

# Nickel & Cobalt Producer Positioned for the Battery Metals Revolution May 2018 AGM



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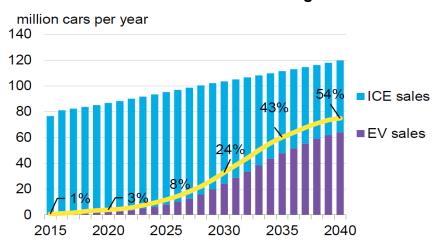
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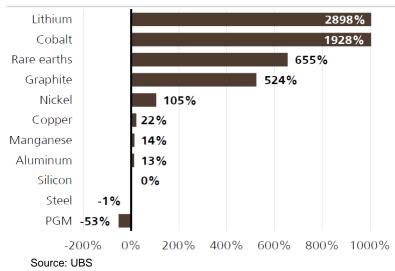
# EV fuelled battery market revolution



#### Global Electric Vehicle sales to surge....



# Incremental commodity demand in a 100% EV world (% increase)



Source: Bloomberg New Energy Finance

#### **Gas/Diesel Vehicle Ban**

Governments are responding by banning the sale of gasoline and diesel vehicles by:

2025 - Norway and Netherlands

2030 - India and Germany

2040 - UK and France



# China has set a target that would see zero emission vehicles

2019 - 10% of new sales

2020 - 12% of new sales



#### 39+ Automakers

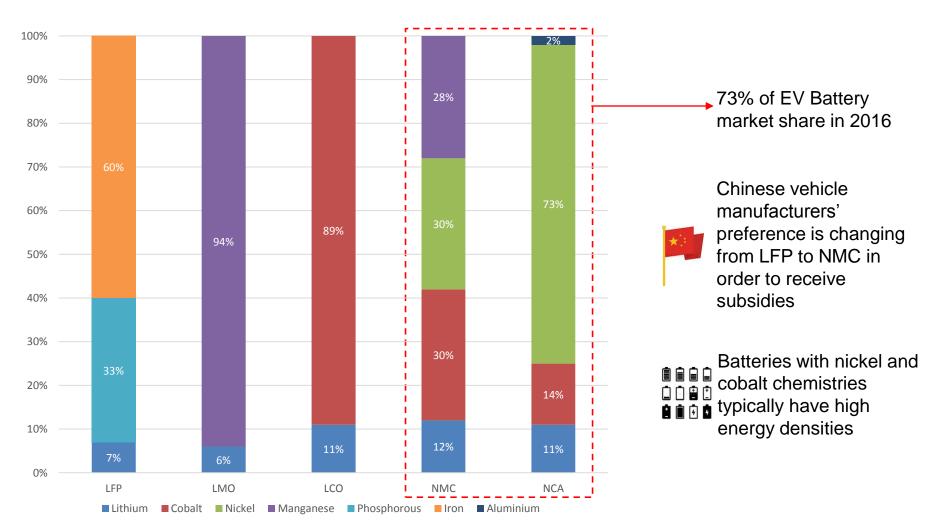
have invested in electric and plug-in hybrid electric vehicles



# **Nickel / Cobalt = Lithium-Ion Batteries**



# Metals composition within cathode chemistries (% of cathode weight per kWh)



# **Cobalt demand rising**

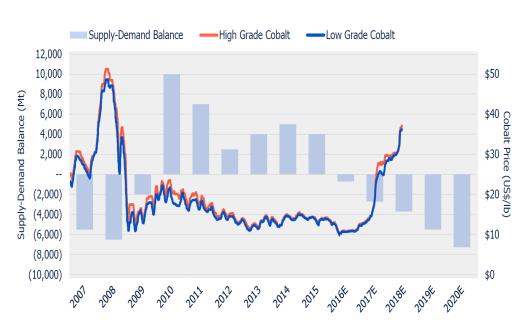


#### **Demand for Cobalt for batteries (t)**

#### Cobalt demand for batteries, tonnes 60,000 50,000 40,000 30,000 20,000 10,000 2017f 2018f 2020f 2019f 2016 2010 2012 2013 2014 2015 2011

Source: CDI, Macquarie Research, May 2017

# Supply/demand balance and historic Co prices



Source: Darton Commodities, Metal Bulletin

# **DRC** dominates global Co market



- DRC holds half the world's Co reserves and produces approximately 54% of global supply.
- Ramu produces 3300 tonnes/yr ~ 6% of global production ex DRC

	Mine p	roduction
	<u>2015</u>	<u>2016<sup>e</sup></u>
United States	<u><b>2015</b></u> e760	690
Australia	6,000	5,100
Canada	6,900	7,300
China	7,700	7,700
Congo (Kinshasa)	63,000	66,000
Cuba	4,300	4,200
Madagascar	3,700	3,300
New Caledonia <sup>9</sup>	3,680	3,300
Philippines	4,300	3,500
Russia	6,200	6,200
South Africa	3,000	3,000
Zambia	4,600	4,600
Other countries	<u> 11,600</u>	8,300
World total (rounded)	126.000	123,000

