



# The BMO 31st Global Metals & Mining Conference

Eduardo Bartolomeo, CEO

February 28<sup>th</sup>, 2022

*People Carrier Electric Vehicle at Vale's Sudbury Underground Operations*

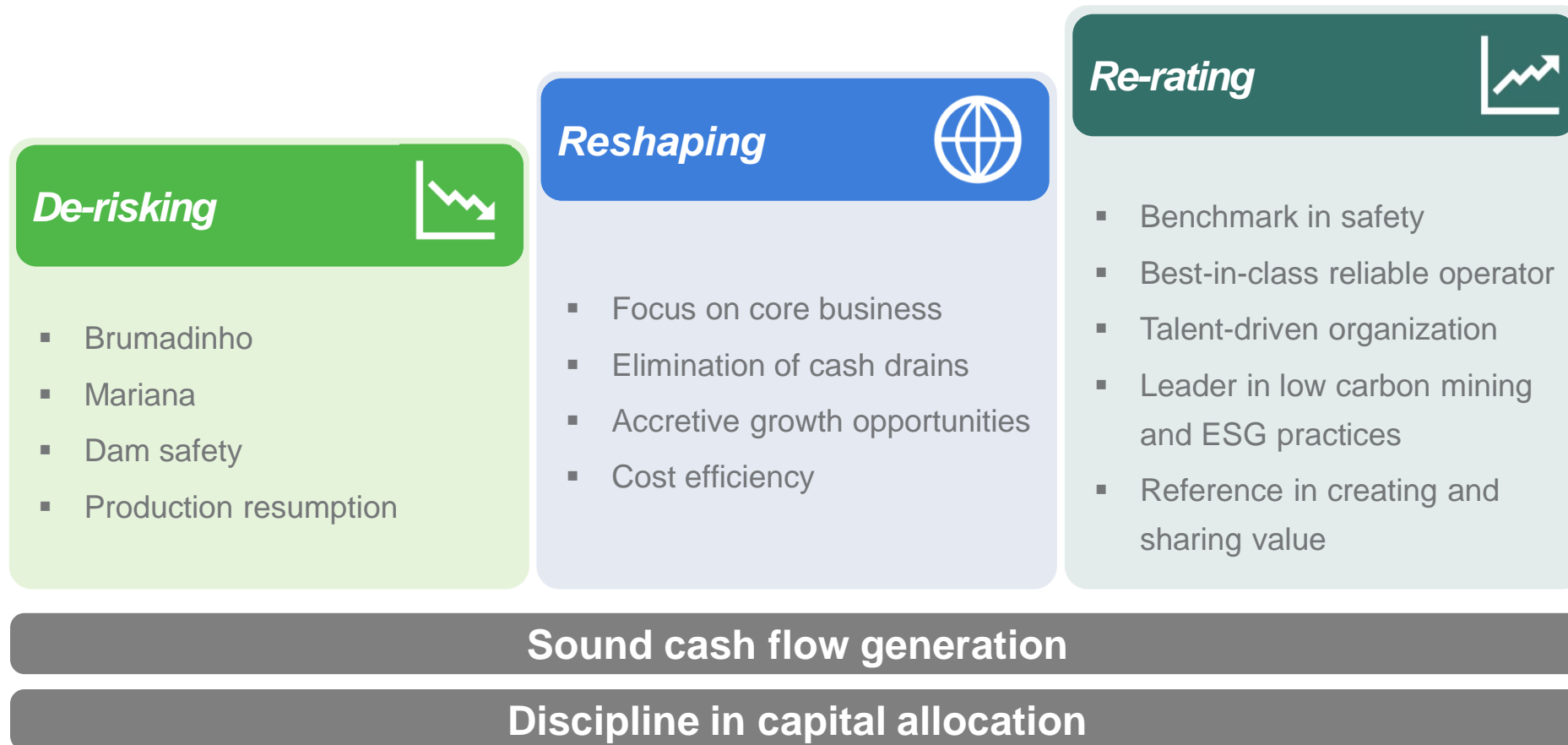


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# Building a **better** Vale



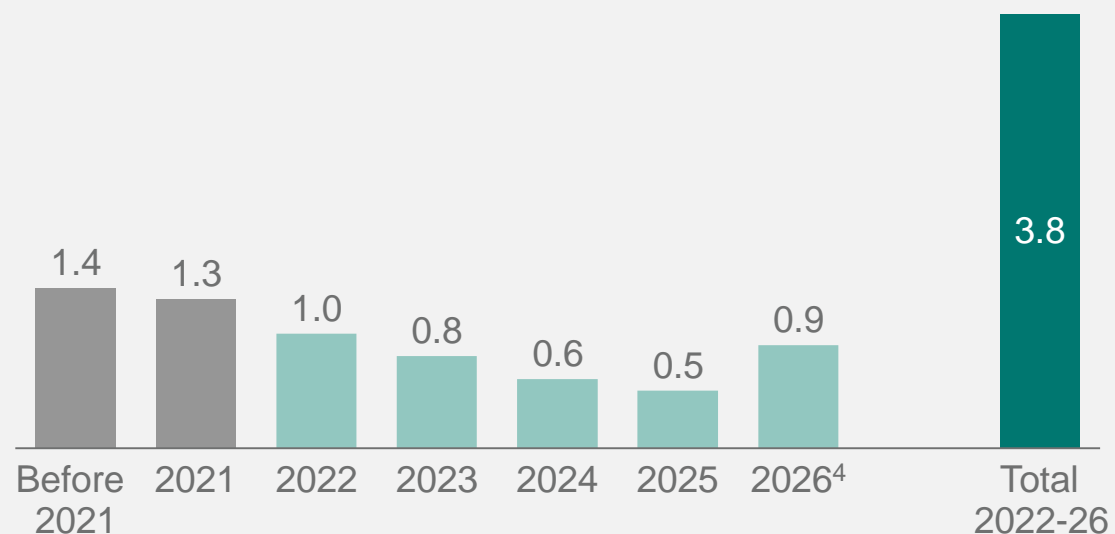
# Brumadinho, a fair and quick reparation



- Income Transfer Program for local communities
- Projects demanded by the affected communities
- Water security for the affected region

