

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION**  
**Washington, D.C. 20549**  
**Form 20-F**

**ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d)**  
**OF THE SECURITIES EXCHANGE ACT OF 1934**

**For the fiscal year ended: December 31, 2024**

**Commission file number: 001-15030**

**VALE S.A.**

*(Exact name of Registrant as specified in its charter)*

**Federative Republic of Brazil**

*(Jurisdiction of incorporation or organization)*

Marcelo Feriozzi Bacci, Executive Vice-President Finance and Investor Relations

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**Praia de Botafogo 186 – offices 1101, 1701 and 1801– Botafogo**

**22250-145 Rio de Janeiro, RJ, Brazil**

*(Address of principal executive offices)*

Securities registered or to be registered pursuant to Section 12(b) of the Act:

<b>Title of Each Class</b>	<b>Trading Symbol(s)</b>	<b>Name of Each Exchange on Which Registered</b>
Common shares of Vale, no par value per share		New York Stock Exchange*
American Depositary Shares (evidenced by American Depositary Receipts), each representing one common share of Vale	VALE	New York Stock Exchange
3.750% Guaranteed Notes due 2030, issued by Vale Overseas	VALE/30	New York Stock Exchange
6.125% Guaranteed Notes due 2033, issued by Vale Overseas	VALE/33	New York Stock Exchange
8.250% Guaranteed Notes due 2034, issued by Vale Overseas	VALE/34	New York Stock Exchange
6.875% Guaranteed Notes due 2036, issued by Vale Overseas	VALE/36	New York Stock Exchange
6.875% Guaranteed Notes due 2039, issued by Vale Overseas	VALE39	New York Stock Exchange
6.400% Guaranteed Notes due 2054, issued by Vale Overseas	VALE/54	New York Stock Exchange
5.625% Notes due 2042, issued by Vale S.A.	VALE42	New York Stock Exchange

\* Shares are not listed for trading, but only in connection with the registration of American Depositary Shares pursuant to the requirements of the New York Stock Exchange.

**Securities registered or to be registered pursuant to Section 12(g) of the Act: None**  
**Securities for which there is a reporting obligation pursuant to Section 15(d) of the Act: None**  
**The number of outstanding shares of each class of stock of Vale as of December 31, 2024, was:**

4,539,007,568 common shares, no par value per share

12 golden shares, no par value per share

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes  No

If this report is an annual or transition report, indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934.

Yes  No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports) and (2) has been subject to such filing requirements for the past 90 days.

Yes  No

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).

Yes  No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer  Accelerated filer  Non-accelerated filer  Emerging growth company

If an emerging growth company that prepares its financial statements in accordance with U.S. GAAP, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards<sup>†</sup> provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C. 7262(b)) by the registered public accounting firm that prepared or issued its audit report.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

Indicate by check mark which basis of accounting the registrant has used to prepare the financial statements included in this filing:

U.S. GAAP  International Financial Reporting Standards as issued by the International Accounting Standards Board  Other

If "Other" has been checked in response to the previous question, indicate by check mark which financial statement item the registrant has elected to follow.

Item 17  Item 18

If this is an annual report, indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes  No

# TABLE OF CONTENTS

<b>I. Overview .....</b>	<b>4</b>
Business Overview .....	5
Forward-looking Statements .....	19
Risk Factors.....	20
Risk Management.....	35
<b>II. Information on the company.....</b>	<b>40</b>
Lines of Business .....	40
Reserves and Resources.....	94
Regulatory Matters .....	111
<b>III. Operating and financial review and prospects.....</b>	<b>118</b>
Overview .....	118
Results of operations.....	123
Liquidity and capital resources .....	131
<b>IV. Share ownership and trading.....</b>	<b>134</b>
Major shareholders .....	134
Related party transactions .....	135
Distributions.....	137
Trading markets.....	138
Depository shares .....	139
Purchases of equity securities by the issuer and affiliated purchasers .....	141
<b>V. Management and employees.....</b>	<b>142</b>
Management .....	142
Management compensation.....	153
Employees.....	158
<b>VI. Additional information .....</b>	<b>160</b>
Legal proceedings .....	160
Bylaws .....	173
Participative shareholders' debentures .....	178
Exchange controls and other limitations affecting security holders .....	179
Taxation.....	180
Controls and procedures .....	187
Corporate governance.....	188
Insider trading policy .....	193
Cybersecurity .....	194
Code of conduct.....	196
Principal accountant fees and services .....	197
Information filed with securities regulators.....	198
Exhibits .....	199
Glossary.....	200
Signatures .....	205

# FORM 20-F CROSS-REFERENCE GUIDE

Item	Form 20-F caption	Location in this report	Page
<b>1</b>	<b>Identity of directors, senior management and advisers</b>		
	1A Directors and senior management	Not applicable	–
	1B Advisers	Not applicable	–
	1C Auditors	Not applicable	–
<b>2</b>	<b>Offer statistics and expected timetable</b>	Not applicable	–
<b>3</b>	<b>Key information</b>		
	3A [Reserved]	–	–
	3B Capitalization and indebtedness	Not applicable	–
	3C Reasons for the offer and use of proceeds	Not applicable	–
	3D Risk factors	Risk Factors	20
<b>4</b>	<b>Information on the Company</b>		
	4A History and development of the company	Business Overview; Information Filed with Securities Regulators; Liquidity and Capital Resources—Uses of Funds—Acquisition of property, plant and equipment and intangible assets	5;198; 131
	4B Business overview	Business Overview; Lines of Business; Reserves and Resources; Regulatory Matters	5; 40; 94; 111
	4C Organizational structure	Exhibit 8	–
	4D Property, plant and equipment	Lines of Business; Regulatory Matters; Liquidity and Capital Resources—Uses of Funds—Acquisition of property, plant and equipment and intangible assets	40; 111; 131
<b>4A</b>	<b>Unresolved staff comments</b>	None	–
<b>5</b>	<b>Operating and financial review and prospects</b>		
	5A Operating results	Results of Operations	123
	5B Liquidity and Capital Resources	Liquidity and Capital Resources	131
	5C Research and development, patents and licenses, etc.	Lines of Business	40
	5D Trend information	Results of Operations	123
	5E Critical accounting estimates	Not applicable	–
<b>6</b>	<b>Directors, senior management and employees</b>		
	6A Directors and senior management	Management	142
	6B Compensation	Management Compensation	153
	6C Board practices	Management—Board of Directors	142
	6D Employees	Employees	158
	6E Share ownership	Major Shareholders; Employees—Performance-based Compensation	134; 159
	6F Disclosure of a registrant's action to recover erroneously awarded compensation	Not applicable	–
<b>7</b>	<b>Major shareholders and related party transactions</b>		
	7A Major shareholders	Major Shareholders	134
	7B Related party transactions	Related Party Transactions	135
	7C Interests of experts and counsel	Not applicable	–
<b>8</b>	<b>Financial information</b>		
	8A Consolidated statements and other financial information	Consolidated Financial Statements	F-1

<b>Item</b>	<b>Form 20-F caption</b>	<b>Location in this report</b>	<b>Page</b>
		Distributions	137
		Legal Proceedings	160
	8B Significant changes	Results of Operations	123
<b>9</b>	<b>The offer and listing</b>		
	9A Offer and listing details	Trading Markets	138
	9B Plan of distribution	Not applicable	–
	9C Markets	Trading Markets	138
	9D Selling shareholders	Not applicable	–
	9E Dilution	Not applicable	–
	9F Expenses of the issue	Not applicable	–
<b>10</b>	<b>Additional information</b>		
	10A Share capital	Bylaws—Common Shares and Golden Shares	173
	10B Memorandum and articles of association	Bylaws	173
	10C Material contracts	Lines of Business; Results of Operations; Related Party Transactions	40; 123; 135
	10D Exchange controls	Exchange Controls and Other Limitations Affecting Security Holders	179
	10E Taxation	Taxation	180
	10F Dividends and paying agents	Not applicable	–
	10G Statement by experts	Reserves and Resources	94
	10H Documents on display	Information Filed with Securities Regulators	198
	10I Subsidiary information	Not applicable	–
	10J Annual report to security holders	Not applicable	–
<b>11</b>	<b>Quantitative and qualitative disclosures about market risk</b>	Risk Management—Market Risk	35
<b>12</b>	<b>Description of securities other than equity securities</b>		
	12A Debt securities	Not applicable	–
	12B Warrants and rights	Not applicable	–
	12C Other securities	Not applicable	–
	12D American Depositary Shares	Depositary Shares	139
<b>13</b>	<b>Defaults, dividend arrearages and delinquencies</b>	Not applicable	–
<b>14</b>	<b>Material modifications to the rights of security holders and use of proceeds</b>	Not applicable	–
<b>15</b>	<b>Controls and procedures</b>	Controls and Procedures	187
<b>16</b>	<b>[Reserved]</b>	–	–
<b>16A</b>	<b>Audit Committee financial expert</b>	Management—Audit and Risks Committee	149
<b>16B</b>	<b>Code of ethics</b>	Code of Conduct	196
<b>16C</b>	<b>Principal accountant fees and services</b>	Principal Accountant Fees and Services	197
<b>16D</b>	<b>Exemptions from the listing standards for Audit Committees</b>	Management—Audit and Risks Committee; Corporate Governance	149; 188
<b>16E</b>	<b>Purchase of Equity Securities by the Issuer and Affiliated Purchasers</b>	Purchases of Equity Securities by the Issuer and Affiliated Purchasers	141
<b>16F</b>	<b>Change in registrant’s certifying accountant</b>	Not applicable	–
<b>16G</b>	<b>Corporate governance</b>	Corporate Governance	188
<b>16H</b>	<b>Mine safety disclosure</b>	Not applicable	–
<b>16I</b>	<b>Disclosure Regarding Foreign Jurisdictions that Prevent Inspections</b>	Not applicable	–
<b>16J</b>	<b>Insider trading policies</b>	Insider Trading Policy	193

<b>Item</b>	<b>Form 20-F caption</b>	<b>Location in this report</b>	<b>Page</b>
<b>16K</b>	<b>Cybersecurity</b>	Cybersecurity	194
<b>17</b>	<b>Financial statements</b>	Not applicable	–
<b>18</b>	<b>Financial statements</b>	Consolidated Financial Statements	F-1
<b>19</b>	<b>Exhibits</b>	Exhibits	199

## I. OVERVIEW

We are one of the largest metals and mining companies in the world, based on market capitalization, and one of the world's largest producers of iron ore, iron ore pellets and nickel. We also produce copper. Our nickel and copper concentrates contain by-products such as platinum group metals (PGMs), gold, silver and cobalt. We are engaged in greenfield mineral exploration in five countries. In Brazil and other regions in the world, we operate large logistics systems including railroads, maritime terminals and ports, which are integrated with our mining operations. In addition, we have distribution centers to support the delivery of iron ore worldwide. Directly and through associates and joint ventures, we also have investments in the energy business.

Vale S.A. is a stock corporation, or *sociedade por ações*, that was organized on January 11, 1943, under the laws of the Federative Republic of Brazil for an indefinite period. Its head office is located at Praia de Botafogo 186 – offices 1101, 1701 and 1801 – Botafogo, 22250-145 Rio de Janeiro, RJ, Brazil, and its telephone number is 55-21-3485-5000.

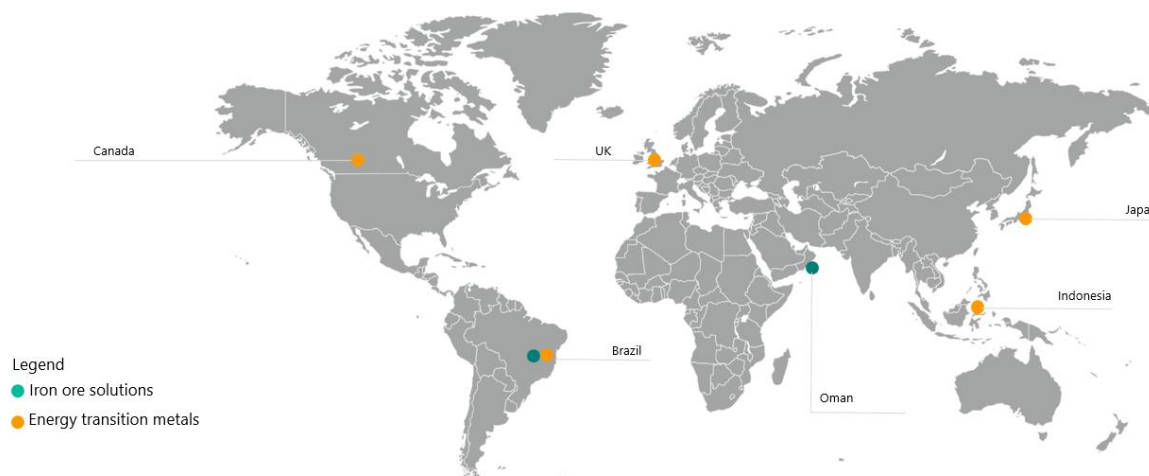
In this report, references to "Vale" are to Vale S.A. References to "we," "us" or the "Company" are to Vale and, except where the context otherwise requires, its consolidated subsidiaries. References to our "ADSs" or "American Depositary Shares" are to our common American Depositary Shares (our common ADSs), each of which represents one common share of Vale. American Depositary Shares are represented by American Depositary Receipts (ADRs) issued by the depositary.

Unless otherwise specified, we use metric units. References to "real," "reais" or "R\$" are to the official currency of Brazil, the *real* (singular) or *reais* (plural). References to "U.S. dollars" or "US\$" are to United States dollars. References to "€" are to euros.

## BUSINESS OVERVIEW

### OPERATIONAL SUMMARY

The following image describes the countries where we have mining or related operations, segregated by segment.



The following table presents the breakdown of total net operating revenue attributable to each of our lines of business.

	<i>Year ended December 31,</i>					
	<b>2024</b>		<b>2023</b>		<b>2022</b>	
	<i>US\$ million</i>	<i>% total</i>	<i>US\$ million</i>	<i>% total</i>	<i>US\$ million</i>	<i>% total</i>
<b><i>Iron Solutions</i></b>						
Iron ore	24,805	65.2	27,760	66.4	28,188	64.3
Iron ore pellets	5,921	15.6	5,803	13.9	6,256	14.3
Other ferrous products and services	718	1.9	516	1.2	472	1.1
<b><i>Iron Solutions - total</i></b>	<b>31,444</b>	<b>82.6</b>	<b>34,079</b>	<b>81.6</b>	<b>34,916</b>	<b>79.6</b>
<b><i>Energy Transition Metals</i></b>						
Nickel and other products	3,666	9.6	5,193	12.4	6,619	15.1
Copper	2,805	7.4	2,376	5.7	1,779	4.1
Other energy transition metals	141	0.4	-	-	-	-
<b><i>Energy Transition Metals - total</i></b>	<b>6,612</b>	<b>17.4</b>	<b>7,569</b>	<b>18.1</b>	<b>8,398</b>	<b>19.2</b>
Other	-	-	136	0.3	525	1.2
<b>Net operating revenue</b>	<b>38,056</b>	<b>100</b>	<b>41,784</b>	<b>100</b>	<b>43,839</b>	<b>100</b>

## ABOUT US

### Iron Solutions

**Iron ore.** We operate three systems in Brazil for the production and distribution of iron ore:

- *Northern System:* fully integrated system consisting of three mining complexes, a railroad and a maritime terminal.
- *Southeastern System:* fully integrated system consisting of three mining complexes, a railroad, a maritime terminal and a port.
- *Southern System:* consisting of two mining complexes and two maritime terminals.

**Iron ore pellets and other ferrous products and services.** We currently have a diverse agglomerates portfolio, which includes both pellets and briquettes. We have eight operational pelletizing plants in Brazil and two in Oman for pellet production and two briquetting plants in Brazil for briquette production.

### Energy Transition Metals

Our Energy Transition Metals business, which includes nickel, copper, cobalt, platinum group metals (PGM) and other precious metals, is conducted through our subsidiary Vale Base Metals Limited (VBM) and its subsidiaries.

**Nickel.** We have mines and processing plants in Canada, and we control and operate nickel refining facilities in the United Kingdom and Japan. We also have nickel operations at Onça Puma, located in the Brazilian state of Pará, and a minority stake in PT Vale Indonesia Tbk, which operates nickel assets in Indonesia.

**Copper.** In Brazil, we produce copper concentrates at Sossego and Salobo operations, in Carajás, in the state of Pará. In Canada, we produce copper concentrates and copper cathodes in conjunction with our nickel mining operations at Sudbury (Ontario), and Voisey's Bay and Long Harbour (Newfoundland and Labrador).

**Other energy transition metals.** The ore extracted from our Sudbury nickel operations yields by-products, including cobalt, PGMs, silver and gold. These by-products are processed at our refining facilities in Port Colborne, Ontario. We produce refined cobalt at our Long Harbour facilities in Newfoundland and Labrador. We also receive payments for silver and gold contained in the copper concentrates produced at our Salobo operation and for gold contained in various products produced at our Sudbury operation.



## **BUSINESS STRATEGY**

Since 2019, we have strengthened our operations and safety standards, becoming a safer, more stable, and better-prepared company for the future. As we move forward, our goal is to be recognized as a trusted partner with the most competitive and resilient portfolio in the industry. This vision is built on three key pillars, outlined below:

### **Superior Portfolio**

**Delivering a high-quality, flexible iron ore portfolio.** We are committed to developing a resilient and competitive iron ore portfolio that can succeed despite commodity cyclicality. This portfolio includes prioritizing our high-quality iron ore while maintaining flexibility to adapt to changing market demands.

**Focusing on customer-oriented solutions.** We are committed to supporting our customers' needs and to position ourselves to be the natural partner of choice in supplying products. We adopt a technical and customer-centric approach, tailoring our solutions to market trends with agility and ensuring stable, continuous supply to our clients.

**Accelerating copper growth.** Our goal is to leverage our significant copper resources, particularly in the Carajás region, to achieve significant growth in this segment, supporting the growing demand for copper in renewable energy technologies, electrification and green infrastructure.

### **Performance Driven**

**Reference in safety and operational excellence.** Our goal is to continuously evolve on being a reference in safety and operational excellence. A continued commitment to safety is an integral part of our culture, and we will continue to strengthen our safety protocols and operational reliability, ensuring safety, reliability, and efficiency across all our operations.

**Securing competitiveness through a talent-driven and agile company.** We are cultivating a performance-oriented culture focused on results, talent development, and agility.

**Fostering innovation and digital solutions.** We are embracing technological advances to improve efficiency, optimize operations, and drive innovation across the business. This includes circularity initiatives such as reprocessing tailings as well as exploring new ways to maximize resource efficiency and sustainability.

### **Trusted Partner**

**Cultivating institutional relationships.** We recognize the importance of strengthening relationships with communities, governments and all stakeholders. We engage in open, transparent dialogues, working closely with local, regional and national stakeholders to ensure alignment on common goals, contributing positively to local development.

**Generating a positive impact on people and nature.** We are committed to promoting positive impacts for people and nature while continuously reducing our operational footprint. To achieve this, we are committed to work in collaboration with local communities, particularly Indigenous groups, and to support conservation efforts, especially in the Amazon region.

**Ensuring greater trust through increased transparency.** We are committed to openness and accountability to rebuild trust with our stakeholders. This includes providing clear and accurate information on our performance, our progress toward sustainability goals, and efforts to address the concerns of local communities and regulators. By fostering a culture of transparency, we aim to strengthen our position as a responsible and trusted partner in the mining sector.

We understand that what makes this strategy feasible is our culture. To assess if we are on the right path, in 2024, we conducted the 2<sup>nd</sup> Cultural Diagnosis and a new cycle of the Engagement Survey. The results of the diagnosis shown that we have made progress in safety, process establishment, and operational discipline, as well as improvements in all key behaviors, especially in related to safety and risk management. It also shown our commitment to delivering results, with an emphasis on how these results are achieved. Our employees expressed pride in and are committed to our transformation. The 2024 cycle of the Engagement Survey had a record participation of 82% of our employees, with a favorability score of 83% (an increase of one percentage point compared to 2023). Together, these two instruments have shown that we are moving in the right direction, towards the Vale we want to be.

**SIGNIFICANT CHANGES IN OUR BUSINESS**

Below is a summary of major events in our business since the beginning of 2024.

**Novo Carajás program.** In February 2025, we launched the Novo Carajás Program. This program focuses on optimizing our iron ore production and accelerating copper production growth in the Carajás region, a mineral-rich province critical to global decarbonization and energy transition. The initiative encompasses strategic investments in technology, health and safety protocols, operations and equipment maintenance, and sustainability measures, leveraging our operational expertise in the region. These investments support our previously announced production guidance and strengthen our commitment to mining practices.

**Definitive agreement related to Samarco.** In October 2024, we, together with Samarco and BHP Brasil, entered into an agreement with several public authorities, providing for the complete and definitive conclusion of the reparation and compensation process relating to the Fundão's dam failure (Definitive Settlement). In November 2024, the Federal Supreme Court (Supremo Tribunal Federal – STF) ratified the Definitive Settlement. As a result, we recognized an additional provision of US\$956 million, recorded in the income statement as "Equity results and other results in associates and joint ventures." For additional information on the Definitive Settlement see *Overview—Business Overview—Reparation and remediation efforts related to Samarco's tailings dam* and *Additional Information—Legal Proceedings—Legal Proceedings Related to the Failure of Samarco's Tailings Dam*.

**Purchase of a minority stake in Anglo American Minério de Ferro Brasil S.A. (Anglo American Brasil).** In December 2024, we completed the purchase of a 15% stake in Anglo American Brasil. The acquisition cost was substantially composed by the contribution to Anglo American Brasil of Serra da Serpentina assets, whose value were estimated at US\$750 million, in addition to a disbursement of US\$30 million. As a result, Anglo American Brasil became an associate and we recognized a gain of US\$626 million in our income statement as "(Impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net." Under the terms of the agreement, if the average benchmark iron ore price (IODEX 62%Fe CIF China) remains above US\$100/t or below US\$80/t for four years after closing, a purchase price adjustment payment will be made to either Anglo American plc or us, according to a predetermined formula and within certain limits. The transaction aims to create synergies between the Minas-Rio complex, Serra da Serpentina's high-grade iron ore resources and our deposit and our logistics infrastructure. Anglo American Brasil will continue to control, manage and operate the Minas-Rio complex, including any future expansion.

**Partial divestment of Vale Oman Distribution Center (VODC).** In September 2024, after the satisfaction of all conditions precedent, we completed the sale of our 50% equity interest in VODC. Pursuant to the agreement that had been entered in August 2024, AP Oryx Holdings LLC (Apollo) paid a total consideration of US\$600 million for a 50% stake in the joint venture entity. As a result, VODC became a joint venture, and we recognized a gain of US\$1,222 million in the income statement as "(Impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net." VODC operates a maritime terminal in Sohar, Oman, with a large deep-water jetty and an integrated iron ore blending and distribution center with a nominal capacity of 40 Mtpy.

**Acquisition of Aliança Geração de Energia S.A. (Aliança Energia).** In August 2024, we completed the acquisition of the entire 45%-stake held by Cemig Geração e Transmissão S.A. (Cemig GT) in Aliança Geração de Energia S.A. (Aliança Energia), upon payment of US\$493 million. Following the acquisition of this 45% stake, we currently hold 100% of Aliança Energia's shares. Aliança Energia's power generation asset portfolio consists of seven hydroelectric power plants in the state of Minas Gerais and three wind farms in operation in the states of Rio Grande do Norte and Ceará. Together, these assets have an installed capacity of 1,438 MW and an average physical guarantee of 755 MW.

**Divestment in PT Vale Indonesia (PTVI).** In June 2024, our subsidiary Vale Canada Limited (VCL), together with Sumitomo Metal Mining Co., Ltd. (SMM), completed the divestment transaction relating to PTVI divestment obligation, pursuant to the agreement entered into with PT Mineral Industri Indonesia (MIND ID) in February 2024. With the completion of the transaction, VCL, SMM and MIND ID currently hold approximately 33.9%, 11.5% and 34.0% of PTVI, respectively, with the remainder held by the public on the Indonesia Stock Exchange. As a result, we received US\$155 million, which resulted in a gain of US\$1,059 million recorded in the income statement as "(Impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net", and no longer control PTVI. Following the completion of the transaction, we will no longer consolidate PTVI's financial results in our financial results and we will account our investment in PTVI using the equity method.

**Strategic partnership in the Energy Transition Metals business.** In April 2024, following the approval from the relevant regulatory authorities, we completed the sale to Manara Minerals, a joint venture formed by Ma'aden and Saudi Arabia's Public Investment Fund, of a 10% equity interest in Vale Base Metals Limited (VBM), the holding company of our Energy Transition Metals business, for US\$2,455 million, pursuant to the agreement that had been entered into between Manara Minerals and us in July 2023. As a result, Vale recognized a gain of US\$895 million in equity as "Transactions with noncontrolling shareholders"

## OUR ENVIRONMENTAL, SOCIAL AND GOVERNANCE (ESG) FRAMEWORK

We have a strategy to fully integrate sustainability into our business through systematic planning, prioritizing risk and impact management, and fostering a positive social, economic and environmental legacy in the regions where we operate. Our ESG practices are continuously evolving. To effectively integrate sustainability into our business management practices, we have established a set of ESG goals that guide our investment priorities and decision-making processes. Our engagements with socially responsible investors and ESG stakeholders include webinars, roadshows, and a dedicated website, our ESG Portal (<https://www.vale.com/esg>). The information in our ESG Portal, including our Integrated Report and ESG Databook, is not incorporated by reference in this annual report on Form 20-F.

- We are one of the first companies to voluntarily adopt the international standard issued by the International Sustainability Standards Board (ISSB) for preparing and reporting financial information related to climate change. We expect to disclose our first report under the ISSB international standard in 2025, for the year ended December 31, 2024.
- We regularly disclose our sustainability performance through our ESG Portal and our annual Integrated Report, in accordance with the Global Reporting Initiative (GRI) Standards. Our Integrated Report and our ESG Databook, published in an annual basis, also include indicators from the Sustainability Accounting Standards Board (SASB), now part of the International Financial Reporting Standards Foundation, the Taskforce on Nature-related Financial Disclosures (TNFD) the World Economic Forum (WEF) key metrics, and the United Nations (UN) Sustainable Development Goals (SDGs).
- As an active and committed member of the International Council on Mining and Metals (ICMM), we are dedicated to implement ICMM's Mining Principles and Performance Expectations, supporting initiatives like the Extractive Industries Transparency Initiative (EITI) for mineral revenue transparency. We support and are engaged in the implementation of the GISTM, an effort to improve safety in all phases of the lifecycle of the tailings' storage facilities, with a focus on meaningful engagement with communities.

In this section, we summarize some of our ESG initiatives – please refer to our ESG Portal, Integrated Report and ESG Databook for other initiatives and additional information. This section contains statements that constitute forward-looking statements. We caution you that forward-looking statements are not guarantees of future performance and involve risks and uncertainties. For information on factors that could cause our actual results to differ from expectations reflected in forward-looking statements, see *Overview—Forward-looking Statements* and *—Risk Factors*.

### Environmental Initiatives

We are integrating our sustainability strategy into our business to minimize the socioenvironmental impacts of operations and respond to the demands of stakeholders, based on the relevant topics, goals and actions as summarized below. More information is available on our ESG Portal.

**Climate Change.** We are dedicated to reducing absolute GHG emissions from Scopes 1 and 2 by 33% by 2030, in line with the Paris Agreement goal to limit global warming to well below 2°C (WB2D), using 2017 as the baseline year. Our goals also include achieving net-zero emissions for Scopes 1 and 2 by 2050 and reducing net Scope 3 emissions by 15% by 2035, compared to 2018 levels, aligned with the 2°C temperature increase scenario. We plan to achieve this goal by developing new products, nature-based solutions, using renewable electricity sources, and partnering with clients and suppliers. Since 2020, we have invested US\$1,426 million in reducing greenhouse gas emissions, with US\$257 million spent in 2024. Our EcoShipping initiative manages the development of innovative projects related to energy efficiency and alternative fuels, aligned with IMO targets. In December 2024, we conducted the first wind energy test on a Valemax, the largest ore carrier in the world. Additionally, we signed contracts to build 10 next-generation Guaibamax vessels, which will feature state-of-the-art design, energy efficiency solutions, and the capacity to burn both fuel oil and methanol.

**Energy.** We propose to achieve a 100% renewable energy supply globally by 2030. Additionally, we aim to improve our global energy efficiency indicator by 5% by 2030. We plan to achieve this by increasing renewable electricity use in our operations and forming strategic partnerships for new energy solutions. In Brazil, we achieved a 100% renewable energy supply in 2023, two years before our initial target of 2025. We have invested in technological innovations like the minAInteligente project, which uses AI to optimize diesel consumption in off-road trucks by determining the ideal train speed for each mine stretch. Our plans include expanding process optimization technologies, increasing asset electrification, and continuing investments in renewable energy.

### Other Environmental Initiatives

**Biodiversity.** As part of our plans to contribute to a nature-positive future, we have also set a Forest Target to recover and protect 500,000 hectares beyond our operational boundaries. We protect and restore forests through compensation measures, voluntary initiatives, and partnerships. In 2024, with respect to our Forest Target, we have restored over 5.8 thousand hectares and maintained the protection of more than 200 thousand hectares.

**Water.** We plan to reduce the cumulative average of specific freshwater use by 27% by 2030 (base year 2017), focusing mainly on regions with higher water stress, through investments in water initiatives. In 2024, we achieved a 31% reduction in the specific use of new water in our operations, using 2017 as the reference baseline. This result reflects our continuous efforts, through initiatives such as efficient monitoring, sustainable water resource management, and the reduction of new water usage, prioritizing secondary sources, including reused, recycled, recirculated, and recovered water, as well as sustainable sources like rainwater harvesting. This reduction rate, however, may fluctuate in the coming years due to adjustments in production processes and variations in production volume. Additionally, in 2024, we invested a total of US\$157 million in water initiatives.

**Waste.** In 2024, 77% of our total iron ore production came from natural moisture processing, thus exceeding our goal of having at least 70% of production through this process, aligned with our strategy to achieve a positive future for nature through circularity initiatives. We are implementing initiatives such as the blending strategy, the expansion of the Northern System, the Capanema project, and the conversion of Plant 1 to natural moisture processing. Additionally, we invest in sustainable initiatives, such as the production of sand from iron ore tailings, used in civil construction. Our subsidiary, Agera, has sold around 1.9 million tons of sand since 2023.

**Atmospheric Emissions.** Our goal is to reduce our emissions of Particulate Matter and Sulphur Oxides by 16% and Nitrogen Oxides by 10% by 2030. We plan to achieve this target through initiatives on several fronts, with strategic low-carbon planning, encouraging the development of specific technologies that contribute to reducing these emissions, using biofuels, and increasing operational efficiency.

### Social Initiatives

**Social Ambition.** We are moving forward with our commitment to support the lifting 500,000 people out of extreme poverty. In 2024, we had about 51,000 people engaged in 20 initiatives in urban, rural, and forest contexts, in which 80% living in Pará and Maranhão. Additionally, we are engaged in supporting all Indigenous communities neighboring our operations in developing and implementing their plans to achieve the rights outlined in United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). In 2024, we achieved the goals outlined in the Consultation Protocol of the Kayapó People in the state of Pará. We are actively supporting four other Indigenous communities (Ka'apor and Guajajara from the Rio Pindaré and Caru Indigenous Lands, in the state of Maranhão, and Tupiniquim from the Comboios Indigenous Land in the state of Espírito Santo) to achieve the rights outlined in the UNDRIP.

**Health and Safety.** We are dedicated to improving the health and safety of our employees, in line with our pillar of Performance Driven. Our long-term goals are: (i) to reduce the number of N1+N2 (N1 refers to fatalities and changed lives, while N2 refers to recordable high-potential injuries) in relation to the previous closing result: in 2024, we achieved a significant reduction of 60% compared to 2019; (ii) to reduce by 50% the number of exposures to the main health risk factors: this goal was achieved in 2023, and in 2024 we continued to reduce this exposure, achieving a reduction of more than 60% compared to the 2019 baseline; and (iii) to eliminate all risk scenarios classified as "very high" for Health, Safety, Environment, and Communities: in 2024, we had a 57% reduction in risk scenarios classified as "very high" compared to 2019.

### Governance

**Corporate Governance:** Corporate governance is fundamental to ensuring a company's sustainability and safety. We continuously invest in improving governance practices, aligning with national and international best practices, and understanding the perspectives and expectations of investors.

**Risk Management:** We have five executive risk committees that advise our management in mapping and monitoring risks through our integrated risk management system. In addition, we also have an advisory committee to the Board of Directors – the Audit and Risk Committee, which advises the Board on our risk management strategy. This integrated approach strengthens our ability to address challenges and seize opportunities responsibly and sustainably.

**Remuneration:** Our remuneration programs are aligned with business strategy and the goal of being a safer company. To this end, we have certain performance targets linked to ESG criteria.

## REPARATION AND REMEDIATION EFFORTS

### *Brumadinho reparation and remediation efforts*

On January 25, 2019, a tailings dam failure at our Córrego do Feijão mine, in the city of Brumadinho, state of Minas Gerais. The failure of the dam released a flow of tailings residue, which reached our administrative area at the Córrego do Feijão mine and parts of the communities of Córrego do Feijão and Parque da Cachoeira located in Brumadinho, as well as the Paraopeba River. The dam failure resulted in 270 fatalities, including two pregnant women, and two victims that are still missing, and caused extensive property and environmental damage in the region.

We will never forget Brumadinho. We reaffirm our respect for the victims and their families, prioritizing the fair and faster reparation of Brumadinho. As we move forward on our path to make our business better, committed to valuing people, safety and reparation, we stand firm in our commitment to become one of the safest and most reliable mining companies in the world.

**Immediate assistance.** We have provided humanitarian assistance to victims and their families since the very first moments.

**Judicial Settlement for Integral Reparation.** In 2021, we entered into the Judicial Settlement for Integral Reparation, with multiple public authorities, under which we agreed to implement several socio-economic and socio-environmental reparation projects.

- The estimated economic value of the Judicial Settlement for Integral Reparation is R\$37.7 billion, which includes: (i) R\$6.3 billion in disbursements made prior to the settlement date and with scope similar to the agreement; (ii) R\$19.9 billion in disbursements required for the implementation of projects and to be managed by the authorities; (iii) a cap of R\$6.4 billion in estimated costs of the socio-economic reparation projects to be directly implemented by us; and (iv) R\$5 billion in estimated costs for certain environmental recovery projects (*Plano de Reparação Ambiental*) to be implemented by us, which are not subject to a cap.
- The Judicial Settlement for Integral Reparation settles most of the requests made in certain public civil actions in which public authorities sought damages and a wide range of injunctive measures against us as a result of the Brumadinho dam failure.
- We have made disbursements with respect to 75% of the updated value of the commitments set out in the Judicial Settlement for Integral Reparation. As of December 31, 2024, we had incurred R\$32 billion in infrastructure works and environmental and socioeconomic reparation actions, and made 91% of our payment obligations, in a total amount of R\$20.2 billion and 39% of our obligations to perform certain actions, corresponding to R\$5.5 billion (these numbers include R\$6.3 billion in disbursements made before the date of signing of the agreement).

**Other settlement agreements related to Brumadinho dam failure.** We are committed to promoting expedite reparation and remediation for those affected by the Brumadinho dam failure. This includes resolving related legal proceedings. Highlighted below are our key settlement agreements with public authorities.

- *April 2019 preliminary settlement agreement with Minas Gerais state public defenders:* In April 2019, we entered into an agreement with the public defenders' office of the state of Minas Gerais to establish the framework for settlement agreements for damage claims for property and other economic and moral damages (*danos morais*). As of December 2024, we had reached settlements with over 14,475 individuals totaling approximately R\$2.7 billion, considering Brumadinho and evacuated territories.
- *Settlement agreements with public labor prosecutors and labor unions:* In July 2019, we entered into a settlement agreement with the public labor prosecutors to indemnify relatives of the victims of the dam failure. In March 2020, we entered into a settlement agreement with the labor unions to indemnify survivor workers and workers based on the Córrego do Feijão and Jangada Mine. In July 2021, we entered into a settlement to pay indemnification to the family units of deceased employees in connection with the extinction of their employment contracts. As of December 2024, we had reached settlements, with 2,510 individuals totaling approximately R\$1.2 billion.
- *Agreement with Indigenous Peoples:* We entered into two agreements involving Indigenous peoples in 2022 to compensate the Indigenous people of Katurãma Village and the group led by Dona Eline Pataxó. These



agreements have been fully paid. In 2023, we entered into another comprehensive indemnity agreement with the Pataxó and Pataxó Hã-Hã-Hãe Indigenous people of Tronco Gervasio and Antônia. We are currently awaiting the final judgment of the decision to complete payments. Negotiations with the Naô Xohã Village group are ongoing and are the subject of two Public Civil Actions filed by the Federal Public Ministry and the Federal Public Defender's Office, concerning both collective reparation and individual compensation. We continue to comply with the court decision that mandated the temporary relocation of families from the Naô Xohã Village, as well as the payment of installation and maintenance funds to the affected Indigenous peoples. To support this, we acquired a property in Brumadinho, chosen by the Indigenous community, for the temporary relocation of the affected families. There is a possibility that this relocation could become permanent, if the property be accepted as part of a potential collective reparation agreement with the group.

- **Agreement with Quilombola Communities:** Regarding the four quilombola communities in Brumadinho impacted by the dam failure, we have defined measures for remediating collective diffuse damages, tied to the Quilombola Component Studies for Impact and Damage Assessment. All stages of this process must involve the active community participation and were overseen by the Palmares Cultural Foundation, which is the institution responsible for protecting the rights of these communities, an Independent Technical Advisory, and the Federal Public Defender's Office. These measures must be negotiated with the relevant parties as part of the Comprehensive Judicial Reparation Agreement. In the case of the three quilombola communities in the Paraopeba River basin, we are awaiting the issuance of the Terms of Reference by the government authority for conducting the studies supporting the ERSHRE (Human Health Risk Assessment and Ecological Risk Evaluation).

**Other settlement agreements.** We have entered into other settlement agreements with public authorities, in addition to individual settlement agreements. These include support for municipals services, emergency payments to Indigenous Peoples, specific remediation measures, external audits, and asset structural integrity reviews, measures to reinforce structures and suspension of operations. For additional information on legal settlements, proceedings and investigations relating to the Brumadinho dam failure, see *Additional Information—Legal Proceedings*.

**Other reparation and remediation efforts.** We have carried out important actions to give new meaning to the directly impacted territory, especially the Córrego do Feijão community. The central square was revitalized, and the Community Market and Cultural Center were built to welcome and bring new perspectives to the community. The construction of a soccer field, an ecological park, a school, a chapel, a cemetery, and a forest with trails for leisure activities is also planned. To boost the region's economy, 434 local associations and small businesses are supported by Vale directly and indirectly benefiting more than 16,000 people. Training and economic development in the region are provided. In December 2024, a total of R\$17 million in revenue was declared by 137 supported businesses and associations, out of the 143 that received financial support. In addition, more than 550 water supply structures have been implemented, potentially serving over 5 million people through sanitation actions in the Velhas, Doce and Paraopeba Basins.

#### **Other settlement agreements related to tailings dams**

Below is a summary of the agreements we have made with the Public Defender's Office of the state of Minas Gerais, and an agreement settled with the Public Prosecutor's Office of the state of Minas Gerais. For more information, see *Additional Information—Legal Proceedings*.

**Nova Lima.** In March 2021, we entered into an agreement (*termo de compromisso*) with the Public Defender's Office of the state of Minas Gerais, to regulate and establish comprehensive criteria for indemnifying individuals affected by the evacuation in the community of São Sebastião das Águas Claras (Macacos) in the municipality of Nova Lima, due to the rise in the emergency level of B3/B4 dam.

**Itabira.** In June 2022, we entered into an agreement (*termo de compromisso*) with the Public Defender's Office of the state of Minas Gerais, to regulate and establish comprehensive for indemnifying individuals affected by the "loss of stability" and subsequent increase in the risk of collapse of the Pontal Dam and its dikes, in the municipality of Itabira.

**Itabirito/Ouro Preto.** On November 29, 2024, we entered into an agreement with the Public Prosecutors Office of the State of Minas Gerais, with the participation of the Municipalities of Itabirito, Ouro Preto, Nova Lima and Rio Acima, to compensate for socio-environmental, socioeconomic and collective moral damages resulting from the increase in the emergency levels to Vargem Grande, Forquilha I, II, III e IV and Group dams. The settlement amount, estimated at R\$120



million, will be allocated to the execution of Comprehensive Reparation for the municipalities of Itabirito, Nova Lima, Ouro Preto and Rio Acima.

### **Tailings and Dam Safety**

We have implemented several initiatives to enhance our tailings and dam management process and improve dam safety.

**De-characterization of upstream dams.** Our key initiative is the de-characterization of all our upstream structures in Brazil, including dams, dikes and drained stacks in Brazil. The term “de-characterization” means functionally reintegrating the structure and its contents into the environment, so that the structure no longer serves its primary purpose of acting as a tailings, sediments or water containment. In 2024, we spent a total of US\$533 million in connection with the de-characterization of upstream structures/dams. As of December 31, 2024, we had a provision of US\$2,213 million recognized in our balance sheet for the de-characterization of upstream structures. Additional provisions may be recognized as a result of adjustments to the de-characterization projects.

As of December 31, 2024, we de-characterized 17 out of 30 upstream structures. The following summary sets forth our progress:

- In 2024, we concluded the de-characterization of Dike 1A and Dike 1B of the Conceição System, in the city Itabira, Área IX dam, in the city Ouro Preto (subject to a final evaluation by competent authorities), and the B3/B4 dam at the Mar Azul Mine, in the city Nova Lima, all in the state of Minas Gerais.
- In 2023, we concluded the de-characterization of Dike 2 of Pontal, in the city Itabira, in the state of Minas Gerais.
- In 2022, we concluded the de-characterization works of five structures: Dikes 3 and 4 of Pontal, in the city Itabira, Auxiliar Dike of B5 MAC, in the city Nova Lima, Baixo João Pereira dam, in the city Congonhas and Ipoema dam, in the city Itabira, all in the state of Minas Gerais.
- In 2021, we concluded the de-characterization of Pondes de Rejeitos dam, in the city Parauapebas, in the state of Pará, and Fernandinho dam, in the city Nova Lima and the de-characterization of Dike 5 of Pontal, in the city Itabira, both in the state of Minas Gerais.
- In 2020, we concluded the de-characterization of Rio do Peixe, in the city Itabira, in the state of Minas Gerais, and Kalunga 2 and Kalunga 3 dikes, in the Parauapebas, in the state of Pará.
- In 2019, we concluded the de-characterization of the 8B dam in the city of Nova Lima in the state of Minas Gerais.

The de-characterization process is important for the long-term risk reduction of the upstream tailing’s facilities, but the works required for the de-characterization process may impact in the short term the geotechnical stability of certain upstream tailings facilities, increasing the of risk of collapse of these structures especially during the first phases of this process. To mitigate this risk, we have evacuated the downstream zones of the critical dams and we have built Back-up Dams to contain the tailings in case of failure. To mitigate the risk of fatalities, we considered alternatives to perform the works in these critical dams with remotely operated equipment, the design of which is being reviewed with proper redundancy levels.

Between 2020 and 2021, we concluded the construction of three back-up dams in the state of Minas Gerais: (i) one for the Sul Superior dam in Gongo Soco; (ii) one for the Forquilha I, Forquilha II, Forquilha III, Forquilha IV and Grupo dams in Congonhas; and (iii) one for B3/B4 dam in Nova Lima, that is now being removed following the completion of its de-characterization. In 2022, we concluded the construction of Coqueirinho back-up dam, for the Pontal System, in Itabira. In 2024, we worked on the completion of the implementation project of ECJ2 for the de-characterization of Minervino and Cordão Nova Vista dikes, also in Itabira.

We also operate tailings dams in Canada, including upstream dams. These upstream dams are not part of our de-characterization program and there are no technical or regulatory reasons for doing so. All our dams in Canada have been built in accordance with engineering guidance documents issued by the Canadian Dam Association. Legacy dams that pre-date this guidance are being upgraded accordingly through a comprehensive program of dam rehabilitation and toe buttressing.

Our joint venture Samarco completed the de-characterization of one of its upstream dams, the Germano pit, in June 2023, which remains under active monitoring. The de-characterization works for the Germano dam, Samarco's other upstream dam are ongoing, in line with the schedule and project presented to the competent agencies.

**Improvements in the safety conditions of our dams.** In 2024 we had important advances in dam safety. We continue to progress toward our goal of eliminating all dams at emergency level 3 by the end of 2025. The emergency level system is defined by Brazilian law (Resolution ANM 95/2022) to classify situations that may compromise dam safety. Emergency level 3 represents the highest level of risk in this classification.

- In September 2024, the Sul Superior dam, located in Gongo Soco, in the state of Minas Gerais, had its emergency lowered from level 3 to level 2. The reduction of its emergency level was possible due to the implementation of new geotechnical investigations, the expansion of monitoring instruments and the evolution of studies that allowed greater knowledge of the structure's actual stability condition. In addition, the progress of the de-characterization works contributed to the increase in the safety of the structure. The works were carried out with remotely operated equipment.
- We also managed to improve the stability conditions of the Grupo dam, located at the Fábrica mine, in Ouro Preto (MG). The improvement in stability conditions were driven by the de-characterization process, which resulted in the removal of more than 1.48 million cubic meters of tailings, corresponding to approximately 60% of the total forecasted volume. As a result, the dam emergency level was reduced from level 2 to level 1.
- In 2024, the Campo Grande upstream dam, located in Mariana, in the state of Minas Gerais ceased to be at an emergency level.
- The Peneirinha, 5-Mutuca, and Dique B dams in Nova Lima, and the Dique de Pedra dam in Ouro Preto, in the state of Minas Gerais, also ceased to be at an emergency level and received the Positive Stability Condition Declaration (DCE), certifying their safety.

**Governance measures.** Since 2019, we have adopted the three lines of defense model and strengthened governance with the creation of a dedicated Geotechnical Risk Committee, which reports to the Executive Committee.

In April 2021, the Independent Ad Hoc Consulting Committee for Dam Safety (CIAE-SB) concluded its work and provided its final report to our Board of Directors. The action plans resulting from the CIAE-SB have been completed, and we continue to advance dam safety under the oversight of the Independent Tailings Review Board (ITRB), which similarly to the CIAE-SB, is composed renowned consultants who follow best international practices.

We use the Hazard Identification and Risk Analysis (HIRA) methodology to map and assess risks in our structures. Additionally, we have strengthened governance by implementing the Tailings and Dam Management System (TDMS) and the Ground Control Management System (GCMS). These measures have helped enhance our geotechnical organizational structure, implement key functions for tailings storage facilities, and drive continuous improvements in alignment with best practices.

**Monitoring and Precautionary Measures.** All our dams are routinely monitored and are subject to oversight from competent public authorities. Additionally, our main structures are also continuously monitored by three Geotechnical Monitoring Centers, that advanced technologies such as satellites and artificial intelligence.

Brazilian regulations require semi-annual stability certifications (Stability Condition Statement or DCE) from an independent expert for each of our dams covered by the National Dam Safety Policy (PNSB). In case we are unable to comply with safety requirements necessary for the issuance the DCE of a certain dam, we need to take certain emergency actions based on the Emergency Action Plan for Mining Dam for such dam, which may include the suspension of related operations, evacuation of the area surrounding the dam and removal of communities.

In September 2024, we obtained positive DCEs for 80 dams of a total of 94 structures currently covered by National Dam Safety Policy. We did not obtain positive DCEs for 14 structures (all of them in our Iron Solutions operations). We have a plan to reduce the number of structures without positive DCEs, including, in some cases, reinforcing the embankment, improving the geotechnical knowledge of the structure and its foundation and the de-characterization plan.

The improvement in the safety conditions of our structures reflects the efforts the company has been making, implementing measures such as the new management system for our tailings storage facilities, driven by lessons learned from the dam failure in Brumadinho and best practices international standards, as defined in the Global Industry

Standard on Tailings Management (GISTM). Additional information on the status of DCEs and emergency levels of our structures is available on our ESG Portal, at <https://www.vale.com/esg>. Information on our website is not incorporated by reference in this annual report on Form 20-F.

**Commitment to the Global Industry Standard on Tailings Management (GISTM).** We, along with all International Council on Mining and Metals (ICMM) members, are dedicated to implementing the GISTM. We implemented the GISTM in 48 of the 50 Tailings Storage Facilities (TSFs) in August 2023, and the implementation of the Standard for the other two TSFs is ongoing, aiming to complete it by August 2025, meeting the deadlines established for the sector. Additional information on the GISTM journey is available on our ESG Portal, at <https://www.vale.com/esg>. Information on our website is not incorporated by reference in this annual report Form 20-F.

### **Reparation and remediation efforts related to Samarco's tailings dam**

In November 2015, the Fundão tailings dam owned by our joint venture Samarco failed, releasing tailings downstream, flooding certain communities and causing impacts on communities and the environment along the Doce River. The failure resulted in 19 fatalities and caused property and environmental damage to the affected areas. Samarco is a joint venture equally owned by us and BHP Billiton Brasil Ltda. (BHP Brasil).

**Definitive Settlement.** In October 2024, we, together with Samarco and BHP Brasil, entered into a settlement agreement in connection with the reparation and compensation process relating to the Fundão dam failure, resulting from a mediation process conducted by the Brazilian Federal Court of Appeals of the 6th Region (TRF-6). The agreement was signed by the three companies, the federal government, the governments of the states of Minas Gerais and Espírito Santo, the Federal and State Public Prosecutors' Offices, the Federal and State Public Defender's Offices of the states of Minas Gerais and Espírito Santo and other federal and state governmental authorities, (Definitive Settlement). In November 2024, the Federal Supreme Court (Supremo Tribunal Federal – STF) ratified the Definitive Settlement. For additional information see notes 3 and 27 to our consolidated financial statements.

The Definitive Settlement provides for a total financial amount of approximately US\$ 31.7 million, covering past and future obligations to assist the people, communities, and environment impacted by the dam failure. The agreement establishes three main lines of obligations:

- US\$18 billion to be paid by Samarco in installments over a period of 20 years to the federal government, the states of Minas Gerais and Espírito Santo, and municipalities, and to finance programs and compensatory actions linked to public policies;
- US\$5.8 billion in obligations to be performed by Samarco to complete individual compensation obligations, resettlements, and environmental recovery; and
- US\$7.9 billion already incurred from the date of the dam failure until the Definitive Settlement by Samarco, BHPB and us, with remediation and compensation measures and that do not constitute our provision balance.

Pursuant to the Definitive Settlement, Fundação Renova was dissolved and its liquidation process was initiated, with a 12-month period for the completion of the transition of rights and obligations to Samarco. Samarco became the primary responsible party for fulfilling these obligations, as well as for the transition of some programs from Fundação Renova. As shareholders of Samarco, BHP and we committed, each, to paying up to 50% of any amounts that Samarco fails to finance as the primary debtor, pro rata to our equity stakes in the company. Our provision recorded for these obligations is US\$3.7 billion as of December 31, 2024, and includes estimates of Samarco's financial capacity to fulfill the obligations set forth under the Definitive Settlement. Samarco's capacity to fulfill the obligations is subject to a cap of US\$1 billion, valid from 2024 to 2030, as set forth in the Judicial Reorganization Plan ("JR Plan").

### **Compensation**

The Definitive Settlement establishes a definitive resolution of individual compensations in the existing modalities. Family farmers and professional fishermen who meet the criteria set forth in the agreement are eligible to receive compensation in a single installment, upon signing the respective release term. Samarco will also implement the Definitive Compensation Program (PID), the last opportunity for definitive compensation for those not yet covered by previous initiatives.

As of December 2024, more than 448 thousand people in the Doce River basin had been served and received approximately R\$18.7 billion in total indemnities and Emergency Financial Aid paid by Fundação Renova.

### *Resettlements*

The Definitive Settlement provides for the completion of resettlements in the districts of Novo Bento Rodrigues and Paracatu. Prior to the execution of the Definitive Settlement, 86% of the resettlements had been completed. Samarco will coordinate the completion of the remaining cases. The resettlement process involves the active participation of communities and technical advisors, following high standards of excellence in community resettlement. The agreement provides for the maintenance of these structures for five years from the delivery of the keys, upon signing the release term, or until the definitive transfer of ownership, with the registration of the property in the name of the family unit. As of December 2024, 90% of the resettlement cases have been completed.

### *Environmental Recovery*

The remaining environmental recovery actions in the impacted area of the Doce River in Minas Gerais and Espírito Santo and the northern coast of Espírito Santo in the Doce River Basin will be completed directly by Samarco. The Agreement sets delivery milestones and specific objectives for each of these actions, among which, the reforestation of 50,000 hectares, the completion of the recovery of 5,000 springs and the restoration of banks and the aquatic environment in the locations indicated in the Definitive Settlement.

In addition to these direct actions by Samarco, the Definitive Settlement establishes robust initiatives to promote the improvement of the environmental quality of the Doce River Basin, which will be carried out by the public authorities, in line with public policies, such as basic sanitation for the affected municipalities, in addition to other measures aiming for the improvement of the water quality of the Doce River.

Samarco will carry out studies at the Risoleta Neves Hydroelectric Plant (UHE Candonga) to assess the economic, social, and environmental feasibility of removing up to 9.15 million m<sup>3</sup> of sediments, which will be submitted to the Institute of Environment and Renewable Natural Resources (IBAMA) in the environmental licensing process. Samarco will also conduct studies on the management of contaminated areas and the substances outlined in the agreement, to monitor environmental quality.

Information about the reparation process in connection with the Definitive Settlement can be found at Samarco's website, through the link: <https://www.samarco.com/reparacao/>. Information on Samarco's website is not incorporated by reference in this annual report Form 20-F.

**Reorganization Plan.** In January 2024, Samarco completed the restructuring of its financial debt in accordance with the terms of the judicial reorganization plan (JR Plan) approved in September 2023. For more information, see *Overview—Risk Factors—Legal, Political, Economic, Social and Other Regulatory Risks and Information on the Company—Lines of Business—Other Investments—Samarco*.

## FORWARD-LOOKING STATEMENTS

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This annual report contains statements that may constitute forward-looking statements. Many of those forward-looking statements can be identified by the use of forward-looking words such as “anticipate,” “believe,” “could,” “expect,” “should,” “may,” “will,” “plan,” “intend,” “estimate,” “target,” “ambition,” “potential,” among others. Those statements appear in a number of places and include statements regarding our intent, belief or current expectations with respect to:

- trends in commodity prices, supply and demand for commodities;
- the future impact of competition and regulation;
- the exploration of mineral reserves and resources and development of mining facilities;
- the depletion and exhaustion of mines and mineral reserves and resources;
- the impact of the failure of the tailings dam in Brumadinho in 2019, the failure of Samarco’s tailings dam in 2015, and related remediation measures on our operations, cash flows and financial position;
- the implementation of our dam de-characterization plan;
- the outcome of the various investigations, regulatory, governmental, uncertain tax treatments and legal proceedings in which we are involved;
- impact of tariffs, trade barriers and other restrictions imposed on global trade;
- the impact of the ongoing wars in Ukraine and in the Middle East, the economic sanctions imposed on Russia and their impact on the global economy, which are highly uncertain and difficult to predict;
- our direction and future operations;
- the implementation of our financing strategy and capital expenditure plans;
- the payment of dividends or interest on shareholders’ equity;
- compliance with financial covenants;
- industry trends, including the direction of prices and expected levels of supply and demand;
- the implementation of our principal operating strategies, including our potential participation in acquisition, divestiture or joint venture transactions or other investment opportunities;
- our ability to comply with our ESG targets and commitments;
- the implementation of new technologies to mitigate operational risks or achieve our ESG targets and commitments;
- other factors or trends affecting our financial condition or results of operations; and
- the factors discussed under *Overview—Risk Factors*.

We caution you that forward-looking statements are not guarantees of future performance and involve risks and uncertainties. Actual results may differ materially from those in forward-looking statements as a result of various factors. These risks and uncertainties include factors relating to (i) economic, political and social issues in the countries in which we operate, (ii) the global economy, (iii) commodity prices, (iv) financial and capital markets, (v) the mining and metals businesses, which are cyclical in nature, and their dependence upon global industrial production, which is also cyclical, (vi) regulation and taxation, (vii) operational incidents or accidents, and (viii) the high degree of global competition in the markets in which we operate. For additional information on factors that could cause our actual results to differ from expectations reflected in forward-looking statements, see *Overview—Risk Factors*. Forward-looking statements speak only as of the date they are made, and we do not undertake any obligation to update them in light of new information or future developments. All forward-looking statements attributed to us or a person acting on our behalf are expressly qualified in their entirety by this cautionary statement, and you should not place undue reliance on any forward-looking statement.

## RISK FACTORS

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Our business, operations and financial results are subject to various risks and uncertainties, including but not limited to those described below and elsewhere in this annual report, which could harm our business, reputation, financial condition, and operating results, and affect the trading price of our securities. Additional risks and uncertainties that are not currently known to us or that are not currently believed by us not to be material may also harm our business, financial condition and results of operations.

### **GEOTECHNICAL RISKS**

***The collapse of a dam or other geotechnical structure may cause severe damages, including personal, property and environmental damages.***

We own a significant number of dams and other geotechnical structures. Some of our tailing's storage facilities were built using the upstream raising method, which may present higher stability risks, especially related to liquefaction. Some of our joint ventures and investees, including Samarco, also own dams and similar structures, including structures built using the upstream raising method.

- The collapse of any of these structures could cause loss of life and severe personal, property and environmental damages, as well as negative social impact, and could have adverse effects on our business and reputation, as evidenced by the consequences of the dam failure in Brumadinho and Samarco's dam failure in Mariana.
- The evacuation of the downstream zones of the critical dams, construction of physical barriers (back-up dams) to contain the tailings in case of failure and other safety measures we take may not be sufficient to prevent damages and impact on communities.
- Brazilian laws and regulations require the de-characterization of all upstream dams on a specified timetable. We are still determining the appropriate measures for the de-characterization of certain upstream dams in Brazil. The works related to the de-characterization process may impact the geotechnical behavior of certain upstream tailings facilities, affecting the risk of collapse of these structures. In extreme cases, this process, when associated with other conditions, may contribute to the collapse of structures.

As of the date hereof, we have concluded approximately 57% of our de-characterization plan. The elimination of 100% of the dams in the de-characterization program is expected to be achieved by 2035, given the technical characteristics of the dams, such as volumes of tailings contained. The implementation of the de-characterization plan will require significant expenditures, and the de-characterization process may take a long time. We also own and operate upstream-raised dams in countries other than Brazil, which are not part of the current de-characterization program. For a discussion of the impacts of our de-characterization plan, see *Overview—Business Overview—Reparation and Remediation Efforts—Tailings and Dam Safety—De-characterization of Upstream Dams*.

***The failure of our tailings dam in Brumadinho has adversely affected our business, financial condition and reputation, and the overall impact of the dam failure on us is still uncertain.***

The failure of our dam in Brumadinho in 2019 and the failure of Samarco's tailings dam in Mariana in 2015 have caused fatalities and severe personal, property and environmental damages. See *Overview—Business Overview—Reparation and Remediation Efforts*. These events have adversely affected and will continue to adversely affect our operations.

- **Liabilities and legal proceedings.** We continue to be a defendant in several legal proceedings and investigations related to the dam failure, including criminal investigations in Brazil and securities litigation in the United States. Additional proceedings and investigations may be initiated in the future. Adverse results in these proceedings may have a material adverse effect on our business and financial condition. See *Overview—Business Overview—Reparation and Remediation Efforts* and *Additional Information—Legal Proceedings*.
- **Impact on our financial performance.** The dam failure had a significant impact on our financial performance, which included reduced revenues due to the suspension of operations, increased expenditures for assistance and remediation, impairments of fixed assets, provisions for costs of de-characterization, restoration and recovery, and provisions for legal proceedings. See *Operating and Financial Review and Prospects—Overview—Tailings Dam Failure in Brumadinho*.

- **Increase in production costs and capital investments.** We have made investments and adjustments in our operations and may need to make additional investments and adjustments to production processes, mitigate the impact of suspended operations or comply with additional safety requirements. We may also have to use alternative disposal methods to continue operating certain mines and plants, particularly those that rely on tailings dams. These alternative methods may be more expensive or require significant capital investments in our mines and plants. As a result, we expect our costs to increase, which may have a material adverse effect on our business and financial condition.
- **Additional regulation and restrictions on mining operations.** Rules on mining activities and ancillary activities, such as dam safety, rights of populations affected by dams, have become stricter following the dam failure in Brumadinho. Additional rules may be approved. The licensing process for operations has become longer and subject to more uncertainties. Also, external experts may not be willing to attest to the stability and safety of our dams, as a result of increasing risks of liability. If any of our dams is unable to comply with the safety requirements or if we are unable to obtain the required certification for any of our dams, we may need to suspend operations, evacuate the area surrounding this dam, relocate communities and take other emergency actions. These measures are costly, may adversely impact our business and financial condition and may cause further damage to our reputation.
- **Additional environmental impacts.** The entire environmental consequences of the dam failure in Brumadinho remain uncertain, and additional damages may be identified in the future. Also, failure to implement our de-characterization plan and measures to prevent further accidents could also lead to additional environmental damages, additional impacts on our operations, and additional claims, investigations and proceedings against us.
- **Reserves and resources.** New regulations applicable to dam licensing and operations have caused, and may further cause, decreases in our reported reserves and resources or reclassification of proven reserves as probable reserves.
- **Increased cost of insurance.** Our cost of insurance may rise, and we may not be able to obtain insurance for certain risks.
- **Settlement agreements.** Under the Judicial Settlement for Integral Reparation, the Definitive Settlement and other settlement agreements, we have agreed to establish a set of programs and activities to repair and compensate the damages caused by the dam failures in Brumadinho and Mariana. These settlement agreements do not establish cap on our indemnification obligations, and the frameworks for individual or group indemnifications do not prevent individuals or groups from seeking alternative measures. For more information, see *Additional Information—Legal Proceedings—Legal Proceedings Related to the Dam Failure in Brumadinho*.

## OPERATIONAL RISKS

***Operational problems could materially and adversely affect our business and financial performance.***

Operational disruptions might require us to suspend or curtail operations, which could generally reduce our productivity. Operational disruptions may also result in the failure of critical plant and machinery, and materially and adversely affect our business and results of operations.

Our business is subject to a number of risks that may adversely affect our results of operations, such as:

- Unexpected weather conditions or other force majeure events.
- Adverse mining conditions delaying or hampering our ability to produce the expected quantity of minerals and to meet specifications required by customers, which can trigger price adjustments.
- Accidents or incidents involving our mines, industrial facilities and related infrastructure, such as dams, plants, railway and railway bridges, ports and ships.
- Disruptions in our supply chain or delays or interruptions in the transportation of our products, including with railroads, roads, ports and ships.
- Tropical diseases, viral outbreaks, and other contagious diseases in regions where some of our operations or projects are located, which pose health and safety risks to our employees.
- Labor disputes that may disrupt our operations from time to time.



- Changes in market conditions or regulations that may affect the economic prospects of an operation and make it inconsistent with our business strategy.
- Failure to obtain the renewal of required permits and licenses, or delays or higher than expected costs in obtaining them.
- Disruptions to or unavailability of critical information technology systems or services resulting from accidents or malicious acts.

***Our business could be adversely affected by the failure or unavailability of certain critical assets or infrastructure.***

We rely on certain critical assets and infrastructure to produce and to transport our products to our customers. These critical assets include mines, industrial facilities, ports, railways, roads and bridges. The failure or unavailability of any critical asset, whether resulting from natural events or operational issues, could have a material adverse effect on our business.

Substantially all of our iron ore production from the Northern System is transported from Carajás, in the Brazilian state of Pará, to the port of Ponta da Madeira, in the Brazilian state of Maranhão, through the Carajás railroad (EFC). Any interruption of the Carajás railroad or of the port of Ponta da Madeira could significantly impact our ability to sell our production from the Northern System. With respect to the Carajás railroad, there is particular risk of interruption at the bridge over the Tocantins River, in which the trains run on a single line railway. In the port of Ponta da Madeira, there is particular risk of interruption at the São Marcos access channel, a deep-water channel that provides access to the port. Also, any failure or interruption of our long-distance conveyor belt used to transport our iron ore production from the S11D mine to the beneficiation plant, could adversely impact our operations at the S11D mine.

***Our business is subject to health, safety, and environmental events.***

The viability of our business is intrinsically connected to the well-being of the environment, workers, and communities in which we operate. Our activities involve the use, handling, storage, discharge, and disposal of hazardous substances into the environment and the use of natural resources, resulting in significant risks and potential adverse impacts on people and the environment, including fire, explosion, toxic gas leaks, spilling or seepages of polluting substances or other hazardous materials, rockfalls, incidents involving dams, failure of other operational structures. Regarding occupational risks, our activities involve physical, chemical, biological, ergonomic, and accident risks. Regarding accident risks, our activities involve hazards and risks associated with mobile equipment, vehicles or machinery, and other industrial equipment that can generate potentially fatal accidents. Such events can occur due to deficiencies in risk identification and assessment or in the implementation of controls associated to risk management. Once these risks materialize, they can result in significant environmental, social and human rights impacts, damage to or destruction of mines or production facilities, injuries, illnesses, and fatalities involving employees, contractors, or community members near our operations, as well as production delays, monetary losses, and potential legal liability. Additionally, our employees may be exposed to tropical and contagious diseases that can affect their health and safety, and we have corporate guidelines to mitigate these risks. Notwithstanding our standards, policies, controls, and monitoring procedures, our operations remain subject to incidents that can adversely impact our business, stakeholders, reputation, or violate human rights.

***Our business may be adversely affected by social, cultural, environmental and health and safety regulation, including regulations pertaining to climate change.***

Nearly all aspects of our activities, products and services associated with capital projects and operations, including mine closure activities, around the world are subject to social, environmental and health and safety regulations, which may expose us to increased liability or increased costs. These regulations require us to have environmental licenses, permits and authorizations for our operations and projects, and to conduct environmental and social impact assessments, including a hazard identification and risk analysis, in order to get approval for our projects and permission for initiating construction and continuing operating. Significant changes to existing operations are also subject to these requirements.

In connection with our authorizations, licenses and permits, we may be subject to restrictions relating to the operation and maintenance of dams, protection of communities, including Indigenous Peoples, Quilombola Communities and other Traditional Communities, protection of caves, fauna and flora, climate change, among others, which may require



us to limit or modify our mining plans, having an impact on our production volumes, costs and reserves and resources. For more information on our mining concessions and other similar rights, see *Information on the Company—Regulatory Matters*. Difficulties in obtaining or renewing permits may lead to construction delays, cost increases, and may adversely impact our production volumes. Social, environmental and health and safety regulations also impose standards, procedures, monitoring and operational controls on activities relating to mineral research, mining, beneficiation, pelletizing activities, railway and marine services, ports, de-characterization, decommissioning, mine closure activities, distribution and marketing of our products. Such regulation may give rise to significant costs and liabilities. Litigation and legal and regulatory uncertainties relating to these, or other related matters may adversely affect our financial condition or cause harm to our reputation.

Social, environmental and health and safety regulations in many countries in which we operate have become stricter in recent years, and it is possible that more regulation or more stringent enforcement of existing regulations will adversely affect us by imposing restrictions on our activities, products, and assets, creating new requirements for the issuance or renewal of environmental licenses and labor authorizations, resulting in licensing and operation delays, raising our costs or requiring us to engage in expensive reclamation efforts. All these factors may affect our practices and result in costs or expense increase, require us to new capital expenditures, restrict or suspend operations, write down or write off assets or reserves and resources.

Another aspect that can interfere with business directly or indirectly is the political and social scenario in the territories where we operate. For a discussion of the rules relating to licensing and operations of dams following the tailings dam failure in Brumadinho, see *Information on the Company—Regulatory Matters—Brazilian Regulation of Mining Dams*. For a discussion of the rules relating to the protection of caves in Brazil, which may require us to limit or modify our mining plans from time to time, see *Information on the Company—Regulatory Matters*. For a discussion of national policies and international regulations regarding climate change, which may affect a number of our businesses in various countries, see *Information on the Company—Regulatory Matters—Environmental Regulations*. For a discussion of the 2020 regulatory initiatives of Standards of the International Maritime Organization (IMO) prohibiting high sulfur fuel oil, as well as IMO's goals on greenhouse gas reductions in the industry, see *Information on the Company—Regulatory Matters—Environmental Regulations*.

### **Labor disputes may disrupt our operations from time to time.**

A substantial number of our employees, and some of the employees of our subcontractors, are unionized and governed by collective bargaining agreements or other labor arrangements that require regular renegotiation. Strikes or other labor disruptions at any of our operations could adversely affect operational efficiency, delay project completion, and increase project costs. For more information about labor relations, see *Management and Employees—Employees*. Additionally, our operations could be impacted by labor disputes affecting third-party suppliers that provide us with essential goods or services.

### **Our operations could be materially adversely impacted by pandemics, epidemics, or disease outbreaks.**

Disruptions caused by pandemics, epidemics or disease outbreaks, could materially adversely impact our financial condition, results of operations, cash flows, and competitive position, particularly as it relates to rising costs and supply chain delays and disruptions. Measures taken by governmental authorities in response to such events may also impact our business, including upon restrictions to our operations, lockdowns, shutdowns, reduced inspections, assessments and authorizations, among other difficulties. We cannot predict when and if any such events will occur and evolve, neither their scope and duration, and therefore cannot estimate the potential impact in our financial condition, results of operations, cash flows and competitive position.

### **We may not have adequate insurance coverage for some risks.**

Our businesses are generally subject to a number of risks and hazards, which could have impact on people, assets and the environment. The insurance we maintain against risks that are typical in our business may not provide adequate coverage. Insurance against some risks (including liabilities for environmental damages, damages resulting from dams' breaches, spills or leakage of hazardous substances and interruption of certain business activities) may not be available at a reasonable cost, or at all. Even when it is available, we may self-insure where we determine that is more

cost-effective to do so. As a result, accidents or other negative developments involving our mining, production or transportation facilities may not be covered by insurance and could have a material adverse effect on our operations.

## FINANCIAL RISKS

### ***Lower cash flows, resulting from a decrease in prices of our products, may adversely affect our credit ratings and the cost and availability of financing.***

A decline in the prices of our products may adversely affect our future cash flows, credit ratings and our ability to secure financing at attractive rates. It may also negatively affect our ability to fund our capital investments, including disbursements required to remediate and compensate damages resulting from the dam failure in Brumadinho and Samarco provide the financial assurances required to obtain licenses in certain jurisdictions, pay dividends and comply with the financial covenants in some of our long-term debt instruments. See *Operating and Financial Review and Prospects—Liquidity and Capital Resources*.

### ***The prices for our products are subject to volatility, which may adversely affect our business.***

Global prices for metals are subject to significant fluctuations and are affected by many factors, including actual and expected global macroeconomic and political conditions, regional and sectorial factors, levels of supply and demand, the availability and cost of substitutes, inventory levels, technological developments, regulatory and international trade matters, investments by commodity funds and others and actions of participants in the commodity markets. Sustained low market prices for the products we sell may result in the suspension of certain of our projects and operations, decrease in our mineral reserves and resources, impairment of assets, and may adversely affect our cash flows, financial position and results of operations. The price of our products could be subject to volatility in 2025 in case of a slower growth of the Chinese economy.

Demand for our iron ore and nickel products depends on global demand for steel. Iron ore and iron ore pellets, which together accounted for 80.7% of our 2024 net operating revenue, are used to produce carbon steel. Nickel, which accounted for 9.6% of our 2024 net operating revenue, is used mainly to produce stainless and alloy steels. The prices of different steel products and the performance of the global steel industry are highly cyclical and volatile, and these business cycles in the steel industry affect demand and prices for our products. In addition, vertical backward integration of the steel and stainless-steel industries and the use of scrap could reduce the global seaborne trade of iron ore and primary nickel. The demand for copper is affected by the demand for copper wire, and a sustained decline in the construction industry could have a negative impact on our copper business. Copper products accounted for 7.4% of our 2024 net operating revenue.

We are mostly affected by movements in iron ore prices. For example, a price reduction of US\$1 per dry metric ton unit (dmt) in the average iron ore price would have reduced our operating income for the year ended December 31, 2024, by approximately US\$284 million. Average iron ore prices significantly changed in the last five years, from US\$108.9 per dmt in 2020, US\$159.5 per dmt in 2021, US\$120.1 per dmt in 2022, US\$119.7 per dmt in 2023 and US\$109.4 per dmt in 2024, according to the average Platts IODEX (62% Fe CFR China). On January 31, 2025, the year-to-date average Platts IODEX iron ore price was US\$101.59 per dmt. See *Operating and Financial Review and Prospects—Overview—Major Factors Affecting Prices*.

### ***Changes in exchange rates for the currencies in which we conduct operations could adversely affect our financial condition and results of operations.***

A substantial portion of our revenues, trade receivables and debt are denominated in U.S. dollars, and given that our functional currency is the Brazilian *real*, changes in exchange rates may result in (i) losses or gains on our net U.S. dollar denominated indebtedness and accounts receivable and (ii) fair value losses or gains on currency derivatives we use to stabilize our cash flow in U.S. dollars. In 2024, we had net foreign exchange losses of US\$83 million vs. net foreign exchange losses of US\$324 million in 2023. In addition, changing values of the Brazilian *real*, the Canadian dollar, the Indonesian rupiah, the Chinese *yuan* and other currencies against the U.S. dollar affects our results since a relevant portion of our costs of goods sold is denominated in currencies other than the U.S. dollar, principally the *real* (47.6% in 2024) and the Canadian dollar (4.3% in 2024), while our revenues are mostly U.S. dollar denominated. We expect currency fluctuations to continue to affect our financial income, expense and cash flow generation.