**Source: US Geological Survey** 

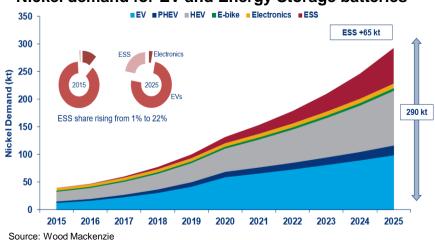
# **Global Cobalt Reserves** Canada **Philippines** 4% 4% Cuba 7% Democratic Republic **Others** of Congo 22% 49% **Australia** 14%

Source: Wood MacKenzie

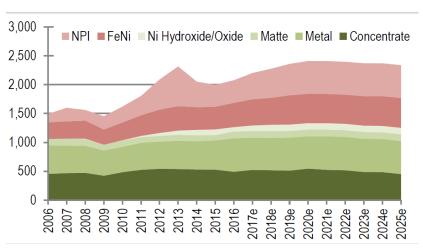
# Nickel demand rising



#### Nickel demand for EV and Energy Storage batteries



#### Stagnant supply of preferred nickel product



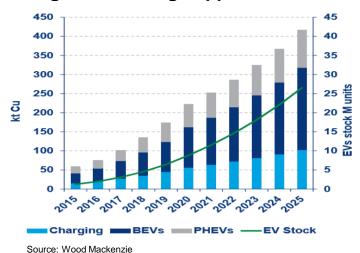
Source: UBS, AME, World Steel Association, International Nickel Study Group, Bloomberg

- ~15m EV production in 2025e would mean an additional ~300-900ktpa of incremental nickel demand which is +10-40% of demand - UBS, July 2017
- Only ~50% of nickel mine supply is suitable for battery use. Nickel sulphide producers & nickel HPAL's which produce high grade nickel products stand to benefit (nickel concentrate, nickel metal, nickel hydroxide or lithium nickelite). – UBS

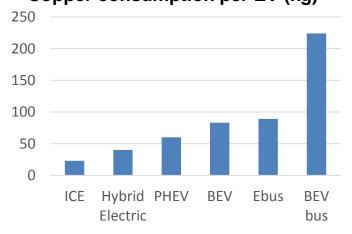
# Cu demand to grow too!



#### EV growth driving copper demand



Copper consumption per EV (kg)



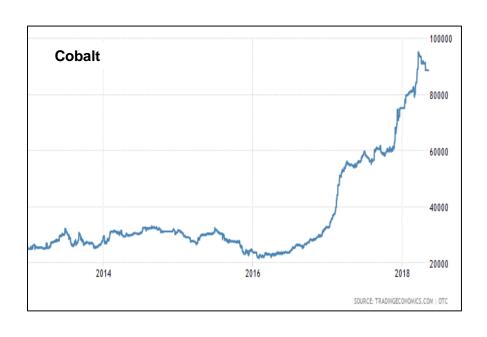
- All types of EV require copper in batteries, windings and copper rotors used in electric motors, wiring, busbars and charging infrastructure.
- The average electric vehicle has 165 pounds of copper in it including 88 pounds of copper in the batteries alone. A typical electric car battery is 20% copper, by weight – Morgan Stanley
- Growth in EV will raise copper demand in EVs from 85,000 tonnes in 2017 to 1.74 million tonnes in 2027. Each EV charger will add 0.7 kg of copper - ICA

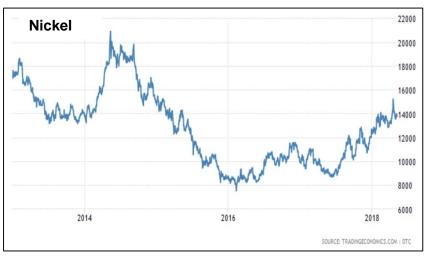
Source: International Copper Association

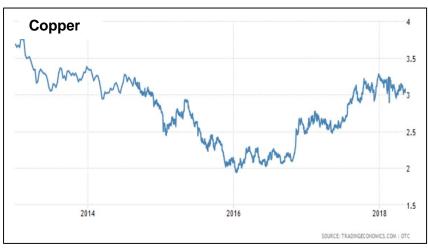
# **Battery metal prices rising**



### Since 2016, cobalt up 300%, nickel and copper rising steadily







# Highlands perfectly placed



# Major leveraged exposure to battery metals - nickel, cobalt, copper - as well as gold

Resource base of Highlands' projects (Ramu, Freida River, Star Mountains)	Copper (Mt)	Gold (Mozs)	Nickel (kt)	Cobalt (tonnes)
Total Resource Contained Metal	13.58	24.32	1,240	124,000
HIG share*	3.39	7.2	106	10,600

<sup>\*</sup>See full resource statements included in appendix.

