Big Nickel – Sudbury
Photo: Aqnus Febriyant

XXII Analyst & Investor Tour

North Atlantic Operations Centre – Sudbury
September 7th, 2022

VALE

Disclaimer

"This presentation may include statements that present Vale's expectations about future events or results. All statements, when based upon expectations about the future involve various risks and uncertainties. Vale cannot guarantee that such statements will prove correct. These risks and uncertainties include factors related to the following: (a) the countries where we operate, especially Brazil and Canada; (b) the global economy; (c) the capital markets; (d) the mining and metals prices and their dependence on global industrial production, which is cyclical by nature; (e) global competition in the markets in which Vale operates; and (f) the estimation of mineral resources and reserves, the exploration of mineral reserves and resources and the development of mining facilities, our ability to obtain or renew licenses, the depletion and exhaustion of mines and mineral reserves and resources. To obtain further information on factors that may lead to results different from those forecast by Vale, please consult the reports Vale files with the U.S. Securities and Exchange Commission (SEC), the Brazilian Comissão de Valores Mobiliários (CVM) and in particular the factors discussed under "Forward-Looking Statements" and "Risk Factors" in Vale's annual report on Form 20-F.

VALE

Vale Base Metals uniquely positioned for the global energy transition

Right Time

Base Metals are undergoing a multi-decade shift in demand due to the Global low-carbon energy transition

Increased demand coupled with a **lack of supply** will attract **significant interest** across the industry

Right Assets

Well-Positioned **Resource** Base

Established **Efficient Processing Plants**

Superior **Product Mix** vs. Other Industry Players

Low Carbon products

Unique and Diverse Nickel and Copper Exposure

Right Actions

Benchmark in **Safety & Sustainability**

New Pact with Society

Asset **Excellence**

Pivoting our Nickel products for the **EV Supply Chain**

Delivering the **Future**

VALE

Poised for Multi-Decade Shift in Demand

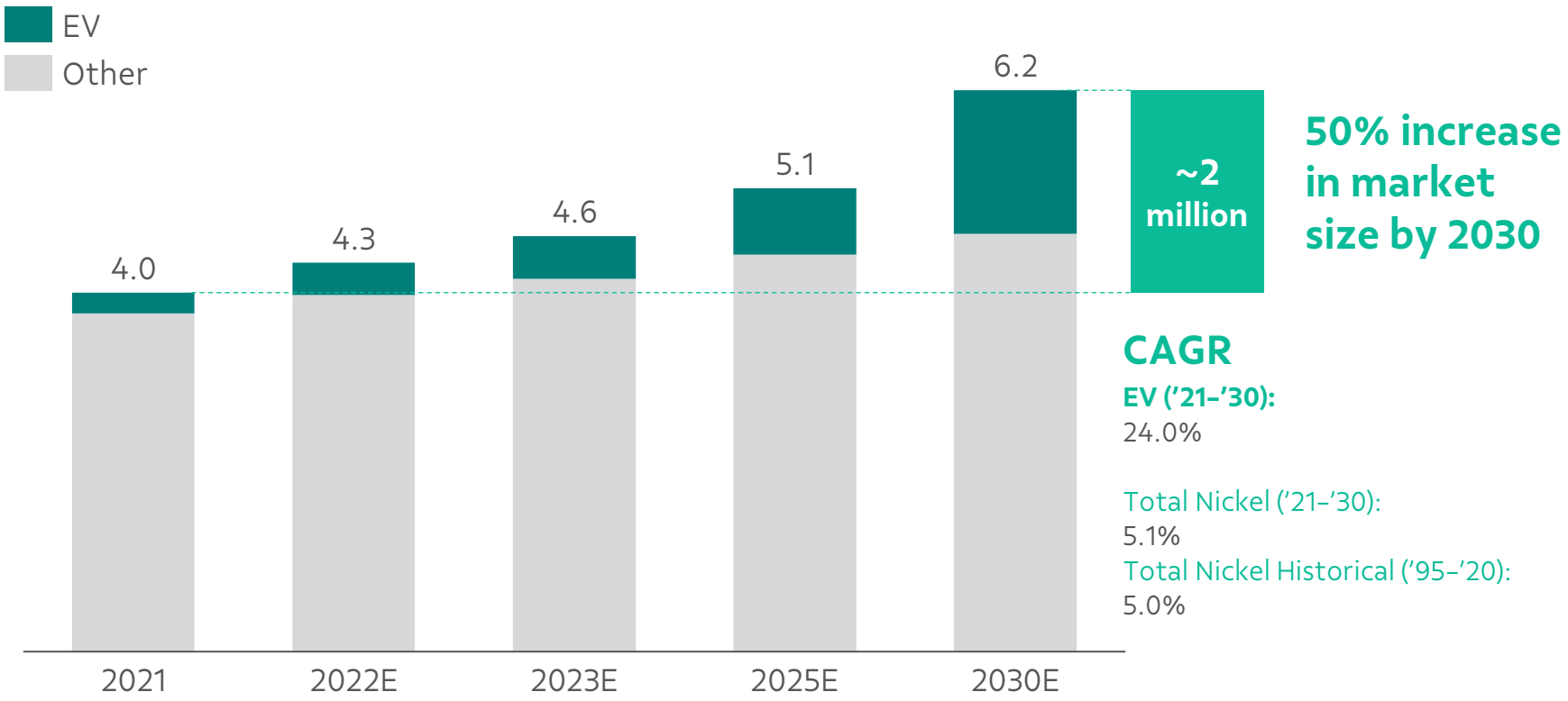
Juan Merlini – Head of Sales & Marketing for Base Metals

VALE

Nickel demand is set to rapidly increase in this decade on the back of **energy transition**...

40 – 60kg of Nickel
for a Ni-rich EV battery
vs.
1 – 2kg for ICE vehicles

Nickel demand[1]
million tonnes per year



50% increase in market size by 2030

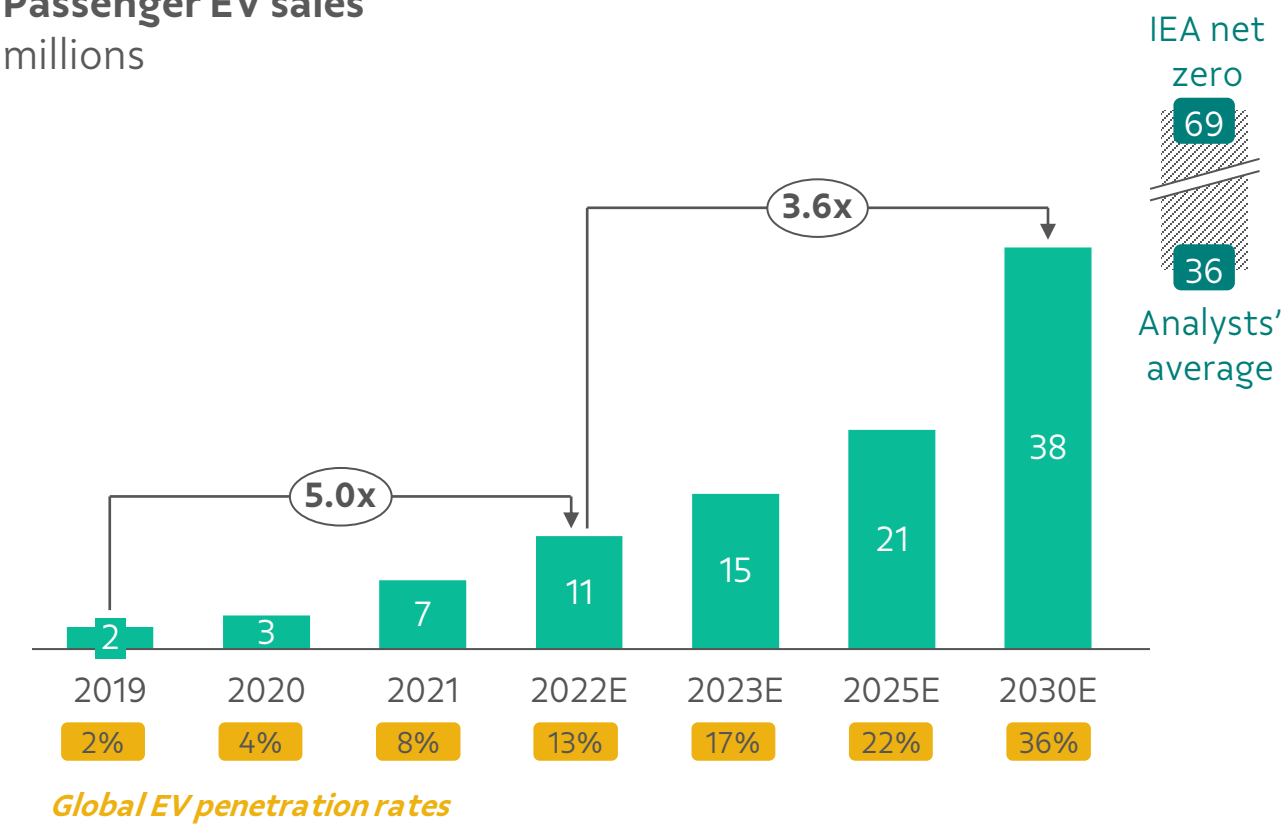
CAGR
EV ('21–'30):
24.0%

Total Nickel ('21–'30):
5.1%
Total Nickel Historical ('95–'20):
5.0%

[1] Total finished demand, including scrap.
Source: Vale BM Marketing

...driven by **rapidly expanding sales in EVs** which should be 4x higher by the end of this decade...

Passenger EV sales
millions



Global EV penetration rates

Energy transition goals and lower emission targets drove initial EV development

Policy-driven EV adoption maturing into consumer-driven adoption
~150 models in 2018 vs. ~340 in 2022

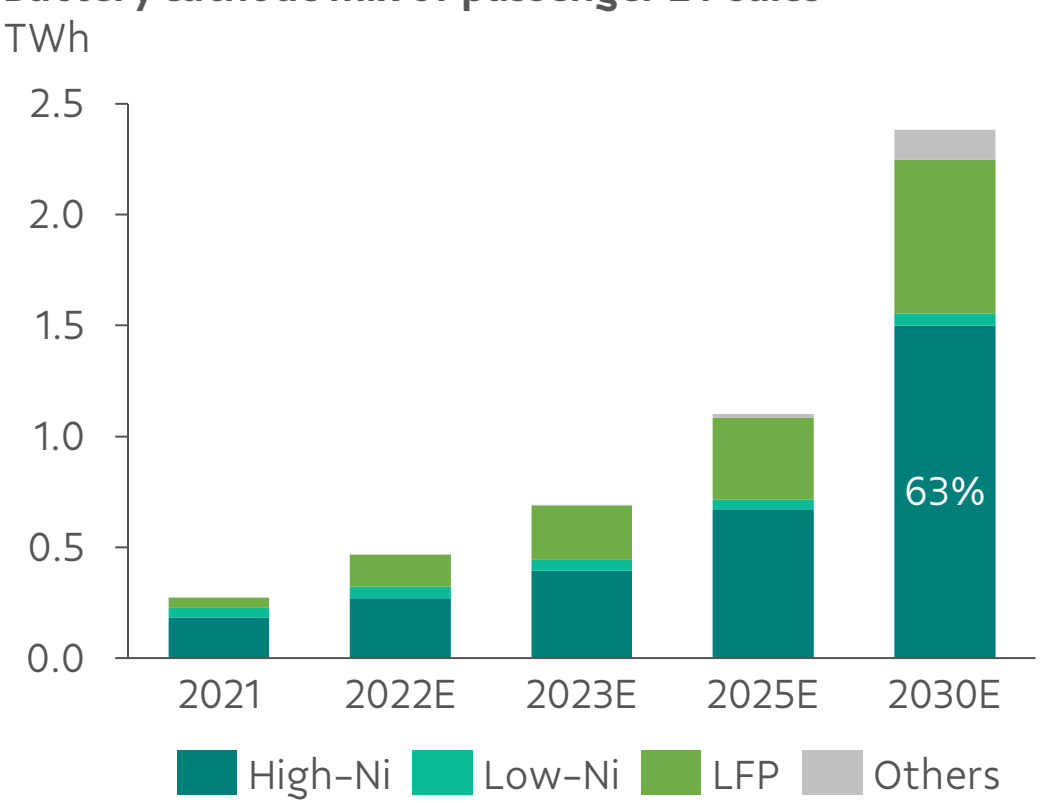
Total cost ownership parity with ICE vehicles
incentivize consumers as lower production costs shift OEM's strategies: US$132/kWh per EV vs. US$100/kWh for ICE vehicles[1]

Improved charging infrastructure and battery performance
overcomes consumers' range anxiety: 1.8M charging connectors[2] in 2021 expected to reach 11M by 2030

[1] Figures for 2021. [2]Public charging connectors
Source: Vale BM Marketing, BNEF, IEA, Rho Motion

...with Ni-rich chemistries favored for **higher performance, range and recyclability**

Battery cathode mix of passenger EV sales[1]



Better performance and range

Higher energy density in Ni-rich batteries: LFP: ~170 Wh/kg vs. Ni-rich: ~250 Wh/kg

Ni-rich chemistries at cost parity with LFP

At current metals price[2]: ~135/kWh for LFP and NCM 811

Ni-rich battery recycling

More economic than LFP due to low lithium recovery rates and low value iron phosphate

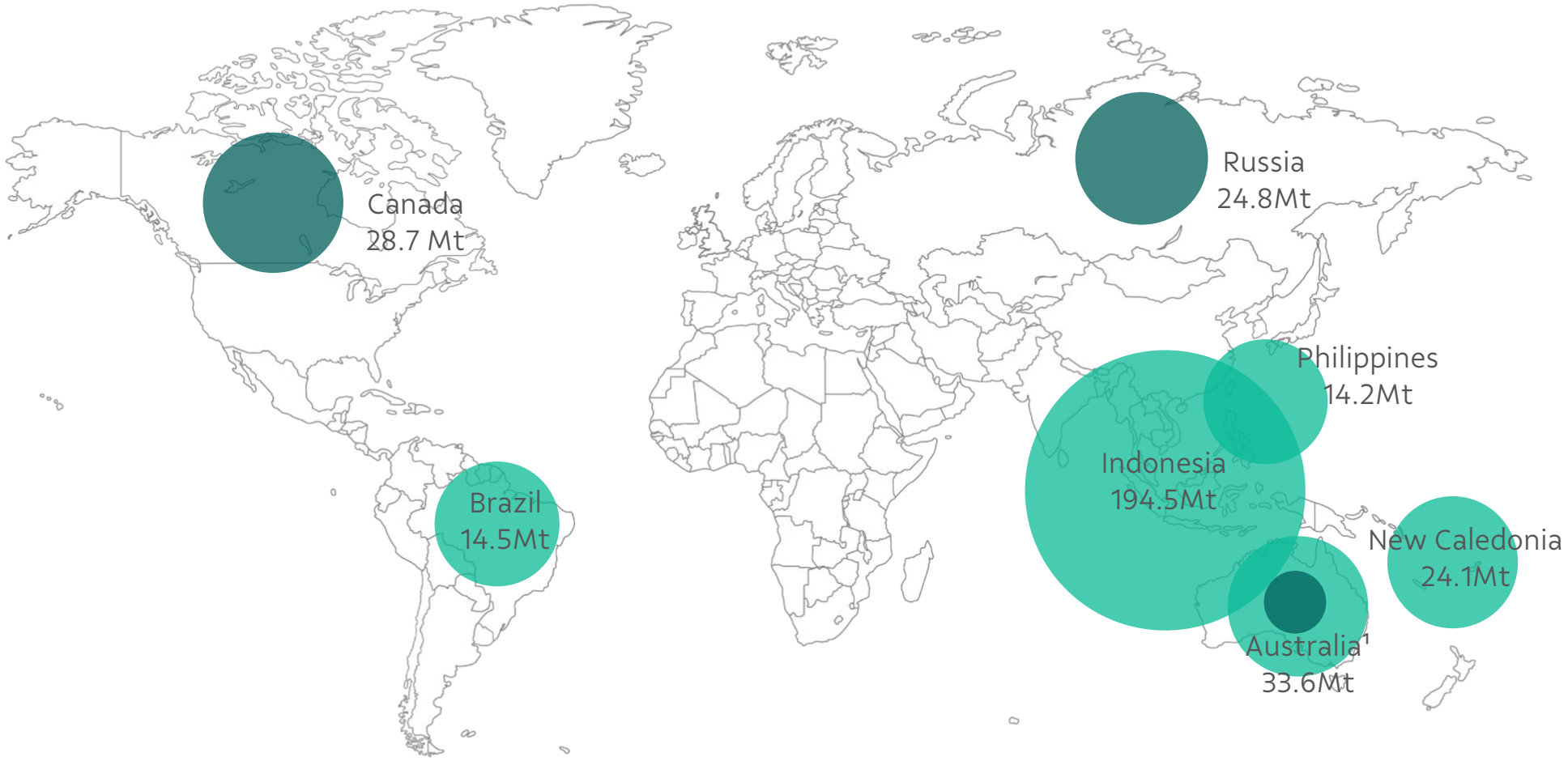
Tier 1 cathode capacity for Ni-rich batteries

Installed under construction and planned of approximately 3.3 Mt of cathode representing 1.5 Mt of Nickel

[1]High-Ni Cathodes include NCM622+, NCM811+ and NCA; Others includes LMNO (lithium manganese nickel oxide). [2]Based on BNEF's Feb 2022 battery cost model.
Source: Vale BM Marketing, Rho Motion, UBS

Supply growth will be driven by Indonesia, with Canada and Australia playing a key role...

Nickel reserves and resources
Mt

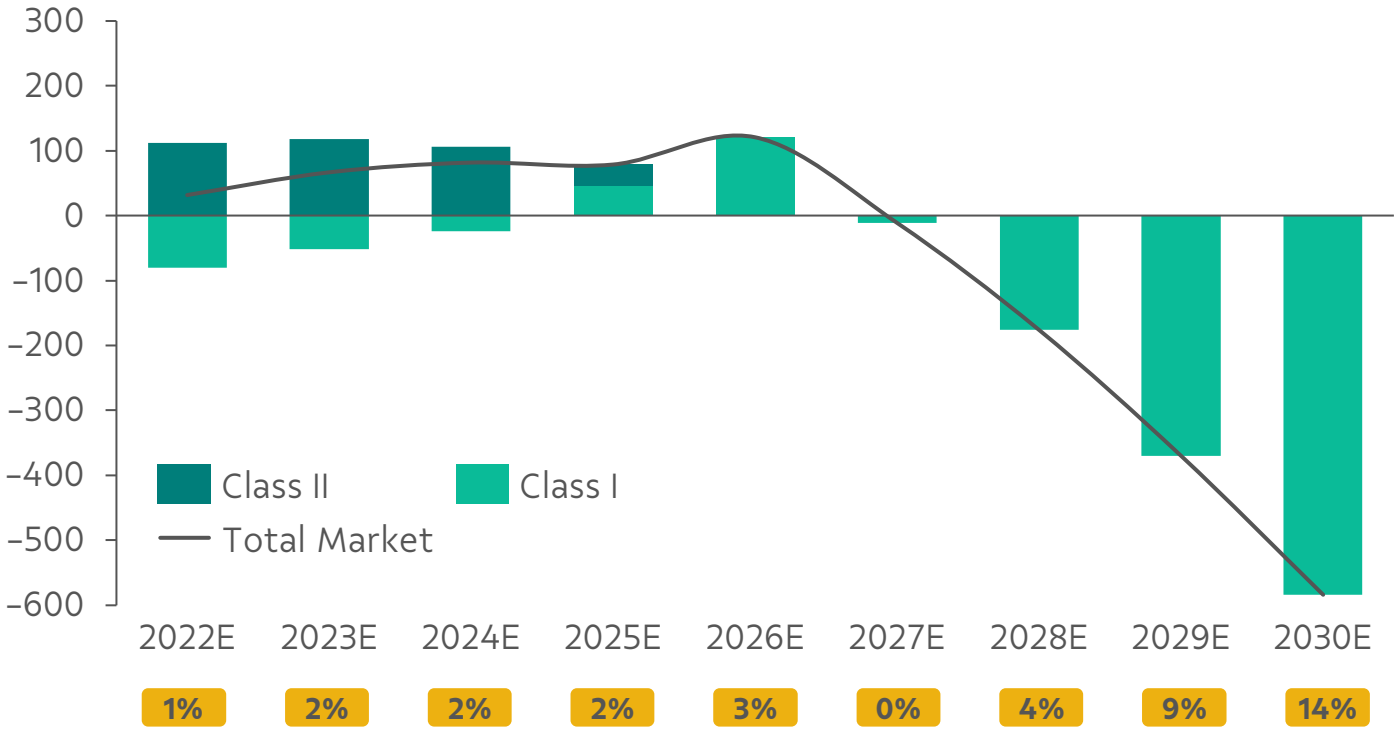


[1] Laterite and Sulphide.
Source: Vale BM Marketing

...but supply is not forecast to meet demand, especially for Class I in EVs, with **supply chain dynamics** adding further pressure

Primary Nickel: supply x demand balance[1]

ktpy of nickel



Total market balance as an absolute % of primary supply

- **Carbon emissions**
- **Regionalization of supply chain**
- **Responsible sourcing**

[1]Base case supply includes commercially producing operations and projects with high confidence of coming online based on construction progress, PFS studies, announcements, etc.; does not include projects classified as probable and possible

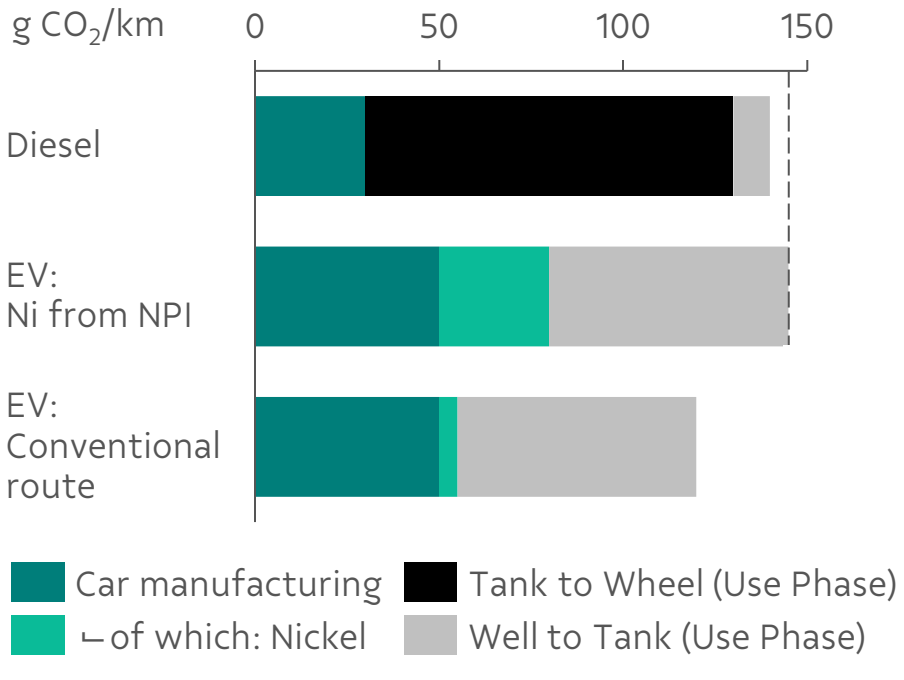
Source: Vale BM Marketing

Sourcing low-carbon nickel will be critical to fulfill the decarbonization objectives of electric vehicles...

