

## Savannah poised for restart

21 July 2017 Noosa Mining Conference Peter Harold, Managing Director

### **Disclaimer**



#### No New Information or Data

This presentation contains references to exploration results, and Mineral Resource and Ore Reserve estimates, all of which have been cross referenced to previous market announcements made by the Company. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources and Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed.

#### **Forward Looking Statements**

This presentation may contain certain "forward-looking statements" which may not have been based solely on historical facts, but rather may be based on the Company's current expectations about future events and results. Where the Company expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and believed to have a reasonable basis. However, forward looking statements are subject to risks, uncertainties, assumptions and other factors, which could cause actual results to differ materially from future results expressed, projected or implied by such forward-looking statements. Such risks include, but are not limited to metals price volatility, currency fluctuations, increased production costs and variances in ore grade or recovery rates from those assumed in mining plans, as well as political and operational risks in the Countries and States in which we operate or sell product to, and governmental regulation and judicial outcomes. For a more detailed discussion of such risks and other factors, see the Company's Annual Reports, as well as the Company's other filings. The Company does not undertake any obligation to release publicly any revisions to any "forward-looking statement" to reflect events or circumstances after the date of this announcement, or to reflect the occurrence of unanticipated events, except as may be required under applicable securities laws.







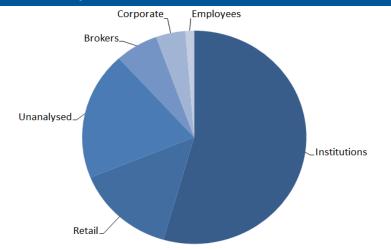
## Corporate directory



Capital Structure and	Enterprise	Value						
ASX Ticker	ASX:PAN							
Shares on issue	428.6M							
Share Price	\$0.22 (17 Ju	ly 2017)						
Market Cap	~\$94M							
Cash	~\$12.8M <i>(</i> 3	1 March 2017)						
Bank debt	Nil							
Enterprise Value	~\$80M							
Significant Sharehold	<b>er</b> (at 4 July 2	017)						
Zeta Resources Limited		27.0%						
Volume								
30-day average daily volume	9	405,000						
90-day average daily volume	9	550,000						

Board	
Brian Phillips	Non Executive Chairman
Peter Harold	Managing Director
John Rowe	Non Executive Director
Peter Sullivan	Non-Executive Director
Trevor Eton	CFO/Company Secretary

#### Shareholder spread +50% institutional





Thunder Bay North - platinum, palladium, copper, nickel

Houston

Ontario

Savannah - nickel, copper, cobalt Copernicus - nickel, copper, cobalt Panton - platinum, palladium, gold

Western Australia

### **RESOURCES\***

321,800t Nickel 1.36Moz Platinum 1.44Moz Palladium 104,700t Copper 15,300t Cobalt

Lanfranchi - nickel, copper

Canada

USA

## **Continuous exploration success**



342,700 tonnes Nickel 125,000 tonnes Copper 18,700 tonnes Cobalt

#### Kimberley

- Savannah North
  175,100t Ni, 74,400t Cu, 12,700t Co
- Savannah Lower Zone
  50,120t Ni, 28,200t Cu, 2,400t Co
- Savannah Sub 900 Fault
  14,900t Ni, 6,900t Cu, 900t Co
- Copernicus
  10,600t Ni, 6,900t Cu, 400t Co

