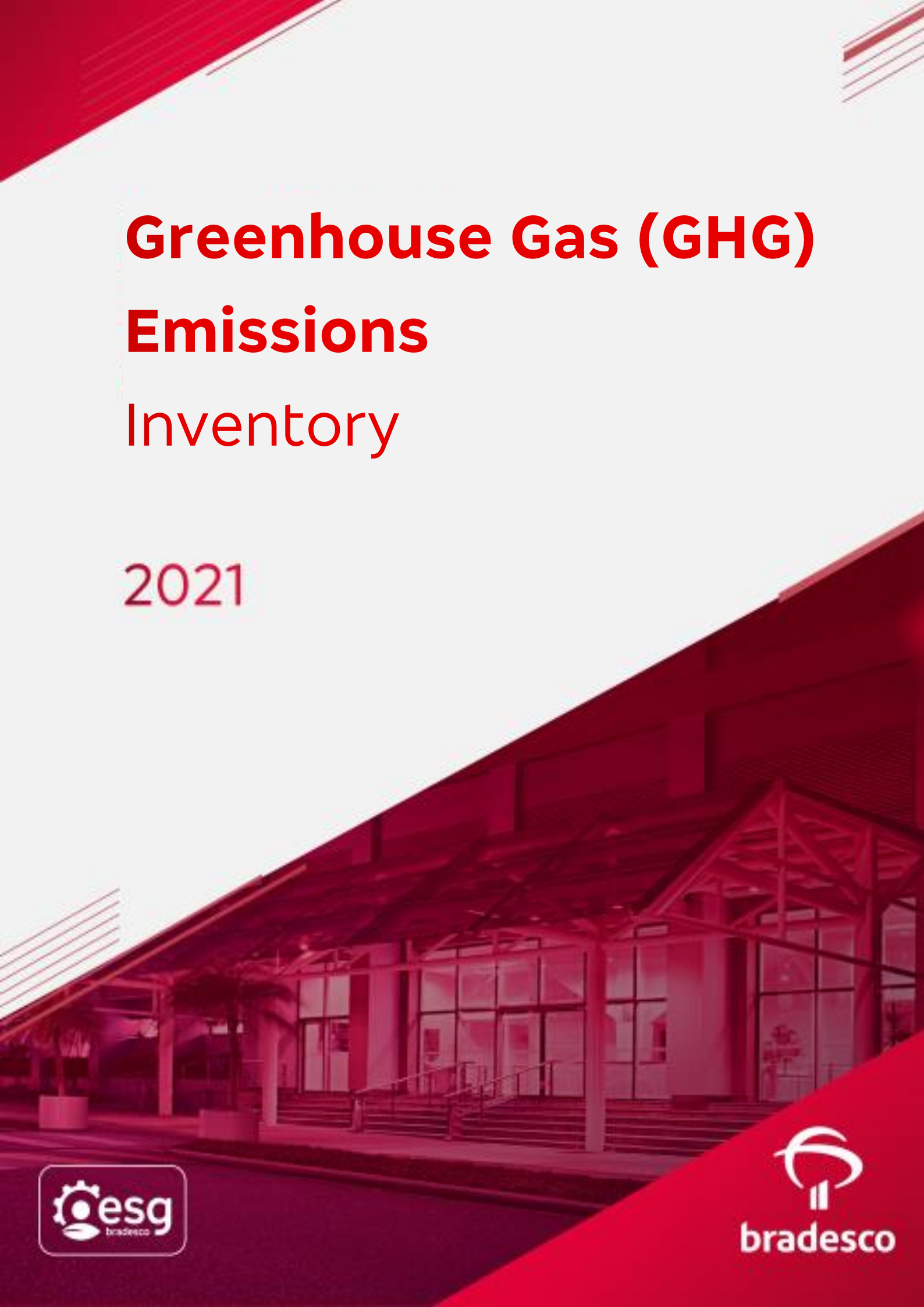
Greenhouse Gas (GHG) Emissions

Inventory

2021



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SUMMARY

1 Executive Summary

The Greenhouse Gas Emissions Inventory (GHG) is the management tool that allows the assessment of an organization's impact on the global climate system. The present study evaluated the GHG emissions of Banco Bradesco S/A in the year 2021 (*Table 1*).

In 2021, Bradesco's Scope 1 direct emissions were 14,197.47 tCO_2e, while indirect Scope 3 emissions were 102,266.67 tCO_2e. Scope 2 emissions from purchased electricity were calculated using two different approaches: *Location Based - LB* (which considers the average of the National Interconnected System as an emission factor) and *Market Based – MB* (which considers the grid emissions factor, as well as the emission factors from the purchased renewable energy). The emission difference between the LB and MB approaches was 49,614.00 tCO_2e due to 5,946 MWh of Distributed Generation (solar panels) and 386,529 MWh of I-RECs (hydroelectric plants).

Table 1 GHG emissions results by scope and category for 2021 (tCO_2e)

Scope	Emission Sources		Emission (tCO_2e)	Representation
1	Mobile Combustion	Owned air fleet	467.47	3.3%
		Owned land vehicle fleet	323.70	2.3%
	Runaways	Leakage of coolant gas emissions	13,069.84	92.1%
	Stationary Combustion	Electric power generators	336.45	2.4%
	Total scope 1	---	**14,197.47**	**100%**
2	Electric energy acquisition	Electricity purchased for own consumption - LB	49,637.32	100%
		Electricity purchased for own consumption - MB	23.32	100%
3	Transport and distribution (upstream)	Transport of express mail (correspondence and documents)	6,284.51	6.1%
		Cargo transport (equipment, furniture and printing material).	2,546.40	2.5%
		Valuables Transport	13,267.79	13.0%
		Relief Transport	31,311.50	30.6%
	Waste generated in operations	Solid waste	3,721.83	3.6%
	Business trips	Taxi	741.11	0.7%
		Airline tickets	651.91	0.6%
		Kilometer refunds	1,227.01	1.2%
	Employee Commute (home X work)	Distance traveled to and from work	40,718.87	39.8%
	Fuel and energy-related activities not included in Scopes 1 and 2	Home Office	1,795.75	1.8%
	Total scope 3	---	102,266.67	**100%**
		Total - LB	**166,101.46**	---
		Total - MB	**116,487.46**	---

In addition, 183.04 tCO_2e was emitted from renewable sources referring to Scope 1, and 16,339.63 tCO_2e pertaining to Scope 3.

Bradesco's Scope 1 emissions in 2021 totaled 14,197.47 tCO_2e, representing a 4.1% increase compared to the previous year (2020: 13,634.85 tCO_2e). The fugitive emissions characteristic of refrigerant gas exchanges in air conditioners were the most representative, accounting for approximately 92.1% of Scope 1. Bradesco's Scope 3 emissions in 2021, on the other hand, totaled 102,266.67 tCO_2e, representing a 20.81% decrease compared to the previous year (2020: 129,142.73 tCO_2e). Emissions from transport and upstream distribution (which involve cargo transport, express mail, assistance, and valuables) were the most representative, accounting for 52.2% of Scope 3 emissions. Next, the employee commuting category was responsible for 39.8% of Scope 3 emissions.

In the Location Based (LB) approach, Banco Bradesco S/A's Scope 2 emissions in 2021 totaled 49,637.32 tCO_2e, with 23.32 tCO_2e referring to BAC Florida Bank, which was acquired by Bradesco. If only national emissions are analyzed, in 2020 we had 49,614.00 tCO_2e representing a 77.1% increase over the previous year (2020: 28,031.86 tCO_2e). In terms of consumption, the Organization's electricity consumption was reduced by approximately 13.04%. The increase in emissions is due to the significant increase of 104.81% in the average emission factor of the grid compared to the previous year (0.0617 tCO_2e/MWh in 2020 *vs.* 0.1264 tCO_2e/MWh in 2021).

In 2021, Bradesco undertook the commitment to consume 100% electricity from a renewable source in its operations in Brazil through the Free Contracting Environment (ACL), via I-RECs and Distributed Generation, being able to then account for Scope 2 emissions in the Market Based (MB) approach. In this approach, Bradesco's Scope 2 emissions were 23.32 tCO_2e, representing a 83.6% decrease compared to the previous year (2020: 141.80 tCO_2e).

According to the Brazilian GHG Program protocol (PBGHGP), the LB approach quantifies scope 2 GHG emissions from electricity purchases using the average for electricity generation in the National Interconnected System as an emission factor, with mandatory reporting. The MB approach, on the other hand, quantifies scope 2 GHG emissions from electricity purchases using the specific emission factor of each source of electricity generation that the inventory organization chose to purchase or consume, being voluntary reporting.

In an analysis by operating unit, Banco Bradesco is responsible for most of Scope 1, 2 and 3 emissions. This representation is expected due to the size of the Bank's operations compared to other units, as shown in *Table 2*.

Table 2 GHG emissions results by scope and category for 2021 (tCO_2e)

	Operating Unit			
Scope	**Bradesco**	**B. Seguros**	**Next**	**Total**
Scope 1	14,115.83	77.33	4.31	14,197.47
Scope 2 - Location	47,875.88	1,434.16	327.28	49,637.32
Scope 2 - Market	23.25			23.25
Scope 3	69,386.32	32,091.00	789.36	102,266.67
Total - Location	131,378.02	33,602.50	1,120.95	166,101.46
% - localization	**79.10%**	**20.23%**	**0,67%**	**100%**
Total - Market	83,525.39	32,168.33	793.67	116,487.39
% - Market	**71.70%**	**27.62%**	**0.68%**	**100%**

1.1 Introduction

The issues arising from global warming and climate change place the issue of the low carbon economy as a central issue for sustainable development. Therefore, additional ways are being sought to reconcile economic development and the protection of the climate system.

The Paris Agreement, signed by several countries in 2015 at the annual event of the United Nations Framework Convention on Climate Change, aims to limit global warming to 2°C, ideally 1.5°C. For this, all levels of government, as well as the private sector, must commit to creating bold short- and long-term targets, aligned with a future of net zero emissions. For this, all emissions caused by human activity must be decreased as close to zero as possible, as well as from vehicles and factories powered by fossil fuels, for example.

In this context, quantifying and managing greenhouse gas (GHG) emissions at the corporate level becomes extremely relevant. This can be done through the Greenhouse Gas Emissions Inventory, which consists of a management instrument that enables quantifying the GHG emissions of a given organization.

From the definition of scope, the identification of GHG sources and sinks, and the accounting of their respective emissions or removals, the Inventory makes it possible to know the profile of emissions resulting from the organization's activities.

The information generated from the preparation of a Greenhouse Gas Emissions Inventory can fulfill the following objectives:

- **Monitoring of GHG emissions**: monitor and record the evolution of emissions over time. Identify opportunities for operational efficiency gains and cost reduction.
- **Benchmarking**: compare the emissions of each operational unit or each sector of an organization.
- **Risk and opportunity assessment**: identify and mitigate regulatory risks and risks associated with future obligations in relation to GHG emission rates or emission restrictions, as well as assess potential cost-effective opportunities for emission reductions.
- **Setting goals**: support the establishment of GHG emission reduction targets and the planning of mitigation strategies.
- **Monitoring results of mitigation actions**: quantify progress and improvements resulting from strategic initiatives related to the theme of Climate Change.
- **Participation in climate information dissemination programs**: enable dissemination of information about the organization's climate performance (e.g., GHG protocol, CDP, ISE, ICO2).

Among the protocols and standards available for compiling corporate GHG inventories, the following references were adopted in this study:

- Standard NBR ISO 14064; Brazilian Association of Technical Standards, 2007 (ABNT, 2007).
- Specifications of the Brazilian GHG Protocol Program; Brazilian GHG Protocol Program Verification Specifications; GHG Corporate Protocol - Brazilian GHG

Protocol Program (PBGHGP) - Fundação Getúlio Vargas; World Resources Institute (FGV/GVces; WRI, 2011).

The protocols listed above have international credibility. The main purpose of adopting them is to obtain a report that can be compared at national and global levels.

It should be noted that this inventory is subject to verification within the scope of the protocols listed above. The purpose of third-party verification of this inventory is to obtain an independent statement on the quality of the inventory and the consistency of the information contained therein, to assure users of an accurate assessment of the organization's value chain emissions standard.

