

# CORPORATE PRESENTATION

February 2020

**WESTERN AREAS LTD**



# AGENDA

## CORPORATE



## GROWTH AND EXPLORATION



## ODYSSEUS MINE DEVELOPMENT



## OPERATIONS



## THE NICKEL MARKET



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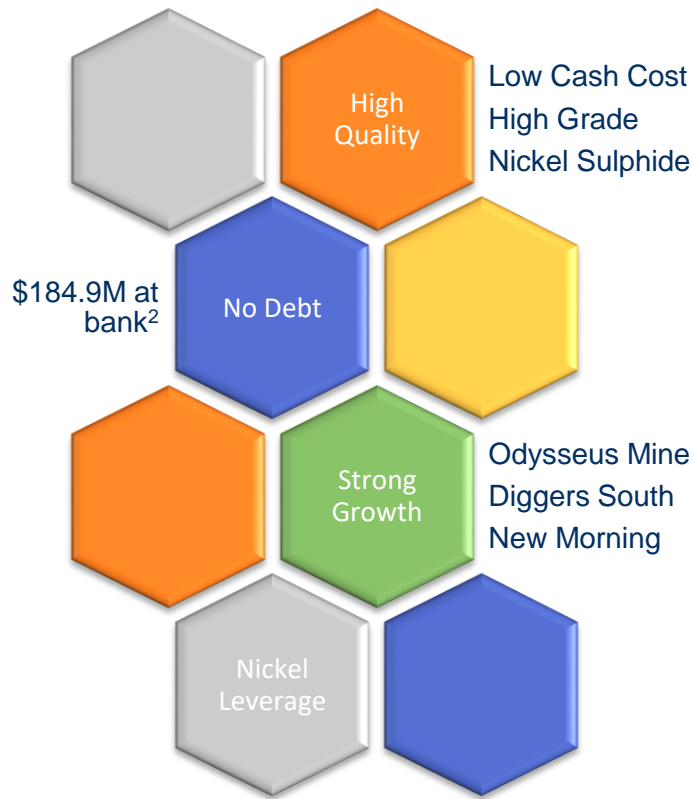
This announcement is authorised for market release by Western Areas Limited Managing Director and CEO, Daniel Lougher.

Western Areas Registered Office: L2, 2 Kings Park Road, West Perth, 6005, Australia

# CORPORATE



# Corporate overview



ASX code	WSA
Share price	2.52
Shares outstanding (m)	273.5
Market Cap (A\$m) <sup>1</sup>	689.2
Cash (A\$m) <sup>2</sup>	184.9

## COSMOS

### Odysseus

165kt Ni Ore Reserves  
265kt Ni Mineral Resource  
First Production CY2022

## FORRESTANIA

### Flying Fox

5.0kt Ni mined 1H20  
16.5kt Ni Ore Reserves  
74.2kt Ni Mineral Resource

### Spotted Quoll

6.7kt Ni mined 1H20  
57.9kt Ni Ore Reserves  
72.2kt Ni Mineral Resource



# FY20 guidance

Category	FY20 Guidance
Nickel tonnes in Concentrate Production	21,000 to 22,000
Unit Cash Cost of Production (Nickel in Concentrate)	A\$2.90/lb to A\$3.30/lb
Mine Development	A\$33m to A\$38m
Capital & Growth	A\$7m to A\$10m
Odysseus Development	A\$75m to A\$85m
Exploration	A\$14m to A\$17m

## Comments

- **Nickel Production** – 1H FY20 at mid point of guidance
- **Unit cash costs** – A\$3.07/lb for 1H FY20 mid point of guidance
  - FY20 guidance reflects mine plans (Spotted Quoll ore being mined in lower, stage two, levels) and cost trends for rise & fall, labour rates and mining consumables
- **Mine Development** - sustaining and mine development on track
- **Capital and Growth** - feasibility studies and capital expenditure at the Cosmic Boy Concentrator and scat leach trial
- **Odysseus Development** – Timing of some expenditure expected to change as development activity increases and the mining and construction schedules firm. Selected activities, largely the shaft haulage equipment and civil works, brought forward into FY20.
- **Exploration** - investment biased toward 1H FY20. Expected to track toward top end of guidance.



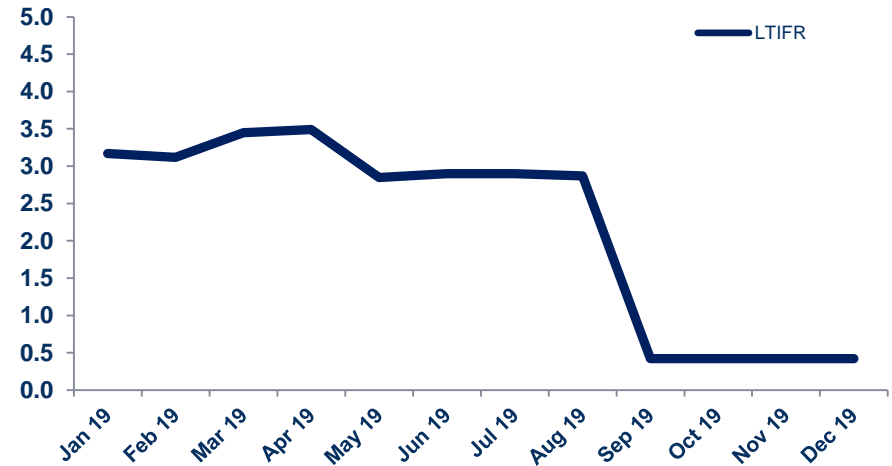
# Western Areas are safe areas



## Days LTI free

Spotted Quoll	3,185	Aug-11
Cosmos	1,552	Oct-15 (no injuries)
Cosmic Boy Concentrator	480	May-18
Exploration	466	Sep-18
Flying Fox	284	Mar-19