As of January 31, 2025, the U.S. dollar commercial selling rate published by the Central Bank was R\$5.8301 per US\$1.00, which represents a 5.8% decrease as compared to the selling rate of R\$6.1923 per US\$1.00 as of December 31, 2024. Significant volatility in currency prices, among other factors, may also result in disruption of foreign exchange markets, which could limit our ability to transfer or to convert certain currencies into U.S. dollars and other currencies for the purpose of making timely payments of interest and principal on our indebtedness. The central banks and governments of the countries in which we operate may institute restrictive exchange rate policies in the future and impose taxes on foreign exchange transactions.

### ***Higher energy costs, energy shortages or freight cost may adversely affect our business.***

Costs of fuel oil, gas and electricity are a significant component of our cost of production, representing 8.5% of our total cost of goods sold in 2024. To fulfill our energy needs, we rely on the following sources: oil by-products, which represented 33.9% of total energy needs in 2024, electricity 30.3%, natural gas 19.0%, coal 12.1%, and other energy sources 4.7%.

Electricity costs represented 2.7% of our total cost of goods sold in 2024. If we are unable to secure reliable access to electricity at acceptable prices, we may be forced to curtail production or may experience higher production costs, either of which would adversely affect our results of operations. We face the risk of energy shortages in the countries where we have operations and projects, due to stress of infrastructure, high demand or weather conditions, such as floods or droughts. Future shortages, and government efforts to respond to or prevent shortages, may adversely impact the cost or supply of electricity for our operations.

Cost of freight is a significant component of our cost of production, representing 19.6% of our total cost of goods sold in 2024. To fulfill our freight needs, we rely on a fleet of dedicated vessels, which protect us from most of the volatility of the freight market, and on vessels chartered on the spot market.

## **PRODUCTION PLANNING RISKS**

### ***Our projects are subject to risks that may result in increased costs or delay in their implementation.***

We are investing to maintain and further increase our production and logistics capabilities. We regularly review the economic viability of our projects as well as market factors. As a result of this review, we may decide to postpone, suspend or cancel the execution of certain projects. Our projects are also subject to risks that may adversely affect our growth prospects and profitability, including the following:

- We may not be able to obtain financing at attractive rates.
- We may fail to obtain or renew the required leases, permits and licenses.
- We may face shortages of skilled personnel.
- We may face limitations to infrastructure, water and power access.
- Our suppliers and contractors may fail to meet their contractual obligations.
- We may face issues such as inappropriate design and engineering, poor execution, commissioning delays, a slower ramp-up to design, or failure to achieve design outputs.
- We may face major setbacks in the supply chain for specialist equipment, services, and early-stage technologies.
- We may experience adverse changes in market conditions or regulations.

### ***Concessions, authorizations, licenses and permits are subject to expiration, limitation on renewal and various other risks and uncertainties.***

Our operations depend on authorizations, concessions and licenses from governmental regulatory agencies and other authorities in the countries in which we operate. We are subject to laws and regulations in many jurisdictions that can change at any time, and changes in laws and regulations may require modifications to our technologies and operations and result in unanticipated capital expenditures. We are also exposed to political risk in our relationship with governmental and regulatory authorities that issue these authorizations, concessions and licenses.

Some of our mining concessions are subject to fixed expiration dates and might only be renewed a limited number of times for a limited period. Apart from mining concessions, we may need to obtain various authorizations, licenses and permits from governmental or other regulatory bodies in connection with the planning, maintenance, operation and

closure of our mines and related logistics infrastructure, which may be subject to fixed expiration dates or periodic review or renewal. There is no assurance that renewals will be granted as and when sought, and there is no assurance that new conditions will not be imposed in connection with renewal. Fees for mining concessions might increase substantially due to the passage of time from the original issuance of each individual exploration license. If so, the costs of holding or renewing our mining concessions may render our business objectives not viable. Accordingly, we need to continually assess the mineral potential of each mining concession, particularly at the time of renewal, to determine if the costs of maintaining the concession are justified by the results of operations to date, and we might elect to let some of our concessions lapse. There can be no assurance that concessions will be obtained on terms favorable to us, or at all, for our future intended mining or exploration targets.

In several jurisdictions where we have exploration projects, we may be required to retrocede to the state a certain portion of the area covered by the exploration license as a condition to renewing the license or obtaining a mining concession. This requirement can lead to a substantial loss of part of the mineral deposit originally identified in our feasibility studies.

We are also subject to laws and regulations and acts by authorities, related to dams, caves, biodiversity (fauna, flora and ecosystems), Indigenous People and Traditional Communities that may limit or modify our mining plans, impact our production volumes, costs and reserves and resources. For more information on mining concessions and other similar rights, see *Information on the Company—Regulatory Matters*.

***Our mineral reserve and resource estimates may materially differ from the volume of materials that we are actually able to recover and we may not be able to replenish our mineral reserves.***

There are numerous uncertainties inherent in estimating quantities of mineral resources and mineral reserves in projecting potential future rates of mineral production, including factors beyond our control. Reduction in our mineral resources and mineral reserves may affect our future production and cash generation, impact depreciation and amortization rates, and result in asset write-downs or write-offs, which may have an adverse effect on our financial performance.

Below are the key risks relating to our mineral resources and mineral reserves:

- Reporting and estimates of mine life involve estimating deposits of minerals that cannot be measured in an exact manner, and the accuracy of any estimate is a function of the quality of available data, engineering, market prices of minerals and metals, more stringent regulations, costs estimates, investments, geotechnical analysis, geological interpretation and judgment. No assurance can be given that the indicated volume of ore will be recovered or that it will be recovered at the rates we anticipate. We review our mineral resources and reserves estimates from time to time in light of updated information and changes in regulatory framework (including conditions imposed by environmental laws and regulations), which may result in a reduction of our reported mineral resources and mineral reserves. See *Information on the Company—Reserves and Resources and —Regulatory Matters*.
- Difficulties or the inability to obtain licenses for new operations, supporting structures or activities (such as dams), or to renew our existing licenses, can cause a reduction of our mineral resources that could be converted into mineral reserves.
- Once mineral deposits are discovered, it can take several years from the initial phases of drilling until production is possible, during which the economic feasibility of production may change. If a project proves not to be economically feasible by the time we are able to exploit it, we may incur substantial losses and be obliged to take write-downs or at least to downgrade its mineral reserves into mineral resources categories. In addition, potential changes or complications involving metallurgical and other technological processes arising during the life of a project may result in delays and cost overruns that may render the project not economically feasible by the time of the reporting.
- We engage in mineral exploration, which is highly uncertain in nature, involves many risks and frequently is non-productive. Our exploration programs, which involve significant expenditures, may fail to result in the mineral resources definition suitable for expansion or replacement of mineral reserves depleted by current production. If we do not develop new mineral resources and reserves, we will not be able to sustain our current level of production beyond the remaining lives of our existing mines.

- Mineral reserves are gradually depleted in the ordinary course of a given open pit or underground mining operation. As mining progresses, distances to the primary crusher and to waste deposits become longer, pits become steeper, mines may move from being open pit to underground, and underground operations become deeper. In addition, for some types of deposits, mineralization grade decreases and hardness increase at greater depths. As a result, over time, we usually experience rising unit extraction costs with respect to each mine, or we may need to make additional investments, including adaptation or construction of processing plants and expansion or construction of tailings dams. Several of our mines have been operating for long periods, and we will likely experience rising extraction costs per unit in the future at these operations in particular.

### **TALENT MANAGEMENT RISKS**

***Our performance and ability to achieve our ambitions and to maintain our competitive position is dependent on our culture and our capacity to attract, develop and retain skilled and experienced talented professionals.***

Since 2019, we have been promoting a transformation of our culture, which we believe is fundamental to the implementation of our business strategy and our ambitions. Our ability to attract, develop and retain experienced and talented professionals is also dependent on this corporate culture transformation. If we fail to achieve our culture transformation goals and to attract, develop and retain talents, our reputation, performance and competitive position may be adversely impacted.

### **SUSTAINABILITY RISKS**

***Natural disasters may cause severe damage to our operations and projects in the countries where we operate and may have a negative impact on our sales to countries affected by such disasters.***

Natural disasters may adversely affect our operations, projects and people in the countries where we operate and may cause a contraction in sales to countries adversely affected due to, among other factors, power outages and the destruction of industrial facilities and infrastructure.

Climate change can impact the frequency and intensity of extreme events, both acute and chronic, including our neighboring communities, damage to our assets, operational interruptions, and supply chain disruptions. We assess the exposure to increased incidence and intensity of atmospheric discharges, changes in rainfall patterns, higher temperatures, floods, droughts, water shortages and sea level rise on assets such as ports, railways, mining facilities, and processing plants. Due to the complexity and uncertainties of physical risk evaluation process, there may be additional risks that are not currently known or assessed, and that could negatively affect our operations and projects. In recent years, we have occasionally determined that force majeure events occurred because of severe weather on our mining and logistics activities. Areas with lower ecological integrity (e.g., areas with reduced natural vegetation cover) are more susceptible to these risks due to lower resilience and protection against extreme weather conditions.

***Transitioning to a lower-carbon economy may entail extensive policy, legal, technology, and market changes to address mitigation and adaptation requirements related to climate change.***

As a global mining company, we are exposed to various risks in the transition to a lower-carbon economy across our operations, supply chain, and downstream industries. These risks may stem from our commitment to reducing greenhouse gas (GHG) emissions in the short, medium, and long term, which requires us to make significant investments and incur significant expenses, as well as our ability to adapt during the economic transition needed to limit global warming.

As part of global value chains, and with evolving policies around climate action, we face uncertainty and potential misalignment between national and regional governments and sectoral actions. We are exposed to significant financial burdens to comply with and adapt to new regulations and standards. Also, we have publicly shared multiple ESG initiatives and goals, which makes us subject to enhanced scrutiny from our investors, regulators, and the public in general. Factors outside our control may prevent us from achieving these goals. Our failure to make progress in these areas on a timely basis, or revisions of our initiatives and goals, could adversely affect our businesses, our access to capital, and reputation.

***Issues with local communities could adversely impact our business and reputation.***

Disagreements with communities near our operations may arise from time to time. Incidents involving land issues, mines sites, industrial facilities, and related infrastructure may impact the communities in locations where we operate. In some instances, our operations, mineral reserves, and resources are located within the influence area of Indigenous or Traditional Communities. Some of our mining and other operations are located in areas where land title may be subject to disputes or uncertainties, or in areas claimed for other uses, such as agriculture. In line with our commitment to meaningful engagement, we consult and negotiate with the groups as part of the process to obtain licenses required to operate, to mitigate impacts, or to obtain consensual access to the lands. Conflicts or disputes with local communities and groups, including Indigenous Peoples, Quilombolas communities, and social movements must be managed in order to avoid delays in obtaining licenses, increases in budget and impacts on human rights. Failure or difficulties in effectively managing such issues may adversely impact our business and operations. See *Information on the Company—Regulatory Matters and Additional Information—Legal Proceedings*.

**STRATEGIC RISKS*****Geopolitical tensions, trade restrictions, as well as military hostilities, including the ongoing conflicts in Ukraine and the Middle East, and the economic sanctions and disruptions to regional or global supply chains resulting from these conflicts, may materially adversely impact our business.***

Our business is subject to external risk factors related to our global operations and the global profile of our clients' portfolio and supply chains. Global markets have been experiencing volatility and disruption following the escalation of geopolitical tensions and the economic sanctions imposed by the United States, the European Union, the UK and other countries as a direct consequence of the conflicts in Ukraine and the Middle East. These factors may have material impacts on our production and sales, result in additional costs and expenses, and eventually adversely impact our financial conditions or results of operations.

Any further escalation of ongoing conflicts, or any other new conflict, sanctions, trade restrictions or diplomatic tensions, especially concerning countries where we operate, could lead to impacts which may adversely affect our business. These impacts might include disruption of international trade flows, extreme market pricing volatility (particularly affecting the energy sector), and potential effects on regional and global shipping routes. Additionally, prices for shipping and maritime insurance could be affected, and we may face regulatory and contractual uncertainties.

***Our business is exposed to the cyclicity of global economic activity and requires significant investments of capital.***

As a mining company, we are a supplier of industrial raw materials. Industrial production is cyclical and volatile, which affects demand for minerals and metals. At the same time, investment in mining requires a substantial amount of funds to replenish reserves and resources, expand and maintain production capacity, build infrastructure, preserve the environment, prevent fatalities and occupational hazards and minimize social impacts. Sensitivity to industrial production, together with the need for significant long-term capital investments, are important sources of risk for our financial performance and growth prospects.

We may not be able to adjust production volume in a timely or cost-efficient manner in response to changes in demand. Lower utilization of capacity during periods of weak demand may expose us to higher unit production costs since a significant portion of our cost structure is fixed in the short-term due to the capital intensity of mining operations. In addition, efforts to reduce costs during periods of weak demand could be limited by labor regulations or previous labor or government agreements. Conversely, during periods of high demand, our ability to rapidly increase production capacity is limited, which could prevent us from meeting demand for our products. We may be unable to complete expansions and greenfield projects in time to take advantage of rising demand for iron ore, nickel or other products. When demand exceeds our production capacity, we may meet excess customer demand by purchasing iron ore fines, iron ore pellets or nickel from third parties processing and reselling it, which would increase our costs and narrow our operating margins. If we are unable to satisfy excess customer demand in this way, we may lose customers. In addition, operating close to full capacity may expose us to higher costs, including demurrage fees due to capacity restraints in our logistics systems.



***Adverse economic developments in China could have a negative impact on our revenues, cash flow and profitability.***

China has been the main driver of global demand for minerals and metals over recent decades. In 2024, Chinese demand represented 75.8% of global demand for seaborne iron ore, 62% of global demand for nickel and 57% of global demand for copper. The percentage of our net operating revenue attributable to sales to customers in China was 49% in 2024. Therefore, any contraction of China's economic growth or change in its economic profile, or changes in tariffs or in the political or sanctions environment globally could result in lower demand for our products, leading to lower revenues, cash flow and profitability. Underperformance in the Chinese real estate and infrastructure sectors, the largest consumer of carbon steel in China, would also negatively impact our results.

***Development of low carbon emission technologies that reduce or dismiss the usage of high-quality ores may increase the demand for low grade iron ore and could impact the value of our iron ore products.***

Decarbonization requires reducing CO<sub>2</sub> emissions. New technologies in iron and steel sector are being developed to reduce and deliver net zero emissions. Due to their characteristics, such technologies can demand a variety of iron ore grades according to each process. Technologies that can allow the competitive use of lower grade iron ores could reduce the relative value in use of our higher-grade portfolio and have a negative impact on the demand and premium of our iron ore products. We continue to monitor disruptive technologies and market trends to deliver appropriate supply answers.

***Our business could be adversely affected by the performance of our counterparties, contractors, joint venture partners or joint ventures we do not control.***

Customers, suppliers, contractors, financial institutions, joint venture partners and other third parties may fail to perform existing contracts and obligations, which may unfavorably impact our operations and financial results. The ability of these third parties to perform their obligations may be adversely affected in times of financial stress and economic downturn.

Important parts of our iron ore, pelletizing, nickel, copper, energy and other businesses are held through joint ventures. This may reduce our degree of control, as well as our ability to identify and manage risks. Our forecasts and plans for these joint ventures and consortia assume that our partners will observe their obligations to make capital contributions, purchase products and, in some cases, provide skilled and competent managerial personnel. If any of our partners fails to observe its commitments, the affected joint venture or consortium may not be able to operate in accordance with its business plans, or we may have to increase the level of our investment to implement these plans.

Some of our investments are controlled by partners or have separate and independent management. These investments may not fully comply with our standards, controls and procedures, including our health, safety, environment and human rights standards. Failure by any of our contractors, partners or joint ventures to adopt adequate standards, controls and procedures could lead to higher costs, reduced production or environmental and human rights related litigation, health and safety incidents or accidents, which could adversely affect our results and reputation.

## **CYBER RISKS**

***Cyber-attacks and other cyber threats may adversely affect our business and reputation.***

We are exposed to a wide range of cybersecurity threats, including common industry attacks such as ransomware and digital fraud, as well as more sophisticated and coordinated efforts known as advanced persistent threats. These and other threats may result in the disclosure or theft of sensitive information, loss of data integrity, misappropriation of funds and disruptions to or interruption in our business operations and impact our ability to disclose financial results. The sophistication of the threats continues to evolve and grow, including the risk associated with the use of emerging technologies, such as artificial intelligence, robotics, smart devices and remote working solutions.

We have been in the past and may be in the future the target of attempts to gain unauthorized access to information technology and operational technology by external and malicious threat agents. The improper conduct of our employees or others working on behalf of us who have access to our existing digital landscape and sensitive information

could also adversely affect our business. Disruption of critical cybersecurity controls, whether caused by obsolescence, technical failures, negligence, accident, or cyber-attacks, may harm our reputation and have a material adverse effect on our operational performance, earnings and financial condition.

We are subject to laws and regulations relating to data protection and privacy of personal data, including, but not limited to the European Union's General Data Protection Regulation (GDPR) and Brazilian *Lei Geral de Proteção de Dados* (LGPD), as well as the Personal Information Protection Law (PIPL) of China. Any failure to comply with laws and regulations related to the protection of personal data may result in proceedings or actions against us, the imposition of fines or penalties or damage to our reputation, which could have an adverse effect on us and our business, reputation and results of operations. For information on our cybersecurity risk management, strategy and governance, see *Additional Information—Cybersecurity—Risk Management and Strategy and —Governance*.

### **LEGAL, POLITICAL, ECONOMIC, SOCIAL AND OTHER REGULATORY RISKS**

#### ***Legal proceedings and investigations could have a material adverse effect on our business.***

We are involved in legal proceedings in which adverse parties have sought injunctions to suspend certain of our operations or claimed substantial amounts against us. Under Brazilian law, a broad range of conduct that could be considered to be in violation of Brazilian environmental, labor or tax laws can be considered criminal offenses. Accordingly, our executive officers, employees and, in certain cases, we and our subsidiaries could be subject to criminal investigations and criminal proceedings in connection with allegations of violation of environmental, labor, human rights or tax laws. Defending ourselves in these legal proceedings may be costly and time consuming. Possible consequences of adverse results in some legal proceedings include suspension of operations, payment of significant amounts, triggering of creditor remedies and damage to our reputation, which could have a material adverse effect on our results of operations or financial condition. For more information, see *Additional Information—Legal Proceedings*.

In addition to the investigations and legal proceedings relating to the dam failure in Brumadinho, as a shareholder of Samarco, we also face the consequences of the failure of the Fundão tailings dam in November 2015. We are involved in multiple legal proceedings and investigations relating to the failure of the Fundão tailings dam. Tax authorities or other creditors of Samarco may attempt to recover from us amounts due by Samarco, if Samarco is unable to fulfill its obligations or is unable to pay its debt. In November 2024, Samarco and its shareholders, BHP Brasil and us, have entered into the Definitive Settlement, pursuant to which Samarco remains the primary responsible party for fulfilling reparation and financial obligations and for the transition of certain programs previously managed by Fundação Renova. If Samarco fails to fund its obligations under the agreement, as shareholders of Samarco, BHP and we will be required to contribute to the funding of these obligations pro rata to our equity stake in the company. See *Overview—Business Overview—Reparation and remediation efforts related to Samarco's tailings dam*, and *Additional Information—Legal Proceedings*.

#### ***Our governance, internal controls and compliance processes may fail to prevent breaches of legal, regulatory accounting, ethical or governance standards.***

We operate in a global environment and our activities extend over multiple jurisdictions and complex regulatory frameworks, with increasing enforcement activities worldwide. We are required to comply with a wide range of laws and regulations in the countries where we operate or do business, including anti-corruption, international sanctions, anti-money laundering, data protection, privacy of personal data, and related laws and regulations. Our governance and compliance processes, which include the review of internal control over financial reporting, may not timely identify or prevent future breaches of legal, regulatory, accounting, governance or ethical standards. We may be subject to breaches of our code of conduct, anti-corruption policies, human rights policies or other internal policies, or breaches of business conduct protocols and to instances of fraudulent behavior, corrupt practices and dishonesty by our employees, contractors or other agents. This risk is heightened by the fact that we have a large number of contracts with local and foreign suppliers, as well as by the geographic distribution of our operations and the wide variety of counterparties involved in our business. Our failure to comply with applicable laws and other standards could subject us to investigations by authorities, litigation, fines, loss of operating licenses, disgorgement of profits, involuntary dissolution and reputational harm.



***We could be adversely affected by changes in government policies or by trends such as resource nationalism, including the imposition of new taxes or royalties on mining activities, tariffs and other restrictions on global trade.***

Mining is subject to government regulation, including taxes and royalties, which can have a significant financial impact on our operations. In the countries where we operate, including Brazil, we are exposed to varying probabilities of potential renegotiation, annulment, cancellation, or mandatory modification of existing contracts and licenses, changes in local laws, regulations, and policies, as well as audits and reassessments. We may also face risks relating to expropriation or nationalization of property, foreign exchange controls, and capital ownership requirements related to mining activities. We are also subject to new taxes or increases in existing taxes and royalty rates, reductions in tax exemptions and benefits, renegotiation of tax stabilization agreements or changes in the basis on which taxes are calculated in a manner that is unfavorable to us. Governments that have committed to provide a stable taxation or regulatory environment may alter those commitments or shorten their duration. We also face the risk of having to submit to the jurisdiction of a foreign court or arbitration panel or having to enforce a judgment against a sovereign nation within its own territory. See *Information on the Company—Regulatory Matters—Royalties and Other Taxes on Mining Activities*.

We are also required to meet domestic beneficiation requirements in certain countries, such as local processing rules, export taxes or restrictions or charges on unprocessed ores. The imposition of or increase in such requirements, taxes or charges can significantly increase the risk profile and costs of operations in those jurisdictions. We and the mining industry are subject to rising trends of resource nationalism in certain countries in which we operate that can result in constraints on our operations, increased taxation or even expropriations and nationalizations.

The imposition of tariffs by the U.S. Government in 2025 and other developments in international trade may also adversely impact our business. As a supplier of iron ore, nickel and other raw materials to the global integrated steel industry and to other metal-consuming sectors such as battery production and other specified, industrial end-uses we are subject to additional risk from the imposition of duties, tariffs, import and export controls and other trade barriers impacting our products and the products our customers produce. The overall impact of these developments are difficult to predict, but could adversely impact our costs, our investments, the demand and price of our products and the products of our customers. Global trade is subject to a growing trend of increased trade barriers, which could exacerbate commodities' price volatility and in turn result in instability in the prices of our products.

***Changes in Brazilian fiscal policies and tax laws could have an adverse effect on our financial condition and results and on investments in our securities.***

The Brazilian government has frequently implemented and may continue to implement changes in its fiscal policies, including, but not limited to tax rates, fees, sectoral charges and occasionally the collection of temporary contributions. Changes in tax laws and in the interpretation of tax laws by Brazilian tax authorities and courts may occur and may result in tax increases and revocation of tax exemptions.

With the recent approval of a tax reform in Brazil, a new taxation model on consumption will undergo a testing and transition period starting in 2026. The complete implementation of the reformed tax system is expected to be implemented by 2033. During this period, the following taxes created by the tax reform will come into effect the dual Value Added Tax (VAT) and the Selective Tax (IS), which will be levied on products and services considered harmful to health and the environment. Iron ore has been included in this list of products subject to IS. Given that the applicable tax basis and tax rate for the IS are yet to be defined, we are not able to estimate the effective impact on overall tax burden on our operations.

In 2025, the federal government is expected to submit to the Congress an income tax reform, which may include taxation on profits and dividends, new restrictions related to interest on equity, as well as the increase of existing taxes. The approval of these legislative proposals or changes in fiscal policies, tax laws and interpretations may impact our tax obligations and may have a material adverse effect on our financial condition and results, and on investments in our securities.

***Political, economic and social conditions in the countries in which we have operations, projects, customers or suppliers could adversely impact our business.***

Our financial performance may be negatively affected by regulatory, political, economic and social conditions in countries in which we have significant operations or projects. In many of these jurisdictions, we are exposed to various risks such as political instability, political movements for protectionism or for greater vertical integration of value chains, bribery, cyber-attacks, extortion, corruption, robbery, sabotage, kidnapping, civil strife, human rights violation, acts of war, guerilla activities, piracy in international shipping routes and terrorism. These issues may adversely affect the economic and other conditions under which we operate in ways that could have a material negative effect on our business.

In Brazil, where a significant part of our operations is concentrated, the federal government's economic policies may have important effects on Brazilian companies, including us, and on market conditions and prices of securities of Brazilian companies. Our financial condition and results of operations may be adversely affected, for instance, by the following factors and the Brazilian federal government's response to these factors:

- exchange rate movements and volatility;
- inflation and high interest rates;
- financing of the current account deficit;
- liquidity of domestic capital and lending markets;
- tax policy;
- pension, tax and other reforms;
- political instability resulting from allegations of corruption involving political parties, elected officials or other public officials; and
- other political, diplomatic, social and economic developments in or affecting Brazil.

Historically, the country's political situation has influenced the performance of the Brazilian economy and political crises have affected the confidence of investors and the general public, which resulted in economic deceleration, downgrading of credit ratings of the Brazilian government and Brazilian issuers, and heightened volatility in the securities issued abroad by Brazilian companies. Political instability may aggravate economic uncertainties in Brazil and increase volatility of securities of Brazilian issuers. Future economic, social and political developments in Brazil may impair our business, financial condition or results of operations, or cause the market value of our securities to decline.

**OTHER RISKS APPLICABLE TO OUR INVESTORS**

***The Brazilian Government has limited veto rights over certain company actions.***

The Brazilian government owns 12 of our golden shares, granting it limited veto power over certain company actions, such as changes to our name, the location of our headquarters and our corporate purpose as it relates to mining activities. For a detailed description of the Brazilian government's veto powers, see *Additional Information—Bylaws—Common Shares and Golden Shares*.

***We are exposed to significant influence of shareholders or group of shareholders.***

Since 2020, we do not have a control group with voting rights that could permanently ensure the majority of votes at our general shareholders' meeting or the power to elect the majority of the members of our Board of Directors. Nonetheless, we are exposed to significant influence of some shareholders or groups of shareholders. We could also be exposed to other forms of shareholder activism, with shareholder groups seeking to make us take actions that may not be consistent with our business strategy. This may require us to incur significant expenses and require significant time and attention from our management and Board of Directors, which could interfere with our ability to implement our business strategy and adversely affect our business and operating results.

***Our investors may be located in jurisdictions outside Brazil and could seek to bring actions against us or our directors or officers in the courts of their home jurisdictions.***

We are a Brazilian company, and the majority of our officers and directors are residents of Brazil. The vast majority of our assets and the assets of our officers and directors are likely to be located in jurisdictions other than the home jurisdictions of our foreign investors. It might not be possible for investors outside Brazil to effect service of process

within their home jurisdictions on us or on our officers or directors who reside outside their home jurisdictions. In addition, a final conclusive foreign judgment will be enforceable in the courts of Brazil without a re-examination of the merits only if previously confirmed by the Brazilian Superior Court of Justice (*Superior Tribunal de Justiça - STJ*), and confirmation will only be granted if the foreign judgment: (i) fulfills all formalities required for its enforceability under the laws of the country where it was issued; (ii) was issued by a competent court after due service of process on the defendant, as required under applicable law; (iii) is not subject to appeal; (iv) does not conflict with a final and unappealable decision issued by a Brazilian court; (v) was authenticated by a Brazilian consulate in the country in which it was issued or is duly apostilled in accordance with the Convention for Abolishing the Requirement of Legalization for Foreign Public Documents and is accompanied by a sworn translation into Portuguese, unless this procedure was exempted by an international treaty entered into by Brazil; (vi) does not cover matters subject to the exclusive jurisdiction of the Brazilian courts; and (vii) is not contrary to Brazilian national sovereignty, public policy or good morals. Therefore, investors might not be able to recover against us or our directors and officers on judgments of the courts of their home jurisdictions predicated upon the laws of such jurisdictions.

***If ADR holders exchange ADSs for the underlying shares, they risk losing the ability to remit foreign currency abroad.***

The custodian for the shares underlying our ADSs maintains a registration with the Central Bank of Brazil permitting the custodian to remit U.S. dollars outside Brazil for payments of dividends and other distributions relating to the shares underlying our ADSs or upon the disposition of the underlying shares. If an ADR holder exchanges its ADSs for the underlying shares, it will be entitled to rely on the custodian's registration for only five business days from the date of exchange. Thereafter, an ADR holder may not be able to obtain and remit foreign currency abroad upon the disposition of, or distributions relating to, the underlying shares unless it obtains its own registration under applicable regulation. For more information, see *Additional Information—Exchange Controls and Other Limitations Affecting Security Holders*. If an ADR holder attempts to obtain its own registration, it may incur expenses or suffer delays in the application process, which could delay the receipt of dividends or other distributions relating to the underlying shares or the return of capital in a timely manner.

The custodian's registration or any registration obtained could be affected by future legislative changes, and additional restrictions applicable to ADR holders, the disposition of the underlying shares or the repatriation of the proceeds from disposition and taxation of dividends could be imposed in the future.

***ADR holders may not have all the rights of our shareholders and may be unable to exercise voting rights or preemptive rights relating to the shares underlying their ADSs.***

ADR holders may not have the same rights that are attributed to our shareholders by Brazilian law or our bylaws, and the rights of ADR holders may be subject to certain limitations provided in the deposit agreement or by the securities intermediaries through which ADR holders hold their securities.

ADR holders do not have the rights of shareholders. They have only the contractual rights set forth for their benefit under the deposit agreements. ADR holders are not permitted to attend shareholders' meetings, and they may only vote by providing instructions to the depositary. In practice, the ability of a holder of ADRs to instruct the depositary as to voting will depend on the timing and procedures for providing instructions to the depositary either directly or through the holder's custodian and clearing system. With respect to ADSs for which instructions are not received, the depositary may, subject to certain limitations, grant a proxy to a person designated by us.

The ability of ADR holders to exercise preemptive rights is not assured, particularly if the applicable law in the holder's jurisdiction (for example, the Securities Act in the United States) requires that either a registration statement be effective or an exemption from registration be available with respect to those rights, as is in the case in the United States. We are not obligated to extend the offer of preemptive rights to holders of ADRs, to file a registration statement in the United States, or to make any other similar filing in any other jurisdiction, relating to preemptive rights or to undertake steps that may be needed to make exemptions from registration available, and we cannot assure holders that we will file any registration statement or take such steps.

***The legal protections for holders of our securities differ from one jurisdiction to another and may be inconsistent, unfamiliar or less effective than investors anticipate.***

We are a global company with securities traded in several different markets and investors located in many different countries. The legal regime for the protection of investors varies around the world, sometimes in important ways, and investors in our securities should recognize that the protections and remedies available to them may be different from those to which they are accustomed in their home markets. We are subject to securities legislation in several countries, which have different rules, supervision and enforcement practices. The only corporate law applicable to our parent company is the law of Brazil, with its specific substantive rules and judicial procedures. We are subject to corporate governance rules in several jurisdictions where our securities are listed, but as a foreign private issuer, we are not required to follow many of the corporate governance rules that apply to U.S. domestic issuers with securities listed on the New York Stock Exchange, and we are not subject to the U.S. proxy rules.

# RISK MANAGEMENT

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Our risk management is based on the Risk Management Policy and Standard, which defines the methodologies, guidelines, response strategy, governance, and responsibilities for addressing the identified present and emerging risks within the company. Our Risk Management Policy and Standard aims to:

- Promote a culture of risk management across our business.
- Support strategic planning and the sustainability of our business, optimizing capital allocation and enhancing asset management.
- Measure and monitor potential risks on a consolidated basis, considering diversification effects on our entire business.
- Evaluate the impact of new investments, acquisitions, and divestitures on our risk map.
- Map present and emerging risks to seek timely solutions that could mitigate possible negative impacts on our business objectives.

## RISK GOVERNANCE STRUCTURE

Our integrated risk governance practice is founded on the lines of defense model and based on globally recognized standards for risk management, including ISO 31000, ISO 55000, COSO-ERM, and the Risk-Based Process Safety (RBPS) system for operational safety. We periodically reassess our risk practices to ensure alignment with the strategic decisions, performance, and risk approach set by our Board of Directors.

Our Risk Governance structure includes five executive risk committees that advise management across each of the following risk categories: (i) operational, (ii) geotechnical, (iii) strategy, finance and cyber, (iv) compliance, institutional relations and communication, and (v) sustainability. Additionally, we have five advisory committees that support our Board of Directors, with the Audit and Risks Committee playing a central role in advising the Board and overseeing risk management.

Below, we list our main structures with a role in Risk Governance. For more information, see *Management and Employees—Management—Other Advisory Committees to the Board of Directors*.

**Audit and Risks Committee.** The Audit and Risks Committee has a major role advising the Board and monitors all matters related to risks. This includes ensuring the quality and integrity of our financial reports, maintaining compliance with legal, statutory, and regulatory requirements, verifying the adequacy and the effectiveness and sufficiency of our controls and processes related to risk management, overseeing the work of both our internal and independent auditors, monitoring our corporate policies and integrated risk map, among other attributes set forth in the committee's internal regulation.

**Audit and Compliance Department.** The Audit and Compliance Department, which reports directly to the Board of Directors and is supervised by the Audit and Risks Committee, is composed of the Internal Audit, Corporate Integrity and Whistleblower Channel areas, the latter two being responsible for our Ethics & Compliance Program.

Our Ethics & Compliance Program has seven elements: (1) Governance to ensure autonomy and independence from others executive structures of the company; (2) Guidelines, based on the principles detailed in our Code of Conduct, Anti-Corruption rules, policies and procedures; (3) Communication & Training, to guide employees on how to face ethical dilemmas and make the best decisions in a responsible and ethical way; (4) Risks Analysis, to perform customized analyses and provide information to guide and support the decision-making of the business areas; (5) Monitoring & Control, to monitor our adherence to the Program's guidelines; (6) Whistleblower Channel to report cases of suspicion or ethical misconduct; and (7) Consequence Management to enable the application of disciplinary measures for confirmed misconduct inside the company.

The Whistleblower Channel is structured to guarantee confidentiality, protect whistleblower anonymity and the information for a fair investigation. The Whistleblower Channel offers all conditions for a report to be independently verified, and prohibits breaches of confidentiality, intimidation or retaliation against whistleblowers.

Any breaches of our Code of Conduct, policies and standards can be reported by anyone, including employees, contractors, suppliers, members of affected communities and other stakeholders, via our Whistleblower Channel. More information about Vale's Ethics & Compliance Program and its Whistleblower Channel, including the number of

employees dismissed for misconduct, can be found in the Ethics & Compliance Program Annual Report, available on our website.

## MANAGEMENT OF SPECIFIC RISKS

### Geotechnical Risks

Geotechnical risk management is the structured approach we take to manage the risks of dams, tailings stacks, waste dump, stockpiles, open pits and slopes collapses, with the potential to cause fatalities and impact the communities and the environment or interrupt our activities. Geotechnical risks are very significant to our business and are continuously monitored and duly integrated to our enterprise risk management. For more information, see *Overview—Business Strategy—Promote Sustainable Mining*.

### Operational Risks

Our approach to managing operational risks aims to systematically address potential failures and uncertainties in the production process. These risks can arise from within our operations or within a designated area for mining, processing, and transporting products, materials, and personnel. Operational risks often relate to the failure of physical integrity of assets used in production processes, which can lead to the unexpected release of hazardous materials or energy. This includes high severity incidents, known as Material Unwanted Events (MUEs).

For operational risks mapping, we apply different methodologies of Hazard Identification and Risk Analysis (HIRA), which were designed to map and analyze high-severity operational safety risks that required increased attention, identify and define performance criteria, establish assurance of appropriate critical controls, as well as mitigation plans. In the first phase, from 2019 to 2021, we assessed all our mines, processing plants, railways, and ports, and completed evaluations of priority tailings storage facilities in 2022. This phase concentrated on scenarios that could impact human life and the environment. In the second phase, which started in 2022, we are reassessing these scenarios and including operational interruption risks. This process is integrated into our production system and will be carried out every three to five years.

### Financial Risks

For a quantitative and qualitative disclosures about market risk, see note 21 to our consolidated financial statements.

### Market Risk

We are exposed to various market risk factors that can impact our cash flow. An assessment of the potential impact of the consolidated market risk exposure is performed periodically to support the decision-making process regarding the risk management strategy, which may incorporate financial instruments, including derivatives. The financial instrument portfolio is monitored on a monthly basis, enabling us to properly evaluate financial results and their impact on cash flow, and ensure correlation between the strategies implemented and the proposed objectives.

Considering the nature of our business and operations, the main market risk factors that we are exposed to are:

- **Product prices and input costs.** We are exposed to market risks associated with commodities price volatilities. We may enact risk mitigation programs in situations such as the following: (i) where there is a risk of financial distress; (ii) to support commercial activities and specific needs of our business segments; (iii) to ensure a minimum cash and/or value generation for certain businesses; and (iv) to protect from the increase of certain cost items, such as fuel oil used by chartered ships. These programs include predominantly forward transactions, futures contracts and options.
- **Foreign exchange rates.** Our cash flows are also exposed to the volatility of several currencies against the U.S. dollar and of interest rate on loans and financings. While part of our product prices is indexed to U.S. dollars, most of our investments and other disbursements, and a relevant portion of our costs are indexed to other currencies other than the U.S. dollar, principally the Brazilian *real* and the Canadian dollar. We also have debt instruments denominated in currencies other than U.S. dollars, mainly in Brazilian *reals*. We may use swaps and forward transactions to convert into U.S. dollars a portion of the cash outflows of these debt instruments, and of some other assets or liabilities denominated in currencies other than U.S. dollars.

- **Interest rates.** Our floating rate debt consists mainly of loans including export prepayments, commercial bank loans and multilateral organization loans. In general, the U.S. dollar floating rate debt is subject to changes to SOFR (Secured Overnight Financing Rate). In addition, we may use swaps and forwards transactions to convert the interest rate from certain of our debt instruments indexed to SOFR and other floating rates into fixed interest rate.

### **Credit Risks**

We are exposed to credit risk arising from trade receivables, derivative transactions, guarantees, down payment for suppliers and cash investments. Our credit risk management process provides a framework for assessing and managing counterparties' credit risk and for maintaining our risk at an acceptable level.

We assign an internal credit rating and a credit limit to each counterparty using our own quantitative methodology for credit risk analysis, which is based on market prices, external credit ratings and financial information of the counterparty, as well as qualitative information regarding the counterparty's strategic position and history of commercial relations.

Based on the counterparty's credit risk, risk mitigation strategies may be used to manage our credit risk. The main credit risk mitigation strategies include non-recourse discount of receivables, insurance instruments, letters of credit, corporate and bank guarantees, mortgages, among others.

From a geographic standpoint, we have a diversified accounts receivable portfolio, with Asia, Europe and Brazil, the regions with the most significant exposure. According to each region, different guarantees can be used to enhance the credit quality of the receivables. We monitor the counterparty exposure in the portfolio periodically and we block additional commercial credit to customers in delinquency.

To manage the credit exposure arising from cash investments and derivative instruments, credit limits are approved to each counterparty to which we have credit exposure. We control the portfolio diversification and monitor different indicators of solvency and liquidity of our different counterparties that were approved for trading.

### **Production Planning Risks**

To mitigate production planning risks, our long-term planning monitors the lifecycle of mineral resources and geotechnical structures as well as timelines for development, licensing and implementation of new projects. Based on this, we work to prioritize engineering efforts and strengthen relationships with communities and environmental agencies to evolve with authorizations, environmental and social licenses to operate. We also invest in studies and research to support the sustainability of our operations.

### **Talent Management Risks**

To achieve our ambitions and remain competitive, we are actively pursuing a cultural transformation within our business. Our focus is on managing risks related to our people agenda, with priorities including attraction, development, retention, and succession planning for critical positions, all aimed at enhancing organizational performance. Diversity and inclusion are strategic pillars of the work environment we aim to create. Implementing these measures will enhance our reputation as a reliable and sustainable company.

### **Sustainability, including climate change, nature and social and human rights risks**

#### **Climate Change**

We assess both transition risks and physical risks related to climate change. Transition risks include regulatory changes at various levels, potential reputational issues related to our climate change performance, and disruptions from emerging technology. Physical risks involve operational impacts from extreme weather events intensified by climate change. We follow the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD), that have been fully incorporated into IFRS S2 Climate-related Disclosures. For more information, please, see <https://www.vale.com/esg/climate>. Information on our website is not incorporated by reference in this annual report on Form 20-F.

#### **Nature**

As a member of the Task Force on Nature-related Financial Disclosures (TNFD) Forum since 2022, we are committed to being TNFD Early Adopters. We conducted an assessment of nature impacts, dependencies, risks and opportunities



using the LEAP (Locate, Evaluate, Assess, Prepare) approach, focusing on our currently active operations in Brazil. In 2024 we improved our assessment of biodiversity risks, integrating the Vale risk assessment methodology with the approach proposed by the TNFD, and strategic biodiversity risks became part of the company's risk map, with improvement of the controls that will be implemented in the coming years. For more information, see <https://vale.com/esg/biodiversity> and our TNFD Pilot Report (<https://vale.com/documents/d/quest/val-relantnfd2023-en-140624-mg>). The information in our website, including our TNFD Pilot Report, is not incorporated by reference in this annual report on Form 20-F.

### **Social and Human Rights Risks**

Social risk management involves identifying the potential impacts of our operations on neighboring communities, including Indigenous Peoples and Traditional Communities, as well as mapping critical stakeholders, including social movements. Human rights risk management focuses on analyzing relevant issues such as discrimination of any kind, harassment, poor working conditions, modern slavery, child labor, and sexual exploitation of children and adolescents, impacts on communities, and large-scale human rights violations related to our activities or value chain. In 2024, we enhanced the management of social and human rights risks, participating in assessments with a multidisciplinary team in our operations. We continued to monitor risk controls and to conduct inspections and due diligences, focusing on risks that could affect employees, contractors, communities, their safety, livelihoods, and human rights. Additionally, we conducted independent human rights due diligence in our operations, critical projects, and suppliers. The findings are incorporated into corrective plans, which are monitored. We maintain a grievance mechanism and whistleblower channel, available in the local language of where we operate, to receive, register, and address demands from all stakeholders, through which risks can be brought forth and identified.

### **Cyber Risks**

Cyber risk management is the strategy for addressing information security risks that could affect our operations, including: (i) operational disruptions on critical technology systems halting essential activities; (ii) theft of strategic information and ransomware threats; (iii) third-party vulnerabilities leading to external breaches; and (iv) financial and reputational damage from data breaches.

We employ several measures to manage cyber risks by implementing comprehensive information security policies and standards, deploying advanced security protection technologies, and continuously detecting and monitoring threats. Our approach includes testing of response and recovery procedures to ensure preparedness. Additionally, we promote a culture of cybersecurity awareness through a training program that covers topics such as email phishing, information classification, and other best practices in information security. For more information on our measures to protect, detect and respond to cyber events, see *Additional Information—Cybersecurity*.

### **Legal, Political, Economic, Social and Other Regulatory Risks**

#### **Changes in laws and regulations; Regulatory and Institutional Risks**

Our Corporate Affairs and Institutional teams continuously assess risks to identify institutional issues related to public policy formulation, geopolitical tensions, territorial development, and regulatory and institutional environment enhancements. While our controls are standardized, we tailor our institutional approach to each identified risk.

Our main guidelines and controls, as outlined in our internal guidelines, include, but are not limited to:

- Conducting and guiding all actions related to institutional and governmental relations in line with our Code of Conduct, Anti-Corruption Policy, Diversity and Inclusion Policy, and other pertinent regulations.
- Monitoring scenarios, trends and/or changes in geopolitical dynamics, regulatory issues and public policies formulation and changes that affect the business, at a local or global level, with our various technical areas.
- Engaging in constructive, transparent dialogues with institutional stakeholders on a technical level.
- Complying with our internal policies in decision-making processes.

#### **Legal and Regulatory Compliance**

We are committed to complying with legal and regulatory requirements to uphold corporate integrity and mitigate potential risks. Our main guidelines and controls include, but are not limited to:



- Developing and implementing detailed compliance policies that clearly outline the legal and regulatory obligations relevant to the organization.
- Establishing internal controls, procedures, training sessions, and awareness programs for employees to ensure compliance with legal and regulatory standards.

### **Corruption Risk**

Our Ethics & Compliance Program includes anti-corruption rules outlined in our Code of Conduct and Anti-Corruption Policy, and additional internal documents. Our Corporate Integrity team continuously assesses risks to identify areas more exposed to the risk of corruption and tailors actions based on each department's specific risk levels. We provide regular and specialized training on anti-corruption rules. Key rules include, but are not limited to:

- Political contributions directly or indirectly on behalf of Vale are prohibited, including donations to political parties, candidates, or campaigns.
- Facilitation payments are prohibited.
- Socioenvironmental and institutional external expenditures must be previously analyzed by Corporate Integrity and properly formalized.
- Gifts, travel, and hospitality for government officials require approval from Corporate Integrity if they exceed a certain value. Cash or cash equivalent gifts are not allowed.
- Third parties receiving payments from us must undergo due diligence, in which a background check is carried out and the risk of corruption is assessed. Anti-corruption clauses must be included in contracts.
- Hiring employees or administrators with connections to public officials requires approval from Corporate Integrity. Any conflicts of interest must be disclosed as soon as they arise.

## II. INFORMATION ON THE COMPANY

### LINES OF BUSINESS

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Our principal lines of business consist of mining and related logistics. This section presents information about operations, production, sales and competition and is organized as follows:

#### **1. Iron Solutions**

- 1.1 Iron ore and iron ore agglomerates
  - 1.1.1 Iron ore properties
  - 1.1.2 Iron ore production
  - 1.1.3 Individual property disclosure
    - 1.1.3.1 Serra Norte
    - 1.1.3.2 Serra Sul
  - 1.1.4 Iron ore agglomerates operations
    - 1.1.4.1 Iron ore pellets operations
    - 1.1.4.2 Iron ore pellets production
    - 1.1.4.3 Iron ore briquette operations
  - 1.1.5 Iron ore strategy
  - 1.1.6 Customers, sales and marketing
  - 1.1.7 Competition
- 1.2 Logistics and energy assets to support Iron Solutions operations
  - 1.2.1 Railroads
  - 1.2.2 Ports and maritime terminals
  - 1.2.3 Energy

#### **2. Energy Transition Metals**

- 2.1 Nickel
  - 2.1.1 Properties
  - 2.1.2 Production
  - 2.1.3 Individual property disclosure
    - 2.1.3.1 Sudbury
  - 2.1.4 Nickel Strategy
  - 2.1.5 Customers and sales
  - 2.1.6 Competition
- 2.2 Copper
  - 2.2.1 Properties
  - 2.2.2 Production
  - 2.2.3 Individual property disclosure
    - 2.2.3.1 Salobo
  - 2.2.4 Copper Strategy
  - 2.2.5 Customers and sales
  - 2.2.6 Competition
- 2.3 PGMs and other precious metals
- 2.4 Cobalt
- 2.5 Logistics and energy assets to support Energy Transition Metals operations
  - 2.5.1 Ports
  - 2.5.2 Energy

#### **3. Other Investments**

- 3.1 Anglo American Minério de Ferro Brasil
- 3.2 Samarco
- 3.3 Other Investments

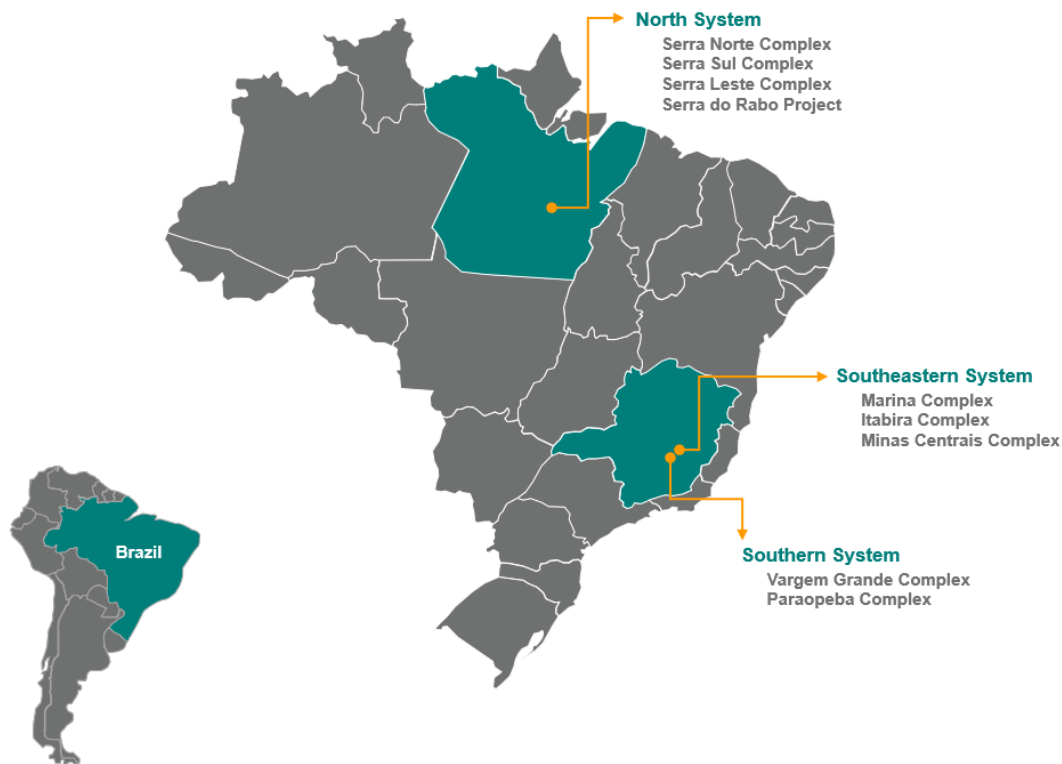
## 1. IRON SOLUTIONS

Our Iron Solutions business includes iron ore mining and iron ore agglomerates production. Each of these operations is described below.

### 1.1 Iron ore and iron ore agglomerates

#### 1.1.1 Iron ore properties

We conduct our iron ore business in Brazil primarily at the parent-company level. Our mines, all of which are open pit, and their related operations are mainly concentrated in three systems: the Southeastern, Southern and Northern Systems, each with its own transportation and shipping capabilities. A summary of our iron ore resources and reserves is provided under *Information on the Company—Reserves and Resources*. In addition to the properties described below, we have other exploration activities and non-operational properties, mostly in the surroundings of our operations described in this section.



IRON ORE OPERATIONS

NORTHERN SYSTEM



Ownership interest	100%
Location	Carajás, State of Pará, Brazil.
Operator	Vale S.A.
Mining complexes	Three mining complexes and one greenfield mineral project: <ul style="list-style-type: none"> <li>- Serra Norte (three main mining areas and three beneficiation plants).</li> <li>- Serra Sul (one main mining area and one beneficiation plant).</li> <li>- Serra Leste (one mining area and one beneficiation plant).</li> <li>- Serra do Rabo mineral project.</li> </ul>
Mineral titles <sup>(1)</sup>	Mining concessions with no expiration date. Area: Serra Norte: 30,000 ha, Serra Sul: 98,910 ha, includes Serra do Rabo mineral project and Serra Leste: 9,915 ha.
Stage/ Operations	All the complexes are in production stage. Serra Norte has been operating since 1984, Serra Sul since 2016 and Serra Leste since 2014. Serra do Rabo mineral project is at Exploration Stage – FEL 2 (Pre-feasibility) technical study ongoing.
Key permit conditions	We have already obtained or expect to obtain in a timely manner the necessary permits for operations. We are in the process of obtaining or renewing (i) certain environmental permits, including permits relating to protective buffer approvals for caves and lakes and (ii) mining land zoning approval for areas with provision for environmental management plan. For information about environmental licensing, particularly with respect to caves, see <i>Information on the Company—Regulatory Matters—Environmental Regulations—Protection of Caves</i> .
Mine types and mineralization styles	Open pit mining operations with high grade hematite ore type (iron grade around 65%) for Serra Norte, Serra Sul and Serra Leste. In Serra Leste there is also a minor amount of Itabirite material (iron grade of 35-60%). Serra Norte also employs the dredge method in the Gelado dam with iron ore tailings (grade around 63%).

Associated facilities and infrastructure

*Processing plants:* In Serra Norte, two of the beneficiation plants apply natural moisture beneficiation process, with crushing and screening steps. Another plant applies both natural moisture and wet processing in distinct lines. This plant is connected to the facilities that receives ore from the Gelado tailings dam. The wet beneficiation process consists of sizing operations, including crushing, screening, hydrocycloning, magnetic concentrator and filtration. Output from this site consists of sinter feed, pellet feed and lump ore.

Serra Leste and Serra Sul applies natural moisture beneficiation process with crushing and screening. Serra Sul and Serra Leste produce only sinter feed.

*Other facilities:* Waste and tailings disposal structures in Serra Norte and Serra Leste and waste disposal structures in Serra Sul.

*Logistics:* Carajás railroad (EFC) transports the iron ore to the Ponta da Madeira maritime terminal in the Brazilian state of Maranhão. Serra Leste iron ore is transported by trucks from the mine site to EFC railroad. The Serra Sul ore is shipped via a 101-kilometer-long railroad spur to the EFC railroad.

*Energy:* Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.

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<sup>(1)</sup> Area with reserves and resources associated.

**SOUTHEASTERN SYSTEM**



Ownership interest	100% of Itabira and Mariana; 98.6% of Minas Centrais (China Baowu Steel Group Corporation Limited indirectly holds 1.4% of Minas Centrais through a 50% ownership of the Morro Agudo mine).
Location	Iron Quadrangle, State of Minas Gerais, Brazil.
Operator	Vale S.A.
Mining complexes	Three mining complexes: - Itabira (two mines, with three major beneficiation plants). - Minas Centrais (two mines, with two major beneficiation plants and one secondary plant). - Mariana (three mines, with three major beneficiation plants).
Mineral titles <sup>(1)</sup>	Mostly mining concessions with no expiration date. Area involved: Itabira: 8,429 ha, Minas Centrais: 5,431 ha and Mariana: 7,760 ha.
Stage/ Operations	All the complexes are in production stage. Itabira has been operating since 1957, Minas Centrais since 1994 and Mariana since 1976.
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations. We are in the process of obtaining or renewing (i) certain environmental permits, including influence area study for caves and dams and (i) waste and tailings storage facilities permit. For information about environmental licensing, particularly with respect to caves, see <i>Information on the Company—Regulatory Matters—Environmental Regulations—Protection of Caves</i> and <i>Information on the Company—Regulatory Matters—Brazilian Regulation of Mining Dams</i> .
Mine types and mineralization styles	Open pit mining operations with high ratios of itabirite ore relative to hematite ore type. Itabirite ore type has iron grade of 35-60%. Part of the ore is concentrated to achieve shipping grade and part is shipped and blended in Asia with the high-grade ore from our Northern System.

Associated facilities and infrastructure

*Processing plants:* We generally process the run of mine by means of standard crushing, classification and concentration steps, producing sinter feed, lump ore and pellet feed in the beneficiation plants located at the mining complexes.

*Other facilities:* Waste and tailings disposal structures in all complexes. Sand treatment and logistic structures at Minas Centrais Complex

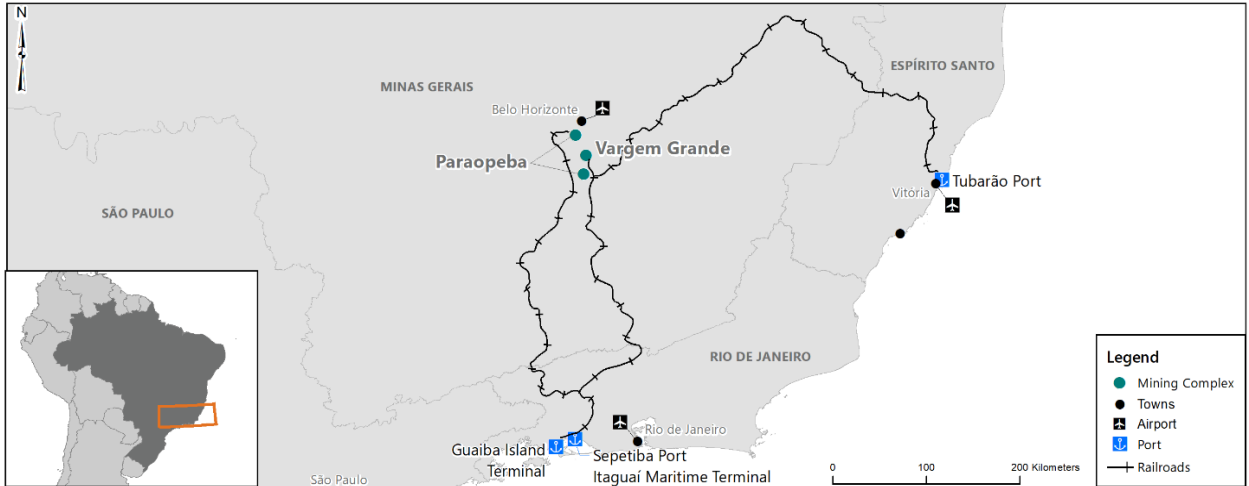
*Logistics:* EFVM railroad connects these mines to the Tubarão port.

*Energy:* Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.

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<sup>(1)</sup> Area with reserves and resources associated.



<b>SOUTHERN SYSTEM</b>	
	
Ownership interest	100%
Location	Iron Quadrangle, State of Minas Gerais, Brazil.
Operator	Vale S.A.
Mining complexes	Two mining complexes: - Vargem Grande (five mines and five major beneficiation plants). - Paraopeba (five mines and three major beneficiation plants).
Mineral titles <sup>(1)</sup>	Mostly mining concessions with no expiration date. Area involved: Vargem Grande: 6,373 ha, Paraopeba: 8,522 ha.
Stage/ Operations	All the complexes are in production stage. Vargem Grande has been operating since 1942 and Paraopeba since 2003.
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations. We are in the process of obtaining or renewing (i) certain environmental permits, including influence area study for caves and dams and (ii) waste and tailings storage facilities permits. For information about environmental licensing, particularly with respect to caves, see <i>Information on the Company—Regulatory Matters—Environmental Regulations—Protection of Caves</i> and <i>Information on the Company—Regulatory Matters—Brazilian Regulation of Mining Dams</i> .
Mine types and mineralization styles	Open pit mining operations with high ratios of itabirite ore relative to hematite ore type. Itabirite ore type has iron grade of 35-60%. Part of the ore is concentrated to achieve shipping grade and part is shipped and blended in Asia with the high-grade ore from our Northern System.

Associated facilities and infrastructure

*Processing plants:* We generally process the run of mine by means of standard crushing, classification and concentration steps, producing sinter feed, lump ore and pellet feed in the beneficiation plants located at the mining complexes.

*Other facilities:* Waste and tailings disposal structures in all complexes.

*Logistics:* MRS transports our iron ore products from the mines to our Guaíba Island and Itaguaí maritime terminals in the Brazilian state of Rio de Janeiro. EFVM railroad connects certain mines to the Tubarão port in the state of Espírito Santo.

*Energy:* Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.

<sup>(1)</sup> Area with reserves and resources associated.

### 1.1.2 Iron ore production

The following table sets forth information about our iron ore production.

Mine/Plant	Type	Production for the year ended December 31, (million metric tons)			Process recovery 2024 <sup>(2)</sup> (%)
		2024 <sup>(1)</sup>	2023 <sup>(1)</sup>	2022 <sup>(1)</sup>	
<b>Southeastern System</b>					
Itabira	Open pit	32.8	31.2	27.3	55.6
Minas Centrais <sup>(3)</sup>	Open pit	27.9	24.7	20.8	80.4
Mariana	Open pit	26.2	26.5	24.6	65.6
Southeastern System – total		86.9	82.3	72.7	65.4
<b>Southern System</b>					
Vargem Grande	Open pit	37.4	37.1	33.5	73.3
Paraopeba	Open pit	25.8	28.7	30.1	83.0
Southern System – total		63.3	65.8	63.6	76.0
<b>Northern System</b>					
Serra Norte	Open pit	88.2	91.7	96.3	98.0
Serra Leste	Open pit	6.4	6.3	6.0	100.0
Serra Sul	Open pit	83.0	75.0	69.3	100.0
Northern System - total		177.5	173.0	171.6	99.0
<b>Total</b>		<b>327.7</b>	<b>321.2</b>	<b>307.9</b>	<b>85.2</b>

<sup>(1)</sup> Production figures include third-party ore purchases, run of mine and feed for pelletizing plants.

<sup>(2)</sup> Percentage of the run-of-mine recovered in the beneficiation process. Process recovery figures do not include third-party ore purchases.

<sup>(3)</sup> These figures correspond to 100% production and are not adjusted to reflect our 50% ownership of Morro Agudo mine.

### 1.1.3 Individual property disclosure

We consider Serra Norte and Serra Sul Complexes to be material properties, for purposes of Item 1300 of Regulation S-K (S-K 1300).

There have been no material changes in the reported reserves or resources or in the material assumptions and information since the last technical report summary filed for Serra Norte and Serra Sul.

1.1.3.1 Serra Norte

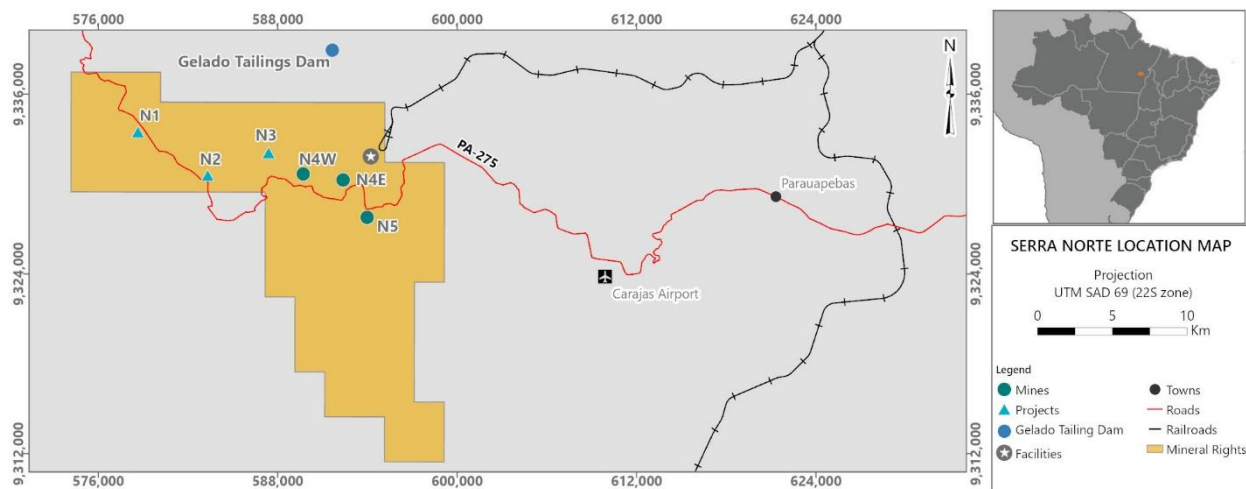
Property Description

The Serra Norte mining complex is a production stage property, part of our Northern System, located in the municipality of Parauapebas, state of Pará, in the North region of Brazil. The property consists of five orebodies (N1, N2, N3, N4, and N5) and has the approximate coordinates 587,140E, 9,331,790N using the UTM SAD 69 (Universal Transverse Mercator – South American Datum 1969) coordinate system. Central mass point coordinates of the Serra Norte mines are presented below:

Serra Norte mines central coordinates UTM South American Datum (SAD69)

Mine	Status	UTM E	UTM N
N4	Operating	590,140	9,329,567
N5	Operating	596,410	9,328,668
N1	Non-operating	579,891	9,333,075
N2	Non-operating	583,351	9,330,472
N3	Non-operating	587,140	9,331,790
Gelado Tailings Dam	Operating	591,584	9,338,906

The property can be accessed via regular flights between the Carajás village and the cities of Marabá, Belém, Belo Horizonte, and Brasília, as well as paved highways PA-275, PA-150, and PA-70. There is also a railroad linking Carajás with the Ponta da Madeira port, in the city of São Luis.



Infrastructure

Various services are available approximately 50 km east of the complex in Parauapebas (population 213,576, estimated 2020). A greater range of general services is available at the state capital of Belem, located approximately 770 km to the northeast. Electric power is provided through Brazil’s national electricity production and transmission system. Dewatering boreholes provide a source of water that is used for dust control, washing floors and equipment. An on-site treatment plant treats borehole water for potable use. Process makeup water is sourced from the Gelado and Pera dams. Infrastructure at the complex includes a tailings storage facility, three processing plants, ore stockpiles, waste rock dumps, maintenance workshops, an assay laboratory, administration offices, and a clinic. Personnel reside mainly in the urban center of Carajás and the city of Parauapebas.

Geology and Mineralization

The main Carajás iron ore deposits are associated with flat-topped elevated plateaus, defined along two main morphological alignments corresponding to Serra Norte and Serra Sul. These alignments form the flanks of the Carajás Syncline structure. The Serra Norte complex corresponds to the inverted flank of the Carajás Syncline. Mineralization occurs mainly as a product of supergenic enrichment, developed over jaspilites (BIF – Banded Iron Formation – interlayered with basalts), generating a high-grade ore composed of friable hematite, compact hematite, and

manganiferous hematite. The main structural controls are faults and folds that favored the BIFs thickening of the levels of jaspilite, by duplication and the efficiency of supergenic processes through the tilting and fracturing of these rocks. The mineralization also includes tailings deposited in the Gelado dam.

### *Exploration*

Exploration has occurred in the property since the late 1960s and includes geological mapping, drilling, ore control field sampling and geophysics. We continually invest in mineral exploration with the aim of expanding our mineral resources and mineral reserves and achieve an adequate level of confidence in the resource estimate that supports our mining plans.

### *Mineral rights*

We have a mining concession for Serra Norte operations, under Brazilian national mining agency (*Agência Nacional de Mineração – ANM*) Mineral Right number 813.682/1969, that covers an area of 30,000.00 ha, with no expiration date. This mineral right is part of a group of permits referred to as “Grupamento Mineiro” (number 852.145/1976), which includes mining concessions from the Carajás region, such as mining concessions of operations of Serra Sul and Serra Leste. For Gelado Tailings Dam mine operation the Economic Evaluation Plan (PAE) was approved by the National Mining Agency - ANM.

### *Surface rights*

Surface rights are independent of mineral rights in Brazil. Serra Norte is located entirely within the National Forest of Carajás and Gelado Tailings Dam is located within National Forest of Carajás and Igarapé Gelado Environmental Protection, both of which belong to the Federal Government. We have the required licenses and authorizations from the Brazilian Institute of Environment and Renewable Natural Resources (IBAMA) and the Chico Mendes Institute for Biodiversity Conservation (ICMbio) to operate in these areas. There are no associated payments related to surface rights.

### *Current, planned, future mining plans*

Mining at Serra Norte is by traditional open-pit mining methods. Ore is hauled by off-road trucks to strategically positioned primary crushing facilities, and waste is hauled to waste dumps. A dredge method operation has started at the Gelado tailings dam to recover high-grade iron. Plant 1 has a mixed beneficiation process (55% wet process and 45% natural moisture processing) while Plants 2 and 3 have a 100% natural moisture processing. The wet process of Plant 1 consists of the stages of crushing, screening, classification, magnetic concentration, thickening, and filtration, while the natural moisture processing of all plants consists only of the stages of screening and crushing. The installed capacities are 85.0 Mtpy for Plant 1, 40 Mtpy for Plant 2, and 20 Mtpy for Plant 3. An additional plant with an installed capacity of 14 Mtpy was designed for processing the tailings from Gelado dam. The material, after being dredged, is thickened and pumped to the wet circuit of Plant 1.

The current life of mine plan runs from 2025 through 2045. The mine plan involves opening new mining areas for extraction at the N1, N2, and N3 orebodies. Additionally, Plant 1 is undergoing a conversion to a 100% dry processing, which is expected to be completed between 2026 and 2027.

### *Asset details and modernization*

Serra Norte mines have been operating since 1984 and being expanded laterally and in depth, with simultaneous mining of more mineral bodies. Consequently, the average haulage distance is increasing. Crushers were implemented for the run of mine (ROM) in the pits with conveyor belts, to reduce the haulage distance. We have plans to install new crushers with the same goal. In 2021, we began using 14 autonomous trucks, with plans to expand this fleet starting in 2026. Also, there are projects under study for the implementation of semi-mobile crushers with conveyor belts for the waste. In regions where is a needed vibration control in rock blasting, surface miners are used.

### *Total property book value*

The book value of the Serra Norte mining complex and its associated plant and equipment was US\$2,645 million as of December 31, 2024, not including shared infrastructure assets such as ports and railways.

*Operator History*

The Carajás Complex has undergone exploration work since 1922. In July 1967, United States Steel began an exploration program in the region to search for manganese deposits, resulting in the first field surveys of the Serra Norte (N1, N2, N3, N4, and N5 locations) as well as the nearby Serra Sul. Exploration and evaluation activities continued, and in 1977 we acquired a shareholding in United States Steel (USS) and took over work on the project. Construction began in 1979, with operations at the N4E mine commencing in 1984. Production at the N4W mine began in 1994.

*Encumbrances and permitting requirements*

We hold an environmental operating license for the property that was valid through March 27, 2021 and is currently being renewed. According to Brazilian legislation we can continue to operate during the renewal process, until there is a decision from the licensing agency (in this case, IBAMA).

*Mineral resources*

For a discussion of the changes from the previous fiscal year, see Information on the Company—Reserves and Resources. We do not consider this change to be material. All disclosure of mineral resources is exclusive of mineral reserves.

Serra Norte - Summary of Iron Ore Mineral Resources as of December 31, 2024 <sup>(1)(2)(6)</sup>						
Category	2024 <sup>(3)</sup>		2023 <sup>(3)</sup>		Cut-off grade	Metallurgical recovery <sup>(5)</sup>
	Tonnage	Grade	Tonnage	Grade		
Measured	694.3	66.6	549.8	66.6	N/A <sup>(4)</sup>	97.3%
Indicated	598.6	66.1	367.1	66.4		
Measured + Indicated	1,292.8	66.4	916.9	66.5		
Inferred	425.3	66.4	282.7	66.2		

<sup>(1)</sup> The mineral resource prospects of economic extraction were determined based on a long-term price of US\$100/dmt for 62% iron grade.

<sup>(2)</sup> Resources reported on an 100% basis, as operations are entirely owned by us.

<sup>(3)</sup> Tonnage stated as metric million tons inclusive of 6.97% of moisture content and dry %Fe grade except for the ore from Gelado tailings dam, which is on a dry basis. The point of reference used is in situ tons except for Gelado tailings dam.

<sup>(4)</sup> The economic cut-off grade was not applied, as it is lower than the values estimated in the mineralized portion of the block model.

<sup>(5)</sup> Metallurgical recovery for in-situ material is 100% and for Gelado tailings material is approximately 50%. The Gelado tailings dam tonnage represents 5.4% of Serra Norte mineral resources.

<sup>(6)</sup> Numbers have been rounded.

*Mineral reserves*

For a discussion of the changes from the previous fiscal year, see Information on the Company—Reserves and Resources. We do not consider the current change as material. All disclosure of mineral resources is exclusive of mineral reserves.

Serra Norte – Summary of Iron Mineral Reserves as of December 31, 2024 <sup>(1)(2)(6)</sup>						
Category	2024 <sup>(3)</sup>		2023 <sup>(3)</sup>		Cut-off grade	Metallurgical recovery <sup>(5)</sup>
	Tonnage	Grade	Tonnage	Grade		
Proven	292.4	65.4	408.9	65.4	N/A <sup>(4)</sup>	96.7%
Probable	1,275.5	64.7	1,137.6	64.8		
<b>Total</b>	<b>1,567.9</b>	<b>64.8</b>	<b>1,546.5</b>	<b>64.9</b>		

<sup>(1)</sup> The mineral reserve economic viability was determined based price curve with the long-term price being US\$83.2/dmt for 62% iron grade.

<sup>(2)</sup> The reserves reported on an 100% basis, as operations are entirely owned by us.

<sup>(3)</sup> Tonnage stated as metric million tons inclusive of 7.09% of moisture content and dry %Fe grade except for Gelado tailings dam material, which is on a dry basis. The point of reference used is *in situ* metric tons except for Gelado tailings dam.

<sup>(4)</sup> The economic cut-off grade was not applied, as it is lower than the values estimated in the mineralized portion of the block.

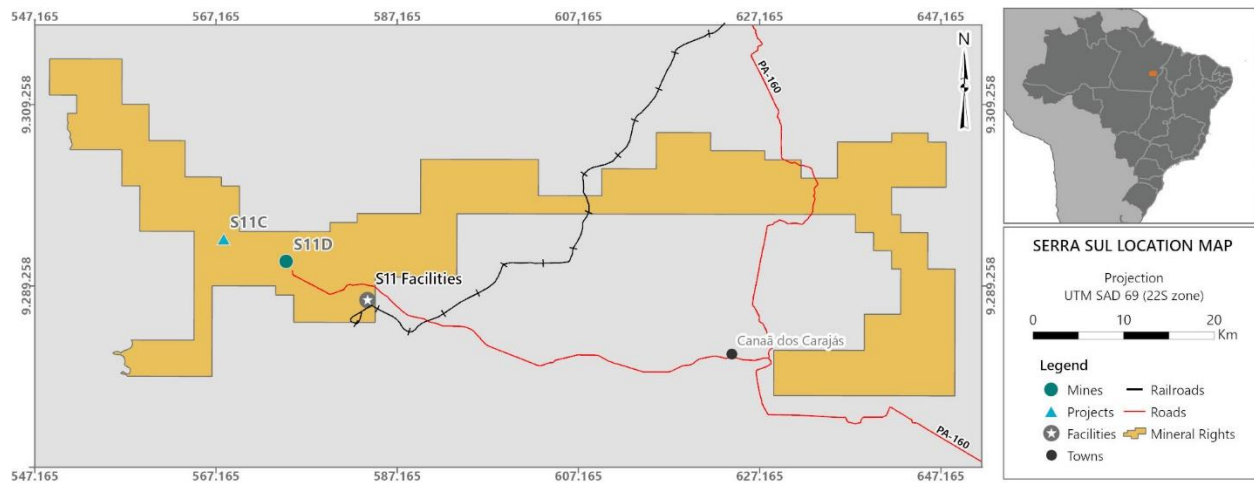
<sup>(5)</sup> Metallurgical recovery for *in-situ* material is 99.4% and for Gelado tailings dam material is approximately 50%. The Gelado tailings dam tonnage represents 6.3% of Serra Norte mineral reserves.