1.2 Banco Bradesco

Banco Bradesco S/A is one of the largest financial groups in Brazil, with a solid performance aimed at contributing with its customers' success, through a diversified business model operating in both banking and insurance activities. Since its foundation (1943), it strives to provide excellent services, always seeking efficiency and technological innovation to better serve its customers.

Bradesco's purpose is to contribute with sustainable development and, therefore, aims at aligning itself with the best sustainability practices available in the market.

Eco-efficiency is part of the Organization's strategic management, which links environmental and financial performance through process optimization, recycling, technological innovations, and savings in the use of natural resources and materials. The objective is to reduce environmental impact and contribute to operational efficiency.

In an integrated manner, it considers environmental issues in the development of its activities and, through the Eco-efficiency Management Program, invests in initiatives with specific goals to reduce the consumption of water, energy, printing paper and other indicators that contribute to the reduction of greenhouse gas emissions. The program is conducted by the Eco-efficiency area, in the Heritage Department, and involves several departments and related companies, responsible for the initiatives and monitoring of data and indicators. Both the Sustainability Commission and the Sustainability and Diversity Committee monitor the evolution of the program.

In 2019, Bradesco started to purchase electricity in the Free Contracting Environment (ACL) while under incentive, prioritizing that generated by renewable sources such as solar, wind, biomass or from small hydroelectric power plants - PCHs. In 2020, it made a commitment to have its energy matrix from 100% renewable sources through four main pillars: Free Market, Distributed Generation, PPAs (Power Purchase Agreements) and I-REC (Renewable Energy Certificate). One of the main milestones in this regard was the acquisition of around 1,400,000 I-RECs in a contract with AES Brasil[1], thus achieving its commitment to have 100% of national operations supplied by energy from renewable sources. In 2021, Bradesco intensified the migration process to the free market and expanded solar plants to several locations. This has further strengthened its role as a leading company in the transition to a low-carbon economy.

According to the PBGHGP methodology, the purchase of renewable energy can be accounted for in the inventory in the Market Based approach (MB*)* with the objective of providing visibility to sustainable actions. Still, the Location Based (LB) approach referring

[1] https://valor.globo.com/financas/noticia/2020/11/26/bradesco-compra-certificados-de-energia-renovavel-da-aestiete.ghtml

to energy purchased from the National Integrated System must be kept in the inventory, given that the company is connected to the Brazilian grid.

2 Method used

Bradesco's Emissions Inventory was prepared following the premises of the PBGHGP, using the emission factors provided in the GHG Emissions Calculation Tool for year 2021, which facilitates the comparison of emissions with other institutions and the third-party verification process.

2.1 Accounting principles and inventory preparation

The following principles guided the preparation of this study, according to the guidelines of the PBGHGP (FGV/GVces; WRI, 2011):

- **Significance:** Ensure that the GHG Inventory properly reflects the emissions of the process in focus and that it meets the decision-making needs of its users.
- **Completeness**: Record all GHG emitting sources and activities within selected inventory boundaries. Document and justify any specific exclusions.
- **Consistency**: Use recognized and technically substantiated methodologies that allow comparisons of emissions with those of other similar processes. Clearly document any data changes, inventory limits, methods employed or any other relevant factors in the given time period.
- **Transparency**: Address all relevant matters in a coherent and factual manner, based on objective evidence. Reveal any relevant assumptions, as well as make appropriate reference to the calculation and recording methodologies and data sources used.
- **Accuracy:** Through the application of appropriate data, emission factors or estimates, ensure that the quantification of GHG emissions is not underestimated or overestimated. Reduce bias and uncertainties to the minimum possible and obtain a level of determination that allows safe decision-making**.**

2.2 Inventory compilation steps

The concept steps used to prepare this inventory are presented in the flowchart below and explained below (*Figure 1*):

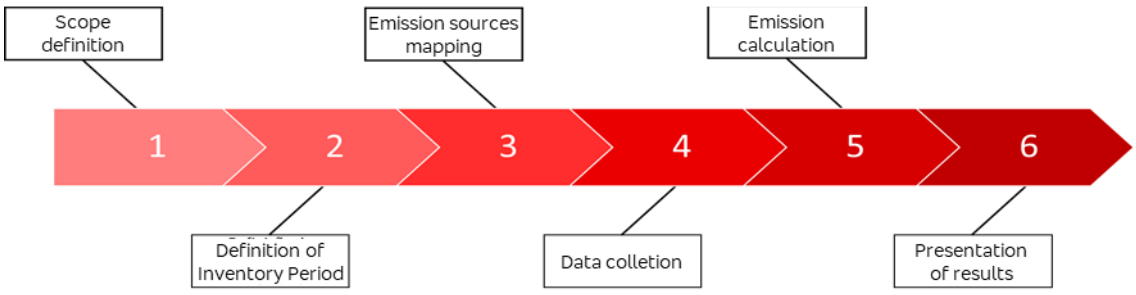

Figure 1 Flowchart of methodological steps for carrying out inventories.

First, the scope of the inventory is defined (Step 1), that is, it is necessary to determine which facilities and activities of the organization will be covered by the inventory, thus establishing its organizational limit. Then, the reference period and base year of the inventory are defined (Step 2).

The organization's GHG sources are identified (Step 3) which are then categorized and ranked. Then, the data collection process is carried out (Step 4). In order to calculate the emissions (Step 5), the collected emission activity data are used, as well as the emission factors. In this step, the inventory uncertainties are also calculated. Finally, the results are compiled into an annual report (Step 6).

2.3 Inventory Coverage

2.3.1 Organizational boundaries

Two approaches are possible for consolidating emissions and removals at an organizational level. Each of these approaches is defined and the option used in this inventory is indicated below.

☐ Equity interest: the organization assumes the GHG emissions of the operations according to its equity interest.

☑ Operational Control: the organization is responsible for 100% of the GHG emissions of the operations over which it has operational control.

Banco Bradesco S/A is made up of a conglomerate of companies. Its operating model is diversified among the financial, insurance, pension and capitalization sectors, among other activities.

It ended 2021 with 3,930 branches and 43 active buildings in Brazil (in addition to its units abroad) and, according to the HR Department, 93,390 national employees. The Organizational Border of this report covers all operations under the operational control of Banco Bradesco S/A, which comprise all its departments, the main physical unit (Cidade de Deus), the other administrative buildings, centers, agencies, related companies and subsidiaries in the outside. The Group companies considered in this inventory are presented in *Table 3*:

Table 3 Operational control and shareholding of each company

Operating Units	Location	Operational control	Equity interest (%)
Banco Bradesco	Brazil	Yes	100%
Bradesco Seguros	Brazil	Yes	100%
Next	Brazil	Yes	100%
BAC Florida Bank[2]	USA	Yes	100%

[2] BAC Florida Bank is accounted for in the unit Banco Bradesco S/A.

The corporate organization chart of **Banco Bradesco S/A** and the operational units that were included in this report are presented below (*Figure 2*):

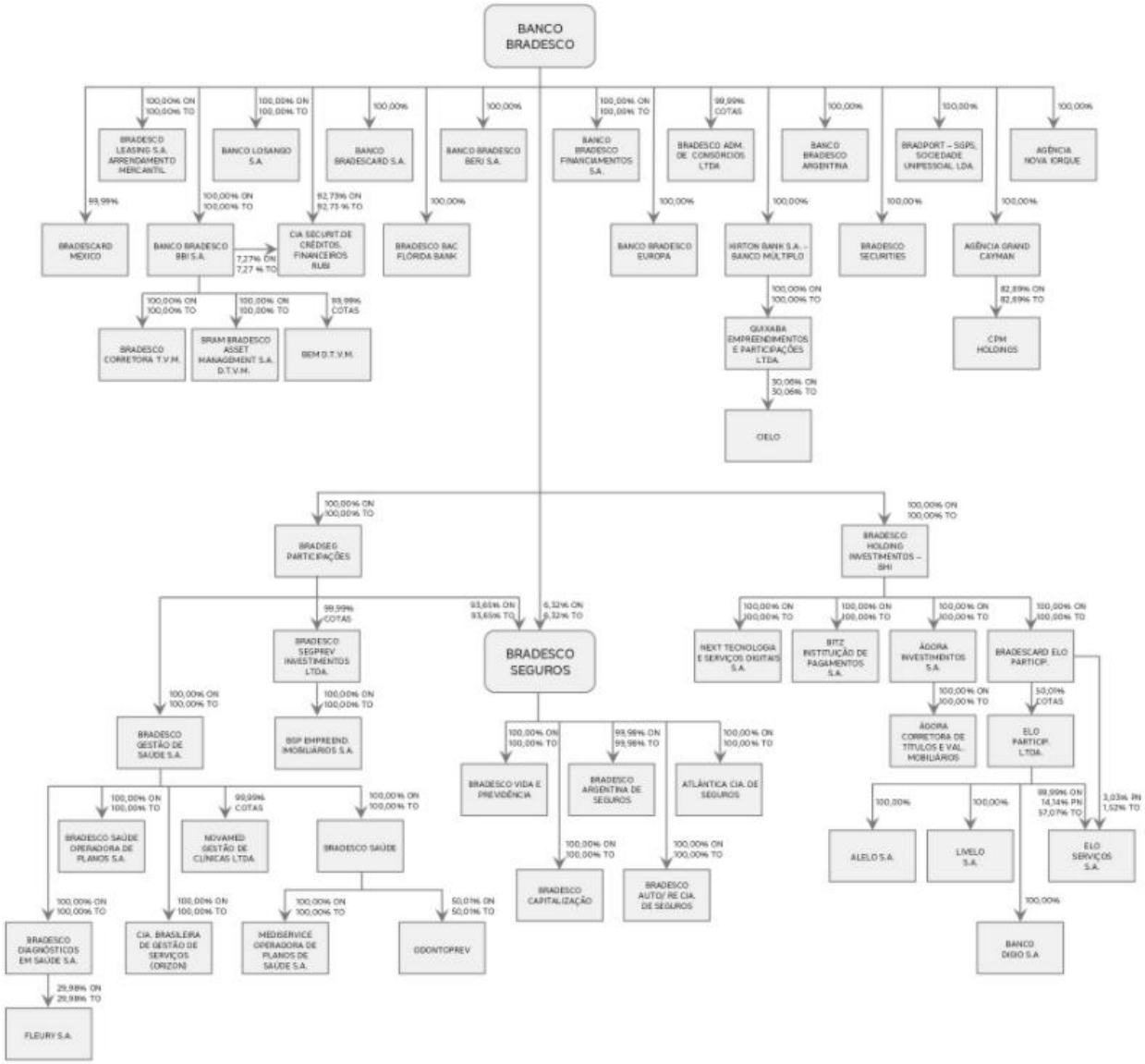

Figure 2 Corporate organization chart of Banco Bradesco S/A. Source: https://www.bradescori.com.br/wp-content/uploads/sites/541/2022/02/Principals_Controladas_e_Coligadas-2021-PT_2022__page-0001.jpg - base: 12/31/2021

2.3.2 Operational Boundaries

The definition of operational boundaries takes into account the identification of GHG sources and sinks associated with operations through their categorization into direct or indirect emissions, using the concept of scope. Below, each of the three categories adopted by the GHG Protocol are defined and the options comprised in this inventory are indicated.

☑ Scope 1: Direct GHG emissions from sources that are owned or controlled by the organization.

☑ Scope 2: Indirect GHG emissions from the acquisition of electric energy that is consumed by the organization.

☑ Scope 3: Optional reporting category, considers all other indirect emissions not included in Scope 2. They are a consequence of the organization's activities, but occur from sources that do not belong or are not controlled by the organization.

2.3.3 Covered period

This inventory covers emissions from activities carried out by the Bradesco Organization in 2021 (January 1, 2021 to December 31, 2021).

2.3.4 Base Year

The base year is the past reference point against which current air emissions can be consistently compared.

