BM&FBOVESPA S.A.

2015 Greenhouse Gas Inventory

Results Report

Corporate GHG Inventory– 2015
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Executive Summary

The Greenhouses Gas (GHG) Inventory is a tool that promotes the transparency of the company impacts in GHG, by calculating GHG emission from its activities. The inventory has to be used as a foundation to the Carbon Management of the company, which will support all companies actions related to opportunities of reduction and improvement in process.

Since 2009, BM&FBOVESPA S.A. (from here, referred as BM&FBOVESPA) prepare its GHG Inventory, which is verified by third parties since 2010. In 2016, KPMG assisted BM&FBOVESPA, on the Inventory elaboration based on 2015 data. The results of this work will be presented on this report and will be used to support the carbon management of BM&FBOVESPA and direct its actions.

In 2015 the absolute emission of BM&FBOVESPA totalized on 232.02 tCO2e for scope 1, 3,206.33 tCO2e for scope 2 and 1,862.90 for scope 3. In scope 1 the main source responsible for the increase of 4.68% in emission comparing with 2014 was the stationary combustion related to the use of energy generators. The scope 2 presented a lower increase of 1% in emission due to the increase in electricity consumption, consequence of the inclusion of the new data center in the 2015 inventory. Scope 3 emissions presented relevant differences – increase of 33% of emissions when comparing to the last year – the main reason for this increase was the change in the commuting quantification process, once the methodology was update to quantify the emission from subway and train use.

Since 2013, BM&FBOVESPA has annually compensated its greenhouse gas (GHG) emissions that it has been unable to reduce, thus becoming carbon neutral. This process has been backdated to 2011 and 2012 and seeks among other things to encourage the adoption of best practices in sustainability by listed companies and by the market in general.

Definitions and Concepts

- This inventory covers the following greenhouses gases under Kyoto Protocol: CO_2, CH_4, N_2O, SF6, NF3, hydrofluorocarbon (HFCs) and perfluorocarbons (PFCs).

- The Global Warming Potential (GWP) indicates the amount of times that a gas contributes to the climate change in relation to CO2 in a determinate time interval and, it is used to quantify equivalente in carbon dioxide (CO2e), transforming all emissions on a standard unit. In compliance with the Kyoto Protocol decisions in the second period of compromise (2013-2020) and the standard used for Brazilian GHG Program, this inventory use the GWP values of the IPCC, Fourth Assessment Report – AR4. The values can be consulted in the table bellow and the complete list at the IPCC website:

Gases	GWP Old Value (2012 Inventory, and previous years)	GWP New Value (2013 to 2015 inventory)
CO_2	1	1
CH_4	21	25
N_2O	310	298
SF_6	23,900	22,800
HFCs	140 – 11,700	124 – 14,800
PFCs	6,500 – 9,200	7,390 – 12,200
NF_3	(não considerado)	17,200

Adopted Methodology

- The methodology, coverage, quantification and assumptions used on the development of this inventory can be obtained in the Procedure Report for Greenhouse Gas Inventory completion and calculation spreadsheets that follow this report.
- The main references used in 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 – Guidance for elaboration of corporate inventories of greenhouse gas emissions (GEE) – FGV, 2009.

Inventory Boundaries

- In order to define the organizational inventory boundaries, the company has to choose one of the approaches presented by GHG Protocol: Equity Share or Control (Operational or Financial).

- BM&FBOVESPA selected the operational control approach, in which the company responds for emission sources and activities it has control. Therefore, if BM&FBOVESPA has interference about a particular emission source, and can implement their operational measures deliberately, such source is considered as an integrant of the company's organizational boundary.

- The present inventory includes all companies which the BM&FBOVESPA has operational control. Therefore the following groups were included:
  - BM&FBOVESPA
  - Bank BM&FBOVESPA
  - Rio de Janeiro Stock Exchange (BVRJ)
  - Brazilian Commodities Exchange (BBM)
  - BM&FBOVESPA Market Supervision (BSM)
  - BM&FBOVESPA Institute
  - International offices: BM&FBOVESPA USA Inc. (New York and Shanghai) and BM&FBOVESPA UK Ltd. (London)

Inventory Boundaries - Main changes in 2015

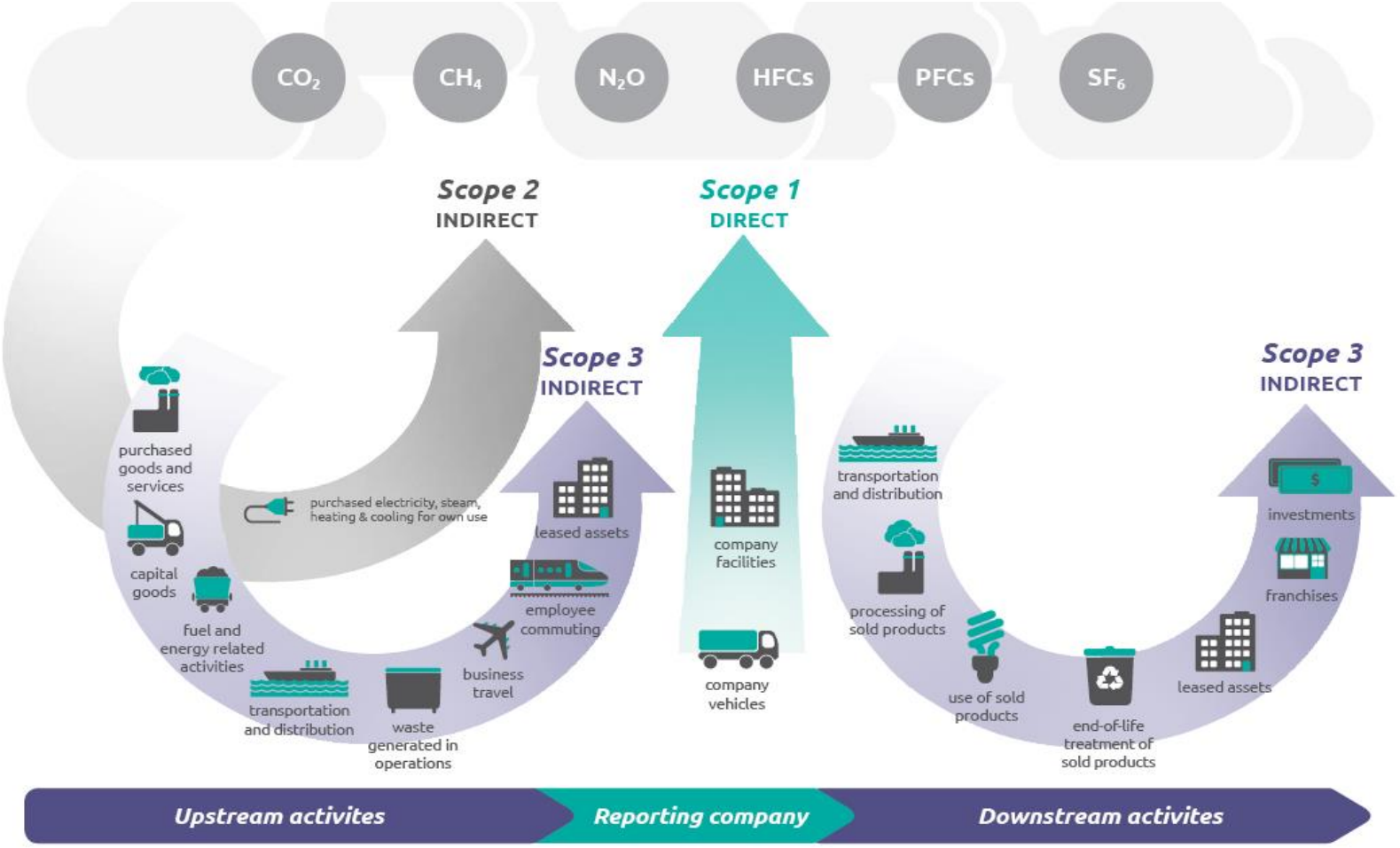
- In march 2015 occurred the untying of the BBM units, leaving BM&FBOVESPA operacional control. Thus, for the GHG inventory 2015, BBM units were only included in the period of January to March, when they were under BM&FBOVESPA operational control.
- In 2015, there was reclassification of fugitive emissions in BVRJ scope 1 to scope 3, since this emission source started to be controlled by a third-party.
- In 2015, the Data Center operation began effectively, with BM&FBOVESPA operational control and its emissions were accounted in 2015.
- In order to improve and enhance scope 3 accounting for Commuting (transportation of employees between their homes and their worksites), BM&FBOVESPA began to quantify the emission from subway and train travel used by their employees, using the emissions factors provided by Brazilian GHG Protocol Program in the 2015 cycle.

