

# TNG

LIMITED

**Company Presentation**

121 Conference Hong Kong

March 2019

**Building a major strategic metals company:  
the Mount Peake Vanadium-Titanium-Iron Project**

**Paul Burton**  
Managing Director

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## COMPETENT PERSON'S STATEMENTS

- ▶ The information in this report that relates to the Mount Peake Mineral Resource estimates is extracted from an ASX Announcement dated 26 March 2013, (see ASX Announcement - 26 March 2013, "Additional Information on the Mount Peake Resource", [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asx.com.au](http://www.asx.com.au) ), and was completed in accordance with the guidelines of the JORC Code (2012). Initial mining and financial assessment work, based on the Mineral Resource, followed (see ASX Announcement - 15 July 2013, "TNG Considers Two-Stage Development Option for Mount Peake Project, NT ", [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asx.com.au](http://www.asx.com.au)). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Mineral Resource estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.
- ▶ The information in this report that relates to the Mount Peake Ore Reserve estimates is extracted from an ASX Announcement dated 31 July 2015, (see ASX Announcement - 31 July 2015, "Mount Peake Feasibility Study Confirms a World-Class Project", [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asc.com.au](http://www.asc.com.au)) and was completed in accordance with the guidelines of the JORC Code (2012). The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the Ore Reserve estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are represented have not been materially modified from the original market announcement.

## PRODUCTION TARGETS AND FINANCIAL INFORMATION

- ▶ Information in relation to the Mount Peake Definitive Feasibility, including production targets and financial information, included in this report is extracted from an ASX Announcement dated 20 November 2017, (see ASX Announcement - 20 November 2017, "Updated Feasibility Study Results", [www.tngltd.com.au](http://www.tngltd.com.au) and [www.asx.com.au](http://www.asx.com.au)). The Company confirms that all material assumptions underpinning the production target and financial information set out in the announcement released on 20 November 2017 continue to apply and have not materially changed.

# TNG Limited Corporate Overview

TNG is an Australian resources company that is progressing towards development of its 100% owned world class Mount Peake Vanadium-Titanium-Iron Project in the Northern Territory, Australia.

Board of Directors	
<b>John Elkington</b>	<b>Non-Executive Chairman</b>
Experienced Chairman; Mining professional with development experience	
<b>Paul Burton</b>	<b>Managing Director</b>
Exploration and Mining Executive; Project Developer, Geologist	
<b>Rex Turkington</b>	<b>Non-Executive Director</b>
Mining Financier & Corporate Advisor; Economist	
<b>John Davidson</b>	<b>Non-Executive Director</b>
Resources, Energy & Tech Executive	
<b>Greg Durack</b>	<b>Non-Executive Director</b>
Mining Executive; Project Development, Delivery & Operations	

Top Shareholders	
<b>Vimson Group</b> - Indian iron ore mining conglomerate	<b>9.98%</b>
<b>WWB Investments P/L</b> - private investor	<b>8.30%</b>
<b>Aosu Investment &amp; Development Co</b> - strategic Chinese investor	<b>5.83%</b>
<b>TNG Directors' holdings</b>	<b>2.34%</b>
<b>SMS Investments SA</b> - Mount Peake development partner	<b>1.45%</b>
<b>JP Morgan Nominees Australia Limited</b> - institution	<b>1.37%</b>

Corporate Data	
<b>ASX code</b>	<b>TNG</b>
<b>Cash (31-Dec-18)</b>	<b>\$16.8 million</b>
<b>Shares on issue</b>	<b>963m</b>
<b>Market capitalisation</b>	<b>\$87m</b>

# Mount Peake Project

## A WORLD CLASS STRATEGIC METALS DEPOSIT

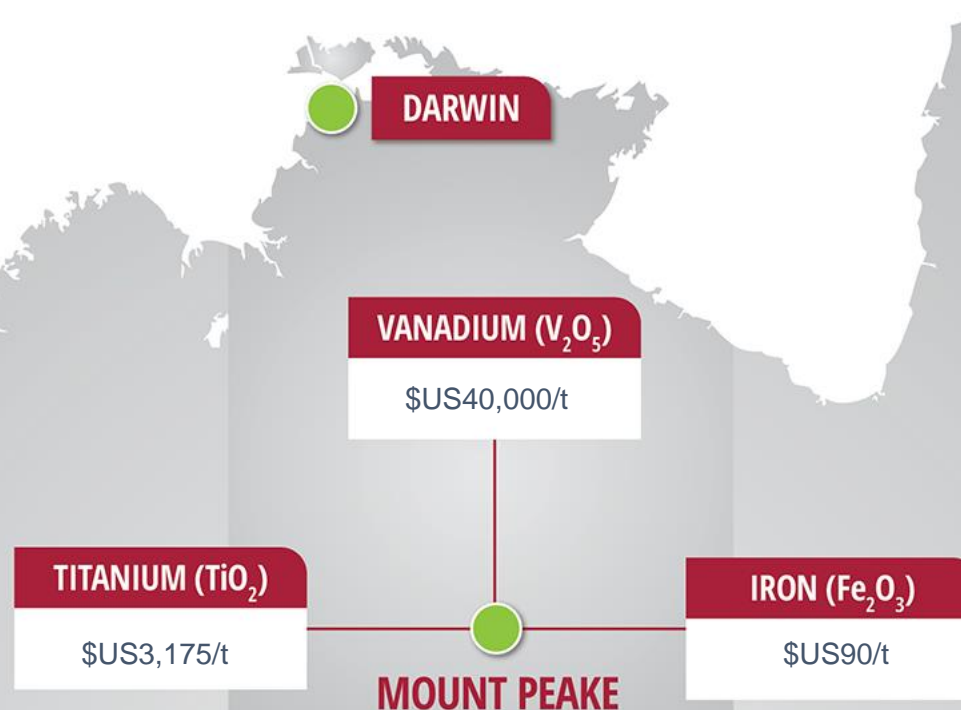
- ▶ Large, long-life asset located in a stable and supportive jurisdiction for major resources projects
- ▶ Close proximity to existing transport and power infrastructure
- ▶ Extensive development studies completed; feed (front-end engineering & design) underway
- ▶ Global network of strategic partners
- ▶ Project funding underway



## TNG: Key Progress in 2018

- ✓ • EIS mine site - Federal approval
- ✓ • Strategic investment from Indian mining group - Completed
- ✓ • Titanium Pigment Technology Provider “Ti-Cons” - Agreement Executed
- ✓ • Mount Peake Native Title Agreement - Executed
- ✓ • Mining Licenses granted by NT Government
- ✓ • Binding Offtake terms for Titanium Pigment with DKSH - Executed
- ✓ • FEED: Process and Product Guarantee - Commenced with SMS group
- ✓ • \$600M USD mandate for debt finance with KfW IPEX-BANK

# BUSINESS MODEL: One Mine three high value, high purity products \*



- Current pricing for high purity V<sub>2</sub>O<sub>5</sub>, TiO<sub>2</sub> pigment & iron fines
- Source Metal Bulletin and ICIS.