### Lanfranchi

Deacon

71,800t Ni, 6,300t Cu, 1,900t Co

Jury-Metcalfe

6,400t Ni, 1,300t Cu, 100t Co

Lower Schmitz
 6,700t Ni, 500t Cu, 100t Co

### 630,000 ounces Gold

#### Gum Creek (now owned by Horizon Gold Limited)

 Combined Howards, Heron South, Swan, Swift and Wilsons



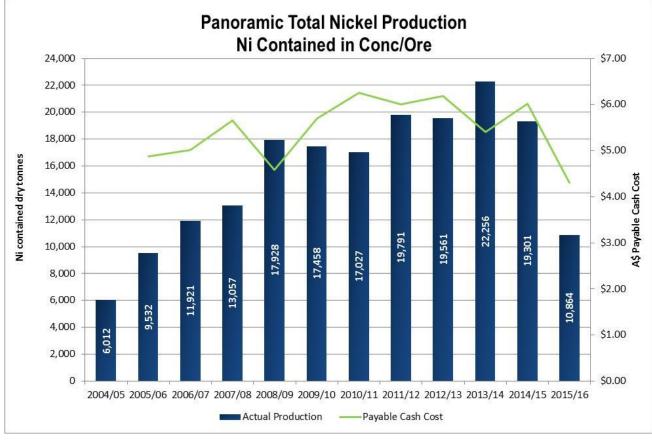
John Hicks, General Manager Exploration

New Resources discovered since 2006 - refer Company Annual Reports

## **Strong production history**

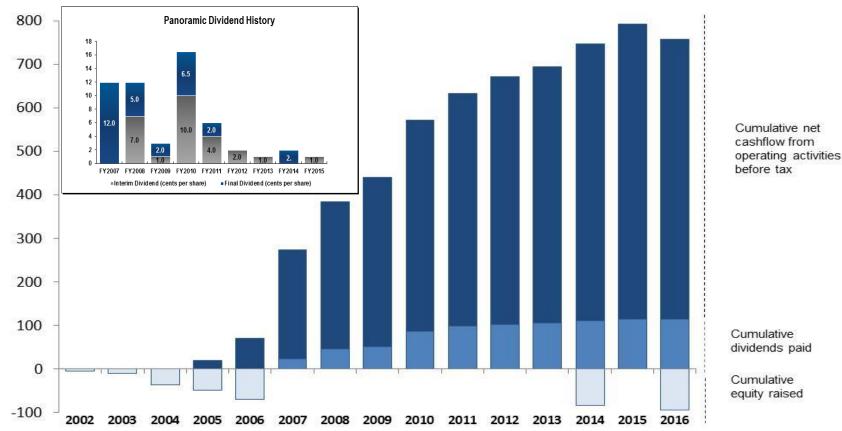


Nickel 184,708t
 Copper 60,590t
 Cobalt 4,966t



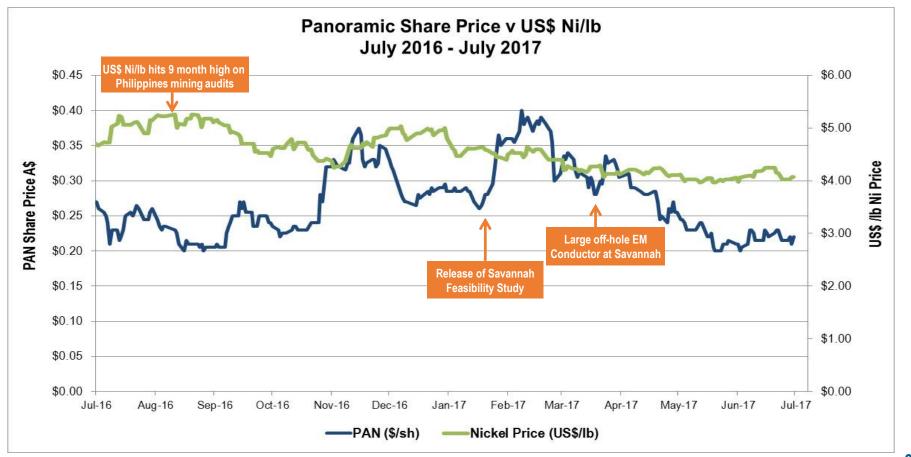
## Generated cash and paid \$114M in dividends





## Highly leveraged to nickel price







### Nickel, Copper, Cobalt – production ready assets

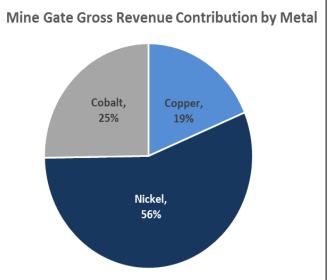


## Feasibility Study optimisation delivers\*

- Substantially lower cash costs US\$2.40/lb payable Ni after by-product credits (FS - US\$3.30/lb)
- Increased average annual production forecast
  - 11,000t Ni (FS 9,700t)
  - 5,800t Cu (FS 5,000t)
  - 760t Co (FS 670t)
- Long mine life 8.5 years (FS 10 years)
- Significant cobalt revenue stream
- Low pre-production capital A\$20M (no change from FS)
- Maximum funding requirement less than \$40M

\*Refer Company ASX release 20 July 2017 titled Savannah Study Feasibility Optimisation Cautionary Statement

## Approximately 1.1% of nickel in the Production Target is from material classified as Inferred Resource. There is a low level of geological confidence associated with Inferred Mineral Resources and there is no certainty that further exploration work will result in the determination of Indicated Mineral Resources or that the production target itself will be realised.



## Comparison between Feb FS and July optimisation



Financial Metric	Units	Feb-17 Savannah FS	Jul-17 Savannah FS Optimisation	Jul-17 Savannah FS Optimisation (Feb-17 price deck)	
Nickel price assumption	US\$/lb	6.00	4.21	6.00	
Revenue	A\$M	1,500	1,200	1,600	
Initial Capital (Pre-production)	A\$M	20	20	20	
LOM Capital (incl. initial capital)	A\$M	230	220	220	
Operating costs plus royalties	A\$M	960	830	860	
Pre-tax cashflow	A\$M	300	120	480	
Pre-tax NPV (8% discount rate)	A\$M	190	60	310	
IRR	%	115	40	240	
C1 cash cost	A\$/lb Ni	2.70	1.80	2.30	
(Ni in concentrate basis)	US\$/lb	2.00	1.40	1.70	
Operating cash costs	A\$/lb Ni	4.50	3.10	3.60	
(payable Ni basis)	US\$/Ib	3.30	2.40	2.60	
Sustaining cash costs	A\$/lb Ni	6.00	4.50	4.90	
(payable Ni basis)	US\$/lb	4.40	3.40	3.60	