## 12 month LTIFR moving average

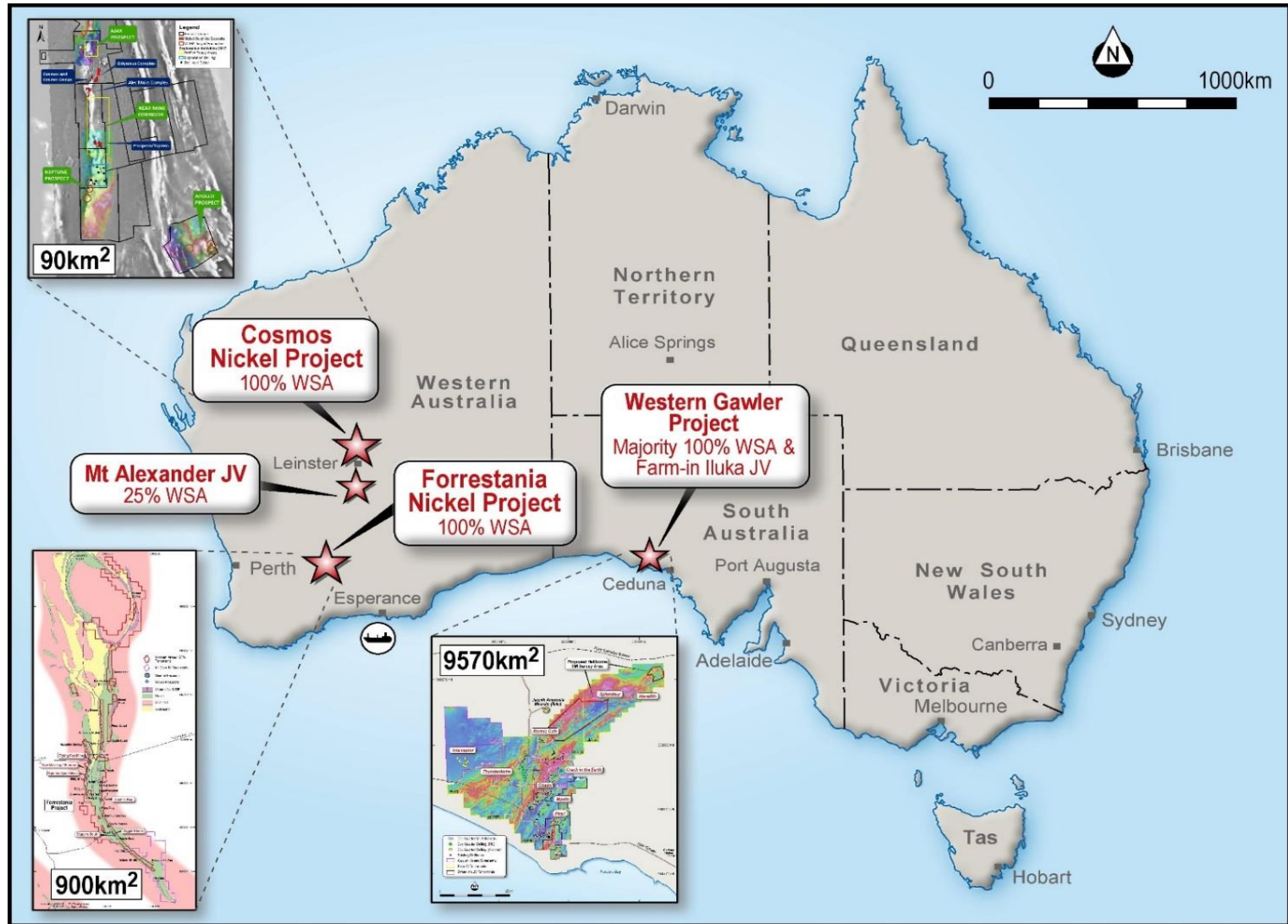


# GROWTH AND EXPLORATION

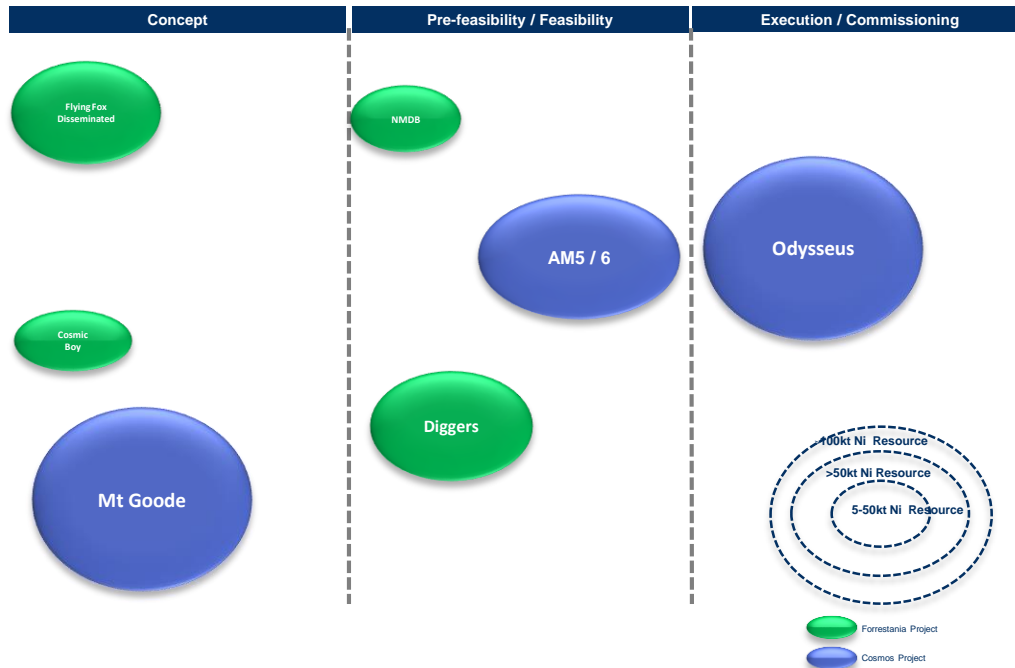




# Key tenement holdings

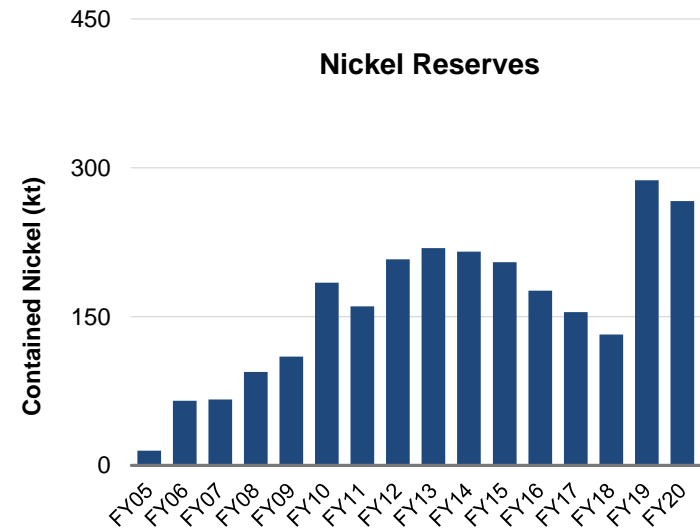
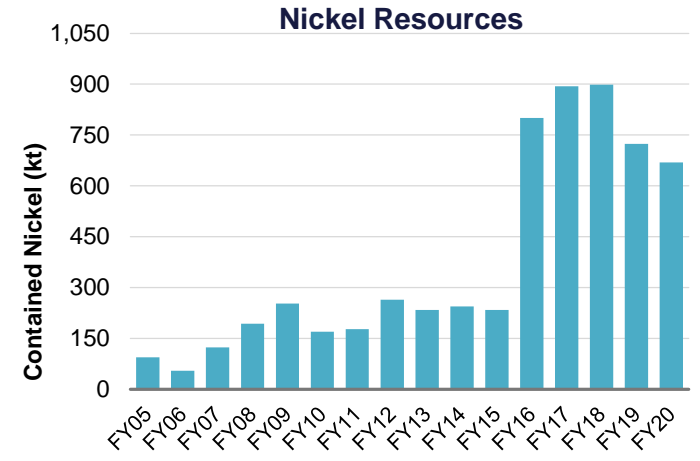