# Titano-Magnetite Ore Bodies

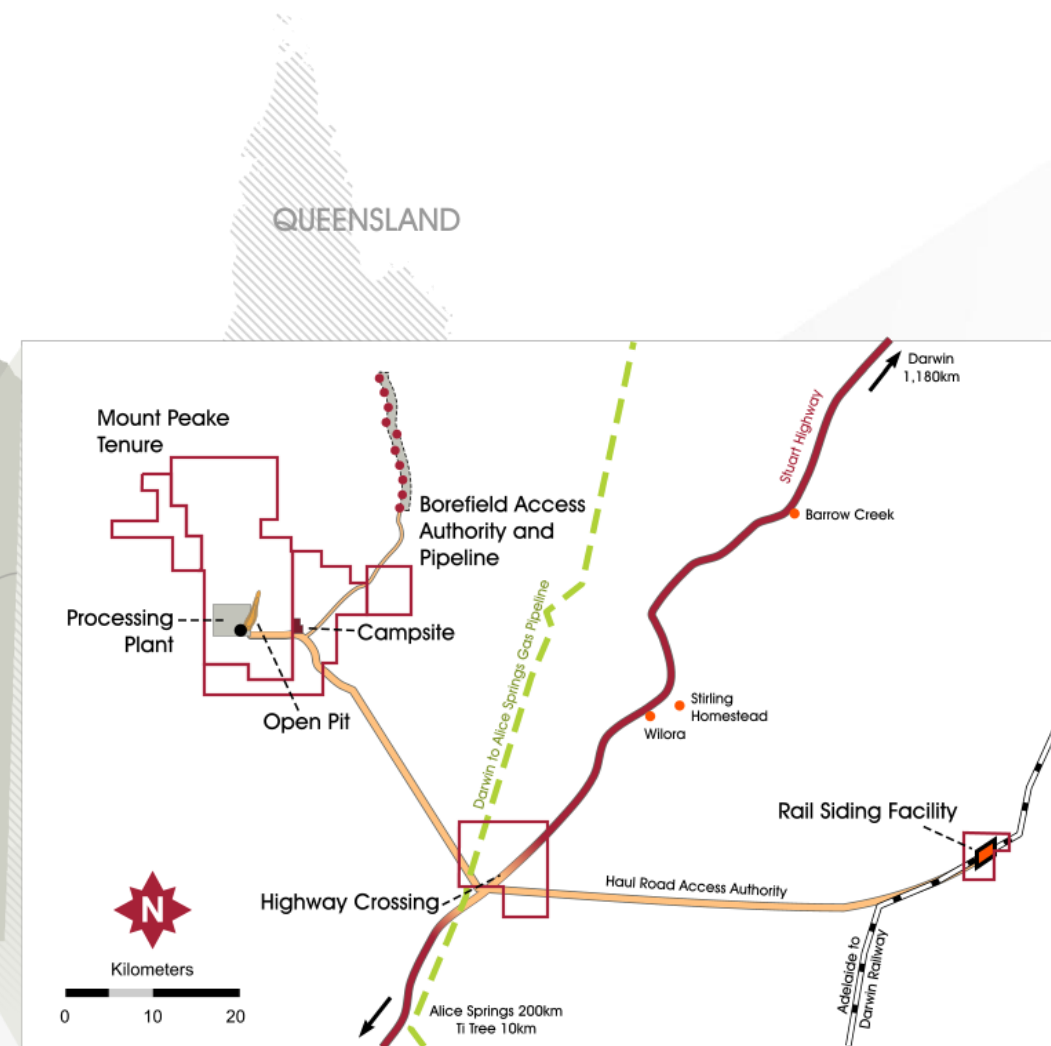
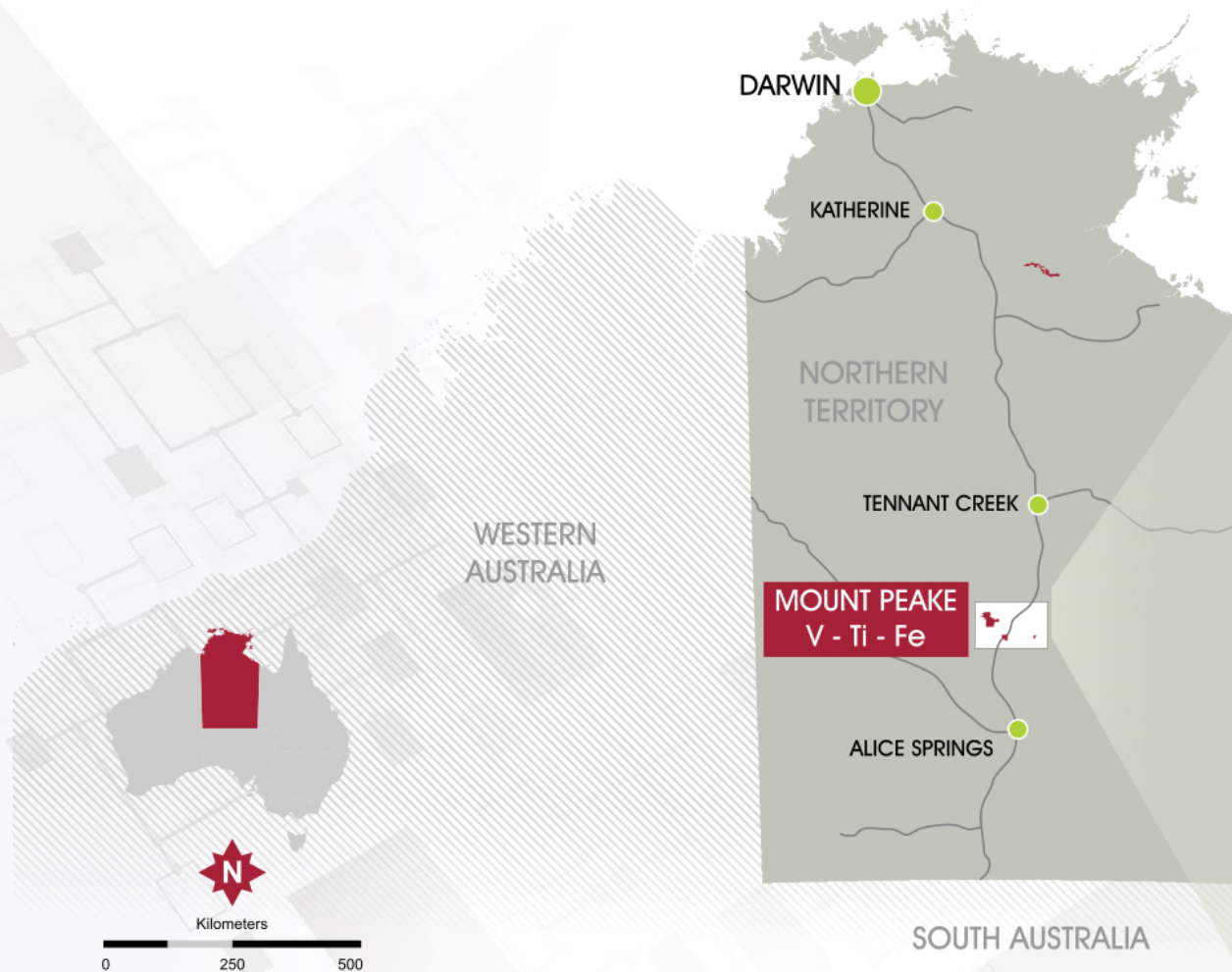
## KEY STRATEGIC ADVANTAGES

