VALE

GHG Emissions Report

Scope 1, 2, and 3

2025

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Introduction

Vale is among the leaders in supplying essential products for the development of global supply chains and incorporates sustainability into its business strategy, dedicating itself to understanding and mitigating its current and future impacts through the development and implementation of solutions that seek to add value and generate positive results.

In the context of climate change, the Company seeks to reduce direct and indirect greenhouse gas (GHG) emissions and contribute to a just transition toward a low-carbon economy. To this end, it accounts for and publishes its GHG inventory annually with the aim of understanding the scale and specific characteristics of its emissions and identifying decarbonization opportunities in its processes and products.

The GHG Protocol methodology, established and internationally recognized as the leading standard for quantifying and reporting emissions, is adopted as the basis for preparing the company's GHG inventory emissions accounting documents. All processes, including data management and collection as well as the measurement methods applied, undergo independent auditing to ensure the consistency, reliability, and credibility of the reported information. This work not only ensures adequate transparency in emissions management but, more importantly, enables regular monitoring of the Company's efforts and progress in reducing emissions and achieving its decarbonization goals.

Climate goals

Vale reinforces its commitment to sustainability in its business operations by setting science-based climate targets. Among its public commitments, the Company has three targets directly related to reducing its GHG emissions, as follows:

- **2030 target**: Reduce absolute Scope 1 and 2 (market-based) emissions by 33% compared to the 2017 baseline.
- **2035 target**: Reduce net Scope 3 emissions by 15% compared to the 2018 baseline.
- **2050 target**: Achieve net-zero emissions for Scope 1 and 2 (market-based).

The 2030 target is aligned with the central objective of the Paris Agreement to limit the rise in global average temperature this century to well below 2°C—the Well Below 2 Degrees (WB2D) scenario—compared to pre-industrial levels. The tool used to calculate the required reduction percentage was the "Science-Based Target Setting Tool – Version 1.1," and the method used by Vale was the "Absolute contraction approach," since the mining sector does not have a dedicated method.

Vale was the first company in the mining sector to commit to a Scope 3 target in 2020. The 2035 target is aligned with the scenario of limiting global warming to 2 °C above pre-industrial levels and was defined using the "Science-Based Target Setting Tool" TWG-INF-002 | Version 4.2 April 2021, based on the "Absolute contraction approach," made available by the SBTi[1]. This target was confirmed in 2025, in accordance with the planned five-year review cycle, due to uncertainties related to low-carbon technologies and climate policies.

The Company established its long-term target (2050) with the aim of contributing to the achievement of net-zero emissions globally, based on requirements C.1 and C.1.1 of the Intergovernmental Panel on Climate Change's (IPCC) "Special Report: Global Warming of 1.5°C.", aligned with the 1.5°C scenario goal of Paris Agreement.

Inserted in a sector classified as hard-to-abate and committed to achieving its Scope 3 net emissions target by 2035, the Company does not rule out the possibility of compensating residual emissions through the limited use of carbon credits, up to 20% of the target. It is important to note that these carbon credits will be high-integrity credits, which must meet rigorous criteria such as additionality, permanence, and transparency.

The Company currently does not use carbon credits and prioritizes the implementation of structural mitigation initiatives and direct emissions reductions in its operations and throughout its value chain.

Regarding the long-term (2050) net-zero emissions target for Scope 1 and 2, the Company assesses that any potential residual emissions, after maximizing technically feasible mitigation actions, may be offset.

Climate targets performance

The Company has robust internal governance for this issue and regularly monitors the performance of its targets. In 2025, combined Scope 1 and 2 (market-

[1] As the commitment foresees the use of carbon credits to achieve our Scope 3 target, our climate targets have not been formally validated by SBTi, despite being established based on its methodology. None of the targets include biogenic emissions.

based) emissions totaled 7.8 $MtCO_2$. This figure represents an absolute reduction of 25.3% compared to the 2017 baseline year, representing cumulative progress of 76.6 percentage points toward the 33% target.

This performance is attributed primarily to lower volumes and a shift in the production mix compared to the base year, as well as improvements in operational efficiency and a reduction in Scope 2 emissions under the market-based approach, associated with the proportion of electricity consumed from renewable sources.

History of absolute GHG emissions for Scope 1 and 2

In million tons of CO_2e

GHG Scope	2017[2]	2023	2024	2025
Scope 1	9.2	7.5	7.4	7.5
Scope 2 (LB[3])[4]	1.3	0.6	0.8	0.7
Scope 2 (MB[4])	1.3	0.3	0.3	0.3
Total Scope 1 and 2 (LB)	**10.5**	**8.2**	**8.1**	**8.2**
Total Scope 1 and 2 (MB)	**10.5**	**7.9**	**7.7**	**7.8**

On the other hand, Scope 3 emissions totaled 487.1 $MtCO_2e$ in 2025, resulting in an absolute reduction of 8.2% compared to the 2018 base year, which indicates progress of 54.5 percentage points toward the target of a 15% reduction.

The performance of Scope 3 emissions is highly influenced by the mix of Vale's product portfolio and, above all, by sales volumes, directly impacting on the results of category 10—the most significant category in the Company's GHG inventory. Additionally, increased energy and operational efficiency of the maritime fleet contributed to the reduction of emissions in categories 4 and 9, upstream and downstream transportation and distribution, respectively. Furthermore, emissions from our investee companies (category 15) have increased in recent years due to their improved production and sales performance.

History of absolute GHG emissions for Scope 3

In million tons of CO_2e

GHG Scope	2018[2]	2023	2024	2025
Scope 3[5]	530,5	453,9	471,0	487,1

The results are disclosed annually in the Annual Report, the Sustainability-Related Financial Information Report, the Databook, and the CDP, aiming to promote integrated and transparent communication to stakeholders regarding the Company's progress in addressing the challenges of climate change. For additional information on tracking targets and the documents mentioned, please visit the website and the ESG Portal.

To enhance transparency regarding the methodology used to prepare the Vale's GHG inventory, this document presents specific information on emissions accounting—such as calculation approaches, assumptions, and emission factors—in a direct and concise manner.

Ilha Guaiba Terminal (TIG). Photo: Ricardo Teles.

[2] The years 2017 and 2018 are the base years for Scope 1 and 2 target and Scope 3 target, respectively.
[3] Scope 2 accounting approaches: location-based (LB) and market-based (MB).
[4] Scope 2 (LB) emissions for 2024 were adjusted based on the updated emission factor of the Ontario grid, published in the NIR 2024. It is noteworthy that the result of the adjustment was immaterial, with a positive variation of 4.6% compared to the value published in 2024 (0.7 $MtCO_2e$).
[5] In alignment with the GHG Protocol and ICMM recommendations, adjustments were made to the accounting of Scope 3 emissions. These adjustments covered categories 1, 2, 10, and 15, in addition to the inclusion of subcategories 3B and 3D. As a result of these adjustments, previously reported values were recalculated to the baseline, without material impact on total Scope 3 emissions, and are available in Table 2 in the Appendix section. This update aimed to ensure greater accuracy, standardization, and adherence to international best practices.

Methodology

Accounting standards

International standards for GHG emissions accounting aim to promote alignment with climate science, strengthen transparency and credibility, and meet stakeholder expectations. Standardizing data also enhances comparability and supports strategic decision-making and operational efficiency.

Vale's inventory methodology considers different approaches for quantifying and allocating emissions, including sector-specific emission factors and specific methods. This methodology follows widely recognized international guidelines and methodological frameworks contained in the GHG Protocol: Corporate Standard and GHG Protocol: Corporate Value Chain (Scope 3) Standard, as well as the mining sector guides from the International Council on Mining and Metals (ICMM). Thus, emissions are structured according to the three scopes defined by the GHG Protocol: Scope 1, 2, and 3.

The inventory preparation follows five fundamental principles, which are listed below:

1	**Relevance:** Reflect actual emissions and support decision-making.
2	**Comprehensiveness:** Include all sources and activities within the defined boundaries, justifying any exclusions.
3	**Consistency:** Use comparable methods over time and record all relevant changes.
4	**Transparency:** Document and disclose all data, methods, and assumptions, referencing all methodologies used.
5	**Accuracy:** Reduce uncertainties in calculation estimates to ensure precision.

In addition, GHG inventory is verified by a third party annually, based on a limited assurance methodology.

Organizational boundaries

The preparation of a GHG inventory, in accordance with the GHG Protocol, begins with the definition of its boundaries, to ensure that the accounting meets management and compliance needs. To this end, organizational boundaries are defined to establish which entities, operations, assets, subsidiaries, joint ventures, or business units must be included in the emissions inventory. Subsequently, operational boundaries are defined, establishing which emission sources and activities will be considered, classifying them into Scope 1, 2, and 3 associated with the Company's operations.

Vale adopt the Operational Control approach in its GHG emissions inventory. This means that the company quantifies and reports emissions from operations over which it exercises direct control, with direct emissions from these operations reported under Scope 1, indirect emissions related to purchased and consumed electricity under Scope 2, and other indirect emissions throughout the value chain under Scope 3.

Efficient management of the emissions inventory involves regularly monitoring changes in emission sources and the operational units considered, among other aspects. In Vale's case, these changes generally result from the inclusion or exclusion of business units and operations within the organizational boundaries.

The Company pays close attention to the correct allocation of sources and the transparent reporting of transitions between scopes within the inventory, seeking to ensure the consistency and comparability of its emissions over time, as well as to avoid double counting of emissions.

Applicability and materiality

The preparation of a GHG emissions inventory presents several challenges that are often related to the complexity of data collection and processing and the need to define substantial assumptions for emissions calculations. In such cases, it is necessary to evaluate the effort involved in the calculation alongside the representativeness of the emissions in the inventory. Considering these challenges, Vale follows two fundamental concepts that guide the preparation of emissions inventories, according to the GHG Protocol: applicability and materiality.