# Nickel growth pipeline



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

## Ore Reserves & Mineral Resources



# Mill recovery enhancement project (MREP)

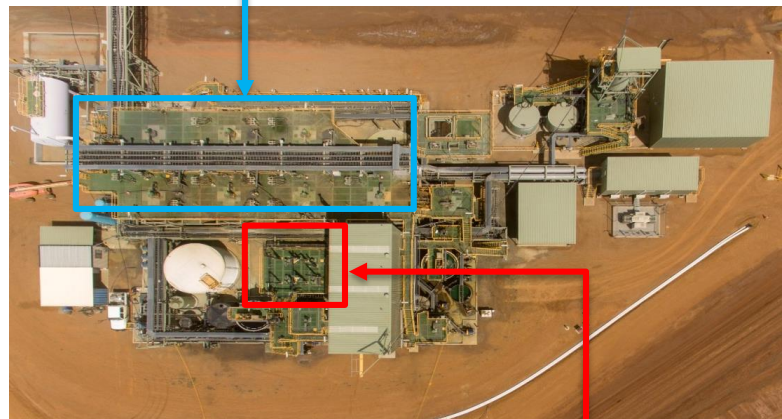
***Enhances average concentrator nickel recovery and generates value from waste tailings streams***

***Produces additional higher-grade product (45%-50% Ni), being sold to new, EV battery linked customers***

- Product specification achieved. Working to improve leach volume reporting to high grade nickel sulphide precipitate
- Sale of high grade nickel sulphide precipitate achieving premium payables versus flotation concentrate
- Back-end of plant capable of up to 4,000t of nickel pa – Mill Scats, New Morning, Flying Fox LG to provide future feed options

## Front End – BioHeap Leach

- 1400 tpa capacity
- Tailings stream from Cosmic Boy - applies BioHeap Leach, then passes to precipitation

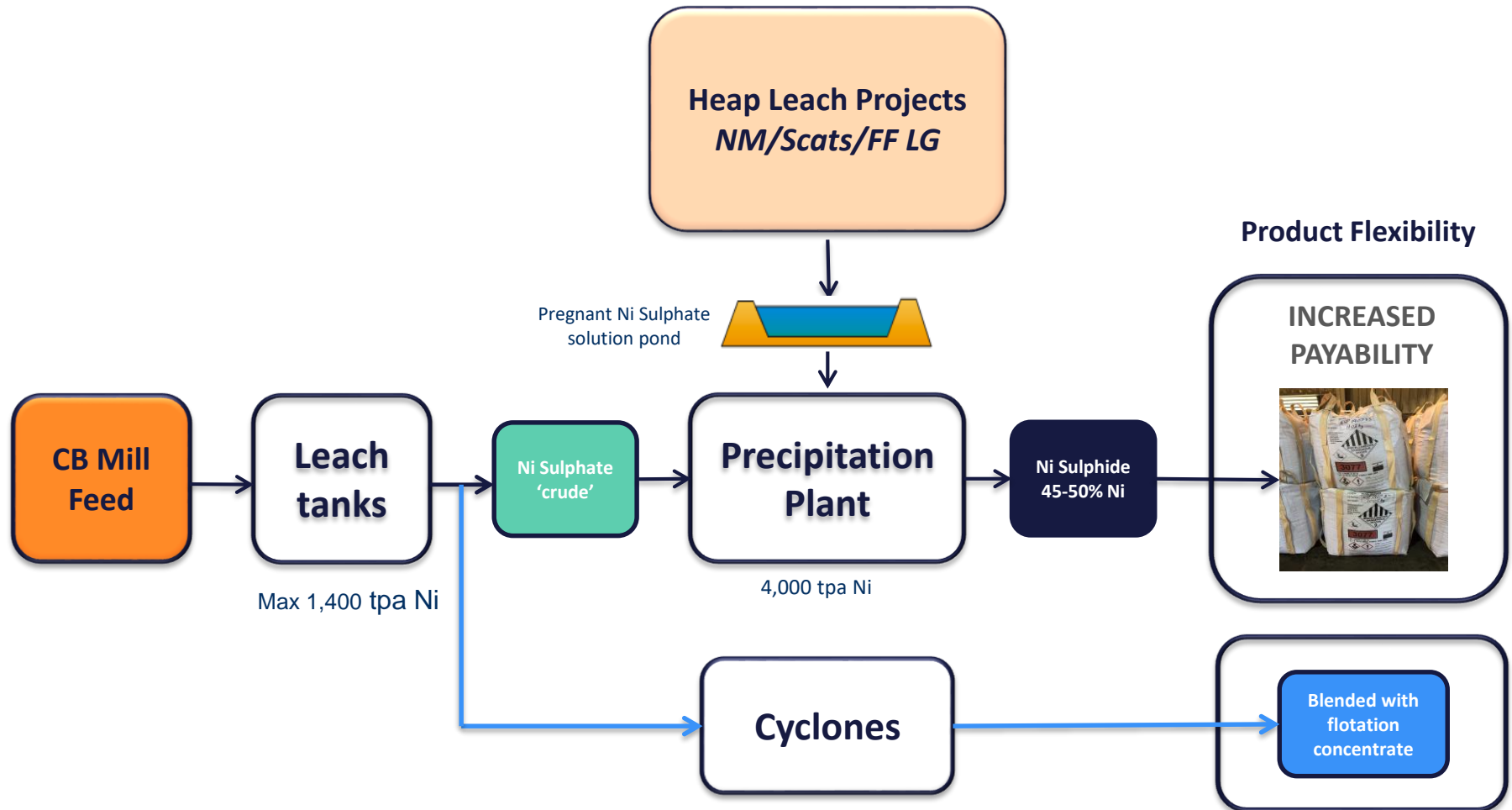


## Back End – Precipitation

- 4000 tpa capacity
- 1400 tpa - leached material from BioHeap front end
- 2600tpa - other sources of nickel in solution eg. heap leach elsewhere in Forrestania, or scats treatment