- Improved opex and cash costs due to improved productivity and cost reduction initiatives
- Higher metal payabilities
- Cobalt contributes 25% of gross (mine gate) revenue

## **Optimised metal production**

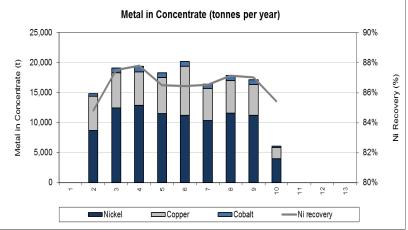


### Product

- Bulk Ni-Cu-Co concentrate
- Target grade of 9% nickel
- Annual metal in concentrate production
  - 11,000t nickel
  - 5,800t copper
  - 760t cobalt

### LOM metal in concentrate production

- 93,800t nickel
- 49,100t copper
- 6,500t cobalt





## Financial assumptions

- Revenue assumptions based on indicative sales terms received from various interested parties
- Commodity and FX forecasts (and comparison with February 2017 Feasibility Study

Commodity	Feb-17 FS	Jul-17 OS
Nickel	US\$6.00/lb	US\$4.21/lb
Copper	US\$2.57/lb	US\$2.68/lb
Cobalt	US\$14.42/lb	US\$27.50/lb
US\$:A\$	0.736	0.769
Discount rate	8%	8%

- Modelling is pre-tax
- Tax losses of \$65M at 31 December 2016 PAN had accumulated tax losses of approximately \$65M (not included in modelling)





# Financial results – viable at spot, highly leveraged to commodity price



Financial Metrics	Units	US\$4.21/lb	US\$5.00/lb	US\$6.00/lb
Revenue	A\$M	1,200	1,400	1,600
Initial Capital (Pre-production)	A\$M	20	20	20
LOM Capital (inclusive of initial capital)	A\$M	220	220	220
Operating costs plus royalties	A\$M	830	840	850
Pre-tax cashflow	A\$M	120	310	530
Pre-tax NPV (8% discount rate)	A\$M	60	190	340
IRR	%	40	130	270
C1 cash costs	A\$/lb	1.80	1.80	1.80
(Ni in concentrate basis)	US\$/lb	1.40	1.40	1.40
Operating cash costs	A\$/lb	3.10	2.90	2.90
(payable Ni basis)	US\$/lb	2.40	2.30	2.30
Sustaining cash costs	A\$/lb	4.50	4.30	4.20
(operating cash costs plus sustaining capital, payable Ni basis)	US\$/lb	3.40	3.30	3.30

## Productivity improvements to add further value



Panoramic has identified a number of opportunities, involving the adoption of new and emerging technologies, with potential to provide step-changes in productivity and cost reduction

- Ore passes shorter loader tramming distances to increase productivity
- Battery loaders reduces heat generation and diesel particulate emissions, resulting in lower ventilation and cooling requirements
- Surface-operated remote bogging reduces manning requirements, continuous bogging
- Alternative truck technology smaller, lighter units, faster travel times, lower capital and operating costs
- Small drive sizes reduces waste moved, therefore lower development costs
- Drilling automation increases utilisation, improved quality resulting in less rework

These opportunities to be more fully assessed as part of the next phase of work







## Lanfranchi - summary

### Resource

95,500t Ni

### **Key Points**

- Fully developed underground mine
- Large mobile mining fleet, village & associated infrastructure
- Mined continuously for 10 years (2005-2015)
- 3.85Mt ore mined containing 94kt Ni
- C&M from November 2015
- Quick re-start to mine Jury-Metcalfe, Deacon
- Offtake with BHP Nickel West to February 2019

### Lower Schmitz high-grade Resource

- 131kt at 5.1% Ni for 6,700t Ni
- EM anomaly 100m to the north

### Exploration upside

Multiple exploration targets identified



## Lanfranchi – significant exploration potential



### Schmitz Channel – Lower Zone

- 700m below surface
- 9,000t Ni per 100m vertical\*
- Historic production of ~53,000t Ni from the Schmitz channel including:
  - Schmitz **33,552t** Ni
  - Skinner 13,678t Ni
  - Winner 6,250t Ni

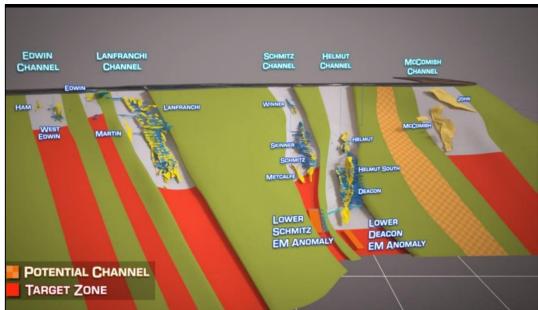
### Lanfranchi Channel

- 500m below surface
- 6,000t Ni per 100m vertical\*

### Helmut/Deacon Channel

- 900m below surface
- 20,000t Ni per 100m vertical\*New Channels?