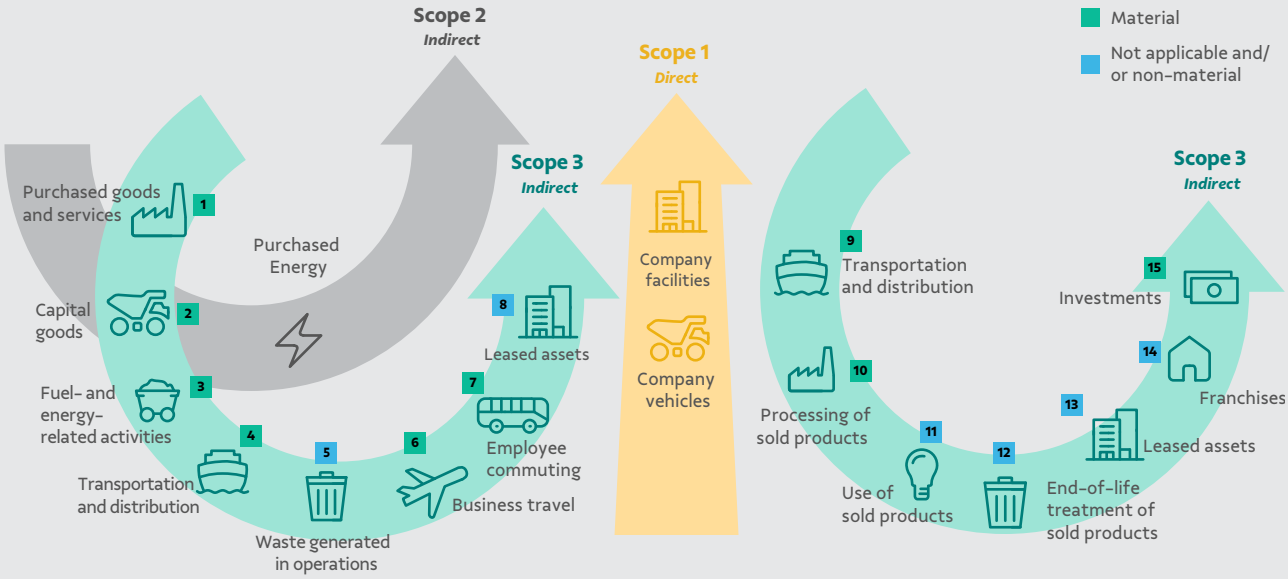
Applicability refers to the existence and materiality of emitting activities within the organization's value chain. For certain Scope 3 categories, these may not be included in the Company's inventory when the corresponding activity does not occur, or when there is insufficient information available

to ensure the level of completeness and accuracy required to construct a reliable estimate.

Materiality, on the other hand, refers to the quantitative impact of emissions on the organization's total inventory. The GHG Protocol allows emission sources to be excluded from the inventory provided their immateriality is demonstrated—that is, that their omission does not significantly compromise the completeness, accuracy, and transparency of the inventory. In Vale's case, all exclusions deemed immaterial were duly quantified, documented, and subjected to the audit process to safeguard the methodological integrity of the inventory[6].

The categories considered material—that is, the emission sources that have a significant influence on the Company's overall inventory—are accounted for through the collection and consolidation of data from all operational units on a monthly or annual basis.

Overview of the GHG Protocol[7] scopes and emissions across Vale's entire value chain

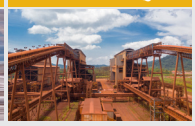


Scope 3: Upstream activities (4.4%)		Scope 1 and 2: Operational control (1.6%)				Scope 3: Downstream activities (94.0%)
Suppliers	Navigation	Mining	Beneficiating	Logistics	Metallurgy	Customers

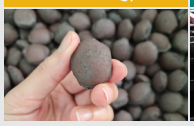

Haul truck for biofuel testing.


Sea Zhoushan ship. Photo: Vitor Nogueira.


Haul truck. Photo: Fredamorelli.


Serra Sul Complex. Photo: Ricardo Teles.


Ore wagons. Photo: Ricardo Teles.


Briquette. Photo: Valdirene Resende.


Production process. Photo: Ricardo Teles.

At Vale, more than 98% of its total emissions are outside its direct control, mainly due to the processing of ferrous products at its steelmaking clients.

[6] Table 1 in the Appendix provides an overview of the emission sources not included in the inventory, along with their respective justifications. These emissions were calculated and represent less than 5% of total emissions, a figure below the threshold established by the GHG Protocol for exclusion. Even for these categories, Vale maintains continuous tracking and monitoring, seeking to ensure that the organization's emissions profile remains adequately represented over time.

[7] Infographic based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard.

Calculation methodology

Conversion factors

Conversion factors allow the transformation of activity data associated with energy and process inputs, usually expressed in units of mass or volume, into energy units compatible with emission factors, enabling the calculation of greenhouse gas emissions.

Vale updates the conversion factor database annually, which includes information such as specific properties of fuels and process inputs used, such as lower heating value (LHV) and density, from sources such as Brazilian National Energy Balance (BEN) and the IPCC, or through monthly analyses carried out in the Company's laboratories.

In addition, it includes the composition of the electricity mix and the percentage of losses in transmission and distribution systems, as well as the blending ratios[8] of renewable and fossil fuels in the countries where Vale operates.

Emissions factors

Emission factors are coefficients that indicate the amount of GHGs released into the atmosphere per unit of activity, input, or specific process.

Vale follows the GHG Protocol guidelines in selecting the emission factors used in inventory calculations and considers the six gases covered by the Kyoto Protocol, namely: carbon dioxide (CO_2) methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

Each gas has specific characteristics, with different global warming potentials. In order to standardize emission data to a single equivalent standard unit, Vale uses the 100-year Global Warming Potential (GWP-100) index for each of these gases, converting all emissions into carbon dioxide equivalent (CO_2e). For the year 2025, these factors were extracted from the Sixth Assessment Report (AR6) of the IPCC.

Approaches and assumptions

Scope 1

Direct emissions (Scope 1) are included in Vale's inventory under the following categories:

- Mobile combustion
- Stationary combustion
- Industrial process
- Fugitive emissions
- Land-use change

Emissions are calculated on a disaggregated basis, using mass balance and emission factors for each type of input and activity, and for each of the countries in which Vale operates.

Mobile and stationary combustion

Fuels: Emissions[9] from the combustion of fuel used in mobile and stationary equipment

Mobile combustion occurs primarily through fuel consumption in mining processes and railway transportation. Stationary combustion, in turn, takes place in equipment related to industrial processes, such as furnaces, calciners, and dryers, as well as in energy generation processes using boilers and generators.

Their GHG emissions result from the amount of fuel supplied to the equipment, based on its conversion through fuel-specific properties and the corresponding emission factors.

Explosives: Emissions generated by the use of explosives in mines

Explosives are used in blasting activities, enabling access to ore in both open-pit and underground mines.

Emissions in this category are calculated using the emission factor of the specific explosive used and the quantity consumed, derived from the monthly inventory balance as of the month-end closing date.

[8] Data from the International Energy Agency (IEA) and government agencies, such as the Brazilian Energy Research Company (EPE).
[9] The acetylene emission source from welding was estimated and disregarded as immaterial.

Industrial processes

Emissions resulting from physical or chemical processes in industrial production

The industrial processes carried out by Vale include agglomeration of iron ore and processes related to base metals. The calculation methodology differs for each of these processes.

Agglomeration

In the pelletizing production process, emissions are calculated using a mass balance approach, considering inputs (the product of fuel and non-fuel inputs and their respective carbon content) and process outputs (the product of the quantity of pellets produced and their respective carbon content). The fuel[10] and non-fuel inputs, most commonly used in this production process are anthracite and limestone.

The carbon content[11] of fuel inputs is reported on a monthly basis using data obtained from the organization's own laboratory. When such data is not available, the values considered are provided by suppliers and, as a last resort, literature-based data are applied.

After calculating the carbon emissions of the process, the values obtained for inputs and outputs are converted into CO_2e emissions, finally obtaining the total emissions.

Base metals

The production process for base metals is divided into the concentration, reduction, and refining stages, in which emissions are estimated from data on raw material consumption, product and waste production, and the respective carbon content associated with the inputs and outputs of the process. In the concentration stage, various raw materials and other inputs are used, generating related products and waste. Next, in the reduction stage, the product from the previous stage is used as a raw material. Finally, in the refining stage, the product from the previous stages is used as a raw material, generating new products and waste.

Process emissions are calculated based on a mass balance, considering the carbon content[11] of inputs and outputs obtained in our own laboratory, provided by suppliers or, as a last option, from the literature.

Fugitive emissions

Emissions resulting from unintentional releases

Fugitive emissions[12] related to refrigerant gases such as SF_6 and HFCs are calculated based on the quantity of gases purchased or replenished in the air conditioning and refrigeration systems of the operations. This consumption is multiplied by the global warming potential of each gas.

Land-use change

Emissions and removals associated with natural areas

The accounting process for this category involves integrating different databases, using automated tools, and applying specific methodologies to estimate changes in carbon stocks over time.

First, the areas of analysis are characterized with the aid of a broad database, such as historical data from MapBiomas and phytophysiognomy information provided by IBGE (Brazilian Institute of Geography and Statistics). This integration allows us to identify the main land use and land cover classes, understand how these areas have changed over the years, and determine whether the vegetation is primary (original) or secondary (regenerating).

In the next step, a map is produced that calculates the total amount of carbon (C_t). With this data, the carbon balance is determined, which corresponds to the difference between the stocks of consecutive years. Finally, all annual carbon balances[13] are added together and converted into CO_2 equivalent using the stoichiometric formula.

