

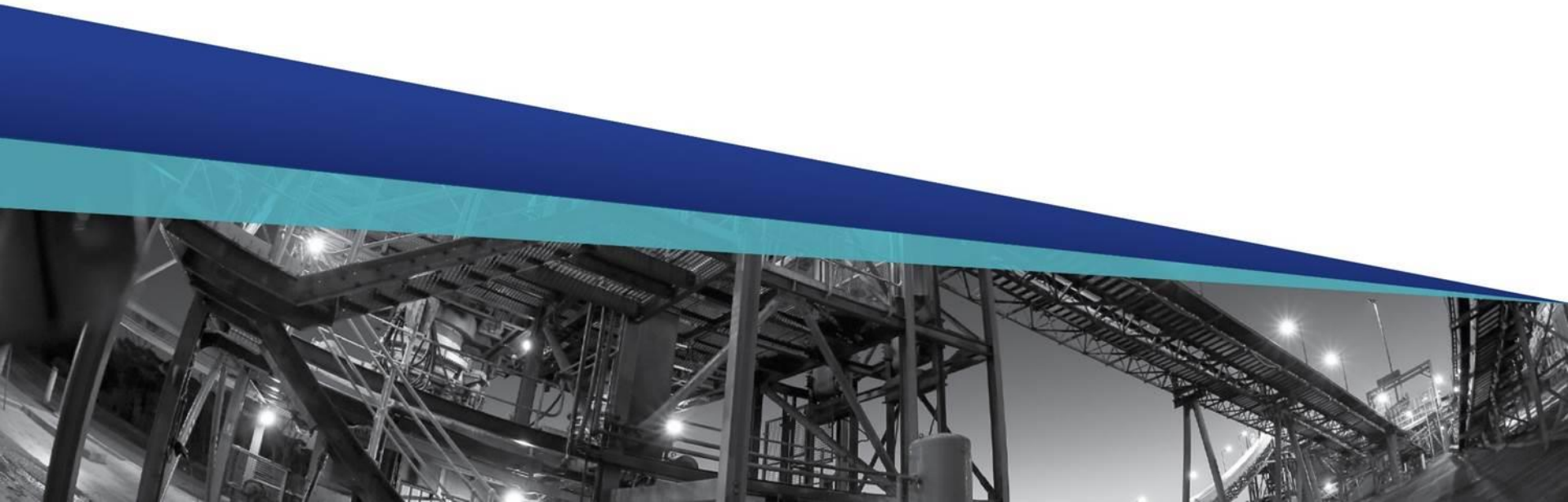
**WESTERN AREAS LTD**



# **CORPORATE PRESENTATION**

FEBRUARY 2019

[www.westernareas.com.au](http://www.westernareas.com.au)



# AGENDA



Corporate



Operations



Growth & Exploration



Nickel Market

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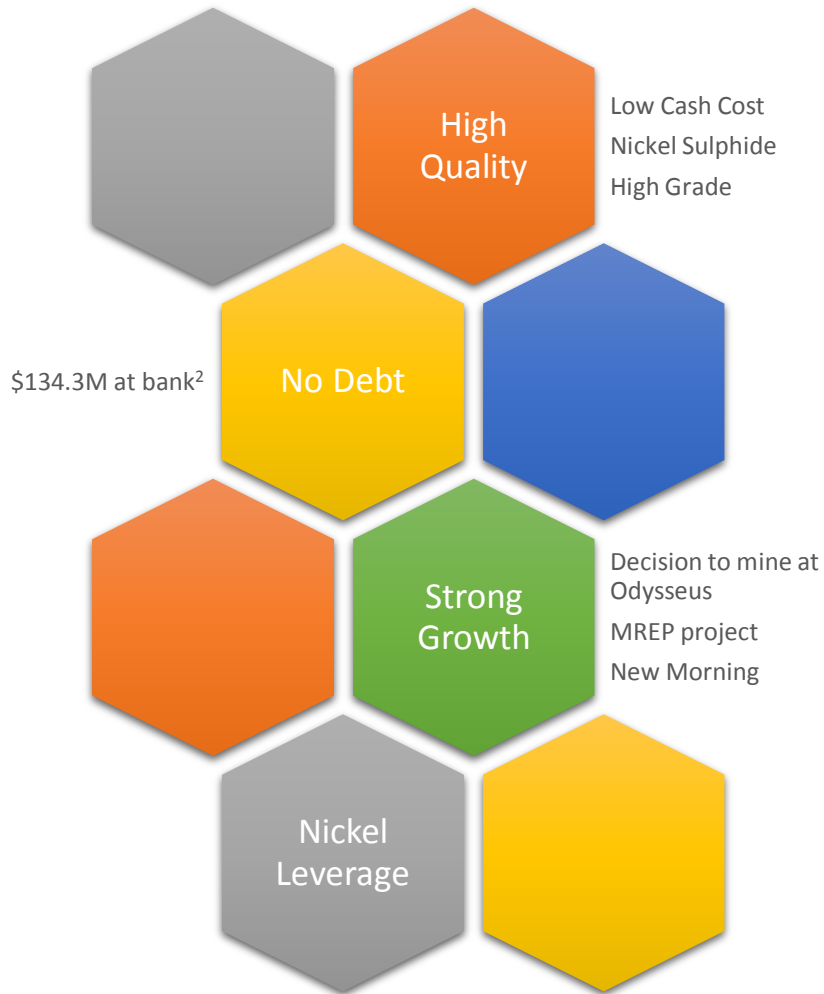
The information within this PowerPoint presentation was compiled by Western Areas management, but the information as it relates to exploration results, mineral resources or ore reserves was prepared by Mr Graeme Gribbin, Mr Andre Wulfse or Mr Marco Orunesu-Preiata respectively. Mr Gribbin, Mr Wulfse and Mr Orunesu-Preiata are full time employees of Western Areas Ltd. Mr Gribbin is a member of Australian Institute of Geoscientists (AIG). Mr Wulfse and Mr Orunesu-Preiata are members of Australian Institute of Mining and Metallurgy (AusIMM) and 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 Competent Persons as defined in the 2012 Edition of the ‘Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves’(2012 JORC Code). Mr Gribbin, Mr Wulfse and Mr Orunesu-Preiata consent to the inclusion in this presentation of the matters based on the information in the form and context in which it appears.

# CORPORATE





# CORPORATE OVERVIEW



ASX code	WSA
Share price	2.49
Shares outstanding (m)	273.5
Market Cap (A\$m) <sup>1</sup>	681.0
Cash (A\$m) <sup>2</sup>	134.3

## COSMOS Complex

592kt Ni Mineral Resources  
165kt Ni Ore Reserves  
DFS complete

## FORRESTANIA

### Flying Fox

4.9kt Ni mined HY19  
23.7kt Ni reserves  
80.0kt Ni resources

### Spotted Quoll

6.8kt Ni mined HY19  
63.3kt Ni reserves  
88.2kt Ni resources



1. Based on share price on 5 February 2019    2. As at 31 December 2018

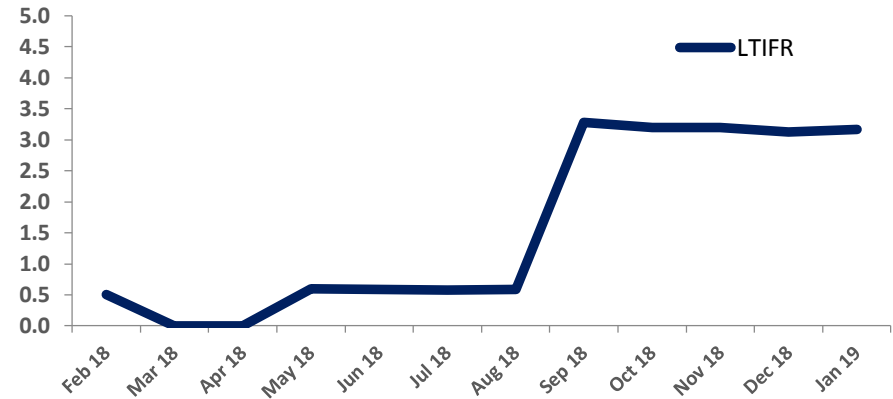
# WESTERN AREAS ARE SAFE AREAS



## Days LTI free

Spotted Quoll	<b>2,851</b>	Aug-11
Cosmos	<b>1,218</b>	Oct-15 (no injuries)
Flying Fox	<b>690</b>	May-17
Cosmic Boy Concentrator	<b>146</b>	May-18
Exploration	<b>132</b>	Sep-18

## 12 month LTIFR moving average



Safe operations make efficient operations

# KEEPING ACTIVE IN A VOLATILE MARKET

*Innovation, adding value, finding new opportunities, doing things differently...*

New and improved  
offtake deals

MREP – a new,  
higher grade and  
value product  
stream

Advancing Cosmos  
– a third potential  
mine approved

Greater operational  
efficiency

Lithium  
investments

Value from non-  
core assets

*Delivering on our promises...*

Targets	Completed
Offtake contracts	✓
Addition of long life project	✓
Prudent capital management	✓
Innovation	✓
Building our portfolio	✓
New products and markets	✓

# FY19 GUIDANCE

Category	Original FY 19 Guidance	Updated FY19 Guidance
Nickel tonnes in Concentrate Production	20,500 to 22,000	No Change
Unit Cash Cost of Production (Nickel in Concentrate)	A\$2.80/lb to A\$3.20/lb	No Change
Sustaining and Mine Development Capital Expenditure	A\$32.0m to A\$36.0m	No Change
Expansion Projects & Feasibility	A\$5.0m to A\$8.0m	A\$17.0m to A\$20.0m
Odysseus Early Works	A\$24.0m to A\$28.0m	No Change
Exploration	A\$12.0m to A\$15.0m	No Change