Inventory Boundaries

The concept of scope introduced by the GHG Protocol, aims to help companies to establish the operational limits that will be quantified in the inventory. The three scopes are defined as follow:

GHG emissions scopes		
Scope 1	**Scope 2**	**Scope 3**
Direct GHG emissions– GHG emissions owned or controlled by the company.	Indirect GHG emissions – Emissions from the generation of purchased electricity or Steam.	Other indirect GHG emissions – Other indirect emission and emissions in the corporate value chain that are not controlled by BM&FBOVESPA.

Inventory Boundaries



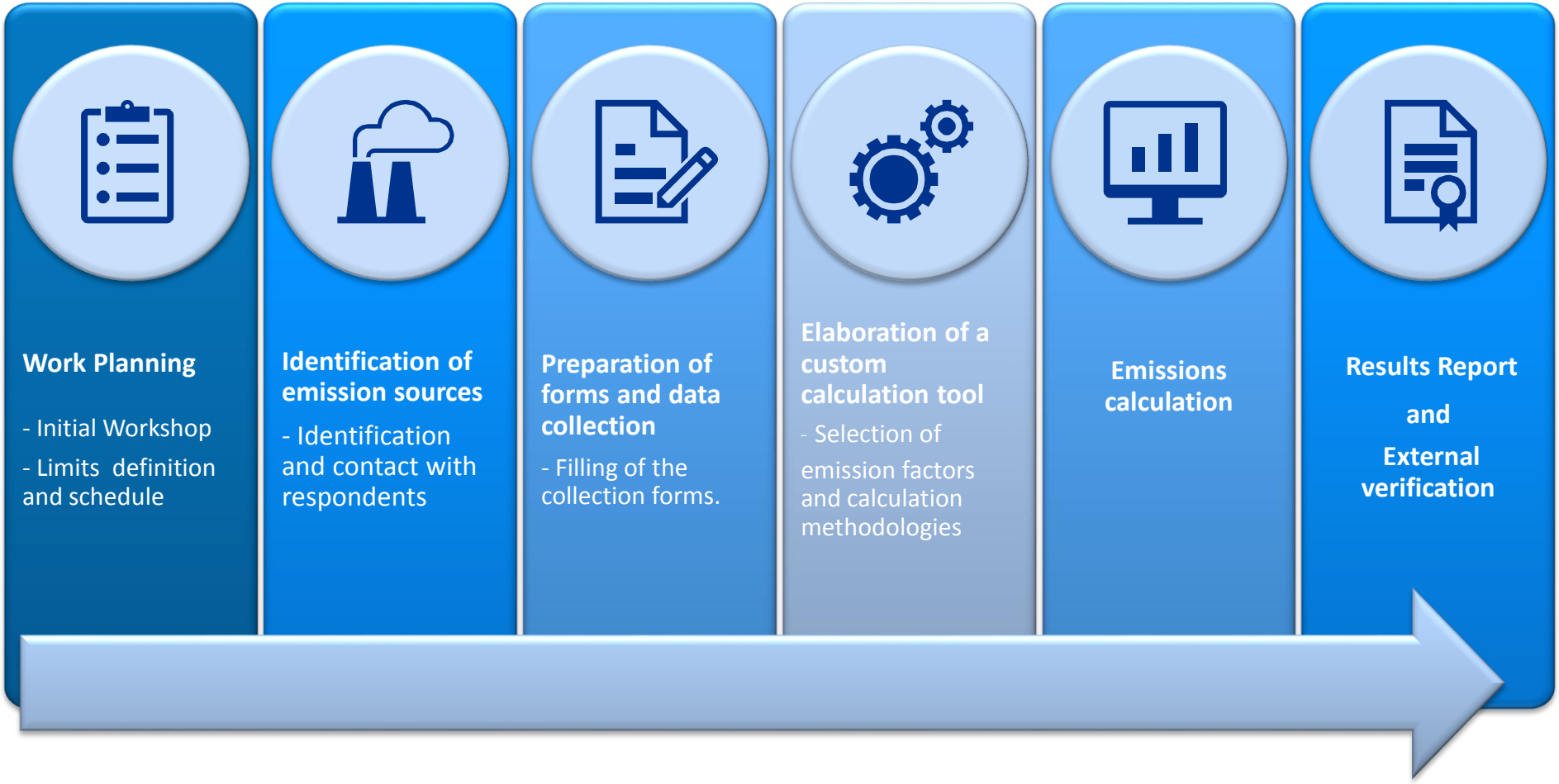
Fonte: Corporate Value Chain (Scope 3) Accounting and Reporting Standard - Greenhouse Gas GHG Protocol

Inventory Boundaries

Considering the guidelines of the Brazilian GHG Protocol Program and the activities of BM&FBOVESPA, the following emission sources were identified and included in this inventory:

Fontes de Emissão BM&FBOVESPA		
Scope 1	Stationary combustion	Consumption of fossil fuels for energy generation and food preparation.
	Mobile combustion	Consumption of Fuel in vehicles controlled by company.
	Fugitive emissions	Refrigerants gas leakage and fire extinguishers use.
Scope 2	Electricity purchase	Emissions from the generation of electricity purchased from the power grid and use of fossil fuels for energy generation.
Scope 3	Category 1 – Purchased goods and services	Fuel consumption in vehicles controlled by third parties for documents transport (motorcycle courier).
	Category 5 - Waste generated in operations	Treatment of solids wastes managed by third parties.
	Category 6 - Business travel	Employees air travel and taxi transport
	Category 7 - Employee commuting	Transportation of employees between their homes and their Worksites.
	Other Scope 3 emissions (Fugitive)	Refrigerants gas leakage in systems controlled by third parties.