# **Established player in PNG**



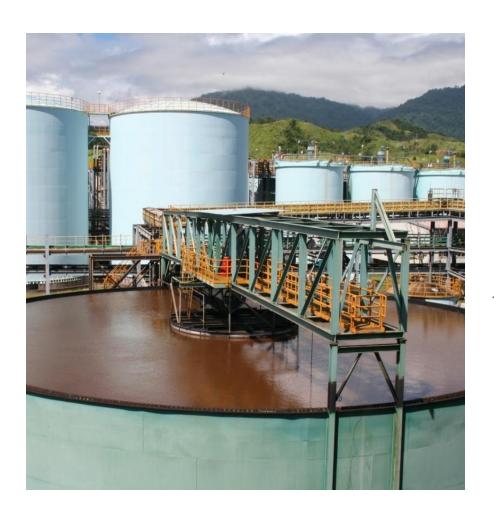


- World class copper, gold and nickel projects
  - RAMU nickel-cobalt mine annual production Co 3300t, Ni 34,000t
  - FRIEDA RIVER copper-gold project
    - being permitted
  - STAR MOUNTAINS copper-gold project
    - exploration drilling
  - SEWA BAY nickel laterite exploration
- +20 years operating history in PNG makes
   Highlands an ideal project partner
- Past involvement in the Porgera Gold Mine,
   Kainantu Gold Mine and various exploration sites in PNG

Perfectly positioned for booming battery metals market

# **Corporate Structure**





### **Capital Structure**

Shares on issue	950m
Share price	A\$0.085
Market capitalisation	A\$80m

### **Major shareholders**

**GRAM** 

TRAFIGURA	13.8%	<ul> <li>Global commodities trader</li> </ul>
<b>W</b>	13.9%	<ul> <li>Chinese State-owned minerals producer based in</li> </ul>

Guangzhou

JV partner at Frieda River

**PNGSDP** 11.5% • Long association with PNG



# RAMU

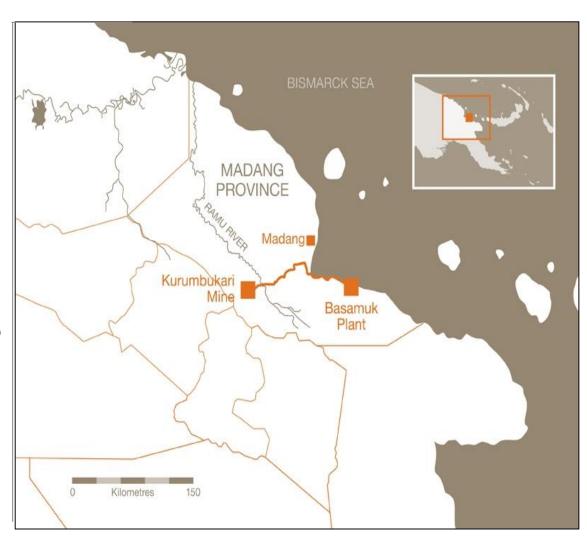


# Ramu Nickel – PNG success story



- Joint venture –
   Highlands 8.56%, MCC

   Ramu 85%, PNG Govt
   and landowners 6.44%
- \$2.1 billion capex
- Annual production 34,000t Ni, 3300t Co
- Mine at Karumbukari.
   135km slurry pipeline to Basamuk port
- Constructed 2008, commissioned 2012
- Now achieving record production rates



# Ramu – A PNG success story

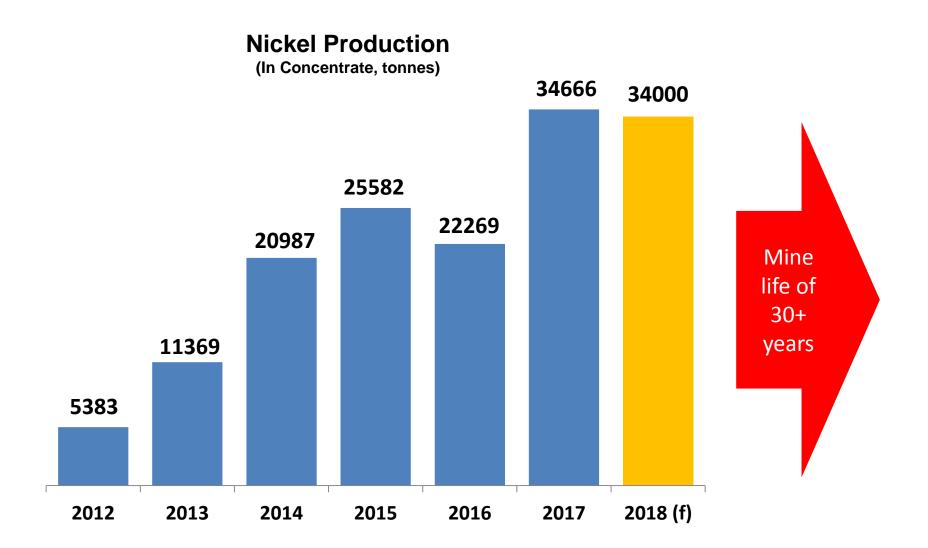


- Resource: 124 Mt @
   1.0% Ni and 0.1% Co
- Reserve: 49 Mt @ 1.0%
   Ni and 0.1% Co
- Resource/reserve growth to deliver mine life of +35 years
- Mining: Open pit, free digging
- Strip Ratio: Low 0.28:1