# MREP unlocks value







# ODYSSEUS MINE DEVELOPMENT

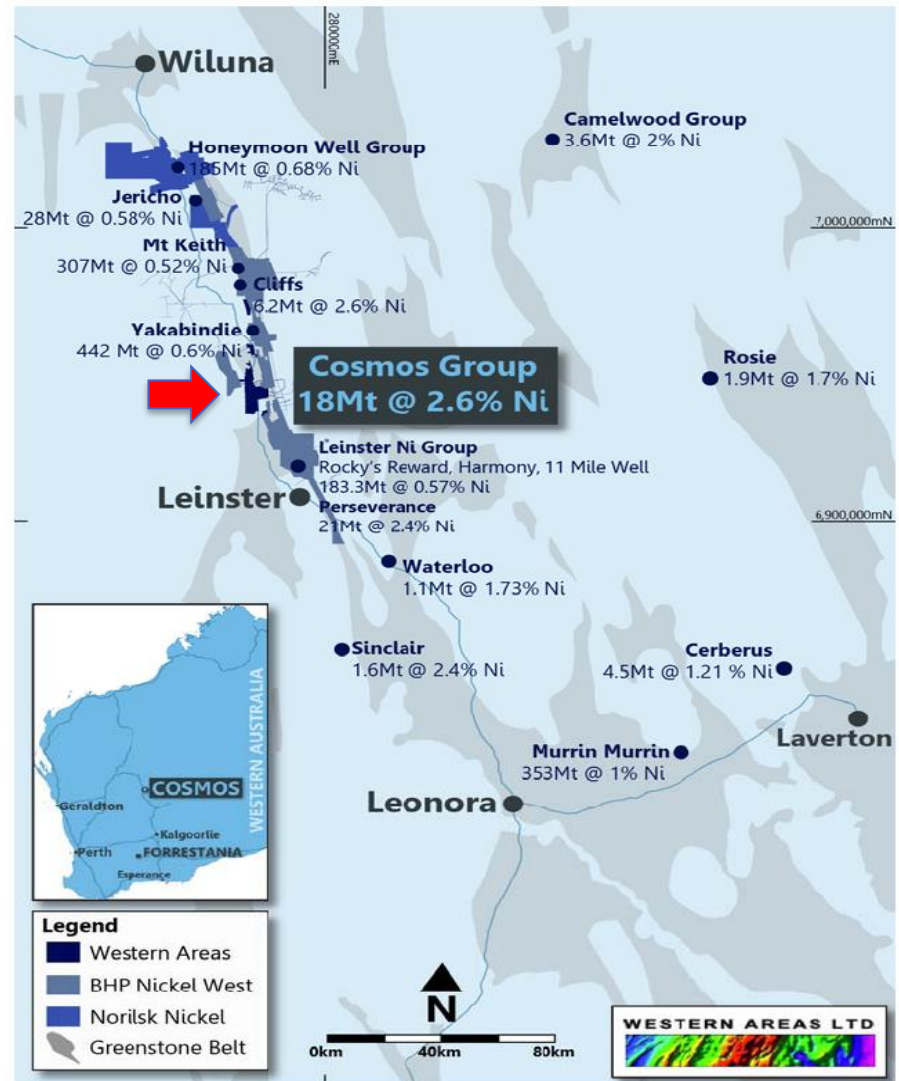




# Cosmos operation – the new hub!

## WESTERN AREAS' SECOND OPERATION:

- Outstanding nickel address
- Odysseus early works completed on schedule- Decline rehabilitation to 500m below surface and underground pump station construction completed.
- Mine rehabilitation continuing to new Decline take-off
- Camp commissioned with over 300 rooms available out of 520



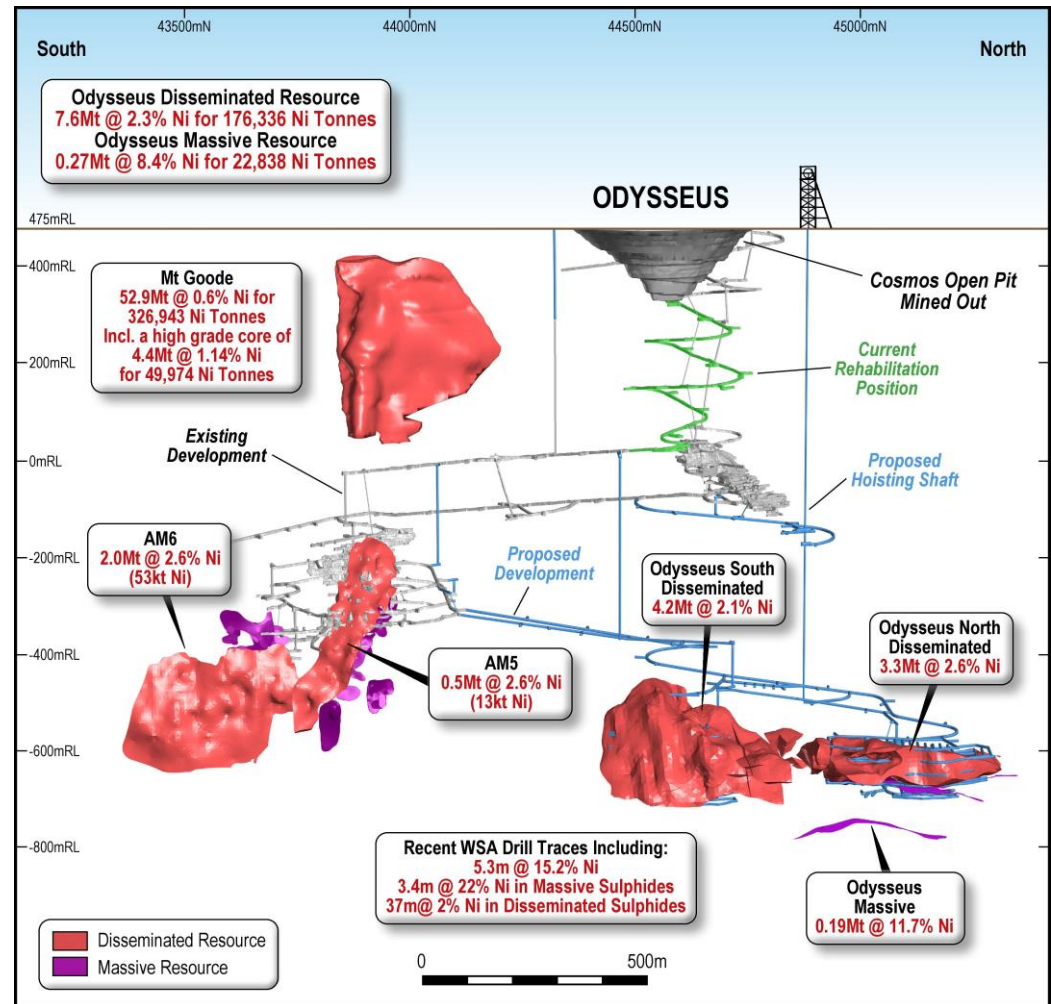
# Odysseus mine – now a long life project > 10yrs

## ▪ Long life, low cost project:

- ✓ Ore Reserve 8.1mt @ 2.0% for 164kt nickel
- ✓ Mine life > 10 years
- ✓ AISC A\$3.50/lb
- ✓ Average nickel in concentrate production >13.0ktpa (14.6ktpa from FY24-FY31)

