

[B]³

2020 Greenhouse Gas Emissions Inventory Results

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Executive Summary

The greenhouse gas (GHG) emissions 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 Carbon Management practice, which will support initiatives related to opportunities for reducing emissions and enhancing processes.

Since 2009, B3 quantifies its GHG emission, and as of 2010 came to be verified by the third part and include the document in the Brazilian GHG Protocol. In 2021, KPMG assisted B3 in the compilation of its inventory, based on data from 2020. The results of this engagement are set out in this report and will serve as a basis to support B3's carbon management and direct its initiatives.

The absolute emissions of B3 in 2020 totaled in **99.60 tCO₂e for Scope 1, 1,933.73 tCO₂e for Scope 2** and **363.25 tCO₂e for Scope 3**. Scope 1 emissions showed a reduction of 91% compared to 2019, as a result of the decrease in the amount of refrigerant gases replaced in the HVAC system (heating, ventilation and air conditioning) of B3 units in 2020. In the case of scope 2 emissions and 3 (indirect emissions), there was a reduction of 11% and 78%, respectively, when compared to the previous year. These reductions reflect the adherence of the home office to approximately 90% of employees as of the month of March due to the covid-19 pandemic. Another factor that contributed to the reduction in scope 2 emissions was the 18% reduction in the average annual emission factor of the Brazilian GRID for the year 2020.

B3 has been offsetting the greenhouse gases it cannot reduce, there by making it “carbon neutral”. The objectives of these initiatives include identifying, managing and reducing its environmental impact, and contributing to the global effort against climate change and the effects thereof.

Definitions and Concepts

This Inventory includes the following Greenhouse Gases controlled by the Kyoto Protocol: 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 gases greenhouse effect, making them the default unit. In accordance with the Kyoto Protocol decisions, the GWP values of the fourth IPCC report, Fourth Assessment Report – AR4 were adopted. The values can be found in the table below and the complete list on the IPCC website:

Gas	GWP value (2013 to 2019 inventory)
CO _{two}	1
CH ₄	25
N _{two} O	298
SF ₆	22,800
HFCs	124 - 14,800
PFCs	7,390 - 12,200
NF ₃	17,200

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- The methodologies, scope, calculations and assumptions used in the development of this inventory can be obtained from the Calculation Spreadsheets and collection sheets, which accompany this report.
- The main References used for this inventory 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.

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Inventory Limits

- In order to determine the organizational limits of its Inventory, the company must choose one of the approaches presented by the GHG Protocol: Shareholding 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 boundary.
- This Inventory includes all companies in which B3 has operational control. Therefore, the following groups were included:
 - B3 SA
 - Banco B3
 - Bolsa de Valores do Rio de Janeiro (BVRJ)
 - Supervisão de Mercados (BSM)
 - B3 Social
 - International offices: London, Chicago and Shanghai

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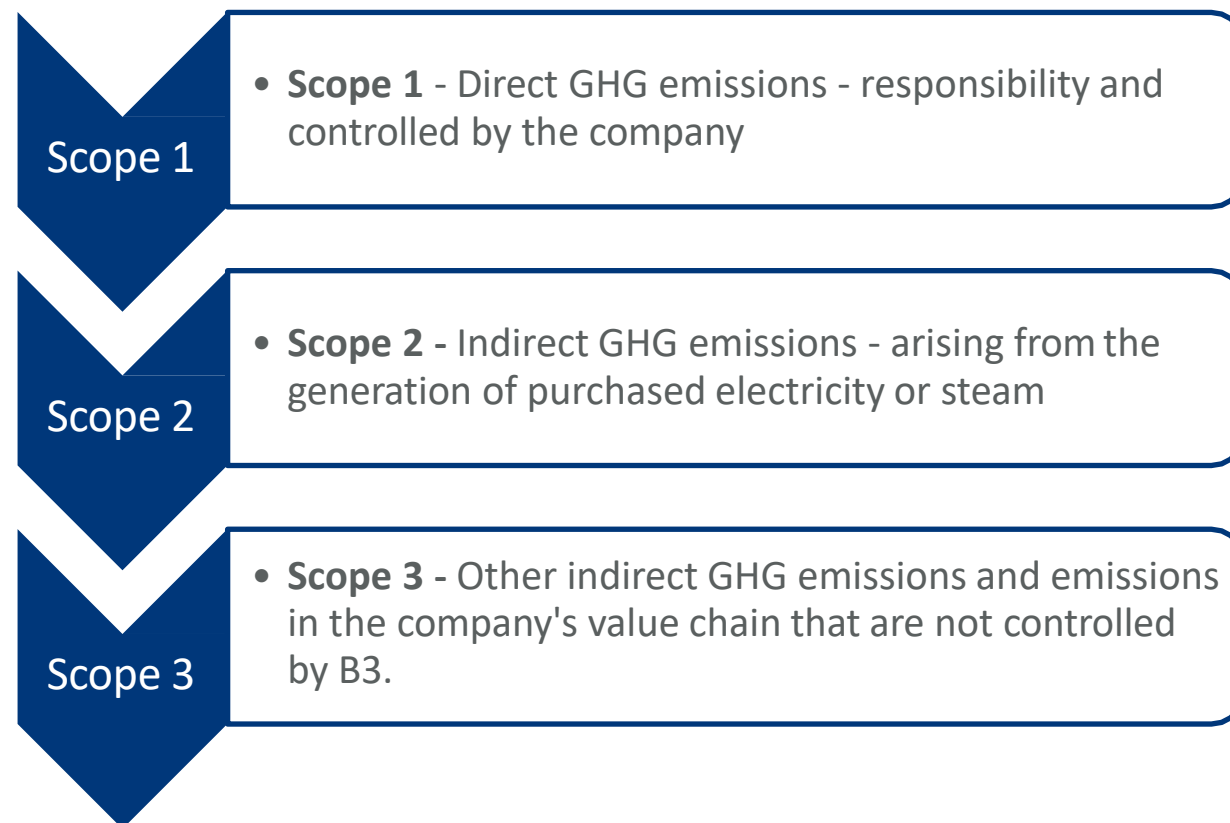
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Inventory Limits

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



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Inventory Limits

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

B3 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	Unintentional release from sources including refrigerant systems and use of fire extinguishers.
Scope 2	Acquired and consumed energy	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	Treatment of solid waste managed by third parties.
	Category 6 - Business Travel	Employee air travel and taxi transportation.
	Category 7 - Employee Commuting	Commuting home – employees work (commuting).
	Other Scope 3 emissions (Fugitive)	Unintentional release from refrigerant systems controlled by third parties.