## Cash outflow - Reparation Agreement<sup>1,2</sup>

US\$ billion

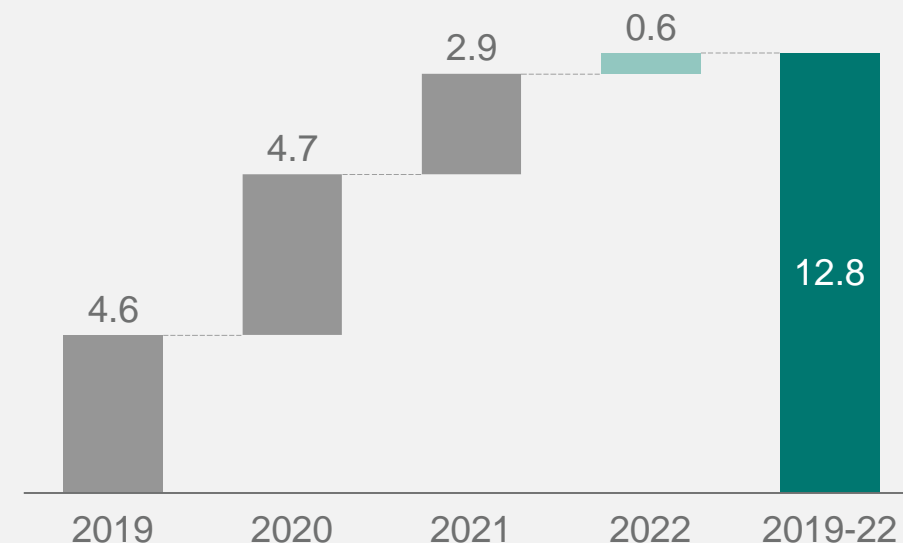


## 99% of the victims

with at least one family member with indemnification settlement

## Individuals with indemnification agreements<sup>3</sup>

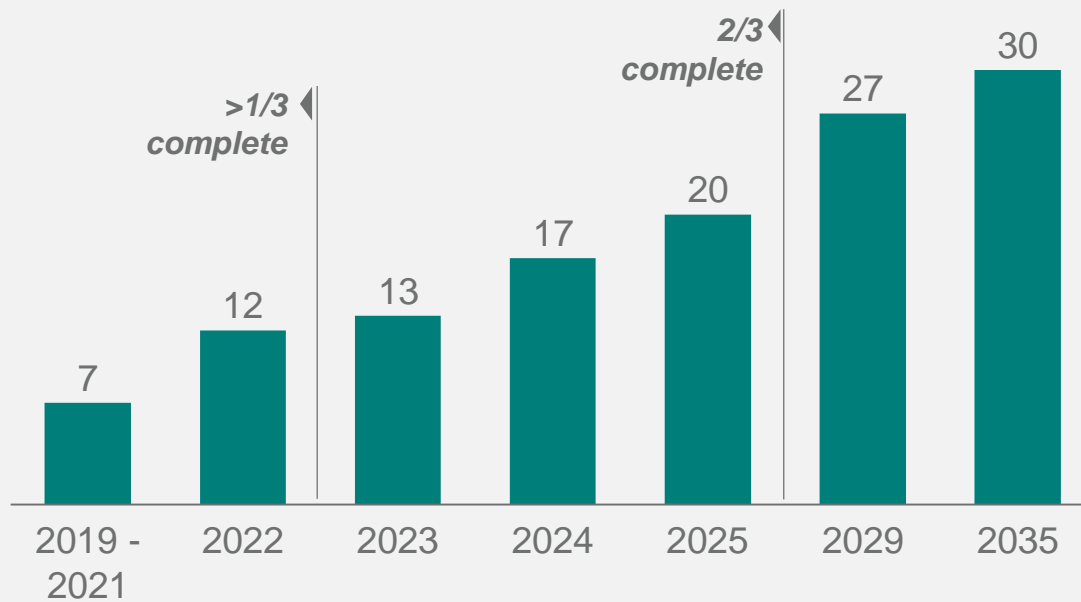
in thousands



<sup>1</sup> Considers the agreement's economic value of R\$ 37.7 billion in February 2021, adjusted by the inflation. Payments include previous disbursements and is net of judicial deposits. <sup>2</sup> Amounts stated include inflation and do not include discount to present value, considering average BRL/USD exchange rates in 2019 of 3.95, in 2020 of 5.2 and of 5.4 for 2021 and 5.6 onwards. It does not include individual indemnification nor incurred expenses. <sup>3</sup> Individuals covered by indemnification agreements entered into with Vale until February 2022. <sup>4</sup> Comprises US\$ 0.5 billion of inflation adjustments related to performance obligations which projects timeline are not defined by the agreement.

# Eliminating upstream dams and improving dam safety

Eliminated upstream structures<sup>1,2</sup>  
cumulative view

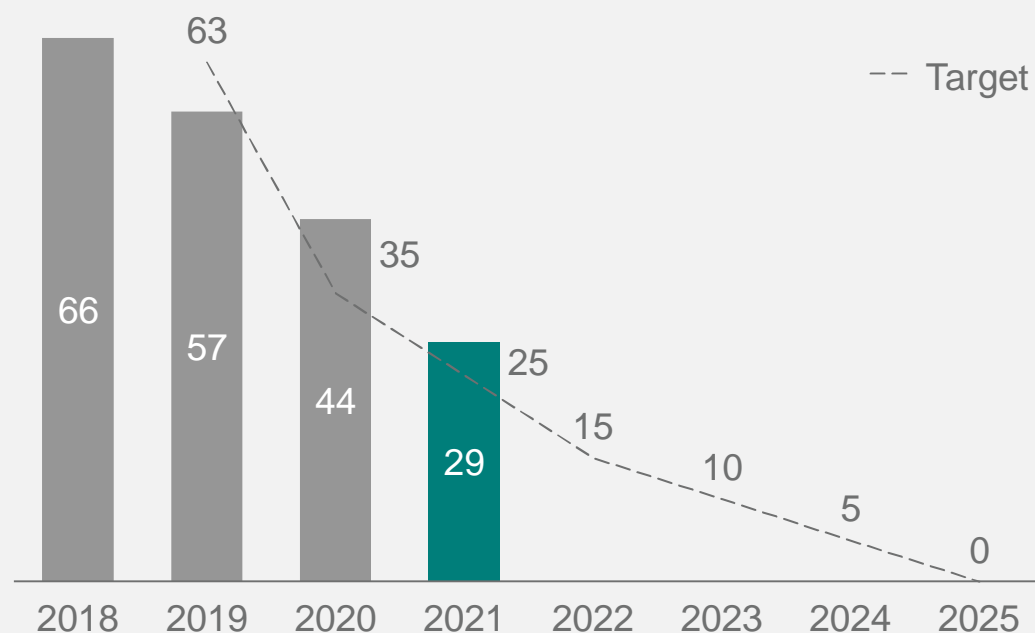


<sup>1</sup> The same heightening method deployed at B1 dam, collapsed in Brumadinho. <sup>2</sup> Comprises dams, dikes and drained stacks.

# Working towards being a **zero-fatality** company

## Reduction of high-potential recordable injuries

N2 - absolute values<sup>1</sup>

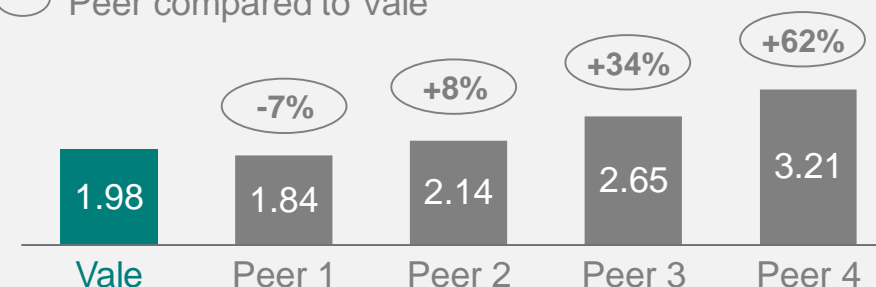


## Total recordable injury frequency rate (TRIFR<sup>2</sup>)



## TRIFR<sup>2</sup> - 2020 comparison in mining

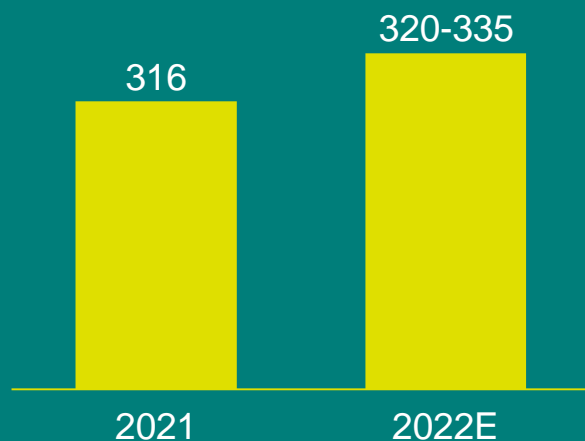
○ Peer compared to Vale



<sup>1</sup> Includes own employees and third parties. <sup>2</sup> TRIFR are calculated based on one million hours worked.

