

**WESTERN AREAS LTD**



# **ANNUAL GENERAL MEETING**

22 NOVEMBER 2018

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Safety



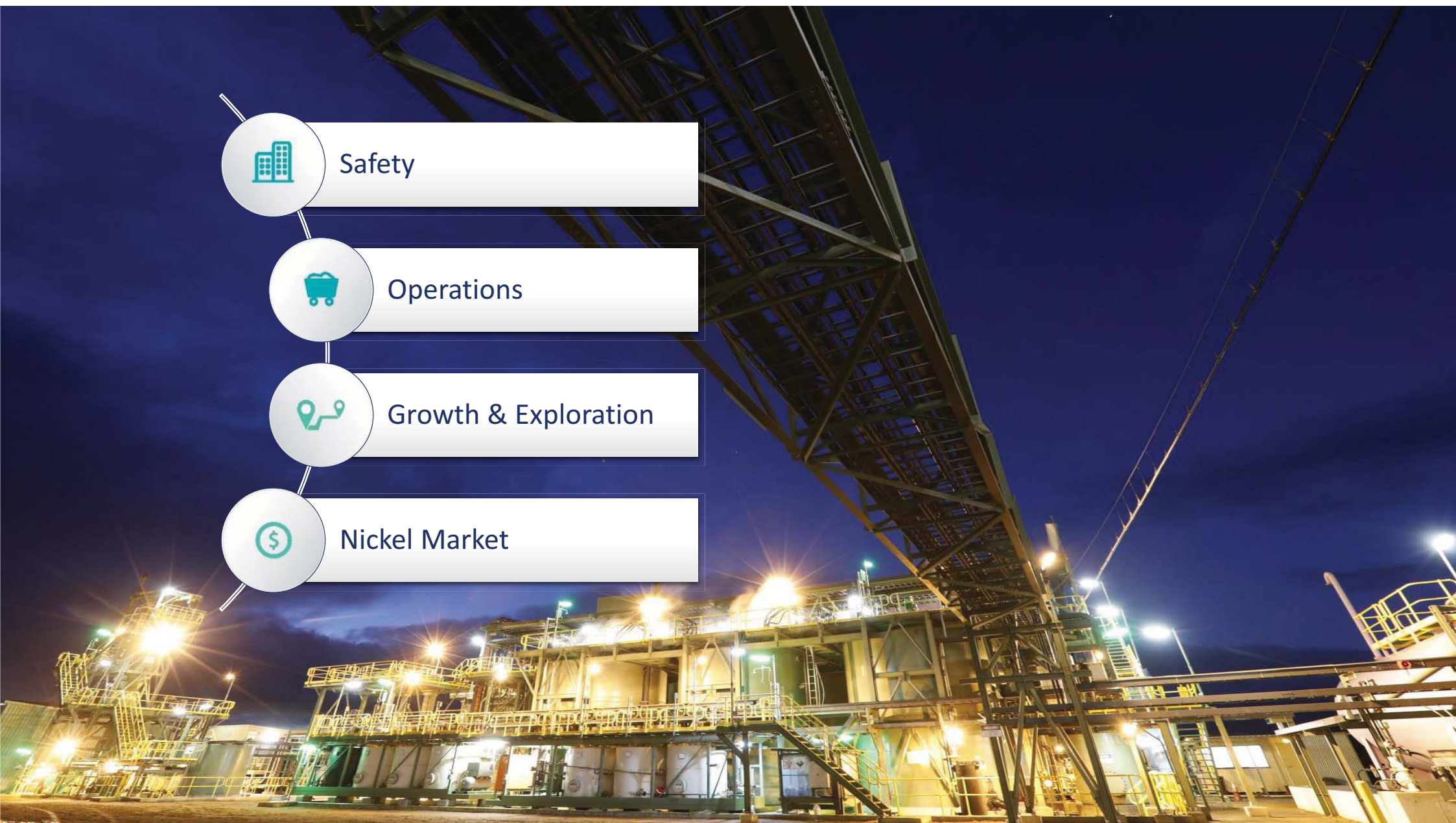
Operations



Growth & Exploration



Nickel Market



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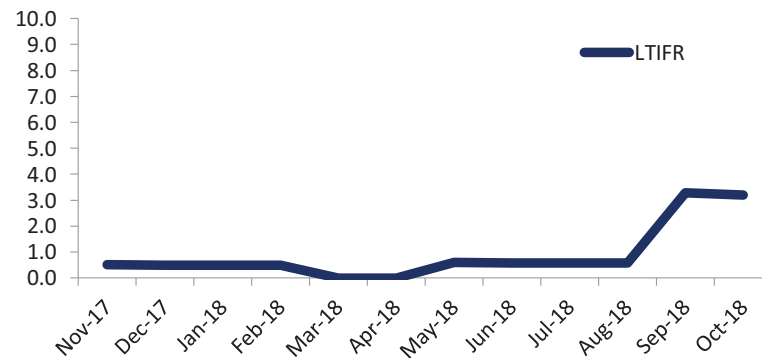
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# WESTERN AREAS ARE SAFE AREAS



	Days LTI free	
Spotted Quoll	2,759	Aug-11
Cosmos	1,126	Oct-15 (no injuries)
Flying Fox	598	May-17
Cosmic Boy Concentrator	54	May-18
Exploration	41	Sep-18

12 month LTIFR moving average



Safe operations make efficient operations

# OPERATIONS



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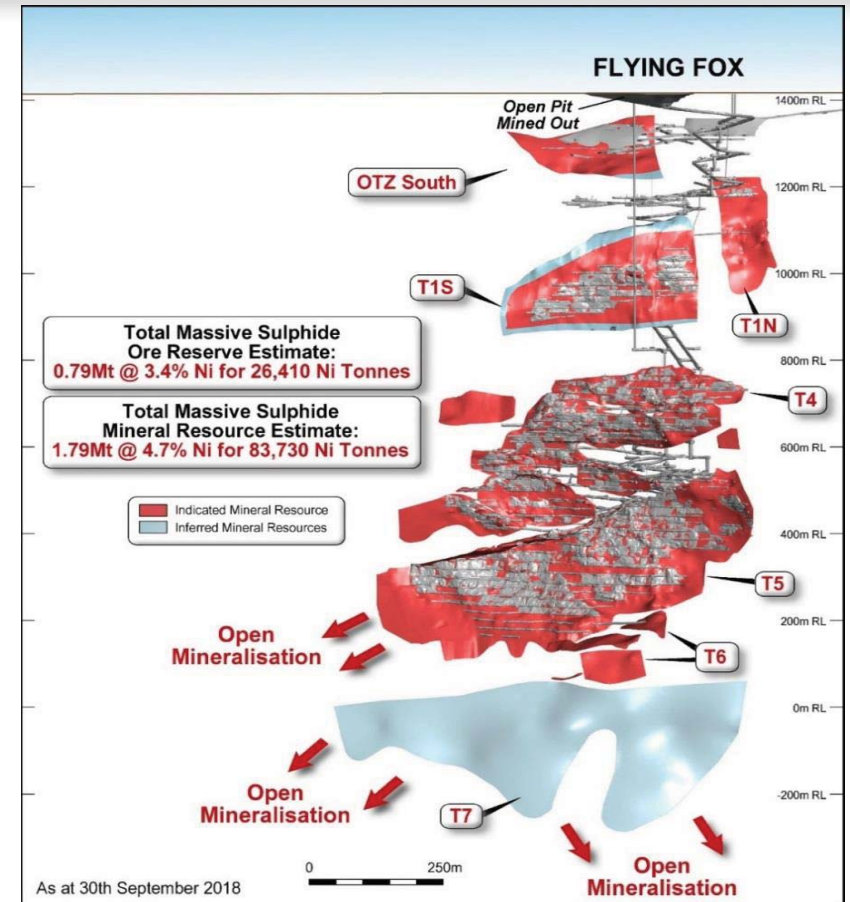