GHG Inventory Elaboration Steps



Results

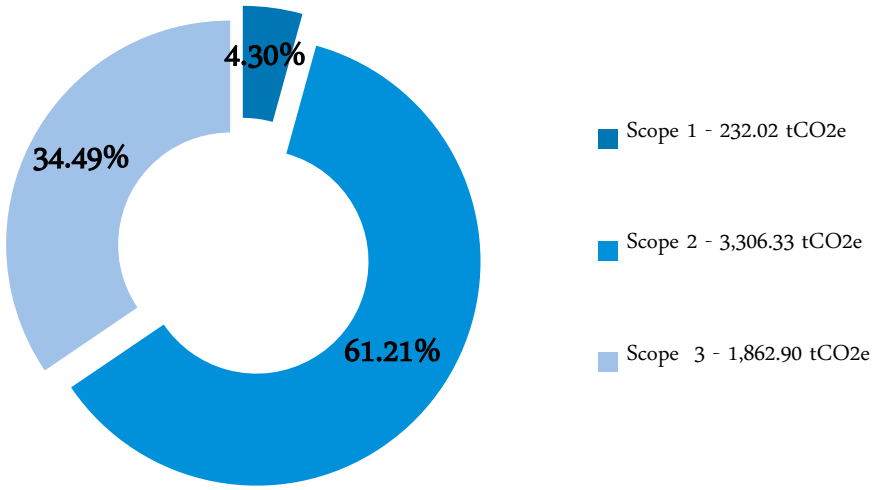
Results – Absolute Emissions

This chapter presents 2015 GHG inventory results of BM&FBOVESPA, which was developed based on information collect internally and adopted methodologies and premises.

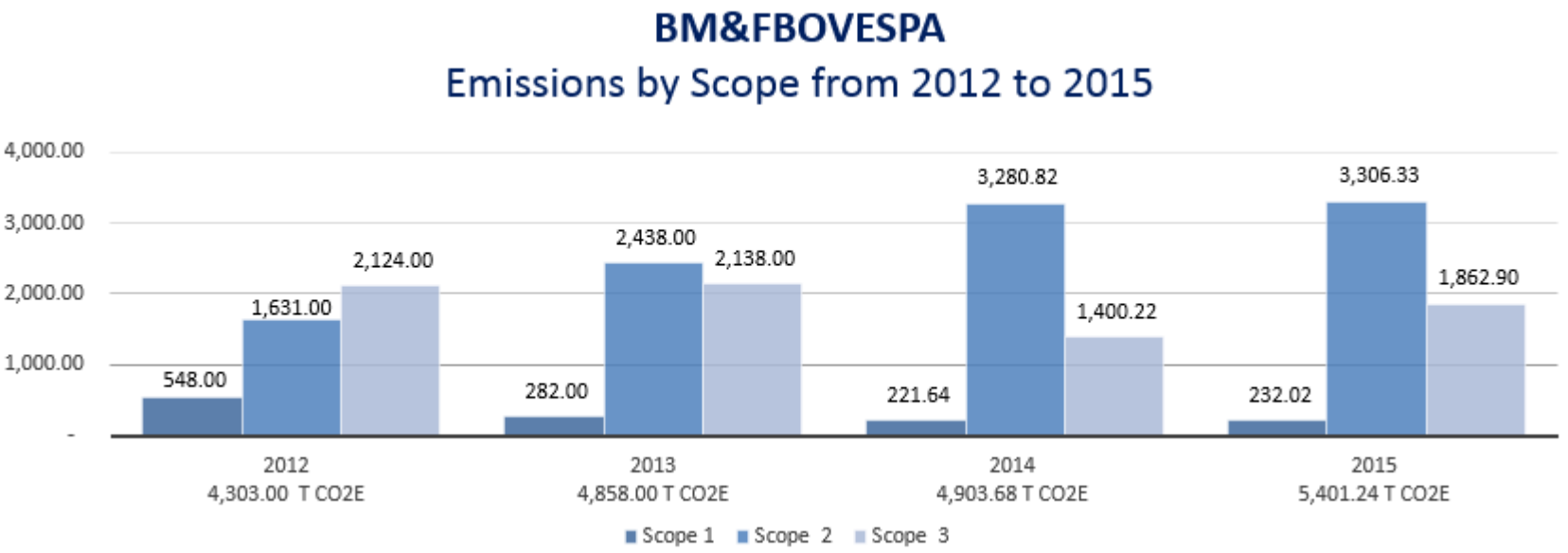
The total GHG emissions from BM&FBOVESPA for the 2015 year was 5,401.24 tCO2e. According to the adjacent figure, only 4% of the company emissions is related to the direct sources controlled by the company (scope 1). The remaining emissions are from indirect sources, which 61% refers to scope 2 and 35% of the scope 3.

BM&FBOVESPA

Emission by Scope



Results – Absolute Emissions



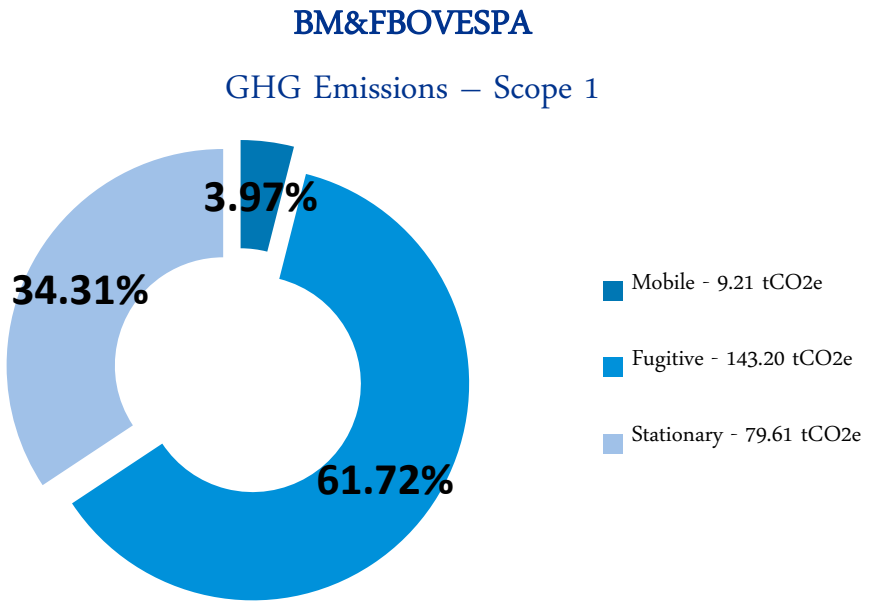
As it is common of the financial sector and service organizations, the direct emissions of BM&FBOVESPA are less significant compared to the indirect emissions.

Comparing the years 2014 and 2015, the company showed an increase of 10% in its total emissions, mainly due to the increase in scope 3 emissions and the operation start of the new Data Center.

The scope 3 emissions increased due to developments in the quantification of inventory, which expanded its comprehensiveness in the commuting quantification to include the subway and train travel, and also due to the reclassification of fugitive emissions in BVRJ .

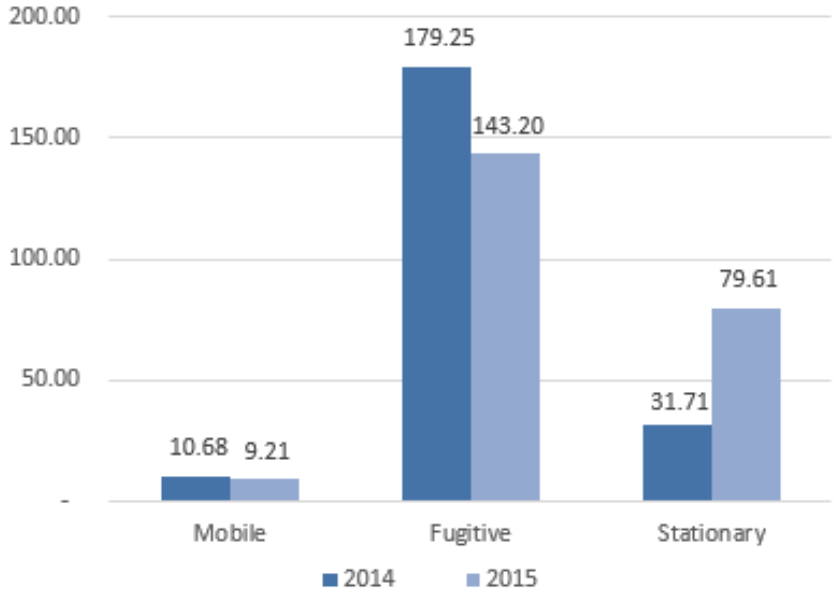
Results – Absolute Emissions Scope 1

Among the scope 1 emissions, the most significant source is the fugitive one, more specifically in the replenishing of air conditioning gas. Despite the low amount of gas (0.08 tons), the warming potential is significant, thus when converted to CO2e its emission becomes substantial within the company context.