60%
of CO2 emissions on heavy-duty EV manufacturing comes from the battery[1]

50%
of CO2 emissions on passenger EV manufacturing comes from the battery[1]

Lifetime CO2 emissions for passenger cars[2]



EV emissions largely impacted by nickel production route

[1]Including all upstream emissions from raw material extraction to the OEM, including logistics. [2]Estimated assuming 75 kg of Ni in battery and EU-28 grid mix (41% hydrocarbon in 2020).
Source: McKinsey, Trafigura

...and carbon pricing mechanisms will underscore pricing differentiation for low-carbon products

Global ESG commitments

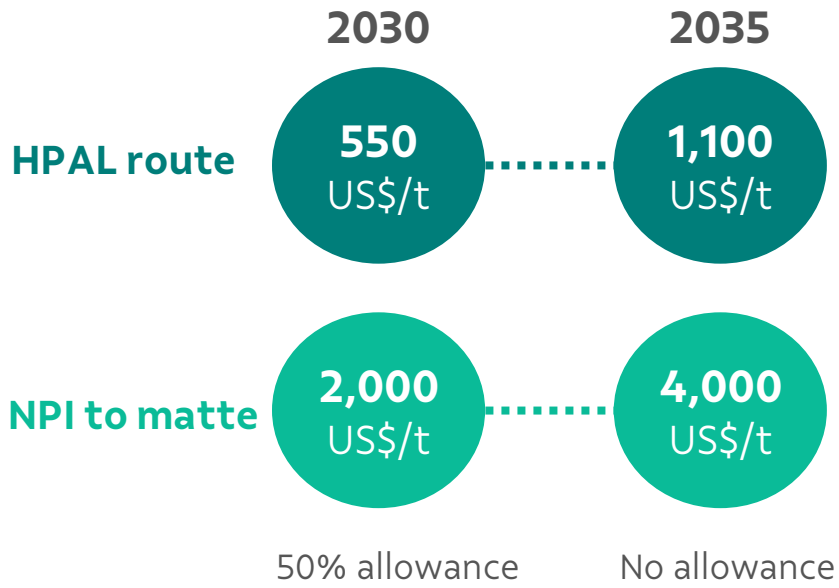
SUSTAINABLE DEVELOPMENT GOALS

PARIS2015
UN CLIMATE CHANGE CONFERENCE

Increasing regulation in Western countries

Stronger requirements from industry players

Potential impact on Nickel products pricing[2]
Vs. benchmark[3]



Based on proposed CBAM[1] certificates in Europe

[1] Carbon Border Adjustment Mechanism. Mechanism through which imported goods into the EU will have to pay for GHG emissions, particularly CO2. [2]Referenced in the European CBAM. Considering a carbon price of USD 100/t.
[3] Benchmark is nickel produced from Sulphide route. Average CO2 equivalent emission per tonne of Ni: Sulphide 12 t Co2 eq/t Ni; Indonesia HPAL 23 t Co2 eq/t Ni; Indonesia NPI to Matte 52 t Co2 eq/t Ni.
Source: Vale, European Commission, Government of Canada, Macquarie

Battery supply chain is evolving regionally...

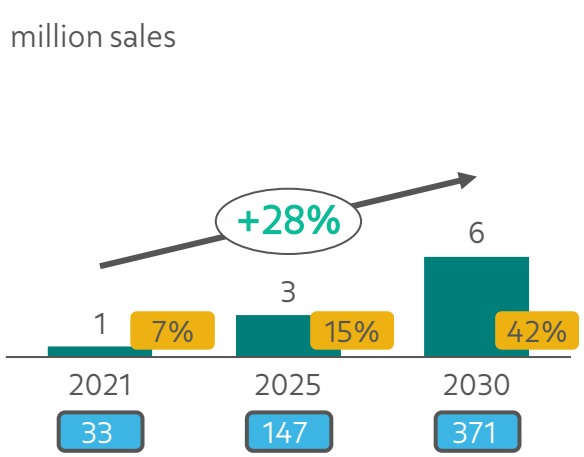
Passenger EV Sales

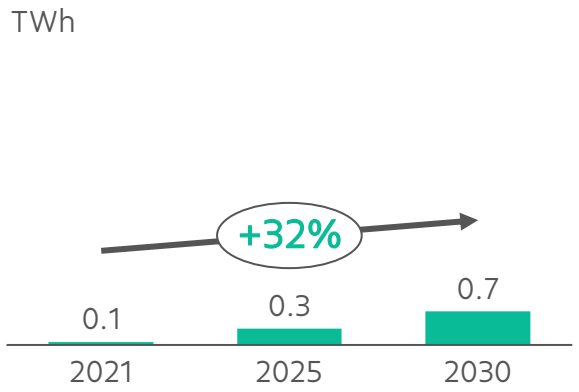
%
Penetration rate

kt
Nickel Content[1]

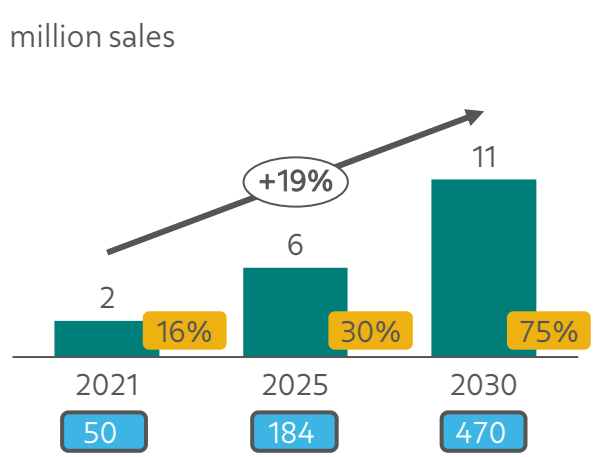
Gigafactory Capacity

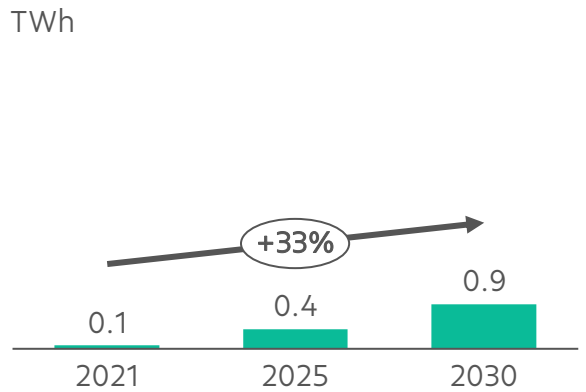
North America expanding gigafactory



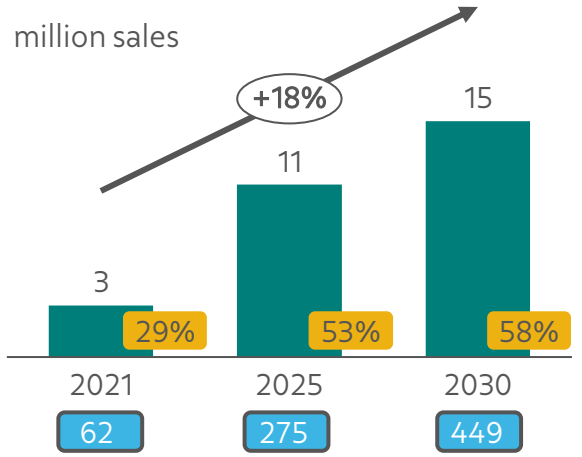


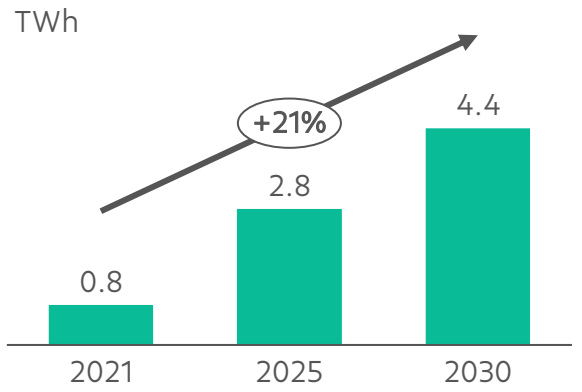
Increasing EV penetration in Europe





China leads





[1] Based on regional car sales, battery size, chemistry mix and nickel contained per chemistry.
Source: Vale, Benchmark Minerals, Rho Motion

… leading Europe and North America to increasingly seek to **secure critical minerals** regionally

Increased push for Industrial policies from West to develop Critical Minerals supply chain

Western OEMs increasingly seeking to develop supply chain

northvolt	Europe's first homegrown response to an electric world through Ett[1] gigafactory
BASF We create chemistry	BASF announces Quebec site acquisition for a major battery cathode facility
umicore	Umicore to build $1.2 billion battery material plant in Canada
posco gm	GM, Posco to build $500-million Canadian cathode active material factory in Quebec to supply Ultium battery factories
Ford	Ford has secured 60 GWh of cell capacity needed to support 600k EVs annually by 2023, according to media reports

[1] Ett is the name of the factory; means "one" in Swedish
Source: Vale, Company Reports

OEM's are also looking for **responsible sourcing** with strong ESG standards

Key ESG actors and standards automakers have been engaging with

IRMA – Initiative for Responsible Mining Assurance

Coalition of industry actors that promote responsible mining practices and seeks to establish an assurance for sustainable mining

GLOBAL BATTERY ALLIANCE – BATTERIES POWERING SUSTAINABLE DEVELOPMENT

Broad partnership of industry actors to ensure high standards for responsible battery materials sourcing and support the development of actionable guidance related to ESG

SUSTAINABLE DEVELOPMENT GOALS

17 goals adopted by UN as a universal call to action based on three core elements: economic growth, social inclusion and environmental protection

Automaker[1]	IRMA	GBA	SDGs
Tesla	●	●	●
Mercedes Benz	●	●	●
BMW	●	●	●
Volkswagen	●	●	●
Ford	●		●
Renault		●	●
Stellantis			●
GM			●
Hyundai			●
Nissan			●
Honda			●
Toyota			●
Mazda			●

Source: Vale, Company Reports

Copper market

In copper, demand growth in the decade is expected to be **driven mainly by the EVs and renewables...**

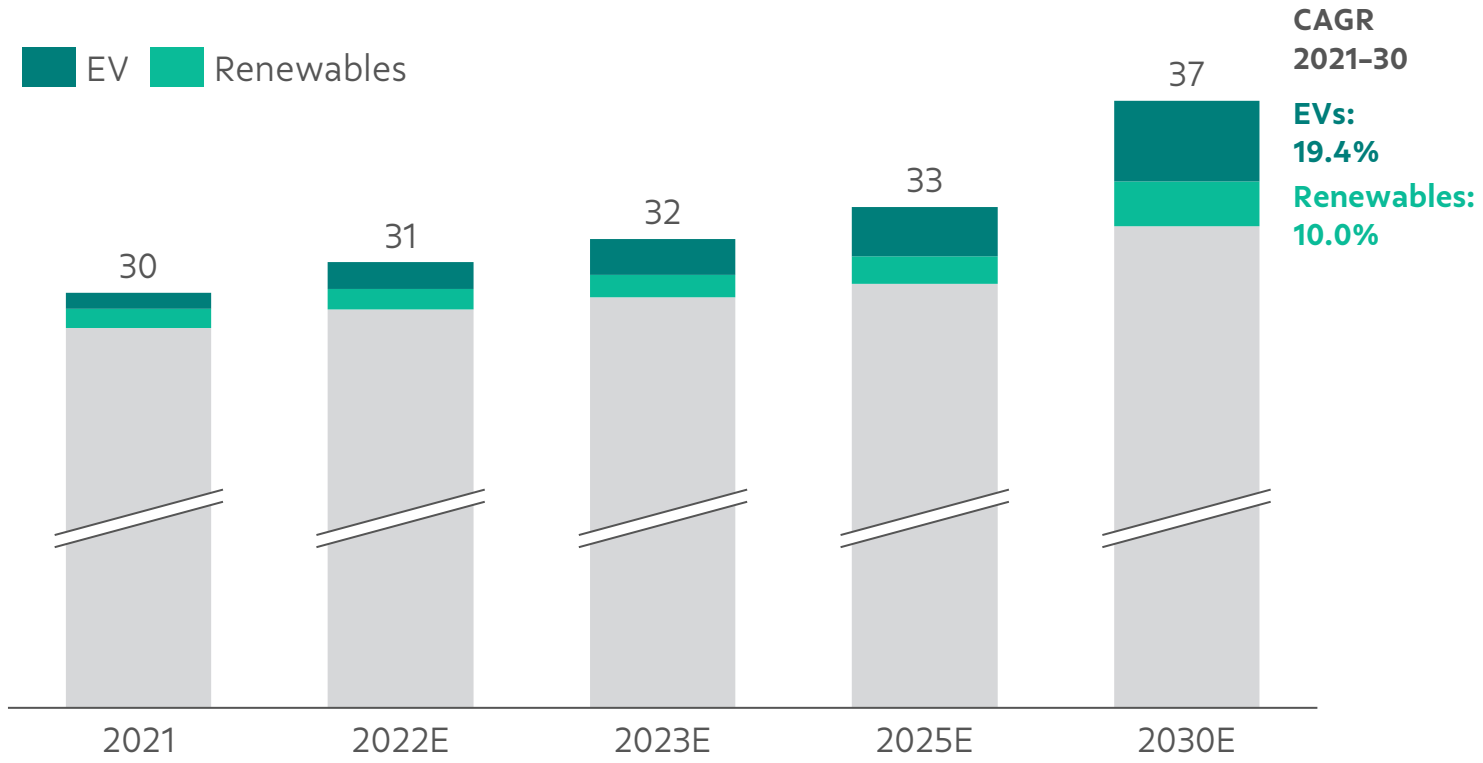
~80kg of copper
Average Passenger Battery EV

~25kg of copper
For a DC fast charger

4.6t per MW
of copper in solar power systems

4.7t of copper
In a 3 MW wind turbine contains

Total copper demand[1]
million tonnes per year

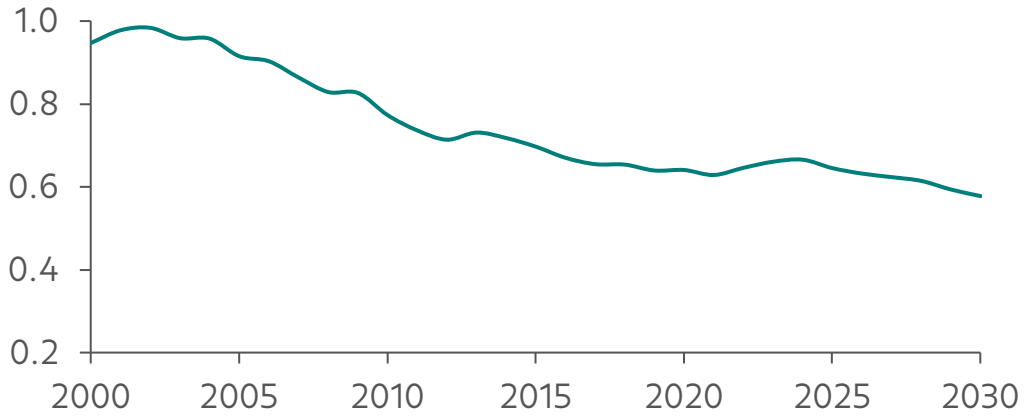


[1] Total refined copper demand including scrap
Source: Vale BM Marketing

...while mine supply will need to cope with **declining grades and regulatory uncertainties**

Declining grades

Historical and projected ore grades (%)



- Higher sensitivity to inflationary pressures and cost escalation

ESG pressures

- Environmental requirements e.g. desalinization and water usage in South America
- Disputes with communities e.g Peru

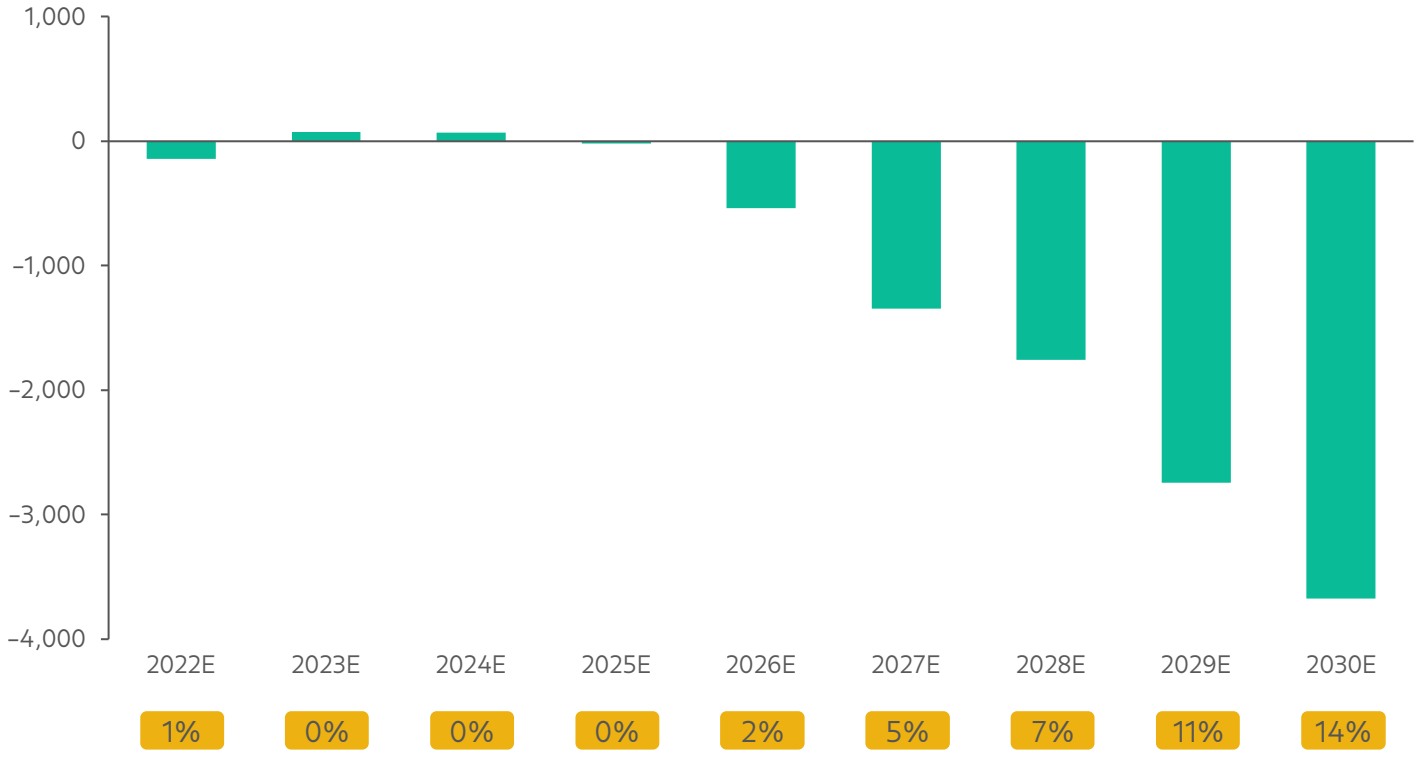
Regulatory challenges

- Proposed changes in mining tax in Chile and Peru
- Restriction in natural resources use in Chile
- Resource nationalism and logistical risks in Africa
- Increasing restrictions on mineral exports in Indonesia
- Companies postponing of investment decisions due to uncertainties

Source: Vale, Woodmac.

Resulting in a **market in structural deficit** in the medium-to-long term

Refined Copper: Supply x demand balance
in ktpy of copper



Total market balance as a % of refined supply

- **Mine depletion**
- **ESG pressures**
- **Regulatory challenges**

Source: Vale

Driving forces in the market offers strong opportunity

Base Metals are undergoing a multi-decade shift in demand due to the global low-carbon energy transition

Increased demand coupled with lack of supply will attract significant interest across the industry

Governments are fostering development of supply chain generating a quest to secure critical minerals

Increased ESG requirements will potentially drive product and price differentiation

Well-Positioned for a Bright Future

Deshnee Naidoo – EVP Base Metals

VALE

Positioning our Base Metals business to be the **partner of choice for a sustainable future**

ESG

Strong ESG credential to target next generation green applications, including EVs

ASSET BASE

Leading base metals producer in attractive jurisdictions

RESOURCES

Large and untapped resource base

GROWTH

Robust project pipeline to extend and grow

Strongly committed to ESG

Vale's Sustainability Commitments

Climate change

Reduce GHG emissions:
- Scope 1 & 2 by 33% by 2030
- Scope 3 by 15% in 2035
- Net zero Scope 1 &2 by 2050

Energy

100% renewable electricity
- in Brazil (2025)
- and globally (2030)

Social Economic contribution

Health care, education and income generation

Vale Base Metals

Climate change

- Clean AER drastically reduced SO_2 emissions
- Verified low-carbon products with ambition to be a leader in low carbon
- PTVI operated hydroelectric power plants reduce GHG emissions by more than 1 million tons CO 2 eq per year

Energy

- >90% of Base Metals electricity comes from clean sources
- Assessing a wind energy generation project at Voisey's Bay with the opportunity to lessen diesel reliance
- Assessing biomass and slag heat recovery in Onça Puma

Social Economic contribution

- Since 2018, in Voisey's Bay Indigenous employment has more than 2x to about 500 employees
- 72% of total spend on indigenous businesses in Voysey's Bay

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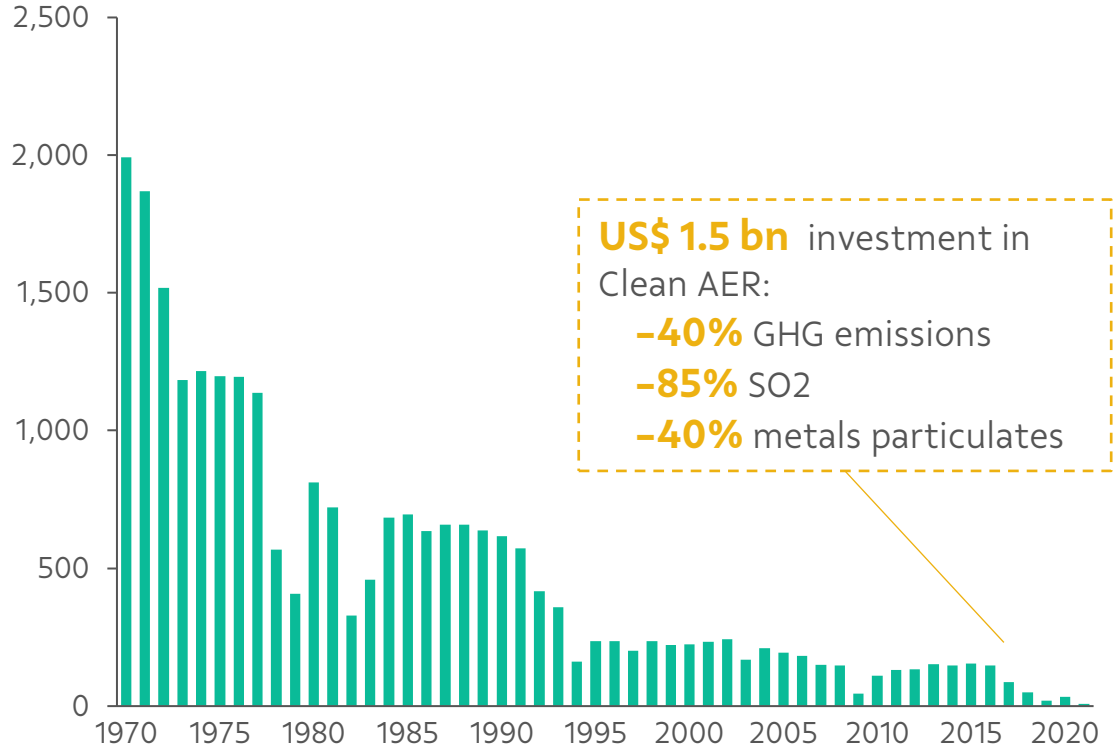
Sudbury regreening

SO_2 emission reductions in Sudbury

tonnes of SO_2



US$ 1.5 bn investment in Clean AER:

- **–40%** GHG emissions
- **–85%** SO2
- **–40%** metals particulates

1981

2008

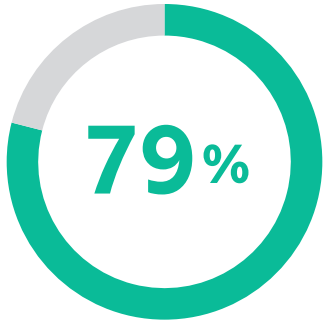
2018

Note: Three photographs showing time series change from 1981, 2008 and 2018 from the same location near Coniston, City of Greater Sudbury. IMAGE/ Courtesy of the City of Greater Sudbury.