# **Record Nickel production in 2017**

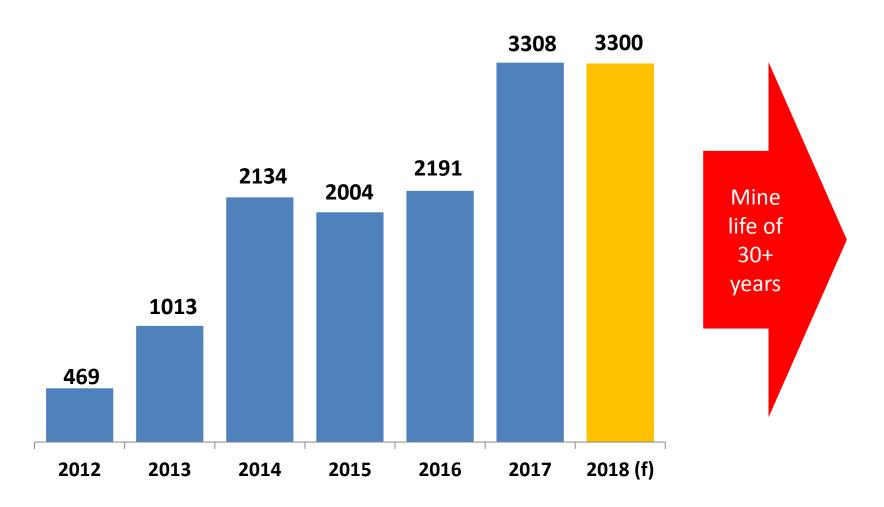




# **Record Cobalt production in 2017**



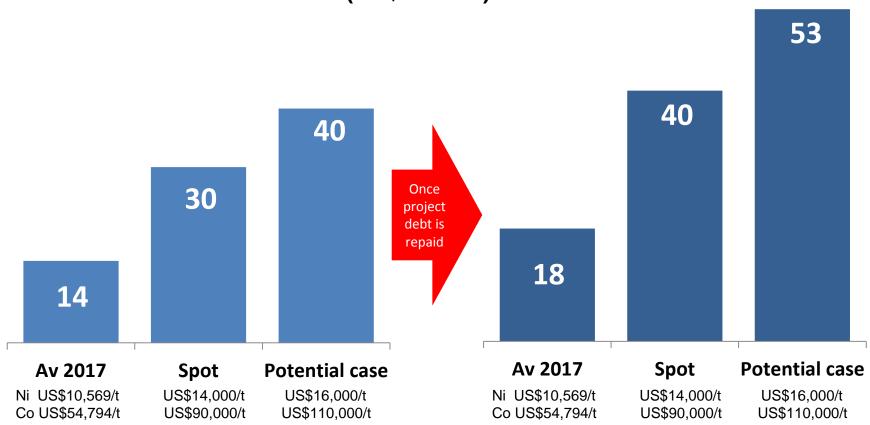
### **Annual Co Production (t)**



# Major leverage to rising prices



Highlands' share of Ramu project annual cashflow assuming 2017 Production Rates and Operating Costs (US\$ Million)

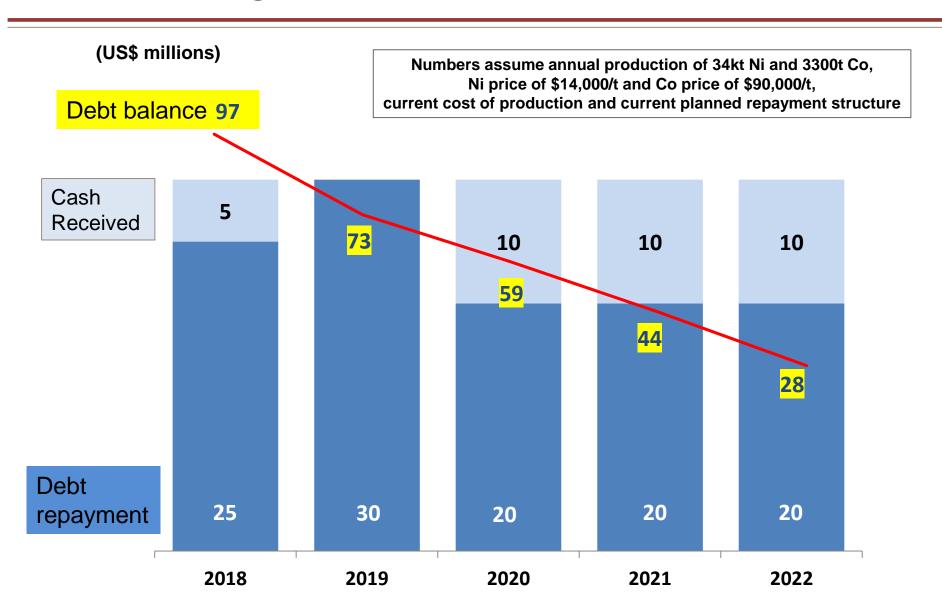


Based on 8.56% ownership interest

Based on 11.3% ownership interest

# **Debt reducing**







# STAR MOUNTAINS



# **Maiden Mineral Resource declared**





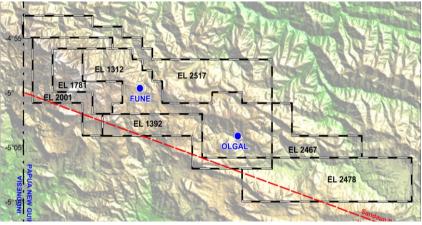
- Maiden Resource declared at Olgal
- 210 million tonnes at 0.4% Cu and 0.4 g/t Au for 840,000 tonnes of contained copper and 2.9 Moz contained gold

