21st Analyst & Investor Tour

VALE

September 9th, 2021

Iron ore briquettes stockpile

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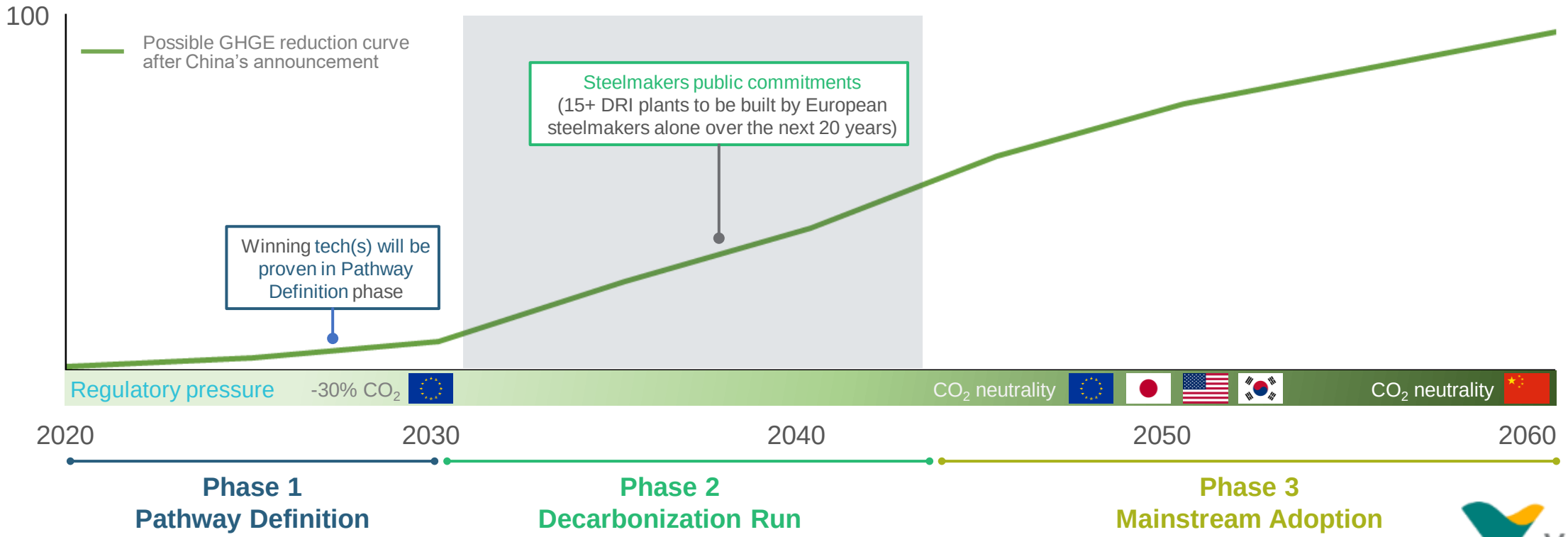
Marcello Spinelli

Steel industry transformation started, strongly driven by GHGE reduction regulations

Conceptual view of GHGE reduction in steelmaking
(100% basis)

Illustrative



Source: BCG Steel Model, BCG Analysis, IEA and Vale's analysis.
[1] IEA - Iron and Steel Technology Roadmap 2020.

Technological shift faces three challenges

High investment required

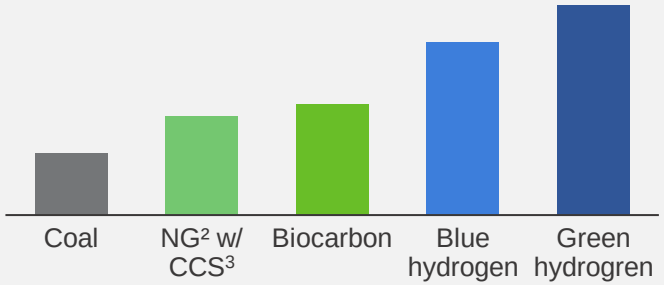
US$ 1-2 trillion

to be compliant with CO_2 emission requirements

- Aging plants need to be revamped;
- Uncertainties related to technology success increase investment risks.

Higher fuel costs

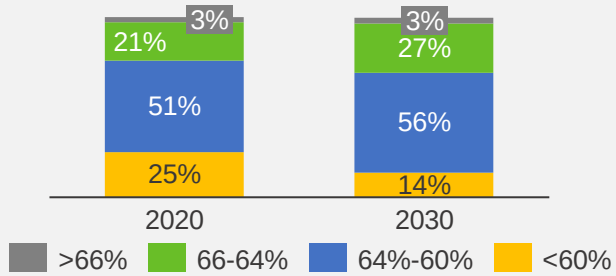
Fuel cost[1] (US$/t coal eq.)



- "Greener" reductant costs are higher than coal costs;
- Biocarbon and natural gas can accelerate transition while developing hydrogen industry.

High-quality ore supply

Seaborne iron ore supply by Fe content (%)

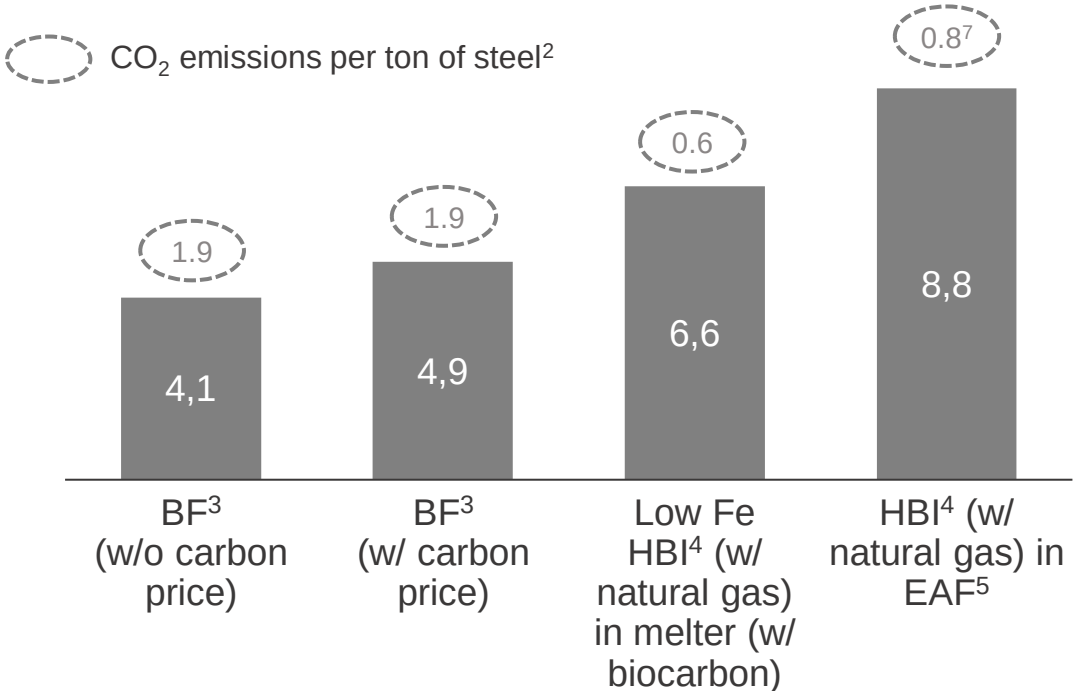


- Steelmaking needs high quality products to minimize reductant costs and increase productivity;
- Main ore bodies available face depletion and beneficiation challenges, thus making it difficult to increase supply of high-grade ores.

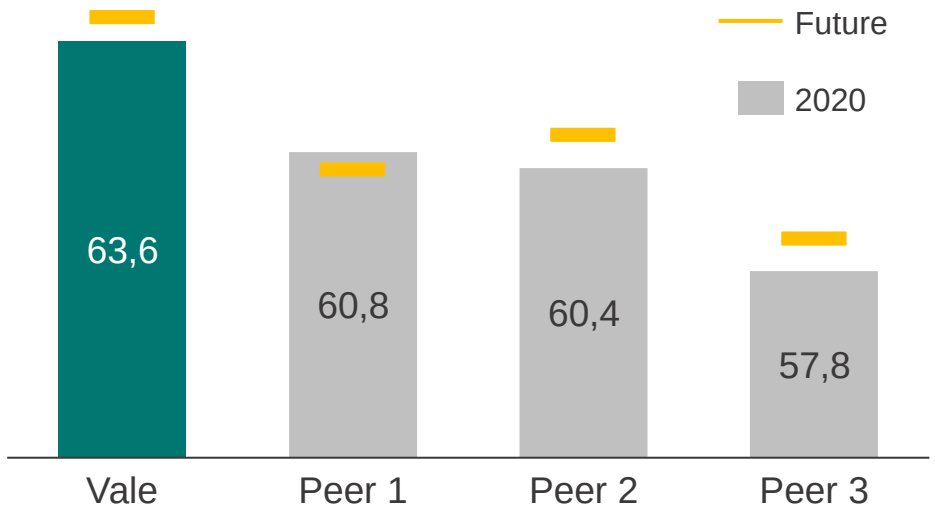
Source: Vale's estimates.
[1] Assumptions: Biochar@$250/ton; Electricity@$30/MWh; CCS@$60/ton.$CO_2$ [2] Natural gas. [3] Carbon capture and storage.