- ▶ **Abundant:** many known, accessible and easy-to-mine deposits
- ▶ **Ilmenite shortage:** high-grade ilmenites, suitable for synthetic rutile production are becoming scarce
- ▶ **Growing vanadium demand:** urbanisation in fast-growing emerging markets calls for the construction of high rises, requiring large quantities of vanadium-reinforced rebar
- ▶ **Potential for additional products:** the hydrometallurgical processing of titano-magnetite also allows for the extraction of other valuable fractions, such as scandium, high-purity silicon and MgO



# Mount Peake Project

WELL LOCATED IN THE NORTHERN TERRITORY NEAR ALL KEY INFRASTRUCTURE

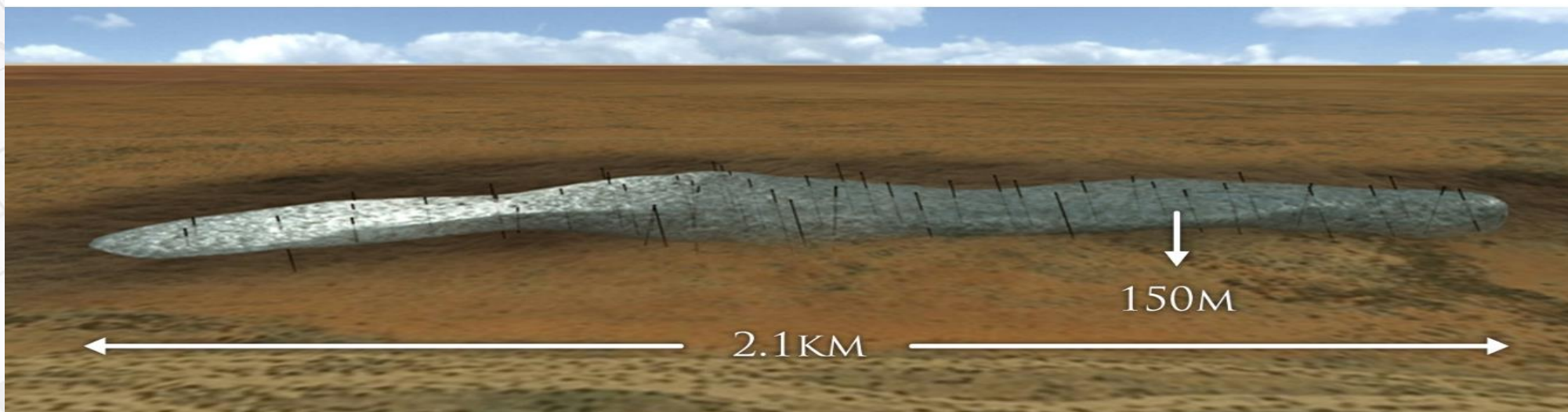


Find out more at [tngltd.com.au](http://tngltd.com.au)