In Base Metals, >90% of our electricity consumption comes from clean sources

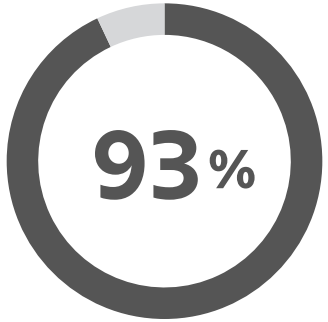
Share of clean energy in total electricity consumption [1] [2] [3]

BRAZIL



CANADA

INDONESIA



BASE METALS

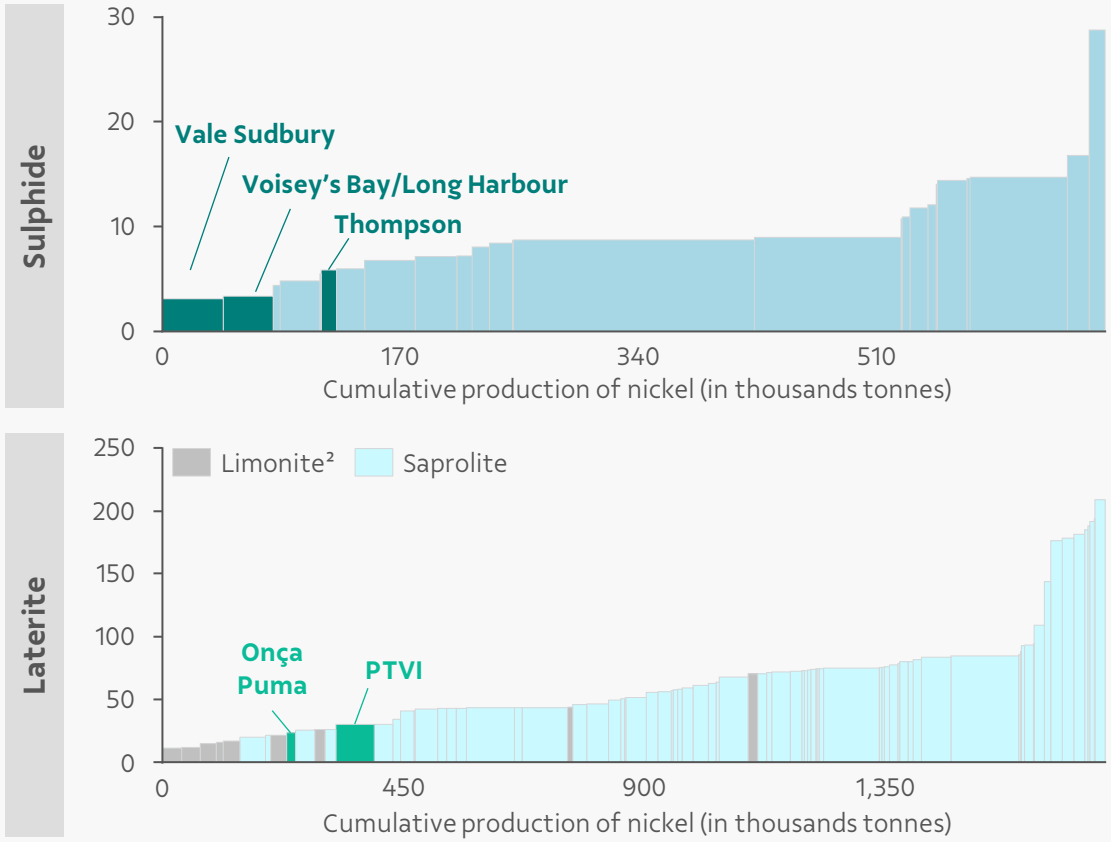
Balambano hydropower plant, one of the 3 PTVI's hydropower generating plants in Sorowako

[1] Electricity consumption in GWh in 2021. [2] Clean sources are hydro, wind, solar, nuclear and biomass. [3] Base Metals business only.

Use of clean energy is key for achieving a low-carbon Base Metals business

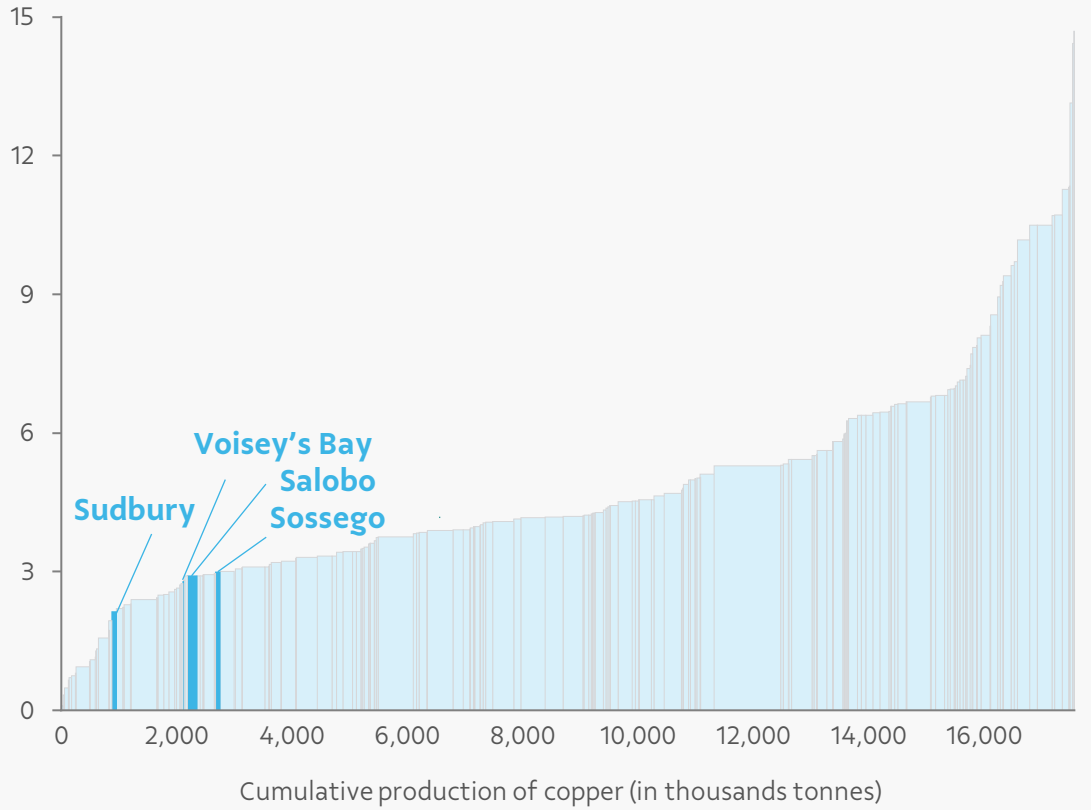
Nickel Operations (Scope 1 and 2)[1]

2020 finished nickel, CO_2 t/t Ni cont.



Copper Concentrate operations (Scope 1 and 2)

2020, t CO_2/t Cu cont.[4]



[1] Nickel production allocation based on Skarn database. [2] Laterite limonite includes HPAL, Heap Leaching and Caron Processes.
Source: Skarn, Vale.

The right set of assets placed in the right jurisdictions

Well-positioned to support and supply North America EV and renewables growth

A Tier 1 mining complex with growth optionality

Attractive exposure to Indonesia

VALE

Strong expertise in a variety of metals & mining processes

Nickel Copper

		MINING		SMELTING/ REFINING			CAPACITY KT OF METAL	
		U/G	O/P	Pyro	Hydro	Carbonyl		
Canada	Sudbury	■	■	■		■	66[1]	72[2]
	Thompson	■						
	VB/Long Harbour	■	■		■		50	21[2]
Brazil	Salobo (1&2)		■					197
	Sossego		■					93[2]
Indonesia & Others	Onça Puma		■	■			25	
	Sorowako		■	■			80[3]	
	Matsusaka (Japan)[5]			■			27–35[4]	
	Clydach (UK)					■	41	

Nickel

~210–215 ktpy
Refined Nickel capacity

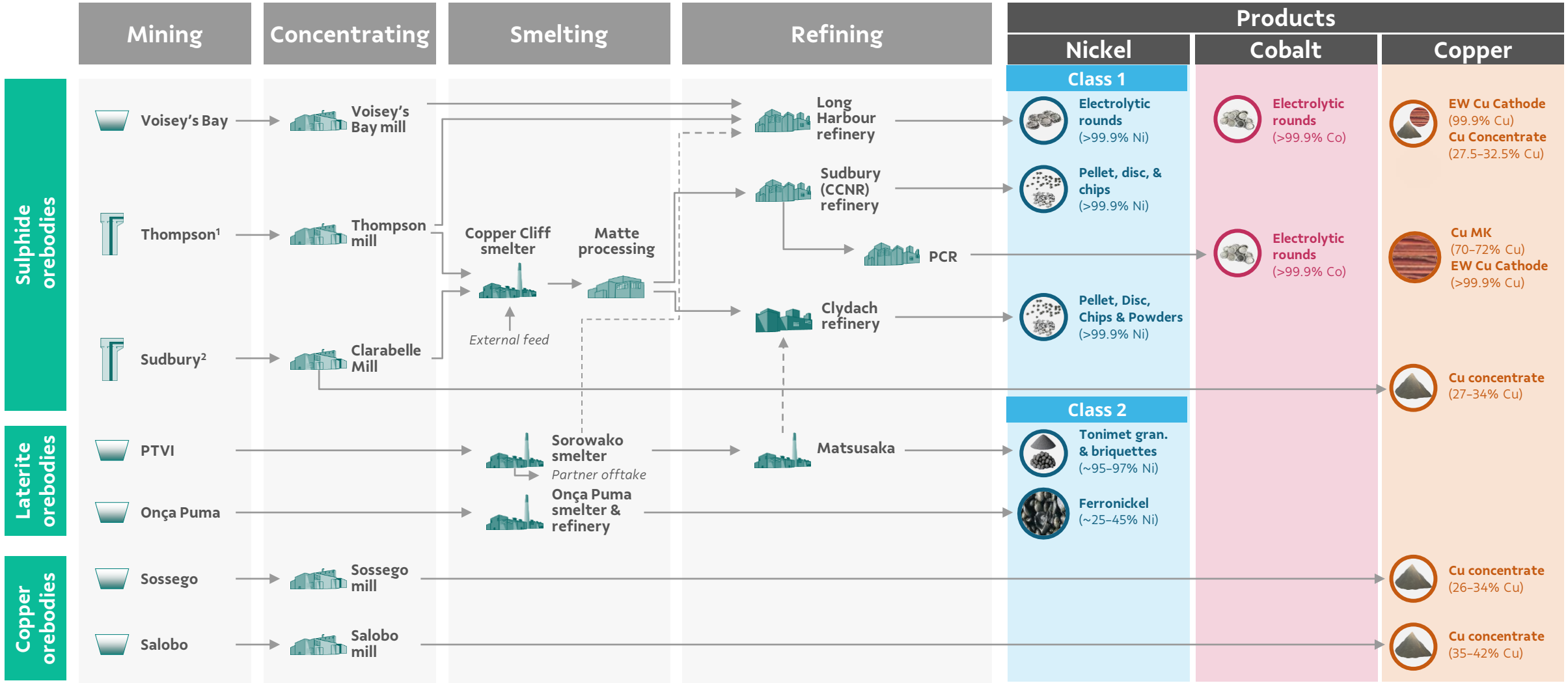
~15 ktpy[5]
Nickel intermediates

Copper

~380 ktpy
Copper in concentrates

[1]Sudbury's Copper Cliff Refinery processes nickel sourced from Sudbury and Thompson mines as well as feed from externals. [2] As per Vale's Form 20-F 2020. Copper production capacity may vary according to the head grade of copper ore processed. [3]Shown as 100% basis, Intermediate product – volume should not be added up to total nickel capacity. [4]Matsusaka maximum capacity is 35 kt of nickel in Tonimet. The refinery produces intermediates that feeds into Clydach refinery. When feeding Clydach, total finished product capacity at Matsusaka refinery drops to ~27 ktpy. [5]Refers to PTVI intermediates not consumed by Vale, consolidated in 100% basis.

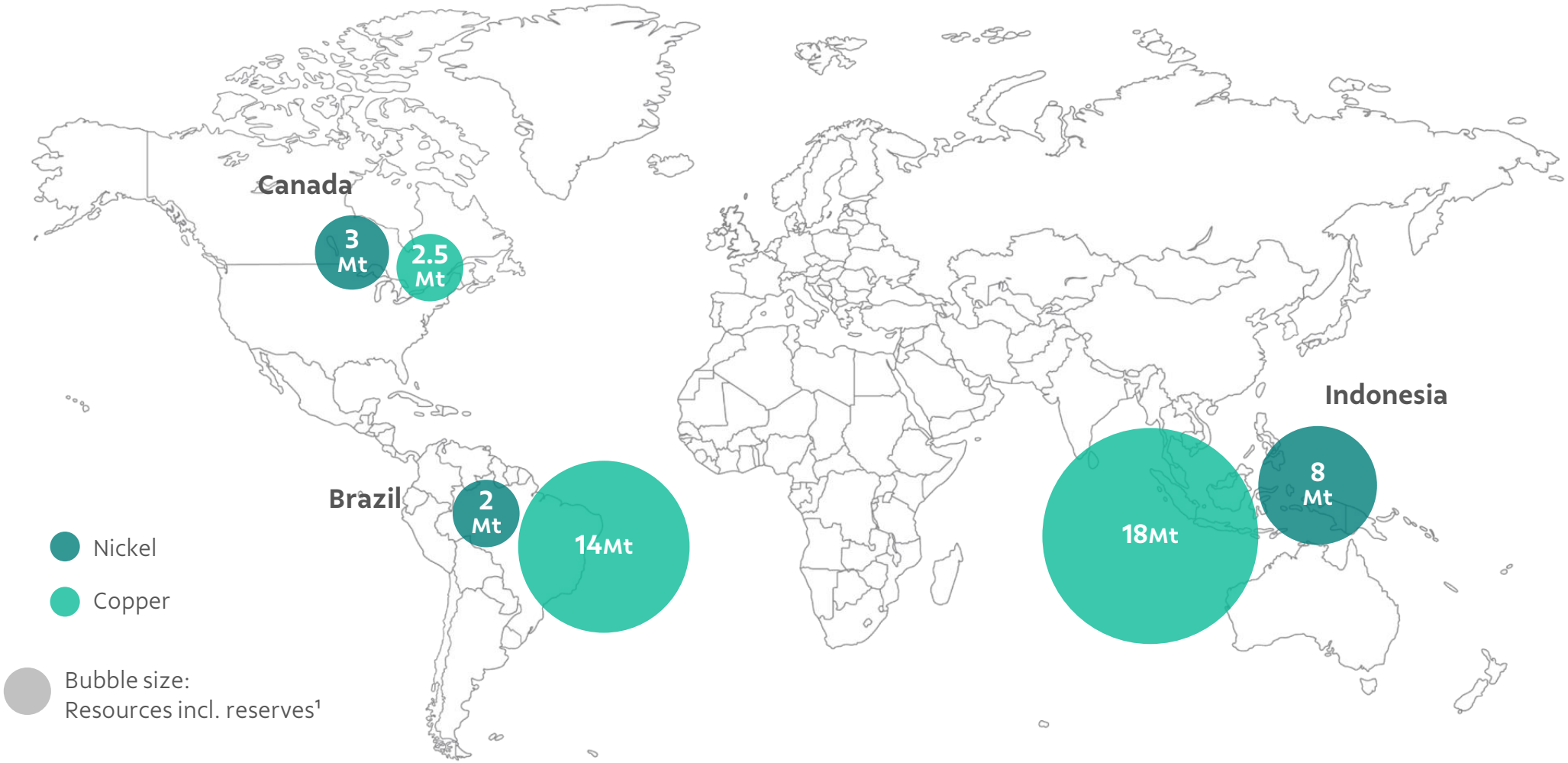
A global flowsheet to produce the right product mix



[1] Including T1 and T3 mines. [2] Including Coleman, Copper Cliff, Creighton, Garson and Totten mines.

Significant resource base with significant potential

Mineral Resource[1] – in million tonnes of contained metal

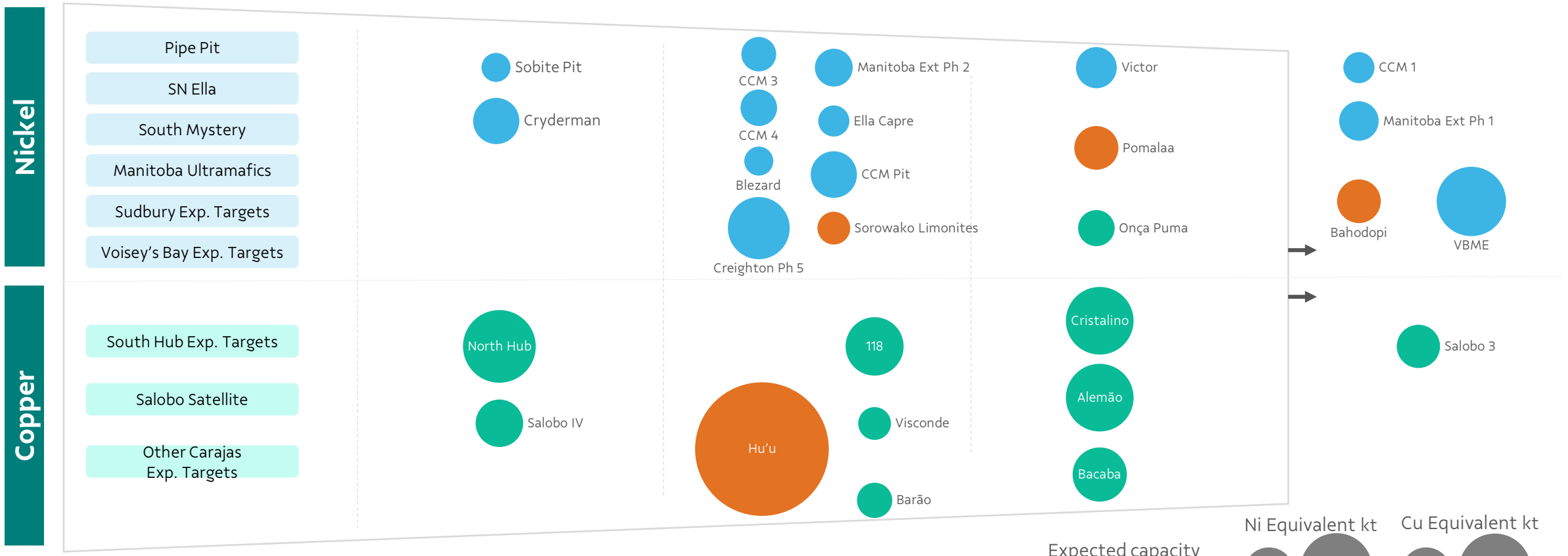


[1] Mineral Resources (Measured, Indicated and Inferred categories) inclusive of Mineral Reserve as of December 31, 2021 and shown in 100% basis, not reflecting Vale's interest. Values have been rounded

Enabling to extend and grow our business

North Atlantic South Atlantic Indonesia

Exploration / Conceptual	Scoping Study	Prefeasibility Study	Definitive Feasibility Study	Execution



[1]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. [2]Includes both replacement and growth projects capacity. [3]Includes indirect share of Vale in Indonesian JVs. 4Includes copper produced as by-product of nickel projects. Includes gold produced as by-product of copper projects. Nickel and Copper equivalent calculations based on long term price assumptions 5Hu'u added at 100% basis. Hu'u is 100% owned by PT Sumbawa Timur Mining (STM), an Indonesian private joint-venture company owned by Eastern Star Resources Pty Ltd (80%) and PT Aneka Tambang (20%). Eastern Star Resources Pty Ltd is 100% owned by Vale.