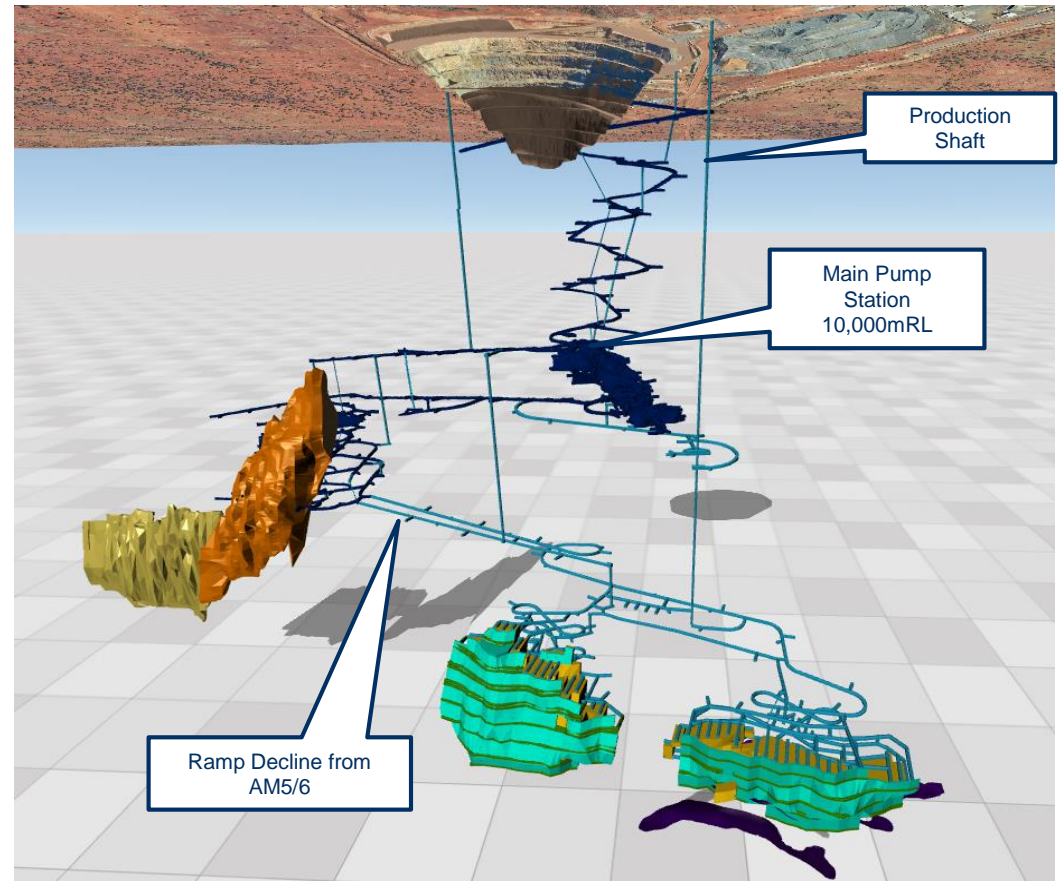
## ▪ Significant upside:

- ✓ AM5/6 deposits contain an Indicated Mineral Resource of 57.6kt of nickel (not included in DFS)
- ✓ Record massive sulphide intersections



# Odysseus mine – underground infrastructure

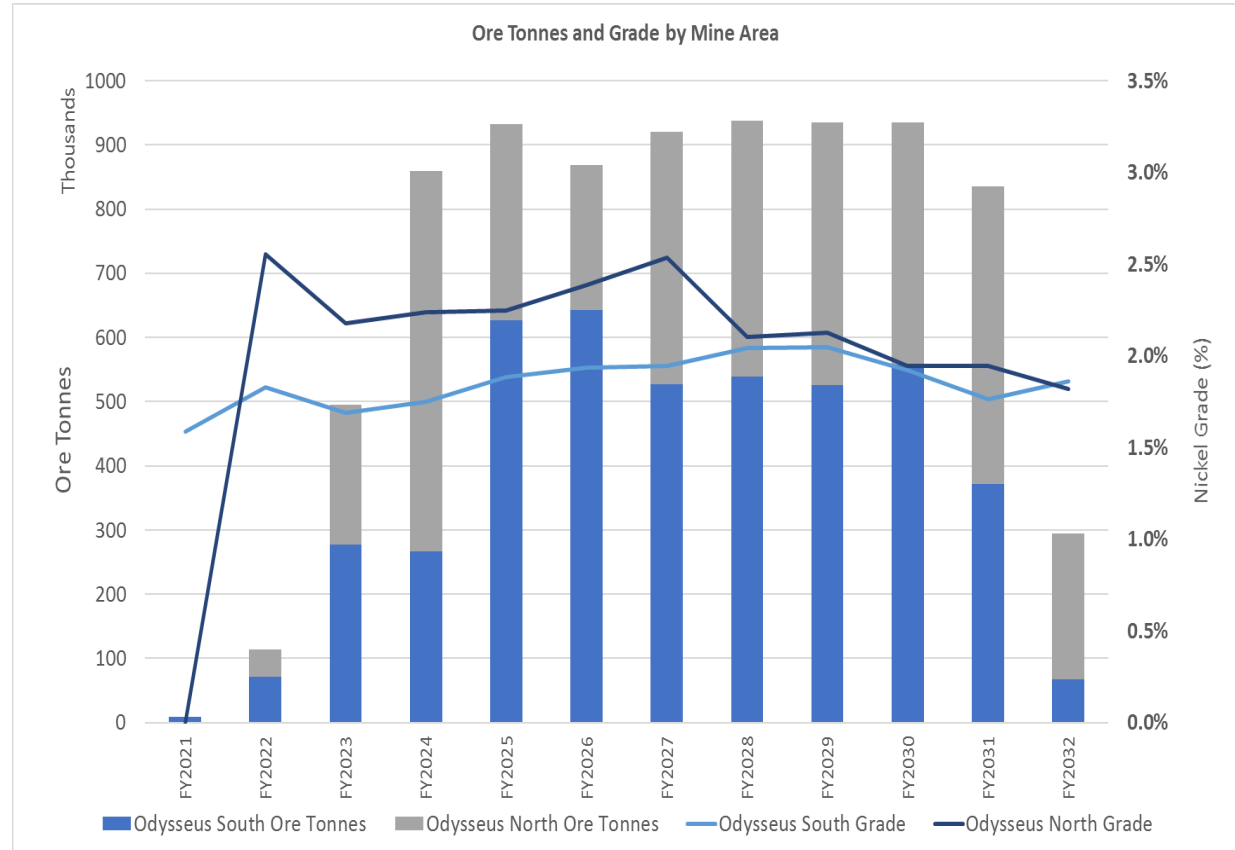
- **Pre-production capex A\$299m includes:**
  - ✓ Updated development expenditure profile is now FY20 – A\$80m, FY21 – A\$66m, FY22/23 – A\$143m
  - ✓ Shaft hoisting system
  - ✓ 900ktpa concentrator
  - ✓ WSA is well funded with cash and has no debt
  - ✓ Significant optionality on decision-making and spending





# Production ~900k tpa ore

- Minimum 10 year mine life on reserves
- Annual ore production of 900kt
- First Ni concentrate late CY 2022
- Consistent annual nickel production