# FLYING FOX MINE

Reserve Contained nickel	0.79Mt @ 3.4% 26,410 Ni tonnes
Resource Contained nickel	1.79Mt @ 4.7% 83,730 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



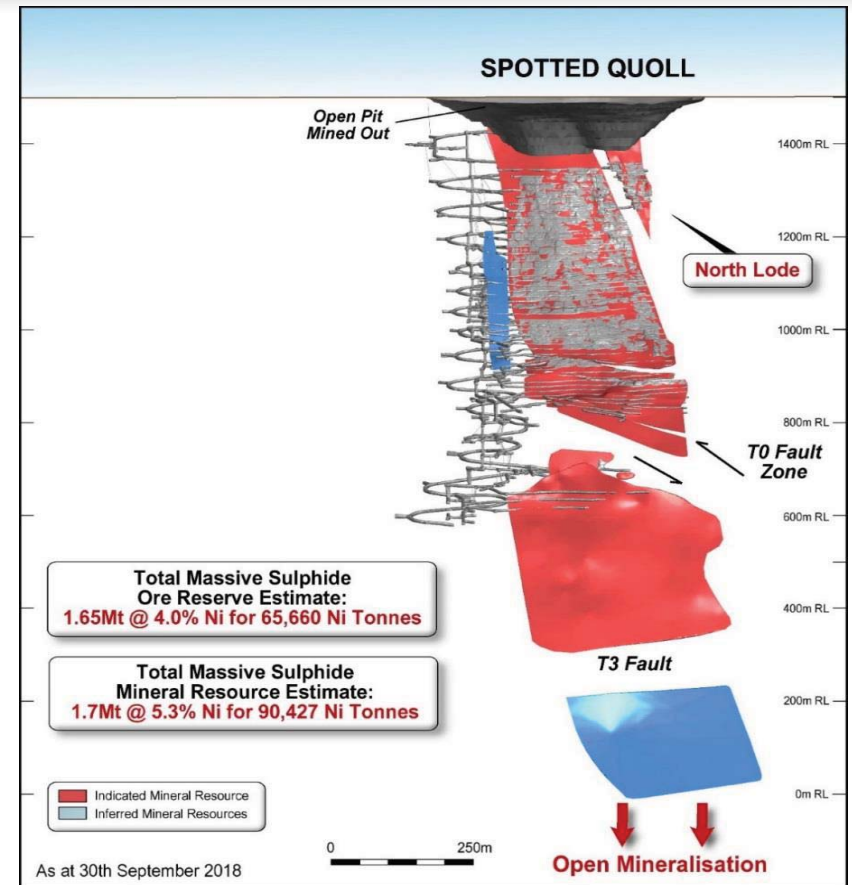
WSA foundation asset within Forrestania

# SPOTTED QUOLL MINE

Reserve Contained nickel	1.65Mt @ 4.0% 65,660 Ni tonnes
Resource Contained nickel	1.7Mt @ 5.3% 90,427 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*

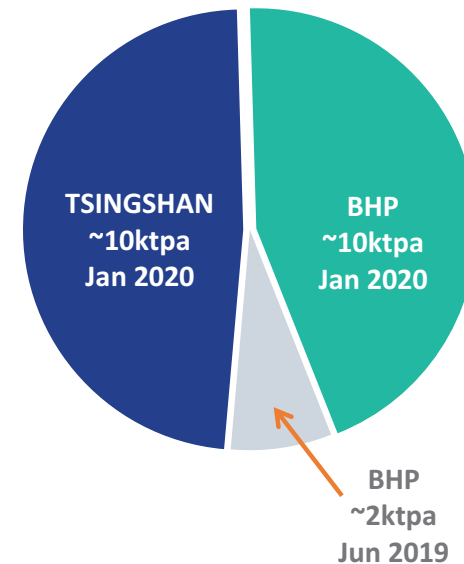
*Superior commercial terms*

*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

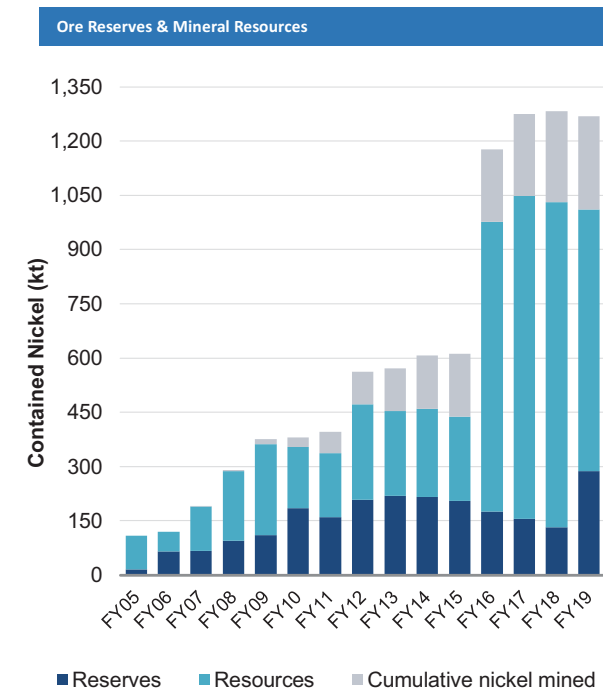
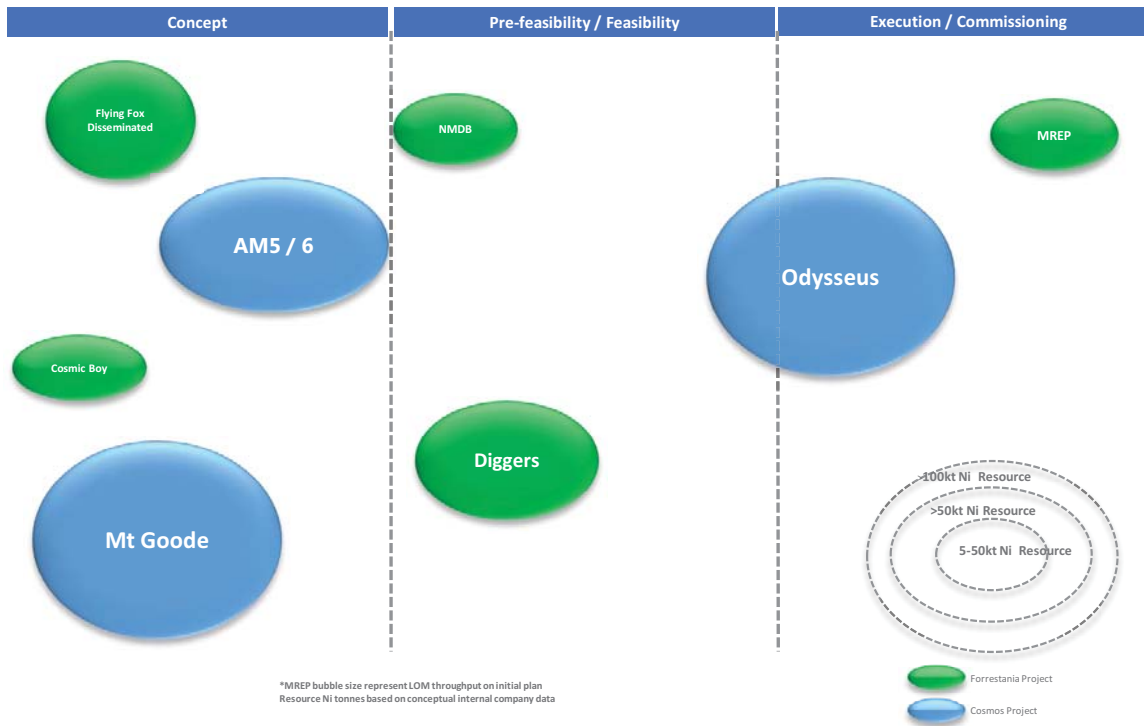
# GROWTH & EXPLORATION OUTLOOK