The retroactive recalculation to the base year must be carried out whenever there are changes that lead to both an increase and a decrease in emissions, that is, whenever the change affects the consistency and relevance of the analyzes over time. The following cases may result in the need to recalculate emissions:

- Significant structural changes that change the boundaries of the inventory: (i) mergers, acquisitions and divestitures; (ii) outsourcing and incorporation of emission activities; and (iii) placement of emission activity in or out of the geographic boundaries of the PBGHGP;
- Significant changes in calculation methodology, improvement in the accuracy of emission factors or activity data that result in a significant impact on the emissions data or on the base year;
- Discovery of significant errors or a certain number of accumulated errors that lead to significant changes in results.

Until 2015, 2011 was considered the base year in Banco Bradesco S/A's emissions inventories. However, due to the acquisition of HSBC in 2016, the company decided to change the base year to 2015. In 2022, the Strategic Plan for Operational Eco-efficiency – PDEO was established, with annual reduction targets based on 2019, the last normal year of activities before the pandemic. Thus, the present Inventory considers the same base year, maintaining its alignment with the strategy and goals of emission reduction that are most suited to Bradesco's organizational and growth profile.

2.3.5 Greenhouse Gases (GHG)

According to PBGHGP, the Inventories must comprise the seven GHG types that are part of the Kyoto Protocol's reporting: carbon dioxide (CO_2), methane (CH_4), nitrogen oxide (N_2O), hydrofluorocarbon (HFCs), perfluorocarbon (PFCs), sulfur hexafluoride (SF_6), and nitrogen trifluoride (NF_3). Additionally, the Montreal Protocol includes ozone-depleting gases such as hydrochlorofluorocarbons (HCFCs), which also contribute to global warming.

Each GHG has an associated Global Warming Potential (GWP), which is a measure of how much each gas contributes to global warming. The GWP is a relative value that compares the warming potential of a given amount of gas with the same amount of CO_2 which, by

default, has a GWP value of 1. The GWP is always expressed in terms of CO_2 - CO_2e equivalence. *Table 4* below shows the GWP values used in Bradesco's Inventory:

Table 4 Global Warming Potential (GWP) of Greenhouse Gases

Gas	GWP
Carbon Dioxide (CO_2)	1
Methane (CH_4)	28
Nitrous Oxide (N_2O)	265
Sulfur Hexafluoride (SF_6)	23,500
Nitrogen trifluoride (NF_3)	16,100
PFCs	7,390 - 17,700
HFCs	12 - 14,800
HCFCs	5 - 14,400

The Banco Bradesco S/A inventory considered CO_2, CH_4, N_2O, HFCs (HFC-32, HFC-125, HFC-134a, HFC143a and HFC-152a) and HCFCs (HCFC-22, HCFC-124 and HCFC-141b) emissions according to mapped emission sources and data availability. Additionally, the inventory also computed CO_2 emission of renewable origin[3].

O_2, CH_4, N_2O, HFC and HCFC gases are generated at Banco Bradesco S/A in the following ways:

- CO_2: generated by burning fossil fuels (such as diesel, natural gas and liquefied petroleum gas) by mobile and stationary sources;
- CH_4: generated in the burning of fuels by mobile and stationary sources and in the decomposition of organic matter in anaerobic solid waste treatment processes;
- N_2O: generated in the burning of fuels by mobile and stationary sources; and
- HFCs and HCFCs: generated in refrigerant gas leaks.

2.3.6 Inventory exclusions

Since 2015, emission sources associated with the consumption of LPG and natural gas for food preparation are not included (0.02% and 0.04% of Scope 1 in 2011), fugitive emissions from refilling fire extinguishers (0.89% of Scope 1 in 2014) and emissions from the organic waste composting process in Cidade de Deus (0.36% of Scope 1 in 2014). Since 2020, the international units Bradesco Argentina, Bradesco Europa, Bradesco Grand Cayman and Bradesco New York (0.070% of total emissions) were also excluded, since these emission sources have values lower than the uncertainty of the GHG inventory emission calculation.

[3] Renewable Emissions from the GHG Inventory - CO_2 emissions from the energy use of biomass from renewable sources. In this study, the definition of renewable biomass formulated by the Executive Committee of the Clean Development Mechanism of the United Nations Framework Convention on Climate Change (EB 23, Annex 18) was adopted. Emissions of such nature do not contribute to the increase in CO_2 concentration in the atmosphere in the long term, as they are part of the natural carbon cycle.

2.4 Identification and hierarchy of sources and sinks

The emission sources were identified and ranked within Bradesco's organizational structure, according to the GHG Protocol methodology (*Table 5*).

Table 5 Emission sources contemplated, according to scope, category and hierarchy

Scope	Category	Process
Scope 1	Stationary Combustion	Electricity Generators
	Mobile Combustion	Air
		Land
	Fugitives	Cooling System
Scope 2	Electric Energy Purchase	Electricity Consumption
		Biomass Consumption (MB approach)
Scope 3	Category 3: Fuel and energy-related activities not included in Scopes 1 and 2	Home Office
	Category 4: Upstream Transport and Distribution	Cargo Transport
		Express Mail Transport
		Rescue Transport
		Valuables Transport
	Category 5: Waste generated in operations	Landfill
	Category 6: Business trips	Kilometer refunds
		Taxi
		Air trips
	Category 7: Employee transport	Commuting
		Collective employee transport - chartered vehicles

As noted in *Table 5*, the processes defined for Bradesco's Inventory can be correlated with the categorization defined by the PBGHGP[4]:

- **Stationary combustion (scope 1):** GHG emissions from burning fuel to generate electricity, steam, heat or energy using equipment (boilers, ovens, burners, turbines, heaters, incinerators, engines, flares, etc.) at a fixed location. In Bradesco's inventory, diesel consumption by generators was considered.
- **Mobile combustion (scope 1):** GHG emissions from the combustion of fuel for transport in general (the company's operating fleet) and off-road vehicles, such as those used in construction, agriculture and forestry. In Bradesco's inventory, emissions from the land fleet and the air fleet were considered**.**
- **Fugitives (scope 1):** unintentional releases of substances that do not pass through chimneys, drains, exhaust pipes or other functionally equivalent openings, such as the release of sulfur hexafluoride (SF_6) in electrical equipment, leakage of hydrofluorocarbons (HFCs) during the use of refrigeration and air conditioning

[4] Specifications of the Brazilian GHG Protocol Program, pp. 26-29 available at: https://s3-sa-east-1.amazonaws.com/arquivos.gvces.com.br/arquivos_ghg/152/especificacoes_pb_ghgprotocol.pdf

equipment, and leakage of methane (CH_4) in the transport of natural gas. In Bradesco's inventory, emissions from recharging air conditioning equipment were considered.

- **Electric energy purchase (scope 2):** GHG emissions from the acquisition of electric and thermal energy that is consumed by the company. In order to identify Bradesco's consumption, energy concessionaires' invoices were used.
- **Category 3 – Activities related to fuel and energy not included in Scopes 1 and 2 (scope 3):** emissions related to the extraction, production and transport of fuel and energy purchased and consumed by the inventorying organization in the year being inventoried, which are not accounted for in Scopes 1 and 2 (in other words, excluding combustion of fuels or consumption of electricity). Emissions related to energy consumption from home office work.
- **Category 4 - Transport and distribution (upstream):** transport and distribution emissions from purchased or acquired goods by the inventorying organization in the inventory year in vehicles and facilities that are not owned or operated by the organization, as well as other third-party transport and distribution services (including both inbound and outbound logistics). Emissions from the transport of cargo, express mail, valuables and assistance were considered in this category, the latter being carried out by Bradesco Seguros.
- **Category 5 - Waste generated in operations (scope 3):** includes emissions from the treatment and/or final disposal of solid waste and liquid effluents resulting from the inventory organization's operations controlled by third parties. This category accounts for all future emissions (during the treatment and/or final disposal process) that result from the waste generated in the inventoried year. In Bradesco's inventory, emissions related to waste sent to sanitary landfills were considered.
- **Category 6 – Business trips (scope 3):** emissions from the transport of employees to business-related activities of the inventory organization, carried out in vehicles operated by or owned by third parties, such as aircraft, trains, buses, passenger cars and boats. All employees from entities and units operated, leased or owned by the inventory organization are considered in this category. In Bradesco's inventory, emissions from airline tickets, mileage reimbursement, use of transport and/or taxi applications were considered.
- **Category 7 - Employee transport (scope 3):** include the transport of employees between their homes to their place of work. In Bradesco's inventory, employee commutes to the respective work unit (and vice versa) were considered, considering home office, which reduced the number of employees commuting to work.

Topic 2.6 of this report presents the sources and the respective considerations applicable to the calculation of Bradesco's emissions.

2.5 Data Collection

The flow of information for the preparation of the inventory followed the sequence of activities below:

1. Corporate managers identified the employees who manage the information needed for assembling the GHG inventory.
2. For each emission source, a data collection form was established, and the management of the information is carried out by the Equity.
3. Employees who monitor the operations confirmed the best way to obtain the data from the company's management systems and forwarded them quarterly to the Equity department.
4. The information collected was consolidated by the Equity department.
5. With the consolidated information, emissions were calculated, according to the PBGHGP.

Data collection referring to GHG emitting activities follows the operational procedures established by the "Manual of Procedures for the Management System for Quantification and Reporting of Greenhouse Gas Emissions and Removals of Banco Bradesco S/A - according to ABNT NBR ISO14064-1", implemented in each Management Department belonging to the established organizational and operational limits (*Table 6*).

Table 6 Responsibilities for Data Collection Activity.

Scope	Emission Sources		Responsible Dependency	Frequency
1	Mobile Combustion	Owned air fleet	Equity	Quarterly
		Owned land vehicle fleet	Equity	Quarterly
	Fugitives	Leakage of coolant gas emissions	Equity	Quarterly
	Combustion stationary	Electric power generators	Equity	Quarterly
2	Electric Energy Purchase	Electricity purchased for own consumption	Equity	Quarterly
3	Transport and distribution (upstream)	Transport of express mail (correspondence and documents)	Equity	Quarterly
		Cargo transport (equipment, furniture and printing material).	Equity	Quarterly
		Valuables Transport	Equity	Quarterly
		Relief Transport	Insurance	Quarterly
	Waste generated in operations	Solid waste	Equity	Quarterly
	Business trips	Taxi	Accounting	Quarterly
		Airline tickets	DRH	Quarterly
		Kilometer refunds	Accounting	Quarterly
	Employee Commuting (home X work)	Public transport of employees (buses and vans)	DRH	Quarterly

Scope	Emission Sources		Responsible Dependency	Frequency
		Destination and origin ZIP Codes	DRH	Annual
	Energy-related activities not included in Scope 1	Home Office	DRH	Annual

The Equity Department's Eco-Efficiency Area is responsible for managing and maintaining controls to comply with the ABNT NBR ISO 14064-1 standard, which support the annual preparation of the Organization's GHG Emissions Inventory.

It is responsible for receiving the forms filled in by the management facilities. It also parses and compiles data (*Table 7*) to subsequently measure emissions from the GHG Emissions Calculation Tool, provided by PBGHGP.

Table 7 Data managed by Bradesco for inventory calculation.

Datum type	Source	Description of Calculation
Passenger* distance	Bus	Distance from home to work (obtained from the HR database) times the percentage of employees for the transport modality (due to the conservative approach used in urban buses).
	Air trips	Distance between airport (based on the World Airport Codes) by classification of the Defra methodology into short, medium and long distance.
Distance	Employees' own vehicles	Distance from home to work (obtained from the HR database) times the percentage of employees for the transport modality (use of gasoline flex-fuel vehicles).
	Chartered vehicles	Distance traveled by chartered vehicles for employee commute.
	Transport and distribution	Personal data provided by third parties.
	Reimbursement	Refunded amount divided by refund per km.
Energy	Electric energy	Data obtained directly from the control system of Banco Bradesco.
	Electric energy - home office	Energy consumption of employees working from home (obtained from the HR database)
Mass	Waste and Refrigerant Gases	Data obtained directly from the control system of Banco Bradesco.
Brazilian Real	Express Mail Transport	Fuel cost (exclusively) in the service provided.
	Transport and distribution	Fuel cost (exclusively) in the service provided.
	Taxi / apps	Fuel cost divided by the average price per km in Brazil.
Volume	Generators, owned and leased fleet	Data obtained directly from the control system of Banco Bradesco.