<sup>(6)</sup> Numbers have been rounded.

### 1.1.3.2 Serra Sul

#### Property Description

Serra Sul mining complex is a production stage property, part of our Northern System, located in the municipality of Canaã dos Carajás, state of Pará, North region of Brazil at coordinates 574,671 E, 9,291,735 N using the SAD69. The property consists of orebody S11, subdivided on A, B, C, and D. Current production activities are in the S11D mine and the mineral reserves and mineral resources are defined only for the orebodies C and D. Access to the property is from Carajás airport towards Canaã dos Carajás via state roads PA-275 and PA-160, covering 83 km. Production ore is transported via railway of the southeast of Pará where it connects to the Carajás Railroad and the Ponta da Madeira port terminal in São Luís in the State of Maranhão.



#### Infrastructure

The nearest city to the mine complex is Canaã dos Carajás (with a population of 77,079, as estimated in 2022). Electric power is provided to the mines through Brazil's national electricity production and transmission system. Water is sourced from permitted dewatering wells and water catchments across the site and is used for industrial and domestic purposes. Infrastructure at the complex includes the open pit mine, waste dumps, processing plant, a complete maintenance workshop facility, an assay and quality control laboratory, offices, and an ambulatory. As the plant is a 100% dry processing, a tailings storage facility is not necessary for Serra Sul. Personnel reside mainly in the urban center of Canaã dos Carajás.

#### Geology and Mineralization

The main Carajás iron ore deposits are associated with flat-topped elevated plateaus, defined along two main morphological alignments corresponding to Serra Norte and Serra Sul. These alignments form the flanks of the Carajás Syncline structure. The Serra Sul complex corresponds to the normal flank domain of the Carajás Syncline. Mineralization at Serra Sul is mainly formed from alteration on supergenic enrichment over jaspilites (BIF – Banded Iron Formation – interlayered with basalts), generating a high-grade ore composed of friable hematite, compact hematite, and manganiferous hematite which occur in a sub-horizontal tabular layer. The main structural controls are folds and faults that are responsible for the BIF thickening of the levels of jaspilite, by duplication and the efficiency of supergenic processes through the tilting and fracturing of these rocks.

#### Exploration

Exploration has occurred in the property since the late 1960s and includes geological mapping, drilling, ore control field sampling and geophysics. We continually invest in mineral exploration with the aim of expanding our mineral resources and mineral reserves and achieve an adequate level of confidence in the resource estimate that supports our mining plans.

*Mineral Rights*

We have a mining concession for Serra Sul operations, under ANM Mineral Right number 813.684/1969, that covers an area of 98,910.42 ha. This mineral right is part of a group of permits referred to as “Grupamento Mineiro” (number 852.145/1976), which includes mining concessions from the Carajás region, such as mining concessions of operations of Serra Norte and Serra Leste. In 2021, we decided to relinquish all our mineral rights in Indigenous Lands in Brazil. For this purpose, we filed application for area reduction with respect to the mineral right number 813.684/1969, reducing its area from 100,000.00 ha to 98,910.42 ha. This area reduction will become effective upon publication of ANM approval in the Official Gazette.

*Surface Rights*

Surface rights are independent of mineral rights in Brazil. We own the relevant properties or have easements to conduct our operations in Serra Sul.

*Current, planned, future mining plans*

Mining at Serra Sul is by operated open pit mining. There are four mobile crushing systems working in conjunction with conveyor belts that move along the benches as the mining face advances in favorable zones. Where belt systems are not feasible, the mine uses traditional truck-shovel methods for extraction of ore and waste (sterile). The mine and processing plant at Serra Sul has a nominal annual capacity of 90 Mtpy. We are currently working on projects to increase this capacity to 120 Mtpy. Additional mining areas are being assessed at Serra Sul to maintain and expand the complex’s production capacity.

*Asset details and modernization*

The S11 mine has been operating since 2016 and since the project was conceived there was a premise of having a minimal environmental impact on virgin forest areas. The dump (waste) piles are also located outside the forest area and have a spreader system for waste disposal. A robust equipment and infrastructure replacement program ensures that equipment manufacturer recommendations for life of asset are followed, and key parts replaced or replaced when required. When the useful life of equipment is done, we plan and invest in upgraded equipment.

*Total property book value*

The book value of the Serra Sul mining complex and its associated plant and equipment was US\$3,743 million as of December 31, 2024, not including shared infrastructure assets such as ports and railways.

*Operator history*

The geological surveys in Serra dos Carajás, where the North System is located, began in 1922, but the first citations on the occurrence of iron formations date back to 1933. In July 1967, United States Steel began an exploration program in the region to search for manganese deposits, resulting in the first field surveys of Serra Sul as well as the nearby Serra Norte. Exploration and evaluation activities continued, and in 1977 we acquired a shareholding United States Steel and took over work on the project. In 1979, the construction of the complex, integrating the mine, railroad, and port of the Carajás Iron Project (North System) began and after 6 years, the São Luís – Carajás railroad was completed. Iron ore production began in 1984 in Serra Norte complex while Serra Sul complex started the mine operation in 2016.

*Encumbrances and permitting requirements*

We hold an operating license for mining, expansions, processing, and infrastructure. The operating license is valid through December 9, 2026.

*Mineral resources*

For a discussion of the changes from the previous fiscal year, see *Information on the Company—Reserves and Resources*. All disclosure of mineral resources is exclusive of mineral reserves.

<b>Serra Sul – Summary of Iron Ore Mineral Resources as of December 31, 2024</b> <sup>(1)(2)(5)</sup>						
<b>Category</b>	<b>2024<sup>(3)</sup></b>		<b>2023<sup>(3)</sup></b>		<b>Cut-off grade</b>	<b>Metallurgical recovery</b>
	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>		
Measured	516.2	66.1	542.5	66.1	N/A <sup>(4)</sup>	100%



## LINE OF BUSINESS

Indicated	380.9	64.8	407.0	64.8		
Measured + Indicated	897.1	65.6	949.6	65.5		
Inferred	115.6	64.6	123.7	64.6		

(1) The mineral resource prospects of economic extraction were determined based on a long-term price of US\$100/dmt for 62% iron grade.

(2) The resources reported on an 100% basis, as operations are entirely owned by us.

(3) Tonnage stated as metric million tons inclusive of 6.74% of moisture content and dry %Fe grade. The point of reference used is *in situ* metric tons.

(4) The economic cut-off grade was not applied, as it is lower than the values estimated in the mineralized portion of the block model.

(5) Numbers have been rounded.

### Mineral reserves

For a discussion of the changes from the previous fiscal year, see *Information on the Company—Reserves and Resources*.

Serra Sul - Summary of Iron Ore Mineral Reserves as of December 31, 2024 <sup>(1)(2)(5)</sup>						
Category	2024 <sup>(3)</sup>		2023 <sup>(3)</sup>		Cut-off grade	Metallurgical recovery
	Tonnage	Grade	Tonnage	Grade		
Proven	1,401.6	65.8	1,506.6	65.7	N/A <sup>(4)</sup>	100%
Probable	2,000.0	65.2	1,924.3	65.2		
<b>Total</b>	<b>3,401.6</b>	<b>65.4</b>	<b>3,430.9</b>	<b>65.4</b>		

(1) The mineral reserve economic viability was determined based price curve with the long-term price being US\$83.2/dmt for 62% iron grade.

(2) The reserves reported on an 100% basis, as operations are entirely owned by us.

(3) Tonnage stated as metric million tons inclusive of 6.78% of moisture content and dry %Fe grade. The point of reference used is *in situ* metric tons.

(4) The economic cut-off grade was not applied, as it is lower than the values estimated in the mineralized portion of the block model.

(5) Numbers have been rounded.

### 1.1.4 Iron ore agglomerate operations

#### 1.1.4.1 Iron ore pellets operations

We produce iron ore pellets in Brazil and Oman, directly and through joint ventures, as set forth in the table below. Our total estimated nominal capacity is 54.8 Mtpy, including the full capacity of our pelletizing plants in Oman, our joint ventures and Tubarão, but not including the capacity of plants owned by our joint venture Samarco.

#### IRON ORE PELLETS OPERATIONS



TUBARÃO

FÁBRICA

VAGEM GRANDE

SÃO LUIS

## LINE OF BUSINESS

<b>Ownership interest<sup>(1)</sup></b>	- Vale Tubarão VIII (100% owned by Vale) - Itabasco (50.9% owned by Vale) - Hispanobras (50.89% owned by Vale) - Kobrasco (50% owned by Vale) - Two Nibrasco plants (51% owned by Vale)	100% owned by Vale	100% owned by Vale	100% owned by Vale
<b>Location</b>	State of Espírito Santo, Brazil	State of Minas Gerais, Brazil	State of Minas Gerais, Brazil	State of Maranhão, Brazil
<b>Operator</b>	Vale S.A.	Vale S.A.	Vale S.A.	Vale S.A.
<b>Capacity (Mtpy)</b>	31.3 <sup>(2)</sup>	4.5	7.0	7.5
<b>Operations</b>	One wholly owned pellet plant (Tubarão VIII) and five leased plants (Itabasco, Hispanobras, Kobrasco and two Nibrasco plants). These plants receive iron ore primarily from our Southeastern System mines.	Part of the Southern System. Receives iron ore from the Paraopeba complex and purchases from third parties. Since February 2019, Fabrica operations are suspended.	Part of the Southern System. Receives iron ore from the Vargem Grande complex.	Part of the Northern System. Receives iron ore from the Carajás mines.
<b>Energy</b>	Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.	Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.	Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.	Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.
<b>Logistics</b>	Production is shipped to customers through our Tubarão maritime terminal.	Production is mostly transported by MRS and EFVM.	Production is mostly transported by MRS.	Production is shipped to customers through our Ponta da Madeira maritime terminal.

<sup>(1)</sup> The operating lease for the Hispanobras pellet plant expires in December 2025, for the Itabasco pellet plant in June 2026, for the Nibrasco pellet plant in December 2028, and for the Kobrasco pellet plants in August 2033.

<sup>(2)</sup> Our environmental operating licenses for the Tubarão pellet plants provide for a capacity of 36.2 Mtpy.

OMAN



VALE OMAN PELLETIZING COMPANY LLC (VOPC)	
Ownership interest	100% stake
Location	Sohar, Oman
Operator	Vale S.A.
Capacity (Mtpy)	9.0
Operations	Our industrial complex comprises two pellet plants with total nominal capacity of 9.0 Mtpy. The pelletizing plant is integrated with our distribution center that has a nominal capacity of 40.0 Mtpy. The Oman plant is supplied by iron ore from the Iron Quadrangle state of Minas Gerais through the Tubarão port and by iron ore from Carajás through the Ponta da Madeira maritime terminal.

### 1.1.4.2 Iron ore pellets production

The following table sets forth information about our main iron ore pellet production.

Operator	Production for the year ended December 31, (million metric tons)		
	2024	2023	2022
Blast Furnace Pellets	18.9	19.4	16.7
Direct Reduction Pellets	18.0	17.1	15.4
<b>Total<sup>(1)</sup></b>	<b>36.9</b>	<b>36.5</b>	<b>32.1</b>

<sup>(1)</sup> These figures correspond to 100% production from our pellet plants in Oman and in Tubarão and the four pellet plants we lease in Brazil and are not adjusted to reflect our ownership.

### 1.1.4.3 Iron ore briquette operations

We are reshaping our agglomerates portfolio with a focus on low-carbon solutions for the steelmaking sector. In December 2023, we launched our first industrial briquette plant with a 2 Mtpy capacity in Tubarão, and in September 2024 we started the operation of a mobile briquetting plant, with a R&D purpose and a of 0,2 Kty capacity in the same location. The second plant with a 4 Mtpy capacity is forecasted to the fourth quarter of 2025. These plants will enable us to expand our testing and run longer validation programs with our clients for blast furnace briquettes. Our goal is to deliver 60 to 70 Mtpy of agglomerate products (i.e., iron ore pellets and iron ore briquettes) by 2030.

### 1.1.5 Iron ore strategy

Our key priorities for Iron Solutions are to recover production and operational flexibility, build sustainable solutions and optimize our product portfolio by increasing the supply of high-quality products:

### *Recovering production and operational flexibility*

Our goal is to achieve an overall production ranging from 340 to 360 Mtpy by 2026. In the Northern System, our plan is to increase high-quality volumes in with new low-cost assets, ramping up and opening new mining fronts and enhancing assets performance. In the Southeastern System, we are developing solutions to increase our pellet feed production, developing tailings filtration facilities and dry stacking.

Another key goal is to increase our flexibility by creating capacity buffers across the operations. We are pursuing it through initiatives that include: (i) expanding Northern System through opening new mining fronts and obtaining new licenses, such as the S11D+20 project, (ii) developing the Capanema project in Southeastern System, which was commissioned in 2024, (iii) unlocking capacity in Vargem Grande complex and (iv) developing other projects.

### *Building sustainable solutions*

We continue to invest in solutions to reduce our reliance on new dams and dam raisings. In 2024, we reached an approximate 67% share of dry processing production compared to 40% in 2014. Once we reach 360 Mtpy in capacity and complete the implementation of other related projects, including the production increase in the Capanema project start-up, and dry concentration facilities, we expect to have only approximately 15% of our production based on tailings disposal in dams build in a single step or raised by center line or downstream method.

In order to treat the tailings from wet processing, we are investing in tailings filtration systems to allow the reduction of disposal of tailings in dams and also to operate certain mines and plants without using tailings dams. We have announced an estimated investment of US\$2,214 million between 2018 and 2033 in some of our sites, including Vargem Grande Complex, Itabira Complex and Brucutu, to be operated with tailings filtration systems and dry stacking tailings disposal, which consists of filtering and stacking of partially dewatered tailings, reducing our reliance on tailings dams. In 2023, we invested US\$144 million in tailings filtration system and dry stacking tailings disposal, and we started the operation of the Itabira Complex (Cauê and Conceição) and Brucutu filtration plants, the second and third of four plants under construction in Minas Gerais.

We announced the development of a commercial quality sand for civil construction applications – a sustainable alternative for the construction industry. These efforts are the result of seven years of research and approximately R\$50 million in investments. In 2021, we announced the development of a commercial-grade sand for civil construction applications – a sustainable alternative for the industry. In 2023, we created Agera, a subsidiary to develop and expand our sustainable sand business. We process and commercialize the sand produced from tailings resulting from our iron ore operations in the state of Minas Gerais. This product, began production in 2021 after seven years of research, serves as a substitute for naturally extracted sand. Since its inception, approximately 1.9 million tons have been supplied to the civil construction sector and road paving projects.

### *Optimizing product portfolio by increasing the supply of higher-quality products and developing innovative solutions for the decarbonization of steel industry*

In the iron ore business, we will continue to promote the Brazilian Blend Fines (BRBF), a standard product with silica (SiO<sub>2</sub>) content limited to 5% and lower alumina (1.5%), which offers strong performance in any kind of sintering operation. We produce BRBF by blending fines from Carajás ores and Southern and Southeastern ores, which are complementary ores for our blending strategy. BRBF is produced in our Teluk Rubiah Maritime Terminal in Malaysia and in sixteen 16 ports in China. This process reduces the time needed to reach Asian markets and increases our distribution capillarity by allowing the use of smaller vessels. Our blending strategy also enables the use of iron ore with lower iron content from the Southern and Southeastern Systems, allowing more efficient mining plans and increasing the use of dry processing methods, which in turn reduce capital expenditures, extend the life of our mines, reduce use of dams, and reduce water consumption by our operations: a key flexibility to cope with the short-term challenges.

We continue to improve our portfolio to provide our customers with solutions and to adapt to potential market demands. Steel demand will grow steadily over the years based on emerging regions and current megatrends. Decarbonization will create market segmentation with increased appetite for high quality products that can deliver lower CO<sub>2</sub> emissions. Our strategy aims to accelerate the implementation of breakthrough Iron Solutions to attend more stringent demand of steelmakers. As development progresses, an optimized portfolio focused on improving quality and gradually recovering capacity will be achieved. Our goal is to increase the production of agglomerated products – briquettes and pellets – securing the supply of high-grade products to the market. The iron ore briquettes

are part of our Iron Solutions portfolio, result of a breakthrough technology developed in-house over 18 years of research and patented by us. Our iron ore briquettes are low temperature, low CO<sub>2</sub> agglomerated alternative to lump, pellets and sinter. They can provide a reduction of up to 10% of greenhouse gases emissions in the steel industry production chain, while the low temperature (approximately 250°C) required in its production process allows for up to 80% less CO<sub>2</sub> emissions when compared to traditional agglomeration routes (approximately 1300°C). The briquette had its performance proven by several industrial trials conducted since 2019 in different clients, delivering excellent results. It also connects with circular economy, as the binder production can use sand from our mining tailings as a raw material.

### **1.1.6 Customers, sales and marketing**

Iron ore demand is primarily driven by steel production. China, as the world's largest steel producer, significantly influences this demand. There are several types of tradeable iron ore products such as lump, fines, iron ore concentrates, pellets and briquettes. Each product differs in iron content, impurities levels, moisture and physical properties.

We supply all of our iron ore and iron ore pellets to the steel industry. Prevailing and expected levels of demand for steel products affect demand for our iron ore and iron ore pellets. Demand for steel products is influenced by many factors, such as global manufacturing production, civil construction and infrastructure spending. For further information about demand and prices, see *Operating and Financial Review and Prospects—Overview—Major Factors Affecting Prices*.

In 2024, China accounted for 62.4% of our iron ore and iron ore pellet shipments, and Asia as a whole accounted for 77.6%, Brazil accounted for 11.3%, Europe accounted for 4.7%, followed by the Middle East with 2.2% and others with 2.8%. Our ten largest customers collectively purchased 131.3 million metric tons of iron ore and iron ore pellets from us, representing 42.8% of our 2024 iron ore and iron ore pellet sales volumes and 41.7% of our total iron ore and iron ore pellet revenues. In 2024, no customer individually represented 10% or more of our revenue. In 2023, one customer individually represented 10% of our revenue. In 2022, no customer individually represented 10% or more of our revenue.

Of our 2024 pellet production, 51% was blast furnace pellets and 49% was direct reduction pellets. Blast furnace and direct reduction are different technologies employed by steel mills to produce steel, each using different types of pellets. In 2024, the Brazilian markets and the Asian market (mainly China and Japan) were the primary markets for our blast furnace pellets, while the Middle East and North America were the primary markets for our direct reduction pellets.

We invest in customer service in order to improve our competitiveness. We work with our customers to understand their objectives and to provide them with Iron Solutions to meet specific customer needs. Using our expertise in mining, agglomeration and iron-making processes, we search for technical solutions that will balance the best use of our world-class mining assets and the satisfaction of our customers. We believe that our ability to provide customers with a total Iron Solutions and the quality of our products are both very important advantages helping us improve our competitiveness in relation to competitors that may be more conveniently located geographically. In addition to offering technical assistance to our customers, we have offices in St. Prex (Switzerland), Tokyo (Japan), Singapore, Dubai (UAE), Shanghai, Beijing and Qingdao (China), which support global sales by Vale International. These offices also allow us to stay in close contact with our customers, monitor their requirements and our contract performance, and ensure that our customers receive timely deliveries.

We sell iron ore and iron ore pellets under different arrangements, including long-term contracts with customers and on a spot basis through tenders and trading platforms. Our pricing is generally linked to market price indexes and uses a variety of mechanisms, including current spot prices and average prices over specified periods. In cases where the products are priced before the final price is determinable at delivery, we recognize the sale based on a provisional price with a subsequent adjustment reflecting the final price.

In 2024, we hedged part of our total exposure of 2024 and 2025 to bunker oil prices relating to our shipping requirements connected to our FOB and CFR international and domestic sales.

### **1.1.7 Competition**

The global iron ore and iron ore pellet markets are highly competitive. The main factors affecting competition are price, quality and range of products offered, reliability, operating costs and shipping costs.

**Asia.** Our main competitors in the Asian market are located in Australia and include subsidiaries and affiliates of BHP Group Limited (BHP), Rio Tinto Ltd (Rio Tinto) and Fortescue Metals Group Ltd.

- We are competitive in the Asian market for two main reasons. (1) First, steel companies generally seek to obtain the types (or blends) of iron ore and iron ore pellets that can produce the intended final product in the most economic and efficient manner. Our iron ore has low impurity levels and other properties that generally lead to lower processing costs. For example, in addition to its high-grade, the alumina content of our iron ore is very low compared to Australian ores, reducing consumption of coke and increasing productivity in blast furnaces, which is particularly important during periods of high demand and environmental restrictions. When market demand is strong, our quality differential generally becomes more valuable to customers. (2) Second, steel companies often develop sales relationships based on a reliable supply of a specific mix of iron ore and iron ore pellets. Our ownership and operation of logistics facilities in the Northern and Southeastern Systems help us ensure that our products are delivered on time and at a relatively low cost.
- We rely on long-term contracts of affreightment to secure transport capacity and enhance our ability to offer our products in the Asian market at competitive prices on a CFR basis, despite higher freight costs compared to Australian producers.
- To support our commercial strategy for our iron ore business, we operate two distribution centers, one in Malaysia and one in Oman and we have long-term agreements with 20 ports in China, which also serve as distribution centers.
- In 2015, we launched the Brazilian blend fines (BRBF), a product resulting from blending fines from Carajás, which contain a higher concentration of iron and a lower concentration of silica in the ore, with fines from the Southern and Southeastern Systems, which contain a lower concentration of iron in the ore. In August 2018, Metal Bulletin launched a new index, the 62% Fe low-alumina index, which is based on our BRBF. During 2024, the 62% Fe low-alumina index traded with a premium of US\$0.65 per dmt over the 62% Fe index. The resulting blend offers strong performance in any kind of sintering operation. It is produced in our Teluk Rubiah Maritime Terminal in Malaysia and in the 20 distribution centers in China, which reduces the time to reach Asian markets and increases our distribution capillarity.

**Europe.** Our main competitors in the European market are Luossavaara Kiirunavaara AB (LKAB), ArcelorMittal Mines Canada Inc., Iron Ore Company of Canada, a subsidiary of Rio Tinto, Kumba Iron Ore Limited and Société Nationale Industrielle et Minière. We are competitive in the European market for the same reasons as in Asia, and due to the proximity of our port facilities to European customers.

**Brazil.** The Brazilian iron ore market is also competitive and includes several small iron ore producers. Some steel companies, including Gerdau S.A., Companhia Siderúrgica Nacional, Vallourec Tubos do Brasil S.A., Usiminas and Arcelor-Mittal, also have iron ore mining operations. Although pricing is relevant, quality and reliability are important competitive factors as well. We believe that our integrated transportation systems, high quality ore and technical services make us a strong competitor in the Brazilian market. With respect to pellets, our major competitors are LKAB, Iron Ore Company of Canada, Ferrexpo Plc, Arcelor-Mittal Mines Canada, Samarco and Bahrain Steel.

## 1.2 *Logistics and energy assets to support Iron Solutions operations*

### 1.2.1 *Railroads*

**Vitória a Minas railroad (*Estrada de Ferro Vitória a Minas - EFVM*).** EFVM railroad links our Southeastern System mines in the Iron Quadrangle region in the Brazilian state of Minas Gerais to the Tubarão port, in Vitória, in the Brazilian state of Espírito Santo.

- We operate this 905-kilometer railroad under a concession agreement, which was recently renewed and will expire in 2057.
- The EFVM railroad consists of two lines of track extending for 584 kilometers to permit continuous railroad travel in opposite directions, and single-track branches of 304 kilometers. Industrial manufacturers are in this area and major agricultural regions are also accessible to it.
- VLI S.A. (VLI) has rights to purchase railroad transportation capacity on our EFVM railroad.
- In 2024, the EFVM railroad transported 88.5 thousand metric tons of iron ore and 18.9 thousand metric tons of other cargo. The EFVM railroad also carried 845 thousand passengers in 2024. In 2024, we had a fleet of 317 locomotives and 15,119 wagons at EFVM, which were operated by us and third parties.

**Carajás railroad (*Estrada de Ferro Carajás - EFC*).** EFC railroad links our Northern System mines in the Carajás region in the Brazilian state of Pará to the Ponta da Madeira maritime terminal, in São Luis, in the Brazilian state of Maranhão.

- We operate the EFC railroad under a concession agreement, which was recently renewed and will expire in 2057. EFC extends for 892 kilometers from our Carajás mines to our Ponta da Madeira maritime terminal complex facilities. Its main cargo is iron ore, principally carried for us.
- VLI has rights to purchase railroad transportation capacity on our EFC railroad.
- In 2024, the EFC railroad transported 178,433 thousand metric tons of iron ore and 16,626 thousand metric tons of other cargo. EFC also carried 423 thousand passengers in 2024. EFC supports the largest train, in terms of capacity, in Latin America, which measures approximately 3.4 kilometers, weighs approximately 34.6 thousand gross metric tons when loaded and has 330 cars. In 2024, EFC had a fleet of 296 locomotives and 21,739 wagons, which were operated by us and third parties.

In December 2024, we established with the federal government (through the Ministry of Transportation and the Brazilian National Land Transportation Agency – ANTT), the general framework for the renegotiation of the concession contracts for the Carajás Railway (EFC) and the Vitória-Minas Railway (EFVM). The renegotiation will be carried out in accordance with the terms of the concession contracts renewed in 2020, which remain in force, aiming to promote their modernization and updating. Under this general framework, we have committed to a maximum global contribution of approximately US\$1,890 million, related to the EFC and EFVM's asset base review, the optimization of contractual obligations and investment replanning. As a result of the agreed conditions, we recognized an additional provision of US\$256 million related the railway concessions in 2024. The general framework established for the renegotiation of the concession contracts will comply with usual formalities and will be submitted to the relevant authorities for evaluation and approval.

The principal items of cargo of the EFVM and EFC railroads are:

- Iron ore and iron ore pellets and manganese ore, carried for us and customers;
- Steel, coal, pig iron, limestone and other raw materials carried for customers with steel mills located along the railroad;
- Agricultural products, such as soybeans, soybean meal and fertilizers; and
- Other general cargo, such as pulp, fuel and chemical products.

We charge market prices for customer freight, including iron ore pellets originating from joint ventures and other enterprises in which we do not have a 100% equity interest. Market prices vary based on the distance traveled, the type of product transported and other criteria, subject to price caps set forth in the relevant concession agreements and are regulated by the Brazilian transportation regulatory agency (*Agência Nacional de Transportes Terrestres – ANTT*).

### 1.2.2 Ports and maritime terminals

#### Brazil

We operate ports and maritime terminals principally to complete the delivery of our iron ore and iron ore pellets to bulk carrier vessels serving the seaborne market. For more information, see *Information on the Company—Iron Solutions—Iron Ore and Iron Ore Agglomerates—Iron Ore and —Iron Ore Agglomerates Operations*. We also use our ports and terminals to handle customers' cargo.

**Tubarão and Praia Mole Ports.** The Tubarão port, which covers an area of 18 square kilometers, is in the Brazilian state of Espírito Santo and contains the iron ore maritime private terminal and the general cargo terminals (*Terminal de Granéis Líquidos* and the *Terminal de Produtos Diversos*).

- The iron ore maritime terminal has two piers. From this terminal in the Tubarão port, we export mostly iron ore produced from our Southeastern System. The iron ore maritime terminal has a storage yard with a capacity of 2.9 million metric tons. In 2024, 71.9 million metric tons of iron ore and iron ore pellets were shipped through the terminal for us.
- Pier I can accommodate two vessels at a time, one of up to 170,000 deadweight tonnage (DWT) on the southern side and one of up to 210,000 DWT on the northern side. In Pier I there are two ship loaders, which can load up to 13,500 metric tons per hour each.
- Pier II can accommodate one vessel of up to 405,000 DWT at a time, limited to 23 meters draft. In Pier II there are two ship loaders that work alternately and can each load up to 16,000 metric tons per hour continuously.
- The *Terminal de Produtos Diversos* handled 5.2 million metric tons of grains and fertilizers in 2024. VLI has the right to purchase capacity of the *Terminal de Produtos Diversos*, upon agreement with us on volume.



- The *Terminal de Granéis Líquidos* handled 0.8 million metric tons of fuel in 2024. VLI has the right to purchase capacity of the *Terminal de Granéis Líquidos*, upon agreement with us on volume.
- The Praia Mole port is also located in the Brazilian state of Espírito Santo. The Praia Mole terminal is principally a coal terminal and handled 10.4 million metric tons of coal and other related cargo in 2024. VLI has the right to purchase capacity of the Praia Mole terminal, upon agreement with us on volume.
- We operate the Tubarão and Praia Mole Ports under an authorization contract valid until 2039, extendable for successive periods, regulated and supervised by the National Waterway Transport Agency (ANTAQ).

**Ponta da Madeira maritime terminal.** Our Ponta da Madeira maritime terminal is in the Brazilian state of Maranhão.

- Pier I can accommodate vessels of up to 420,000 DWT and has a maximum loading rate of 16,000 metric tons per hour. Pier III, which has two berths and three ship loaders, can accommodate vessels of up to 210,000 DWT at the south berth and 180,000 DWT at the north berth (or two vessels of 180,000 DWT simultaneously), subject to tide conditions, and has a maximum loading rate of 8,000 metric tons per hour in each shiploader.
- Pier IV (south berth) is able to accommodate vessels of up to 420,000 DWT and have two ship loaders that work alternately with a maximum loading rate of 16,000 metric tons per hour.
- In 2018, we received from the Brazilian tax authorities, the customs authorization for the operations of Pier IV (north berth). Cargo shipped through our Ponta da Madeira maritime terminal consists of the Northern System production of iron ore and pellets. Pier IV (north berth) can accommodate vessels of up to 420,000 DWT and have two ship loaders that work alternately with a maximum loading rate of 16,000 metric tons per hour.
- In 2024, 175.78 million metric tons of iron ore and pellets were shipped through the terminal. The Ponta da Madeira maritime terminal has a storage yard with a static capacity of 7.2 million metric tons.
- We operate the Ponta da Madeira maritime terminal under an authorization contract valid until 2039, extendable for successive periods, regulated and supervised by the National Waterway Transport Agency (ANTAQ)

**Itaguaí maritime terminal - Cia. Portuária Baía de Sepetiba (CPBS).** From this terminal we mostly export iron ore from our Southern system. CPBS is a subsidiary of Vale that operates a leased terminal from CIA Docas do Rio de Janeiro at the Port of Itaguaí, in the municipality of Itaguaí, in the state of Rio de Janeiro. The terminal is leased from *Companhia Docas do Rio de Janeiro* (CDRJ) until 2026, with a proposal for an extension for more 25 years, currently under analysis by the Ministry of Ports and Airports, federal regulatory agency and Port Authority. Itaguaí port terminal has a pier with one berth that allows the loading of ships up to 17.8 meters of draft and approximately 200,000 DWT of capacity. In 2024, the terminal loaded 15,19 million metric tons of iron ore.

**Guaíba Island maritime terminal.** From this terminal we export mostly iron ore from our Southern system. We operate the terminal in Mangaratiba, on Guaíba Island, in the state of Rio de Janeiro. The iron ore terminal has a pier with two berths that allows the loading of ships of up to 350,000 DWT. In 2024, the terminal loaded 32.46 million metric tons of iron ore. We operate the Guaíba Island maritime terminal under an authorization contract until 2039, extendable for successive periods, regulated and supervised by the National Waterway Transport Agency (ANTAQ).

**Oman.** Vale Oman Distribution Center LLC is part of the Oman Industrial Complex and operates a blending and distribution center in Sohar, Sultanate of Oman. The maritime terminal has a large deep-water jetty, a 600-meter long platform connected to the shore by means of a 700-meter long trestle and is integrated with a storage yard that has throughput capacity to handle 40 Mtpy of iron ore and iron ore pellets per year. The loading nominal capacity is 10,000 metric tons per hour and the nominal unloading capacity is 9,000 metric tons per hour.

**Malaysia.** Teluk Rubiah Maritime Terminal is in the Malaysian state of Perak and has a pier with two berths that allows the unloading of vessels of approximately 400,000 DWT and the loading of vessels up to 220,000 DWT of capacity. In 2024, the terminal unloaded 18.84 million metric tons of iron ore and loaded 18.64 million metric tons of iron ore.

#### *Shipping – Maritime shipping of iron ore and pellets*

In 2024, we shipped approximately 292 million metric tons of iron ore and pellets in transactions in which we were responsible for transportation. We ship a large amount of our iron ore products through long-term contracts of affreightment with owners of very large ore carriers (VLOCs). The vessels employed under these contracts of affreightment reduce energy consumption and greenhouse gas emissions by carrying a large amount of cargo in a single voyage, reducing our carbon footprint and offering lower shipping costs. The majority of these vessels are efficient and modern Valemax (400,000 DWT) and Guaibamax (325,000 DWT) vessels, which carried approximately 143

million metric tons of iron ore products in 2024. These vessels also help us mitigate most of the volatility of the capesize spot market.

Considering the IMO (International Maritime Organization) regulation that limits global Sulphur emissions to 0.5%, which became effective in January 2020, we negotiated the fitting of scrubbers on the majority of the vessels employed under long-term contracts of affreightment. These scrubbers allow such vessels to continue bunkering high-sulphur fuel oil, while complying with the new regulation. Since 2021, 97% of the vessels employed under our long-term contracts of affreightment are scrubber-fitted.

In 2024, we signed new contracts of affreightment for the construction of ten next generation of Guaibamax VLOCs. These vessels will represent the latest state of the art design and will be equipped with several energy saving devices, such as rotor sails, advanced hull coatings and shaft generators, and will be dual fuel, capable of running on heavy fuel oil and methanol, with the ability to convert to LNG and/or ammonia in the future.

### **1.2.3 Energy**

We have developed our energy assets based on the current and projected energy needs of our operations, with the goal of reducing our energy costs, minimizing the risk of energy shortages and meeting our consumption needs through renewable sources.

Energy management and efficient supply are priorities for us, given the uncertainties associated with changes in the regulatory environment and the risk of rising electricity prices. In 2024, our installed capacity in Brazil was 2.6 GW, sourced mostly from directly or indirectly owned power plants. We use the electricity produced by these plants for our internal consumption needs.

We have a 50% direct stake in the hydroelectric plant of Candonga (140 MW), located in the Southeastern region. We also have an 8.8% direct stake in the hydroelectric plant of Machadinho (1,140 MW), located in the Southern region, a 30% direct stake in the hydroelectric plant of Estreito (1,087 MW), located in the Northern region, and a 100% direct stake in the Sol Cerrado solar plant (766 MWp) in the municipality of Jaíba, Minas Gerais.

Through our subsidiary Aliança Geração de Energia S.A. (Aliança Energia), we also have indirect stakes in the hydroelectric power plants of Igarapava (210 MW), Porto Estrela (112 MW), Funil (180 MW), Candonga (140 MW), Aimorés (330 MW), Capim Branco I (240 MW), Capim Branco II (210 MW), located in the Southeastern Region. Additionally, we have indirect stakes in the wind complexes of Santo Inácio (99 MW), under operation since 2017 and Gravier (71 MW), which started operations in 2022, both located in the Brazilian state of Ceará, and in Acauã (109 MW), located in the state of Rio Grande do Norte, which is in ramp-up phase, scheduled for completion by July 2024. Similar to the hydropower plants, part of the electricity generated by the wind projects supplies our operations through power purchase agreements with Aliança Energia. We also have a joint venture with Cemig GT in Aliança Norte Energia S.A. (Aliança Norte). Aliança Norte has 9% stake in Norte Energia S.A. (Norte Energia), a company established to develop and operate the Belo Monte hydroelectric plant in the Brazilian state of Pará, which began its operations in April 2016 and completed the start-up of its 24 turbines in 2019. Our indirect stake in the Belo Monte project grants us, Salobo Metais S.A. and Mineração Onça Puma S.A. the right to purchase up to 9% of the electricity generated by the plant, which has already been contracted through a long-term power purchase agreement with Norte Energia.

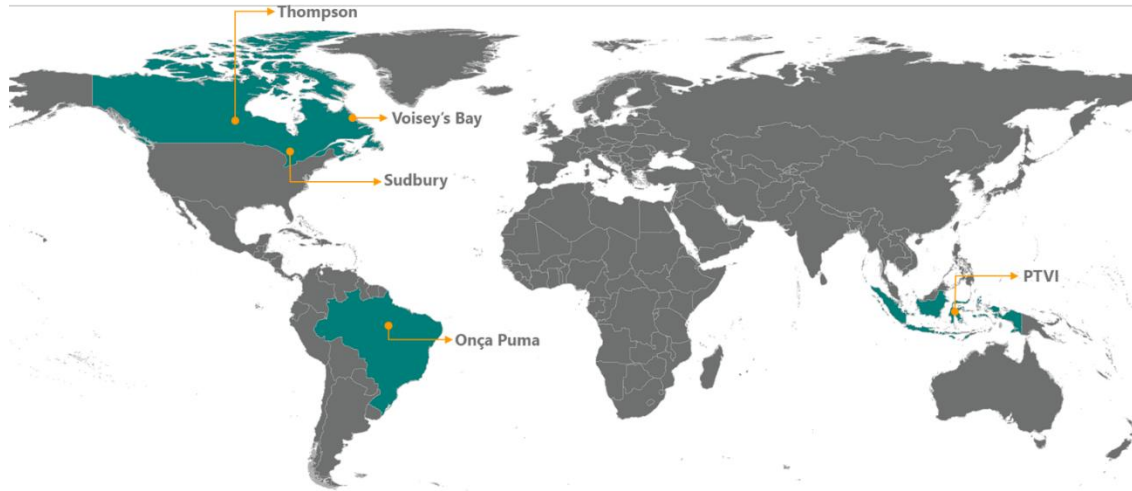
In August 2024, we completed the acquisition of the entire equity interest held by Cemig GT in Aliança Energia, for a total consideration of US\$493 million. As a result, Aliança Energia became a wholly owned subsidiary of Vale, which now consolidates its investment in its financial results.

## 2. ENERGY TRANSITION METALS

### 2.1 Nickel

#### 2.1.1 Properties

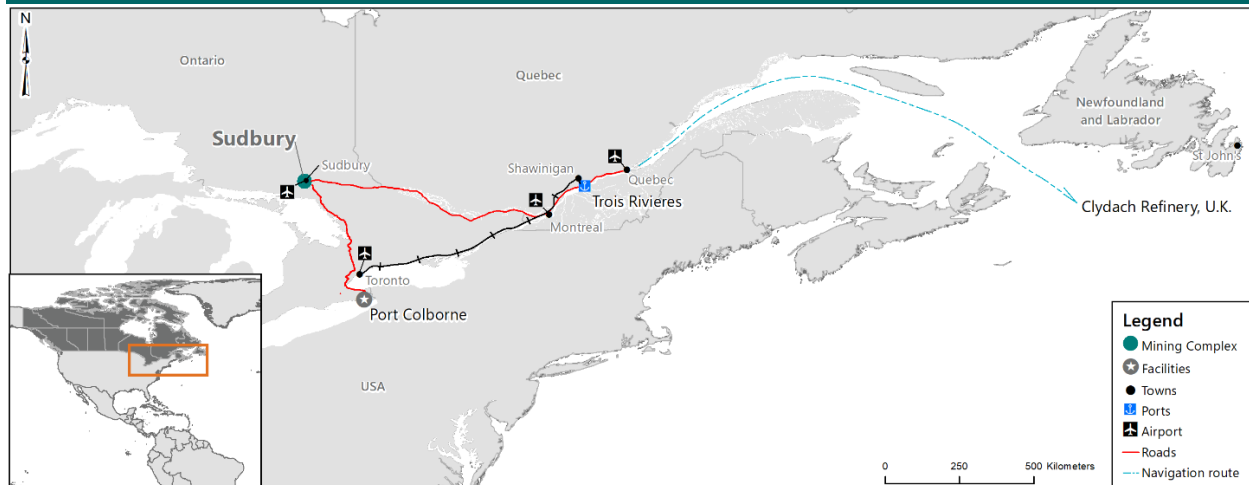
We conduct our integrated nickel operations on a global scale, with key operations in Canada, the United Kingdom, Indonesia, Japan and Brazil. Our nickel operations are described in the tables below.



### NICKEL OPERATIONS AND PROJECTS

#### NORTH ATLANTIC OPERATIONS

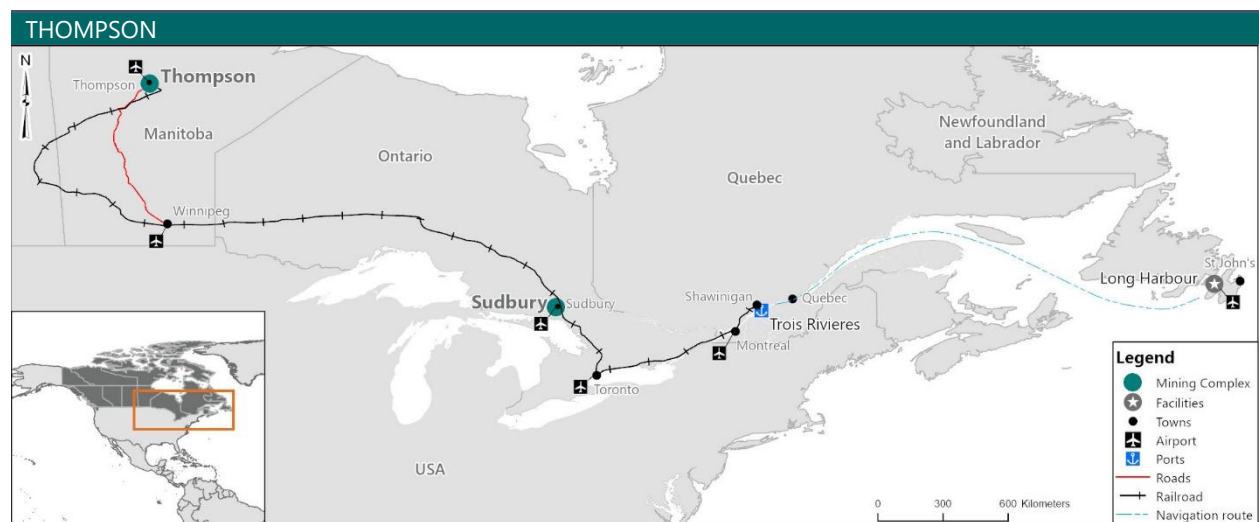
##### SUDBURY



Ownership interest	100% owned by VBM. We own 90% of VBM, and Manara Minerals owns the remaining 10%.
Location	Ontario, Canada.
Operator	Vale Canada Limited.

Mineral titles <sup>(1)</sup>	<ul style="list-style-type: none"> <li>- Patented mineral rights with no expiration date.</li> <li>- Mineral leases expire between 2024 and 2042 (some are subject to an ongoing renewal process).</li> <li>- Mining licenses of occupation with renewable terms.</li> </ul> <p>We can continue to operate during the renewal process. Acreage: 9,062 ha.</p>
Stage/ Operations	Production stage since 1885. Integrated underground/open pit mining, milling, smelting and refining operations.
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations.
Mine types and mineralization styles	Nickel and copper. Primarily underground mining operations with nickel sulfide ore bodies, which also contain some copper, cobalt, PGMs, gold and silver.
Associated facilities and infrastructure	<p><i>Processing plants:</i> Milling, smelting and refining facilities. In Ontario, we also process external feeds from third parties and our Thompson operation. Finished Nickel is produced by the Copper Cliff Nickel Refinery (CCNR) and sent for packaging at Port Colborne Refinery (PCR). In addition to producing finished nickel in Sudbury, we ship a nickel oxide intermediate product to our nickel refinery in Clydach, Wales, United Kingdom to produce finished nickel. Intermediate residues from CCNR are also sent to PCR for further treatment and production of cobalt and precious metals (PGMs, gold and silver). Copper concentrate produced by Ontario Mill is directly sold to the market.</p> <p><i>Other facilities:</i> Water treatment plant, acid plant, waste and tailings facilities.</p> <p><i>Logistics:</i> Plants are located by the Trans-Canada highway and two major railways that pass through the Sudbury area. Finished products are delivered to the North American market by truck and rail. For overseas customers, the products are loaded into containers and travel intermodally (truck/rail/containership) through Canadian ports (Quebec, Trois-Rivières) bulk material (copper concentrate) is sold directly to market and is shipped bulk via Canadian port (Quebec, Trois-Rivières).</p> <p><i>Energy:</i> Supplied by Ontario's provincial electricity grid and produced directly by Vale Canada via hydro generation.</p>

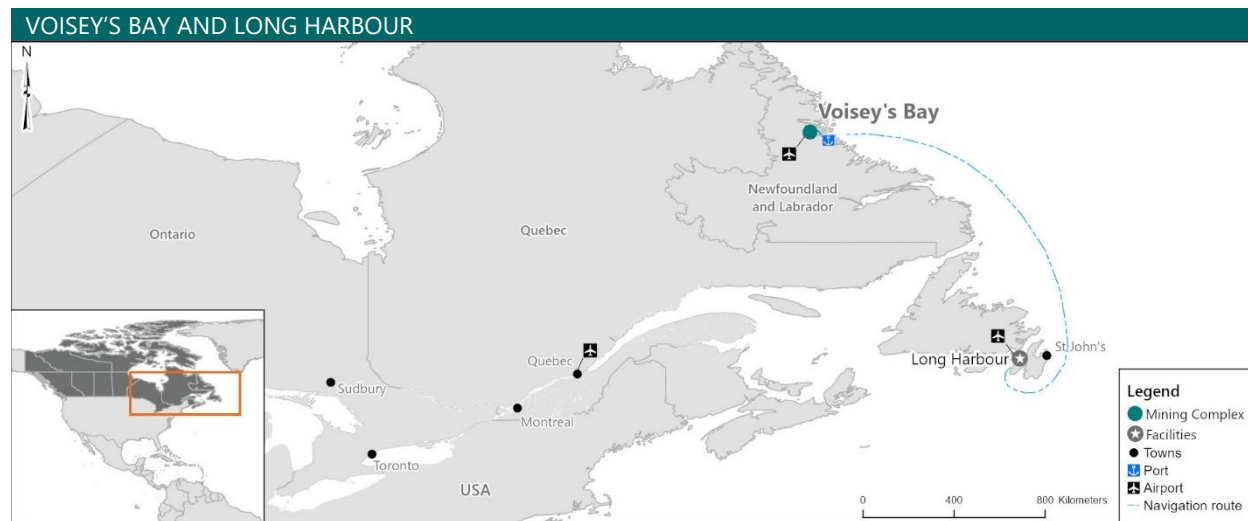
<sup>(1)</sup> Area with reserves and resources associated.



Ownership interest	100% owned by VBM. We own 90% of VBM, and Manara Minerals owns the remaining 10%.
Location	Thompson, Manitoba, Canada.

Operator	Vale Canada Limited.
Mineral titles <sup>(1)</sup>	<ul style="list-style-type: none"> <li>- Mining Claim Leases (MCL) are in good standing and expire between 2021 and 2025.</li> <li>- Transition Agreement with the government of Manitoba will renew relevant MCLs to Mineral Leases, with renewable terms of 21 years. We can continue to operate during the renewal process.</li> <li>- To date, we have successfully converted 12,346 ha from MCLs to Mineral Leases under this agreement.</li> </ul> <p>Total acreage of MCL's and Mineral Leases: 1,938 ha.</p>
Stage/ Operations	Production stage since 1961. Integrated underground mining and milling operations.
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations.
Mine types and mineralization styles	Nickel. Primarily underground mining operations with nickel sulfide ore bodies, which also contain copper, PGMs and cobalt.
Associated facilities and infrastructure	<p>Following the closure of Thompson Smelter and Refinery, since the second half of 2018, nickel concentrate is shipped from Thompson to be processed at Sudbury integrated operations and/or Long-Harbour refinery, depending on the demand.</p> <p><i>Other facilities:</i> Waste and tailings disposal structures.</p> <p><i>Logistics:</i> From Thompson, the nickel concentrate can be trucked or railed to Winnipeg (Manitoba) or directly railed to Sudbury (Ontario) or Trois-Rivieres, (Quebec). From Trois-Rivieres, the concentrate is stored at the port and loaded aboard a ship for Long Harbour Refinery (Newfoundland &amp; Labrador).</p> <p><i>Energy:</i> Hydro-electric power supplied by Manitoba's provincial utility company.</p>

<sup>(1)</sup> Area with resources associated.

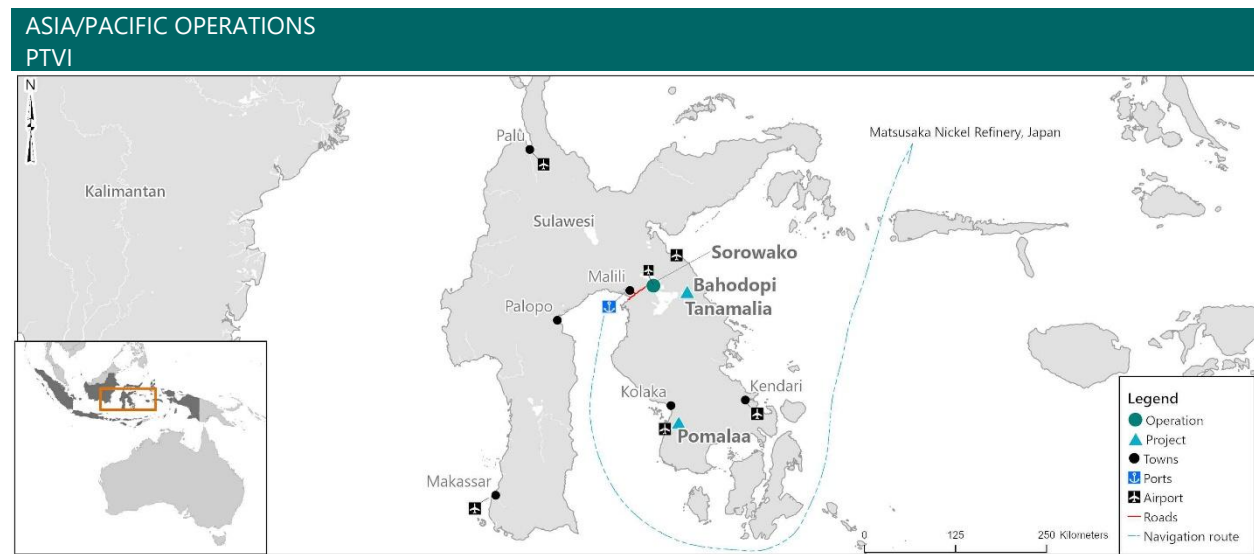


Ownership interest	100% owned by VBM. We own 90% of VBM, and Manara Minerals owns the remaining 10%.
Location	Newfoundland and Labrador, Canada.

## LINE OF BUSINESS

Operator	Vale Newfoundland & Labrador Limited which is wholly owned by Vale Canada Limited.
Mineral titles <sup>(1)</sup>	Mining lease expiring in 2027 with a right of further renewals for 10-year periods. Acreage: 1,599 ha.
Stage/ Operations	Production stage since 2005. Integrated mining and milling operation at Voisey's Bay producing nickel and copper concentrates. further integrated with Long Harbour Refinery (in operation since 2014).
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations.
Mine types and mineralization styles	Nickel and copper. Open pit and underground mining operations with nickel-copper sulfide ore bodies, which also contain cobalt.
Associated facilities and infrastructure	<p><b>Processing plant:</b> Nickel concentrate from Voisey's Bay (Labrador) is refined at Long Harbour (Newfoundland) to produce finished nickel rounds, as well as associated copper and cobalt products. Since the second half of 2021, Long Harbour also started processing additional feed from Thompson, Manitoba. Copper concentrate produced by Voisey's Bay (Labrador) is directly sold to the market.</p> <p><b>Other facilities:</b> Waste and tailings disposal structures.</p> <p><b>Logistics:</b> The copper and nickel concentrate from Voisey's Bay are transported to the port by haulage trucks and then shipped by dry bulk vessels to either overseas markets (copper) or to our Long Harbour facilities (nickel) for further processing. Thompson concentrate is sent to Long Harbour by rail and ship.</p> <p><b>Energy:</b> Power at Voisey's Bay is 100% supplied through Vale-owned diesel generators. Power at the Long Harbour refinery is supplied by the Newfoundland and Labrador provincial utility company.</p>

<sup>(1)</sup> Area with reserves and resources associated.





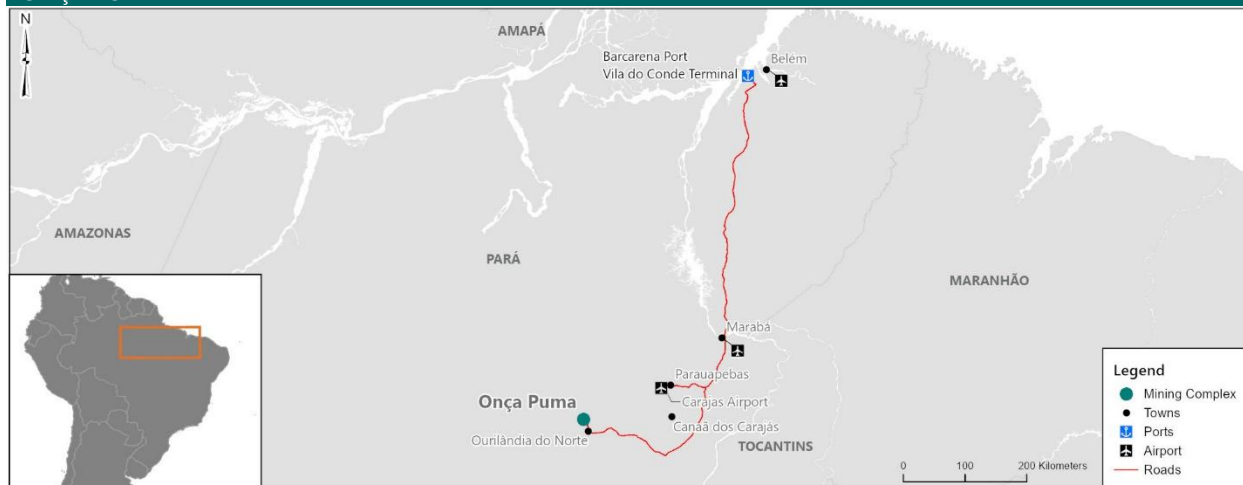
Ownership interest	<p>100% owned by PT Vale Indonesia Tbk (PTVI). We own 30.5% in PTVI through our 90% ownership in VBM<sup>(1)</sup>.</p> <p>The other shareholders of PTVI are:</p> <ul style="list-style-type: none"> <li>- PT Mineral Industri Indonesia (Persero) (MIND ID): 34%.</li> <li>- Public float: 20.64%.</li> <li>- Sumitomo Metal Mining Co., Ltd. (Sumitomo): 11.48%.</li> <li>- Manara Minerals: 3.38% (through its 10% ownership in VBM<sup>(1)</sup>).</li> </ul>
Location	Sulawesi Province, Indonesia.
Operator	PTVI.
Mineral titles <sup>(2)</sup>	<p>A special mining business license (IUPK) was issued in May 2024, confirming PTVI's legal right to continue to operate until December 2035, with rights to extend the license beyond this period.</p> <p>With the issuance of the IUPK, PTVI's initial mineral title (Contract of Work) was terminated.</p> <p>Acreage: 118,017 ha.</p>
Stage/ Operations	<p>Comprising the Sorowako operation and the Pomalaa, Bahodopi, Sorowako Limonite and Tanamalia projects. Sorowako is at production stage since 1978 and engages in mining and value-added smelting activities in the production of nickel matte.</p>
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations.
Mine types and mineralization styles	Nickel laterite deposits (which also contains cobalt as an associated mineral) mined or designed to be mined using the open pit mine method.
Associated facilities and infrastructure	<p><i>Processing plant:</i> PTVI mines nickel laterite ore and produces nickel matte, which is shipped primarily to our nickel refinery in Japan. Pursuant to life of mine off take agreements, PTVI sells part of its production to Vale Canada (currently, 80%) and part of Sumitomo (currently 20%). Vale Canada annual share of the offtake of PTVI may change based on the total production of PTVI.</p> <p><i>Other facilities:</i> Waste disposal structures and hydroelectric power facilities.</p> <p><i>Logistics:</i> PTVI nickel matte product is trucked approximately 55 km to the river port at Malili and then loaded onto barges.</p> <p><i>Energy:</i> Produced primarily by PTVI's low-cost hydroelectric power plants on the Larona River (there are currently three facilities). PTVI has thermal generating facilities to supplement its hydroelectric power supply with a source of energy that is not subject to hydrological factors.</p> <p><i>Processing and Logistics Facilities for the projects:</i> The projects consider the sale of the run of mine, which means we are not considering the inclusion of a processing plant or transport logistics.</p>

<sup>(1)</sup> Ownership interest of Vale and Manara Minerals in PTVI is held through VBM's wholly owned subsidiary, Vale Canada Limited.

<sup>(2)</sup> Area of the contract of work (COW).



**SOUTH ATLANTIC OPERATIONS**  
**ONÇA PUMA**



Ownership interest	100% owned by VBM. We own 90% of VBM, and Manara Minerals owns the remaining 10%.
Location	Pará, Brazil.
Operator	Mineração Onça Puma S.A.
Mineral titles <sup>(1)</sup>	Mining concessions with no expiration date, applications for mining concession and exploration permit with final exploration report. Acreage: 35,211 ha.
Stage/ Operations	Production stage since 2010. Two main open pits (Onça and Puma), satellite deposits (Puma W, Guepardo and Mundial), and a smelting operation producing a high-quality ferronickel for application within the stainless-steel industry.
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations. For more information on licensing.
Mine types and mineralization styles	Nickel laterite deposit, open pit mining.
Associated facilities and infrastructure	<i>Processing plant:</i> The operation produces ferronickel via a rotary kiln electric furnace process. We are currently operating a single line with one electric furnace and two lines of calcine and rotary kilns, with nominal capacity estimated at 27,000 metric tons per year. We have approved the construction of the second furnace. <i>Other facilities:</i> Waste and tailings disposal structures. <i>Logistics:</i> The ferro nickel is transported by truck to the Vila do Conde maritime terminal in the Brazilian state of Pará and exported in ocean containers. <i>Energy:</i> Supplied through the national electricity grid. Produced directly by our power plants or acquired through power purchase agreements.

<sup>(1)</sup> Area with reserves and resources associated.

NICKEL REFINERIES



Long Harbour, Port Colborne and Copper Cliff are described as part of Canadian operations summary above.

	CLYDACH	MATSUSAKA
<b>Ownership interest</b>	100% owned by VBM. We own 90% of VBM and Manara owns 10% of VBM.	VBM owns 87.18% of the shares, and Sumitomo owns the remaining shares. We own 90% of VBM and Manara owns 10% of VBM.
<b>Location</b>	Clydach, Wales (U.K.).	Matsusaka, Japan.
<b>Operator</b>	Vale Europe Limited.	Vale Japan Limited.
<b>Capacity</b>	Standalone nickel refinery (producer of finished nickel), with nominal capacity of 40,000 metric tons per year.	Standalone nickel refinery (producer of intermediate and finished nickel), with a nominal capacity of 60,000 metric tons per year for intermediate nickel products (for finished nickel product capacity the estimated capacity is 30,000 mt).
<b>Operations</b>	Processes a nickel intermediate product, nickel oxide, supplied from our Sudbury and Matsusaka operations to produce finished nickel in the form of powders and pellets.	Produces intermediate products for further processing in our refineries in the UK, and Canada, and finished nickel products using nickel matte sourced from PTVI.
<b>Energy</b>	Supplied through the national electricity grid.	Supplied through the national electricity grid. Acquired from regional utility companies.
<b>Logistics</b>	Transported to final customer in the UK and continental Europe by truck. Products for overseas customers are trucked to the ports of Southampton and Liverpool and shipped by ocean container.	Products trucked over public roads to customers in Japan. For overseas customers, the product is loaded into containers at the plant and shipped from the ports of Yokkaichi and Nagoya.

**2.1.2 Production**

The following table sets forth our annual mine production by operating mine and the average percentage grades of nickel and copper. We note that: (i) the mine production at Sorowako Mine represents the product from the PTVI’s screening station delivered to the processing plant and does not include nickel losses due to drying and smelting; (ii) for our Sudbury, Thompson and Voisey’s Bay operations, the production and average grades represent the run-of-mine delivered from those operations to respective mills and do not include adjustments due to beneficiation, smelting or refining; (iii) for our Onça Puma operation in Brazil the production and average grade represents the run-of-mine not accounting for losses due to processing.

	2024 <sup>(1)</sup>			2023 <sup>(1)</sup>			2022 <sup>(1)</sup>		
	Production	Grade		Production	Grade		Production	Grade	
		Cu	Ni		Cu	Ni		Cu	Ni
<b>Sudbury, Ontario</b>									
Copper Cliff	1,019	1.6	1.1	985	1.3	1.1	748	1.3	1.2
Creighton	491	2.0	2.5	406	2.2	2.9	433	2.2	2.6
Garson	791	1.1	1.2	650	1.0	1.0	616	1.2	1.3
Coleman	875	1.8	1.2	863	2.5	1.4	875	2.6	1.5
Stobie	115	0.3	0.3	0	0	0	0	0	0
Totten	558	1.5	1.1	518	1.9	1.3	414	1.9	1.6
Ontario - total	3,849	1.6	1.3	3,422	1.8	1.4	3,086	1.9	1.5
<b>Manitoba</b>									
Thompson	723	0.1	1.7	682	0.1	1.9	608	0.1	1.6
<b>Voisey’s Bay</b>									
Ovoid+Discovery Hill	728	0.8	1.0	1,360	0.5	0.8	1,575	0.7	1.3
Reid Brook+Eastern Deeps	1,071	0.8	2.0	400	0.8	1.9	89	0.7	1.7
<b>Indonesia</b>									
Sorowako <sup>(2)</sup>	3,054	0.0	1.2	5,762	0	1.2	4,565	0	1.3
<b>Brazil</b>									
Onça Puma	750	0.0	1.6	1,247	0	1.8	1,726	0	1.9

<sup>(1)</sup> Production is stated in thousands of metric tons. Grade is % of copper or nickel, respectively.

<sup>(2)</sup> These figures represent 100% of production and are not adjusted to reflect our ownership stake. In 2024, we divested a portion of our interest in PTVI to comply with Indonesia’s divestment obligations, securing an extension of PTVI’s mining license beyond 2025. As of July 2024, our ownership in PTVI decreased from 44.34% to 33.9%. As a result, we deconsolidated PTVI’s production and reported mine production only for the period from January to June 2024.

The following table provides information about our nickel production, including nickel refined through our facilities and intermediates designated for sale. The numbers below are reported on a contained nickel basis.

Mine	Type	Finished production by ore source for the year ended December 31, (thousand metric tons contained nickel)		
		2024	2023	2022
Sudbury	Underground	36.2	38.2	38.9
Thompson	Underground	10.1	7.9	9.9
Voisey's Bay <sup>(1)</sup>	Open pit/Underground	19.4	13.5	24.4
Sorowako <sup>(2)</sup>	Open cast	66.4	64.1	63.9
Onça Puma	Open pit	14.0	17.0	23.6
External <sup>(3)</sup>	–	13.8	24.2	18.3
<b>Total<sup>(4)</sup></b>		<b>159.9</b>	<b>164.9</b>	<b>179.0</b>

<sup>(1)</sup> Includes finished nickel produced at Long Harbour.

<sup>(2)</sup> These figures represent 100% of production and are not adjusted to reflect our ownership stake. In 2024, we divested a portion of our interest in PTVI to comply with Indonesia's divestment obligations, securing an extension of PTVI's mining license beyond 2025. As of July 2024, our ownership in PTVI decreased from 44.34% to 33.9%. As a result, we deconsolidated PTVI's production and reported mine production only for the period from January to June 2024. However, finished production from PTVI's ore sources at all other locations continues to be included beyond June 2024.

<sup>(3)</sup> Finished nickel processed at our facilities using feeds purchased from unrelated parties.

<sup>(4)</sup> These figures do not include tolling of feeds for unrelated parties.

### 2.1.3 Individual property disclosure

We consider Sudbury to be a material property, for purposes of S-K 1300. There have been no material changes in the reported reserves or resources or in the material assumptions and information since the last technical report summary filed.

#### 2.1.3.1 Sudbury

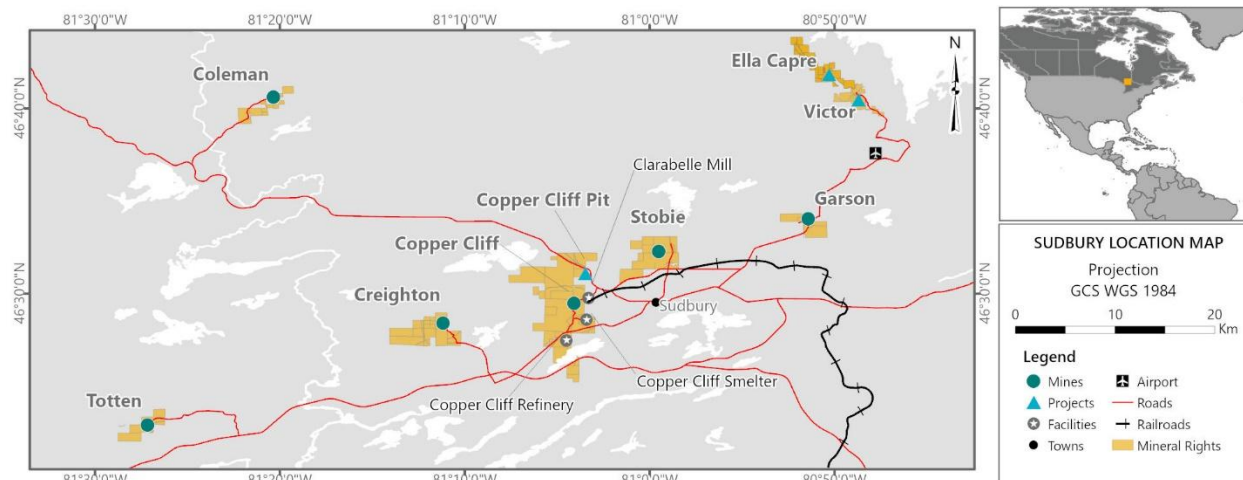
##### Property Description

The Sudbury property is in the Greater City of Sudbury, which is approximately 330 km North–Northeast of the city of Toronto in the Province of Ontario, as illustrated below. Our Sudbury operations consist of:

- Production stage underground mines (Coleman, Copper Cliff, Creighton, Garson, Totten), a non-operating underground mine (Stobie), an operating open pit (Stobie), in addition to exploration stage and non-producing deposits (e.g., Victor, Copper Cliff Pit and Ella Capre);
- Processing and refining capabilities are a combination of facilities in Sudbury (Clarabelle Mill, Copper Cliff Smelter and Nickel Refinery), and Port Colborne Ontario (Port Colborne Nickel Refinery), located about 160 km from Toronto, Ontario.

The following table shows the locations of the central mass point of the Sudbury operations in WGS 1984 datum.

Mine	Latitude (north)	Longitude (west)
Coleman	46°40'37.0	81°20'21.2
Copper Cliff	46°29'29.0	81°04'05.0
Creighton	46°28'23.7	81°04'05.0
Garson	46°34'02.9	80°51'26.4
Copper Cliff Pit	46°31'05.4	81°03'30.2
Stobie	46°32'15.3	80°59'31.1
Totten	46°22'55.2	81°27'09.8
Victor	46°40'26.8	80°48'44.2
Ella Capre	46°41'49.0	80°50'18.0



### Infrastructure

The Sudbury operations currently have all infrastructure in place to support mining and processing activities.

Our operations in Sudbury have a 120-year history of mining in the region, and we possess a highly skilled and trained workforce as well as sophisticated local goods and service providers to support our mining operations. Multiple transportation routes access the Sudbury area inclusive of air, rail and vehicle transport. Access to the various mine and deposit sites is through a system of numbered municipal roads and roads operated by us.

Electrical power for the Sudbury operations is primarily sourced from grid supply approximately 70%, considering that a portion of the demand is met by our hydroelectric power facilities. In Sudbury, all incoming grid-connected power and hydroelectric generation is distributed to mines and processing plants through our electrical distribution network, consisting of 69 kV distribution power lines, substations, transformers, breakers, disconnects and other electrical equipment. This distribution system is owned, operated, and maintained by us. We consume 100% of our self-generated hydro generation. The hydroelectric facilities have a nameplate capacity of 55 MWh.

Process water for Clarabelle Mill is sourced from water recycled from the tailings complex. Mines depend on the Vermilion River water intake which is owned and operated by us. The intake pumps draw water from the river to Creighton where it is treated at the Vermilion water treatment plant. After treatment, water is supplied to mines in the Sudbury area, Clarabelle Mill, Copper Cliff Smelter, and Copper Cliff Refinery.

### Geology and Mineralization

Deposits within the Sudbury Igneous Complex (SIC) are examples of nickel–copper mineralization related to magnetism following a meteorite impact. The SIC is exposed as an elliptical ring with a northeast-trending long axis of approximately 72 km and a short axis of approximately 27 km. Sudbury deposits host three principal styles of mineralization: Contact-style, Offset-style, Footwall style. However, the three mineralization environments can be quite variable, transitional, and many exhibit characteristics fitting more than one mineralization environment description.

### Exploration

The first exploration activities date back to 1856 when nickel was first discovered. Over the years different exploration activities have been carried out, including geological mapping, drilling, ore control field sampling and geophysics. We continually invest in mineral exploration with the aim of expanding our mineral resources and mineral reserves and to achieve an adequate level of confidence in the resource estimate that supports our mining plans.

### Mineral Rights

Our landholdings in the area include mining claims, mining leases, patented claims, and mining licenses of occupation. The total Mineral Rights area of the Ontario licenses containing the mineral resource and mineral reserve estimate (MRMR) footprint is determined by vertically projecting mineral envelopes to surface and itemizing by license surface area. The total Mineral Rights area contains 172 licenses totaling approximately 9,062 ha. We hold Mineral Rights

licenses in Ontario as follows: 168 licenses are registered patents, two licenses are 21-year mining leases, one license is a mining license of occupation, and one license is an unpatented mining claim. Each of these license types are subject to terms, applicable fees and/or penalties as defined by their current expiry dates, and/or if said expiry dates are properly renewed or breached as per definition in the Provincial Mining Act of Ontario. We also have mineral rights outside of the defined MRMR footprint held under various license titles listed above. These licenses and their mineral rights are kept in good standing with exploration expenditures or where applicable cash in lieu of expenditures.

### *Surface rights*

We hold sufficient surface rights for the current life of mine. In the Sudbury district, we are the registered owner of mining rights and surface rights or a combination of both shown as fee simple lands and mining leased lands.

### *Current, planned, future mining plans*

Mines are owner-operated and use conventional equipment. The current extraction methods used in underground mining are conventional bulk stopping and narrow vein cut-and-fill mining methods, depending on the mine and geological setting. As part of the long-term strategy and continuous pursuit to add value to the company, by bringing operational reliability, expanding mineral resources and reserves portfolio and development of additional future production capacity we continually invest in mineral exploration.

### *Asset details and modernization*

Over the years, current and previous owners have invested capital to modernize the property, and we now have equipped some of our mines with a wireless network underground (LTE and Wi-Fi), tele-remote mobile equipment and battery electric vehicles. Our underground mines also rely on a robust micro seismic network, as part of our seismic management plan. As part of our innovation program, we are also testing continuous development with deployment of a mechanical rock excavation machine in Sudbury. Our mobile and fixed assets follow a strategic maintenance program for repair, refurbishment and replacement. Our underground development drifts are also part of a ground control monitoring program, for timely rehabilitation and/or enhancement of ground support when needed.

### *Total property book value*

The book value of the property and its associated plant and equipment was US\$4,593 million as of December 31, 2024, which does not include goodwill for Energy Transition Metals operations.

### *Operator history*

The Sudbury, Ontario operations have over 120 years of active mining history, and exploration activities that date back to 1856 when nickel was first discovered. Various company names are documented in Ontario's history such as the Canadian Copper Company of Cleveland, Mond Nickel company, International Nickel Company, Ltd. (joint venture by the Canadian Copper Company, Orford Copper Company and American Nickel Works. Nickel refinery at Clydach, Wales constructed by the Mond Nickel Company) and the British American Nickel Corporation. In 1975, Inco became the formal name of the International Nickel Company of Canada, Limited and in 2006 CVRD obtained ownership of Inco. CVRD rebranded itself to Vale and CVRD–Inco changed its name to Vale Inco and in 2010, Vale Inco changed its name to Vale Canada Limited.

### *Encumbrances and permitting requirements*

There are no known encumbrances on the property, considering the part of the property with reserves or resources associated.

### *Reserves and resources*

The mineral resources and reserves in Ontario are shown as of year ending 2024. For each table, the price, timeframe and point of reference used, when estimating mineral resources and reserves are highlighted.

### *Mineral resource estimate*

For a discussion of the changes from the previous fiscal year, see *Information on the Company—Reserves and Resources*. We do not consider the current change as material. All disclosure of mineral resources is exclusive of mineral reserves.

