



LATIN AMERICA POWER

# Greenhouse Gas Assessment Report for Inversiones Latin America Power Ltda. ILAP – 2022

Produced by Carboneutral S.A. for Latin America Power  
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# TABLE OF CONTENTS

1. Description	3
2. Introduction	4
3. About the company	6
4. Methodology	6
4.1. Scope of evaluation	6
5. Key Assumptions	9
6. Data Quality and Availability	10
7. Results	12
7.1. Results ILAP	12
7.1.1. Summary Results	13
7.1.2. Detail of ILAP's GHG emissions by Scope	15
7.1.3. Conclusions ILAP	17
8. Annex	18
9. References	22

# 1. DESCRIPTION

Table 1. Assessment Details

Client	Latin America Power
Country	Chile
Consolidation Approach	Operational control
Organizational Perimeter	ILAP <ul style="list-style-type: none"><li>- San Juan Wind Farm</li><li>- Totoral Wind Farm</li></ul>
Standard	GHG Protocol
Calculation Period	January 1st, 2022 - December 31st, 2022
Calculation Consultant	Teresa Estay - Carboneutral
Quality Assurance Assesor	Kipp Macdonald - Ecometrica

## 2. INTRODUCTION

A greenhouse gas (GHG) emissions assessment quantifies the total greenhouse gases produced directly and indirectly from a business or organization's activities. Also known as a carbon footprint, it is an essential tool, providing businesses with a basis for understanding and managing its climate change impacts.

The objective of this report is to present the results of the greenhouse gas inventory of ILAP for the 2022 period. A GHG assessment quantifies the total GHG produced directly or indirectly by the organization's activities. The seven greenhouse gases defined by the Kyoto Protocol are quantified, and measured in units of carbon dioxide equivalent, or CO<sub>2</sub>e. The seven Kyoto gases are carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), nitrogen trifluoride (NF<sub>3</sub>), sulfur hexafluoride (SF<sub>6</sub>), and perfluorocarbons. (PFC).

The global warming potential (GWP) of each gas is shown in the following table:

Table 2. GWP of Kyoto (IPCC 2013)

GHG	GWP
Carbon Dioxide (CO <sub>2</sub> )	1
Methane (CH <sub>4</sub> )	28
Nitrous Oxide (N <sub>2</sub> O)	265
Hydrofluorocarbons (HFCs)	1-12.400
Perfluorocarbons (PFCs)	1-11.100
Nitrogen Trifluoride (NF <sub>3</sub> )	16.100
Sulfur Hexafluoride (SF <sub>6</sub> )	23.500

This assessment has been carried out in accordance with the World Business Council for Sustainable Development and World Resources Institute's (WBCSD/WRI) Greenhouse Gas Protocol; a Corporate Accounting and Reporting Standard, including the GHG Protocol Scope 2 Guidance. This protocol is considered current best practice for corporate or organizational greenhouse gas emissions reporting. GHG emissions have been reported by the three WBCSD/WRI Scopes.

Scope 1 includes direct GHG emissions from sources that are owned or controlled by the company such as the fugitive emissions associated with the use of air conditioning, fuel consumption in backup generators and machinery, fuel consumption of organization vehicles, among other sources.

Scope 2 accounts for GHG emissions from the generation of purchased electricity. Scope 2 emissions are reported using both the location-based method and the market-based method. The location-based method applies average emission factors that correspond to the grid of the country, in this case, SEN, where consumption occurs. Whereas the market-based method applies emission factors that correspond to energy purchased (or not purchased) through contractual instruments. Contractual instruments include energy attribute certificates, direct energy contracts, and supplier specific emission rates. Any contractual instrument used in the market-based method must meet the Scope 2 quality criteria, as defined in the WRI/WBCSD GHG Protocol Guidance.

Scope 3 includes all other indirect emissions such as waste disposal, business travel and staff commuting, to name a few. Reporting of these activities is optional under the WBCSD/WRI GHG Protocol, but as they can contribute a significant portion of overall emissions Carboneutral S.A recommends they are reported where applicable.