2.6 Calculation of emissions and removals

All inventory calculations were performed via GHG Emissions Calculation Tool. GHG emissions and removals are calculated for each source and sink individually according to the following formula:

$$E_{i,g,y} = DA_{i,y} \cdot FE_{i,g,y} \cdot PAG_g$$

Where:

- i Index denoting an individual source or sink activity
- g Index denoting a type of GHG
- y Report reference year
- $E_{i,g,y}$ GHG *g* emissions or removals attributable to the source or sink *i* during year *y*, in tCO_2e
- $DA_{i,y}$ Consolidated activity data referring to the source or sink *i* for the year *y*, in the unit *u*. As noted earlier, the consolidated activity data will consist of all recorded attributes of each source/sink
- $FE_{i,g,y}$ GHG *g* emission or removal factor applicable to source or sink *i* in the year *y*, in t GHG *g*/*u*[5]
- PAG_g Global warming potential of GHG g, in tCO_2e/t GHG *g* [6]

The emission factors provided in the Tool for each source are updated annually, considering the Brazilian reality, which facilitates the calculation in subsequent years.

Table 8 References to emission factors.

Reference	Description	Link
IPCC 2006	▸ IPCC Guidelines for National Greenhouse Gas ▸ Inventories, Prepared by the National Greenhouse Gas ▸ Inventories Programme, Eggleston H.S., Buendia L., Miwa K., Ngara T. and Tanabe K. (eds). Published: IGES, Japan.	http://www.ipcc-nggip.iges.or.jp/public/2006 gl/
PBGHGP 2022	Brazilian GHG Protocol Program, Calculation Tool, version 2020.1.	http://www.ghgprotocolbrasil.com.br/ferramenta-decalculo
GHG Emission Factors Hub	Emission Factors for Greenhouse Gas Inventories	https://www.epa.gov/climateleadership/ghg-emission-factors-hub

[5] The GHG emission factors available in the literature and in recognized and reviewed databases were adopted. Priority was given to local, recent emission factors that reflect the type of technology in the organization's value chain activities. (*Table 8*)

[6] The Global Warming Potential (GWP) is a factor that describes the impact of the radiative force of a unit based on the mass of a given GHG relative to a unit of carbon dioxide equivalent during a given period.

3 Results

3.1 General Emissions

Bradesco's Scope 1 and 3 emissions in 2021 were respectively 14,197.47 tCO_2e and 102,266.67 tCO_2e. Scope 2 was calculated in two different approaches: Location Based - LB with emission of 49,637.32 tCO_2e, and Market Based - MB with emission of 23.32 tCO_2e (*Figure 3*)[7]. In addition, 183.04 tCO_2 was emitted for scope 1 from renewable sources[8] and 16,339.63 tCO_2 renewable for scope 3. 13,123.33 tCO_2e was also emitted from non-Kyoto gases[9].

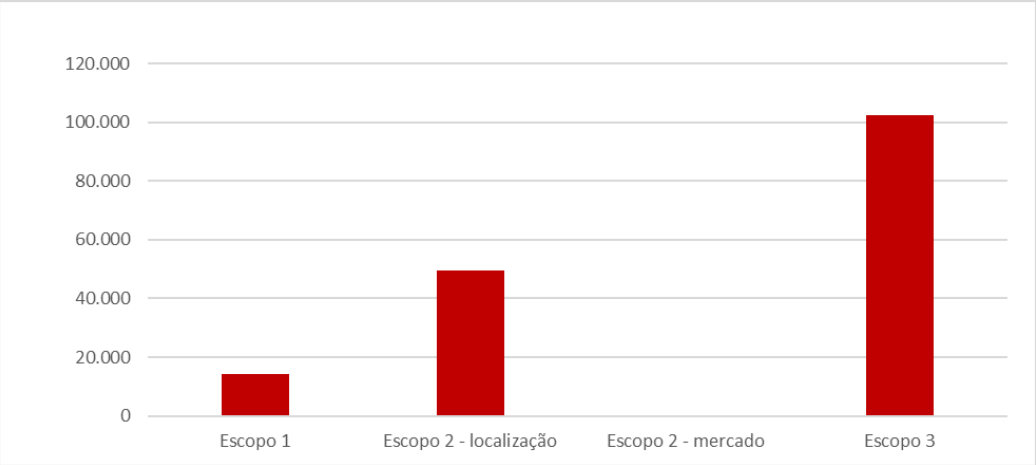

Figure 3 Bradesco's GHG emissions in 2021 by scope (tCO_2e-Kyoto).

Table 9 presents the results of GHG emissions divided by scope and category. In scope 1, the category that has the highest contribution is Fugitive Emissions with 92.1% (13,069.84 tCO_2e). Scope 2 emissions were 49,637.32 tCO_2e in the LB approach and 23.32 tCO_2e in the MB approach, being in both cases only by the category of electric energy acquisition.

Emissions from transport and upstream distribution (which involve cargo transport, express mail, assistance and valuables) were the most representative, accounting for 52.2% of Scope 3 emissions (53,410.20 tCO_2e). Next, the employee commute category was responsible for 39.8% of Scope 3 emissions (40,718.87 tCO_2e).

Table 9 Emission sources and their representation

Scope	Emission Sources		tCO_2e	Representation
Scope 1	Mobile Combustion	Owned air fleet	467.47	3.3%
		Owned land vehicle fleet	323.70	2.3%
	Fugitives	Leakage of coolant gas emissions	13,069.84	92.1%

[7] Here, GHGs regulated by the Kyoto Protocol (carbon dioxide - CO_2, methane - CH_4, nitrous oxide - N_2O and hydrofluorocarbons – HCFCs)

[8] CO_2 emissions from the energy use of biomass from renewable sources. This study adopts the definition of renewable biomass formulated by the Executive Committee of the Clean Development Mechanism of the United Nations Framework Convention on Climate Change (EB 23, Annex 18). Emissions of such nature do not contribute to the increase in CO_2 concentration in the atmosphere in the long term.

[9] GHG emissions regulated by the Montreal Protocol (chlorofluorocarbons - CFCs and hydrochlorofluorocarbons - HCFCs).

Scope	Emission Sources		tCO_2e	Representation
	Stationary Combustion	Electric power generators	336.45	2.4%
	Total scope 1	---	14,197.47	**100%**
Scope 2	Electric Energy Purchase	Electricity purchased for own consumption - LB	49,637.32	100%
		Electricity purchased for own consumption - MB	23.32	100%
Scope 3	Transport and distribution (upstream)	Transport of express mail (correspondence and documents)	6,284.51	6.1%
		Cargo transport (equipment, furniture and printing material).	2,546.40	2.5%
		Valuables Transport	13,267.79	13.0%
		Relief Transport	31,311.50	30.6%
	Waste generated in operations	Solid waste	3,721.83	3.6%
	Business trips	Taxi	741.11	0.7%
		Airline tickets	651.91	0.6%
		Kilometer refunds	1,227.01	1.2%
	Employee Commute (home X work)	Destination and origin ZIP Codes	40,718.87	39.8%
	Energy-related activities not included in Scope 2	HomeOffice	1,795.75	1.8%
	Total scope 3	---	**102,266.67**	**100%**
		Total - LB	**166,101.46**	---
		Total - MB	**116,487.46**	---

Table 10 GHG emissions by company - LB approach (Kyoto - tCO_2e).

Scope	Bradesco	B. Insurance	Next	Total
Scope 1	14,097.74	77.33	4.31	14,179.39
Scope 2 - LB	47,875.88	1,434.16	327.28	49,637.32
Scope 3	69,386.32	32,091.00	789.36	102,266.67
Total	131,359.94	33,602.50	1,120.95	166,083.38
Representation	79.09%	20.23%	0.67%	100.00%

Table 11 GHG emissions by company - MB approach (Kyoto - tCO_2e).

Scope	Bradesco	B. Seguros	Next	Total
Scope 1	14,097.74	77.33	4.31	14,179.39
Scope 2 - MB	23.25	0.00	0.00	23.25
Scope 3	69,386.32	32,091.00	789.36	102,266.67
Total	83,507.31	32,168.33	793.67	116,469.31
Representation	71.70%	27.62%	0.68%	100%

Figure 4 presents the GHG emissions segmented by company and scope in the LB approach, while *Figure 5* presents the MB approach. Compared with the other companies of the Organization, Banco Bradesco has a higher emission in all scopes.

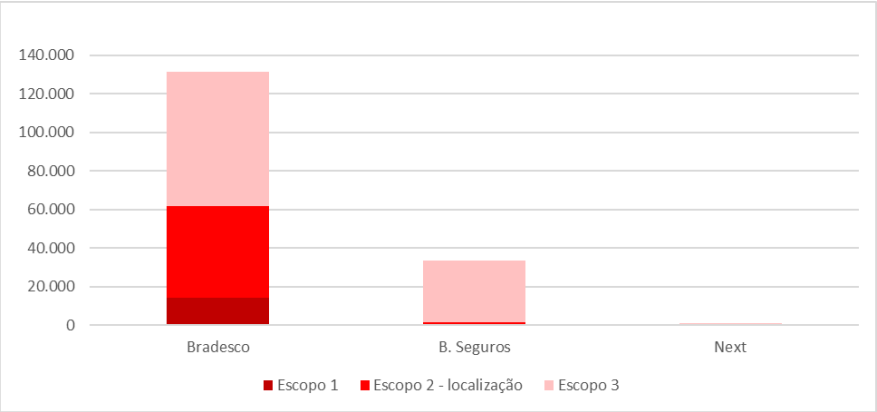

Figure 4 GHG emissions by company - LB approach (Kyoto - tCO_2e).

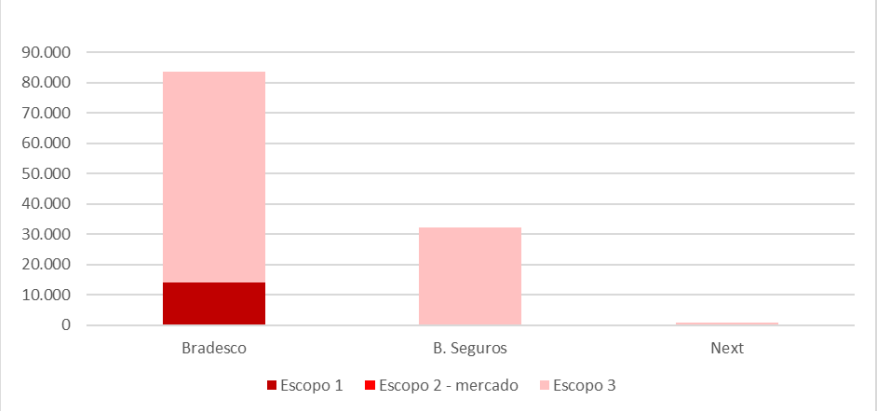

Figure 5 GHG emissions by company - MB approach (Kyoto - tCO_2e).

3.2 General renewable CO2 emissions

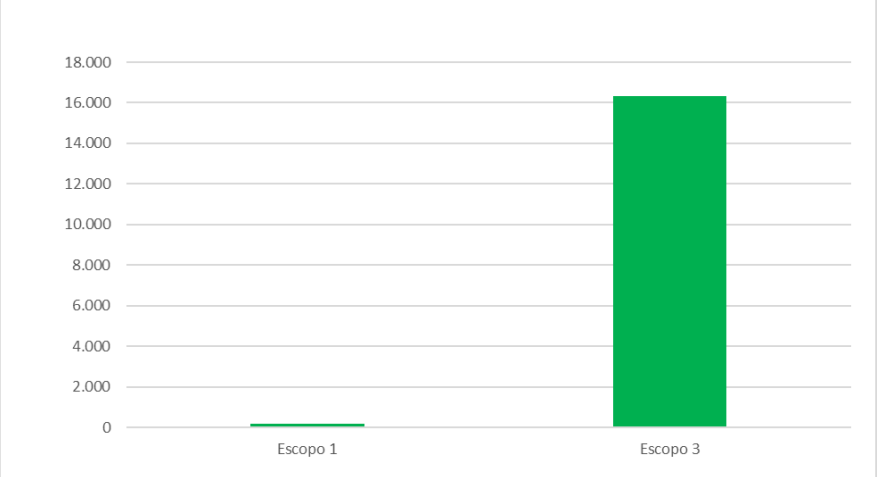

Figure 6 CO_2 emissions renewable by scope (renewable tCO_2)

When burning renewable fuels, such as ethanol or biodiesel, CO_2 emitted has a renewable origin (since at some point in its life cycle the CO_2 was captured by the biomass). In 2021, the Organization's emissions were 183.04 renewable tCO_2 for scope 1 and 16,339.63 tCO_2 renewable for scope 3 (*Figure 6*).