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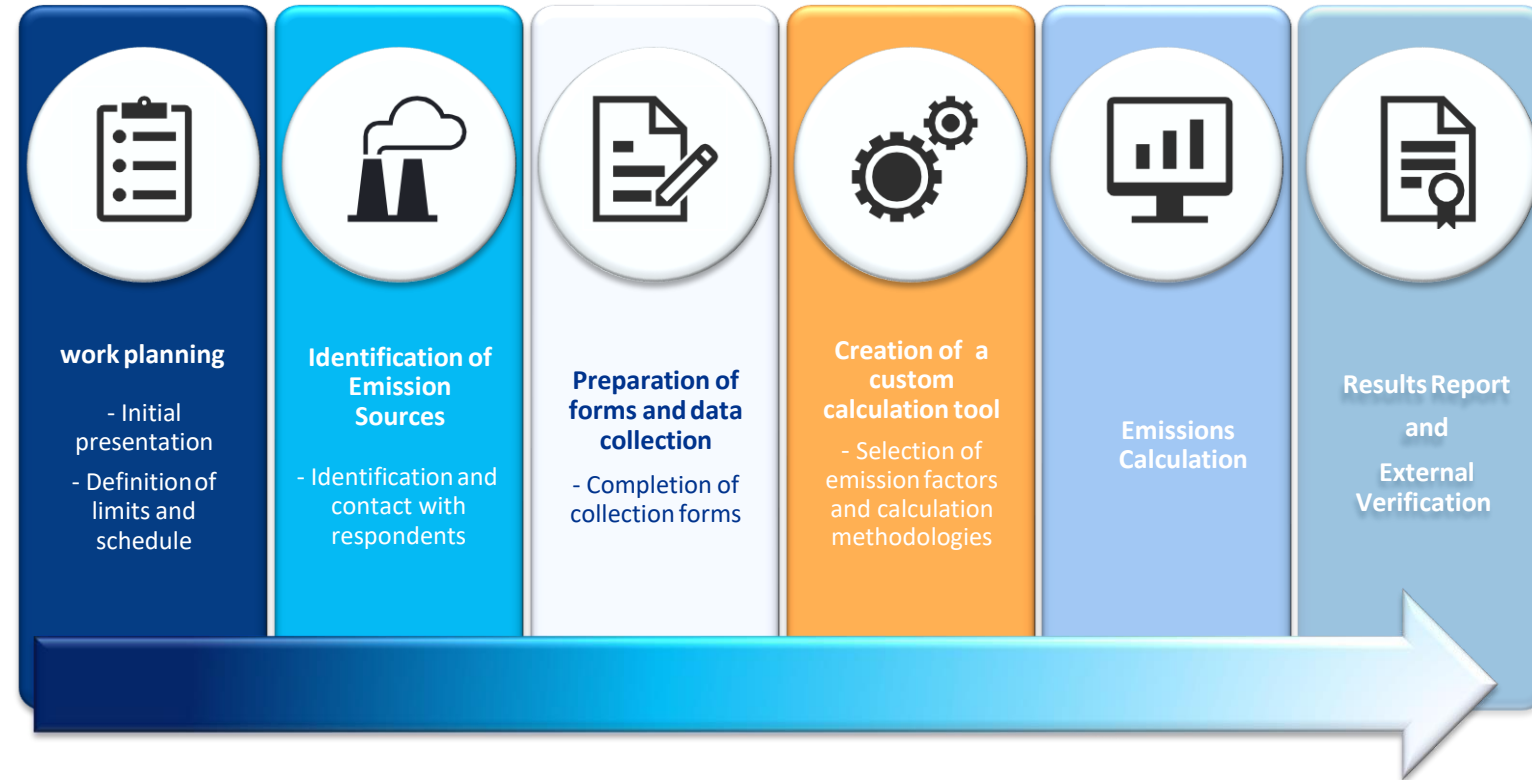
Main Changes in 2020

In 2020, the following changes occurred in the B3 units:

- In 2020 there was no face-to-face work at the Chicago - USA office, so we do not consider their scope 2 emissions in the inventory;
- In 2020, due to the COVID-19 pandemic, there was no classroom class at AP Brás. Thus, emissions from category 7 - Employee travel (Student transport - Bus) were not accounted for;
- The pandemic has changed the way B3 works, activities previously excepted in person began to be carried out remotely. Thus, the quantification of emissions in category 7 was carried out considering the 2019 employee travel survey and the number of employees who actually had to commute to the office.

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This chapter presents the results of B3's GHG 2020 inventory, which was developed based on information collected internally and on the methodologies and assumptions presented in this report.

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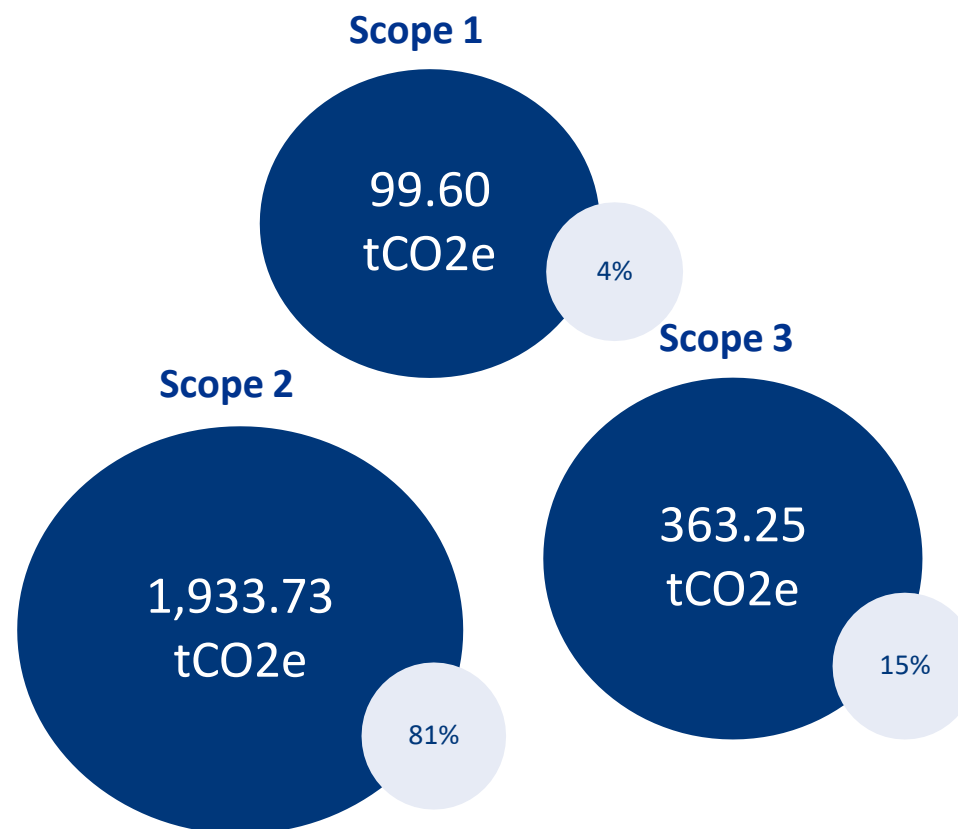
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Results - Absolute Emissions

B3's total GHG emissions for the year 2020 was 2,396.58 tCO₂e. As shown below, 4% of emissions refer to sources controlled by the company (scope 1). The other emissions are indirect emissions, of which 81% refer to scope 2 and 15% to scope 3.