Emissions Sources	tCO2	tCH4	tN2O	tHFCs	tCO2e
Mobile	8.88	0.003	0.00	0.00	9.21
Fugitive	1.00	0.00	0.00	0.08	143.20
Stationary	79.16	0.01	0.00	0.00	79.61

Results – Absolute Emissions Scope 1



Comparing to the year 2014, the scope 1 emissions increased by about 4.68% in 2015. This rise is related to the consumption of the data center energy generator, which operated in 2015 under BM&FBOVESPA control. Mobile and fugitive emission in 2015 showed a reduction of 14% and 20% respectively, compared to 2014.

The main reason for the reduction in fugitive emissions was due to the reclassification of BVRJ fugitive emissions, which in 2014 was considered as Scope 1, since it was operated under BM&FBOVESPA control, and in 2015 was reclassified to Scope 3, due to a change in the responsible for the control, operating under a third party control.

The stationary emissions showed a 151% increase in its absolute emissions, due to the start operation of the Data Center, which uses energy generators in its operation. It is important to Highlight that the variation on mobile and stationary sources aren't representative when compared with the fugitive emissions that account for 62% of the scope 1.

Results – Absolute Emissions Scope 1

Mobile sources

Mobile emissions of scope 1 are related to the use of the company's own vehicles. In the case of BM&FBOVESPA, its fleet is greatly reduced, which justifies its low emissions compared with other scope 1 sources. In 2015, the fleet consumed ethanol, gasoline and diesel. The last fuel accounted for 52.5% of this source emission.

In 2015, the percentage of biodiesel in diesel was 7%, while in 2014 this value was 5.67%. This fact, associated with the reduction in consumption, generated a 33% decline in emissions when comparing the 2015 emissions with 2014.

Despite emission reductions from this source, in 2015 gasoline consumption increased by 29%. The increase of emissions from this source (26.5%) wasn't proportional to consumption, because in 2015 the average percentage of ethanol in gasoline was changed from 25% to 26.6%, thereby increasing the neutral emission.

Emission source	Activity	Fuel	tCO2e
Mobile	Own fleet	Alcohol	0.05
Mobile	Own fleet	Diesel	4.74
Mobile	Own fleet	Gasoline	4.42

Results – Absolute Emissions Scope 1

Stationary sources

The stationary source emissions results from fuel combustion (diesel) by energy generators and the use of natural gas and LPG at the restaurants and heaters. The most significant emission was from the energy generators, accounting for 86% of this source emission. It is worth mentioning that in this scope it was considered only the generators owned by the company. All energy generated from third party was allocated in scope 2, according to guidelines of the Brazilian GHG Protocol Program.

It is important to call attention to buildings of Praça XV de Novembro and Data Center, which accounted respectively for 19.8% and 48.0% of the emissions from this source, due to the diesel consumption.

Emission Source	Activity	Fuel	tCO2e
Stationary	Restaurant	Natural Gas	7.64
Stationary	Restaurant	LPG	1.08
Stationary	Generator	Diesel	68.20
Stationary	Heater	LPG	2.70

Results – Absolute Emissions Scope 1

Fugitive sources

In 2015, fugitive emissions were due to the replenishment of CO2 in extinguishers (1.00 tons) and the replenishment of R407C gas (0.06 tons), R410A (0.01 tons) and R134A (0.01 tons) in the company's units. There were R-22 replenishment in air conditioning, but since this gas isn't included in the Kyoto Protocol, its emissions weren't incorporated in the inventory.

Compared to previous years, the replacement of extinguishers continued to show low significance and refrigerants gases represented 99% of this emissions source and 61% of the absolute emissions in scope 1.

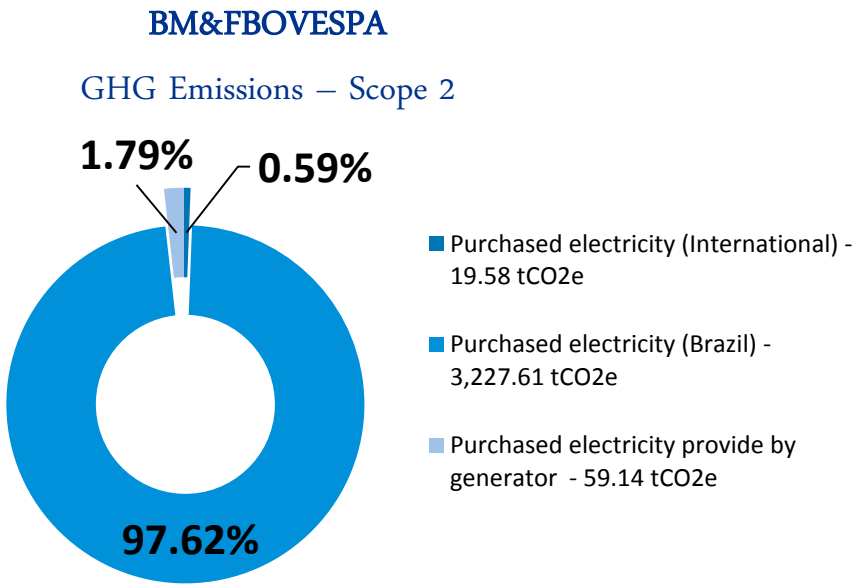
Scope	Emission Source	Activity	Gases (t)	tCO2e
1	Fugitive	Extinguishers – CO2	1.00	1.00
1	Fugitive	Air-conditioning – R134A	0.01	15.73
1	Fugitive	Air-conditioning – R407C	0.06	99.34
1	Fugitive	Air-conditioning – R410A	0.01	27.14

Results – Absolute Emissions Scope 2

The scope 2 emissions refer to energy emissions (electricity and steam) purchased externally. In 2015, BM&FBOVESPA consumed 26.01 GWh of Brazilian grid in its operations, an increase of 9.8% compared to 2014.

In 2015, emissions associated with this scope, represented 61% of company total emissions, this scope can be broken down in three uses: use of third party generators, energy consumed in international offices and energy consumed in Brazilian offices.

The international emissions from London and New York were calculated by estimates of annual energy consumption per employee of the units in Brazil. Based on this data it was possible to quantify the emissions of these units, which represented 0.6% of scope 2.



Results – Absolute Emissions Scope 2

Emission Source	tCO2	tCH4	tN2O	tCO2e
International Energy Purchase	19.58	-	-	19.58
Brazilian Energy Purchase	3,227.61	-	-	3,227.61
Generator Energy Purchase	58.78	0.00849	0.00051	59.14

The emissions distribution are consistent with the company structure, since the number of offices are higher in Brazil and those units represented 97,6% of scope 2 emissions due to the electricity purchased in this country.