- 1<sup>st</sup> Half FY19 delivered all metrics with the guidance range
- Expansion project capex increased by A\$12m due to Odysseus DFS approval



# OPERATIONS

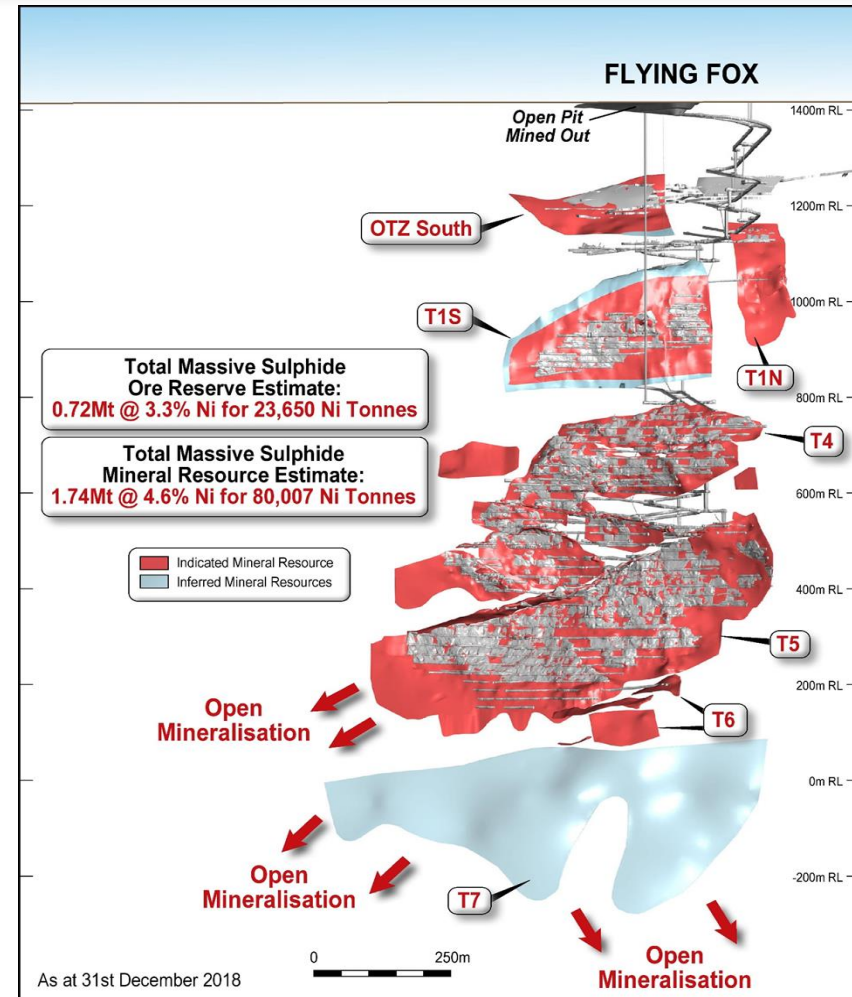


# FLYING FOX MINE

Reserve Contained nickel	0.72Mt @ 3.3% 23,650 Ni tonnes
Resource Contained nickel	1.74Mt @ 4.6% 80,007 Ni tonnes
Mine life (on reserves)	3 years

## Key points

- FY18 production – 10k Ni tonnes
- Has been operating for over 12 years
- Significant low grade disseminated resource – Heap leach evaluation underway



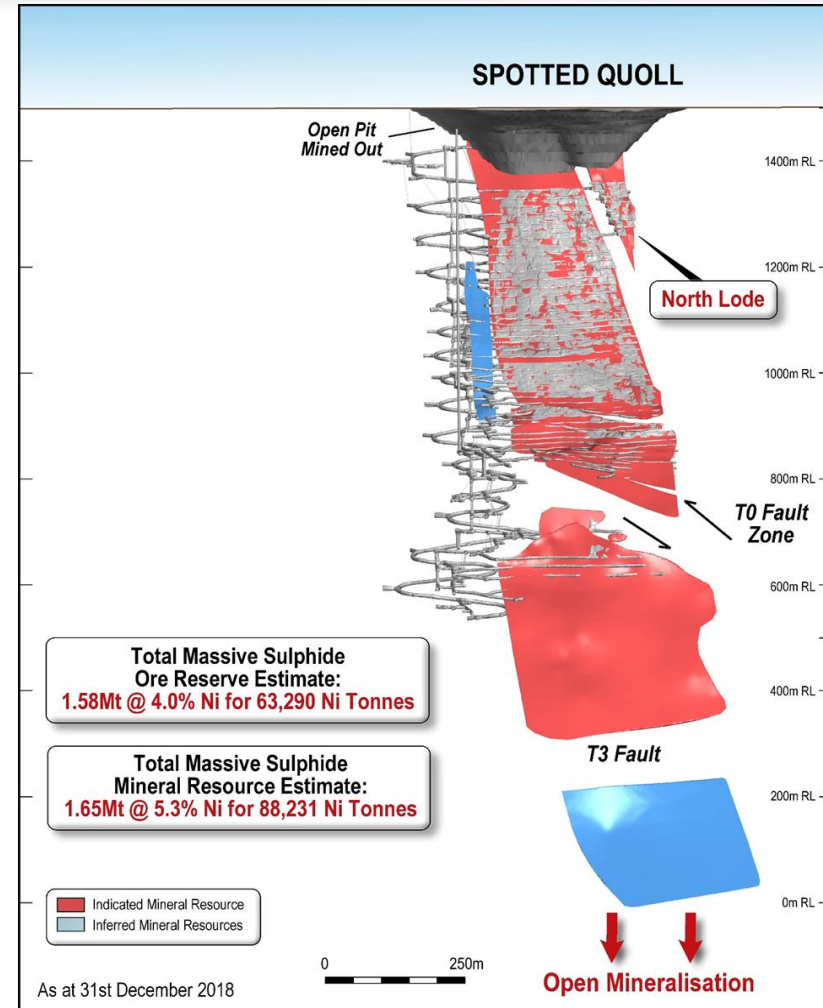
WSA foundation asset within Forrestania

# SPOTTED QUOLL MINE

Reserve Contained nickel	1.58Mt @ 4.0% 63,290 Ni tonnes
Resource Contained nickel	1.65Mt @ 5.3% 88,231 Ni tonnes
Mine life	7 years

## Key points

- Has never recorded an LTI
- FY18 annual production – 14.4k Ni tonnes
- Production has outperformed reserve tonnes and grade consistently
- Top down mining with paste fill
- Resource extension drilling commenced – first drill hole since 2009



WSA Explored, Discovered and Developed

# COSMIC BOY NICKEL CONCENTRATOR

## Concentrator Summary

- Mill processed an annual record of 616,598 tonnes of ore in FY18, for 21,060 nickel tonnes
- 12% above name plate capacity of 550,000 tpa
- Concentrate grades of between 15.0% to 16.0% Ni
  - Premium blending product (Fe/Mg ratio >15:1)
  - Desirable to smelters and roasters

## Export Infrastructure and Logistics

- Export concentrate transported to Esperance Port in containers and shipped through to China
- BHP Nickel West concentrate delivered to Kambalda by road



WSA produces a high quality and in demand nickel concentrate



# OFFTAKE CONTRACTS BEST IN CLASS

*Opening new markets*

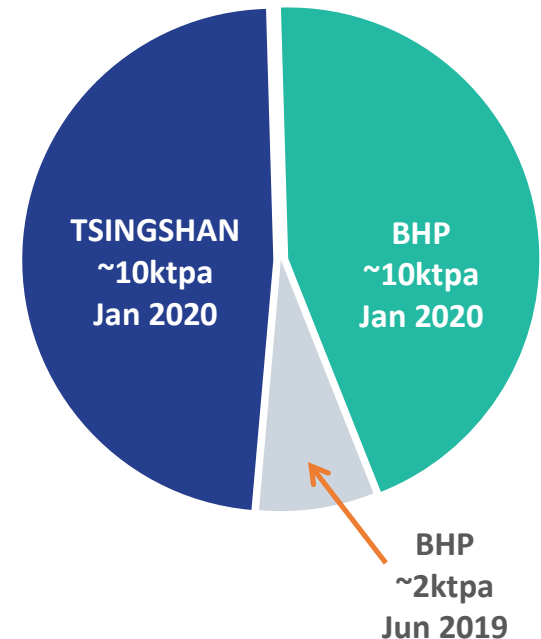
*Superior commercial terms*

*Creating more value from the same nickel product*

*Existing offtake agreement just over 1 year to expiry*

## Our Partners:

- **BHP:** 55%
- **Tsingshan:** 45%
- ✓ China's largest stainless steel producer
- ✓ Consumes ~25% of China's nickel demand
- ✓ Revenue RMB85 billion in 2015, 20k employees