Sudbury - Summary of Nickel, Cobalt, Copper, PGMs and Gold Mineral Resources as of December 31 <sup>(1) (3)(5)</sup>																
Category	2024 <sup>(2)</sup>							2023							Cut-off grade <sup>(4)</sup>	Metallurgical recovery <sup>(4)</sup>
	Tonnage	Ni	Co	Cu	Pt	Pd	Au	Tonnage	Ni	Co	Cu	Pt	Pd	Au		
Measured	8.9	1.11	0.03	1.88	1.60	1.92	0.74	7.5	1.13	0.03	2.29	1.85	2.39	0.97	33–198 US\$/t 3.5% CuEq	Ni: 68-90% Cu: 85-95% Co: 20-35% Pt: 65-75% Pd: 75-90% Au: 50-75%
Indicated	36.0	1.25	0.03	2.03	0.79	0.97	0.30	32.2	1.43	0.04	2.44	1.00	1.25	0.39		
Measured + Indicated	44.8	1.22	0.03	2.00	0.95	1.16	0.39	39.7	1.37	0.04	2.41	1.16	1.47	0.49		
Inferred	21.9	1.2	0.03	1.5	1.0	1.2	0.4	8.6	1.9	0.04	2.3	1.2	1.3	0.4		

<sup>(1)</sup> The mineral resource reasonable prospects of economic extraction were determined using the following price ranges: nickel US\$13,376-20,882/t, copper US\$6,100-9,500/t, cobalt US\$45,000-56,300/t, platinum US\$1,124-1,350/oz, palladium US\$925-1,450/oz, gold US\$1000-1,950/oz, depending on the deposit. For each deposit, mineral resource prospect of economic extraction was determined based on a commodity price assumption established at the time of mine design. The commodity price assumption for each deposit continues to provide a reasonable basis for establishing the prospects of economic extraction for mineral resources estimated at this deposit as of December 31, 2024.

<sup>(2)</sup> Resources have been adjusted to reflect our 90% ownership, after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

<sup>(3)</sup> Tonnage is in millions of dry metric tons. Cu, Ni, Co grades are in (%), Pt, Pd and Au grades are in g/t. Point of reference of the estimate is in situ.

<sup>(4)</sup> Cut-off grade and metallurgical recovery by element are shown as ranges due to inherent variability in the mineral deposits requirements and timing of the associated estimate. A CuEq cut-off is used only at the Victor copper deposits.

<sup>(5)</sup> Numbers have been rounded.

*Mineral reserves estimate*

For a discussion of the changes from the previous fiscal year, see *Information on the Company—Reserves and Resources*. We do not consider the current change as material.

Sudbury - Summary of Nickel, Cobalt, Copper, PGMs and Gold Mineral Reserves as of December 31 <sup>(1) (3)(6)</sup>																
Category	2024 <sup>(2)</sup>							2023							Cut-off grade <sup>(4)</sup>	Metallurgical recovery <sup>(4)</sup>
	Tonnage	Ni	Co	Cu	Pt	Pd	Au <sup>(5)</sup>	Tonnage	Ni	Co	Cu	Pt	Pd	Au <sup>(5)</sup>		
Proven	18.0	1.43	0.04	1.47	0.95	0.81	0.35	19.1	1.47	0.04	1.73	1.05	1.04	0.45	8.7–244 US\$/ton	Ni: 65-90% Cu: 80-90% Co: 20-35% Pt: 65-75% Pd: 75-90% Au: 50-75%
Probable	46.5	1.42	0.04	1.29	0.79	1.04	0.29	56.0	1.40	0.04	1.24	0.77	1.00	0.27		
<b>Total</b>	<b>64.5</b>	<b>1.42</b>	<b>0.04</b>	<b>1.34</b>	<b>0.83</b>	<b>0.98</b>	<b>0.31</b>	<b>75.1</b>	<b>1.42</b>	<b>0.04</b>	<b>1.37</b>	<b>0.84</b>	<b>1.01</b>	<b>0.32</b>		

<sup>(1)</sup> The mineral reserve economic viability was determined based on a commodity price curve with long-term price of per metric ton of US\$17,950 nickel, US\$9,150 copper, US\$42,475 cobalt, US\$1,275/oz platinum US\$1,025/oz palladium and gold US\$1,925/oz.

<sup>(2)</sup> Reserves have been adjusted to reflect our 90% ownership, after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

<sup>(3)</sup> Tonnage is in millions of dry metric tons. Ni, Cu, Co grades are in (%), Pt, Pd and Au grades are in g/t. The point of reference is the point of delivery to the process plant.

<sup>(4)</sup> Cut-off, metallurgical recovery, pricing data is shown as ranges, due to the variability in specific orebody requirements and timing of the associated estimate.

<sup>(5)</sup> Figures shown do not deduct the streaming amounts. For a description of our streaming arrangement with Wheaton, see Section 2.3 PGM's and other Precious Metals.

<sup>(6)</sup> Numbers have been rounded.



### **2.1.4 Nickel Strategy**

A key aspect of our strategy for the nickel business is retaining our product leadership position supplying nickel for the global renewable energy transition, while striving to be a sustainable operator and a global benchmark for health and safety in the industry and in the communities neighboring our operations. We are focused on transforming the business, continuing to review asset utilization, optimizing our operations and concentrating our efforts to increase productivity and improve returns, while preserving capacity for growth. We are one of the world's largest nickel producers, with large-scale, long-life and low-carbon assets. Leveraging our substantial resource base and diversified mining operations, we produce nickel products from nickel sulfide and laterite sources utilizing advanced technology. Our commercial footprint is global, with a focus on providing top-tier customer service.

Our nickel products are tailored to meet the needs of customers across different industries and geographies, including those requiring high-purity nickel as well as the rapidly evolving electric vehicle battery supply chain. In 2024, 41% of our global nickel production came from our Canadian operations, which benefits from the use of renewable energy, and a stable jurisdiction with strong ESG standards and credentials.

Our operations in the North Atlantic position us well to supply into the electric vehicle market, in line with our low-carbon agenda. We have agreements to sell our low-carbon Class I nickel to several North American and European producers in the electric vehicle supply chain. In the medium term, we are targeting to direct 30-40% of our Class I nickel production to the electric vehicle battery market. We are also exploring other partnerships on a regular basis.

The plating rounds and nickel melt rounds from our Long Harbour processing plant, a leading-edge hydrometallurgical facility on Canada's East Coast, are one of the least carbon-intensive nickel products on the market. With a carbon footprint of 4.0t CO<sub>2</sub>e per tonne, these Class I nickel products position us well for supplying to the electric vehicle industry.

In 2024, we completed the construction and commissioning of the Voisey's Bay Mine Expansion (VBME) Project. The expansion transitioned Voisey's Bay from open pit to underground mining. This project included the development of two underground mines – Reid Brook and Eastern Deeps – which will supply ore for processing at our Long Harbour refinery, one of the lowest-emission nickel processing plants in the world.

The project's completion represents a crucial milestone in enhancing the competitiveness of our Canadian operations and will contribute to reducing unit costs in the nickel business segment. This project highlights VBM's commitment to serve as a catalyst for social and economic growth through local employment, procurement, capacity-building, partnerships with Indigenous communities, and shared benefits for our stakeholders.

We also made progress in ramping up the Copper Cliff Mine Replacement Project, reaching over one million tons of ore hoisted, with the new South mine increasing contribution to 40% of the Copper Cliff Complex. Additionally, we resumed production operations at Stobie Pit, a shallow surface deposit within the Stobie Mine complex.

In 2024, we completed the divestment of our interest in PTVI. VCL received approximately US\$155 million in cash for its portion of the share sale to MIND ID. As of June 28, 2024, MIND ID holds approximately 34% of PTVI's issued shares, while VCL and SMM hold approximately 33.9% and 11.5%, respectively, with the remainder listed on the Indonesia Stock Exchange.

Following this divestiture, the Government of Indonesia issued a special mining business license (IUPK), granting PTVI the legal right to operate until December 2035, with the right to extend the license beyond this period. This license enables PTVI to further unlock its growth potential through its investment in Indonesian projects. VCL maintains significant economic exposure to PTVI as a non-operated joint venture and will continue to provide strong governance through its representation on the Board of Commissioners. Additionally, VCL's existing offtake rights are preserved.

### **2.1.5 Customers and sales**

Our nickel customers are broadly distributed on a global basis. In 2024, 27% of our refined nickel sales were delivered to customers in Asia, 29% in Europe, and 44% in North America. We have short-term fixed-volume contracts with customers for most of our expected annual nickel sales. These contracts generally provide stable demand for a significant portion of our annual production. We also have multiple long-term agreements to sell our Class I nickel, including into the North Atlantic electric vehicle market.

Nickel is an exchange-traded metal, currently listed on the London Metal Exchange (LME) and Shanghai Futures Exchange (SHFE), and most nickel products are priced according to a discount or premium to the LME price, depending primarily on the nickel product's physical and technical characteristics. Our finished nickel products represent what is known in the industry as "primary" nickel, meaning nickel produced principally from nickel ores (as opposed to "secondary" nickel, which is recovered from recycled nickel-containing material). Finished primary nickel products are distinguishable in terms of the following characteristics, which determine the product price level and the suitability for various end-use applications:

- nickel content and purity level: (i) intermediates have various levels of nickel content, (ii) nickel pig iron has 1.5-15% nickel, (iii) ferro-nickel has 15-40% nickel, (iv) refined nickel with less than 99.8% nickel, including products such as Tonimet™ nickel, (v) standard LME-grade nickel has a minimum of 99.8% nickel, and (vi) high-purity nickel has a minimum of 99.9% nickel and does not contain specific elemental impurities;
- shape (such as discrete or filamentary powders, pellets, discs, squares and strips);
- size (from micron powder particles to large full-sized cathodes); and
- packaging (such as bulk, 2-ton bags, 250 kg drums, 10 kg bags).

In 2024, the principal first-use applications for primary nickel were:

- stainless steel (65% of global nickel consumption);
- non-ferrous alloys, alloy steels and foundry applications (12% of global nickel consumption);
- nickel plating (5% of global nickel consumption);
- battery precursors (15% of global nickel consumption); and
- others (3% of global nickel consumption).

In 2024, 89% of our refined nickel sales were made into non-stainless-steel applications, compared to the industry average for nickel producers of 35%. This brings more diversification and sales volume stability to our nickel revenues. As a result of our focus on higher-value segments, our average realized nickel prices for refined nickel have typically exceeded LME cash nickel prices.

We offer sales and technical support to our customers on a global basis through an established marketing network headquartered at our head office in Toronto (Canada). We have a well-established global marketing network for finished nickel with sales and technical support distributed around the world with presence in Singapore and Toronto (Canada) and have sales managers located in St. Prex (Switzerland), New Jersey (United States) and at several locations throughout Asia. For information about demand and prices, see *Operating and Financial Review and Prospects—Overview—Major Factors Affecting Prices*.

### **2.1.6 Competition**

The global nickel market is highly competitive. Our key competitive strengths include our long-life mines, sophisticated exploration and processing technologies, and a diversified portfolio of products. Our global marketing reach, diverse product mix, and customer technical support direct our products into applications and geographic regions that offer the highest margins for our products.

Our nickel production represented 5% of global consumption for primary nickel in 2024. In addition to us, the largest mine-to-market integrated suppliers in the nickel industry (each with its own integrated facilities, including nickel mining, processing, refining and marketing operations) are Tsingshan Group, Jiangsu Delong Nickel, Jinchuan Nonferrous Metals Corporation, Eramet, Nornickel and Huayou Cobalt. Together with us, these companies accounted for about 48% of global refined primary nickel production in 2024.

The quality of nickel products determines its market suitability. Class I products, which have higher nickel content and lower levels of deleterious elements, are more suitable for high-end nickel applications, such as the growing electric vehicle market (batteries) and utilization in specialty industries (e.g., aircraft and spacecraft) and draw a higher premium compared to Class II products. Class II products, which have lower nickel content and higher levels of deleterious elements, are mostly used in the making of stainless steel. Intermediate products do not represent finished nickel production and are generally sold at a discount given that they still need to be processed before being sold to end customers.

Much of the world nickel production is composed of Class II nickel products (56% of the global market in 2024), which include nickel pig iron (NPI) and ferro nickel (with nickel content under 99%). Most of our products are high quality

nickel products, which makes us the supplier of choice for specialty nickel applications. In 2024, 70% of our nickel products were Class I, 23% were Class II and 7% were Intermediates.

While stainless steel production is a major driver of global nickel demand, stainless steel producers can obtain nickel with a wide range of nickel content, including secondary nickel (scrap). The choice between primary and secondary nickel is largely based on their relative prices and availability. See *Operating and Financial Review and Prospects—Overview—Major Factors Affecting Prices—Nickel*.

Competition in the nickel market is based primarily on quality and reliability of supply and price. We believe our operations are competitive in the nickel market because of the high quality of our nickel products.

## 2.2 Copper

### 2.2.1 Properties

We conduct our copper operations primarily through our wholly owned subsidiary Salobo Metais S.A. in Brazil, and through our subsidiary Vale Canada Limited in Canada. Copper concentrate produced by the South Atlantic contains gold and, in the case of Salobo operation, also silver. Our copper operations are described in the tables below.



CARAJÁS COPPER OPERATIONS & PROJECTS

BRAZIL



Ownership interest	100% owned by VBM. We own 90% of VBM, and Manara Minerals owns the remaining 10%.
Location	Carajás, State of Pará, Brazil.
Operator	Salobo Metais S.A.
Mining Complexes	<p>Two mining complexes and three mining projects:</p> <ul style="list-style-type: none"> <li>- Salobo: Integrated open pit mining and milling operations.</li> <li>- Sosségo: four main open pits (Sosségo, Sequerinho, Pista and Mata II) and a processing facility to concentrate the ore, and satellites deposits (118, Cristalino, Bacaba, Barão and Visconde).</li> <li>- Projects: Alemão, Paulo Afonso (composed by Paulo Afonso and Polo, Gameleira and Grota Funda mineral deposits) and Furnas</li> </ul>
Mineral titles	<p>Sosségo: Two Mining concessions and applications for mining concession with no expiration date. Acreage: 119.661 ha.</p> <p>Salobo: Mining concession with no expiration date. Acreage: 9,181 ha.</p> <p>Alemão: Mining concession with no expiration date. Acreage: 10,000 ha.</p> <p>Paulo Afonso: Mainly application for mining concession and one exploration permit. Acreage: 38.360 ha</p> <p>Furnas: Two applications for mining concession. Acreage: 9.832 ha.</p>
Stage/ Operations	<p>The two mining complexes are at the production stage. Sosségo has been operating since 2004 and Salobo since 2012.</p> <p>Alemão and Paulo Afonso: Exploration Stage – FEL 2 (Pre-Feasibility)technical study ongoing.</p> <p>Furnas: Exploration Stage.</p>

Key permit conditions	<p>We are in the process of obtaining or renewing (i) waste and tailings storage facilities permits and (ii) social licenses related to projects. We have or expect to obtain in a timely manner the necessary permits for operations. For information on environmental licensing, see <i>Information on the Company—Regulatory Matters—Brazilian Regulation of Mining Dams and Additional Information; Legal proceedings—Other environmental proceedings.</i></p>
Mine types and mineralization styles	<p>Sossego and Salobo are both Iron Oxide-Copper-Gold (IOCG) deposits, with copper and gold as main elements of economic interest and mined using open-pit method.</p> <p>Alemão is an IOCG deposit located in the Carajás National Forest. The project is to develop a sublevel caving underground mine.</p> <p>Paulo Afonso is an IOCG deposit. The project is to develop an open pit and underground mines.</p> <p>Furnas in an IOCG deposit, with copper and gold as main elements of economic interest. The project indicates an underground mining scenario is preferred over surface mining methods.</p>

Associated facilities and infrastructure

*Processing Facilities:* The run of mine is processed at Sossego processing facilities with four main components: crushing, grinding, flotation and concentrate dewatering.

From Salobo, the run of mine is processed by means of standard primary and secondary crushing, conveying, roller press grinding, ball milling, copper concentrate flotation, tailings disposal, concentrate thickening, filtration and load out.

The Alemão project is expected to have as processing facilities primary crusher, ball milling, copper concentrate flotation, magnetic concentration, filtration and tailings disposal.

The greenfield Paulo Afonso project is currently under a scoping study level for its processing facilities.

This Furnas project is currently under a scoping study level for its processing facilities. The regional infrastructure is adequate to support the project development and operation.

*Other facilities:* Sossego and Salobo: Waste and tailings disposal structures.

*Logistics:* Sossego and Salobo: we truck the concentrate to a storage terminal in Parauapebas and then transport it via EFC railroad to the Itaqui Port in São Luís, state of Maranhão. In Itaqui Port, we lease a storage terminal until 2023, with a proposal for an extension for another 20 years, currently under analysis by competent authorities.

Paulo Afonso: The region already has a solid ore railroad infrastructure that we use.

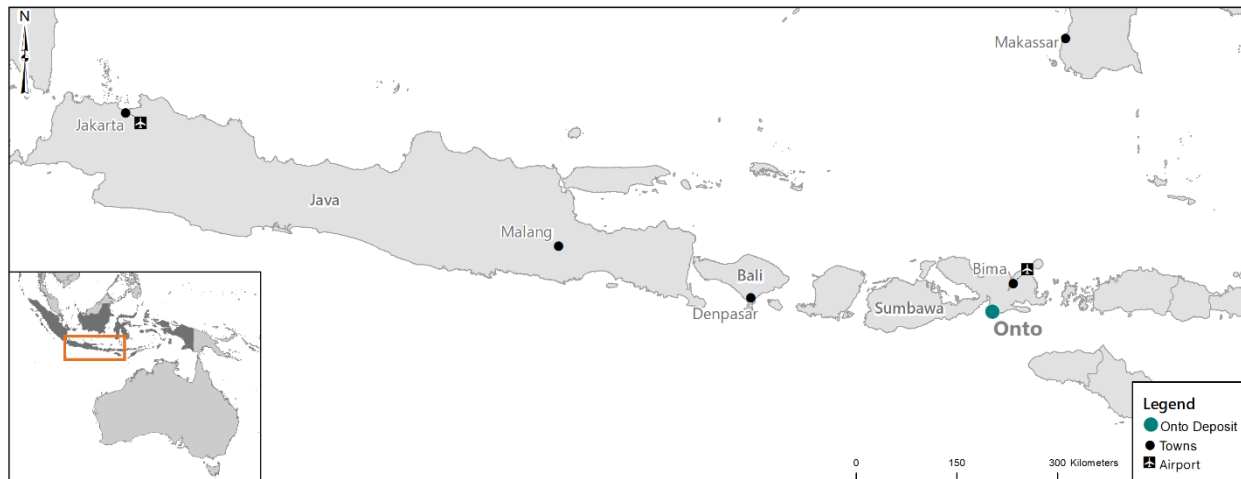
*Energy:* Sossego and Salobo: Supplied through the national electricity grid. Produced directly by us or acquired through power purchase agreements.

Alemão: Is expected to improve the current transmission line to 230kV capacity.

Paulo Afonso and Furnas: The project foresees the extension of power transmission lines already available in the region.

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ASIA/PACIFIC  
HU'U PROJECT



Ownership interest	We own 72% through our 90% ownership in VBM <sup>(1)</sup> . The other shareholders of Hu'u Project are: - PT Antam Tbk (20%) - Manara Minerals (8% through its 10% ownership in VBM) <sup>(1)</sup>
Location	Dompu and Bima Regencies of Province of Nusa Tenggara Barat (NTB) Sumbawa Island, Indonesia.
Operator	Sumbawa Timur Mining (STM).
Mineral titles <sup>(4)</sup>	Contract of Work covering approximately 19,260 ha is valid with the Government of Indonesia, comprising all the stages of a mining project. The exploration stage (feasibility study) based on Government's regulations can be extended annually until the feasibility study report is complete and approved. Following approval, the operation-production stage will start, and will be valid for 30 years, renewable subject to the Government's approval. Acreage: 19,260 ha.
Stage/ Operations	Exploration stage – FEL 2 (Pre-Feasibility) technical study ongoing.
Key permit conditions	We have or expect to obtain in a timely manner the necessary permits for operations.
Mine types and mineralization styles	The Onto copper-gold deposit is a large porphyry copper-gold deposit that also has some characteristics of high sulphidation epithermal deposits. The project is to develop an underground mine.
Associated facilities and infrastructure	<i>Logistics:</i> This project is a greenfield project, therefore the actual logistics of transporting ore as well as processing are still under study. <i>Infrastructure:</i> The existing infrastructure is under development due to the project's greenfield location.

<sup>(1)</sup> Owned by Vale and Manara through VBM's wholly owned subsidiary Eastern Star Resources Pty Ltd.

<sup>(3)</sup> By the 20th or the 25th year post production (specific timing depends on the mining method adopted by STM), we are mandated to have divested some of our ownership interest to PT Antam Tbk or other Indonesian participants, as applicable, reducing our ownership interest to a maximum of 49%.

<sup>(4)</sup> Area of the contract of work.

CANADA

See *Information on the Company—Energy Transition Metals—Nickel—Properties*



## 2.2.2 Production

The following table sets forth our annual mine production in our Salobo and Sossego mines and the average percentage grades of copper. The production and average grade represent run-of-mine production and do not include losses due to processing. For the annual mine production of copper as a co-product in our nickel operations, see *Information on the Company—Energy Transition Metals—Nickel—Production*.

	2024 <sup>(1)</sup>		2023 <sup>(1)</sup>		2022 <sup>(1)</sup>	
	Production	Grade	Production	Grade	Production	Grade
<b>Brazil</b>						
Sossego	6,316	0.8	6,873	0.7	10,552	0.6
Salobo	45,607	0.6	49,034	0.6	38,203	0.6
<b>Total</b>	<b>51,922</b>	<b>0.6</b>	<b>55,907</b>	<b>0.6</b>	<b>48,755</b>	<b>0.6</b>

<sup>(1)</sup> Production is stated in thousands of metric tons of Ore. Grade is % of copper.

The following table sets forth information on our copper production.

Mine	Type	Finished production by ore source for the year ended December 31, (thousand metric tons)		
		2024	2023	2022
<b>Brazil</b>				
Sossego	Open pit	65.4	66.8	43.2
Salobo	Open pit	199.8	180.4	127.8
<b>Canada (as co-product of nickel operations)</b>				
Sudbury	Underground	58.6	57.9	59.2
Voisey's Bay	Open pit/Underground	12.9	9.6	10.8
Thompson	Underground	7.2	4.7	5.3
External <sup>(1)</sup>	–	4.1	7.2	6.8
<b>Total</b>		<b>348.2</b>	<b>326.6</b>	<b>253.1</b>

<sup>(1)</sup> We process copper at our facilities using feed purchased from unrelated parties.

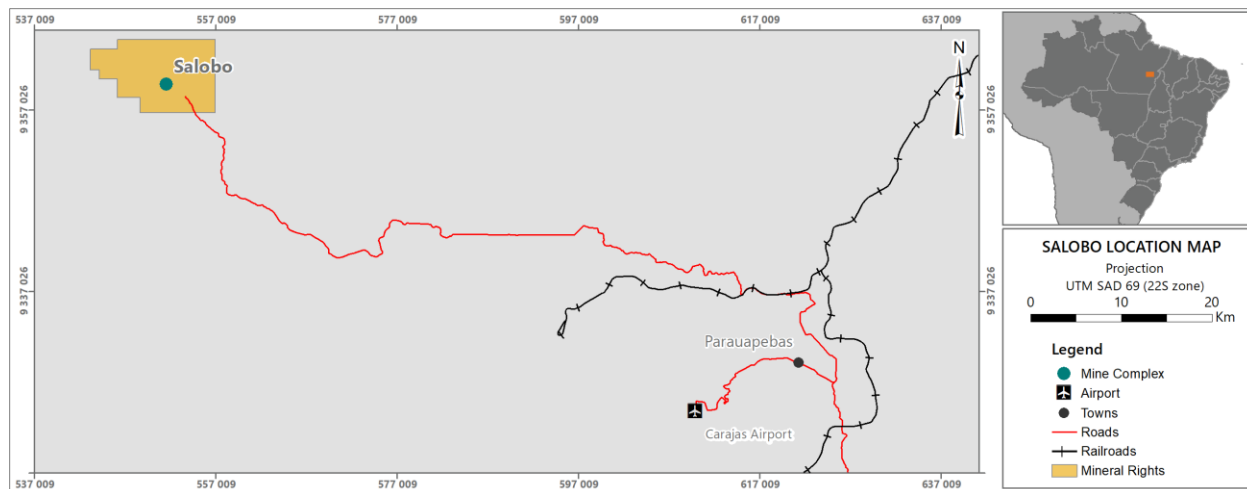
## 2.2.3 Individual property disclosure

We consider Salobo to be a material property, for purposes of S-K 1300. There have been no material changes in the reported reserves or resources or in the material assumptions and information since the last technical report summary filed for Salobo operations.

### 2.2.3.1 Salobo

#### Property description

Salobo operations constitute a production stage property located in the Carajás Mining District, Pará State, Brazil, 90 km northwest of the city of Parauapebas. Geographic coordinates for the Salobo Operations are 5°47'27"S latitude and 50°32'5" W longitude, using the Geographic SAD 69 coordinate system. Salobo operations are owned by Salobo Metais S.A., our wholly owned subsidiary.



### Infrastructure

Salobo operations are connected via an all-weather road network to the cities of Parauapebas (90 km) and Marabá (240 km). There is a commercial airport at Carajás. Railroads link Carajás with the port city of São Luis.

The required water permits are adequate and current.

The Carajás district has a long history of mining operations. Personnel with experience in mining activities are available throughout the district. The workforce resides in Carajás, Parauapebas, and surrounding settlements.

Salobo is in the Northwest of the Carajás region within Tapirapé–Aquiri national forest. In the mine area the topography is steep, varying between 190–520 m in elevation. The area is heavily forested and dominated by relative dense trees with substantial underbrush. The Carajás district is within the eastern Amazon humid tropical rainforest and has distinct wet and dry seasons. Mining operations are conducted year-round.

### Geology and Mineralization

The Salobo deposit is an example of an iron oxide-copper-gold (IOCG) deposit and is hosted in the Carajás Mining District within Carajás Province, a sigmoidal-shaped, west–northwest–east–southeast-trending late Archean basin.

The mineralization consists of mineralogical assemblages of magnetite–chalcopyrite–bornite and magnetite–bornite–chalcocite in a number of styles as disseminations, stringers, stockworks, massive accumulations, fracture fillings, or veins.

The deposit extends over an area of approximately 4 km along strike (west–northwest), is 100–600 m wide, and has been recognized to depths of 750 m below the surface.

### Exploration

Exploration has occurred on the property since 1974 and includes geological mapping, drilling, and airborne geophysical surveys, metallurgical test work, environmental and baseline studies, mining studies, and permitting activities. We continually invest in mineral exploration with the aim of expanding our mineral resources and mineral reserves and achieving an adequate level of confidence in the resource estimate that supports our mining plans.

### Mineral Rights

We have a mining concession for Salobo operations, concession 807.426/1974, granted for copper ore, gold and silver by ANM on July 16, 1987, covering 9,180.60 ha.

### Surface rights

Salobo is located entirely within the Tapirapé–Aquiri National Forest, which belongs to the Federal Government. There are no third-party properties adjacent to the mining complex. There are no associated payments related to surface rights.

*Current, planned, future mining plans*

Mining is carried out as an open pit truck-shovel operation with a planned mine life of approximately 22 years, ending in 2047. The process plant will continue to operate by reclaiming stockpiled material until 2054.

With the Salobo 3 expansion, the base case mine production schedule involves the movement of 126 Mtpy to feed an expanded processing capacity of 36 Mtpy, by processing a portion of the ore that would have been stockpiled in the previous 24 Mtpy production plan.

The process plant is designed to operate 365 days per year. The plant produces a copper concentrate that is transported by road to a rail offloading facility for rail transport to the seaport of São Luis.

The existing processing plants, Line 1 and Line 2 (Salobo I and II), each have a nominal 12 Mt capacity. In 2024, we concluded the ramp-up the third line (Salobo III) that has a nominal 12 Mt circuit, increasing the process capacity to a total of 36 Mtpy.

*Asset details and modernization*

Salobo mine has been operating since 2012, with an open pit method, using shovels for ore and waste production, together with hydraulic shovels, wheel loaders, a fleet of off-road haul trucks and auxiliary equipment to maintain the access to production areas and slope drainage. A robust replacement program ensures that this equipment follows a manufacturer recommendation for life of asset and when the useful life of equipment is ending, we plan and invest in a fleet upgrade.

*Total property book value*

The book value of the Salobo operations and its associated plant and equipment was US\$2,815 million, as of December 31, 2024, which does not include the shared infrastructure assets such as ports and railways.

*Operator history*

All exploration and development were conducted by us. Copper mineralization was discovered in the Igarapé Salobo region in 1974. Detailed exploration commenced in 1977. A scoping study was completed in 1981, and pilot studies ran from 1985 to 1987, culminating in the grant of a mining concession. A prefeasibility study was concluded in 1988, an initial feasibility study was conducted in 1998, updates to the feasibility study were undertaken in 2001 and 2002, and a final study was completed in 2004. The Salobo Operations commenced pre-stripping in 2009, and the first concentrate was produced in 2012. The factory improved its facilities twice. The first improvement was in 2014 with the addition of a second production line. The second improvement occurred in 2023, focusing on increasing the output via addition of the third production line.

*Encumbrances and permitting requirements*

There are no material encumbrances for Salobo Operations.

*Mineral resources*

For a discussion of the changes from the previous fiscal year, see *Information on the Company—Reserves and Resources*. We do not consider the current change as material. All disclosure of mineral resources is exclusive of mineral reserves.

Salobo - Summary of Copper Mineral Resources as of December 31, <sup>(1)(3)(5)</sup>								
Category	2024 <sup>(2)</sup>			2023			Cut-off grade	Metallurgical Recovery <sup>(4)</sup>
	Tonnage	Cu	Au	Tonnage	Cu	Au		
Measured	20.2	0.35	0.17	22.4	0.35	0.17	0.25 %CuEq	Cu: 85.3% Au: 66.4%
Indicated	476.2	0.47	0.24	529.1	0.47	0.24		
Measured + Indicated	496.3	0.47	0.24	551.5	0.47	0.23		
Inferred	244.9	0.5	0.3	272.1	0.5	0.3		

<sup>(1)</sup> The mineral resource prospects of economic extraction were determined using the following price assumptions per metric ton: for copper US\$9,025/metric ton and for gold US\$1,525/oz.

<sup>(2)</sup> Resources have been adjusted to reflect our 90% ownership, after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*

<sup>(3)</sup> Tonnage is in millions of dry metric tons and Cu grades are in (%), Au grades in g/t. The point of reference for the estimate is in situ metric tons.

<sup>(4)</sup> The metallurgical recovery is shown as a range, due to the variability in specific orebody requirements and timing of the associated estimate.

<sup>(5)</sup> Numbers have been rounded.

### Mineral reserves

For a discussion of the changes from the previous fiscal year, see *Information on the Company—Reserves and Resources*. We do not consider the current change as material.

Salobo - Summary of Copper Mineral Reserves as of December 31, <sup>(1) (3)(6)(7)</sup>								
Category	2024 <sup>(2)</sup>			2023			Cut-off grade	Metallurgical Recovery <sup>(5)</sup>
	Tonnage	Cu	Au <sup>(4)</sup>	Tonnage	Cu	Au <sup>(4)</sup>		
Proven	233.1	0.65	0.37	289.1	0.65	0.38	0.25% CuEq	Cu: 86.5% Au: 67.7%
Probable	718.8	0.60	0.34	799.8	0.60	0.34		
<b>Total</b>	<b>951.9</b>	<b>0.61</b>	<b>0.35</b>	<b>1,088.9</b>	<b>0.62</b>	<b>0.35</b>		

<sup>(1)</sup> The mineral reserve economic viability was determined based on a commodity price curve with long-term price of per metric ton of US\$9,150/metric ton for copper, gold US\$1,925/oz.

<sup>(2)</sup> Resources have been adjusted to reflect our 90% ownership, after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

<sup>(3)</sup> Tonnage is in millions of dry metric tons and Cu grades are in (%), Au grades are in g/t. Point of reference is the point of delivery to the process plant.

<sup>(4)</sup> Figures shown do not deduct the streaming amounts. For a description of our streaming arrangement with Wheaton, see Section 2.3 PGM's and other Precious Metals.

<sup>(5)</sup> The metallurgical recovery is shown as a range, due to the variability in specific orebody requirements and timing of the associated estimate.

<sup>(6)</sup> Estimated consolidated copper ore reserves include 230.3 million dry metric tons of stockpile.

<sup>(7)</sup> Numbers have been rounded.

### 2.2.4 Copper strategy

Copper has a solid long-term growth profile, driven by industrialization, construction, and electrical grid infrastructure expansion. Governments around the world have set ambitious decarbonization targets that, along with the dropping of renewable energy costs and green economy and stimulus investments, will be crucial for more intensive use of copper in renewable energy and electric vehicle-related infrastructure projects. We have significant opportunities to expand our copper business through organic growth. We have a strong portfolio of copper assets, and we intend to develop a multiyear copper expansion plan, especially with Salobo III, to support our strategic objective of up to 380 thousand tons per year of production capacity by 2026. In addition to these projects, we have other opportunities to grow in the future, such as the Alemão project, or even leveraging the knowledge and logistics that already exist in the Carajás region, while also evaluating opportunities to increase copper production in Canada and Indonesia. In Indonesia, we are advancing studies to develop the Hu'u project, a world-class deposit, which could further expand our copper business. We are also engaged in greenfield exploration for copper in some of the world's most prolific belts, looking for tier-one assets for future development.

### 2.2.5 Customers and sales

From our South Atlantic operations, we sell most of our copper concentrates from Sossego and Salobo under medium- and long-term contracts to copper smelters in Europe and Asia. From our North Atlantic operations, we sell copper concentrates and copper matte produced in Sudbury domestically and to smelters in Europe and Asia under long-term contracts, as well as copper concentrates from Voisey's Bay under short-term contracts. Also, from our North Atlantic operations, we sell copper cathodes from Sudbury and Long Harbour under short-term contracts.

### 2.2.6 Competition

The global refined copper market is highly competitive. Producers are integrated mining companies and custom smelters, covering all regions of the world, while consumers are principally wire rod and copper alloy producers. Competition occurs mainly on a regional level and is based primarily on production costs, quality, reliability of supply and logistics costs. The world's largest copper cathode producers are Jiangxi Copper Corporation, Tongling Non-Ferrous Metals Group Co., Corporación Nacional del Cobre de Chile (Codelco), Aurubis, Jinchuan and Freeport McMoRan, each operating at the parent company level or through subsidiaries. Our participation in the global refined copper cathodes market is marginal as we position ourselves more competitively in the copper concentrate market.

Copper concentrate and copper matte are intermediate products in the copper production chain. Both the concentrate and matte markets are competitive, having numerous producers but fewer participants and smaller volumes than in the copper cathode market due to the high levels of integration by the major copper producers.

In the copper concentrate market, mining occurs on a global basis with a predominant share from South America, while consumers are custom smelters located mainly in Europe and Asia. Competition in the custom copper concentrate market occurs mainly on a global level and is based on production costs, quality, logistics costs and reliability of supply. The largest competitors in the copper concentrate market are BHP Group, Freeport McMoRan, Glencore, Anglo American, Zijin Mining, Rio Tinto, PT Inalum and Codelco; each operating at the parent company level or through subsidiaries. Our market share in 2024 was about 2.5% of the total custom copper concentrate market.

### 2.3 PGMs and other precious metals

As by-products of our Sudbury nickel operations in Canada, we recover PGMs, as well as gold and silver. We operate a processing facility in Port Colborne, Ontario, which produces PGMs, gold and silver intermediate products using feed from our Sudbury operation. PGM concentrates, gold and silver intermediates from our Port Colborne operation are being sold to third parties.

Our copper concentrates from our Salobo and Sossego mines in Carajás, in the Brazilian state of Pará, contain gold and Salobo also contains silver. We realize the value of both gold and silver in the sale of these products. Notably, the production volume of silver from Salobo represents 55% of our total silver production.

We have sold to Wheaton Precious Metals Corp. (Wheaton) an aggregate of (i) 75% of the by-product gold contained in concentrate from our Salobo copper mine, in Brazil, for the life of mine, and (ii) 70% of the by-product gold from our Sudbury nickel mines, in Canada, for 20 years. These sales were made in three different streaming transactions, in February 2013, March 2015 and August 2016. In connection with these streaming transactions:

- We received upfront payments of (i) US\$1.9 billion in 2013, (ii) US\$900 million in 2015 and (iii) US\$800 million in 2016. We also received 10 million warrants exercisable into Wheaton shares, which we sold in February 2020 for US\$2.5 per warrant, totaling US\$25 million.
- We receive ongoing payments of the lesser of US\$400 per ounce (subject to a 1% annual inflation adjustment under the Salobo contract starting January 1, 2019) and the prevailing market price, for each ounce of gold that we deliver under the agreement.
- As per the Salobo gold by-product stream purchase agreement, we were entitled to receive an additional cash payment if we expanded our capacity to process Salobo copper ores to more than 28 Mtpy before 2036. In March 2023, we agreed with Wheaton to amend this agreement to adjust the additional cash payment terms.
  - As per the amended agreement, the additional cash payment will be phased, with Wheaton making an initial payment once actual throughput is demonstrated to be above 32 Mtpy and a second payment once if actual throughput is demonstrated to be above 35 Mtpy by January 1, 2031. The total cumulative payments will range from US\$283 million to US\$552 million, dependent on our timing for each of the production increases.
    - VBM concluded successfully the 32 Mtpy processing test at Salobo Complex, receiving in December 2023 a payment of US\$370 million.
  - In addition, Wheaton will be required to make annual payments of between US\$5.1 million to US\$8.5 million for a 10-year period following payment of the expansion additional cash payments if the Salobo mine maintains a high-grade mine plan. The following table presents information on the contained volume of precious metals and platinum group metals as a by-product of our production of nickel and copper concentrates.

Mine	Type	By-product finished production by ore source for the year ended December 31, (thousand troy ounces of contained metal)		
		2024	2023	2022
<b>Sudbury <sup>(1)</sup></b>				
Platinum	Underground	107	125	102
Palladium	Underground	120	149	127
Gold <sup>(2)</sup>	Underground	38	45	44
<b>Salobo</b>				
Gold contained in copper concentrate <sup>(2)</sup>	Open pit	362	319	215
<b>Sossego</b>				
Gold contained in copper concentrate	Open pit	45	46	30

<sup>(1)</sup> These numbers also include ore source from Manitoba, external source, and minor amounts from Voisey's Bay.

<sup>(2)</sup> Figures represent 100% of Salobo and Sudbury contained volume of gold as a by-product of our production of nickel and copper concentrates and do not deduct the portion of the gold sold to Wheaton.

## 2.4 Cobalt

We recover significant quantities of cobalt as a by-product of our nickel operations. In 2024, we produced 674 metric tons of refined cobalt metal (in the form of cobalt rounds) at our Port Colborne refinery, 1,382 metric tons of cobalt rounds at our Long Harbour refinery. We sell cobalt on a global basis. The cobalt metal and the Long Harbour cobalt rounds are electro refined at our Port Colborne refinery and have very high purity levels (99.8%), meeting the LME contract specification. Cobalt metal is used in the production of various alloys, particularly for aerospace applications, and in the manufacturing of cobalt-based chemicals primarily for use in rechargeable batteries.

In June 2018, we sold to Wheaton and Cobalt 27 Capital Corp. (Cobalt 27) a combined 75% of the cobalt produced as a by-product at our Voisey's Bay mine from January 1, 2021, which includes the ramp down of production from the existing mine and the life of mine production from our underground mine expansion project. In consideration, we received US\$690 million in cash from Wheaton and Cobalt 27 upon closing of the transaction on June 28, 2018, and will receive additional payments of 18-22% of cobalt prices upon delivery. In February 2021, the stream originally sold to Cobalt 27 was assigned to Anglo Pacific Group. We remain exposed to approximately 40% of future cobalt production from Voisey's Bay, through our retained interest in 25% of cobalt production and the additional payments upon delivery.

The following table sets forth information on our cobalt production.

Mine	Type	By-product finished production by ore source for the year ended December 31, (contained metric tons)		
		2024	2023	2022
Sudbury	Underground	331	365	367
Thompson	Underground	113	94	143
Voisey's Bay <sup>(1)</sup>	Open pit/Underground	1,102	637	1,169
Others <sup>(2)</sup>	–	532	862	755
<b>Total</b>		<b>2,079</b>	<b>1,959</b>	<b>2,434</b>

<sup>(1)</sup> Figures represent 100% of cobalt production, and do not deduct the portion of cobalt stream sold to Cobalt27, Wheaton and Anglo Pacific Group.

<sup>(2)</sup> These figures do not include tolling of feeds for unrelated parties. Includes cobalt processed at our facilities using feeds purchased from unrelated parties, and PTVI ore source (521 metric tons in 2022, 538 metric tons in 2023 and 343 metric tons in 2024).

## 2.5 Logistics and energy assets to support Energy Transition Metals operations

### 2.5.1 Ports

**Canada.** Vale Newfoundland & Labrador Limited operates a port as part of our mining operation at Voisey's Bay, Labrador and a port as part of our processing operation at Long Harbour, Newfoundland. The port at Voisey's Bay is

used for shipping nickel and copper concentrates and re-supply. The port at Long Harbour is used to receive nickel concentrate from Voisey's Bay along with goods and materials required for the Long Harbour operation.

**Indonesia.** PTVI owns and operates two ports in Indonesia to support its nickel mining activities.

- The Balintang Special Port is located in Balintang Village, South Sulawesi, and has two types of piers, two barge slips for barges with capacity of up to 5,000 DWT each for dry bulk cargo, and a general cargo wharf for vessels of up to 2,000 DWT.
- The Tanjung Mangkasa Special Port is in Lampia Village, South Sulawesi, with mooring buoys that can accommodate fuel tankers with capacity of up to 20,000 DWT, and a jetty terminal that can accommodate fuel tanker vessels with capacity of up to 5,000 DWT.

### 2.5.2 Energy

**Canada.** In 2024, our wholly owned and operated hydroelectric power plants in Sudbury generated approximately 14% of the electricity requirements of our Sudbury operations. The power plants consist of five separate generation stations High Falls I and II, Big Eddy, Wabageshik and Nairn with an installed generator nameplate capacity of 55 MW. The output of the plants is limited by water availability, as well as by constraints imposed by a water management plan regulated by the provincial government of Ontario. Over the course of 2024, average demand for electrical energy was 193 MWh to all surface plants and mines in the Sudbury area. In 2024, diesel generation provided 100% of the electric requirements of our Voisey's Bay operations. We have six diesel generators onsite, with output ranging from 12 to 14 MW, in order to meet seasonal demands.

**Indonesia.** Energy costs are a significant component of our nickel production costs for the processing of lateritic ore at our PTVI operations in Indonesia. A major portion of PTVI's electric furnace power requirements is supplied at a low cost by its three hydroelectric power plants on the Larona River: (i) the Larona plant, which has an average generating capacity of 165 MW, (ii) the Balambano plant, which has an average capacity of 110 MW and (iii) the Karebbe plant, with 90 MW of average generating capacity. These plants help reduce production costs by substituting hydrocarbons for power generation with hydroelectric power, reducing CO2 emissions by replacing non-renewable power generation, and enable us to increase our current nickel production capacity.



### 3. OTHER INVESTMENTS

#### 3.1 Anglo American Minério de Ferro Brasil

In December 2024, we completed the acquisition of a 15% interest in Anglo American Minério de Ferro Brasil S.A (Anglo American Brasil) by contributing the high-grade Serra da Serpentina iron ore resources into Anglo American Brasil and paying an amount in cash.



Ownership interest	15% owned by Vale. The remaining 85% is owned by Anglo American Brasil.
Location	Conceição do Mato Dentro and Alvorada de Minas, State of Minas Gerais, Brazil.
Operator	Anglo American Brasil.
Mining complexes	Integrated system comprised of an open pit, a beneficiation plant, a 529-kilometer slurry pipeline, filtering plant and an export terminal at the port.
Mining title <sup>(1)</sup>	Mining concessions with no expiration date, application for mining concession and exploration permits. Acreage: 2,849 ha.
Stage/ Operations	Production stage since 2014.
Key permit conditions	We understand that Anglo American Minas-Rio has the necessary permits for its current operations.
Mine types and mineralization styles	Friable Itabirite and hematite ore types extracted using an open-pit mining method.

## Associated facilities and infrastructure

**Mine:** Shovels, loaders and trucks mobile equipment system transport the ore blending to the beneficiation plant.

**Processing plant:** One beneficiation plant, located at the site, process the run of mine by means of standard crushing, milling, concentration steps, producing pellet feed.

**Logistics:** Minas-Rio mine supply its own pellet plant using a pipeline with two pump stations and one valve station. This pellet feed is transported through a 529km long slurry pipeline that passes through 32 municipal districts to connect to the Port of Açú.

**Port:** The production is embarked in an export terminal at the Atlantic port of Açú in the state of Rio de Janeiro.

**Energy:** Acquired from regional utility companies or produced directly by Anglo American.

(1) Area with reserves and resources associated.

We are not reporting mineral resources or mineral reserves estimates for Anglo American Brazil in this annual report on Form 20-F. In 2025, we expect to assess the existing technical study to determine whether mineral resources and mineral reserves estimates may be reported in our annual report for the next year in accordance with S-K 1300.

### 3.2 Samarco

We have a 50% equity interest in Samarco, and BHP Billiton Brasil Ltda. (BHP Brasil) owns the remaining 50%. Samarco owns an integrated system composed of two different complexes, three beneficiation plants, three pipelines, four pellet plants and a port. The mines and the beneficiation plants are in the state of Minas Gerais and the pellet plants and port are located in the state of Espírito Santo. From Minas Gerais to Espírito Santo, the production flows through the three pipelines which extend for approximately 400 Km. Samarco's mining and pelletizing operations have been gradually resuming since December 2020.

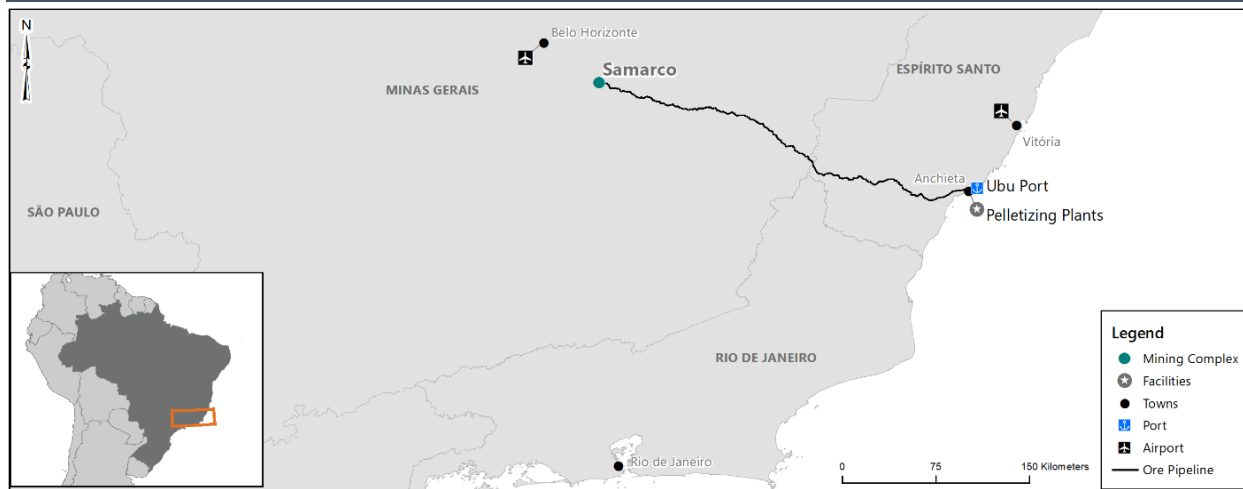
In 2015, the Fundão tailings dam owned by Samarco failed. For additional information, see *Overview—Business Overview—Reparation and remediation efforts related to Samarco's tailings dam*. From 2015 through December 2020, Samarco's operations were suspended. In December 2020, Samarco began the gradual resumption of its operations, with the integrated restart of iron ore extraction, beneficiation, and pelletizing activities, achieving a production of approximately 8 Mtpa, equivalent to approximately 26% of Samarco's total capacity. These activities are currently conducted at the Germano complex, in the municipality of Mariana, state of Minas Gerais, and at the Ubu complex, in the municipality of Anchieta, state of Espírito Santo. The integrated restart of operations occurred following extensive commissioning tests after a five-year halt period. In December, 2024, Samarco increased its production capacity to approximately 15 Mtpa, representing approximately 60% of its total capacity. Samarco is also using new processes for tailings disposal, reflecting its commitment to a sustainable restart and operational safety.

Through the implementation of the filtration process, Samarco is now able to substantially dewater sand tailings, which represent approximately 80% of total tailings volume, and safely stack these filtered sand tailings in piles. The remaining 20% of tailings are being deposited in Alegria Sul pit, a bedrock self-contained structure, which is safer than a tailings dam. Additionally, Samarco decommissioned Germano Pit in 2023 and is progressing in the decommissioning of Germano Dam, following the required safety standards. Samarco operates a 24/7 Monitoring and Inspection Center in real time to monitor the stability and safety of its geotechnical structures. Furthermore, Samarco implemented the GISTM in all of its tailing's facilities.

The carrying value for our investment in Samarco has been reduced to zero since 2015. In April 2021, Samarco filed a request for judicial reorganization (JR) with the Minas Gerais Court to restructure its debt. Samarco's financial debt was owed to (i) international holders of debt securities, (ii) certain financial creditors through export prepayment agreements, and (iii) its shareholders, BHP Brasil and us. Most of the debt claims of BHP Brasil and us were related to funds provided to Samarco after the failure of the Fundão dam, which were used for operational maintenance,

contributions to Fundação Renova, and resuming Samarco’s operations. In January 2024, Samarco successfully restructured its financial debt under the conditions established by the JR Plan approved in 2023.

**SAMARCO MINERAÇÃO S.A.**



Ownership interest	50% owned by Vale; 50% owned by BHP Brasil.
Location	Mariana and Ouro Preto, State of Minas Gerais, Brazil.
Operator	Samarco Mineração S.A.
Mining complexes	Integrated system composed of two different complexes, three beneficiation plants, three pipelines, four pump stations, two valves station, four pellet plants and a port.
Mining title <sup>(1)</sup>	Mining concession with no expiration date. Acreage: 1,174.3 ha.
Stage/ Operations	Continued operations from 1977 to 2015. Operations were suspended in November 2015, following the failure of the Fundão dam. Gradually resuming operations since December 2020.
Key permit conditions	We understand that Samarco has the necessary permits for its current operations.
Mine types and mineralization styles	Itabirite ore types extracted using an open-pit mining method.
Associated facilities and infrastructure	<p><b>Mine:</b> Long distance conveyor belt systems and trucks transport the ore blending to beneficiation plants.</p> <p><b>Processing plant:</b> The three beneficiation plants, located at site, process the run of mine by means of standard crushing, milling, concentration steps, producing pellet feed.</p> <p><b>Logistics:</b> The mines supply the pellet plants using pipelines extending approximately 400 kilometers. These pipelines transport the iron ore from beneficiation plants to the pelletizing plants in the state of Espírito Santo.</p> <p><b>Port:</b> The production is embarked on a self-owned port in the state of Espírito Santo.</p> <p><b>Energy:</b> Supplied through the national electricity grid. Acquired from regional utility companies or produced directly by Samarco.</p>

(1) Area with reserves and resources associated.

## LINE OF BUSINESS

In 2024, Samarco produced 9.6 Mt of iron ore pellets, compared to 9.1 Mt in 2023 and 8.1 Mt in 2022. The production figures for Samarco, in which we have a 50% interest, have not been adjusted to reflect our ownership interest.

All mineral resource and mineral reserve information for Samarco's mining property has been estimated by a qualified person engaged by Samarco. We are reporting this mineral reserve and resource information given our indirect economic interest in Samarco's property, as required under Item 1303(b)(3) of Subpart 1300 of Regulation S-K. However, for the reasons described above, our ability to receive cash flows from Samarco is limited by the current outstanding restructured debt of Samarco (new senior debt bonds maturing in 2031) and the carrying value for our investment in Samarco has been reduced to zero since 2015.

<b>Samarco Iron Ore Mineral Reserves as of December 31, <sup>(1)(2)(3)(4)</sup></b> <i>(Tonnage in metric million tons inclusive moisture and wet %Fe grade)</i>								
	<b>Proven – 2024</b>		<b>Probable – 2024</b>		<b>Total – 2024</b>		<b>Total – 2023</b>	
	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>
Samarco	45	40.6	375	43.0	420	42.7	429	42.7

<sup>(1)</sup> The mineral reserve economic viability was determined based an average long-term price of US\$126.70/t pellets and fines - FOB Ubu Port (100% Blast Furnace).

<sup>(2)</sup> Adjusted to reflect our 50% ownership.

<sup>(3)</sup> The point of reference is in-situ material. The moisture content is 6.5% and the average product recovery (tonnage basis) is 47%.

<sup>(4)</sup> Numbers have been rounded.

<b>Samarco Iron Ore Mineral Resources as of December 31, <sup>(1)(2)(3)(4)</sup></b> <i>(Tonnage in metric million tons inclusive moisture and wet %Fe grade)</i>												
	<b>Measured - 2024</b>		<b>Indicated - 2024</b>		<b>Measured and Indicated - 2024</b>		<b>Inferred - 2024</b>		<b>Measured and Indicated - 2023</b>		<b>Inferred - 2023</b>	
	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>
Samarco	1,207	38.3	753	36.8	1,960	37.7	210	37.4	1,960	37.7	210	37.4

<sup>(1)</sup> The mineral resources prospects of economic extraction were determined based an average long-term price of US\$126.70/t pellets and fines - FOB Ubu Port (100% Blast Furnace).

<sup>(2)</sup> Mineral resources are reported exclusive of those mineral resources converted to mineral reserves and have been adjusted to reflect our 50% ownership.

<sup>(3)</sup> The point of reference is in-situ material. The moisture content is 6.5% and the average product recovery (tonnage basis) is 41%.

<sup>(4)</sup> Numbers have been rounded.

Samarco mineral reserves decreased by 2%, due to mine depletion, consisting of 18 Mt (not adjusted to reflect our 50% equity interest).

### 3.3 Other Investments

Below is a list of our main other investments:

**VLI.** VLI provides integrated logistics solutions with assets strategically distributed between the North and Southeast Systems, covering five logistics corridors: North, Southeast, East, Minas-Rio and Minas-Bahia. Its multimodal operations are made possible by an extensive rail network of 7,940 kilometers (Ferrovia Centro-Atlântica S.A. and Ferrovia Norte-Sul S.A.), nine integrating terminals and eight port terminals. Among the main products transported are grains, steel and construction products, industrial items, sugar and fertilizers. We hold a 29.6% stake in VLI and we are part of a shareholders' agreement with FI-FGTS, Mitsui, Brookfield and BNDESPar, which hold the remaining equity stakes. In 2024, VLI handled a total of 41.9 billion TKU of general cargo, including 31.2 billion TKU from FCA and FNS.) VLI's main assets include:

- **Ferrovia Norte-Sul-Tramo Norte (FNS):** An important export route connecting the Midwest and Northeast regions, 720 km long, crossing 25 cities in two states (Maranhão and Tocantins), connecting Açailândia (Maranhão) to Porto Nacional (Tocantins). The concession runs until December 2037.
- **Ferrovia Centro-Atlântica S.A. (FCA):** The main axis of integration between the Southeast, Northeast and West regions, with a length of 7,220 km. It covers more than 300 municipalities in seven Brazilian states (Minas Gerais, Espírito Santo, Rio de Janeiro, Sergipe, Goiás, Bahia and São Paulo) and the Federal District. The concession runs until August 2026, with negotiations underway for early renewal with the Ministry of Transport.
- **Terminal Integrador Portuário Luiz Antônio Mesquita (Tiplam)–Santos (SP):** Authorized to operate until October 2039, the terminal has been ISO 14001 certified (environmental management) since December 2021.
- **Terminal Marítimo Inácio Barbosa (TMIB) – Aracaju (SE):** Authorized to operate port cargo until June 2040.
- **Terminal Portuário São Luís (TPSL) – São Luís (MA):** Regulated operation under contract with Empresa Maranhense de Administração Portuária (EMAP) until March 2028. Since December 2021, it has been ISO 14001 certified (environmental management).
- **Trato (VLI Ventures):** VLI startup that develops innovative digital solutions for road logistics optimization, offering services such as digital carrier, scheduling, registration and orchestration, with a focus on efficiency and competitiveness.
- Right to purchase capacity of the Vitória-Minas Railroad (EFVM) and Carajás Railroad (EFC) for general cargo;
- Right to purchase capacity of the terminals of Terminal de Tubarão - Vitória (ES) - Produtos Diversos (TPD), Terminal de Tubarão - Vitória (ES) - Granéis Líquidos (TGL) and Terminal de Praia Mole (TPM) - Vitória (ES).

**MRS Logística S.A. (MRS).** The MRS railroad, in which we hold a 49.01% direct and indirect equity interest, is 1,643 kilometers long and links the Brazilian states of Rio de Janeiro, São Paulo and Minas Gerais. The MRS railroad transports our iron ore products from the Southern System mines to our maritime terminals. In 2024, it transported a daily average of 332,986 metric tons of iron ore and 221,734 metric tons of other cargo.

# RESERVES AND RESOURCES

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## INTERNAL CONTROLS

Our mineral resources and mineral reserves estimates are reported in accordance with Item 1303(b)(3) of Subpart 1300 of Regulation S-K (S-K 1300).

We have an established risk management process that is integrated with our Executive Risk Committee. For additional information, see *Overview—Risk Management—Risk Governance Structure*. As part of our risk management process, we identify risks affecting uncertainty of mineral reserves and mineral resources disclosure, with standardized risk ratings and proposed mitigation activities.

We work based on a line of defense structure for governance of our estimation and reporting of mineral reserves and resources, with the purpose of promoting transparency, consistency, professional competence, and the reliability of all information prepared for internal purposes and public reporting.

Our internal guidelines define the responsibility for the governance and reporting of mineral resource and reserves, clarify concepts and bring technical guidance from the broader view to all business units. These internal guidelines are periodically reviewed and revised to ensure alignment with industry practice.

Our internal controls protocols for exploration data, as they relate to mineral resource and reserve estimation, contain:

- Written procedures and guidelines defining minimum requirements to support exploration programs.
- Quality Control and Quality Assurance (QA/QC) programs are in place aiming to ensure the accuracy and integrity of the data being entered into the estimation databases. These include, but are not limited to, collar and downhole survey, core logging, sample preparation, chemical analysis and bulk density determinations.
- Maintenance of a chain-of-custody, ensuring the traceability and integrity of the samples at all handling stages from collection, transportation, sample preparation and analysis to long-term pulp and coarse reject storage.
- The geological model, interpretation (includes reconciliation insights) and 3D modelling of the mineralized zones are subject to a peer review process aiming to identify flaws or alternative interpretations that might not have been considered by the main modeler.

We have the following internal control protocols in place to guide mineral resource and mineral reserve estimation:

- Written procedures and guidelines defining minimum requirements for estimation and reporting.
- Peer reviews are undertaken on mineral reserve and resource estimations to ensure consistency with industry practices including reviews of geological model, block models, and mineral resource and reserve estimates.
- Annual mineral resource and mineral reserve estimation statements are prepared following our layered responsibility system. For more information see *Overview—Risk Management*.
- External mineral resource and mineral reserve audits are undertaken for applicable cases in accordance with our guidelines

We use the Front-End-Load (FEL) methodology to progress our project studies that we consider fulfill S-K 1300 reporting requirements from initial assessments, pre-feasibility, feasibility. This staged approach provides for project review and allows for assessment and risk evaluations, including the ones related to mineral resource and mineral reserve estimates, economic assumptions, engineering requirements for mining and extraction, social and environment aspects.

We conduct reviews of and updates to property risk registers as part of the mineral resource and mineral reserve estimation processes. Areas of uncertainty that may materially impact mineral resource and reserve estimates and are monitored for material changes for impact to estimations may include but are not limited to:

- Changes to long-term metal price, market and exchange rate assumptions.
- Changes in local interpretation of lithological, structural and mineralization geometry and continuity.
- Changes to estimation input parameters and estimation techniques in the resource modeling process.
- Changes to metallurgical recovery assumptions affecting concentrate grade, variability and quality.
- Changes in processing that result in higher deleterious elements that result in penalties or result in unsalable concentrate.
- Changes to the input assumptions used to derive the potentially mineable shapes applicable to the assumed underground and open pit mining methods used to constrain the estimates.

- Changes to mining selectivity and production rate assumptions.
- Changes to the forecast dilution and mining recovery assumptions.
- Changes to the cut-off values applied to the estimates.
- Variations in geotechnical (including seismicity), structures, rock mass strength, stress regime), hydrogeological, hydrothermal, geothermal factors, and mining method assumptions.
- Changes to environmental, permitting and social license assumptions.
- Long-term consumables price assumptions.

Other factors that can affect the reserve estimates include changes to:

- Mineral resource input parameters.
- Constraining underground or pit designs.
- Cut-off grade, Grade descriptor assumptions.
- Geotechnical (including seismicity), geothermal/hydrothermal and hydrogeological factors.
- Mining recovery assumptions based on similar types of mining methods; Metallurgical recovery are determined through testing of a significant number of drill core samples.
- Ability to control unplanned dilution.
- Ability to access the site, retain mineral, surface rights and water rights titles.
- Ability to maintain environmental and other regulatory permits and maintain the social license to operate.

### **PRESENTATION OF INFORMATION CONCERNING MINERAL RESERVES**

The estimates of proven and probable mineral reserves at our mines and projects and the estimates of mine life included in this annual report have been prepared by our staff of experienced geologists and engineers, unless otherwise stated, and in accordance with the technical definitions established by the SEC under S-K 1300.

We periodically revise our reserve estimates when we have new geological data, economic assumptions or mining plans. During 2024, we performed an analysis of our mineral reserve estimates for certain projects and operations, which are presented in this report. Mineral Reserve estimates for each operation assume that we either have or expect to obtain all the necessary rights and permits to mine, extract and process mineral reserves at each mine. For some of our operations, the projected exhaustion date includes stockpile reclamation. Where we own less than 100% of the operation, mineral reserve estimates have been adjusted to reflect our proportional ownership interest. Certain numbers in the tables, discussions and notes have been rounded. For a description of risks relating to mineral reserves and mineral resources estimates, see *Overview—Risk Factors*.

The projected exhaustion date of our mines or complexes are continuously reviewed based on several factors and studies, including geological exploration, socio-environmental factors, mineral processing, economic assumptions, market demand, mining constraints, tailings or waste disposal constraints and production capacity, in each case supported by proven and probable mineral reserves. Investments in mineral exploration and the review of technical studies are part of our long-term strategy and continuous pursuit to add value to the company, by bringing operational reliability and expanding mineral reserves portfolio.

The economic viability of our mineral reserves was tested based on commodity price assumptions valid as of December 31, 2024.

### **PRESENTATION OF INFORMATION CONCERNING MINERAL RESOURCES**

Estimation was performed by our staff of experienced geologists and engineers, unless otherwise stated. All mineralogical information, exploration drilling and background information were provided to the estimators by the geological staff at the mines or by exploration staff.

The mineral resource confidence categories were initially assigned based on a combination of factors, including geological understanding and confidence, drill hole support, grade estimation confidence relative to planned production rates, and identified risk factors. The initial assignments were reviewed to assess the impacts of factors such as metallurgical recoveries, geomechanical studies, mine design work, and representative mineability and recovery reconciliation analysis. Where mining has occurred or is currently active, the mined-out volumes were overprinted upon the mineral resource model to account for mining depletion.

For each mineral resource estimate, at least an initial assessment was undertaken that assessed likely infrastructure, mining, and process plant requirements; mining methods; process recoveries and throughputs; environmental, permitting, and social considerations relating to the proposed mining and processing methods, and proposed waste disposal, and technical and economic considerations in support of an assessment of reasonable prospects of economic extraction. The assumptions made in the estimation our mineral resources may differ from those made in the estimation of our mineral reserves, because (i) the extraction of mineral resources occurs over a longer period of time, compared to the extraction of reserves, and (ii) different timing for mineral resource estimation and the economic analysis for purposes of reserve estimation or review. As of December 31, 2024, all the assumptions, including commodity price and resource mine designs, considered for our resource estimation continue to provide a reasonable basis for establishing the prospects of economic extraction of mineral resources.

We periodically revise our mineral resource estimates when we have new geological data, economic assumptions or mining plans. During 2024, we performed an analysis of our mineral resource for certain projects and operations, which is presented in this report. Mineral resource estimates for each operation assume that we either have or expect to obtain all the necessary rights and permits to mine, extract and process mineral resources at each mine. Where we own less than 100% of the operation, resource estimates have been adjusted to reflect our proportional ownership interest. All mineral resources presented are exclusive of mineral reserves. Certain numbers in the tables, discussions and notes have been rounded. For a description of risks relating to resource and reserve estimates, see *Overview—Risk Factors*. Our mineral resource estimates are based on certain assumptions about prices as shown in the tables below.

### IRON ORE MINERAL RESERVES AND MINERAL RESOURCES

We classify our iron ore mineral reserves as proven to the extent that they satisfy the requirements of the definition of proven mineral reserves under S-K 1300 and that we have obtained the environmental licenses for the corresponding pit operation or have at least a reasonable expectation of obtaining on a timely basis any additional licenses necessary to conduct the operations.

We periodically review the economic viability of our iron ore mineral reserves considering changes in the iron ore industry.

Iron Ore Mineral reserves at December 31, <sup>(13)</sup>								
<i>(Tonnage in metric million tons inclusive moisture and dry %Fe grade)</i>								
	Proven – 2024 <sup>(1)(2)</sup>		Probable – 2024 <sup>(1)(2)</sup>		Total – 2024 <sup>(1)(2)</sup>		Total – 2023 <sup>(1)</sup>	
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
<b>Southeastern System <sup>(3)</sup></b>								
Itabira <sup>(4)</sup>	326.2	48.9	433.5	43.2	759.7	45.6	801.4	45.6
Minas Centrais <sup>(5)</sup>	311.1	41.9	892.2	50.0	1,203.3	47.9	1,229.1	47.9
Mariana <sup>(6)</sup>	450.9	53.0	304.6	53.3	755.5	53.1	436.9	56.8
Southeastern System - total	1,088.1	48.6	1,630.3	48.8	2,718.5	48.7	2,467.4	48.7
<b>Southern System <sup>(7)</sup></b>								
Vargem Grande <sup>(8)</sup>	706.8	44.0	2,976.1	42.2	3,682.9	42.5	2,935.6	45.5
Paraopeba <sup>(9)</sup>	149.2	48.9	211.6	55.9	360.9	53.0	314.1	57.2
Southern System - total	856.1	44.9	3,187.7	43.1	4,043.8	43.5	3,249.8	46.7
<b>Northern System <sup>(10)</sup></b>								
Serra Norte <sup>(11)</sup>	292.4	65.4	1,275.5	64.7	1,567.9	64.8	1,546.5	64.9
Serra Sul <sup>(12)</sup>	1,401.6	65.8	2,000.0	65.2	3,401.6	65.4	3,430.9	65.4
Serra Leste	91.5	64.0	276.8	64.5	368.3	64.4	227.2	64.5
Northern System - total	1,785.5	65.6	3,552.3	64.9	5,337.8	65.2	5,204.5	65.2
<b>Total</b>	<b>3,729.7</b>	<b>55.9</b>	<b>8,370.3</b>	<b>53.5</b>	<b>12,100.0</b>	<b>54.2</b>	<b>10,921.6</b>	<b>56.0</b>

<sup>(1)</sup> Iron Ore Reserve estimates stated as metric million tons inclusive moisture and dry %Fe grade; following moisture contents: 1.34% Itabira; 6.56% Minas Centrais; 6.96% Mariana; 6.0% Vargem Grande; 6.58% Paraopeba; 7.09% Serra Norte; 6.78% Serra Sul; 5.65% Serra Leste. Our Iron Ore mineral reserve estimates are of in-situ material, except for 149.2 Mt tons of stockpile included in the Mariana Complex and 98.9Mt tons of Gelado tailings dam ore in Serra Norte.

<sup>(2)</sup> The mineral reserve economic viability was determined based price curve with the long-term price being US\$83.2/dmt for 62% iron grade.

<sup>(3)</sup> Average product recoveries (tonnage basis) of the iron ore reserves are: 56.4% for Itabira, 71.4% for Minas Centrais and 90.0% for Mariana.

<sup>(4)</sup> The Itabira integrated operation includes Conceição and Minas do Meio mines.

<sup>(5)</sup> Minas Centrais complex comprises the reserves for Brucutu and Morro Agudo mines and Apollo project. The mineral reserve for the Minas Centrais complex has been adjusted to reflect our 98.7% ownership interest.



<sup>(6)</sup> Mariana complex includes Alegria, Fábrica Nova and Fazendão mines and Capanema project.

<sup>(7)</sup> Average product recoveries (tonnage basis) of the iron ore reserves are: 54.8% for Vargem Grande and 75.0% for Paraopeba.

<sup>(8)</sup> Vargem Grande complex includes Sapeçado, Galinheiro, Tamanduá, Horizontes and Abóboras mines.

<sup>(9)</sup> Paraopeba complex includes João Pereira and Segredo, Mar Azul, Capão Xavier and Viga mines.

<sup>(10)</sup> Average product recoveries (tonnage basis) of the iron ore reserves are: 96.7% for Serra Norte, 100% for Serra Leste and 100% for Serra Sul.

<sup>(11)</sup> Serra Norte complex includes N4W, N4E and N5 mines, Gelado tailings dam ore, and N1, N2 and N3 projects.

<sup>(12)</sup> Serra Sul complex includes S11D and S11C orebodies.

<sup>(13)</sup> Numbers have been rounded.

We periodically revise our mineral resource and mineral reserve estimates based on new geological data, study developments, economic assumptions, mining plans, new technology developments and regulatory updates, among other factors. Future changes in these aspects may impact our future mineral reserves. Variations in iron ore reserves from 2023 to 2024 reflect mainly depletion resulting from mine production for operating mines (corresponding to approximately 316 Mt), upgrades resulting from the incorporation of additional mineral exploration data and, consequently review of the resource model and mine designs in the Mariana complex and the Abóboras mine (Vargem Grande complex). Additionally, in 2024 we started reporting mineral resource and mineral reserve from Viga mine and the ore from Gelado tailings dam, as part of the Serra Norte Complex.

The main changes are summarized below:

- In the Northern System, our mineral reserves increased 3%, to 5.3 Bt in 2024 compared to 5.2 Bt in 2023. The changes on the three complexes were mainly due to the addition of Gelado tailings dam mineral reserve, at Serra Norte Complex, and mine design reviews partially offset by 177 Mt of mine depletion.
- In the Serra Sul Complex, our mineral reserves decreased 1%, to 3,402 Mt in 2024 compared to 3,431 Mt in 2023, mostly due to 82.4 Mt mine depletion offset by a 53Mt as a result of the environmental protection buffer review.
- In the Serra Norte Complex, our mineral reserves increased 1%, to 1.57 Bt in 2024 compared to 1.55Bt in 2023. This increase was due to a 111 Mt addition (corresponding 7% of the total mineral reserve) related to the incorporation of ore from Gelado tailings dam into the complex mineral reserve, besides the mine design reviews, that were partially offset by a 90 Mt mine depletion, corresponding to 6% of the total mineral reserve. There have been no material changes in the reported mineral reserve or mineral resource or in the material assumptions and information since the last technical report summary filed for Serra Norte Complex.
- In the Serra Leste Complex, our mineral reserves increased 62%, to 368 Mt in 2024 compared to 227 Mt in 2023. The increase in our mineral reserve is due to resource model and mine design reviews that were partially offset by mine depletion.
- In the Southeastern System, our mineral reserves increased 10%, to 2.7 Bt in 2024 compared to 2.5 Bt in 2023. The mineral reserves of Itabira Complex decreased by 42 Mt, corresponding to approximately 5% of the total mineral reserves, due to mine depletion. The mineral reserves of Minas Centrais Complex decreased by 26 Mt, corresponding to approximately 2% of mineral reserves, due to mine depletion. The mineral reserves of Mariana Complex increased by 319 Mt mainly due to the incorporation of additional mineral exploration data and consequently review of the resource model and mine designs, resulting in a 342Mt addition, which was offset by 24 Mt from mine depletion.
- In the Southern System, our mineral reserves increased 24%, to 4.0 Bt in 2024 compared to 3.25 Bt in 2023. The mineral reserves of Vargem Grande Complex increased by 747 Mt, corresponding to approximately 25% of mineral reserves, due to a 785 Mt as a result of incorporation of additional mineral exploration data and, consequently review of the resource model and mine designs, which was offset by 38 Mt from mine depletion. The mineral reserves of Paraopeba Complex increased by 47 Mt, corresponding to approximately 15% of the complex total mineral reserves, mainly due to Viga mine mineral reserve first disclosure, also considering the offset by mine design reviews and mine depletion.