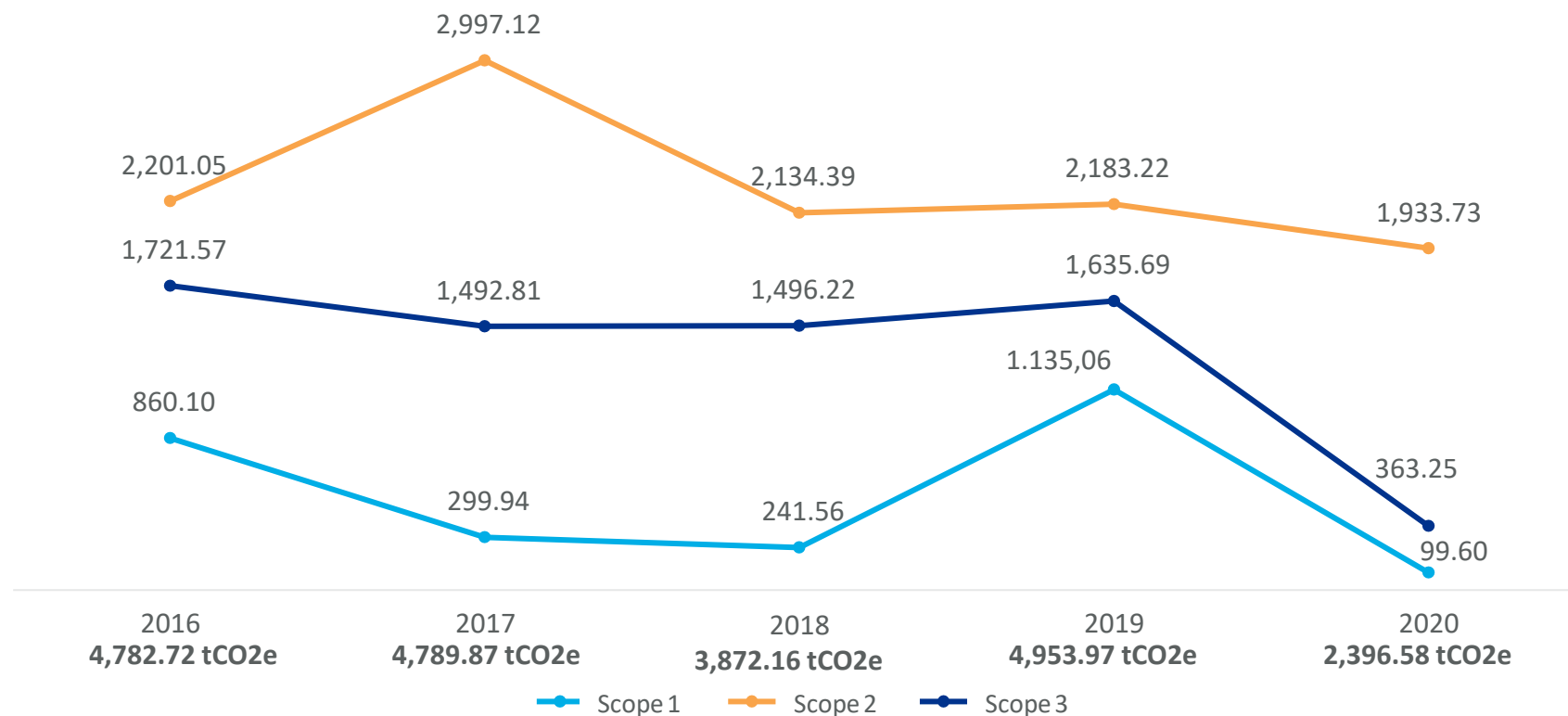


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Results - Absolute Emissions

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

B3's total emissions in 2020 showed a reduction of 52% compared to the emissions of 2019, with the emissions variations in scope 1 and 3 being the main responsible for this reduction.

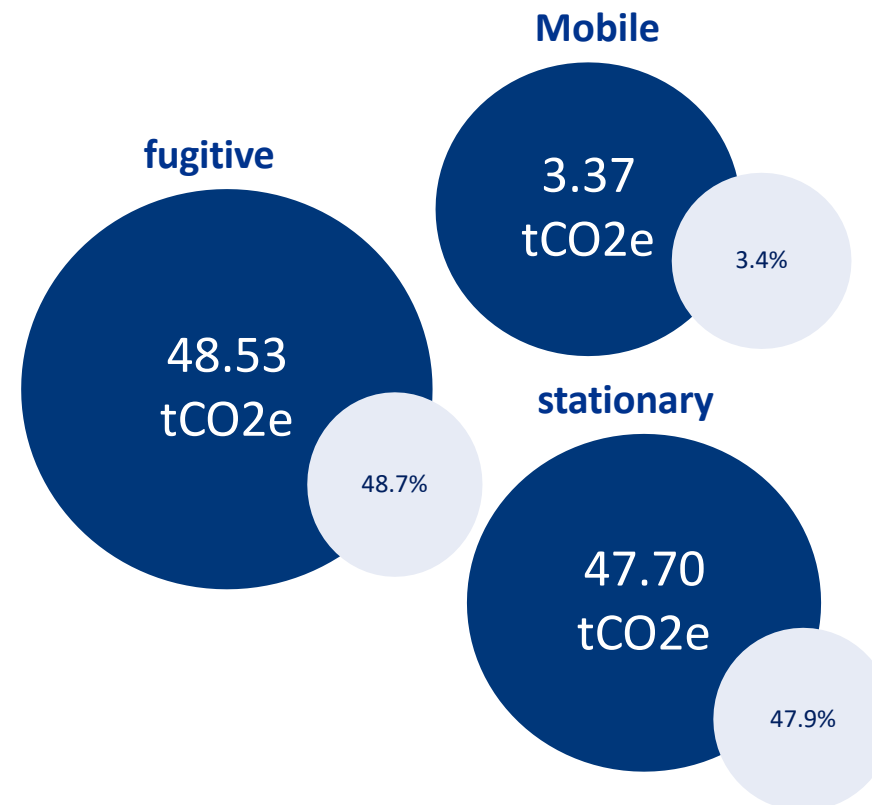
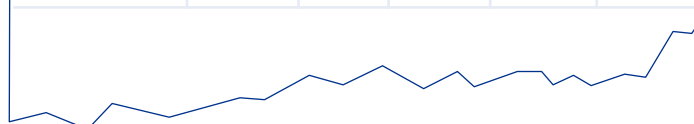


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Results - Absolute Emissions Scope 1

Among the Scope 1 emission sources, the most representative is the fugitive source, associated with the replacement of air conditioning gases (refrigerant gases). Although the quantity in ton of the gas is low (0.02 tons), its global heating potential is high, therefore, when converted to CO2e its emission becomes significant within the context of the company.

