

# Horizonte Minerals Investor Presentation

## Leading Nickel Development Company

Q4 2019



TSX:HZM / AIM:HZM / [horizonteminerals.com](http://horizonteminerals.com)



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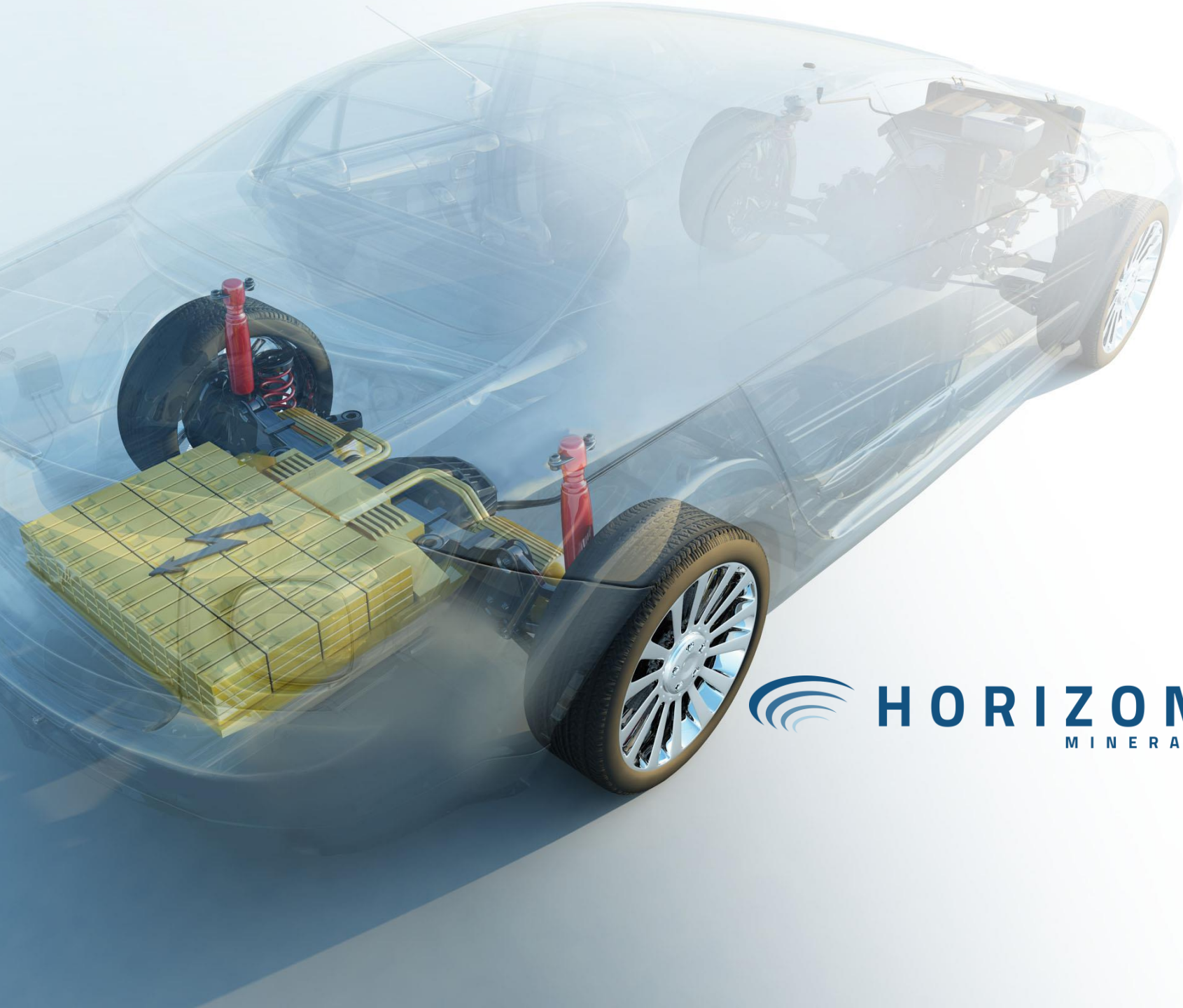
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Unless otherwise indicated, the scientific and technical information contained in this investor presentation has been prepared by or under the supervision of Frank Blanchfield FAusIMM, Andrew Ross FAusIMM of Snowden Mining Industry Consultants, David Haughton MIMM, C Eng of Ausenco, Nic Barcza HLFSAIMM . All are Qualified Persons within the meaning of Canadian National Instrument 43-101 and have acted as consultants to the Company.

For further details on the Araguaia mineral resource, please refer to the press release dated 29 October 2018, which is available on the Company's website at [www.horizonteminerals.com](http://www.horizonteminerals.com) and on SEDAR at [www.sedar.com](http://www.sedar.com). Mineral resources that are not reserves do not have demonstrated economic viability.



**HORIZONTE**  
MINERALS PLC



# Multi Asset Nickel Company



## Araguaia - Development Ready

Araguaia NPV<sub>g</sub> **US\$1.2 billion** and IRR 30.7%, generates over **US\$3.8 billion** in free cash flow over LOM<sup>1</sup>. FS published, permitted, royalty complete.

## Araguaia - High Grade, Scalable

Initial 10 years of production at Araguaia averaging 1.9% nickel feed grade, designed for Stage 2 expansion.

## Vermelho - Compelling Economics

Vermelho Pre-Feasibility Study released October 2019. NPV<sub>g</sub> **US\$1.7 billion** and IRR 26%, generates over **US\$7.3 billion** in free cash flow over LOM<sup>2</sup>.

## Significant Nickel Inventory

Combined metal in the ground (M&I) of over 4Mt contained Ni and 94kt Co<sup>3</sup>. Production potential of over 50,000 tpa nickel.

## Electric Vehicle (EV) Battery Market

The market will require approximately 0.5 - 1.3 million tonnes of new nickel by 2030, up to 50% increase on current global nickel production.

## Supply all Markets

Nickel demand growing, limited new projects. Horizonte has the ability to supply traditional stainless industry and growth EV battery markets.

<sup>1</sup>Source: Horizonte Minerals Araguaia Nickel Feasibility Study, figures presented above consider consensus nickel price of US\$16,400/t Ni and expansion case economics (29,000 tpa ni)

<sup>2</sup>Source: Horizonte Minerals Vermelho Nickel Cobalt Pre-Feasibility Study, figures presented above consider consensus nickel price of US\$16,400/t Ni

<sup>3</sup>Araguaia and Serra do Tapa values at 0.90% Ni Cut-Off, Vermelho values at 0.90% NiEq Cut-Off



# Scalable Production

Total district production potential ~50,000 tpa nickel  
(EV battery market + stainless steel market)

Consolidation of a nickel/cobalt district: two Tier 1, 100% owned, scalable, high-grade nickel deposits in one of Brazil's premier base metals mining districts.



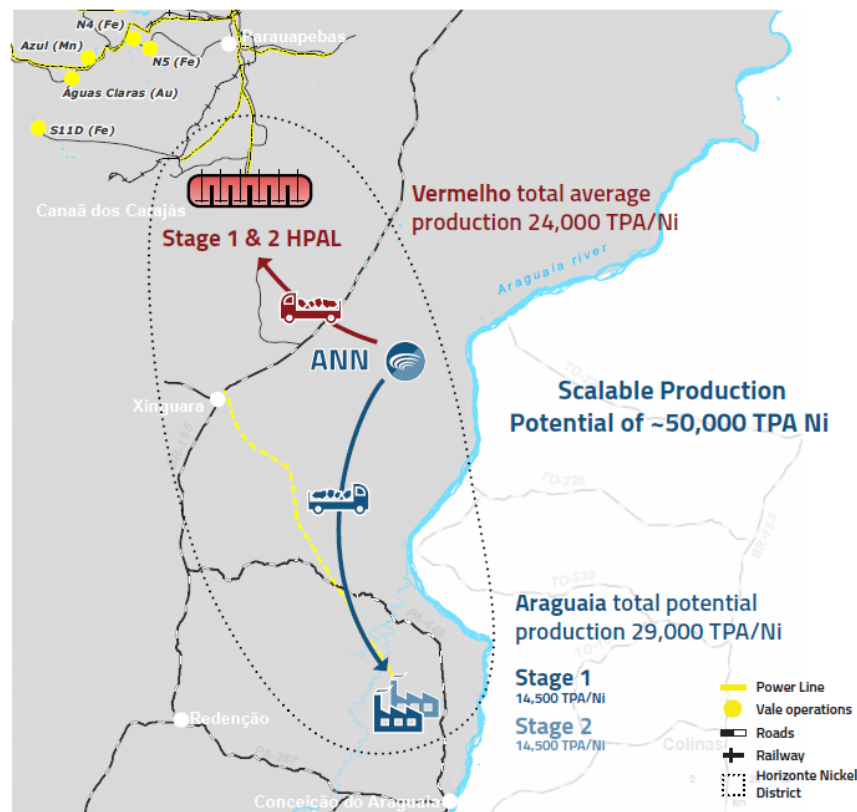
**Araguaia potential production 29,000 tpa nickel for stainless market**

- Stage 1 - RKEF plant 14,500 tpa.
- Stage 2 - doubling capacity.