The emissions related to electricity purchase are based on specific emission factors consistent with the energy matrix of each country, thus despite the emission in Brazil be the main emission source because of the number of units, their emission factor (tCO2e / kwh) is lower than the units abroad.

Results – Absolute Emissions Scope 2

The scope 2 emission associated with the Brazil energy consumption showed a increase of 9,8% in 2015. This increase in scope 2 emissions was a consequence of the start of data center operations. Although it occurred the untying of BBM units in March and the GRID emission factor has shown a reduction of 8%, the consumption of the data center was more significant than those changes.

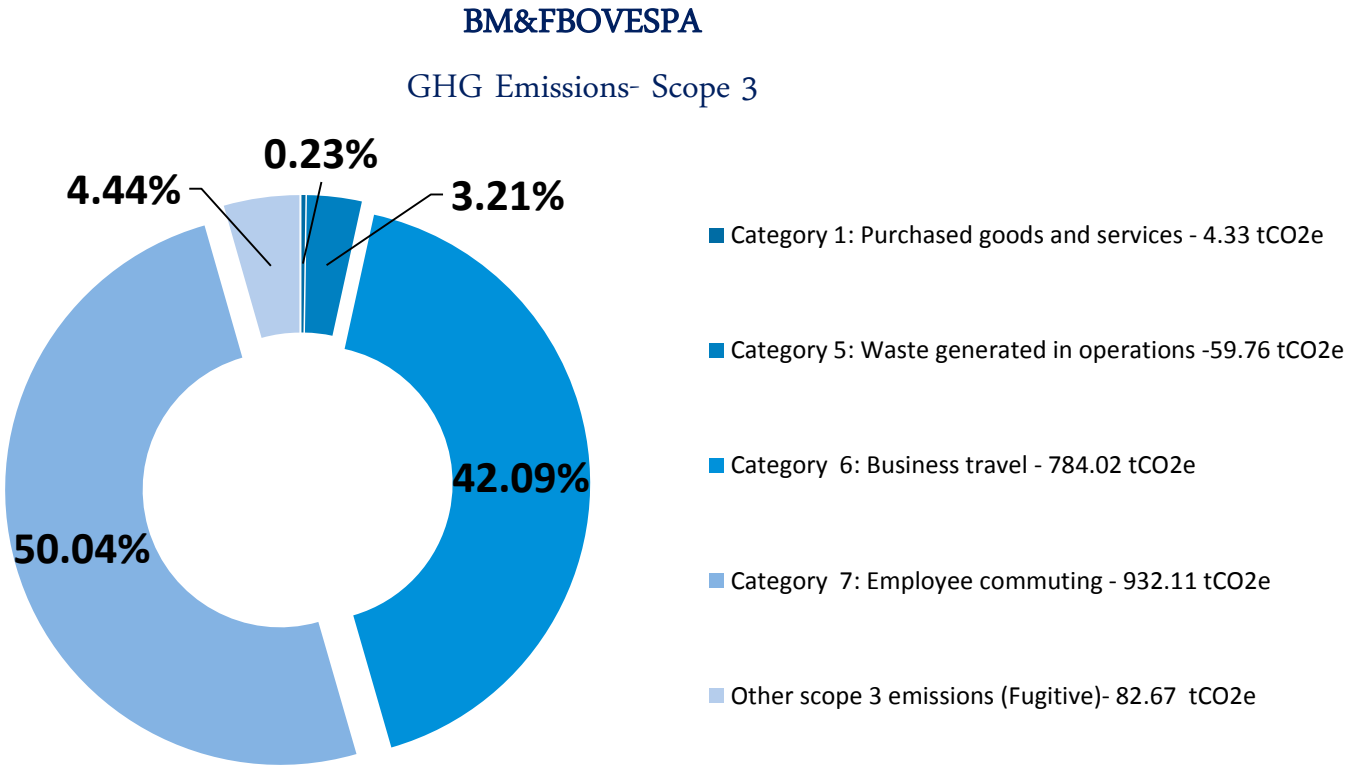
The GRID emission factor is linked with the use of thermoelectric power plants during the year (when the hydroelectric power plants are insufficient to supply the population demand, more thermoelectric power plants are activated to meet this demand) and this consequently causes a variation of greenhouse gases emission.

The table below shows the company variations in electricity consumption between the years 2014 and 2015 and the variation of the GRID emission factor, justifying the rise in emissions for scope 2.

	Brazil Energy consumption (Mwh)	Emission Source (annual average tCO2eq/Mwh)	Brazil Scope 2 Emission (tCO2eq)
2014	23,677	0.135	3,205.85
2015	26,001	0.124	3,227.61
Variation	9.8%	-8.1%	0.7%

Results – Absolute Emissions Scope 3

The Scope 3 emissions refers to the indirect emissions related to BM&FBOVESPA activities. In 2015, 5 categories of scope 3 were reported, due to its applicability in BM&FBOVESPA business and activities.



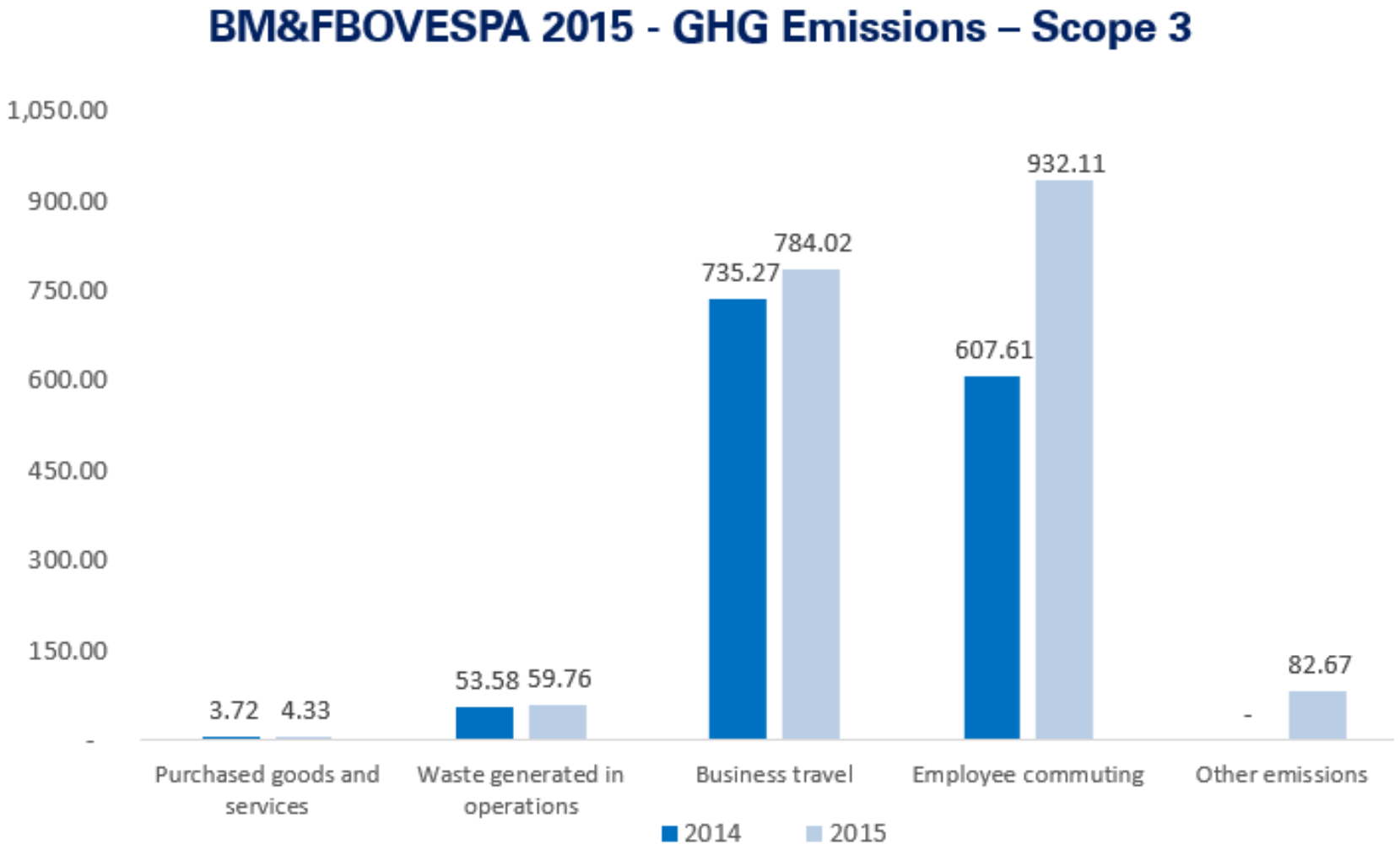
**The the categories of scope 3 were based on the definition of Brazilian Program GHG Protocol.*