Cu cut-off grade	Mt	% Cu	g/t Au	Mt Cu	Moz Au
0.20	450	0.3	0.3	1.4	4.5
0.30	210	0.4	0.4	0.84	2.9
0.40	80	0.5	0.6	0.40	1.6

# **Exciting exploration potential**







- Resource follows extensive drilling since discovery in early 1970s
- Total exploration expenditure to date exceeding \$60 million
- Olgal resource area covers only a small part of total Star Mountains tenement package of 1049 sq kms
- Significant potential for additional discovery at other prospects within tenement area
- Results to date include:
  - At Fune, 15m @ 0.52% Cu, 0.21g/t Au, from surface
  - 33m @ 0.62% Cu, 0.20g/t Au, from 114m
  - At Olgal: 596m at 0.61%Cu and 0.85g/t gold, as well as 22m at 1.42%Cu and 0.57g/t gold

For full details see ASX releases of June 8, August 28 and September 13, 2017.



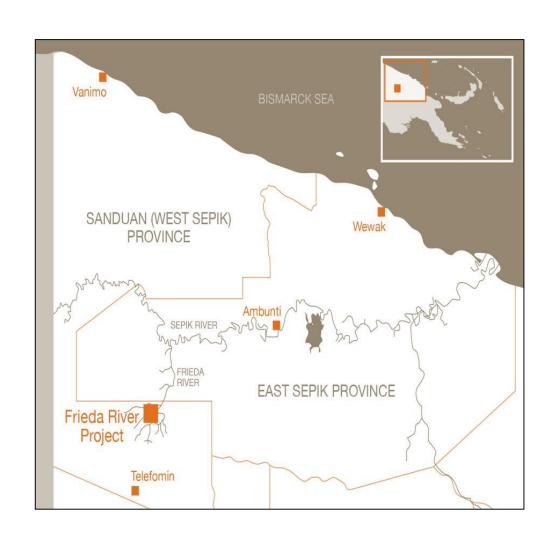
# FRIEDA RIVER



# **Enhanced designs being investigated**

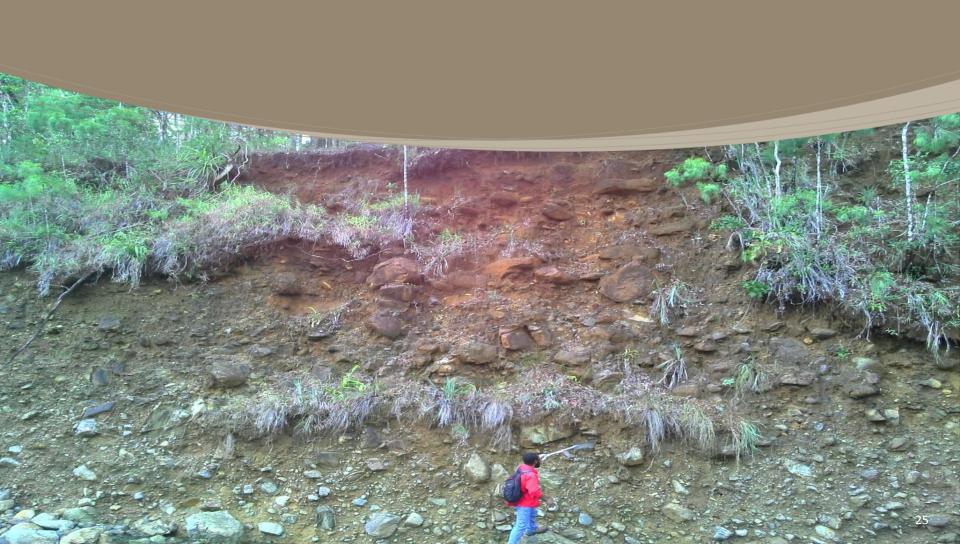


- Frieda Resource of 13 MT Cu and 21 Mozs Au
- Special Mining Lease application lodged with MRA June 2016
- EIS lodged with CEPA Dec 2016
- Addendum released March 2017 with enhanced economics
- Potential design enhancements being investigated





# SEWA BAY

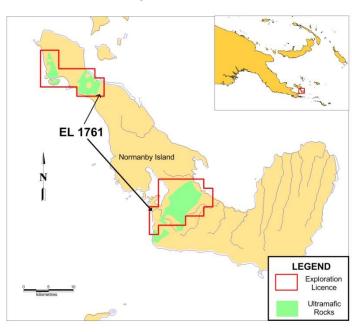


# Nickel laterite exploration upside



- Potential direct-shipping export nickel laterite project
- Exploration partnership with Japanese trading house Sojitz/Pacific Metals
- Positive nickel laterite results from previous drilling campaigns
  - 1.1 metres at 1.61% Ni from surface
  - 1 metre at 1.43% Ni from surface
  - 2.4 metres at 1.42% Ni from surface
  - 1 metre at 1.41% Ni from surface
  - 1.9 metres at 1.4% Ni from surface\*
- LIDAR program completed. Next stage being considered
- Exploration funded by Sojitz/Pacific Metals