**Vermelho average production 24,000 tpa nickel contained in sulphate for EV battery market**

- Staged 1 & 2 production.

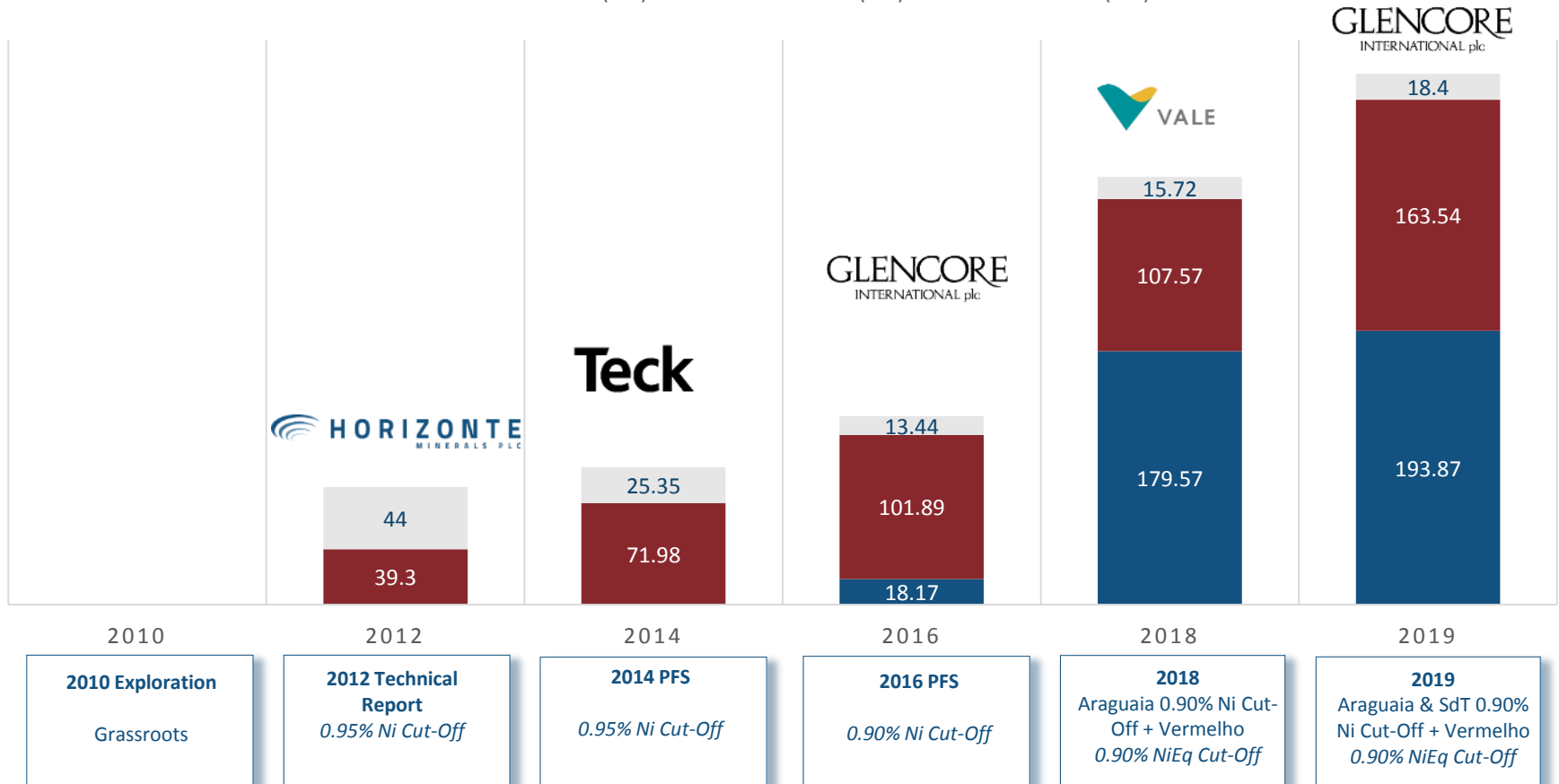




# HZM Resource Growth in Brazil: Over 800% in 7 Years

## NI MINERAL RESOURCES (MT)

■ Total Measured (MT) ■ Total Indicated (MT) ■ Total Inferred (MT)