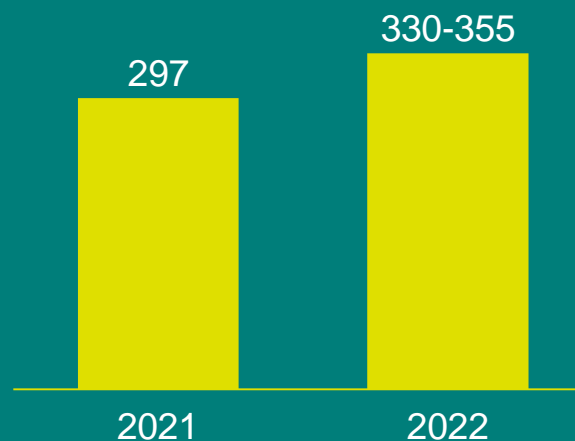
## Path to recover production: 2022 key milestones

### Iron ore production Mt



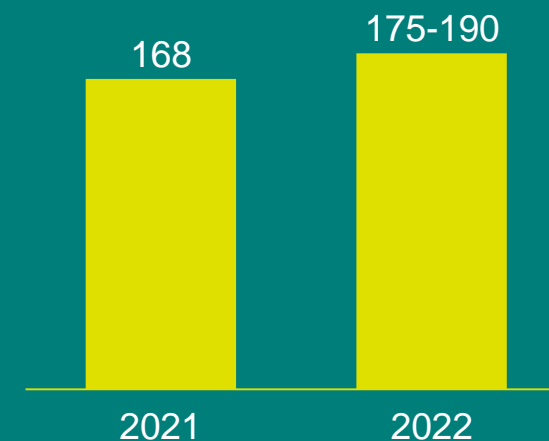
- Improvement of S11D performance with jaspilite crushers and mobile crushers
- Higher quality product portfolio
- Tailings' filtration plants and start-up of Torto dam and raising of Itabiruçu dam (taking capacity to 370 Mtpy)

### Copper production kt



- Stable production at North Atlantic mines (Sudbury + Totten ramp up)
- Improvement in Salobo mine movement and startup of Salobo 3
- Planned maintenance at Sossego

### Nickel production kt



- Stable production at North Atlantic mines (Sudbury + Totten ramp up)
- New projects: VBME and CCM 1
- Onça Puma stabilization
- PTVI furnace rebuild

# Leaner portfolio set up for growth

## Divestment of non-core assets

### Concluded since Vale Day 2020

VNC  
Manganese Ferroalloys  
Mosaic  
CSI



### Final completion

Moatize



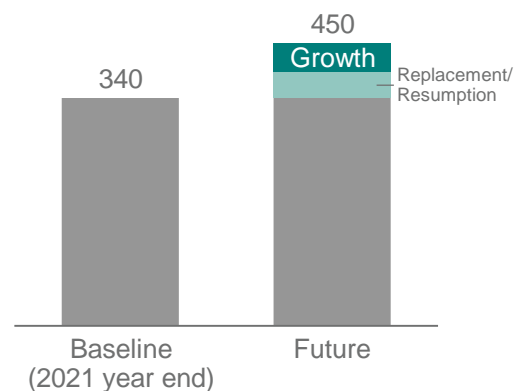
### Upcoming

MRN  
CSP



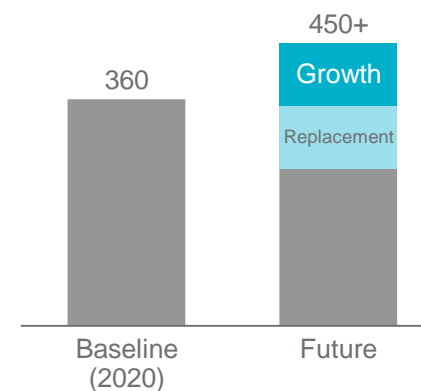
## Pipeline of projects

### Iron Ore capacity Mtpy



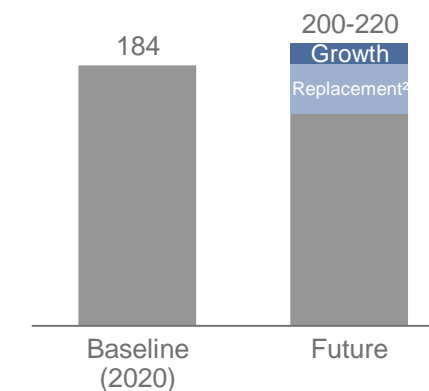
- Serra Sul +20 Mtpy
- S11D +10 Mtpy
- Capanema<sup>1</sup> +18 Mtpy
- Gelado (R)
- Northern System N3 (R)

### Copper production ktpy



- Salobo 3 +30-40 ktpy
- Alemão +60 ktpy
- Victor (R)
- South Hub Ext. (R)

### Nickel production ktpy



- VBME (R) & CCM 1 (R) (ramping up)
- CCM 3&4 (R)
- Manitoba Ext. Ph.2 (R)
- Victor (R)
- Onça Puma 2<sup>nd</sup> furnace +12-15 kt

(R) Replacement and resumption projects. <sup>1</sup> Net addition capacity of 14 Mtpy. <sup>2</sup> Excluding CCM 1 and VBME projects which are ramping up

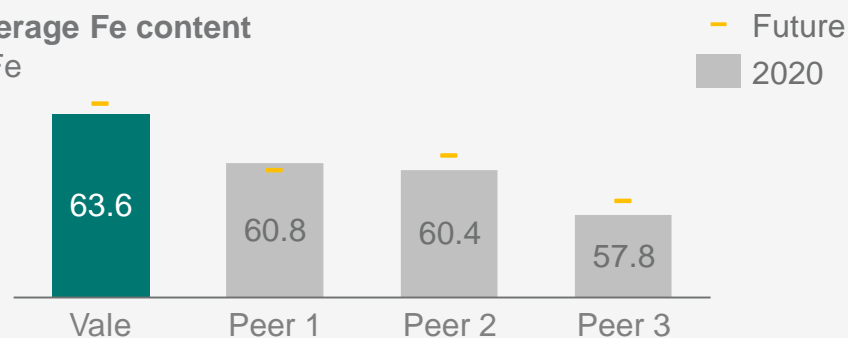




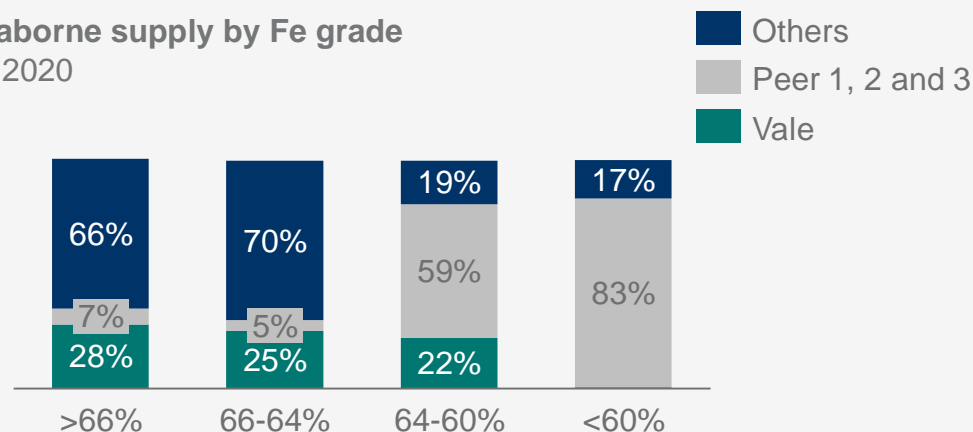
# Well-positioned to pivot towards a low-carbon economy

