAN<sup>™</sup> hydrometallurgical process (patent pending).

The TIVAN<sup>™</sup> process forms a key part of the Company's development plans for the Mount Peake Project, and its strategy to become a significant producer of strategic metals.

The receipt of the R&D rebate further strengthened the Company's financial position as it moves into development planning and financing of the Mount Peake Project.

#### Cash

TNG had total cash reserves of \$10.4 million at Quarter-end.

Paul Burton Managing Director

18 January 2017



# **Tenement Schedule**

The Group holds an interest in the following tenements or tenement applications at 31 December 2016:

Project	Tenements	Equity
Mount Peake	EL27069, EL27070, EL27941, EL29578, EL30483, ELR29627, MLA28341, MLA29855, MLA29856, MLA30686	100%
McArthur River	EL27711, EL28509, EL30085	100%
Melville Island	ELA28617	100% (Farm in agreement)
Croker Island	ELA29164	100%
Mount Hardy	EL27892, EL29219, EL28694	100%
Manbarrum JV	A24518, A26581, EL24395, EL25646, MLA27357	100%
Sandover	ELA29252, ELA29253	100%
Tomkinson	EL30348, EL30359, EL31265	100%
Soldiers Creek	EL31209	100%
Stokes Yard	EL30131	100%
Walabanba Hills	EL26848, EL27115	100%
Warramunga/Rover JV	EL25581, ELA25582,ELA25587, MLC647	100% (Farm in agreement)
Peterman Ranges	ELA26383, ELA25564, ELA26384, ELA25562, ELA26382	100% (Farm in agreement)
Goddard's	ELA24260	100% (Farm in agreement)
Cawse Extended	M24/547, M24/548, M24/549, M24/550	20% free carried to production, or can be converted to a 2% net smelter return on ore mined. Unicorn Pit is now excised and a wet tonne royalty applies.
Kintore East	P16/2370, P16/2371, P16/2372, P16/2373, P16/2374	2% gold return interest on production.

#### **Competent Person's Statements**

The information in this report that relates to Exploration Results is based on, and fairly represents, information and supporting documentation compiled by Exploration Manager Mr Kim Grey B.Sc. and M. Econ. Geol. Mr Grey is 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.