[10] Fuels used as external energy sources in the auxiliary processes of the pelletizing plant, such as diesel and natural gas, are accounted for under mobile and/or stationary combustion. In contrast, fuels used as process inputs—that is, added to the pellet mixture and burned inside the blast furnace, such as anthracite—are classified as industrial process emissions.
[11] The calculation of emissions from mass balance considers the conversion of carbon (C) content into CO_2, using the stoichiometric factor equivalent to 44/12, which corresponds to the ratio between the molar mass of CO_2 (44 g/mol) and that of elemental carbon (12 g/mol).
[12] Fugitive emissions from fire extinguishers and from anthracite lost during handling and storage were estimated and disregarded as immaterial.
[13] Reference values for carbon stocks and biomass growth rates are obtained from sources such as Brazil's National Inventory of GHG Emissions and Removals and field surveys conducted by the company itself.

For the calculation of removals[14], the biomass increment value measured specifically for the desired location for the first 20 years is used, and the biomass increment rate for subsequent years is estimated based on the preceding biomass.

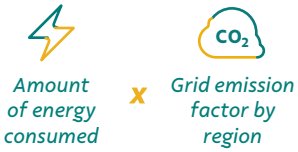
Scope 2

Emissions[15] resulting from the generation of purchased and consumed electricity

Scope 2 emissions are accounted for using two distinct approaches: the location-based and the market-based, which reflects contractual instruments associated with renewable energy attributes.

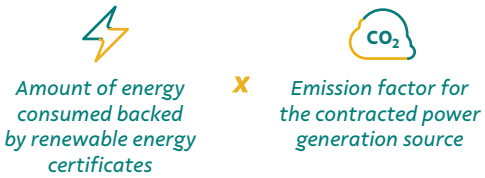
Location-based

Emissions related to energy consumption using the location-based approach are calculated based on the amount of energy consumed from the grid, that is, from the public electricity grid, in each region where Vale operates.



Market-based

Scope 2 emissions calculated using the market-based approach are based on the emission factors associated with Vale's acquired electricity portfolio, considering Power Purchase Agreements (PPAs) from renewable sources and guarantee of origin instruments, such as I-RECs and self-declarations, in accordance with GHG Protocol guidelines.



Scope 3

Regarding indirect emissions throughout the value chain, Vale's GHG inventory covers 9 of the 15 categories established by the GHG Protocol for Scope 3.[16]

Upstream

- **Category 1:** Purchased goods and services
- **Category 2:** Capital goods
- **Category 3:** Fuel- and energy- related activities not included in scope 1 and 2
- **Category 4:** Upstream transportation and distribution
- **Category 6:** Business travel
- **Category 7:** Employee commuting

Downstream

- **Category 9:** Downstream transportation and distribution
- **Category 10:** Processing of sold products
- **Category 15:** Investments

Categories 1 and 2

Emissions related to the production of consumer goods and durable goods and to purchased services

Emissions from categories 1 and 2 are accounted for by analyzing Vale's supply base, adopting a hybrid methodology as recommended by the GHG Protocol. For the subcategories most relevant to the business, such as explosives, conveyor belts, iron ore and anthracite, cradle-to-gate emission factors are applied, derived from databases like Ecoinvent (activity-based approach).

The consumption of purchased electricity in Brazil has been 100% verified by renewable energy certificates since 2023, anticipating by two years the public commitment to achieve zero Scope 2 emissions in the country.

[14] Calculation based on a model by Requena-Suarez et al. (2019).
[15] Vale does not acquire heating, cooling and steam and emissions from electricity consumption in small offices were estimated and disregarded as immaterial.
[16] Some categories are not included in the inventory as they are not material and/or not applicable: 5. Waste generated in operations (sent for treatment by third parties), 8. Upstream leased assets, 11. Use of sold products, 12. End-of-life treatment of sold products, 13. Downstream leased assets, and 14. Franchises. For more details, see Table 1 in the Appendix.

For the remaining subcategories, such as vehicle accessories and parts, civil construction services and port operations services, the spend-based calculation approach is used, in which finance-based emission factors are applied to the amount spent by Vale on suppliers. These emission factors in tCO_2/USD are classified by sector and country according to the United Nations International Standard Industrial Classification of All Economic Activities (ISIC). The available sector and country emission factors were originally calculated based on 2018 data and updated to reflect the economic context of the reference year, using the United States Consumer Price Index (CPI), ensuring comparability with current expenditure values.[17]

Category 3

Indirect emissions associated with the production of fuels and electricity purchased and consumed not included in Scope 1 and 2

Emissions in this category refer to the sum of subcategories 3A, 3B, 3C, and 3D.

Production of purchased fuels (3A)

Emissions are calculated based on the amount of fuel used in operations, the density of this input, and the emission factor associated with its life cycle. Fuel density values come from sources such as the BEN, GHG Protocol, and IPCC. For emission factors, the main reference used is Ecoinvent.

Production of fuel used for purchased electricity generation (3B)

Emissions[18] are calculated based on the amount of energy consumed from the grid, the life cycle emission factor of the fuels used in electricity generation (excluding combustion), and the percentage share of each energy source in the electricity mix of each region where Vale has operational and administrative activities.

Transmission and distribution losses (3C)

For the calculation of emissions in this subcategory, the total amount of energy consumed from the grid and the average loss rate throughout the system are considered, which varies according to the specific characteristics of each region. Transport and distribution (T&D) data are obtained from IEA databases.

Production of purchased energy for resale (3D)

Emissions[18] are calculated based on the amount of energy purchased and resold to the market, the life cycle emission factor of the fuels used in electricity generation, and the percentage share of each source in the electricity mix of each region where Vale resells electricity.

Categories 4 and 9

Emissions[19] related to third-party transportation

Transportation of sold products performed by third parties, when freight services are contracted and paid by Vale, is accounted for in category 4. On the other hand, category 9 covers emissions associated with transportation of sold products for which freight is contracted and paid directly by customers. Emissions from product transportation were estimated using a fuel consumption-based methodological approach.

Fuel consumption is estimated based on operational experience and project data, and emissions are calculated through the application of the corresponding emission factors. For marine transportation, emission factors from the International Maritime Organization (IMO) are used.

Category 6

Emissions[20] associated with the transportation of employees on corporate trips managed by third parties

This category includes, primarily, air travel conducted via commercial airlines, on both domestic and international routes.

Thus, the calculation includes emissions generated by combustion of the fuel and the emission factors provided by the GHG Procotol and DESNZ (UK Department for Energy Security and Net Zero).

Category 7

Emissions generated by employees' daily commute between their homes and workplaces

To estimate emissions from employee commuting, Vale uses two approaches: fuel- and distance-based.

Fuel-based method

Fuel consumption emissions are calculated from quantifying fuel consumption and the respective emission factors derived from the GHG Protocol. If the fuel contains added ethanol or biodiesel, there

[17] United Nations. International Standard Industrial Classification of All Economic Activities – Revision 4. Available in: https://unstats.un.org/unsd/demographic-social/census/documents/isic_rev4.pdf.
[18] The database containing information on the electricity matrix of each region is updated annually with data from the IEA and government agencies, such as the Brazilian Energy Research Company (EPE). The life cycle factors are mostly derived from the Ecoinvent database.
[19] Emissions related to the transportation of materials purchased by Vale, as well as to the transportation of base metals products (nickel, copper, and cobalt), were estimated and disregarded as immaterial to the overall Scope 3 results.
[20] Emissions related to chartered air travel, ground transportation, and lodging were estimated and classified as immaterial for the overall Scope 3 result.

is an additional calculation step that considers the percentage of these biofuels for proper conversion.

Distance-based method

This method, however, uses reported data on distance traveled, converting it into fuel consumption.

Category 10

Emissions from the processing of intermediate products by third parties following their sale by the Company

This category calculates emissions from the processing of sold products, segregated into the iron ore solutions and base metals.

Iron ore solutions

Ferrous products are processed by the steel industry and then used extensively in civil construction, infrastructure, transportation systems, and machinery manufacturing, among other applications.

The emissions calculation considers the quantity of products sold by Vale (sinter feed, pellet feed, lump ore, and agglomerates) and the processing route the sold product underwent in the steel industry, such as blast furnace and direct reduction. Based on this information, the production of reduced iron (DRI) or hot metal (HM) and steel is calculated. Next, the respective emission factors associated with the technological route are applied. A table showing the baseline for category 10 emission factors can be found in the Appendix.

Base metals

The base metals[21] for the energy transition sold by Vale are nickel, copper, and cobalt. Emissions associated with the processing of these metals are calculated based on emission factors that represent different uses for each metal, considering the first immediate finished product, such as stainless steel and copper wire.

The factors are obtained from the Ecoinvent database, reflecting exclusively the scope of category 10, based on adjustments to the datasets that aim to ensure that processing emissions are isolated and that the result includes only the percentage attributable to Vale, determined through mass allocation in relation to all inputs incorporated into the final product.

Category 15

Emissions[22] from investments, provided they are not under the company's control or accounted for in Scope 1 and 2 or in other categories of Scope 3

Three methods are used to calculate emissions, in order of priority: primary emissions data, operational parameters, or financial[23] results. Primary emissions data are obtained from public sources, such as the Brazilian GHG Protocol Program's Public Emissions Registry and sustainability reports. When unavailable, operational parameters or financial results are checked to apply an emissions intensity associated with the investee company's activity.

In all cases, the emissions obtained are multiplied by Vale's stake in the companies to account for the portion attributable to Company.

Data collection frequency

Vale has a GHG Management System that serves as the primary tool for collecting and consolidating data for all units and emission sources in the Company's inventory. Most data are collected and analyzed monthly, such as fuel, electricity, and explosives consumption, as well as industrial process activity data.