## RESERVES AND RESOURCES

<b>Iron Ore Mineral Resources as of December 31, <sup>(1)</sup></b>												
<i>(Tonnage in metric million tons inclusive moisture and dry %Fe grade)</i>												
	Measured - 2024 <sup>(1)(2)</sup>		Indicated - 2024 <sup>(1)(2)</sup>		Measured and Indicated - 2024 <sup>(1)(2)</sup>		Inferred - 2024 <sup>(1)(2)</sup>		Measured and Indicated - 2023 <sup>(1)</sup>		Inferred - 2023 <sup>(1)</sup>	
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
<b>Southeastern System</b>												
Itabira <sup>(3)</sup>	176.6	53.0	303.9	45.5	480.4	48.2	258.0	41.9	480.4	48.2	258.0	41.9
Minas Centrais <sup>(4)</sup>	536.1	42.1	1,144.7	41.5	1,680.8	41.6	1,136.9	42.3	1,705.8	41.7	1,138.7	42.3
Mariana <sup>(5)</sup>	2,961.8	41.2	2,694.1	39.8	5,655.9	40.5	2,654.8	39.6	4,181.7	41.1	2,155.5	39.1
<b>Southeastern System – total</b>	<b>3,674.6</b>	<b>41.9</b>	<b>4,142.6</b>	<b>40.7</b>	<b>7,817.2</b>	<b>41.2</b>	<b>4,049.7</b>	<b>40.5</b>	<b>6,368.0</b>	<b>41.8</b>	<b>3,552.2</b>	<b>40.3</b>
<b>Southern System</b>												
Vargem Grande <sup>(6)</sup>	1,267.5	41.7	1,784.9	39.2	3,052.5	40.2	2,165.0	37.2	3,297.1	40.0	2,152.8	37.7
Paraopeba <sup>(7)</sup>	1,379.8	44.2	1,602.5	40.9	2,982.3	42.5	1,982.5	38.5	2,555.5	42.8	1,967.0	38.5
<b>Southern System - total</b>	<b>2,647.4</b>	<b>43.0</b>	<b>3,387.4</b>	<b>40.0</b>	<b>6,034.8</b>	<b>41.3</b>	<b>4,147.5</b>	<b>37.8</b>	<b>5,852.6</b>	<b>41.2</b>	<b>4,119.8</b>	<b>38.0</b>
<b>Northern System</b>												
Serra Norte <sup>(8)</sup>	694.3	66.6	598.6	66.1	1,292.8	66.4	425.3	66.4	916.9	66.5	282.7	66.2
Serra Sul (S11) <sup>(9)</sup>	516.2	66.1	380.9	64.8	897.1	65.6	115.6	64.6	949.6	65.5	123.7	64.6
Serra Leste (SL1)	241.0	53.3	222.9	54.4	464.0	53.8	48.5	49.3	493.3	50.9	96.5	46.3
Serra do Rabo <sup>(10)</sup>	316.3	66.3	192.7	65.7	508.9	66.1	69.9	65.6	-	-	-	-
<b>Northern System - total</b>	<b>1,767.8</b>	<b>64.6</b>	<b>1,395.1</b>	<b>63.8</b>	<b>3,162.8</b>	<b>64.3</b>	<b>659.3</b>	<b>64.7</b>	<b>2,359.8</b>	<b>62.9</b>	<b>502.9</b>	<b>62.0</b>
<b>Total</b>	<b>8,089.7</b>	<b>47.2</b>	<b>8,925.1</b>	<b>44.0</b>	<b>17,014.8</b>	<b>45.6</b>	<b>8,856.5</b>	<b>41.0</b>	<b>14,580.3</b>	<b>45.0</b>	<b>8,174.9</b>	<b>40.5</b>

<sup>(1)</sup> Mineral resources are reported exclusive of those mineral resources converted to mineral reserves. Iron Ore mineral resources estimates stated as metric million tons inclusive moisture and dry %Fe grade; following moisture contents: 1.55% Itabira; 5.91% Minas Centrais; 4.0% Mariana; 4.54% Vargem Grande; 5.12% Paraopeba; 6.97% Serra Norte; 6.74% Serra Sul; and 5.19% Serra Leste. Our Iron Ore mineral resources estimates are of in-situ material, - except for 93 Mt tons of Gelado tailings dam material in Serra Norte.

<sup>(2)</sup> The mineral resources prospects of economic extraction were determined based on a long-term price of US\$100/dmt for 62% iron grade.

<sup>(3)</sup> The Itabira integrated operation includes Conceição and Minas do Meio mines.

<sup>(4)</sup> Minas Centrais integrated operation includes Brucutu and Morro Agudo mines and the Apollo project. Figure have been adjusted to reflect our 98.7% ownership interest in the Minas Centrais complex.

<sup>(5)</sup> Mariana integrated operation includes Alegria, Fábrica Nova and Fazendão mines and Capanema project.

<sup>(6)</sup> Vargem Grande integrated operation includes Sapecado, Galinheiro, Tamanduá, Horizontes and Abóboras mines.

<sup>(7)</sup> Paraopeba integrated operation includes João Pereira and Segredo, Mar Azul, Capão Xavier and Viga mines.

<sup>(8)</sup> Serra Norte integrated operation includes N4W, N4E and N5 mines, Gelado tailings dam material and N1, N2 and N3 projects.

<sup>(9)</sup> Serra Sul integrated operation includes S11D and S11C orebodies.

<sup>(10)</sup> Serra do Rabo project includes S43P, S44P, S45E, and S45W deposits.

<sup>(11)</sup> Numbers have been rounded

## RESERVES AND RESOURCES

The mineral resource at Serra Sul Complex decreased by 61 million tons (a 6% decrease of the exclusive mineral resource) due to partial incorporation of material converted to mineral reserve.

The mineral resource at Serra Norte Complex increased by 519 million tons (a 43% increase of the exclusive mineral resource) due to resource model evaluation review and Gelado tailings dam material addition.

The mineral resource at Serra Leste Complex decreased by 77 million tons (a 6% decrease of the exclusive mineral resource) in line with the mineral reserve positive change.

In 2024, we began reporting mineral resource at the Serra do Rabo Project, in the Carajás region, adding 578.8 million tons to our Iron Ore portfolio.

The mineral resource at Mariana Complex increased by 2 billion tons, a 31% increase due to the incorporation of significant amount of exploratory and infill drilling with consequent review of the resource model in all mines.

The mineral resource at Paraopeba Complex increased by 442 million tons, a 10% increase due to the incorporation of drilling data, and consequent resource model review, and the disclosure of mineral resource at Viga mine for the first time.

	Type	Operating since	Iron Ore integrated operations		Vale interest (%)
			Projected exhaustion date – 2024 <sup>(1)</sup>	Projected exhaustion date – 2023 <sup>(2)</sup>	
<b>Southeastern System</b>					
Itabira	Open pit	1957	2041	2041	100
Minas Centrais	Open pit	1994	2057	2057	98.7
Mariana	Open pit	1976	2054	2041	100
<b>Southern System</b>					
Vargem Grande	Open pit	1942	2149	2121	100
Paraopeba	Open pit	2003	2045	2047	100
<b>Northern System</b>					
Serra Norte	Open pit	1984	2045	2045	100
Serra Sul	Open pit	2016	2060	2060	100
Serra Leste	Open pit	2014	2077	2048	100

<sup>(1)</sup> Indicates the life-of-mine for the operating mine with the longest projected exhaustion date in the complex, as of December 31, 2024.

<sup>(2)</sup> Projected exhaustion dates estimated as of December 31, 2023. Projected exhaustion dates in this column are superseded by the estimates indicated under "Projected exhaustion date – 2024".

## NICKEL MINERAL RESERVES AND MINERAL RESOURCES

We periodically review the economic viability of our nickel mineral reserves considering changes in the nickel industry.

Our nickel reserves and resources have been adjusted to reflect the equity interest after the completion of the sales of minority interests in both VBM and PTVI. See *Overview—Business Overview—Significant Changes in Our Business*.

<b>Nickel Mineral Reserves as of December 31, <sup>(1)</sup></b> <i>(Tonnage in millions of dry metric tons. Grades in %)</i>									
	<b>Proven – 2024<sup>(1)(2)(3)</sup></b>		<b>Probable – 2024<sup>(1)(2)</sup></b> <sup>(3)</sup>		<b>Total – 2024<sup>(1)(2)(3)</sup></b>		<b>Total – 2023<sup>(1)</sup></b>		<b>Recovery Range</b>
	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>(%)<sup>(10)</sup></b>
<b>Canada</b>									
Sudbury <sup>(4)</sup>	18.0	1.43	46.5	1.42	64.5	1.42	75.1	1.42	65-90
Thompson	-	-	-	-	-	-	-	-	-
Voisey's Bay	12.6	1.76	13.8	1.87	26.4	1.82	31.1	1.80	69-84
<b>Indonesia</b>									
PTVI <sup>(5)(7)</sup>									
Saprolite <sup>(6)</sup>	37.0	1.73	28.5	1.70	65.5	1.72	98.1	1.72	89.3 <sup>(7)</sup>
Limonite <sup>(8)</sup>	49.5	1.16	56.4	1.13	105.9	1.14	94.5	1.15	-
<b>Brazil</b>									
Onça Puma <sup>(9)</sup>	46.7	1.63	40.0	1.43	86.8	1.54	97.2	1.55	86.5
<b>Total</b>	<b>163.8</b>	<b>1.50</b>	<b>185.3</b>	<b>1.41</b>	<b>349.1</b>	<b>1.45</b>	<b>396.0</b>	<b>1.49</b>	

<sup>(1)</sup> Tonnage is in millions of dry metric tons. Ni grades are in (%). Mineral reserves are dry tonnes run-of-mine material after adjustment for mining dilution ahead of the feed plants for all areas except Sorowako saprolite (62% of saprolite mineral reserve) that includes screening and drying and Onça Puma where the point of reference is dry recovered tons to the processing plant.

<sup>(2)</sup> Mineral reserves have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*. In the case of PTVI, reserves have been adjusted to reflect our 30.5% ownership.

<sup>(3)</sup> The mineral reserve economic viability was determined based on a price curve with a long-term price of US\$17,950/t for Nickel.

<sup>(4)</sup> Sudbury mineral reserves includes material from Coleman, Copper Cliff, Creighton, Garson, Totten mines and Copper Cliff Pit and Stobie Pit projects.

<sup>(5)</sup> The reported mineral reserves may differ in quantity or quality from those reported in other jurisdictions, under different standards.

<sup>(6)</sup> The PTVI nickel saprolite mineral reserves includes material from Sorowako operations, Bahodopi 2-3 and Pomalaa projects.

<sup>(7)</sup> Recovery only for Sorowako Operations since saprolite material from Pomalaa and Bahodopi projects are supported by ROM sales agreements.

<sup>(8)</sup> The PTVI nickel limonite mineral reserves include Pomalaa and Sorowako Limonite projects material.

<sup>(9)</sup> Estimated consolidated nickel mineral reserves include 4.2 million dry metric tons of stockpile.

<sup>(10)</sup> Recovery range is overall metal recovered to point of first material sale.

<sup>(11)</sup> Numbers have been rounded.

At our Sudbury operations, our mineral reserves decreased by 5%, to 71.7Mt in 2024, down from 75.1 Mt in 2023 (not reflecting our current 90% ownership interest). This decrease was primarily due to 2.8Mt from mining depletion and 0.6Mt from redesign evaluations in Totten, Creighton and Copper Cliff mines. There have been no material changes in the reported mineral reserves or mineral resources or in the material assumptions and information since the last technical report summary filed for the Sudbury operation.

At Voisey's Bay, our mineral reserves decreased 6%, to 29.3 Mt in 2024, from 31.1 Mt in 2023, due to mining depletion. This variation does not reflect our current 90% ownership in this project.

We continue to operate and produce from our mine in Thompson; however, we currently do not have mineral reserves for this property.

Our PTVI mineral reserve increased by 29% (127 Mt, not reflecting our 30.5% ownership interest). The variation was mainly due to the conversion of material from the Sorowako Limonite project into mineral reserve, utilizing the limonite portion of the current operation. As a result, 139 Mt was incorporated into the PTVI mineral reserve. This increase was partially offset by the mining depletion in the operation as well as the mine design review of the Pomalaa project. The mineral reserves of the Pomalaa, Bahodopi and Sorowako Limonite projects are supported by ROM sales agreements with partner companies, which will handle the processing of the final product.

## RESERVES AND RESOURCES

Nickel Mineral Resources as of December 31, <sup>(9)</sup> (Tonnage in millions of dry metric tons. Grades in (%))												
	Measured – 2024 <sup>(1)(2)(3)</sup>		Indicated – 2024 <sup>(1)(2)(3)</sup>		Measured and Indicated- 2024 <sup>(1)(2)(3)</sup>		Inferred – 2024 <sup>(1)(2)(3)</sup>		Measured and Indicated- 2023 <sup>(1)</sup>		Inferred – 2023 <sup>(1)</sup>	
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
<b>Canada</b>												
Sudbury <sup>(4)</sup>	8.9	1.11	36.0	1.25	44.8	1.22	21.9	1.2	39.7	1.37	8.6	1.9
Thompson <sup>(5)</sup>	2.7	2.13	13.9	1.93	16.6	1.96	20.4	0.9	19.1	1.98	6.8	1.9
Voisey's Bay	1.0	1.19	0.8	1.45	1.8	1.30	6.8	1.8	2.0	1.30	7.5	1.8
<b>Indonesia</b>												
PTVI <sup>(6)</sup>												
Saprolite <sup>(7)</sup>	6.5	1.60	44.2	1.72	50.7	1.70	87.9	1.8	72.2	1.70	122.5	1.8
Limonite <sup>(8)</sup>	12.1	1.01	82.5	1.15	94.6	1.14	9.5	1.1	200.0	1.14	13.8	1.1
<b>Brazil</b>												
Onça-Puma	15.2	1.36	37.5	1.31	52.7	1.32	3.0	1.2	56.9	1.34	3.4	1.2
<b>Total</b>	<b>46.4</b>	<b>1.29</b>	<b>215.0</b>	<b>1.36</b>	<b>261.3</b>	<b>1.35</b>	<b>149.4</b>	<b>1.5</b>	<b>389.9</b>	<b>1.34</b>	<b>162.6</b>	<b>1.7</b>

<sup>(1)</sup> Mineral resources are reported exclusive of those mineral resources converted to mineral reserves. Tonnage is in millions of dry metric tons. Ni grades are in (%). Point of reference for the mineral resource estimate is in situ.

<sup>(2)</sup> Mineral resources have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*. In the case of PTVI, resources have been adjusted to reflect our 30.5% ownership.

<sup>(3)</sup> The mineral resource prospects of economic extraction were determined based on prices ranging from: US\$13,376/t – US\$21,069/t, depending on the mine. Variations in price for different mines are associated with timing of the associated estimate.

<sup>(4)</sup> Sudbury mineral resources includes material from selected zones within the Coleman, Copper Cliff, Creighton, Stobie, Garson, Totten, Victor and Ella Capre deposits

<sup>(5)</sup> Thompson mineral resources includes material from T1 and T3 deposits.

<sup>(6)</sup> The reported mineral resources may differ in quantity or quality from those reported in other jurisdictions, under different standards.

<sup>(7)</sup> The PTVI nickel saprolite mineral resources includes material from Sorowako operations, Bahodopi 2-3 and Pomalaa projects.

<sup>(8)</sup> The PTVI nickel limonite mineral resources include material from Sorowako Limonite, Tanamalia project and Pomalaa projects.

<sup>(9)</sup> Numbers have been rounded.

At Sudbury, our mineral resource increased by 54%, to 74.1Mt in 2024, from 48.3Mt in 2023, mainly due to the effort of exploration programs in the complex. This variation does not reflect our current 90% ownership in this project.

At Voisey's Bay, our mineral resource remains the same in relation to 2023. At Manitoba, our mineral resources increased by 59%, due to an upgrade from exploration target and additional exploration drilling partially offset by depletion. This variation does not reflect our current 90% ownership in this project.

The mineral resource at Onça-Puma increased by 3% (1.7Mt) due to resources model updates. These figures do not reflect our 90% ownership.

	Type	Nickel ore mines			Vale interest (%) <sup>(4)</sup>
		Operating since	Projected exhaustion date – 2024 <sup>(1)</sup>	Projected exhaustion date – 2023 <sup>(2)</sup>	
<b>Canada</b>					
Sudbury	Underground	1885	2047	2045	90
Thompson	Underground	1961			90
Voisey's Bay <sup>(3)</sup>	Open pit/ Underground	2005	2038	2037	90
<b>Indonesia</b>					
PTVI	Open pit	1977	2045	2045	30.5
<b>Brazil</b>					
Onça Puma	Open pit	2010	2073	2067	90

<sup>(1)</sup> Indicates the life-of-mine for the operating mine with the longest projected exhaustion date in the complex, as of December 31, 2024, not reflecting our ownership interest.

<sup>(2)</sup> Projected exhaustion dates (Reserve Only) estimated as of December 31, 2023. Projected exhaustion dates in this column are superseded by the estimates indicated under "Projected exhaustion date – 2024."

<sup>(3)</sup> Voisey's Bay is transitioning from an open pit mine to a mainly underground mining operation.

<sup>(4)</sup> Vale interest adjusted to reflect our ownership after the completion of the sale of minority interests in VBM and divestment obligation transaction relating to PTVI. See *Overview—Business Overview—Significant Changes in Our Business*.

## COPPER MINERAL RESERVES AND MINERAL RESOURCES

Our copper reserves and resources have been adjusted to reflect the equity interest after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

	Copper Mineral Reserves as of December 31, <sup>(8)</sup> (Tonnage in millions of dry metric tons. Grades in (%))									
	Proven – 2024 <sup>(1)(2)</sup> <sub>(3)</sub>		Probable – 2024 <sup>(1)(2)</sup> <sub>(3)</sub>		Total – 2024 <sup>(1)(2)(3)</sup>		Total – 2023 <sup>(1)</sup>		Recovery Range (%) <sup>(7)</sup>	
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade		
<b>Canada</b>										
Sudbury <sup>(4)</sup>	18.0	1.47	46.5	1.29	64.5	1.34	75.1	1.37	80-90	
Voisey's Bay	12.6	0.80	13.8	0.85	26.4	0.83	31.1	0.82	79-97	
<b>Brazil</b>										
Sossego <sup>(5)</sup>	17.1	0.90	42.0	0.41	59.1	0.55	65.1	0.56	83.8	
Salobo <sup>(6)</sup>	233.1	0.65	718.8	0.60	951.9	0.61	1,088.9	0.62	86.5	
<b>Total</b>	<b>280.8</b>	<b>0.72</b>	<b>821.2</b>	<b>0.63</b>	<b>1,102.0</b>	<b>0.65</b>	<b>1,260.2</b>	<b>0.66</b>		

<sup>(1)</sup> Tonnage is in millions of dry metric tons. Cu grades are in (%). Point of reference for the mineral reserve estimate is the point of delivery to the process plant.

<sup>(2)</sup> The Mineral Reserves have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

<sup>(3)</sup> The mineral reserve economic viability was determined based on a price curve with a long-term price of US\$9,150/t for copper.

<sup>(4)</sup> Sudbury mineral reserves includes material from Coleman, Copper Cliff, Creighton, Garson, Totten, Stobie mines and Copper Cliff Pit project.

<sup>(5)</sup> Estimated consolidated copper mineral reserves includes Sequeirinho, Sossego Mata II pits and 35.6 million dry metric tons of stockpile.

<sup>(6)</sup> Estimated consolidated copper mineral reserves include 230.3 million dry metric tons of stockpile.

<sup>(7)</sup> Recovery range is overall metal recovered to point of first material sale.

<sup>(8)</sup> Numbers have been rounded.

In Canada, the mineral reserves for Sudbury and Voisey's Bay have decreased for the same reasons discussed above in connection with the nickel reserves.

At Sossego operations, our mineral reserves increased by 1% to 65.7 Mt in 2024, from 65.1 Mt in 2023, mainly due to mine design re-evaluation offset by mining depletion (approximately 11 Mt). This variation does not reflect our current 90% ownership in this project.

At Salobo operations, our mineral reserves decreased by 3%, to 1,057.7 Mt in 2024, from 1,088.9 Mt in 2023, mainly due to mining depletion and partially offset by mine design review. These figures do not reflect our current 90% ownership in this project.

## RESERVES AND RESOURCES

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There have been no material changes in the reported reserves or resources or in the material assumptions and information since the last technical report summary filed for Salobo operation.



## RESERVES AND RESOURCES

<b>Copper Mineral Resources as of December 31, <sup>(9)</sup></b> <i>(Tonnage in millions of dry metric tonnes. Grades in (%))</i>												
	Measured - 2024 <sup>(1)(2)(3)</sup>		Indicated - 2024 <sup>(1)(2)(3)</sup>		Measured and Indicated- 2024 <sup>(1)(2)(3)</sup>		Inferred - 2024 <sup>(1)(2)(3)</sup>		Measured and Indicated- 2023 <sup>(1)</sup>		Inferred - 2023 <sup>(1)</sup>	
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
<b>Canada</b>												
Sudbury <sup>(4)</sup>	8.9	1.88	36.0	2.03	44.8	2.00	21.9	1.5	39.7	2.41	8.6	2.3
Thompson	2.7	0.13	13.9	0.14	16.7	0.14	20.4	0.1	19.1	0.14	6.8	0.1
Voisey's Bay	1.0	0.99	0.8	1.05	1.8	1.02	6.8	0.9	2.0	1.02	7.5	0.8
<b>Brazil</b>												
Sossego <sup>(5)</sup>	317.1	0.65	456.0	0.61	773.0	0.63	55.0	0.7	855.4	0.63	68.4	0.7
Salobo	20.2	0.35	476.2	0.47	496.4	0.47	244.9	0.5	551.5	0.47	272.1	0.5
Alemão	56.5	1.90	53.9	1.39	110.4	1.65	28.7	1.1	122.7	1.65	31.9	1.0
Paulo Afonso <sup>(6)</sup>	379.4	0.65	599.8	0.58	979.2	0.60	428.3	0.5	1,068.0	0.60	461.4	0.4
Furnas <sup>(7)</sup>	-	-	110.6	0.61	110.6	0.61	203.0	0.6	-	-	-	-
<b>Indonesia</b>												
Onto <sup>(8)</sup>	-	-	1,174.0	0.85	1,174.0	0.85	984.9	0.6	851.7	0.96	793.6	0.7
<b>Total</b>	<b>785.7</b>	<b>0.74</b>	<b>2,921.2</b>	<b>0.71</b>	<b>3,706.8</b>	<b>0.71</b>	<b>1,993.9</b>	<b>0.6</b>	<b>3,510.1</b>	<b>0.73</b>	<b>1,650.3</b>	<b>0.6</b>

<sup>(1)</sup> Mineral resources are reported exclusive of those mineral resources converted to mineral reserves. Tonnage is in millions of dry metric tons. Cu grades are in (%). Point of reference for the mineral resource estimate is in situ.

<sup>(2)</sup> Mineral resources have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*. In the case of Onto project, resources have been adjusted to reflect our 72% ownership.

<sup>(3)</sup> The mineral resource prospects of economic extraction were determined based on prices ranging from US\$4,365/t - US\$9,500/t for copper, depending on the mine. Variations in price for different mines are associated with timing of the associated estimate.

<sup>(4)</sup> Sudbury mineral resources includes material from selected zones within the Coleman, Copper Cliff, Creighton, Stobie, Garson, Totten, Victo, Blezard and Ella Capre deposits.

<sup>(5)</sup> Sossego mineral resource includes material from Sossego Operation and Cristalino, Mata II, Bacaba, Barão, 118 and Visconde projects.

<sup>(6)</sup> Paulo Afonso mineral resource includes material from Paulo Afonso, Pojuca, Gameleira and Grota Funda deposits.

<sup>(7)</sup> Furnas project is an earn-in agreement between VBM and Ero Copper Corp. that contemplates Ero Copper earning a 60% interest in the project upon completion of three phases of work resulting in a definitive feasibility study.

<sup>(8)</sup> The reported mineral resources may differ in quantity or quality from those reported in other jurisdictions, under different standards.

<sup>(9)</sup> Numbers have been rounded.

Our copper mineral resources in the Carajás region increased by 11%, to 3.8 Bt in 2024, from 3.4 Bt in 2023, mainly due to the first disclosure of Furnas project mineral resource, in addition to the model and resource pit review in Paulo Afonso complex. There are no changes in the Salobo and Sossego Operations and Alemão project mineral resources. This variation does not reflect our current 90% ownership in this project.

In Indonesia, we had a significant growth in the Onto project mineral resource, which increased by 46%, to 3.0 Bt in 2024, from 2.1 Bt in 2023, as a result of an upgrade from exploration target and resource model review at depth. These figures do not reflect our current 72% ownership in this project.

In Canada, the mineral resources for Sudbury and Thompson have increased for the same reasons discussed above in connection with the nickel resources.

	Type	Copper ore mines			Vale interest (%) <sup>(4)</sup>
		Operating since	Projected exhaustion date – 2024 <sup>(1)</sup>	Projected exhaustion date – 2023 <sup>(2)</sup>	
<b>Canada</b>					
Sudbury	Underground	1885	2047	2045	90
Thompson	Underground	1961			90
Voisey's Bay <sup>(3)</sup>	Open pit/ Underground	2005	2038	2037	90
<b>Brazil</b>					
Sossego	Open pit	2004	2030	2029	90
Salobo	Open pit	2012	2057	2054	90

<sup>(1)</sup> Indicates the life-of-mine for the operating mine with the longest projected exhaustion date in the complex, as of December 31, 2024.

<sup>(2)</sup> Projected exhaustion dates estimated as of December 31, 2023. Projected exhaustion dates in this column are superseded by the estimates indicated under "Projected exhaustion date – 2024."

<sup>(3)</sup> Voisey's Bay is transitioning from an open pit mine to a mainly underground mining operation.

<sup>(4)</sup> Vale interest adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

## PGMS AND OTHER PRECIOUS METALS MINERAL RESERVES AND MINERAL RESOURCES

We expect to recover significant quantities of precious metals as by-products of our concentrates from Sudbury, Sossego and Salobo operations.

Our PGMS and other precious metals reserves and resources have been adjusted to reflect our ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

	Precious Metals Mineral Reserves as of December 31, <sup>(8)</sup>								
	<i>(Tonnage in millions of dry metric tons. Grade in grams per dry metric ton)</i>								
	Proven – 2024 <sup>(1)(2)(3)</sup>		Probable – 2024 <sup>(1)(2)(3)</sup>		Total – 2024 <sup>(1)(2)(3)</sup>		Total – 2023 <sup>(1)</sup>		Recovery range (%) <sup>(7)</sup>
Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade		
<b>Canada</b>									
<i>Sudbury<sup>(4)</sup></i>									
Platinum	18.0	0.95	46.5	0.79	64.5	0.83	75.1	0.84	65-75
Palladium	18.0	0.81	46.5	1.04	64.5	0.98	75.1	1.01	75-90
Gold	18.0	0.35	46.5	0.29	64.5	0.31	75.1	0.32	50-75
<b>Brazil</b>									
<i>Sossego<sup>(5)</sup></i>									
Gold	17.1	0.27	42.0	0.13	59.1	0.17	65.1	0.18	65.0
<i>Salobo<sup>(6)</sup></i>									
Gold	233.1	0.37	718.8	0.34	951.9	0.35	1,088.9	0.35	67.7
<b>Total Platinum</b>	<b>18.0</b>	<b>0.95</b>	<b>46.5</b>	<b>0.79</b>	<b>64.5</b>	<b>0.83</b>	<b>75.1</b>	<b>0.84</b>	
<b>Total Palladium</b>	<b>18.0</b>	<b>0.81</b>	<b>46.5</b>	<b>1.04</b>	<b>64.5</b>	<b>0.98</b>	<b>72.4</b>	<b>1.11</b>	
<b>Total Gold</b>	<b>268.2</b>	<b>0.36</b>	<b>807.3</b>	<b>0.33</b>	<b>1,075.6</b>	<b>0.34</b>	<b>1,271</b>	<b>0.34</b>	

<sup>(1)</sup> Tonnage is in millions of dry metric tons. Grade is grams per dry metric ton. Point of reference for the mineral reserve estimate is the point of delivery to the process plant.

<sup>(2)</sup> Mineral reserves have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*.

<sup>(3)</sup> The mineral reserve economic viability was determined based on long-term prices of: US\$1,275/oz for platinum, US\$1,025/oz for palladium, US\$1,925/oz for gold. Gold reserves are reported on 100% basis and do not deduct the streaming amounts. For a description of our streaming arrangements with Wheaton, see Section 2.3 PGM's and other Precious Metals. After the completion of the sale of minority interests in VBM, ownership interest will change. See *Overview—Business Overview—Significant Changes in Our Business*.

<sup>(4)</sup> Sudbury mineral reserves includes material from Coleman, Copper Cliff, Creighton, Garson, Totten, Stobie mines and Copper Cliff Pit project.

<sup>(5)</sup> Estimated consolidated mineral reserves includes Sequeirinho, Sossego Mata II pits and 35.6 million dry metric tons of stockpile.

<sup>(6)</sup> Estimated consolidated mineral reserves include 230.3 million dry metric tons of stockpile.

<sup>(7)</sup> Recovery range is overall metal recovered to point of first material sale.

<sup>(8)</sup> Numbers have been rounded.

In Sudbury, our mineral reserve estimates for platinum, palladium and gold have changed for the same reasons discussed above in connection with the nickel mineral reserves. Mineral reserve estimates for gold changed for the same reasons discussed above in connection with the copper mineral reserves. The mine exhaustion dates for PGMs are the same as stated above for Sudbury, Sossego, and Salobo.

## RESERVES AND RESOURCES

Precious Metals Mineral Resources as of December 31, <sup>(8)</sup>												
<i>(Tonnage in millions of dry metric tons. Grade in grams per dry metric ton)</i>												
	Measured – 2024 <sup>(1)(2)(3)</sup>		Indicated - 2024 <sup>(1)(2)(3)</sup>		Measured and Indicated- 2024 <sup>(1)(2)(3)</sup>		Inferred - 2024 <sup>(1)(2)(3)</sup>		Measured and Indicated- 2023 <sup>(1)</sup>		Inferred - 2023 <sup>(1)</sup>	
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade
<b>Canada</b>												
<i>Sudbury <sup>(4)</sup></i>												
Platinum	8.9	1.60	36.0	0.79	44.8	0.95	21.9	1.02	39.7	1.16	8.6	1.2
Palladium	8.9	1.92	36.0	0.97	44.8	1.16	21.9	1.19	39.7	1.47	8.6	1.3
Gold	8.9	0.74	36.0	0.30	44.8	0.39	21.9	0.36	39.7	0.49	8.6	0.4
<i>Thompson</i>												
Palladium	2.7	0.38	13.9	0.39	16.6	0.39	20.4	0.16	19.1	0.40	6.8	0.4
<b>Brazil</b>												
<i>Sossego <sup>(5)</sup></i>												
Gold	317.1	0.09	456.0	0.09	773.1	0.09	55.0	0.10	855.4	0.09	68.4	0.1
<i>Salobo</i>												
Gold	20.2	0.17	476.2	0.24	496.3	0.24	244.9	0.29	551.5	0.23	272.1	0.3
<i>Alemão</i>												
Gold	56.5	1.36	53.9	1.08	110.5	1.22	28.7	0.75	122.7	1.23	31.9	0.7
<i>Paulo Afonso</i>												
Gold	379.4	0.06	599.8	0.10	979.2	0.09	428.3	0.10	1,068.0	0.09	461.4	0.1
<i>Furnas <sup>(6)</sup></i>												
Gold	-	-	110.6	0.39	110.6	0.39	203.0	0.34	-	-	-	-
<b>Indonesia</b>												
<i>Onto <sup>(7)</sup></i>												
Gold	-	-	1,174.0	0.51	1,174.0	0.51	984.9	0.24	851.7	0.58	793.6	0.4
<b>Total Platinum</b>	<b>8.9</b>	<b>1.60</b>	<b>36.0</b>	<b>0.79</b>	<b>44.8</b>	<b>0.95</b>	<b>21.9</b>	<b>1.02</b>	<b>39.7</b>	<b>1.16</b>	<b>8.6</b>	<b>1.2</b>
<b>Total Palladium</b>	<b>11.5</b>	<b>1.57</b>	<b>49.9</b>	<b>0.81</b>	<b>61.5</b>	<b>0.95</b>	<b>42.2</b>	<b>0.70</b>	<b>58.8</b>	<b>1.12</b>	<b>15.4</b>	<b>0.9</b>
<b>Total Gold</b>	<b>782.0</b>	<b>0.18</b>	<b>2,906.4</b>	<b>0.32</b>	<b>3,688.4</b>	<b>0.29</b>	<b>1,966.6</b>	<b>0.23</b>	<b>3,489.0</b>	<b>0.28</b>	<b>1,636.0</b>	<b>0.3</b>

<sup>(1)</sup> Mineral resources are reported exclusive of those mineral resources converted to mineral reserves. Tonnage is in millions of dry metric tons. Grade is grams per dry metric ton. Point of reference for the mineral resource estimate is in situ.

<sup>(2)</sup> Mineral resources have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*. In the case of Onto project, resources have been adjusted to reflect our 72% ownership.

<sup>(3)</sup> The mineral resource prospects of economic extraction were determined based on prices of: US\$1,124 – 1,290/oz for platinum, US\$225-1,400/oz for palladium and US\$700- US\$1,525/oz for gold, in each case depending on the mine. Variations in price for different mines are associated with timing of the associated estimate.

<sup>(4)</sup> Sudbury mineral resources includes material from selected zones within the Coleman, Copper Cliff, Creighton, Stobie, Garson, Totten, Victor and Ella Capre deposits.

<sup>(5)</sup> Sossego mineral resources includes material from Sossego Operation and Cristalino, Mata II, Bacaba, Barão, 118 and Visconde projects.

<sup>(6)</sup> Furnas project is an earn-in agreement between VBM and Ero Copper Corp. that contemplates Ero Copper earning a 60% interest in the project upon completion of three phases of work resulting in a definitive feasibility study.

<sup>(7)</sup> The reported mineral resources may differ in quantity or quality from those reported in other jurisdictions, under different standards.

<sup>(8)</sup> Numbers have been rounded.

In Sudbury, our mineral resource estimates for platinum, palladium and gold changed for the same reasons discussed above in connection with the nickel mineral resources. Mineral Resources estimates for gold changed for the same reasons discussed above in connection with the copper mineral resources.

## COBALT MINERAL RESERVES AND MINERAL RESOURCES

Our cobalt reserves and resources have been adjusted to reflect our ownership after the completion of the sales of minority interests in both VBM and PTVI. See *Overview—Business Overview—Significant Changes in Our Business*.

Cobalt Mineral Reserves as of December 31, <sup>(9)</sup> (Tonnage in millions of dry metric tons. Grades in %)									
	Proven – 2024 <sup>(1)(2)(3)</sup>		Probable – 2024 <sup>(1)(2)(3)</sup>		Total – 2024 <sup>(1)(2)(3)</sup>		Total – 2023 <sup>(1)</sup>		Recovery Range (%) <sup>(6)</sup>
	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	Tonnage	Grade	
<b>Canada</b>									
Sudbury <sup>(4)</sup>	18.0	0.04	46.5	0.04	64.5	0.04	75.1	0.04	20-35
Voisey's Bay <sup>(5)</sup>	12.6	0.11	13.8	0.12	26.4	0.12	31.1	0.11	69-86
<b>Indonesia</b>									
PTVI <sup>(7)(8)</sup>	49.5	0.12	56.4	0.19	105.9	0.16	94.5	0.14	-
<b>Total</b>	<b>80.1</b>	<b>0.10</b>	<b>116.7</b>	<b>0.13</b>	<b>196.8</b>	<b>0.13</b>	<b>200.7</b>	<b>0.10</b>	

<sup>(1)</sup> Tonnage is in millions of dry metric tons. Co grades are % of cobalt. Mineral reserves are dry tonnes run-of-mine material after adjustment for mining dilution ahead of the feed plants. Recovery range is overall metal recovered to point of first material sale.

<sup>(2)</sup> Mineral reserves have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*. In the case of PTVI, resources have been adjusted to reflect our 30.5% ownership.

<sup>(3)</sup> The mineral reserve economic viability was determined based on long-term prices of: US\$42,475/t for cobalt.

<sup>(4)</sup> Sudbury mineral reserves includes material from Coleman, Copper Cliff, Creighton, Garson, Totten, Stobie mines and Copper Cliff Pit project.

<sup>(5)</sup> Cobalt reserves are reported on 100% basis and do not deduct the streaming amounts. For a description of our cobalt streaming arrangements, see *Information on the Company—Lines of Business—Energy Transition Metals—Cobalt*.

<sup>(6)</sup> Recovery range is overall metal recovered to point of first material sale, except for PTVI where recovery is not applied since the project considers to selling run of mine.

<sup>(7)</sup> The PTVI cobalt mineral reserves are limonite material from Sorowako Limonite and Pomalaa projects with reserves supported by ROM sales agreements.

<sup>(8)</sup> Numbers have been rounded.

Our cobalt mineral reserves estimates changed in 2024 for the same reasons discussed above in connection with the nickel mineral reserve. The mine exhaustion dates for Cobalt are the same as stated above for Sudbury, Voisey's Bay and PTVI.

## RESERVES AND RESOURCES

<b>Cobalt Mineral Resources as of December 31, <sup>(6)</sup></b> <i>(Tonnage in millions of dry metric tons. Grades in %)</i>												
	<b>Measured – 2024<sup>(1)(2)(3)</sup></b>		<b>Indicated – 2024<sup>(1)(2)(3)</sup></b>		<b>Measured and Indicated- 2024<sup>(1)(2)(3)</sup></b>		<b>Inferred – 2024<sup>(1)(2)(3)</sup></b>		<b>Measured and Indicated- 2023<sup>(1)</sup></b>		<b>Inferred – 2023<sup>(1)</sup></b>	
	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>	<b>Tonnage</b>	<b>Grade</b>
<b>Canada</b>												
Sudbury <sup>(4)</sup>	8.9	0.03	36.0	0.03	44.8	0.03	21.9	0.03	39.7	0.04	8.6	0.04
Thompson	2.7	0.03	13.9	0.03	16.6	0.03	20.4	0.02	19.1	0.03	6.8	0.03
Voisey's Bay	1.0	0.06	0.8	0.07	1.8	0.06	6.8	0.12	2.0	0.06	7.5	0.12
<b>Indonesia</b>												
PTVI <sup>(5)</sup>	12.1	0.10	82.5	0.12	94.6	0.11	9.5	0.11	200.0	0.11	13.8	0.11
<b>Total</b>	<b>24.7</b>	<b>0.06</b>	<b>133.2</b>	<b>0.08</b>	<b>157.9</b>	<b>0.08</b>	<b>58.6</b>	<b>0.05</b>	<b>260.8</b>	<b>0.09</b>	<b>36.7</b>	<b>0.08</b>

<sup>(1)</sup> Mineral resources are reported exclusive of those mineral resources converted to mineral reserves. Tonnage is in millions of dry metric tons. Co grades are % of cobalt. Point of reference for the mineral resource estimate is in situ.

<sup>(2)</sup> Mineral reserves have been adjusted to reflect our 90% ownership after the completion of the sale of minority interests in VBM. See *Overview—Business Overview—Significant Changes in Our Business*. In the case of PTVI, resources have been adjusted to reflect our 30.5% ownership.

<sup>(3)</sup> The mineral resource prospects of economic extraction were determined based on prices ranging from: US\$11,023-US\$56,300/t, depending on the mine. Variations in price for different mines are associated with timing of the associated estimate.

<sup>(4)</sup> Sudbury mineral resources includes material from selected zones within the Coleman, Copper Cliff, Creighton, Stobie, Garson, Totten, Victor and Ella Capre deposits.

<sup>(5)</sup> The PTVI cobalt mineral resources includes Sorowako, Tanamalia and Pomalaa projects material from limonites only.

<sup>(6)</sup> Numbers have been rounded.

Our cobalt mineral resource estimates changed in 2024 for the same reasons discussed above in connection with the nickel mineral resource.

## REGULATORY MATTERS

We are subject to a wide range of governmental regulations in all the jurisdictions in which we operate worldwide. The following discussion summarizes the kinds of regulation that have the most significant impact on our operations.

### MINING RIGHTS AND REGULATION OF MINING ACTIVITIES

Mining and mineral processing are subject to extensive regulation. In order to conduct these activities, we are required to obtain and maintain some form of governmental or private permits, which may include concessions, licenses, claims, tenements, leases or permits (all of which we refer to below as “concessions”). The legal and regulatory regime applicable to the mining industry and governing concessions differs among jurisdictions, often in important ways. In most jurisdictions, including Brazil, mineral resources belong to the government and may only be exploited pursuant to a governmental concession. In other jurisdictions, such as Ontario in Canada, a substantial part of our mining operations is conducted pursuant to mining rights we own (private permits). Government agencies are typically in charge of granting mining concessions and monitoring compliance with mining law and regulations.

The table below summarizes our main mineral rights and mining concessions for our operations and projects, not limited to areas within the mineral reserves and mineral resources footprint.

Location	Mining title	Approximate area covered (in hectares)	Expiration date
<b>Brazil</b>		<b>515,185</b>	<b>Indefinite</b>
	Mining Concessions	217,046	Indefinite
	Application for Mining concessions	258,525	-
<b>Canada<sup>(1)</sup></b>		<b>195,495</b>	<b>2021 – 2045</b>
Ontario		105,469	2024 – 2042
	Patented mineral rights	81,145	Indefinite
	Mineral Leases	21,188	2024-2042
	Mining Licenses of occupation	3,136	Indefinite
Manitoba		88,427	2021 – 2045
	Order in Council leases	73,431	2021-2025
	Mineral Leases	14,996	2034-2045
Newfoundland and Labrador	Mining Leases	1,599	2027
<b>Indonesia</b>		<b>137,277</b>	<b>2025</b>
Sorowako <sup>(2)</sup>	Contract of work	118,017	2025
Nusa Tenggara Barat (Hu'u Project) <sup>(3)</sup>	Contract of work	19,260	2025

<sup>(1)</sup> Applications submitted in 2024 are still in the process of being approved. All conditions required for the renewal were fulfilled. This process usually takes several months, and we can continue to operate while the approval process is ongoing. Order in Council Leases (OIC's) in Manitoba are currently being converted to mining claims and mining leases through a Transition Agreement allowing Vale to retain ownership until the transition is complete. Some OIC's will show past their expiration dates until the transition is complete.

<sup>(2)</sup> Sorowako - The contract of work entered by PTVI and the Indonesian government was set to expire in 2025. In 2024, a special mining business license (IUPK) was issued, confirming PTVI's legal right to continue to operate until December 2035, with rights to extend the license beyond this period. With the issuance of the IUPK, PTVI's initial mineral title, contract of work, was terminated.

<sup>(3)</sup> Nusa Tenggara Barat – Contract of Work on Exploration stage which is annually renewed and can be renew indefinitely while at this stage. Operation and Production Stage will be valid for 30 years with two 10 years extensions, subject to government approval.

In addition to the concessions listed above, we have licenses and applications that allow us to explore 2.2 million hectares in Brazil and 1.4 million hectares for our mineral projects in other countries.

In Canada, we negotiated with the Government of Manitoba the renewal of its mineral rights, originally explored under Order in Council Leases, through the conversion to the regime of Mining leases and Claims in accordance with the applicable law. The process of conversion started in 2021 and will continue until 2025.

In Indonesia, the government issued new regulation in September 2021 on the implementation of mineral and coal mining business activities. Such regulations have a material impact on the operations of PTVI, including with respect to the total area that can be exploited by PTVI after the expiration of the Contract of Work and period of operation.

## ROYALTIES AND OTHER TAXES ON MINING ACTIVITIES

We are required in many jurisdictions to pay royalties or taxes on our revenues or profits from mineral extractions and sales. These payments are an important element of the economic performance of a mining operation. The following royalties and taxes apply in some of the jurisdictions in which we have our largest operations:

**Brazil.** We are required to pay a royalty known as CFEM (*Compensação Financeira pela Exploração de Recursos Minerais*) on the revenues from the sale of minerals we extract. The calculation of the CFEM is done as follows: (i) for domestic sales, the basis for calculation of CFEM is the revenue from sales, net of sales taxes levied; (ii) for exports, the basis for calculation of CFEM is the highest amount between the revenue from the exports and the amount equivalent to the transfer pricing in federal income tax legislation; and (iii) for a company's internal mineral consumption, the basis for calculation of CFEM is the value equivalent to the current price of the ore in the domestic market, the international markets or a reference value, as to be determined by ANM. The current CFEM rates are: 3.5% for iron ore; 2% for copper, nickel and other materials; 3% for bauxite and manganese ore.

**Brazilian states and municipalities.** Several Brazilian states, including Minas Gerais and Pará, impose a mining inspection tax, which is currently assessed at rates ranging from US\$0.41 to US\$2.67 per metric ton of minerals produced in or transferred from the state.

In March 2021, a state decree enacted by the state of Pará increased the rate of the mining inspection tax from one fiscal reference unit in the amount of US\$0.79 to three fiscal reference units corresponding to US\$2.31 per metric ton, with effectiveness as of April 2021. We have not implemented the new rates for 2021, as we understand that, under applicable principles of Brazilian constitutional law, the tax increase would only come into force in the year after its enactment.

In November 2022, we adhered to the state tax program entitled as "Programa Estrutura Pará", which aims to promote infrastructure investments in the State of Pará, pursuant to the conversion of 50% of the mining inspection tax payments into construction projects, monthly calculated at the rate of three fiscal reference units per metric ton of minerals produced in the State of Pará in the amount of US\$2.71, annually updated.

In December 2024, the state of Pará enacted a law reducing from 50% to 40% the conversion of the mining inspection tax payments into construction projects. The related constructions will be delivered to the local communities and, therefore, will not be owned by us. In 2024, we disbursed US\$226 million (compared to US\$451 million in 2023) related to this tax. Also in December 2024, the state of Pará enacted a law increasing the rate of the mining inspection tax applied to copper extraction, from 3 to 110 fiscal reference units, representing a US\$97.96 metric ton, with effectiveness as of March 27, 2025. We are evaluating the legal aspects and economic effects in this regard.

Some municipalities such as Ourilândia do Norte, Marabá, Curionópolis and São Félix do Xingu in the state of Pará and Rio Piracicaba in the state of Minas Gerais, along with the State of Maranhão, have enacted laws imposing this mining inspection tax on ore extracted or transported in their territories, and we consider that we have solid arguments to contest these taxes. In April 2024, a law enacted by the State of Maranhão became effective, changing the collection of this mining inspection tax, in compliance with constitutional principles, and we have been paying this tax accordingly.

In August 2022, the Supreme Court of Justice decided that the Brazilian states of Minas Gerais and Pará are authorized to impose the mining inspection tax. The decision is not final for the state of Pará and an appeal is still pending.

**Canada.** The Canadian provinces in which we operate charge us a tax on profits from mining operations. Profit from mining operations is generally determined by reference to gross revenue from the sale of mine output and deducting certain costs, such as mining and processing costs and investment in processing assets. The statutory mining tax rates are 10% in Ontario; with graduated rates up to 17% in Manitoba; and a combined mining and royalty tax rate of 16% in Newfoundland and Labrador. The mining tax paid is deductible for corporate income tax purposes.

**Indonesia.** PTVI pays mining royalties of 2% on its nickel matte revenues when LME nickel prices are below US\$21,000 per metric ton and 3% of its nickel matte revenues when LME nickel prices are above or equal to US\$21,000 per metric ton.



## ENVIRONMENTAL REGULATIONS

We are subject to environmental regulations that apply to our mining and processing activities. Current laws require us to get approvals, licenses, permits, or authorizations from government authorities to build and operate our facilities. In most places where we operate, we need to submit assessments of the environmental and social impacts of our activities for approval by the relevant authorities. We also need to invest in measures to avoid, reduce, and compensate for these impacts. We must conduct our activities according to the terms of the approvals, licenses, permits, and authorizations issued by government authorities. The Decree 48.747, of 12/29/2023, is applicable to dams included in the State Dam Safety Policy of the State Minas Gerais in Brazil and determines an environmental bond amount to be paid and maintained throughout the useful life of dam.

Environmental legislation is becoming stricter worldwide, which could lead to greater costs for environmental compliance. Environmental regulations affecting our operations relate, among other matters, to:

- Emissions of pollutants into the air, soil and water, including greenhouse gases and climate change regulations;
- Recycling and waste management;
- Protection and conservation of forests and other forms of native vegetation, coastlines, caves, cultural heritage sites, watersheds and other ecosystem characteristics;
- Water use;
- Financial provisions and closure plans required for mining licenses, including de-characterization, decommissioning, environmental liabilities and reclamation and remediation costs.

Below is a discussion of some key regulatory matters:

**Protection of caves.** In Brazil, we are subject to extensive environmental regulation for protection of caves. In 2008, a federal decree amended the regulation for protection of caves that had been enacted in 1990 and established criteria for the classification of caves based on their relevance (maximum, high, medium or low), prohibiting interventions in areas of maximum relevance and allowing impact on areas of other degrees of relevance with proper environmental license. We are required to conduct extensive technical studies to identify the existence of caves and to determine degree of relevance of each identified cave. We are also required to negotiate compensatory measures with Brazilian environmental regulators in order to continue to operate in certain sites. In certain iron ore mining operations or projects, we may be required to limit or modify our mining plans or to incur additional costs to preserve maximum relevance caves or to compensate for the impact on non-maximum relevance caves, with potential consequences for our production volumes, costs or reserves in our iron ore business. In January 2022, a new federal decree was enacted, amending the regulation for the protection of caves, in particular with respect to relevance classifications and forms of compensation, and the impact on our operations is under review. This 2022 decree is currently being challenged in the Supreme Court of Justice by a political party claiming that it is unconstitutional, and it has been temporarily suspended until further decision of the court.

**Protection of Indigenous Peoples' rights.** The Brazilian regulation (Interministerial Ordinance No. 60/2015) enacted in 2011 and revised in 2015 requires us to conduct impact assessments and define specific programs for the mitigation and/or compensation of impacts of our operations and projects that are close to the Indigenous Lands and Quilombola's Territories. Approval of these impact assessments and mitigation and/or compensation measures by the affected communities is mandatory. In addition to our legal obligations, we also aim to build positive relationships with Indigenous Peoples and traditional communities in our areas of influence. We establish agreements with these communities, focusing on ethnodevelopment, territorial protection, cultural and institutional strengthening, and other aspects. Our goal is to contribute to improving the quality of life and autonomy of these communities.

**Other environmental and cultural regulations in Brazil.** There are also environmental and cultural regulatory obligations that could affect our operations or lead to compensatory measures related to the suppression of native vegetation such as in the state of Minas Gerais, in the Atlantic Forest biome, flora species protected by law, permanent preservation areas and archaeological and cultural heritage sites. In 2015, IPHAN set mandatory guidelines for studies on Archaeological Heritage that align with Environmental Licensing. In 2021, the State of Minas Gerais introduced regulations mandating studies on both Material and Intangible Heritage. These regulations added three new approval stages to the licensing process. In addition, all new projects that include activities with a significant environmental impact must collect financial resources to support the implementation and maintenance of conservation areas, in order to comply with the environmental compensation obligation.

**Climate change.** The ratification of the Paris Agreement in late 2016 significantly increased global pressure for the establishment of carbon pricing at local, regional and global levels, prompting signatories to intensify efforts to reduce greenhouse gas emissions. In 2024, Brazil announced a new Nationally Determined Contribution (NDC) target to reduce its emissions by 48% by 2025 and 53% by 2030. Additionally, the President of Brazil enacted a law regulating the carbon credit market, establishing the Brazilian Emissions Trading System (SBCE), which sets emission limits and creates a bonus system for companies that reduce their emissions. The Brazilian Sustainable Taxonomy, currently under public consultation until March 2025, aims to guide the country's economy towards a more sustainable future.

**Regulation of chemicals.** Some of our products are subject to regulations applicable to the marketing, distribution and use of chemical substances present in their composition. For example, the European Commission has adopted a European Chemicals Policy, known as REACH (Registration, Evaluation and Authorization of Chemicals). Under REACH, European manufacturers and importers are required to register substances prior to their entry into the European market and in some cases may be subject to an authorization process. A company that fails to comply with the REACH regulations could face fines and penalties. We are compliant with the requirements of the EU REACH regulations. In addition, the U.K. and other regions are currently implementing a regulation similar to EU REACH, and we anticipate further expansion of REACH-like regulations in other countries.

**Regulation of international maritime transportation.** We are subject to health, safety and environmental regulation by the International Maritime Organization (IMO). IMO rules apply not only to the international shipping categories, but also to the types of cargoes transported, including special rules for iron ore, nickel and copper. The IMO is currently discussing further measures for enhancing the energy efficiency of international shipping and reducing its overall greenhouse gas emissions. In July 2023, the IMO reviewed the initial strategy, defined in August 2018, and approved more ambitious reduction targets. These targets include a 20-30% reduction in greenhouse gas emissions by 2030, 70-80% reduction target by 2040, both based on 2008 levels, and a net zero target by or around 2050. In June 2021, the IMO adopted amendments that became effective in 2023 and that combine technical and operational approaches to improve the energy efficiency of ships. The new measures require all ships to calculate their Energy Efficiency Existing Ship Index (EEXI) – a one-time certification, targeting design parameters – and to establish their annual operational Carbon Intensity Indicator, which will have to comply with gradually decreasing carbon intensity parameters. These requirements may increase our freight cost in the future. In 2016, the IMO approved regulation establishing limits for sulfur oxides emission, which became effective in 2020. This regulation may increase freight cost due to the need to use bunker with low sulfur content or to install additional pollutant control equipment (*i.e.*, scrubbers) to limit air emissions. It is expected that further discussions on scrubber wash water regulations will be concluded in 2025 which could restrain the use of open loop scrubbers. Also, the International Convention for the Control and Management of Ships' Ballast Water and Sediments requires compliant ships during their international voyages to manage their ballast water and sediments in accordance with certain parameters. The convention became effective in September 2017 for new ships (those with keels laid after that date) and, for existing ships, the convention became effective in stages with specific deadlines depending on the vessel, beginning in September 2019, with the global fleet required to be fully compliant by September 2024. Such requirements may also result in increases in our freight and port operation costs. In 2022, the European Commission approved the proposals to regulate international shipping emissions. Starting in 2024, over a 3-year phase-in period shipping will be gradually introduced into the EU's Emissions Trading System (ETS), a carbon market that operates in all EU countries targeting climate neutrality in the EU by 2050. That will require ship operators to pay for the greenhouse gas emissions during their voyages to, from and between EU ports, and incentivize them to improve their fuels greenhouse gas intensity. Complementing the EU ETS, the FuelEU Maritime Regulation, which comes into force in 2025, will impose gradually decreasing GHG intensity standards for fuels used by vessels calling at EU ports, beginning with a 2% reduction in the first year. These measures may increase our freight cost in the future.

**Other environmental laws and regulations.** There are several examples of environmental laws and regulations, and compliance initiatives that may affect our operations:

**Brazil.** There are also environmental regulatory obligations applicable to our operations that require compliance with a series of measures, including compensatory measures, related to the suppression of native vegetation, protection of biomes and species of rare, endemic, threatened, or legally protected flora, as well as areas subject to special protection, such as conservation units and permanent preservation areas, and archaeological and cultural heritage. Additionally, new projects involving activities with significant environmental impact must raise financial resources to support the implementation and maintenance of Conservation Units of the full protection group, in order to fulfill the environmental compensation obligation established by Federal Law No. 9,985/2000. On December 12, 2024, Federal Law No. 15,042

was enacted, establishing the Brazilian Greenhouse Gas Emissions Trading System (SBCE). This law creates a regulated carbon market in Brazil, setting limits on greenhouse gas emissions and allowing companies and countries to offset their emissions through the purchase of carbon credits. The SBCE divides the market into two sectors: the regulated sector, which involves public initiatives, and the voluntary sector, which pertains to private initiatives. The goal of this law is to encourage the reduction of pollutant emissions and mitigate climate change, with operationalization expected by 2028.

**Canada.** Canadian laws and policies to address climate change continue to evolve with stricter controls on greenhouse gas emissions. The Supreme Court of Canada upheld the Greenhouse Gas Pollution Pricing Act, a federal law to regulate greenhouse gas emissions, and confirmed this Act will apply in provinces that have not enacted equivalent legislation. In June of 2021, the federal government enacted the Canadian Net-Zero Emissions Accountability Act which enshrines Canada's 2050 target of reaching net-zero emissions with a framework to set and report on milestone emissions reduction targets. In addition, Canada has a plan to gradually increase the price of carbon by \$15 per year, reaching \$180 per tonne by 2030. Heightened enforcement for contravention of environmental legislation is also a trend. For instance, in Ontario, the government has proposed to expand the use of administrative penalties with enhanced fines for various environmental contraventions. Certain of our operations in Ontario and Manitoba have legacy conditions related to historical operations which give rise to potential impacts to water. We have invested in a Water Quality Management Program that is designed to be a proactive plan, involving hazard screening and a risk evaluation process, to guide with the identification, prioritization and execution of remedial activities to address potential water impacts from historical operations.

**Indonesia.** According to the Indonesian Government Regulation of 2014 on B3 waste (Toxic and Hazardous Materials), PTVI's waste is classified as hazardous waste, and PTVI has submitted a formal request to the regulatory body for approval. In February 2021, a new Government Regulation was issued and, as result, PTVI's waste is no longer classified as hazardous waste; however, it is required to report the use and the management of the waste to the government.

**China.** In 2020, the Law on the Prevention and Control of Environmental Pollution Caused by Solid Waste was revised, leading to the Administrative Measures for the Prevention and Control of Environmental Pollution from Tailings became effective as of July 1, 2022. Those laws and regulations impose stricter obligations on prevention and control of pollution caused by solid waste, including tailings, in addition to imposing more severe penalties.

## **BRAZILIAN REGULATION OF MINING DAMS**

In 2019, the National Mining Agency (ANM) issued a regulation requiring upstream dam owners to submit a technical de-characterization project and completely de-characterize these structures in the coming years. Additionally, a wide range of measures was imposed to ensure the stability and safety of mining dams and their monitoring and alert systems.

Also in 2019, the state of Minas Gerais enacted Law No. 23.291, establishing the State Dam Safety Policy (PESB), prohibiting the elevation and construction of upstream dams, and requiring the posting of an environmental bond in connection with the de-characterization of dams covered by the law. In 2023, the State of Minas Gerais, through Decree No. 48,747, regulated the environmental bond and set deadlines for the implementation of financial guarantees to be used in case of a rupture. The law also prohibits the increase, modification, or construction of any new dam if communities are established within its Self-Rescue Zone (ZAS), an area that encompasses the portion of the valley downstream of the dam, where there is not enough time for evacuation and intervention by the competent authorities in emergency situations.

In 2020, Federal Law No. 14,066/2020 amended Federal Law No. 12,334/2010, which established the National Dam Safety Policy (PNSB), reinforcing the ban on the construction and elevation of upstream dams in Brazil. The law also required companies to de-characterize their upstream structures by 2022. Due to the technical complexities involved in the de-characterization work and the actions necessary to increase the safety of the dams, we signed a term of commitment with the state of Minas Gerais, regulatory agencies, and both State and Federal Public Prosecutors in 2022. This agreement establishes a new de-characterization schedule, with the program's completion deadline set for 2035.

In 2020, the state of Minas Gerais enacted the Decree No. 48,078, establishing the procedures for analyzing and approving the emergency action plan. In the same year, the ANM issued Resolution No. 51/2020 mandating an audit of the emergency preparedness and response plan. This requirement was incorporated and expanded upon in ANM

Resolution No. 95/2022. External auditors must conduct this audit and issue an annual Conformity and Operability Report (RCO) and a Conformity and Operability Statement (DCO) for the EPRP.

Additionally, the state published many other resolutions to regulate the emergency action plan, including guidelines for developing Civil Protection and Defense Actions, Potable Water Supply Plan, Diagnosis of Public and Private Water Supply, Domestic, Wildlife, and Production Fauna Rescue Plan, and Safeguard Plan for Cultural Assets.

In 2022, the ANM issued Resolution No. 95/2022, consolidating the content of various previously created standards related to mining dam safety, and introducing new features under the National Dam Safety Policy. Also in 2022, the ANM issued Resolution no. 122/2022, which regulates the administrative process and establishes new penalties. The regulation is currently under review by the mining sector and ANM, including due to the impacts expected from the values of fines and the criteria for its calculation, which is based on the amount attributed to companies' total production in the previous year and exploration budget. Given the high level of the fines under the new rules, the imposition of such fines as a result of any failure to comply with mining laws and regulations could have an adverse effect on mining companies.

In December 2023, the federal government enacted Law No. 14,755, which established the National Policy on the Rights of Populations Affected by Dams (PNAB), outlined the rights of Populations Affected by Dams (PAB), provided for the Program on the Rights of Populations Affected by Dams (PDPAB), established rules for the social responsibility of the entrepreneur, among other aspects.

In accordance with Resolution No. 95/200 and Law 23.291/2010, companies operating mining dams in Brazil are required to comply with specific rules, including:

**Regular Safety Inspection.** Companies operating mining dams covered by the National Dam Safety Policy (PNSB) must issue semiannual Safety Inspection Reports for Dams with the issuance of a Stability Condition Declaration (DCE). In our Brazilian operations, an Engineer of Records (EoR), not directly involved in day-to-day operations, is responsible for assessing the site's safety and issuing periodic reports on the structures, as part of our governance procedures.

**Dam Safety Reviews (DSR).** For dams covered by Nacional Dam Safety Policy (PNSB), the report must include detailed analysis of all dam's documentation, including projects and procedures, stability analysis of the structures and the corresponding Stability Condition Statement (DCE) and reassessment of the risk category (CRI) and associated potential damage (DPA). The DSR must be renewed each 3, 5 and 7 years for high, medium and low associated potential damage (DPA) respectively, and whenever any structural modifications are made. The RPSB is performed by an external company not linked to the Engineer of Record (EoR).

**Emergency Preparedness and Response Plan (EPRP).** All mining dams covered by National Dam Safety Policy must have an Emergency Preparedness and Response Plan, called PAEBM in Brazil, as stipulated in Article 12 and subsequent articles of Law No. 12,334/2010, as well as Article 33 and subsequent articles of Resolution ANM No. 95/2022.

## REGULATION OF OTHER ACTIVITIES

We are subject to comprehensive regulatory regimes for some of our other activities, including rail transport, port operations and electricity generation. We are also subject to more general legislation on workers' health, safety, and support of communities near mines, and other matters. The following descriptions relate to some of the other regulatory regimes applicable to our operations:

**Brazilian railway regulation.** Our Brazilian railroad business operates pursuant to concession agreements granted by the federal government, and our railroad concessions are subject to regulation and supervision by the Brazilian Ministry of Transportation and the Brazilian Land Transportation Regulatory agency (*Agência Nacional de Transportes Terrestres* – ANTT). The concessions for EFC and EFVM were renewed for 30 years, and will expire in 2057, upon commitment of investments (such as urban and infrastructure works) and payment of grant. Such investments are subject to risks inherent to the execution of works, including delays.

In December 2024, we and the federal government, through the Ministry of Transportation and ANTT, established the general framework for the renegotiation of the concession contracts for EFC and EFVM. The renegotiation will be carried out in accordance with the terms of the concession contracts renewed in 2020, which remain in force, aiming to promote their modernization and updating. Under this general framework, we commit to a maximum global contribution of approximately US\$1,809 million, related to the EFC and EFVM's asset base review, the optimization of contractual

obligations and investment replanning. The negotiated terms result in an US\$256 million increase in provisions related to the railway concessions. The general framework established for the renegotiation of the concession contracts will comply with usual formalities and will be submitted to the relevant authorities for evaluation and approval.

VLI's subsidiary, Ferrovia Norte Sul S.A. (FNS) has also been awarded a subconcession contract for commercial operation of a 720-kilometer segment of the FNS railroad in Brazil, which expires in 2037. In July 2022, MRS signed an amendment to the concession agreement providing for the early extension of its concession for another 30 years, until 2056. FCA concession expires in 2026 and may be renewed for 30 years at the federal government's discretion. Rail transportation prices can be negotiated directly with the users of such services, subject to a price cap set forth in the concession agreements and annually reviewed by ANTT for each of the concessionaires and for the different products transported. ANTT regulations also require concessionaires to give trackage rights to other railway operators, to make investments in the railway network, and to meet certain productivity and safety requirements, among other obligations.

**Brazilian port regulation.** Port operations in Brazil are subject to regulation and supervision by ANTAQ, the federal agency in charge of maritime transportation services, and by the Ministry of Ports and Airports through the National Secretary of Ports and Aquatic Transport (SNPTA), whose purpose is to formulate policies and guidelines. The agreements to operate our private terminals are valid until 2039 and may be renewed for equal periods, with the exception of the Leases for the Copper Terminal (Itaqui port, state of Maranhão) and the CPBS and for the Iron Ore Export Terminal at Itaguaí Port, state of Rio de Janeiro. The lease for the Copper Terminal expired in January 2023 and we are now operating under a Court decision which authorizes operations to continue until the contract is renewed or a new contract is in place. An administrative procedure is being carried out by SNPTA for the potential renewal of the contract for 20 years, yet to be concluded. CPBS's (Itaguaí Port, state of Rio de Janeiro) lease expires in 2026 and is currently under the process of being renewed for additional 25 years, at the discretion of the Federal Government.

### III. OPERATING AND FINANCIAL REVIEW AND PROSPECTS

#### OVERVIEW

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In 2024, we recorded net income of US\$5,975 million, compared to US\$8,105 million in 2023. Our Adjusted EBITDA decreased to US\$14,840 million in 2024 from US\$18,601 million in 2023, mainly due to lower average realized prices of iron ore fines and pellets, which had an impact of US\$3,754 million. Consolidated Adjusted EBITDA is a non-GAAP financial measure; for a reconciliation with our net income, see *Operating and Financial Review and Prospects—Overview—Reconciliation of Consolidated Adjusted EBITDA*.

#### MAJOR FACTORS AFFECTING PRICES

##### *Iron ore and iron ore pellets*

Iron ore prices are strongly affected by seaborne market supply and demand dynamics although structural changes in steel production can disturb the market fundamentals and iron ore price realization.

Iron ore fines, lumps and iron ore pellets are produced at a wide array of quality levels and physical characteristics. Price differences derive from various factors, such as iron content, particle size, moisture content and the type and concentration of contaminants (such as phosphorus, alumina, silica and manganese) in the ore. Also, fines, lump ore and pellets typically command different prices.

Demand for our iron ore products depends on the global demand for steel, which in turn is strongly influenced by real estate, infrastructure construction, and global industrial production. China's demand has been the main driver of world demand and prices.

In 2024, the iron ore average price closed at US\$109.44/dmt (Platts IODEX 62% Fe iron ore prices), 8.61% lower than in 2023. During 2024, prices fluctuated following global economy, as well as shifts in market perception in China amid changing expectations about mandatory steel production cuts and stimulus measures announced by Chinese authorities. China steel production remained at moderate levels in first half of 2024 but softened in the second half, and strong steel export helped to absorb steel production in China during 2024. The market experienced increased volatility due to a tighter seaborne market, significant increase in steel exports from China and market reactions on economic stimulus from Chinese authorities. China crude steel production declined by 1.7% in 2024, while iron ore imports increased by 4.3% in the same period. As a result, iron ore port inventory increased by 30Mt, from 118Mt in 2013 to 148Mt in 2024. Steel mills reduced iron ore inventory at mills while trading companies adopted a conservative approach to new acquisitions amid market uncertainties, which contributed to a lower iron ore price in 2024. A drop in steel margins, which remained at negative levels for most of the second half of the year, along with lower coal prices, resulted in a decline in high-grade premiums.

The year 2024 was once again marked by geopolitical tensions, with the ongoing war between Gaza and Israel and the continued conflict between Russia and Ukraine. In 2024, we also observed central banks transitioning from inflation-fighting measures to creating a more favorable environment for consumers and businesses; however, signs of economic recovery are yet to be seen. The World Steel Association (WSA) released statistics for 2024, showing global crude steel production reaching 1,882.6 Mt, a decrease of 0.8% compared to 2023.

Among the major producers, China produced 1,005 Mt of crude steel in 2024, a year-on-year decrease of 1.7%, due to a still weak real estate market, infrastructure construction, and low consumer confidence. Steel production resulted in an oversupply and lower prices, forcing steel mills to seek external markets to offload their products. On the other hand, China's value-added industrial production grew by 5.8% in 2024, driven by the country's ongoing efforts to optimize and upgrade its industrial structure.

India's strong performance is noteworthy, with production growing by 6.3% year-on-year to 149Mt, reflecting robust infrastructure investments being implemented in the country. We also saw a slight recovery in steel production in the European Union, with an increase of 2.6% to 129 Mt, Africa with an increase of 3.5% to 28Mt, and South America with a slight increase of 0.6% to 42Mt.



Compared to 2023, steel production fell by 3.6% year-on-year in JKT (Japan, Korea, and Taiwan) to 166 Mt, and fell by 4.2% in North America to 105Mt. In these regions, the industrial sector recession in 2024 was caused by economic uncertainties and still restrictive financing conditions. Construction remained weak, affecting steel demand in key markets such as the US, Europe, Japan, and Korea. Automotive production in Europe was positive in 2024. The industry saw slight growth, with production levels remaining stable despite earlier expectations of a decline. Increases were also seen in Brazil and the US; however, the automotive sector recorded declines in Japan and Korea.

## Nickel

Nickel is an exchange-traded metal, listed on the London Metals Exchange (LME) and, starting in 2015, on the Shanghai Futures Exchange (SHFE). Most nickel products are priced based on a discount or premium to the LME price, depending mainly on the nickel product's physical and technical characteristics. Liquidity continued to improve in 2024 after several fundamental and technical factors impacted trading and reduced liquidity in 2023 resulting in the LME announcing a two-year change program to strengthen and enhance its markets. The nickel market is strongly affected by stainless steel production, which represented 65% of global primary nickel consumption in 2024.

We have short-term fixed-volume contracts with customers for the majority of our expected annual nickel sales, which vary in term. These contracts provide stable demand for a significant portion of our annual production. In 2024, 89% of our refined nickel sales were made for non-stainless steel applications (alloy steels, high nickel alloys, plating and batteries), compared to the industry average for nickel producers of 35%, bringing more diversification and stability to our sales volumes. As a result of our focus on such higher-value segments, our average realized nickel prices for refined nickel have typically exceeded LME cash nickel prices.

Historically, Chinese domestic production of nickel pig iron accounted for the majority of world nickel supply growth using unprocessed nickel ore from the Philippines and Indonesia. However, Chinese nickel pig iron production was adversely affected by export restriction of unprocessed ores from Indonesia, recommencing in 2020, allowing Indonesia to emerge as the largest producer of nickel pig iron. In 2024, approximately 9% of world primary nickel supply was produced as nickel pig iron in China. Approximately 41% of world primary nickel supply was produced as nickel pig iron in Indonesia, with much of it integrated directly to produce stainless steel. In 2024, production capability increases were seen in intermediate mixed hydroxide precipitate (MHP) and conversion of nickel pig iron into nickel matte for further conversion into battery suitable material as well as LME-deliverable Class I nickel. We expect that future growth will be focused on matte and MHP to feed the battery and Class I supply chains.

Stainless steel is a significant driver of demand for nickel, particularly in China. In 2024, stainless steel production in China represented 42% of total primary nickel demand. Therefore, changes in Chinese stainless-steel production have a large impact on global nickel demand. In 2024, Chinese stainless-steel production increased 7% year-on-year compared to an increase of 11% in 2023, as a ramp up in new capacity was offset by output cuts due to low stainless steel prices. While stainless steel production is a major driver of global nickel demand, stainless steel producers can obtain nickel with a wide range of nickel content, including secondary nickel (scrap). The choice between primary and secondary nickel is largely based on their availability, technological processes, and relative prices. On average between 2020 and 2024, secondary nickel accounted for approximately 35% of total nickel used for stainless steel. Regional availability and consumption of secondary nickel vary. In China, due to the low availability of scrap and an abundance of nickel pig iron, the use of secondary nickel represented 22% of the total nickel used for stainless steel in 2024.

In addition, the high-value segment, which consists of nickel use in plating, non-ferrous alloys, foundry, alloy steel and other applications, and excludes nickel used in batteries, is the second largest market, making up 20% of nickel demand in 2024. Global high-value demand increased by 5% year-on-year in 2024 led by growth in the non-ferrous alloys sector compared to an increase of 3% in 2023, with increases concentrated in China, France and the U.S.

The battery segment is the third largest market, accounting for 15% of nickel demand in 2024. Global nickel demand in battery precursors increases by 6% year-over-year in 2024, led by increased sales of electric vehicles, compared to a 7% increase in 2023. The marginally slower growth rate is due to (a) higher-than-expected sales in China, which is dominated by lithium iron phosphate (LFP) chemistries, and (b) a pullback in battery electric vehicle (BEV) targets along with their replacement by lower-capacity plug-in hybrid electric vehicles (PHEV). The battery segment is still displaying significant upside demand as electric vehicle production continues to draw substantial investments.

The nickel market was in a surplus in 2024 by approximately 286 kt. Global exchange inventories (LME and SHFE) increased by 119 kt from December 29, 2023 to December 31, 2024, driven by a rise in stocks at LME warehouses in

Asia. LME country of origin data showed that at the end of 2024, 51% of nickel material in LME warehouses originated in Asia. For 2025, it is expected that the market will remain in a surplus primarily due to increased supply in Indonesia.

### Copper

Copper demand in recent years has been driven primarily by China, given the important role copper plays in construction in addition to electrical and consumer applications. Copper is an enabler of the energy transition due to its excellent properties as an energy conductor, with widespread applications in renewable energy and electric vehicles. Copper prices are determined on the basis of (i) prices of copper metal on terminal markets, such as the London Metal Exchange (LME), Shanghai Future Exchange (SHFE) and the Commodities Exchange (COMEX), and (ii) in the case of intermediate products, such as copper concentrate (which comprise most of our sales) and copper anode, treatment and refining charges negotiated with each customer.

Demand for refined copper increased 3.2% year-on-year in 2024, with China responsible for approximately 57% of worldwide refined consumption. For 2025, the market is expected to be relatively balanced on similar levels of growth in supply and demand.

## TAILINGS DAM FAILURE IN BRUMADINHO

### Tailings Dam Failure in Brumadinho

The Brumadinho dam failure key impacts on our financial performance and operational results for the year ended December 31, 2024 are summarized below:

**Impact on our income statement.** The impact of the dam failure in our income statement in 2024 was US\$483 million compared to US\$930 million in 2023. This decrease mainly reflects lower incurred expenses (impact of US\$106 million) and a reduction of other obligations (impact of US\$269 million) related to Brumadinho event.

**Impact on our balance sheet.** The total amount of provisions recognized in our balance sheet as of December 31, 2024, in connection with Brumadinho dam failure, including provisions for remediation and reparation obligations under the Judicial Settlement for Integral Reparation, individual indemnification and other commitments was US\$1,970 million compared to US\$3,060 million in 2023.

### Dam de-characterization

Laws and regulations require us to de-characterize all our dams constructed using the upstream method in Brazil.

These structures are at various maturity stages, some of them still in the conceptual engineering phase. Estimating expenditures for these projects involves significant uncertainty in determining the total cost, in line with best market practices. The main impacts on our consolidated financial statements are summarized below.

**Impact on our income statement.** As of December 31, 2024, we recorded a reduction of the liability for the de-characterization of upstream geotechnical structures due to by the update in the discount rate, which increased from 5.41% on December 31, 2023, to 7.36% on December 31, 2024. As a result, we recorded a gain of US\$206 million, compared to a loss of US\$153 million for the same period in the previous year, due to revised estimates for dam de-characterization.