**2010 Exploration**  
Grassroots

**2012 Technical Report**  
0.95% Ni Cut-Off

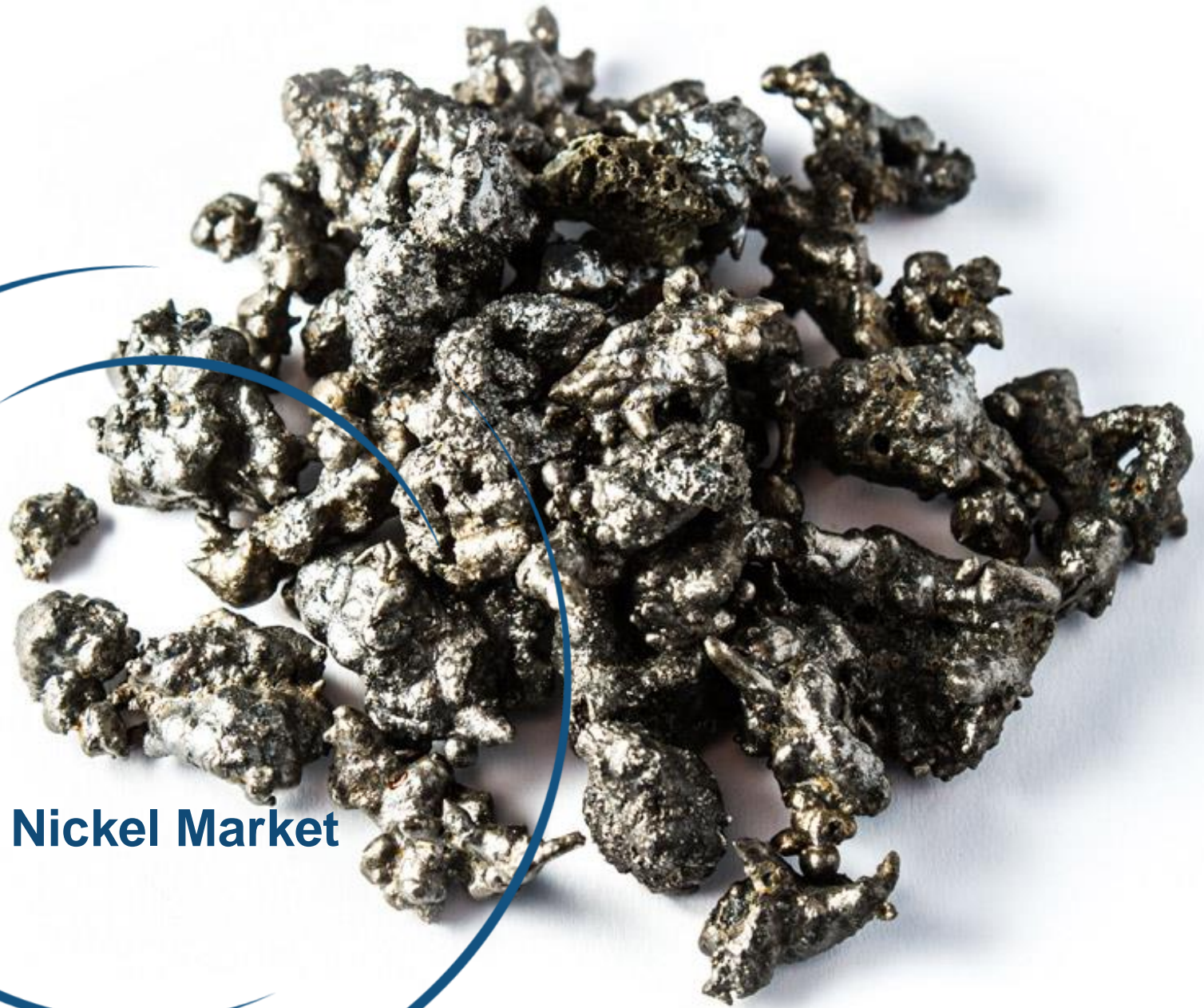
**2014 PFS**  
0.95% Ni Cut-Off

**2016 PFS**  
0.90% Ni Cut-Off

**2018**  
Araguaia 0.90% Ni Cut-Off + Vermelho 0.90% NiEq Cut-Off

**2019**  
Araguaia & SdT 0.90% Ni Cut-Off + Vermelho 0.90% NiEq Cut-Off

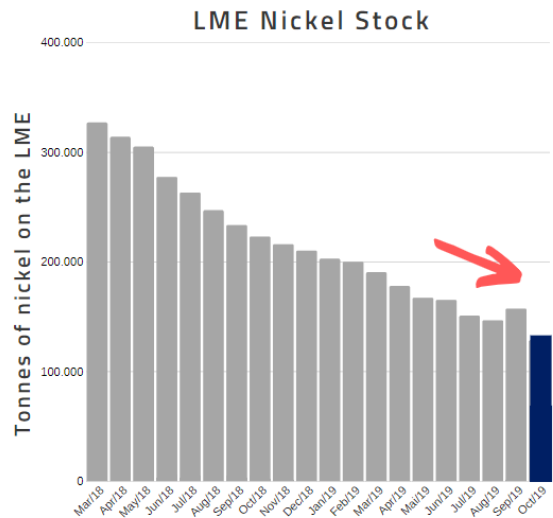




**Nickel Market**

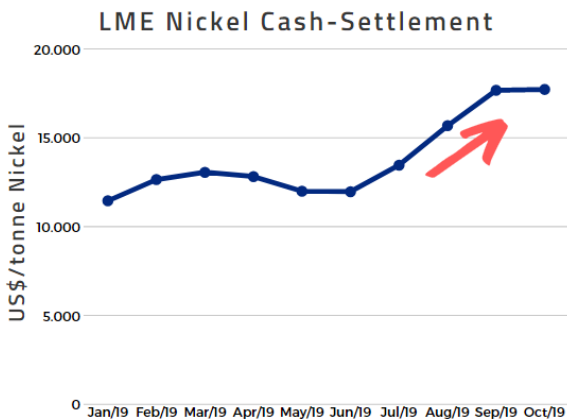


# Why Nickel Now



## Stocks at lowest levels in over 7 years

Nickel stocks have reduced, from 470,000 tonnes to below 100,000 tonnes - the lowest level since April 2012. First week of October had the sharpest inventory drop in nickel's 40 year LME history.



## Demand outstripping supply

Nickel key for EV battery chemistry – the market requires ~0.5Mt-1.3Mt of new nickel by 2030. Significant new supply is required for the stainless-steel market, which continues to grow ~5% year on year globally.

## High cost barrier to entry

UBS Research estimates that only 26 of 41 nickel projects that are at an advanced stage (FS/restart/expansion) deliver a 15% IRR at a long term nickel price of US\$20,000/t. Price lows have deterred new investments.

## Long lead time to Production

On average new nickel mines take 8-10 years to come into production from early-stage exploration.



# Recent Developments: Supply Tightening

- In April 2017, Indonesia relaxed the ban on export of unprocessed nickel ore for 5 years until 2022.
- Indonesian government has confirmed that it will bring forward the ban to January 2020 - potential to result in 200kt short fall in supply by 2021.
- EV battery market expansion in leading to tightening supply of Class 1 nickel.
- China's Tsingshan Holding Group Co. the world's largest stainless steel producer, was believed to be one of the main forces behind the record drawdown in LME nickel inventories in October.<sup>1</sup>

## Indonesia to ban nickel exports from January 2020

News Desk  
The Jakarta Post

## Nickel is surging after Indonesia said it will ban exports of the metal from January

fastFT **Commodities**

Nickel prices hit four-year high on Indonesia export ban

Fears of shortages as top producing country brings forward export restrictions

Markets

## Indonesia's Nickel Ban Shows Resource Nationalism on the March

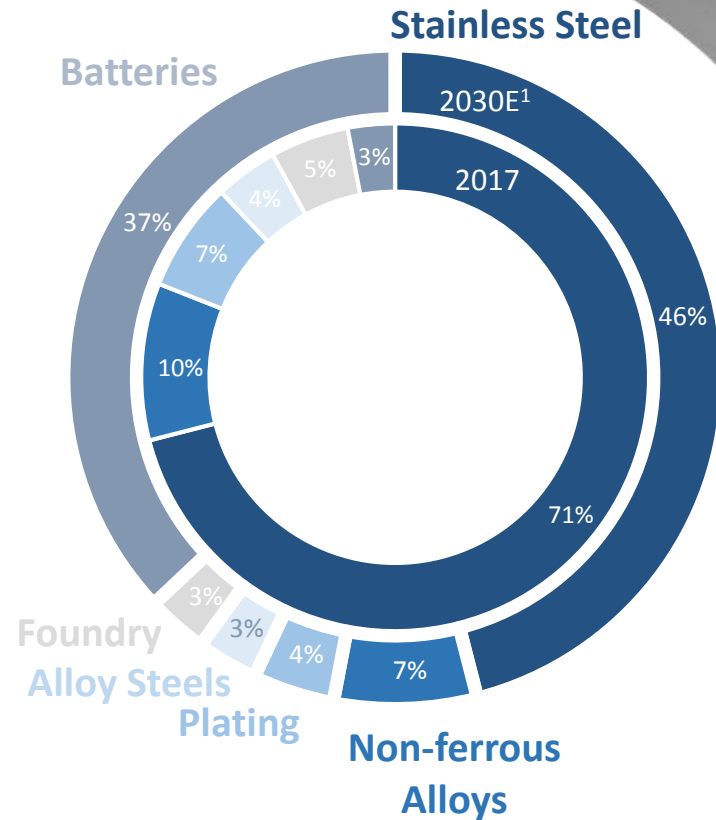
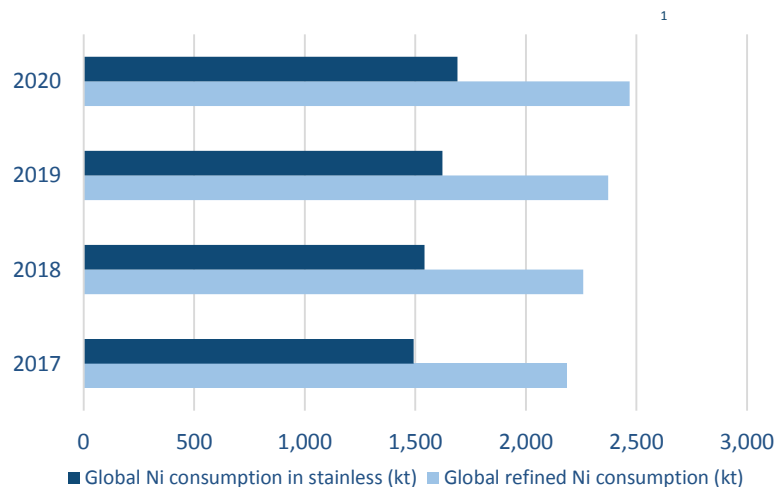
## Indonesian nickel ore export ban – implications for nickel supply

Wood Mackenzie | September 4, 2019 | 2:07 pm Intelligence Asia Nickel



# Current Demand vs 2030: Stainless Still Dominates Today

- Approximately two thirds of global nickel production is currently used to produce stainless steel.
- Demand for nickel from the battery market will reshape the nickel industry over the next decade, however stainless growth continues.
- Stainless steel industry will continue to be the largest nickel consumer and will remain the main nickel price driver in short-medium term.