In addition, the review of the database containing the information necessary for emissions accounting follows existing best practices, using, whenever possible, widely accepted national and international technical references.

[21] Emissions from the processing of precious metals sold by Vale as co-products of copper mining and copper concentrate were estimated and disregarded as immaterial to the overall Scope 3 result.
[22] In alignment with the GHG Protocol and the recommendations of the International Council on Mining and Metals (ICMM), Scope 3 emissions of our investees, where material, should be considered together with Scope 1 and Scope 2 emissions. The emissions of our investees included in Scope 3 category 15 have been accounted for based on information provided by the investees, taking into consideration our respective ownership interests and the latest available data.
[23] The variables are associated with the investee companies; for production, the indicators used must be appropriate to the nature of the activity (such as tCO_2e/tonnes produced), while for financial performance, they must reflect economic performance (such as net revenue).

Year-over-year trends

The continuous improvement of processes and data handling is a priority for the Company, enabling the inventory to become more robust with each cycle, in line with the implementation of new technologies as well as Vale's decarbonization commitments.

About the Scope 1 and 2 emissions management system, performance indicators are monitored monthly, with the aim of enabling the timely detection of any inconsistencies in reporting—such as information gaps or more obvious discrepancies. In addition, recurring training sessions are held for the focal points responsible for data collection, aiming to improve the quality of the information used in emissions calculations.

In Scope 3, the performance of its respective indicators is monitored annually. Continuous improvements are implemented following methodological enhancements recommended primarily by the GHG Protocol and ICMM.

As previously mentioned in the section Calculation Methodology , some sources and categories were not included in the inventory based on applicability and materiality criteria, in accordance with the principles of relevance, completeness, and transparency defined by the GHG Protocol. Nevertheless, these data remain under monitoring and are periodically reassessed based on their representativeness in total emissions. They remain excluded only as long as they contribute less than 5% of Vale's global emissions, following the GHG Protocol guidelines.

There is, therefore, a regular reassessment of the inventory to enhance data reliability, aiming to enable more accurate analyses and support strategic decisions related to the decarbonization process. Among the methodological improvements implemented in the 2025 cycle, the revision of the calculation for categories 1, 2, and 10 (base metals) stands out and the inclusion of subcategories 3B and 3D, which were not accounted for. These improvements are detailed in the respective sections of the report, and the variation in the inventory results can be viewed in Table 2 of the Appendix.

Through these initiatives, Vale reinforces its commitment to integrity, accuracy, and continuous improvement of its emissions inventory. The Company believes that the consolidation of more robust practices, aligned with best methodological practices, strengthens its ability to monitor climate performance and support strategic decisions that guide the organization's decarbonization trajectory.

Railway. Photo: Cristiano Oliveira

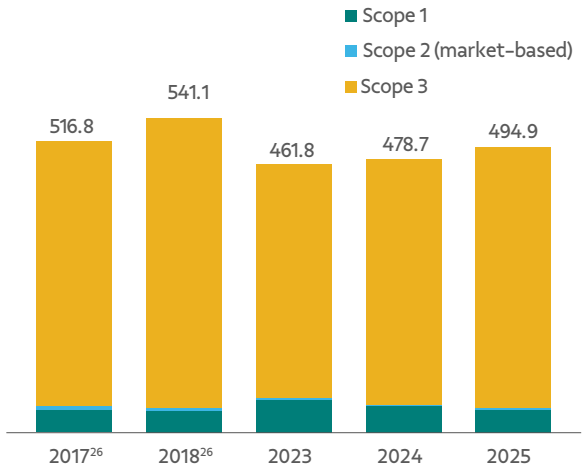
GHG emissions inventory

Absolute emissions[24]

In 2025, Vale's total GHG emissions totaled 494.9 $MtCO_2e$ and, considering Scope 1, 2 (market-based), and 3, represented a 3.4% increase compared to 2024.

Annual history of absolute GHG emissions[25]

In million tons of CO_2e

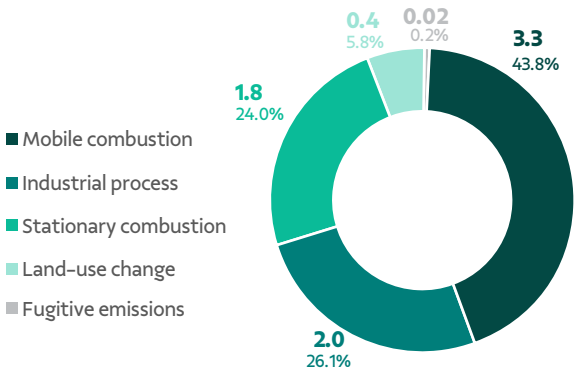


Scope 1

Accounting for approximately 1.5% of the 2025 inventory, Scope 1 emissions totaled 7.5 $MtCO_2e$. This amount represents a 2.2% increase compared to the previous year, primarily due to increased production.

Representativeness of Scope 1 GHG emission categories

In million tons of CO_2e



In an analysis of the proportion by category within this scope, emissions from mobile combustion were the most significant, accounting for 43.8% of the total. Emissions from industrial processes and stationary combustion were 26.1% and 24.0%, respectively. The other two categories combined accounted for 6.0%.

Scope 2

Both approaches (location-based and market-based) accounted for 0.1% of the total emissions from Scope 1, 2 and 3. Between 2024 and 2025, Vale's Scope 2 emissions decreased by 8.0% under the location-based approach and by 6.7% under the market-based approach, primarily due to the continued strategy of procuring electricity from renewable sources and the favorable evolution of emission factors for the electricity mixes in the regions where the Company operates.

There were no significant changes in organizational or methodological boundaries, ensuring comparability of results, with Scope 2 continuing to account for a small portion of the total emissions inventory.

Scope 3

Scope 3 emissions, which accounted for 98.4% of the Company's total emissions in 2025, reached a total of 487.1 $MtCO_2e$ and represented a 3.4% increase compared to the 2024 figure. The increase in these emissions in 2025 is mainly due to the increase in the Company's production and sales volume (category 10) but was also due to the increase in the volume produced or net revenue of Vale's investee companies (category 15).

Most of the emissions in this scope are associated with categories 4, 10, and 15. Category 10 is the most significant, accounting for 90.1%, followed by category 15, with 5.1%, and finally category 4 (2.7%). The remaining categories together account for 2.1% of value chain emissions.

[24] The term "Absolute emissions" and all items within it refer to fossil emissions, as opposed to biogenic emissions, which are named directly.

[25] The GHG emissions inventory has a low level of uncertainty, in the range of 3% for Scope 1 and 2 and 9% for Scope 3, according to an analysis conducted in accordance with the methodologies recommended by the GHG Protocol and the IPCC. This estimate only covers activity data. Scope 3 metrics are subject to higher levels of uncertainty due to reliance on activity data and emission factors provided by suppliers and value chain partners. When such data and factors are unavailable, Vale uses estimates and/or secondary data.

[26] The years 2017 and 2018 are the base years for the Scope 1 and 2 target and the Scope 3 target, respectively.

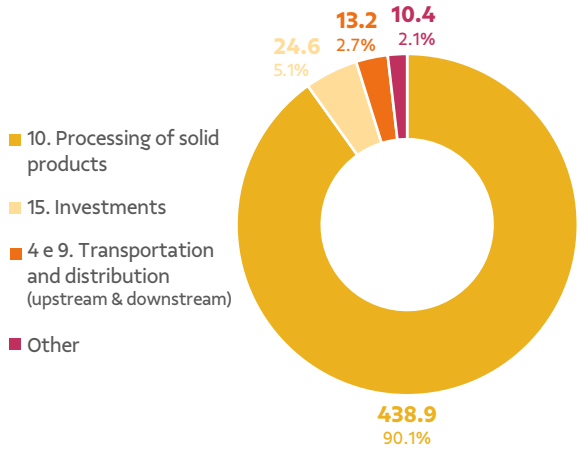
Absolute GHG emissions by Scope 3 category in 2025

In million tons of CO_2e

Scope 3 categories	Emissions
1. Purchased goods and services	5.7
2. Capital goods	0.9
3. Fuel- and energy-related activities	2.2
4. Upstream transportation and distribution	13.2
6. Business travel	0.02
7. Employee commuting	0.1
9. Downstream transportation and distribution	1.5
10. Processing of sold products	438.9
15. Investments	24.6

Breakdown of Scope 3 GHG emissions by category

In million tons of CO_2e



Emissions from processing sold products represent 88.7% of total Scope 1, 2 (market-based) and 3 emissions.

By gas type

The GHG inventory is also analyzed based on the contribution of each gas that makes up the company's total emissions, allowing for a better understanding of how they influence the aggregate result. When analyzing absolute emissions by gas type in Scope 1 and 2[27], it is observed that CO_2 accounts for the largest share, representing approximately 99.7% of total emissions, followed by HFCs, which account for about 0.2%. Finally, CH_4 and N_2O emissions, considered together, represent approximately 0.02% of the total inventory.

Absolute GHG emissions by gas type for Scope 1 and 2 in 2025

In tons of gas

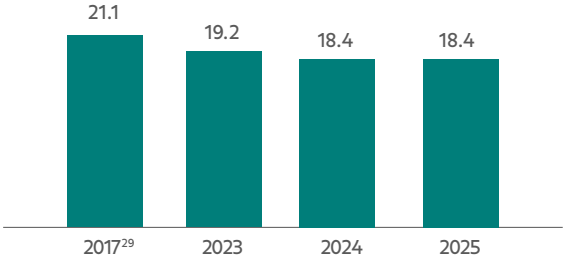
Gas	Scope 1	Scope 2 location-based
CO_2	7,172,670.2	713,912.1
CH_4	252.7	23.6
N_2O	1,211.1	2.5
HFCs	18,717.4	–
PFCs	–	–
SF_6	–	–

Specific emissions

Vale's Scope 1 and 2 (market-based) emissions intensity in 2025 reached 18.4 $kgCO_2e/tMFe-eq$[28], showing a result equivalent to that observed in 2024. It is worth noting that its increasing evolution since the base year is mainly associated with the consumption of renewable electricity in Brazil, backed by 100% renewable energy certificates, which reduces Scope 2 emissions, as well as operational performance.