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# 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*

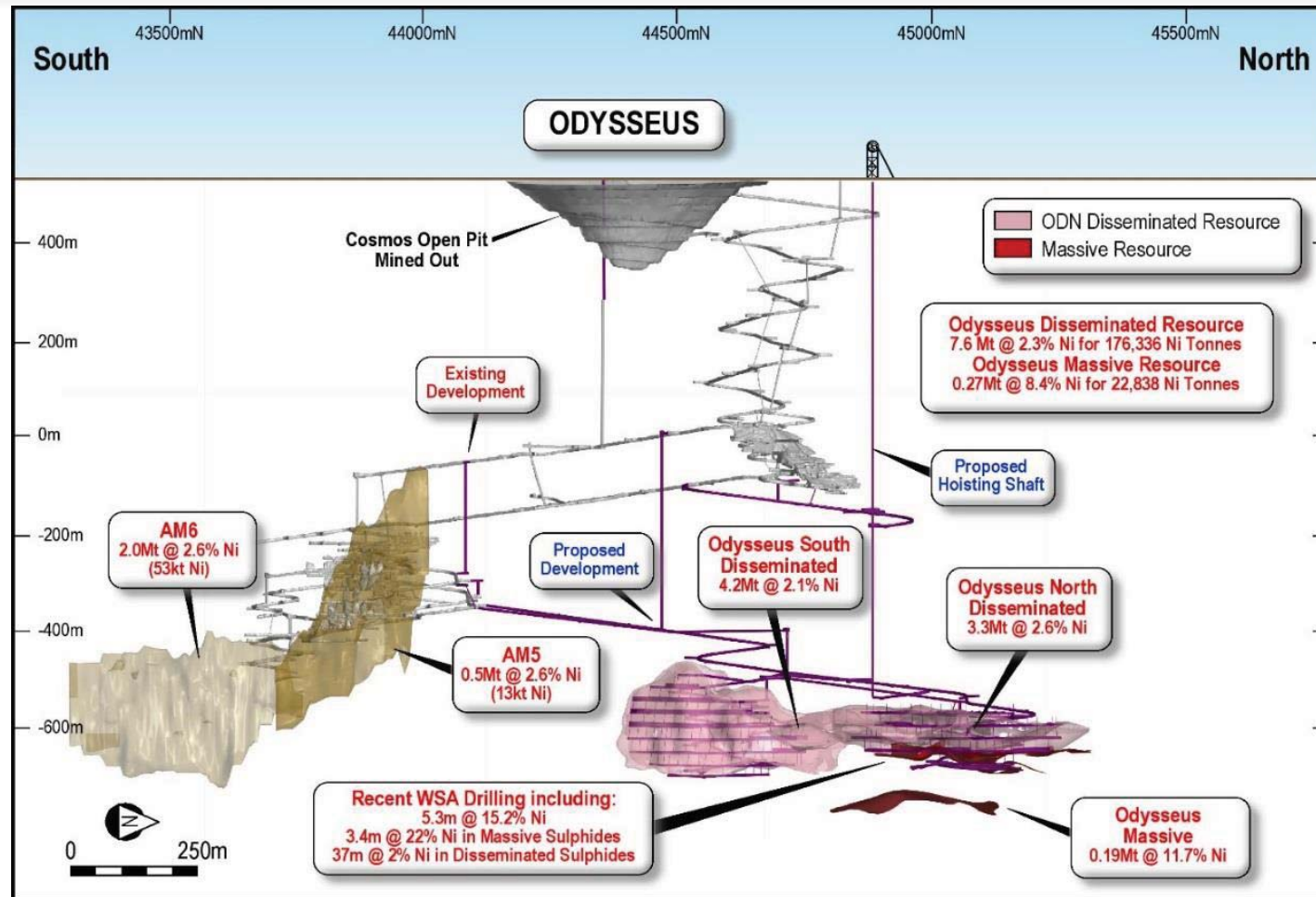
- Water Management Ponds (WMPs) 1-5 operational
- New WMPs 8 & 9 constructed
- De-watering of open pit on schedule
- Schlumberger pump for underground dewatering scheduled for December
- Awarding of contract to commence decline rehabilitation imminent
- Camp commissioned with over 100 rooms available (out of 520), gym, wifi and all amenities