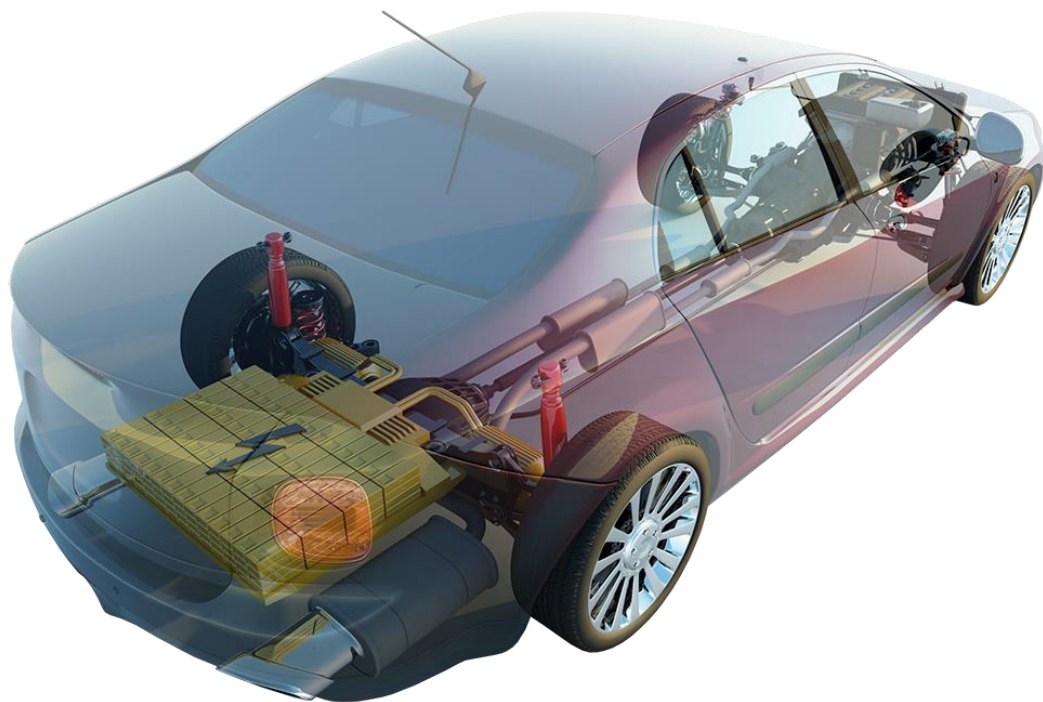
<sup>1</sup> Source: Wood Mackenzie

<sup>2</sup> Source: Vale's expected demand growth from the battery market by 2030.

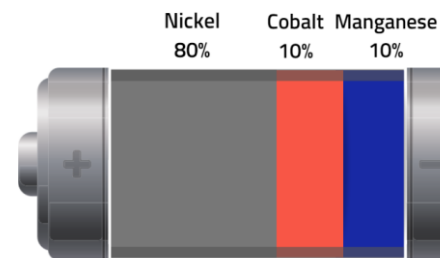


# Nickel the Fastest Growing Battery Raw Material

“Nickel’s use in lithium ion batteries accounted for 85,000 tonnes in 2018 yet this was only 4% of total nickel demand. However, nickel demand from EV batteries is set to grow by **between 30-40% a year, making it the fastest growing battery raw material.**”<sup>1</sup>



NMC Battery New Market Standard – **80% Ni**



Each EV requires 30kg of Nickel<sup>2</sup>



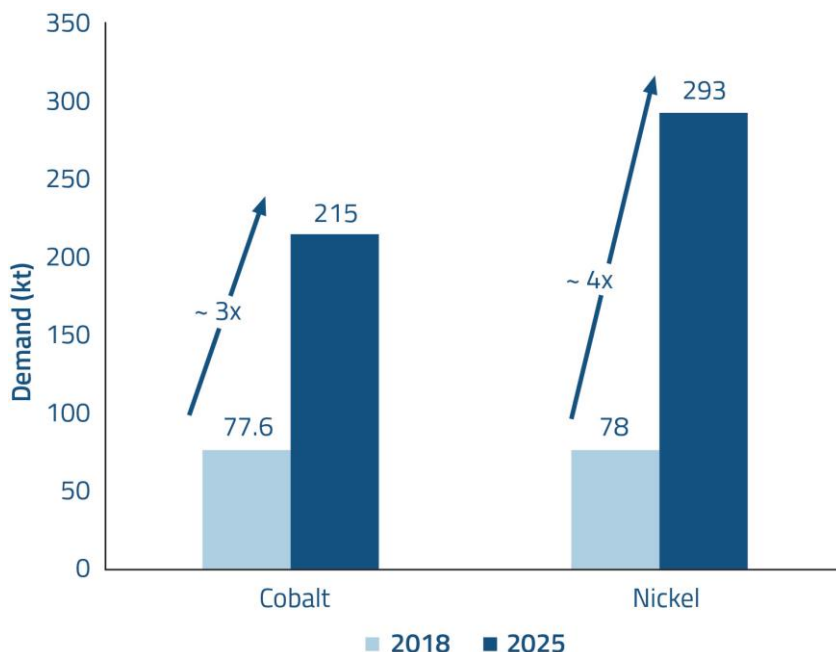
<sup>1</sup> Benchmark Mineral Intelligence  
<sup>2</sup> Glencore



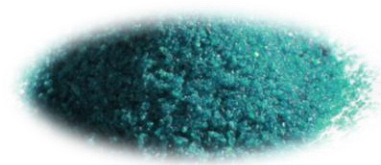
# Nickel Sulphate Key to Electrification

“The problem with the majority of today’s nickel production is it is NPI or FeNi and that most of it is not suited for production of nickel sulphate powder to be used in the batteries that power EVs and energy storage systems.”<sup>1</sup>

## EVs Driving Growth in Nickel & Cobalt<sup>2</sup>:



## Nickel Sulphate in Demand

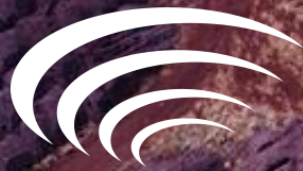


- Market moving towards **80%** nickel content for battery chemistry, EVs rely on nickel in sulphate form.
- Market requires around 0.3Mt of new nickel by 2025, and between 0.5Mt-1.3Mt by 2030.
- **Less than 50%** of global nickel production is **Class 1 nickel**, i.e. not suitable for batteries.
- Nickel sulphate currently achieving a **premium** on top of the LME nickel spot price.<sup>3</sup>