# Mount Peake Deposit

GEOLOGICALLY ADVANTAGEOUS – FLAT LYING, HOMOGENEOUS, AND SHALLOW



# Mount Peake Mine Site

## PLANNING FOR THE MAGNETITE CONCENTRATOR

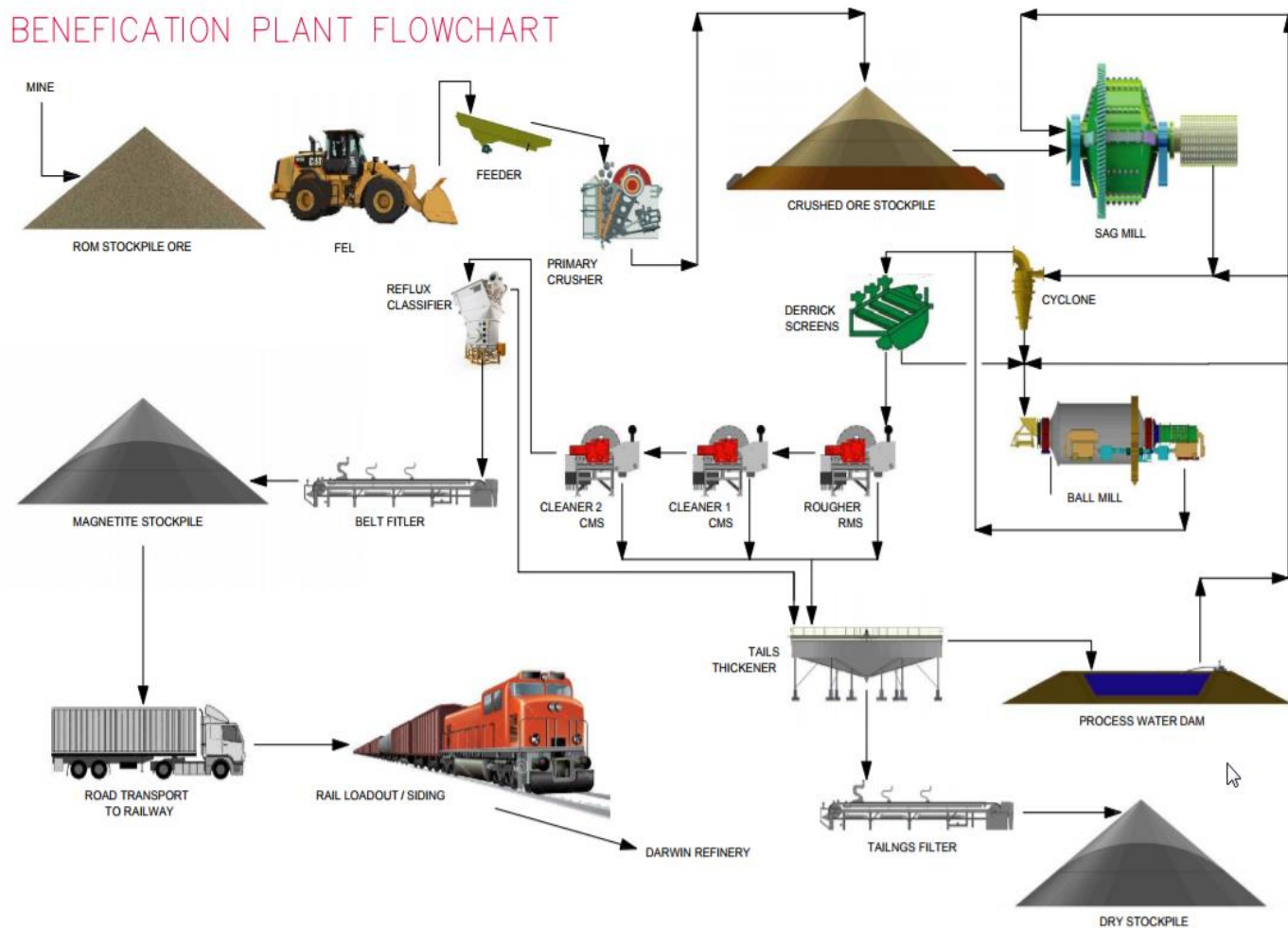
### Ore Concentration

- ▶ Mine site concentrator to produce a magnetite concentrate
- ▶ To utilise equipment that is proven in the application and provides flexibility in design to allow for plant expansion
- ▶ Extensive metallurgical testwork has been completed to optimise the flowsheet and ensure the magnetite concentrate meets the specifications of the downstream refinery

### Magnetite Concentrate Logistics

- ▶ 900kt of concentrate planned to be produced per annum (Y1 to Y4), eventually expanding to 1,800ktpa (Y5 to Y17) under the stage 2 upgrade
- ▶ The magnetite concentrate to be trucked on a haul road to a purpose built rail siding and loading facility on the Alice Springs-Darwin Railway
- ▶ The concentrate then to be sent by rail 1,400km north to the project's proposed Darwin based refinery
- ▶ A purpose built rail siding and unloading facility to be used to unload and stockpile concentrate at the refinery, ready for further processing