Leading to solid premiums in long term

Premium for 1% Fe additional[1]
US$/dmt



Average Fe content
%Fe



Source: Vale's estimates.
[1] Technical VIU simulation for different routes. Additional premium paid per percentage of Fe on top of 62%Fe index (including Fe and slag effect), assuming iron ore prices@US$75/t, coke prices@US$ 280/t, carbon price @US$50/t, natural gas price@US$6/MMbtu, biocarbon price@US$250/t and steel margins@US$50/t. [2] Including scope 1 emissions. [3] Blast furnace. [4] Hot Briquetted Iron. Considering an iron ore input for low Fe HBI of 63-64%Fe and >66%Fe for HBI. [5] Electric arc furnace. [6] Carbon capture and storage [7] Including scope 2, emissions may increase to 1.2-1.4 t of CO_2 per ton of steel, depending on electric energy source.

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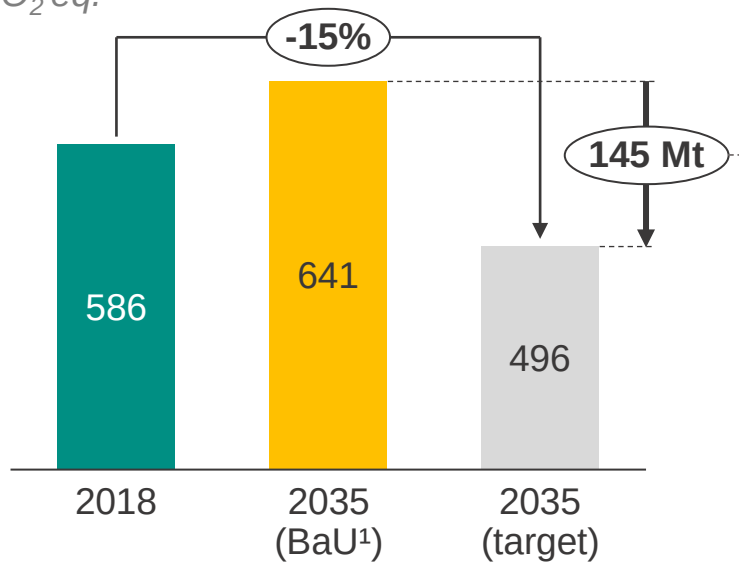
Rogerio Nogueira

Advancing with our pioneer scope 3 net emission reduction target

Absolute scope 3 net emissions
Mt CO_2 eq.



Partnership and engagement with clients and suppliers (75-85% or ~115 Mt CO_2 eq. of the challenge)

Leveraging steel industry decarbonization initiatives

Supporting a **reduction in shipping emissions**[2]

Vale's own initiatives (15-25% or ~30 Mt CO_2 eq. of the challenge)

Improving our **high-quality portfolio**

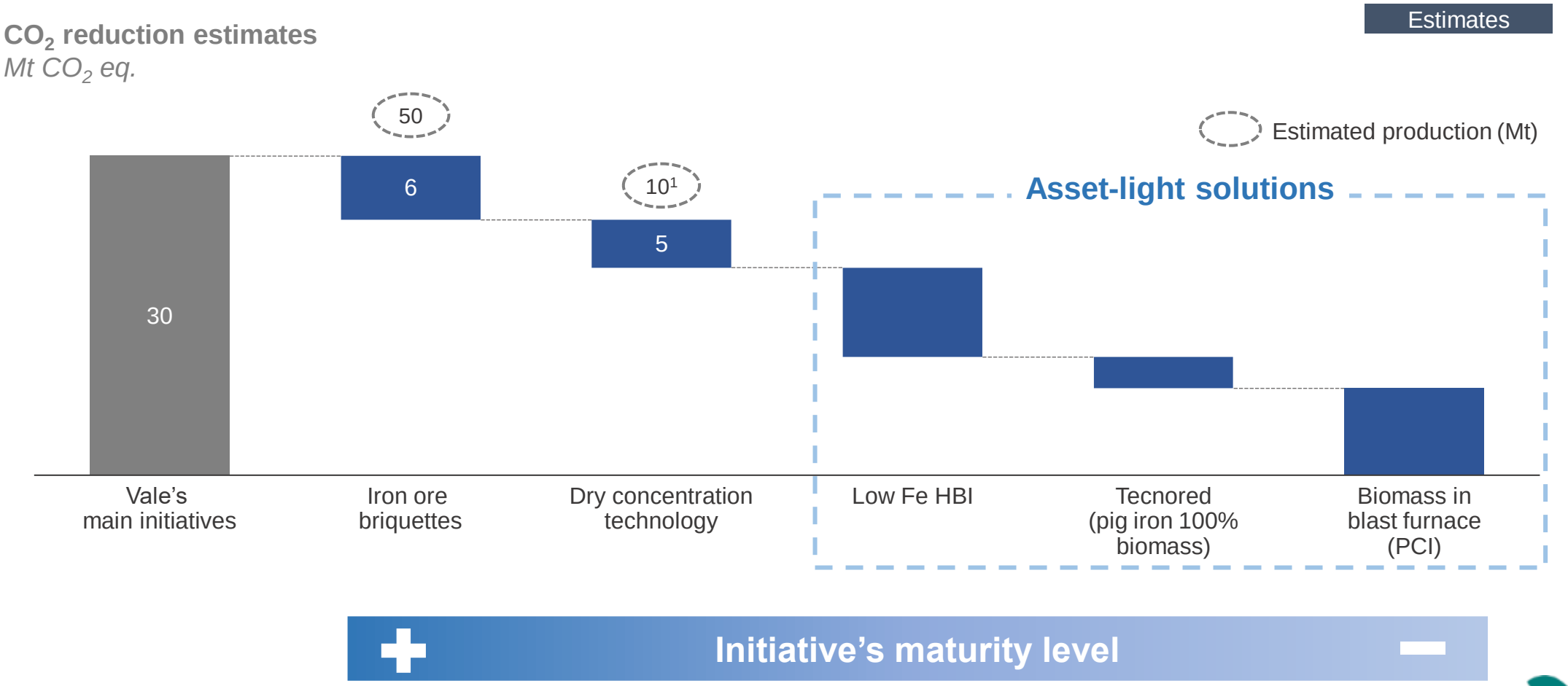
Developing new technologies and asset light solutions

Steelmaking represents 94% of Vale's scope 3

Possibility of assessing high-integrity carbon markets to comply with the reduction targets if necessary

Note: Vale is also committed to revising its scope 3 target in 2025 and every 5 years, in order to reevaluate technological developments and global climate policy advancements.
[1] BaU stands for business as usual. Scenario based on production of ~400Mtpy iron ore. Reduction target based on Science Based Target Setting tool for Scope 3, including offsets.
[2] Target to reduce intensity in 40% by 2030 and 50% absolute emissions vs. emissions in 2008 (reference year).

Vale's own initiatives support the steel industry decarbonization



Note: Estimates figures subject to feasibility studies, internal approvals and market conditions.
[1] Production of direct reduction pellet feed by dry concentration technology.

Briquetting is a breakthrough technology developed in-house and patented by Vale

Applications

- Substitute for sinter, pellet and lump in blast furnaces
- Substitute for pellets in direct reduction furnaces

Exclusive technology

- 18 years of in-house R&D
- Technology Patented[1] technology in 47 countries

[1] Patented or in submission process.