Positioning our Base Metals business to be the **partner of choice for a sustainable future**

ESG

Strong ESG credential to target next generation green applications, including EVs

ASSET BASE

Leading base metals producer in attractive jurisdictions

RESOURCES

Large and untapped resource base

GROWTH

Robust project pipeline to extend and grow

Taking the Right Actions

Deshnee Naidoo – EVP Base Metals
Alfredo Santana – Head of North Atlantic Operations
Olga Kovalik – Head of Capital Projects Implementation
Gustavo Garavaglia – Head of Finance for Base Metals

VALE

Setting up to succeed

Mastering the foundational elements

Benchmark in **Safety & Sustainability**

New Pact with Society

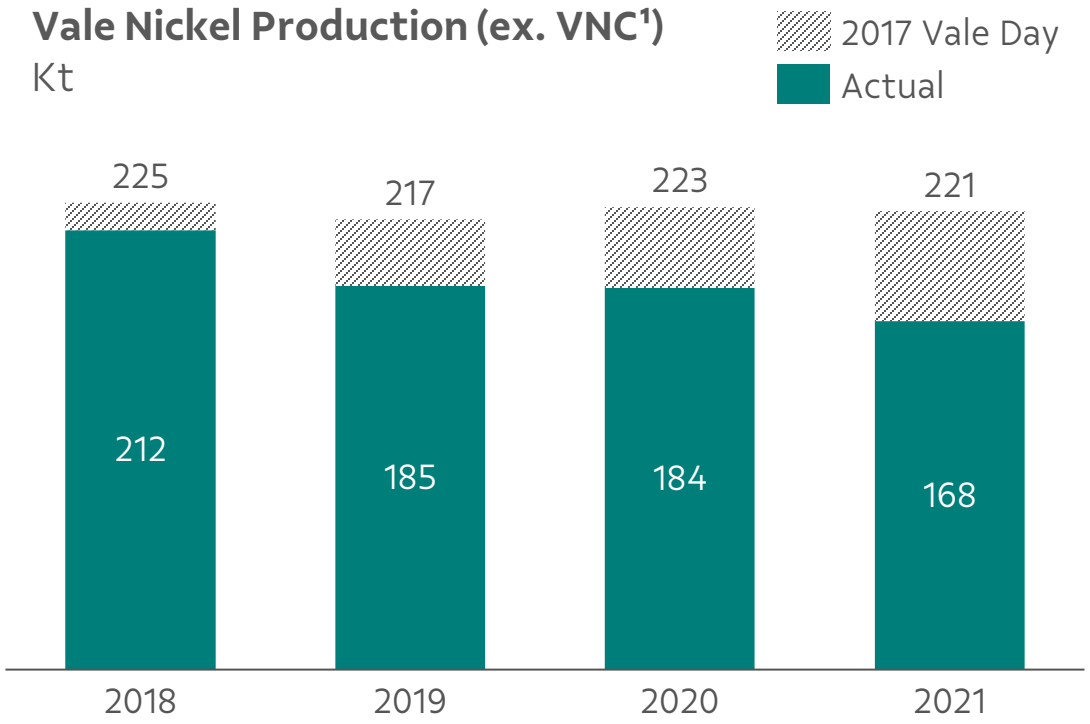
Assets **Excellence**

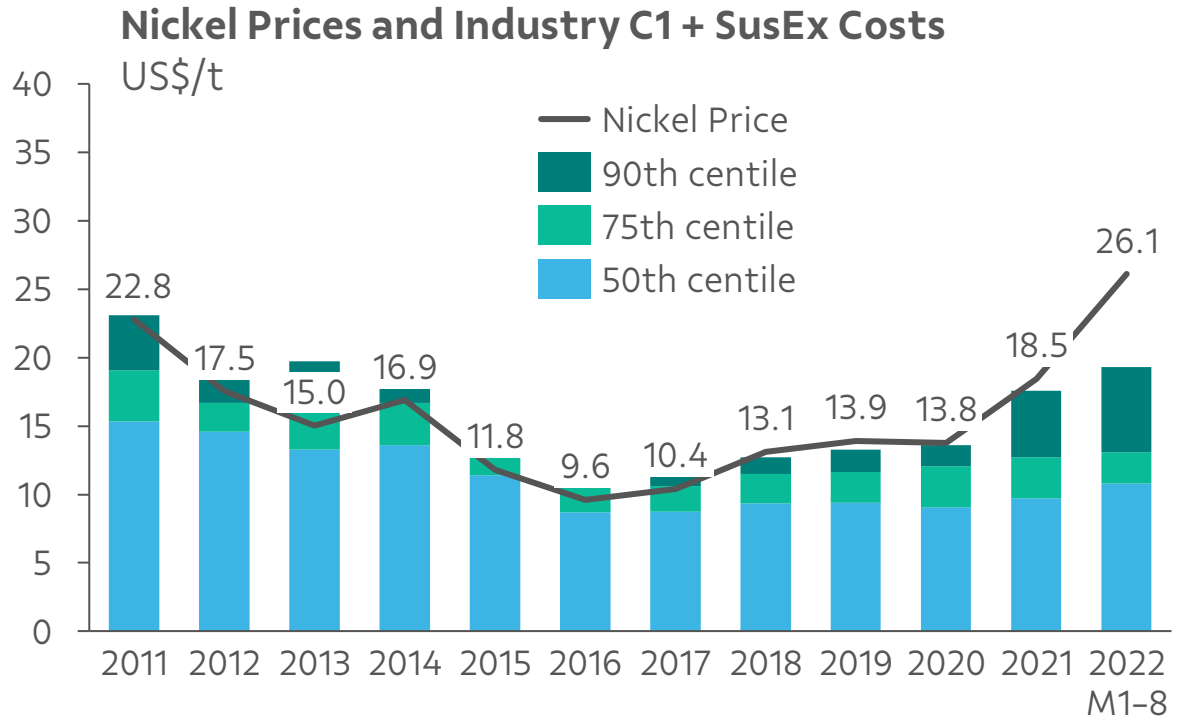
Pivoting

Pivoting our Ni products for the **EV Supply Chain**

Delivering the **Future**

Shifting gears from the past





Study Optimization & Project Deferrals

Asset Integrity

Covid impact (Development and Maintenance)

Sudbury Strike

[1] VNC production of 40kt in 2017, 38 kt in 2018 and 45kt for 2019-2020.
Source: Vale, WoodMac.

Taking the right actions

	What we have done	What we are doing/going...
Benchmark in **Safety & Sustainability**	✓**Implemented HIRA** across 20 BM operations ✓**Reduced N2 by 83%** since 2020 ✓**Delivered Clean AER** project	• Roll-out of **Leadership in the Field & Critical Risk Management** • **Decarbonize our Assets**
New Pact with Society	✓Recent **agreement with the Xikrins** ✓**Waste to Value – Copper Ponds** at Thompson	• **90% GISTM[1] adherence** by the end of 2022 (78% in Dec/21) • **Increase DE&I participation** in our workforce
Assets **Excellence**	✓**Simplified flowsheet**, shutdown of 4 refineries ✓Launched the **integrated Remote Operation Centre**	• **20–30% increase mine productivity** in North Atlantic • **Increase asset reliability** in South Atlantic **by 5–10%**
Pivoting our Ni products for the **EV Supply Chain**	✓**Signed agreement with OEMs**: Tesla, Northvolt & Ford ✓**Verified low-carbon products** by third parties	• Target **30–40% of Ni to North America EV** market mid-term • **Advance 25ktNi sulphate plant** in Canada
Delivering the **Future**	✓Substantially **increasing drilling** meters ✓**Executing on CCM South, VBME and Salobo 3**	• **>20 active studies to extend and grow** production • **Advance** Indonesian and **optionalities** projects

[1] Global Industry Standard for Tailings Management

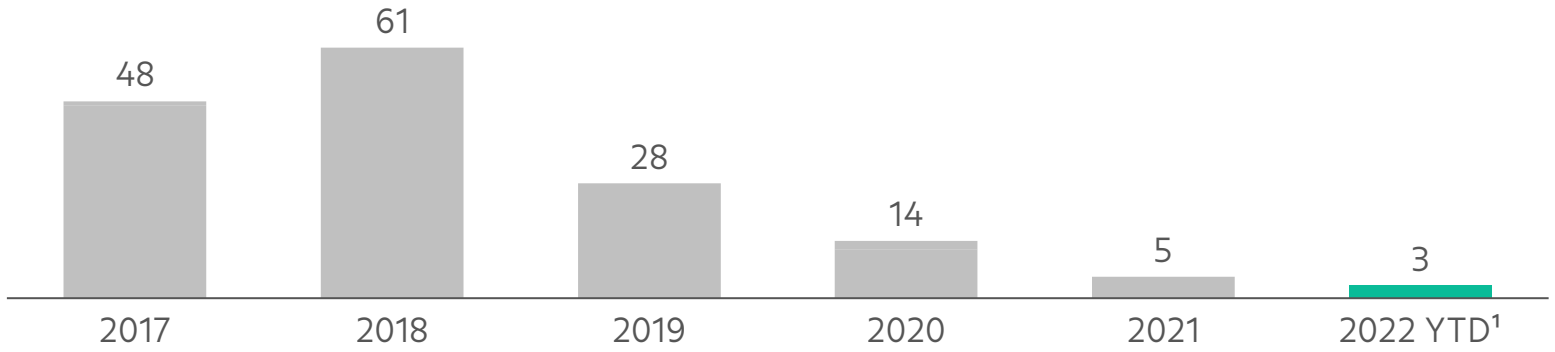
VALE

Voisey's Bay operations

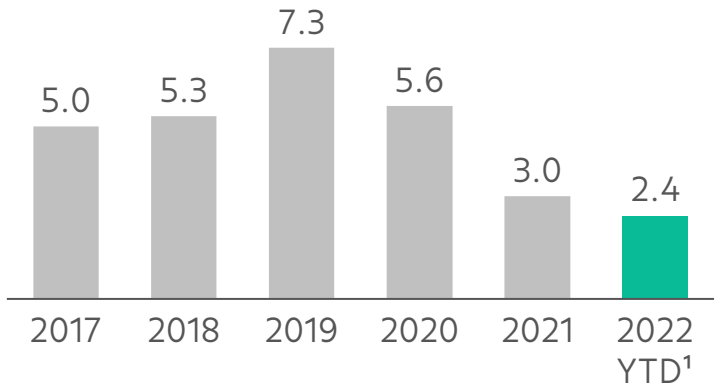
Benchmark in Safety & Sustainability

Base Metals **safety performance**

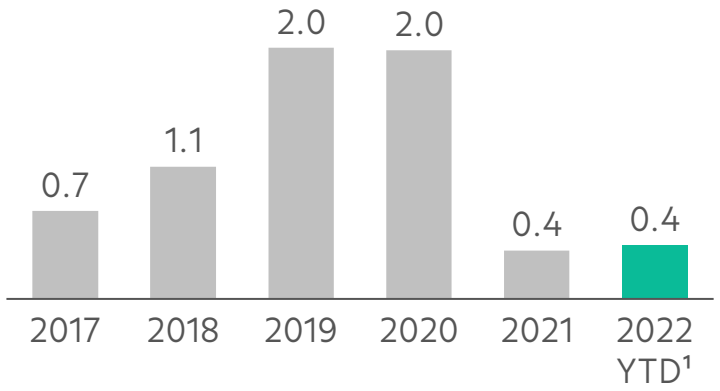
Fatalities, Lives Changed and High-Potential Recordable Injuries (N1 & N2)

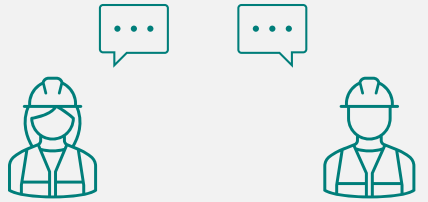


Total Recordable Injury Frequency



Lost Time Injury Frequency





Leadership in the Field

Training complete with
>45,000 interactions YTD

Critical Risk Management

Base Metals is 61% trained on CRM
with >36,000 Verifications YTD

¹ Year-to-date as of Sep 1.

Risk management through HIRA implementation

Hazard Identification and Risk Assessment (HIRA) supports VPS, providing a view of global operational risks and a prioritized list of risk-reducing actions

AT A GLANCE

20 Base Metal operations where HIRA was conducted across North and South Atlantic, and Asia

443 material Unwanted Events identified

3512 unique existing critical controls identified

880 unique future critical controls identified

ACTIONS IDENTIFIED: DIRECT RISK REDUCTION IMPACT ON PEOPLE

36 high hazard elimination/substitution for inherently safer operations

73 removal of personnel from high hazard areas/activities

103 operational changes to reduce personnel exposure

ACTIONS IDENTIFIED: REDUCTION OF LIKELIHOOD OF RISK EVENTS

395 new engineered systems, equipment, passive barriers to strengthen current controls

3222 enhancement to existing controls

People at the center of our business fostering employee engagement and strenghtening relationship with Unions

Safety

Access to tools, standards and training on Security. Greater control of access to sites and contact with employees globally

Professional Development

Access to digital courses and training

Career Protagonism

Autonomy to manage the professional path. Control over HR procedures such as access to Payroll, Vacation, Bookmark, etc.

Complete Information in Real Time

Coverage and speed in the distribution of information, especially in times of crisis. 24/7 access to internal vehicles in all locations by all employees

Global Integration

Possibility of integrating employees around the world in a digital way

Dialogue, collaboration and learning

Give voice to employees, regardless of activity, position and place of work. Expand their understanding of Vale's strategy, so that they can transform information into meaningful actions.

Ownership for the whole

Foster empowerment and ownership of the whole – making it easier for every one to live our culture accross the organization

Vale Cultural Transformation

Scalability

Engagement and Communication

VALE

Being intentional about **Diversity, Equality & Inclusion**

16%

Targeted **women in leadership positions in Base Metals** in 2022 from 14 % in 2021

31%

Targeted **non-white in leadership positions in Base Metals Brazil** in 2022 vs. 29% in 2021

29%

of the workforce of **Innu Nation members & Nunatsiavut** Government beneficiaries **in Voisey's Bay**

Former Chief of Sagamok Anishnawbek First Nation provides a blessing at the opening of the Residential School Garden at Vale's North Atlantic Operations Centre in Sudbury – June 2021

New Pact with Society

Vale seeks to build formalized and **sustainable relationships** with Indigenous communities

Innu Communities in Labrador, Canada

- Successfully negotiated IBAs[1] with Nunatsiavut Government and Innu Nation, resulting in a mutually beneficial relationship

- Recently signed historical agreement with the Xikrin do Cateté indigenous people

Traditional presentation of Xikrin women to welcome the signing ceremony

Photo by Leunas Costa

[1]Impact Benefit Agreements.

Further initiatives to reduce our carbon footprint

Wind in Voisey's Bay

Voisey's Bay operations

- Recently signed PPA with Indigenous Partnership to supply wind energy to our Voisey's Bay operations
- Commercial Operations expected for late 2024 with annual reduction of 32,000 tons of CO_2e – equivalent to 17% of Voisey's operations
- Evaluating potential connection of Voisey's Bay to the interconnection grid

Carbon Reduction roadmap

Onça Puma smelter

- Biomass as a reductant tests and trials at Onca Puma and PTVI
- Biomass as a fuel sources at Onca Puma, PTVI and Sudbury Smelter
- Off-gas heat recycle
- Slag heat recovery at Onca Puma, PTVI and Sudbury
- Biofuels in surface equipment
- Long Harbour boiler electrification

LNG to replace coal at Bahodopi

Area of future Bahodopi plant

- LNG power plant, with annual CO_2e reductions of ~2 Mt relative to coal
- Off-gas heat recovery
- Further decarbonization initiatives under considered: Natural gas on Kilns burners, and biocarbon as reductant/fuel.

Actively working to improve our approach to **sustainable mining**

Sustainable actions and future materials demand creates an urgency to rethink legacy waste structures

Develop partnerships to research and accelerate the development of technologies and solutions to treat and reuse waste

Potential Value Streams

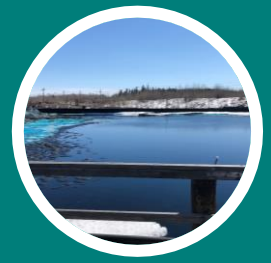
Tailings

Slag

Waste Piles

Case Study on Opportunities for Rehabilitation and Metal Recovery – Thompson Copper Precipitate

Legacy Waste Residue from Discontinued Refining Activities



Stored in Engineered Containment Basins

Removed environmental liability while generating value

Copper Precipitate Recovery (>30% Cu)

Nickel hydroxide product from water treatment (>20% Ni)

Note: Waste exists due to recoveries and historical process inefficiencies.

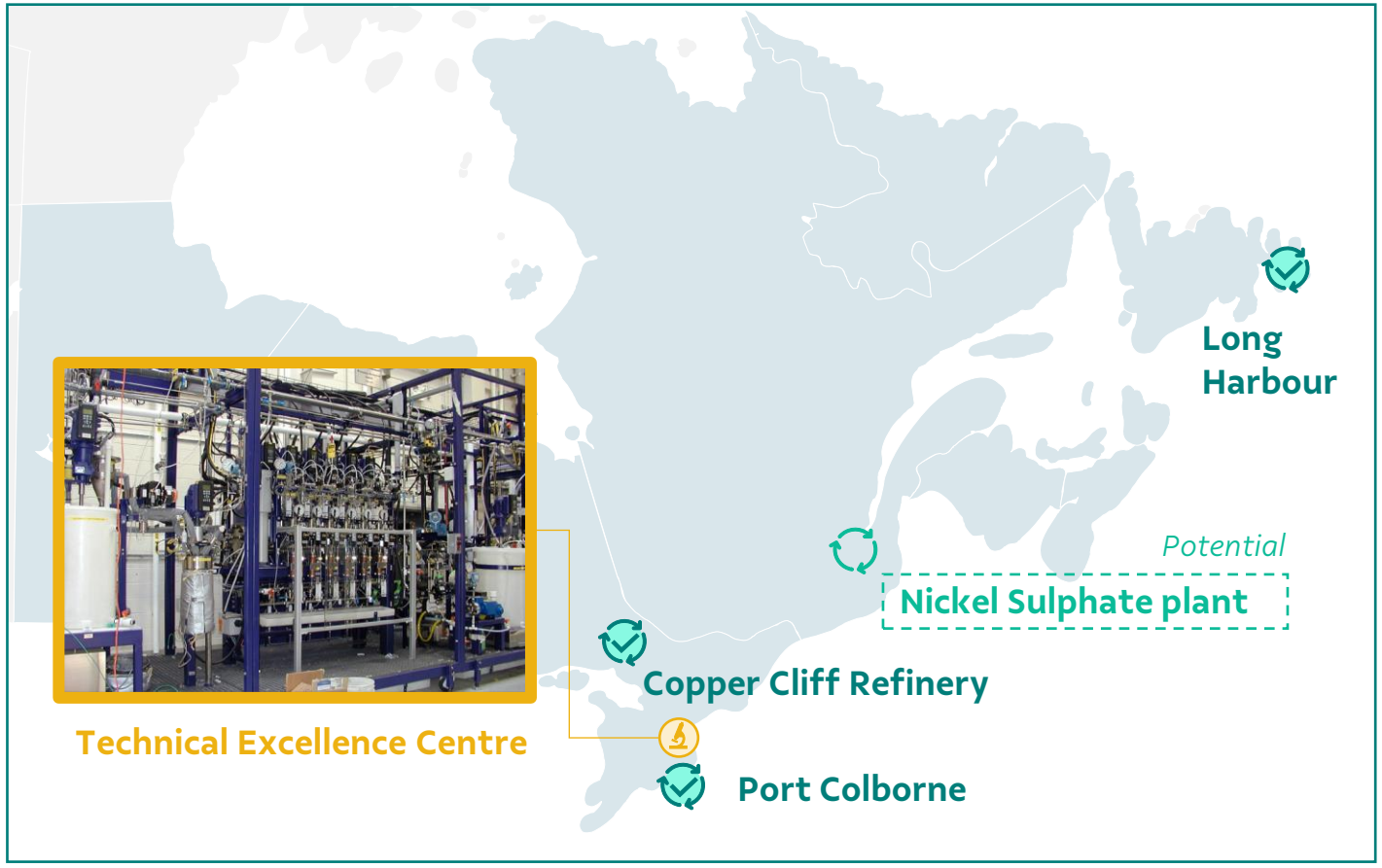
Set up for the **next phase of the energy transition**, battery recycling, **"Black Mass"**, with assets already permitted

Operations permitted and processing recycled material today
in key jurisdictions, with 30-year metal recycling experience

>20 different black mass analyzed
to determine safe and effective recovery routes

World class nickel knowledge and experience
at our Toronto research facility

Long-term flowsheet optionality
for black mass



Assets Excellence

Mine Plan: Structured actions for inherent challenges in North Atlantic

Dig Deeper

Increased by ~10% over the last decade

Travel Farther

Increased by ~33% over the last decade

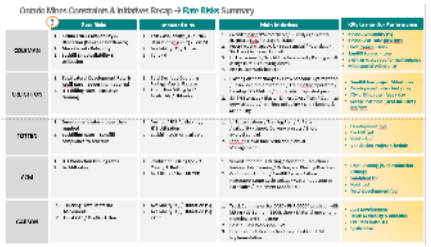
Improve Productivity

to offset these challenges while mitigating risks

VPS Management Model

1 Collaborative Approach to Map Risks and Define Actions Plans → **2 2022 Production Plan – KPIs Definition per mine** ↔ **3 Progress & Perf. Monitoring** ↔ **4 Daily Leadership FMDS**

- Risks Mapped;
- Collaborative Action Plans;
- Leadership Commitment;

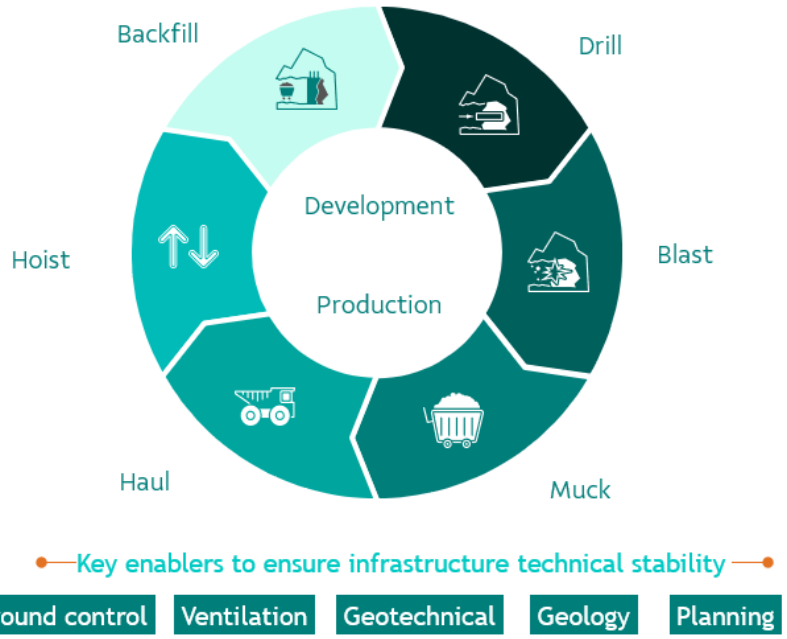


- Constraints Identification
- Initiatives Definition
- KPIs selected to measure Performance

- Dashboard Creation
- Performance per mine

- Daily Perf.
- Actions Definition

We are making progress ...