**Impact on our balance sheet.** Total amount of provisions recognized in our balance sheet as of December 31, 2024 in relation to the de-characterization of dams was US\$2,213 million compared to US\$3,451 million in 2023.

**Operational stoppages.** We have suspended some operations due to judicial decisions or technical analysis performed by us on our upstream dam structures located in Brazil. We recorded losses in relation to the operational stoppage and idle capacity of the Iron Solutions segment in the amounts of US\$152 million for the year ended December 31, 2024, compared to US\$218 million on December 31, 2023.

## SAMARCO FUNDING AND THE DEFINITIVE SETTLEMENT

We hold a 50% interest in Samarco, which is accounted for using the equity method. Between 2016 and 2024, until the execution of the Definitive Settlement in November 2024, we and BHP Brasil provided funding to Fundação Renova during periods when Samarco was unable to meet its required disbursements. Upon the execution of the Definitive



Settlement, the process of liquidating Fundação Renova commenced, with Samarco assuming responsibility for carrying out various reparatory actions.

Under the terms of the Definitive Settlement, we and BHP Brasil, as Samarco's shareholders, are required to cover pro rata to our equity interest any funding shortfalls that Samarco, as the primary debtor, are unable to cover. As December 31, 2024, our provision for these obligations totaled US\$3,663 million, which includes estimated contributions from Samarco.

Below is a summary of the impact of the failure of Samarco's dam, which occurred in November 2015, in our consolidated financial statements:

- The carrying value for our investment in Samarco was reduced to zero in 2015.
- The amount of provisions related to Samarco as of December 31, 2024 is US\$3,663 million, US\$764 million lower than in 2023, mainly due in addition to the provision due to the Definitive Settlement amount of US\$956 million, reflecting the change in our assessment of potential outflows to resolve all aspects of the reparation and compensation of the Samarco dam failure. Our reassessment considered the available information, including the progress of negotiations to reach a final settlement of obligations under the Framework Agreement, other claims related to the Samarco dam failure, and Samarco's ability to fund any future outflows. This provision represents the present value of our best estimate of the amounts we may incur to comply with our obligations under the Framework Agreement, considering our 50% stake in Samarco. At each reporting period, we reassess the key assumptions used by Samarco in the preparation of its projected future cash flows and adjust the provision, as necessary. For more information on the legal proceedings resulting from the failure of Samarco's tailings dam, related settlement agreements and the creation of Fundação Renova, see *Additional Information—Legal Proceedings—Legal Proceedings Related to the Failure of Samarco's Tailings Dam* and note 26 to our consolidated financial statements.
- In 2024, we contributed US\$808 million, compared to US\$553 million in 2023, in remediation obligations related to the failure of Samarco's dam, of which a portion was contributed to the Fundação Renova and a portion was used to fulfill the obligations defined in the Definitive Settlement, signed in October, 2024. For more information see *Information on the Company—Lines of Business—Other Investments—Samarco*

In September 2023, the JR Plan was approved as part of Samarco judicial reorganization, setting the parameters for debt restructuring. The JR Plan includes a cap of US\$1 billion for Samarco to fund reparation and compensation programs from 2024 to 2030, with additional contributions beyond that period based on Samarco's cash flow generation.

Prior to the JR Plan, we made contributions directly to the Fundação Renova on behalf of Samarco and deducted these contributions from our income tax calculations in accordance with Brazilian tax legislation. The JR Plan establishes limits for Samarco's payments towards remediation obligations. Any additional cash demands from the Fundação Renova or related to other remediation obligations exceeding these limits will be covered by the shareholders, us and BHP Billiton, in proportion to our respective shareholdings, either directly to the Fundação Renova or through capital contributions to Samarco. After the JR Plan, due to the change in the funding mechanism for Renova, we will no longer be able to deduct future payments from our income tax calculations, as they are not tax-deductible in Brazil. As a result, the deferred income tax asset on the provision of US\$1,078 million was fully reversed. Additionally, the JR Plan did not require the capitalization of expenses totaling US\$703 million incurred in 2023 compared to US\$652 million in 2024, so there is no change in the tax treatment previously adopted.

From the creation of Fundação Renova in 2016 until December 31, 2024, R\$45 billion were disbursed across reparatory and compensatory actions, with contributions made by Samarco, BHP Brasil and us as part of the Mariana reparation efforts. Of this amount, R\$40.5 billion correspond to performance obligations and R\$4.6 billion to payment obligations. After the approval of Definitive Settlement on November 2024, Vale and BHP contributed with R\$5.75 billion to Samarco and Fundação Renova to fulfill obligations determined in the Agreement, which includes the first installment paid to the federal government, the states of Minas Gerais and Espírito Santo, and some municipalities.

## EFFECT OF CURRENCY EXCHANGE VARIATION

Our results are affected in several ways by changes in the value of the Brazilian *real* which is the currency of the primary economic environment in which we operate, although some of our subsidiaries use other functional currencies, such as

the US Dollar, Canadian Dollar and others. Year end exchange rate variations impact our financial results, while the average exchange rate impacts our operational performance.

In 2024, our financial results were mostly impacted by a loss of US\$1,209 million related to mark-to-market adjustments in our derivatives financial instruments, following the Brazilian real depreciation by 27.9% against the U.S. dollar in 2024, compared to a gain of US\$903 million associated with a 7.2% appreciation of the Brazilian real against the U.S. dollar in 2023. These financial instruments known as are swaps primarily used to convert debt and other obligations denominated in Brazilian reais into U.S. dollars to protect our cash flow from exchange rate volatility. For more information on our use of derivatives, see *Overview—Risk Management—Financial Risks*.

In 2024, the annual average exchange rate for Brazilian *reais* against the U.S. dollar appreciated by 7.9%, from an average exchange rate of R\$4.9953 to US\$1.00 in 2023 to R\$5.3920 to US\$1.00 in 2024. This had a negative impact on our operational result and cash flows. The most important effect is described below:

Most of our revenues are denominated in U.S. dollars, while our cost of goods sold are denominated in various currencies, including the U.S. dollar (48.0% in 2024), the Brazilian *real* (47.6% in 2024), the Canadian dollar (4.3% in 2024) and other currencies (0.1% in 2024).

In 2024, we did not recognize any gains due to the reclassification of cumulative translation adjustments to the income statement.

## RESULTS OF OPERATIONS

For commentary on our results of operations for the year 2023 compared with 2022, please see pages 129-136 of our Form 20-F for the year ended December 31, 2023.

Consolidated income statement data:

	<i>For the year ended December 31,</i>		
	<b>2024</b>	<b>2023</b>	<b>% change</b>
	<i>(US\$ million, except %)</i>		
Net operating revenue	38,056	41,784	(8.9)
Cost of goods sold and services rendered	(24,265)	(24,089)	0.7
<b>Gross profit</b>	<b>13,791</b>	<b>17,695</b>	<b>(22.1)</b>
<b>Operating expenses</b>			
Selling and administrative	(622)	(553)	12.5
Research and development	(790)	(723)	9.3
Pre-operating and operational stoppage	(403)	(450)	(10.4)
(Impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net	301	(266)	(213.2)
Other operating revenues (expenses), net	(1,489)	(1,498)	(0.6)
<b>Operating income</b>	<b>10,788</b>	<b>14,205</b>	<b>(24.1)</b>
Financial income	422	432	(2.3)
Financial expenses	(1,473)	(1,459)	1.0
Other financial items, net	(2,772)	(919)	201.6
Equity results and other results in associates and joint ventures	(269)	(1,108)	(75.7)
<b>Income before income taxes</b>	<b>6,696</b>	<b>11,151</b>	<b>(40.0)</b>
Income taxes	(721)	(3,046)	(76.3)
<b>Net income</b>	<b>5,975</b>	<b>8,105</b>	<b>(26.3)</b>
(Loss) net income attributable to noncontrolling interests	(191)	122	(256.6)
<b>Net income attributable to Vale's shareholders</b>	<b>6,166</b>	<b>7,983</b>	<b>(22.8)</b>

## CONSOLIDATED REVENUES

In 2024, our net operating revenue decreased by US\$3,728 million, or 8.9%, to US\$38,056 million, from US\$41,784 million recorded in 2023. The decrease was mainly due to the 7.8% drop in the realized average prices of iron ore fines and pellets, with an impact of US\$3,754 million. For more information on our average realized prices and sale volumes, see Operating and Financial Review and Prospects—Overview—Results of Operations by Segment.

Our revenue depends, among other factors, on the volume of production at our facilities and the prices for our products. For more information on our production, see *Information on the Company—Lines of Business*. Increases in the capacity of our facilities resulting from our capital expenditure program have an important effect on our performance. Our production is also affected by acquisitions and dispositions.

The following table summarizes, for each of the years indicated, the distribution of our net operating revenue based on the geographical location of our customers.

	For the year ended December 31,			
	2024		2023	
	(US\$ million)	(% of total)	(US\$ million)	(% of total)
<b>Asia</b>				
China <sup>(1)</sup>	19,375	50.9	22,210	53.2
Japan	3,050	8.0	3,219	7.7
Other	2,887	7.6	2,675	6.4
<b>Asia – total</b>	<b>25,312</b>	<b>66.5</b>	<b>28,104</b>	<b>67.3</b>
<b>America</b>				
United States	1,075	2.8	1,623	3.9
Brazil	3,565	9.4	3,755	9.0
Other	970	2.5	897	2.1
<b>America – total</b>	<b>5,610</b>	<b>14.7</b>	<b>6,275</b>	<b>15.0</b>
<b>Europe</b>				
Germany	1,467	3.9	1,351	3.2
Other	3,019	7.9	3,677	8.8
<b>Europe – total</b>	<b>4,486</b>	<b>11.8</b>	<b>5,028</b>	<b>12.0</b>
<b>Rest of the world <sup>(2)</sup></b>	<b>2,648</b>	<b>7.0</b>	<b>2,377</b>	<b>5.7</b>
<b>Total</b>	<b>38,056</b>	<b>100.0</b>	<b>41,784</b>	<b>100.0</b>

<sup>(1)</sup> In 2024, corresponds to 95.8% (2023: 97.2%) for China Mainland and 4.2% for Taiwan (2023: 2.8%).

<sup>(2)</sup> Corresponds to Middle East, Africa, and Oceania

## CONSOLIDATED OPERATING COSTS AND EXPENSES

Our cost of goods sold and services rendered totaled US\$24,265 million in 2024, an increase from US\$24,089 million recorded in 2023, mainly due to higher spot freight prices of iron ore fines and pellets, with an impact of US\$498 million, partially offset by lower costs associated with the acquisition of third-party products, with an impact of US\$295 million.

Our research and development expenses totaled US\$790 million in 2024, a 9.3% or US\$67 million increase from US\$723 million recorded in 2023, mainly due to projects related to decarbonization, efficiency and environmental innovation, development of mega hubs and mineral exploration.

Our pre-operating and operational stoppage expenses totaled US\$403 million in 2024, a 10.4% or US\$47 million decrease from US\$450 million recorded in 2023, mainly due to the resumption of operations at Viga, Mutuca, Capão Xavier and Vargem Grande.

Impairment or reversal of impairment and gains or losses on disposal of non-current assets, net, totaled a gain of US\$301 million compared to a loss of US\$266 million recorded in 2023, mainly due to the gain from the divestments in PT Vale Indonesia Tbk and Vale Oman Distribution Center in the amounts of US\$1,059 million and US\$1,222 million, respectively, net of the impairment losses on nickel assets in Thompson and Newfoundland and Labrador in the amounts of US\$1,405 million and US\$540 million, respectively.

Our other operating expenses, net, totaled US\$1,489 million in 2024, in line with US\$1,498 million recorded in 2023. For a description of our other operating expenses, see Note 6 (c) to our consolidated financial statements.

## RESULTS OF OPERATIONS BY SEGMENT

### Sales volumes

The following table sets forth our principal products and the total volumes sold of each product in each of the years indicated:

	<i>For the year ended December 31,</i>		<i>% change</i>
	<b>2024</b>	<b>2023</b>	
	<i>(thousand metric tons, except for %)</i>		
<b>Iron Solutions</b>			
Iron ore fines	260,314	256,789	1.4
Iron ore pellets	38,300	35,840	6.9
ROM (run of mine)	8,038	8,290	(3.0)
<b>Energy Transition Metals</b>			
Nickel and other products	155	168	(7.7)
Copper	250	234	6.8
Copper as nickel co-product	77	74	4.1

### Average realized prices

The following table sets forth our average realized prices for our principal products for each of the years indicated. We determine average realized prices based on our net operating revenue, which consist of the price charged to customers, excluding certain items that we deduct in arriving at net operating revenue, mainly value-added tax.

	<i>For the year ended December 31,</i>		<i>% change</i>
	<b>2024</b>	<b>2023</b>	
	<i>(US\$ per metric ton, except for %)</i>		
<b>Iron Solutions</b>			
Iron ore fines	95	108	(12.0)
Iron ore pellets	155	162	(4.9)
<b>Energy Transition Metals</b>			
Nickel	17,078	21,830	(21.8)
Copper	8,811	7,960	10.7
Copper as nickel by-product	8,413	7,720	9.0

We discuss below, for each segment, the changes in our net operating revenue, cost of goods sold and services rendered (excluding depreciation, depletion and amortization) and Adjusted EBITDA. The expenses incurred in connection with remediation, indemnification and donations in respect of the Brumadinho dam failure are not directly related to our operating activities and are therefore not allocated to any operating segment.

**Net operating revenue by segment**

The following table summarizes our net operating revenue by product for the years indicated.

	For the year ended December 31,		
	2024	2023	% change
	<i>(US\$ million, except for %)</i>		
<b>Iron Solutions</b>			
Iron ore	24,805	27,760	(10.6)
Iron ore pellets	5,921	5,803	2.0
Other ferrous products and services	718	516	39.1
<b>Iron Solutions – total</b>	<b>31,444</b>	<b>34,079</b>	<b>(7.7)</b>
<b>Energy Transition Metals</b>			
Nickel and other products	3,666	5,193	(29.4)
Copper	2,805	2,376	18.1
Other energy transition metals	141	-	n.m.
<b>Energy Transition Metals – total</b>	<b>6,612</b>	<b>7,569</b>	<b>(12.6)</b>
<b>Other</b> <sup>(1)</sup>	-	136	(100.0)
<b>Total</b>	<b>38,056</b>	<b>41,784</b>	<b>(8.9)</b>

<sup>(1)</sup> The effects previously presented as "Other" were allocated to each segment starting from the year ended December 31, 2024. For more information, see *Operating and Financial Review and Prospects—Overview—Adjusted EBITDA by segment*.

n.m. Not meaningful

**Net operating revenue from sales of:**

**Iron Solutions.** Total of US\$31,444 million in 2024, a 7.7% or US\$2,635 million decrease from US\$34,079 million in 2023, mainly reflecting the 7.8% drop in the average realized prices of iron ore fines and pellets, with an impact of US\$3,754 million, partially offset by the 2.0% increase in the sales volumes of iron ore fines and pellets, with an impact of US\$917 million.

**Energy Transition Metals.** Total of US\$6,612 million in 2024, a 12.6% or US\$957 million decrease from US\$7,569 million in 2023, mainly reflecting the 21.8% drop in the realized prices of nickel, with an impact of US\$787 million, and a 7.7% decrease in nickel sales volumes due to planned maintenance in Ontario and furnace overhaul in Onça Puma, with an impact of US\$112 million.

### Cost of goods sold and services rendered by segment (excluding depreciation, depletion and amortization)

The following table presents, for each year indicated, our cost of goods sold and services rendered (excluding depreciation, depletion and amortization) by segment and the percentage change from year to year.

	For the year ended December 31,		
	2024	2023	% change
	<i>(US\$ million, except for %)</i>		
<b>Iron Solutions</b>			
Iron ore	12,846	12,357	4.0
Iron ore pellets	2,920	2,759	5.8
Other ferrous products and services	556	335	66.0
<b>Iron Solutions – total</b>	<b>16,322</b>	<b>15,451</b>	<b>5.6</b>
<b>Energy Transition Metals</b>			
Nickel and other products	3,414	4,169	(18.1)
Copper	1,472	1,357	8.5
Other energy transition metals	154	-	n.m.
<b>Energy Transition Metals – total</b>	<b>5,040</b>	<b>5,526</b>	<b>(8.8)</b>
<b>Other<sup>(1)</sup></b>	<b>-</b>	<b>196</b>	<b>(100.0)</b>
<b>Total (excluding depreciation, depletion and amortization)</b>	<b>21,362</b>	<b>21,173</b>	<b>0.9</b>
Depreciation, depletion and amortization	2,903	2,916	(0.4)
<b>Total (including depreciation, depletion and amortization)</b>	<b>24,265</b>	<b>24,089</b>	<b>0.7</b>

<sup>(1)</sup> The effects previously presented as “Other” were allocated to each segment starting from the year ended December 31, 2024. For more information, see *Operating and Financial Review and Prospects—Overview—Adjusted EBITDA by segment*  
n.m Not meaningful

#### Cost of goods sold and services rendered from:

**Iron Solutions (excluding depreciation, depletion and amortization).** Increased by 5.6% or US\$871 million in 2024 to US\$16,322 million from US\$15,451 million in 2023. This increase primarily reflects higher spot freight prices (impact of US\$338 million) and improvements to the production process mainly in the North and Southeast system (impact of US\$286 million).

**Energy Transition Metals (excluding depreciation, depletion and amortization).** Decreased by 8.8% or US\$486 million in 2024 to US\$5,040 million from US\$5,526 million in 2023. This decrease primarily reflects lower costs associated with the acquisition of third-party products (impact of US\$295 million) and a 7.7% decrease in nickel sales volume due to planned maintenance in Ontario and furnace overhaul in Onça Puma (impact of US\$123 million).

### Adjusted EBITDA by segment

Our management uses Adjusted EBITDA as the measure to assess the contribution of each segment to our performance and to support decision-making in allocating resources. Adjusted EBITDA for each segment is defined as operating income or loss, for such segment, (a) adding the EBITDA from interests in associates and joint ventures and (b) excluding (i) depreciation, depletion and amortization and (ii) (impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net and other.

In 2024, our chief operating decision maker (CODM) changed our Adjusted EBITDA definition, as compared to the definition we used in 2023 and prior years, to replace, for each segment, “dividends received from associates and joint ventures” with the “EBITDA from associates and joint ventures”, which is a measure of our “equity results” excluding (i) net finance costs; (ii) depreciation, depletion, and amortization; (iii) taxation and (iv) (impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net.

The comparative information in our consolidated financial statements was revised to reflect this change in the Adjusted EBITDA definition. The effect of the inclusion of the “EBITDA from associates and joint ventures” and the exclusion of “dividends received from associates and joint ventures” in our Consolidated Adjusted EBITDA for the years ended December 31, 2024, December 31, 2023 and December 31, 2022, is US\$940 million, US\$844 million and US\$774 million, respectively.

Our CODM believes this revision provides investors with a better view of the performance of our operating segments, as it reflects our proportional interest in the performance of our associates and joint ventures operating in the same segment. For more information, see note 5 to our consolidated financial statements.

Additionally, as a result of the reorganization of assets and the governance structure established for the Energy Transition Metals segment, following the sale of a noncontrolling interest in this segment (for more information, see note 17(e) to our consolidated financial statements), the “Other” segment was reorganized to better allocate the effects thereunder to each of the Iron Solutions and Energy Transition Metals segments. These effects have been allocated to each segment starting from the year ended December 31, 2024.

The following table summarizes our Adjusted EBITDA for each of our segments.

	For the year ended December 31,		
	2024	2023	2022
	(US\$ million)		
<b>Iron Solutions</b>			
Iron ore	11,598	15,205	15,929
Iron ore pellets	3,166	3,136	3,758
Other ferrous products and services	321	473	410
<b>Iron Solutions – total</b>	<b>15,085</b>	<b>18,814</b>	<b>20,097</b>
<b>Energy Transition Metals</b>			
Nickel	114	851	1,924
Copper	1,521	1,100	569
Other energy transition metals	(182)	12	-
<b>Energy Transition Metals – total</b>	<b>1,453</b>	<b>1,963</b>	<b>2,493</b>
<b>Other <sup>(1)</sup></b>	<b>(1,698)</b>	<b>(2,176)</b>	<b>(2,210)</b>
<b>Adjusted EBITDA from continuing operations</b>	<b>14,840</b>	<b>18,601</b>	<b>20,380</b>

<sup>(1)</sup> Includes revenues and expenses of other products, services, research and development, investments in joint ventures and associates of other business and corporate expenses unallocated to the reportable segments, as well the costs related to the Brumadinho event.

#### Adjusted EBITDA from:

**Iron Solutions.** Total of US\$15,085 million in 2024, a decrease of US\$3,729 million or 19.8%, when compared to our Adjusted EBITDA from continuing operations of US\$18,814 million in 2023. This decrease mainly reflects lower average realized prices of iron ore fines and pellets, which had an impact of US\$3,754 million. In 2023, the decrease of US\$1,283 million compared to our Adjusted EBITDA from continuing operations of 2022 mainly reflects lower average realized prices of Iron Solutions and higher third-party purchases.

**Energy Transition Metals.** Total of US\$1,453 million in 2024, a decrease of US\$510 million or 26.0%, when compared to our Adjusted EBITDA from continuing operations of US\$1,963 million in 2023. This reduction mainly reflects lower



average realized prices of nickel, with an impact of US\$787 million, offset by an increase in the average realized prices of copper, with an impact of US\$214 million. In 2023, the decrease of US\$530 million compared to our Adjusted EBITDA from continuing operations of 2022 is mainly due to lower realized prices of nickel and the decrease in nickel sales volumes due to planned maintenance in Ontario and furnace overhaul in Onça Puma.

## FINANCIAL RESULTS

The following table details our financial results for the years indicated.

	For the year ended December 31,		
	2024	2023	% change
	<i>(US\$ million, except for %)</i>		
Financial income <sup>(1)</sup>	422	432	(2.3)
Financial expenses <sup>(2)</sup>	(1,473)	(1,459)	1.0
Foreign exchange and indexation gains (losses), net	(1,388)	(1,643)	(15.5)
Participative shareholders' debentures	(175)	(179)	(2.2)
Derivatives financial instruments, net	(1,209)	903	(233.9)
<b>Total</b>	<b>(3,823)</b>	<b>(1,946)</b>	<b>96.5</b>

<sup>(1)</sup> Includes short-term investments and other financial income (see note 7 to our consolidated financial statements).

<sup>(2)</sup> Includes loans and borrowings interest, interest on supplier finance arrangements, interest expenses of REFIS (a tax settlement program), interest on lease liabilities and others financial expenses (see note 7 to our consolidated financial statements).

In 2024, our financial results were mostly impacted by a loss of US\$1,209 million related to mark-to-market adjustments in our derivatives financial instruments, following the Brazilian *real* depreciation by 27.9% against the U.S. dollar in 2024, compared to a gain of US\$903 million associated with a 7.2% appreciation of the Brazilian *real* against the U.S. dollar in 2023. These derivatives financial instruments are swaps primarily used to convert debt denominated in Brazilian *reais* into U.S. dollars to protect our cash flow from exchange rate volatility.

## EQUITY RESULTS AND OTHER RESULTS IN ASSOCIATES AND JOINT VENTURES

In 2024, we recorded a loss in equity results and other results in associates and joint ventures of US\$269 million, a reduction of US\$839 million compared to a loss of US\$1,108 million in 2023. In 2024, our equity results and other results in associates and joint ventures were mostly impacted by an expense of US\$956 million associated to the increase in the provision relating to Samarco's dam failure due to the Definitive Settlement, partially offset by a gain of US\$305 million from the remeasurement to fair value of the equity interest we previously held in connection with the acquisition of Aliança Geração de Energia S.A., compared to an expense of US\$1,200 million in 2023 associated to the increase in the provision relating to Samarco's dam failure due to changes in estimates based on all information available at that time about the status of a potential settlement agreement.

## INCOME TAXES

In 2024, we recorded an income tax expense of US\$721 million, a reduction of US\$2,325 million compared to the income tax expense of US\$3,046 million recorded in 2023, mainly due to a 40% reduction in taxable income following the recognition of gains arising from acquisitions and divestitures, which has no tax impacts. The reconciliation of taxes calculated at nominal tax rates and the amount of taxes recorded at effective rate is presented in note 9 to our consolidated financial statements.

## NET INCOME AND LOSSES

For the reasons discussed above, our net income attributable to our shareholders in 2024 was US\$6,166 million, compared to US\$7,983 million in 2023.

## RECONCILIATION OF CONSOLIDATED ADJUSTED EBITDA

Adjusted EBITDA is a non-GAAP measure, which is calculated based on the operating income or loss and (a) adding the EBITDA from interests in associates and joint ventures and (b) excluding (i) depreciation, depletion and amortization and (ii) (impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net. Our management uses Adjusted EBITDA as an additional measure of our consolidated performance.

## RESULTS OF OPERATIONS

In 2024, our CODM changed our Adjusted EBITDA definition. For more information, see *Operating and Financial Review and Prospects—Overview—Adjusted EBITDA by segment* and note 5 to our consolidated financial statements.

The table below shows a reconciliation of our consolidated Adjusted EBITDA with our consolidated net income or loss for the years indicated.

	For the year ended December 31,		
	2024	2023	2022
	(US\$ million)		
<b>Net income attributable to Vale's shareholders</b>	<b>6,166</b>	<b>7,983</b>	<b>16,728</b>
(Loss) net income attributable to non-controlling interests	(191)	122	82
<b>Net income from continuing operations</b>	<b>5,975</b>	<b>8,105</b>	<b>16,810</b>
Income taxes	721	3,046	2,971
Equity results and other results in associates and joint ventures	269	1,108	(305)
Financial results, net	3,823	1,946	(2,268)
Depreciation, depletion and amortization	3,057	3,070	3,171
EBITDA from associates and joint ventures	940	844	774
(Impairment), reversal of impairment and gains (losses) on disposal of non-current assets, net and other <sup>(1)</sup>	55	482	(773)
<b>Adjusted EBITDA from continuing operations</b>	<b>14,840</b>	<b>18,601</b>	<b>20,380</b>

<sup>(1)</sup> Includes an adjustment of US\$356 million for the year ended December 31, 2024 (2023: US\$216 million), to reflect the performance of streaming transactions at market prices.

In 2024, our consolidated Adjusted EBITDA from continuing operations decreased to US\$14,840 million from US\$18,601 million in 2023, mainly due to the 7.8% drop in the realized average prices of iron ore fines and pellets, with an impact of US\$3,754 million. In 2023, our consolidated Adjusted EBITDA from continuing operations decreased to US\$18,601 million from US\$20,380 million in 2022, mainly due lower net operating revenue from sales associated to lower average realized prices of Iron Solutions and average realized prices decrease of nickel and copper.

## LIQUIDITY AND CAPITAL RESOURCES

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Our principal funding requirements are for capital expenditures, dividends payments, share buybacks, debt service, tax payments, dam de-characterization and satisfaction of our obligations relating to the remediation and compensation of damages in connection with the Brumadinho dam failure and any contribution we may be required to make in connection with the Fundão dam failure, pursuant to the Definitive Settlement. We expect to meet these requirements, in line with our historical practice, by using cash generated from operating activities and financing activities.

Our investment guidance for capital expenditures in 2025 and thereafter is approximately US\$6.2 billion. A principal amount of US\$836 million of our debt matures in 2025. We expect to incur a total amount of US\$3,113 million relating to the remediation and compensation in connection with the Brumadinho and Fundão dam failures and de-characterization of dams in 2025 and after 2025 our aggregate expected expenses with provision is US\$6,253 million. We have an aggregate principal amount of US\$2,690 million debt maturing between 2026 and 2028, and US\$11,082 million maturing after 2028. We expect that our existing cash and cash equivalents and our operating cash flows will be sufficient to satisfy our obligations due in 2025 and thereafter. We are constantly evaluating opportunities for additional cash generation. Finally, we are committed to further reducing our costs and expenses and maintaining sound leverage levels and discipline in capital allocation.

### SOURCES OF FUNDS

Our principal sources of funds are our operating cash flow and financing activities. In 2024, the net cash flow generated by operating activities was US\$9,366 million, compared to US\$13,165 million in 2023. The amount of operating cash flow is strongly affected by global prices for our products. This decrease in 2024 was mainly due to the decline in the average realized prices for iron ore fines and pellets and nickel, with an impact of US\$4,541 million, partially offset by the increase in the volume of iron ore fines and pellets, with an impact of US\$917 million.

As of December 31, 2024, our cash, cash equivalents and short-term investments totaled US\$5,006 million compared to US\$3,660 million as of December 31, 2023.

In 2024, we borrowed US\$4,855 million, including (a) an amount in Brazilian reais equivalent to approximately US\$1,000 million in Brazilian debentures, in three series, at a rate of IPCA plus 6.38% to 6.44% per year, maturing in 2034, 2036, and 2039, (b) US\$1,000 million in bonds, with a 6.400% coupon per year, maturing in 2054; and (c) other loans and borrowings, mainly indexed to SOFR plus a spread, maturing from 2024 to 2035. In 2023, we borrowed US\$1,950 million, including (a) US\$1,500 million in bonds, with a 6.125% coupon per year, maturing in 2033, and (b) other loans and borrowings, at a rate of SOFR plus a spread, maturing in 2028.

### USES OF FUNDS

#### *Reparation Obligations*

In 2024, we used a total amount of cash of US\$1,287 million (US\$1,814 million in 2023) in matters related to the Brumadinho dam failure, of which US\$583 million were used in connection with obligations assumed under settlement agreements (US\$1,004 million in 2023), US\$326 million in individual indemnification and other commitments (US\$326 million in 2023), and US\$378 million in connection to incurred expenses (US\$484 million in 2023).

In 2024, we used a total of US\$808 million in cash for remediation obligations related to Samarco's dam failure, compared to US\$553 million in 2023. For more information, see note 27(a) to our consolidated financial statements.

In 2024, we also used US\$533 million in cash for matters related to the de-characterization of dams, compared to US\$458 million in 2023. For more information, see note 28 to our consolidated financial statements.

#### *Acquisition of property, plant and equipment and intangible assets*

Our acquisition of property, plant and equipment and intangible assets in 2024 totaled US\$6.4 billion, compared to US\$5.9 billion in 2023, including US\$4.5 billion (compared to US\$4.3 billion in 2023) dedicated to sustaining our existing operations and US\$1.5 billion (compared to US\$1.7 billion in 2023) allocated to project execution (construction in progress).

## LIQUIDITY AND CAPITAL RESOURCES

Our investment guidance for acquisition of property, plant and equipment and intangible assets in 2025 is approximately US\$6.2 billion, to sustain our production, support our low-carbon agenda initiatives, and seize accretive growth opportunities.

The following table sets forth total expenditures in 2024 for our main investment projects and expenditures budgeted for those projects in 2025, together with estimated total expenditures for each project and the actual or estimated startup date of each project as of December 31, 2024.

Business area	Main projects <sup>(1)</sup>	Actual or Estimated start-up	Executed CAPEX		Expected CAPEX	
			2024 <sup>(2)</sup>	Total executed <sup>(3)</sup>	2025 <sup>(4)</sup>	Total expected <sup>(5)</sup>
<i>(US\$ million)</i>						
Iron Solutions	Gelado	2H22	30	421	35	428
Iron Solutions	Briquetting Tubarão	1H24	68	308	30	342
Iron Solutions	Northern System 240 Mt Program <sup>(6)</sup>	2H24	85	728	17	772
Iron Solutions	Capanema Maximization	2H25	298	691	199	913
Iron Solutions	Serra Sul +20 Program	2H25	490	1,404	447	2,844
Energy Transition Metals: Nickel	VBME	2H24 <sup>(7)</sup>	413	2,879	52	2,940
Energy Transition Metals: Nickel	Onça Puma 2 <sup>nd</sup> furnace	2H25	175	275	167	555

<sup>(1)</sup> Projects approved by our Board of Directors.

<sup>(2)</sup> Executed capital expenditures comprise the sum of cash outflows.

<sup>(3)</sup> Total executed CAPEX through December 31, 2024, including capital expenditures in prior periods.

<sup>(4)</sup> Figure presented corresponds to the investment guidance for capital expenditures in 2025 of approximately US\$6,2 billion.

<sup>(5)</sup> Estimated total capital expenditure cost for each project, including capital expenditures in prior periods. Total expected CAPEX includes expenses, in line with the budget approved by our Board of Directors, while these expenses are not included in the expected CAPEX for the year or in the total executed CAPEX figures.

<sup>(6)</sup> The number presented includes the Northern System 240 Mt project, 240 Mtpa Porto, 240 Mtpa Ferrovia and +10 Mtpa.

<sup>(7)</sup> The project had 100% of physical progress completed in the 4Q24 and the full ramp-up is expected by the second half of 2026.

### Distributions and share buyback

**Distributions.** In 2024, we approved dividends and interest on capital to our shareholders totaling US\$4,360 million. On February 19, 2025, the Board of Directors approved remuneration to shareholders in the total amount of US\$1,596 million.

**Share buyback.** In 2024, we repurchased 30,923,573 common shares (including common shares in the form of ADRs) at an average price of US\$13.23 per share, totaling US\$409 million. On February 19, 2025, the Board of Directors approved a new share buyback program for the acquisition of up to 120 million common shares within a period of 18 months.

### Tax payments

We paid US\$1,462 million in income tax in 2024, excluding the payments in connection with REFIS (a tax settlement program), compared to US\$1,487 million in income tax in 2023. In 2024, we paid a total of US\$397 million in connection with the REFIS, compared to US\$403 million in 2023.

### Liability Management

In 2024, we repaid US\$2,605 million (compared to US\$658 million in 2023) under our financing agreements.

In March 2025, we completed cash repurchases of notes issued by Vale Overseas Limited and guaranteed by Vale S.A., as follows: US\$103 million of outstanding 8.250% guaranteed notes due 2034, US\$ 171 million of outstanding 6.875%

guaranteed notes due 2039, and US\$55 million of outstanding 6.875% guaranteed notes due 2036. Combined, the tender offers allowed us to repay an aggregate principal amount of US\$329 million in debt.

### DEBT

As of December 31, 2024, our total outstanding debt (including loans and borrowings) was US\$14,792 million (including US\$14,608 million of principal and US\$184 million of accrued charges) compared to US\$12,471 million as of December 31, 2023.

As of December 31, 2024, we had loans and borrowings amounting to US\$1,091 million secured by fixed assets and the weighted average of the remaining term of our debt was 8.7 years, compared to 7.9 years in 2023.

As of December 31, 2024, our current loans and borrowings was US\$1,020 million compared to US\$824 million in 2023, including accrued interest.

Our major categories of non-current loans and borrowings are described below. The principal amounts shown below, excluding accrued interest.

- U.S. dollar-denominated fixed rate notes as of December 31, 2024 was US\$7,187 million compared to US\$7,157 million as of December 31, 2023. We have issued in public offerings several series of fixed rate debt securities, directly by Vale and through our wholly owned finance subsidiary Vale Overseas Limited (debt securities guaranteed by Vale) totaling US\$6,908 million, compared to US\$6,878 million in 2023. Our subsidiary Vale Canada has outstanding fixed rate note in the amount of US\$279 million as of December 31, 2024, compared to US\$279 million as of December 31, 2023.
- U.S. dollar-denominated debt contracts in the international market as of December 31, 2024 was US\$5,042 million compared to US\$3,945 million as of December 31, 2023. This category includes export financing lines, loans from export credit agencies, and loans from commercial banks and multilateral organizations.
- Other debt as of December 31, 2024 was US\$1,543 million compared to US\$545 million as of December 31, 2023. We have outstanding debt, principally owed to BNDES, Brazilian commercial banks and holders of infrastructure debentures, denominated in Brazilian reais and other currencies.

As of December 31, 2024, we had two revolving credit facilities with syndicates of international banks, which will mature in 2026 and 2029. The revolving credit lines, which are committed, allow more efficient cash management, consistent with our strategic focus on reducing cost of capital. We currently have US\$5 billion available under these two revolving credit lines which can be drawn by Vale, Vale Canada and Vale International.

Some of our long-term debt instruments contain financial covenants and most include cross acceleration provisions. 18.2% of the aggregate principal amount of our total debt require that we maintain, as of the end of each fiscal year, (i) a consolidated ratio of total debt to adjusted EBITDA for the past 12 months not exceeding 4.5 to one and (ii) a consolidated interest coverage ratio of at least 2.0 to one. These covenants appear in our financing agreements with BNDES, with other export and development agencies and with some other lenders. We complied with these covenants in 2024 and 2023.

As of December 31, 2024, the corporate financial guarantees we provided (within the limit of our direct or indirect interest) for certain associates and joint ventures totaled US\$210 million, compared to US\$274 million in 2023.

In February 2025, Vale Overseas Limited issued US\$750 million of 6.400% guaranteed notes due 2054, guaranteed by Vale S.A. These notes will be consolidated and form a single series with Vale Overseas Limited's US\$1,000 million 6.400% guaranteed notes due 2054 issued in June 2024.

## IV. SHARE OWNERSHIP AND TRADING

### MAJOR SHAREHOLDERS

As of February 28, 2025, our corporate capital was composed of 4,268,778,787 common shares, including 12 golden shares held by the Brazilian government. The 12 golden shares have veto powers over certain actions, such as changes to our name, the location of our headquarters and our corporate purpose as it relates to mining activities.

The following table sets forth information regarding ownership of our shares by the shareholders we know beneficially own more than 5% of our outstanding capital stock, and by our directors and executive officers as a group, as of February 28, 2025 unless otherwise indicated.

Shareholders	Common shares owned	% of class <sup>(5)</sup>
Caixa de Previdência dos Funcionários do Banco do Brasil (PREVI) <sup>(1)</sup>	396,079,982	9.3
BlackRock, Inc.	289,063,618 <sup>(2)</sup>	6.8
Mitsui & Co., Ltd. <sup>(3)</sup>	286,347,055	6.7
Board of directors and executive officers as a group <sup>(4)</sup>	752,732	0.0

<sup>(1)</sup> Previ is a shareholder of Litel Participações S.A. (Litel) and Litela Participações S.A. (Litela), which were part of our former control group.

<sup>(2)</sup> Number of shares as reported in BlackRock, Inc.'s Schedule 13G/A, filed with the SEC on February 9, 2024.

<sup>(3)</sup> Mitsui & Co. Ltd. (Mitsui) was part of our former control group.

<sup>(4)</sup> Number of shares as of December 30, 2024.

<sup>(5)</sup> All percentages are based on 4,268,778,787 common shares outstanding as of February 28, 2025. We held 270,228,793 shares in treasury as of February 28, 2025.

We were informed of the following significant changes in the percentage ownership held by our major shareholders during the past three years:

- **PREVI.** In 2022 and 2023, PREVI reduced its shareholding interest in Vale, and as of February 29, 2024, PREVI held 396,876,382 common shares. From 2017 and 2020, Litel, Litela, Mitsui, Bradespar and BNDES Participações S.A. were parties to a shareholders' agreement, pursuant to which they voted together on certain matters. Since 2020, there are no shareholders' agreements filed at our headquarters, and we no longer have a controlling shareholder.
- **Bradespar.** In January 2022, Bradespar S.A. (Bradespar) transferred to its shareholders, as a result of a capital reduction, 130,654,877 common shares. Consequently, Bradespar reduced its shareholding interest in Vale to 163,252,389 common shares, representing an aggregate of 3.3% of our outstanding share capital (based on a total outstanding share capital of 4,821,642,536 common shares outstanding as of January 31, 2022).
- **Capital Research and Management Company.** Capital World Investors reported 161,357,883 shares as of December 29, 2023 and 294,061,122 shares as of December 30, 2022. Capital Research Global Investors reported 214,791,969 shares as of December 30, 2022. Capital International Investors reported 134,097,229 shares as of December 30, 2022.

## RELATED PARTY TRANSACTIONS

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In 2021, we released our revised policy on related party transactions. The policy sets forth rules and principles to ensure transparency and arm's-length terms in our transactions with related parties and other situations of potential conflicts of interest. Pursuant to our new policy:

The definition of related party is based on applicable accounting standards and on this policy, which may be more restrictive than applicable laws and regulations under certain circumstances.

Our revised policy introduced the concept of "Reference Shareholders," which are shareholders we consider to be related parties, based on the standards set forth in the policy such as, the effective influence over Vale through a direct or known relationship, the existence of common management with such shareholder or a company that is part such shareholder's group, among others. The list of our Reference Shareholders will be annually reviewed by the Audit and Risks Committee.

Our Audit and Risks Committee is responsible for issuing reports about potential conflicts of interest between us and our shareholders or management and for reviewing the procedure and terms of related party transactions that are submitted to our Board of Directors for approval.

If we identify a conflict of interest with a shareholder, then that shareholder or its representative may not participate in any discussions related to the transaction at any shareholders' meeting and will only have access to publicly available information about the matter.

If a director or an executive officer has a conflict of interest with the company in connection with any proposed transaction, such director or executive officer may not vote in any decision of the Board of Directors or of the Executive Committee regarding such transaction and must disclose the nature and extent of the conflicting interest for transcription in the minutes of the meeting. Any director or executive officer who has a conflict of interest cannot receive any relevant documentation or information and may not participate in any related discussions. None of our directors or executive officers can transact any business with us, except on reasonable or fair terms and conditions that are identical to the terms and conditions prevailing in the market or offered by unrelated parties.

The policy also prohibits the extension of any loans to related parties other than our subsidiaries and affiliated companies.

We have engaged, and expect to continue to engage, in arm's length transactions with certain entities controlled by, or affiliated with, our major shareholders.

Previ, a pension fund of the employees of Banco do Brasil S.A. (Banco do Brasil), owns 8.7% of the common shares of Vale as of February, 2025. Banco do Brasil appoints three out of the six members of Previ's senior management. An affiliate of Banco do Brasil is the manager of BB Carteira Ativa. Banco do Brasil is also a full-service financial institution, and Banco do Brasil and its affiliates have performed, and may perform in the future, investment banking, advisory or general financing and banking services for us and our affiliates, from time to time, in the ordinary course of business.

We have commercial relationships in the ordinary course of our business with Mitsui, a large Japanese conglomerate. Mitsui has direct investments in some of our subsidiaries, joint ventures and associated companies. Mitsui is also our joint venture partner at VLI.

Bradespar S.A. is controlled by a group of entities that also control Banco Bradesco S.A. (Bradesco). Bradesco and its affiliates are full-service financial institutions that have performed, and may perform in the future, investment banking, advisory or general financing and banking services for us and our affiliates, from time to time, in the ordinary course of business.

We have provided in the past, and may continue to provide, funding for Samarco and Fundação Renova. See *Operating and Financial Review and Prospects—Overview—Samarco Funding and the Definitive Settlement*.

We have also entered into indemnification agreements with each of our directors and executive officers, in accordance with our Indemnity Policy, approved by our Board of Directors.

We have engaged, and expect to continue to engage, in arm's length transactions with certain of our associates, joint ventures and other related parties. For information regarding investments in associate companies and joint ventures

## RELATED PARTY TRANSACTIONS

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and for information regarding transactions with major related parties, see notes 16 and 32(b) to our consolidated financial statements.



## DISTRIBUTIONS

Under Brazilian law and our bylaws, we are required to distribute to our shareholders an annual amount equal to not less than 25% of the distributable amount, referred to as the mandatory dividend, unless the Board of Directors advises our shareholders at our shareholders' meeting that payment of the mandatory dividend for the preceding year is inadvisable in light of our financial condition. For a discussion of dividend distribution provisions under Brazilian corporate law and our bylaws, see *Additional Information—Bylaws*.

The tax regime applicable to distributions to non-resident shareholders and holders of ADRs will depend on whether those distributions are classified as dividends or as interest on shareholders' equity. See *Additional Information—Taxation—Brazilian Tax Considerations*.

By law, we are required to hold an annual shareholders' meeting by April 30 of each year at which an annual dividend may be declared. Additionally, our Board of Directors may declare interim dividends. Under Brazilian corporate law, dividends are generally required to be paid to the holder of record on a dividend declaration date within 60 days following the date the dividend was declared, unless a shareholders' resolution sets forth another date of payment, which, in either case, must occur prior to the end of the fiscal year in which the dividend was declared. A shareholder has a three-year period from the dividend payment date to claim dividends (or payments of interest on shareholders' equity) in respect of its shares, after which we will have no liability for such payments.

We make cash distributions on the common shares underlying the ADSs in *reais* to the custodian on behalf of the depository. The custodian then converts such proceeds into U.S. dollars and transfers such U.S. dollars to be delivered to the depository for distribution to holders of ADRs net of the depository's fees. For information on taxation of dividend distributions, see *Additional Information—Taxation—Brazilian Tax Considerations*.

The following table sets forth the cash distributions we paid to holders of common shares and preferred shares for the years indicated. Amounts are stated before any applicable withholding tax.

Year	Payment date	Reais per share			U.S. dollars per share <sup>(1)</sup>	U.S. dollars total <sup>(1)</sup>
		Dividends	Interest on equity	Total	Total	(US\$ million)
2021	March 15, 2021	3.4	0.8	4.2	0.8	3,972
	June 30, 2021	2.2	–	2.2	0.4	2,200
	September 30, 2021	8.2	–	8.2	1.5	7,644
2022	March 16, 2022	3.7	–	3.7	0.7	3,500
	September 1, 2022	2.0	1.5	3.5	0.6	3,000
2023	March 22, 2023	1.8	0.3	2.1	0.4	1,823
	September 01, 2023	–	1.9	1.9	0.4	1,744
	December 01, 2023	1.6	0.8	2.4	0.5	2,000
2024	March 19, 2024	2.7	–	2.7	0.6	2,364
	September 4, 2024	–	2.1	2.1	0.4	1,608
2025	March 14, 2025	2.1	0.5	2.6	0.5	1,984

<sup>(1)</sup> As approved by the Board of Directors.

## TRADING MARKETS

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Our publicly traded share capital consists of common shares, without par value. Our common shares are publicly traded in Brazil on the Novo Mercado segment of the São Paulo Stock Exchange (B3), under the ticker symbol VALE3. Our common shares are also traded on the LATIBEX, a non-regulated electronic market created in 1999 by the Madrid stock exchange in order to enable trading of Latin American equity securities, under the ticker symbols XVALO.

Our common ADSs, each representing one common share, are traded on the New York Stock Exchange (NYSE), under the ticker symbol VALE, level 2 ADS. Citibank N.A. serves as the depository for the common ADSs. On December 31, 2024, there were 1,211,148,744 common ADSs outstanding, representing 26.7% of our total share capital.

## DEPOSITARY SHARES

Citibank N.A. serves as the depositary for our ADSs. ADR holders are required to pay various fees to the depositary, and the depositary may refuse to provide any service for which a fee is assessed until the applicable fee has been paid.

ADR holders are required to pay the depositary amounts in respect of expenses incurred by the depositary or its agents on behalf of ADR holders, including expenses arising from compliance with applicable law, taxes or other governmental charges, facsimile transmission or conversion of foreign currency into U.S. In this case, the depositary may decide in its sole discretion to seek payment by either billing holders or by deducting the fee from one or more cash dividends or other cash distributions. The depositary may recover any unpaid taxes or other governmental charges owed by an ADR holder by billing such holder, by deducting the fee from one or more cash dividends or other cash distributions, or by selling underlying shares after reasonable attempts to notify the holder, with the holder liable for any remaining deficiency.

ADR holders are also required to pay additional fees for certain services provided by the depositary, as set forth in the table below.

<b>Depositary service</b>	<b>Fee payable by ADR holders</b>
Issuance of ADSs upon deposit of shares, excluding issuances as a result of distributions described in the following item	Up to US\$5.00 or less per 100 ADSs (or fraction thereof) issued
Distribution of securities other than ADSs or rights to purchase additional ADSs (i.e., spin-off shares)	Up to US\$5.00 or less per 100 ADSs (or fraction thereof) held
Distribution of cash dividends or other cash distributions (i.e., sale of rights and other entitlements)	Up to US\$5.00 or less per 100 ADSs (or fraction thereof) held
Distribution of ADSs pursuant to (i) stock dividends or other free stock distributions, or (ii) exercise of rights to purchase additional ADSs	Up to US\$5.00 or less per 100 ADSs (or portion thereof) held
Delivery of deposited property against surrender of ADSs	Up to US\$5.00 or less per 100 ADSs (or portion thereof) surrendered
ADS services	Up to US\$5.00 per 100 ADSs (or fraction thereof) held on the applicable record date(s) established by the depositary

The depositary may deduct applicable depositary fees and charges from the funds being distributed in the case of cash distributions. For distributions other than cash, the depositary will invoice the amount of the applicable depositary fees to the applicable holders.

### **ADDITIONAL CHARGES**

The holders, beneficial owners, persons depositing shares and persons surrendering ADSs for cancellation and for the purpose of withdrawing deposited securities are also subject to the following charges: (i) taxes (including applicable interest and penalties) and other governmental charges; (ii) registration fees as may be applicable from time to time; (iii) reimbursement of certain expenses as provided in the deposit agreement; (iv) the expenses and charges incurred by the depositary in the conversion of foreign currency; (v) certain fees and expenses incurred by the depositary in connection with compliance with exchange control regulations and other regulatory requirements; and (vi) certain fees and expenses incurred in connection with the delivery or servicing of deposited shares, as provided for under the deposit agreement.

The depositary reimburses us for certain expenses we incur in connection with the ADR program and other expenses, subject to a ceiling agreed between us and the depositary from time to time. These reimbursable expenses currently include legal and accounting fees, listing fees, investor relations expenses and fees payable to service providers for the distribution of material to ADR holders. The depositary also agreed to make an additional reimbursement annually based on the issuance and cancellation fees, dividend fees and depositary service fees charged by the depositary to our

## DEPOSITARY SHARES

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ADS holders. For the year ended December 31, 2024, Citibank N.A. reimbursed us US\$21 million, including US\$10 million in dividend fees.

## PURCHASES OF EQUITY SECURITIES BY THE ISSUER AND AFFILIATED PURCHASERS

The table below sets forth the information of our share buyback programs in 2024. See note 31 to our consolidated financial statements for further information about our share buyback programs.

	<b>Total number of common shares purchased<sup>(1)</sup></b>	<b>Average price paid per common share (US\$)</b>	<b>Total number of common shares purchased as part of publicly announced programs<sup>(2)(3)</sup></b>	<b>Maximum number of shares that may yet be purchased under the programs</b>
January 2024	13,692,328	14.24	13,692,328	133,307,672
February 2024	5,938,686	13.54	5,938,686	127,368,986
April 2024	4,388,719	12.10	4,388,719	122,980,267
May 2024	2,622,440	12.61	2,622,440	120,357,827
June 2024	2,417,000	11.35	2,417,000	117,940,827
July 2024	1,074,800	11.42	1,074,800	116,866,027
August 2024	789,600	10.25	789,600	116,076,427
<b>Total</b>	<b>30,923,573</b>	<b>12.21</b>	<b>30,923,573</b>	<b>116,076,427</b>

<sup>(1)</sup> Includes common shares represented by ADSs.

<sup>(2)</sup> On April 27, 2022, our Board of Directors approved a share buyback program, limited to a maximum of 500,000,000 common shares or their respective ADRs, that ended on October 27 of 2023.

<sup>(3)</sup> On October 28, 2023, our Board of Directors approved a share buyback program, limited to a maximum of 150,000,000 common shares or their respective ADRs, still ongoing.

### *Summary of purchases made by Vale S.A. and its wholly owned subsidiaries in 2024*

<b>Company</b>	<b>Quantity</b>	<b>Amount US\$ million</b>
Vale S.A.	18,251,159	240
Wholly owned subsidiaries	12,672,414	169
<b>Total</b>	<b>30,923,573</b>	<b>409</b>

In February 2025, our Board of Directors approved, a new share buyback program for the acquisition of up to 120 million common shares within a period of 18 months.

## V. MANAGEMENT AND EMPLOYEES

### MANAGEMENT

#### BOARD OF DIRECTORS

Our Board of Directors sets general guidelines and policies for our business and monitors the implementation of those guidelines and policies by our executive officers. Our bylaws provide for a Board of Directors consisting of 11 to 13 members, including one member of the Board of Directors directly elected by our employees, in a separate election. Our employees also elect an alternate for the director elected by them. In the event of any vacancy or impediment of a member of the Board of Directors, the remaining members may appoint a substitute member until the next general shareholders' meeting.

- Our shareholders vote to elect the members of our Board of Directors on an individual basis (as opposed to voting for a slate of candidates).
- Our shareholders elect the chairperson and vice-chairperson of our Board of Directors directly.
- We currently have eight independent members in our Board of Directors, out of a total of 13 members.
- Our chief executive officer is not a member of our Board of Director.
- Since 2023, the chairperson of the Board of Directors is not an independent member and, for this reason, the independent directors appointed a lead independent director (LID).
- Under the rules of the Novo Mercado, to be considered independent, a director may not (i) be a direct or indirect controlling shareholder of Vale; (ii) have its vote subject to a shareholder's agreement; (iii) be a relative, to the second degree of any director or executive of Vale; or (iv) have been an employee or executive of Vale in the past three years. The Novo Mercado rules also provide for other situations that require a case-by-case analysis of the independence of a director. Since March 2021, our bylaws provide that, in addition to the Novo Mercado independence standards, to be considered independent, a director may not (i) hold more than 5% of our share capital or have any formal or declared relation with any shareholder holding more than 5% of our share capital; or (ii) have been a director of Vale for five or more consecutive or non-consecutive terms or for 10 or more consecutive or non-consecutive years. The current independent members of our Board of Directors are in compliance with the rules established by the Novo Mercado special segment of B3 and our bylaws.

The current members of the Board will hold office until the annual general shareholders' meeting to be held in April 2025. The Board of Directors holds ordinary meetings at least eight times per year and holds extraordinary meetings whenever called by the Chairperson or, in his absence, by the Vice-Chairperson of the Board or by one third of the members of the Board. Decisions of the Board of Directors require the affirmative vote of the majority of its members.

The following tables lists the current and alternate members of the Board of Directors.

Director	Year first elected
Daniel André Stieler (chairperson)	2021
Marcelo Gasparino da Silva (vice-chairperson) <sup>(1)(2)(3)</sup>	2020
Fernando Jorge Buso Gomes	2015
Manuel Lino Silva de Sousa Oliveira <sup>(1)(4)</sup>	2021
Rachel de Oliveira Maia <sup>(1)</sup>	2021
Douglas James Upton <sup>(1)</sup>	2023
João Luiz Fukunaga	2023
Luis Henrique Cals de Beauclair Guimarães <sup>(1)</sup>	2023
Paulo Cesar Hartung Gomes <sup>(1)</sup>	2023
Shunji Komai	2023
Heloisa Belotti Bedicks <sup>(1)</sup>	2024
Reinaldo Duarte Castanheira Filho <sup>(1)</sup>	2024
André Viana Madeira <sup>(5)</sup>	2023

<sup>(1)</sup> Independent directors.

<sup>(2)</sup> Vice-chairperson since 2023.

<sup>(3)</sup> Alternate Director from 2019 to 2020.

<sup>(4)</sup> Lead Independent Director.

<sup>(5)</sup> Appointed by our employees.

Alternate Director	Year first elected
Wagner Vasconcelos Xavier <sup>(1)</sup>	2023

<sup>(1)</sup> Appointed by our employees as alternate of André Viana Madeira.

Below is a summary of the business experience, activities, and areas of expertise of our current directors.

**DANIEL ANDRÉ STIELER**

**CHAIRPERSON OF THE BOARD OF DIRECTORS, COORDINATOR OF THE NOMINATION AND GOVERNANCE COMMITTEE AND MEMBER OF THE CAPITAL ALLOCATION AND PROJECTS COMMITTEE**

Born:	1965
First elected:	2021

Business experience:	<ul style="list-style-type: none"> <li>▪ Coordinator of the Capital Allocation and Projects Committee, Member and Coordinator of the Financial Committee and Member of the Nomination Committee of Vale S.A.</li> <li>▪ Member of the Fiscal Council of Braskem</li> <li>▪ CEO of Caixa de Previdência dos Funcionários do Banco do Brasil – PREVI</li> <li>▪ Member of the Deliberative Board of Associação Brasileira das Entidades Fechadas de Previdência Complementar – ABRAPP</li> <li>▪ Member of the Board of Directors of Tupy S.A.</li> <li>▪ Member of the Board of Directors of Alelo S.A.</li> <li>▪ Member of the Board of Directors of Livelô S.A.</li> <li>▪ Superintendent Director, Chairperson of the Deliberative Board and Member of the Fiscal Council of Economus Instituto de Seguridade Social</li> <li>▪ Member of the Deliberative Board of Universidade Corporativa da Previdência Complementar – UniAbraap</li> <li>▪ Controllership Officer of Banco do Brasil S.A.</li> <li>▪ Member of the Fiscal Council of Eternit S.A.</li> </ul>
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**MARCELO GASPARINO DA SILVA**

**VICE-CHAIRPERSON (INDEPENDENT DIRECTOR) OF THE BOARD OF DIRECTORS, MEMBER OF THE NOMINATION AND GOVERNANCE COMMITTEE AND MEMBER OF THE PEOPLE AND REMUNERATION COMMITTEE**

Born:	1971
First elected:	2020 (alternate member of the Board from 2016 to 2017, and from 2019 to 2020)

Other current activities and director or officer positions:	<ul style="list-style-type: none"> <li>▪ Member of the Capital Allocation and Projects Committee, Coordinator of the Sustainability Committee, Member of the Nomination Committee, Member of the Operational Excellence and Risks Committee, Member of the Sustainability Committee and Alternate Member of the Board of Directors of Vale S.A.</li> <li>▪ Member of the Board of Directors of Centrais Elétricas Brasileiras S.A. – Eletrobras</li> <li>▪ Coordinator of the Sustainability Committee of Centrais Elétricas Brasileiras S.A. - Eletrobras</li> <li>▪ Independent Member of the Board of Directors of Banco do Brasil</li> <li>▪ Member of the Audit Committee, and the People, Compensation and Eligibility Committee of Banco do Brasil</li> </ul>
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Business experience:	<ul style="list-style-type: none"> <li>▪ Chairperson of the Board of Directors of Eternit S.A.</li> <li>▪ Member of the Board of Directors of Companhia Energética de Minas Gerais –</li> </ul>
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CEMIG

- Member of the Board of Directors and Member of the Fiscal Council of Petróleo Brasileiro S.A. – Petrobras
- Professor at Fundação Escola de Governo ENA
- Vice-Chair of the Strategy, Governance and Sustainability Committee of Eletrobras Member of the Board of Directors of Kepler Weber S.A.
- Member of the Board of Directors of Companhia Catarinense de Águas e Saneamento – CASAN
- Member of the Board of Directors of Companhia de Gás de Minas Gerais - GASMIG

**FERNANDO JORGE BUSO GOMES**

**DIRECTOR AND MEMBER OF THE CAPITAL ALLOCATION AND PROJECTS COMMITTEE**

Born: 1956

First elected: 2015

Other current activities and director or officer positions:
 

- CEO and Investor Relation Officer of Bradespar S.A.

Business experience:
 

- Member of the Innovation Committee, Vice-Chairman of the Board of Directors, Coordinator and Member of the People, Compensation and Governance Committee, Coordinator of the Financial Committee of Vale S.A.
- Member of the Board of Directors, Vice Chairman of the Board of Directors and Chairman of the Board of Directors of Bradespar S.A.

**MANUEL LINO SILVA DE SOUSA OLIVEIRA**

**LEAD INDEPENDENT DIRECTOR (LID) AND COORDINATOR AND FINANCIAL EXPERT OF THE AUDIT AND RISKS COMMITTEE**

Born: 1952

First elected: 2021

Business experience:
 

- Member of the Capital Allocation and Projects Committee, Member of the People and Compensation Committee, Coordinator of the Audit Committee, Member of the Nomination and Governance Committee, Member of the Nomination Committee and Member of the People, Compensation and Governance Committee of Vale S.A.
- Chairperson and Member of the Board of Directors of Jubilee Metals Group PLC
- Senior Independent Member of the Board of Directors of Polymetal International PLC
- Senior Independent Member of the Board of Directors of Antofagasta PLC
- Independent Member of the Board of Directors Blackrock World Mining Investment Trust PLC
- Member of the Board of Directors of Vale Base Metals Limited

**RACHEL DE OLIVEIRA MAIA**

**INDEPENDENT DIRECTOR, COORDINATOR OF THE SUSTAINABILITY COMMITTEE AND MEMBER OF THE NOMINATION AND GOVERNANCE COMMITTEE**

Born: 1971

First elected: 2021



Other current activities and director or officer positions:	<ul style="list-style-type: none"> <li>▪ Independent member of the Board of Directors of Companhia Brasileira de Distribuição - Grupo Pão de Açúcar</li> <li>▪ Member of the Audit Committee and Member of the People, Remuneration, and Eligibility Committee of Banco do Brasil</li> <li>▪ Founder and CEO of RM Consulting</li> <li>▪ Founder of the non-profit organization Instituto Capacita-ME</li> <li>▪ Member of the Women of Brazil Group</li> <li>▪ Member of the Economic and Social Committee of Development Board</li> <li>▪ Chairperson of the Board of Directors of the United Nation Global Compact Brazil</li> <li>▪ Ambassador of SDG 5 (gender equality) established by the United Nation</li> </ul>
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Business experience:	<ul style="list-style-type: none"> <li>▪ Member of the Audit and Risks Committee, Member of the Sustainability Committee and Member of the Audit Committee of Vale S.A.</li> <li>▪ Independent Member of the Board of Directors of Banco do Brasil</li> <li>▪ Member of the Sustainability Committee of Banco do Brasil</li> <li>▪ Independent Member of the Board of Directors of CVC Corp.</li> <li>▪ Independent Member of the Board of Directors of Grupo Soma</li> <li>▪ Diversity and Inclusion Advisor at Carrefour</li> <li>▪ Managing Consultant of SumUp</li> <li>▪ Chairperson of the Advisory Board of UNICEF</li> <li>▪ Member of General Board of the Danish Consulate</li> <li>▪ Member of Danish Chamber of Commerce CEO of Lacoste S.A. (Brazil)</li> </ul>
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**DOUGLAS JAMES UPTON**  
**INDEPENDENT DIRECTOR AND MEMBER OF THE CAPITAL ALLOCATION AND PROJECTS COMMITTEE**

Born:	1960
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First elected:	2023
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Other current activities and director or officer positions:	<ul style="list-style-type: none"> <li>▪ Member of the Board of Directors of Vale Base Metals Limited</li> <li>▪ Member of the Capital Allocation and Projects Committee of Vale Base Metals Limited</li> </ul>
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Business experience:	<ul style="list-style-type: none"> <li>▪ Member of the Audit and Risk Committee of Vale S.A.</li> <li>▪ Partner at The Capital Research Company – The Capital Group, Inc.</li> </ul>
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**JOÃO LUIZ FUKUNAGA**  
**DIRECTOR, COORDINATOR OF THE PEOPLE AND REMUNERATION COMMITTEE AND MEMBER OF THE SUSTAINABILITY COMMITTEE**

Born:	1983
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First elected:	2023
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Other current activities and director or officer positions:	<ul style="list-style-type: none"> <li>▪ CEO of PREVI – Caixa de Previdência dos Funcionários do Banco do Brasil</li> <li>▪ Secretary of Legal Affairs of the São Paulo Bank Workers’ Union</li> </ul>
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Business experience:	<ul style="list-style-type: none"> <li>▪ Director, Union Auditor, National Coordinator of the Banco do Brasil Employees’ Negotiation Committee and Responsible for the Organization and Administrative Support department of the São Paulo Bank Workers’ Union</li> </ul>
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**LUIS HENRIQUE CALS DE BEAUCLAIR GUIMARÃES****INDEPENDENT DIRECTOR, COORDINATOR OF THE CAPITAL ALLOCATION AND PROJECTS COMMITTEE AND MEMBER OF THE PEOPLE AND REMUNERATION COMMITTEE**

Born: 1966

First elected: 2023

Other current activities and director or officer positions: Member of the Board of Directors of Cosan S.A.  
Member of the Board of Directors of Cosan Luber Invested Limited.

Business experience:

- CEO of Cosan S.A.
- Member of the Board of Directors and CEO of Raízen S.A.
- Member of the Board of Directors of Compass Gás e Energia S.A.
- Member of the Board of Directors of Companhia de Gás São Paulo – Comgás
- Vice-Chairman of the Board of Directors of Rumo S.A.
- Member of the Board of Directors of Cosan Lubrificantes e Especialidades S.A.
- Member of the Board of Directors of Logum Logística S.A.
- Chairman of the Board of the Brazilian Association of Public Companies (ABRASCA)
- Member of the Board of Directors of Radar Propriedades Agrícolas S.A.
- Member of the Board of Directors of Radar II Propriedades Agrícolas S.A.
- Member of the Board of Directors of Janus Brasil Participações S.A.
- Member of the Board of Directors of Tellus Brasil Participações S.A.
- Member of the Board of Directors of Duguetiapar Empreendimentos e Participações S.A.
- Member of the Board of Directors of Gamioapar Empreendimentos e Participações S.A.
- Member of the Board of Directors of Rede Integrada de Lojas de Conveniência e Proximidade S.A.
- CEO and Member of the Board of Directors of Raízen Energia S.A.
- Board Member of the Brazilian Institute of Petroleum (IBP)

**PAULO CESAR HARTUNG GOMES****INDEPENDENT DIRECTOR AND MEMBER OF THE SUSTAINABILITY COMMITTEE**

Born: 1957

First elected: 2023

Other current activities and director or officer positions: ▪ CEO of Ibá – Indústria Brasileira de Árvores

Business experience: ▪ Member of the Audit and Risks Committee and Member of the Innovation Committee of Vale S.A.

**SHUNJI KOMAI****DIRECTOR, MEMBER OF THE PEOPLE AND REMUNERATION COMMITTEE AND MEMBER OF THE CAPITAL ALLOCATION AND PROJECTS COMMITTEE**

Born: 1971

First elected: 2023

Other current activities and director or officer positions: ▪ Senior Director (Vale Business) of Mitsui & Co., Ltd.  
▪ Vice-President of Mitsui & CO. (Brazil) S.A.

Business experience: ▪ Member of the Innovation Committee of Vale S.A.  
▪ Deputy General Manager of the New Metals and Aluminum division of Mitsui

& Co. Ltd. General Manager of the Brazil Business Department of the Iron Ore Division of Mitsui & Co. Ltd.

- CEO and Chairman of Mitsui & Co. Mineral Resources Development (Asia) Corp.

**HELOISA BELOTTI BEDICKS**

**INDEPENDENT DIRECTOR, MEMBER OF THE SUSTAINABILITY COMMITTEE AND MEMBER OF THE AUDIT AND RISKS COMMITTEE**

Born: 1960

First elected: 2024

Other current activities and director or officer positions:

- Member of the Board of Directors of Grupo MAPFRE
- Voluntary Member of the Fiscal Council of Fundação Boticário
- Voluntary Member of the UN Global Compact Brazil Network
- Member of the Audit Committee of Brasilseg
- Voluntary Member of the Deliberative Board of Missão Portas Abertas
- Member of the Audit Committee of GASMIG
- Independent Member of the Fiscal Council of TIM Brasil Serviços e Participações S.A.

Business experience:

- Member of the Fiscal Council of Vale S.A.
- Member of the Audit Committee of Nuclea
- Member of the Board of Directors and Advisory Committees of Banco Nacional de Desenvolvimento Economico e Social – BNDES
- Member of the Fiscal Council of Braskem
- General Director of the Brazilian Institute of Corporate Governance – IBGC

**REINALDO DUARTE CASTANHEIRA FILHO**

**INDEPENDENT DIRECTOR, MEMBER OF THE CAPITAL ALLOCATION AND PROJECTS COMMITTEE AND MEMBER OF THE AUDIT AND RISKS COMMITTEE**

Born: 1969

First elected: 2024

Other current activities and director or officer positions:

- Managing Partner of Heritage Holding Ltda
- Independent Member of the Maringa Group’s Mining Committee

Business experience:

- Independent Member of the Board of Directors, Member of the Capital Allocation and Projects Committee and Member of the Audit and Risks Committee of Vale S.A.

**ANDRÉ VIANA MADEIRA**

**DIRECTOR (EMPLOYEE REPRESENTATIVE MEMBER) AND MEMBER OF THE SUSTAINABILITY COMMITTEE**

Born: 1985

First elected: 2023

Business experience:

- Member of the PASA/AMS Deliberative Board

## EXECUTIVE COMMITTEE

Our Chief Executive Officer and Executive Vice-Presidents are our executive officers and are responsible for day-to-day operations and the implementation of the general policies and guidelines set forth by our Board of Directors. Our bylaws provide for a minimum of six and a maximum of eleven executive officers. The executive officers hold weekly meetings and hold additional meetings when called by any executive officer. The executive officers are appointed and may be removed by our Board of Directors at any time. Our executive officers are appointed for three-year terms and can be reelected.

In December 2022, we implemented a new configuration for our Executive Committee (formerly named Board of Executive Officers), including a redesign of the attributions and responsibilities among the executive officers to accelerate the achievement of our strategic objectives. The following table lists our current executive officers.

Officer	Year of appointment	Position
Gustavo Duarte Pimenta	2024	Chief Executive Officer
Marcelo Feriozzi Bacci	2024	Executive Vice President, Finance and Investor Relations
Alexandre Silva D'Ambrósio	2021	Executive Vice-President, Corporate and External Affairs
Carlos Henrique Senna Medeiros	2019	Executive Vice-President, Operations
Rafael Jabur Bittar	2022	Executive Vice-President, Technical
Rogério Tavares Nogueira	2024	Executive Vice President, Commercial and New Business

Below is a summary of the business experience, activities and areas of expertise of our current executive officers.

### GUSTAVO DUARTE PIMENTA

#### CHIEF EXECUTIVE OFFICER

Born: 1978

Appointed: 2024

Other current activities and director or officer positions:

- Member of the Board of Directors of Vale Base Metals Limited.

Business experience:

- Executive Vice-President, Finance and Investor Relations of Vale
- CFO of The AES Corporation.
- CFO of AES Mexico, Central America & Caribbean.
- VP Strategy and M&A of Citibank.

### MARCELO FERIOZZI BACCI

#### EXECUTIVE VICE-PRESIDENT, FINANCE AND INVESTOR RELATIONS

Born: 1969

Appointed: 2024

Other current activities and director or officer positions:

- Member of the Board of Directors of Vale Base Metals Limited.

Business experience:

- CFO Suzano S.A.
- Member of the Board of Directors of Energisa S.A.

### ALEXANDRE SILVA D'AMBRÓSIO

#### EXECUTIVE VICE-PRESIDENT, CORPORATE AND EXTERNAL AFFAIRS

Born: 1962

Appointed: 2021

Other current activities and director or officer positions:

- Executive Officer at Vale International S.A.

Business experience:	<ul style="list-style-type: none"> <li>▪ Executive Officer Legal &amp; Taxes of Vale.</li> <li>▪ General Counsel of Vale.</li> <li>▪ Executive Vice-President of Banco Santander S.A.</li> <li>▪ General Counsel and Global Vice-President of Grupo Votorantim.</li> <li>▪ Member of the Board of Commissioners of PT Vale Indonesia</li> </ul>
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**CARLOS HENRIQUE SENNA MEDEIROS**  
**EXECUTIVE VICE-PRESIDENT, OPERATIONS**

Born:	1963
Appointed:	2019
Business experience:	<ul style="list-style-type: none"> <li>▪ Executive Officer for Safety and Operational Excellence of Vale.</li> <li>▪ Executive President for North and Central America of Ball Corporation.</li> </ul>

**RAFAEL JABUR BITTAR**  
**EXECUTIVE VICE-PRESIDENT, TECHNICAL**

Born:	1980
Appointed:	2022
Business experience:	<ul style="list-style-type: none"> <li>▪ Geotechnical Officer at Vale.</li> <li>▪ Senior Global Director (Tailings and Waste Management) at Yamana Gold.</li> </ul>

**ROGÉRIO TAVARES NOGUEIRA**  
**EXECUTIVE VICE-PRESIDENT, COMMERCIAL AND NEW BUSINESS**

Born:	1968
Appointed:	2024
Business experience:	<ul style="list-style-type: none"> <li>▪ Executive Officer for Business and Product Development of Vale.</li> <li>▪ Executive Officer for Marketing and Strategic Planning of Vale.</li> </ul>

**AUDIT AND RISKS COMMITTEE**

On March 11, 2020, our Board of Directors established an Audit Committee in accordance with the governance rules of Novo Mercado segment of B3.

Under our bylaws and internal rules, the Audit and Risks Committee shall have three to five members. The terms of the members of the Audit and Risks Committee expire at the end of the term of the members of the Board of Directors, upon removal approved by the Board of Directors or resignation. In addition, pursuant to our bylaws and the Audit Risks and Committee’s internal rules: (i) all members of the Audit and Risks Committee must be independent members of our Board of Directors, as provided by the Regulations of the Novo Mercado listing segment of B3 S.A. – Brasil, Bolsa, Balcão (Novo Mercado Regulations), and (ii) at least one member of the Audit and Risks Committee must have demonstrated experience in corporate accounting matters pursuant to the requirements of the Brazilian Securities and Exchange Commission (*Comissão de Valores Mobiliários – CVM*), as per the regulations applicable, and such member shall be appointed as “Financial Expert” upon his/her nomination. All members of our Audit and Risks Committee are appointed by the Board of Directors. For more information, see *Risk Management—Risk Governance Structure—Audit and Risks Committee*.

We are subject to Rule 10A-3 under the Exchange Act, which requires, absent an exemption, that a listed company maintain an Audit and Risks Committee composed of members of the Board of Directors that meet specified requirements. Our Audit and Risks Committee is comprised only by independent members of the Board of Directors and complies with Rule 10A-3.

The following table lists the current members of the Audit and Risks Committee:

Member	Year first elected
Manuel Lino Silva de Sousa Oliveira <sup>(1)(2)</sup>	2021
Heloisa Belotti Bedicks	2024
Reinaldo Duarte Castanheira Filho	2024

<sup>(1)</sup> Coordinator

<sup>(2)</sup> Financial Expert

For a summary of the business experience, activities and areas of expertise of the members of our Audit and Risks committee please see summary under “Board of Directors.”