# **Compelling investment case**



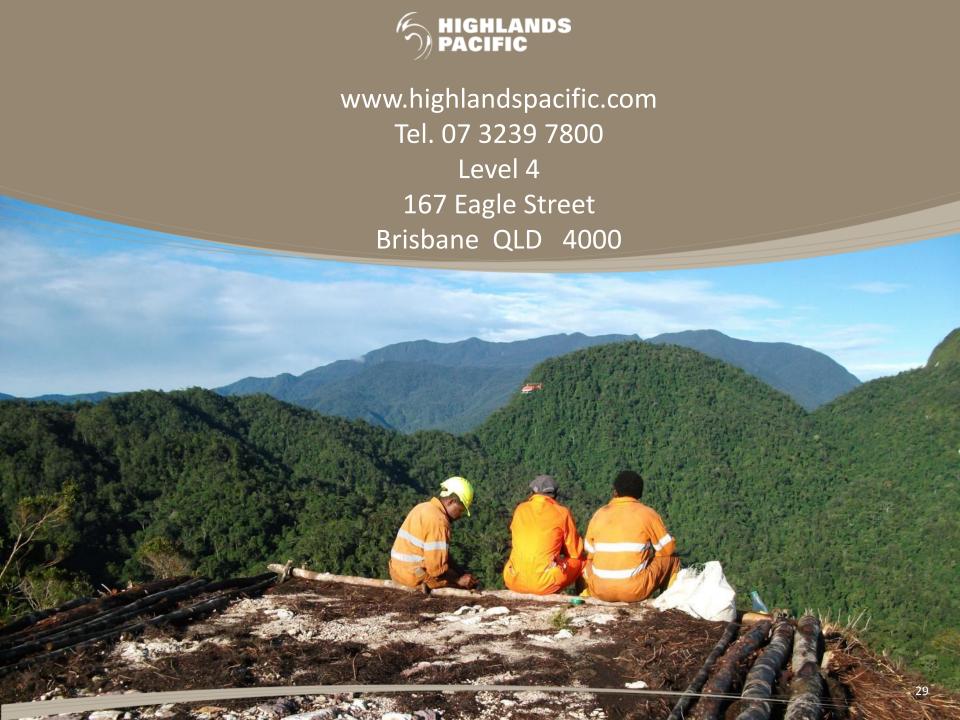
Resource base of Highlands' projects (Ramu, Freida River, Star Mountains)	Copper (Mt)	Gold (Mozs)	Nickel (kt)	Cobalt (tonnes)
Total Resource Contained Metal	13.58	24.32	1240	124,000
HIG share*	3.39	7.2	106	10,600

- Major leveraged exposure to battery metals - nickel, cobalt, copper - as well as gold
- Battery and EV boom driving rapid and sustained metal price growth
- Ramu in production and achieving record results
- Star Mountains, Frieda River and Sewa Bay provide major potential development upside

# **2018 Focus**



- Constrain corporate costs
- Maximise cash flows from the Ramu nickel / cobalt mine through optimising our debt structure
- Attract a new JV Partner for Star Mountains copper / gold project
- Assess the new feasibility study produced for the Frieda River copper / gold project
- Advance Sewa Bay nickel / cobalt exploration project



# Frieda River (HITEK) Resource



The Frieda River Copper-Gold Project exploits the HITEK deposit, which is a large-scale porphyry-style copper-gold deposit with low concentrations of deleterious elements. The Mineral Resource estimates are reported under the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code, 2012 Edition).

#### **January 2017 HITEK Mineral Resource**

Classification	Tonnes (Mt)	Copper (%)	Gold (g/t)
Measured	620	0.53	0.30
Indicated	1,240	0.44	0.22
M+I subtotal	1,860	0.47	0.25
Inferred	780	0.35	0.18
MII total	2,640	0.44	0.23

Copper cut-off grade 0.2% (total copper).

This Mineral Resource is reported on a 100% ownership basis.

May include minor computational errors due to rounding.

The HITEK Mineral Resource is constrained within Revenue Factor 1.5 shell, (US\$4.95/lb Cu, US\$2,175/oz Au)

#### **Competent Person Statement**

#### **Mineral Resources**

The data in this report that relate to Mineral Resources for Frieda River are based on information reviewed by Mr Shaun Versace who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr Versace is a full time employee of PanAust Limited. Mr Versace 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 Versace consents to the inclusion in the report of the Mineral Resources in the form and context in which they appear.

The information on the HITEK Resource is extracted from the report entitled "2017 Horse/Ivaal/Trukai/Ekwai/Koki (HITEK) Deposit Frieda River Mineral Resource and Ore Reserve Statements" created on 24 March 2017 and available on the Company website. No additional resource drilling or modelling has taken place for the HITEK deposit since the 2017 Resource and Reserve Report.

<sup>&</sup>quot;FRL HITEK V3 25x25x15 1608v1e HIT-MII EK-MII Shell 06 1.5.sft".

# **Nena Mineral Resources**



#### Nena Sulfide Mineral Resource estimate (copper cut-off grade 0.3%)

Category	MT	Cu(%)	Au(g/t)	As(ppm)	Sb(ppm)
Indicated	35	2.35	0.79	2,500	160
Inferred	17	1.68	0.29	1,200	80
Total	52	2.13	0.63	2,000	130

#### Nena gold cap Mineral Resource estimate (gold cut-off grade 0.5 g/t)

Category	MT	Cu(%)	Au(g/t)	As(ppm)	Sb(ppm)
Indicated	11	0.07	1.35	3,000	230
Inferred	10	0.06	1.28	2,100	170
Total	20	0.06	1.32	2,600	200

#### **Competent Person Statement:**

The data in this report that relate to Mineral Resources for Nena are based on information reviewed by Mr Shaun Versace who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr Versace is a full time employee of PanAust Limited. Mr Versace 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 Versace consents to the inclusion of the Mineral Resources in the form and context in which they appear.