Results – Absolute Emissions Scope 3

	2015				
Emission Source	Other Gases (t)	tCO2	tCH4	tN2O	tCO2e
Category 1: Purchased goods and services	-	4.15	0.0017	0.0005	4.33
Category 5: Waste generated in operations	-	4.46	2.209	0.0003	59.76
Category 6: Business travel	-	774.31	0.026	0.0304	784.02
Category 7: Employees commuting	-	885.9	0.728	0.0967	932.11
Other Scope 3 emissions (Fugitive)	0.06	-	-	-	82.67

According to the table above, the scope 3 emissions are concentrated in the "business travel" and "employees commuting" categories, together representing 92% of the total emission of this scope.

Results – Absolute Emissions Scope 3



Results – Absolute Emissions Scope 3

Other Scope 3 Emissions (Fugitives)

The increase in this source emissions occurred due to replacement of refrigerants gases, which in 2015 weren't controlled by BVRJ but were managed by third parties. This emission source is responsible for 82.67 tCO2e representing 4.4% of Scope 3 emissions.

Category 1: Purchased goods and services

This category covers the services of motorcycle courier for document transport. Emissions for this category showed an increase of 0.6 tons, equivalent to a 16% increase between 2014 and 2015 for this category.

Category 5: Waste generated in operations

The Category 5 (waste generated in operation) has, as main emission source, the waste disposal to landfill, representing 92.4% of emissions for this category. Emissions related to waste disposal to landfill showed a increase of 3%. The most significant increase relates to incineration, which between 2014 and 2015 increased by 60% due to the rise in the amount of infectious material.

	2014 tCO2e	2015 tCO2e
Landfill	53.52	55.215
Incineration	0.074	4.541
Biological treatment	0.016	0.006

Results – Absolute Emissions Scope 3

Category 6: Business travel

The category 6 (business travel) is the second main emission source of BM&FBOVESPA Scope 3. In this category are considered air travels and the transport of employees by taxi and other transportation modes, as reported in the table below:

Category 6 (Business travel)	2014 tCO2e	2015 tCO2e
Employee travel/ Board Members (Taxi)	107.67	57.87
Business travel– other vehicles	0.11	0
Air travel	627.49	726.15

In 2015, emissions of displacement by taxi reduced 46% compared to 2014, this variation occurred due to reduction in travelled distance in 2015.

	2014	2015	Variação
Travelled Distance by Taxi (KM)	688,720.47	378,094.69	-45%
Percentage of the annual average of ethanol in gasoline	25.00%	26.59%	1.59%

Results – Absolute Emissions Scope 3

The emissions related to air travel showed an increase in 2015 (about 16%), due to the rise in travelled distance in Long haul. Although the number of routes flown showed a reduction the distance travelled showed a rise, generating an increase to this source emissions.

	2014	2015	Variation
Number of routes	4,488	3,773	-16%
Distance Travelled in KM Short haul	754,213	597,259	-21%
Distance Travelled in KM Medium haul	1,950,467	1,610,534	-17%
Distance Travelled in KM Long haul	3,053,033	4,653,176	52%
Distance Travelled in KM Total	5,757,713	6,860,969	19%

Results – Absolute Emissions Scope 3

Category 7 – Employee Commuting

In 2015, the emissions related to employee commuting accounted for 50% of scope 3 emissions. The data were obtained from online survey applied to the employees, trainees and service providers. For this inventory 48.7% responded to the survey. The GHG emissions were extrapolated, considering the pattern observed in the responses, to the share of employees, trainees and service providers who didn`t responded the survey.

In order to include more modes of transportation, BM&FBOVESPA has expanded the quantification of emissions to calculate travels made by train and subway. In previous years due the uncertainty of factors available these modes weren't accounted in the inventory.

Besides the employees, trainees and service providers, this category also covered the distance travelled of BM&FBOVESPA Institute students.

The increase in emissions between 2014 and 2015 is related to the quantification of train and subway emissions, and also the increase in the percentage of employees who use more than one mode of transportation on the way to work.

Results – Absolute Emissions Scope 3

Search Results "How do you go to BM&FBOVESPA?"