3.3 General non-Kyoto gas emissions

Emissions of greenhouse gases not contained in the Kyoto Protocol of Banco Bradesco S/A are presented in the *Figure 7*. In 2020, a total of 13,123.33 tCO_2e was emitted (with 88.13 tCO_2e of HCFC-141b and 13,035.20 tCO_2e of HCFC-22) referring to the consumption and replacement of refrigerant gases due to leaks in the refrigeration systems of the organization's buildings and agencies.

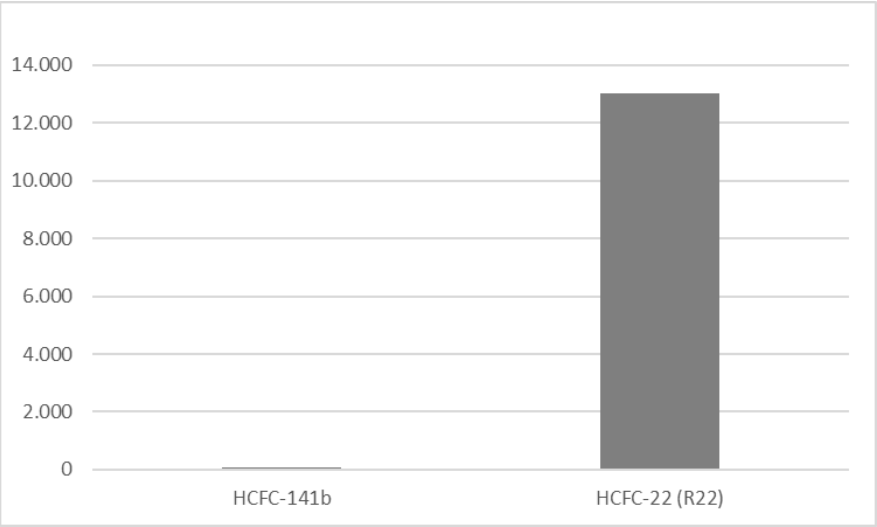

Figure 7 Emissions of gases not covered by the Kyoto Protocol (tCO_2e)

3.4 Scope 1

Bradesco's scope 1 emissions in 2021 totaled 14,197.47 tCO_2e, representing a 4.1% increase compared to last year (2020 = 13,634.86 tCO_2e) and a 37.2% increase compared to the base year (2019 = 10,333.76 tCO_2e), considering national and international operational units.

Table 12 Scope 1 emissions broken down by category and emission source (tCO_2e - Kyoto)

Emission Sources		tCO_2e	Representa-tion
Mobile Combustion	Owned air fleet	467.47	3.3%
	Owned land vehicle fleet	323.70	2.3%
Fugitives	Leakage of coolant gas emissions	13,069.84	92.1%
Stationary Combustion	Electric power generators	336.45	2.4%
Total scope 1	---	14,197.47	**100%**

In 2021, the fugitive emissions characteristic of refrigerant gas exchanges in air conditioners were the most representative, accounting for approximately 92.1% of Scope 1, as shown in *Table 12*. In second place are emissions from fuel consumption by the Organization's mobile

fleet (land and air), which represented 5.5% of direct emissions. The consumption of diesel oil in electric generators represented 2.4% of the total.

Table 13 Comparison of Scope 1 Emissions - 2020 X 2021 (tCO_2e - Kyoto).

Emission Sources		2020	2021	Variation
Mobile Combustion	Owned air fleet	422.59	467.47	10.6%
	Owned land vehicle fleet	280.84	323.70	15.3%
Fugitives	Leakage of coolant gas emissions	12,493.09	13,069.84	4.6%
Stationary Combustion	Electric power generators	438.33	336.45	-23.2%
Total scope 1	---	13,634.85	14,197.47	4.1%

Emissions from the Fugitives category increased by 4.6% over the previous year, due to the modernization of air conditioning equipment, where appliances with non-Kyoto gases are being replaced. Mobile Combustion emissions increased by 12.5% in relation to the previous year, due to the return of on-site work. Stationary Combustion emissions were reduced by 23.2% in relation to the previous year, due to the decrease in the consumption of diesel oil in the Organization's generators.

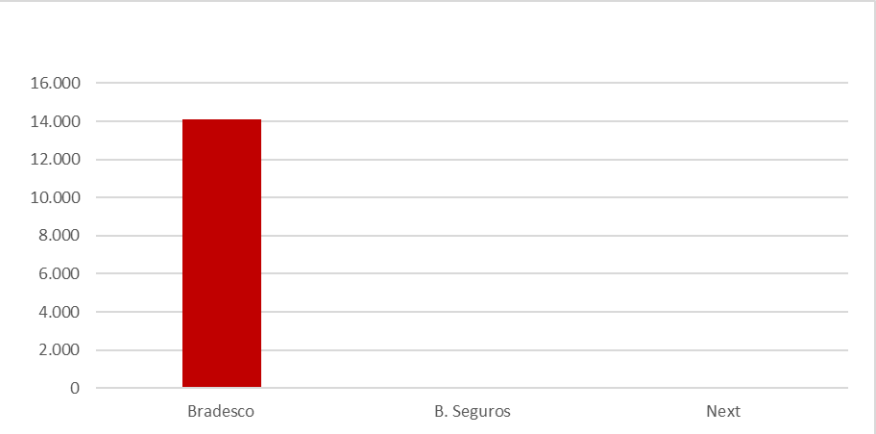

Figure 8 Scope 1 emissions broken down by company (tCO_2e - Kyoto).

As can be seen in *Figure 8*, Banco Bradesco was responsible for 99.42% of Scope 1 emissions in 2021. This representation is expected due to the size of its operations compared to other companies of the Organization.

Table 14 Scope 1 emissions broken down by company (tCO_2e - Kyoto).

Scope	Bradesco	B. Seguros	Next
Scope 1 (tCO_2e)	14,097.74	77.33	4.31
Representation	99.42%	0.55%	0.03%

3.5 Scope 2

3.5.1 Location Based Approach

The Location Based - LB approach, a model traditionally adopted by PBGHGP, quantifies scope 2 GHG emissions using as an emission factor the average of emissions for the generation of electricity from the National Interconnected System (SIN).

Following this approach, Bradesco's Scope 2 emissions in 2021 totaled 49,637.32 tCO_2e, with 23.32 tCO_2e refers to BAC Florida Bank, which was acquired by the Organization. If only national emissions are analyzed, in 2020 we had 49,614.00 tCO_2e representing a 77.1% increase over the previous year (2020: 28,031.86 tCO_2e).

Although the energy consumption has decreased about 13%, there was an increase in emissions is due to the significant increase (104.81%) in the average emission factor of the grid compared to the previous year (0.0617 tCO_2e/MWh in 2020 *vs.* 0.1264 tCO_2e/MWh in 2021).

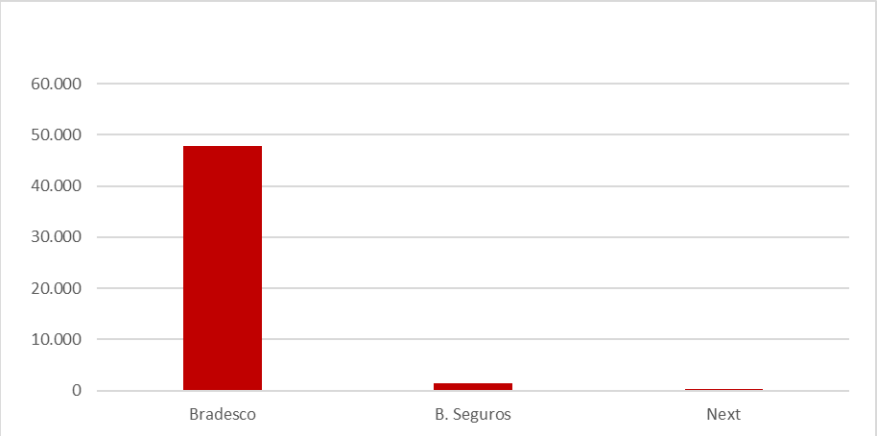

Figure 9 Scope 2 emissions broken down by company - LB (tCO_2e - Kyoto).

Figure 9 shows Bradesco's 2021 GHG emissions by company, in the Location Based approach. As expected, Banco Bradesco was responsible for 96.45% of Scope 2 emissions.

Table 15 Scope 2 emissions broken down by company (tCO_2e - Kyoto).

Scope	Bradesco	B. Seguros	Next
Scope 2 - LB (tCO_2e)	47,875.88	1,434.16	327.28
Representation	96.45%	2.89%	0.66%

3.5.2 Market-based approach

The Market Based - MB approach quantifies scope 2 GHG emissions using the specific emission factor associated with each source of electric power generation that the inventory organization chose to purchase and consume. In this sense, the emission factor is directly associated with the origin of electricity generation, and its verification and tracking is necessary. According to the PBGHGP, reporting emissions from electricity purchases

following the choice-to-purchase approach is voluntary, additional and exclusive to organizations that are able to meet all necessary quality criteria.

Bradesco is committed to maintaining 100% of its energy matrix from renewable sources, through four main pillars: Free Market, Distributed Generation, PPAs (Power Purchase Agreements) and I-REC (Renewable Energy Certificates). In 2021, 386,529 MWh of I-RECs were consumed (Bradesco 372,590 MWh, Bradesco Seguros 11,350 MWh and Next 2,589 MWh), in addition to the 5,946 MWh of Distributed Generation.

For the calculation of the MB approach, the total consumption of electricity consumed was initially considered (a value identical to the LB approach). Then, the reduction of this consumption was carried out according to the sources of renewable energy consumed and their respective emission factors. For international units, the MB approach maintained the emission factors of the LB approach, since, during the preparation of the GHG Inventory, the verification and tracking of renewable energy sources were still in process. In this approach, Scope 2 emissions were 23.32 tCO_2e, representing a 83.6% decrease compared to the previous year (2020: 141.80 tCO_2e).

3.6 Scope 3

Bradesco's scope 3 emissions in 2021 totaled 102,266.67 tCO_2e, representing a 45.9% decrease compared to the base year (2019 = 189,157.97 tCO_2e) and a 20.8% decrease compared to the previous year (2020 = 129,142.73 tCO_2e), considering national and international operational units. *Table 16* presents the results of GHG emissions of 2020 divided by source and category.

Table 16 Scope 3 emissions broken down by category and emission source (tCO_2e - Kyoto).

Emission Sources		tCO_2e 2021	Representation
Transport and distribution (upstream)	Transport of express mail (correspondence and documents)	6,284.51	6.1%
	Cargo transport (equipment, furniture and printing material).	2,546.40	2.5%
	Valuables Transport	13,267.79	13.0%
	Relief Transport	31,311.50	30.6%
Waste generated in operations	Solid waste	3,721.83	3.6%
Business trips	Taxi	741.11	0.7%
	Airline tickets	651.91	0.6%
	Kilometer refunds	1,227.01	1.2%
Employee Commute (home-work)	Destination and origin ZIP Codes	40,718.87	39.8%
0320 Fuel and energy-related activities not included in Scopes 1 and 2	HomeOffice	1,795.75	1.8%
Total scope 3	---	102,266.67	**100%**

Category 3 emissions - Activities related to fuel and energy not included in scopes 1 and 2, were accounted for the first time in 2021. To calculate these emissions, the employee's energy consumption at home was considered, using the computer, air conditioning, modem and light bulbs. Based on the total number of employees in home office, the energy consumption was calculated and, using the emission factor of the grid, the corresponding emissions were reached, totaling 1,795.75 tCO_2e, or 1.8% of scope 3.