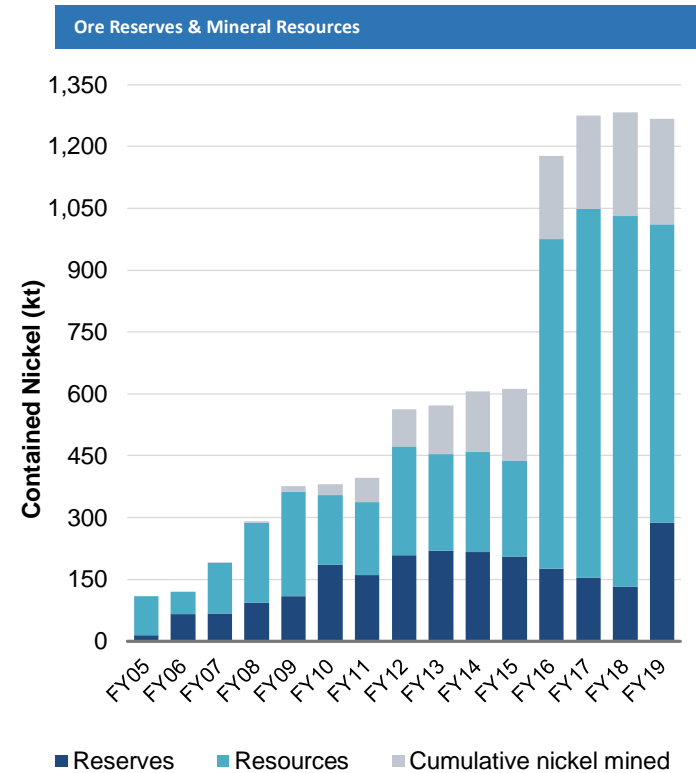
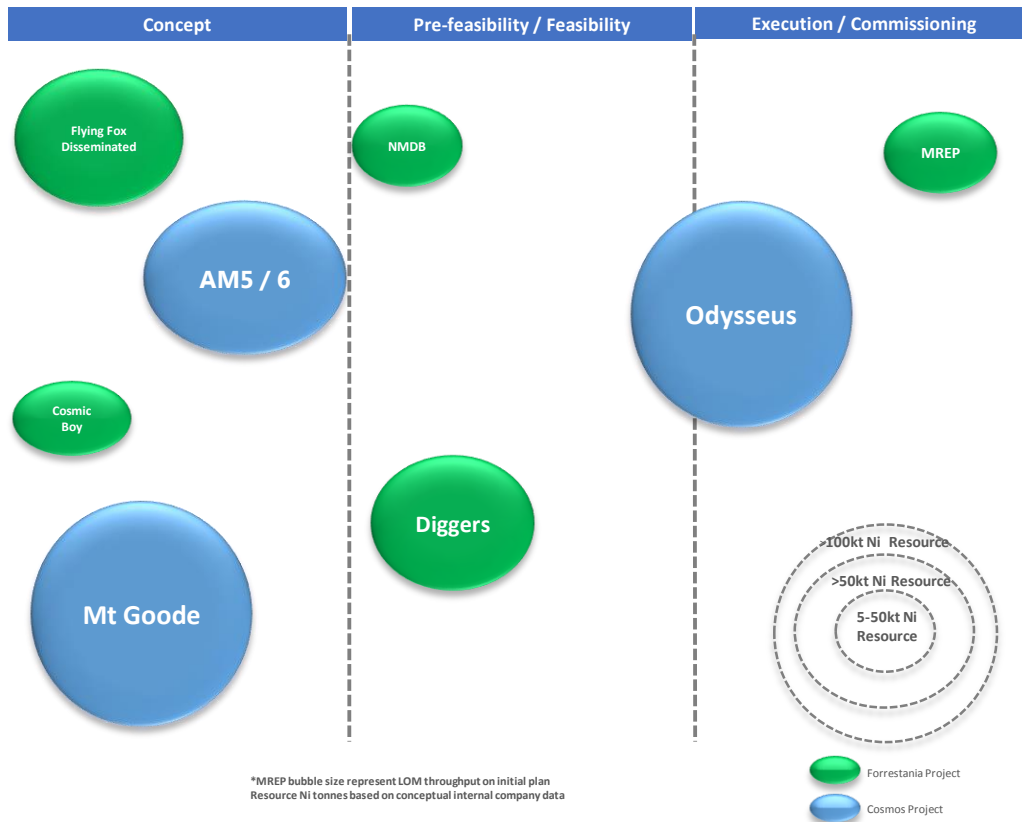
## Roasting

- Creates a high grade nickel oxide that can be blended with laterite ore
- By-product of sulphuric acid for 'pickling' stainless steel
- Most concentrates do not suit roasting
- Proven process - opening up opportunities with Tsingshan

# GROWTH & EXPLORATION OUTLOOK



# NICKEL GROWTH PIPELINE



- Many projects in the pipeline to drive nickel production well into the future
- Ore Reserves have substantially increased in FY19 with Odysseus



# ODYSSEUS – EARLY WORKS PROGRESSING WELL

## *Early Works Activities*

- Water Management Ponds (WMPs) 1-5 operational
- New WMPs 8 & 9 constructed and commissioned
- De-watering of open pit on schedule
- Schlumberger pump for underground dewatering commissioned in early January 2019 – Step change in dewatering rates
- Barminto awarded decline rehabilitation contract.
- Camp commissioned with over 100 rooms