## Iron Ore premium portfolio

Average Fe content  
%Fe



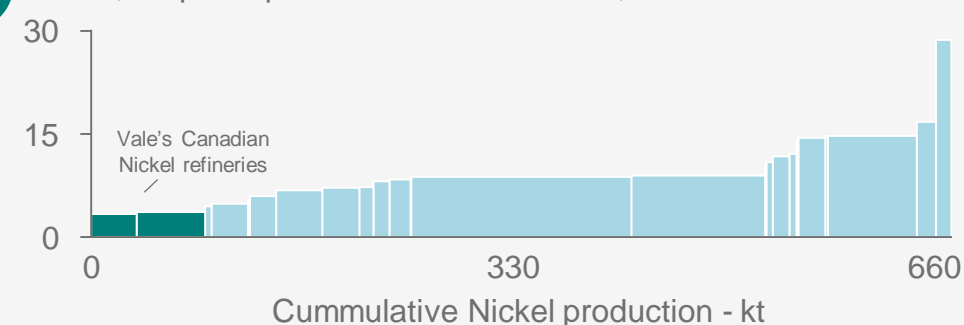
Seaborne supply by Fe grade  
%, 2020



## Low carbon base metals operations

Ni

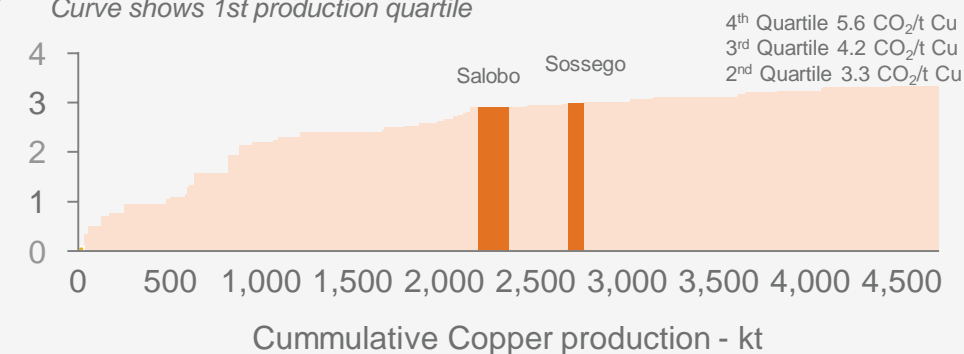
2020, Sulphide producers finished nickel, CO<sub>2</sub> Mt/t Ni cont.<sup>1</sup>



Cu

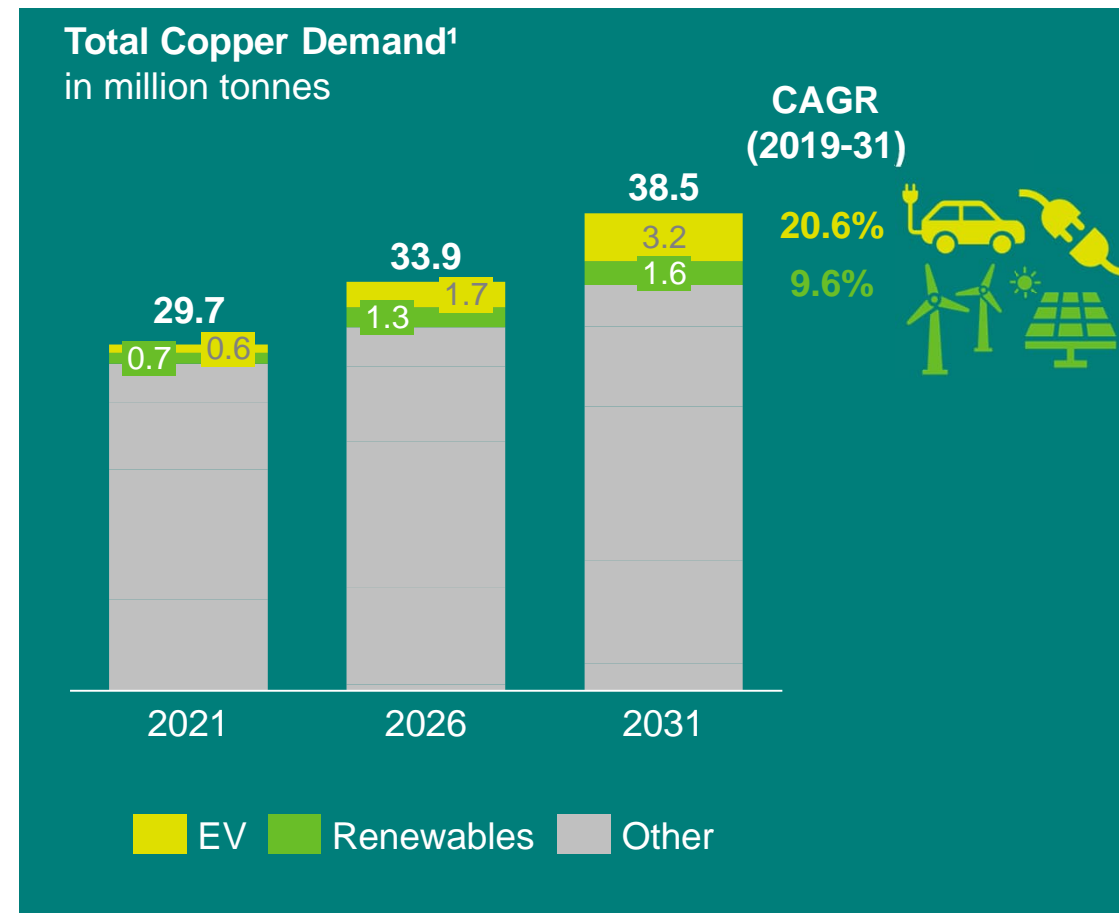
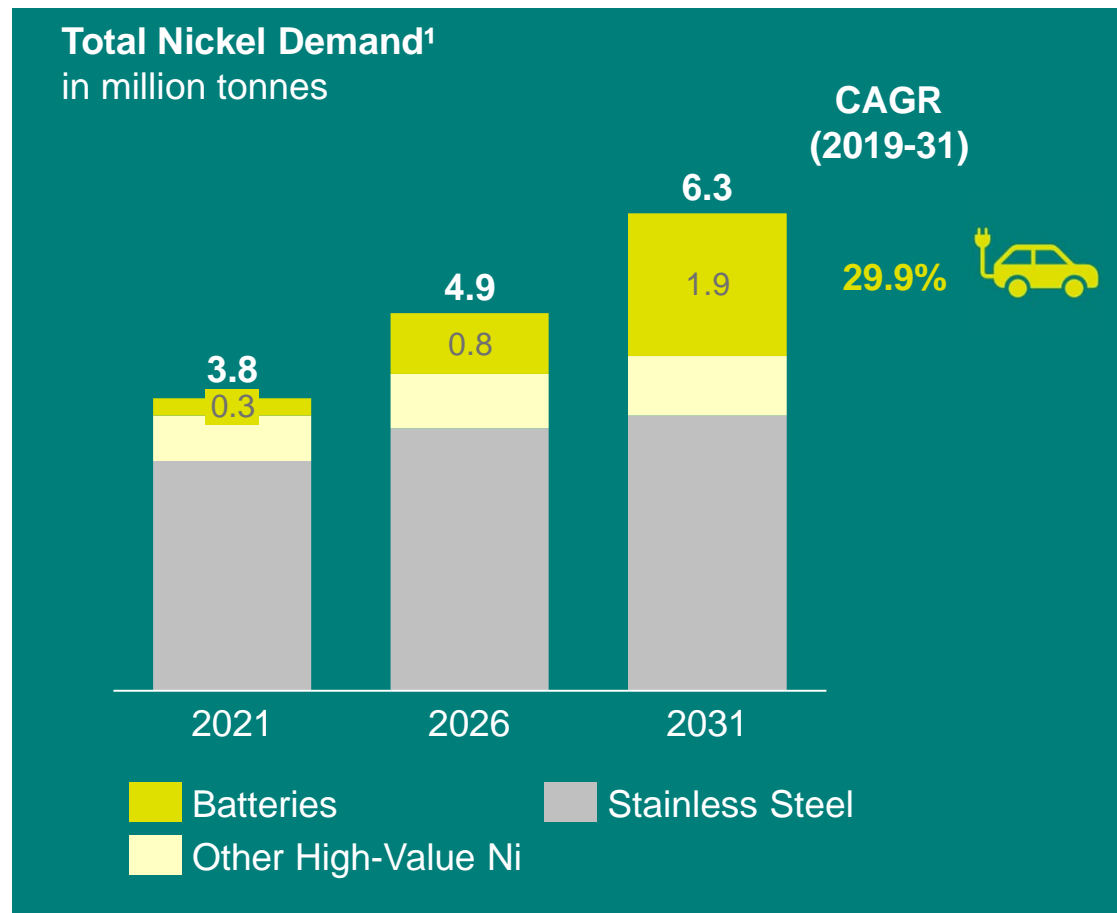
2020, Mt CO<sub>2</sub>/t Cu cont.<sup>1</sup>