Priorities

- **People:** Reorganize as business Units to increase focus and local synergies
- **Safety:** Improve safety and risk management aiming ZERO SIF in NA Operations
- **Cost Efficiency:** Reset the cost structure of the business
- **Asset Reliability:** Boost Asset Reliability implementation in NA Operations Minimizing One Offs

Sudbury

- **Backfill:** Critical voids reduced by **353 kton.** Sandfill rates increased 163% YTD
- **Scoop Seat Time:** Increased **21%** in Ore Hoisted at Creighton Mine YTD (IRoc)
- **Drilling:** Increased drilling rates across the Mines with challenges in CCM
- **Development:** Best results on our Capital Development Rates since 2019

Voisey's Bay

- **Development:** 60% increase in Development rates, achieving **78,0 fpd**[1] in Jul/22
- **Workforce:** Recruitment ramping up

Thompson

- **Ramp Development:** 73% increase in Development achieving **15,6 fpd**[1] in March/22
- **Haul:** Trucks Availability increasing
- **Backfill:** Continued focus on Sandfill process to improve

[1] Feet per day.

Technology development to further continue improving performance

iROC

Integrated Remote Operating Centre: visualizing conflicts among all the processes, operations and maintenance

10% | **Productivity uplift achieved** in Coleman and Creighton mines in 2022

15 to 30% | **Expected improvement in mine productivity** throughout Sudbury basin


Battery-electric scooptram

AUTONOMOUS MINING

15 autonomous scoops and 12 drills in operation at Sudbury and Voisey's Bay Mines

Removing people from risk exposure while **Increasing productivity**


iROC room at NAOC

ELECTRIC FLEET

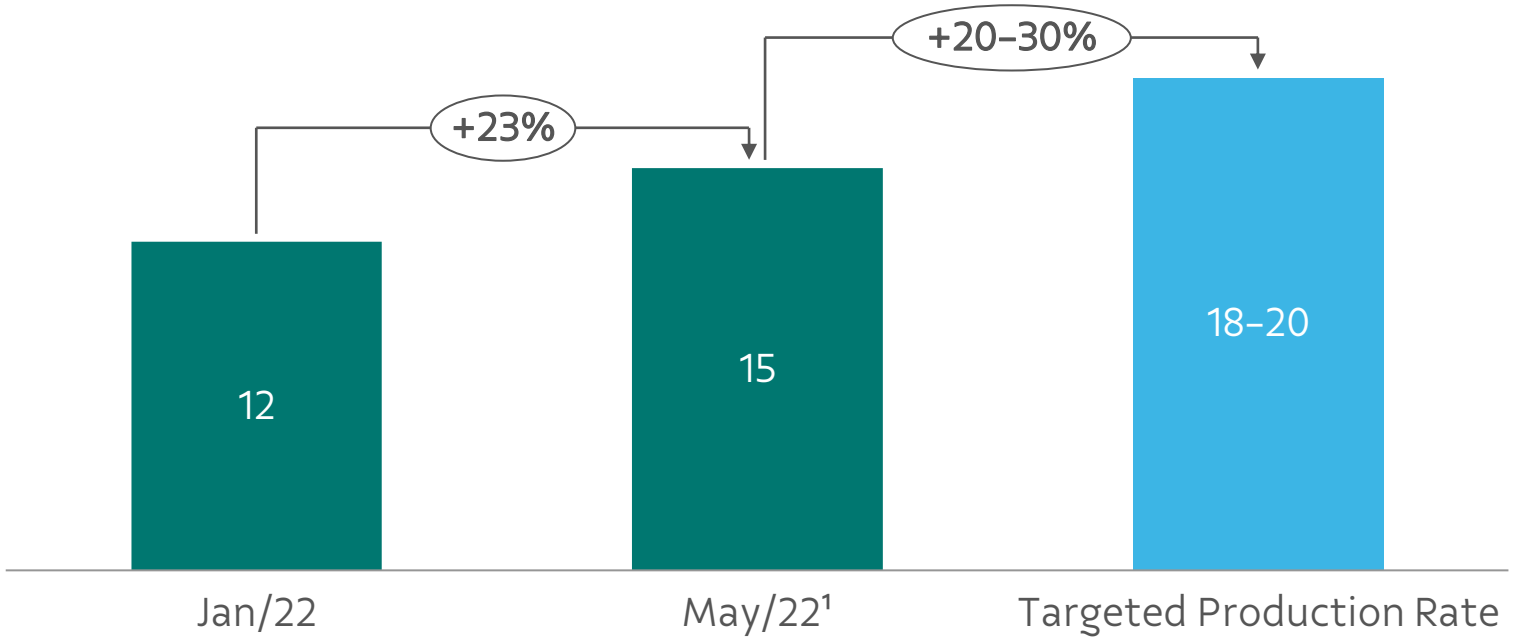
41 battery-electric vehicles in operation in Sudbury and Thompson

Reduce **CO2 emissions,** while Improving **workplace quality** and **reducing ventilation requirements** due to lower heat generated at the mine


Autonomous drill

Getting around the corner

North Atlantic ore production rate
kt/day, monthly average



Totten back at **full capacity** & CCM 1 **South Shaft Operational**

Key Enablers

Strong **People** strategy focused on **DE&I**, attraction, **training** and **engagement**

+

Strong **Safety & Risk Management** culture with enhanced **ground control** support systems to mitigate the increased seismic risk with increased depth of our Mines

+

IROC implementation across NA Mines will be a key enabler for **sustainable result**

+

Maintenance strategy focused on critical assets reliability

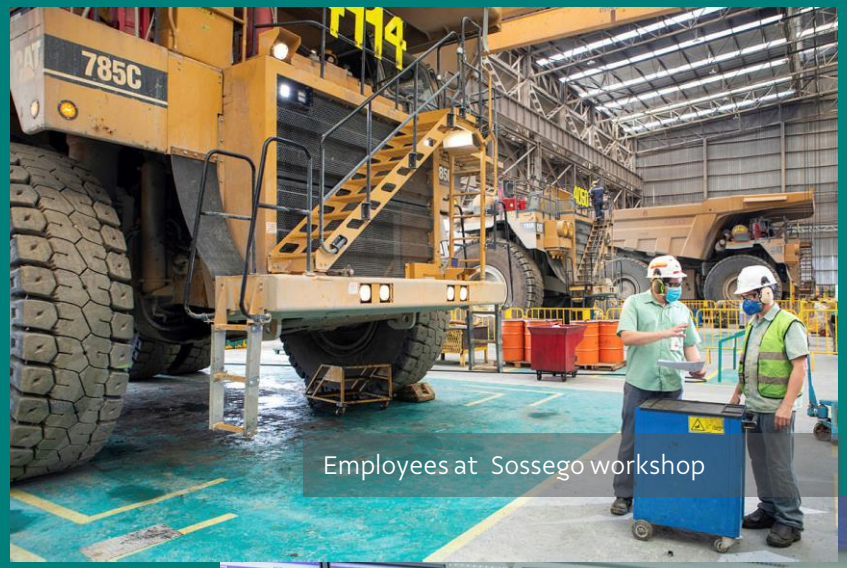
¹ In June, planned maintenance has started in some of the North Atlantic mines.

Increasing assets' reliability in South Atlantic

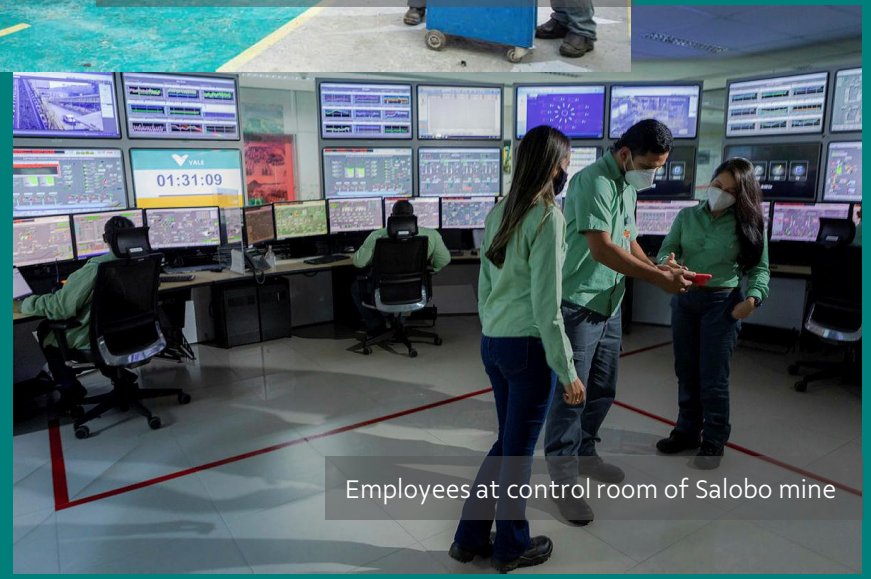
Improved mining conditions at Salobo

Planned maintenance to increase Salobo plant reliability

Successful conclusion of Sossego's mill maintenance, with productivity gains already achieved



Employees at Sossego workshop



Employees at control room of Salobo mine

VALE

Mining conditions has been significantly improved at Salobo...

Salobo pit – June 2022

Risk mitigation at Salobo pit

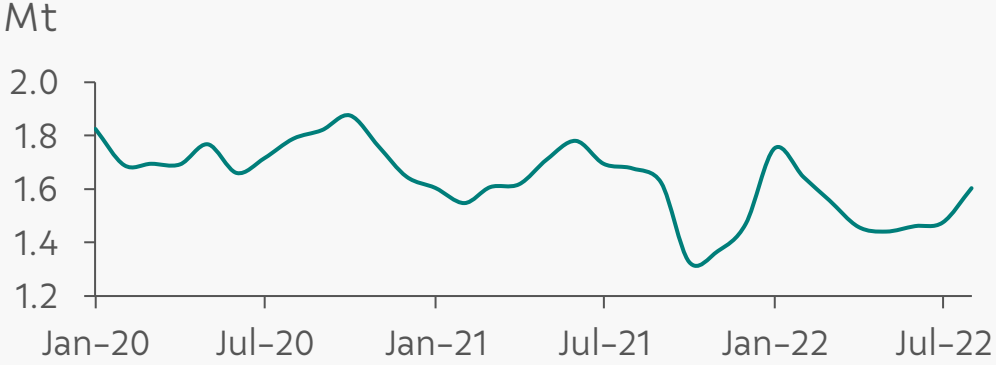
- Improvements in the mining and drilling conditions
- 2 simultaneous mining levels
- Release of high ore content

… now key focus is on **Salobo plant reliability**


Salobo mill

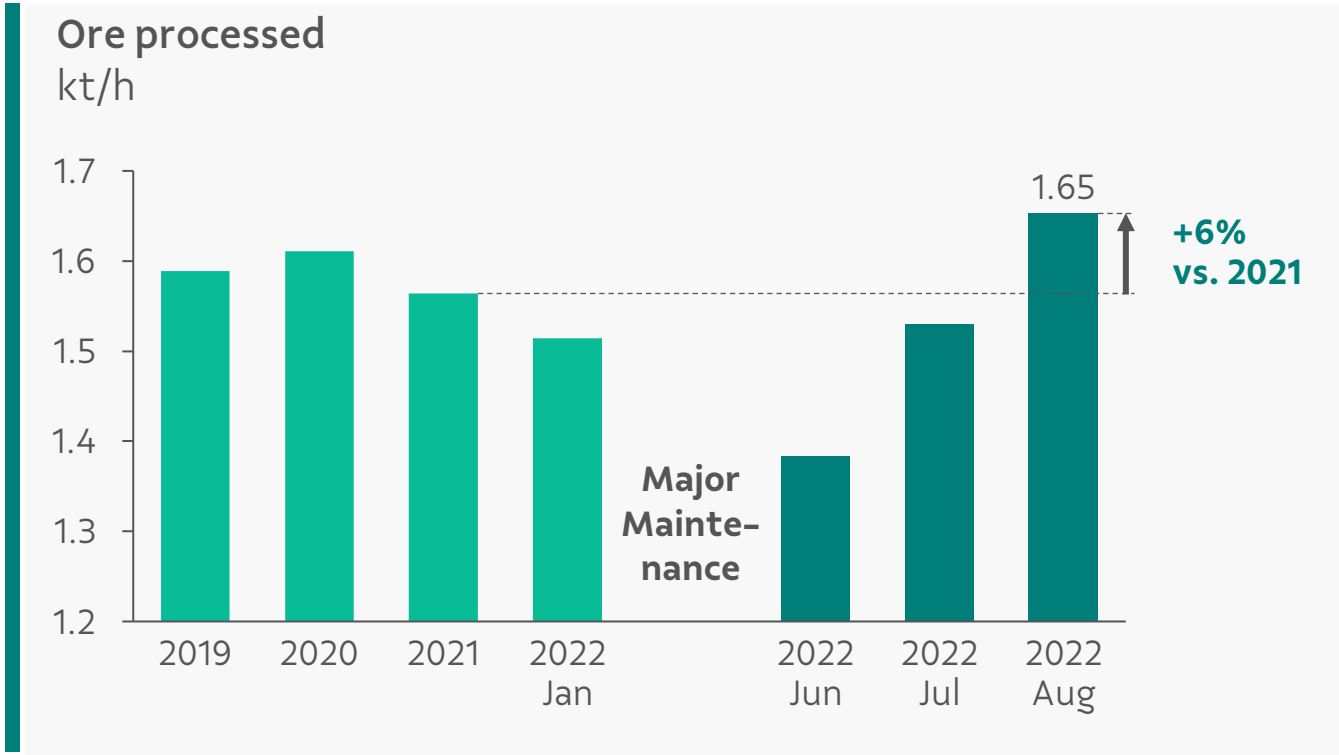
- Required corrective maintenance: grinding circuit and flotation
- Planned replacement of key equipment in 2H22 to further improve plant reliability
- Improved mine blasting for increased fines generation – improves grinding productivity

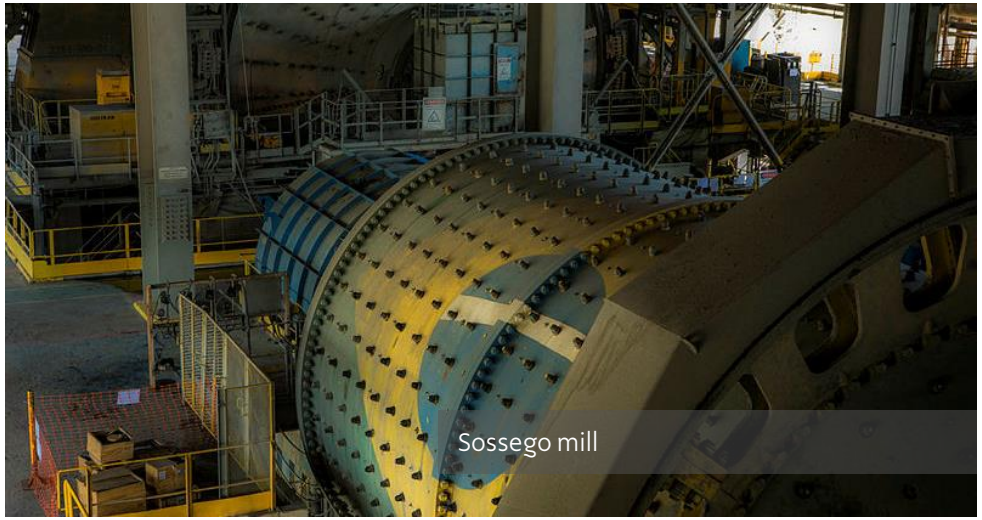
Ore processed monthly – 3 mma[1]



[1] 3-month moving average.

Conclusion of the mill maintenance at **Sossego**, enabling **higher productivity**



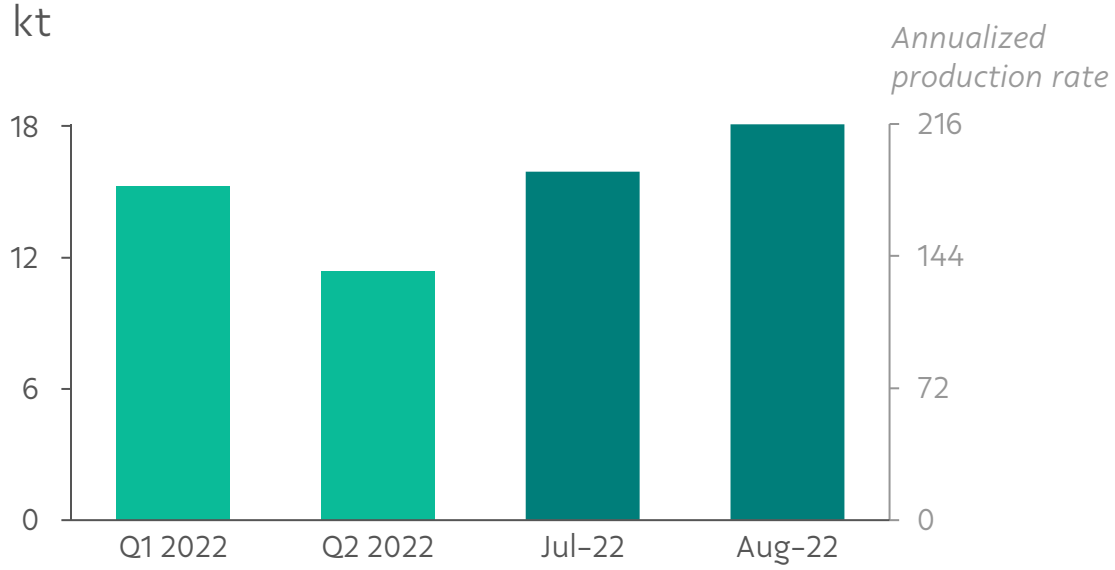


- Extended maintenance concluded: replacement of discharge trunnion, GMD[1] rewinding and structural integrity work

[1] Gearless mill drive.

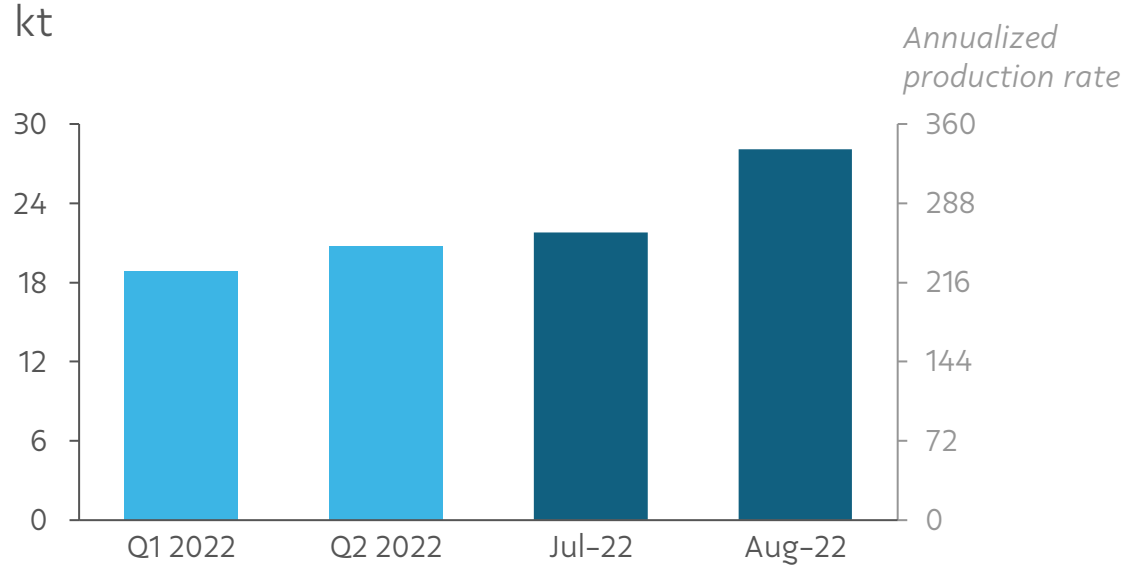
Initiatives underway are already showing results in production for both Nickel and Copper

Average monthly nickel production



~20% increase in monthly production in Aug vs. average Q1

Average monthly copper production

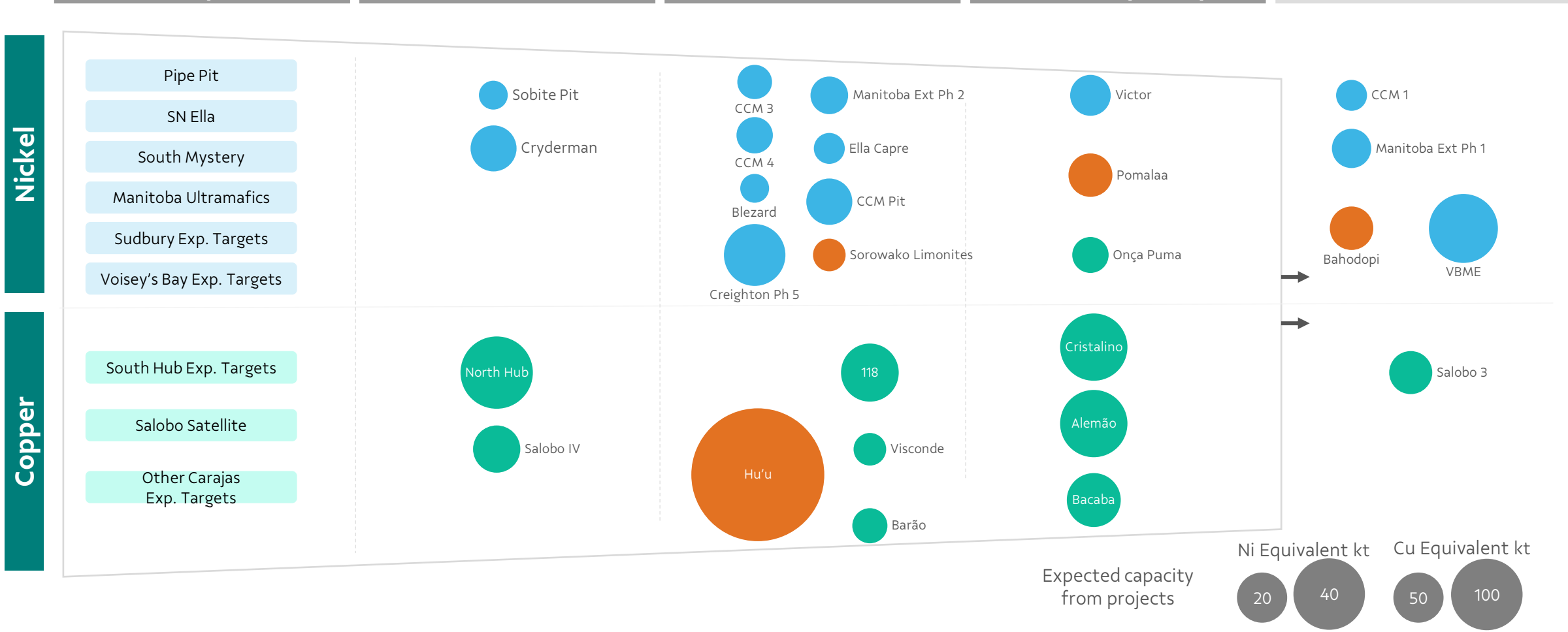


~50% increase in monthly production in Aug vs. average Q1

Delivering the Future

Robust Project Pipeline

North Atlantic South Atlantic Indonesia



[1]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. [2]Includes both replacement and growth projects capacity. [3]Includes indirect share of Vale in Indonesian JVs. 4Includes copper produced as by-product of nickel projects. Includes gold produced as by-product of copper projects. Nickel and Copper equivalent calculations based on long term price assumptions 5Hu'u added at 100% basis. Hu'u is 100% owned by PT Sumbawa Timur Mining (STM), an Indonesian private joint-venture company owned by Eastern Star Resources Pty Ltd (80%) and PT Aneka Tambang (20%). Eastern Star Resources Pty Ltd is 100% owned by Vale.