\*Historical Ni tonnes per vertical metre





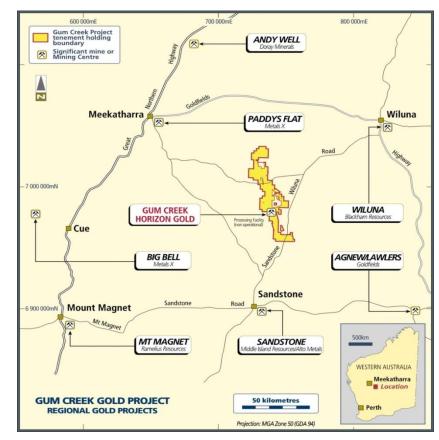
## Gold and PGM options



## Horizon Gold (ASX:HRN) - Gum Creek Gold Project



- IPO of Horizon, spun out from Panoramic
  - Shares on issue 76.5M
  - Market capitalisation ~\$23M (at \$0.30)
  - Cash (31 March 2017) ~\$12.5M
  - Enterprise value ~\$10.5M
  - Panoramic retains 51% interest
- Location 640km NE of Perth, Western Australia
- Large tenement package covering large portion of the Gum Creek Greenstone belt
- Significant Resources 17.3Mt at an average grade of 2.25g/t Au for 1.25Moz
- Tenements key Resources held on granted mining leases
- New exploration targets 14 priority exploration targets recently identified
- Historic Production >1Moz gold



### **PGMs**



#### Panton

60km from Savannah

#### **Resources\***

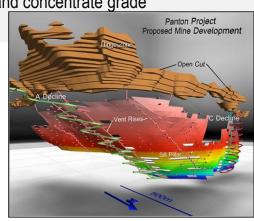
2Moz of Pt+Pd

#### Feasibility Study by previous owner

- Open pit plus underground mining
- 600,000tpa throughput rate
- 83,000oz Pt+Pd+Au per year

### Recent positive test work by Panoramic

- Improved recovery and concentrate grade
- Ore sorting



### **Thunder Bay North**

Located in Ontario, Canada

#### ${\rm Resources}^*$

0.7Moz of Pt+Pd

#### Rio earn in and JV option

 Consolidates Thunder Bay North Project (TBN) and Rio's Escape Lake Project (EL)

### Rio Farm-in

 Earn in Option - Rio spending up to C\$20M (minimum C\$5M) over 5<sup>1</sup>/<sub>2</sub> years to earn a 70% interest in TBN



\*Refer Resource Table in Appendix Section



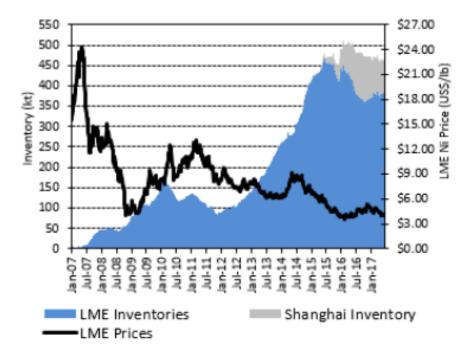


## METAL PRICE OUTLOOK

## Nickel supply/demand moving into deficit



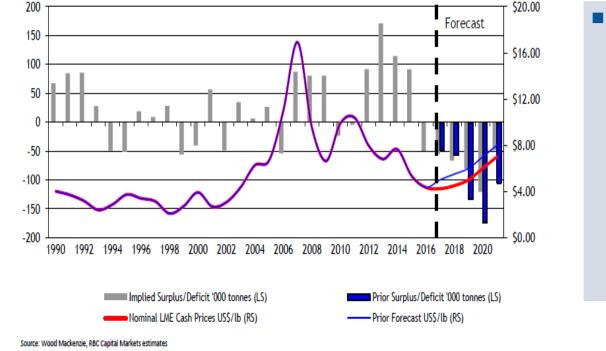
#### Inventory falling after a seasonal high in February



### **RBC Outlook\***

- Demand
  - Strong rebound to 6.6% in 2016
  - Stainless steel demand has softened recently
- Supply
  - Relaxation of export rules in Indonesia and removal of Environmental Minister in Philippines
- Supply/Demand balance
  - Total inventories fallen by 45kt since the start of 2016
  - Market in deficit after four years of surplus

## Nickel price outlook improving



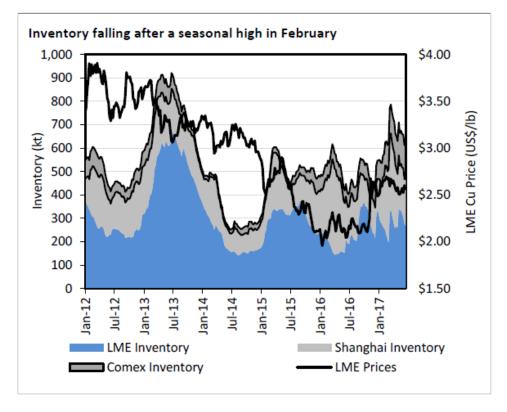


RBC Price Forecasts (US\$/lb)\*

2018	\$4.50
2019	\$5.00
2020	\$6.00
2021	\$7.00
LT (Real 2017 \$) 2022 and beyond	\$8.00 I