Annual history of specific GHG emission intensities for Scope 1 and 2 (market-based)

In $kgCO_2e/tMFe-eq$



[27] Scope 3 emissions are not broken down by gas type, since most of the emission factors used to quantify the categories are expressed directly in tCO_2e, incorporating different GHGs in an aggregated manner according to their respective GWPs.
[28] To create a basis for comparison, production volumes of the Company's main products, such as pellets, nickel, and copper, are converted to tons of iron ore equivalent. The unit of measurement for emission intensity is expressed in kilograms of CO_2 equivalent per ton of iron ore equivalent.
[29] The year of 2017 is the base year for Scope 1 and 2 (market-based) target.

Biogenic emissions

Biogenic emissions associated with the organization's operations were accounted for and reported separately from fossil emissions, as guided by the GHG Protocol. During the period analyzed, these emissions resulted primarily from Scope 1, especially due to the consumption of biofuels.

History of biogenic CO_2 emissions

In thousand tons of CO_2

GHG Scope	2023	2024	2025
Scope 1	313.1	444.3	442.3
Scope 2[30] (LB e MB)	–	–	–
Scope 3	37.0	39.5	8.8
Scope 1, 2 e 3	**350.1**	**483.8**	**451.0**

Biogenic removals

The total estimated biogenic removals for 2025 were 233,800 tCO_2e, approximately 29.8% less than the previous year. The difference observed between the two periods is mainly attributed to the update of the MapBiomas database, with the transition from Collection 9 to Collection 10, since no significant changes were identified in the boundaries of the Directly Affected Area (DAA) and in the Company's properties.

History of biogenic CO_2 removals

In thousand tons of CO_2

Biogenic removals	2023	2024	2025
Total	345.1	333.0	233.8

Tapirapé-Aquiri National Forest. Photo: Ricardo Teles.

[30] Scope 2 accounting approaches: location-based (LB) and market-based (MB).

Key concepts

Greenhouse gases (GHG): Gases present in the atmosphere that have the ability to absorb and re-emit infrared radiation reflected by the Earth's surface, resulting in the trapping of heat within the atmospheric system. This process intensifies the greenhouse effect and contributes to the rise in average global temperature.

Fossil and biogenic emissions: Refer to GHGs released from different carbon sources. Fossil emissions result from the combustion or transformation of fossil fuels and materials, such as coal, oil, and natural gas. Biogenic emissions, on the other hand, originate from sources linked to the biological carbon cycle, such as the burning, decomposition, or processing of biomass and products of biological origin.

Biogenic removals: Refer to the biological fixation of carbon that occurs through the process of photosynthesis. This mechanism results in the temporary removal of CO_2 from the atmosphere and its incorporation into the carbon stocks of plant biomass. Thus, the increase in carbon in plant tissues is accounted for as biogenic removal of CO_2.

GHG Protocol: The Greenhouse Gas Protocol is the leading international standard for the quantification, management, and reporting of GHG emissions. Developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), the GHG Protocol provides widely accepted methodologies for organizations, governments, and other stakeholders to measure and report their emissions in a consistent, transparent, and comparable manner.

GHG emissions inventory: A document prepared to quantify the direct and indirect GHG emissions resulting from a company's activities. Emissions are organized according to the three scopes defined by the GHG Protocol:

- **Scope 1**: Direct emissions from sources controlled by the organization;
- **Scope 2**: Indirect emissions associated with the purchase and consumption of electricity, steam, heat, or cooling; and
- **Scope 3**: Other indirect emissions occurring throughout the value chain that are neither owned nor controlled by the organization.

Paris Agreement: An international treaty adopted in 2015 under the United Nations Framework Convention on Climate Change (UNFCCC), with the goal of limiting the increase in global average temperature to well below 2°C (WB2D), while striving to limit it to 1.5°C above pre-industrial levels.

Net Zero Scenario: An emissions target scenario that seeks to reduce GHG emissions as much as possible and offset the inevitable residual emissions, so that the net balance is equal to zero. This concept is aligned with climate science and the objectives of the Paris Agreement, particularly the 1.5°C global warming limit.

Well Below 2 Degrees (WB2D) Scenario: A reference scenario used to formulate and evaluate emission reduction targets, emphasizing the need to keep the increase in global average temperature well below 2°C compared to pre-industrial levels.

Science-Based Targets Initiative (SBTi): A global initiative that develops standards, tools, and guidance enabling organizations to set GHG emission reduction targets, with the ambition of keeping global warming below catastrophic levels and achieving net-zero emissions by 2050 at the latest.

Intergovernmental Panel on Climate Change (IPCC): A UN scientific body that provides guidelines and technical data to advise governments and decision-makers on the causes, impacts, risks, and mitigation and adaptation solutions.

Intergovernmental Panel on Climate Change Sixth Assessment Report (AR6): A document produced by the IPCC that provides a comprehensive assessment of the causes, impacts, and mitigation options for climate change.

Global Warming Potential (GWP): Metrics used to measure and standardize the relative ability of gases to retain heat in the atmosphere compared to CO_2 over a given period. They are periodically updated in reports published by the IPCC.

International Council on Mining and Metals (ICMM): A global organization that brings together the world's largest mining and metals companies with the aim of promoting responsible practices in the sector.

Hard-to-abate sectors: Sectors of the economy classified as hard-to-abate—such as mining, cement, and aviation, among others—face significant challenges in reducing emissions due to their heavy reliance on energy-intensive physical and chemical processes. As a result, their path toward alignment with global climate goals requires a combination of solutions involving operational efficiency, technological innovation, changes in the value chain, the development of low-carbon markets, and, as a residual and complementary measure, carbon offset mechanisms.

Iron ore solutions: A set of products, processes, and technologies associated with the iron ore supply chain, primarily aimed at supplying the steel industry. These include different types of ore, such as fines, sinter feed, pellet feed, sinter, and pellets, as well as beneficiation, agglomeration, and logistics solutions designed to meet the requirements of metallurgical quality, operational efficiency, and environmental performance in steel production.

Base metals: Industrial metals widely used as essential inputs for various economic sectors, including construction, energy, transportation, and low-carbon technologies. This group includes metals such as copper, nickel, and cobalt, used in applications ranging from electrical conductors and metal alloys to batteries and energy storage systems.

Emissions compensation: consists of the reduction or removal of GHG emissions that could not be avoided or reduced through carbon credit trading mechanisms.

Absolute and net removals: Absolute removals correspond to the total quantity of GHGs effectively removed from the atmosphere and durably stored through natural or technological means, such as nature-based solutions, bioenergy with carbon capture and storage (BECCS), or direct air capture with carbon storage (DACCS), without considering associated emissions. Net removals, in turn, result from the balance between absolute removals and the emissions generated throughout the life cycle of these activities, reflecting the net climate effect after deducting operational, energy-related, and value chain emissions. This concept is essential for assessing neutrality, net zero targets, and the environmental integrity of reported results.

For more definitions, visit the official IPCC glossary.

Ore wagons. Photo: Ricardo Teles.

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Appendix

Table 1 . Categories not included in the emissions inventory.

Scope	Category	Note
Scope 1	Waste and effluents	This category is immaterial because the waste generated in operations is mostly inert and does not generate emissions, making it irrelevant to Vale's overall results.
Scope 3	5. Waste generated in operations (sent for treatment by third parties)	This category is not material because emissions from waste and effluent treatment performed by third parties were calculated and identified as irrelevant to Vale's overall result. The "spend" associated with treatment services is accounted for in category 1.
	8. Leased assets (organization as lessee)	This category is not applicable because, although Vale leases assets from third parties, operational control is direct and these emissions are already accounted for in Scope 1 and 2.
	11. Use of sold products	This category is not applicable because the products marketed by Vale are used as intermediate raw materials by customers and are not intended for final consumption. Emissions resulting from the processing of these products fall under category 10.
	12. End-of-life treatment of sold products	This category is immaterial because products sold as mineral inputs are intermediate and inert materials with low potential for generating emissions at the end of their life cycle, making them irrelevant to Vale's overall results.
	13. Leased assets (organization as lessor)	This category is not material because the operations in the leased areas are carried out by partner companies that mine and market the products independently, including both raw ore (ROM) and processed ore (sinter feed, pellet feed, granules, etc.). Emissions related to the portion of this production acquired by Vale are already accounted for in other Scope 3 categories. Emissions from production not acquired by the Company have been assessed and identified as irrelevant to the overall inventory result.
	14. Franchises	This category is not applicable, as Vale does not adopt a franchise or brand licensing business model, nor does it receive royalties from third parties.

Table 2. Changes in reported Scope 3 figures resulting from methodological improvements.

In $MtCO_2e$

Scope 3	2018	2022	2023	2024
Amount reported in 2024	528.4	456.7	450.1	458.5
Revised amount for 2025	530.5	460.5	453.9	471.0
Change (%)	0.4	0.8	0.9	2.7

Table 3 . Tier levels[31] of the categories in Vale's GHG emissions inventory in 2025.