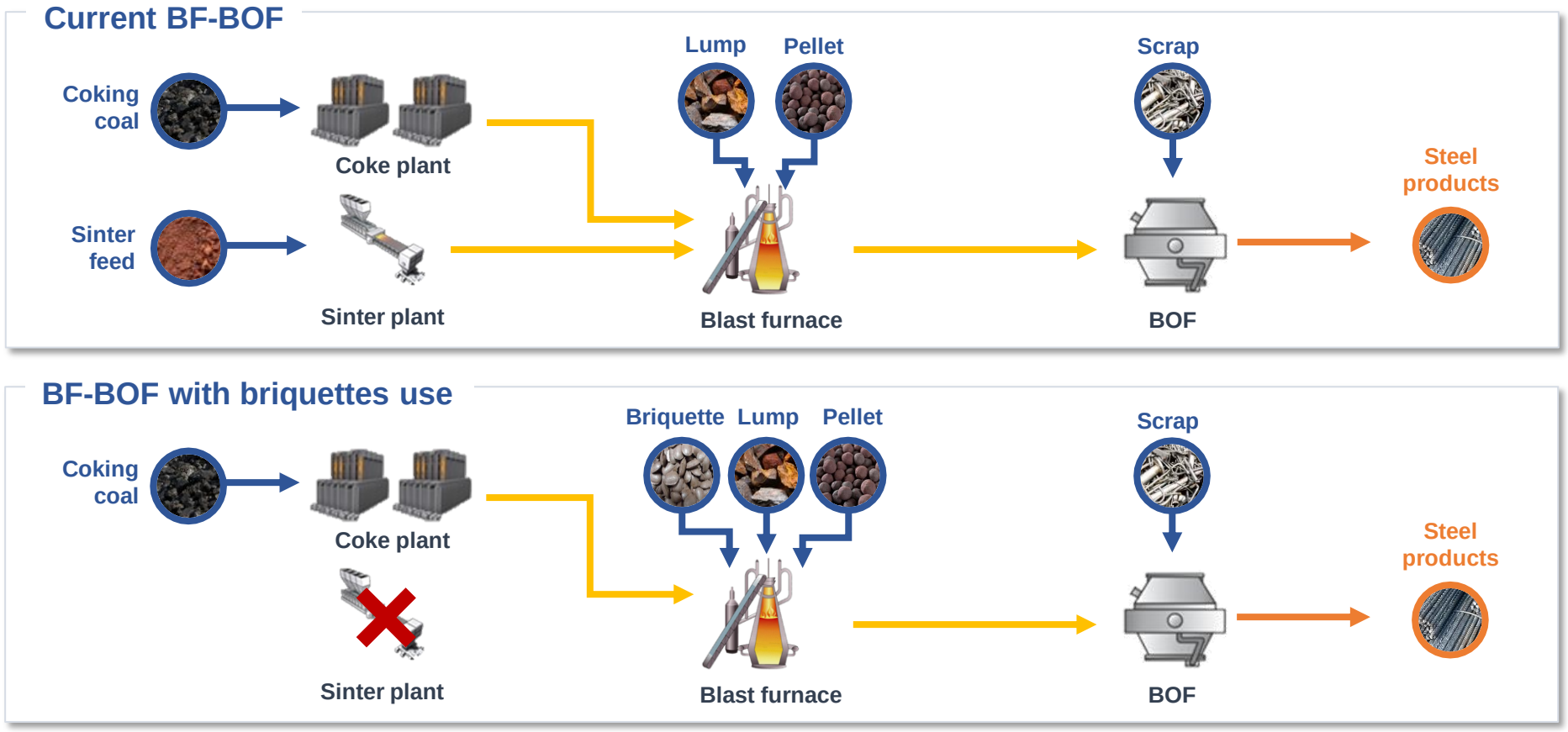
It is environmentally friendly:
less fossil fuels, particulates and water usage

Briquetting	Pelletizing	Sintering
~~GRINDING~~	GRINDING	~~GRINDING~~
~~THICKENING~~	THICKENING	~~THICKENING~~
~~FILTERING~~	FILTERING	~~FILTERING~~
PRESSING	PRESSING	~~PRESSING~~
MIXING	MIXING	MIXING
BRIQUETTING	PELLETIZING	SINTERING
DRYING ~200ºC	FIRING ~1300ºC	FIRING ~1300ºC
SCREENING	SCREENING	SCREENING

Advantages

- Simpler with less process stages vs. pelletizing
- More flexible with use of sinter feed or pellet feed
- Less CO_2 emissions due to much lower drying temperature
- More homogeneous size distribution then sinter
- High physical strength, low abrasion and adherent fines

Briquettes can **replace sinter** and thus allow a **reduction of over 10% in carbon emissions** in the BF-BOF steelmaking route



Three briquetting plants are already under construction

Vargem Grande

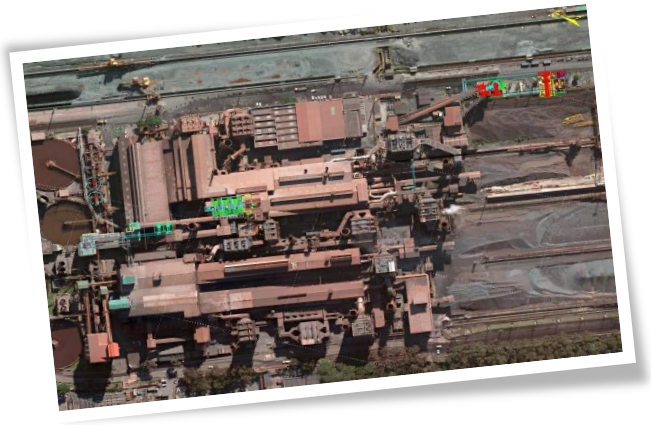
Approved

- 0.75 Mtpy capacity (expandable option to 1.5 Mtpy)
- US$ 50 million investment
- Start-up by 2023
- Synergies with adjacent dry concentration plant

Tubarão 1 & 2

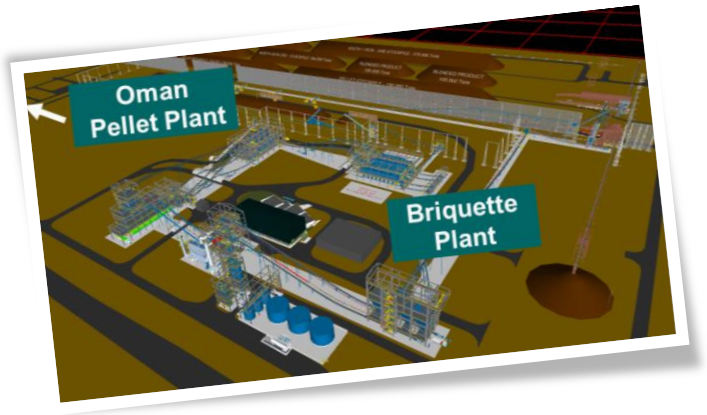
Approved

- Conversion of two idle pellet plants
- 6 Mtpy capacity
- US$ 135 million investment
- Start-up by 2023
- Lower capex intensity than potential revamp of pellet plants



Projects under development

- 5 other plants currently under analysis
- Oman plant to produce direct reduction briquettes
- MoU signed with Ternium Brasil to build a co-located plant
- Other partnerships under analysis



We are developing a long-term green multi million-dollar business

Estimates

Over 50 Mtpy
production

80% less
CO_2 emissions
vs. pelletizing process

Similar VIU to
pellets

99% less SOx,
75% less NOx and
20% less particulates[1]

US$ 500 million
incremental EBITDA over sinter feed

Half cost
of pelletizing process

67% lower
capital intensity vs. pellet plants

Note: Estimates figures subject to feasibility studies, internal approvals and market conditions.
[1] Comparing to pelletizing process.

Dry concentration is a sustainable solution to produce high grade products

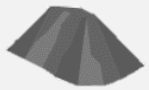
- No use of water = no tailings dam
- Final products with up to 68% Fe
- Modular design
- Potentially integrated with other process routes

Extending mines lifespan on a sustainable basis

Dry processing

ROM 57% Fe

Crushing and screening



Sinter feed and lump
57 - 60% Fe

Production

Future dry concentration

ROM 43% Fe
Use of low-grade ROM

Crushing and screening

Drying

Grinding

Aeroclassification

Magnetic Separation

Dry tailings / Co-products

Sinter and pellet feed for BFs
60-65% Fe

Pellet feed for DRs
65-68% Fe

Production

- **High grade ores reduce over 0.7 ton of CO_2 per ton of steel[1]**
- **DR[2] pellet feed production supporting steel industry decarbonization**
- **No need of tailings dams**
- **Classified dry tailings potentially marketable as co-products**

[1] Considering the production route change by supplying direct reduction pellet feed to DR-EAF route instead of sinter feed to BF-BOF. [2] Direct reduction.