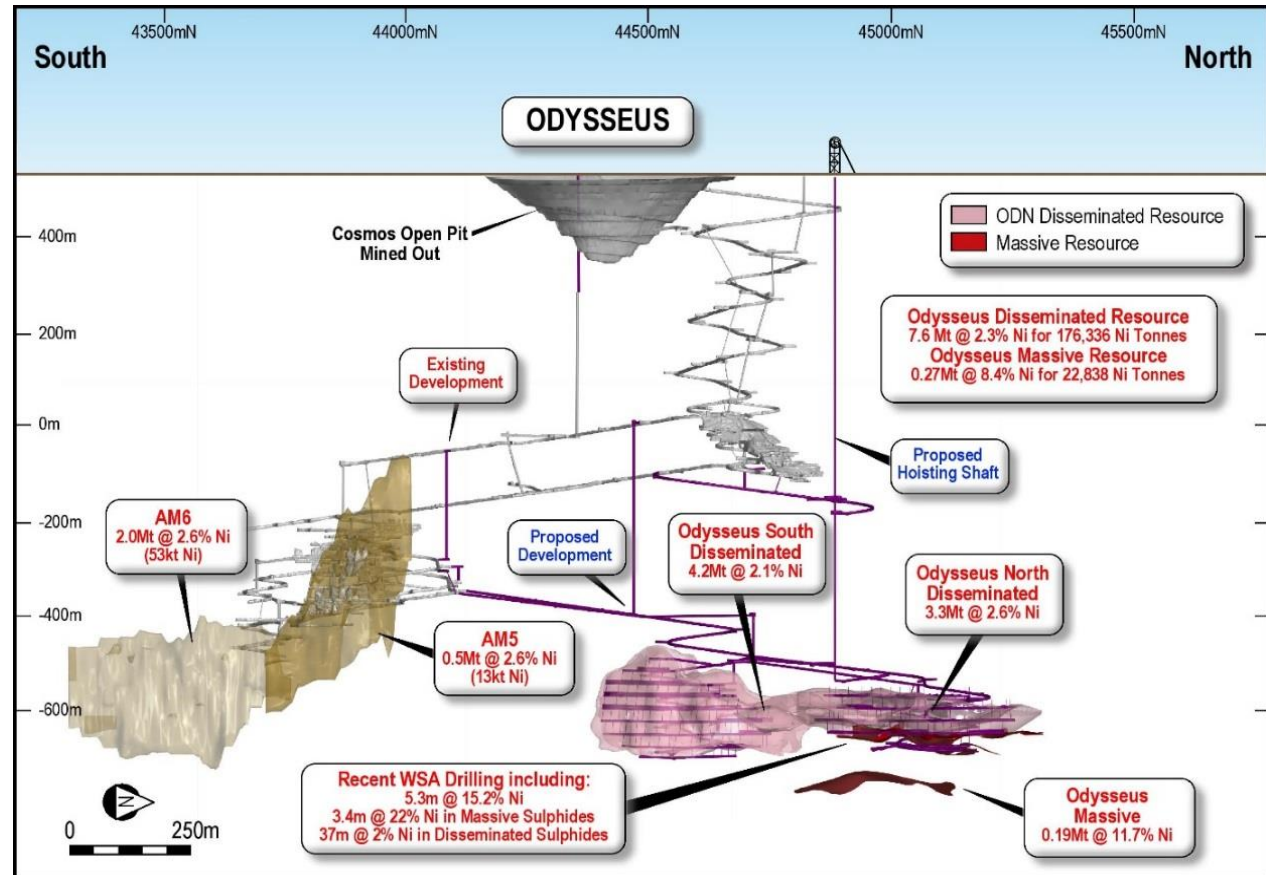




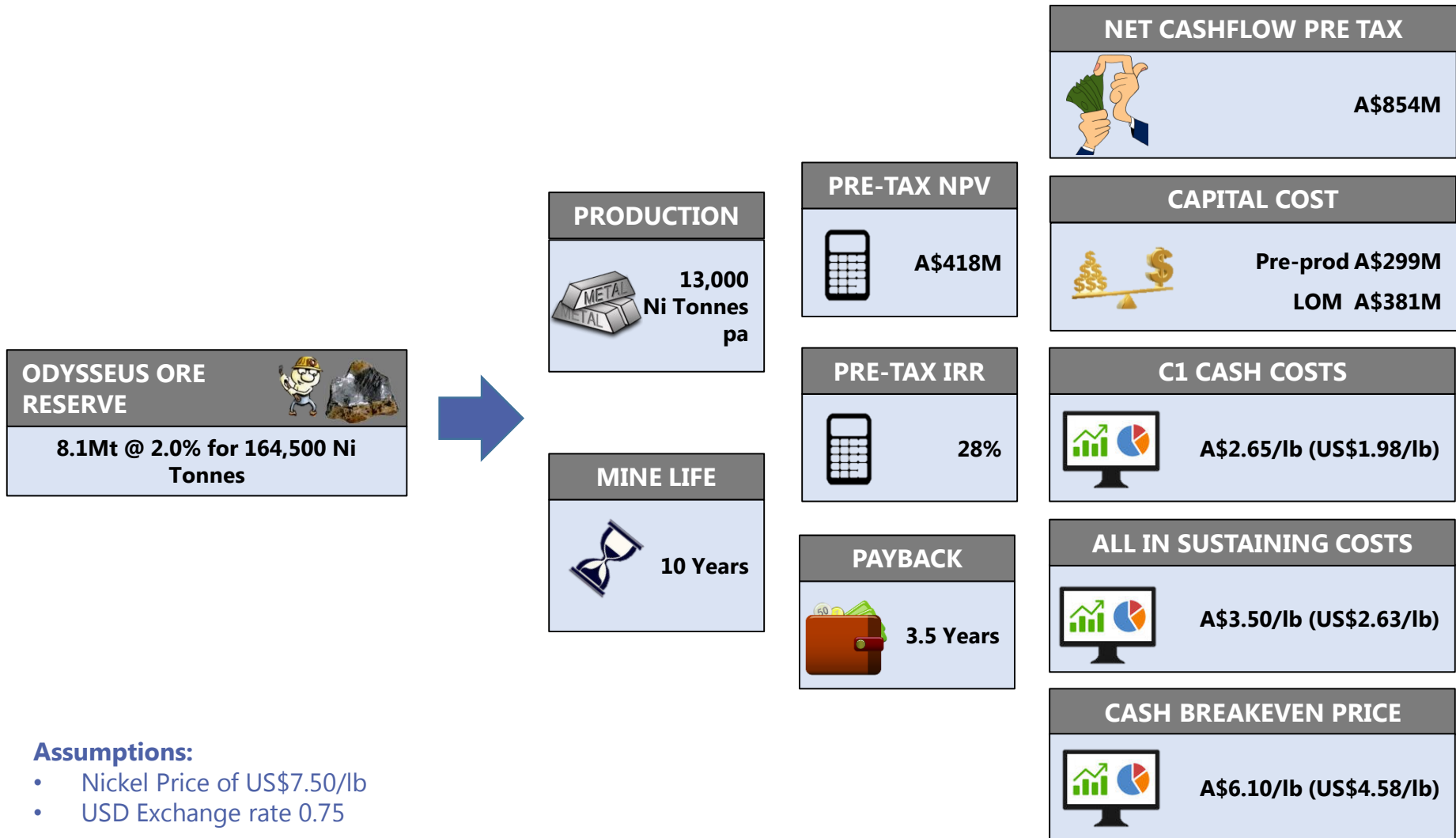
# ODYSSEUS – NOW A LARGER PROJECT

## Western Areas Second Operational Hub

- Mine life > 10 years
- Once ramped up, average nickel in concentrate production >13.0ktpa (14.6ktpa from FY24-FY31)
- DFS released 22 October 2018
- Pre-production capex to include:
  - ✓ Shaft hoisting
  - ✓ Larger mill (900ktpa immediately)
- Significant upside:
  - ✓ AM5 & AM6 deposits contain an Indicated Mineral Resource of 57.6kt of nickel
  - ✓ Record massive sulphide intersections
  - ✓ Regional drilling success at Neptune



# ODYSSEUS DFS RESULTS



## Assumptions:

- Nickel Price of US\$7.50/lb
- USD Exchange rate 0.75

For full DFS details, see ASX announcement, 22 October 2018

# CAPITAL EXPENDITURE PROFILE AND FUNDING

- ✓ WSA is well funded with 130m cash and other liquid investments of around A\$25m
- ✓ Major capex not required until FY21
- ✓ Significant optionality on decision-making and spending
- ✓ Already receiving funding interest from offtake providers and third parties, including banks

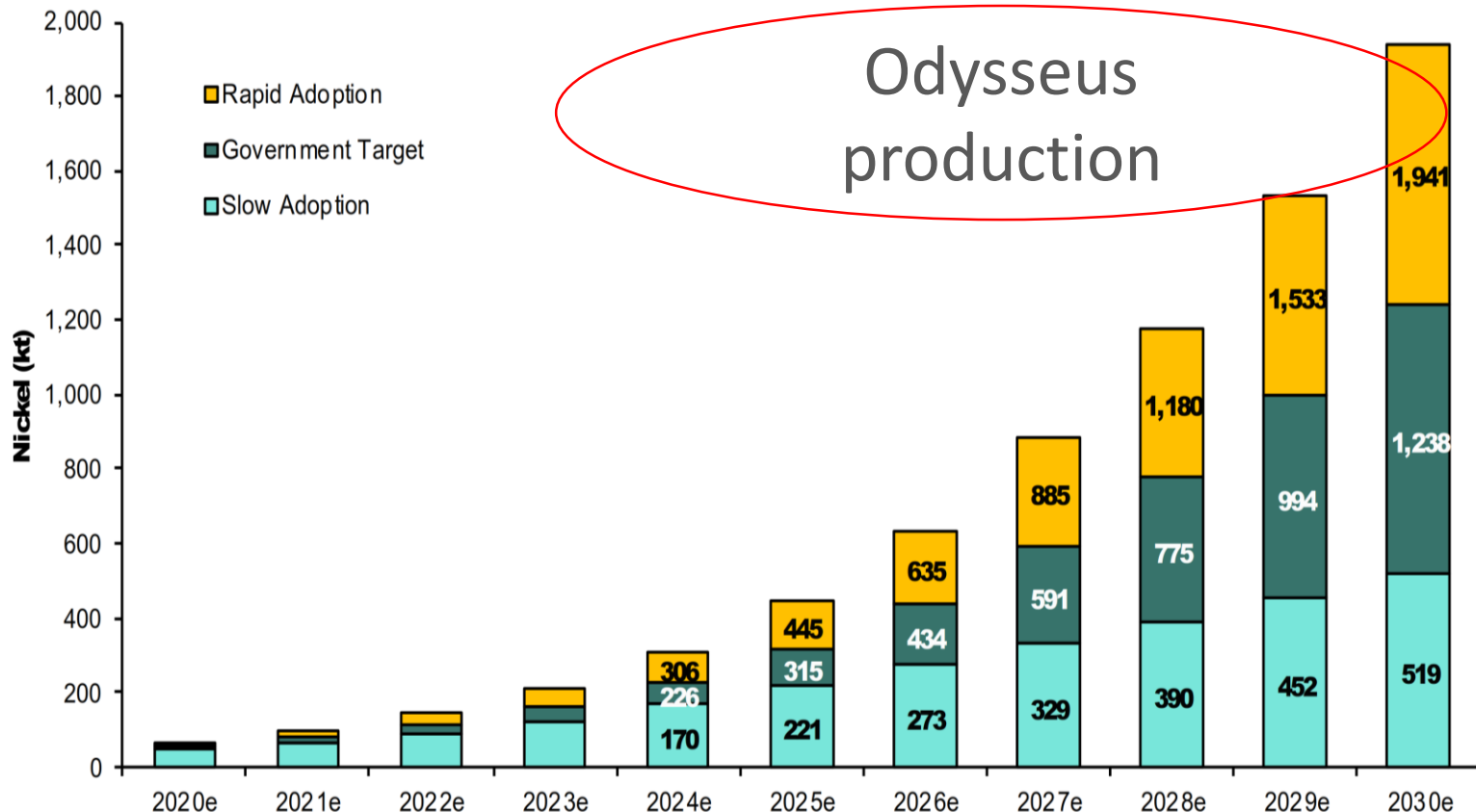
Capital Costs	
<b>Pre-production total capital cost</b>	<b>\$299m</b>
Comprising: FY19	\$12m
FY20	\$49m
FY21	\$76m
FY22 – 23	\$162m
<b>Post-production LOM</b>	<b>\$82m</b>

Capital costs (A\$m)	Pre-production	Sustaining	Total
Mine development	148	39	187
Mine infrastructure and services	20	24	44
Shaft infrastructure	63	-	63
Plant	48	6	54
Owner's costs	10	4	14
Mine closure and rehabilitation	-	7	7
Contingency	10	2	12
<b>Total</b>	<b>299</b>	<b>82</b>	<b>381</b>

# ODYSSEUS IS PERFECTLY TIMED

- Potentially very significant incremental demand versus a current nickel market size of c.2,200kt
- Research indicates NMC 811 will be the fastest growing battery combination by 2025!