Category 4 emissions - Transport and distribution (upstream) are the most representative of Scope 3 with a total of 53,410.20 tCO_2e, corresponding to 52.2% of its total emissions. In this category, the Transport of Relief and Transport of Valuables sources were the two main emitters, with respectively 31,311.50 tCO_2e e 13,267.79 tCO_2e (or 30.6% and 13.0% of Scope 3 emissions). When compared to the base year, there was a 15% reduction in this category (63,088.79 tCO_2e in 2019), and 12% compared to 2020 (60,385.24 tCO_2e in 2020), mainly related to the reduction in cargo transport (58%) - due to the restructuring of the responsible sector, in the transport of valuables (21%) - due to the increasingly present digital means of payment, and in transport of express mail (27%) – resulting from the change in methodology, which now also considers the percentage of vehicles that use ethanol as a function of the volume of fuel sold, according to ANP data, and not just gasoline.

Category 7 emissions - Employee commuting (home X work) correspond to a total of 39.8% of Scope 3 emissions (or 40,718.87 tCO_2e). In 2021, there was no collective transport for employees, due to the pandemic, considering only home-work journeys of employees who, due to the nature of their activities, were unable to adopt the home office model. According to HR data, on average, only 5% of administrative employees and 60% of branch employees worked on site. Thus, there was a 59% reduction regarding the base year (99,504.61 tCO_2e in 2019) and a 31% reduction compared to 2020 (59,412.19 tCO_2e in 2020).

Category 6 emissions - Business travel correspond to a total of 2.56% of Scope 3 emissions and reduced by 50% in 2021 compared to the previous year (5,218.79 tCO_2e in 2020) and 88% in relation to the base year (21,330.55 tCO_2e in 2019), also due to the unfolding of the pandemic, which made it difficult to carry out air travel.

Category 5 - Waste generated in operations corresponds to 3.6% of Scope 3 emissions and reduced by 10% compared to the previous year (4,126.51 tCO_2e), mainly due to the zero landfill project, whereby organic waste from administrative buildings in the State of São Paulo and branches in Greater São Paulo (approximately 10% of the total number of branches) is converted into CDR (fuel derived from waste) and used as fuel for cement plants.

Table 17 Comparison of Scope 3 Emissions - 2020 X 2021 (tCO_2e - Kyoto).

Emission Sources		2020	2021	Variation
Transport and distribution (upstream)	Transport of express mail (correspondence and documents)	8,558.08	6,284.51	-26.6%
	Cargo transport (equipment, furniture and printing material).	6,014.08	2,546.40	-57.7%
	Valuables Transport	16,743.56	13,267.79	-20.8%
	Relief Transport	29,069.52	31,311.50	7.7%

Emission Sources		2020	2021	Variation
Waste generated in operations	Solid waste	4,126.51	3,721.83	-9.8%
Business trips	Taxi	2,103.09	741.11	-64.8%
	Airline tickets	2,333.21	651.91	-72.1%
	Kilometer refunds	782.49	1,227.01	56.8%
Employee Commute (home-work)	Collective transport of employees (buses and vans offered by the company)	477.04	--	---
	Destination and origin ZIP Codes	58,935.15	40,718.87	-30.9%
Energy-related activities not included in Scope 2	Home Office	---	1,795.75	---
Total scope 3		**129,142.73**	**102,266.67**	**-20.8%**

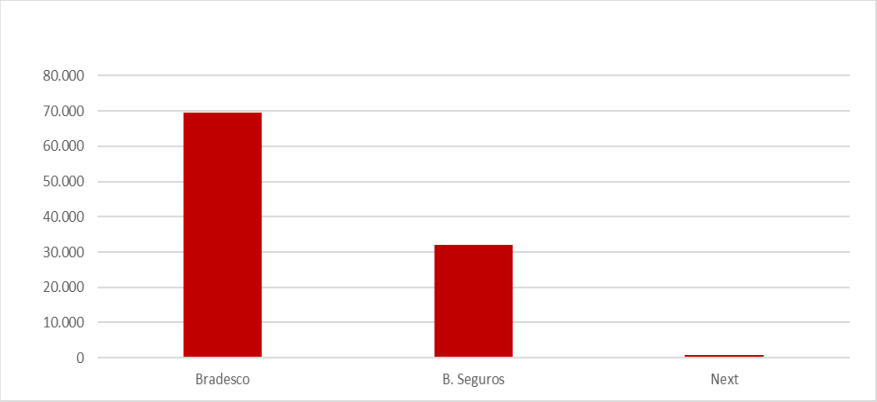

Figure 10 Scope 3 emissions broken down by company (tCO_2e).

Table 18 Scope 3 emissions broken down by company (tCO_2e).

Scope	Bradesco	B. Seguros	Next
Scope 3 (tCO_2e)	69,386.32	32,091.00	789.36
Representation	67.85%	31.38%	0.77%

As can be seen in *Figure 4Figure 10*, Banco Bradesco was responsible for 67.85% of Scope 3 emissions of the organization in 2021. Due to the transport of emergency services, emissions related to Bradesco Seguros were also significant, representing 31.38% of the total.

4 Analysis of uncertainties

The elaboration of an emissions inventory involves the use of several calculation tools that use forecasts, parameters and standard emission factors. The use of these tools entails certain levels of uncertainty in inventory calculations.

To minimize such uncertainties, whenever possible, values based on official sources, such as the methodologies consulted or market standards, were used, always taking into account the principles of conservatism, accuracy and transparency.

The uncertainties associated with inventories can be classified according to two criteria:

- **Scientific uncertainty**: Science of the actual emission and/or removal process not fully understood. An example is the significant involvement of scientific uncertainty in the use of direct and indirect factors associated with global warming to estimate the emissions of various GHGs. Most of the factors addressed in this work are from the IPCC.
- **Estimate uncertainty**: uncertainty that arises whenever GHG emissions are quantified. These are still classified as model uncertainty, when it is associated with the mathematical equations used to characterize the relationships between various parameters and emission processes; and uncertainties of the parameters introduced in estimation models used as input data in the estimating models.

According to the recommendations of IPCC Good Practice Guidance, inventories must not reveal emissions with biases that could be identified and eliminated, and uncertainties must be minimized considering all existing scientific knowledge and available resources.

These recommendations were followed at all stages of the construction of the inventory, since there was a great concern to use the most recent calculation methodologies and emission factors from organizations with great credibility regarding the calculation of emissions. Regarding the data used, special attention was paid to ensuring that they were in line with reality (verification of company records and analysis of data received), and the search for data in measurement units that would reduce the uncertainties associated with emissions.

The procedures used to calculate uncertainties are presented in ANNEX C – Calculation of Uncertainties. For the 2021 Banco Bradesco S/A GHG inventory, uncertainties were also calculated and the results are presented in *Table 19*.

Table 19 Results of the uncertainties of the Inventory of Banco Bradesco S/A for 2021

Scope	Category:	Lower uncertainty	Higher uncertainty
Scope 1	Stationary Combustion Mobile Combustion Fugitives	2.15% 1.32% 1.56%	0.58% 1.06% 0.31%
	Total - Scope 1	**1.50%**	**0.30%**
Scope 2 - LB	Electric Energy Purchase	**1.65%**	**0.33%**
Scope 2 - MB	Electric Energy Purchase	**1.65%**	**0.33%**
Scope 3	Transport and distribution (upstream) Waste generated in operations Business trips Employee Commute (home-work)	5.20% 16.90% 5.32% 8.60%	5.23% 17.38% 4.42% 5.35%
	Total - Scope 3	**4.77%**	**3.52%**
Total - LB		**3.36%**	**2.47%**
Total - MB		**3.36%**	**2.47%**

5 Recommendations

For companies to adapt to the low carbon economy, a virtuous cycle of analysis and process improvements must be developed. This set of activities, when detailed and organized, make up the corporate plan for the management of Greenhouse Gas (GHG) emissions.

The GHG inventory is the first step in the diagnosis and must be continuously improved. Improvement recommendations are:

- Expansion of monitored emission sources, calculating emissions from other scope 3 categories such as investments (financed emissions), treatment of effluents sent to the municipal network, emissions related to goods and services purchased by the organization
- The company may structure a quarterly flow of information and monitor the impact on Climate Change from month to month as a form of environmental management.

6 References:

ABNT. NBR ISO 14064-1. Greenhouse gases - Part 1: Specification and guidance for organizations to quantify and report on greenhouse gas emissions and removals. Brazilian Association of Technical Standards, 2007.

BRADESCO. Climatic policies and commitments. 2021. Available at: https://www.bradescori.com.br/sustentabilidade-corporativa/politicas-e-compromissos/

EPA. GHG Emission Factors Hub Available at: https://www.epa.gov/climateleadership/ghg-emission-factors-hub.

FGV EAESP. Technical Note: Classification of Scope 1 greenhouse gas (GHG) emissions in the respective emission source categories – version 1.0. Available at: http://mediadrawer.gvces.com.br/ghg/original/ghg-protocol_nota-tecnica_categorias-escopo-1_-v1.pdf

FGV EAESP. Technical Note: Guidelines for accounting for Scope 2 emissions in organizational inventories of greenhouse gases under the Brazilian GHG Protocol Program. Version 4.0. Available at: http://mediadrawer.gvces.com.br/ghg/original/ghg-protocol-nota-tecnicacontabilizacao-de-escopo-2-v4.pdf

FGV EAESP. Scope 3 Emission Categories Adopted by the Brazilian GHG Protocol Program. Available in: http://mediadrawer.gvces.com.br/ghg/original/ghg_categorias_e3_definicoes_curta.pdf

FGV/GVCES; WRI Specifications of the Brazilian GHG Protocol Program: Accounting, Quantification and Publication of Corporate Inventories of Greenhouse Gas Emissions, 2011. Available at: http://www.ghgprotocolbrasil.com.br/cms/arquivos/ghgespec.pdf

GHG Protocol. GHG Protocol guidance on uncertainty assessment in GHG inventories and calculating statistical parameter uncertainty. Annex E

IPCC. 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Japan: IGES, 2006.

7 Glossary

Base Year: historical period specified for the purpose of comparisons of GHG removals and emissions, and other related information.

Equivalent carbon dioxide (CO_2e): unit for comparing the radiative force (global warming potential) of a given GHG to that of CO_2.

GHG emissions: total mass of a GHG released to the atmosphere in a specific period.

Direct GHG emissions: GHG emissions from sources owned or controlled by the organization. To establish the operational boundaries of the organization, the concepts of financial control and operational control are used.

Indirect GHG emissions related to energy consumption: GHG emissions from the generation of electricity, heat or steam, imported/consumed by the organization.

Scope: the concept of scope was introduced by the GHG Protocol in order to assist companies in defining their operating limits. The scopes are differentiated into 3 categories, separated into direct emissions and indirect emissions.

Scope 1: It covers the category of the organization's direct GHG emissions, that is, those originating from sources that are owned or controlled by the company within defined limits. As an example, we can cite emissions from burning fossil fuels and manufacturing processes.

Scope 2: It covers the category of indirect GHG emissions related to the external purchase of energy. An example of this is the consumption of electric energy generated by the concessionaires that supply the National Interconnected System (SIN) and acquired thermal energy.

Scope 3: It covers the category of indirect GHG emissions from other sources, that is, emissions that occur as a result of the organization's activities, but that originate from sources not owned or controlled by the organization. Some examples of scope 3 sources are: transport of products in vehicles that do not belong to the company, use of third-party vehicles, transport of employees and business trips.

Emission factor or **GHG Removal factor**: factor that relates activity data to GHG emissions and removals.

GHG source: physical unit or process that releases GHGs into the atmosphere.

Greenhouse Gas (GHG): atmospheric constituent, of natural or anthropogenic origin, which absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the earth's surface, atmosphere and clouds. Among the GHGs, the most common are carbon dioxide (CO_2), methane (CH_4), nitrous oxide N_2O), Hydrofluorocarbons (HFC), Perfluorocarbons (PFC) and Sulfur Hexafluoride (SF_6).