Clarabelle mill, Sudbury

Extend the business

Replacement capacity in North Atlantic

South hub extension

Grow the business

Copper in Carajas: Alemão

Indonesia exposure: PTVI

Hu'u


Salobo 3 project, Carajás

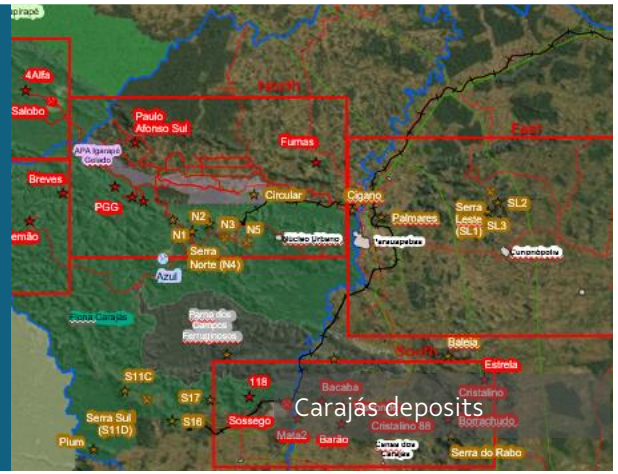
Implementing project pipeline to extend and grow

Explore to further extend & grow

In-mine extensions in North Atlantic

Ultramafics

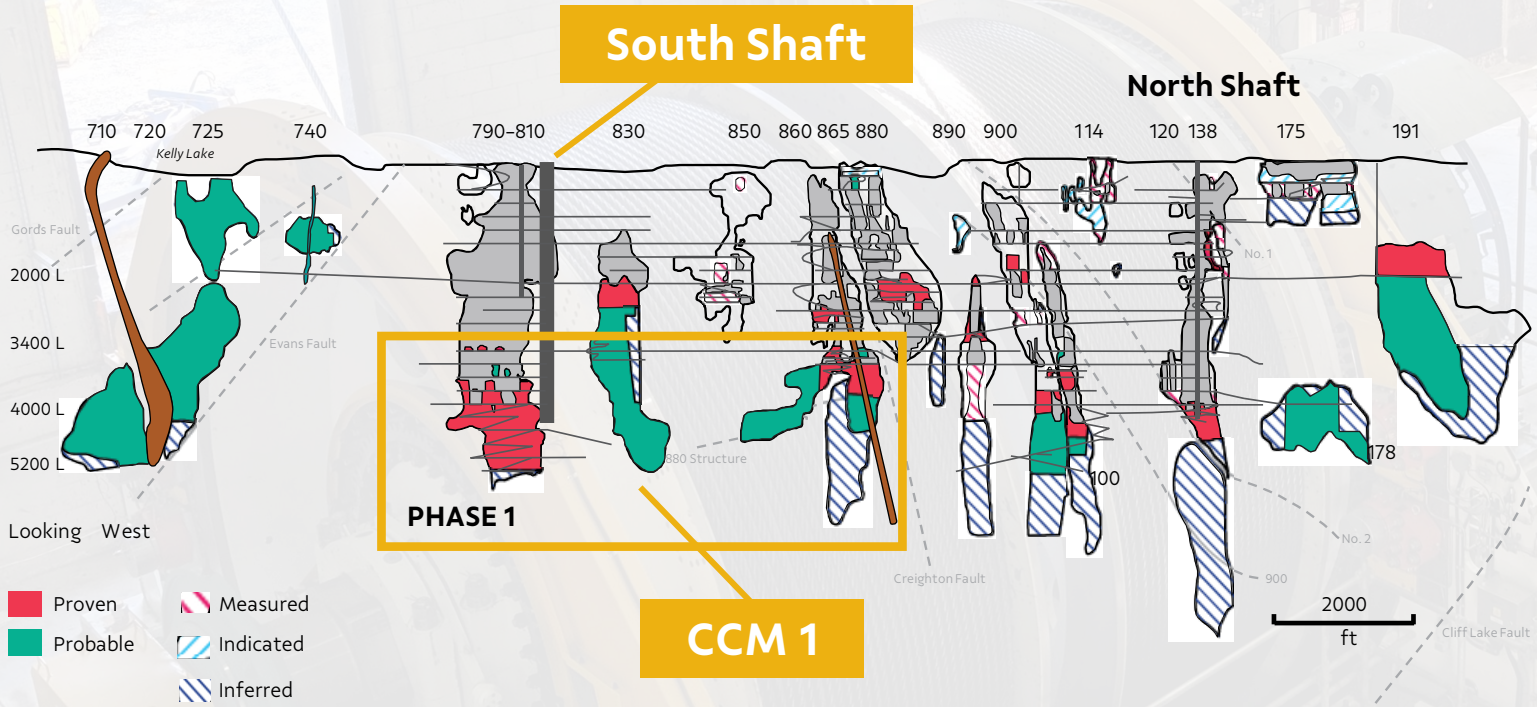
Carajás full potential



Carajás deposits

CCM South Shaft commissioned in August

Cross-section of Copper Cliff Mine (CCM)



Recommissioning of the **South Shaft** in CCM and development of **Phase 1**

Enables further **productivity improvements** – reducing haulage distances

Adding approx. **10 ktpy finished nickel**

Commissioning of the shaft: **August/2022**

Capex of **US$ 0.7 billion**

Ramping up VBME

Site works significantly **impacted by COVID-19 outbreak** – remote location

2 underground mines, Reid Brook and Eastern Deeps, to replace Ovoid open pit

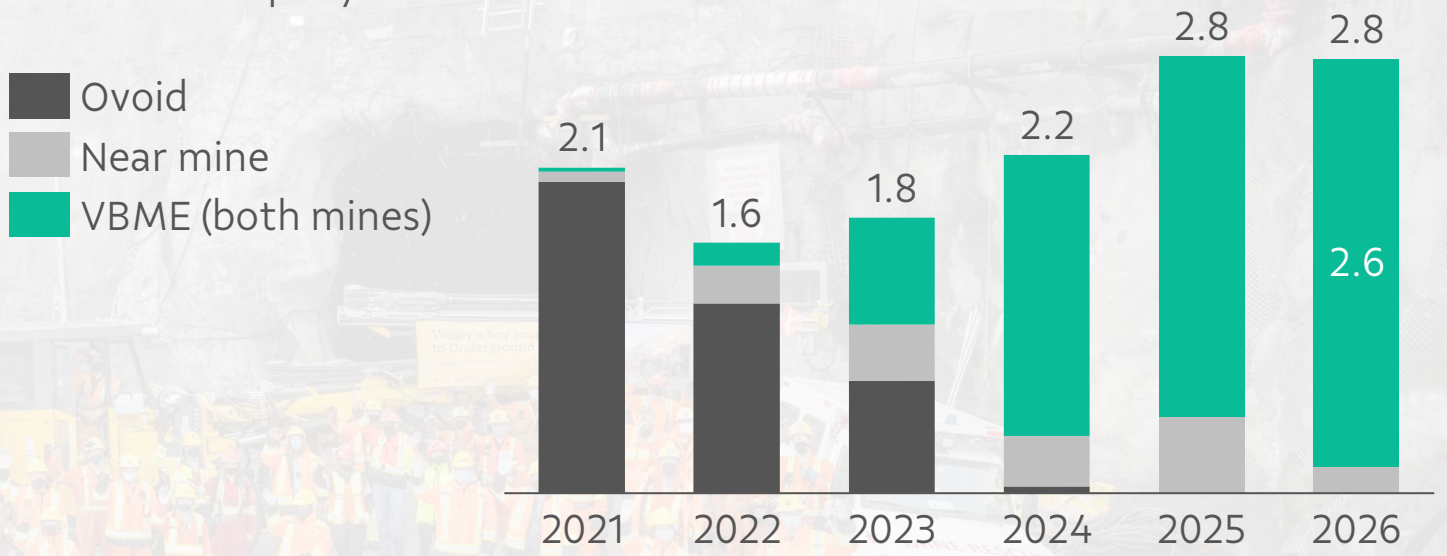
45 ktpy Ni; 20 ktpy Cu; 2.6 ktpy Co

Life of mine extended to 2035

Start-up: **2Q21**[1]

Capex of **US$ 2.7 billion**

Voisey's Bay ore production
million tonnes per year



Ramp up completion – ore production		2021	2022	2023	2024	2025	2026
	Reid Brook	3%	15%	59%	100%	100%	100%
	Eastern Deeps		0%	6%	50%	82%	100%

[1] In 2Q21, Vale achieved the first ore production of Reid Brook deposit, the first of two underground mines to be developed in the project. Eastern Deeps, the second deposit, has started to extract development ore from the deposit and is scheduled to start the main production ramp-up in the second half of 2023.

VALE

XXII Analyst & Investor Tour

Delivering on Salobo 3

Additional processing plant with 12 Mtpy – incremental production of **30-40 ktpy**

Startup on track for December 2022

To be delivered **on budget: US$ 1.1 billion**

Fully ramped-up by Q1 2024

Salobo 3 project aerial view
August/2022

VALE

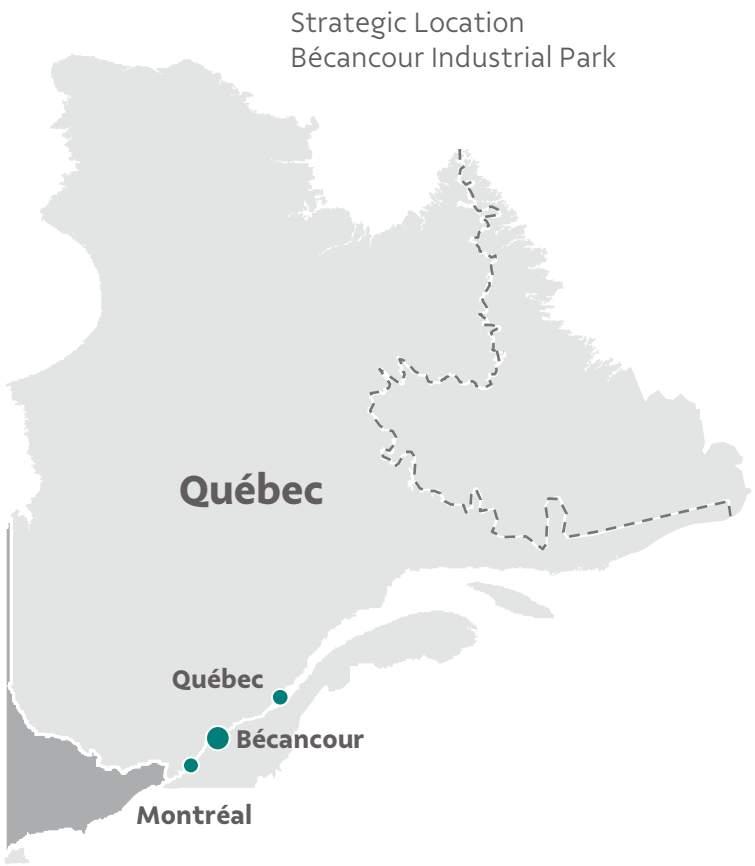
Additional long-life projects in Canada

Execution	Feasibility (FEL 3)	Prefeasibility (FEL 2)	
Thompson Phase 1	**Victor[1]**	**Creighton P5**	**CCM Pit**
• Investment on infrastructure to sustain extraction of current orebodies at T3 mine, but at deeper levels • Backfill delivery starts Q1 2023	• Set of high-grade polymetallic deposits with a focus on copper • Currently being studied with Glencore to utilize existing infrastructure and mine joint deposits	• Project to access the deeper deposits within Vale's Creighton mine • 15-year life of high-grade polymetallic ores	• Recommissioning of a high volume open pit mine in Sudbury • ~7 year life of mine
Start-up: 2023 project finish Q3 2024	**Start-up[2]: 2028**	**Start-up[2]: 2027-2029**	**Start-up[2]: 2026-2027**
13 - 15 kt Ni	**~5 kt Ni ~20 kt Cu**	**20 - 24 kt Ni 17 - 20 kt Cu**	**12 - 15 kt Ni 7 - 9 kt Cu**

[1]Victor volumes and capex presented as Vale share. [2]Startup dates are indicative. Project is not approved.

Advancing the development of downstream capacity to the EV supply chain in North America

Nickel Sulphate Plant

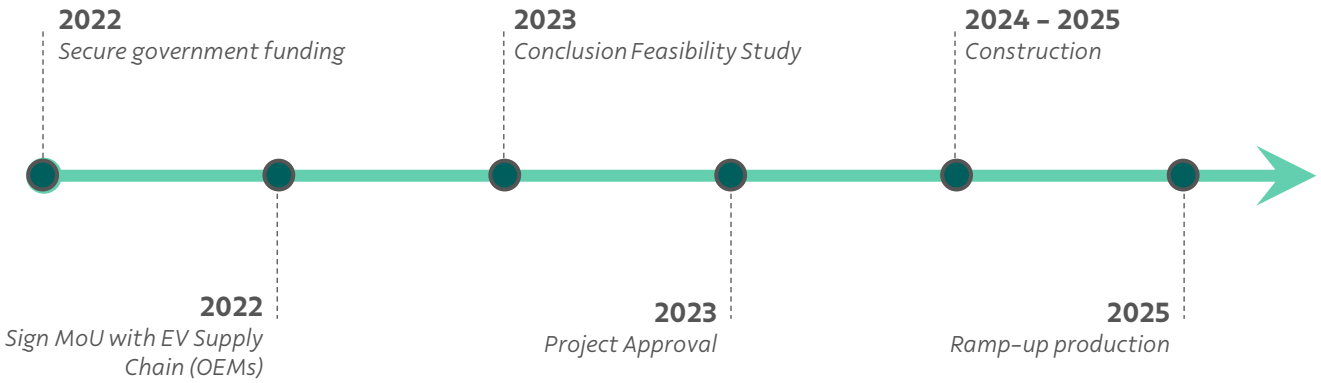


Project Highlights

- Pivoting towards the North American EV supply chain
- Nickel Source: High purity Nickel Class 1 (Pellets and Rounds) from low CO_2 plants from Sudbury & Long Harbour

FEL 2 concluding *(Pre-Feasibility)*	**~25 ktpy Ni** *in Nickel Sulphate*
Bécancour, Quebec (Battery Park) *Proposed location*	**Battery Plants Announcements at Bécancour**

Key Milestones

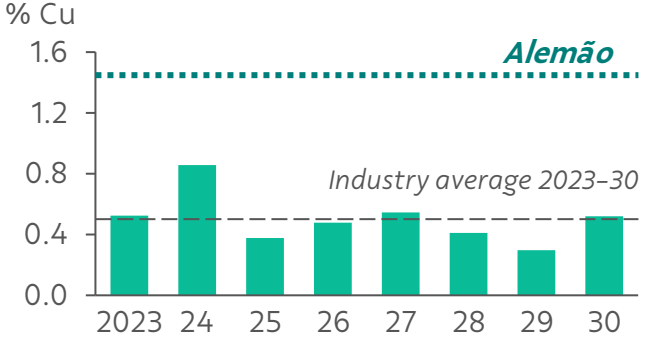


1 PFS: Pre-feasibility study; DFS or BFS: Definitive Feasibility Study or Bankable Feasibility Study

Developing copper in Carajas

Alemão

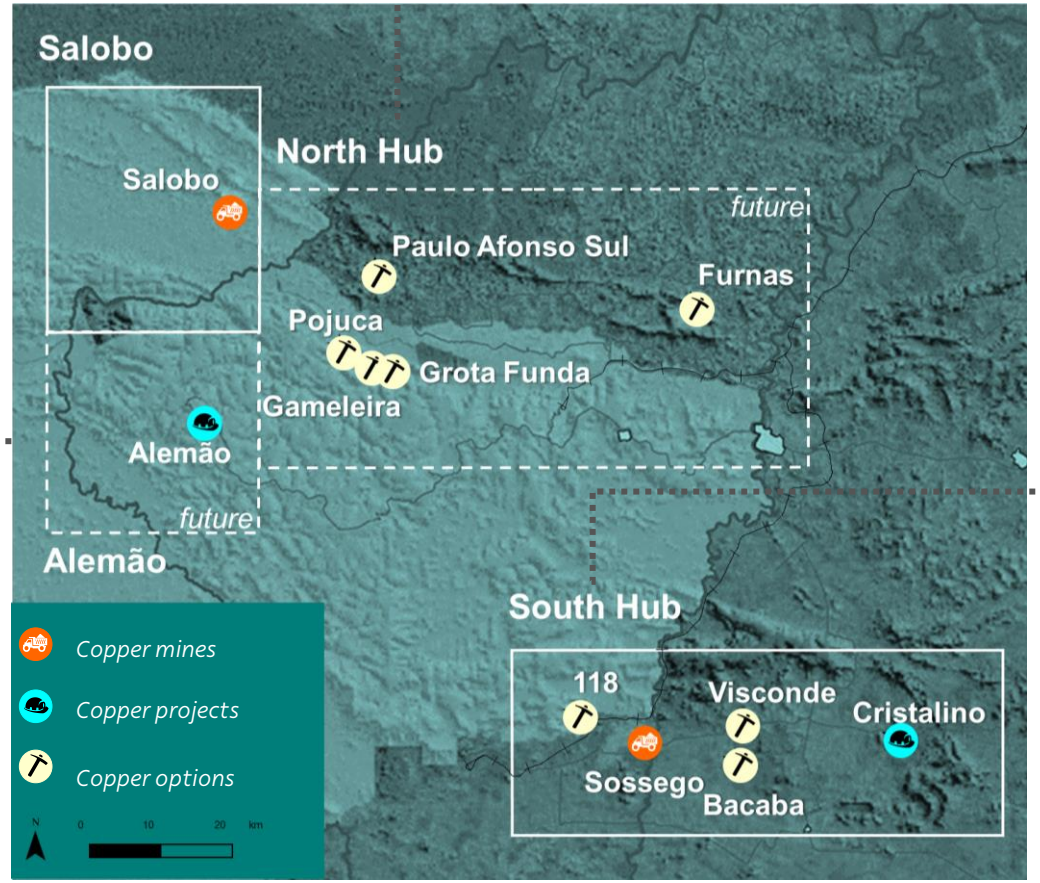
Average grade of projects per start-up year



- High grade copper deposit with significant gold –120 koz per year
- Underground mine 5.45Mtpy ROM
- 22 years LOM

DFS[1] | **Startup: 2027+[3]**

Production: 60 ktpy



North Hub

- Potential new hub with development of Northern deposits along with processing facilities
- 60km geological drilling planned for 2022

Scoping | **Startup: 2028+[3]**

Potential production: 70–100 ktpy

South Hub extension

- Extending the life of Sossego operations through development of South Hub deposits
- Advancing on satellite deposits studies to provide optionality

PFS[2]–DFS[1] | **Startup: 2025+[3]**

Production: 80 ktpy

[1]Definitive Feasibility Study or FEL 3. [2] Prefeasibility Study or FEL 2. [3]Startup dates are indicative. Project is not approved.