## OTHER ADVISORY COMMITTEES TO THE BOARD OF DIRECTORS

Our bylaws provide five permanent advisory committees to the Board of Directors, each governed by its own internal rules: the **Audit and Risks Committee**, the **Capital Allocation and Projects Committee**, the **People and Remuneration Committee**, the **Sustainability Committee** and the **Nomination and Governance Committee**. In April 2024, the Board of Directors decided to discontinue the **Innovation Committee**, which was a non-permanent and non-statutory committee, allocating its responsibilities among the remaining committees. Additional committees may be created by the Board of Directors, at their discretion.

**Audit and Risks Committee.** For further information on our Audit and Risks Committee, see *Audit and Risks Committee* in this section.

**Capital Allocation and Projects Committee.** Responsible for advising the Board of Directors on matters related to long-term capital allocation strategies, including investments and divestment projects; guidelines on the remuneration of shareholders, capital structure strategy and financial guidelines; our funding and indebtedness strategy; guidelines for implementation, management and monitoring the capital and investment projects portfolio; annual and multiannual budget, among other matters. Its current members are Luis Henrique Cals de Beauclair Guimarães (Coordinator), Daniel André Stieler, Douglas James Upton, Fernando Jorge Buso Gomes, Reinaldo Duarte Castanheira Filho and Shunji Komai.

**People and Remuneration Committee.** Responsible for assisting the Board in long-term strategies concerning people; recommending and monitoring the implementation of the guidelines to foster initiatives related to organizational culture, specifically as it refers to diversity, equity and inclusion and people health and safety; defining performance assessment goals for the Executive Committee and other officers directly reporting to the CEO; nominating the CEO, and recommending the succession plan for the Executive Committee and other officers directly reporting to the CEO, including their successors, among other responsibilities. Its current members are João Luiz Fukunaga (Coordinator), Luis Henrique Cals de Beauclair Guimarães, Marcelo Gasparino da Silva and Shunji Komai.

**Sustainability Committee.** Responsible for advising on the sustainability strategy and the integration thereof into our strategic planning, aiming the creation of value, competitiveness, and socio-economic and environmental sustainability; our corporate sustainability policies related to safety, environment, health, education and relationship with communities, indigenous peoples and other stakeholders, human rights, communication and institutional relations; the direction of our strategic sustainability indicators and the communication and disclosure thereof, also through our Integrated Report; the guidelines for our adherence to or permanence in initiatives, technical standards or agreements, in the domestic or international sphere, regarding sustainability matters, that may be under competence of the Board of Directors; guidelines for long-term social and environmental commitments that are under the competence of the Board of Directors; among other responsibilities. Its current members are Rachel de Oliveira Maia (Coordinator), André Viana Madeira, Heloisa Belotti Bedicks, João Luiz Fukunaga, Paulo Cesar Hartung Gomes and Wagner Vasconcelos Xavier.

**Nomination and Governance Committee.** Responsible for assessing and recommending our internal policies and norms regarding the nomination of members of the Board of Directors, Advisory Committees and the CEO, in compliance with the applicable legal requirements and best corporate governance practices; evolution and continuous improvement of our corporate governance practices, also regarding the structure, duties, size and composition of the Board of Directors and the Advisory Committees, aiming at a balance of experiences, knowledge and diversity in the profile of its members; the strategy and guidelines for our corporate governance documents, including Corporate Policies, Bylaws, Code of Conduct and the Internal Regulations of the Advisory Committees and the Board of Directors,

among other matters. Its current members are Daniel André Stieler (Coordinator), Marcelo Gasparino da Silva and Rachel de Oliveira Maia.

## FISCAL COUNCIL

We have a Fiscal Council established in accordance with Brazilian law. The primary responsibilities of the Fiscal Council under Brazilian corporate law are to supervise management's activities, review the company's consolidated financial statements, and report its findings to the shareholders.

Brazilian law requires the members of a Fiscal Council to meet certain eligibility requirements. A member of our Fiscal Council cannot (i) hold office as a member of the Board of Directors, Fiscal Council or advisory committee of any company that is a competitor of Vale or otherwise has a conflicting interest with Vale, unless compliance with this requirement is expressly waived by shareholder vote, (ii) be an employee or member of senior management or the Board of Directors of Vale or its subsidiaries or affiliates, or (iii) be a spouse or relative within the third degree by affinity or consanguinity of an officer or director of Vale.

Members of the Fiscal Council are elected by our shareholders for one-year terms. The current members of the Fiscal Council and their respective alternates were elected on April 26, 2024. The terms of the members of the Fiscal Council expire at the next annual shareholders' meeting following election. Our Fiscal Council shall be composed of three to five members. The holders of our golden shares are entitled to appoint one member.

The following table lists the current and alternate members of the Fiscal Council.

Current member	Year first elected	Alternate	Year first elected
Márcio de Souza <sup>(1)(2)</sup>	2022	Ana Maria Loureiro Recart <sup>(2)</sup>	2023
Vacant	-	Adriana de Andrade Solé <sup>(2)(4)</sup>	2022
Paulo Clovis Ayres Filho <sup>(2)</sup>	2023	Guilherme José de Vasconcelos Cerqueira <sup>(2)</sup>	2023
Raphael Manhães Martins <sup>(2)</sup>	2015	Jandaraci Ferreira de Araujo <sup>(2)</sup>	2021
Dario Carnevalli Durigan <sup>(3)</sup>	2023	Rafael Rezende Brigolini <sup>(3)</sup>	2022

<sup>(1)</sup> Chairperson.

<sup>(2)</sup> Appointed by shareholders of common shares.

<sup>(3)</sup> Appointed by the holder of golden shares.

<sup>(4)</sup> Adriana de Andrade Solé assumed the role of full member in September 2024, following the resignation of Heloisa Belotti Bedicks.

Below is a summary of the business experience, activities and areas of expertise of the members of our Fiscal Council.

### MÁRCIO DE SOUZA

Born: 1966

Appointed: 2022

#### Other current activities and director or officer positions:

- Management Director at Caixa de Previdência dos Funcionários do Banco do Brasil – PREVI
- Director and Member of the Compensation and Succession Committee of Neoenergia

#### Business experience:

- Director and Member of the Audit, Ethics and Risks Committee of Embraer.
- Executive Manager at PREVI

### PAULO CLOVIS AYRES FILHO

Born: 1959

Appointed: 2023

## MANAGEMENT

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Other current activities and director or officer positions:

- Independent Chairperson of the Fiscal Council at Rumo S.A.

Business experience:

- Alternate Member of the Fiscal Council at Rumo S.A.
- Executive at British American Tobacco (Souza Cruz)

### RAPHAEL MANHÃES MARTINS

Born: 1983

Appointed: 2015

Other current activities and director or officer positions:

- Attorney for Faoro Advogados
- Director and Member of the Audit Committee of OI S.A. – Em Recuperação Judicial
- Director and Member of the Audit Committee at Light S.A. – Em Recuperação Judicial
- Member of the Fiscal Council of Embraer S.A.

Business experience:

- Director and Member of the Fiscal Council of companies of Grupo Light S.A.
- Member of the Fiscal Council of OI S.A. – Em Recuperação Judicial
- Director of Eternit S.A.
- Member of the Fiscal Council of Cielo S.A. – Instituição de Pagamento
- Member of the Fiscal Council of companies of the JHSF Participações S.A. Group
- Member of the Fiscal Council of COPEL
- Member of the Fiscal Council of Bradespar S.A.

### DARIO CARNEVALLI DURIGAN

Born: 1984

Appointed: 2023

Other current activities and director or officer positions:

- Executive Secretary of the Ministry of Finance
- Member of the Board of Directors of Banco do Brasil S.A.

Business experience:

- Director of Public Policies at Whatsapp
- Legal Consultant of the Union in São Paulo – Federal Attorney



## MANAGEMENT COMPENSATION

Under our bylaws, our shareholders are responsible for establishing annually the aggregate compensation for the Board of Directors, Executive Committee, Fiscal Council and Board Committees members. Once the total compensation has been approved at the annual shareholders' meeting, the Board of Directors, with the support of both the Nomination and Governance Committee (CIG) and the People and Remuneration Committee (CPR), as applicable, allocates the compensation to each member of the Board of Directors, Executive Committee, Fiscal Council and Board Committees individually. Compensation proposals and policies are prepared with the support of the People and Remuneration Committee, which makes recommendations to our Board of Directors regarding the annual global compensation of the executive officers.

As a global company, we require management with a deep knowledge of our business and market and unlimited dedication. Attracting and retaining talent, and engaging and motivating the professionals holding strategic positions, especially our executive officers, is critical for our success.

In accordance with our Directors Policy approved in March 2024 by the Board of Directors, our executive compensation proposals are based on the best practices of the global mining companies and large global companies in other similar industries and seek to align the interests and the purpose of the key management personnel with our strategic goals. In addition to market practices, the strategy and compensation packages for key management personnel are prepared based on the responsibilities and the scope of the position, competence and performance, alignment with our short and long-term strategies and the sustainability of the business.

Our policies for the Executive Committee members are linked to the achievement of certain economic and financial results, our market value, our key behaviors and ESG metrics, and for that, it considers, for example, short and long variable compensation plans with impact on the financial, security, risks and sustainability KPIs, virtual dividend payments, Stock Ownership Guidelines rules, annual individual performance evaluation process and *Malus* clause and Clawback clause.

Additionally, management compensation is subject to our Clawback Policy, pursuant to the applicable regulations. The latest developments in our executive compensation policies were to align more closely with international market practices and the interests of shareholders and aim to create long-term value and sustainable results.

### EXECUTIVE COMMITTEE

#### 2024 Compensation Reporting

As of December 31, 2024, we had eight executive officers: the Chief Executive Officer and seven Executive Vice-Presidents. For the year ended December 31, 2024, including severance payments made to former executive officers, the average annual compensation to our executive officers was R\$18.5 million, the highest annual compensation to an executive officer was R\$51.8 million and the lowest annual compensation was R\$7.6 million, all values without taxes. The average annual compensation corresponds to the total aggregate compensation to executives in 2024, divided by the monthly average number of active officers that received compensation during the year 2024, which was 9.17.

For the year ended December 31, 2024, the total compensation related to executive officers' packages is set forth in the table below.

	<i>For the year ended December 31, 2024</i>
	<i>(R\$ million)</i>
Annual fixed compensation	30.0
In-kind benefits and pension plans	7.4
Variable compensation	105.7
Other expenses <sup>(1)</sup>	8.5
<b>Total amount recognized in 2024 to active executive officers</b>	<b>151.6</b>
Severance	18.2
<b>Total amount recognized in 2024 to active and former executive officers</b>	<b>169.8</b>

<sup>(1)</sup> Additional compensation (spot payments) related to attraction, retention and incentives for deliveries and initiatives relevant to the company, according to Vale's Directors Policy.

### CEO Compensation

For the year ended December 31, 2024, the total compensation of our prior CEO was the highest compensation of the management team, and was composed as set forth in the table below.

	<i>For the year ended December 31, 2024</i>
	<i>(R\$ million)</i>
Annual fixed compensation	4.5
Variable compensation <sup>(1)</sup>	38.0
Other expenses <sup>(2)</sup>	9.3
<b>Total amount recognized in 2024 to CEO</b>	<b>51.8</b>

<sup>(1)</sup> Includes annual bonus and Long Term Incentives.

<sup>(2)</sup> Including health and dental plans, insurance, contributions to pension funds and other.

### Principles and components of our Directors Policy for the Executive Committee

The executive compensation is based on the principles below:

- Aligning the interests and objectives of key management personnel with our strategic goals;
- Leveraging and rewarding value creation and sustainable results, in line with our short and long-term strategies and business sustainability;
- Aligning executives' priorities and efforts with shareholders' vision, while striving to maintain a balance in stakeholder relations;
- Adhering to global market best practices;
- Strengthening meritocracy and performance enhancement, balanced with effective management and mitigation of business risks;
- Aligning our compensation with recognized international governances' practices; and
- Offering competitive compensation to attract and retain highly qualified executives and encouraging them to execute the strategy and promote our purpose in the medium and long terms.

The total compensation for executives is composed by (i) Fixed Compensation, including Private Pension and Benefits standards based on the local market, (ii) Short-Term Incentive – Annual Bonus, (iii) Long-Term Incentive programs, the Restricted Share Unit (RSU) Matching program and the Performance Share Unit (PSU) program, and (iv) spot incentives for attraction, retention or encouraging of relevant initiatives that meet performance needs or bring differentiated value to the Company, approved by the Board of Directors.

The executive's compensation also includes a severance package to be paid after contract termination.

### Fixed compensation

Fixed compensation and in-kind benefits include a base salary in cash, paid on a monthly basis, private pension plans contributions, health care, meal allowance, life insurance, driver and car expenses.

### Variable compensation - Short and Long-Terms Incentives

Variable compensation consists of: (i) Short-Term Incentive – Annual Bonus, based on specific goals for each executive officer and collective goals, all approved by our Board of Directors, and (ii) payments tied to the performance of our shares under two Long-Term Incentives programs, the RSU Matching program and the PSU program.

#### Short-Term Incentive – Annual Bonus:

- The Annual Bonus is designed to incentivize the achievement of short-term targets aligned with our strategic priorities and recognizes the contributions of the members of the Executive Committee to the company's performance.
- It is based on both collective and individual goals, considering economic and financial goals that reflect operating performance, as well as ESG-driven performance goals, directly related to health, safety, risk management and sustainability targets, besides other goals related to strategic initiatives, such as capital allocation targets, process-related safety events and black people in leadership positions, aligned with Vale's ambitions and strategy.
- Our scorecard goals are more focused on collective goals, to encourage collaboration among different teams.
- In recent years, short-term compensation has incorporated a risk management component for all executives and employees, directly connecting it to our goals associated with health, safety, sustainability and risk management.
- Our Technical Executive Vice-President and the teams responsible for health, operational safety, risk dams and risk management do not have their compensation tied to short-term financial results.
- The goal related to occupational and process safety was recently introduced, contributing to the ambition of being a reference company in safety, with consistency and efficiency, creating and sharing sustainable value with our stakeholders.
- The payment of the Bonus considers the reference targets, the results achieved in the scorecard goals and the individual performance considering our "key behaviors."

### Long-Term Incentive – RSU Matching:

- Matching is a long-term plan in the Restricted Shares modality, designed to promote retention, long-term commitment and alignment between the management and the return generated to the shareholders.
- Participation is mandatory for the members of the Executive Committee, who must use their own resources (either by purchasing shares in the market or using their vested shares) to accumulate a specific number of shares/ADRs and maintain ownership throughout the entire cycle.
- At the end of a three-year cycle, they are entitled to receive a reward in at least the same number of shares/ADRs they hold since the beginning of the cycle.
- The program also includes the payment of "virtual dividends" equivalent to the net amount per share distributed to shareholders upon payment of dividends and/or interest on equity during the cycle.
- Executives cannot sell or transfer their shares or ADRs at any time during the vesting period and must observe the Securities Trading Policy and the Stock Ownership Guidelines to sell or transfer Matching program shares after the vesting period.

### Long-Term Incentive – PSU:

- PSU is a long-term plan under the Performance Shares modality designed to enhance the performance of the senior management in the creation of sustainable and long-term value for the company, aligning the focus of the executives with the vision of the shareholders, encouraging retention and long-term performance.
- The executive officers receive payments tied to our performance, based on:
  - Relative metric: Total Shareholder Return (TSR) compared to a preselected group of global companies.
  - Absolute metric: (a) the achievement of long-term ESG targets (related to health & safety and sustainability) and (b) the Return on Invested Capital (ROIC) metric, included in 2024.
- In 2022, we increased our focus on ESG metrics, raising the weight of this KPI from 20% to 25%.
- Since 2021, PSU is rewarded in shares/ADRs and includes the payment of "virtual dividends" equivalent to the net amount per share distributed to shareholders upon payment of dividends and/or interest on equity during the cycle, both conditioned to the program performance at the end of three years period.

### Other Practices:

- **Stock Ownership Guidelines (SOG)** – to reinforce the alignment of the management with the shareholders' vision and the good market governance practices, the executives are required to achieve and keep a minimum shareholding position in Vale (equivalent to three years' worth of base-salary for the CEO and two years for the Executive Vice-Presidents). Until the minimum value is met, the executives are not allowed to sell shares issued by Vale.

- **Malus and Clawback clauses** – these provisions allow the Board of Directors to, upon facts or events of exceptional severity, decide to eliminate, reduce or even obtain the return, in whole or in part, of the variable compensation scheduled for payment (Malus) or installments already paid (Clawback) to the members of the Executive Committee. Such rules aim to respond to facts or events of exceptional severity, with obvious adverse impacts on our market value and/or reputation and the causes of which have arisen during the executive's term of office. For additional information on our Clawback Policy, see Exhibit 97 to this annual report on Form 20-F.

### Severance package

At the discretion of the Board of Directors, the Executive Committee members may be subject to individualized non-competition agreements and compensatory indemnities, allowing the company to establish conditions that reflect the complexity of each role and its impact on the organization.:

- A potential non-compete agreement compensation, that may vary up to the annual fixed compensation, to be paid in equal quarterly installments after termination, including non-solicitation, if decided by the Board of Directors.
- Compensatory indemnity, that may vary up to one-half the annual fixed compensation for executive officers and up to the annual fixed compensation for the CEO, as decided by the Board of Directors, paid shortly after the termination date.

In addition, executives are also entitled to payment of short-term and long-term variable compensation incentives (Annual Bonus, RSU Matching and PSU program), considering the time worked (pro rata period) and the final results achieved by each of the programs.

### Other benefits and payments

Pension, retirement or similar benefits consist of our contributions to Valia, the manager of the pension plans sponsored by us. Social security contributions are mandatory contributions we are required to make to the Brazilian government for our executive officers.

## BOARD OF DIRECTORS

As of December 31, 2024, our Board of Directors had 13 members and one alternate. For the year ended December 31, 2024, the average annual compensation paid to the members of our Board of Directors was R\$1.7 million, the highest annual compensation paid to a member of the Board of Directors was R\$3.4 million and the lowest annual compensation was R\$1.2 million. The monthly average number of members that received compensation during 2024 was 12.25.

In 2024, we paid R\$20.71 million in aggregate to the members of our Board of Directors for services in all capacities, all of which was fixed compensation. We reimburse the members of our Board of Directors for travel expenses related to the performance of their functions.

As of December 31, 2024, the total number of common shares owned by our Board of Directors was 120,859 and by executive officers was 614,248. None of our directors or executive officers beneficially owns 1% or more of any class of our shares.

## FISCAL COUNCIL

As of December 31, 2024, our Fiscal Council had four effective members and five alternate members. We paid an aggregate of R\$1.79 million to members of the Fiscal Council in 2024. We reimburse the members of the Fiscal Council for travel expenses related to the performance of their functions.

**BOARD COMMITTEES**

We paid an aggregate of R\$2.78 million to members of our permanent advisory committees in 2024. Since 2023, all committee members are also members of our Board of Directors who are entitled to receive, in addition to the compensation as a board member, compensation for participating in one or more committees.

The compensation amounts described above do not include social security taxes.

## EMPLOYEES

The following tables set forth the number of our employees (total, by groups based on the activity performed and by geographic location) as of the dates indicated.

<b>By business</b>	<i>As of December 31,</i>		
	<b>2024</b>	<b>2023</b>	<b>2022</b>
Iron Solutions	43,601	43,090	41,816
Energy Transition Metals	13,664	15,606	13,318
Corporate Activities	7,345	8,111	9,382
<b>Total</b>	<b>64,610</b>	<b>66,807</b>	<b>64,516</b>

<b>By location</b>	<i>As of December 31,</i>		
	<b>2024<sup>(1)</sup></b>	<b>2023<sup>(1)</sup></b>	<b>2022<sup>(1)</sup></b>
Brazil	55,663	55,247	53,341
North America	7,265	6,813	6,565
Asia	1,359	4,416	4,287
Europe	271	277	270
South America (except Brazil)	41	41	41
Oceania	11	13	12
<b>Total</b>	<b>64,610</b>	<b>66,807</b>	<b>64,516</b>

<sup>(1)</sup> Since January 2017, we include in our total workforce figures all fixed-term contract employees, trainees and employees hired through our affirmative action program for Persons with Disabilities.

We negotiate wages and benefits with a large number of unions worldwide that represent our employees. We have collective agreements with unionized employees at our operations in Brazil, Canada, Indonesia, UK, and Oman.

The total number of third-party employees as of December 31, 2024 was 109,506, reflecting our new classification of third-party employees, which takes into account the total number of mobilized third-party individuals who access Vale's units.

### WAGES AND BENEFITS

Wages and benefits for Vale and its subsidiaries are generally established on a company-by-company basis. Our benefits policy is aligned with our attraction and retention strategy, in accordance with applicable laws and market practice in the countries where we operate.

We provide a benefits package aimed at ensuring health, wellness, protection and quality of life through the following benefits: private medical and dental insurance for employees and their dependents, life insurance, private pension plans, meal allowance, employee assistance program (EAP), extended parental leave, wellness incentive, and short- and long-term disability benefits.

We establish our wage and benefits programs for Vale S.A. and its subsidiaries, other than Vale Canada. In November 2024, we reached a one-year agreement with all Brazilian unions providing for a salary increase of 5%. The provisions of our collective bargaining agreements with unions also apply to our non-unionized employees.

Vale Canada and its subsidiaries also establishes wages and benefits for its unionized employees through collective bargaining agreements. In 2024, collective bargaining agreements were successfully negotiated for Canadian unionized employees at the Voisey's Bay and Thompson Manitoba operations, resulting in the renewal of four-year agreements at each site. For non-unionized employees, Vale Canada undertakes an annual review of salaries and benefits. We provide these employees and their dependents with other benefits, including a flexible health care benefit plan.

### PENSION PLANS

Brazilian employees of Vale and of most of its Brazilian subsidiaries are eligible to participate in pension plans managed by Valia. Most of the participants in plans held by Valia are participants in a plan named "Vale Mais," which Valia

implemented in 2000. This plan is primarily a defined contribution plan with a defined benefit feature relating to service prior to 2000 and another defined benefit feature to cover temporary or permanent disability, pension and financial protection to dependents in case of death. Valia also operates a defined benefit plan, closed to new participants since May 2000, with benefits based on years of service, salary and social security benefits. This plan covers retired participants and their beneficiaries, as well as a relatively small number of employees that declined to transfer from the old plan to the “Vale Mais” plan when it was established in May 2000.

Most employees within our Energy Transition Metals operations participate in defined benefit pension plans and defined contribution pension plans. The defined benefit plans have been closed to new participants since 2009, and most new employees within our Energy Transition Metals operations are eligible to participate in defined contribution pension plans. In 2023, Vale Canada, as administrator of the Canadian defined benefit pension plans, concluded the purchase of annuity contracts to transfer US\$843 million of pension plan obligations and associated assets. Similarly, in 2024, Vale Canada finalized the purchase of annuity contracts to transfer US\$934 million in pension plan obligations and associated assets.

### **PERFORMANCE-BASED COMPENSATION**

All Vale parent-company employees may receive incentive compensation each year in an amount based on the performance of Vale, with ranges that are market-based and periodically revised, depending on certain targets set, and the cash generation in each period. Similar incentive compensation arrangements are in place at our subsidiaries.

Qualifying management personnel are eligible to participate in the PSU and RSU Matching Program. See description of these programs under *Management and Employees—Management Compensation—Executive Committee*.

## VI. ADDITIONAL INFORMATION

### LEGAL PROCEEDINGS

We and our subsidiaries are defendants in numerous legal actions, including environmental, civil, labor and tax proceedings, and proceedings related to the Brumadinho dam failure and to Samarco's dam failure. See Notes 26, 27 and 29 to our consolidated financial statements for additional information.

We use estimates to assess the probability of outflow of resources based on reports and technical assessments and on management's assessment. We recognize provisions for probable losses that can be reliably estimated. We recognize a contingency after reviewing the reports from legal advisors and upon approving the probability assessment contained in such reports. The tables below contain a summary of our provisions and contingent liabilities as of December 31, 2024 and as of December 31, 2023.

<b>Provisions</b>		
<i>(US\$ million)</i>		
	<b>December 31, 2024</b>	<b>December 31, 2023</b>
<b>Provisions for litigation</b>		
Tax litigation	201	90
Civil litigation	290	380
Labor litigation	482	514
Environmental litigation	40	15
<b>Total</b>	<b>1,013</b>	<b>999</b>
<b>Liabilities related to Brumadinho<sup>1</sup></b>	<b>1,970</b>	<b>3,060</b>
<b>Liabilities related to associates and joint ventures<sup>2</sup></b>	<b>3,663</b>	<b>4,427</b>

<sup>1</sup> Liabilities related to Brumadinho include provisions related to the Integral Reparation Agreement, tailings containment, geotechnical safety and environmental reparation, individual indemnification, and other.

<sup>2</sup> Liabilities related to associates and joint ventures include provisions related to the Definitive Agreement, the provision related to the Samarco dam failure and remaining legal proceedings.

<b>Contingent Liabilities</b>		
<i>(US\$ million)</i>		
	<b>December 31, 2024</b>	<b>December 31, 2023</b>
<b>Contingent liabilities</b>		
Tax litigations	5,995	7,235
Civil litigations	1,274	1,366
Labor litigations	292	378
Environmental litigations	1,050	1,320
<b>Total</b>	<b>8,611</b>	<b>10,299</b>

We are engaged in administrative and judicial discussions with tax authorities in Brazil in relation to certain tax positions adopted by us for calculating income tax and social contribution on net income. See note 9 to our consolidated financial statements for additional information. The table below contain a summary of the amount under discussion with the tax authorities as of December 31, 2024 and as of December 31, 2023.

<b>Uncertain tax positions ("UTP")</b>		
<i>(US\$ million)</i>		
	<b>December 31, 2024</b>	<b>December 31, 2023</b>
UTPs recorded as part of the taxes payable liability on statement of financial position	154	183
UTPs not recorded on statement of financial position <sup>1</sup>	8,556	9,144



<sup>1</sup>Based on the assessment of its internal and external legal advisors, we believe that the tax treatment adopted for these matters will be accepted in decisions of the higher courts on last instance.

## LEGAL PROCEEDINGS RELATED TO THE DAM FAILURE IN BRUMADINHO

We have been actively seeking non-judicial alternatives to promote a more expedited reparation and remediation to the victims and to settle the various legal proceedings relating to the Brumadinho dam failure. For a discussion of the multiple settlement agreements we have entered into in connection with the dam failure in Brumadinho, including but not limited to the Judicial Settlement for Integral Reparation, see *Business Overview—Reparation and Remediation Efforts—Brumadinho Reparation and Remediation Efforts*. Below is a discussion of the main proceedings outstanding relating to Brumadinho dam failure:

**a) Public civil actions, Judicial Settlement for Integral Reparation and other settlement agreements.** In January 2019, the Government of the State of Minas Gerais, the Public Defender Office of the State of Minas Gerais (*Defensoria Pública de Minas Gerais – DPMG*) and public prosecutors of the State of Minas Gerais (*Ministério Público do Estado de Minas Gerais - MPMG*) collectively brought three public civil actions before the 2<sup>nd</sup> Public Treasury Court of the City of Belo Horizonte, seeking several measures for the reparation and remediation of environmental and social damages resulting from the dam failure. In these actions, the authorities claimed economic and environmental damages resulting from the dam failure and sought a broad range of injunctions requiring us to implement specific remediation and reparation measures. In July 2019, the court decided that we are liable for the damages caused by the dam failure.

In February 2021, we entered into the Judicial Settlement for Integral Reparation with the claimants of the public civil actions, settling the majority of the socio-economic and socio-environmental claims raised in these actions. The Judicial Settlement for Integral Reparation resolved the collective and diffuse damages resulting from the event, but does not cover claims for individual damages and any unknown and future social-environmental damages, which are still being discussed in the public civil actions and are currently subject to technical/expert evaluation. We have been fulfilling the obligations under the Judicial Settlement for Integral Reparation.

We have also entered into other settlement agreements with public authorities to establish frameworks for individual indemnification of the victims. An affected party or a group of affected parties has the option to pursue individual claims against us directly, or to settle its claims under an expedited out-of-court settlement process based on the framework we agreed with the authorities under these other settlement agreements. These other settlement agreements settled certain other judicial proceedings brought against us by public authorities.

**b) Securities litigation in the United States.** We and certain of our former executive officers were named defendants in securities class action suits, under U.S. federal securities laws, brought before the United States District Court for the Eastern District of New York by holders of our securities. The lead plaintiff in this case alleges that the defendants made false and misleading statements or omitted to make disclosures concerning Brumadinho dam and the adequacy of related risk management programs and procedures.

In March 2022, the court granted the lead plaintiff's motion for class certification. In November 2023, discovery closed and defendants moved to decertify the case as a class action. The decertification motion is pending. In August 2024, a hearing was held in court, during which the parties and experts presented oral arguments in support to our motion to exclude the plaintiff's expert report on loss causation and damages. A decision on this motion is also pending.

In November 2021, eight related investment funds affiliated with a privately owned asset manager (all of whom are currently part to the putative class discussed above) filed an "opt-out" complaint, similar to the class action complaint in all material respects. In December 2023, defendants moved to partially dismiss the amended complaint, and the motion remains pending. Given the current status of the actions, we cannot predict the

outcomes or reliably estimate our potential exposure at this time. We will continue to vigorously contest these claims.

**c) Criminal proceedings and investigations.** In January 2023, the Federal Public Prosecutor's Office (MPF) brought criminal charges against 16 individuals (including former executive officers of Vale and current and former employees) for a number of potential crimes, including homicide, and against Vale S.A. for alleged environmental crimes. The 6<sup>th</sup> Federal Court of Belo Horizonte then accepted all charges and divided them into three separate proceedings: one to prosecute the environmental crime charges against us and former employees; another to prosecute the environmental crime charges against TUV SÜD, and its employees, and a third solely against the individuals to prosecute the homicide charges. The defendants in these three proceedings have been summoned to present their responses within the legal timeframe, and we submitted our response in December 2024.

The federal police also conducted a separate criminal investigation into potential fraud and forgery of documents related to the certification of stability of the Brumadinho dam prior to the dam collapse. In September 2024, federal prosecutors decided not to bring a separate criminal action, as the findings from this investigation were already included in the proceeding described above. A civil association challenged this decision before the review instance of the Federal Public Prosecutor's Office, but in February 2025, the decision not to file a new criminal action or amend the existing action was upheld.

**d) Public civil actions brought by prosecutors and civil associations.**

- *Public civil actions by labor unions.* We are a defendant in two public civil actions brought by labor unions before a labor court in the district of Betim, Minas Gerais. The unions claim to be the legitimate parties to defend the interest of certain employees and outsourced workers represented by the union and who were victims of the dam collapse and seek compensation. In these cases, the lower court has issued initial decisions ordering us to pay R\$1 million to R\$1.5 million per deceased worker. We believe that death-related damages were covered by the settlement agreements that we have already entered into, and considering that in 2022 the Regional Labor Court ruled in a similar public civil action that the damage claims had no grounds, we expect that the Superior Labor Court will rule on our favor. If the decision of the Superior Labor Court rules against us, we expect that total financial impact, based on previous decisions, to be approximately R\$199.6 million in historical value. These proceedings are currently suspended for conciliation negotiations.

- *Public civil action related to our internal policies.* We are a defendant in a public civil action brought by the MPF before the 14th Federal Court in the city of Belo Horizonte against the ANM, the CVM and us, requesting a judicial intervention on Vale, until we restructure and improve our internal policies relating to safety and disaster prevention. Since this public civil action was included in the Definitive Settlement (as defined below) approved in November 2024 by the STF in connection with Samarco's dam collapse, we are awaiting a decision on the termination of the case.

- *Public civil action related to individual agreements.* In January 2024, a non-governmental organization initiated a civil public action against us, alleging that we failed to comply with the term of commitment signed with the Public Defender's Office of the state of Minas Gerais in the out-of-court settlement agreements between the affected individuals and us. The plaintiff is requesting the partial suspension of the effects of certain clauses of the individual agreements related to compensation for the mental health issues, and the shift of the burden of proof. In February 2024, the court rejected the preliminary requests, on the basis that it was not possible to assume that the beneficiaries of the agreements did not have due knowledge of the clauses, particularly because they were assisted by their own counsel, and the plaintiff appealed. Given the preliminary stage of this action, we cannot at this time determine the impacts of potential outcomes. We will continue to vigorously contest these claims.

- *Public civil action related to relocation of Indigenous community.* In January 2022, the MPF filed a

request for a provisional remedy against us, requesting that we present a temporary relocation plan for the Pataxó and Pataxó Hã Hã Hãe Indigenous communities, especially the Naô Xohâ Village, and provide monthly payments of installation and maintenance allowance to the relocated families. In February 2022, the federal court in the city of Belo Horizonte granted an injunction ordering the temporary relocation of the Pataxó and Pataxó Hã Hã Hãe Indigenous communities, and the provision of monthly payments by us until definitive settlement of the communities. We have been complying with the court's decision, and have acquired a piece of land in Brumadinho for the temporary relocation of part of the families, with the possibility of making it permanent as part of the collective reparation for part of the group. We will continue to vigorously contest this lawsuit, which we believe is without merit.

- *Public civil action and investigation under the Brazilian Anticorruption Law.* We are a defendant in certain investigations and legal proceedings relating to the failure of Brumadinho dam in which authorities make claims based on the Brazilian Anticorruption Law (Federal Law No. 12,846/2013). In these proceedings, the authorities claim that we had concealed relevant information about the stability of the Brumadinho dam by presenting a false declaration of stability prior to the dam collapse, which has allegedly adversely affected oversight by public authorities concerning the stability of the dam and allegedly allowed us to omit relevant information about the dam risks and therefore this would be an interference with the oversight of public authorities that is prohibited under the Brazilian Anticorruption Law. We will continue to vigorously contest this action, which we believe is without merit. These proceedings include: (i) a public civil action by public prosecutors of the state of Minas Gerais (*Ministério Público do Estado de Minas Gerais* - MPMG) before the 1<sup>st</sup> Public Treasury Court in Belo Horizonte, (ii) an administrative proceeding by Federal Office of the Comptroller General (*Controladoria-Geral da União* - CGU), in which the authorities imposed a fine in August 2022 of approximately R\$86.3 million, although the decision also recognized the absence of corruption acts and did not indicate any involvement or tolerance of our top management. and which decision is being challenged by us before the Superior Court of Justice, and (iii) an administrative proceeding by the Comptroller General of the State of Minas Gerais (*Controladoria-Geral do Estado de Minas Gerais* - CGE), which was suspended by the court in 2023 due to the prior filing of the aforementioned public civil action by the MPMG, but remains subject to appeal.

**e) Damages claim by the municipality of Brumadinho.** In December 2021, the municipality of Brumadinho filed an action against us before the state court in Brumadinho, requesting compensation for property and extra-patrimonial damages suffered by the municipality, as well as moral damages. The municipality also requested the attachment of assets in the amount of R\$5 billion, as well as monthly payments of approximately R\$3.7 million to compensate alleged financial losses due to the drop in tax revenues following the collapse of the Brumadinho dam. All of those preliminary requests were rejected. This proceeding is ongoing and we will continue to vigorously challenge this action, which we believe is without merit.

**f) Investor arbitration proceedings in Brazil.** We are a defendant in six arbitrations filed before the B3 arbitration chamber by: (i) 385 minority shareholders; (ii) a class association allegedly representing minority shareholders; and (iii) foreign investment funds. In these proceedings, the claimants argue that we were aware of the risks at the Córrego do Feijão mine dam in Brumadinho, and failed to disclose information to shareholders as required under Brazilian laws and CVM rules. On that basis, claimants seek compensation for alleged losses related to a decrease in our share value. In one of the proceedings filed by foreign funds, the claimants allege that the estimated amount of the losses is approximately R\$1.8 billion. In another proceeding filed by foreign funds, the claimants estimate the losses at about R\$3.9 billion. We find these claims to be without merit and will continue to vigorously contest them. These proceedings are still in early stages, with the parties discussing the appointment of arbitrators in five of them. In one proceeding, the Arbitral Tribunal has already been formally constituted, but the case is stayed until the claimants pay their share of the arbitrators' fees.

In addition to the above, we are involved in other legal proceedings and investigations in connection with the Brumadinho dam collapse, which we do not believe to be material at this moment, and additional proceedings may be

brought in the future.

## LEGAL PROCEEDINGS RELATED TO THE COLLAPSE OF SAMARCO'S TAILINGS DAM

In October 2024, we, together with Samarco and BHP Brasil Ltda., entered into an agreement with the federal government, the governments of the states of Minas Gerais and Espírito Santo, the Federal and State Public Prosecutors' Offices, and the Federal and State Public Defender's Offices of the states of Minas Gerais and Espírito Santo and other federal and state governmental authorities (the "Definitive Settlement"). The Definitive Settlement is expected to resolve most of the legal proceedings in Brazil relating to Samarco's dam failure. In November 2024, the Federal Supreme Court (Supremo Tribunal Federal – STF) ratified the Definitive Settlement. See *Business Overview—Reparation And Remediation Efforts—Reparation and remediation efforts related to Samarco's tailings dam*. Below is a discussion of the main proceedings still pending following the Definitive Settlement:

**a) Criminal proceeding.** In October 2016, the MPF filed criminal charges before the federal court of Ponte Nova, state of Minas Gerais, against us, certain of our employees and a former officer, among other corporate and individual defendants. The court has dismissed part of these charges, but accepted charges of environmental crimes against us and one of our employees relating to an alleged omission in the provision of relevant information of environmental interest, false statements and fraud in a public filing, in connection with the alleged failure to disclose that tailings from our Alegria mine were discharged at the Fundão dam. In November 2024, the federal court of Ponte Nova acquitted all defendants (including Vale and the former employee) of all charges brought by the MPF. The court ruling acknowledged that it was proven we did not contribute to the commission of the alleged environmental crimes related to the rupture of the Fundão dam. The MPF filed an appeal to the Federal Regional Court of the 6<sup>th</sup> Region (*Tribunal Regional Federal da 6<sup>a</sup> Região – TRF6*). In February 2025, we filed our counter-arguments to the MPF's appeal. The acquittal of the former employee has become final and unappealable.

**b) Tax proceeding.** In September 2018, the federal tax authorities filed a request before a federal court in Belo Horizonte for an order to Vale's assets to secure the payment of Samarco's federal tax and social security debts, in the amount of approximately R\$11 billion (as of June 2018). In May 2019, a favorable decision was issued dismissing the claim without prejudice, due to lack of procedural interest. The General Attorney for the National Treasury (*Procuradoria Geral da Fazenda Nacional—PGFN*) filed an appeal to the local court, and a decision is pending.

**c) London proceeding.** Around 610,000 claimants (including individuals, Brazilian municipalities, companies and members of indigenous, quilombolas and other traditional communities) are seeking damages from BHP Group Ltd. and BHP Group UK Ltd. as a result of the collapse of Samarco's Fundão dam, before the Business and Property Courts of England and Wales Technology and Construction Court in London, UK (the "UK Claim"). The damages are estimated by the claimants at GBP 36 billion (about US\$45.7 billion). In connection with the UK Claim, in July 2024, we signed a liability sharing deed with BHP, under which we accepted to share with BHP, on a 50%/50% basis, any compensation eventually imposed as a result of the UK Claims and the Netherlands proceeding (see below) that is not duplicative to compensation already paid in Brazil. On October 21, 2024, the first-stage trial started, to determine if both BHP companies are liable to the claimants of the UK Claim. If this trial establishes liability, a second-stage trial will follow to determine damages and quantum. The second-stage trial is scheduled for October 2026, with the estimated length of 22 weeks.

**d) Netherlands proceeding.** On March 18, 2024, around 78,000 claimants (individuals, Brazilian municipalities, companies and members of indigenous, quilombolas and other traditional communities) filed a lawsuit against us and Samarco Netherlands NL before the District Court of Amsterdam. Claimants are seeking a declaratory judgement, establishing that Samarco Netherlands and we are jointly and severally liable for an unspecified amount of damages as a result of the failure of Samarco's Fundão dam. If these proceedings establish liability of Samarco Netherlands and/or us, follow-up proceedings will have to determine the amount of damages. In March 2024, the court granted a preliminary injunction freezing our shares in Vale Holdings B.V., our wholly-owned subsidiary incorporated in the Netherlands, along with the economic rights attached to those shares,

as guarantee of an amount of approximately €920 million related to these claims. Based on the liability sharing agreement we entered into with BHP in July 2024, BHP will share with us, on a 50%/50% basis, any compensation eventually imposed as a result of the Netherlands proceeding that is not duplicative of compensation already paid in Brazil. The final amount of the claims cannot be estimated at this time, and the court has yet to decide on the timing of the next steps in the proceedings.

In addition to the above, we are involved in other legal proceedings and investigations in connection with Samarco's dam collapse, which we do not believe to be material at this moment, and additional proceedings may be brought in the future.

### **ENVIRONMENTAL AND SAFETY PROCEEDINGS**

**Legal proceedings regarding dam safety.** We are involved in a number of other public civil actions in which public prosecutors and other authorities seek to suspend or restrict our operations, obtain injunctions compelling us to implement safety measures at other existing tailings dams, as well as other proceedings seeking collective compensation due to the evacuation of communities following dams emergency level. Most of these lawsuits were already dismissed as a consequence of several agreements we entered into with public prosecutors and the state of Minas Gerais, but some are still ongoing.

**a) Maravilhas II and III litigation.** In October 2017, the MPMG brought public civil actions challenging our environmental licenses for the construction of the Maravilhas III tailings dam, which is expected to support our operations in the Vargem Grande mining complex, in our Southern System. After the failure of the Brumadinho dam, the MPMG filed a request for a preventive injunction seeking to discontinue the project, but the request was rejected by the court. If the construction of this dam is interrupted, our ability to resume operations in the mining complex of Vargem Grande could be adversely impacted. This proceeding is still ongoing, and the appointment of a judicial expert is pending.

In October 2018, the MPMG brought a public civil action related to Maravilhas II and III tailings dam seeking, among other requests, an injunction ordering us to refrain from disposing tailings in such dams. The injunction request was initially granted by the court, but in July 2019 the decision was reversed by the Court of Appeals of the State of Minas Gerais. This proceeding is still ongoing.

In April 2019, the MPMG brought a public civil action related to the Maravilhas II tailings dam, requesting injunctions ordering us to (i) refrain from disposing tailings, operating, constructing or making other interventions on the dam; (ii) refrain from increasing the risks of other structures in the mining complex where Maravilhas II is situated; and (iii) review technical studies and other documents related to the dam, and conduct an external audit on the structure. The injunction requests were granted by the state court of the city of Itabirito. The Maravilhas II tailings dam supports our operations in the Vargem Grande complex, which had been suspended since February 2019 and have partially resumed. These proceedings were partially dismissed following a settlement agreement signed by the parties in September 2019. No agreement has been reached regarding the prohibition of measures that could potentially increase the risks of the structure, and the proceeding remains ongoing.

**b) Forquilha V.** In December 2021, the MPMG filed a public civil action requesting an injunction to halt the operations of Forquilha V dam, which is part of the Fábrica mining complex, until the review and approval by the public authorities of a new Emergency Action Plan. In July 2024, after we informed the planned suspension of the dam's use for tailings disposal, the court dismissed the request for injunctive relief, subject to certain conditions, including evidence of the suspension of the activities at Forquilha V and of the safety conditions of the dam. We will continue to contest this action, which we believe is without merit.

**c) Public civil actions relating to evacuation and removal of communities.** We are defendants in four public civil actions brought by the MPMG against us claiming a number of injunction reliefs and socioeconomic damages resulting from the evacuation and/or removal of communities located in the self-rescue zones of

certain of our dams located in Nova Lima, Ouro Preto, Barão de Cocais, and Itabira.

In December 2022, the public civil action related to the evacuation of Nova Lima (B3B4) was settled, and a new agreement was signed by the MPMG, the MPF, the Public Defenders Office of the State of Minas Gerais and us, providing for the compensation and full reparation of the impacts suffered by the affected population and the Municipality of Nova Lima, in the estimated amount of R\$500 million. Indemnifications for individual damages, however, were excluded from the settlement, and may still be pursued. The lawsuit concerning Ouro Preto remains active and ongoing.

In August 2023, the public civil action concerning the evacuation of part of the population of Barão de Cocais (Sul Superior) was settled following the execution of a settlement agreement between by the MPMG, MPF, the Public Defenders Office of the State of Minas Gerais, and us, with the Arquidiocese de Mariana as a intervening party, for the compensation and comprehensive remediation of the impacts experienced by the affected population and the Municipality of Barão de Cocais. The settlement amount is estimated at R\$528 million. Claims for individual damages were excluded from the settlement and may still be pursued in accordance with the terms of the agreement with the Public Defender's Office of the state of Minas Gerais. Additionally, this agreement resulted in the closure of a civil investigation initiated by public prosecutors, which investigated potential violations or threats to individual and collective human rights in our interactions with the communities and individuals affected by the evacuation prompted by the elevated emergency level of the Sul Superior dam.

In April 2022, the MPMG filed a public civil action seeking, among other requests, full reparation of the alleged damages and socioeconomic impacts caused to the community of Itabira as a result of the decharacterization of the Pontal Dam and its dikes. While various claims were denied, other claims, including a request to prevent us from entering into new individual agreements with the alleged victims, were granted. We filed an appeal against this decision, which was partially granted, specifically with respect to the possibility of entering into new individual compensation agreements with the victims, and the obligation to pay for the production of expert evidence. In September 2024, the court issued a judgment determining that we indemnify all individual damages, as well as collective moral damages, to the individuals affected by the works of decharacterization of the Pontal system. The court also ordered us to pay for an independent technical entity to advise the affected individuals. We appealed this decision in October 2024 and the MPMG responded to the appeal in January 2025. Prior to that, on December 9, 2024, the MPMG sought provisional enforcement of the judgment, seeking an order requiring us to remove the at-risk family units residing in Itabira. On December 18, 2024, the court granted part of the requests made by the MPMG, including, among other measures, ordering us to carry out the removal. We have filed an appeal, which is pending judgment. We will continue to vigorously contest this action, which we believe is without merit.

### ***Legal proceedings seeking cancellation of licenses or suspension of operations in the State of Minas Gerais and Espírito Santo***

**d) Mar Azul, Tamanduá and Capão Xavier litigation.** In June 2020, a civil association that represents owners of properties located in the proximities of the Mar Azul, Tamanduá and Capão Xavier mines brought a public civil action against the state of Minas Gerais, the ANM and us, before a federal court in the state of Minas Gerais, requesting the cancellation of our mining and environmental licenses to operate the Mar Azul, Tamanduá and Capão Xavier mines in our Southern System. The plaintiff also filed for an injunction to suspend such environmental licenses and, consequently, our operations at these mines, alleging, among other matters, that our activities at these mines are contaminating water springs in the region. We submitted a response and the lower court issued a decision declaring the court's lack of jurisdiction and sent the case to the Belo Horizonte state court. The plaintiff filed an appeal, which was rejected, and the lawsuit was dismissed. We are currently waiting for this proceeding to be archived.

**e) Viga litigation.** In September 2020, the municipality of Jeceaba, in the state of Minas Gerais, filed a public civil action against us before the local court. In this proceeding, the court granted an injunction requiring us to refrain from (i) disposing tailings in Dam 7, a tailings dam located at our Viga mine in the Southern System,



without the required location and operating permits, and (ii) carrying out works at Dam 7 without the required construction permit. In November 2021, we entered into a settlement agreement with the municipality of Jeceaba, which was ratified by the court, pursuant to which such municipality agreed to issue the construction permit for Dam 7. However, the public civil action continued regarding the other claims. In July 2024, the court ratified the agreement between us and the municipality of Jeceaba, which provided for the settlement of this matter through the payment of R\$30 million by us. Payment of the last installment under the agreement was made in January 2025 and we are waiting for the proceeding to be archived.

**f) Pelletizing plant 8 - Tubarão litigation.** In September 2019, a civil association brought a public civil action against us, before a state court in Vitória, state of Espírito Santo, claiming that the licensing process for the expansion of our operations at the Tubarão Complex failed to fulfill formal requirements and consider environmental impacts; and established emission parameters different than the ones that had been set forth in the relevant Environmental Impact Study. In this proceeding, the plaintiff filed for an injunction seeking the suspension of Tubarão Complex operating license. We filed our defense and in October 2020, and the court rejected plaintiff's request for the injunction. The court has also appointed an expert to prepare a technical report and notified the public prosecutors.

**g) EFVM railroad litigation.** In March 2021, the Legislative Assembly of the State of Minas Gerais filed a public civil action before the 13<sup>th</sup> Federal Court of Minas Gerais alleging that the third amendment to the concession agreement of the Vitória-Minas Railroad (EFVM), which renewed the EFVM's concession, is null and void, and requesting an injunction to either: (i) suspend the effectiveness of the third amendment to the concession agreement, or (ii) suspend the payment by us to the Federal Government, until a final decision. In April 2021, the court issued a decision favorable to us, extinguishing the lawsuit based on the merits. The plaintiff filed an appeal and a decision on the appeal is pending.

**h) Environmental matters relating to Tubarão Port.** In 2018, we entered into a settlement agreement with the MPF, the public prosecutors of the State of Espírito Santo (*Ministério Público do Estado do Espírito Santo – MPES*) and environmental authorities of the State of Espírito Santo (*Secretaria de Estado de Meio Ambiente e Recursos Hídricos – SEAMA* and *Instituto Estadual de Meio Ambiente e Recursos Hídricos – IEMA*) to enhance control over atmospheric emissions at Tubarão Port and pelletizing plants. We are currently awaiting the assessment of public authorities of our compliance with the agreement.

In July 2006, the National Association of Friends of the Environment (ANAMA) filed a class action against us, the State of Espírito Santo, the Environmental Agency of the State of Espírito Santo (IEMA), the Municipality of Vitória, the Federal Union, and the Brazilian Environmental Agency. The ANAMA sought compensation for pollution we had allegedly caused in the Metropolitan Region of the Municipality of Vitória. As reported above, in 2018, we entered into a settlement agreement that established major investments to improve control over atmospheric emissions at Tubarão Port and pelletizing plants. This agreement halted the continuation of the lawsuit. Despite the conclusions of the judicial technical evidence and the execution of the agreement, in November 2023, the court ordered that we submitted complementary technical evidence to assess our contribution to the air quality of the metropolitan region of Vitória, in the State of Espírito Santo. We have appealed, but the appeal was rejected, and the court upheld the requirement to produce complementary evidence.

**i) Public Health System lawsuit.** In September 2013, an individual filed a lawsuit (*ação popular*) against us and another steel company before a federal court in the state of Espírito Santo, claiming that the companies are responsible for air pollution in the metropolitan region of the city of Vitória that causes respiratory and cardiovascular diseases and, therefore, generates expenses for the Brazilian Public Health System (SUS), that should be reimbursed by those companies. In this lawsuit, the plaintiff filed for an injunction to compel the companies to submit technical studies regarding the alleged connection between the air pollution and the diseases, as well as expenses with health treatments and the cost of infrastructure and medication. The plaintiff is requesting that the companies indemnify the SUS for expenses arising from the treatment of illnesses supposedly caused by the atmospheric pollution. In June 2024, the lawsuit was dismissed. The plaintiff's appeal is pending judgment by the court.

**j) Public civil action related to artesian wells.** In May 2017, a non-governmental organization (*Associação Juntos SOS Espírito Santo Ambiental*) initiated a public civil action against us before the Federal Court of the State of Espírito Santo, challenging our authorizations to exploit groundwater from artesian wells in the Tubarão complex, based on a new regulation for obtaining authorizations that had been issued at that time. The NGO is demanding that we submit new water quality analyses and make improvements to the sanitary treatment systems. The lawsuit is currently awaiting the start of the expert phase. Given the preliminary stage of the action, it is not possible at this time to determine the impacts of potential outcomes.

**Other environmental proceedings.**

**k) EFC accident – km244.** The Maranhão State Environment Department and the Alto Alegre do Pindaré Municipality Environment Department issued several infraction notices against us, due to an accident on November 8, 2023 at km 244 of the Carajás Railroad - EFC. A train carrying 49 TCT fuel wagons (Type A Gasoline, S10 Diesel Oil, and S500 Diesel Oil) derailed, causing a fuel leak and a large fire. We managed to control and extinguish the fire within 24 hours. Authorities attributed several punishable acts to us, including destroying native vegetation, vegetation in APP (Area of Permanent Preservation), air pollution, water pollution, discharging oils or oily substances, soil pollution, and non-compliance with the emergency response plan. The aggregate amount of the penalties under the infraction notices totals more than R\$300 million. After we submitted our administrative defense in these cases, some of the penalties have been reduced and others maintained. We have appealed these decisions. At this stage, it is not possible to determine the impacts of potential outcomes of these proceedings,

**l) Stellar Banner accident.** Following the accident in February 2020 involving the iron ore carrier MV Stellar Banner operated by Polaris Shipping Co. Ltd., we became a party the following proceedings related to the accident: (i) in August 2020, the Institute of Environment and Renewable Natural Resources (IBAMA) issued an infraction notice against us for allegedly causing pollution at levels that could result in the destruction of local marine biodiversity; (ii) in December 2020, the MPF filed a public civil action against us, seeking compensation for the alleged environmental damage and reimbursement of the expenses incurred by public authorities; and (iii) in April 2022, the MPF filed a criminal lawsuit before the Federal Court against the carrier's captain, Polaris and us, for alleged pollution crime by means of the unauthorized dumping of oily waste. In November 2023, the court accepted the complaint against us for the alleged crime of pollution from the discharge of oil into the sea. We have been vigorously defending in these proceedings, primarily on the basis that we have no standing to be sued and should not be held liable for the incident.

**m) Settlement Agreements and Legal Proceedings Involving Indigenous Communities.** Since 2012, the MPF and associations representing Indigenous peoples Xikrin do Cateté and Kayapó, located in the state of Pará, have brought various legal proceedings against us seeking monetary compensation and a broad range of injunctive reliefs as a result of alleged irregularities in the licensing process for certain of our operations or alleged impact of our iron ore and Energy Transition Metals mining activities on these communities. These legal proceedings involved our Onça Puma nickel operations, S11D iron ore operations, Salobo copper operations, Ferro Carajás project and Alemão copper project.

In December 2021, we entered into a settlement agreement with the Xikrin do Cateté People, and in February 2022, we entered into a settlement agreement with the Kayapó People, pursuant to which we agreed to provide certain social and economic compensation to these communities. The settlement agreement with the Xikrin do Cateté People was approved by the court responsible for the Onça Puma, S11D and Salobo projects lawsuits. In August 2022, the Xikrin Indigenous community of TI Bacajá appealed a decision that dismissed the case with respect to the Xikrin Bacajá. We presented our response and a decision on the appeal is pending. In October 2022, the settlement agreement with the Kayapó People was approved by the court responsible for Onça Puma lawsuit. In March 2023, the settlement agreement with the Xikrin community was approved by the court responsible for the Alemão Projects lawsuit. In March 2024, the agreement was approved by the competent court responsible for the cases related to the Ferro Carajás project.

In February 2025, the MPF filed a new public civil action against the federal government, the state of Pará and



us, regarding the health condition of the Xikrin do Cateté People affected by the alleged contamination of the Cateté and Itacaiúnas rivers as a result of our activities at the Onça Puma mine. In this action, the MPF is requesting a preliminary injunction that would require us to cover certain costs, including related to transportation, accommodation, food, medicine, and the treatment of the Indigenous people allegedly affected, as well as the implementation of a health monitoring program. In March 2025, we submitted our preliminary statement to the court, in which we reiterate, among other arguments, that there is no link between contamination and the Onça Puma mine project. This position is supported by a series of arguments that were previously confirmed by judicial experts appointed by the Federal Court of Redenção in an expert report issued in 2018. A decision on the MPF's preliminary request is currently pending.

**n) Itabira suits.** We are a defendant in two lawsuits filed by the municipality of Itabira, in the state of Minas Gerais. In the public civil action filed in August 1996, the plaintiff alleges that our Itabira iron ore mining operations have caused environmental and social harm, and claims damages with respect to the alleged environmental degradation of the site of one of our mines, as well as the immediate restoration of the affected ecological complex and the performance of compensatory environmental programs in the region. In the action filed in September 1996, the plaintiff claims the right to be reimbursed for expenses it has incurred in connection with public services rendered as a consequence of our mining activities. The damages sought, adjusted as of December 31, 2024, amount to approximately US\$4.5 billion. Both lawsuits are in the evidence production phase. We believe these suits are without merits and will continue to vigorously contest them.

**o) Expansion of EFC.** We are defendants in a public civil action filed in July 2012 by the Maranhão Society for Human Rights, the Indigenous Missionary Council, and the Center for Black Culture of Maranhão, challenging the environmental licensing process for the expansion of the Carajás railroad (EFC). In December 2020, a judicial expert report confirming the legality of the licensing process in our favor. Following the completion of the instruction phase of the proceeding, a decision is currently pending. We believe this action is without merit and, considering the completion of the expansion works since 2017, and the authorization for the operation of the second line of the railroad by the environmental agency, we consider the action to be without purpose.

## CIVIL PROCEEDINGS

**a) Claims involving our participative shareholders' debentures.** At the time of our privatization in 1997, we issued Brazilian law governed debentures known in Brazil as "*debêntures participativas*" to our then-existing shareholders. Our participative shareholders' debentures are governed by a debenture deed, which provides that premium payments are due once sales volumes at reference assets attain specified thresholds. Certain holders of our participative shareholders' debentures have brought claims against us, alleging that premium payments should have been triggered by production volumes, rather than sales volumes. If successful, these claims would affect the timing of premium payments, and may require us to recognize one-time payments to the claimants based on the initial premium payments that were allegedly owed and not paid. We believe that these claims are meritless, and do not recognize any obligation to make premium payments prior to the time specifically provided by the debenture deed. In October 2024, the Court of Justice of the State of Rio de Janeiro rendered a decision, dismissing one of these lawsuits that sought payment of a difference in the premium. This decision is no longer subject to appeal. We have in the past, and intend to continue to, vigorously defend our position with respect to any ongoing claims.

**b) Patent breach claim.** In November 2023, a former employee filed a lawsuit against us before the First Civil Court of Vitória, seeking damages of approximately R\$13.5 billion. The plaintiff alleges that we unduly used and benefited from a patent (registered in our name with the National Institute of Industrial Property - INPI) of a technology that he allegedly invented while working for us. In October 2007, the plaintiff had initiated preliminary proceedings against us to produce technical evidence of our use of the patent and to calculate our alleged profits from such use. In March 2016, a court-appointed expert submitted a technical report, estimating our economic benefit from using the patent at approximately US\$5.5 billion. In March 2018, the court accepted our argument that new expert evidence was needed due to the expert's lack of technical expertise. The plaintiff appealed this decision, and the Court of Appeals of the State of Espírito Santo has concluded the appeal,

deciding that the expert evidence is adequate. In August 2024, following prior appeals from the parties, we filed a special appeal to the STJ, and such appeal is currently pending judgment. Throughout these proceedings, we have strongly contested both the plaintiff's claims and the accuracy of the economic benefits estimated by the court-appointed expert. We believe that this suit is without merit, and we will continue to defend it vigorously.

**c) Land dispute relating to Ponta da Madeira maritime terminal.** In June 2024, we filed a lawsuit before the 5<sup>th</sup> Federal court of São Luis, State of Maranhão, seeking the annulment of a transaction entered into between the State of Maranhão and BR Infra. The transaction involved the purchase by such company of land that partially overlaps an area that was ceded to us pursuant to an agreement signed by the Federal Government in 1979, which was intended for the implementation of part of the logistics of the Carajás Project (port and railway). The disputed area is also relevant for future projects. The case is in currently in the preliminary stage, with defendants presenting their defenses. Given the early stage of the proceeding, it is not possible at this time to assess the potential impacts and outcomes.

## LABOR PROCEEDINGS

**a) Public civil actions related to single-conductor operating system.** In 2014, a labor union representing railroad workers in the state of Minas Gerais filed a public civil action against us requesting an injunction to order us to replace the single-conductor operating system (one conductor per train) with a dual-conductor system, among other requests, based on health and safety work conditions, subject to the imposition of a fine to be determined by the court. After initially obtaining a favorable decision, the Labor Court of Appeals and the Superior Labor Court (TST) ruled against us. In July 2024, we entered into an agreement with the labor union for the termination of this lawsuit, committing to the payment of R\$49 million, without the obligation to refrain from the single-conductor operating system.

In 2017, the labor union representing the railway train conductors in the state of Maranhão and the Public Ministry of Labor of the State of Maranhão (MPT-MA) filed public civil actions against us, seeking an injunction to order us to replace the single-conductor operating system with a dual-conductor system, among other requests related to health and safety work conditions. The actions are being processed jointly before the Maranhão Labor Court (TRT – 16<sup>th</sup> Region). In April 2024, the court issued a decision determining that we should refrain from using the single-conductor operating system, and ensure a one-hour intra-day break for train drivers, as well as imposing payment of moral damages in the amount of R\$5 million. We have appealed, and submitted a request for suspension of the effects of the sentence, which was granted. In 2014, similar lawsuit had also been proposed in the state of Pará with respect to the same railway, The proceeding is also ongoing. The cases are awaiting judgment on appeals from the parties.

In 2024, the labor union that represents railroad workers in the state of Espírito Santo filed a public civil action against us also requesting an injunction to replace the single-conductor operating system with a dual-conductor system, among other requests. In December 2024, we presented our defense, and the lawsuit is in the evidence production phase.

**b) Other labor proceedings.** We and our subsidiaries are defendants in other labor proceedings, including numerous proceedings related to claims for **additional compensation for overtime work, moral damages or health and safety conditions overtime and hazard pay.** See Note 29 to our consolidated financial statements for additional information.

## TAX PROCEEDINGS

We and our subsidiaries are defendants in numerous tax proceedings. The most significant proceedings are discussed below and in notes 9.d, 9.e and 29 to our consolidated financial statements.

### *Income Tax Litigation*

**a) Litigation on Brazilian taxation of foreign subsidiaries.** In 2003, we filed for a *writ of mandamus* to prevent Brazilian corporate income tax (IRPJ) and social contributions on the net income (CSLL) taxation on the profits of our non-Brazilian subsidiaries and affiliates. The Brazilian Federal Government has filed various administrative and judicial proceedings against us claiming the payment of IRPJ and CSLL on the profits of our non-Brazilian subsidiaries and affiliates in relation to the 1996 and 2008 fiscal years. The discussion regarding the period between 1996 to 2002 was resolved in our favor in a final decision.

In 2013, we significantly reduced the amount in dispute by participating in the REFIS-TBU, a federal tax settlement program for payment of amounts relating to IRPJ and CSLL on profits of subsidiaries abroad from 2003 to 2012 fiscal years. Under the REFIS-TBU, we paid R\$5.9 billion in 2013, and we have been paying the remaining R\$16.3 billion in monthly installments, bearing interest at the SELIC rate. As of December 31, 2024, the remaining balance was R\$8.2 billion, to be paid in 46 further installments.

In 2014, the STJ issued us a favorable decision in the proceeding that had been initiated by us in 2003. The Brazilian Federal Government filed an appeal before the Federal Supreme Court (Supremo Tribunal Federal – STF), which was rejected in March 2021. The Brazilian Federal Government filed a new appeal, and a decision is pending.

**b) Litigation related to the deduction of CSLL from the taxable income.** In 2004, a final decision of the STJ granted us the right to deduct the amounts we had paid as CSLL from our taxable income. In 2006, the Brazilian federal government filed an action against us, seeking to overturn the 2004 decision. After multiple appeals, in November 2019, the Federal Court of Appeals (*Tribunal Regional Federal - TRF*) reversed the 2004 decision. Despite our appeals, we have decided not to deduct the CSLL from our taxable income for the year 2018 and subsequent years. We and the federal government have filed appeals, and final decision is pending.

The Brazilian Federal Government has filed various administrative proceedings against us claiming the payment of IRPJ related 2004 to 2008, 2011 to 2014 and 2016 to 2017 fiscal years. As of December 31, 2024, the amount in dispute was R\$1.7 billion, in addition to a R\$607 million reduction in our tax losses with a tax impact of R\$152 million, excluding fines and interest, totaling R\$1.9 billion. We filed an administrative appeal, which was partially granted to reduce the amount of the tax assessment related to 2016 and 2017 in R\$2 billion. A favorable decision related to fiscal years 2011 to 2013 stated that this charge has no merit, as the claim is time-barred. Both parties have filed additional appeals, and a final decision is pending. For other fiscal years, we submitted an administrative defense and are currently awaiting its analysis. We believe this charge is without merit, as the claim is time-barred.

In February 2023, the STF ruled on two appeals with an impact on all taxpayers. These appeals concern the length of time for which a court decision on a tax matter would remain valid if the STF had subsequently issued a contrary decision. As a result of these rulings, we have recorded an impact of R\$952 million, regarding the tax assessment related to the period of 2016 and 2017. We understand that the tax assessments related to the fiscal years 2004 to 2008, 2011 to 2013 and 2014 are not impacted by this judgement, as they are time-barred.

**c) Transfer pricing tax assessment.** In December 2024, we received a tax assessment charging IRPJ and CSLL for the period 2019 and 2020. The tax authorities claim that we unduly calculated the transfer pricing basis related to iron ore sales to our foreign controlled company because we calculated the price according to the average price of the ore in the shipments, in addition to considering the average grades of the ore exported. As of December 31, 2024, the amount in dispute is R\$6.12 billion, in addition to a reduction of R\$52 million of our tax losses with a tax impact of R\$13 million, excluding fines and interest, totaling R\$6.13 billion. We are contesting this assessment before the first administrative level, and the final decisions are pending.

**d) Proceeding related to deductions for compensation expenses for the dam failure in Brumadinho.** In December 2024, we received a tax assessment charging IRPJ and CSLL for the 2019 fiscal year in the amount of R\$3.1 billion. The tax authorities claim that we unduly deducted expenses associated with the remediation of the efforts related to the Brumadinho dam failure. We are contesting this assessment at the administrative level.

**e) Assessment related to the deduction of interest and negative exchange variation related to export prepayment agreements.** In November 2024, we received a tax assessment charging IRPJ and CSLL for the 2019 fiscal year, which considered that we unduly deducted the interest and negative exchange variation associated with export prepayment agreements with our subsidiary Vale International S.A. We believe that this assessment has no merit, since we have complied with all applicable rules for the deduction of expenses incurred with related parties (transfer pricing and thin capitalization rules). The tax authorities claim that we could not have deducted these expenses because our subsidiaries had retained earnings in 2018 that could have been distributed to us. We are discussing this at the administrative level and the amount under discussion is R\$2.3 billion as of December 31, 2024.

## UPDATES ON OTHER PROCEEDINGS

As reported in our annual report on Form 20-F for prior years, in July 2021, state prosecutors in the state of Rio de Janeiro initiated a criminal lawsuit against former MBR officers before a criminal court alleging supposed tax evasion of service taxes (*Imposto Sobre Serviço - ISS*) levied by the municipality of Mangaratiba on port cargo handling services at the Terminal Ilha Guaíba (TIG), located in Mangaratiba. In February 2023, one of the former officers was summoned and presented his defense. The lawsuit is at an early stage, currently waiting for the summon of the others former directors to present their defense to seek the case dismissal. We believe this proceeding is without merit.

As also previously reported, in May 2020, the MPMG presented criminal charges against us and one of our employees alleging that we had committed environmental crimes through an environmental intervention carried out in our mineral development center located in the city of Santa Luzia, in the state of Minas Gerais, without legal authorization, which allegedly led to the suppression of tree specimens. In May 2023, the court acquitted us of all crimes charged, but upheld the conviction of the employee for one crime. We will appeal from this decision.

As also previously reported, in 2015, the Ministry of Labor commenced two administrative proceedings against us, one alleging illegal outsourcing and another alleging that the illegally outsourced employees were working in conditions similar to slavery. In December 2018, the regional labor court upheld our annulment action and confirmed that the outsourcing of the transportation services in this case was lawful. In July 2024, we obtained a new favorable judgment, with the confirmation by the Regional Labor Court of our annulment action. Due to the legality of outsourcing and the absence of an employment relationship between the outsourced workers and Vale, the court determined that we are not liable for the slave labor claims.

# BYLAWS

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## COMPANY OBJECTIVES AND PURPOSES

Our corporate purpose is defined by our bylaws to include:

- the exploration of mineral deposits in Brazil and abroad by means of research, including through aerial surveying, exploitation, extraction, processing, industrialization, transportation, shipment and commerce of mineral assets;
- the construction and operation of railways and the exploitation of both our own and third-party rail traffic;
- the construction and operation maritime terminals, whether owned by us or third-parties, and the exploitation of navigation and port support activities;
- the provision of logistics services integrated with cargo transport, including inflow management, storage, transshipment, distribution and delivery within a multimodal transport system;
- the production, processing, transportation, industrialization and commercialization of any and all sources and forms of energy, including the production, generation, transmission, distribution and commercialization of our products, derivatives and by-products;
- the engagement, in Brazil or abroad, in other activities that may directly or indirectly contribute to the achievement of our corporate purposes, including research, industrialization, purchasing and sales, importation and exportation, the exploitation, industrialization and commercialization of forest resources and the provision of services of any kind; and
- the establishment or participation, in any form, in other companies, consortia or entities whose corporate objectives are directly or indirectly related, accessory or instrumental to our business purpose.

## COMMON SHARES AND GOLDEN SHARES

Set forth below is certain information concerning our authorized and issued share capital and a brief summary of certain significant provisions of our bylaws and Brazilian corporate law. This description does not purport to be complete and is qualified by reference to our bylaws (an English translation of which we have filed with the SEC) and to Brazilian corporate law.

Our bylaws authorize the issuance of up to 7 billion common shares based solely on the approval of the Board of Directors without any additional shareholder approval. The Brazilian government holds 12 golden shares of Vale. Our bylaws do not provide for the conversion of golden shares into common shares.

### Voting Rights

The golden shares are preferred shares that entitle the holder to veto any proposed action in a General Shareholders' Meeting relating to the following matters:

- a change in our name;
- a change in the location of our head office;
- a change in our corporate purpose as regards mining activities;
- any liquidation of the Company;
- any disposal or winding up of activities in any of the following parts of our iron ore mining integrated systems: mineral deposits, ore deposits, mines, railways, or ports and maritime terminals;
- any change in the bylaws relating to the rights afforded to the classes of capital stock issued by us; and
- any change in the bylaws relating to the rights afforded the golden shares.

The golden shares do not have any preference upon our liquidation and there are no redemption provisions associated with the golden shares.

Under Brazilian corporate law and applicable CVM regulations, shareholders representing at least 5% of our voting capital have the right to demand that a cumulative voting procedure be applied in any specific shareholder's meeting. When cumulative voting is applied, each common share has as many votes as there are board members and each holder of common shares has the right to cast all of its vote on one candidate of our Board of Directors or to distribute its votes among several candidates. For more information on the exercise of the voting rights of each share, see *Additional Information—Bylaws—Shareholders' Meetings*.

### Shareholders' meetings

Our Ordinary General Shareholders' Meeting is convened by April of each year for shareholders to resolve upon our consolidated financial statements, distribution of profits, election of Directors and Fiscal Council Members, and compensation of senior management. Extraordinary General Shareholders' Meetings are convened by the Board of Directors as necessary in order to decide all other matters relating to our corporate purposes and to pass such other resolutions as may be necessary.

Pursuant to Brazilian corporate law, shareholders voting at a general shareholders' meeting have the power, among other powers, to:

- amend the bylaws;
- elect or dismiss members of the Board of Directors and members of the Fiscal Council at any time;
- establish the compensation of senior management and members of the Fiscal Council;
- receive annual reports by management and accept or reject management's consolidated financial statements and recommendations including the allocation of net profits and the distributable amount for payment of the mandatory dividend and allocation to the various reserve accounts;
- authorize the issuance of convertible and secured debentures;
- suspend the rights of a shareholder in default of obligations established by law or by the bylaws;
- accept or reject the valuation of assets contributed by a shareholder in consideration for issuance of capital stock;
- pass resolutions to reorganize our legal form, to merge, consolidate or split us, to dissolve and liquidate us, to elect and dismiss our liquidators and to examine their accounts; and
- authorize management to file for bankruptcy or to request a judicial restructuring.

Pursuant to the *Comissão de Valores Mobiliários (CVM)* recommendations, all general shareholders' meetings, including the annual shareholders' meeting, require no fewer than 21 days' notice to shareholders prior to the scheduled meeting date. Where any general shareholders' meeting is adjourned, 8 days' prior notice to shareholders of the reconvened meeting is required. Pursuant to Brazilian corporate law, a summary of this notice to shareholders is required to be published no fewer than three times, in a newspaper with general circulation in the city where we have our registered office, in Rio de Janeiro, with the simultaneous disclosure of the entire documents on the internet website of such newspaper. We have currently designated *Valor Econômico* as the newspaper for this purpose. Such notice must contain the agenda for the meeting and, in the case of an amendment to our bylaws, an indication of the meeting's subject matter. In addition, under our bylaws, the holder of the golden shares is entitled to a minimum of 15 days' prior formal notice to its legal representative of any general shareholders' meeting to consider any proposed action subject to the veto rights accorded to the golden shares.

A shareholders' meeting may be held if shareholders representing at least one-quarter of the voting capital are present, except, subject to other exceptions, for meetings convened to amend our bylaws, which require a quorum of at least two-thirds of the voting capital. If no such quorum is present, notice must again be given in the same manner described above, and a meeting may then be convened without any specific quorum requirement, subject to the minimum quorum and voting requirements for certain matters, as discussed below.

Except as otherwise provided by law, resolutions of a shareholders' meeting are passed by a simple majority vote, abstentions not being taken into account. Under Brazilian corporate law, the approval of shareholders representing at least one-half of the issued and outstanding voting shares is required for the types of action described below, as well as, in the case of the first two items below, a majority of issued and outstanding shares of the affected class:

- creating a new class of preferred shares with greater privileges than the golden shares or changing a priority, preference, right, privilege or condition of redemption or amortization of the golden shares;
- reducing the mandatory dividend;
- changing the corporate purposes;
- merging us with another company or consolidating or splitting us;
- participating in a centralized group of companies as defined under Brazilian corporate law;
- dissolving or liquidating us; and
- canceling any ongoing liquidation of us.