The information on the Nena Resource is extracted from the report entitled "Frieda River Copper-Gold Project Mineral Resource update for the Nena copper-gold deposit" created on 27 November 2017 and available on the Company website.

# Frieda River (HIT) Ore Reserve



#### 2017 HITEK Ore Reserve estimate

Classification	Tonnes (Mt)	Copper (%)	Gold (g/t)
Proved	413	0.54	0.32
Probable	272	0.45	0.21
Ore Reserves	686	0.50	0.28

The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce the Ore Reserves.

This Ore Reserve is reported on a 100% ownership basis.

May include minor computational errors due to rounding.

The Frieda River Ore Reserve is estimated at commodity prices of US\$3.30/lb copper and US\$1,455/oz gold subject to a floating value<sup>1</sup> based cut-off grade. The representative average copper only cut-off grade is 0.21% copper.

<sup>1</sup>Potential mill feed is determined on a net mill value basis and incorporates the influence of metal recovery, ore processing costs and revenue.

#### Competent Person. Ore Reserves

The data in this report that relate to Ore Reserves for the Frieda River Project are based on information reviewed by Mr Scott Cowie who is a Member and Chartered Professional (Mining) of the Australasian Institute of Mining and Metallurgy (MAusIMM CP). Mr Cowie is a full time employee of PanAust Limited. Mr Cowie has sufficient experience relevant 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 Cowie consents to the inclusion in the report of the Ore Reserves in the form and context in which they appear.

The information on the HITEK Reserve is extracted from the report entitled "2017 Horse/Ivaal/Trukai/Ekwai/Koki (HITEK) Deposit Frieda River Mineral Resource and Ore Reserve Statements" created on 24 March 2017 and available on the Company website.

Highlands confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Highlands confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

The information on the Horse-Ivaal, Trukai, Ekwai and Koki Resource and the HITEK Reserve is extracted from the report entitled

"2017 Horse/Ivaal/Trukai/Ekwai/Koki (HITEK) Deposit Frieda River Mineral Resource and Ore Reserve Statements" released on 24 March 2017 and available on the Company website. No additional resource drilling or modelling has taken place for the Horse-Ivaal-Trukai, Ekwai and Koki deposits since the release of the Resource and Reserve Report included in the Addendum.

The information on the Nena Resource is extracted from the report entitled "Frieda River Copper-Gold Project

Mineral Resource update for the Nena copper-gold deposit" created on 27 November 2017 and available on the Company website. No additional resource drilling or modelling has taken place for the Nena deposit since the 2017 Resource and Reserve Report

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# Ramu Mineral Resource



Ramu Mineral Resources (at a 0.5% nominal cut-off and excluding oversize (+2mm)). 31 December 2016

Kurumbukari				
Category	MT	Ni(%)	Co(%)	
Measured	37	0.9	0.1	
Indicated	5	1.3	0.1	
Inferred	2	1.2	0.1	
Total	44	0.96	0.1	
Ramu West				
Category	MT	Ni(%)	Co(%)	
Indicated	17	0.9	0.1	
Inferred	3	1.5	0.1	
Total	20	1.0	0.1	
Greater Ramu				
Category	MT	Ni(%)	Co(%)	
Inferred	60	1.0	0.1	
Global Total	MT	Ni(%)	Co(%)	
	124	1.0	0.1	

Notes: 1.Totals may not equal the sum of the component parts due to rounding adjustments. 2. Tonnes (dry) represent the -2 mm economic portion of resource mineralization in the rocky saprolite.

Competent Persons Statement: The information in this report that relates to Ramu Mineral Resources is based on information compiled by Xiong Xiaofang, who is a Fellow of The Australasian Institute of Mining and Metallurgy. Mr Xiong Xiaofang is a full-time employee of China ENFI Engineering Corporation and has sufficient experience which is relevant to the style of mineralization 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 Xiong Xiaofang consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

### Ramu Ore Reserve



#### Ramu Ore Reserve. 31 December 2016

Kurumbukari				
Category	MT	Ni(%)	Co(%)	Rocks +2mm MT
Proved	29	0.9	0.1	
Probable	6	1.3	0.1	9
Total	35	1.0	0.1	9
Ramu West				
Category	MT	NI:/0/\	Co(%)	D = =1.= . 2
category	IVII	Ni(%)	C0(%)	Rocks +2mm MT
Proved	IVII	INI(76)	CO(%)	
	14	0.9	0.1	
Proved				
Proved Probable Total	14	0.9	0.1	
Proved Probable	14	0.9	0.1	

Notes: 1. Totals may not equal the sum of the component parts due to rounding adjustments. 2. Ore tonnes (dry) represent the -2 mm economic portion of resource mineralization. Rock represents an estimate of oversize material (+2 mm) that includes low-grade rocks and rock fragments that occur in the rocky saprolite mineralized zone and are considered as internal waste. The rock will be removed by a simple screening process prior to beneficiation. Accordingly, the ore tonnage is reported after initial screening prior to the beneficiation plant. 3. The Ore Reserve estimate was made using metal prices of US\$17,045/t nickel and US\$25,412/t cobalt. 4. Cut-off grade is variable and equates to 0.58% nickel equivalent, including credit for recovered cobalt metal.