Advancing growth partnerships at PTVI

Bahodopi

Developing RKEF project with Tisco & Xinhai with 73ktpy capacity. PTVI ownership in processing facility is 49%

PTVI to own 100% of the mine that will supply ~50% of the ore

Partners visit area of future Pomalaa plant, June 2022

Area of future Bahodopi mine, July 2019

Pomalaa

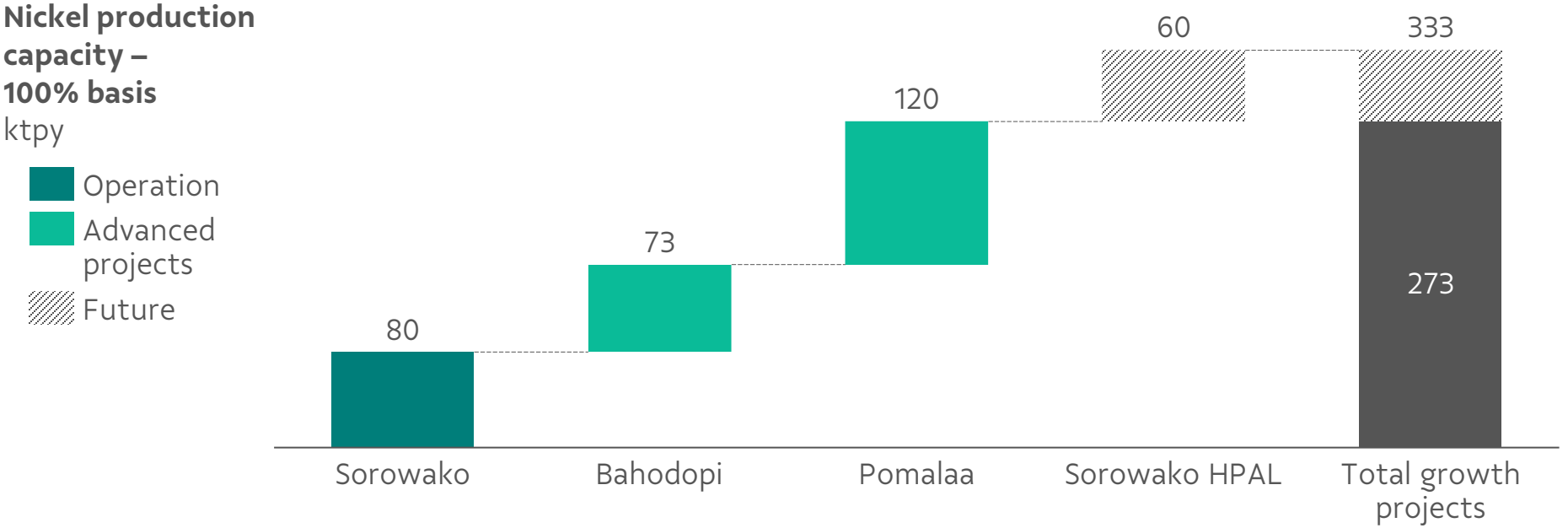
PTVI and Huayou have signed an FCA[1] to develop an HPAL processing facility with capacity up to 120 ktpy

PTVI has a call option to acquire up to 30% of the HPAL and will own 100% of the mine

PTVI, Huayou and Ford recently signed MoU for a 3-way partnership in the project

Additional growth through Indonesian JV's exposure: >300 kt of nickel sourced potential from PTVI

Nickel production capacity – 100% basis
ktpy



	Sorowako	Bahodopi	Pomalaa	Sorowako HPAL	Total growth projects
PTVI equity share ktpy Ni	**80**	**36**	**36**	**18**	**170**
PTVI sourced ore ktpy Ni	**80**	**36**	**200[1]**	**60**	**376**

[1] Includes 80 kt of nickel in saprolite ore production at Pomalaa mine to be sold to Market. [2]Framework Cooperation Agreement

Hu'u: Advancing development of world-class copper project

Significant resources

Estimated to contain **17.6 Mt of copper and 31 Moz of gold** in resources[1]

Large, long-life project

Copper production estimated at **300-350 ktpy** in peak years with a predicted mine life of **>45 years**

Highlights

Located in province of West Nusa Tenggara, **Indonesia**

Currently ongoing **prefeasibility study**

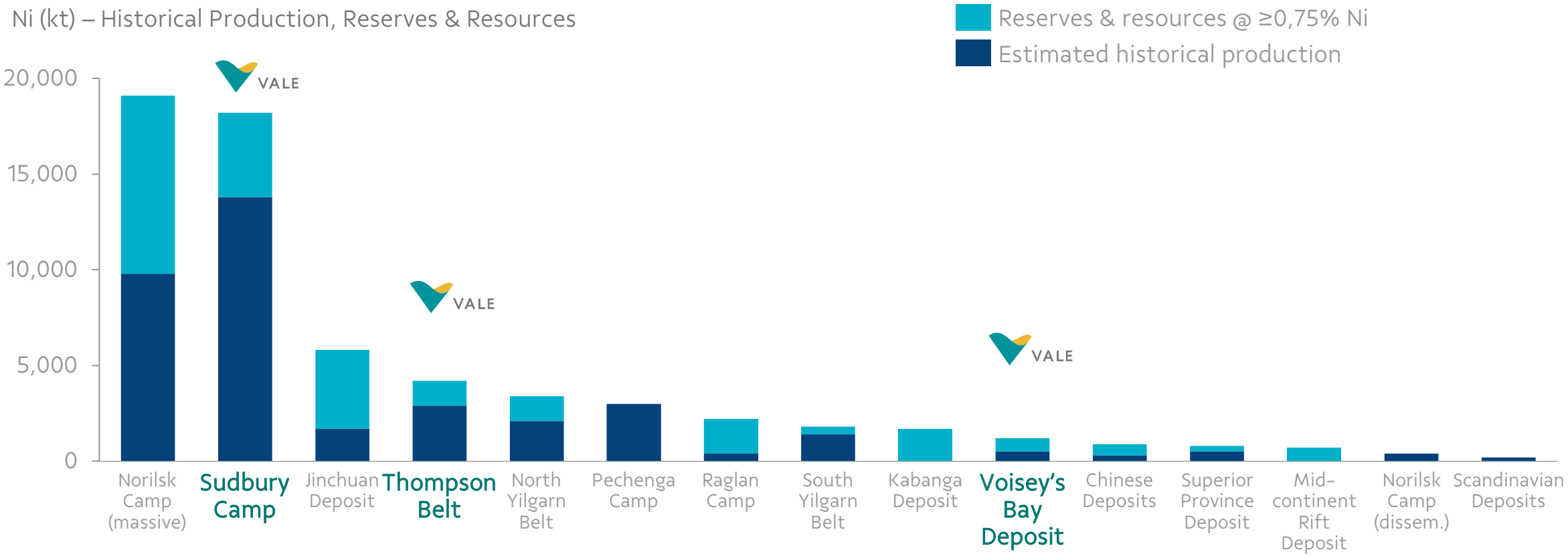
Expected to start-up **post 2030**

Note: Hu'u is 100% owned by PT Sumbawa Timur Mining (STM), an Indonesian private joint-venture company owned by Eastern Star Resources Pty Ltd (80%) and PT Aneka Tambang (20%). Eastern Star Resources Pty Ltd is 100% owned by Vale. [1] Mineral Resources as of December 31, 2021 and shown in 100% basis, not reflecting Vale's interest, being 1,065 Mt Indicated Resources @ 0.96% Cu and 0.58g/t Au containing 10.3 Mt Cu and 20 Moz Au and 992 Mt Inferred Resources @ 0.7% Cu and 0.4g/t Au containing 7.3 Mt Cu nd 11 Moz Au.

Vale controls 3 of the best Nickel Sulfide provinces in the world

Largest sulfide nickel camps/deposits in the world

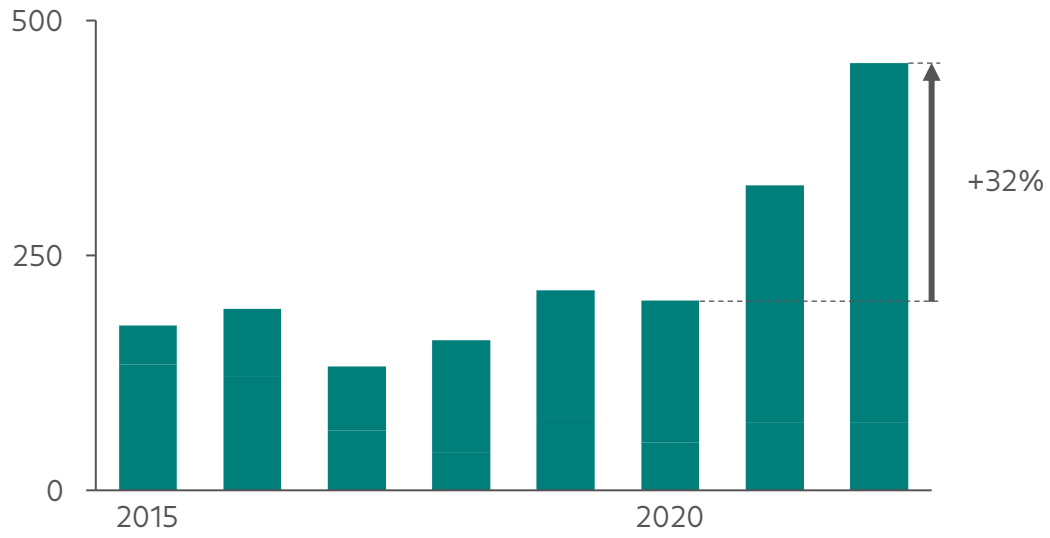
Ni (kt) – Historical Production, Reserves & Resources



Investing in exploration to **enhance and advance project pipeline**

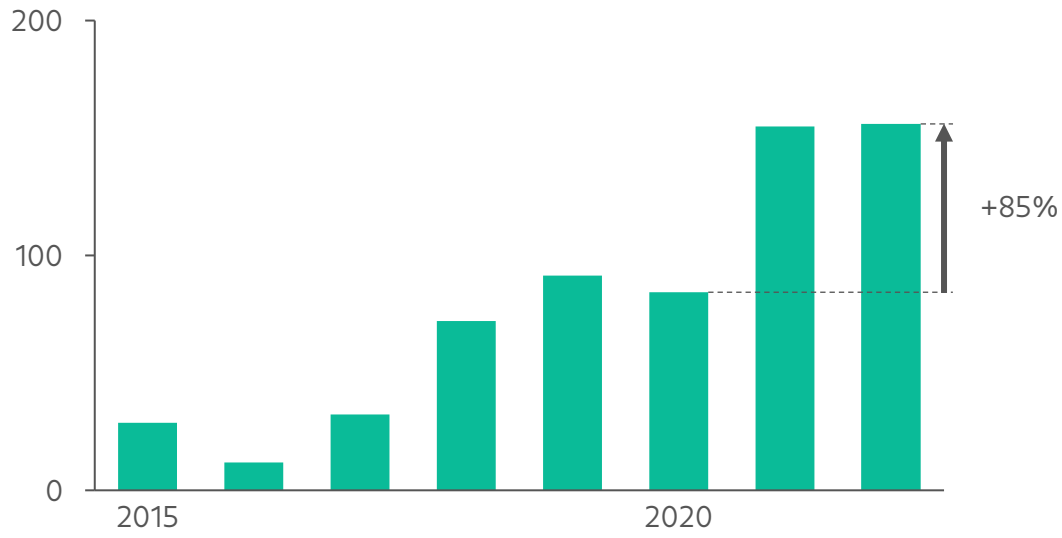
North Atlantic

Meters drilled
in km per year

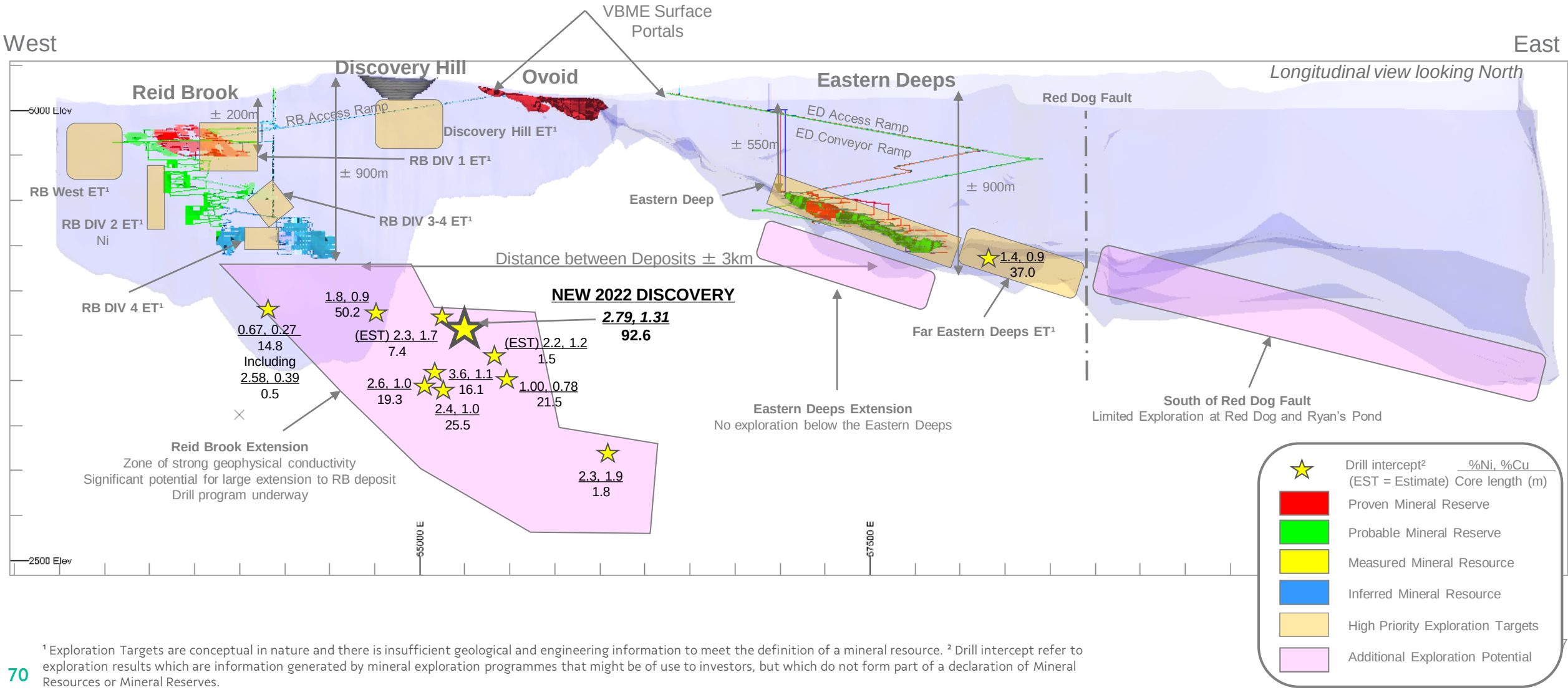


Carajás

Meters drilled
in km per year

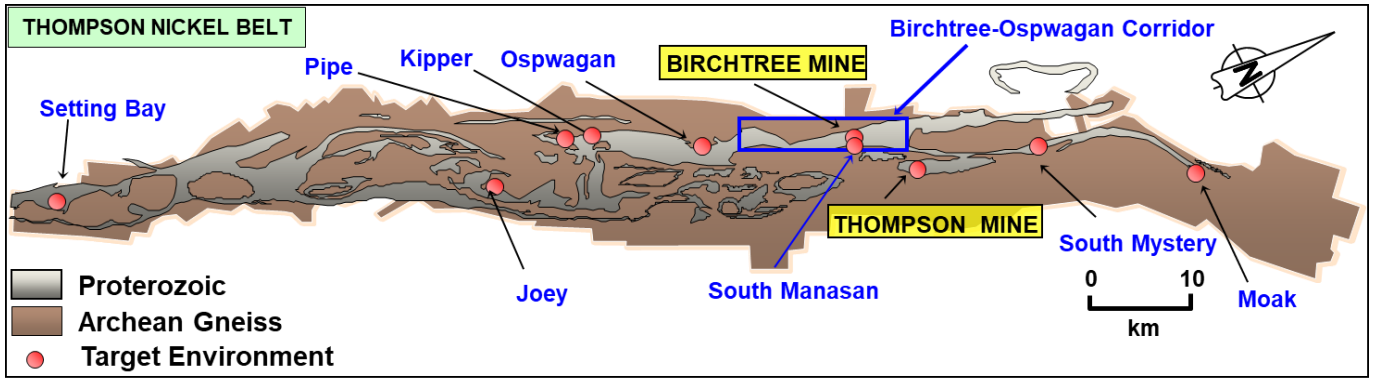


Voisey's Bay: Recent exploration results confirm potential to further extend life of mine

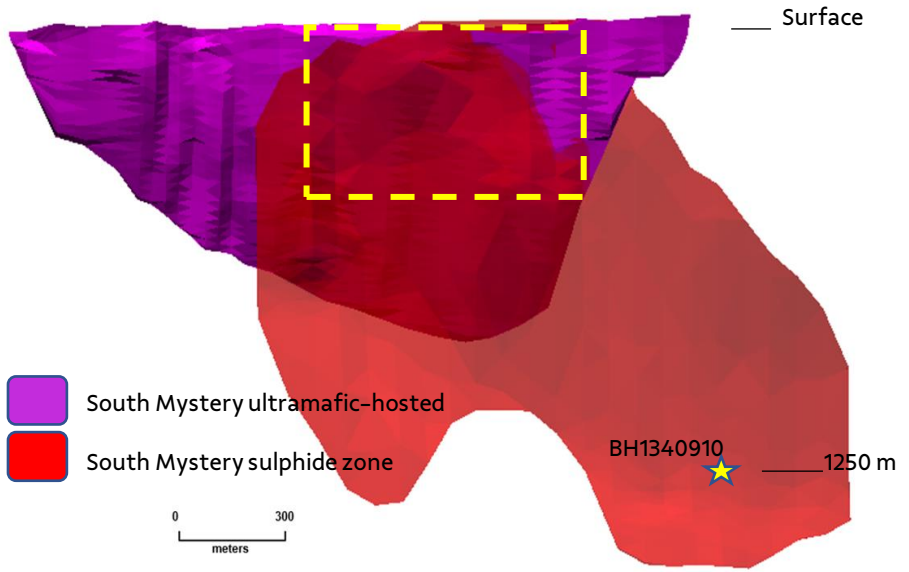


¹ Exploration Targets are conceptual in nature and there is insufficient geological and engineering information to meet the definition of a mineral resource. ² Drill intercept refer to exploration results which are information generated by mineral exploration programmes that might be of use to investors, but which do not form part of a declaration of Mineral Resources or Mineral Reserves.

Thompson: potential for growth in large ultramafic-hosted deposits



South Mystery – best intersection[1] to date:
33.1m@1.48%Ni including 8.7m@2.69%Ni



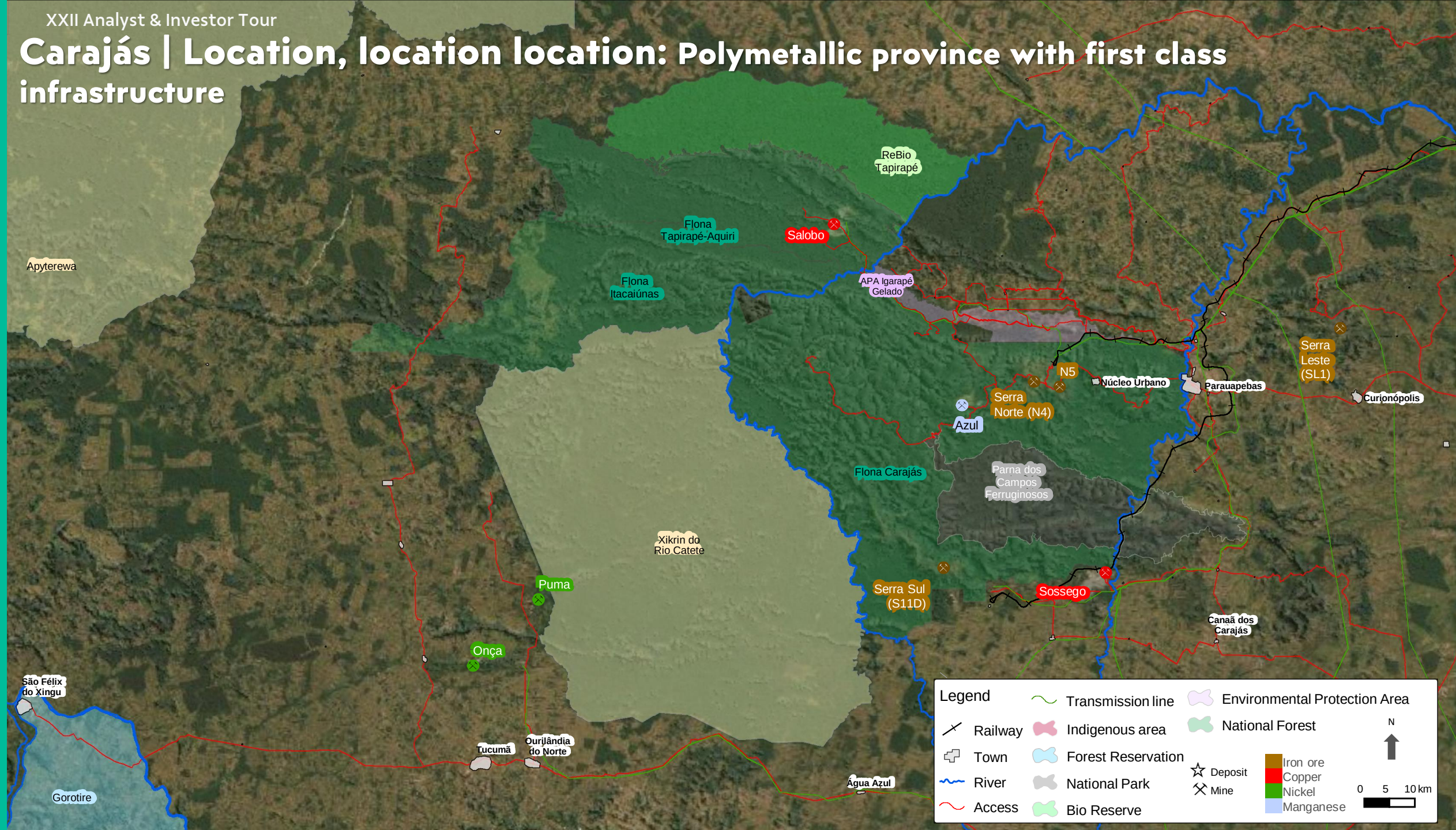
Longitudinal view looking west

- South Mystery discovery illustrates the potential for massive sulfide extensions generated by the remobilization of ultramafic deposits
- The exploration strategy is based on the development of ultramafic deposits and new targets generated by geophysics and AI

[1] Drill intercept refer to exploration results which are information generated by mineral exploration programmes that might be of use to investors, but which do not form part of a declaration of Mineral Resources or Mineral Reserves.