# Shaft infrastructure

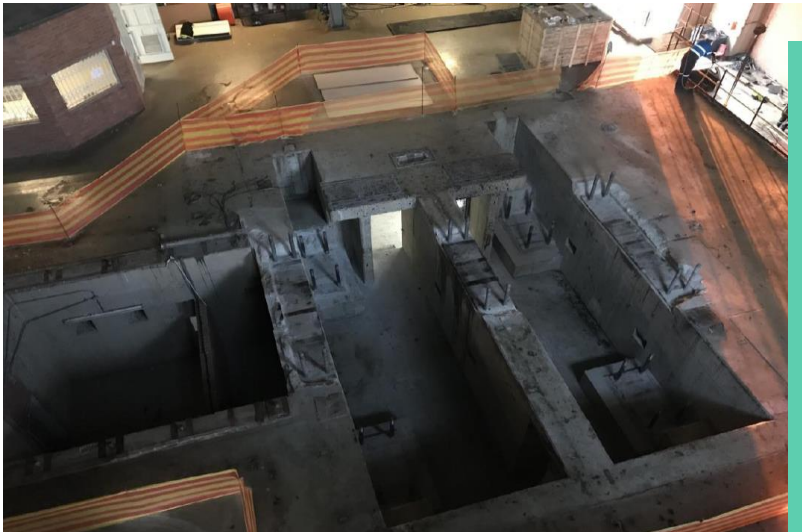
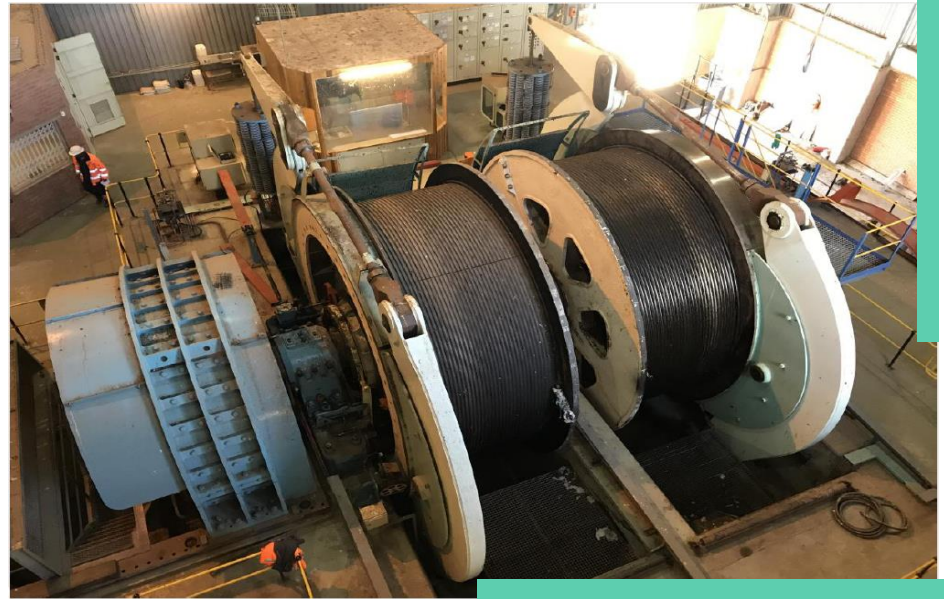
- WSA has purchased a high quality, second hand head gear and winder
- Shaft infrastructure dismantling completed. Now being refurbished in South Africa prior to shipping to Perth
- Significant economical and environmental benefits versus trucking

## Key Metrics:

- ✓ *5.5m diam. raise bore*
- ✓ *4 guide ropes per conveyance*
- ✓ *1.27Mtpa (ore and waste)*
- ✓ *12 t skips*
- ✓ *1 truck required to feed shaft*
- ✓ *4.5 MW peak power*



# Shaft infrastructure





# The benefits of shaft hoisting

## Electrical power vs diesel

- Future proofing the operation
- Combined with renewable power = energy efficient site, 85% reduction in CO<sub>2</sub>
- Low, consistent opex and proven technology
- Fully automated winder and materials handling system direct to mill
- Cycle time: ~3 mins

## Equivalent truck fleet ~ 8 trucks

- Save 1.5 ML diesel burnt pa (DPM)
- Remove 5 MW of heat generated from diesel engines
- Remove minimum 200m<sup>3</sup>/s of additional ventilation requirement (another vent shaft)
- Removes issue of existing decline constraints





# OPERATIONS



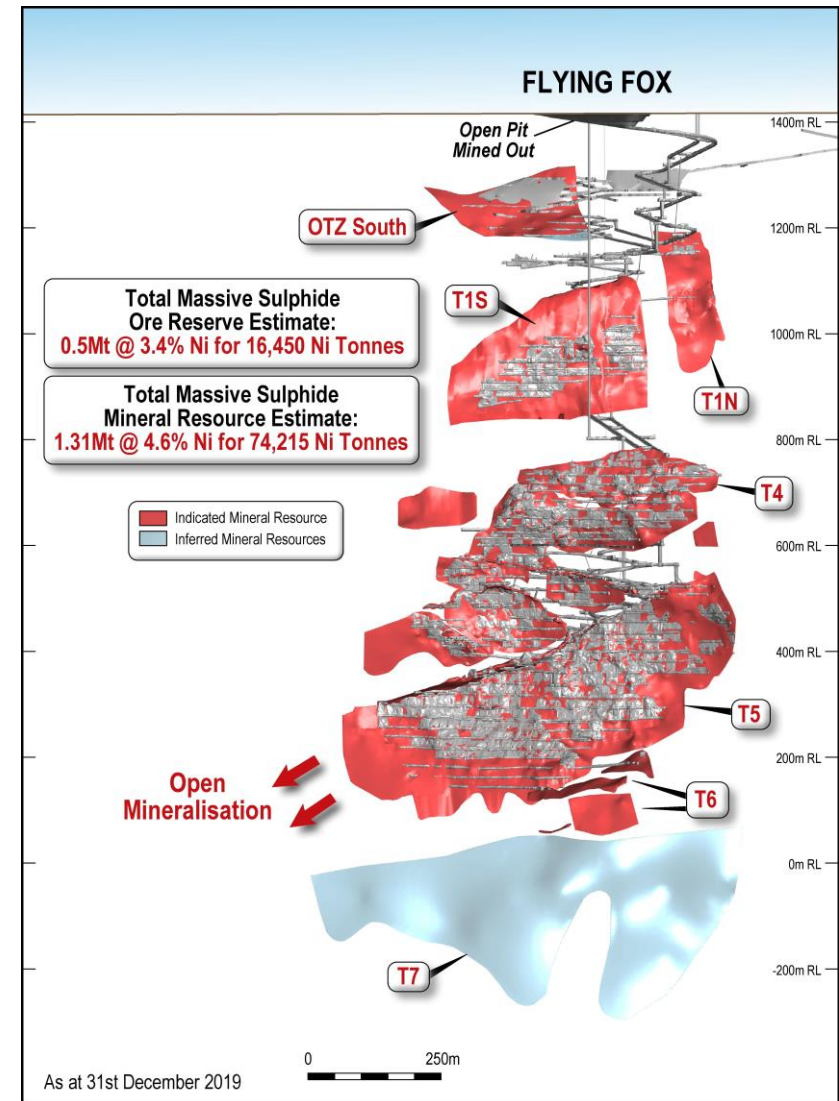


# Flying Fox mine

<b>Reserve Contained nickel</b>	<b>0.50Mt @ 3.4% 16,450 Ni tonnes</b>
<b>Resource Contained nickel</b>	<b>1.31Mt @ 4.6% 74,215 Ni tonnes</b>
<b>Mine life (on reserves)</b>	<b>2 years</b>

## Key points:

- FY19 production – 9.9k Ni tonnes
- Has been operating for over 14 years
- Significant low grade disseminated resource
- Lower grade & heap leach evaluation underway