First industrial plant under construction and more to come

NS04 construction works at Vargem Grande complex

Vargem Grande plant under construction

Start-up by 2023 with 1.5 Mtpy capacity

US$ 125-150 million investment

Concentration of 45% Fe ROM

Three new plants to be approved

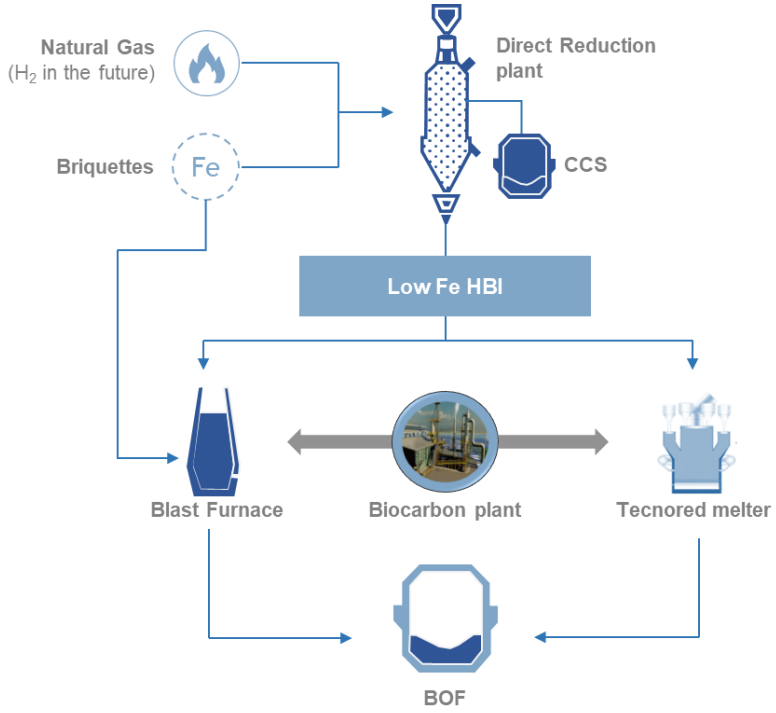
8.5 Mtpy **Oman** *(approval by 2022)*

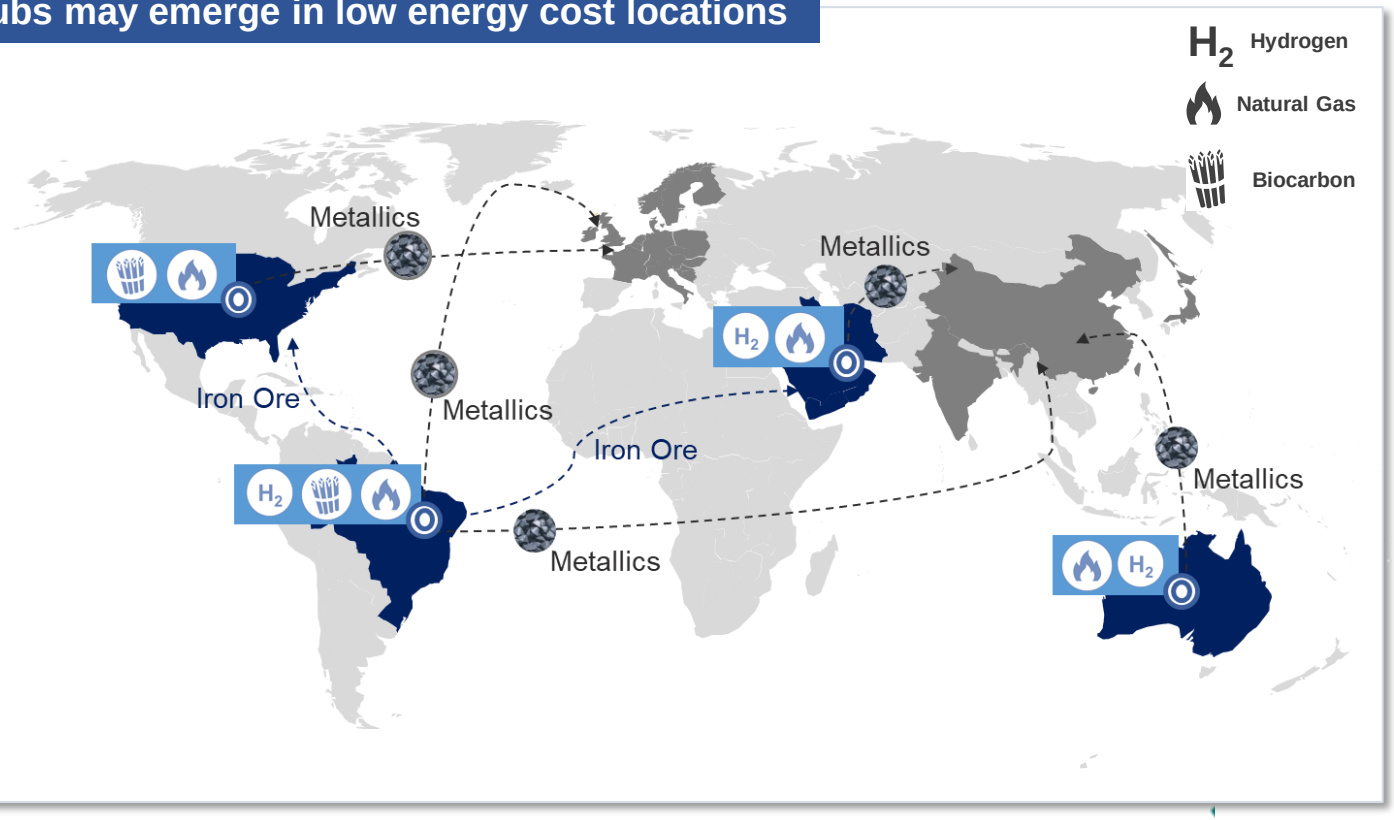
6 Mtpy **Fazendão** *(approval by 2023)*

2 Mtpy **Fábrica** *(approval by 2023)*

Flexible and integrated asset-light solutions easing the decarbonization transition

Direct reduction hubs may emerge in low energy cost locations





Tecnored is a ready-to-use technology

Technological uses

- “Green” low-cost pig iron production by potentially using biocarbon instead of coal
- Energy efficient and flexible carbon solution for melting scrap or low Fe HBI
- Low-cost residue recycling

Plants underway

- Industrial scale plant in São Paulo
- Project in Pará under analysis

Biocarbon can support energy transition

Applications in BF-BOF & EAF

PCI substitute, coke substitute, coke breeze substitute in EAF

Brazil potential

Big supplier of biomass from eucalyptus, sugar cane and residues

Carbonization pilot plant

Small scale pilot plant (25 ktpy) under construction with start-up in 4Q21

Briquetting biocarbon increases density up to five times improving transportation economics

Promoting technological advance in steel industry

Fostering new technologies

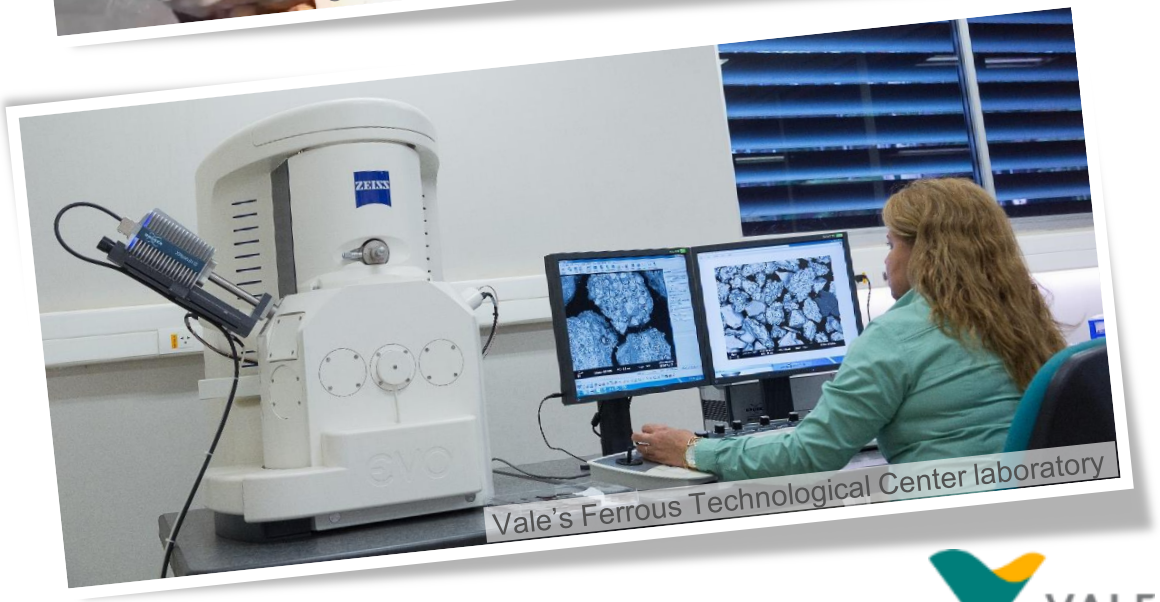
Investment of US$ 6 million in Boston Metal Company to promote the development of Oxide Electrolysis (MOE) technology


Oxide Electrolysis (MOE) technology testing in Boston Metal

Vale's Ferrous Technology Center

13 years of R&D developing solutions for industry and customers

Capable to simulate steelmaking condition in laboratory



Vale's Ferrous Technological Center laboratory

We are also fostering innovative shipping solutions

Valemaxes: largest vessels in industry

Rotor sails: wind-assisted propulsion systems

Click here to watch a video

Air lubrication: reducing water resistance

Click here to watch a video

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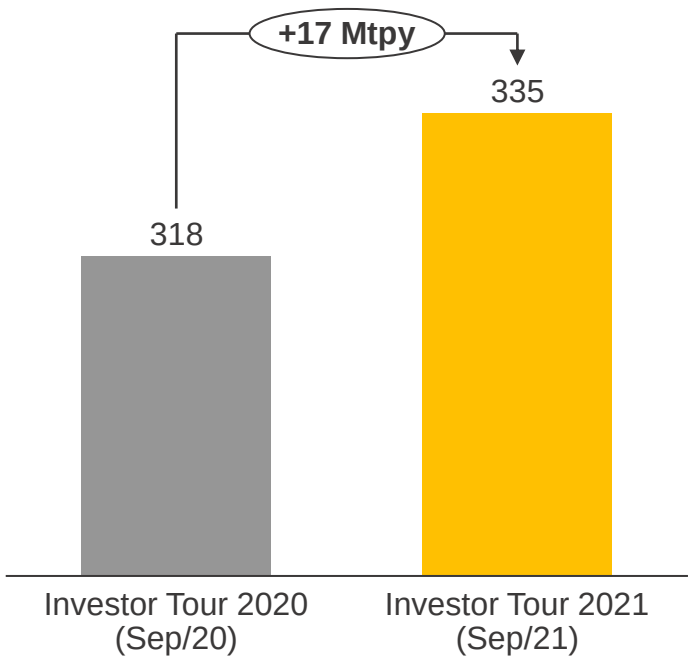
Vagner Loyola