Inventory of GHG emissions: document in which GHG sources and sinks are detailed and GHG emissions and removals during a given period are quantified.

Offset: GHG emission offset credits.

Organization: company, corporation, enterprise, authority, institution - or part or combination thereof -, whether incorporated or not, public or private, which has its own functions and administration.

Other indirect GHG emissions: GHG emissions other than indirect emissions related to energy consumption. They are a consequence of the organization's activities, but they come from sources whose ownership or control is performed by other organizations.

Global Warming Potential: factor that describes the impact of the radiative force of a unit of mass of a given GHG, in relation to a unit of mass of carbon dioxide (CO_2) in a given period.

GHG removals: total mass of a GHG removed from the atmosphere in a specific period.

GHG Reservoir: physical unit or component of the biosphere, geosphere or hydrosphere capable of storing or accumulating GHGs removed from the atmosphere by a sink or GHGs captured from a source. The total carbon mass contained in a GHG pool in a specific period can be referred to as the carbon stock of the pool. A GHG pool can transfer its gases to another GHG pool. Collecting a GHG from a source before that GHG enters the atmosphere and storing it in a pool can be referred to as GHG collection and storage.

GHG sink: physical unit or process that removes GHGs from the atmosphere.

ANNEX A - GHG PROTOCOL TABLES

The purpose of this section is to make it easier for Banco Bradesco S/A to report its data in the Public Emissions Registry. It should be noted that, since international units report to the GHG Protocol is optional, such emissions are separated from the emissions that occur in Brazil. Thus, the results presented in this section are different from the others presented in the body of the report.

A.1 Summary of total emissions in tons of gas (tGHG)

GHG	Scope 1	Scope 2 - LB	Scope 2 - MB	Scope 3	Totals
CO_2	1,108.119	49,637.290	23.316	96,176.225	**146,944.950**
CH_4	0.195	0.001	0.000	142.556	**142.752**
N_2O	0.053	0.000	0.000	7.921	**7.974**
HFCs	6.998			0.000	**6.998**

A.2 Summary of total emissions in tons of CO_2 equivalent (tCO_2e)

GHG	Scope 1	Scope 2 - LB	Scope 2 - MB	Scope 3	Totals
CO_2	1,108.119	49,637.290	23.316	96,176.225	**146,944.950**
CH_4	5.460	0.028	0.000	3,991.568	**3,997.056**
N_2O	14.045	0.000	0.000	2,099.065	**2,113.110**
HFCs	13,069.843			0.000	**13,069.843**
Total	**14,197.467**	**49,637.318**	**23.316**	**102,266.858**	**166,124.959**

A.3 Emissions from CO_2 biogenic (tCO_2)

	Scope 1	Scope 2 - LB	Scope 2 - MB	Scope 3
Biogenic CO_2 Emissions (t)	**183.042**	**0.000**	**0.000**	**16,339.631**

A.4 SCOPE 1 EMISSIONS: in tons of CO_2 equivalent (tCO_2e) and in tons of biogenic CO_2 ($tCO_{2\ biogenic}$) broken down by category

	Stationary Combustion	Mobile Combustion	Fugitive Emissions	Total emissions Scope 1
CO_2e (t)	**336.450**	**791.174**	**13,069.844**	**14,197.468**
Biogenic CO_2 Emissions (t)	**39.221**	**143.821**		**183.042**

A.5 SCOPE 2 EMISSIONS: in tons of CO_2 equivalent, disaggregated by category - location-based approach (LB)

	Electricity - LB	Transmission and distribution losses - LB	Purchase of thermal energy	Total Scope 2 emissions - LB
CO_2e (t)	**49,637.318**	**-**	**-**	**49,637.318**
Biogenic CO_2 Emissions (t)	-	-	-	-

A.6 SCOPE 2 EMISSIONS: in tons of CO_2 equivalent, broken down by category - Market-based approach (MB)

	Electricity - MB	Transmission and distribution losses - MB	Purchase of thermal energy	Total Scope 2 emissions - MB
CO_2e (t)	23.316	-	-	23.316
Biogenic CO_2 Emissions (t)	-	-	-	-

A.7 SCOPE 3 EMISSIONS: in tons of CO_2 equivalent (tCO_2e) and in tons of CO_2 biogenic ($tCO_{2\ biogenic}$) broken down by category

Category	3	4	5	6	7	Total
Activity	Fuel and energy-related activities not included in Scopes 1 and 2	Transport and distribution (upstream)	Waste generated in operations	Business trips	Employee Commute (home-work)	
CO_2e	1,795.754	53,410.397	3,721.816	2,620.022	40,718.869	102,266.858
Biogenic CO_2 Emissions	-	8,163.976	-	1,424.271	6,751.384	16,339.631

A.8 Emissions from other GHGs not regulated by the Kyoto Protocol

	Emissions per GHG (t)	CO_2e emissions (t)
HCFC-22 (R22)	7.258	12,774.372
HCFC-141b	0.122	95.061

ANNEX B - CALCULATION OF EMISSIONS AND REMOVALS

B.1 FUEL CONSUMPTION IN MOBILE AND STATIONARY EQUIPMENT

The calculation of GHG emissions from the burning of fossil fuels was prepared from the consumption in volume of fuel or the distance traveled, by type of fuel and type of vehicle in 2021. GHG emissions for this source when data are provided on fuel consumption are calculated using the following formula:

$$E_{i,g,y} = C_{i,y} \cdot PCI_{i,y} \cdot FE_{i,g,y} \cdot PAG_g$$

Where:

- ***i*** Index denoting the fuel type
- ***g*** Index denoting a GHG type
- ***y*** Report reference year
- $E_{i,g,y}$ GHG *g* emissions or removals attributable to the source *i* during the year *y*, in tCO_2e
- $C_{i,y}$ fuel consumption *i* for the year *y*, in the measurement unit *u,* whereas *u* m^3 or *kg*
- $PCI_{i,y}$ Internal Calorific Value of the fuel *i* for the year *y*, in the measurement unit *TJ/u*
- $FE_{i,g,y}$ GHG *g* emission factor applicable to fuel *i* in the year *y*, in tGHGg/*TJ*
- PAG_g Global warming potential of GHG g, in tCO_2e/tGHG*g*

In cases where the input data refers to the distance traveled, the calculation of emissions is performed according to the following formula:

$$E_{i,g,y} = \frac{D_{i,j,y}}{FC_{i,j,y}} \cdot PCI_{i,y} \cdot FE_{i,g,y} \cdot PAG_g$$

Where:

- ***i*** Index denoting the fuel type
- ***j*** Index denoting the vehicle type
- ***g*** Index denoting a GHG type
- ***y*** Report reference year
- $E_{i,g,y}$ GHG *g* emissions or removals attributable to the source *i* during the year *y*, in tCO_2e

- $D_{i,j,y}$ Distance traveled by vehicle j that uses fuel *i* during the year *y*, in km
- $FC_{i,j,y}$ Vehicle range j, in measurement unit *u/km,* being *u* m^3 or *kg*
- $PCI_{i,y}$ Internal Calorific Value of the fuel *i* for the year *y*, in the measurement unit *TJ/u*
- $FE_{i,g,y}$ GHG *g* emission factor applicable to fuel *i* in the year *y*, in tGHGg/*TJ*
- PAG_g Global warming potential of GHG g, in tCO_2e/tGHG*g*

The types of GHG emitted when burning fuels are CO_2, CH_4 and N_2O.

Gasoline and diesel consumption requires an additional calculation step, given that in 2021 Brazilian legislation required that these fuels contain biofuels in specific proportions in their compositions. For gasoline, the requirement was 27% anhydrous ethanol. For diesel, the proportions were 11% in January and February, 12% from March to August, 10% from September to October and 11% in November and December, according to ANP websites and the GHG Protocol tool. To calculate the emissions from the consumption of these types of fuel, the percentages of biofuel were multiplied by the consumption of the fuel mixture before using the equation described above.

The categories in this report that were calculated according to the above formulas are: fuel consumption in stationary equipment, fuel consumption in mobile equipment, outsourced transport, commuting to and from work and business trips (taxi only).

B.2 ELECTRIC POWER CONSUMPTION

The calculation of GHG emissions from electricity consumption was carried out from the data of electricity consumed per operating unit in MWh in the year 2021. For the calculation of emissions, the monthly consumption value is necessary due to the variation of the emission factors of the national grid. For the calculation of emissions related to electricity consumption that occurred in units outside Brazil, annual emission factors provided by the EPA (2020) were used. The type of GHG considered in the generation of energy from the Brazilian grid is CO_2 and emissions are calculated according to the following formula:

$$ECO2,m,y = Cm,y \cdot FECO2,m,y$$

Where:

- m Month of consumption referring to electricity consumption;
- y Report reference year;
- $E_{CO2,m,y}$ CO_2 emissions attributable to the consumption of electricity from the national grid in the month *m* of the year *y*, in tCO_2e;
- $C_{m,y}$ National grid electricity consumption in the month *m* of the year *y*, in *MWh*;
- $FE_{i,g,y}$ CO_2 emission factor applicable to electricity from the national grid in the month *m* of the year *y*, in tCO_2/*MWh.*

The electricity consumption category for this report was calculated using the formula above.

B.3 CONSUMPTION OF REFRIGERANT GASES

The calculation of GHG emissions from the consumption of refrigerant gases was carried out from the data of gases consumed per operating unit in kg in the year 2021. The mass of the gases consumed is multiplied by their respective global warming potentials to obtain the amount of CO_2e, according to the equation below.

$$E_{CO2e,g,y} = C_{g,y} \cdot PAG_g \cdot 1000$$

Where:

- y Report reference year;
- g Index denoting a GHG type;
- $E_{CO2e,g,y}$ CO_2e emissions attributable to the consumption of refrigerant gas g in the year *y*, in tCO_2e;
- C_y Consumption of refrigerant gases in the year *y*, in *kg*;
- PAG_g Global warming potential of GHG g, in $tCO_2e/tGHG$*g*.

In the case of refrigerant gas blends, the calculation is made by multiplying the percentages of each type of refrigerant gas in the blend in the formula above.

The fugitive emissions category for this report was calculated using the formula above.

B.4 SOLID WASTE INTENDED FOR LANDFILLS

To calculate the emissions from the disposal of solid waste and ETE sludge in landfills, the waste amounts sent for landfills per operational unit of Banco Bradesco S/A were collected.

The CH_4 is generated in landfills according to the following equations:

$$E_{CH4,y} = QR_y \cdot L_{0,y} \cdot (1 - OX_0)$$

$$L_{0,y} = MCF_0 \cdot DOC_{média} \cdot DOC_f \cdot F_{CH4} \cdot \frac{16}{12}$$

$$DOC_{média} = \sum (\%_{i,y} \cdot DOC_i)$$

Where:

- y Report reference year;
- i Waste type;
- $E_{CH4,y}$ CH_4 emissions attributable to the decomposition of waste disposed of in landfills in the year *y*, in *t* CH_4;
- QR_y Amount of waste destined for the landfill in the year *y* in *t*;
- $L_{0,y}$ Potential for methane generation in the year *y* in *t* CH_4/ *t residue*;
- OX_0 Oxidation factor, dimensionless;

- MCF_0 Methane correction factor based on landfill quality, dimensionless;
- $DOC_{média}$ Average degradable organic carbon value (value calculated according to the average composition of urban solid waste in Latin America);
- DOC_i Degradable organic carbon from residue *i*;
- $\%_{i,y}$ Fraction of amount of waste *i* in the year *y*;
- $DOC_{f,y}$ Fraction of waste that decomposes, dimensionless (default value of 50%, as per IPCC 2006);
- F_{CH4} Fraction of methane in biogas, dimensionless (default value of 50%, as IPCC 2006);
- **16/12** Mass conversion from C to CH_4, 1.33

The composition of solid waste was calculated according to the amount of paper and organic waste that exist in the organization's waste, considering the following scenario:

Residue composition	Year	Bradesco	Insurance Company	Next
A - Papers/cardboard	A/Total [%]	35.0%		
B - Textile waste	B/Total [%]			
C - Food waste	C/Total [%]	63.0%	100.0%	100.0%
D - Wood	D/Total [%]			
E - Garden and park waste	E/Total [%]			
F - Diapers	F/Total [%]			
G - Rubber and leather	G/Total [%]			
H - Sewage sludge	H/Total [%]			
Other inert materials	[%]	2.00%	0.00%	0.00%
DOC - Degradable Organic Carbon in the year	[tC/tMSW]	0.2345	0.15	0.15

Regarding the location of waste for Bradesco, the GHG tool was left blank, thus emissions not maximized by the tool, this option was due to the conservatism and difficulty of defining a location, due to the capillarity of Bradesco's branches.