1 Benchmark Minerals

2 Wood Mackenzie

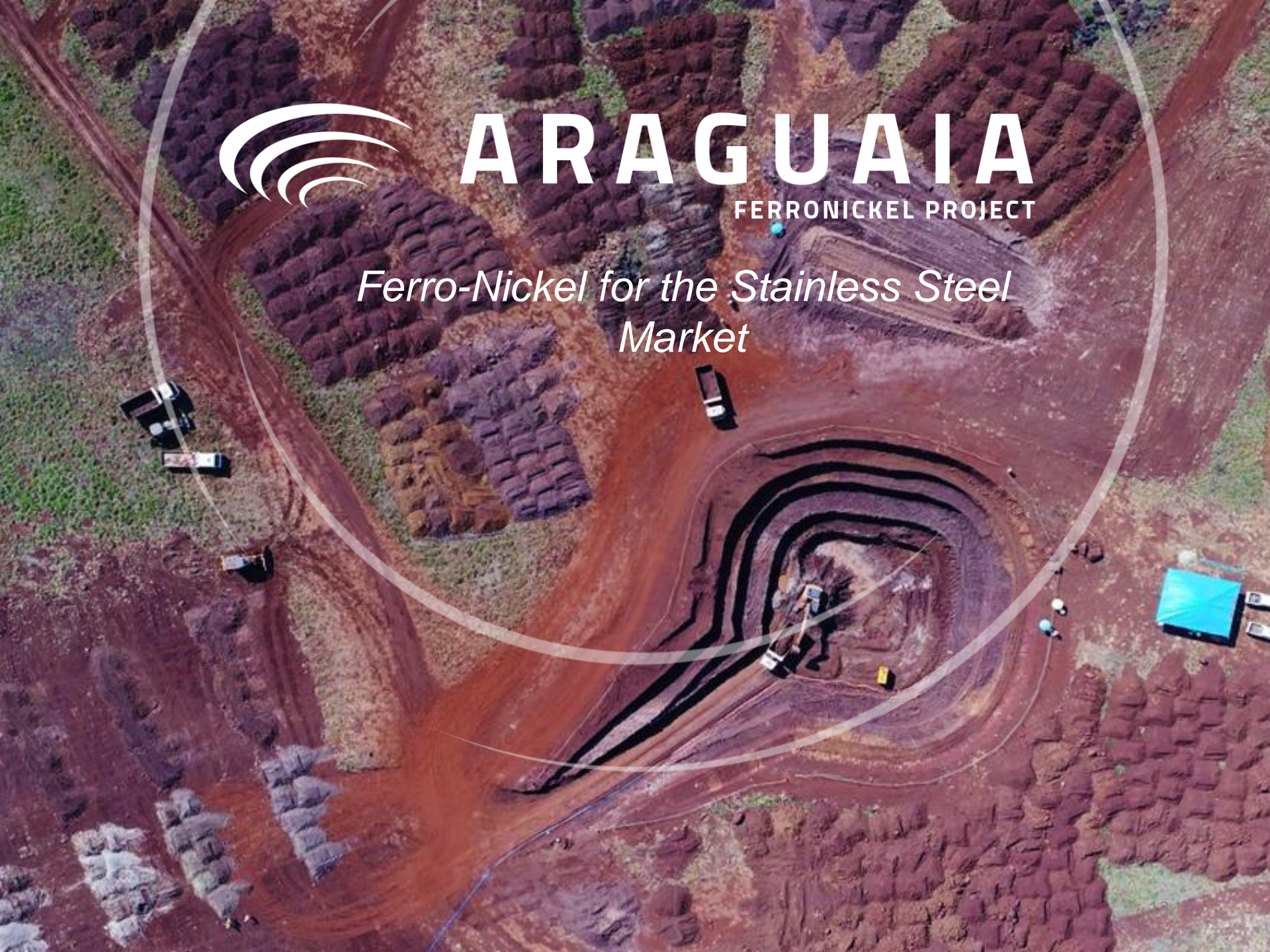
3 Reuters - BHP



# ARAGUAIA

FERRONICKEL PROJECT

*Ferro-Nickel for the Stainless Steel  
Market*



# Araguaia FS Stage 1 & 2 Economics



## STAGE 1 NICKEL PRICE US\$16,400/tonne Ni

Capital Cost  
**US\$443M**

Net Cash Flow  
**US\$2.4Bn**

Post-Tax IRR  
**27.0%**

Post-Tax NPV<sub>8</sub>  
**US\$691 M**

Production Payback  
**~3 years**

Lowest quartile C1 Cash Yr 1-10  
(Ni Laterite)  
**US\$6,794/t Ni**

## STAGE 2 NICKEL PRICE US\$16,400/tonne Ni

Capital Cost  
**US\$443M**

Net Cash Flow  
**US\$3.8Bn**

Post-Tax IRR  
**30.7%**

Post-Tax NPV<sub>8</sub>  
**US\$1.2B**

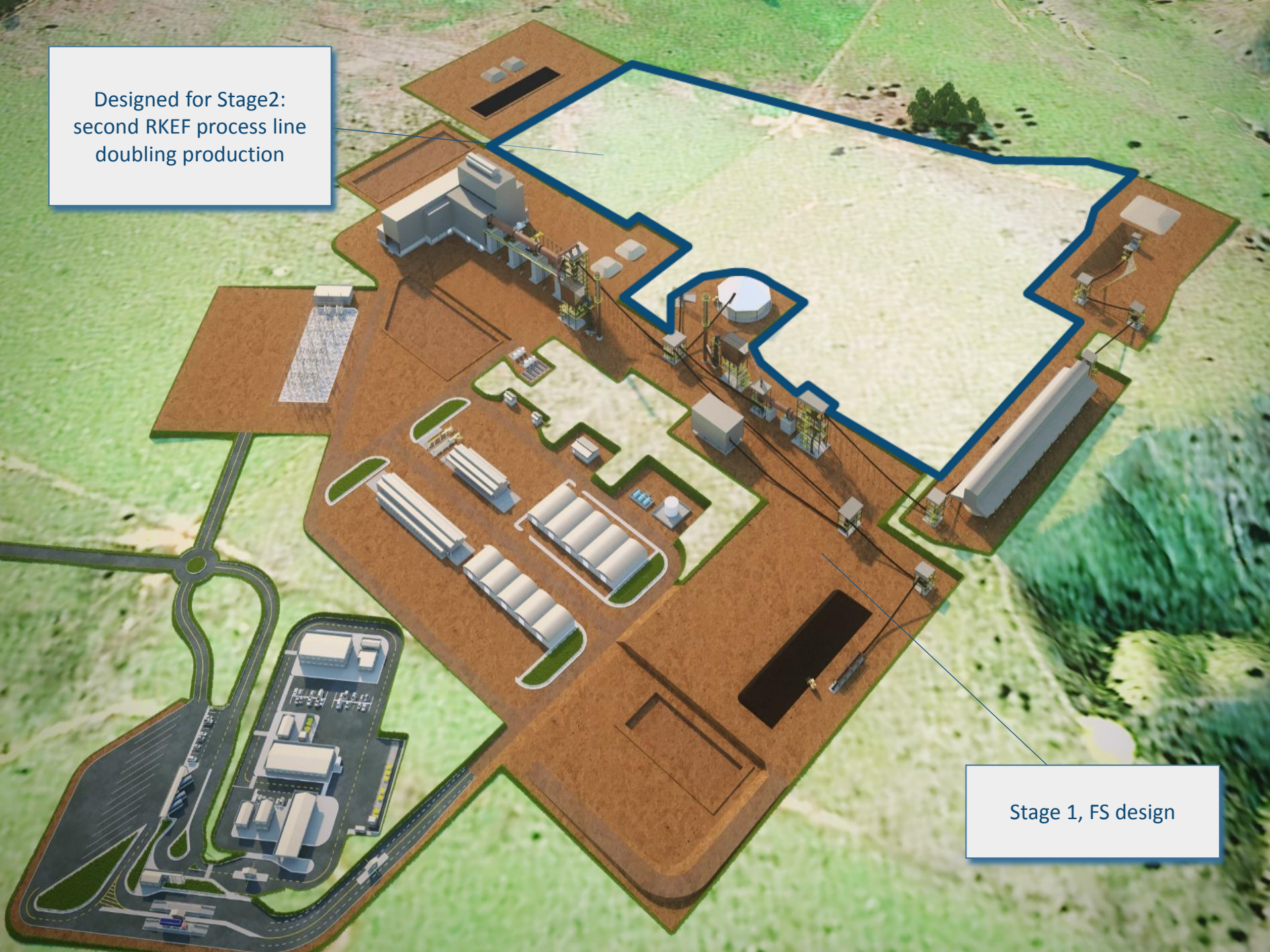
Production Payback  
**~4 years**

Lowest quartile C1 Cash Yr 1-10  
(Ni Laterite)  
**US\$6,613/t Ni**

**Notes:**

- Market Consensus: Canadian Imperial Bank of Commerce ("CIBC") Capital Markets consensus forecast long term Nickel price compiled by 21 international banks as of September 2019 \$16,400 t/Ni
- FS to AACE Class 3 costs combined accuracy of - 10%+15%
- Brazilian Real to US \$ exchange rate applied = 3.5:1

Designed for Stage2:  
second RKEF process line  
doubling production



Stage 1, FS design



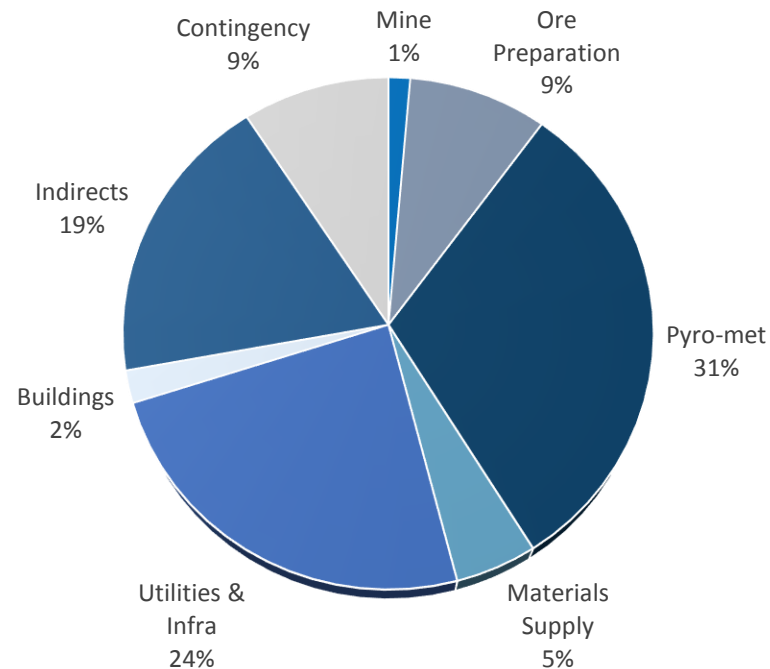
# Araguaia Capital Funding Requirement

## Capital Cost Estimates

Initial capital cost of US\$443M is estimated for Araguaia.