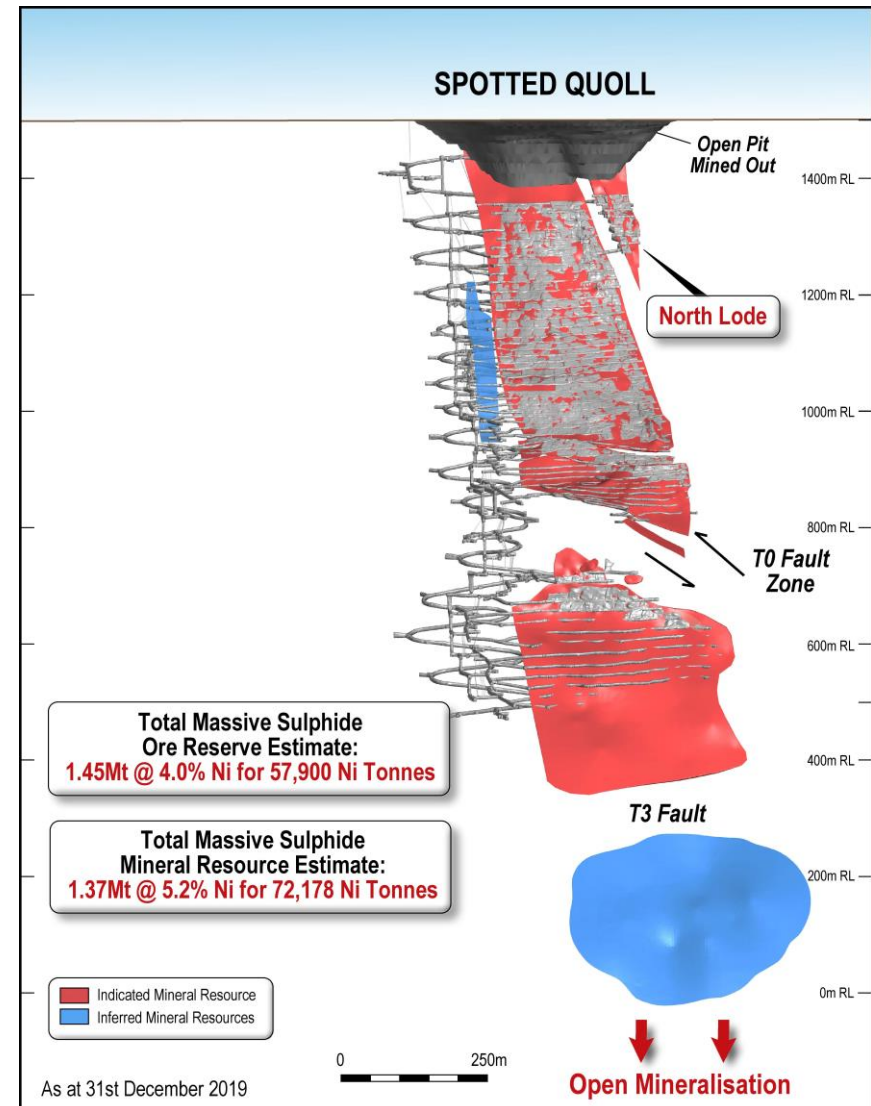


# Spotted Quoll mine

<b>Reserve Contained nickel</b>	<b>1.45Mt @ 4.0% 57,900 Ni tonnes</b>
<b>Resource Contained nickel</b>	<b>1.37Mt @ 5.2% 72,178 Ni tonnes</b>
<b>Mine life (on reserves)</b>	<b>6 years</b>

## Key points:

- Has never recorded an LTI
- FY19 production – 13.3k Ni tonnes
- Production has outperformed reserve tonnes and grade consistently
- Top down mining with paste fill
- Resource extension drilling commenced – nickel tonnes being added to Resource



# Cosmic Boy nickel concentrator

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## Concentrator Summary

- 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





# Offtake contracts best in class

*New contracts executed with strategic partners following successful completion of a highly competitive tender process*

*Improved commercial terms when compared to previous offtake agreements*

*Premium blending concentrate - superior commercial terms*

## Our Partners:

- **BHP:** 50%
- **Jinchuan:** 50%
- ✓ China's largest nickel cathode producer
- ✓ Direct feeder of the Chinese nickel sulphate market



*Discussion ongoing with offtake parties that are linked to the Electric Vehicle battery pre-cursor sector for future MREP production of high grade premium nickel sulphide and potential for Odysseus concentrate to feed this market.*



# THE NICKEL MARKET

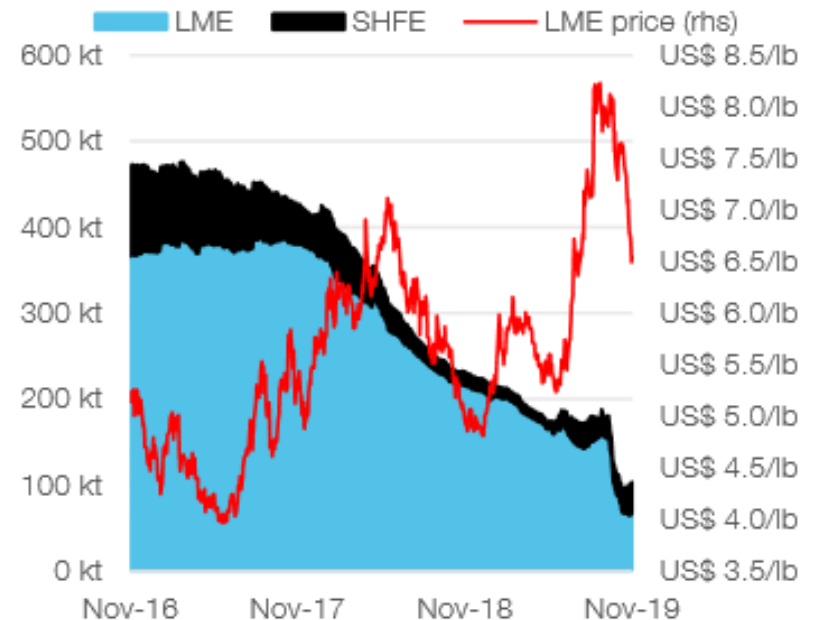


# What we are seeing

- **Technology change to NCM 811** which requires higher quantity of nickel
- **Increasing forecasts** of hybrid and EV production in China.
- **Major car OEM's** taking position in Chinese market
- **Jinchuan** (largest nickel cathode producer in China) increasing nickel sulphate volumes
- **Recent Indonesian decision** to bring forward ore export ban to 1st Jan 2020 from Jan 2022 – currently accounts for ~10% of supply
- **LME and other stockpiles shrinking** on the back of current stainless demand and EV growth