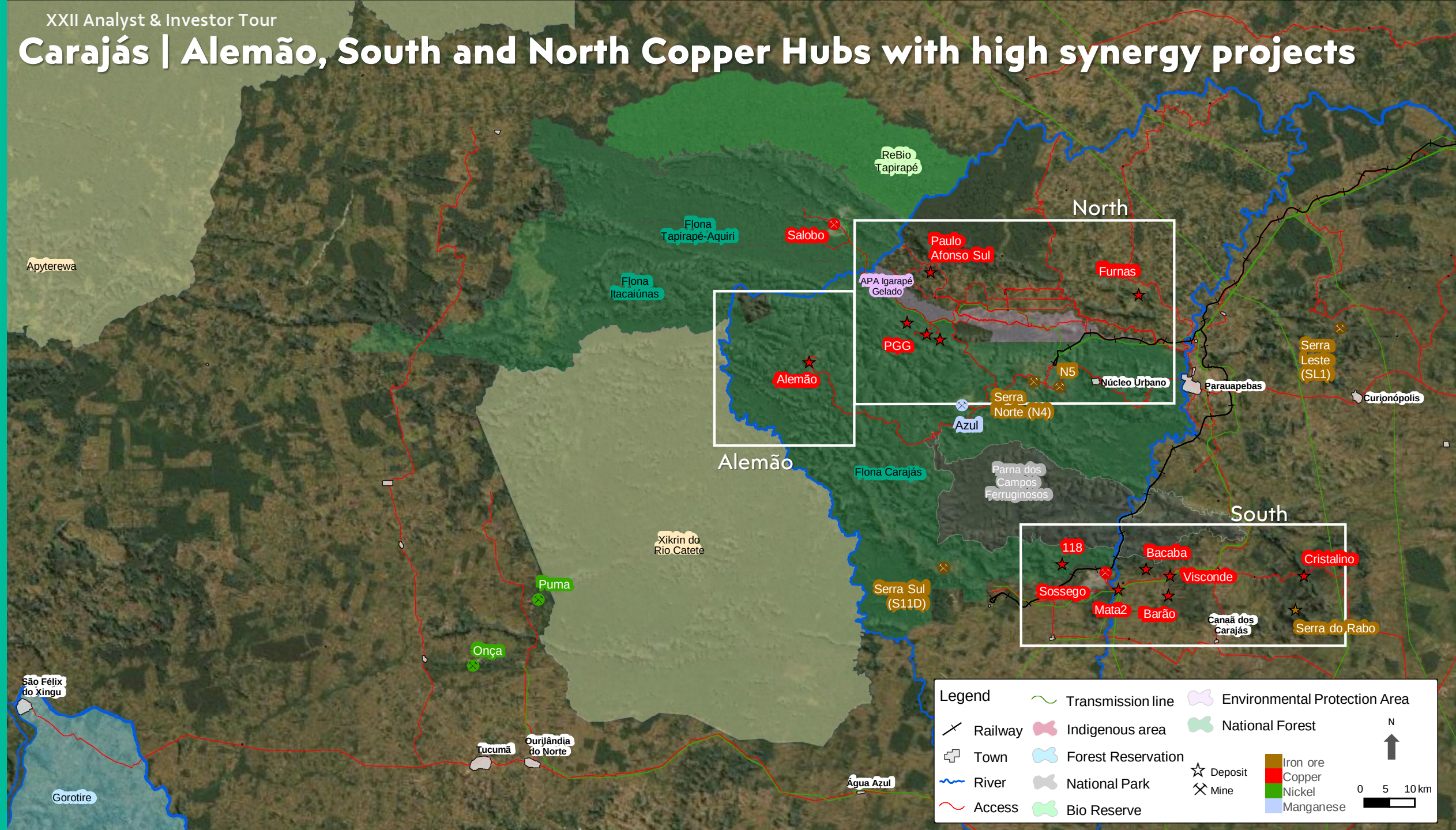
XXII Analyst & Investor Tour

Carajás | Location, location location: Polymetallic province with first class infrastructure



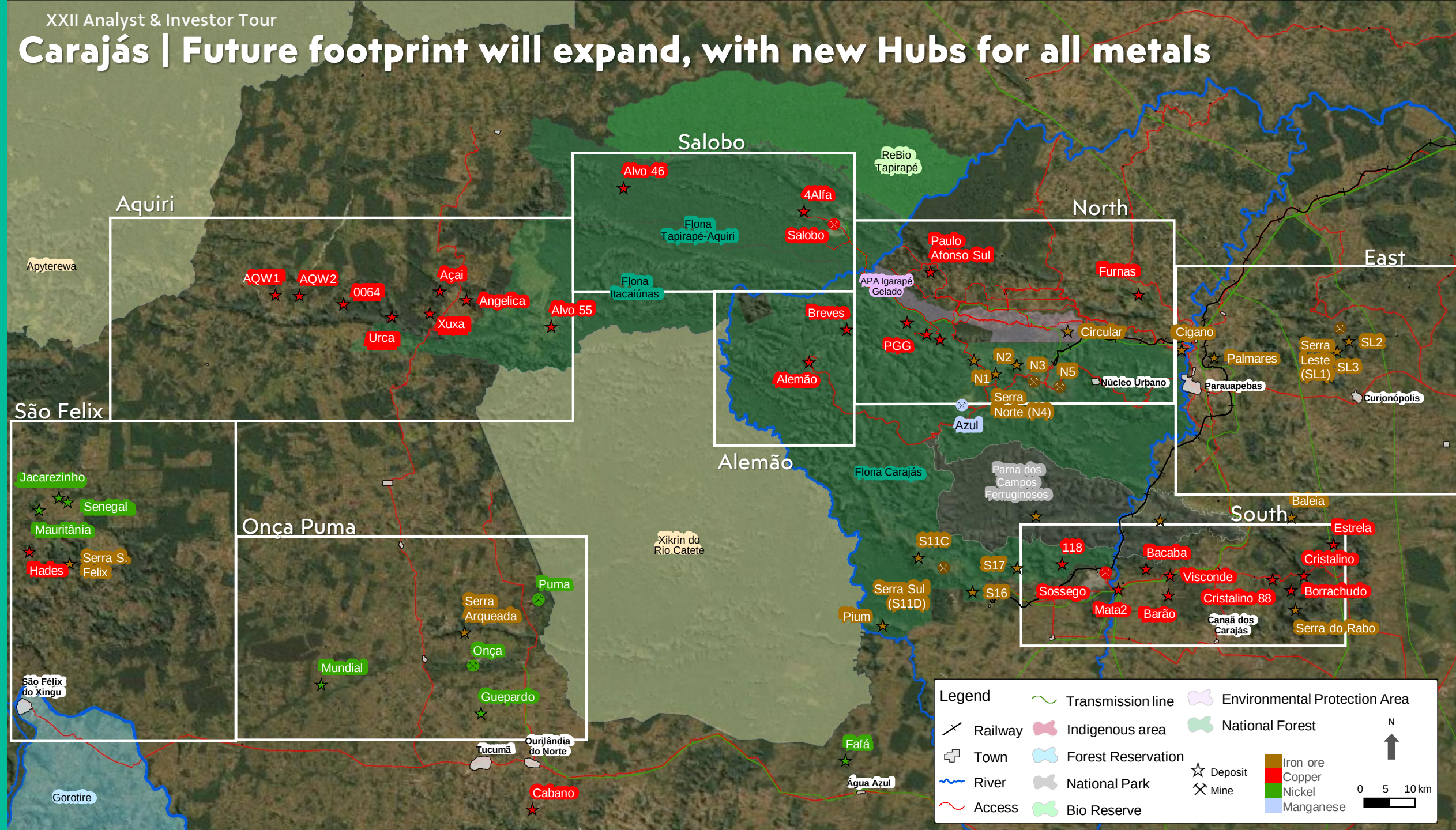
XXII Analyst & Investor Tour

Carajás | Alemão, South and North Copper Hubs with high synergy projects



XXII Analyst & Investor Tour

Carajás | Future footprint will expand, with new Hubs for all metals



Taking the right actions

Mastering the foundational elements

- Benchmark in **Safety & Sustainability**
- **New Pact with Society**
- Assets **Excellence**

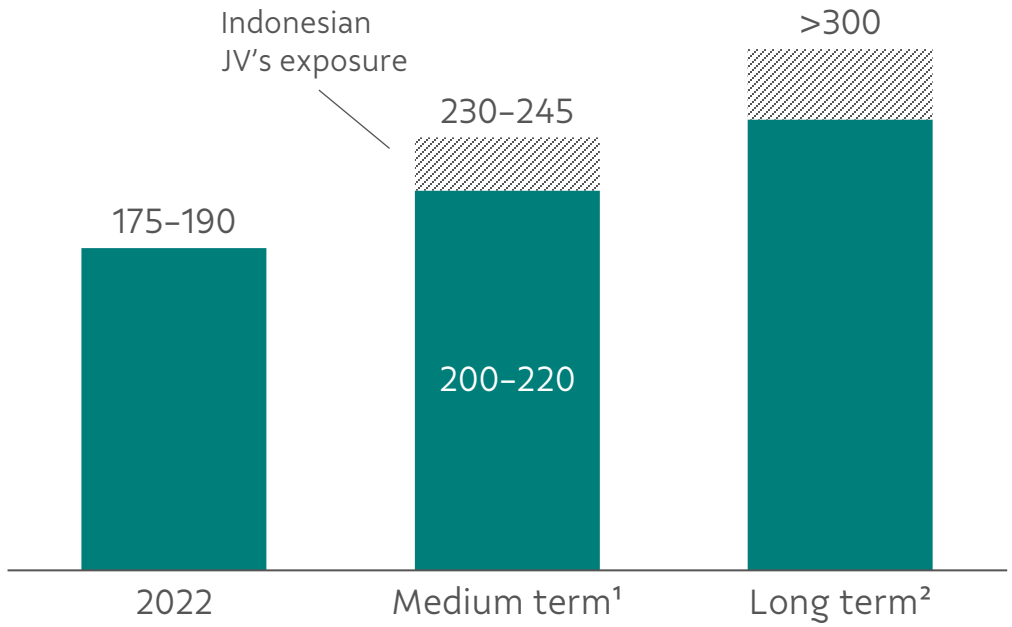
Pivoting

- Pivoting our Ni products for the **EV Supply Chain**
- Delivering the **Future**

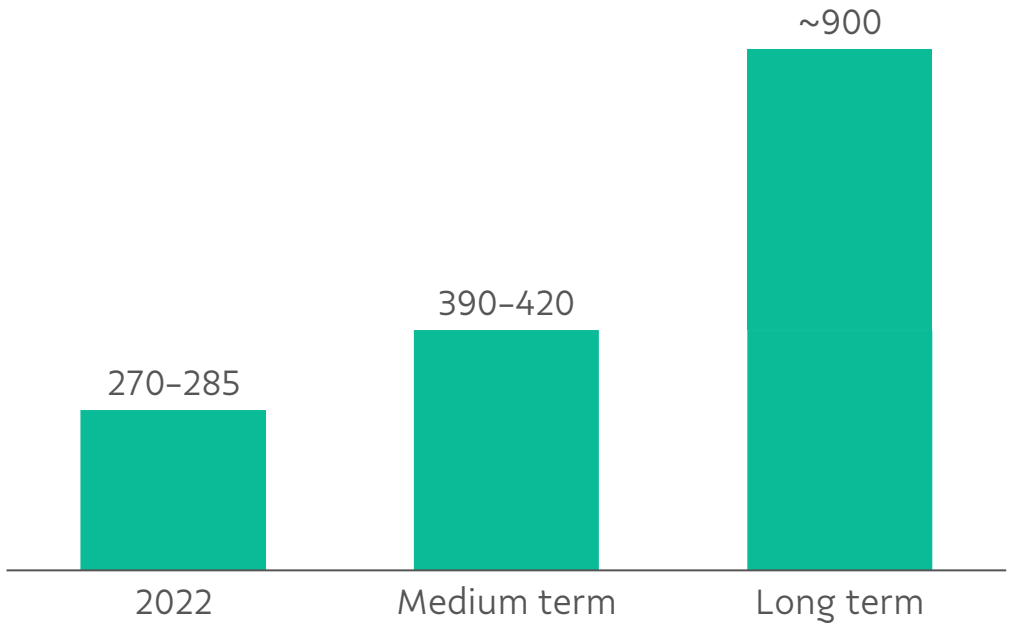
Transforming our business

A stable Base Metals business makes room to focus on developing **business growth potential**

Contained nickel
ktpy



Contained copper
ktpy



¹Including indirect exposure to total nickel sourced from PTVI mines for Bahodopi and Pomalaa. ² Including indirect exposure to total nickel sourced from PTVI mines for Bahodopi, Pomalaa and Sorowako HPAL

Growth projects combined with productivity and efficiency initiatives support significant improvement on performance

Growing the Business
Attractive opportunities to grow the business and dilute fixed cost

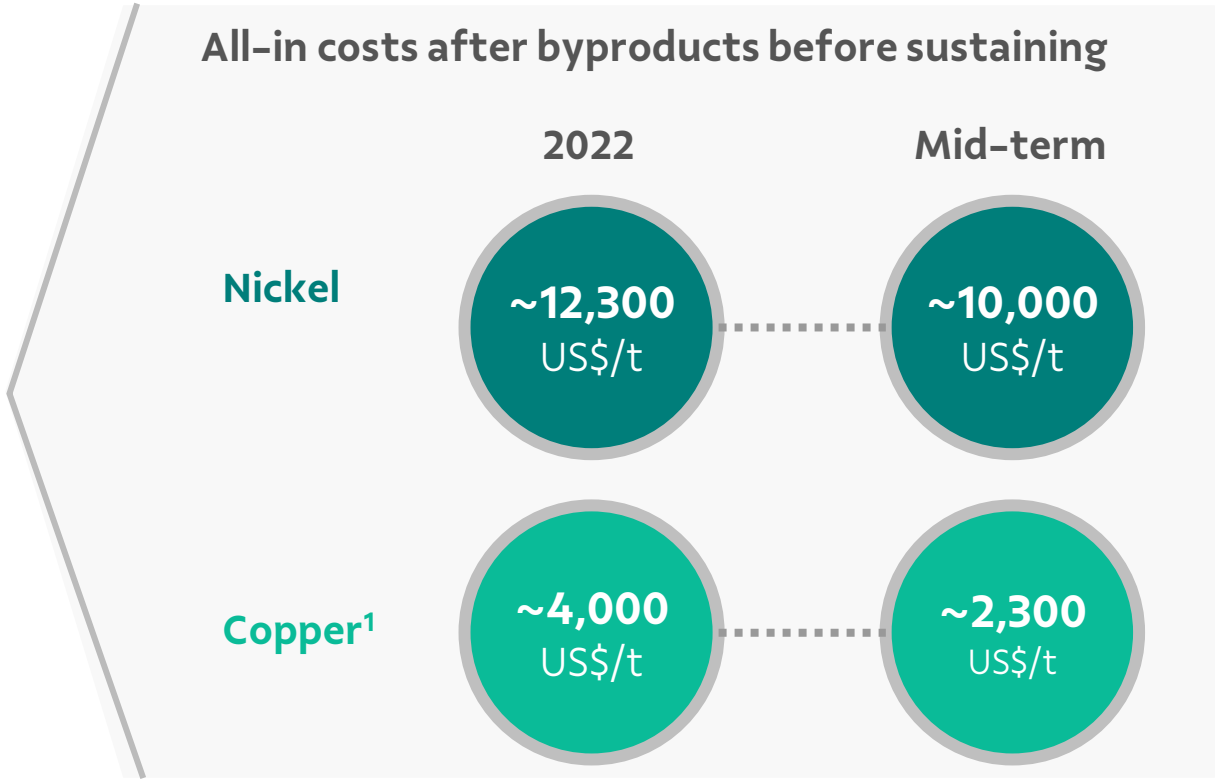
Mines Productivity
Tackling bottlenecks and investing in our assets & infrastructure in order to lower overall costs

Maximize Portfolio Value
Each asset to deliver its maximum potential value

Simplified Operating Model
Reducing corporate footprint while increasing focus on operations

First Principles Cost Review
First Principles / risk-based budgeting process provides visibility to what is required for the business to succeed

Vendor Spend / Procurement Initiatives
Spending discipline across the business – better management of consumptions and planning



[1] Excludes Hu'u R&D.

Significant **value potential** in multiple views of the future

Mid-term Base Metals EBITDA[1]

Nickel price (US$/t)* \ *Copper price (US$/t)	7,000	8,500	10,000
18,000	~3.3	~4.1	~4.5
21,000	~3.9	~4.5	~5.2
24,000	~4.6	~5.2	~5.7

US$ billion

[1] Assuming ~220ktpy Ni production and ~420 ktpy of copper production

Delivering on value

Gustavo Pimenta – CFO, Vale

Delivering value in Vale Base Metals

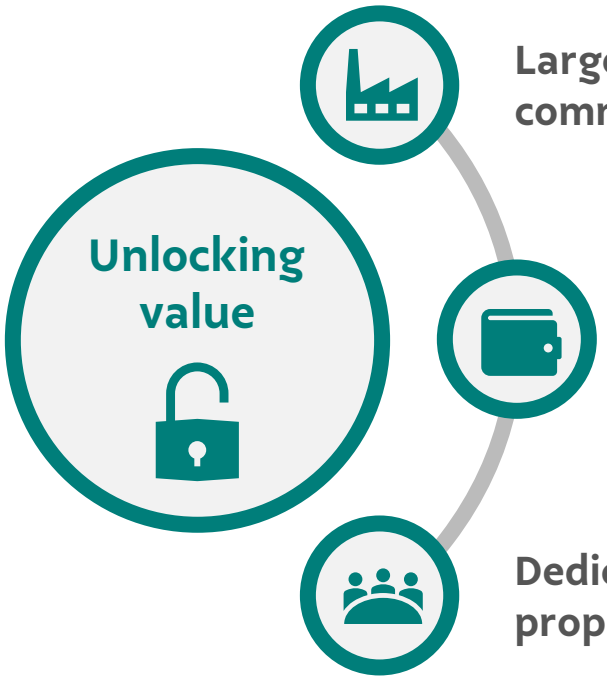
Significant market opportunities given secular trends

Unique set of assets and resources

Right actions to operational stability and productivity

Robust pipeline of project to support accretive growth opportunities

A dedicated vehicle to unlock and create value



Largest pure future facing commodity player

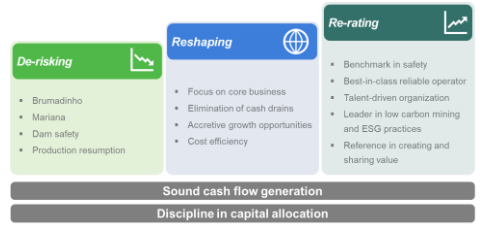
Vehicle with access to competitive cost of capital

Dedicated management model with a proper governance


Salobo operations in Brazil


Sudbury operations in Canada

A recap on the evolution of our strategic goals



De-risking	**Brumadinho**	• *Agreement with legal certainty* • *~50% of Integral Reparation performed*
	Dams' safety	• *40% upstream dams in Brazil eliminated by 2022* • *Expects no dams at critical level by 2025*
	Mariana	• *Performing on TTAC[1]* • *Negotiations ongoing for a definitive agreement*
	Capacity resumption	• *Delivering new assets (e.g. filtration plants, Maravilhas III, Torto)* • *Creating buffers to improve flexibility*
Reshaping	**Portfolio simplification**	• *9 business sold in 5 different countries since 2019* • *Up to US$ 2 bn per year of cash drains eliminated*
	Cost efficiency	• *Flat fixed costs in 2022 and 2023 (vs. 2021)* • *Gradual C1 reduction as volumes increase*
Re-rating	**ESG**	• *Definitive agreements with indigenous people in Brazil (9 out of 13)* • *Scope 1, 2 and 3 emissions reduction targets defined* • *Green products (e.g. Green briquettes, certified Nickel)*
Capital allocation	**Return to shareholders**	• *Solid dividend policy (US$ 6.5 bn announced 2022 YTD)* • *Bold buyback programs (~20% of total outstanding shares)*

[1] Transaction and Conduct Adjustment Agreement.

We are progressing on assets debottleneck

Serra Norte

- **Gelado project:** final construction and licensing stages for first phase's start-up in 4Q22
- **New ore bodies under licensing** and future development (N3 and N1/N2)
- Applying for **rolling licenses** to sustain production level

S11D

- **Four crushers** to process jaspilite and mobile plants **installation concluded**
- **Serra Sul 120 project's installation license granted**
- **Jaspilite restrictions:** New waste crusher required to process large compact blocks

Itabira

- **Itabiruçu dam:** raising works on progress with first phase conclusion by year end
- Development of **medium-term tailings disposal solutions**

Brucutu

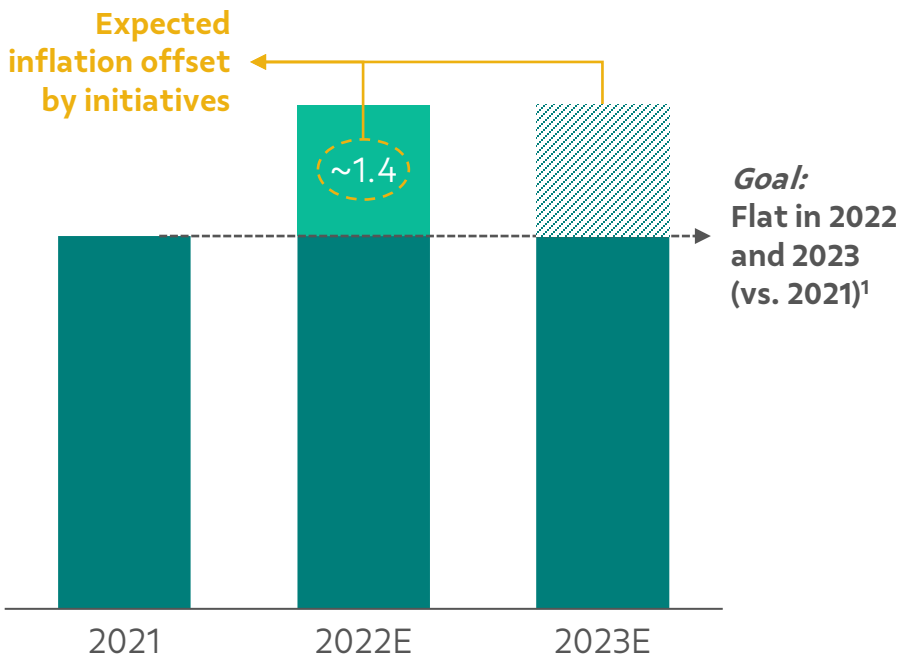
- **Torto dam:** construction works completed and under licensing process until 4Q22
- **Licensing and development of tailings/waste stockpiles** areas

VALE

Improving efficiency to offset the inflationary world

Fixed spending and sustaining investment

US$ billion



Reduction program's initiatives *(non exhaustive)*

VPS and digital solutions

- Optimized maintenance program, increasing predictability
- More than 1,000 initiatives mapped

US$ 450 MM savings estimated until 2023

Suppliers and services

- Supplier diversification strategy (e.g. Chinese equipment)

US$ 150 MM savings estimated until 2023

Organizational redesign

- Leaner and more efficient organization through activities' scope review

US$ 100 MM savings estimated until 2023

[1] Considering current operations in local currency.

Capital allocation discipline

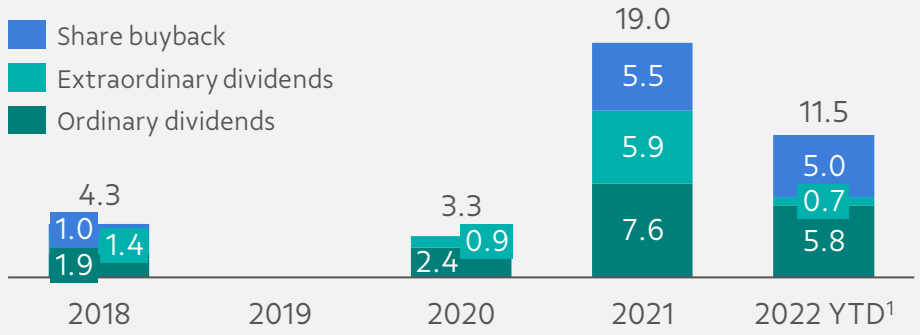
Business as usual

Dividend policy	Semi-annual solid return to shareholders
Commitments	Dams decharacterization, Brumadinho and Renova
Maintenance investments	Controlled and efficient capex to sustain production level

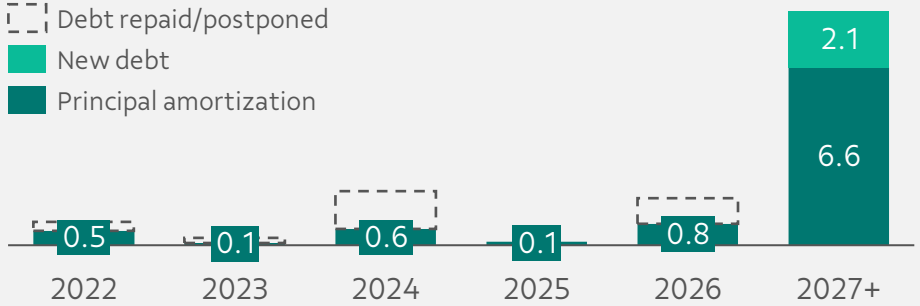
Capital options

Buyback program	One of the most accretive investments at the moment
Growth projects	Accretive growth options
Extraordinary dividends	Additional return to shareholders
Liability management	Balance sheet optimization

Free cash flow returned to shareholders (US$ bn)



Debt amortization schedule[2] (US$ bn)



[1] As of Aug 31st, 2022. Including dividends paid in 2022. [2] As June 30th, 2022. Includes principal and does not include interest and accrued interest

On track to deliver value

Substantial value creation opportunity at Base Metals: right time, assets and actions

Reshaped towards leaner asset portfolio, exposed to secular trends

Laser-focused on value over volume strategy and cost efficiency

Capital discipline and superior return to shareholders to remain a priority

Q&A

VALE