\*Source document: RBC Capital Markets Global Metals & Mining Q3/2017 Outlook – 28 June 2017

## **Copper supply/demand**



### **RBC Outlook\***

- Demand
  - Steady demand growth forecast
  - Annual consumption to increase ~2%

### Supply

Mine supply begins to fade in 2020 due to lack of new investment

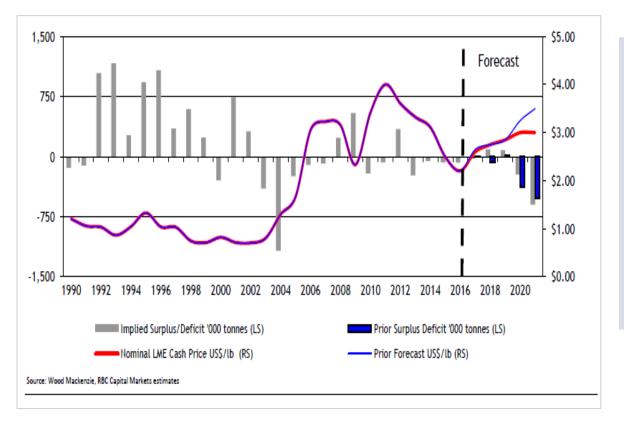
### Supply/Demand balance

- Inventories declining following peak in April 2017
- Balanced market through 2020
- Deficits in 2020 and beyond due to lack of new investment



## Copper price outlook





RBC Price Forecasts (US\$/lb)\*

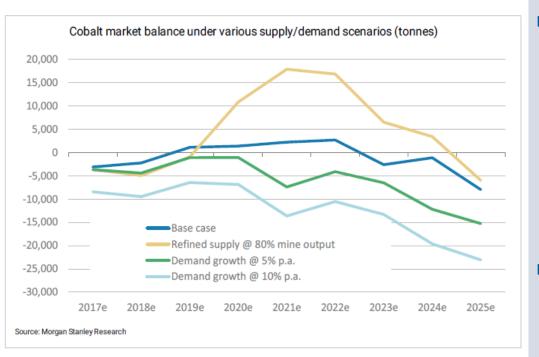
2018	\$2.75
2019	\$2.85
2020	\$3.00
2021	\$3.00

LT (Real 2017 \$) \$2.85 2022 and beyond

\*Source: RBC Capital Markets Global Metals & Mining Q3/17 Outlook – 28 June 2017

## Cobalt supply/demand





\*Source: Morgan Stanley Research "Commodity Matters, Cobalt, Measured" - 28 June 2017

### Morgan Stanley Outlook\*

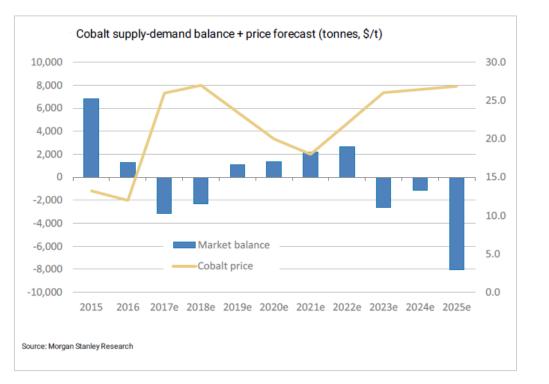
- Demand
  - 2016 only 7% (7kt) of world's cobalt supply went into electric vehicles (EV) and 40% (40kt) into electronics
  - 2025 forecast 9.4M EV sales which translates to 63ktpa additional Co demand
  - Global demand growth forecast to be 6.7%pa CAGR out to 2025

### Supply

- Most Co is a by-product of Cu and Ni mining
- 62% of 2016 of mined Co output from DRC
- Forecast mine supply growth to underperform demand, at 6.6%/yr CAGR to 2025

## Cobalt price outlook





- Co Price as at 14 July 2017
  - US\$27/lb (99.3% Co)