Scope	Emission source type	Calculation method used	*Tiers*
Scope 1	Mobile and stationary combustion	CO_2: Mass balance CH_4 and N_2O: Emission factors	Tier 2 for CO_2 Tier 1 for CH_4 and N_2O
	Use of explosives	CO_2: Emission factor CH_4: Emission factor	Tier 1 for CO_2 Tier 1 for CH_4
	Industrial processes	CO_2: Mass balance	Tier 2 for CO_2
	Fugitive emissions	HFCs and SF_6: Emission factors	Tier 1 for HFCs and SF_6
	Land-use change	CO_2: Emission factor	Tier 1 for CO_2
Scope 2	Purchased energy	CO_2, CH_4 and N_2O: Emission factors	Tier 2 for CO_2
Scope 3	All calculated categories	CO_2, CH_4 and N_2O: Emission factors	Tier 1 for CO_2 Tier 1 for CH_4 and N_2O

[31] They represent a dimension of the methodological complexity applied in the quantification of emissions. The IPCC guidelines present three categories: Tier 1 (the most basic approach, using standard parameters and emission factors); Tier 2 (an intermediate approach, with more specific data that are generally developed for national or sectoral contexts, offering greater detail); and Tier 3 (more advanced models, using directly measured data or highly specific inventories, constituting the most complex level of assessment).

Table 4. Reference database of emission factors for stationary and mobile combustion categories under Scope 1.

Energy source / gas type	Country	Description	Unit of measurement	Value	Reference
Diesel[32]	Brazil	Carbon emission factor – Diesel – Brazil	tC/TJ	20.20	"Gas/Diesel Oil" value 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 1: Introduction TABLE 1.3. DEFAULT VALUES OF CARBON CONTENT
	Canada	Carbon emission factor – Diesel – Canada	tC/TJ	19.06	Adopted Gas/Diesel Oil: 19.06 t C/TJ GCV. NIR 2025. National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada. Part 2 – Table A4–2 Reference Approach Energy Conversion and Emission Factors for Canada.
Diesel[32]	Japan	Carbon emission factor – Diesel – Japan	tC/TJ	18.80	Adopted Gas oil or diesel oil (crude oil origin): 18.8 t C/TJ GCV. National Greenhouse Gas Inventory Report of Japan 2025 Table 3–11 Carbon emission factors for fuel combustion in gross calorific value (Unit: t–C/TJ). Page 3–18
	United Kingdom	Carbon emission factor – Diesel – United Kingdom	tC/TJ	20.06	C emission factor calculated by mass balance from the CO_2 emission factor: Adopted for Diesel (100% mineral diesel) = 0.26475 kg CO_2/ kWh (Net CV) Tab: "Fuels" line 77 DESNZ 2025: Conversion factors 2025 – Full set (for advanced users) – Gov.uk Version: 1.1 It was necessary to convert kWh to TJ.
	Default	Carbon emission factor – Diesel – Default	tC/TJ	20.20	"Gas/Diesel Oil" value 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 1: Introduction TABLE 1.3. DEFAULT VALUES OF CARBON CONTENT

[32] Emissions in Oman associated with diesel combustion (mobile or stationary) are not representative.

Energy source / gas type	Country	Description	Unit of measurement	Value	Reference
Biodiesel – B100	Brazil	Carbon emission factor – B100 – Brazil	tC/TJ	19.30	"Value of 'Biodiesels' 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 1: Introduction TABLE 1.3. DEFAULT VALUES OF CARBON CONTENT"
	Canada	Carbon emission factor – B100 – Canada	tC/TJ	18.75	Adopted Liquid Biomass: 18.75 t C/TJ GCV. NIR 2025. National Inventory Report 1990–2023: Greenhouse Gas Sources and Sinks in Canada. Part 2 – Table A4–2 Reference Approach Energy Contents and Emission Factors for Canada.
	Default	Carbon emission factor – B100 – Default	tC/TJ	19.30	"Biodiesels" value 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 1: Introduction TABLE 1.3. DEFAULT VALUES OF CARBON CONTENT
	United Kingdom	Carbon emission factor – B100 – United Kingdom	tC/TJ	19.68	Biodiesel = 72.16 kg CO_2/GJ Table: "Outside of Scopes" cell D35 DESNZ 2025: Conversion factors 2025 – Full set (for advanced users) – Gov.uk Version: 1.1
Diesel	Default	Emission factor for CH_4 – Diesel – Boiler – Default	$kgCH_4$/TJ	0.20	Value for "Gas/Diesel Oil Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 2: Stationary Combustion TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for N_2O – Diesel – Boiler – Default	kgN_2O/TJ	0.40	Value for "Gas/Diesel Oil Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 2: Stationary Combustion TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
Diesel	Default	Emission factor for CH_4 – Diesel – Furnaces – Default	$kgCH_4$ /TJ	3.00	"Gas/Diesel Oil" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION

Energy source / gas type	Country	Description	Unit of measurement	Value	Reference
Diesel	Default	Emission factor for N_2O – Diesel – Furnaces – Default	kgN_2O/TJ	0.60	"Gas/Diesel Oil" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION
		Emission factor for CH_4 – Diesel – Locomotive – Default	$kgCH_4/TJ$	4.15	Railways – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.4.1 DEFAULT EMISSION FACTORS FOR THE MOST COMMON FUELS USED FOR RAIL TRANSPORT (default value)
		Emission factor for N_2O – Diesel – Locomotive – Default	kgN_2O/TJ	28.60	Railways – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.4.1 DEFAULT EMISSION FACTORS FOR THE MOST COMMON FUELS USED FOR RAIL TRANSPORT (default)
		Emission factor for CH_4 – Diesel – Stationary engine – Default	$kgCH_4/TJ$	3.00	"Gas/Diesel Oil" Value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION
		Emission factor for N_2O – Diesel – Stationary engine – Default	kgN_2O/TJ	0.60	"Gas/Diesel Oil" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION
		Emission factor for CH_4 – Diesel – Mobile engine – Default	$kgCH_4$ /TJ	4.15	Railways – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.4.1 DEFAULT EMISSION FACTORS FOR THE MOST COMMON FUELS USED FOR RAIL TRANSPORT (default value)
		Emission factor for N_2O – Diesel – Mobile engine – Default	kgN_2O/TJ	28.60	Railways – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.4.1 DEFAULT EMISSION FACTORS FOR THE MOST COMMON FUELS USED FOR RAIL TRANSPORT (default value)

Energy source / gas type	Country	Description	Unit of measurement	Value	Reference
Biodiesel – B100	Default	Emission factor for CH_4 – B100 – Boiler – Default	$kgCH_4$ /TJ	3.00	"Biodiesels" Value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION. Corrected chapter(s) as of April 2007.
Biodiesel – B100	Default	Emission factor for N_2O – B100 – Boiler – Default	kgN_2O/TJ	0.60	"Biodiesels" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION. Corrected chapter(s) as of April 2007.
		Emission factor for CH_4 – B100 – Furnace – Default	$kgCH_4$ /TJ	3.00	"Biodiesels" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION. Corrected chapter(s) as of April 2007.
		Emission factor for N_2O – B100 – Furnace – Default	kgN_2O/TJ	0.60	"Biodiesels" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION. Corrected chapter(s) as of April 2007.
		Emission factor for CH_4 – B100 – Locomotive – Default	$kgCH_4$ /TJ	4.15	Railways – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.4.1 DEFAULT EMISSION FACTORS FOR THE MOST COMMON FUELS USED FOR RAIL TRANSPORT (default value). Corrected chapter(s) as of June 2019.
		Emission factor for N_2O – B100 – Locomotive – Default	kgN_2O/TJ	28.60	Railways – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.4.1 DEFAULT EMISSION FACTORS FOR THE MOST COMMON FUELS USED FOR RAIL TRANSPORT (default value). Corrected chapter(s) as of June 2019.

Energy source / gas type	Country	Description	Unit of measurement	Value	Reference
Biodiesel – B100	Default	Emission factor for CH_4 – B100 – Stationary Engine – Default	$kgCH_4$ /TJ	3.00	"Biodiesels" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION. Corrected chapter(s) as of April 2007.
		Emission factor for N_2O – B100 – Stationary Engine – Default	kgN_2O/TJ	0.60	"Biodiesels" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION. Corrected chapter(s) as of April 2007.
		Emission factor for CH_4 – B100 – Mobile Engine – Default	$kgCH_4$ /TJ	4.15	Off-road source – Industry – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.3.1 DEFAULT EMISSION FACTORS FOR OFF-ROAD MOBILE SOURCES AND MACHINERY (default value)
		Emission factor for N_2O – B100 – Mobile Engine – Default	kgN_2O/TJ	28.60	Off-road source – Industry – Diesel. IPCC 2006, Volume 2, Chapter 3, Table 3.3.1 DEFAULT EMISSION FACTORS FOR OFF-ROAD MOBILE SOURCES AND MACHINERY (default value)

Table 5. Reference basis for emission factors for the industrial processes category under Scope 1.

Energy / gas type	Country	Description	Unit of measurement	Value	Reference
Anthracite	Default	Carbon emission factor – Anthracite – Default	tC/TJ	26.80	"Anthracite" value 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 1: Introduction TABLE 1.3. DEFAULT VALUES OF CARBON CONTENT
Natural Gas	Default	Carbon Emission Factor – Natural Gas – Default	tC/TJ	15.30	"Natural Gas" value 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2: Energy > Chapter 1: Introduction TABLE 1.3. DEFAULT VALUES OF CARBON CONTENT
	Canada	Carbon Emission Factor – Natural Gas – Canada	tC/TJ	13.79	Adopted Natural Gas: 13.79 t C/TJ GCV. NIR 2025. National Inventory Report 1990 –2023: Greenhouse Gas Sources and Sinks In Canada. Part 2 – Table A4–2 Reference Approach Energy Conversion and Emission Factors for Canada.
	Japan	Carbon emission factor – Natural Gas – Japan	tC/TJ	13.90	Adopted for indigenous natural gas: 13.9 t C/TJ GCV. National Greenhouse Gas Inventory Report of Japan 2025. Table 3–11 Carbon emission factors for fuel combustion in gross calorific value
	United Kingdom	Carbon emission factor – Natural Gas – United Kingdom	tC/TJ	15.33	C emission factor calculated by mass balance from the CO_2 emission factor: Adopted Natural gas = 0.20229 $kgCO_2$/ kWh (Net CV) Tab: "Fuels" DESNZ 2025: Conversion factors 2025 – Full set (for advanced users) – Gov.uk Version: 1.1 It was necessary to convert kWh to TJ.