**Global Demand for Nickel for Electric Vehicles**



Source: Bernstein - June 2018



# SHAFT INFRASTRUCTURE

- WSA has secured a high quality, second hand head gear and winder
- Shaft infrastructure will be dismantled, refurbished in South Africa and shipped to Perth



# MILL RECOVERY ENHANCEMENT PROJECT (MREP) NOW COMMISSIONED

*Produces additional new higher-grade product (45%-50% Ni)*

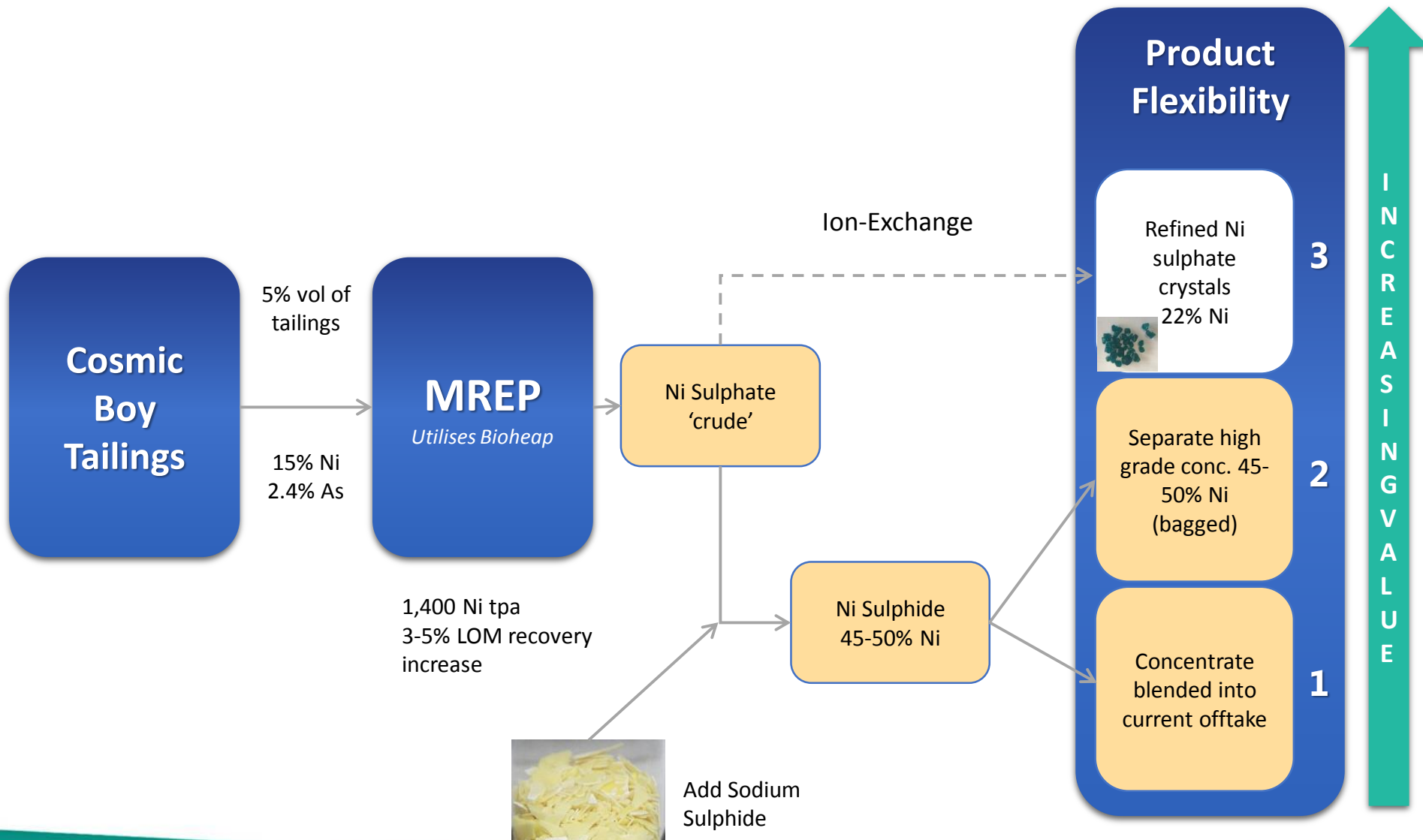
*Generating value from waste tailings*

*New customers - EV battery market*

- Construction completed on time and on budget
- Product specification achieved. Now ramping up volume to nameplate capacity (1,400t nickel pa max)
- Filtration and bagging facilities to sell a new high grade nickel sulphide product complete
- Premium payables versus concentrate
- Back-end of plant capable of up to 4,000t of nickel pa – Scats, New Morning and Flying Fox potentially provide future feed

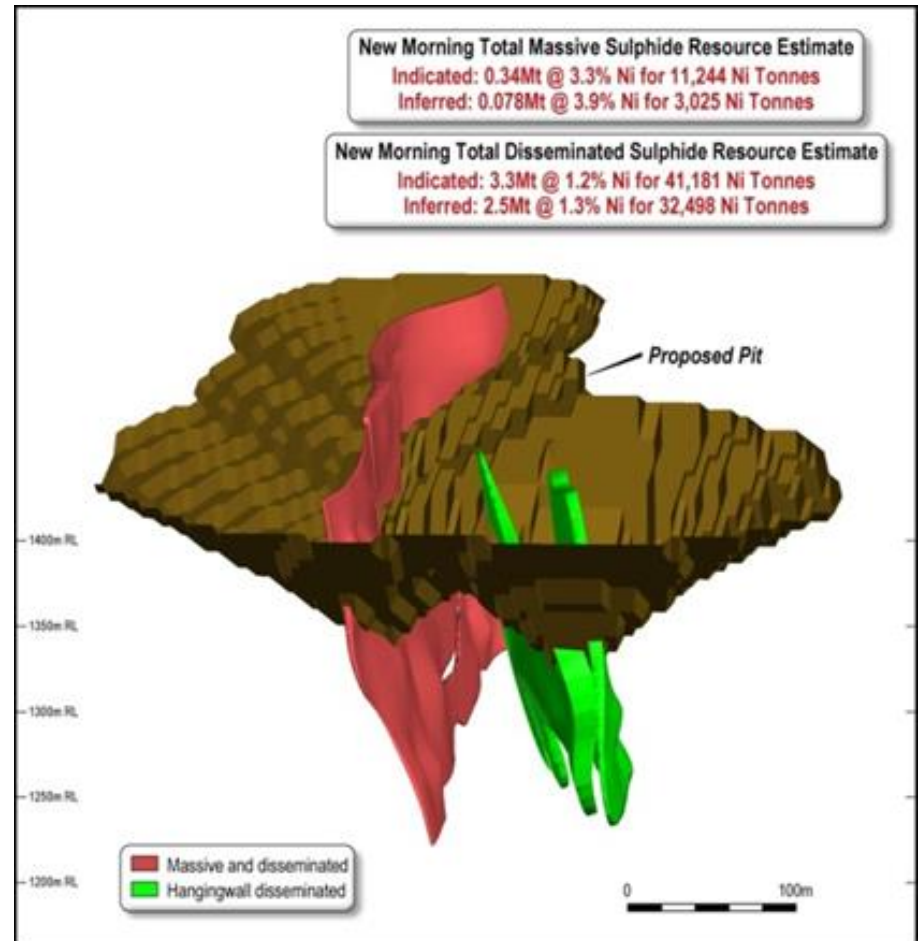


# MREP FLOWSHEET



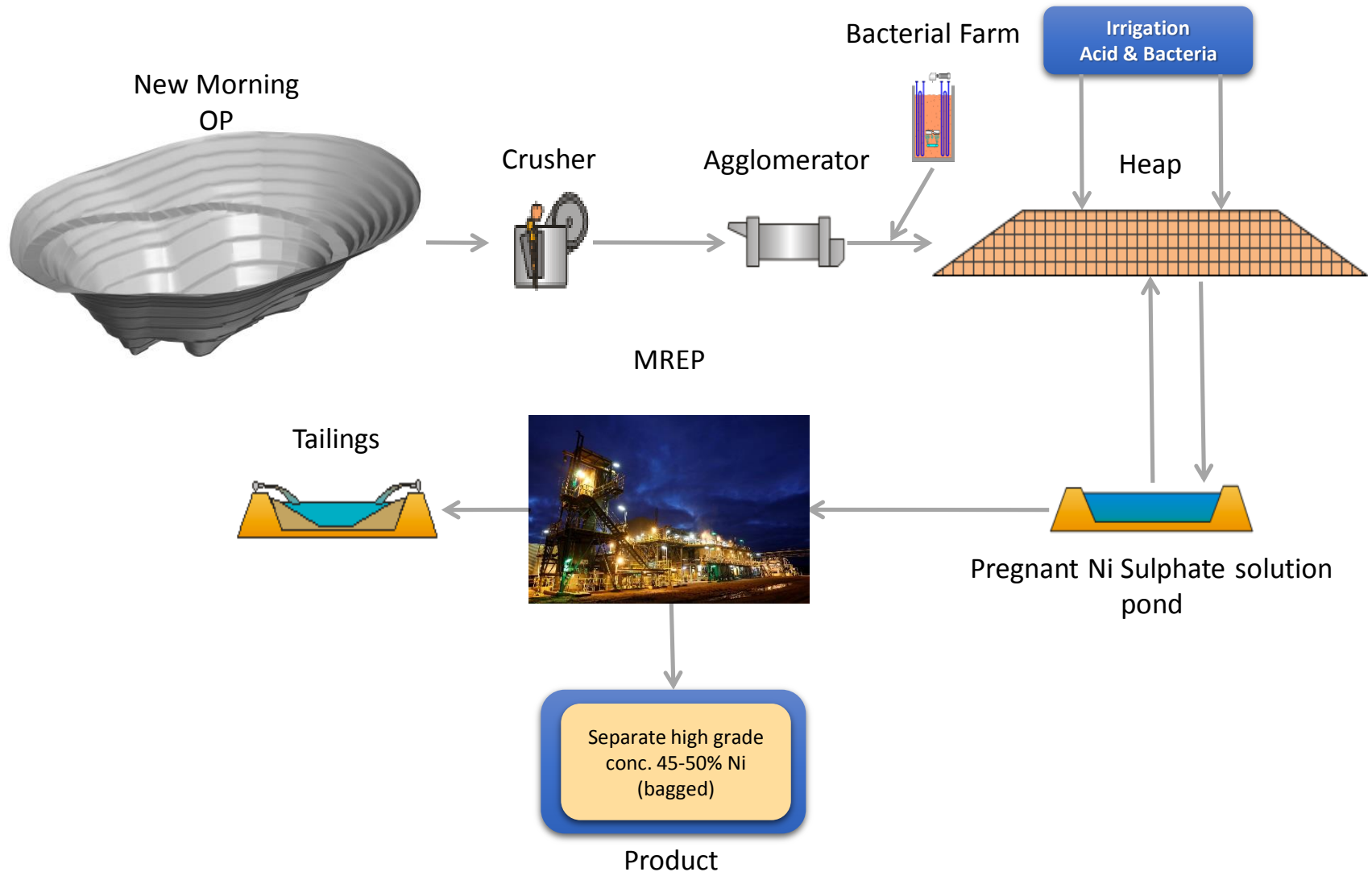
# NEW MORNING / DAYBREAK

- Massive sulphide resource of 418kt @ 3.6% for 14,269 nickel tonnes
- Low grade resource (at 0.5% Ni COG) of 5.8m tonnes @ 1.3% for 73,679 nickel tonnes
- Located 2.5km from Flying Fox and 2.8km from Spotted Quoll
- Open Pit Scoping Study commenced
- BioHeap® testwork ongoing to evaluate heap leach criteria