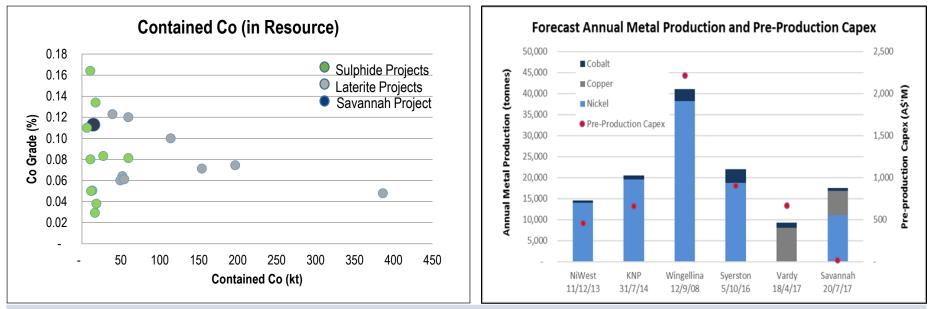
### Morgan Stanley\*

- Since 2000, Co price has averaged US\$20/lb (real 2017\$).
- Demand growth from EV's positive price pressure
- Constraints to price are:
  - Battery industry's response to cost inputs
  - Recycling
- Long term forecast US\$23/lb (real 2017\$)

## Panoramic's cobalt exposure



### Savannah well placed to leverage off strong cobalt price outlook



- Laterite projects have larger cobalt resources, but:
  - Laterite projects have high capital intensity
  - Savannah is both high grade and low capital intensity

Data obtained from various Company ASX Announcements

### Deliverables



## SAFETY

No LTIs



### RESOURCES

**Continue to grow Resources** 



### NICKEL, COPPER, COBALT Restart Savannah

### GOLD

Maintain option via 51% interest in Horizon Gold (HRN)

### GROWTH

Restart Savannah and use cashflow to fund growth



### PGMs

### Advance both projects

## ASX : PAN

### www.panoramicresources.com

#### **Mission Statement**

We strive to achieve excellence in all aspects of our business to provide long term capital growth and dividend return to our shareholders, a safe and rewarding work environment for our employees, and opportunities and benefits to the people in the communities we operate in.





Note: further 2012 Edition JORC compliance tables are referenced in the PAN ASX announcement dated 30 September 2016

## Nickel, Copper, Cobalt - Resources



### Savannah, Lanfranchi - Mineral Resources as at 2 February 2017\*

Resource	Equil:	Metal	Date of	JORC	Me	asured	Indica	ited	Infe	erred	То	tal	Metal
Resource	Equity	metai	Resource	Compliance	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes
Savannah Project													
Savannah (above 900)	100%	Nickel	Jun-16	2012	1,275,000	1.51	759,000	1.20	-	-	2,034,000	1.39	28,300
		Copper				0.87		0.90		-		0.88	17,900
		Cobalt				0.07		0.07		-		0.07	1,400
Savannah (below 900)	100%	Nickel	Jun-16	2012	780,000	1.64	125,000	1.72	-	-	905,000	1.65	14,900
		Copper				0.76		0.75		-		0.76	6,900
		Cobalt				0.10		0.09		-		0.10	900
Savannah North	100%	Nickel	Aug-16	2012	-	-	7,168,000	1.78	3,105,000	1.53	10,272,000	1.70	175,100
		Copper				-		0.77		0.62		0.72	74,400
		Cobalt				-		0.13		0.11		0.12	12,700
Copernicus (O/P)	100%	Nickel	Jun-15	2012	132,000	0.97	-	-	-	-	132,000	0.97	1,300
		Copper				0.52		-		-		0.52	700
		Cobalt				0.03		-		-		0.03	0
Copernicus (U/G)	100%	Nickel	Jul-10	2004	-	-	508,000	1.30	25,000	0.98	532,000	1.29	6,800
		Copper				-		0.91		0.69		0.90	4,800
		Cobalt				-		0.05		0.02		0.05	300
Lanfranchi Project	100%	Nickel											
Cruikshank			Apr-11	2004	-	-	2,018,000	1.42	611,000	0.79	2,629,000	1.28	33,600
Deacon			Mar-14	2012	89,000	2.99	-	-	134,000	1.70	224,000	2.22	5,000
Gigantus			Jul-07	2004	-	-	-	-	652,000	1.63	652,000	1.63	10,600
Helmut South			May-14	2012	-	-	-	-	-	-	-		
Helmut South Ext			Apr-14	2012	21,000	4.54	29,000	2.87	-	-	50,000	3.59	1,800
John			Jul-07	2004	-	-	-	-	291,000	1.42	291,000	1.42	4,100
Lanfranchi			Apr-14	2012	40,000	4.12	55,000	4.40	63,000	3.49	158,000	3.97	6,300
Martin			Feb-12	2012	-	-	47,000	3.58	7,000	4.16	54,000	3.66	2,000
McComish			Jul-07	2004	-	-	-	-	992,000	1.49	992,000	1.49	14,800
Metcalfe			Jan-14	2012	-	-	280,000	1.99	111,000	1.35	391,000	1.81	7,100
Schmitz			Jul-13	2012	30,000	4.92	23,000	3.93	16,000	2.95	69,000	4.14	2,900
Lower Schmitz			Mar	2012	-	-	51,000	5.60	79,000	4.80	131,000	5.11	6,700
Winner			Jul-11	2004	-	-	14,000	4.40	-	-	14,000	4.40	600
Total (Equity)		Nickel											321,800
		Copper											104,700
		Cobalt											15,300

\*Refer to the Company's ASX Announcements of 30 September 2016 and 2 February 2017