# ODYSSEUS – NOW A LARGER PROJECT

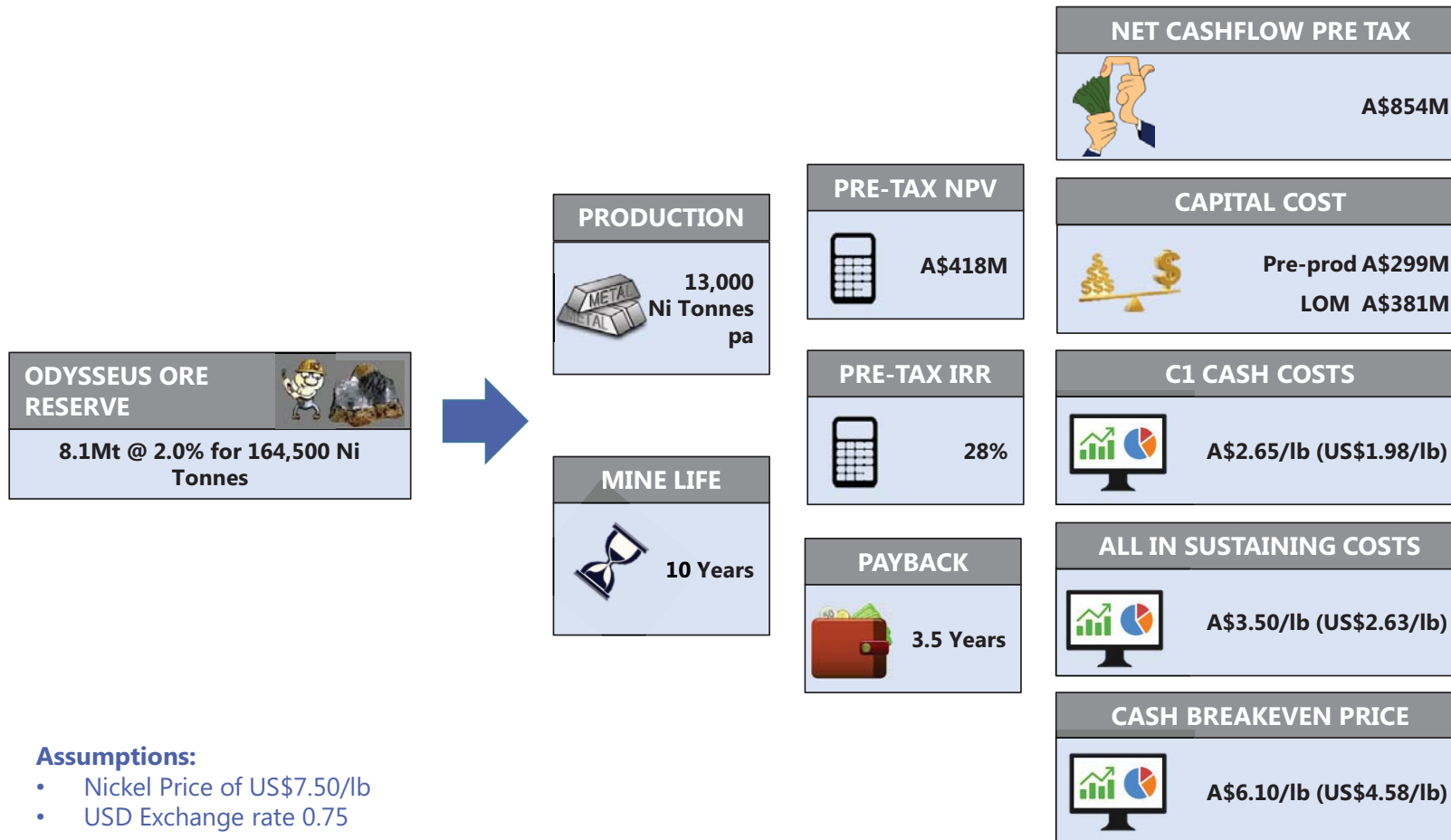
## Western Areas Second Operational Hub

- 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



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

# CAPITAL EXPENDITURE PROFILE AND FUNDING

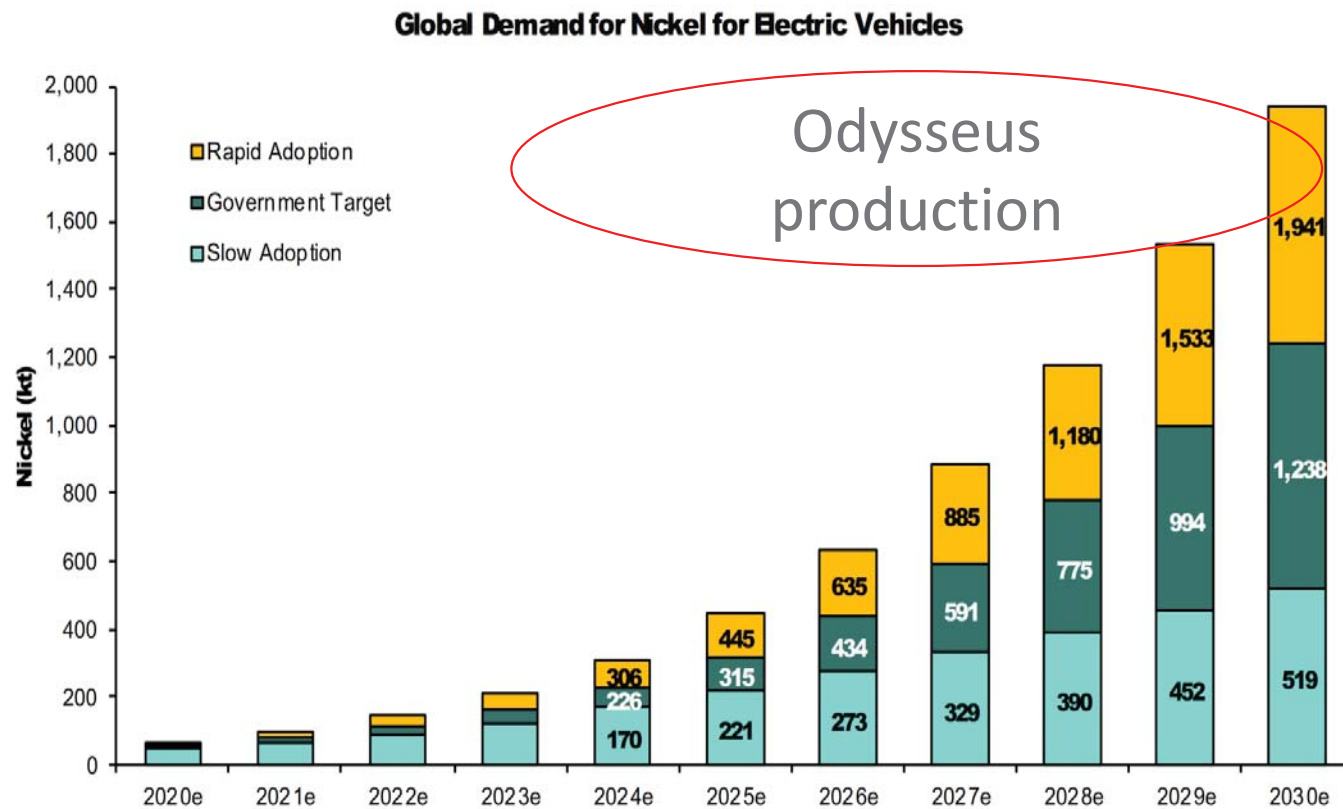
- ✓ WSA is well funded with A\$150m cash and liquid investments of around A\$25m
- ✓ Major capex not required until FY21
- ✓ Significant optionality on decision-making and spending
- ✓ Already receiving funding interest from offtake providers and third parties, including banks