Energy / gas type	Country	Description	Unit of measurement	Value	Reference
Anthracite	Default	Emission factor for CH_4 – Anthracite – Boiler – Default	$kgCH_4$ /TJ	10.00	"Anthracite" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION.
		Emission factor for N_2O – Anthracite – Boiler – Default	kgN_2O/TJ	1.50	"Anthracite" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION.
		Emission factor for CH_4 – Anthracite – Furnace – Default	$kgCH_4$ /TJ	10.00	"Anthracite" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION.
		Emission factor for N_2O – Anthracite – Furnace – Default	kgN_2O/TJ	1.50	"Anthracite" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION.
		Emission factor for CH_4 – Anthracite – Stationary Engine –Default	$kgCH_4$ /TJ	10.00	"Anthracite" value – Default Emission Factor2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION.
		Emission factor for N_2O – Anthracite – Stationary Engine – Default	kgN_2O/TJ	1.50	"Anthracite" value – Default Emission Factor 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.3 DEFAULT EMISSION FACTORS FOR STATIONARY COMBUSTION IN MANUFACTURING INDUSTRIES AND CONSTRUCTION.
Natural Gas	Default	Emission factor for CH_4 – Natural Gas – Boiler – Default	$kgCH_4$ /TJ	1.00	Value from "Natural Gas / Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for N_2O – Natural Gas – Boiler – Default	kgN_2O/TJ	1.00	Value from "Natural Gas / Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for CH_4 – Natural Gas – Furnace – Default	$kgCH_4$ /TJ	1.00	Value from "Natural Gas / Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS

Energy / gas type	Country	Description	Unit of measurement	Value	Reference
Natural Gas	Default	Emission factor for N_2O – Natural Gas – Furnace – Default	kgN_2O/TJ	0.10	Value from "Natural Gas / Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for CH_4 – Natural Gas – Stationary Engine – Default	$kgCH_4$ /TJ	1.00	Value from "Natural Gas / Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for N_2O – Natural Gas – Stationary Engine –Default	kgN_2O/TJ	0.10	Value from "Natural Gas / Boilers" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for CH_4 – Natural Gas – Mobile Engine – Default	$kgCH_4$ /TJ	92.00	Value from "Natural Gas / Boilers" IPCC 2006 Guidelines for National Greenhouse Gas Inventories – Volume 2: Energy – Chapter 3: Table 3.2.2 ROAD TRANSPORT N_2O AND CH_4 DEFAULT EMISSION FACTORS AND UNCERTAINTY RANGES
		Emission factor for N_2O – Natural Gas – Mobile Engine – Default	kgN_2O/TJ	3.00	IPCC 2006 Guidelines for National Greenhouse Gas Inventories – Volume 2: Energy – Chapter 3: Table 3.2.2 ROAD TRANSPORT N_2O AND CH_4 DEFAULT EMISSION FACTORS AND UNCERTAINTY RANGES
		Emission factor for CH_4 – Natural gas – Turbine – Default	$kgCH_4$ /TJ	4.00	Value from "Natural Gas / Gas-Fired Gas Turbines >3MW" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS
		Emission factor for N_2O – Natural gas – Turbine – Default	kgN_2O/TJ	1.00	Value for "Natural Gas / Gas-Fired Gas Turbines >3MW" 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Volume 2: Energy > Chapter 2: Stationary Combustion. TABLE 2.7 INDUSTRIAL SOURCE EMISSION FACTORS

Table 6 . Reference basis for emission factors in the fugitive emissions category of Scope 1.

Energy / gas type	Country	Description	Unit of measurement	Value	Reference
R-134a	Default	HFC	GWP	1,530.00	IPCC Sixth Assessment Report: Climate Change 2021: The Physical Science Basis (AR6) Table 7.SM.7
R-410a	Default	Blend	GWP	1,923.50	GWP for 100-yr PBGHG Tool (v2025.0.1) Tab: Emission Factors > Section 5: Global Warming Potential (GWP) > Table 21. Global warming potential (GWP) of greenhouse gases controlled by the Kyoto Protocol.

Table 7 . Reference base for Scope 1 land-use change category emission factors.

Energy / gas type	Country	Description	Unit of measurement	Value	Reference
Land Use Emissions	Brazil	Average emissions per hectare cleared in 2025	tCO_2 per ha	365.40	Information provided by the Vale Institute of Technology (ITV)

Table 8. Reference database for Scope 2 emission factors.

Emissions-generating activity	Data source	Calculation method	Reference
Generation of electricity purchased and consumed by the company	Invoices and the company's own systems for measuring and managing internal electricity consumption	Based on emission factors from the national grids where Vale operates, Scope 2 (location-based) emissions are calculated for the electricity consumption billed to and managed by the company.	MCTI – Brazilian Ministry of Science, Technology, and Innovation IEA – International Energy Agency DESNZ – UK Department for Energy Security and Net Zero

Table 9 . Reference database for Scope 3 emission factors.

Category	Emissions-generating activity	Data source	Calculation method
1. Purchased goods and services	Emissions resulting from the extraction, production, and transportation of goods and services (cradle-to-gate) purchased by the Company in the reference year.	In-house supply management systems.	"average-data" and "spend-based"
2. Capital goods	Emissions resulting from the extraction, production, and transportation of capital (cradle-to-gate) acquired by the Company in the reference year.	In-house supply management systems.	"average-product" and "spend-based"
3. Fuel- and energy-related activities not included in Scope 1 and 2	Emissions related to the extraction, production, and transportation of fuels and energy purchased and consumed by the Company, not included in Scope 1 and 2.	Invoices and proprietary systems for managing fuel and electricity consumption.	"average-data"
4. Transportation and distribution (upstream)	Emissions related to the transportation of sold products, when the freight is contracted and paid for by the Company.	In-house systems for managing fuel consumption.	"fuel-based"
6. Business travel	Emissions resulting from business travel undertaken by employees, including domestic and international flights.	Business travel management systems.	"distance-based"
7. Employee commuting	Emissions from employee transportation between their homes and workplaces during the reference year.	In-house fuel consumption management systems and distance traveled for employee commutes (home-to-work).	"fuel-based" and "distance-based"
9. Transportation and distribution (downstream)	Emissions associated with the transportation of products sold by the Company where the freight is contracted and paid for directly by the customer.	In-house systems for managing fuel consumption.	"fuel-based"
10. Processing of sold products	Emissions arising from the processing of intermediate products by third parties after their sale by the Company.	Management systems for the quantity and quality of products sold.	"average-data"
15. Investments	Emissions arising from investments, provided they are not under the company's control or accounted for in Scope 1 and 2 or other categories of Scope 3.	In-house investment management systems. GHG inventories, financial data, and production data disclosed by companies in which Vale has invested.	"investment-specific" and "average-data"

Table 10. Reference database for Scope 3 category 10 emission factors.

Key Emission Factors – Iron ore solutions			
Category 10: Processing of sold products	**Unit of measurement**	**Value**	**Reference**
CO_2 emission factor for sponge iron production – DRI	tCO_2/tDRI	0.70	IPCC 2019 Refinement: Guidelines for National GHG Inventories. Volume 3, Chapter 4: Metal Industry Emissions. TABLE 4.1B (NEW) TIER 1 DEFAULT CO_2 EMISSION FACTORS FOR IRON AND STEEL PRODUCTION
CO_2 emission factor for pig iron production in a blast furnace – BF	tCO_2/t liquid pig iron	1.43	IPCC 2019 Refinement: Guidelines for National GHG Inventories. Volume 3, Chapter 4: Metal Industry Emissions. TABLE 4.1B (NEW) TIER 1 DEFAULT CO_2 EMISSION FACTORS FOR IRON AND STEEL PRODUCTION
CO_2 emission factor for sinter production	tCO_2/sinter	0.21	IPCC 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories – Volume 3 – Industrial Processes and Product Use, Chapter 4: Metal Industry Emissions. TABLE 4.1A (NEW) TIER 1 DEFAULT CO_2 EMISSION FACTORS FOR SINTER AND PELLET PRODUCTION
CO_2 emission factor for steel production in a Basic Oxygen Furnace (BOF)	tCO_2/t liquid steel	0.17	Maximum value: 0.174 tCO_2/t liquid steel Joint Research Center, 2013 IPCC 2019 Refinement: Guidelines for National GHG Inventories. Volume 3, Chapter 4: Metal Industry Emissions. TABLE 4.1b (New) TIER 1 DEFAULT CO_2 EMISSION FACTORS FOR IRON & STEEL PRODUCTION
CO_2 emission factor for steel production in an Electric Arc Furnace (EAF)	tCO_2/t liquid steel	0.13	Value for "Electric Arc Furnace (EAF) (ton of CO_2 per ton of steel produced)": average 0.126 tCO_2/ t liquid steel. (average 0.072–0.18 tCO_2/ t liquid steel) Note: 1) The emission factor for EAF steel production does not include emissions from iron production. 2) (EU IPPC BREF 2013), Chapter 8, Table 8.1 p.429 (0.072–0.180 tCO_2/t of steel produced). IPCC 2019 Refinement: Guidelines for National GHG Inventories. Volume 3, Chapter 4: Metal Industry Emissions. TABLE 4.1b (New) TIER 1 DEFAULT CO_2 EMISSION FACTORS FOR IRON & STEEL PRODUCTION
CO_2 emission factor for steel production via the BF/BOF route	tCO_2/t liquid steel	1.58	IPCC 2019 Refinement: Guidelines for National GHG Inventories. Volume 3, Chapter 4: Metal Industry Emissions. TABLE 4.1B (NEW) TIER 1 DEFAULT CO_2 EMISSION FACTORS FOR IRON AND STEEL PRODUCTION

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Perspective view of an ore reclaimer (stacker reclaimer), in June 2017, at the Carajás Industrial Complex, Pará (PA), Brazil. Photo: Ricardo Teles.