We are progressing on our resumption plan

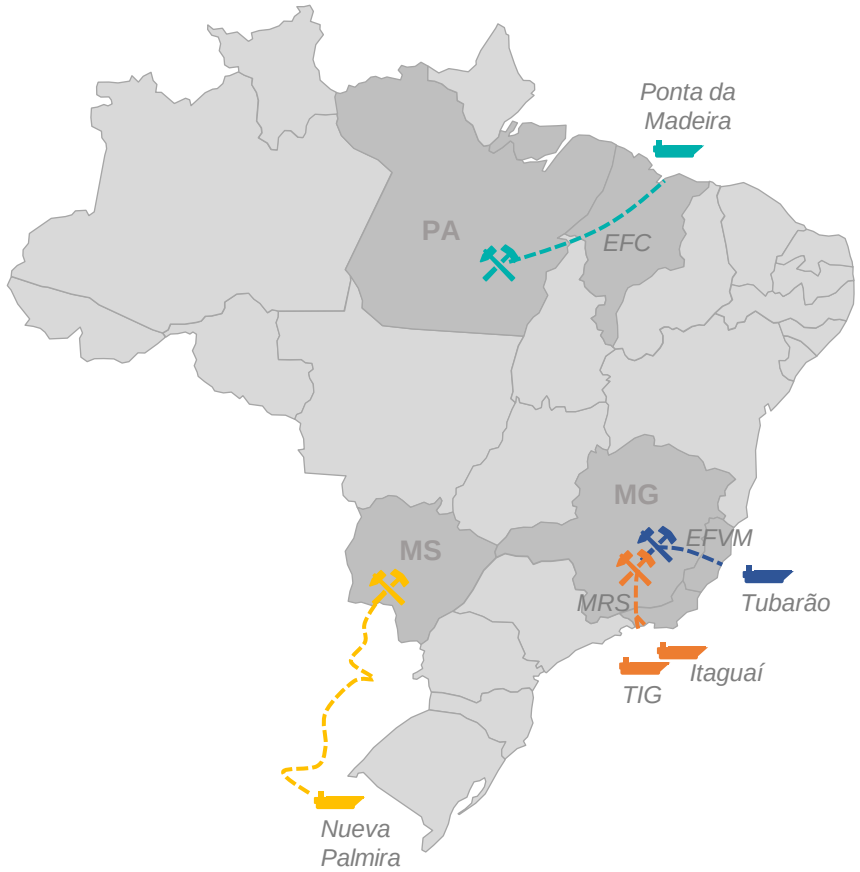
Iron ore production capacity (Mtpy)



Main achievements

Northern System **Serra Leste** resumption **4Q20**	*Southeastern System* **Timbopeba** full capacity **1Q21**	*Southern System* **Vargem Grande tailings filtration plant** start-up **1Q21**
Northern System **S11D first jaspilite crusher** **2Q21**	*Southern System* **Fábrica** resumption **1Q21**	*Southern System* **Vargem Grande Maravilhas III dam** start-up **3Q21**

Vale will reach 400 Mtpy capacity in the medium term



	Capacity (Mtpy)				
	Today	End of 2021	End of 2022	Medium term	Long term
Northern System	203	205	205	215	240-260
Southeastern System	70	70	93	113	110-120
Southern System	59	65	69	69	70-85
Midwestern System	3	3	3	3	3
VALE	**335**	**343**	**370**	**400**	**400-450**

Note: Including third-party purchase.

Northern System: a smoother ramp up

Northern System smoother ramp up from previous plan

Serra Norte licensing

Backlog of rolling licenses required to sustain production

Delays in different mining fronts (e.g. N3, N1/N2)

Gelado project phasing

Project starts with 5 Mtpy capacity as requires Usina 1 conversion to achieve full capacity (10 Mtpy)

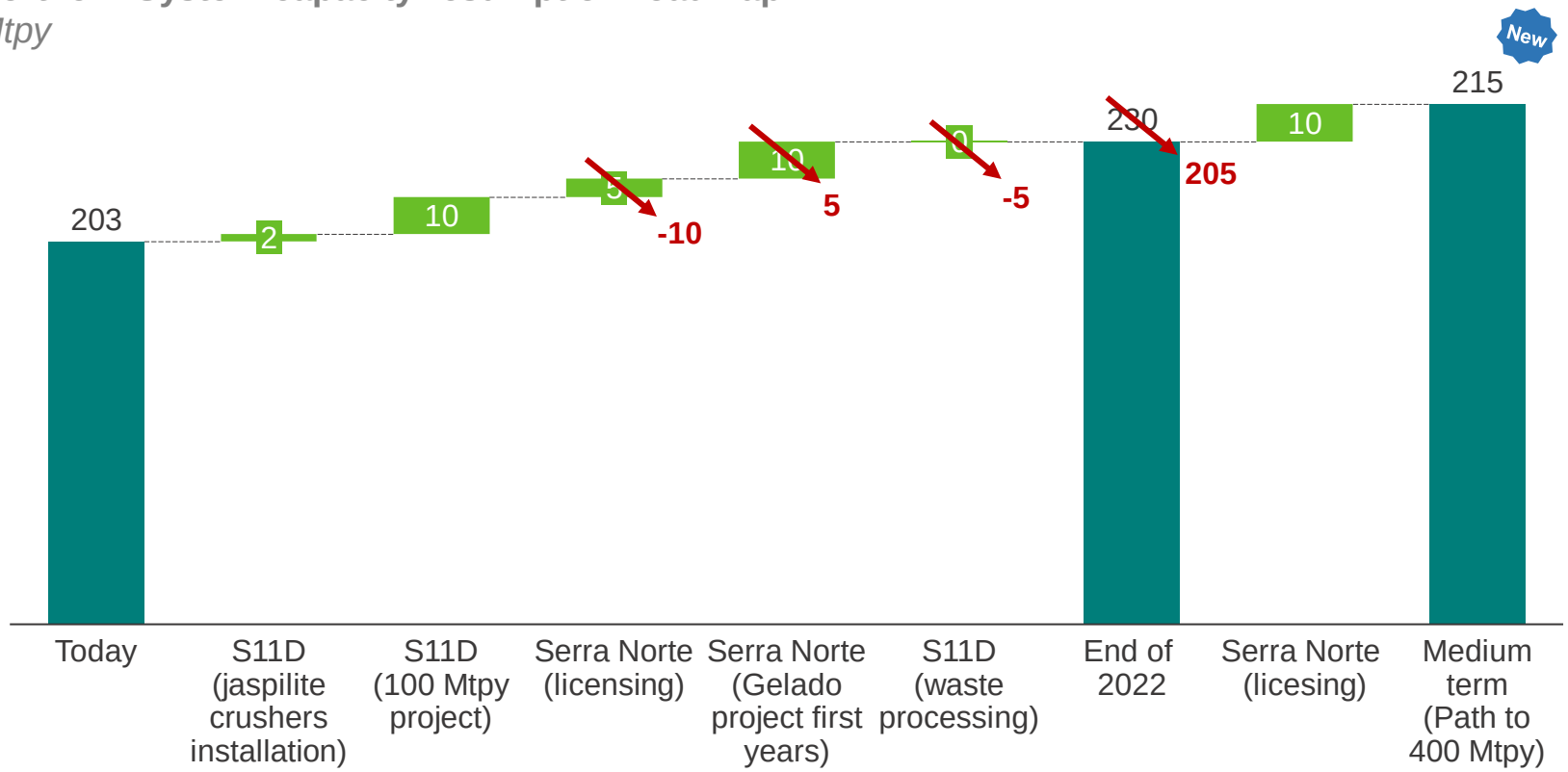
S11D waste crusher

In addition to the four jaspilite crushers, a new crusher is required to process large compact waste blocks

Start-up expected by 2025

Northern System capacity resumption roadmap

Mtpy



Projects bring additional capacity and high quality

Main projects and initiatives

Gelado project

Pellet feed production from Gelado dam tailings recovery, with start-up by 2H22

S11D 100 Mtpy project

Purchase and repower of equipment, with start-up by 2H22

Serra Sul 120 project

Flexibility in medium term and production growth in long term, with start-up by 2H24