For Bradesco, the percentage of recycled waste (95% paper) that is discarded by the agencies in landfills was calculated, and thus the composition of paper that is intended for landfills was calculated. The organic composition was calculated by adding the amount of organic waste generated by agencies and administrative buildings that are not in the zero landfill project, plus the organic waste generated by digital channels. The remainder was considered inert material. For the insurance company and Next, as the buildings have selective collection, it was considered that the composition of the waste is 100% organic.

As we do not have the rating of the landfill, this classification was defined for the quality of waste disposal.

In general, there is no recovery of methane in landfills and anaerobic reactors in Brazil, and therefore, this recovery was not considered in the inventory of Banco Bradesco S/A.

B.5 AIR TRAVEL

To account for GHG emissions associated with air travel, it is first necessary to account for the distances traveled on flights. The flights were broken down into segments, thus allowing the use of the GHG Protocol tool.

The GHG emissions from a short, medium or long-distance trip are calculated according to the equations below.

$$E_{CO2e,}\mathrm{tr,y} = \boldsymbol{Distância_{tr}} \cdot \boldsymbol{pax} \cdot \boldsymbol{FE_{CO2,tr,y}}$$

$$\boldsymbol{E_{CH4,}}\mathrm{tr,y} = \boldsymbol{Distância_{tr}} \cdot \boldsymbol{pax} \cdot \boldsymbol{FE_{CH4,tr,y}}$$

$$\boldsymbol{EN2O,}\mathrm{tr,y} = \boldsymbol{Distânciatr} \cdot \boldsymbol{pax} \cdot \boldsymbol{FEN2O,tr}$$

Where:

- $\boldsymbol{y}$ Report reference year;
- $\boldsymbol{tr}$ Classification of the segment flown (short, medium or long distance);
- $\boldsymbol{E_{CO2,tr,y}}$ CO_2 emissions from the burning of fuels from the plane that traveled the *tr* in the year *y*, in tCO_2;
- $\boldsymbol{E_{CH4,tr,y}}$ CH_4 emissions from the burning of fuels from the plane that traveled the *tr* in the year *y*, in tCH_4;
- $\boldsymbol{E_{N2O,tr,y}}$ N_2O emissions from the burning of fuels from the plane that traveled the *tr* in the year *y*, in tN_2O;
- $\boldsymbol{Distância_{tr}}$ Straight-line distance traveled in the air segment of the type *tr* corrected by the factor of 8%, in kilometers;
- $\boldsymbol{pax}$ Number of passengers who traveled the type segment *tr*;
- $\boldsymbol{FE_{CO2,tr}}$ CO_2 emission factor applicable to the burning of fuels by the plane that traveled the section of the type *tr*, in $tCO_2/pax.km$.
- $\boldsymbol{FE_{CH4,tr}}$ CH_4 emission factor applicable to the burning of fuels by the plane that traveled the section of the type *tr*, $tCH_4/pax.km$.
- $\boldsymbol{FE_{N2O,tr}}$ N_2O emission factor applicable to the burning of fuels by the plane that traveled the section of the type *tr*, in $tN_2O/pax.km$.

ANNEX C - CALCULATION OF UNCERTAINTIES

The calculations used in the combination of uncertainties are presented below, as well as estimates in confidence intervals and their corrections when necessary, according to the IPCC Good Practice Guidance (2006).

- Uncertainty combination of (uncorrelated) components of a multiplication or division:

$$I_{total} = \sqrt{I_1^2 + I_2^2 + \cdots I_n^2}$$

Where:

- I_{total}: Total percent uncertainty of the product of quantities (half of the 95% confidence interval expressed as a percentage). For asymmetric confidence intervals, the largest percentage difference between the mean and the confidence limit was considered;
- I_i: Percent uncertainty associated with each of the quantities of a multiplication.

- Combination of uncertainty of (uncorrelated) components of a sum or subtraction:

$$I_{total} = \frac{\sqrt{(I_1.x_1)^2 + (I_2.x_2)^2 + \ldots + (I_n.x_n)^2}}{|x_1 + x_2 + \ldots + x_n|}$$

Where:

- I_{total}: Total percent uncertainty of adding or subtracting amounts (half of the 95% confidence interval expressed as a percentage). For asymmetric confidence intervals, the largest percentage difference between the mean and the confidence limit was considered;
- x_i e I_i: Quantities and percentage uncertainty associated with each of the quantities in a multiplication.

Using the uncertainty propagation model described above, an estimate of half the 95% confidence interval will be produced, expressed as a percentage of the inventory result. As inventory uncertainty increases, the propagation approach described above systematically underestimates uncertainty, except in cases where quantification models are purely additive. Therefore, in cases where the uncertainty is greater than 100% and less than 230%, it must be corrected through the procedures described below:

$$I_{corrigida} = I.F_c$$

$$F_c = \left[\frac{(-0{,}720 + 1{,}0921.U - 1{,}63.10^{-3}.U^2 + 1{,}11.10^{-5}.U^3}{I}\right]^2$$

Where:

- $I_{corrigida}$: Total uncertainty corrected (half of the 95% confidence interval expressed as a percentage);
- I: Uncorrected total uncertainty (half 95% confidence interval expressed as a percentage);
- F_c: Uncertainty correction factor.

For the calculation of confidence intervals of the total result from the model based on the mean and half of the 95% confidence interval of the component quantities, a certain distribution must be assumed. If the model is purely additive and the half confidence interval is less than 50%, a normal distribution is an accurate estimate. In this case, a symmetrical probability distribution can be considered. For multiplicative models or in cases where the uncertainty is greater than 50% for variables that must be non-negative, a lognormal distribution is typically an accurate assumption. In these cases the probability distribution is not symmetric about the mean. For these situations, the following formulas will be applied to calculate the upper and lower limits of the 95% confidence interval:

$$I_{baixa} = \left\{\frac{\exp[\ln(\mu_g) - 1{,}96.\ln(\sigma_g)] - \mu}{\mu}\right\}.100$$

$$I_{alta} = \left\{\frac{\exp[\ln(\mu_g) + 1{,}96.\ln(\sigma_g)] - \mu}{\mu}\right\}.100$$

$$\sigma_g = exp.\left\{\sqrt{\ln\left(1 + \left[\frac{I}{100}\right]^2\right)}\right\}$$

$$\mu_g = exp.\left\{\ln(\mu) - \frac{1}{2}.\ln\left(1 + \left[\frac{I}{100}\right]^{-2}\right)\right\}$$

Where:

- I_{baixa}: Lower limit of the 95% confidence interval, in%;
- I_{alta}: Upper limit of the 95% confidence interval, in%;
- μ_g: Geometric mean;
- μ: Arithmetic mean;
- σ_g: Geometric standard deviation;
- I: Symmetric total uncertainty of the 95% confidence interval, in %;

The uncertainties associated with the calculation elements and emission factors were taken from the references from which the emission factors were obtained.

The uncertainties associated with the input data were estimated according to the recommendation of the document "GHG Protocol guidance on uncertainty assessment in

GHG inventories and calculating statistical parameter uncertainty". Given the limitations in establishing uncertainty values for Banco Bradesco Inventory input data, the method used quantifies the uncertainties based on a qualitative analysis of the data, as shown in Table C.1:

Table C.1 Qualitative analysis of input data uncertainties.

Data accuracy	Average uncertainty interval	Higher uncertainty adopted	Lower uncertainty adopted
High	+/- 5%	1%	5%
Good	+/- 15%	5%	15%
Reasonable	+/- 30%	15%	30%
Poor	> 30%	30%	50%

Banco Bradesco's input data were qualified according to the characteristics of the data collected (Table C.2):

Table C.2 Assessment of input data for the Banco Bradesco Inventory 2021.

Category	Parameter	Source of Information	Data accuracy
Combustion stationary	Diesel consumption	Purchase invoice	High
Mobile Combustion	Alcohol consumption in average vehicle	Purchase invoice	High
	Consumption of alcohol in a small vehicle	Purchase invoice	High
	Large vehicle diesel consumption	Purchase invoice	High
	Gasoline consumption in large vehicle	Purchase invoice	High
	Gasoline consumption in average vehicle	Purchase invoice	High
	Small vehicle fuel consumption	Purchase invoice	High
	Aviation kerosene consumption	Purchase invoice	High
	Aviation kerosene consumption (helicopters)	Purchase invoice	High
	Consumption of aviation kerosene (jets)	Purchase invoice	High
Electricity	Electric energy consumption	Network metering (account)	High
	Biomass consumption	Estimated calculation	Poor
Fugitive Emissions	39TC gas consumption (HFC-134a)	Purchase invoice	High
	39TC gas consumption (HFC227ea)	Purchase invoice	High

Category	Parameter	Source of Information	Data accuracy
	HCFC-22 gas consumption	Purchase invoice	High
	HFC-134A gas consumption	Purchase invoice	High
	R-407C gas consumption	Purchase invoice	High
	R-410A gas consumption	Purchase invoice	High
	R141B gas mass	Purchase invoice	High
	Use of refrigerant gases - CO_2 (Argentina, Cayman, Europe and New York)	Estimated use	Poor
Business travel (air)	Traveling on short-distance air trips	Compilation of the distances of the segments flown	Reasonable
	Traveling on long-distance air trips	Compilation of the distances of the segments flown	Reasonable
	Traveling on medium-distance air trips	Compilation of the distances of the segments flown	Reasonable
Business trips	Distance traveled - Gasoline refund	Measured distances	Reasonable
	Distance traveled - ethanol refund	Measured distances	Reasonable
	Gasoline expenses - taxi	Purchase notes. Average cost per liter of fuel	Reasonable
	Gasoline expenses (cooperative taxi)	Purchase notes. Average cost per liter of fuel	Reasonable
Transport and distribution (upstream)	Distance traveled in light winch (diesel)	Estimated distances	Poor
	Distance traveled by heavy winch (diesel)	Estimated distances	Poor
	Distance covered by motorcycle (mechanical assistance)	Estimated distances	Poor
	Spending on alcohol fuel in a small vehicle	Purchase notes Average cost per liter of fuel	Reasonable
	Diesel oil expenses	Purchase notes Average cost per liter of fuel	Reasonable
	Expenses with diesel (armored transport)	Purchase notes Average cost per liter of fuel	Reasonable
	Expenses with diesel (FEBRABAN)	Purchase notes Average cost per liter of fuel	Reasonable
	Gasoline expenses for a light vehicle (FEBRABAN)	Purchase notes Average cost per liter of fuel	Reasonable

Category	Parameter	Source of Information	Data accuracy
	Motorbike gas costs	Purchase notes Average cost per liter of fuel	Reasonable
	Spending on gasoline fuel in a small vehicle	Purchase notes Average cost per liter of fuel	Reasonable
	Expenses with aviation kerosene (FEBRABAN)	Purchase notes Average cost per liter of fuel	Reasonable
Employee transport	Distance traveled by subway	Estimated distances	Poor
	Distance traveled by chartered minibus	Estimated distances	Poor
	Distance traveled by chartered bus	Estimated distances	Poor
	Distance traveled by chartered van	Estimated distances	Poor
	Distance traveled in employee vehicle	Estimated distances	Poor
	Passenger transport time	Estimated distances	Poor
Solid waste	Mass of waste sent for composting	Heavy waste Composition	Reasonable
	Mass of solid waste generated	Heavy waste = Good	Reasonable
	Mass of solid waste generated (agencies)	Heavy waste = Good	Reasonable
	Mass of solid waste generated (buildings)	Heavy waste = Good	Reasonable