Competent Persons Statement: The information in this report that relates to Ramu Ore Reserves is based upon information compiled by Mr Chao An Deng, who is a Deputy Chief Engineer of China ENFI Engineering Corporation and a Fellow of the Australasian Institute of Mining and Metallurgy. Mr Chao An Deng is a full-time employee of China ENFI Engineering Corporation and has sufficient experience relevant to the style of mineralization and type of deposit under consideration 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 (JORC Code)". Mr Chao An Deng consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.

# **Star Mountains Mineral Resource**



Olgal Inferred Resource at 0.3% copper cut-off grade.

Category	Mt	% Cu	g/t Au	Mt Cu	Moz Au
Inferred	210	0.4	0.4	0.84	2.9

#### **Competent Persons Statement:**

The database information used for the Olgal resource estimate was compiled and verified as suitable for this estimate by Lawrence Queen. Details contained in this Report that pertain to the Olgal Resource Estimates are based upon, and fairly represent, information and supporting documentation compiled by Arnold van der Heyden. Mr. van der Heyden is a full-time employee of H&S Consultants Pty Ltd and a Member of The Australasian Institute of Mining and Metallurgy. Mr. Queen is a contractor for Highlands Pacific and a Member of The Australasian Institute of Mining and Metallurgy. Both Mr. Queen and Mr. van der Heyden have sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are 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 Queen and Mr van der Heyden consent to the inclusion in the report of the matters based on his information in the form and context in which it appears

# **Exploration**



The following statements apply to the Star Mountains exploration results and exploration targets: (1) Mineralised intersections are quoted as down hole widths. The porphyry mineralisation occurs as disseminations and vein stockworks. Drill intersections described in this report are based on core lengths and may not reflect the true width of mineralisation. (2) Collar locations are in UTM Zone 54 co-ordinates using the ADG66 horizontal datum. (3) Drill core is PQ, HQ or NQ size. (4) Assays were carried out on half sawn core. The half core is crushed and pulverized to ~ 180 mesh. 200 gram samples are used for assay. QAQC control samples make up approximately 10% of each batch sent for analysis. The unused half core is stored on site. (5) Samples were analysed at ALS-Chemex in Townsville. Gold is by 50g fire assay and copper by ICP-AES on an aqua regia digest. Samples assaying greater than 0.5% Cu are re-assayed using an ore grade method suitable for higher grade samples. (6) Hole positions are based on surveys of the drill pad. Actual collars are within 10m of stated locations. (7) Copper equivalent calculations represent the total metal value for each metal, multiplied by the conversion factor, summed and expressed in equivalent copper percentage. These results are exploration results only and no allowance is made for recovery losses that may occur should mining eventually result, nor metallurgical flowsheet considerations. However it is the Company's opinion that elements considered here have a reasonable potential to be recovered as evidenced in similar multi-commodity natured porphyry mines elsewhere in Papua New Guinea. The copper equivalent calculation is intended as an indicative value only. Copper equivalent conversion factors and long-term price assumptions are as follows: Copper Equivalent Formula= Cu % + Au(g/t)x0.53; Price Assumptions- Cu (US\$4/lb), Au (US\$1400/oz).

The following statements apply to the Sewa Bay exploration results:

- (i)Mineralised intersections are quoted as down hole width.;
- (ii) The auger holes were sampled using 1m sample lengths. The entire sample was submitted for assay.
- (iii) Locations are in UTM Zone 56 co-ordinates using the AMG66 horizontal datum.
- (iv) Samples were analysed at ALS-Chemex in Townsville. Nickel, cobalt and magnesium by ICP-AES on an aqua regia digest. Samples assaying greater than 1.0% Ni are reassayed using an ore grade method suitable for higher grade samples. (v) Sample locations are based on GPS survey. Actual collars are within 10m of stated locations.

The Potential quantity and grade related to Exploration Targets in this presentation is conceptual in nature as there has been insufficient exploration to define a Mineral Resource. It is uncertain if further exploration will result in the determination of a Mineral Resource. These exploration target tonnes and grade ranges are considered realistic because they are well within the typical size and grade ranges expected for porphyry copper deposits in this and other south west Pacific island arcs, and are consistent with data for the known porphyry copper deposits already located in Highlands' Star Mountains tenements.

Competent Persons Statement: The exploration results and exploration targets reported here are based on information compiled by Mr L.D. Queen who is a member of the Australasian Institute of Mining and Metallurgy, and who was an employed by Highlands Pacific Limited, now a consultant to Highlands Pacific. Mr Queen has sufficient experience relevant to the style of mineralisation and the type of deposit under consideration, and to the activity which he is undertaking, to qualify as a Competent Person as defined in the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves, The JORC Code 2012 Edition". He consents to the inclusion in the report of the matters based on the information compiled by him in the form and context in which it appears.