Area Name	Costs (US\$'000)
Mine	6,003
Ore Preparation	38,731
Pyrometallurgy	137,518
Materials Supply	21,413
Utilities & Infrastructure	106,918
Buildings	9,095
Indirects	82,409
Contingency	40,989
<b>Total</b>	<b>443,076</b>

### Capital Cost Breakdown



Sustaining capital of US\$143 million is spread over LOM for the Stage 1 FS. This number increases to \$394 million in sustaining capital over LOM for the Stage 2 expansion.

\*Undertaken to AACE class 3 standard with combined accuracy of - 10%+15%. The capital and operating costs are as of Q3 2018.



# Araguaia is Construction Ready



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**ANP is development ready** with water permits and environmental Construction Licence (Licença de Instalação) granted.

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**High sustainability standards applied**, including CONAMA legislation (Brazilian); IFC Standards and Equator Principles.

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**Approved Social and Environmental Impact Assessment (SEIA)**, multiple years of baseline data and system of Environmental Control Plans approved by agency.

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**Multiple years of community engagement** conducted in the region and ongoing social programmes.

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**Limited regional impacts**, mine is located in a farming area, no state forest or Indigenous reserves.



Extensive baseline data collection in the region.



# Araguaia Royalty Terms



- Orion Mine Finance (Orion) will provide upfront cash payment of US\$25 million in exchange for a 2.25% royalty on the Araguaia Project;
- The royalty only applies to the first 426,429 tonnes of contained nickel as per the Stage 1 Feasibility Study production scenario;
- Orion has approximately \$5.1B under management and is one of the most active private equity groups in the mining sector today;
- Non-dilutive form of financing, equates to raising equity at ~10p per share (3 x current SP on AIM<sup>1</sup>);
- Orion now a strategic partner, potential for next stage funding.

“Orion is delighted to become a major investor in Araguaia, one of the leading nickel development projects globally. We look forward to supporting Horizonte as it enters the next phase of development of its world-class portfolio of nickel assets”

**Philip Clegg, Portfolio Manager at Orion Resource Partners.**

<sup>1</sup>Based upon financial modelling by our advisers Endeavour Financial, using a long term price of \$14,000/t nickel and the NPV of Araguaia of \$400M, a comparable equity issuance price to generate the same P/NAV effect as the royalty would be 10p per share. Valuation of 3 times current share price considers HZM share price of 3.3p as of closing on AIM 27/08/2019.



# Araguaia Project Finance

- (✓) Royalty – Complete US\$25 million with Orion
  
- (✓) Project Development
  - Pre-Production Capital of US\$443million to commence Stage 1 Construction;
  - Endeavour Financial engaged, target Project Finance package of 60-65% debt with the balance in equity;

## Status Project Finance

- Discussions underway with 7 international banks (inc Brazilian) regarding PF syndicate;
- Discussions underway with export credit agencies to originate government backed credit line leading to lower interest rate and longer tenor – Germany and China;

## Offtake Agreement

- Part of wider finance package, interest from traders and stainless steel producers.





# VERMELHO

NICKEL AND COBALT PROJECT

## Preliminary Feasibility Study (PFS) Results Released October 2019





# Vermelho PFS - Highlights



Estimated **US\$200M spend** by previous owners, Vale

Post beneficiated **feed grade >1.5% Ni** for initial 17 years

Significant cash generation around **US\$7.3B net cash flow**<sup>1</sup>

**IRR over 26%** at Nickel Price of US\$16,400/tonne

Average annual production of **24,000t nickel**; 1,300t cobalt (both contained in sulphates)

Additional revenue source from **fertilizer by-product** (kieserite)

Dry Stack Waste: **No wet tailings** dams required

Well **developed infrastructure** (hydro power, road, rail, skilled labour)

<sup>1</sup> Net cash flow and Payback period results based on nickel price of \$16,400/tonne. Additional results for bank Long-Term price of \$19,800/t provided in Slide 22.





# Vermelho PFS In Numbers

	BASE CASE US\$16,400/tonne Ni	LONG-TERM PRICE US\$19,800/tonne Ni
Capital Cost	US\$652M	US\$652M
Net Cash Flow	US\$7.3B	US\$9.5B
Post-Tax IRR	26.3%	31.5%
Post-Tax NPV <sub>8</sub>	US\$1,722M	US\$2,373M
Production Payback	4.2 years	3.6 years
Lowest quartile C1 Cash	US\$7,286/t Ni (years 1-10)	US\$7,286/t Ni (years 1-10)

Notes:

- Market Consensus: Canadian Imperial Bank of Commerce ("CIBC") Capital Markets consensus forecast long term Nickel price compiled by 21 international banks as of September 2019 \$16,400 t/Ni
- Long term price Wood Mackenzie Long term incentive price \$19,800/t Ni
- PFS to AACE Class 4 costs combined accuracy of - 25% to +20%
- Brazilian Real to US \$ exchange rate applied = 3.8:1

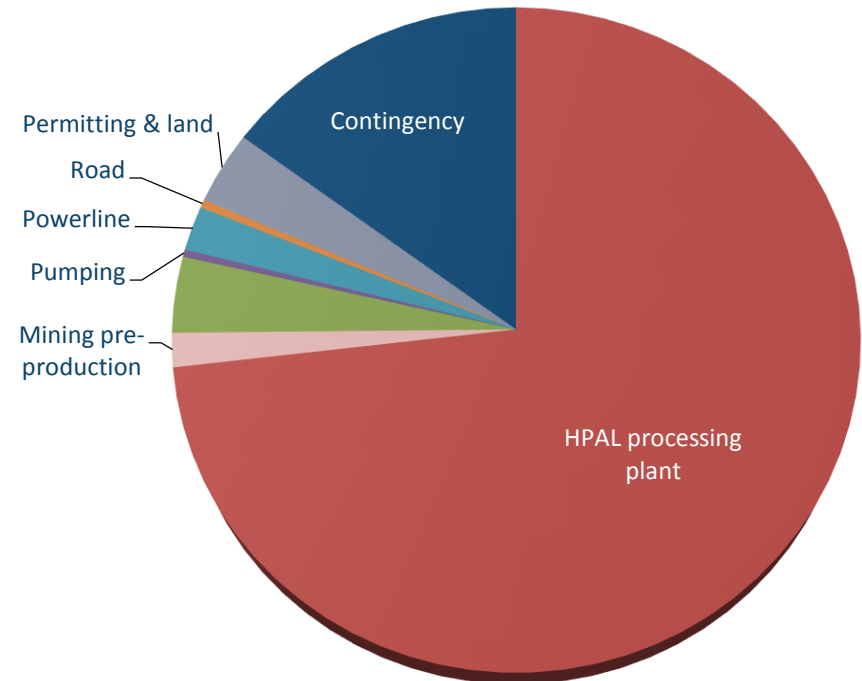


# Vermelho Capital Cost

Initial capital cost estimate of US\$652 million

Area Name	Costs (US\$'M)
Processing plant	477.3
Mining pre-production	10.8
Tailings & Sediment	24.1
Pumping	2.3
Powerline	14.1
Road	2.6
Permitting & Land	23.3
Contingency	97.7
<b>Total</b>	<b>652.2</b>