Curve shows 1st production quartile



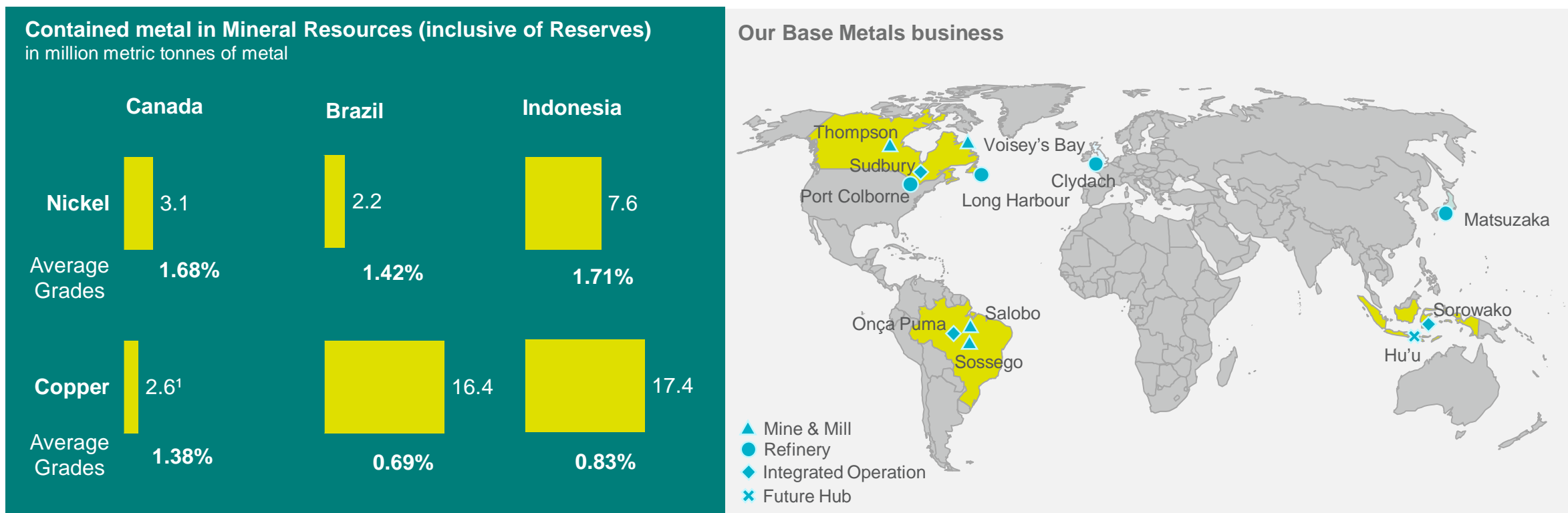
<sup>1</sup> Scopes 1 & 2 emissions.  
Source: Vale, Skarn.

## Base metals: winner in the energy transition



<sup>1</sup> Includes secondary demand (scrap)

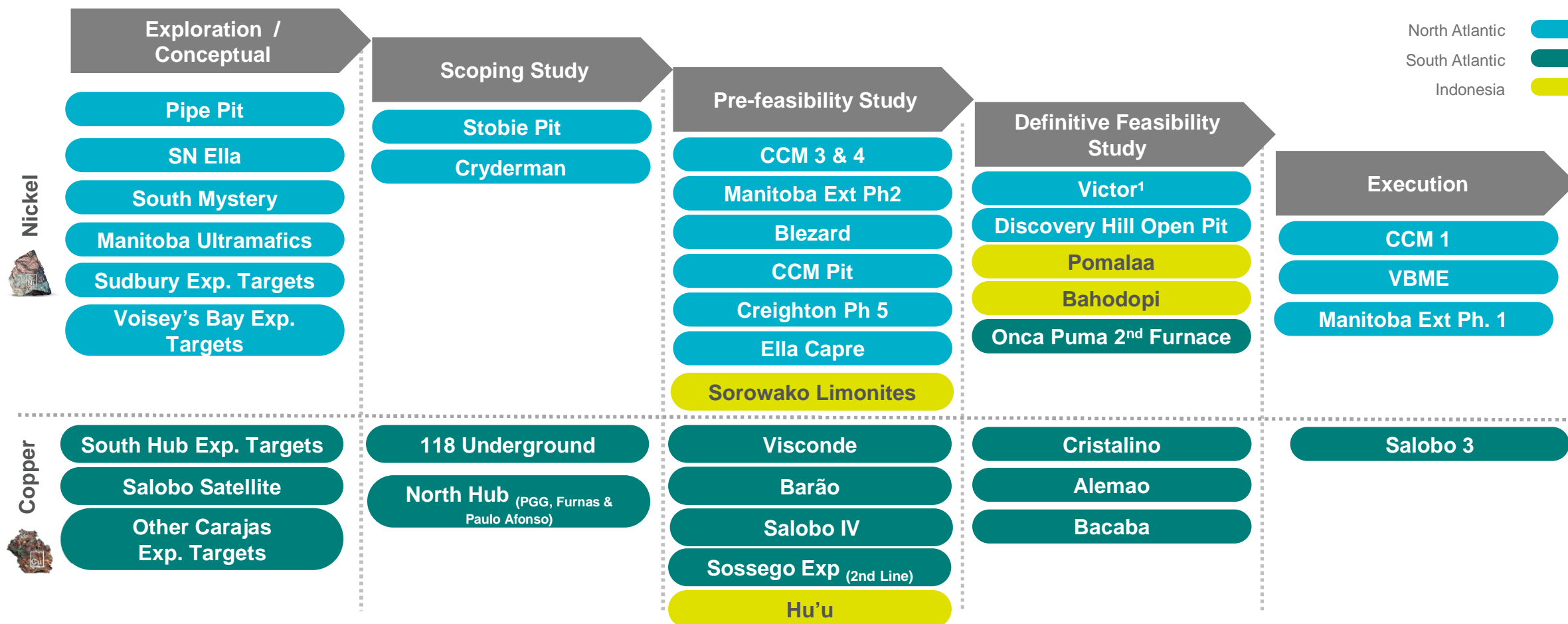
# Vale Base Metals: right assets, right jurisdictions with technical expertise