Issuance Source	tCO2	tCH4	tN2O	tHFCs	tCO2e
Mobile	3.255	0.001	0.0003	0.000	3.374
fugitive	1.142	-	-	0.0227	48.528
stationary	47.390	0.007	0.0004	0.00	47.697



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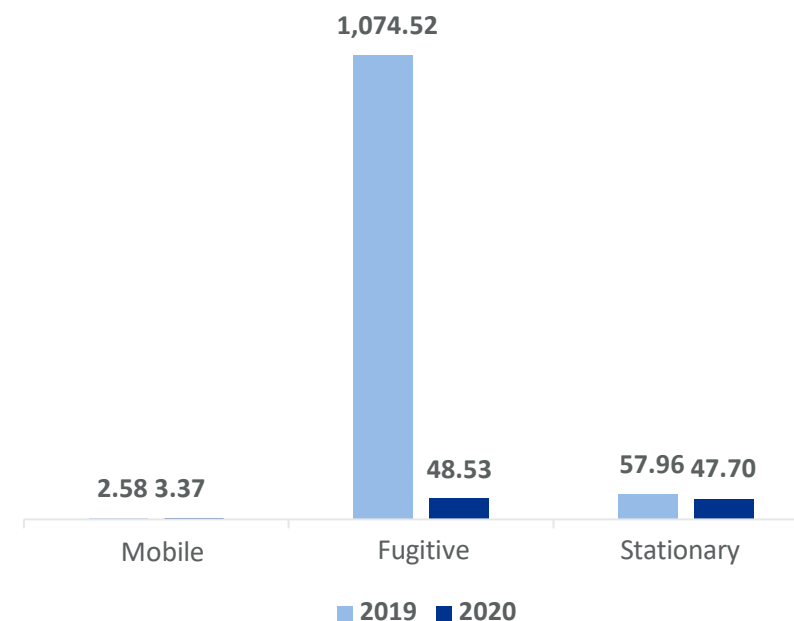
Results - Absolute Emissions Scope 1

When comparing the total Scope 1 emissions of 2019 with the 2020 emissions of B3 it is possible to notice a reduction of 91%.

The most significant reduction is related to fugitive emissions, which represent 48.7% of the total scope 1 emission. The decrease in the amount of refrigerant gas replacement was responsible for the 95% reduction in fugitive emissions.

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 2020, emissions from B3 mobile and stationary sources represented respectively 3.39% and 47.89% of total Scope 1 emissions. The stationary source presented an 18% reduction in its absolute emission. Emissions from mobile sources increased 31% compared to 2019 B3 data, due to a 24% increase in gasoline consumption.



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Results - Absolute Emissions Scope 1

Mobile combustion

- Scope 1 mobile emissions are related to the use of the company's own vehicles. In the case of B3, its fleet is quite small, which justifies its low emission compared to other sources in this scope. In 2020, B3's fleet was supplied with gasoline and diesel, with gasoline being responsible for 68% of emissions from this source.
- In 2020, the percentage of ethanol in gasoline remained at 27%, but diesel presented a change in its composition, with a variation from 10.3% to 11.33% of biodiesel in the annual average. This change helps to reduce non-biogenic emissions, thus reducing the impact of diesel consumption.
- As can be seen in the table below, the increase in emissions from mobile combustion is mainly linked to the increase in gasoline consumption:

Issuance Source	Activity	Fuel	2019		2020	
			Consumption in Liters	tCO2e	Consumption in Liters	tCO2e
Mobile	Own fleet	Diesel	466.92	1.11	465.43	1.09
Mobile	Own fleet	Gasoline	868.49	1.47	1,350.59	2.28

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Results - Absolute Emissions Scope 1

Stationary combustion

- Emissions from stationary sources result from the combustion of fuel (diesel oil) by generators and the use of natural gas and LPG in restaurants and heaters. In 2020, all stationary emissions came from generators. 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.
- Emissions from stationary source showed a reduction of 18% compared to 2019, due to the drop in diesel consumption and the non-consumption of cooking gas in 2020. It is noteworthy that the Data Center and the building XV de Novembro were responsible for 70% of emissions from stationary combustion in 2020.

Issuance Source	Activity	Fuel	tCO2e
Stationary	Generator	Diesel	47.70

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Results - Absolute Emissions Scope 1

Fugitive emissions

- In 2020, fugitive emissions were concentrated in the replacement of CO2 in the units' fire extinguishers (1.14 tons) and in the replacement of R410A gas (0.02 tons).
- Compared to previous years, the replacement of fire extinguishers continued to be of low significance and refrigerant gases accounted for a total of 97.6% of emissions from this source.

Issuance Source	Activity	2019		2020	
		Gases (t)	tCO2e	Gases (t)	tCO2e
Fugitive	Fire extinguishers – CO2	1.39	1.39	1.14	1.14
Fugitive	Air conditioning - R134A	0.2043	292.1	0.00	0.00
Fugitive	Air conditioning - R407C	0.4164	738.6	0.00	0.00
Fugitive	Air conditioning - R410A	0.00	0.00	0.02	47.39
Fugitive	Air conditioning - R404A	0.0108	42.4	0.00	0.00