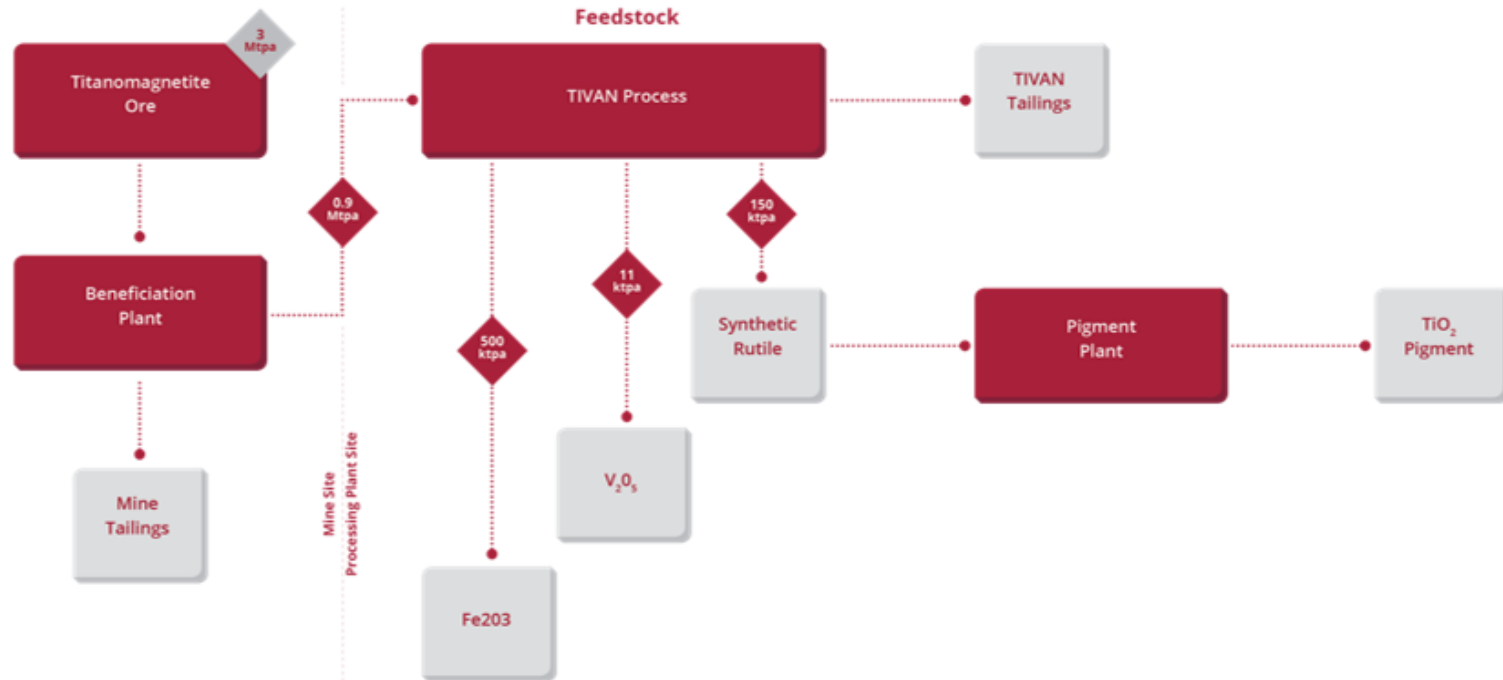
### BENEFICATION PLANT FLOWCHART



## TIVAN® Chemical Process

### TNG DEVELOPED AND PATENTED PROCESSING TECHNOLOGY

- ▶ Conventional means of extracting vanadium from titano-magnetite ore is through a salt roasting, energy intensive, pyrometallurgical process
- ▶ Conventional processing unable to commercially extract all three elements
- ▶ TNG and its technical advisers, METS, CSIRO and SMS group, have developed the world first TIVAN® process to overcome these limitations
- ▶ TIVAN® utilises a combination of pyro and hydrometallurgical processes to extract vanadium as  $V_2O_5$ , and commercially recover titanium dioxide and iron



# TIVAN<sup>®</sup>

## PATENT AND TRADE MARK STATUS

### TIVAN<sup>®</sup> Patent Status

<b>A Method for Extraction and Recovery of Vanadium</b>	
Australia	REGISTERED
Russian Federation	REGISTERED
United States of America	REGISTERED
Canada	REGISTERED
China	FILED - IN PROGRESS
European Patent Federation	FILED - IN PROGRESS
Vietnam	FILED - IN PROGRESS
<b>A Method for Preparing a Leach Feed Material</b>	
Australia	FILED - IN PROGRESS
<b>Titanium Dioxide Pigment Production Method</b>	
Australia	IN PREPARATION

### TIVAN<sup>®</sup> Trade Mark Status

<b>Registered in the following regions:</b>
Australia
Canada
China
European Union
Madrid Protocol
Russian Federation
South Africa
United States of America

# A Financially Robust Project

## LIFE OF MINE OPERATIONAL AND FINANCIAL METRICS

### Operational Metrics Annualized

Mine life	19 years
Mining Rate (ROM)	3Mtpa (Stage 1) expanding to 6Mtpa (Stage 2) after 4 years

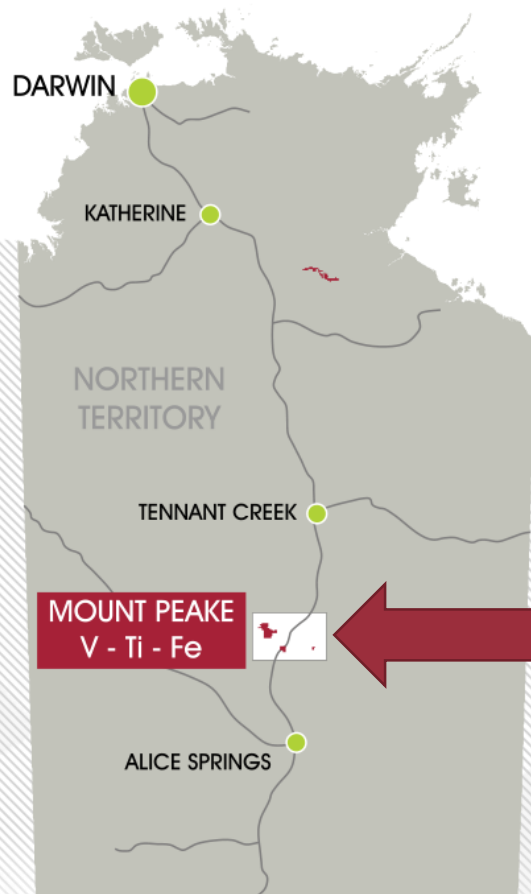
### Financial Metrics

Pre-production CAPEX	A\$853m
Payback period	3 years
IRR %	44%
Total Revenue	A\$29.2b
Operating Cash Flow	A\$13.5b
Net Cash Flow	A\$11.7b
Net Annual Operating Cash Flow	A\$738m
NPV (at 8% discounted)	A\$4.7b