**Top 3 or better resource position in each jurisdiction for primary mined metals<sup>2</sup>**

Note: 2020 Mineral Resource estimates as of December 31, 2020, except for copper resources in Indonesia (interim pre-feasibility study update concluded in December 2021). Minerals resources are shown in 100% basis, not reflecting Vale's interest. Mineral Resources includes measured, indicated and inferred categories. All tonnage information has been rounded to reflect the relative uncertainty in the estimates. <sup>1</sup> Copper is a byproduct of Canadian nickel operations. <sup>2</sup> Primary mined metals would be nickel for Canada, copper and nickel each for Brazil and Indonesia. For Canadian copper, which is a byproduct, Vale is not Top 3 in resources.

# Building a robust project portfolio

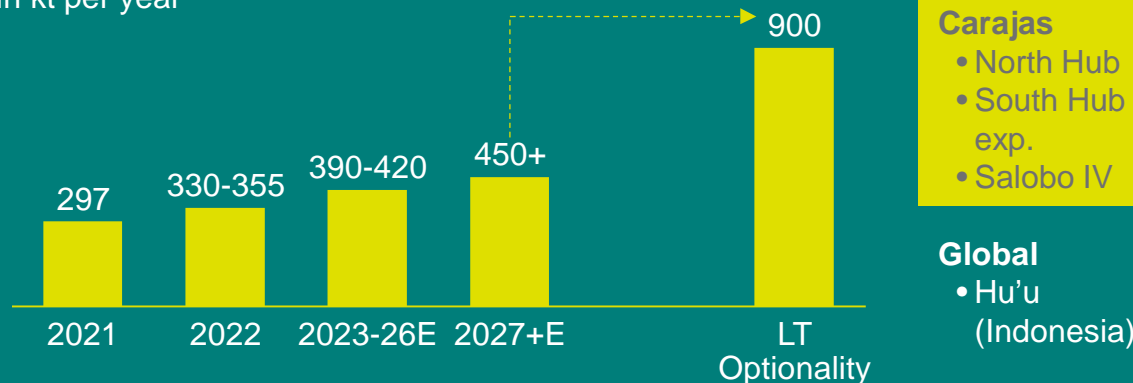


Note: Stages of development are not indicative of schedule of approval. Only those in execution have been approved. <sup>1</sup> Victor is expected to produce ~20kt of copper. It is allocated to the nickel business as it should feed into the North Atlantic nickel flowsheet.

# Copper

## Leveraging from regional opportunities

Vale's production plan and optionality for copper  
in kt per year



Project	Stage	Startup	Production	CAPEX
<b>Carajás Mineral district</b>				
Salobo 3	Construction	2H 2022	30-40 kt	US\$ 1.1 bn
Alemão	Feasibility	2026/2027	~60 kt	US\$ 2.1-2.3 bn
South Hub extension <sup>1</sup>	Feasibility	2026	80 kt	US\$ 1.3-1.5 bn

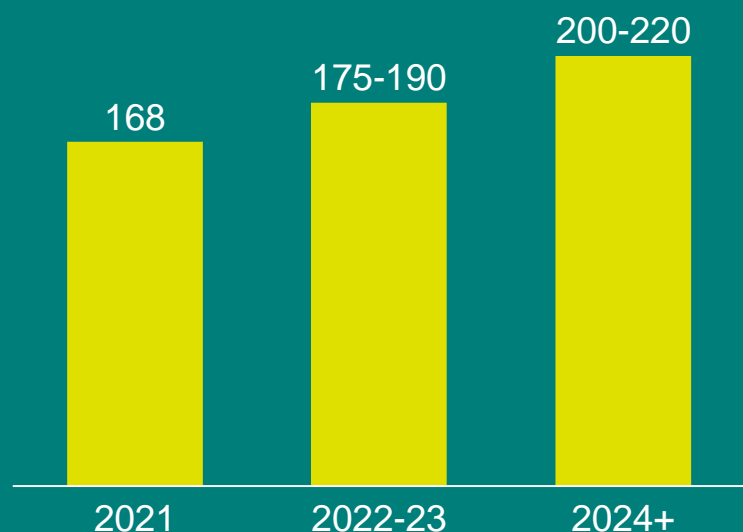
<sup>1</sup> Refers to Cristalino project.



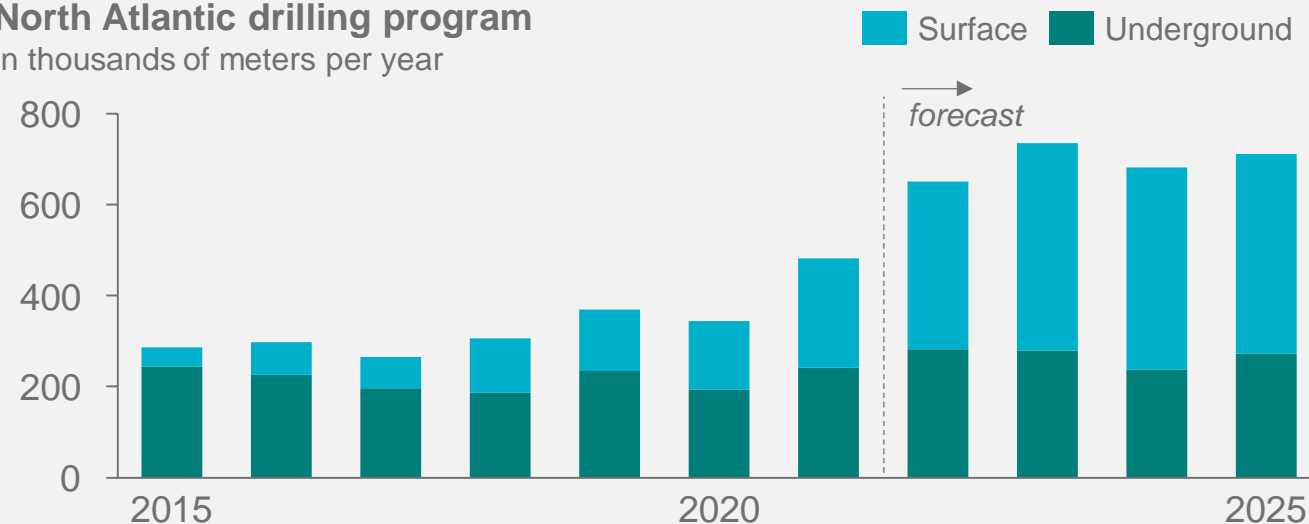
# Nickel

## Building a stable business

**Vale's production plan for Nickel**  
in kt per year



**North Atlantic drilling program**  
in thousands of meters per year



### Voisey's Bay

- Extensive near mine and regional program
- Potential to add resources and extend mine life at Reid Brook and Eastern Deeps