Usina 1 conversion to dry processing

Conversion expected for 2025, increasing site's mass recovery and productivity

Opening of new mining fronts in Serra Norte

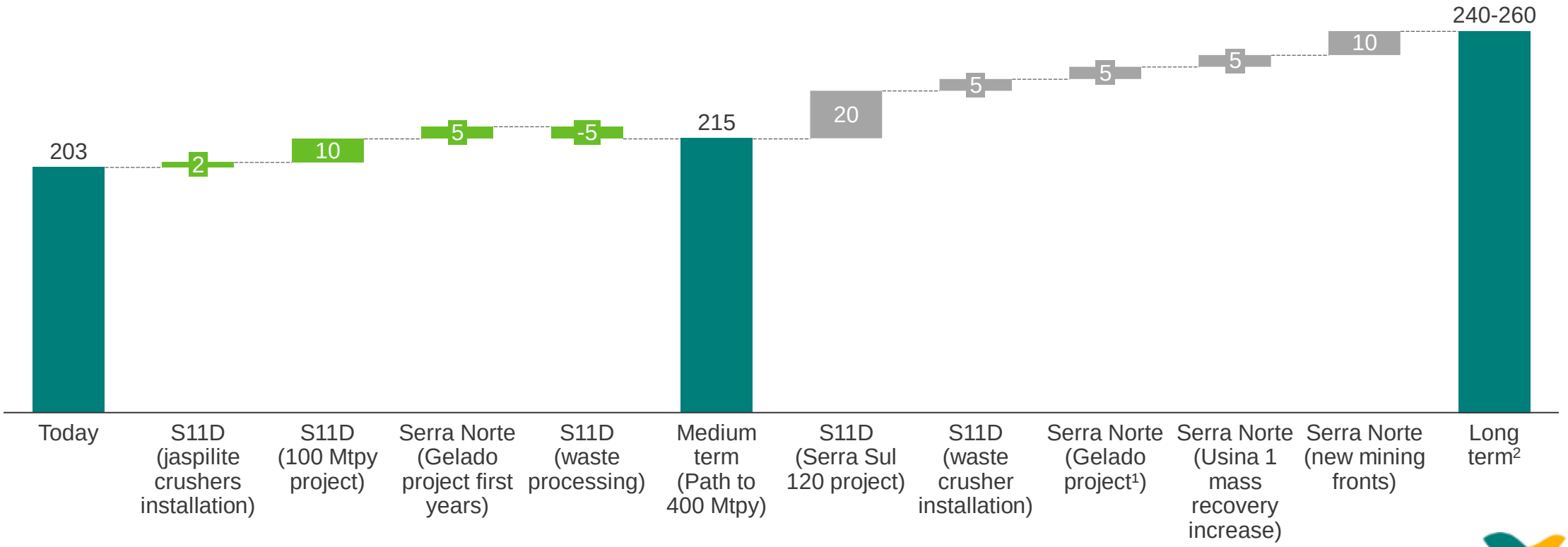
N3 mining front start-up by 2023 and N1/N2 mining front start-up by 2026


S11D 100 Mtpy project construction


N3 Project area

Northern System: 240+ Mtpy capacity in the long term

Northern System capacity
Mtpy



[1] After Usina 1 conversion, achieving 10 Mtpy capacity. [2] Achieving 260 Mtpy also depends on expanding Northern System logistics.

In Southeastern System, new assets are solving tailings disposal restrictions in Brucutu…

Main projects and initiatives

Tailings filtration plant construction

76% of physical progress

Start-up by end of 2021

Tailings piles areas

Licensing and preparation of areas to receive dry tailings from filtration plants

Torto dam start-up

Start-up by 2H22

Works to increase safety factor started in August


Brucutu plant construction works

… and also in **Itabira**

Main projects and initiatives

Tailings filtration plants construction

Cauê plant (77% of physical progress) and Conceição plant (75% of physical progress)

Start-up by end of 2021

Tailings piles areas

Licensing and preparation of areas to receive dry tailings from filtration plants

Itabiruçu dam raising

Construction starting in 2022 (dry season) and completion by beginning 2023


Cauê plant construction works


Conceição plant construction works

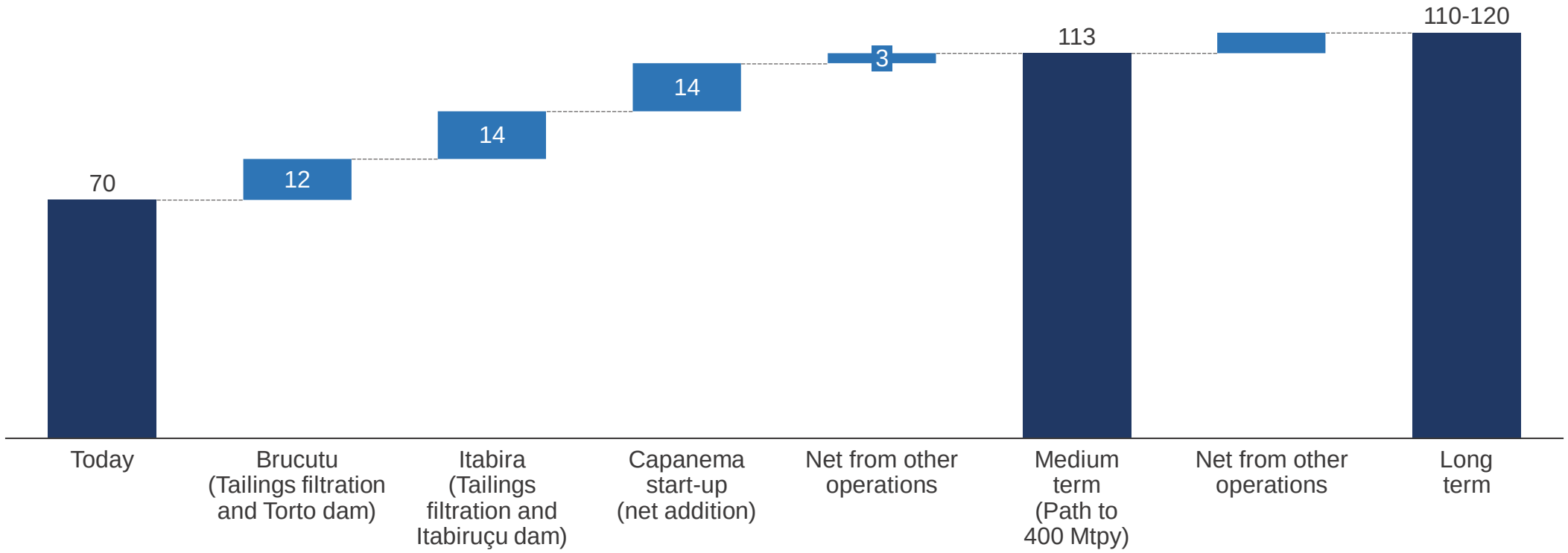
Capanema project increases Mariana complex capacity and optimize Timbopeba's operations

- 18 Mtpy capacity[1] by natural moisture (without tailings generation)
- Start-up in 2H23
- Production of sinter feed for BRBF
- Use of Timbopeba assets reducing investments

[1] Net addition capacity of 14 Mtpy in the first years.

Southeastern System: **110+ Mtpy capacity** in the long term

Southeastern System capacity
Mtpy



In Southern System, Vargem Grande complex can reach 50+ Mtpy capacity

Main projects and initiatives

Conveyor belt resumption

Unlock site's conveyor belt in 3Q21, increasing capacity and reduction costs

Railway expedition capacity

Transportation capacity was already adjusted to match site's resumption plan

Mining licensing

Mining expansion licensing for Capitão do Mato and Tamanduá mines is expected for 2022

Vargem Grande 1 plant resumption

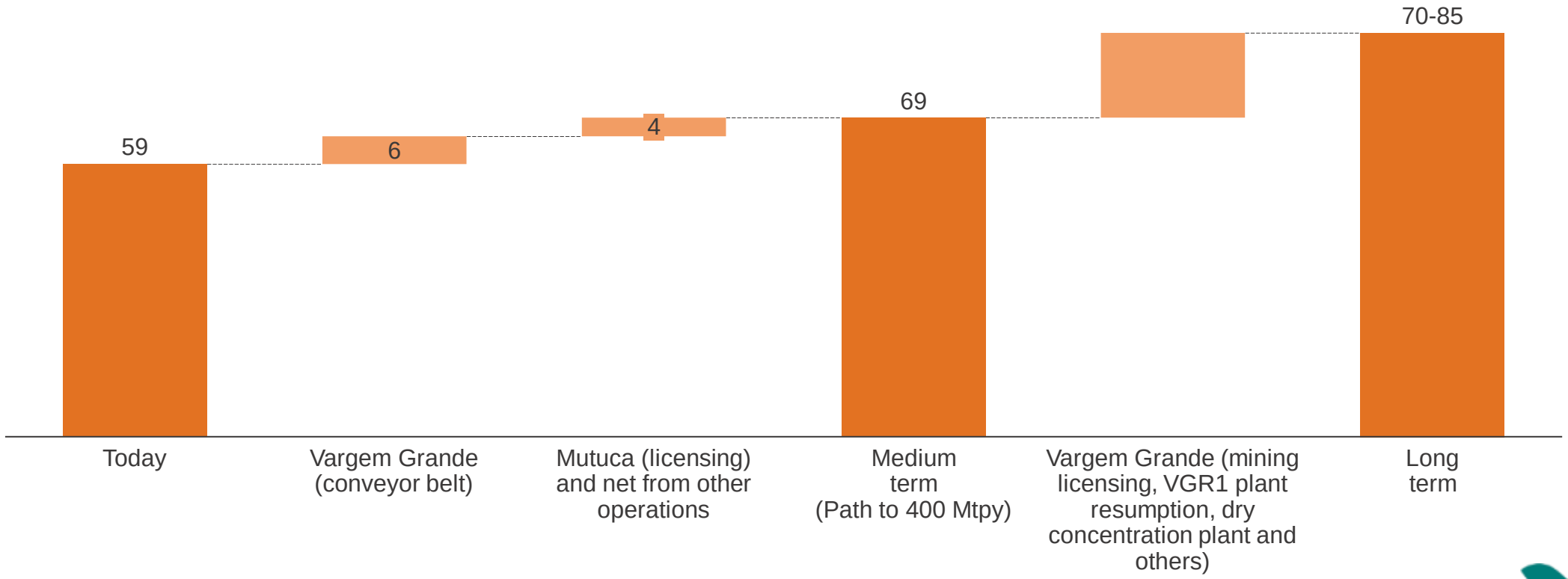
Set up plant's water circuit to the ROM available and the new assets (filtration plant and Maravilhas III dam), producing by wet processing by end of 2023