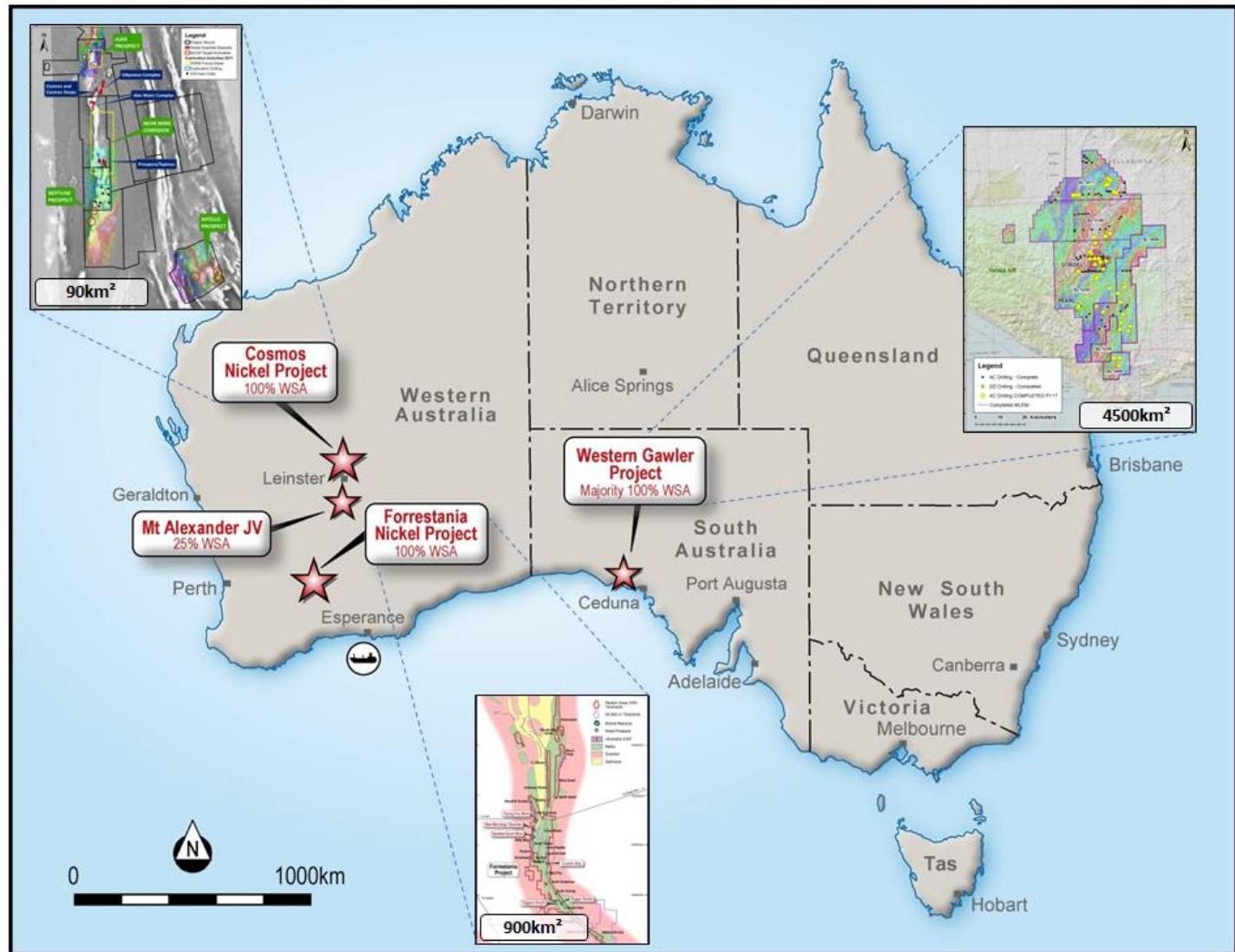




# CONCEPTUAL NEW MORNING NICKEL FLOWSHEET



# EXPLORATION UPSIDE – KEY TENEMENT HOLDINGS



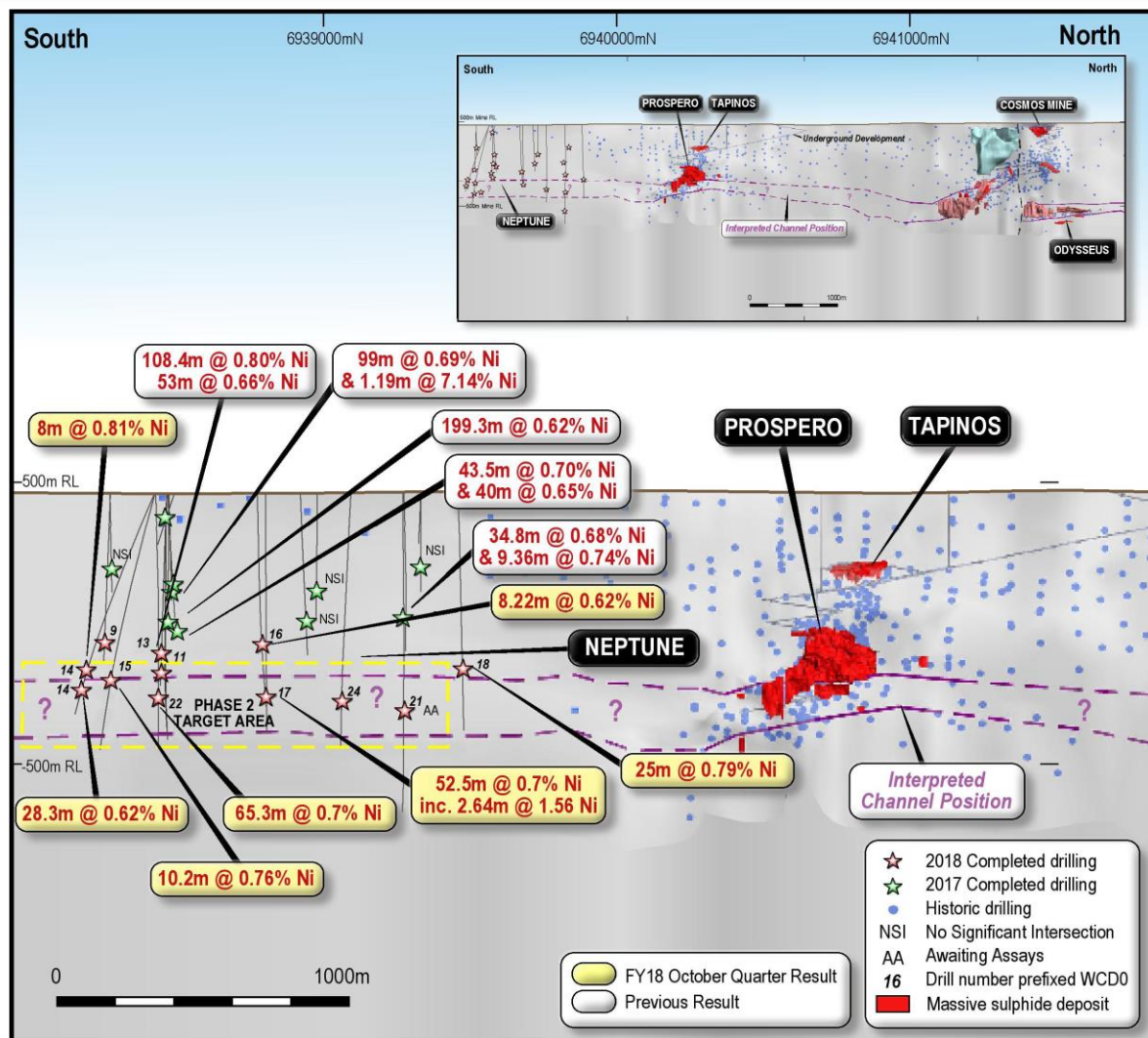
# COSMOS EXPLORATION

## Drilling Results - Neptune

- Phase 2 drilling campaign at Neptune completed with mineralisation confirmed over 1km along strike including
- 108.4m @ 0.8% Ni, including 0.3m @ 4.64% Ni
- 16.5m @ 0.72% Ni; and
- 0.55m @ 6.83% Ni

## Drilling Results - Odysseus

- Very high grade drill results at Odysseus North, extension to project resource
- Significant Optimisation and exploration upside:**
  - ✓ AM5 and AM6 orebodies (53kt of contained nickel)
  - ✓ Recent massive sulphide drilling success beneath Odysseus
  - ✓ Opportunities for a roasting concentrate