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

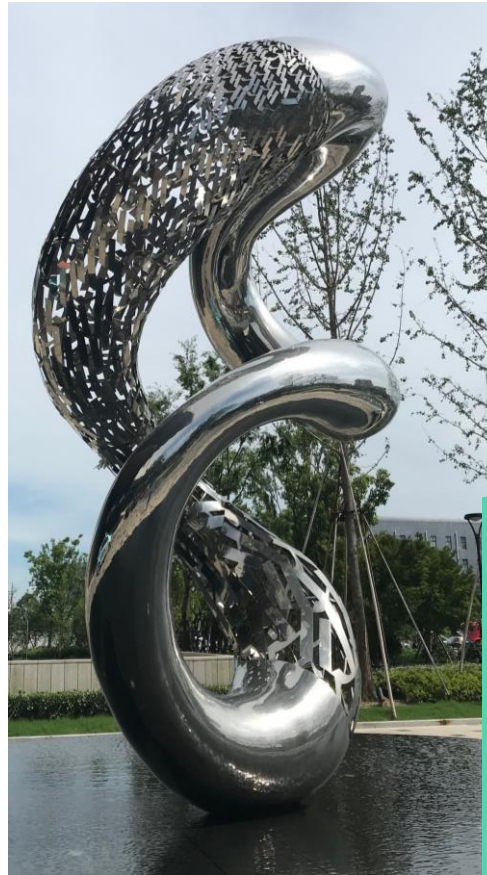
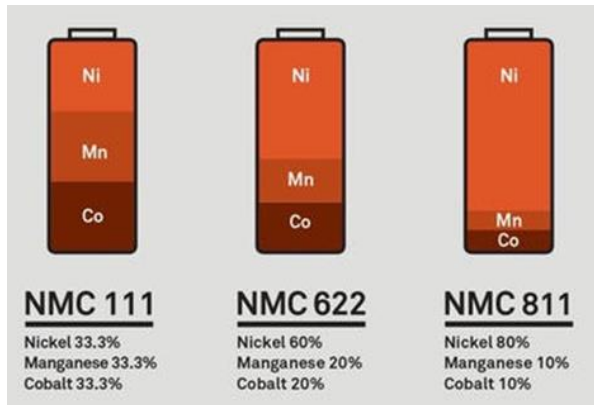


Source: LME, SHFE, Bloomberg, CBA estimates



# The present – driven by stainless steel

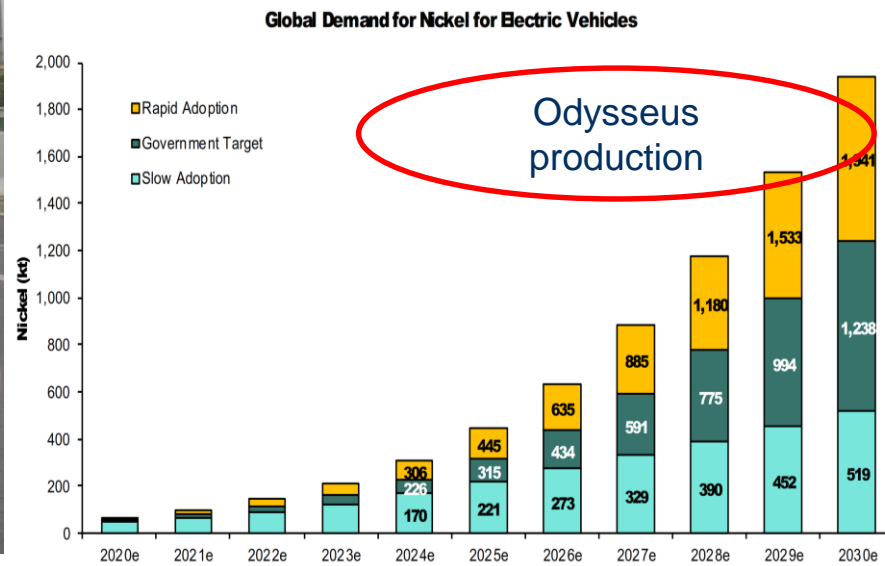
- **Current nickel price too low** to incentivise new project development. New mine development can take 3 years – the nickel “pie” is not expanding
- **May see divergent market in nickel supply** emerging between stainless steel and EV



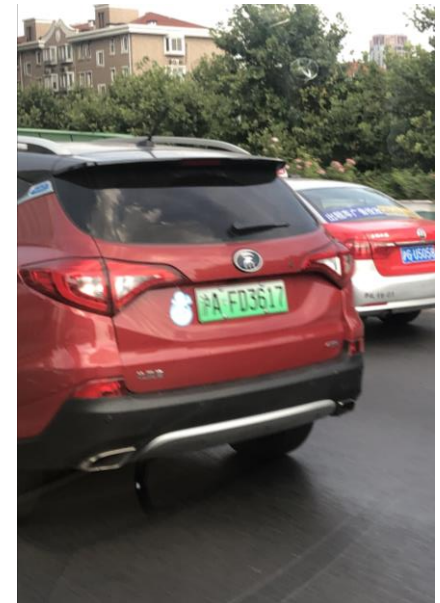


# The future – EV demand for nickel

- 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!
- Tesla factory opened in Shanghai to produce EV's for Chinese Market



Source: Bernstein - June 2018



# Nickel deficits NOW a reality!

Long term trends supporting Ni consumption growth:



Vehicle Electrification



Increasing mobility



Growth in  
Renewables



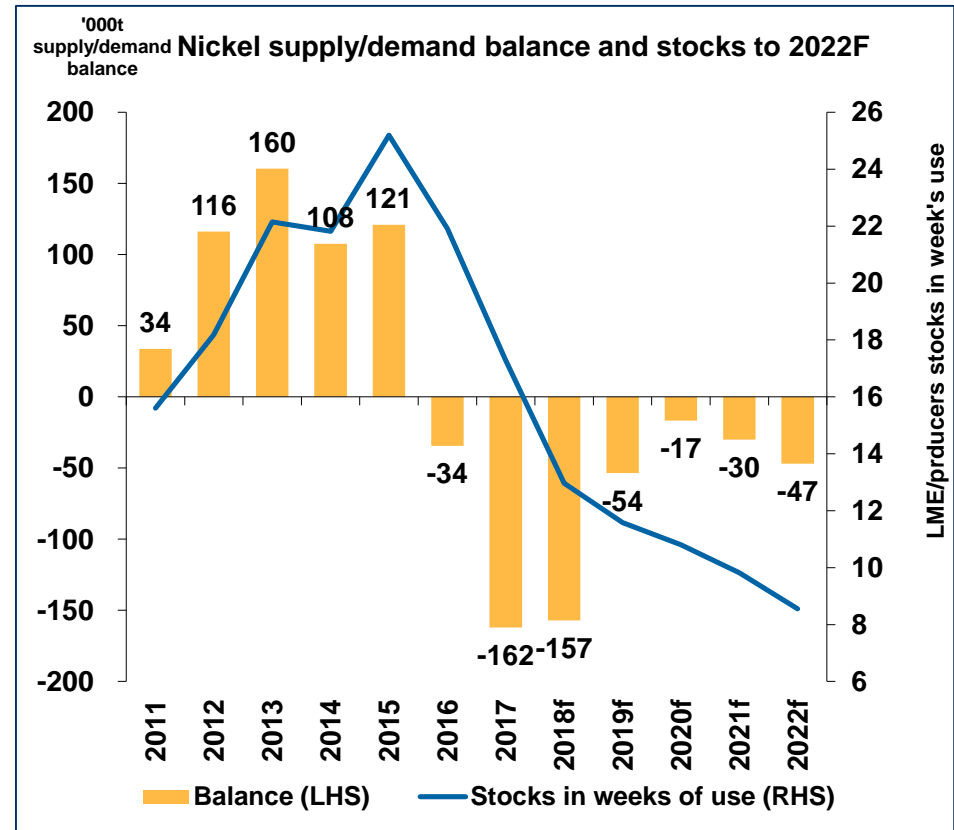
Population growth



Growing disposable  
incomes



Urbanization



Source: INSG, CRU, LME, Macquarie Strategy, August 2018



**WESTERN AREAS LTD**



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