### Sudbury

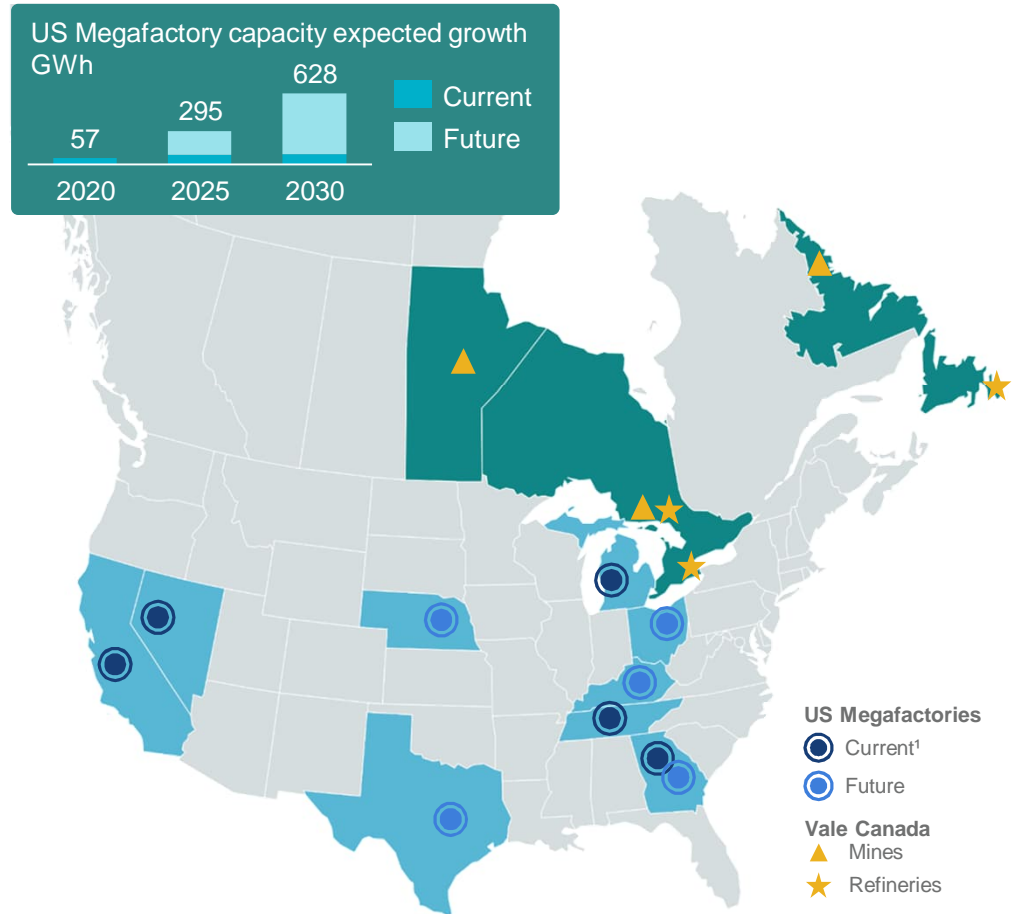
- Balanced portfolio of early-stage targets, advanced projects and near mine opportunities
- Strong land position in world-class Ni camp with synergies to existing operations

### Thompson

- Exploring near mine targets to extend mine life at Thompson Mine
- Advancing exploration studies on large ultramafic-hosted Ni deposits

# Nickel

## Key foundation for establishing North American EV supply chain



Increase supply of EV market metals in North America, targeting to achieve 30-40% of Ni market in the mid-term



Fully utilize existing production assets, producing best in class products with opportunities to further optimize.



Develop partnerships through the value chain, communities and rightsholders.



Develop black mass recycling: advancing quickly both sourcing and returning sustainable metals

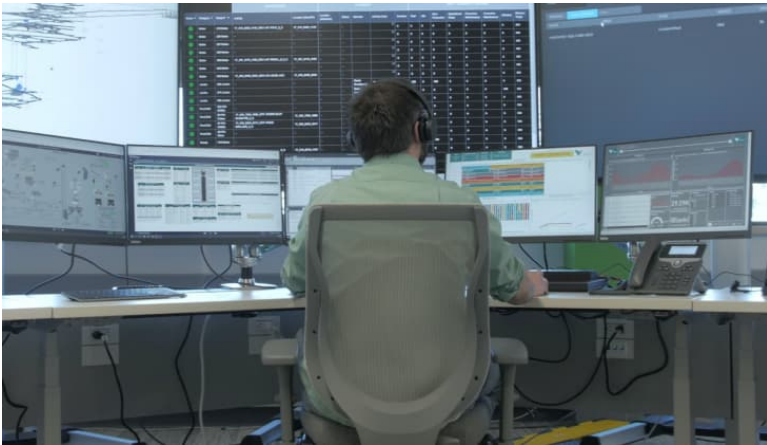


Evaluate options to build a nickel sulphate plant in North America, as a first mover to leverage larger growth potential

<sup>1</sup> Major Megafactories in 2020.

Source: Benchmark Mineral Intelligence (October 2021).

# Investing in technology for a **stronger performance**



## Integrated Remote Operating Control (iROC)

- ✓ Short interval control: adherence to plan and expedite problem solving
- ✓ Minimize operational delays and expedite maintenance services
- ✓ Opportunity to increased production (>10%)



## Mine automation and continuous operations

- ✓ Mechanical rock excavator: potential to change underground hard rock mining in Canada
- ✓ More continuous type process, aiming to increase productivity by 50% in underground development activities (less blasting, more time at face)
- ✓ Undergoing trials at Garson mine in Sudbury