# WESTERN GAWLER PROJECT

## Prospective Greenfields Exploration Asset

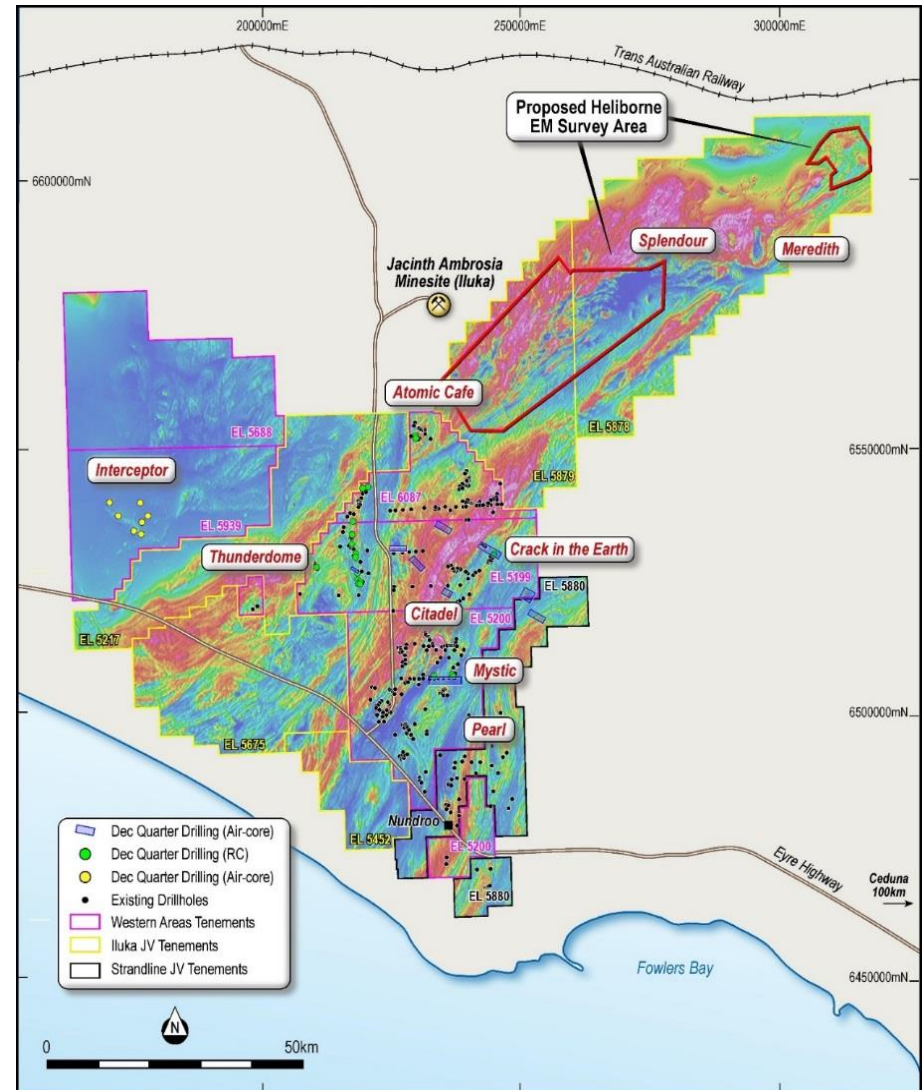
- 4,450km<sup>2</sup> WSA tenement holding
- Ramp-up of exploration activities across FY18
  - 217 drill holes.
  - 149 line kilometers of Moving Loop EM ground surveys
- Regional scale SkyTEM airborne EM survey completed in early FY19
- Identification of Thunderdome as emerging prospective corridor hosting numerous mafic intrusions

## Strategic agreement with Iluka

- Five lease covering an additional 5,070km<sup>2</sup>
- Two stage Farm-in earning up to 75% base and precious metals rights
- Effectively representing close to 100% of the highly prospective Fowler Domain

## Ramp-up of Exploration Activity

- Elevated funding support in FY19.
- Integrated series of belt scale exploration campaigns planned
- Strong pipeline of targets identified





# NICKEL MARKET





# WHAT WE ARE SEEING

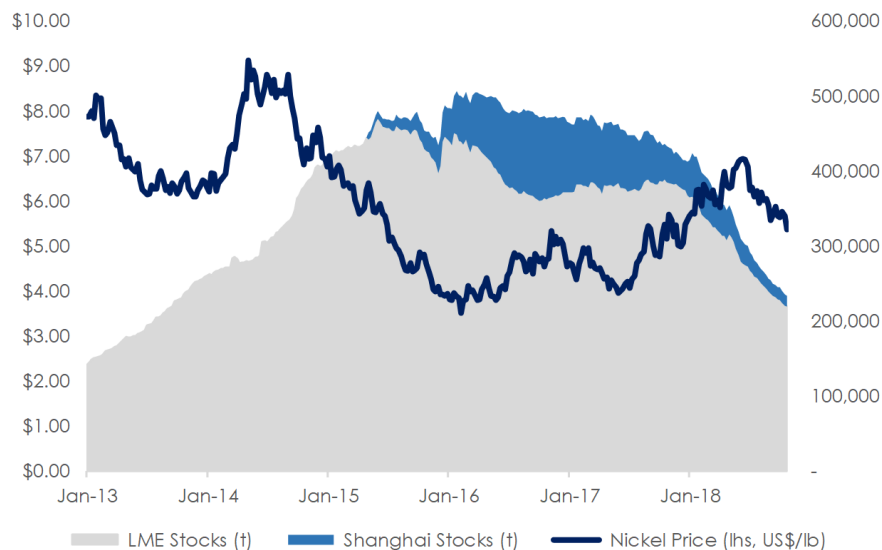
- **Significant increase in inbound off-take enquiries** for Nickel Sulphide concentrate post current contract period, primarily linked to the Electric Vehicle battery sector.
- **Our partner, China's largest stainless steel producer, Tsingshan, has a strong growth plan** which will require significant additional nickel units – **reinforcing industry wide trend.**
- **Technology change to NCM 811** which requires even more nickel
- **Current nickel price too low** to incentivise new project development. New mine development can take 3 years – the nickel “pie” is not expanding.
- **May see divergent market in nickel supply** emerging between stainless steel and EV
- **LME and other stockpiles shrinking** on the back of current stainless demand



Estimated electrification impact per vehicle (avg NMC battery)

40-50kg <b>Ni</b>	50-75kg <b>Cu</b>
5-15kg <b>Co</b>	+ Cu for charging point + Cu for grid access

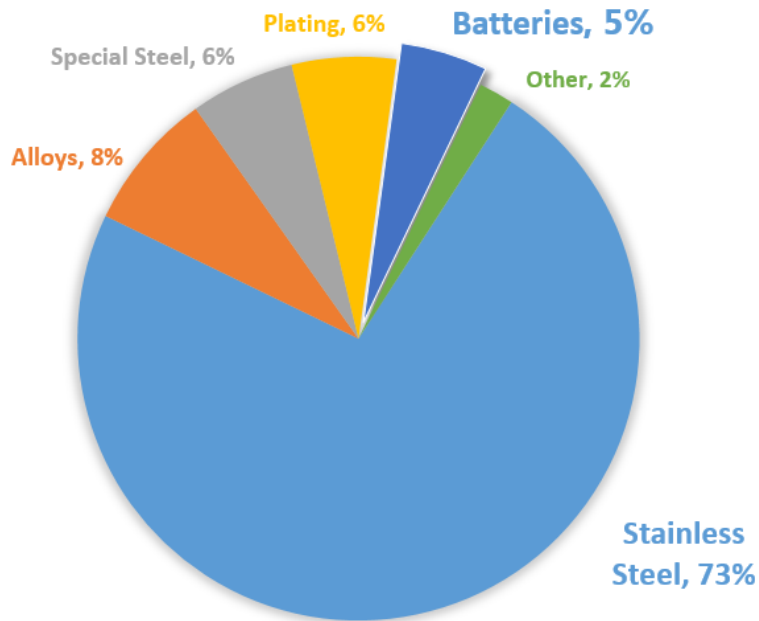
LME and SHFE Nickel Stocks vs Nickel Price\*