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

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
Total	299	82	381

# 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!



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)*

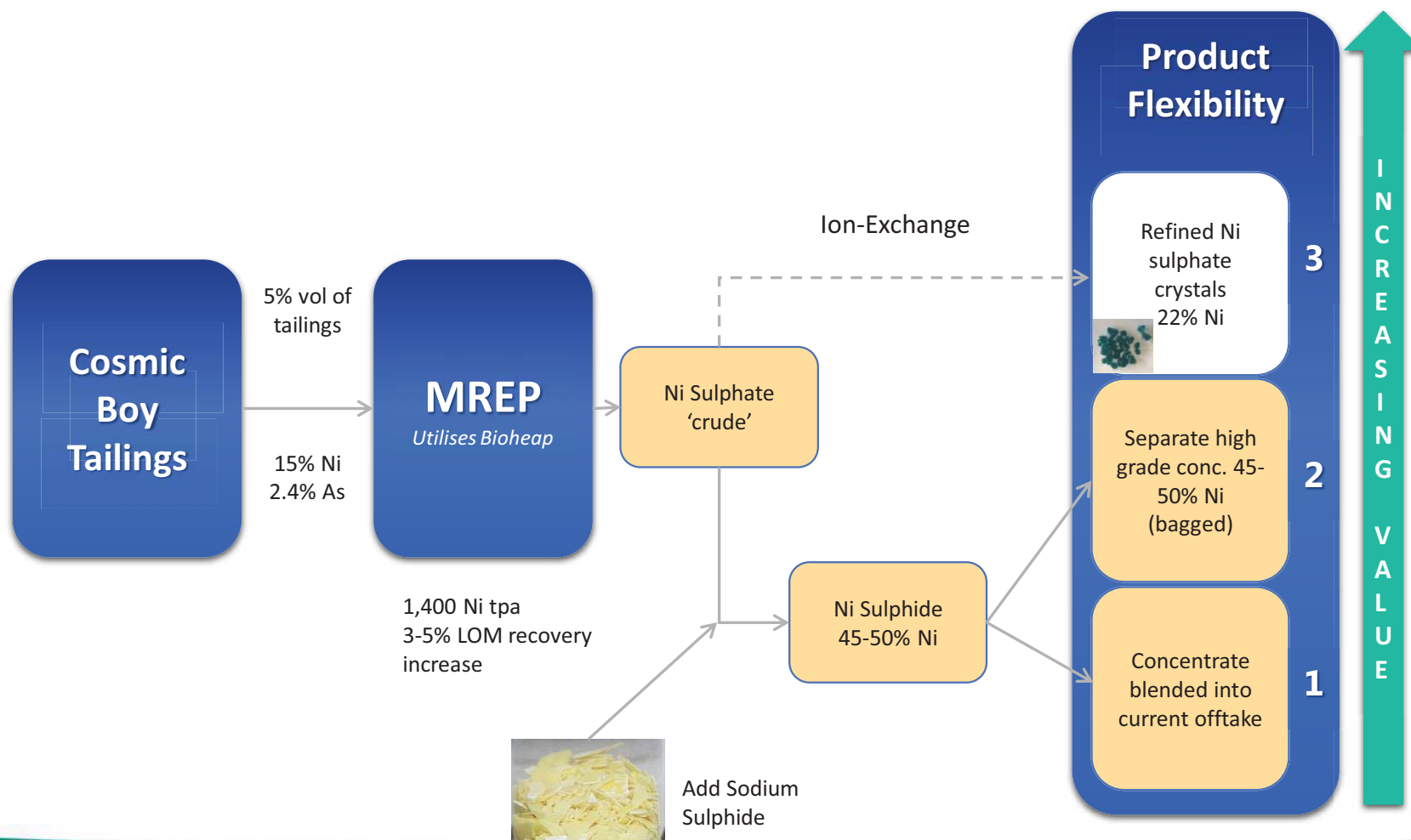
*Generating value from waste tailings*

*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 – New Morning and Flying Fox to potentially provide future feed