## Autonomous equipment coupled with Surge Loader & Ore Sorter

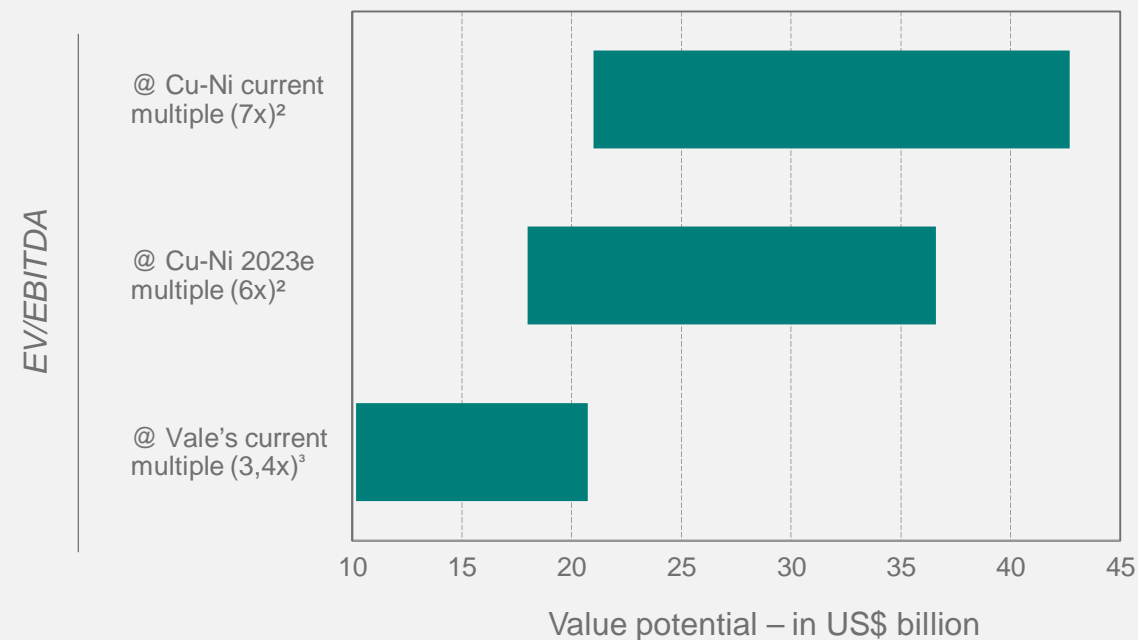
- ✓ Autonomous drills & trucks: remove people from risk, increase productivity and effective work time
- ✓ Surge Loader with ore sorting: high-grading to increase recovery
- ✓ Full implementation of the autonomous across Base Metals for >5% asset productivity increase and ~ 5% reduction in GHG emissions

# Base Metals business: up to US\$ 40 billion value potential

## Mid-term Base Metals EBITDA<sup>1</sup>

		Copper price (US\$/t)		
in US\$ billion		6,500	8,000	9,500
Nickel price (US\$/t)	16,000	~3.0	~3.7	~4.3
	19,000	~3.9	~4.6	~5.2
	22,000	~4.8	~5.5	~6.1

## Base metals value potential



<sup>1</sup> Assuming ~220ktpy Ni production and ~420 ktpy of copper production. <sup>2</sup> Average multiple for Copper and Nickel companies in the last 30 days as of February 21, 2022. <sup>3</sup> Average multiple for Vale in the last 30 days as of February 21, 2022.



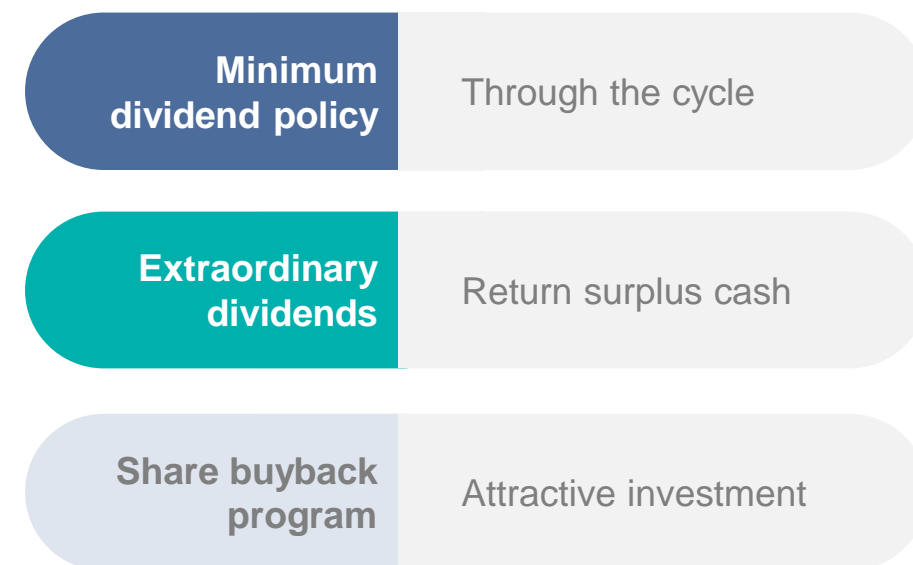
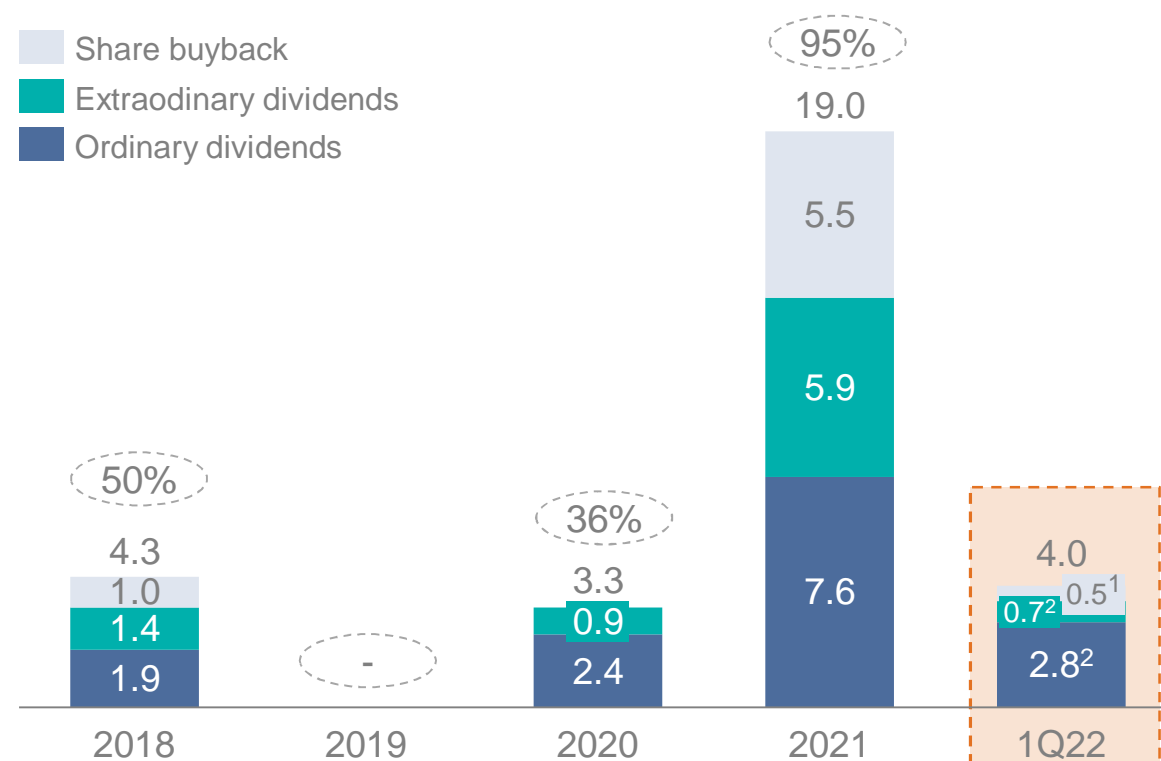
# Committed to maintain **solid shareholders' return**

## Free cash flow returned to shareholder

US\$ billion

○ Free cash flow returned to shareholder (%)

- Share buyback
- Extraordinary dividends
- Ordinary dividends



1 Considering share buyback program in year-to-date (February 24). 2 Considering dividends announced in February 24 to be paid in March.



## On track for **delivering value**

**Materially de-risked and re-shaped portfolio**

**Substantial value creation opportunity at Base Metals**

**Class I Iron Ore key to support the energy transition**

**Capital discipline and return to shareholder to remain a priority**