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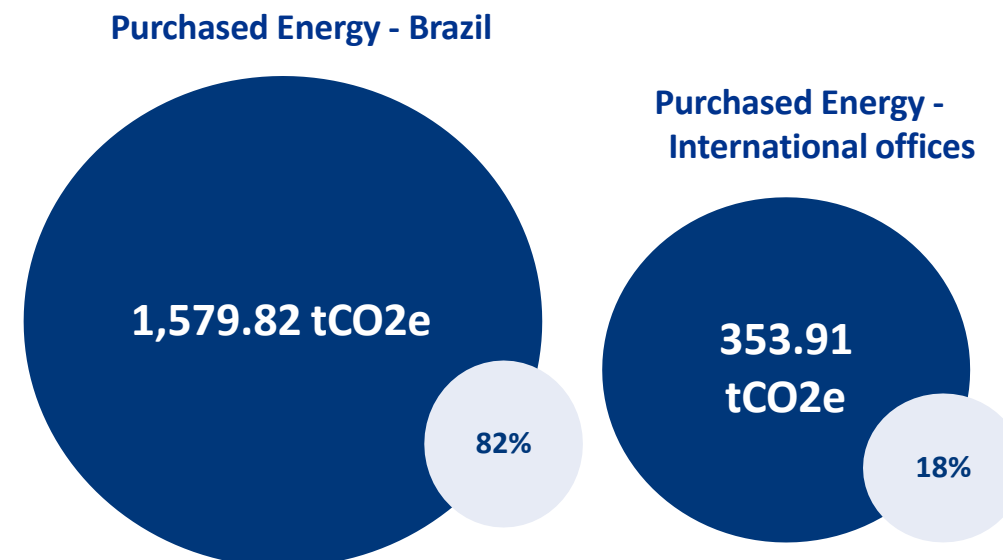
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Results - Absolute Emissions Scope 2

- Scope 2 emissions refer to energy emissions (electricity and steam) acquired externally. In 2020, B3 consumed 25.93 GWh of the Brazilian electricity grid in its operations, a reduction of 11% compared to consumption in 2019.
- In 2020, emissions associated with this scope represented around 82% of the company's total emissions, which can be broken down into energy consumed in international offices and energy consumed in Brazilian Offices.

The London office's international emissions were calculated using estimates of the annual energy consumption per employee of the units in Brazil. Scope 2 emissions from London plus Shanghai's represent 18% of scope emissions.

The Chicago office did not have its emissions quantified because, in 2020, its activities were carried out remotely.



Results - Absolute Emissions Scope 2

- The distribution of emissions is consistent with the company's structure. As the largest group of offices are located in Brazil, 82% of scope 2 emissions refer to the purchase of energy in this country.

Issuance Source	tCO ₂	tCH ₄	tN ₂ O	tCO ₂ e
International Energy Purchase	353.91	-	-	353.91
Bralian Energy Purchase	1,579.82	-	-	1,579.82

- Emissions related to energy purchases 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 units abroad as it presents a predominantly renewable matrix.

Issuance Source	tCO ₂ e/MWh
International Energy Purchase - USA	0.433
International Energy Purchase - London	0.233
International Power Purchase - Shanghai	0.704
Purchase of Energy Brazil	0.062

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Results - Absolute Emissions Scope 2

- The 11% reduction in energy consumption, associated with the 18% decrease in the 2020 GRID emission factor, was responsible for the 27% reduction 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 2019 and 2020 and the variation in the GRID's emission factor.

	Energy Consumption in Brazil (Mwh)	Emission Factor (Average Annual tCO ₂ eq/Mwh)	Scope 2 Brazil Emission (tCO ₂ eq)
2019	29,208	0.075	2,178.91
2020	25,932	0.062	1,579.82
Variation	-11%	-18%	-27%

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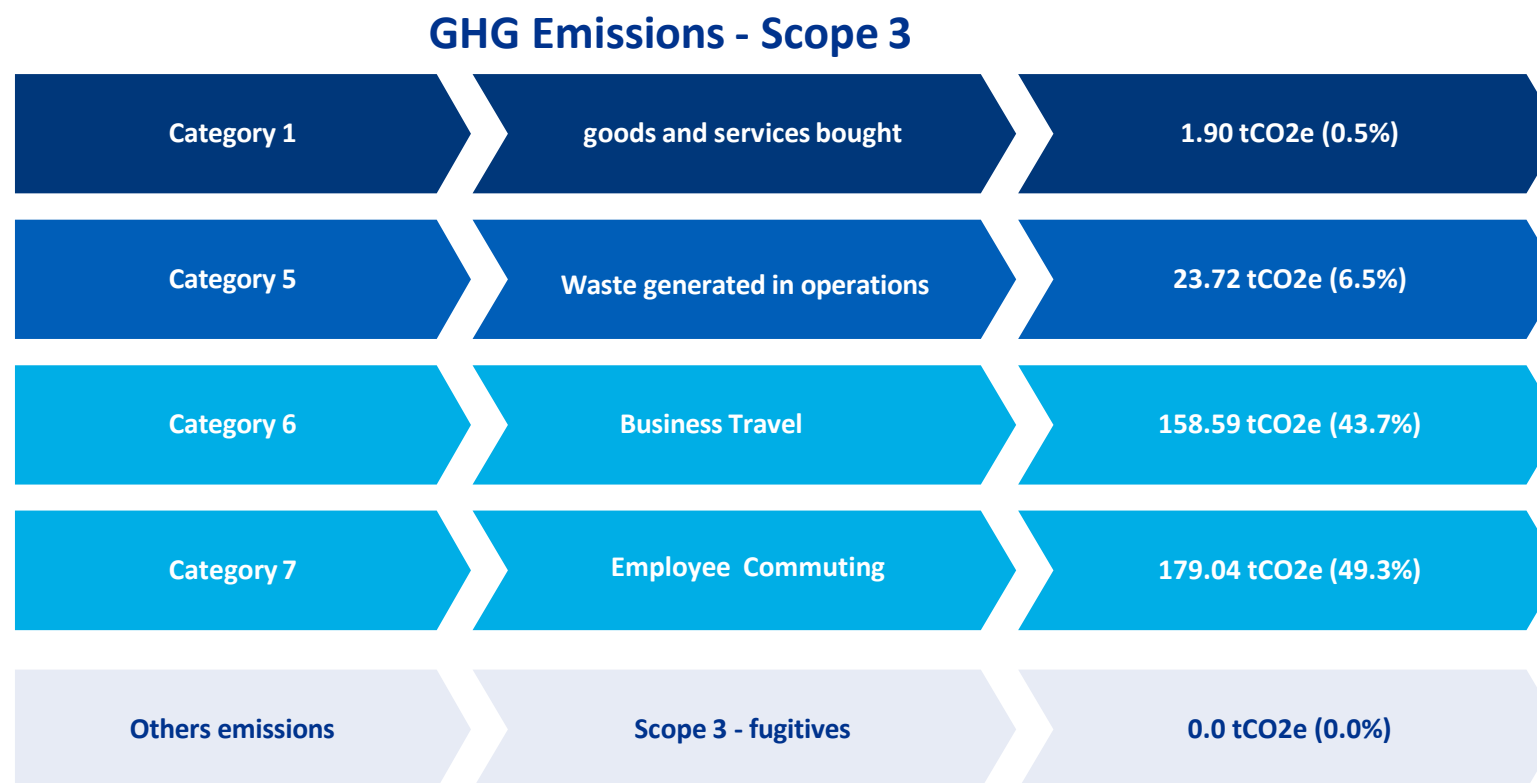
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Results - Absolute Emissions Scope 3