## Nickel, Copper, Cobalt - Resources



#### Savannah, Lanfranchi - Qualifying Statement and Notes

#### Notes:

- Figures have been rounded and therefore may not add up exactly to the reported totals
- All resources are inclusive of reserves
- Savannah Project Resource cutoff grade is 0.50% Ni
- Lanfranchi Project Resource cutoff grade is 1.00% Ni

#### **Competent Person Statement**

The information that relates to Mineral Resources is based on information compiled by or reviewed by Paul Hetherington (MAusIMM) for the Savannah Project Resource and Copernicus Project Resource and Bradley Robinson (MAusIMM) for the Lanfranchi Project Resources. The aforementioned were formerly full-time employees of Panoramic Resources Limited. The aforementioned have sufficient experience that 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 Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The aforementioned consent to the inclusion in the release of the matters based on their information in the form and context in which it appears.

The information that relates Mineral Resources at Lower Schmitz is based on information compiled by Mr Paul Payne. Mr Payne is a Fellow of the Australasian Institute of Mining and Metallurgy (AusIMM) and consultant working for Payne Geological Services Pty Ltd (PayneGeo). Mr Payne has sufficient experience that is relevant to the style of mineralisation and type of target/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 Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Payne consents to the inclusion in this report of the matters based on the information in the form and context in which it appears.

## Nickel, Copper, Cobalt - Reserves



### Savannah, Lanfranchi - Ore Reserve as at 2 February 2017\*

Reserve	Fauity	Metal	Date of	JORC	Pro	oven	Prol	bable	Tot	al	Metal
Reserve	Equity	metai	Reserve	Compliance	Tonnes	(%)	Tonnes	(%)	Tonnes	(%)	Tonnes
Savannah Project											
Savannah (above 900)	100%	Nickel	Jun-16	2012	1,364,686	1.15	194,000	1.24	1,558,000	1.16	18,100
		Copper				0.66		1.28		0.74	11,500
		Cobalt				0.056861		0.07		0.06	900
Savannah North	100%	Nickel	Feb-17	2012	-	-	6,650,000	1.42	6,650,000	1.42	94,500
		Copper				-		0.61		0.61	40,900
		Cobalt				-		0.10		0.10	6,700
Lanfranchi Project	100%										
Deacon			Jun-16	2012	-	-	42,000	2.67	42,000	2.67	1,100
Metcalfe			Jun-16	2012	-	-	113,000	1.57	113,000	1.57	1,800
Lanfranchi			Jun-16	2012	-	-	11,000	2.56	11,000	2.56	300
Schmitz			Jun-16	2012	-	-	15,000	2.96	15,000	2.96	500
Helmut Sth Ext			Jun-16	2012	-	-	27,000	2.19	27,000	2.19	600
Total (Equity)		Nickel									116,800
		Copper									52,400
		Cobalt									7,600

## Nickel, Copper, Cobalt - Reserves



### Savannah, Lanfranchi - Qualifying Statement and Notes

#### Notes:

- Figures have been rounded and therefore may not add up exactly to the reported totals
- All reserves are inclusive of resources
- Savannah Project Reserve cutoff grade is 0.80% Ni
- Lanfranchi Project Reserve cutoff grade is 1.00% Ni except for airleg mining which is 2.00% Ni

#### **Competent Person Statement**

Information relating to Ore Reserves has been compiled by or reviewed by Lilong Chen (MAusIMM). The aforementioned is a full-time employee of Panoramic Resources Limited. The aforementioned has sufficient experience that is 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 Australian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. The aforementioned consents to the inclusion in the release of the matters based on his information in the form and context in which it appears.

## **Platinum Group Metals - Resources**



#### Panton PGM Project – Mineral Resources as at 30 June 2016

			JORC				Grade				al (oz)
Resource Equity		Date of Resource	Compliance	Tonnage	Pt	Pd	Au	Ni	Cu	Pt	Pd
					(g/t)	(g/t)	(g/t)	(%)	(%)	(oz ,000)	(oz ,000)
Top Reef	100%	Mar-12	2012								
Measured				4,400,000	2.46	2.83	0.42	0.28	0.08	348	400
Indicated				4,130,000	2.73	3.21	0.38	0.31	0.09	363	426
Inferred				1,560,000	2.1	2.35	0.38	0.36	0.13	105	118
Middle Reef	100%	Mar-12	2012								
Measured				2,130,000	1.36	1.09	0.1	0.18	0.03	93	75
Indicated				1,500,000	1.56	1.28	0.1	0.19	0.04	75	62
Inferred				600,000	1.22	1.07	0.1	0.19	0.05	24	21
Total (Equity)				14,320,000	2.19	2.39	0.31	0.27	0.08	984	1,081

#### Panton PGM - Qualifying Statement and Notes

Cross references to previous market announcements:

refer ASX announcement dated 30 September 2016

#### No New Information or Data

The Panton Mineral Resource estimates tabled above have been previously reported, and the relevant market announcements cross referenced. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.