Capital Cost Breakdown

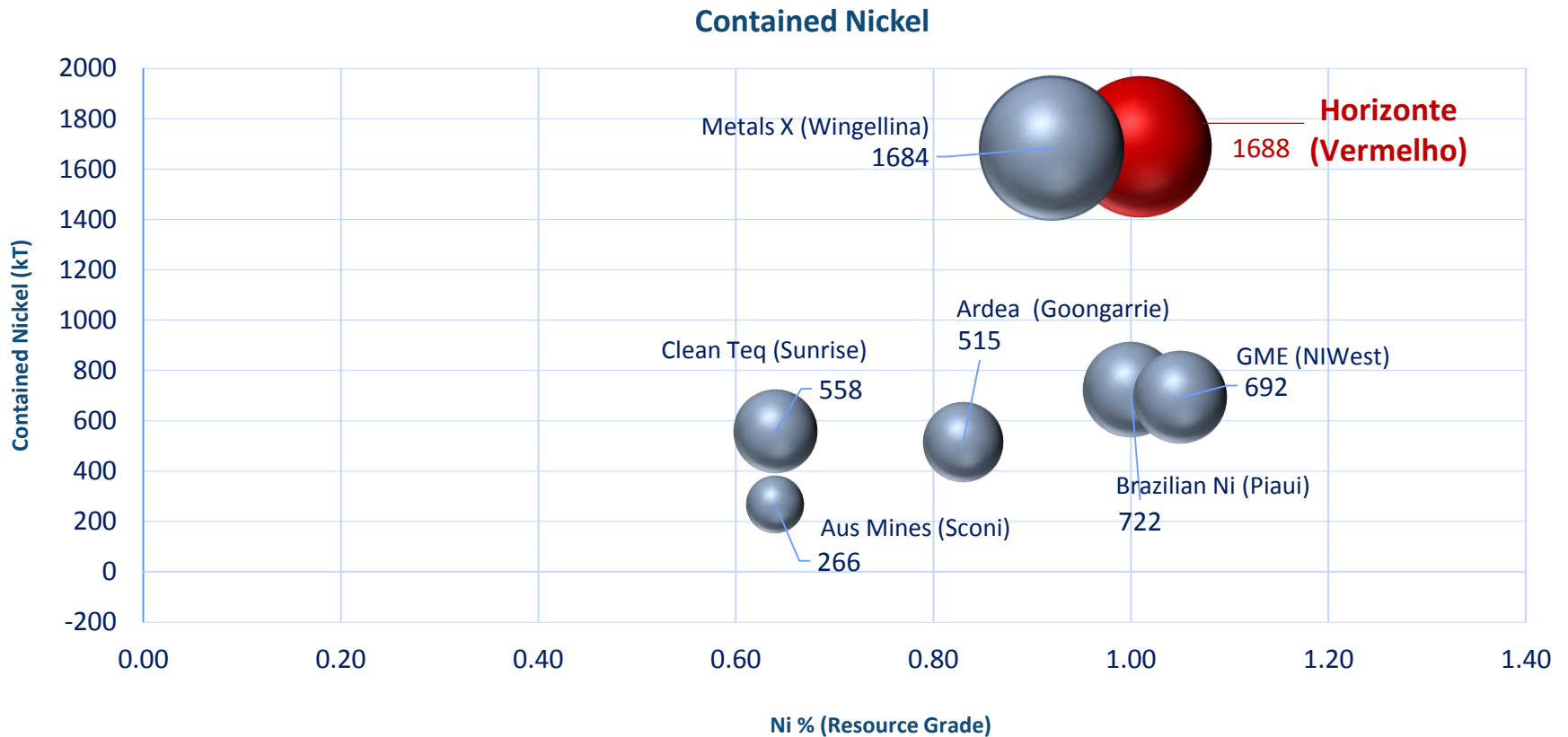


Stage 2 expansion capital \$447m funded out of cash flows commencing year2, sustaining capital of US\$52 million is spread over LOM

\*Undertaken to AACE class 4 standard with combined accuracy of - 25% to +20%. The capital and operating costs are as of Q2 2019.



# Vermelho – Tier 1 Project

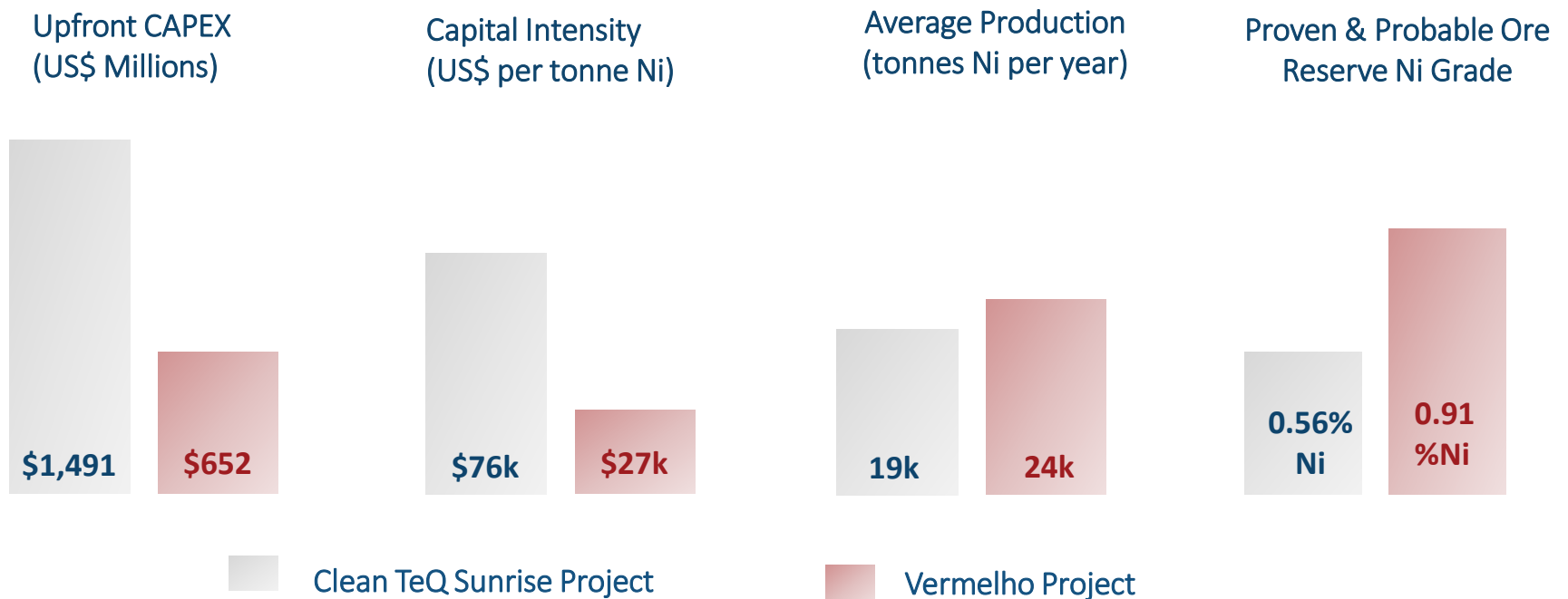


**Note:** Resources based on published reports in 2018, for Measured and Indicated resources. The category(s) of the MRE for Metals X Limited - Wingellina Project has not been presented in Measured, Indicated and Inferred categories so is unknown if includes Inferred resources. Sources include: Snowden NI 43-101 - June 2018 (Vermelho); Clean TeQ SRK NI 43-101 - June 2018 (Sunrise Project); Ardea Resources MRE report to ASX March 2018 (Goongarrie Project); Australian Mines Ltd Press Release for Sconi BFS (Sconi Project); Brazilian Nickel - Piaui fact sheet 2018 (Piaui Project); Metals X Limited Annual Report June 2018 (Wingellina Project); GME Resources Press Release on NiWest PFS August 2018 (NiWest Project).



# Vermelho versus Clean TeQ Sunrise project

Vermelho's high grade -scalable resource suitable for upgrading, location in an established mining district means lower upfront capital and a lower capital intensity per tonne of Nickel produced