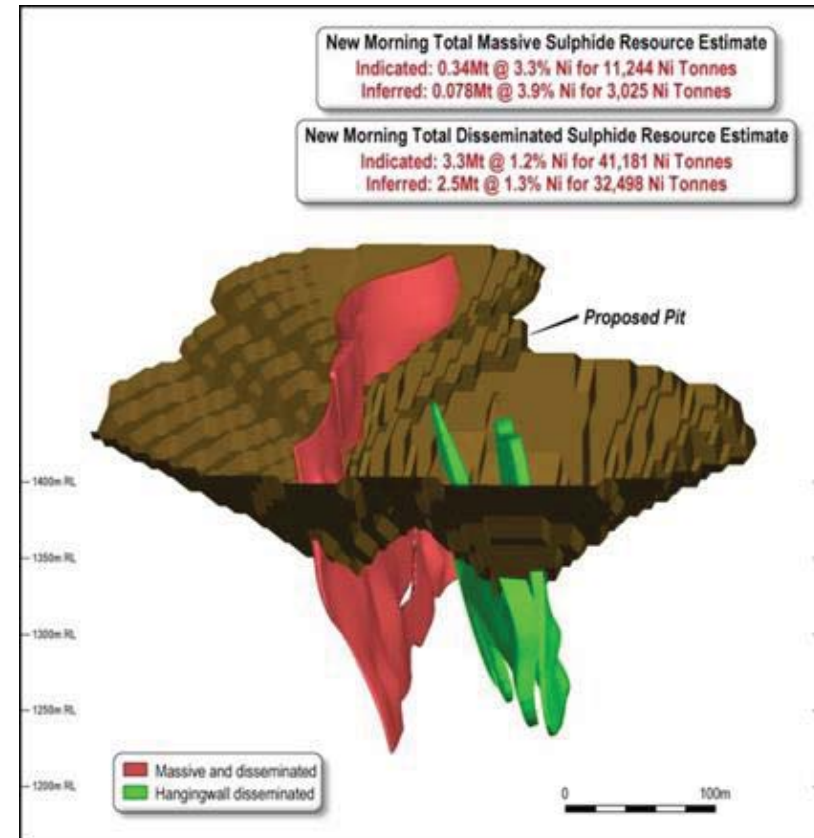
# MREP FLOWSHEET



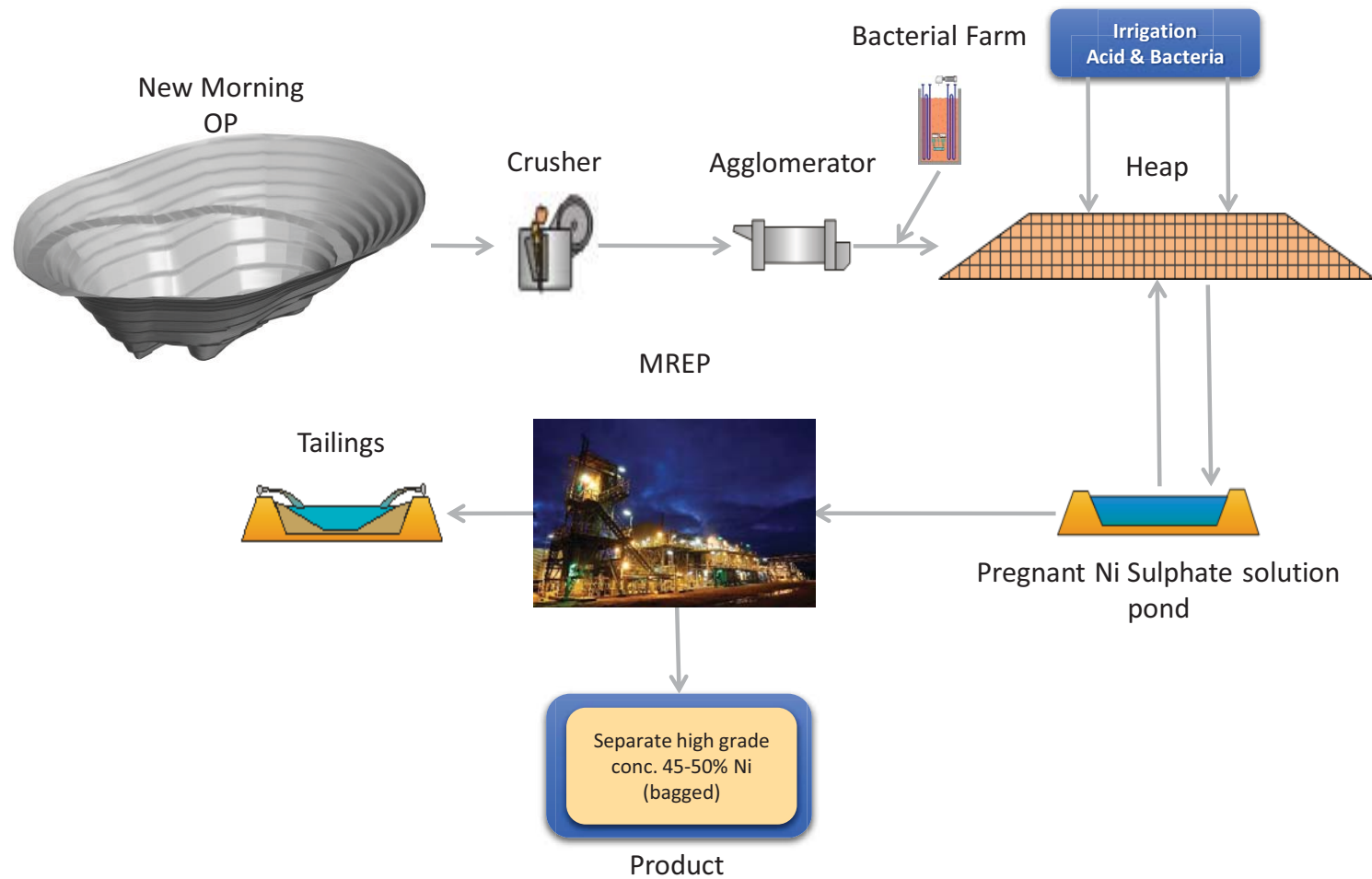


# NEW MORNING / DAYBREAK

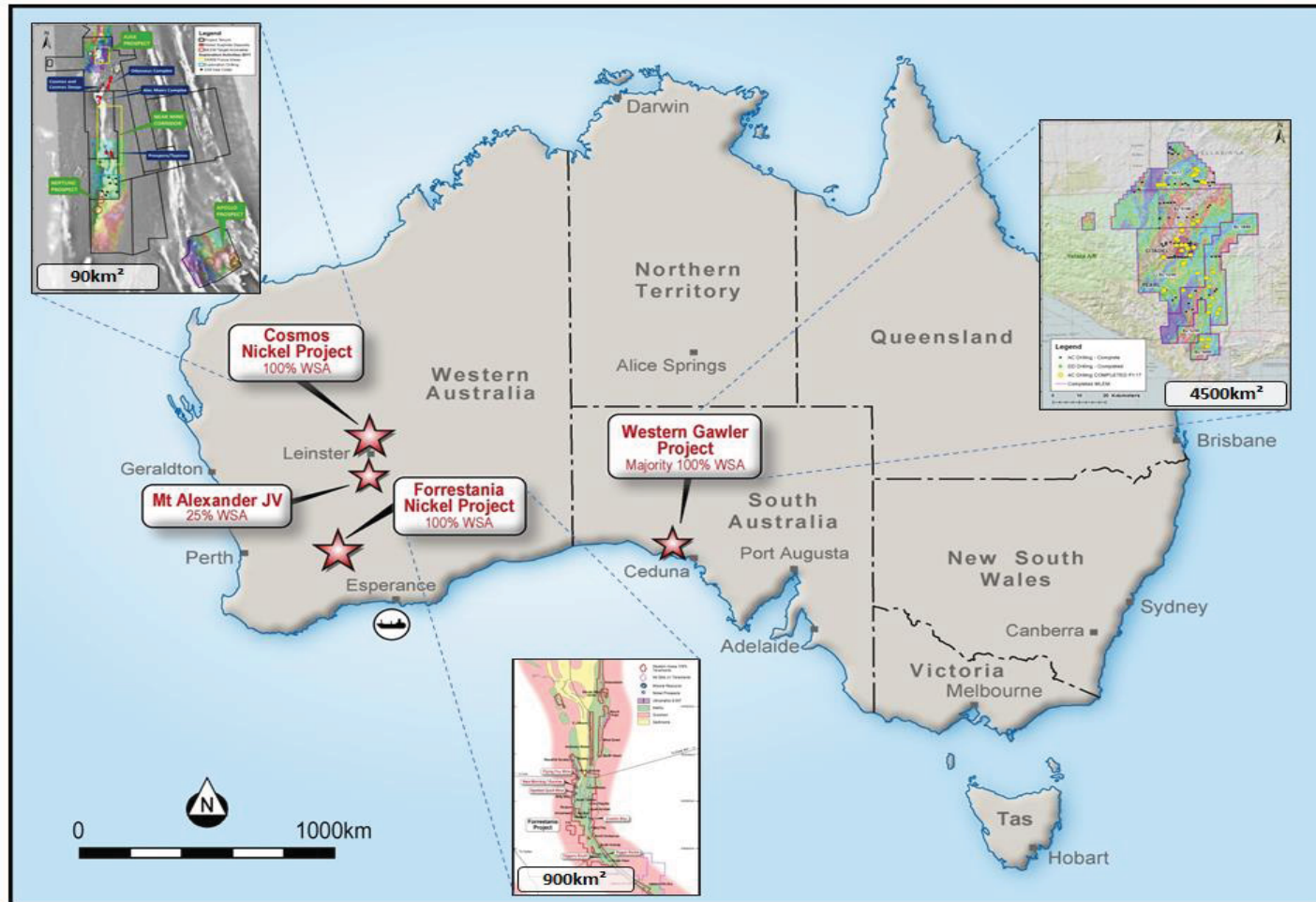
- Massive sulphide resource of 418kt @ 3.6% for 14,269 nickel tonnes
- Low grade resource (at 0.5% Ni COG) of 5.8m tonnes @ 1.3% for 73,679 nickel tonnes
- Located 2.5km from Flying Fox and 2.8km from Spotted Quoll
- Open Pit Scoping Study commenced
- BioHeap® testwork ongoing to evaluate heap leach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



# CONCEPTUAL NEW MORNING NICKEL FLOWSHEET



# EXPLORATION UPSIDE – KEY TENEMENT HOLDINGS



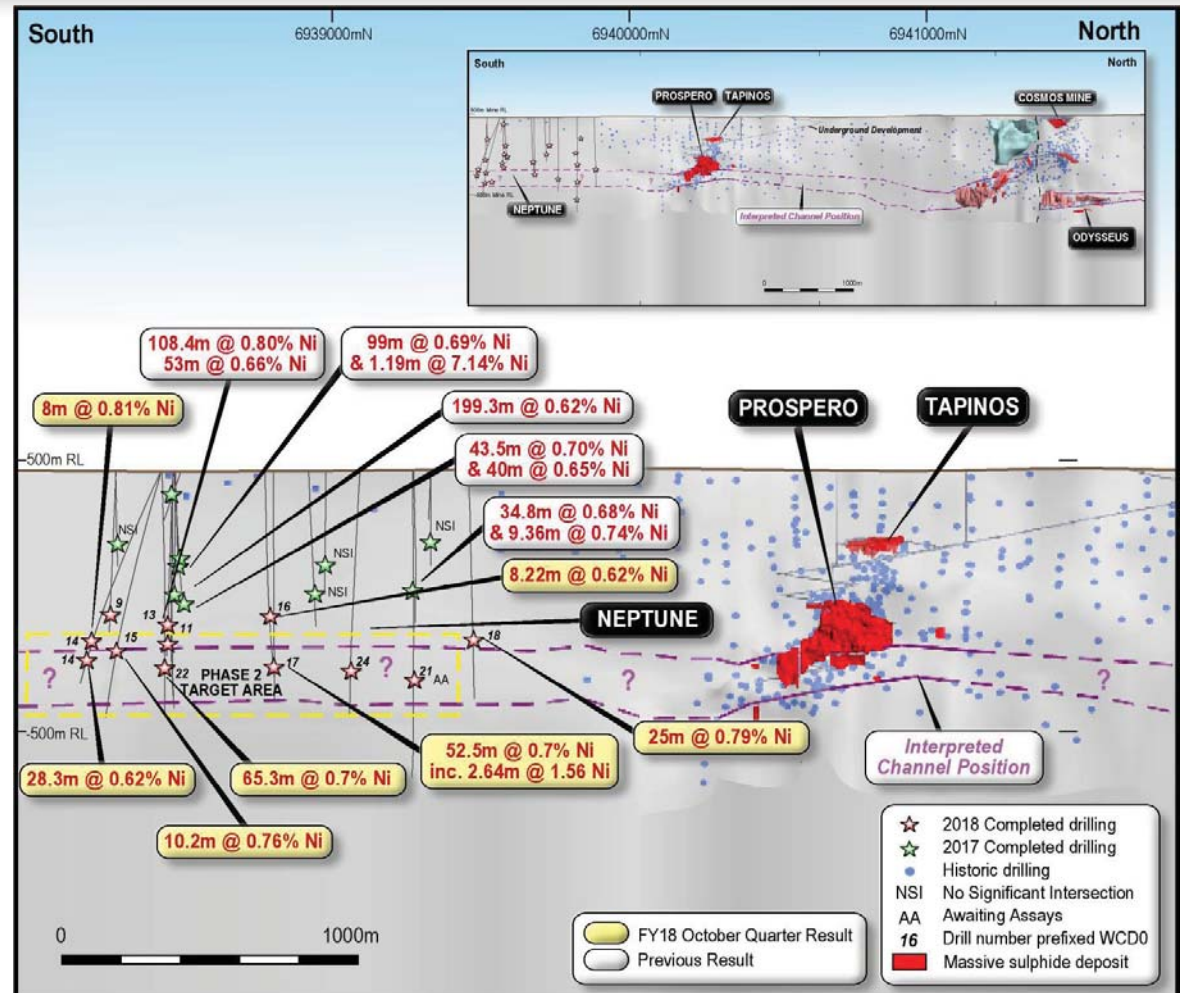
# COSMOS EXPLORATION

## Drilling Results - Neptune

- Phase 2 drilling campaign at Neptune well advanced 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 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

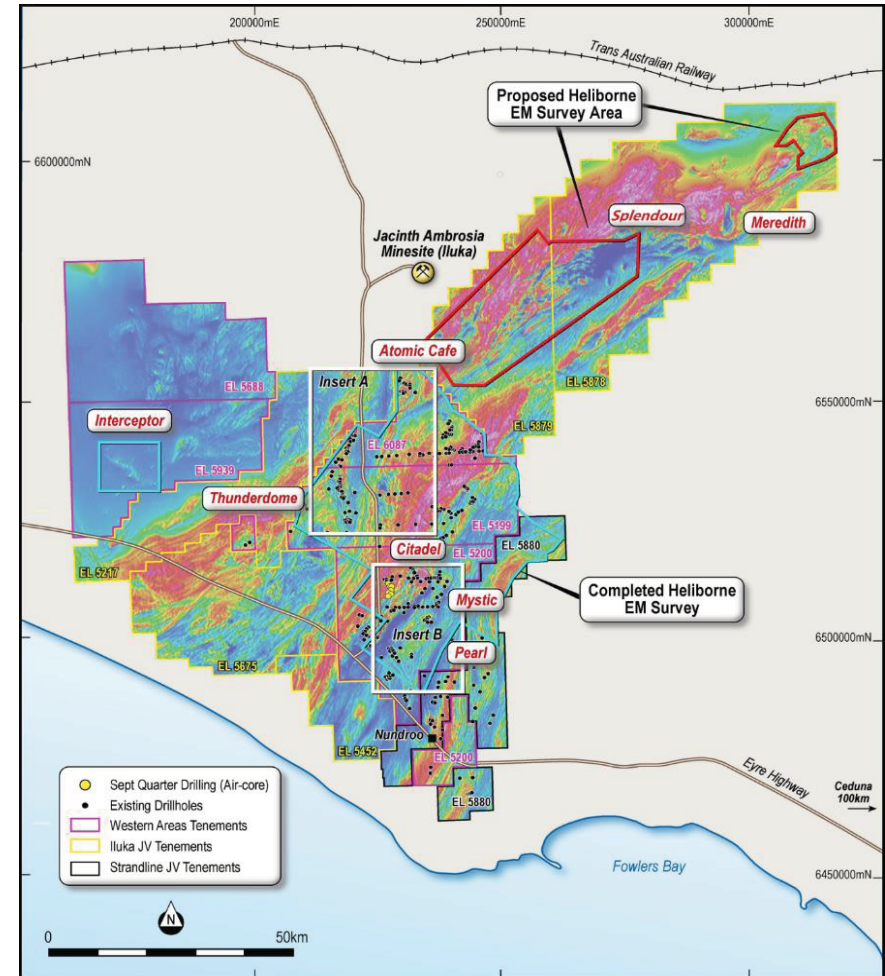
- 4,450km<sup>2</sup> WSA tenement holding
- Ramp-up of exploration activities across FY18
  - 217 drill holes.
  - 149 line kilometers of Moving Loop EM ground surveys
- Regional scale SkyTEM airborne EM survey completed in early FY19
- Identification of Thunderdome as emerging prospective corridor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