# Mount Peake Project

## MINE SITE AND PROCESSING SITE

Tivan Processing Plant



QUEENSLAND

WESTERN AUSTRALIA

**MOUNT PEAKE**  
V - Ti - Fe



Mount Peake Mine Site

SOUTH AUSTRALIA

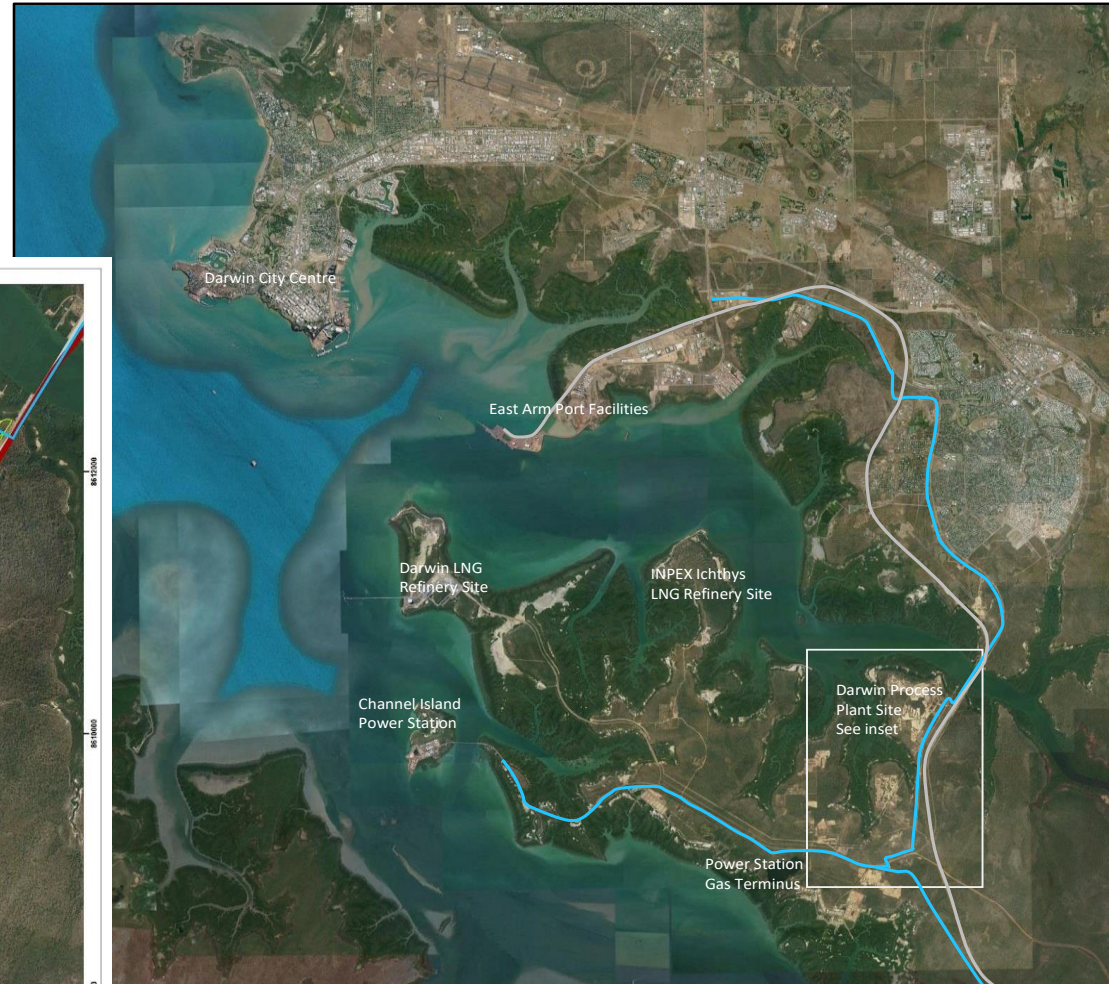
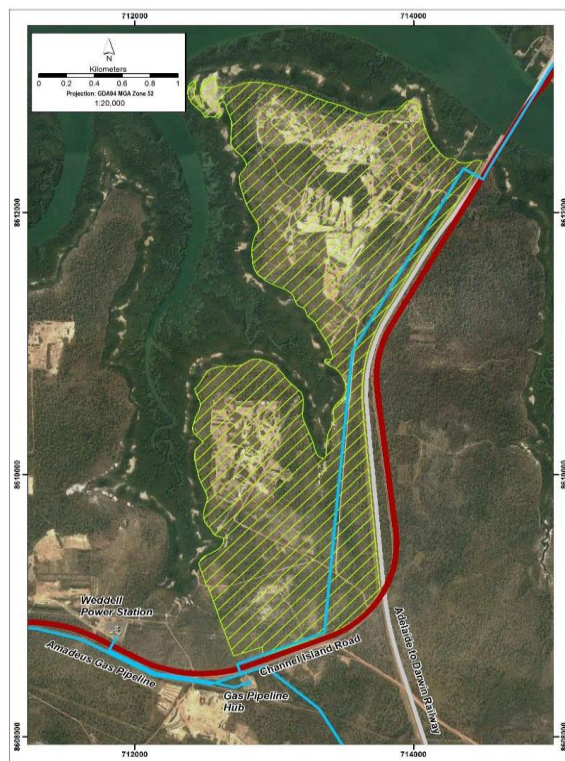