Vargem Grande dam and conveyor belt


Vargem Grande plants

Southern System: 70+ Mtpy capacity in the long term

Southern System capacity
Mtpy



We are strengthening iron ore business sustainability

Delivering resumption plan

Improving safety and reducing risks

Leading industry decarbonizing transformation

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Luciano Siani Pires

The evolution of our roadmap for value creation

De-risking

- Brumadinho
- Dam safety
- Robust ESG practices
- Production resumption

Reshaping

- Focus on core business
- Control of cash drains
- Growth opportunities

Re-rating

- Benchmark in safety
- Best-in-class reliable operator
- Talent-driven organization
- Leader in low-carbon mining
- Reference in creating and sharing value

Sound cash flow generation

Discipline in capital allocation

We have made solid progress in repairing **Brumadinho**

A robust legal framework

- Projects demanded by affected communities
- Projects for Brumadinho and other municipalities
- Income transfer program
- Resources to Urban Mobility Program and Public Service Strengthening Program
- Ensure water supply
- Recover the environment

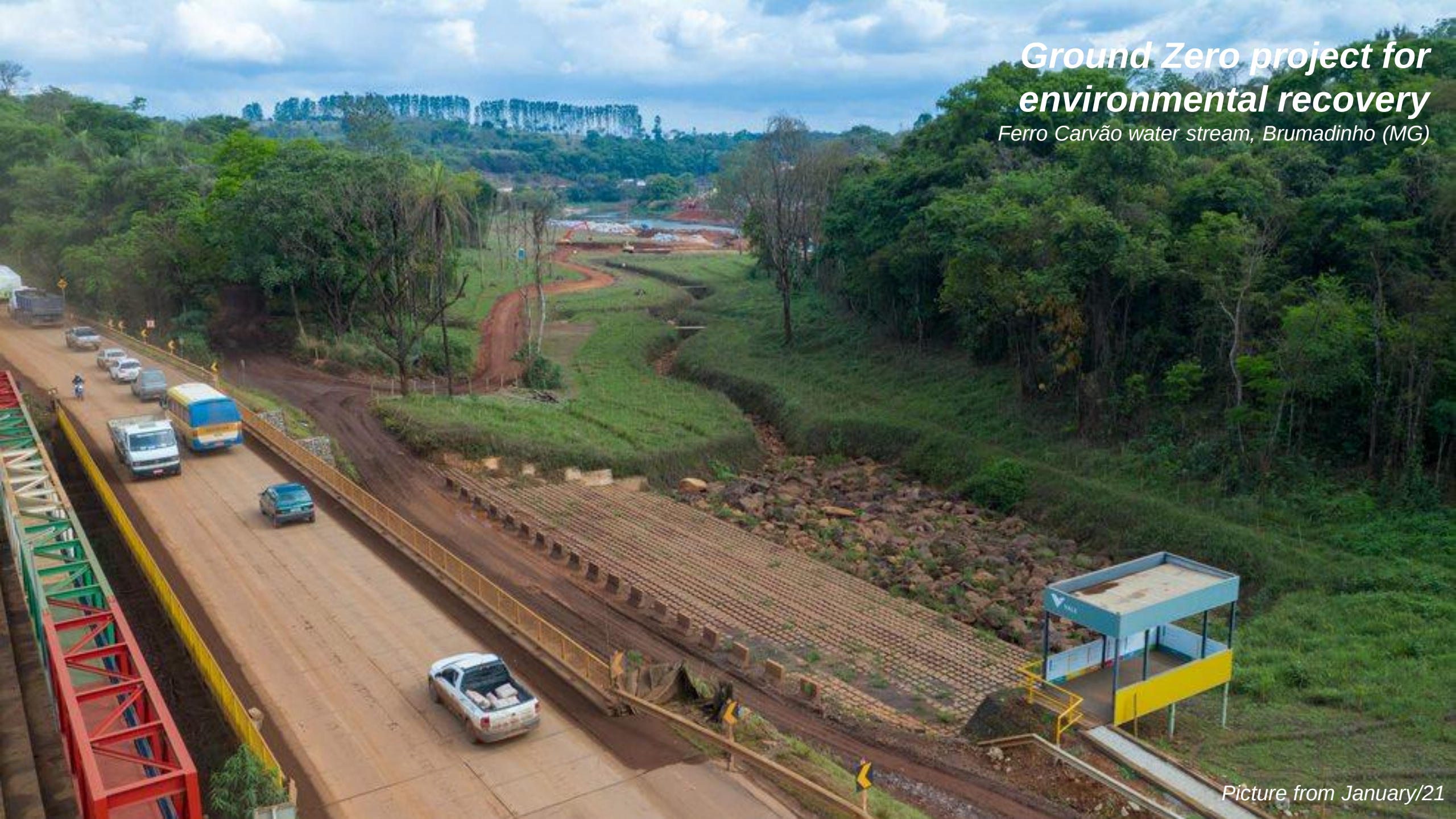
Hydraulic barrier that prevents sediment flow at Brumadinho (MG)

Commitment to fully revegetate the entire affected area

2025

+ R$ 2.8 billion in signed agreements for individual indemnification[1]

[1] Related to agreements entered into as of August 31st, 2021, approximate figures and including amounts already disbursed.



Ground Zero project for environmental recovery

Ferro Carvão water stream, Brumadinho (MG)

Picture from January/21

Commissioning of the new water supply system

Paraopeba River (MG)

Picture from July/21

New basic healthcare unit

Parque da Cachoeira,
Brumadinho (MG)

Picture from February/21

The equity story for Vale

We have advanced in dam management

Decharacterization of 8B dam

Nova Lima, MG, Brazil

Picture from January/20

The equity story for Vale

We have advanced in dam management

Decharacterization of Dique Rio do Peixe

Itabira, MG, Brazil

Picture from July/21

The equity story for Vale

We have advanced in dam management

Decharacterization of Fernadinho dam

Vargem Grande Complex, MG, Brazil

Picture from July/21

The equity story for Vale

We have advanced in dam management

Operational control for remotely operated equipment

Unmanned hauls and trucks

B3/B4 dam decharacterization, MG, Brazil

Picture from August/21

The equity story for Vale

We have advanced in dam management

B3/B4 back-up dam

Nova Lima, MG, Brazil
Picture from March/21

The equity story for Vale

We have advanced in dam management

Sul Superior back-up dam

Barão de Cocais, MG, Brazil

Picture from December/20

The equity story for Vale

We have advanced in dam management

Forquilhas and Grupo back-up dam

Ouro Preto and Itabirito, MG, Brazil

Picture from July/21

Our ESG agenda has advanced towards best practices

ENVIRONMENTAL

- ✓ **US$ 4-6 billion** in investments by 2030 to reduce scope 1 & 2 emissions
- ✓ **~80%** of the mapped initiatives for scope 1 & 2 emissions reduction are positive NPV[1]
- ✓ **Folha Larga** wind and **Sol do Cerrado** solar projects
- ✓ **New processes** for innovative iron ore products (briquettes)

SOCIAL

- ✓ Engagement and dialogue with **communities**
- ✓ **Leading role in humanitarian aid** during the Covid-19 pandemic
- ✓ **Controversies management** and Grievance Mechanism.
- ✓ Human Rights **due diligence** process

GOVERNANCE

- ✓ **Amended** By-Laws in 2021
- ✓ **Individual** election of Board members
- ✓ Provision for **Lead independent director**
- ✓ **8 independent members** elected, including an **Independent Chairman**
- ✓ Compensation **linked to ESG targets**

Rating upgrades

Fitch
(investment grade)

Moody's
(investment grade)

Sustainalytics ESG
(from 54.5 in 2019 to 38.7)