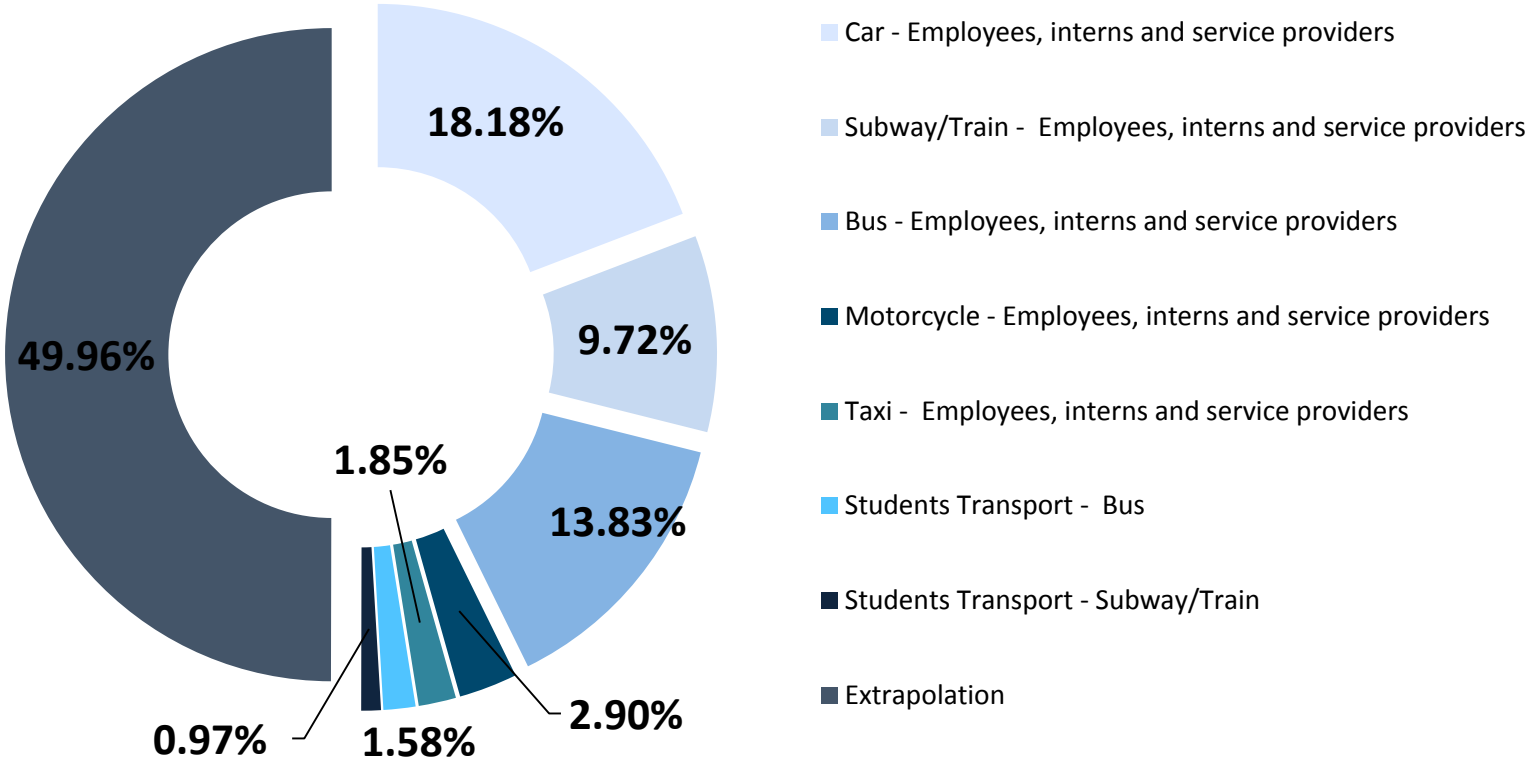
	2012		2013		2014		2015	
Results per Transportation	nº of People	%	nº of People	%	nº of People	%	nº of People	%
Subway/train + Bus	364	23.40%	333	22.90%	198	18.00%	228	20.5%
Others*	160	10.30%	218	15.00%	144	13.10%	228	20.5%
Subway/train	420	27.00%	326	22.40%	223	20.20%	193	17.4%
Car	155	10.00%	155	10.60%	130	11.80%	125	11.3%
Bus	122	7.80%	104	7.10%	149	13.50%	107	9.6%
Subway/train + car	217	13.90%	171	11.70%	121	11.00%	88	7.9%
Motorcycle	42	2.70%	54	3.70%	45	4.10%	50	4.5%
By foot	34	2.20%	43	3.00%	50	4.50%	35	3.2%
Subway/train + by foot	28	1.80%	18	1.20%	24	2.20%	35	3.2%
Bus + by foot	12	0.80%	22	1.50%	12	1.10%	16	1.4%
Bicycle	3	0.20%	13	0.90%	6	0.50%	5	0.5%
Total	1,557	100%	1,457	100%	1,102	100%	1,110	100%

* The item "Others" refers mainly to taxi, carpooling , and the combination of three different forms of transport.

Results – Absolute Emissions Scope 3

BM&FBOVESPA

GHG Emission – By Transport



Results – Absolute Emissions Fugitive and Biogenic Emissions

The emissions from biofuel combustion have peculiarities, so they were treated differently from fossil fuels emissions. The fuels from biomass have neutral CO2 emission. This premise is adopted because it is considered that the CO2 liberated in the combustion process is equal to the CO2 removed from the atmosphere during the photosynthesis process, thus, is possible consider it neutral. However, the CH4 and N2O emissions can't be considered neutral because these gases aren't removed from the atmosphere during the biomass life cycle. In this case, the emissions of CH4 and N2O were included in the scope 1.

In Brazil, all diesel traded has a biodiesel fraction (Law No. 11.097, of 01/13/2005) and all Brazilian gasoline have a fraction of biogenic fuel, in this case ethanol. Due to this fact for the consumption accounting of diesel and gasoline it was required the segregating the fossil fraction from the renewable. In 2015, the gasoline and diesel oil produced in Brazil had in their compositions an average respectively of 26.59% anhydrous ethanol and 7% biodiesel. Thus, GHG emissions related to these percentages of biomass fuels were duly deducted from the total emissions of the company.

The table below shows the emissions from scopes 1, 2 and 3 resultant of the burning of biomass fuels in BM&FBOVESPA activities in 2015. The table also shows the R-22 refrigerant emission that although is a greenhouse gas, it isn't included in the Kyoto Protocol since its regulated by the Montreal Protocol, which restricts emissions of harmful gases to the ozone layer.

Results – Absolute Emissions
Fugitive and Biogenic Emissions

Scope	Emission Source	Consumed Fuel	Neutral Emission (tCO2e)
Scope 1	Stationary	Diesel B5	4.55
	Mobile	Diesel B5	0.33
		Gasoline	1.06
		Hydrous ethanol	4.96
Scope 2	Purchased electricity (Generator)	Diesel B5	3.95
Scope 3	Mobile	Diesel B5	10.23
		Gasoline	64.15
		Hydrous ethanol	88.9
		Extrapolation	155.09

Scope	Emission Source	Consumed Fuel	Montreal Protocol emissions (tCO2e)
Scope 1	Fugitive	R-22	389.22

Results – Emission Intensity

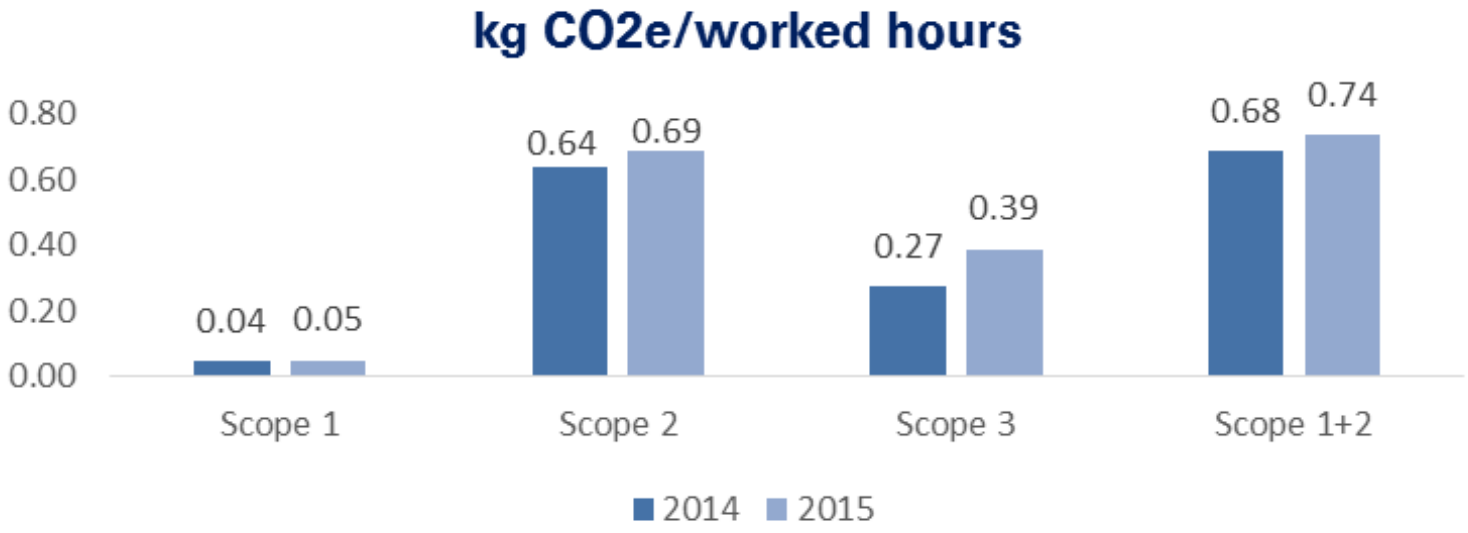
BM&FBOVESPA uses 4 indicators to assess the company performance in GHG emission, these indicators are the following:

- Emission intensity per worked hour
- Emission intensity per Gross Revenue
- Emission intensity per traded volume – Bovespa Segment
- Emission intensity per traded volume – BM&F Segment

Results – Emission Intensity

Intensity kg CO2eq / Worked Hours

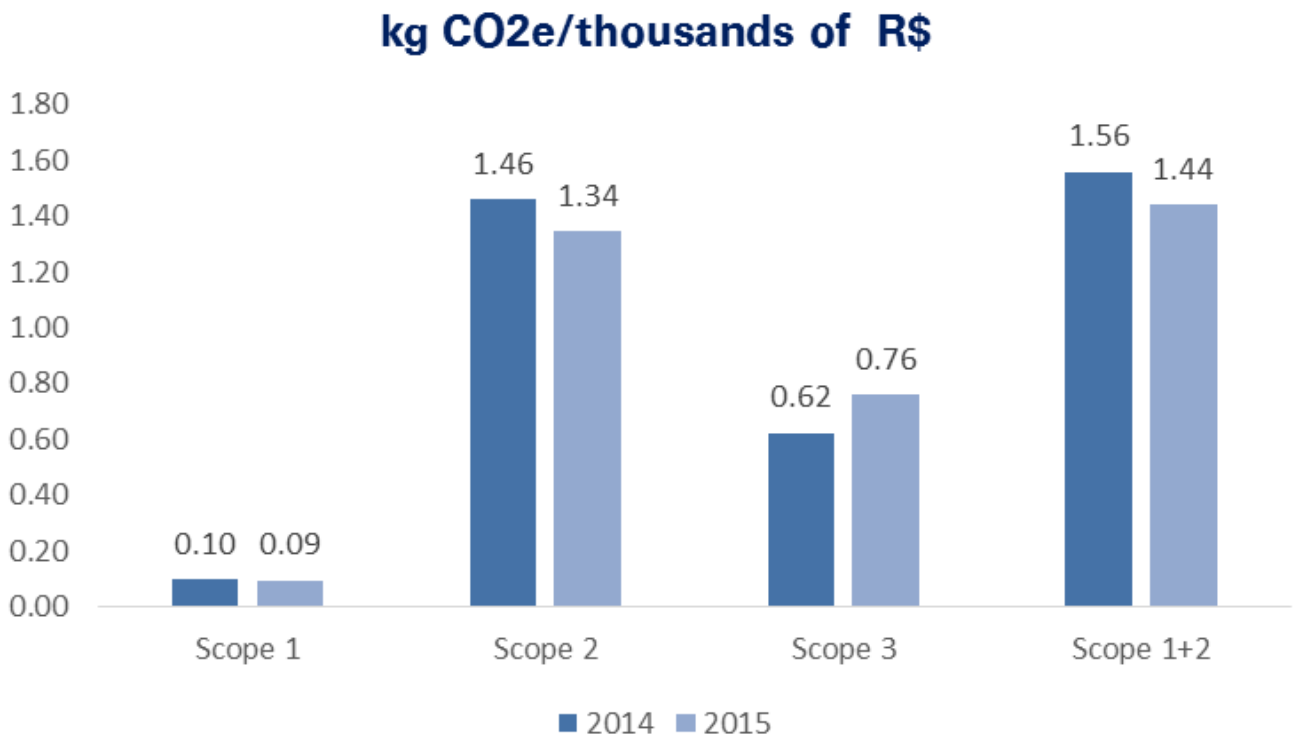
The quantification of emissions per worked hours, shows the contribution of employees, interns and services providers in the company emission. In 2015 BM&FBOVESPA showed a increase in the intensities for scope 1, 2 and 3 following the absolute emissions variation.



Results – Emission Intensity

Intensity kg CO2eq/ Gross Revenue

When compared with 2014 the gross revenue in 2015 showed a growth of 9.5%. The increase was responsible for the intensity reduction in almost all scopes.



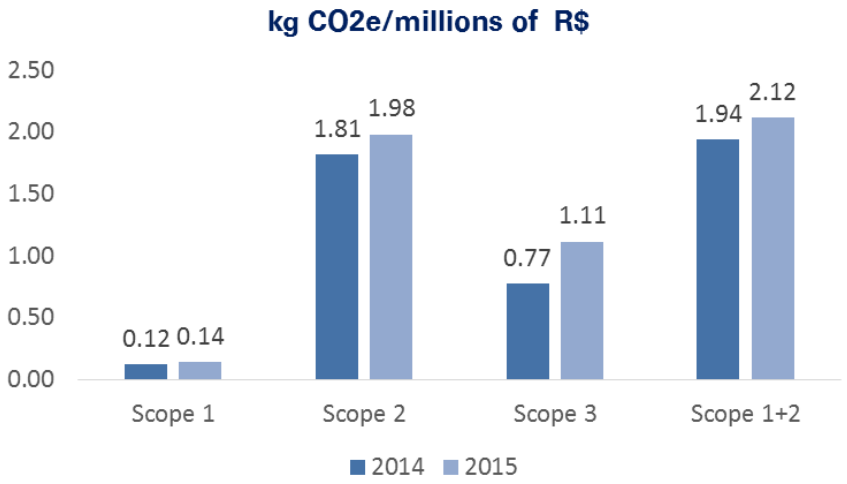
Results – Emission Intensity

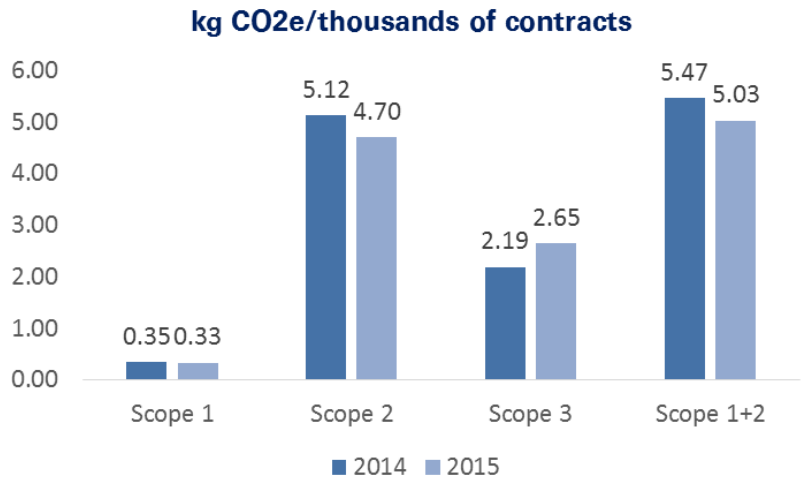
Intensity kg CO2eq/ Traded Volume

The intensity of the traded value followed the absolute emission trends, for scope 1, 2 and 3. In 2015 the traded volume showed an increase of 9,8%, while trade value showed a decrease of 7.6%.

The increase in the amount of contracts traded was responsible for the intensity reduction for scope 1 and 2, for scope 3 there was an increase since the growth in scope 3 emissions was higher than the rise of traded volume.

The decrease in trade value followed by the rise emission was responsible for the increase in traded value intensity.





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