# Darwin Processing facility location

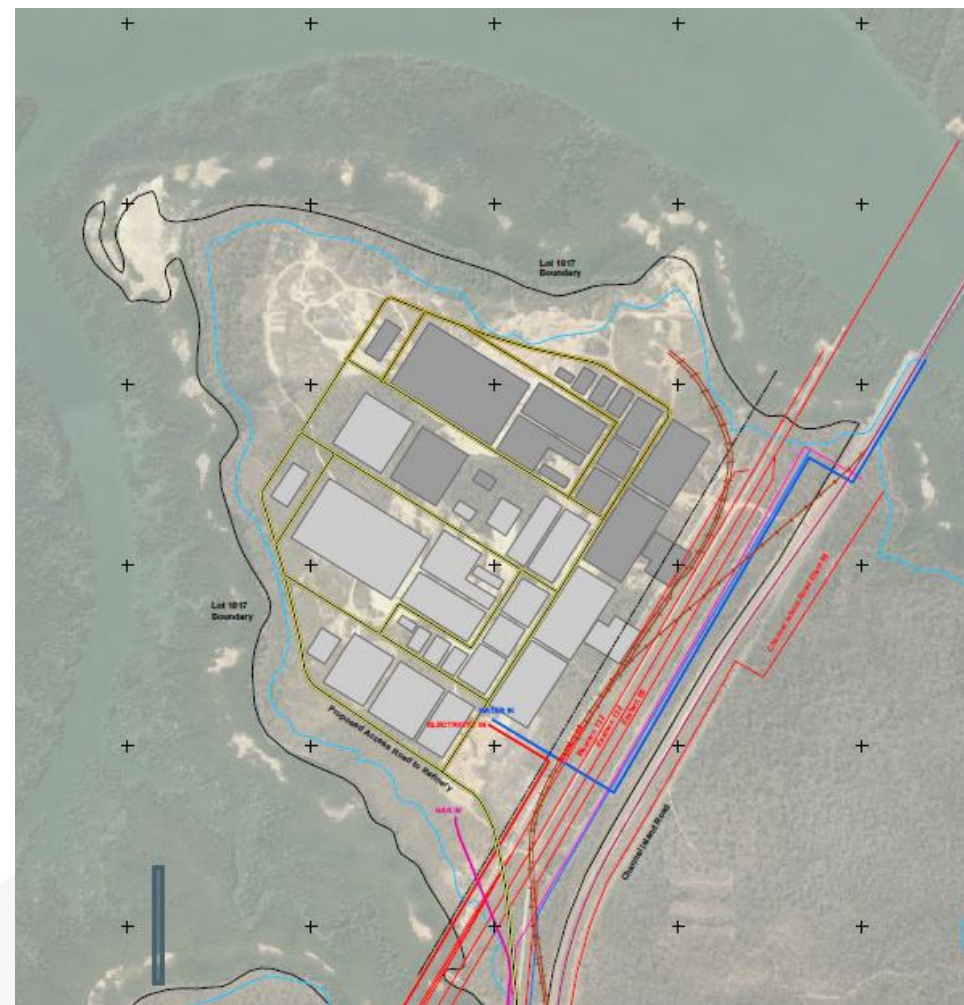
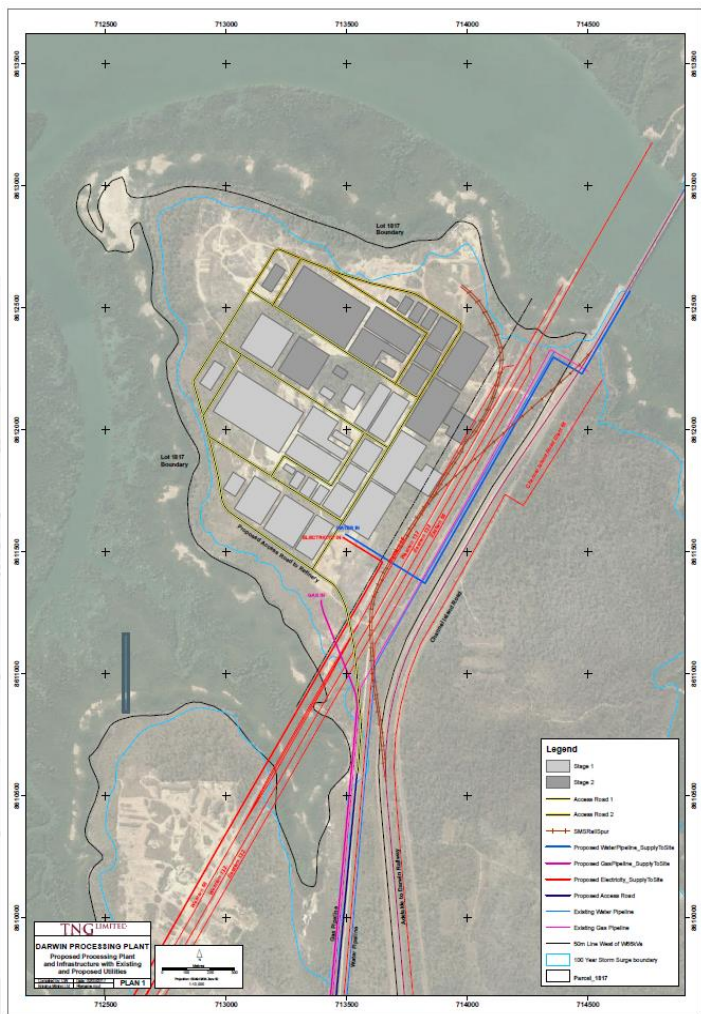
## Legend

-  Railway line
-  Amadeus Gas Pipeline

## Darwin Process Plant Site



# Detailed layout of proposed processing facility and associated infrastructure





# Darwin Port





# TNG PRODUCT & OFFTAKE AGREEMENT

**TNG LIMITED**

**TNG V2O5**  
High purity Vanadium Pentoxide

## PRELIMINARY TECHNICAL DATASHEET

### Product Description

TNG V2O5 is a high purity Vanadium Pentoxide, suitable for all applications, including vanadium electrolyte for redox flow battery.

All TNG V2O5 is produced under an ISO 9001:2000-certified Quality Management System at the company's plant in Darwin, Australia.

### Product Characteristics

Specifications:

- V2O5 99.8% minimum
- Fe 0.1% maximum
- Al2O3 0.1% maximum
- CaO 0.01% maximum
- SiO2 0.01% maximum

Appearance: Silvery flakes

Size:

- Diameter 55 mm x 55mm maximum
- Thickness 5 mm maximum

Packing: In 250kg drums or 1 mt big bags

- ▶ TNG's strategy is to be a fully integrated vanadium producer from mine to finished product
- ▶ High purity  $V_2O_5$  will enable TNG to supply the steel industry as well as higher value niche markets such as Vanadium Redox Flow Batteries
- ▶ The vanadium industry is currently very strong, with high prices backed by structural changes pushing demand



### OFFTAKE AGREEMENT:

- ▶ Binding Life-of-Mine (LOM) Off-take Agreement with Woojin (Korea) for a minimum of 60% of TNG's production\*
- ▶ Woojin is the second largest Ferro-Vanadium exporter in Asia with a  $V_2O_5$  processing capacity of 22,000tpa and has a market share of 80%+ in its home market Korea
- ▶ Technology Transfer agreement with Woojin for  $V_2O_5$  to FeV conversion plant
- ▶ Further negotiations for up to 40% offtake underway with leading vanadium buyers and distributors

# TiO<sub>2</sub> Pigment

## TNG PRODUCT & OFFTAKE AGREEMENT:

**TNG LIMITED** **TNG 360**  
Versatile and high-durable white pigment

**PRELIMINARY TECHNICAL DATASHEET**

The titanium dioxide white pigment TNG 360 meets the highest demands on weather resistance in the Coatings industry with excellent optical properties.

**Product Description and Applications**  
TNG 360 is a rutile titanium dioxide pigment manufactured from the Tivan™ process by TNG Limited, giving a high purity TiO<sub>2</sub> which combines excellent optical properties as opacity, whiteness and high durability for the Coatings industry like architectural (indoor and outdoor) and industrial paints (water-borne and solvent), coil coating and powder coatings.

**Product Properties**  
Easy to disperse with good lightening power and opacity, TNG 360:

- gives outstanding weather resistance to coatings
- gives high hiding power and tinting strength
- shows maximum brightness and neutral tone in white coatings
- Produces brilliant tints in colored coatings

**Product Characteristics**  
Treated rutile TiO<sub>2</sub> pigment produced from the Tivan™ process:

● Surface treatment	aluminium, zirconium and organic compounds
● TiO <sub>2</sub> content (ISO 591)	≥94.0 %
● Standard classification (ISO 591)	R2
● Rutile content (R %)	≥99.0 %
● Density (ISO 787, Part 10)	4.1
● Oil absorption (ISO 787, Part 5)	17 - 21 g/100g

**Product Specifications (excerpt)**  
Compliance with the hereafter product specifications is checked and is the prerequisite for a release of the finished product:

● Brightness (DFC L*) <sup>1</sup>	97.1 - 97.7
● Tone, white (DFC b*) <sup>2</sup>	0.9 - 1.7
● Relative scattering power (MAB HTS) <sup>3</sup>	100.0 - 106.0
● Tone, grey (MAB HSC) <sup>4</sup>	5.30 - 6.0

Method of determination:  
<sup>1</sup> DFC L\* Dry Film Color test - brightness in white air-drying paint (CIELAB L\*)  
<sup>2</sup> DFC b\* Dry Film Color test - tone in white air-drying paint (CIELAB L\*)  
<sup>3</sup> MAB HTS Modified Alkyd Black test - relative scattering power according to DIN 53 165 (grey paste method)  
<sup>4</sup> MAB HSC Modified Alkyd Black test - tone in grey tints (absolute value of CIELAB B\*)

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- ▶ TNG's strategy is to be a fully integrated TiO<sub>2</sub> pigment producer from mine to finished product
- ▶ Global demand is estimated at 6.5mtpa
- ▶ Technology proposed to be provided by Ti-Cons (Germany), a leader in TiO<sub>2</sub> technology
- ▶ A sustainable and environmentally friendly process using TNG's own feedstock and patented TIVAN® process
- ▶ First TiO<sub>2</sub> pigment grade targeting the Paint & Coatings industry with a high-durable grade for outdoor applications and Industrial market will then be followed by a pigment for plastics application

- ▶ **OFFTAKE:**
- ▶ **Binding Terms Agreed**



- ▶ Binding Term Sheet for Life-of-Mine (LOM) Off-take Agreement with global leader DKSH (Switzerland)\*
- ▶ Relationships with global leading end-users already established



## TNG PRODUCT & OFFTAKE AGREEMENT

**TNG LIMITED**

**TNG Fe2O3**  
Hematite – Iron oxide

### PRELIMINARY TECHNICAL DATASHEET

#### Product Description

TNG Fe2O3 is a high quality hematite produced under an ISO 9001:2000-certified Quality Management System at the company's plant in Darwin, Australia.

#### Product Characteristics

##### Specifications:

• Fe2O3	92% minimum
• Fe	64.4% minimum
• Al2O3	3% maximum
• MgO	3% maximum
• Cl	0.3% maximum
• P	0.05% maximum
• S	0.05% maximum

Appearance: Pellets or powder

Size: 0-10 mm

Bulk density: approx. 1.6 kg/dm<sup>3</sup>

Packing: In 250 kg drums or 1 mt big bags

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- ▶ TNG's strategy is to be a fully integrated Fe<sub>2</sub>O<sub>3</sub> fines producer from mine to finished product
- ▶ Global demand for iron ore is estimated at 2btpa, almost entirely for the steel industry
- ▶ High purity hematite with Fe content over 64.4% will command a strong premium over the benchmark 62% grade
- ▶ TNG's ability to pelletize its product also has the potential to further improve the margin for its iron product (current premium of US\$50+/t)

#### ▶ OFFTAKE

#### ▶ Binding Terms Agreed:



- ▶ Binding Term Sheet for LOM Off-take Agreement with major global commodity trader Gunvor (Singapore) for iron products\*
- ▶ Gunvor is one of the largest commodity trading companies worldwide with a turnover of US\$63bn in 2017
- ▶ Further negotiations for offtake underway with leading iron ore buyers and distributors

# Mount Peake Project

## STATUS OF APPROVALS

### Mount Peake Mine Site

- ▶ Environmental approval received (State & Federal) ✓
- ▶ Native Title Agreement executed with traditional owners ✓
- ▶ Mineral Leases (granted) ✓
- ▶ Mining Management Plan being finalised (submission expected Q2 2019) **underway**

### Mount Peake TIVAN Processing Plant

- ▶ Regulatory entities for processing plant environmental and operational approvals **underway**
- ▶ Consultant engaged to progress EIS and approvals process (submission expected Q2 2019) ✓

### Mount Peake FEED

- ▶ Encompassing total plant equipment - mine and downstream processing **underway**

# Mount Peake: Project Financing

## DEBT FUNDING

KfW IPEX-Bank mandated to raise up to US\$600 million as part of the total finance package for the Mount Peake Project\*

## EQUITY FUNDING

A range of potential options are under consideration by TNG to raise the required project equity funding:

- ▶ Strategic investors
- ▶ ASX investors & institutions
- ▶ International institutions
- ▶ Off-take partners
- ▶ Development partners
- ▶ Secondary listing on AIM under consideration.

# Mount Peake Project

## ESTIMATED DEVELOPMENT SCHEDULE AND MILESTONES

**Mount Peake  
Development Pathway**

Project Milestone	2014	2015	2016	2017	2018	2019	2020-2021
✓ Major project status	█						
✓ TIVAN pilot study completion		█					
✓ Discovery of LoM water aquifer		█					
✓ DFS completion		█					
✓ Vanadium Off-take Agreement - Wooljin Metal		█					
✓ Iron Off-take Agreement - Gunvor (Singapore)			█				
✓ Project delivery agreement - Downer			█				
✓ Titanium Off-take and Marketing				█	█		
✓ Mine Site EIS Completion (Australia)			█	█			
✓ Mine Site EIS Approval (Australia)					█		
✓ Mining Agreement - Traditional Owners						█	
✓ Mining Licence Approval						█	
✓ Processing Plant EIS (underway)						█	█
✓ FEED - SMS group (underway)						█	█
Equity & Debt Financing, FID							█
EPC							█

# Mount Peake: The Path Ahead

## EXPECTED NEXT STEPS

- ▶ Full permitting for TIVAN® processing site
- ▶ Appointment of equity advisors
- ▶ Completion of final mine design and FEED for all process plants, leading to EPC tender process
- ▶ Equipment tender process
- ▶ Appointment of EPC Contractor
- ▶ Establish full Project Development team, including appointment of experienced Project Director
- ▶ Project financial structure and facilities package completed
- ▶ TNG Board FID
- ▶ Commencement of development
- ▶ Community engagement and local procurement strategy

**The Company expects to achieve these in 2019.**





# TNG

LIMITED

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