## **Platinum Group Metals - Resources**



### Thunder Bay North – Mineral Resources as at 30 June 2016

			JORC						Grade					Meta	Metal (oz)	
Resource	Equity	Date of Resource	Compliance	Tonnage	Pt	Pd	Rh	Au	Ag	Cu	Ni	Co	Pt-Eq	Pt	Pd	
					(g/t)	(g/t)	(g/t)	(g/t)	(g/t)	(%)	(%)	%	(g/t)	(oz ,000)	(oz ,000)	
Open Pit	100%	Jan-11	2004													
Indicated				8,460,000	1.04	0.98	0.04	0.07	1.5	0.25	0.18	0.014	2.13	283	267	
Inferred				53,000	0.96	0.89	0.04	0.07	1.6	0.22	0.18	0.014	2	2	2	
Underground	100%	Feb-12	2004													
Indicated				1,369,000	1.65	1.54	0.08	0.11	2.6	0.43	0.24	0.016	3.67	73	68	
Inferred				472,000	1.32	1.25	0.06	0.09	2.1	0.36	0.19	0.011	2.97	20	19	
Total (Equity)				10,354,000										377	355	

#### Thunder Bay North – Qualifying Statement and Notes

#### Notes - Open Pit Resource:

The open pit Mineral Resource is reported at a cut-off grade of 0.59 g/t Pt-Eq within a Lerchs-Grossman resource pit shell optimized on Pt-Eq. The strip ratio (waste:ore) of this pit is 9.5:1. The platinum-equivalency formula is based on assumed metal prices and overall recoveries. The Pt-Eq formula is: Pt-Eq g/t = Pt g/t + Pd g/t x 0.3204 + Au g/t x 0.6379 + Ag g/t x 0.0062 + Cu g/t x 0.00011 + Total Ni g/t x 0.000195 + Total Co g/t x 0.000124 + Rh g/t x 2.1816. The conversion factor shown in the formula for each metal represents the conversion from each metal to platinum on a recovered value basis. The assumed metal prices used in the Pt-Eq formula are: Pt US\$1,595/oz, Pd US\$512/oz, Au US\$1,015/oz, Ag US\$15.74/oz, Cu US\$2.20/lb, Ni US\$7.71/lb, Co US\$7.71/lb and Rh US\$3,479/oz. The assumed combined flotation and PlatsoITM process recoveries used in the Pt-Eq formula are: Pt 76%, Pd 75%, Au 76%, Ag 55%, Cu 86%, Ni 44%, Co 28% and Rh 76%. The assumed refinery payables are: Pt 98%, Pd 98%, Au 97%, Ag 85%, Cu 100%, Ni 100%, Co 100% and Rh 98%.

## **Platinum Group Metals - Resources**



#### Thunder Bay North – Qualifying Statement and Notes Cont.

#### Notes - Underground Resources:

The underground mineral resource is reported at a cut-off grade of 1.94g/t Pt-Eq. The Pt-Eq formula is: Pt-Eq  $g/t = Pt g/t + Pd g/t \ge 0.2721 + Au g/t \ge 0.3968 + Ag g/t \ge 0.0084 + Cu g/t \ge 0.000118 + Sulphide Ni g/t \ge 0.000433 + Sulphide Co g/t \ge 0.000428 + Rh g/t \ge 2.7211$ . The assumed metal prices used in the Pt-Eq formula are: Pt US\$1,470/oz, Pd US\$400/oz, Rh US\$4,000/oz, Au US\$875/oz, Ag US\$14.30/oz, Cu US\$2.10/lb, Ni US\$7.30/lb and Co US\$13.00/lb. The assumed process recoveries used in the Pt-Eq formula are: Pt 75%, Pd 75%, Rh 75%, Au 50%, Ag 50%, Cu 90%, and Ni and Co in sulphide 90%. The assumed smelter recoveries used in the Pt-Eq formula are Pt 85%, Pd 85%, Rh 85%, Au 85%, Ag 85%, Cu 85%, Ni 90% and Co 50%. Ni and Co in sulphide were estimated by linear regression of MgO to total Ni and total Co respectively. The regression formula for Ni in sulphide (NiSx) is: NiSx = Ni - (MgO% x 60.35 - 551.43). The regression formula for Co in sulphide (CoSx) is: CoSx = Co - (MgO% x 4.45 - 9.25).

#### Cross references to previous market announcements:

Open pit Resources – refer Magma Metals Limited (ASX:MMW) announcement dated 7 February 2011 titled "Positive Scoping Study for Thunder Bay North Project"

Underground Resources – refer Magma Metals Limited (ASX:MMW) announcement dated 23 February 2012 titled "Magma Metals Increases Mineral Resources at TBN to 790,000 Platinum-Equivalent Ounces"

#### No New Information or Data

The Thunder Bay North Mineral Resource estimates tabled above have been previously reported, and the relevant market announcements cross referenced. The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcements and, in the case of estimates of Mineral Resources, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed.