



B3 S.A. – Brasil, Bolsa, Balcão

2021 Greenhouse Gas Emissions Inventory –

Results Presentation



Index

01. Executive Summary

02. Methodologies used

03. Inventory Boundaries

04. Relevant Information

05. Main Changes in 2021

06. Results

07. References

Executive Summary

The greenhouse gas (GHG) emissions inventory aims to increase the company's transparency and control over its GHG impacts, by recording and disclosing the GHG emissions released by its business activities. The inventory should be used as a basis for the company's GHG Management practice, which will support initiatives related to opportunities for reducing emissions and enhancing processes.

Since 2009, B3 quantifies its GHG emissions, and as of 2010 came to be verified by the third part and include the document in the Brazilian GHG Protocol. In 2022, KPMG assisted B3 in the compilation of its 2021 GHG inventory. The results of this engagement are set out in this report and will serve as a basis to support B3's GHG management and direct its initiatives.

The absolute emissions of B3 in 2021 totaled **in 60.20 (tonnes of CO2e) for Scope 1, 4,140.50 (tonnes of CO2e) for Scope 2 and 1,019.94 (tonnes of CO2e) for Scope 3**. Scope 1 emissions showed a reduction of 39% compared to 2020, as a result of the decrease in the amount of cooling gases replaced in the HVAC system (heating, ventilation and air conditioning) of B3 units in 2021. In the case of scope 2 emissions and 3 (indirect emissions), there was an increase of 114% and 180.8%, respectively, when compared to the previous year. These increases are linked to the partial return to offices and the 105% increase in the average annual emission factor of the Brazilian GRID for the year of 2021.

B3 has been annually offsetting the greenhouse gases it cannot reduce, there thereby making it **"carbon neutral"**. One objective of these initiatives include identifying, managing and reducing its environmental impact, and contributing to the global effort against climate change and the effects thereof.

The Company has also a reduction target of 15% of Scope 2 emissions by 2026, having 2021 as a base-year.

Executive Summary

This Inventory includes the following Greenhouse Gases covered by the Kyoto Protocol and UNFCCC (United Nations Framework Convention on Climate change) reporting guideline : CO₂, CH₄, N₂O, SF₆, NF₃ and the HFCs and PFCs families.

The global warming potential (Global Warming Potential – GWP) indicates how much a given gas contributes to global warming in relation to the same amount of carbon dioxide, whose potential is set to 1, in a given time interval and is used to calculate the carbon dioxide equivalent (CO₂e) of the causing greenhouse gases effect, making them a common basis. In accordance with the Brazilian GHG Protocol decisions, the GWP values of the fifth IPCC report, Fifth Assessment Report – AR5 were adopted. The values can be found in the table below and the complete list on the IPCC website:

Gas	GWP Value (2021 Inventory) ¹
CO ₂	1
CH ₄	28
N ₂ O	265
SF ₆	23,500
HFCs	4 – 12,400
PFCs	6,630 – 17,400
NF ₃	16,100

¹GHG Protocol Nota técnica Valores de GWP 2.0.pdf (fgv.br)

Methodologies used

The methodologies, scope, calculations and assumptions used in the development of this inventory are described throughout this report.

The main References used for data calculation and allocation of emissions are:

- The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard - Revised Edition - March 2004 - WRI/WBCSD;
- 2006 IPCC Guidelines for National Greenhouse Gas Inventories (Intergovernmental Panel on Climate Change);
- Brazilian GHG Protocol Program - Guide for preparing corporate inventories of greenhouse gas (GHG) emissions – FGV, 2009;
- Fifth Assessment Report or AR5.

Inventory Boundaries

In order to determine the organizational boundaries of its Inventory, the company must choose one of the approaches presented by the GHG Protocol: Equity Share or Control (operational or financial).

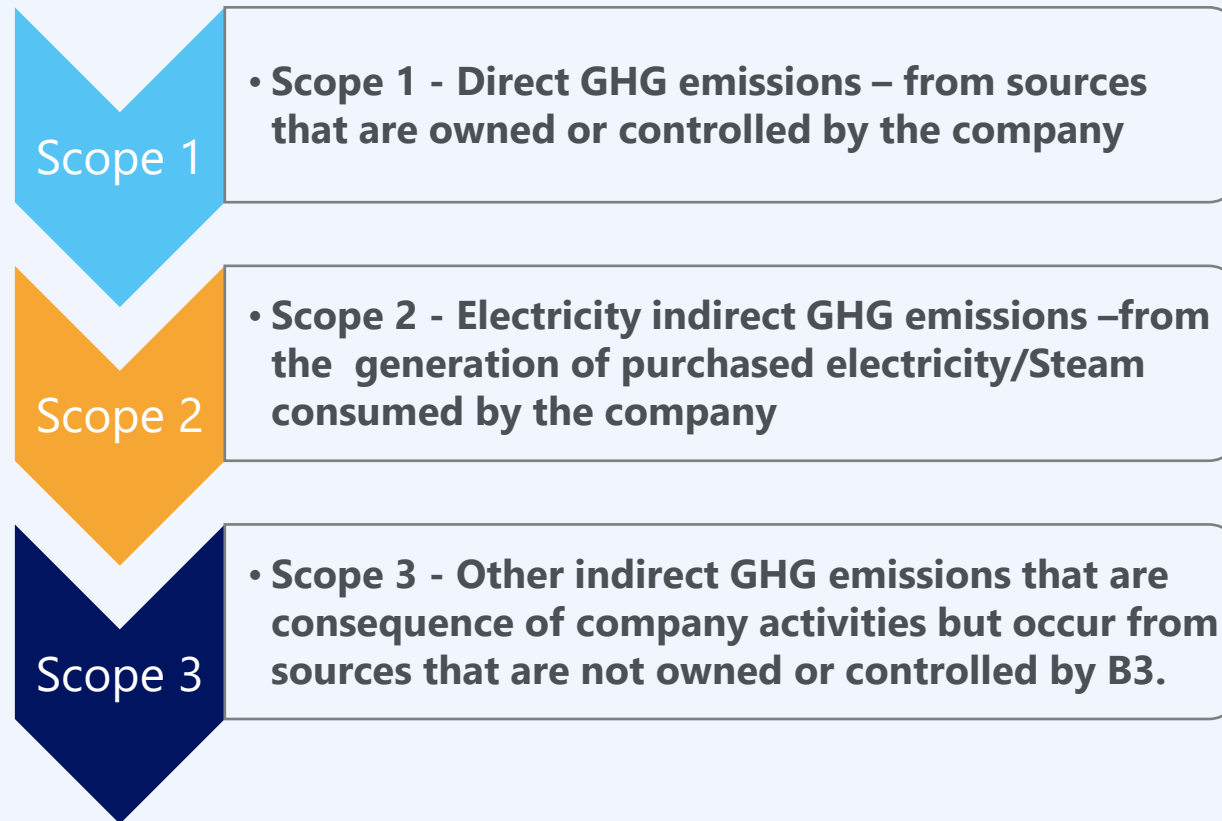
B3 opted for operational control approach, in which the company is responsible for emissions from sources and activities over which it has control. Therefore, if B3 interferes with a certain emission source and may deliberately implement its operational measures, such source is considered to be an integral part of the company's organizational boundaries.

This Inventory includes all companies in which B3 has operational control. Therefore, the following groups were included:

- B3 S. USA LLC ("B3 Inova")
- Banco B3
- BM&FBOVESPA BRV LLC ("BRV")
- Supervisão de Mercados (BSM)
- B3 Social
- Bolsa de Valores do Rio de Janeiro (BVRJ)
- London International office
- Chicago International office
- Shanghai International office
- Portal de Documentos S.A. ("Portal de Documentos")
- BLK Sistemas Financeiros Ltda. ("BLK")
- Central de Exposição a Derivativos ("CED")
- Cetip Lux S.à.r.l. ("Cetip Lux")
- B3 Inova USA LLC ("B3 Inova")
- Cetip Info Tecnologia S.A. ("Cetip Info")

Inventory Boundaries

The concept of Scope, introduced by GHG Protocol, aims to help companies establish the operational boundaries accounted for. The three scopes are defined as follows:



Inventory Boundaries

Considering the guidelines of the Brazilian GHG Protocol Program and B3 activities, the following Emission Sources were identified and included in this inventory:

B3's Emission Sources		
Scope 1	Stationary combustion	Use of fossil fuels for energy generation and food preparation.
	Mobile combustion	Fuel consumption in vehicles operated by the company.
	Fugitive Emissions	Intentional and unintentional release from sources including refrigerant systems and use of fire extinguishers.
Scope 2	Purchased electricity	Emissions from the generation of purchased electricity, steam, and heating/cooling.
Scope 3	Category 1 – Purchased Goods and Services	Fuel consumption in vehicles operated by third parties for transporting documents (motorcycle courier).
	Category 5 - Waste generated in operations	Waste disposal managed by third parties.
	Category 6 - Business travel	Employee air travel and taxi transportation.
	Category 7 - Employee commuting	Employee commuting to and from work.

Relevant Information

The companies listed below are part of B3's control, however they do not have their own office or employees linked to their structure, in these cases the emission was considered as zero, given that all emissions linked to B3's operations are accounted in other existing offices:

- B3 Inova USA LLC ("B3 Inova");
- BM&FBOVESPA BRV LLC ("BRV");
- Cetip Lux S.à.r.l. ("Cetip Lux").

In December 2021, B3 completed the acquisition of the company Neoway Tecnologia Integrada Assessoria e Negócios S.A., which emissions were not included in the 2021 GHG inventory, as it is in integration process and has a low representation in emissions, less than 1%. Neoway inclusion in future GHG inventories will be studied.

Main Changes in 2021

In 2021, the following changes occurred in B3's' GHG Inventory:

- The companies BLK Sistemas Financeiros Ltda. ("BLK"), Portal de Documentos S.A. ("Portal de Documentos") and Central de Exposição a Derivativos ("CED") were incorporated into the GHG inventory;
- In 2021, as the Covid-19 vaccination process progressed, office occupancy began to consider the hybrid work model, which resulted in an increase in Category 7 emissions - Employee commuting;
- The reference for global warming potential was updated to AR5, which provided changes in total emissions in CO2e for the 2021 base-year. In order to maintain historical data from previous years, 2019 and 2020 GHG emissions were maintained, using the global warming potential of AR4.



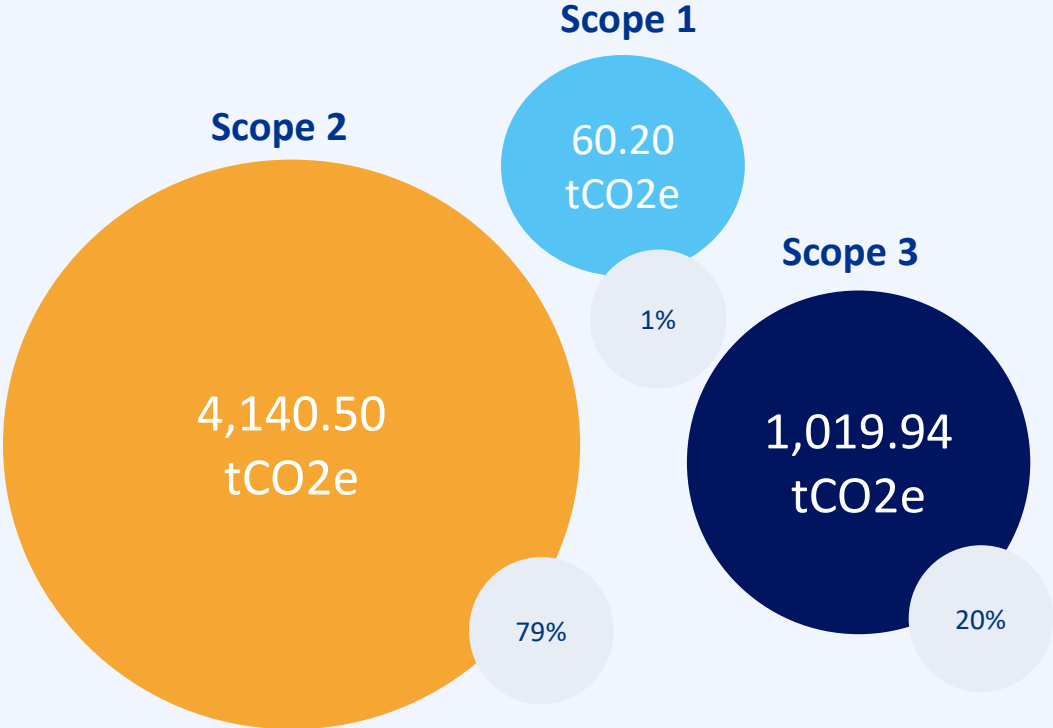
Results

This chapter presents the results of B3's GHG 2021 inventory, which was developed based on information collected internally and on the methodologies and assumptions presented in this report.



Results - Absolute Emissions

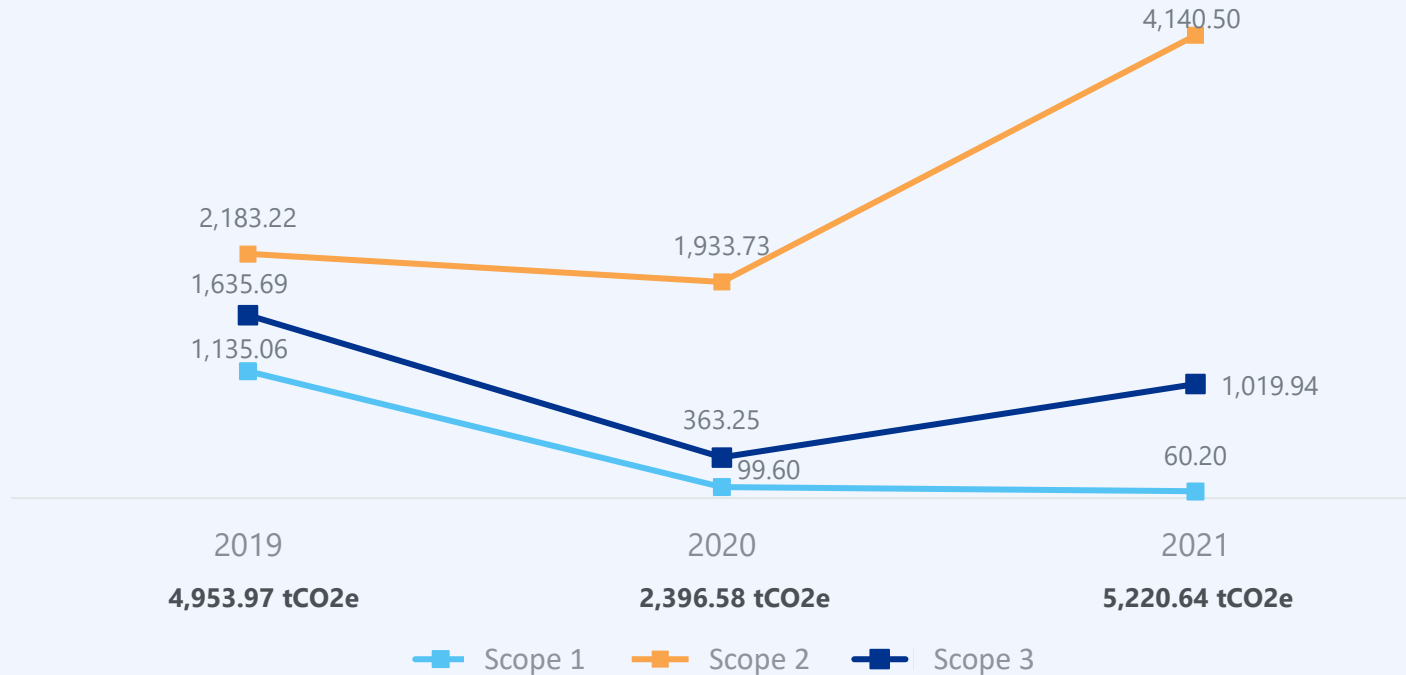
B3's total GHG emissions for the year 2021 was 5,220.64 tonnes of CO₂e. As shown on the image below, 1% of emissions refer to sources owned or controlled by the company (scope 1). The other emissions are indirect emissions, of which 79% refer to scope 2 and 20% to scope 3.



Results - Absolute Emissions

As it's characteristic of organizations of the financial and services industry, B3's direct emissions are less significant compared to indirect emissions.

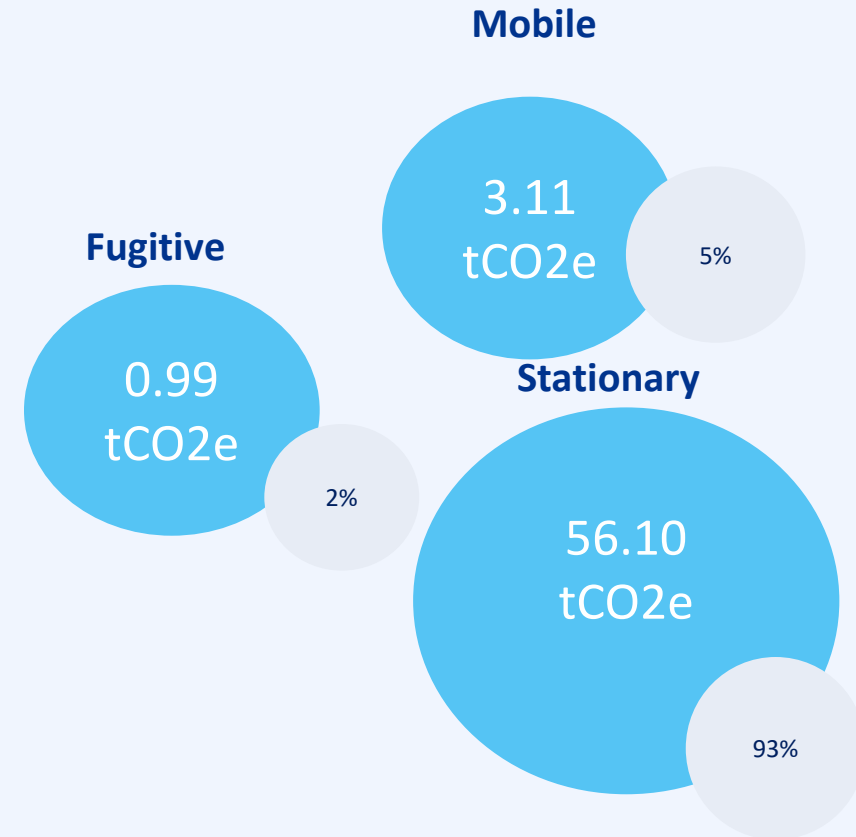
B3's total emissions in 2021 showed an increase of 117.8% compared to 2020 emissions, with the emissions variations in scope 2 and 3 being the most responsible for this increase.



Results - Scope 1

Among the Scope 1 emission sources, the most representative was the stationary source, which refers to fuel consumption in B3's generators.

Emission Source	tCO2	tCH4	tN2O	tHFCs	tCO2e
Mobile	3.02	0.001	0.0003	0.000	3.11
Fugitive	0.99	-	-	-	0.99
Stationary	55.74	0.008	0.0005	0.00	56.10



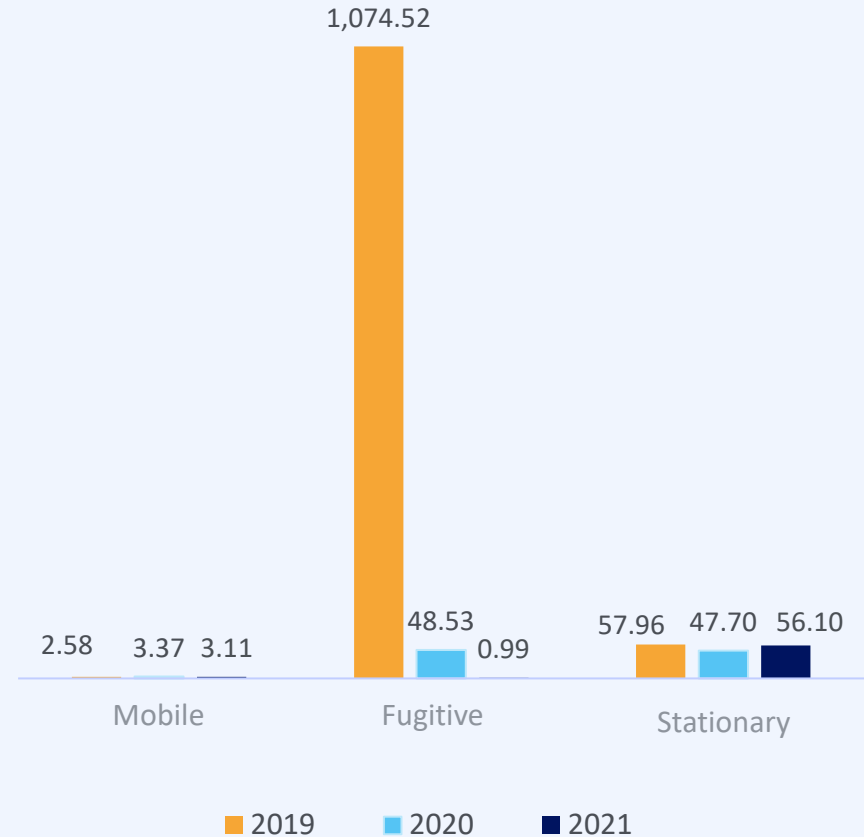
Results – Scope 1

When comparing the total Scope 1 GHG emissions of 2020 with the 2021 GHG emissions it is possible to notice a reduction of 39%.

The most significant reduction is related to fugitive emissions, which, in 2020, represented about 49% of the total scope 1 emission, and in 2021 started to represent 2%. Replacements in air conditioning equipment are variable and depend on the use of the equipment. It is common for high replenishment years to be followed by low years, as recharging does not always occur annually. In 2019, the amount of recharge was above average, due to the improvement in B3's buildings (Retrofit). The following years showed a reduction in the amount of recharges needed.

In 2021, GHG emissions from B3's mobile and stationary sources represented respectively 5% and 93% of total Scope 1 emissions.

The stationary source presented an 17.6% increase in its absolute emission. Emissions from mobile sources decreased 7.8% compared to 2020.



Results – Scope 1

Mobile Sources

Scope 1 mobile GHG emissions are related to the use of the company's own vehicles. B3's fleet is quite small, which justifies its low GHG emission compared to stationary sources. In 2021, B3's fleet was supplied with gasoline, ethanol and diesel, and gasoline was responsible for about 70% of GHG emissions from this source.

In 2021, the percentage of ethanol in gasoline remained at 27%, but diesel presented a change in its composition, with a variation from 11.3% to 11.17% of biodiesel in the annual average.

As can be seen in the table below, the decrease in GHG emissions from mobile combustion is mainly linked to the decrease in gasoline and diesel consumption:

Emission Source	Activity	Fuel	2020		2021	
			Consumption in Liters	tCO ₂ e	Consumption in Liters	tCO ₂ e
Mobile	Own Fleet	Diesel	465.43	1.09	391.66	0.91
Mobile	Own Fleet	Gasoline	1,350.59	2.28	1,306.68	2.20
Mobile	Own Fleet	Ethanol	-	-	35.22	0.000392

Results – Scope 1

Stationary Sources

GHG emissions from stationary sources results from the combustion of fuel (diesel oil) by generators and the use of natural gas and LPG in restaurants, kitchens and heaters. It should be noted that only generators owned by B3 were considered in this scope. Any energy consumption from third-party generators was allocated in scope 2, according to the guidelines of the Brazilian GHG Protocol Program..

GHG emissions from stationary source showed an increase of 18% compared to 2020, due to the rise in diesel consumption in generators and the consumption of cooking gas in 2021. It is noteworthy that the Data Center and the building XV de Novembro were responsible for 88% of GHG emissions from stationary combustion in 2021.

Emission Source	Activity	Combustível	tCO2e
Stationary	Generator	Diesel Oil	54.80
Stationary	Kitchen	Natural Gas	0.13
Stationary	Kitchen	LPG	1.18

Results – Scope 1

Fugitive Sources

In 2021, GHG fugitive emissions were concentrated in the replacement of CO₂ in the units fire extinguishers. Compared to previous years, there was an inversion of representation, in 2020 the replacement of extinguishers was of low significance and cooling gases represented a total of 97.7% of GHG emissions from this source. However, in 2021, as there was no recharge of cooling gases, fugitive emissions show a reduction of 98% and the most representative gas for this source became CO₂ from fire extinguishers.

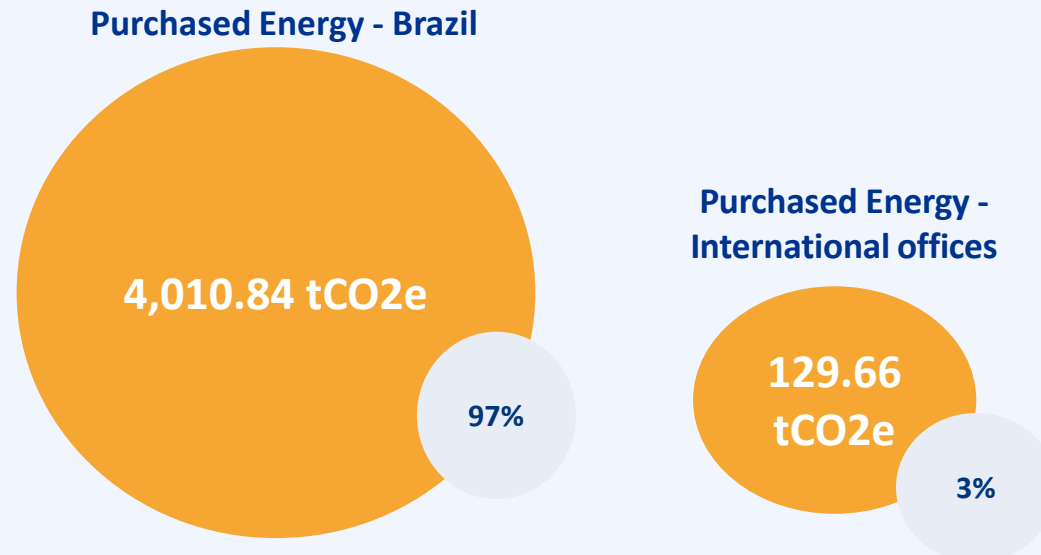
Emission Source	Activity	2020		2021	
		Gases (tonnes)	tCO ₂ e	Gases (tonnes)	tCO ₂ e
Fugitive	Fire Extinguishers.– CO ₂	1.14	1.14	0.99	0.99
Fugitive	Air Conditioning – R410A	0.02	47.39	-	-

Results – Scope 2

GHG scope 2 emissions refer to energy GHG emissions (electricity and steam) purchased externally. In 2021, B3 consumed 31.56 GWh of the Brazilian electricity grid in its operations, an increase of 22% compared to consumption in 2020, due to the increased use of buildings and the inclusion of BLK and Document Portal in the inventory. The consumption of the BLK and Document Portal units was obtained through estimates considering the number of employees.

In 2021, GHG emissions associated with this scope represented around 79% of the company's total GHG emissions, which can be broken down into energy consumed in international offices and energy consumed in Brazilian Offices.

International GHG emissions, from the London and Chicago offices, were calculated using estimates of annual energy consumption per employee at the units in Brazil. Scope 2 international emissions include the Chicago, London and Shanghai offices and represent 3% of this scope's emissions.



Results – Scope 2

Electric Energy Purchase

The distribution of GHG emissions is consistent with the company's structure. As the largest group of offices are located in Brazil, 97% of scope 2 GHG emissions refer to the purchase of energy in this country.

Emission Source	tCO ₂ e
Purchased Energy - International offices	129.66
Purchased Energy - Brazil	4,010.84

GHG emissions related to energy purchase are based on specific emission factors consistent with the energy matrix of each country, thus despite the emission in Brazil being the most relevant due to the number of units and absolute energy consumption, its emission factor (tCO₂e/MWh) is lower when compared to international units as it presents a predominantly renewable matrix.

Emission Factor	t/MWh
International Energy Purchase - USA	0.373
International Energy Purchase - London	0.212
International Energy Purchase – Shanghai	0.624
National Energy Purchase - Brazil	0.126

Results – Scope 2

Electric Energy Purchase

The 22% increase in energy consumption, associated with the 105% increase in the 2021 Brazilian GRID emission factor, was responsible for the 154% increase in scope 2 emissions linked to energy purchased from the Brazilian GRID.

The GRID emission factor is linked to the use of thermoelectric plants during the year (when hydroelectric plants are not sufficient to meet the demand of the population, more thermoelectric plants are activated to meet this demand) and this consequently results in a variation in the emission of greenhouse gases.

The table below shows the variations in B3's electricity consumption between the years of 2020 and 2021 and the variation in the GRID's emission factor.

	Energy Consumption in Brazil (MWh)	Emission Factor (Average Annual tCO ₂ /Mwh)	Scope 2 Brazil Emission (tCO ₂)
2020	25,932	0.062	1,579.82
2021	31,563	0.126	4,010.84
Variation	22%	105%	154%

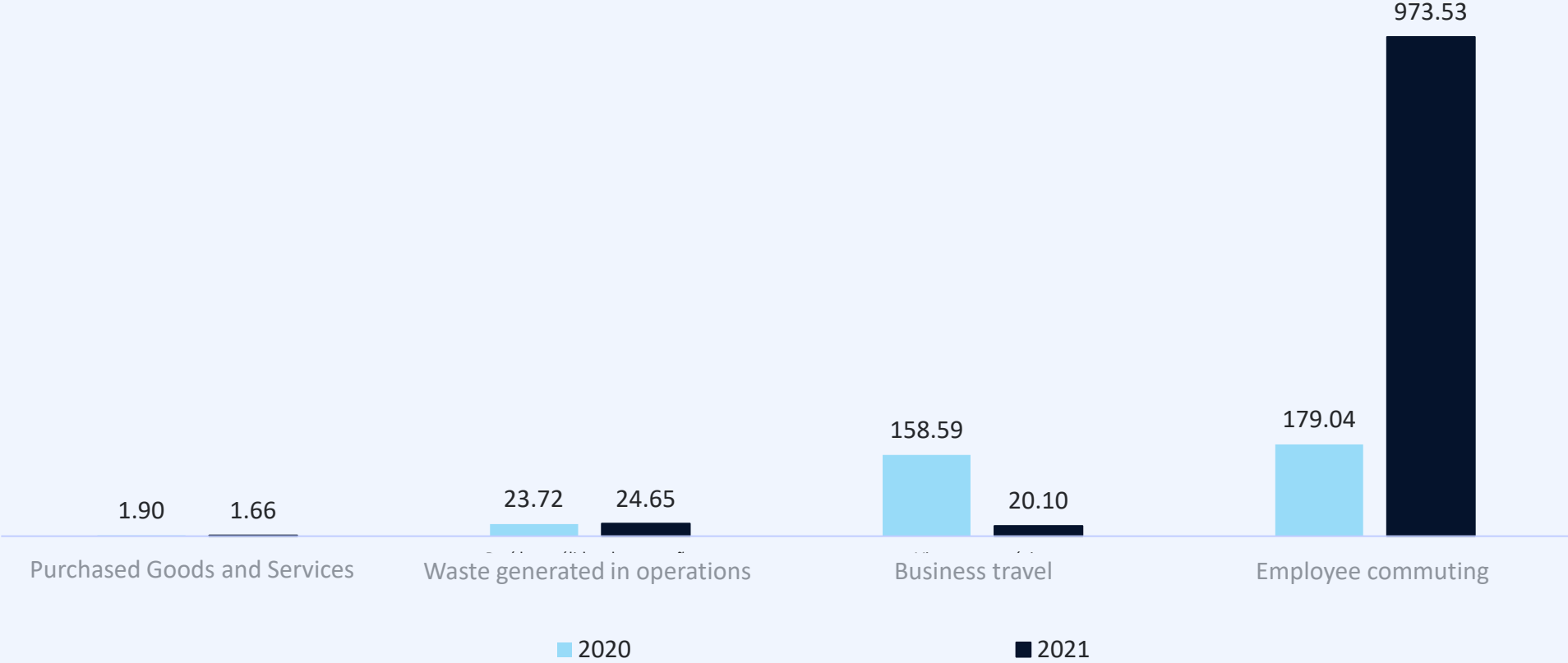
Results – Scope 3

Scope 3 GHG emissions refer to indirect emissions related to B3's activities. Four categories of emission sources that are applicable and reportable by B3 were considered for reporting.



*The scope 3 categories defined by the Brazilian GHG Protocol Program were considered

Results – Scope 3



Results – Scope 3

Category 1- Purchased Goods and Services

This category includes GHG emissions related to the transport of documents by courier. In 2021, there was a reduction in the mileage traveled, which represented a decrease of approximately 0.24 tonnes of CO₂e.

Category 5 - Waste generated in operations

The Category 5 presents GHG emissions linked to the final disposal of waste generated in B3's operation. In recent years, the disposal of organic waste has been concentrated in landfills and, in 2021, the landfill was reclassified to "Sanitary Landfill" in Category 5, which generated an increase in the amount of CH₄ emitted per ton of waste and consequently generated a 4% increase in CO₂e emissions for this category.

Destination	2020 tCO ₂ e	2021 tCO ₂ e
Landfill	23.72	24.65

Results – Scope 3

Category 6 - Business travel

Category 6 (employee business travel), in 2021, represented the third largest GHG emission source in B3's scope 3. This category includes air travel and employee travel by taxi and other transport, as shown below.

Category 6 (Employee business travel)	2020 tCO2e	2021 tCO2e
Transport of employees/advisers (Taxi)	22.90	10.26
Air travel	135.69	9.84

In 2021, GHG emissions from traveling by taxi reduced 55% compared to 2020. This variation was due to the decrease in mileage traveled.

Results – Scope 3

Category 6 - Business travel

GHG emissions related to air travel reduced 93% in 2021, due the reduction in the segments flown.

As can be seen in the table below, the reductions in mileage (short, medium and long traveled) showed reduction in relation to 2020.

	2020	2021	Variation
KM Short	115,332	11,961	-90%
Average KM	347,003	35,146	-90%
KM Long	914,298	53,437	-94%
Total KM	1,376,632	100,544	-93%
tCO2e	135.69	9.84	-93%

Results – Scope 3

Category 7 - Employee commuting

In 2021, GHG emissions related to employee commuting accounted for 95% of scope 3 GHG emissions. The emission was quantified using an internal survey and for non-respondents the data were extrapolated using the average information compiled in the commuting survey.

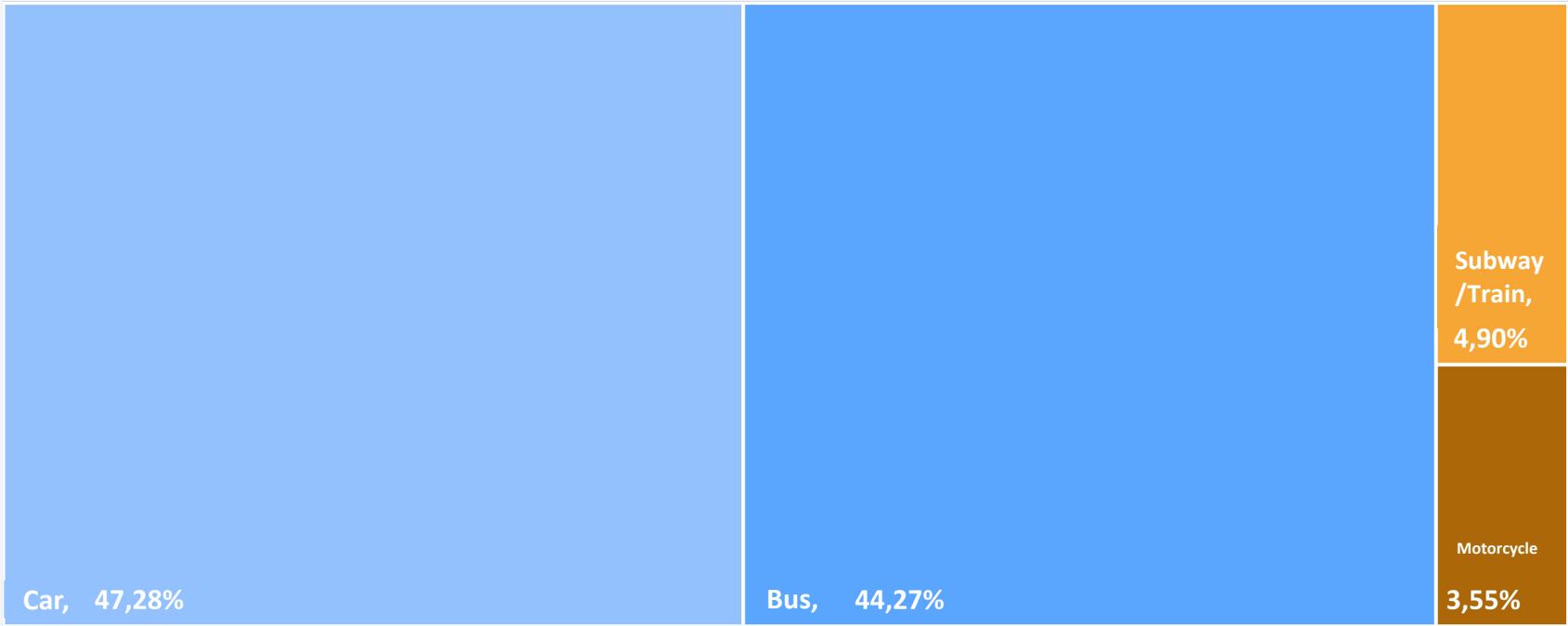
With the team's gradual return to the office, a significant increase in category 7 GHG emissions was observed.

	2020	2021	Variation
Category 7 - Employee commuting - tCO ₂ e	179.03	973.53	444%

Results – Scope 3

Category 7 - Employee commuting

GHG Emission per Modal



Results – Other Emissions

Emissions resulting from the combustion of biofuels have peculiarities, which is why they were treated differently from those from fossil fuels. Fuels from biomass have CO₂ neutral emission, this premise is adopted because it is considered that the CO₂ released in the combustion of biomass is equal to the CO₂ removed from the atmosphere during the photosynthesis process, thus, it is possible to consider it neutral. On the other hand, CH₄ and N₂O emissions cannot be considered neutral because these gases are not removed from the atmosphere during the biomass life cycle. In this case, CH₄ and N₂O emissions were included in scope 1.

In the case of Brazil, all diesel commercialized has a biodiesel fraction (Law n° 11,097, of 01/13/2005) and all Brazilian gasoline also necessarily has a variable fraction of biogenic fuel, in this case ethanol. Thus, to account for the consumption of diesel and gasoline, it was necessary to separate the fossil fraction from the renewable one. In 2021, gasoline and diesel oil produced in Brazil had an average of 27% anhydrous ethanol and 11.17% of biodiesel in their compositions, respectively. Therefore, the GHG emissions related to these percentages of biomass fuels were duly deducted from the company's total emissions.

The table below shows the GHG emissions considered "neutral" in scopes 1, 2 and 3, arising from the burning of biomass fuels in 2021 B3 activities. The emission of R-22 cooling gas is also reported, which, despite not being included in the Kyoto Protocol because it is regulated by the Montreal Protocol¹, it has a representative global warming potential.

¹ The Montreal Protocol is an international treaty that restricts emissions of gases that are harmful to the ozone layer.

Results – Other Emissions

Scope	Emission Source	Neutral Emissions (tCO2e)
Scope 1	Stationary Sources	6.39
	Mobile Sources	0.70
Scope 2	Purchased electricity (generator)	-
Scope 3	Category 1 : Purchased Goods and Services	0.41
	Category 6: Business travel	2.51
	Category 7: Employee commuting	331.34

Scope	Emission Source	Consumed Gas	Montreal Protocol gas emissions (tCO2e)
Scope 1	Fugitive Source	R-22	5.28

Results – GHG Intensity

B3 uses 5 indicators to assess its GHG emissions performance, they are:

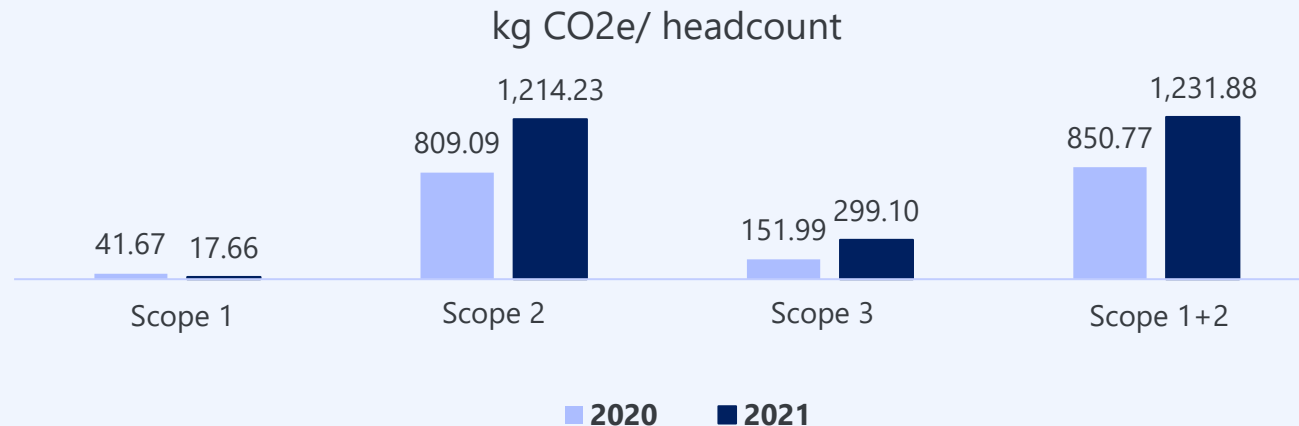
- Intensity of GHG emissions per headcount;
- Intensity of GHG emissions per occupied area;
- Intensity of GHG emissions by gross revenue;
- Intensity of GHG emissions by traded volume - Bovespa Segment;
- Intensity of GHG emissions by traded volume – BM&F Segment.

Results – GHG Intensity

Intensity kg CO₂e/headcount¹

The GHG emission intensity per headcount is obtained by dividing the GHG emissions from the inventory (scope 1, 2 and 3) by the number of employees of all the companies that compose the emissions inventory. This data indicates the GHG emission by the company's human capital. Keeping rates lower, despite the increase in operations, which is often indicated by the increase in headcount, is a way of presenting the development of carbon management

B3 showed a significant reduction of 58% in the GHG intensity of scope 1, while in scope 2 there was a 50% increase in GHG intensity. Scope 3 showed a significant increase of 97%. These results are directly linked to the increase in the National GRID emission factor, electricity consumption and the gradual return to offices, which led to greater commuting of employees.