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# WHAT WE ARE SEEING

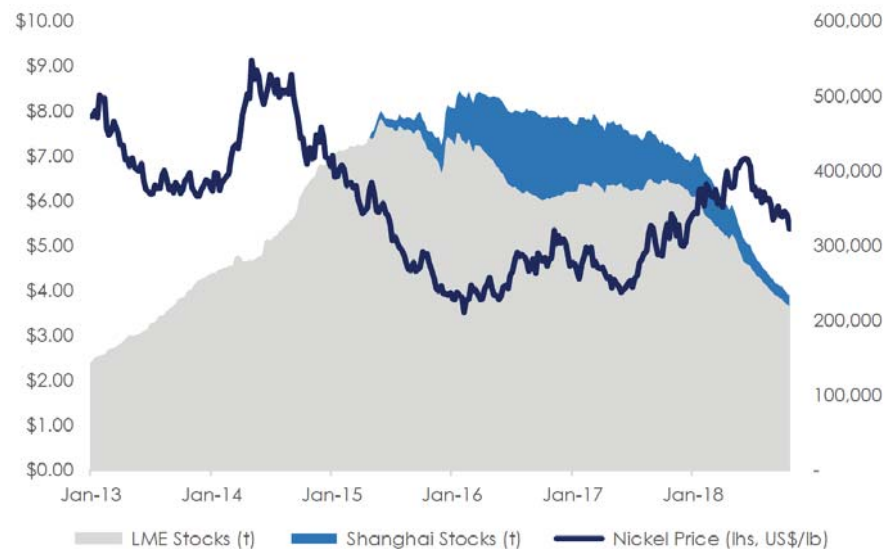
- **Significant increase in inbound off-take enquiries** for Nickel Sulphide concentrate post current contract period, primarily linked to the Electric Vehicle battery sector.
- **Our partner, China's largest stainless steel producer, Tsingshan,** has strong growth plan which will require significant 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

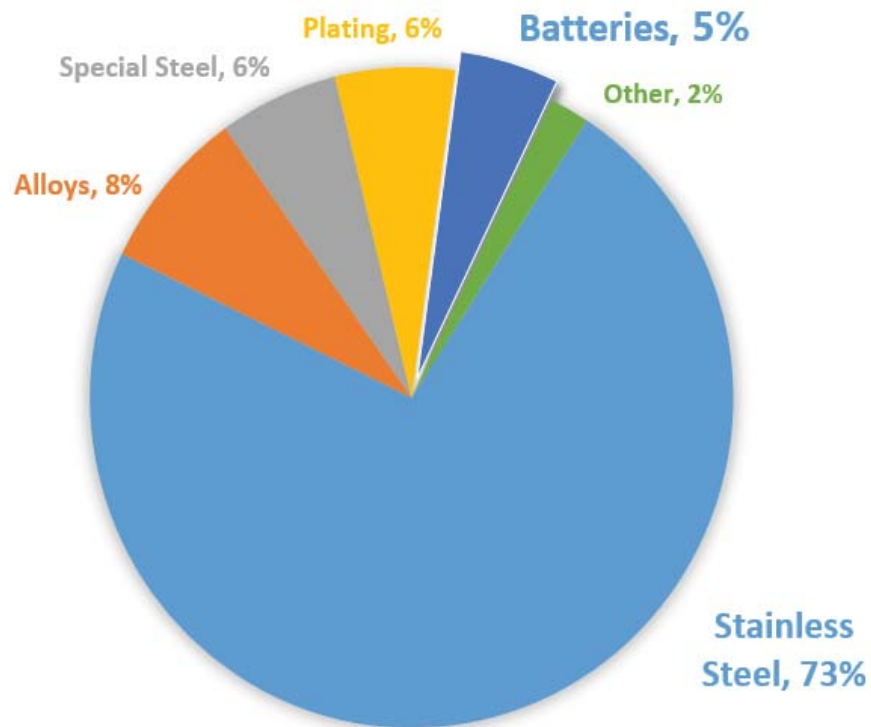
LME and SHFE Nickel Stocks vs Nickel Price\*



\* 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.



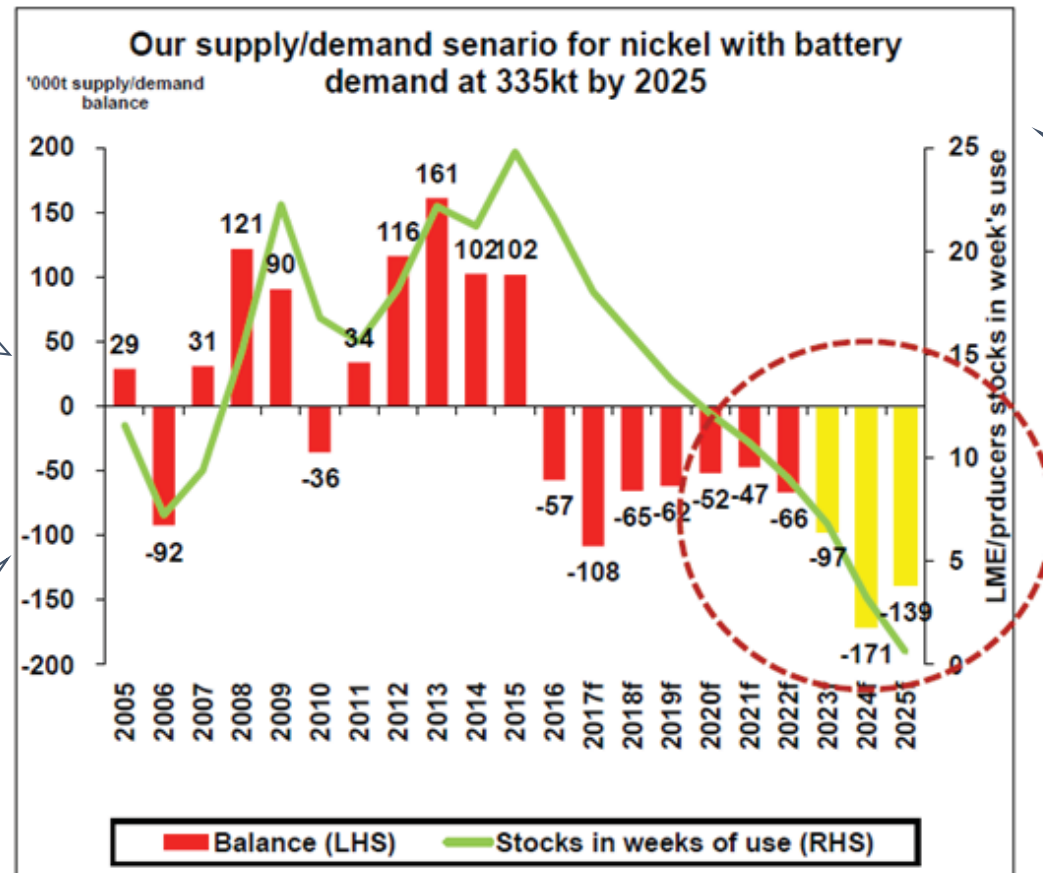
# NICKEL DEFICITS ON THE HORIZON!

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*

**WESTERN AREAS LTD**



**WWW.WESTERNAREAS.COM.AU | ASX:WSA**  
**PO BOX 1891 West Perth 6872 | +61 8 9334 7777**