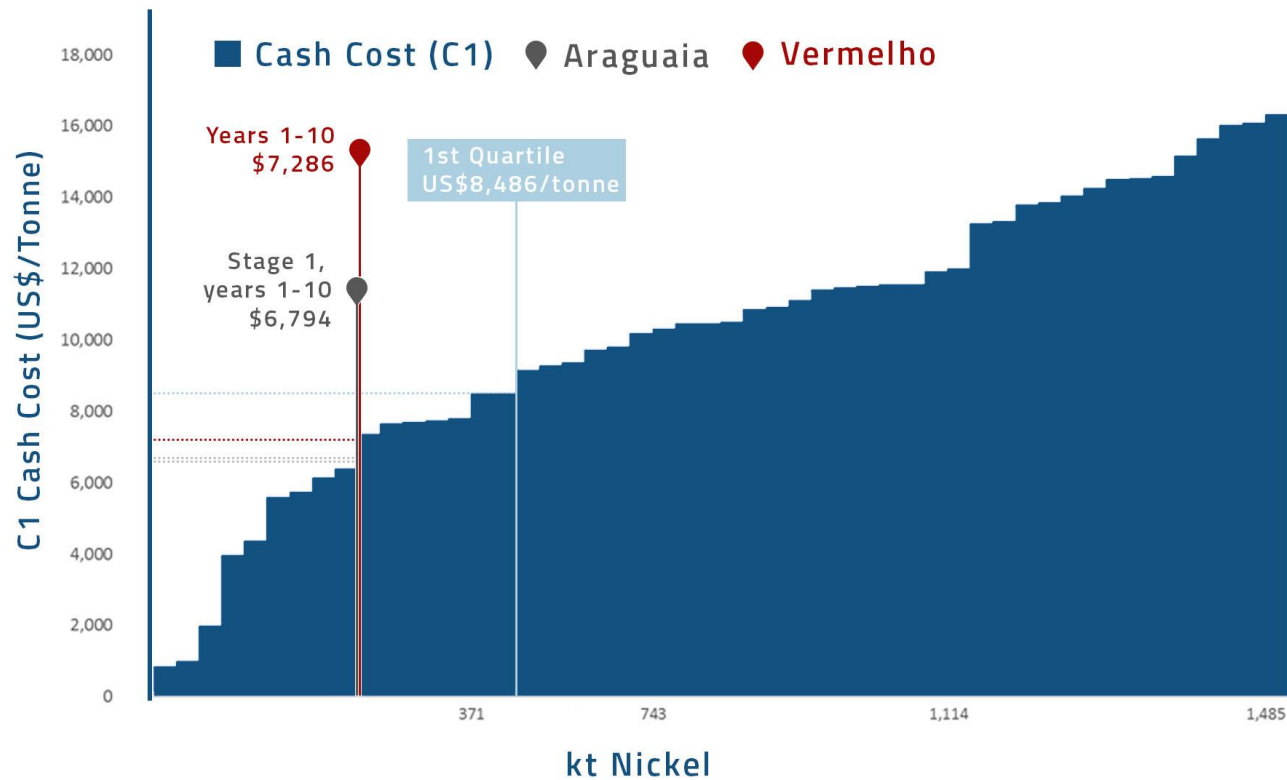
# Development Pathway





# HZM Low Cost Projects

Araguaia & Vermelho both positioned in the lower quartile for nickel laterite production C1 (Brook Hunt) Cash Cost.



Source:Wood Mackenzie



# Experienced Team

## Senior Management



### David J. Hall - Chairman

- 30 years in exploration, projects and operations in over 40 countries. Extensive South America and Brazil experience. Previously Minorco, Anglo American Plc and AngloGold.
- Responsible for exploration around the Cerro Vanguardia gold mine in Argentina, Morro Velho and Crixas mines in Brazil and the La Recantada gold deposit in Peru.



### Jeremy J. Martin - CEO and Director

- Over 20 years geology and mining experience.
- Managed open pit gold mine in Sweden and development stage base metals projects.
- Corp finance and funding experience.
- Founding director in a number of TSX and AIM listed Resource Companies.



### Simon Retter - CFO and Company Secretary

- Chartered Accountant.
- Director on a number of listed Resources Companies.
- Experience in public markets, mining sector finance & modelling, reverse takeovers.
- Previously Deloitte and Touche LLP.



### Pedro Rodrigues – Project Director for Araguaia

- Brazilian national, over 30 years experience in mining and infrastructure projects.
- Civil engineer with prior senior positions held in MMG, Jacobs M&M Americas & Newmont.
- Significant experience on major mining projects including: Las Bambas; Mina Justa; Cerro Verde and many others.



### Fabiano Araujo - Brazil Country Manager

- Brazilian national, over 25 years experience in mining operations and projects.
- Mining engineer with prior senior positions held in Vale, Snowden and Accelor.
- Significant experience on major iron ore projects including: S11D, Brucutu & Serra Azul; Mt Wright expansion and Yekepa.



### Katie Millar - Sustainability & External Affairs Manager

- Corporate Social Responsibility specialist, focus in Brazilian mining and environmental licensing.
- Resource experience (Anglo American Plc): Niobium Feasibility and \$400M construction; Phosphates Feasibility; Nickel, Niobium & Phosphates operations; Metallurgical Coal Dawson operation.



### Anthony Finch - Study Manager

- Over 30 years experience in mining engineering, mining operations and consulting.
- Competent and qualified person.
- Resource experience includes FS's for : Syrah Resources (Graphite in Mozambique) - Sunridge (Copper Lead Zinc ), La Mancha (Gold - Sudan), Uranium One (Tanzania).



# Horizonte Investment Highlights

## Direct Exposure to Nickel

- Two Tier 1 nickel projects, both 100% owned. Significant inventory with over 4Mt contained nickel one of the largest portfolios of nickel outside of the majors.
- Best performing base metal of 2019 and fundamentals remain compelling for long term.

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## Economics

- Araguaia FS: Stage 2 (expansion case) has an estimated IRR of 30.7% & NPV of \$1.2B.
- Vermelho PFS: has an estimated IRR of 26.3% & NPV of \$1.7B (both projects at \$16,400/t Nickel).

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## Well Funded

- Company cash position ~US\$30M, looking for strategic Vermelho partner.
- Royalty with Orion complete, well placed to advance full finance package for Araguaia.

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## Location

- Both projects located in an established mining district with well developed infrastructure.
- Proactive government support; nickel and cobalt materials to be responsibly mined.

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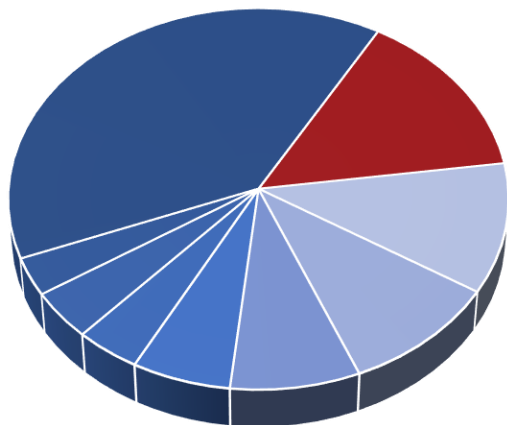
## Scalability

- Araguaia designed for Stage 2 expansion potential to increase production to 29,000t/a nickel.
- Vermelho – average 24,000 t/a nickel and ~1,300 t/a cobalt.
- Potential to develop a nickel unit with a capacity of up to 53,000 t/a in four stages



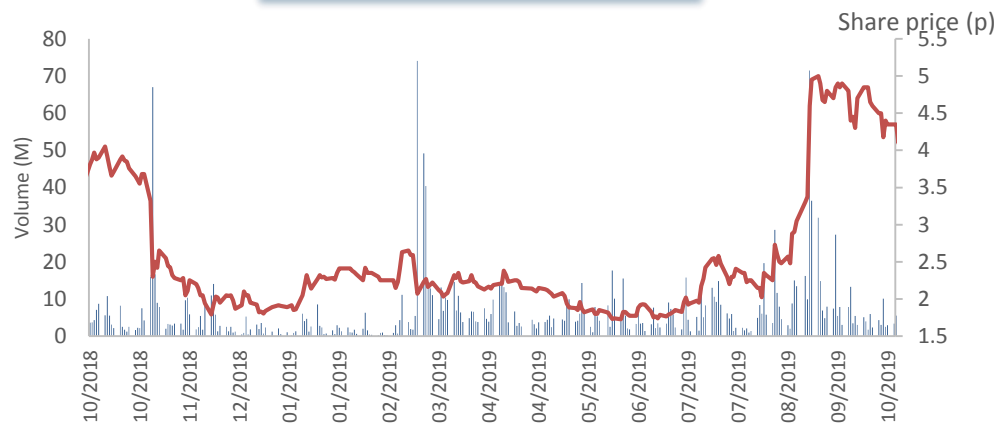
# Corporate Snapshot

## Key Shareholders



- Teck Resources 14.5%
- Hargreaves Lansdown 11.0%
- Canaccord Genuity Group 9.9%
- JP Morgan 8.0%
- Glencore 6.1%
- Richard Griffiths 4.0%
- Lombard Odier 4.1%
- HSDL 3.2%
- Other 39.2%

## HZM AIM share price/volume



Ticker	AIM: HZM	TSX: HZM
Share price	4.42p	C\$0.07
Shares in issue (M)	1,446	1,446
Market Cap	£65.6M	C\$108.4M
Cash + Equivalents	£24M	C\$40M
52 week trading	AIM: 1.73p – 6.97p	(C\$0.03 – C\$0.085)
Nomad & Broker	Numis	n/a
Analyst coverage	Numis/Shard	Paradigm Capital

(Share price data as of 10 September 2019)