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



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

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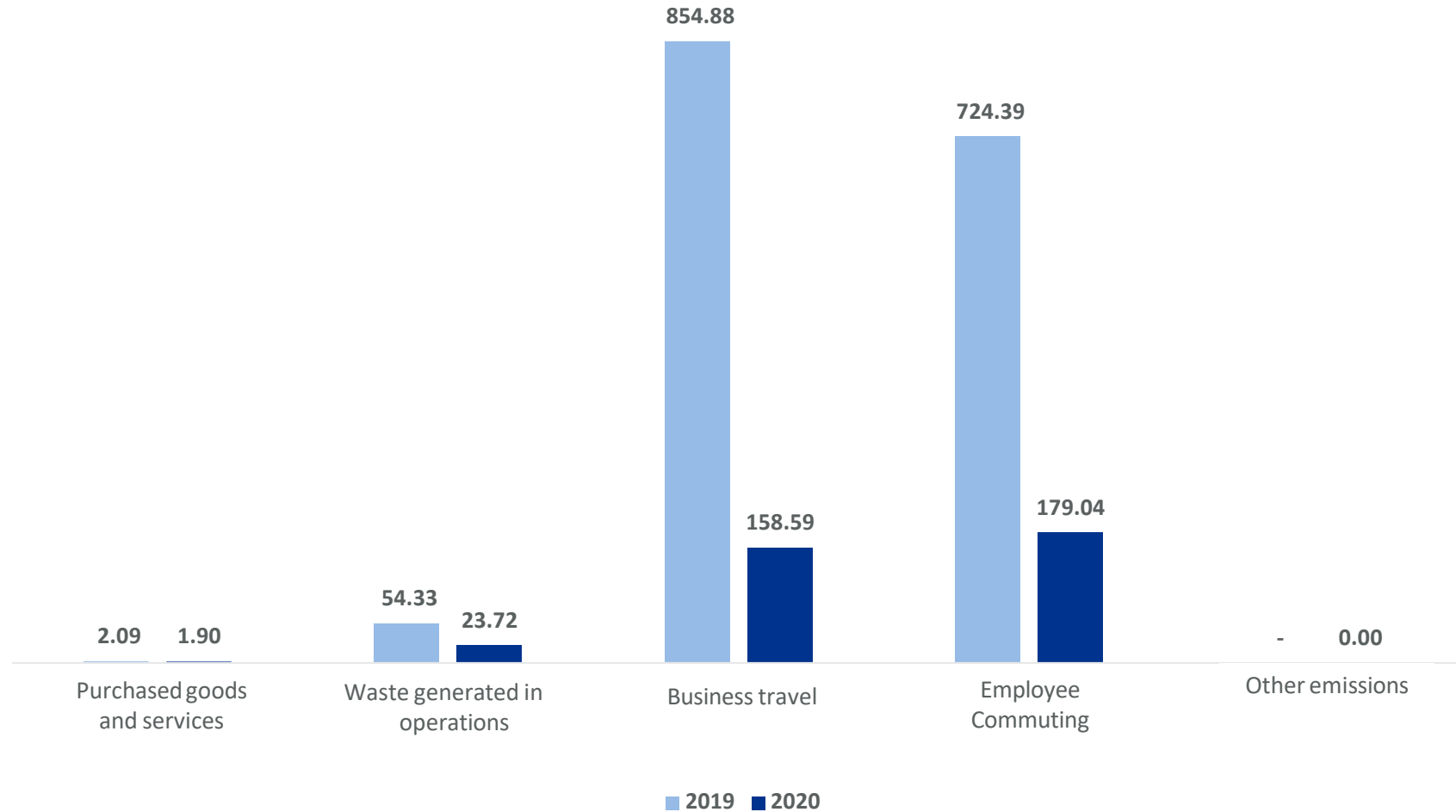
Emission Source	2020				
	Other Gases (t)	tCO2	tCH4	tN2O	tCO2e
Category 1 - Purchased goods and services	-	1.8183	0.0007	0.0002	1.9012
Category 5 - Waste generated in operations	-	-	0.9489	-	23.7213
Category 6 - Business Travel	-	156.2887	0.0098	0.0069	158.5868
Category 7 - Employee Commuting	-	171.9632	0.0764	0.0173	179.0368
Other Scope 3 emissions (Fugitive)	-	-	-	-	-

According to the table above, Scope 3 emissions were concentrated in the Business Travel and Employee Commuting category, together representing 93% of total emissions in this scope.

Results - Absolute Emissions

Scope 3

GHG Emissions - Scope 3



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Results - Absolute Emissions Scope 3

Other Scope 3 Emissions (Fugitive)

- This category includes fugitive emissions from sources that are not controlled by B3. In 2020 there were no reports of fugitive emissions.

Category 1: Purchased goods and services

- This category includes emissions relating to the transport of documents by courier. In 2020, there was a 9% reduction in the mileage traveled, which represented a decrease of approximately 0.18 tons of CO₂e.

Category 5 - Waste generated in operations

- THE Category 5 presents emissions linked to the final disposal of waste generated in the operation of B3. In recent years, the disposal of organic waste has been concentrated in landfills and, in 2020, there was a reduction in the amount of waste sent to landfills, which generated a 56% decrease in Category 5 emissions.

Destination	2019 tCO ₂ e	2020 tCO ₂ e
Landfill	54.33	23.72

Results - Absolute Emissions Scope 3

Category 6 - Business Travel

- Category 6 (business travel), in 2020, represented the second largest source of emission in b3's scope 3. This category includes air travel and employee travel by taxi and other transport, as shown below.

Category 6 (Business Travel)	2019 tCO ₂ e	2020 tCO ₂ e
Transport of employees/advisers (Taxi)	86.88	22.90
Air travel	768.01	135.68

- In 2020, emissions from traveling by taxi reduced 74% compared to 2019. This variation was due to the decrease in mileage traveled, as shown in the table below.

	2019	2020
KM covered (Taxi)	622,889.60	164,003.75

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Results - Absolute Emissions Scope 3

Emissions related to air travel reduced 82% in 2020, due to an 82% reduction in the segments flown. This reduction in the segments flown reflects some of the impacts caused by COVID-19. The DEFRA emission factors, which were updated in 2020, showed reductions of 4% for short haul, 2% for medium haul and 2% for long haul.

As can be seen in the table below, the reductions in mileage (short, medium and long) showed similar variations in relation to 2019 of approximately 82%.

	2019	2020	Variation
Number of Segments	4,056	746	-82%
KM short	597,307	115,332	-81%
Average KM	1,918,079	347,003	-82%
KM Long	5,095,042	914,298	-82%
Total KM	7,610,428	1,376,632	-82%
tCO₂e	768.01	135.68	-82%

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Results - Absolute Emissions Scope 3

Category 7 - Employee Commuting

- In 2020, emissions related to employee travel accounted for 49.3% of scope 3 emissions. Data were extrapolated from the average number of employees who worked in 2020 multiplied by the mileage traveled per person referring to 2019 data. For this inventory the survey “How are you going to B3?” was not carried out, as 90% of employees started working at home in March 2020.
- The remote performance of employees was responsible for the 75% reduction in emissions linked to commuting.

	2019	2020	Variation
Category 7: Employee Commuting - tCO ₂ e	724.39	179.04	-75%

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Results - Absolute Emissions Biogenic and fugitive 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 nº 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 2020, gasoline and diesel oil produced in Brazil had an average of 27% anhydrous ethanol and 11.33% 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 emissions considered "neutral" in scopes 1, 2 and 3, arising from the burning of biomass fuels in the activities of B3 in 2020. The emission of R-22 refrigerant 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.

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Results - Absolute Emissions

Biogenic and fugitive emissions

Scope	emission source	Fuel consumed	Neutral emissions (tCO ₂ e)
Scope 1	stationary sources	Diesel B5	5.41
		Diesel B5	0.13
	mobile fonts	Gasoline	0.56
		Hydrous ethanol	0.00
Scope 2	Acquisition of electricity (generator)	Diesel B5	0.00
Scope 3	Category 1: Purchased goods and services	Gasoline	0.46
		Gasoline	5.56
	Category 7: Employee Commuting	Ethanol	89.55
		Diesel B5	5.50
		Gasoline	29.93
	Extrapolation	0.00	

Scope	emission source	Consumed gas	Montreal Protocol gas emissions (tCO ₂ e)
Scope 1	Fugitive Sources	R-22	0.00

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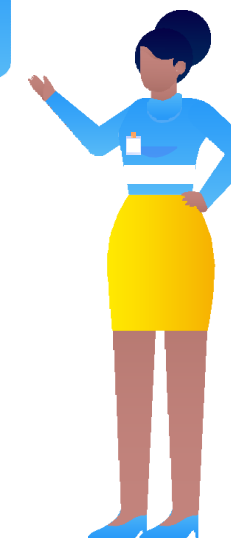
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Results - Emissions Intensity

B3 uses 4 indicators to assess its GHG emissions performance, they are:

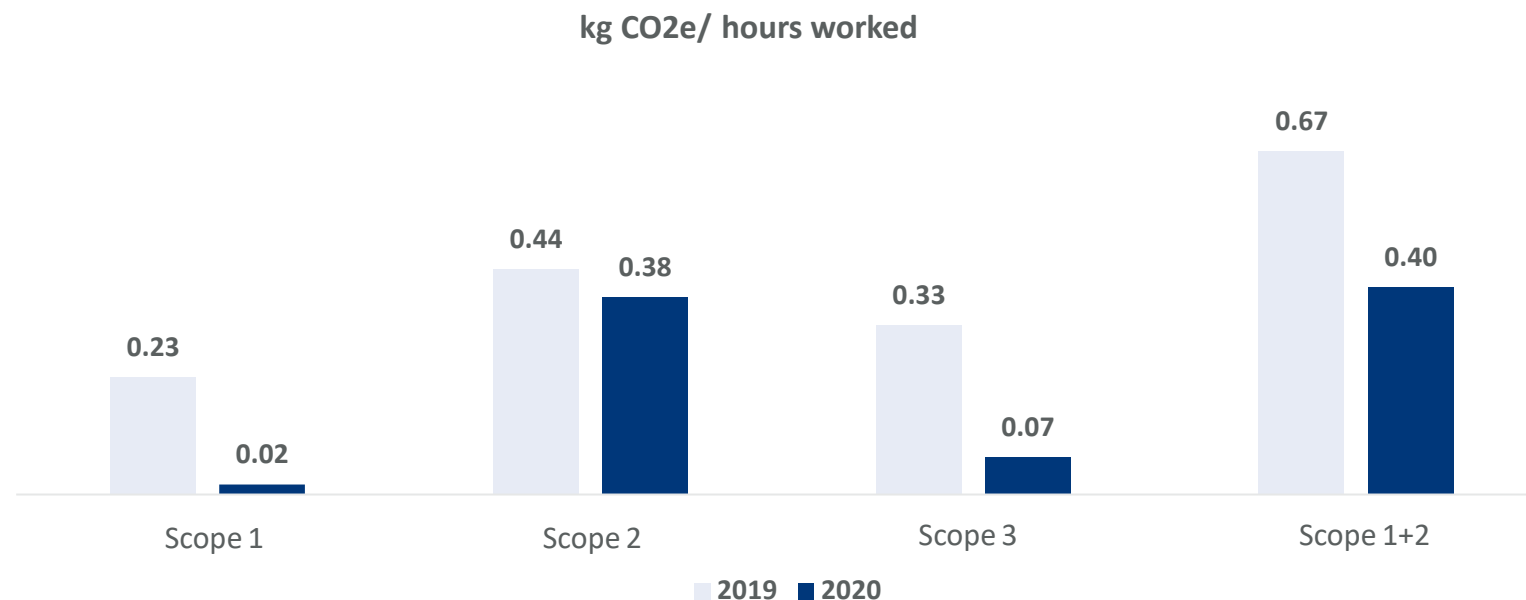
- Intensity of emissions per hours worked
- Intensity of emissions by gross revenue
- Emission intensity by traded volume - Bovespa Segment
- Emission intensity by traded volume – BM&F Segment



Results - Emissions Intensity

Intensity kg CO₂e/hours worked

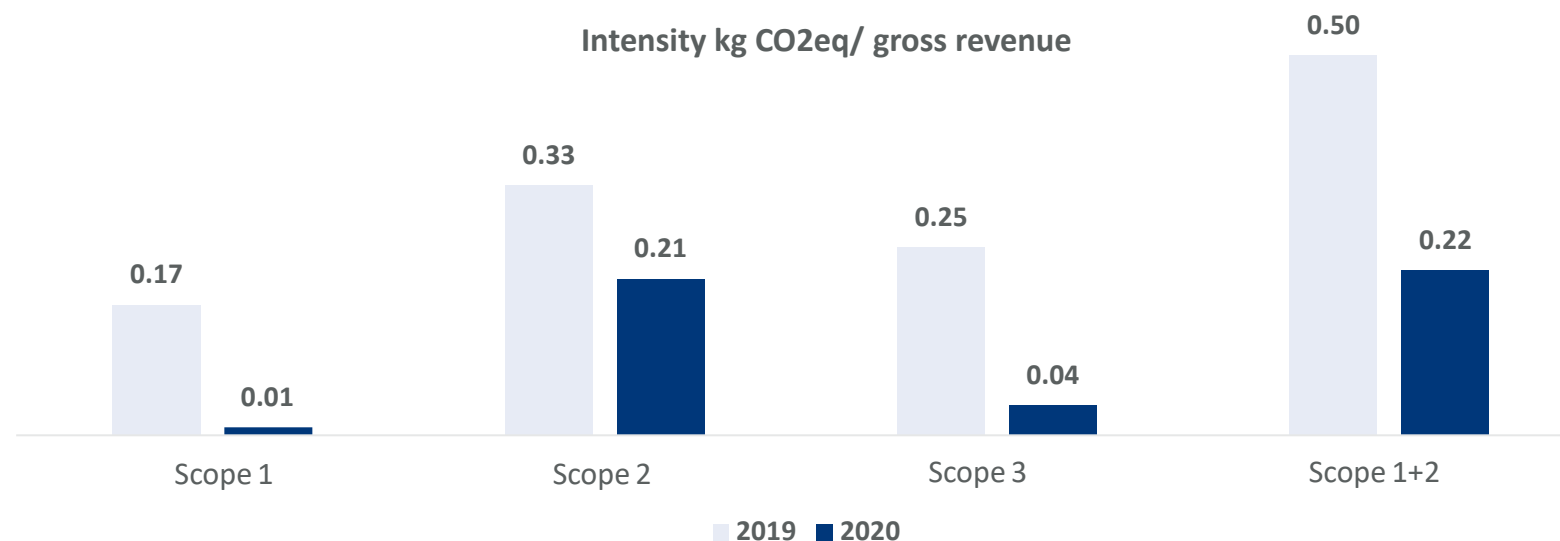
- The quantification of emission by hours worked shows the participation of employees and interns in the company's emission.
- B3 showed a significant reduction of 91% in Scope 1 intensity. In Scope 2 there was a 13% reduction in intensity. Scope 3, as well as Scope 1, presented a significant reduction of 78%. Such results are directly linked to the reduction of scope emissions.



Results - Emissions Intensity

Intensity kg CO₂eq/ gross revenue

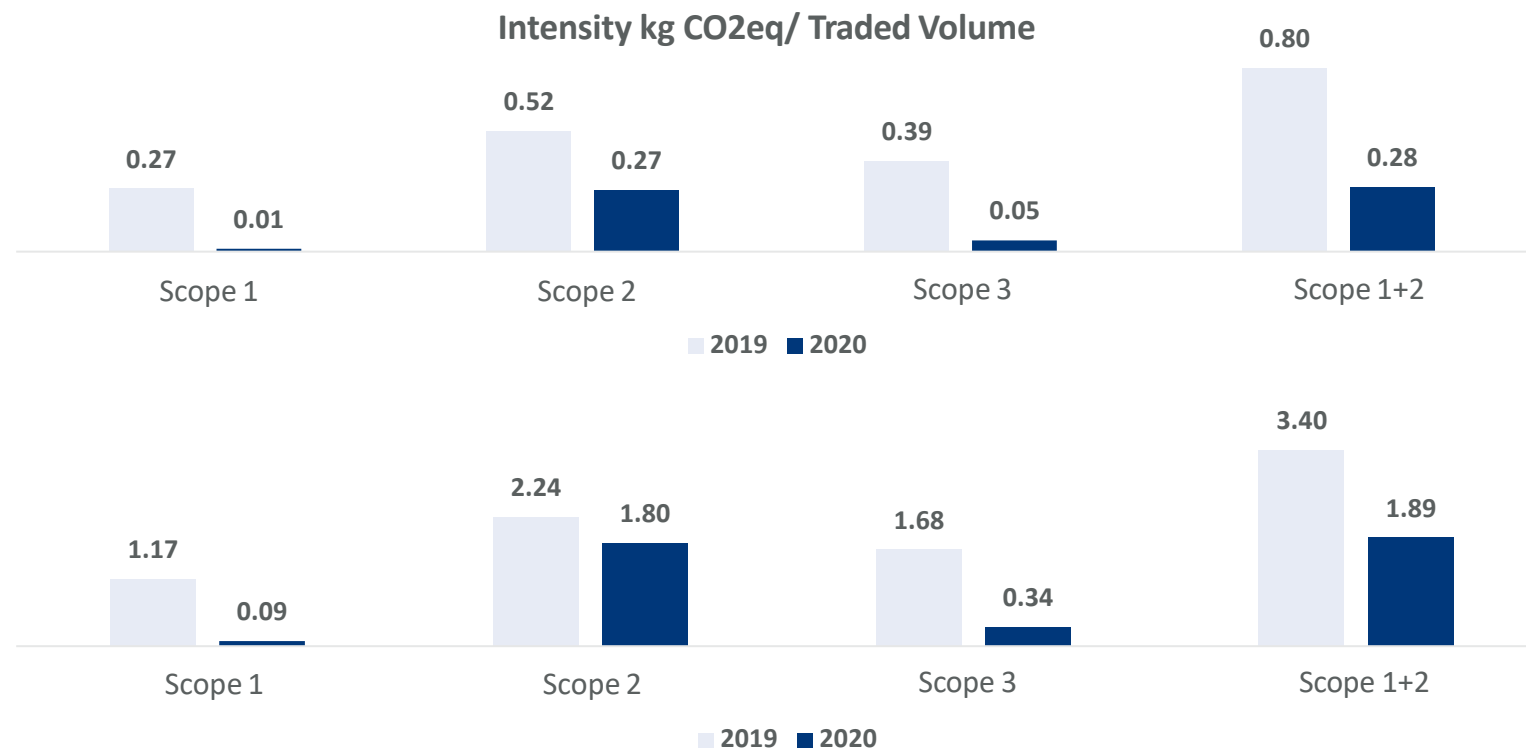
- In 2020 there was a 42% increase in revenue when compared to 2019. This increase in revenue linked to reductions in scope 1, 2 and 3 contributed to the decrease in intensity. Scope 1 achieved a reduction of 94%; scope 2 achieved a reduction of 38% and; scope 3 achieved a reduction of 84%.



Results - Emissions Intensity

Intensity kg CO₂eq/ Traded Volume

- The 74% increase in the daily average of millions of reais traded accentuated the reduction in the intensity of scopes 1, 2 and 3 by 95%, 49% and 87%.
- The daily average of negotiated contracts increased by 10% in 2020. This increase, linked to reductions in emissions, contributed to the decrease in the intensity of scope 1 (92%), 2 (20%) and 3 (80%).



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