\* GMR Research 2018

# STAINLESS STEEL STILL THE KING... FOR NOW

## Nickel End Market Demand - 2017

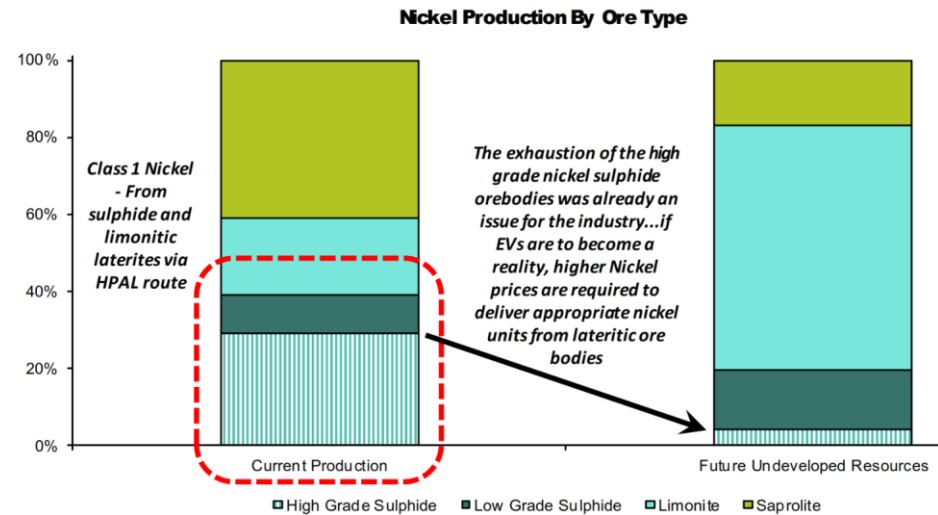


Source: Bernstein - June 2018

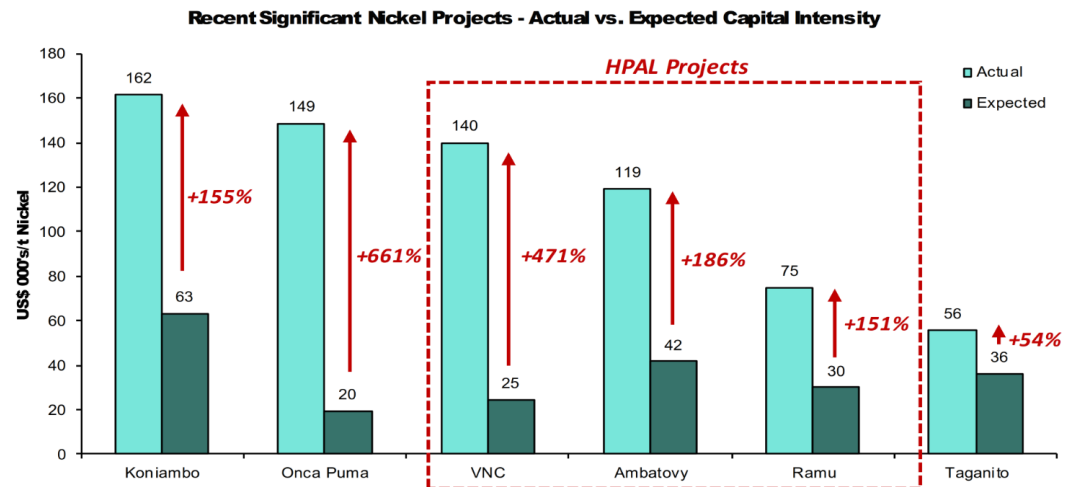
- Stainless steel still the main demand driver.
- Nickel demand from EV battery sector could run to 440kt by 2025, against a current total nickel market of 2,200kt.
- Stainless steel demand also predicted to increase.
- Becoming apparent that the nickel market is now looking differentiated.
- Nickel sulphate is the most suited to battery sector, and primary nickel source most suited to this is nickel sulphide.

# CHEMISTRY FAVOURS NICKEL SULPHIDE FOR BATTERIES

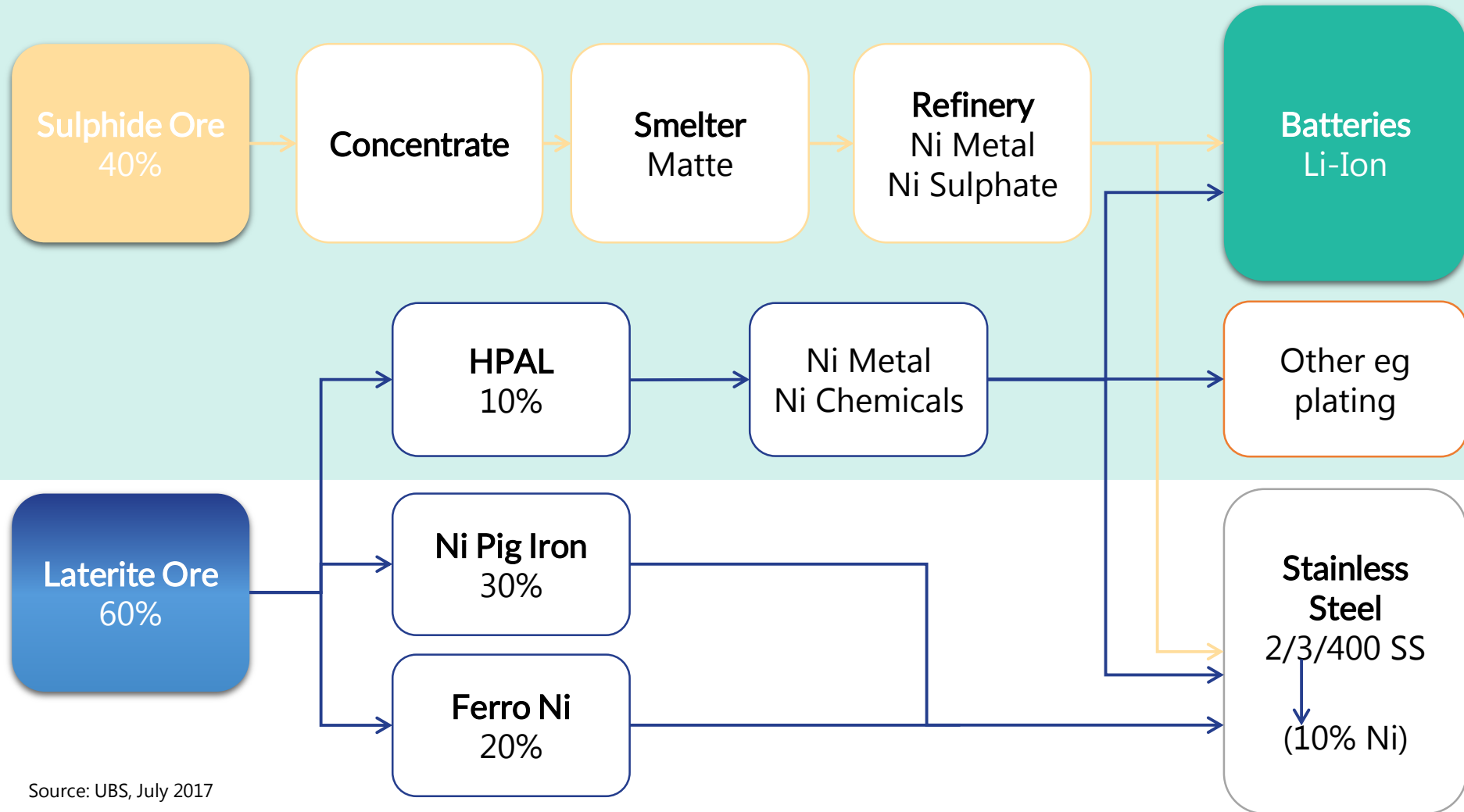
.. But there is very little Nickel sulphide left to be developed



And laterites via HPAL are serial disappointments



# ONLY ~50% OF NICKEL WILL BE AVAILABLE FOR EV ?



Source: UBS, July 2017

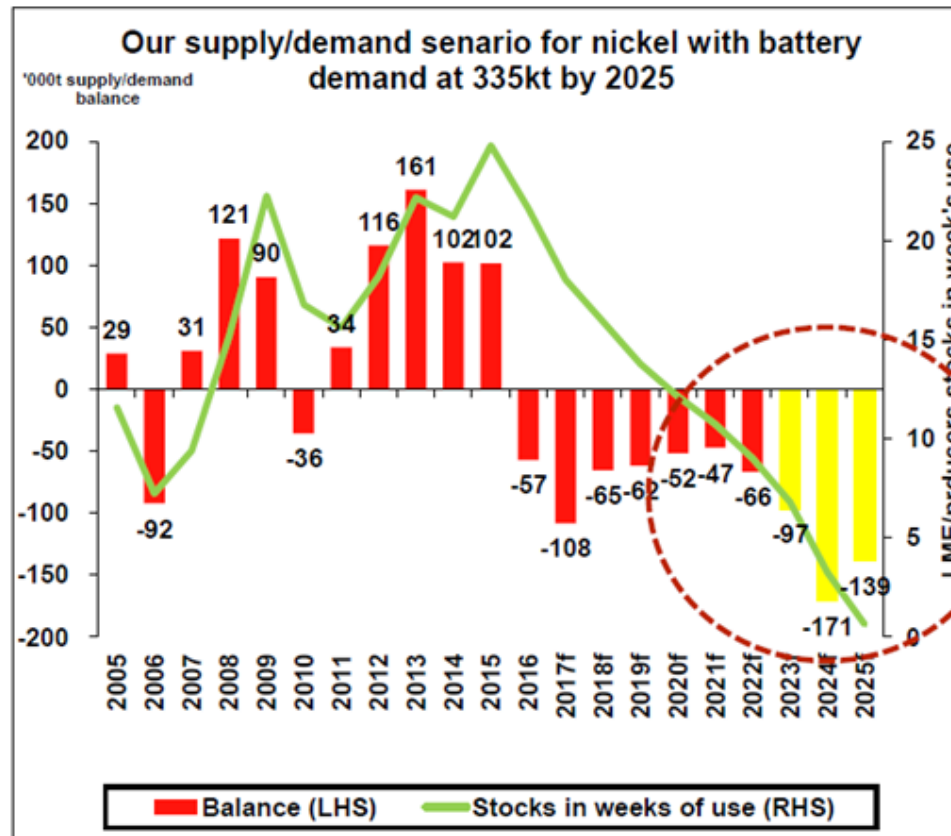
# NICKEL DEFICITS ON THE HORIZON!

Two successive sizeable nickel market deficits, both this year and in 2019, combined with **expectations for continued deficits** through the first half of the 2020's ... point to a **necessity for higher prices.**

*Deutsche, July 18*

There is **consensus** from within the industry, nickel trade bodies and industry consultants, **that the market is in deficit.**

*Bernstein, June 18*



Source: CRU, INSG, Macquarie Research, October 2017

We expect the nickel market to **remain in deficit beyond 2018**, and we believe **higher prices** are required to incentivise new supply to keep up with demand growth.

*J.P. Morgan, July 18*



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