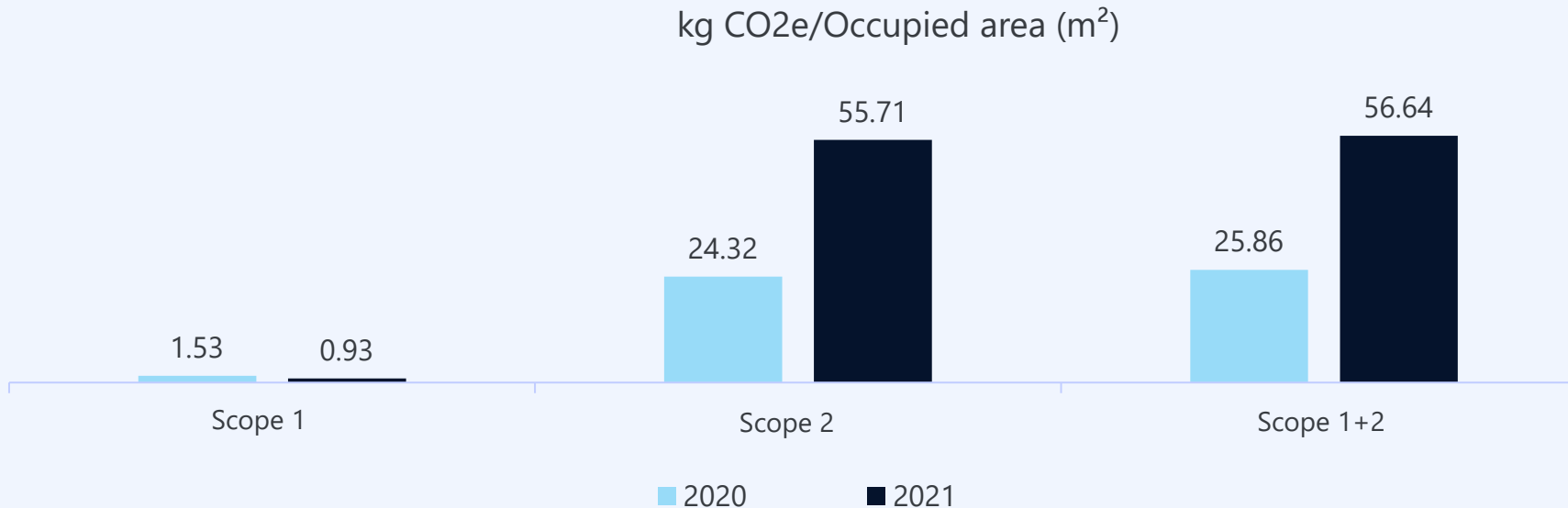
¹ Headcount 2020 - 2,390 Headcount 2021 – 3,410

Results – GHG Intensity

Intensity kg CO₂e/occupied area¹

As the areas occupied between 2020 and 2021 remained the same, the variation in GHG intensity followed the line of variations in emissions, with a decrease of 45% in scope 1 and an increase of 94.12% in scope 2.

This indicator is quantified by dividing B3 GHG emissions per area occupied in m², as part of scope 1 and 2 GHG emissions are associated with consumption and maintenance of buildings, the occupied area is a way to obtain the GHG intensity of operations.



¹Information does not include BLK, Documents Portal and the Shanghai, Chicago and London offices

Results – GHG Intensity

Intensity kg CO₂e/gross revenue

To calculate the GHG intensity, the previously reported total GHG emissions by scope and the consolidated gross revenue of B3 were used as a basis, indicating how much of the GHG emission by scope is linked to the revenue generated by B3.

In 2021 there was a 10% increase in revenue when compared to 2020¹, however, despite this increase, the intensity showed an increase of 94% for scope 2 and 154% for scope 3 due to the significant increase in emissions from these scopes.



¹ 2020 Gross Revenue - 9,327,395 thousand reais

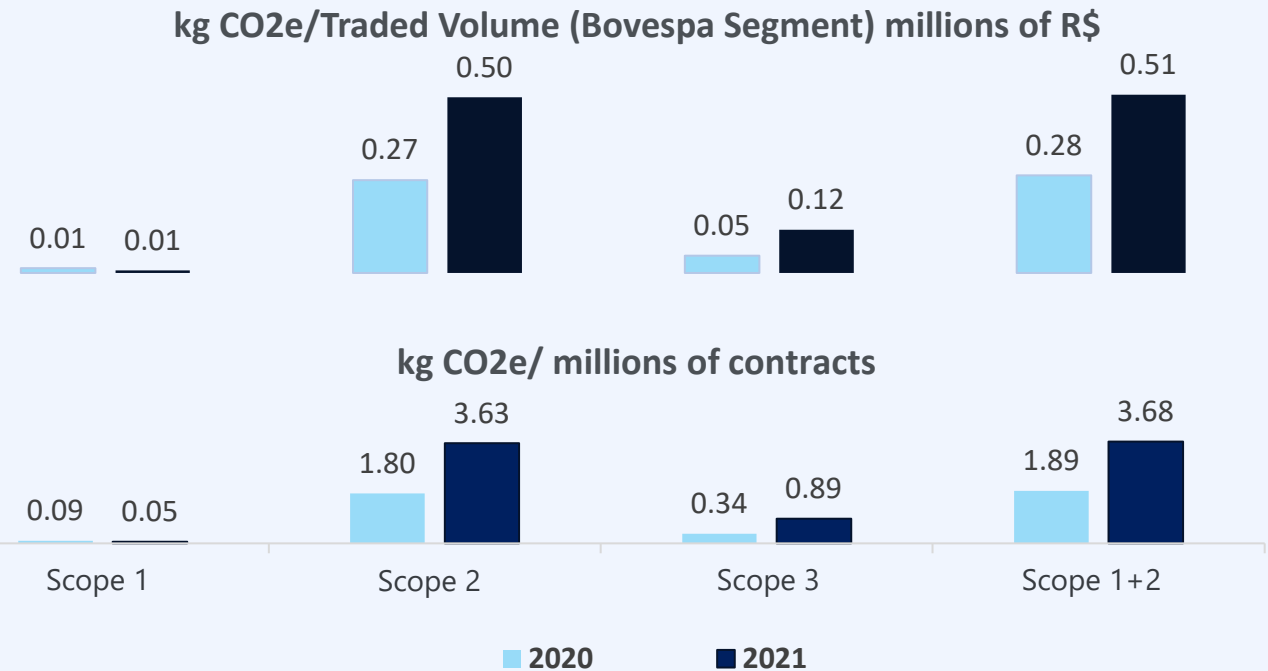
Gross Revenue of 2021 - 10,288,124 thousand reais

Results – GHG Intensity

Intensity kg CO₂e/Traded Volume

The assessment of GHG intensity by traded volume is quantified in two different ways, one using the value in millions of the traded volume¹ as a basis and the other using the number of traded contracts in the year².

Despite the 14% increase in the daily average of millions of reais traded and 7% raise in the daily average of negotiated contracts, the increase in scope 2 and 3 GHG emissions promoted an increase of more than 85% in the GHG intensities linked to scope 2 and 3.



¹ The traded value is obtained using the Daily Trading Volume (Bovespa Segment) in millions, times the number of trading sessions in the year.

² The number of traded contracts in the year is obtained through the daily average of traded contracts times the number of trading sessions in the year.

References

- The Greenhouse Gas Protocol - A Corporate Accounting and Reporting Standard - Revised Edition - March 2004 - WRI/WBCSD.
- 2006 IPCC Guidelines for National Greenhouse Gas Inventories (Intergovernmental Panel on Climate Change).
- Brazilian GHG Program Protocol - Guide for elaboration of corporate inventories of greenhouse gases (GHG) emissions – FGV, 2009.
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- IPCC Fifth Assessment Report or AR5.



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