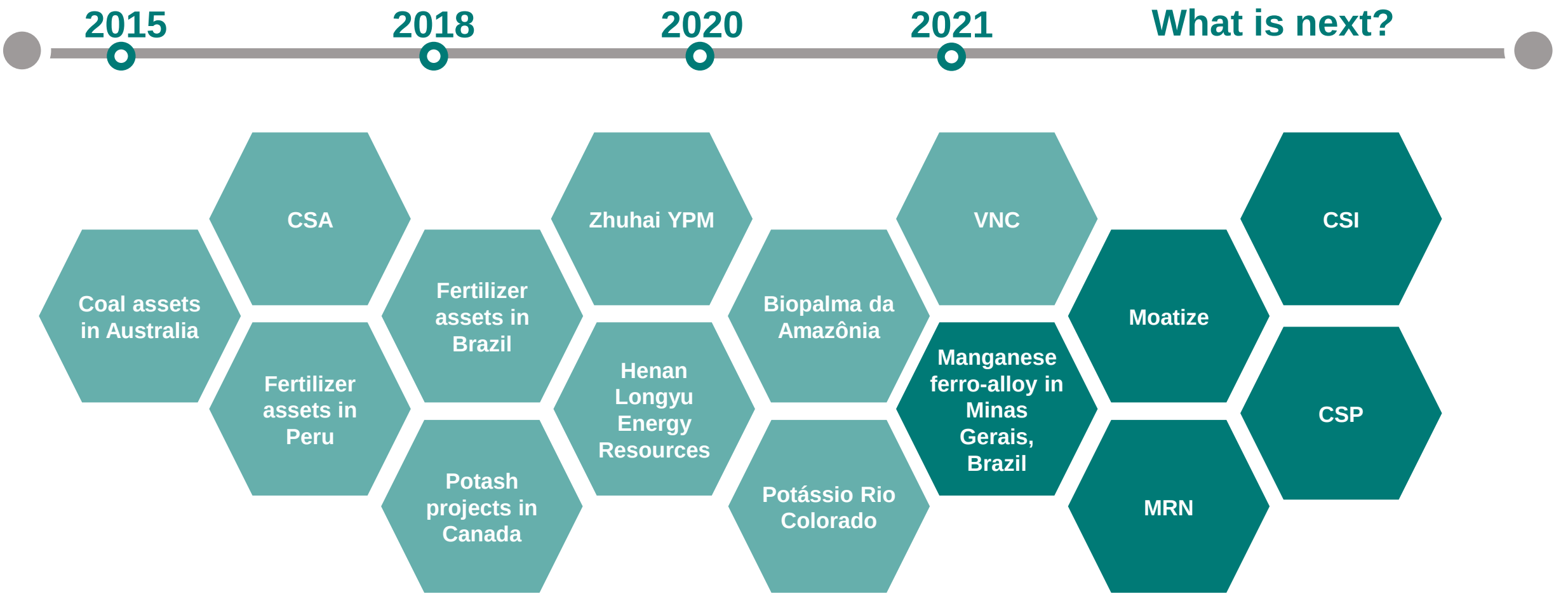
ISS ESG
(from C in 2020 to C+)

Increased transparency

VALE

[1] As of June 2021, with greater technological maturity due to the pilot phase and studies. Figures include assumptions for low-maturity technologies, leading to uncertainty. $50/tCO2e: shadow price for all capital allocation decisions.

We are moving towards a leaner portfolio



Note: In 2020, Vale closed its Manganese alloys operations in Simões Filho-BA and will no longer have any alloy production operations once exiting the manganese-alloy in Minas Gerais, Brazil.

In Base Metals, Vale can boost shareholder value through organic initiatives

Delivering on stability

Transitioning to underground mining in Voisey's Bay

- **First ore achieved in June**
- **Continued development of Reid Brook**

Recovery of production in Sudbury

- **New mining fronts to ramp up with resumption of operations**
- **South Shaft reform activities returning after labor disruption**

Extend life of mine by 10 years

- **Phase 1 approved (CAD 150 M)**
- **Critical infrastructure to enable extension**

Building on optionality

Execution

Salobo 3
+30-40 ktpy

\+ *Stability in North Atlantic*

Copper

Nickel

Upcoming approval

Alemão Hub
+60 ktpy

South Hub: Cristalino
80kt

Onça Puma 2nd furnace
+10-15 kt

Indonesia JVs
+110 ktpy[1]

LT growth optionality

Hu'u[2]
+250 kt[3]

Exploration potential in Sudbury

South Hub upside
+30-40 kt

Manitoba Ultramafics

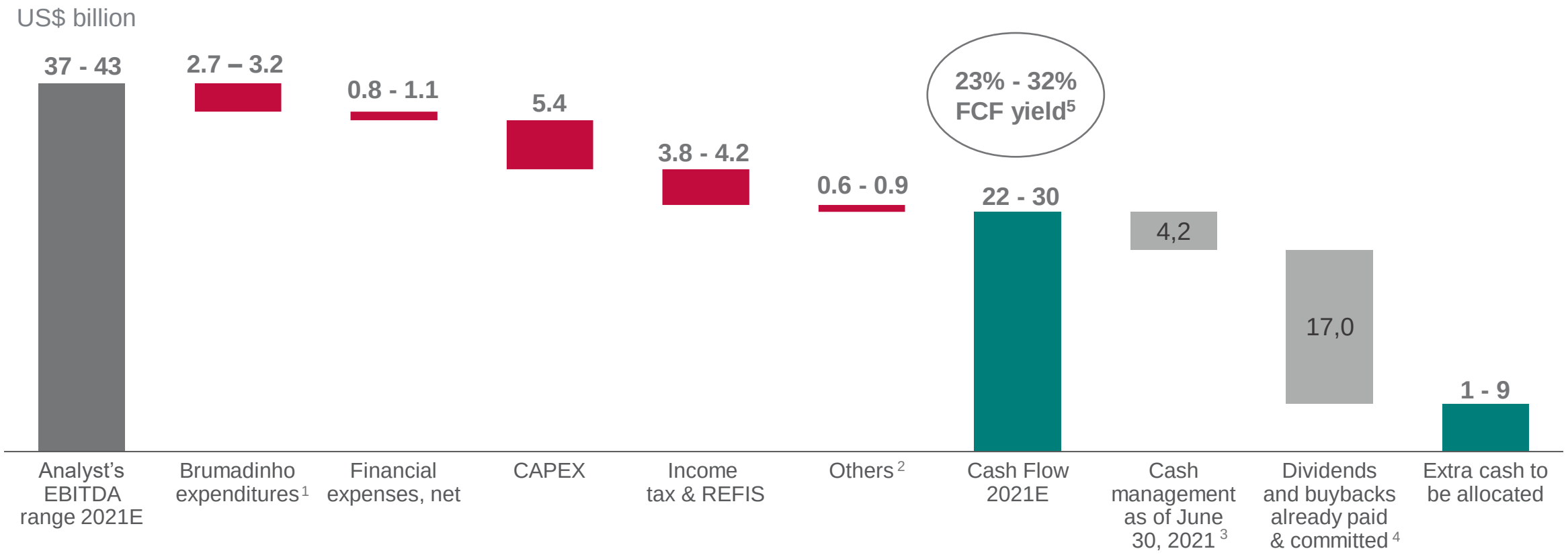
North Hub
+70-100 kt

Salobo 4
+30 kt

[1] 100% basis. [2] Participation through joint-ventures. Volumes shown as 100% basis. [3] Volumes under review

A robust cash flow generation and a disciplined capital allocation

2021 Expected Cash Flow, based on sell-side analyst's EBITDA estimate



[1]Includes agreements, donations, decharaterizarion and incurred expenses. [2] Includes working capital, derivatives, dividends paid to non controlling interest, Samarco and Renova and others. [3]Includes US$ 2.5 billion of project finance repayment, US$ 1.1 billion of debt amortization, net, and US$ 0.5 billion for the divestment of VNC. [4] Includes US$ 6.2 billion of dividends paid, US$ 4.0 billion of the buyback program disbursed as of Aug 31st, US$ 5.3 billion of the minimum dividend according to 1H21 and US$ 1.5 billion estimated to buyback the 80 million shares remaining of the program, considering the share price as of Aug 31st for this simulation purpose. [5] Considering the share price as of Aug 31st.

Our agenda

De-risking

- 2025: Fully repair Brumadinho
- 2025: All structures at satisfactory conditions
- Medium term: Resume 400 Mtpy production capacity
- 2029: Decharacterize all upstream structures
- 2030: Close ESG gaps

Reshaping

- 2022: Address non-core assets
- 2022: Fix our cash flow drains
- Medium term: Progress on iron ore C1 stabilization
- Medium term: Seek growth opportunities in Nickel and Copper businesses

Re-rating

- 2023: VPS fully implemented
- 2025: Fully compliance with GISTM
- 2035: Reduce net scope 3 emissions by 15%
- Medium term: Unlock Base Metals' value
- 2050: Be carbon neutral

Sound cash flow generation

Discipline in capital allocation


VALE