The year 2025 marked 40 years of Vale's operations in the Amazon region. In this context, the Company announced in February of the same year the New Carajás Program, which aims to double copper production and expand the supply of high-quality iron ore, with investments estimated at approximately BRL 70 billion by 2030.

An appreciation to all professionals and partners who contributed, directly or indirectly, to the preparation of this report.

Published in May 2026.

(A free translation of the original in Portuguese)

Vale S.A.

Independent auditors' limited assurance report on the 2025 GHG Emissions Report

(A free translation of the original in Portuguese)

Independent auditors' limited assurance report on the 2025 GHG Emissions Report

To the Board of Directors and Stockholders
Vale S.A.
Rio de Janeiro - RJ

Introduction

1 We were engaged by Vale S.A. ("Vale" or "Company") to present our limited assurance report on the data contained in the chapter "GHG emissions inventory" of 2025 GHG Emissions Report (hereinafter referred to as the "2025 GHG Inventory") of the Company for the year ended December 31, 2025. The aforementioned report contains, among other information, a description of the procedures for significant quantifications, the criteria, and the methodology for preparing the 2025 GHG Inventory and the organizational and operational boundaries related to the Company's activities.

2 Our limited assurance does not extend to information from prior periods or to any other information disclosed in conjunction with the 2025 GHG Inventory, including any images, audio files, or embedded videos.

Management's Responsibility Vale

3 The Company's management is responsible for the preparation and adequate presentation of data contained in the 2025 GHG inventory, in accordance with the criteria set forth in paragraph 4 and limits in paragraph 5 of this report, and the internal controls it deemed necessary to enable the preparation of this financial information free from material misstatement, whether due to fraud or error.

4 The management of Vale is responsible for:

(a) Selecting or establishing appropriate criteria for the preparation and presentation of the information contained in the 2025 GHG Inventory.

(b) Preparing the information according to the GHG protocol guidelines.

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(c) Designing, implementing and maintaining internal controls over the data relevant to the preparation of the information contained in the 2025 GHG Inventory, so that it is free from material misstatement, whether due to fraud or error.

5 As established by the criteria mentioned above, the organizational boundary of the 2025 GHG Inventory was defined considering the operational control approach. The operational limits considered include the emission sources of Scopes 1 and 2 according to the GHG Protocol, as well as the following emission categories from Scope 3: Purchased goods and services, Capital goods, Activities related to fuel and energy not included in Scopes 1 and 2, Transportation and distribution (upstream), Business travel, Employee commuting (home-work), Transportation and distribution (downstream), Processing of sold products and Investments.

Limitations in the preparation and presentation of information related to greenhouse gases

6 Management, in the preparation and presentation of the calculations of Greenhouse Gas (GHG) emissions presented in the 2025 GHG Inventory, followed the definitions of the GHG Protocol, therefore, the information presented in the 2025 GHG Inventory is not intended to ensure compliance with social or economic laws and regulations.

7 The absence of a significant set of established practices to rely on for evaluating and measuring non-financial information allows for different yet acceptable evaluation and measurement techniques, which can affect comparability between entities and over time.

Our independence and quality management

8 We comply with the independence requirements and other ethical demands of the Federal Accounting Council (CFC), which are based on the principles of integrity, objectivity, competence, and professional diligence, and which also consider the confidentiality and behavior of employees.

9 We applied NBC PA 01 - Quality Management for Independent Auditors' Firms (Legal Entities and Individuals), and consequently projected, implemented and maintained a comprehensive quality management system, including policies and procedures related to compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.

Responsibility of the independent auditors

10 Our responsibility is to express a conclusion on the data contained in the Company's 2025 GHG Inventory, in accordance with NBC TO 3000 - "Assurance Engagements Other than Audits or Reviews" and NBC TO 3410 - "Assurance Engagements on Greenhouse Gas (GHG) Emissions and Climate Change Statements," issued by the CFC, which are equivalent to international standards ISAE 3000 - Assurance Engagements Other than Audits or Reviews of Historical Financial Information and ISAE 3410 - Assurance Engagements on Greenhouse Gas Statements, respectively, both issued by the International Auditing and Assurance Standards Board (IAASB), applicable to non-financial information.

11 These standards require that the work be planned and performed for the purpose of obtaining limited assurance that the data contained in the 2025 GHG Inventory, taken as a whole, are free from misstatement, whether due to fraud or error, and to issue a limited assurance report that includes our conclusion.

12 A limited assurance engagement performed in accordance with NBC TO 3000 and NBC TO 3410 standards consist mainly of making inquiries of the Company's management and other Company's employees involved in the preparation of the information and applying analytical procedures to obtain evidence that allows us to issue a limited assurance conclusion on the information taken as a whole. A limited assurance engagement also requires the performance of additional procedures when the independent auditor becomes aware of matters that lead him to believe that the information, taken as a whole, might present significant misstatements.

13 As part of a limited assurance engagement in accordance with NBC TO 3000 (ISAE 3000) and NBC TO 3410 (ISAE 3410), we exercise professional judgment and maintain professional skepticism throughout the engagement. We also:

(a) We determine the adequacy in the circumstances of the Company regarding the use of the GHG Protocol guidelines as a basis for the preparation of the 2025 GHG Inventory.

(b) We perform risk assessment procedures, including obtaining an understanding of the internal controls relevant to the work, to identify where relevant misstatements are likely to arise, whether due to fraud or error, but not for the purpose of providing a conclusion on the effectiveness of the Company's internal controls.

(c) We design and implement procedures that address cases where significant misstatements in GHG emission information are likely to arise. The risk of not identifying a relevant misstatement resulting from fraud is greater than the one resulting from error, as fraud may involve collusion, forgery, willful omissions, or breach of internal controls.

Summary of procedures performed

14 The procedures selected are based on our understanding of the aspects related to the compilation and presentation of data contained the information included in the 2025 GHG Inventory, other circumstances of the engagement and our analysis of the areas in which significant misstatements might exist. The following procedures were adopted:

(a) planning the work taking into consideration the criteria and limits described in previous paragraphs, the materiality and the volume of quantitative and qualitative information and the operational and internal control systems that were used to obtain data contained in the Company's 2025 GHG Inventory;

(b) understanding the calculation methodology and the procedures adopted for the compilation of issued data upon interviews with the managers responsible for the preparation of the information;

(c) conducting meetings with the head office and other relevant operational units, with the aim of conducting interviews with managers and collecting data and information; and

(d) application of analytical procedures and substantive tests, as applicable, on the quantitative information, as well as inquiries about the qualitative information and its correlation with the data contained in the 2025 GHG Inventory.

15 Our procedures did not include assessing the design adequacy or operational effectiveness of the controls, testing the data on which the estimates are based, or separately developing our own estimate to compare with the estimate of Vale.

16 We believe that the evidence obtained in our job is sufficient and appropriate to support our conclusion in a limited manner.

Scope and limitations

17 The procedures applied in a limited assurance engagement are substantially less in scope than those applied in a reasonable assurance engagement for the purpose of issuing an opinion on the data contained in the 2025 GHG Inventory. Consequently, we were unable to obtain reasonable assurance that we became aware of all the significant matters that might have been identified in a reasonable assurance engagement. If we had performed our engagement for the purpose of issuing an opinion, we might have identified other matters and potential misstatements that may exist in the data contained in the 2025 GHG Inventory. Therefore, we will not issue an opinion on this information.

18 Non-financial data is subject to more inherent limitations than financial data, given both the nature and the diversity of the methods used for determining, calculating or estimating such data. Qualitative interpretations of the relevance, materiality and accuracy of the data are subject to individual assumptions and judgments. Additionally, we have not performed any procedures in relation to the information presented for prior periods, forecasts and goals.

19 The information and data regarding the actions and sustainability operating activities, general information and viewpoints related to the topic of climate change, description of management activities in the process of preparing the 2025 GHG Inventory, and description of operating activities, which are not the basis for the 2025 GHG Inventory, are not part of the scope of the work developed and, therefore, were not the subject of our limited assurance engagement.

Conclusion

20 Based on the procedures performed, described in this report, nothing has come to our attention that leads us to believe that the data contained in the chapter “GHG emissions inventory” of 2025 GHG Emissions Report of Vale, related to the fiscal year ended December 31, 2025, is not presented, in all relevant aspects, in accordance with the criteria described in paragraph 4 and the limits defined in paragraph 5 above.

Other matters - Restriction of use and distribution

21 This report was prepared for the use of Vale and may be presented or distributed to third parties, provided they are familiar with the subject matter and criteria applicable to this assurance engagement, in view of the specific purpose described in the first paragraph of this report.

22 Any party other than Vale that obtains access to this report, or a copy of it, and relies on the information contained herein will do so at its own risk. We do not accept or assume any responsibility and disclaim any liability to any party other than Vale for our work, the assurance report or our findings.

Rio de Janeiro, May 20, 2026.

PricewaterhouseCoopers
Auditores Independentes Ltda.
CRC 2SP000160/O-5

Maurício Colombari
Contador CRC 1SP195838/O-3


VALE