Whenever the shares of any class of capital stock are entitled to vote, each share is entitled to one vote. Annual shareholders' meetings must be held by April 30 of each year. Shareholders' meetings are called, convened and presided over by the chairperson or, in case of his absence, by the vice-chairperson of our Board of Directors. In the case of temporary impediment or absence of the chairperson or vice-chairperson of the Board of Directors, the shareholders' meetings may be chaired by a director or other person especially appointed by the chairperson of the Board of Directors.

A shareholder may be represented at a general shareholders' meeting by a proxy appointed in accordance with applicable Brazilian law not more than one year before the meeting, who must be a shareholder, a company officer, a lawyer or a financial institution. If the proxy document is in a foreign language, it must be accompanied by corporate documents or a power of attorney, as applicable, each duly translated into Portuguese by a sworn translator. Notarization and consularization of proxies and supporting documents is not required. Proxies and supporting documents in English or Spanish do not require translation.

Holders of our ADRs are not entitled to vote directly in our shareholders meetings. Holders of ADRs should exercise their voting right pursuant to the depository agreement. For more information, see Exhibit 2 to this annual report.

### **Redemption rights**

Our common shares and golden shares are not redeemable, except that a dissenting shareholder is entitled under Brazilian corporate law to obtain redemption upon a decision made at a shareholders' meeting approving any of the items listed above, as well as:

- any decision to transfer all of our shares to another company in order to make us a wholly owned subsidiary of such company, a stock merger;
- any decision to approve the acquisition of control of another company at a price which exceeds certain limits set forth in Brazilian corporate law; or
- in the event that the entity resulting from (i) a merger, (ii) a stock merger as described above or (iii) a spin-off that we conduct fails to become a listed company within 120 days of the general shareholders' meeting at which such decision was taken.

The right of redemption triggered by shareholder decisions to merge, consolidate or to participate in a centralized group of companies may only be exercised if our shares do not satisfy certain tests of liquidity, among others, at the time of the shareholder resolution. The right of redemption lapses 30 days after publication of the minutes of the relevant general shareholders' meeting, unless the resolution is subject to confirmation by the holder of golden shares (which must be made at a special meeting to be held within one year), in which case the 30-day term is counted from the publication of the minutes of the special meeting.

We would be entitled to reconsider any action giving rise to redemption rights within 10 days following the expiration of such rights if the redemption of shares of dissenting shareholders would jeopardize our financial stability. Any redemption pursuant to Brazilian corporate law would be made at no less than the book value per share, determined on the basis of the last balance sheet approved by the shareholders; provided that if the general shareholders' meeting giving rise to redemption rights occurred more than 60 days after the date of the last approved balance sheet, a shareholder would be entitled to demand that his or her shares be valued on the basis of a new balance sheet dated within 60 days of such general shareholders' meeting.

### **Preemptive rights**

Each of our shareholders has a general preemptive right to subscribe for shares in any capital increase, in proportion to his or her shareholding. A minimum period of 30 days following the publication of notice of a capital increase is assured for the exercise of the right, and the right is transferable. Under our bylaws and Brazilian corporate law, and subject to the requirement for shareholder approval of any necessary increase to our authorized share capital, our Board of Directors may decide not to extend preemptive rights to our shareholders, or to reduce the 30-day period for the exercise of preemptive rights, in each case with respect to any issuance of shares, debentures convertible into shares or warrants in the context of a public offering.

### **Tag-along rights and mandatory tender offers**

In accordance with Novo Mercado listing rules and our bylaws:



- in case of a transfer of control, the purchaser must conduct a tender offer to purchase any and all of our common shares for the same price paid for the voting shares representing control;
- in case of a proposed delisting from the Novo Mercado segment of B3, the controlling shareholder must conduct a public offer to acquire any and all of our common shares for a price corresponding to the economic value of the shares, as determined in an independent appraisal valuation; and
- any shareholder who acquires 25% of our outstanding capital stock must, within 30 days after the date in which such shareholder achieved the 25% stake, make a tender offer for any and all of our common shares (*oferta pública para aquisição*) for a price equal to the greatest of (i) the economic value of the shares, (ii) 120% of the weighted average price of our common shares in the 60 trading days preceding the announcement of the tender offer and (iii) 120% of the highest price paid by the purchaser in the 12 months before achieving the 25% stake.

### Calculation of distributable amount

At each Annual shareholders' meeting, the Board of Directors is required to recommend, based on the executive officers' proposal, how to allocate our earnings for the preceding fiscal year. For purposes of Brazilian corporate law, a company's net income after income taxes and social contribution taxes for such fiscal year, net of any accumulated losses from prior fiscal years and amounts allocated to employees' and management's participation in earnings represents its "net profits" for such fiscal year. In accordance with Brazilian corporate law, an amount equal to our net profits, as further reduced by amounts allocated to the legal reserve, to the fiscal incentive investment reserve, to the contingency reserve or to the unrealized income reserve established by us in compliance with applicable law (discussed below) and increased by reversals of reserves constituted in prior years, is available for distribution to shareholders in any given year. Such amount, the adjusted net profits, is referred to herein as the distributable amount. We may also establish discretionary reserves, such as reserves for investment projects.

Brazilian corporate law provides that all discretionary allocations of net profits, including discretionary reserves, the contingency reserve, the unrealized income reserve and the reserve for investment projects, are subject to approval by the shareholders voting at the annual meeting and can be transferred to capital or used for the payment of dividends in subsequent years. The fiscal incentive investment reserve and legal reserve are also subject to approval by the shareholders voting at the annual meeting and may be transferred to capital but are not available for the payment of dividends in subsequent years.

The sum of certain discretionary reserves may not exceed the amount of our paid-in capital. When such limit is reached, our shareholders may vote to use the excess to pay in capital, increase capital or distribute dividends.

Our calculation of net profits and allocations to reserves for any fiscal year are determined on the basis of the unconsolidated financial statements of our parent company, Vale S.A., in *reais*, prepared in accordance with Brazilian corporate law. Our consolidated financial statements have been prepared in accordance with IFRS using U.S. dollars as the reporting currency and, although our allocations to reserves and dividends will be reflected in these financial statements, investors will not be able to calculate such allocations or required dividend amounts from our consolidated financial statements in U.S. dollars.

### Mandatory dividend

The Brazilian corporate law and our bylaws require us to distribute to our shareholders, in the form of dividends or interest on shareholders' equity, an annual amount equal to not less than 25% of the distributable amount, referred to as the mandatory dividend, unless the Board of Directors advises our shareholders at our general shareholders' meeting that payment of the mandatory dividend for the preceding year is not advisable in light of our financial condition. To date, our Board of Directors has never determined that payment of the mandatory dividend was not advisable. The Fiscal Council must review any such determination and report it to the shareholders. In addition to the mandatory dividend, our Board of Directors may recommend to the shareholders payment of dividends from other funds legally available. Therefore, any payment of interim dividends will be netted against the amount of the mandatory dividend for that fiscal year. The shareholders must also approve the recommendation of the Board of Directors with respect to any required distribution. The amount of the mandatory dividend is subject to the size of the legal reserve, the contingency reserve, and the unrealized income reserve. The amount of the mandatory dividend is not subject to the size of the discretionary tax incentive reserve. See *Additional Information—Bylaws—Common Shares and Golden Shares—Calculation of Distributable Amount*.



**Distributions classified as interest on equity**

Brazilian companies are permitted to pay limited amounts to shareholders and treat such payments as an expense for Brazilian income tax purposes. Our bylaws provide for the distribution of interest on shareholders' equity as an alternative form of payment to shareholders. The interest rate applied is limited to the Brazilian long-term interest rate, or TJLP, for the applicable period. The deduction of the amount of interest paid cannot exceed the greater of (1) 50% of net income (after the deduction of the provision of social contribution on net profits and before the deduction of the provision of the corporate income tax) before taking into account any such distribution for the period in respect of which the payment is made or (2) 50% of the sum of retained earnings and profit reserves. Any payment of interest on shareholders' equity is subject to Brazilian withholding income tax. See *Additional Information—Taxation—Brazilian Tax Considerations*. Under our bylaws, the amount paid to shareholders as interest on shareholders' equity (net of any withholding tax) may be included as part of any mandatory and minimum dividend. Under Brazilian corporate law, we are obligated to distribute to shareholders an amount sufficient to ensure that the net amount received, after payment by us of applicable Brazilian withholding taxes in respect of the distribution of interest on shareholders' equity, is at least equal to the mandatory dividend.

**Form and transfer of shares**

Our common shares and golden shares are in book-entry form registered in the name of each shareholder. The transfer of such shares is made under Brazilian corporate law, which provides that a transfer of shares is effected by our transfer agent, Banco Bradesco, upon presentation of valid share transfer instructions to us by a transferor or its representative. When common shares are acquired or sold on a Brazilian stock exchange, the transfer is effected on the records of our transfer agent by a representative of a brokerage firm or the stock exchange's clearing system. Transfers of shares by a foreign investor are made in the same way and are executed by the investor's local agent, who is also responsible for updating the information relating to the foreign investment furnished to the Central Bank of Brazil.

The B3 operates a central clearing system through *Companhia Brasileira de Liquidação e Custódia* (CBLC). A holder of our shares may participate in this system and all shares elected to be put into the system will be deposited in custody with CBLC (through a Brazilian institution that is duly authorized to operate by the Central Bank of Brazil and maintains a clearing account with CBLC). The fact that such shares are subject to custody with the relevant stock exchange will be reflected in our registry of shareholders. Each participating shareholder will, in turn, be registered in the register of our beneficial shareholders that is maintained by CBLC and will be treated in the same way as registered shareholders.

## PARTICIPATIVE SHAREHOLDERS' DEBENTURES

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At the time of the first stage of our privatization in 1997, we issued Brazilian law governed debentures known in Brazil as "*debêntures participativas*" to our then-existing shareholders. The terms of the debentures were established to ensure that our pre-privatization shareholders, including the Brazilian government, would participate alongside us in potential future financial benefits that we derive from exploiting certain mineral resources that were not taken into account in determining the minimum purchase price of our shares in the privatization. In accordance with the debentures deed, holders have the right to receive semi-annual payments equal to an agreed percentage of our net revenues (revenues less value-added tax, transport fee and insurance expenses related to the trading of the products) from certain identified mineral resources that we owned at the time of the privatization, to the extent that we exceed defined thresholds of sales volume relating to certain mineral resources, and from the sale of mineral rights that we owned at that time. Our obligation to make payments to the holders will cease when all the relevant mineral resources are exhausted, sold or otherwise disposed of by us.

We made available for withdrawal by holders of participative shareholders' debentures US\$243 million in 2024, US\$233 million in 2023 and US\$371 million in 2022. See note 23 to our consolidated financial statements for a description of the terms of the debentures.

## EXCHANGE CONTROLS AND OTHER LIMITATIONS AFFECTING SECURITY HOLDERS

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Under Brazilian corporate law, there are no restrictions on ownership of our capital stock by individuals or legal entities domiciled outside Brazil. However, the right to convert dividend payments and proceeds from the sale of common shares into foreign currency and to remit such amounts outside Brazil is subject to restrictions under foreign investment legislation, which generally requires, among other things, that the relevant investment be registered with the Central Bank of Brazil. These restrictions on the remittance of foreign capital abroad could hinder or prevent the depository bank and its agents for the common shares represented by ADSs from converting dividends, distributions, or the proceeds from any sale of common shares or rights, as the case may be, into U.S. dollars and remitting such amounts abroad. Delays in, or refusal to grant any required government approval for conversions of Brazilian currency payments and remittances abroad of amounts owed to holders of ADSs could adversely affect holders of ADRs.

Under the *Conselho Monetário Nacional* - CMN Resolution 4,373 of 2014 (Resolution 4,373), foreign investors, defined to include individuals, legal entities, mutual funds and other collective investment entities, domiciled or headquartered outside Brazil, may invest in almost all financial assets and engage in almost all transactions available in the Brazilian financial and capital markets, provided that they:

- appoint at least one representative in Brazil, with powers to perform actions relating to its investment,
- complete the appropriate foreign investor registration form,
- register as a foreign investor with the CVM, and register its foreign investment with the Central Bank of Brazil, and
- appoint a custodian, duly licensed by the Central Bank of Brazil, if the Brazilian representative in item (i) is not a financial institution.

Resolution 4,373 specifies the manner of custody and the permitted means for trading securities held by foreign investors under the resolution. The offshore transfer or assignment of securities or other financial assets held by foreign investors pursuant to Resolution 4,373 is prohibited, except for transfers resulting from a corporate reorganization, or occurring upon the death of an investor by operation of law or will.

Resolution 4,373 also provides for the issuance of depository receipts in foreign markets in respect of shares of Brazilian issuers. It provides that the proceeds from the sale of ADSs by holders of ADRs outside Brazil are not subject to Brazilian foreign investment controls and holders of ADSs who are not residents of a low-tax jurisdiction (*país com tributação favorecida*), as defined by Brazilian law, will be entitled to favorable tax treatment.

An electronic registration has been issued to the custodian in the name of the depository with respect to the ADSs. Pursuant to this electronic registration, the custodian and the depository are able to convert dividends and other distributions with respect to the underlying shares into foreign currency and to remit the proceeds outside Brazil. If a holder exchanges ADSs for common shares, the holder must, within five business days, seek to obtain its own electronic registration with the Central Bank of Brazil under Law 4,131 of 1962 and Resolution 4,373. Thereafter, unless the holder has registered its investment with the Central Bank of Brazil, such holder may not convert into foreign currency and remit outside Brazil the proceeds from the disposition of, or distributions with respect to, such common shares.

Under Brazilian law, whenever there is a serious imbalance in Brazil's balance of payments or reasons to foresee a serious imbalance, the Brazilian government may impose temporary restrictions on the remittance to foreign investors of the proceeds of their investments in Brazil, and on the conversion of Brazilian currency into foreign currencies. Such restrictions may hinder or prevent the custodian or holders who have exchanged ADSs for underlying common shares from converting distributions or the proceeds from any sale of such shares, as the case may be, into U.S. dollars and remitting such U.S. dollars abroad. In the event the custodian is prevented from converting and remitting amounts owed to foreign investors, the custodian will hold the *reais* it cannot convert for the account of the holders of ADRs who have not been paid. The depository will not invest the *reais* and will not be liable for interest on those amounts. Any *reais* so held will be subject to devaluation risk against the U.S. dollar.

# TAXATION

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The following summary contains a description of the principal Brazilian and U.S. federal income tax consequences of the ownership and disposition of common shares or ADSs. You should know that this summary does not purport to be a comprehensive description of all the tax considerations that may be relevant to a holder of common shares or ADSs.

Holders of common shares or ADSs should consult their own tax advisors to discuss the tax consequences of the purchase, ownership and disposition of common shares or ADSs, including, in particular, the effect of any state, local or other national tax laws.

Although there is at present no treaty to avoid double taxation between Brazil and the United States, both countries' tax authorities have been having discussions that may result in the execution of such a treaty. In this regard, the two countries signed a Tax Information Exchange Agreement on March 20, 2007, which the Brazilian government approved in May 2013. We cannot predict whether or when such a treaty will enter into force or how, if entered into, such a treaty will affect the U.S. holders, as defined below, of common shares or ADSs.

## **BRAZILIAN TAX CONSIDERATIONS**

The following discussion summarizes the principal Brazilian tax consequences of the acquisition, ownership and disposition of common shares or ADSs by a holder not deemed to be domiciled in Brazil for purposes of Brazilian taxation (Non-Resident Holder). It is based on the tax laws of Brazil and regulations thereunder in effect on the date hereof, which are subject to change (possibly with retroactive effect). This discussion does not specifically address all of the Brazilian tax considerations applicable to any particular Non-Resident Holder. Therefore, Non-Resident Holders should consult their own tax advisors concerning the Brazilian tax consequences of an investment in common shares or ADSs.

### **Shareholder distributions**

For Brazilian corporations, such as our, distributions to shareholders are classified as either dividend or interest on shareholders' equity.

### **Dividends**

Amounts distributed as dividends will generally not be subject to Brazilian withholding income tax if the distribution is paid only from profits for the corresponding year, as determined under Brazilian tax principles. Dividends paid from profits generated before January 1, 1996, may be subject to Brazilian withholding income tax at varying rates depending on the year the profits were generated. Dividends paid from sources other than profits as determined under Brazilian tax principles may be subject to withholding tax.

### **Interest on shareholders' equity**

Amounts distributed as interest on shareholders' equity are generally subject to withholding income tax at the rate of 15%, except where:

- the beneficiary is exempt from tax in Brazil, in which case the distribution will not be subject to withholding income tax;
- the beneficiary is located in a jurisdiction that does not impose income tax or where the maximum income tax rate is lower than 17% (a "Low Tax Jurisdiction") or where internal legislation imposes restrictions on the disclosure of the shareholding structure or the ownership of the investment, as listed by the Brazilian federal tax authority in which case the applicable withholding income tax rate is 25%; or
- the effective beneficiary is resident in Japan, in which case the applicable withholding income tax rate is 12.5%.

Interest on shareholders' equity is calculated according to the application of an interest rate on the sum of the following accounts: (i) paid-in share capital, (ii) excess capital reserve and capital reserves, (iii) profits reserves, except for tax incentives reserves, (iv) treasury stocks, and (v) accumulated losses or profits. The interest rate applied may not exceed the TJLP, the benchmark Brazilian long-term interest rate. In addition, the amount of distributions classified as interest on shareholders' equity shall not exceed the larger of (1) 50% of net income (after the deduction of social contribution on net profits but before taking into account such payment of interest and the provision for corporate income tax) for the period in respect of which the payment is made and (2) 50% of the sum of retained earnings and profit reserves.

Payments of interest on shareholders' equity are deductible for the purposes of corporate income tax and social contribution on net profit, to the extent of the limits described above. The benefit of a distribution by way of interest on shareholders' equity is a reduction in our corporate tax charge by an amount equivalent to 34% of such distribution.

### **Taxation of capital gains**

Taxation of Non-Resident Holders on capital gains depends on the status of the holder as either:

- a holder that is not resident or domiciled in a Low Tax Jurisdiction, or in a jurisdiction where internal legislation imposes restrictions on the disclosure of shareholding structure or the ownership of the investment, and that has registered its investment in Brazil in accordance with Resolution 4,373 (a 4,373 Holder), or (ii) a holder of ADSs; or
- any other Non-Resident Holder.

Investors identified in items (i) or (ii) are subject to favorable tax treatment, as described below.

Capital gains realized by a Non-Resident Holder from the disposition of "assets located in Brazil" are subject to taxation in Brazil. Common shares qualify as assets located in Brazil, and the disposition of such assets by a Non-Resident Holder may be subject to income tax on the gains accrued, in accordance with the rules described below, regardless of whether the transaction is carried out with another non-Brazilian resident or with a Brazilian resident.

There is some uncertainty as to whether ADSs qualify as "assets located in Brazil" for this purpose. Arguably, the ADSs do not constitute assets located in Brazil and therefore the gains realized by any Non-Resident Holder on the disposition of ADSs should not be subject to income tax in Brazil. However, it is not certain that the Brazilian courts will uphold this interpretation of the definition of "assets located in Brazil" in connection with the taxation of gains realized by a Non-Resident Holder on the disposition of ADSs. Consequently, gains on a disposition of ADSs by a Non-Resident Holder (whether in a transaction carried out with another Non-Resident Holder or a person domiciled in Brazil) may be subject to income tax in Brazil in accordance with the rules applicable to a disposition of shares.

Although there are arguments to the contrary, the deposit of common shares in exchange for ADSs may be subject to Brazilian income tax if the acquisition cost of the shares being deposited is lower than the average price, determined as either:

- the average price per common share on the Brazilian stock exchange in which the greatest number of such shares were sold on the day of deposit; or
- if no common shares were sold on that day, the average price on the Brazilian stock exchange in which the greatest number of common shares were sold in the 15 trading sessions immediately preceding such deposit.

The positive difference between the average price of the common shares calculated as described above and their acquisition cost will be considered to be a capital gain subject to income tax in Brazil. In some circumstances, there are grounds to conclude that such taxation is not applicable with respect to any a 4,373 Holder, provided such holder is not located in a Low Tax Jurisdiction.

The withdrawal of common shares by holders in exchange for ADSs is not subject to Brazilian income tax, subject to compliance with applicable regulations regarding the registration of the investment with the Central Bank of Brazil.

For the purpose of Brazilian taxation, the income tax rules on gains related to disposition of common shares vary depending on:

- the residence of domicile of the Non-Resident Holder;
- the method by which such Non-Resident Holder has registered his investment with the Central Bank of Brazil; and
- how the disposition is carried out, as described below.

The gain realized as a result of a transaction on a Brazilian stock exchange is the difference between: (i) the amount in Brazilian currency realized on the sale or disposition and (ii) the acquisition cost, without any adjustment for inflation, of the securities that are the subject of the transaction.

Under the applicable rules, any gain realized by a Non-Resident Holder on a sale or disposition of common shares carried out on the Brazilian stock exchange is:

- exempt from income tax where the Non-Resident Holder (i) is a 4,373 Holder; and (ii) is not located in a Low Tax Jurisdiction;
- subject to income tax at a rate of 15% where the Non-Resident Holder (i) is not a 4,373 Holder and (ii) is not resident or domiciled in a Low Tax Jurisdiction; or
- subject to income tax at a rate of 25% where the Non-Resident Holder (i) is not a 4,373 Holder and (ii) is resident or domiciled in a Low Tax Jurisdiction.

The above summary applies to different investment scenarios. The understanding of tax authorities may change from time to time, and you should consult your tax advisors with regard to the application of the rates to your specific case.

The sale or disposition of common shares carried out on the Brazilian stock exchange is subject to withholding tax at the rate of 0.005% on the sale value. This withholding tax can be offset against the eventual income tax due on the capital gain. A 4,373 Holder that is not resident or domiciled in a Low Tax Jurisdiction is not subject to this withholding tax.

Since January 1, 2017, the capital gains realized by Non-Residents Holders and individuals resident in Brazil are subject to income tax (i) at progressive rates ranging from 15% to 22.5%, where the Non-Resident Holder is not a 4,373 Holder and is not resident or domiciled in a Low Tax Jurisdiction or (ii) at a rate of 25% where the Non-Resident Holder is resident or domiciled in a Low Tax Jurisdiction.

With respect to transactions arranged by a broker that are conducted on the Brazilian non-organized over-the-counter market, a withholding income tax at a rate of 0.005% on the sale value is levied on the transaction and can be offset against the eventual income tax due on the capital gain.

In the case of a redemption of common shares or ADSs or a capital reduction by a Brazilian corporation, the positive difference between the amount received by any Non-Resident Holder and the acquisition cost of the common shares or ADSs being redeemed is treated as capital gain and is therefore generally subject to income tax at the progressive rate from 15% to 22.5%, while the 25% rate applies to residents in a Low Tax Jurisdiction.

Any exercise of pre-emptive rights relating to our common shares will not be subject to Brazilian taxation. Any gain realized by a Non-Resident Holder on the disposition of pre-emptive rights relating to common shares in Brazil will be subject to Brazilian income taxation in accordance with the same rules applicable to the sale or disposition of common shares.

### **Tax on foreign exchange and financial transactions**

#### **Foreign exchange transactions**

Brazilian law imposes a tax on foreign exchange transactions, or an IOF/Exchange Tax, due on the conversion of *reais* into foreign currency and on the conversion of foreign currency into *reais*. Currently, for most foreign currency exchange transactions, the rate of IOF/Exchange Tax is 0.38%.

The outflow of resources from Brazil related to investments held by a Non-Resident Holder in the Brazilian financial and capital markets is currently subject to IOF/Exchange Tax at a zero percent rate. In any case, the Brazilian government may increase such rates at any time, up to 25%, with no retroactive effect.

#### **Transactions involving securities**

Brazilian law imposes a tax on transactions involving securities, or an IOF/Securities Tax, including those carried out on the Brazilian stock exchange. The rate of IOF/Securities Tax applicable to transactions involving publicly traded securities in Brazil is currently zero. The rate of IOF/Securities Tax applicable to a transfer of shares traded on the Brazilian stock exchange to back the issuance of depositary receipts has also been zero since December 24, 2013. However, the Brazilian Government may increase such rates at any time up to 1.5% of the transaction amount per day, but the tax cannot be applied retroactively.

### **Other Brazilian taxes**

There are no Brazilian inheritance, gift or succession taxes applicable to the ownership, transfer or disposition of common shares or ADSs by a Non-Resident Holder, except for gift and inheritance taxes which are levied by some states of Brazil on gifts made or inheritances bestowed by a Non-Resident Holder to individuals or entities resident or

domiciled within such states in Brazil or to another Non-Resident Holder. There are no Brazilian stamp, issue, registration, or similar taxes or duties payable by holders of common shares or ADS.

### **U.S. FEDERAL INCOME TAX CONSIDERATIONS**

This summary does not purport to be a comprehensive description of all the U.S. federal income tax consequences of the acquisition, holding or disposition of the common shares or ADSs. This summary applies to U.S. holders, as defined below, who hold their common shares or ADSs as capital assets and does not apply to special classes of holders, such as:

- certain financial institutions;
- insurance companies;
- brokers or dealers in securities or foreign currencies;
- tax-exempt organizations;
- securities traders who elect to account for their investment in common shares or ADSs on a mark-to-market basis;
- persons holding common shares or ADSs as part of hedge, straddle, conversion or other integrated financial transactions for tax purposes;
- holders whose functional currency for U.S. federal income tax purposes is not the U.S. dollar;
- partnerships or other holders treated as “pass-through entities” for U.S. federal income tax purposes (or partners therein);
- former citizens or residents of the United States; or
- persons owning, actually or constructively through attribution rules, 10% or more of our voting shares or the total value of all classes of shares.

This discussion is based on the Internal Revenue Code of 1986, as amended to the date hereof, administrative pronouncements, judicial decisions and final, temporary and proposed Treasury Regulations, all as in effect on the date hereof. These authorities are subject to differing interpretations and may be changed, perhaps retroactively, so as to result in U.S. federal income tax consequences different from those discussed below. There can be no assurance that the U.S. Internal Revenue Service (the IRS) will not challenge one or more of the tax consequences discussed herein or that a court will not sustain such a challenge in the event of litigation. This summary does not address the Medicare tax on net investment income, the alternative minimum tax, U.S. federal estate and gift taxes, or any aspect of state, local or non-U.S. tax law.

YOU SHOULD CONSULT YOUR TAX ADVISORS WITH REGARD TO THE APPLICATION OF THE U.S. FEDERAL INCOME TAX LAWS TO YOUR PARTICULAR SITUATIONS AS WELL AS ANY TAX CONSEQUENCES ARISING UNDER THE LAWS OF ANY STATE, LOCAL OR NON-U.S. TAXING JURISDICTION.

This discussion is also based, in part, on representations of the depository and the assumption that each obligation in the deposit agreement and any related agreement will be performed in accordance with its terms.

For purposes of this discussion, you are a “U.S. holder” if you are a beneficial owner of common shares or ADSs that is, for U.S. federal income tax purposes:

- a citizen or resident alien individual of the United States;
- a corporation created or organized in or under the laws of the United States or of any political subdivision thereof; or
- otherwise, subject to U.S. federal income taxation on a net income basis with respect to common shares or ADSs.

In general, if you are the beneficial owner of American depository receipts evidencing ADSs, you will be treated as the beneficial owner of the common shares represented by those ADSs for U.S. federal income tax purposes. Deposits and withdrawals of common shares by you in exchange for ADSs will not result in the realization of gain or loss for U.S. federal income tax purposes. Your tax basis in such common shares will be the same as your tax basis in such ADSs, and the holding period in such common shares will include the holding period in such ADSs.



### Taxation of dividends

The gross amount of a distribution paid on ADSs or common shares, including distributions paid in the form of payments of interest on shareholder's equity for Brazilian tax purposes, out of our current or accumulated earnings and profits (as determined for U.S. federal income tax purposes) generally will be taxable to you as foreign source dividend income and generally will not be eligible for the dividends-received deduction allowed to corporate shareholders under U.S. federal income tax law. The amount of any such distribution will include the amount of Brazilian withholding taxes, if any, withheld on the amount distributed. To the extent that a distribution exceeds our current and accumulated earnings and profits, such distribution will be treated as a nontaxable return of capital to the extent of your basis in the ADSs or common shares, as the case may be, with respect to which such distribution is made, and thereafter as a capital gain.

We do not expect to maintain calculations of our earnings and profits in accordance with U.S. federal income tax principles. You therefore should expect that distributions generally will be treated as dividends for U.S. federal income tax purposes.

You generally will be required to include dividends paid in *reais* in income in an amount equal to their U.S. dollar value calculated by reference to an exchange rate in effect on the date such distribution is received by the depository, in the case of ADSs, or by you, in the case of common shares. If the depository or you do not convert such *reais* into U.S. dollars on the date they are received, it is possible that you will recognize foreign currency loss or gain, which generally would be treated as ordinary loss or gain from sources within the United States, when the *reais* are converted into U.S. dollars. If you hold ADSs, you will be considered to receive a dividend when the dividend is received by the depository.

The U.S. dollar amount of dividends received by certain non-corporate taxpayers, including individuals, will be subject to taxation at the preferential rates applicable to long-term capital gains if the dividends are "qualified dividends." Subject to certain exceptions for short-term and hedged positions, dividends paid on the ADSs will be treated as qualified dividends if (i) the ADSs are readily tradable on an established securities market in the United States and (ii) the Company was not, in the year prior to the year in which the dividend was paid, and is not, in the year in which the dividend is paid, a passive foreign investment company (PFIC). The ADSs are listed on the New York Stock Exchange and will qualify as readily tradable on an established securities market in the United States so long as they are so listed. Based on our audited consolidated financial statements and relevant market and shareholder data, we believe that it was not treated as a PFIC for U.S. federal income tax purposes with respect to its 2023 or 2024 taxable years. In addition, based on Vale's audited consolidated financial statements and its current expectations regarding the value and nature of its assets, the sources and nature of its income, and relevant market and shareholder data, we do not anticipate becoming a PFIC for its 2025 taxable year.

Based on existing guidance, it is not entirely clear whether dividends received with respect to common shares will be treated as qualified dividends (and therefore whether such dividends will qualify for the preferential rates of taxation applicable to long-term capital gains), because the common shares are not themselves listed on a U.S. exchange. You should consult your own tax advisors regarding the availability of the reduced dividend tax rate in light of your own particular circumstances.

Subject to generally applicable limitations and conditions, you may be entitled to a credit against your U.S. federal income tax liability, or a deduction in computing your U.S. federal taxable income, for Brazilian income taxes withheld by us at the appropriate rate applicable to the U.S. holder. These generally applicable limitations and conditions include requirements adopted by the U.S. Internal Revenue Service (IRS) in regulations promulgated in December 2021 and any Brazilian tax generally will need to satisfy these requirements in order to be eligible to be a creditable tax. In the case of a U.S. Holder that consistently elects to apply a modified version of these rules under recently issued temporary guidance and complies with specific requirements set forth in such guidance, the Brazilian tax on dividends will be treated as meeting the new requirements and therefore as a creditable tax. In the case of all other U.S. holders, the application of these requirements is uncertain and we have not determined whether these requirements have been met. If the Brazilian tax is not a creditable tax or the U.S. holder does not elect to claim a foreign tax credit for any foreign income taxes paid or accrued in the same taxable year, the U.S. Holder may be able to deduct the Brazilian tax in computing such U.S. Holder's taxable income for U.S. federal income tax purposes. Dividend distributions will constitute income from sources without the United States and, for U.S. holders that elect to claim foreign tax credits, generally will constitute "passive category income" for foreign tax credit purposes. The availability and calculation of foreign tax credits and deductions for foreign taxes depend on their particular circumstances and involve the application



of complex rules to those circumstances. The temporary guidance discussed above also indicates that the Treasury and the IRS are considering proposing amendments to the December 2021 regulations and that the temporary guidance can be relied upon until additional guidance is issued that withdraws or modifies the temporary guidance. You should consult your own tax advisors concerning the implications of these rules in light of your particular circumstances.

### **Taxation of capital gains**

Upon a sale or exchange of common shares or ADSs, you generally will recognize a capital gain or loss for U.S. federal income tax purposes equal to the difference, if any, between the amount realized on the sale or exchange and your adjusted tax basis in the common shares or ADSs, in each case, as determined in U.S. dollars. If a Brazilian tax is withheld on the sale or disposition of common shares or ADSs, the amount realized by a U.S. holder will include the gross amount of the proceeds of such sale or disposition before deduction of the Brazilian tax. For more information, see —*Brazilian Tax Considerations* above. This gain or loss will be long-term capital gain or loss if your holding period in the common shares or ADSs exceeds one year. The net amount of long-term capital gain recognized by individual U.S. holders generally is subject to taxation at preferential rates. Your ability to use capital losses to offset income is subject to limitations. U.S. holders should consult their own tax advisors about how to account for proceeds received on the sale or exchange of common shares that are not paid in U.S. dollars.

A U.S. holder generally will not be entitled to credit any Brazilian tax imposed on the sale or other disposition of the shares against such U.S. holder's U.S. federal income tax liability, unless you consistently elect to apply a modified version of the U.S. foreign tax credit rules that is permitted under recently issued temporary guidance and you comply with the specific requirements set forth in such guidance. Additionally, capital gain or loss recognized by a U.S. Holder on the sale or other disposition of the shares generally will be U.S. source gain or loss for U.S. foreign tax credit purposes. Consequently, even if the withholding tax qualifies as a creditable tax, a U.S. Holder may not be able to credit the tax against its U.S. federal income tax liability unless such credit can be applied (subject to generally applicable conditions and limitations) against tax due on other income treated as derived from foreign sources. If the Brazilian tax is not a creditable tax, the tax would reduce the amount realized on the sale or other disposition of the shares even if you have elected to claim a foreign tax credit for other taxes in the same year. The temporary guidance discussed above also indicates that the Treasury and the IRS are considering proposing amendments to the December 2021 regulations and that the temporary guidance can be relied upon until additional guidance is issued that withdraws or modifies the temporary guidance. You should consult your own tax advisor regarding the application of the foreign tax credit rules to your investment in, and disposition of, ADSs or common shares.

### **Foreign financial asset reporting**

Certain U.S. holders that own "specified foreign financial assets" with an aggregate value in excess of US\$50,000 on the last day of the taxable year or US\$75,000 at any time during the taxable year are generally required to file an information statement along with their tax returns, currently on IRS Form 8938, with respect to such assets. "Specified foreign financial assets" include any financial accounts held at a non-U.S. financial institution, as well as securities issued by a non-U.S. issuer that are not held in accounts maintained by financial institutions. Higher reporting thresholds apply to certain individuals living abroad and to certain married individuals. Regulations extend this reporting requirement to certain entities that are treated as formed or availed of to hold direct or indirect interests in "specified foreign financial assets" based on certain objective criteria. The understatement of income attributable to "specified foreign financial assets" in excess of US\$5,000 extends the statute of limitations with respect to the tax return to six years after the return was filed. U.S. holders who fail to report the required information could be subject to substantial penalties. You are encouraged to consult with your own tax advisors regarding the possible application of these rules, including the application of the rules to your particular circumstances.

### **Information reporting and backup withholding**

Information returns may be filed with the IRS in connection with distributions on the common shares or ADSs and the proceeds from their sale or other disposition. You may be subject to U.S. federal backup withholding tax on these payments if you fail to provide your taxpayer identification number or comply with certain certification procedures or otherwise establish an exemption from backup withholding. If you are required to make such a certification or to establish such an exemption, you generally must do so on IRS Form W-9.

Backup withholding is not an additional tax. The amount of any backup withholding from a payment to you will be allowed as a credit against your U.S. federal income tax liability and may entitle you to a refund, provided that the required information is timely furnished to the IRS.

A holder that is a non-U.S. corporation or a non-resident alien individual may be required to comply with certification and identification procedures in order to establish its exemption from information reporting and backup withholding.

# CONTROLS AND PROCEDURES

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## **EVALUATION OF DISCLOSURE CONTROLS AND PROCEDURES**

Our management, with the participation of our chief executive officer and chief financial officer, has evaluated the effectiveness of our disclosure controls and procedures as of December 31, 2024. There are inherent limitations to the effectiveness of any system of disclosure controls and procedures, including the possibility of human error and the circumvention or overriding of the controls and procedures. Accordingly, even effective disclosure controls and procedures can only provide reasonable assurance of achieving their control objectives.

Our chief executive officer and chief financial officer have concluded that as of December 31, 2024 our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, were effective to provide reasonable assurance that information required to be disclosed by us in the reports filed or submitted under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the applicable rules and forms, and that it is accumulated and communicated to our management, including our chief executive officer and chief financial officer, as appropriate to allow timely decisions regarding required disclosure.

## **MANAGEMENT'S REPORT ON INTERNAL CONTROL OVER FINANCIAL REPORTING**

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act). Our internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of consolidated financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the Company; (ii) provide reasonable assurance that transactions are recorded to permit preparation of consolidated financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the consolidated financial statements. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of the effectiveness to future periods are subject to the risk that controls may become inadequate and that the degree of compliance with the policies or procedures may deteriorate.

Our management has assessed the effectiveness of our internal control over financial reporting as of December 31, 2024, based on the criteria established in "Internal Control—Integrated Framework (2013)" issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on such assessment and criteria, our management has concluded that our internal control over financial reporting was effective as of December 31, 2024.

## **AUDIT OF THE EFFECTIVENESS OF INTERNAL CONTROL OVER FINANCIAL REPORTING**

The effectiveness of our internal control over financial reporting as of December 31, 2024, has been audited by PricewaterhouseCoopers Auditores Independentes Ltda., an independent registered public accounting firm, as stated in their report which appears herein.

## **CHANGES IN INTERNAL CONTROL OVER FINANCIAL REPORTING**

Our management identified no change in our internal control over financial reporting during our fiscal year ended December 31, 2024, that has materially affected or is reasonably likely to materially affect our internal control over financial reporting.

## CORPORATE GOVERNANCE

Under NYSE rules, foreign private issuers are subject to more limited corporate governance requirements than U.S. domestic issuers. As a foreign private issuer, we must comply with four principal NYSE corporate governance rules: (1) we must satisfy the requirements of Exchange Act Rule 10A-3 relating to Audit Committees; (2) our chief executive officer must promptly notify the NYSE in writing after any executive officer becomes aware of any non-compliance with the applicable NYSE corporate governance rules; (3) we must provide the NYSE with annual and interim written affirmations as required under the NYSE corporate governance rules; and (4) we must provide a brief description of any significant differences between our corporate governance practices and those followed by U.S. companies under NYSE listing standards. In the table below we compare our practices and the practices of U.S. domestic issuers under NYSE corporate governance rules.

Since 2018, we also report our compliance with the Brazilian Corporate Governance Code of the Brazilian Corporate Governance Institute (*Instituto Brasileiro de Governança Corporativa – IBGC*), as required by Brazilian regulations. The code is based on the “comply or explain” principle, and we currently fully comply with 100% of the practices recommended by the IBGC.

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.01	A listed company must have a majority of independent directors.	We fully comply with this requirement. Our bylaws provide for a Board of Directors consisting of 11 to 13 members and require that at least seven directors be independent.
303A.03	The non-management directors of a listed company must meet at regularly scheduled executive sessions without management.	We do not have any management directors. Our directors meet at regularly scheduled sessions without management.
303A.04	A listed company must have a nominating/corporate governance committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties.	<p>We have a Nomination and Governance Committee required to be composed of a majority of independent directors. According to its charter, the Nomination and Governance Committee shall be composed of three to five directors, including the Chairperson of our Board of Directors and a majority of independent members. For the current composition of the Nomination and Governance Committee, see <i>Management and Employees—Management—Other Advisory Committees to the Board of Directors</i>.</p> <p>According to its charter, such committee is responsible, among other matters, for:</p> <ul style="list-style-type: none"> <li>- recommending internal policies and rules regarding the nomination of members of the Board of Directors, Advisory Committees and our Chairperson, in compliance with the applicable legal requirements and best corporate governance practices;</li> <li>- assessing the evolution and continuous improvement of our corporate governance practices, also regarding the structure, duties, size and composition of the Board of Directors and the Advisory Committees, aiming at a balance of experiences, knowledge and diversity in the profile of its members;</li> <li>- reviewing our governance system on a yearly basis;</li> <li>- recommending the appropriate profile of applicants for member of the Board of Directors and Advisory</li> </ul>

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
		<p>Committees, and that best suits our needs, according to the criteria and guidelines set forth in the internal policies and norms on the topic;</p> <ul style="list-style-type: none"> <li>- assessing potential applicants for the position of Director and member of the Advisory Committees, according to the criteria and guidelines set forth in our internal policies and norms, for further analysis by the Board of Directors, and potential election by our general shareholders' meeting;</li> <li>- assessing potential candidates to replace any individuals in a situation of impediment and vacancy in the positions of Director and member of the Advisory Committees according to our bylaws and internal policies;</li> <li>- assessing the independence of Directors, indicating and justifying any circumstances that may affect this condition;</li> <li>- recommending the succession plan of the Board of Directors, which shall be submitted for approval by the end of the term of office, so as to maintain the balance of experiences, the knowledge and diversity of profile of its members;</li> <li>- assessing the performance of the Board of Directors and the Advisory Committees;</li> <li>- recommending the selection, compensation, annual performance assessment, succession plan and removal of the General Corporate Governance Secretary;</li> <li>- recommending the strategy and guidelines for our corporate governance documents, including our corporate policies, bylaws, Code of Conduct and the internal regulations of the Advisory Committees and the Board of Directors, among others, without prejudice of the technical analyses of other advisory committees, according to their competences;</li> <li>- recommending the compensation model of the Board of Directors and the Advisory Committees, and the proposal for distribution of the global annual amount regarding the compensation of these bodies;</li> <li>- recommending the annual budget of the Board of Directors and the Advisory Committees, which shall include, among others, the resources for engagement of external experts to assist the Directors with the performance of their duties, and to implement continued education programs;</li> <li>- preparing and submitting to the Board of Directors the annual work plan of the committee; and</li> </ul>

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.05	A listed company must have a compensation committee composed entirely of independent directors, with a written charter that covers certain minimum specified duties.	<ul style="list-style-type: none"> <li>- preparing and submitting to the Board of Directors, the report on the performance of the committee.</li> </ul> <p>We do not have a compensation committee composed entirely of independent directors. We have a People and Remuneration Committee required, by its charter, to be composed of a number of independent members at least equal to the number of non-independent members.</p> <p>The People and Remuneration Committee, which is an advisory committee to the Board of Directors, is composed only by members of the Board of Directors. For the current composition of the People and Remuneration Committee, see <i>Management and Employees—Management—Other Advisory Committees to the Board of Directors</i>. This committee is responsible for, among other attributions:</p> <ul style="list-style-type: none"> <li>- assessing and recommending long-term strategies relating to people as proposed by the Executive Committee to the Board of Directors;</li> <li>- assessing and recommending the remuneration strategy for the Executive Committee and proposal for distribution of overall annual amount for management remuneration, including the remuneration of the Board of Directors and its Advisory Committees;</li> <li>- recommending the establishment of performance assessment goals for the Executive Committee and other Officers directly reporting to the CEO, and their monitoring;</li> </ul>
303A.06	Listed companies must have an audit committee that complies with the requirements of Rule 10A-3 under the Exchange Act.	We have an Audit and Risks Committee that complies with Rule 10A-3 under the Exchange Act. Our Audit and Risks Committee is currently composed of three independent directors.
303A.07	The audit committee must have at least three members, and these members must comply with the independence requirements of Section 303A.02 of the NYSE Listed Company Manual; the audit committee must have a written charter compliant with the requirements of Section 303A.07(b) of the NYSE Listed Company Manual; and listed companies must have an internal audit function.	<p>Our Audit and Risks Committee is currently composed of three independent directors. We also comply with the listing rules of the Novo Mercado segment of B3 S.A. – Brasil, Bolsa, Balcão (Novo Mercado Rules) and Brazilian corporate laws and regulations. Under our bylaws and the Audit and Risks Committee’s charter, and pursuant to the Novo Mercado Rules, our Audit and Risks Committee shall have three to five members, and: (i) all members must be independent directors, (ii) at least one member must have demonstrated experience in corporate accounting matters, and such member shall be appointed as “Financial Expert” upon his/her nomination.</p> <p>The responsibilities of the Audit and Risks Committee are set forth in its charter. Under our bylaws, the charter must give the Audit and Risks Committee responsibility for the matters required under Novo Mercado listing rules, as well as responsibility for:</p> <ul style="list-style-type: none"> <li>- having means and establishing procedures to be used by the company to receive, process and handle</li> </ul>

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
		<p>accusations, complaints and information about (a) non-compliance with legal and normative provisions applicable to the company, in addition to internal regulations and codes, (b) accounting issues, (c) internal controls, and (d) audit matters; as well as ensuring specific procedures to guarantee confidentiality and to protect whistleblower anonymity and the rights of the investigated party;</p> <ul style="list-style-type: none"> <li>- providing its opinion and assistance to the Board of Directors in the hiring, compensation and removal of independent auditor services;</li> <li>- supervising the work of internal auditors, the area of internal controls and the area responsible for preparing the company's consolidated financial statements;</li> <li>- supervising and evaluating the work of the external auditors, in order to evaluate their independence, the quality of services provided, and the suitability of services provided related to the needs of the company, and telling the company's management at any point to retain compensation of the external auditors; and</li> <li>- monitoring and mediating disagreements between management and the independent auditors regarding the company's consolidated financial statements and the application of accounting principles, monitoring difficulties found by the auditors during the audit process, among others.</li> </ul> <p>We have an internal audit function.</p>
303A.08	Shareholders must be given the opportunity to vote on all equity-compensation plans and material revisions thereto, with limited exemptions set forth in the NYSE rules.	Under Brazilian corporate law, shareholder pre-approval is required for the adoption of any equity compensation plans.
303A.09	A listed company must adopt and disclose corporate governance guidelines that cover certain minimum specified subjects.	We have not published consolidated corporate governance guidelines. Notwithstanding, our bylaws, the internal rules of our Board of Directors and advisory committees and/or our policies address matters related to qualification standards of members of the Board of Directors and the Executive Committee, director access to management and, as necessary and appropriate, independent advisors, Chief Executive Officer and management succession and annual performance of the Board.
303A.10	A listed company must adopt and disclose a code of business conduct and ethics for directors, officers and employees, and promptly disclose any waivers of the code for directors or executive officers.	We have adopted a Code of Conduct, which applies to our directors, officers and employees, interns, suppliers, and to our subsidiaries in Brazil and abroad, as well as to any person acting on behalf of Vale or its subsidiaries. We report each year in our annual report on Form 20-F any waivers of the code of conduct granted for directors or executive officers. Our code of conduct

Section	NYSE corporate governance rule for U.S. domestic issuers	Our approach
303A.12	<p>a) Each listed company CEO must certify to the NYSE each year that he or she is not aware of any violation by the company of NYSE corporate governance listing standards.</p> <p>b) Each listed company CEO must promptly notify the NYSE in writing after any executive officer of the listed company becomes aware of any non-compliance with any applicable provisions of this Section 303A.</p> <p>c) Each listed company must submit an executed Written Affirmation annually to the NYSE. In addition, each listed company must submit an interim Written Affirmation as and when required by the interim Written Affirmation form specified by the NYSE.</p>	<p>has a scope that is similar, but not identical, to that required for a U.S. domestic company under the NYSE rules.</p> <p>We are subject to (b) and (c) of these requirements, but not (a).</p>
303A.14	<p>The issuer must adopt and comply with a written Recovery Policy providing that the issuer will recover reasonably promptly the amount of erroneously awarded incentive-based compensation in the event that the issuer is required to prepare an accounting restatement due to the material noncompliance of the issuer with any financial reporting requirement under the securities laws, including any required accounting restatement to correct an error in previously issued financial statements that is material to the previously issued financial statements, or that would result in a material misstatement if the error were corrected in the current period or left uncorrected in the current period.</p>	<p>We have adopted a Clawback Policy that complies with the requirements of Section 303A.14 of the NYSE Listed Company Manual.</p>



## INSIDER TRADING POLICY

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We have adopted an insider trading policy and procedures governing the purchase, sale, and other dispositions of our securities by directors, senior management, and employees, that are reasonably designed to promote compliance with applicable insider trading laws, rules and regulations, and any listing standards applicable to us. A copy of our insider trading policy and procedures is filed as Exhibit 11 to this annual report.

# CYBERSECURITY

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## **RISK MANAGEMENT AND STRATEGY**

As a global mining company, we face various cyber threats, including ransomware attacks, theft of restricted information and digital frauds. These threats can lead to financial losses, damage to our reputation, and harm to our employees and third parties. We manage these cyber risks as part of our overall risk management process.

Our overall enterprise risk management (ERM) process integrates assessing, identifying, and managing cybersecurity-related risks. If the ERM process identifies a heightened cybersecurity-related risk, we assign risk owners to develop and track risk mitigation plans. We use several tools to monitor risks, including key risk indicators (KRIs) and independent assessments of critical controls by specialized teams.

In case of a cyber incident, we follow our cyber incident response playbook, which outlines the steps for detection, mitigation, recovery, and notification, including procedures for informing relevant internal groups and the Board of Directors as needed.

Our Cybersecurity Risk Management practice is founded on internationally recognized cybersecurity frameworks like the NIST CSF (*National Institute of Standards and Technology – Cybersecurity Framework*), ISO 27001 and ISA62443. The practice includes the processes described below.

### **Identification of what we have, what we do and what is important:**

- We understand the business context and the assets that support essential functions.
- We regularly assess cyber risks internally and the potential impacts on the company and, every two years, undergo a risk assessment by an independent and specialized third party based on the NIST CSF.
- We maintain an up-to-date inventory of technology assets, such as applications, data, servers, network components, third-party services and others.

### **Protecting technology assets (both Information Technology and Operations Technology) to prevent or limit cyber incidents by:**

- We apply an identity and access process with Multi-Factor Authentication.
- We provide cybersecurity training and education for employees and contractors, focusing on cyber risk and good cyber behavior, such as identifying malicious emails and correctly classifying information to protect data confidentiality.
- We provide communication channels for employees and contractors to report incidents, vulnerabilities and activities related to cyber security.
- We adopt network segmentation with strategic placement of network firewalls, intrusion prevention systems, and demilitarized zones for added security.

### **Early detection of cyber incidents through:**

- Our Security Operations Center, which operates 24/7/365, continuously monitors our digital environment by analyzing billions of telemetry events to detect system anomalies.
- We adopt a modern End Point Detection and Response platform on our workstations and servers, combined with a managed and detection response service by the Security Operations Center.
- We regularly conduct vulnerability assessments across various technological layers, independent third-party penetration tests and attack surface management practices.
- We have a dedicated cybersecurity team that combines the best of in-house resources with the expertise of external partners specialized in the field.

### **Responding effectively to cyber incidents to significantly contain their impact by:**

- We maintain a robust cyber incident response plan by:
  - Keeping cyber incident response procedures up to date, as well as technology system recovery plans for business continuity.
  - Conducting cyber incident simulations for operational, tactical, and executive audiences to educate and better prepare for a real cyber incident.

- Integrating the cyber incident response plan with the organization’s corporate Crisis Management process and a corporate Cyber Crisis Committee formed by areas such as Legal, Privacy, Communications, Internal Controls, Investor Relations, and other business areas.
- Managing the materiality of cyber incidents within the corporate cyber crisis committee, keeping our Executive Committee and our Board of Directors informed, and disclosing to the public when applicable.

### ***Recovering and restoring affected systems and their capabilities back in operation.***

- We conduct regular tests of our recovery plans to ensure the restoration of technology assets in case of need.

We also engage specialized third-party cybersecurity companies to evaluate the structure of the cyber program, test the effectiveness of our processes and to provide targeted training to our workforce. Our cybersecurity risk management processes extend to the oversight and identification of cybersecurity risks from our association with third-party service providers. Our risk management program includes risk assessments of third-parties that want to provide services to us through contractual commitment to comply with our baseline of security controls as well as their cyber rating performed with an independent security rating platform.

We also share and receive cyber and threat intelligence insights with our industrial base peers and are a member of the Metals and Mining Information Sharing and Analysis Center (ISAC).

Our plans aim to enhance our cybersecurity program by constantly staying abreast of emerging threats and adapting to evolving technologies.

Over the past three years, our business strategy, results of operations and financial position have not been materially impacted by risks from current and past cybersecurity threats. However, we cannot assure that they will not be materially affected by future cybersecurity threats or incidents.

## **GOVERNANCE**

### ***Board of Directors***

Our Board of Directors primarily oversees the management of cybersecurity threat risks. To fulfill this responsibility, the Board relies on the support of the Audit and Risks Committee. The Audit and Risks Committee is responsible for advising the Board of Directors regarding the risk management strategy, including the analysis of corporate policies on this topic and risk appetite guidelines, as well as Vale’s integrated risk map. The Audit and Risks Committee also assesses the effectiveness and adequacy of controls and risk management systems, and regularly receives reports on cyber risks from our Corporate Risk Department.

### ***Management***

Our Executive Committee is supported by five advisory committees, including the Executive Risk Committee which focuses on strategy, finance, and cyber risks. The main responsibilities of these advisory committees are to support our Executive Committee in monitoring risks, make preventive recommendations regarding potential risks presented at the committees’ meetings, and submit them for the approval of the Executive Committee.

Our Chief Information Security Officer leads our cybersecurity function, responsible for our overall information security strategy, policy, threat detection and response. In addition to providing comprehensive cyber risk update to our Audit and Risks Committee and our Executive Risks Committee, this update covers an independent assessment of our cybersecurity program based on the NIST Cybersecurity Framework, as well as, our cyber posture, as evaluated by an independent cybersecurity rating platform. The committees are briefed on cyber incidents considered to have a moderate or greater business impact, even if they are not material to us.

## CODE OF CONDUCT

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We have a Code of Conduct that applies to the members of our Board of Directors and our Executive Committee, including the chief executive officer and the chief financial officer, our employees, interns and to our subsidiaries in Brazil and abroad, as well as and any person acting on behalf of Vale or its subsidiaries. Our suppliers and other third parties that collaborate with us must act in accordance with Vale's Principles of Conduct for Third Parties.

Our Code of Conduct gathers the fundamental principles that underpin our business, and is part of Vale's Ethics & Compliance Program, which is monitored by the Audit and Risks Committee and the Conduct and Integrity Committee, and is under the responsibility of the Audit and Compliance Department. Our Code of Conduct is a principle-based document, which connects directly with our company's purpose and values.

We have published the Code of Conduct on our website, at: <https://www.vale.com/en/code-of-conduct>. We have not granted any implicit or explicit waivers from any provision of our Code of Conduct since its adoption.

### **Whistleblower Channel**

Any breaches of our policies and standards can be reported by anyone, including employees, contractors, suppliers, members of affected communities and other stakeholders, via our Whistleblower Channel, which is available in 8 languages. Our Whistleblower Channel is managed by our Audit and Compliance Department, an independent department that reports directly to the Board of Directors. Our Whistleblower Channel is structured to guarantee confidentiality and to protect whistleblower anonymity and the rights of the investigated party.

Our employees and contractors in Brazil and Canada also have access to our Respect Channel (*Canal de Acolhimento*), which is a channel operated by a specialized and independent team to listen, understand and guide anyone reporting harassment or discrimination. By calling this line, the person may decide whether or not to register an allegation, which is then investigated by our Whistleblower Channel team.

In 2024, our Whistleblower Channel received 10,281 reports and closed 9,986 cases, of which (i) 13% referred to queries and reports that were not investigated due to lack of information or pertinence to the scope of the Whistleblower Channel, (ii) 32% were complaints, which were answered by the Whistleblower Channel, but did not lead to an investigation, and (iii) 55% were allegations that led to investigations, which confirmed violations of Vale's Code of Conduct in 54% of these cases.

All confirmed violations triggered correction plans, which are presented by managers and approved by the Whistleblower Channel. As a general rule, these plans contain measures to promote process improvements, training initiatives and feedback to employees. Depending on the seriousness of the allegations, employees involved may be subject to administrative measures, such as warnings, suspensions or terminations. Suppliers involved in serious violations of the Code of Conduct are also subject to punitive measures, such as fines or contract termination.

Investigations by our Whistleblower Channel in 2024 resulted in 3,978 corrective actions and disciplinary measures, including 298 terminations of employment.

Further information on the Whistleblower Channel is disclosed in our Ethics & Compliance annual report, available on our website, at <https://www.vale.com/esg/ethics-and-compliance>. Information on our website is not incorporated by reference in this annual report on Form 20-F.

## PRINCIPAL ACCOUNTANT FEES AND SERVICES

The following table summarizes the fees for professional services and other services rendered to us by our independent auditors PricewaterhouseCoopers Auditores Independentes Ltda. (PwC) in 2024 and 2023.

	<i>Year ended December 31,</i>	
	<b>2024</b>	<b>2023</b>
	<i>(US\$ thousand)</i>	
Audit fees	6,241	5,723
Audit-related fees	614	562
<b>Total fees</b>	<b>6,855</b>	<b>6,285</b>

“Audit fees” are the aggregate fees of PwC for the audit of our annual consolidated financial statements, the audit of the statutory financial statements of our subsidiaries, and reviews of interim financial statements and attestation services that are provided in connection with statutory and regulatory filings or engagements. They also include fees for services that only the independent auditor reasonably can provide, including the provision of comfort letters and consents in connection with statutory and regulatory filings and the review of documents filed with the SEC and other capital markets or local financial reporting regulatory bodies. “Audit-related fees” are fees charged by PwC for assurance and related services that are reasonably related to the performance of the audit or review of our financial statements and are not reported under “Audit fees.”

## INFORMATION FILED WITH SECURITIES REGULATORS

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We are subject to various information and disclosure requirements in those countries in which our securities are traded, and we file consolidated financial statements and other periodic reports with the CVM, B3 and the SEC.

**Brazil.** Vale's Common Shares are listed on B3 in São Paulo, Brazil. As a result, we are subject to the information and disclosure requirements of Brazilian Corporate Law, as amended. We are also subject to the periodic disclosure requirements of CVM rules applicable to listed companies and to B3's "Novo Mercado" Corporate Governance Requirements. Our CVM filings are available from the CVM at <https://www.gov.br/cvm> or from B3 at <https://www.b3.com.br>. In addition, they may be accessed at our website, <https://vale.com/>.

**United States.** As a result of our ADSs being listed on the New York Stock Exchange, we are subject to the information requirements of the Securities Exchange Act of 1934, as amended, and accordingly file reports and other information with the SEC. Reports and other information filed by us with the SEC available to the public from the SEC at <https://www.sec.gov/>. In addition, as with all of our security filings, they may be accessed at our website, <https://vale.com/>. Such filings and other information on our website are not incorporated by reference in this annual report on Form 20-F. You may also inspect Vale's reports and other information at the offices of the New York Stock Exchange, 11 Wall Street, New York, New York 10005, on which Vale's ADSs are listed. For further information on obtaining copies of Vale's public filings at the New York Stock Exchange, you should call (212) 656-5060.

## EXHIBITS

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<u>Exhibit Number</u>	
1	Bylaws of Vale S.A., as of April 28, 2023 (incorporated by reference to Exhibit 1 to Vale's annual report on Form 20-F dated April 19, 2024 (File Nos. 001-15030, Accession No. 0001292814-24-001463)).
2	Description of Securities registered under Section 12 of the Exchange Act
4.1	Judicial Settlement for Integral Reparation, dated February 4, 2021, by and among Vale S.A., the Government of the State of Minas Gerais, the Public Defender Office of the State of Minas Gerais, public prosecutors of the State of Minas Gerais and federal prosecutors (incorporated by reference to Exhibit 4.1 to Vale's annual report on Form 20-F dated March 23, 2021 (File Nos. 001-15030, Accession No. 0001047469-21-000687)
4.2	Definitive Settlement, dated October 25, 2024, by and among Samarco Mineração S.A., BHP Billiton Brasil Ltda., Vale S.A., the Brazilian Federal Government, the State Governments of Minas Gerais and Espírito Santo, the Public Defender Office of the State of Minas Gerais, public prosecutors of the State of Minas Gerais and federal prosecutors, and other Brazilian public entities
8	List of subsidiaries
11	Policy of Disclosure of Information and Securities Trading, as of November 25, 2021.
12.1	Certification of Chief Executive Officer of Vale pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934
12.2	Certification of Chief Financial Officer of Vale pursuant to Rules 13a-14 and 15d-14 under the Securities Exchange Act of 1934
13.1	Certification of Chief Executive Officer and Chief Financial Officer of Vale, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
15.1	Consent of PricewaterhouseCoopers Auditores Independentes Ltda. (PCAOB ID 1351)
17.1	Guarantors and Issuers of Guaranteed Securities
97	Clawback Policy, as of November 30, 2023 (incorporated by reference to Exhibit 97 to Vale's annual report on Form 20-F dated April 19, 2024 (File Nos. 001-15030, Accession No. 0001292814-24-001463)).
101	Interactive Data File
104	Cover Page Interactive Data File

The amount of long-term debt securities of Vale or its subsidiaries authorized under any individual outstanding agreement does not exceed 10% of our total assets on a consolidated basis. Vale hereby agrees to furnish the SEC, upon its request, a copy of any instruments defining the rights of holders of its long-term debt or of its subsidiaries for which consolidated or unconsolidated financial statements are required to be filed.

## GLOSSARY

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Alumina	Aluminum oxide. It is the main component of bauxite and extracted from bauxite ore in a chemical refining process. It is the principal raw material in the electro-chemical process from which aluminum is produced.
Aluminum	A white metal that is obtained in the electro-chemical process of reducing aluminum oxide.
B3	B3 S.A.—Brasil, Bolsa, Balcão (formerly BM&FBOVESPA), a stock exchange located in São Paulo, Brazil.
Bauxite	A rock composed primarily of hydrated aluminum oxides. It is the principal ore of alumina, the raw material from which aluminum is made.
Beneficiation	A variety of processes whereby extracted ore from mining is reduced to particles that can be separated into ore-mineral and waste, the former suitable for further processing or direct use.
CFR	Cost and freight. Indicates that all costs related to the transportation of goods up to a named port of destination will be paid by the seller of the goods.
Coal	Coal is a black or brownish-black solid combustible substance formed by the decomposition of vegetable matter without access to air. The rank of coal, which includes anthracite, bituminous coal (both are called hard coal), sub-bituminous coal, and lignite, is based on fixed carbon, volatile matter, and heating value.
Cobalt	Cobalt is a hard, lustrous, silver-gray metal found in ores, and used in the preparation of magnetic, wear-resistant, and high-strength alloys (particularly for jet engines and turbines). Its compounds are also used in the production of inks, paints, catalysts and battery materials.
Coke	Coal that has been processed in a coke oven, for use as a reduction agent in blast furnaces and in foundries for the purposes of transforming iron ore into pig iron.
Coking coal	Hard coking coal is the highest value segment of the metallurgical coal market segments (see metallurgical coal) because of its high strength factors to form a strong coke.
Concentration	Physical, chemical or biological process to increase the grade of the metal or mineral of interest.
Copper	A reddish-brown metallic element. Copper is highly conductive, both thermally and electrically. It is highly malleable and ductile and is easily rolled into sheet and drawn into wire.
Copper anode	Copper anode is a metallic product of the converting stage of smelting process that is cast into blocks and generally contains 99% copper grade, which requires further processing to produce refined copper cathodes.
Copper cathode	Copper plate with purity higher than or equal to 99.9% that is produced by an electrolytic process.



Copper concentrate	Material produced by concentration of copper minerals contained in the copper ore. It is the raw material used in smelters to produce copper metal.
Cut-off grade	Cut-off grade is the grade (i.e., the concentration of metal or mineral in rock) that determines the destination of the material during mining. For purposes of establishing “prospects of economic extraction,” the cut-off grade is the grade that distinguishes material deemed to have no economic value (it will not be mined in underground mining or if mined in surface mining, its destination will be the waste dump) from material deemed to have economic value (its ultimate destination during mining will be a processing facility). Other terms used in similar fashion as cut-off grade include “net smelter return,” “pay limit,” and “break-even stripping ratio.”
CVM	The <i>Comissão de Valores Mobiliários</i> (Brazilian Securities and Exchange Commission).
DWT	Deadweight ton. The measurement unit of a vessel’s capacity for cargo, fuel oil, stores and crew, measured in metric tons of 1,000 kg. A vessel’s total deadweight is the total weight the vessel can carry when loaded to its maximum permitted load line.
FOB	Free on board. It indicates that the purchaser pays for shipping, insurance and all the other costs associated with transportation of the goods to their destination.
Gold	A precious metal sometimes found free in nature, but usually found in conjunction with silver, quartz, calcite, lead, tellurium, zinc or copper. It is the most malleable and ductile metal, a good conductor of heat and electricity and unaffected by air and most reagents.
Grade	The proportion of metal or mineral present in ore or any other host material.
Hematite Ore	Hematite is an iron oxide mineral, but also denotes the high-grade iron ore type within the iron deposits.
Inferred Mineral Resource	Is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of limited geological evidence and sampling. The level of geological uncertainty associated with an inferred mineral resource is too high to apply relevant technical and economic factors likely to influence the prospects of economic extraction in a manner useful for evaluation of economic viability. Because an inferred mineral resource has the lowest level of geological confidence of all mineral resources, which prevents the application of the modifying factors in a manner useful for evaluation of economic viability, an inferred mineral resource may not be considered when assessing the economic viability of a mining project, and may not be converted to a mineral reserve.
Indicated Mineral Resource	Is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of adequate geological evidence and sampling. The level of geological certainty associated with an indicated mineral resource is sufficient to allow a qualified person to apply modifying factors in sufficient detail to support mine planning and evaluation of the economic viability of the deposit. Because an indicated mineral resource has a lower level of confidence than the level of confidence of a measured mineral resource, an indicated mineral resource may only be converted to a probable mineral reserve.
Iron ore pellets	Agglomerated ultra-fine iron ore particles of a size and quality suitable for particular iron making processes. Our iron ore pellets range in size from 8 mm to 18 mm.

Iron ore briquettes	Iron ore agglomerates, pillow shaped, produced by a proprietary process of cold agglomeration of iron ore together with binders and additives.
Itabirite ore	Itabirite is a banded iron formation and denotes the low-grade iron ore type within the iron deposits.
Limonite	An iron and aluminum oxides rich horizon formed by decomposition of pre-existing rocks within a surface weathering environment.
Lump ore	Iron ore or manganese ore with the coarsest particle size in the range of 6.35 mm to 50 mm in diameter, but varying slightly between different mines and ores.
Manganese ore	A hard brittle metallic element found primarily in the minerals pyrolusite, hausmannite and manganite. Manganese ore is essential to the production of virtually all steels and is important in the production of cast iron.
Measured Mineral Resource	Is that part of a mineral resource for which quantity and grade or quality are estimated on the basis of conclusive geological evidence and sampling. The level of geological certainty associated with a measured mineral resource is sufficient to allow a qualified person to apply modifying factors, as defined in this section, in sufficient detail to support detailed mine planning and final evaluation of the economic viability of the deposit. Because a measured mineral resource has a higher level of confidence than the level of confidence of either an indicated mineral resource or an inferred mineral resource, a measured mineral resource may be converted to a proven mineral reserve or to a probable mineral reserve.
Metallurgical coal	Coal used in the production of steel, comprising multiple segments, including hard coking coal (see hard coking coal), semi-hard coking coal, semi-soft coking coal, all used to produce coke to feed a blast furnace; and PCI (pulverized coal injection) coal used for direct injection fuel source into the blast furnace (see PCI). A bituminous hard coal with a quality that allows the production of coke. Normally used in coke ovens for metallurgical purposes.
Mineral deposit(s)	A mineralized body that has been intersected by a sufficient number of closely spaced drill holes and/or underground/surface samples to support sufficient tonnage and grade of metal(s) or mineral(s) of interest to warrant further exploration-development work.
Mineral reserve	Is an estimate of tonnage and grade or quality of indicated and measured mineral resources that, in the opinion of the qualified person, can be the basis of an economically viable project. More specifically, it is the economically mineable part of a measured or indicated mineral resource, which includes diluting materials and allowances for losses that may occur when the material is mined or extracted.
Mineral resource	Is a concentration or occurrence of materials of economic interest in or on the Earth's crust in such form, grade or quality, and quantity that there are reasonable prospects for economic extraction. A mineral resource is a reasonable estimate of mineralization, taking into account relevant factors such as cut-off grade, likely mining dimensions, location or continuity, that, with the assumed and justifiable technical and economic conditions, is likely to, in whole or in part, become economically extractable. It is not merely an inventory of all mineralization drilled or sampled.
Mt	Million metric tons.

Mtpy	Million metric tons per year.
Nickel	A silvery white metal that takes on a high polish. It is hard, malleable, ductile, somewhat ferromagnetic, and a fair conductor of heat and electricity. It belongs to the iron-cobalt group of metals and is chiefly valuable for the alloys it forms, such as stainless steel and other corrosion-resistant alloys.
Nickel laterite	Deposits are formed by intensive weathering of olivine-rich ultramafic rocks such as dunite, peridotite and komatiite.
Nickel matte	An intermediate smelter product that must be further refined to obtain pure metal.
Nickel pig iron	A low-grade nickel product, made from lateritic ores, suitable primarily for use in stainless steel production. Nickel pig iron typically has a nickel grade of 1.5-6% produced from blast furnaces. Nickel pig iron can also contain chrome, manganese, and impurities such as phosphorus, sulfur and carbon. Low-grade ferro-nickel (FeNi) produced in China through electric furnaces is often also referred to as nickel pig iron.
Nickel sulfide	Formed through magmatic processes where nickel combines with sulfur to form a sulfide phase. Pentlandite is the most common nickel sulfide ore mineral mined and often occurs with chalcopyrite, a common copper sulfide mineral.
Open-pit mining	Method of extracting rock or minerals from the earth by their removal from an open pit. Open-pit mines for extraction of ore are used when deposits of commercially useful minerals or rock are found near the surface; that is, where the overburden (surface material covering the valuable deposit) is relatively thin, or the material of interest is structurally unsuitable for underground mining.
Oxides	Compounds of oxygen with another element. For example, magnetite is an oxide mineral formed by the chemical union of iron with oxygen.
Palladium	A silver-white metal that is ductile and malleable, used primarily in automobile-emissions control devices, and electrical applications.
Particulate Matter (PM)	A complex mixture of solids with a small diameter, whose components have different physical and chemical characteristics. Particulate matter is generally classified according to particle diameter.
PCI	Pulverized coal injection. Type of coal with specific properties ideal for direct injection via the tuyeres of blast furnaces. This type of coal does not require any processing or coke making, and can be directly injected into the blast furnaces, replacing lump cokes to be charged from the top of the blast furnaces.
Pelletizing	Iron ore pelletizing is a process of agglomeration of ultra-fines produced in iron ore exploitation and concentration steps. The three basic stages of the process are: (i) ore preparation (to get the correct fineness); (ii) mixing and balling (additive mixing and ball formation); and (iii) firing (to get ceramic bonding and strength).
PGMs	Platinum group metals. Consist of platinum, palladium, rhodium, ruthenium, osmium and iridium.
Phosphate	A phosphorous compound, which occurs in natural ores and is used as a raw material for primary production of fertilizer nutrients, animal feeds and detergents.

Pig iron	Product of smelting iron ore usually with coke and limestone in a blast furnace.
Platinum	A dense, precious, grey-white transition metal that is ductile and malleable and occurs in some nickel and copper ores. Platinum is resistant to corrosion and is used primarily in jewelry, and automobile-emissions control devices.
Precious metals	Metals valued for their color, malleability, and rarity, with a high economic value driven not only by their practical industrial use, but also by their role as investments. The widely-traded precious metals are gold, silver, platinum and palladium.
Primary nickel	Nickel produced directly from mineral ores.
Probable mineral reserves	Is the economically minerable part of an indicated and, in some cases, a measured mineral resource.
Proven mineral reserves	Is the economically minerable part of a measured mineral resource and can only result from conversion of a measured resource.
Real, reais or R\$	The official currency of Brazil is the <i>real</i> (singular) (plural: <i>reais</i> ).
ROM	Run-of-mine. Ore in its natural (unprocessed) state, as mined, without having been crushed.
Saprolite	Clay-rich horizon formed by decomposition of pre-existing rocks within a surface weathering environment.
Secondary or scrap nickel	Stainless steel or other nickel-containing scrap.
Seaborne market	Comprises the total ore trade between countries using ocean bulk vessels.
Silver	A ductile and malleable metal used in photography, coins and medal fabrication, and in industrial applications.
Sinter feed (also known as fines)	Iron ore fines with particles in the range of 0.15 mm to 6.35 mm in diameter. Suitable for sintering.
Sintering	The agglomeration of sinter feed, binder and other materials, into a coherent mass by heating without melting, to be used as metallic charge into a blast furnace.
Stainless steel	Alloy steel containing at least 10% chromium and with superior corrosion resistance. It may also contain other elements such as nickel, manganese, niobium, titanium, molybdenum, copper, in order to improve mechanical, thermal properties and service life. It is primarily classified as austenitic (200 and 300 series), ferritic (400 series), martensitic, duplex or precipitation hardening grades.
Tpy	Metric tons per year.
Troy ounce	One troy ounce equals 31.103 grams.
Underground mining	Mineral exploitation in which extraction is carried out beneath the earth's surface.
U.S. dollars or US\$	The United States dollar.

## SIGNATURES

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The registrant hereby certifies that it meets all of the requirements for filing on Form 20 F and that it has duly caused and authorized the undersigned to sign this annual report on its behalf.

VALE S.A.

By: /s/ Gustavo Duarte Pimenta

Name: Gustavo Duarte Pimenta

Title: Chief Executive Officer

By: /s/ Marcelo Feriozzi Bacci

Name: Marcelo Feriozzi Bacci

Title: Executive Vice-President Finance and Investor  
Relations

Date: March 28, 2025