A GHG assessment is an essential tool in the process of monitoring and reducing an organization's climate change impact as it allows reduction targets to be set and action plans to be formulated.

GHG assessment results can also allow organisations to be transparent about their climate change impacts through reporting of GHG emissions to customers, shareholders, employees and other stakeholders. Regular assessments allow clients to track their progress in achieving reductions over time and provide evidence to support green claims in external marketing initiatives such as product labelling or a corporate social responsibility reporting. Carboneutral's GHG assessments are designed to be transparent, consistent and repeatable over time.

### 3. ABOUT THE COMPANY

Inversiones Latin America Power Limitada (ILAP) is a subsidiary of Latin America Power S.A. and owns 100% of the assets of San Juan and Totoral.

San Juan is a 193.2 MW installed capacity wind farm located in Freirina, Atacama Region, Chile. Composed of 56 Vestas V117-3.45 MW wind turbines, which came into operation in 2017.

Totoral is a 46.0 MW installed capacity wind farm located in Canela, Chile. Composed of 23 Vestas V90-2.0 MW wind turbines, and has been in operation since 2010.

### 4. METHODOLOGY

For the development of the assessment, the Greenhouse Gas Protocol methodology developed by the WRI and the World Business Council for Sustainable Development was used, through the Our Impacts platform of Ecometrica Accredited for the Carbon Disclosure Project (CDP), Dow Jones sustainability Index, Global Reporting Initiative (GRI) and GHG Protocol.

#### 4.1. SCOPE OF EVALUATION

##### Organizational Perimeter

The evaluation of the Carbon Footprint of Latin America Power was carried out under an operational approach for ILAP, which consists of GHG emissions from the Totoral and San Juan wind farms

##### Reference Period

The reference period for measuring the Carbon Footprint for ILAP includes all emissions within the period January 1st, 2021 - December 31st, 2021

##### Geographic Scope

The facilities considered in Chile are the following:

- San Juan
- Totoral

## Operational Perimeter

The categories included in the evaluation are aligned with the requirements of the GHG Protocol and The CarbonNeutral Protocol, to qualify for carbon neutrality program at the company level.

GHG Protocol establishes the Scope classification in relation to direct and indirect GHG emissions. This classification is detailed below:

Scope 1: Emissions from sources owned or controlled by the reporting company. They include stationary combustion, mobile combustion and fugitive emissions. For ILAP, no process emissions or biogenic emissions or removals apply.

Scope 2 and 3 correspond to GHG emissions that are a consequence of the company's operations, but that occur from sources that are owned or controlled by third parties.

Scope 2: Indirect emissions related to the purchase of electricity. The emissions of LAP's facilities associated with the consumption of electricity from the national energy grid are quantified and the avoided emissions related to the consumption of electricity from renewable sources (self-consumption) are estimated.

Scope 3: Other Indirect Emissions from the company's activities.

The GHG Protocol establishes within scope 3 the emissions of 15 categories of activities both upstream and downstream of the company's operations.

The quantified categories for the 2022 period are listed in Table 3.

Table 3. Operational Perimeter for Inversiones Latin America Power

Scope	Category	Question
Scope 1	Stationary Sources	Fuel consumption
	Mobile Sources	Vehicle fuel consumption
	Fugitive Emissions	SF <sub>6</sub> Loss
Scope 2	Electricity	Electricity consumption
Scope 3	Purchase of goods & services	Drinking water supply
	Act. rel. with fuel & energy <small>(not included in Scope 1 or 2)</small>	Loss of electricity for T&D
	Waste generated in operations	Municipal solid waste
		Hazardous residues
	Business travel	Flights
		Taxi
		Hotel Stays
		Leased Vehicles
		Staff Commuting
	Downstream transportation and distribution	Waste Transport



## 5. KEY ASSUMPTIONS

### General

- All emissions were calculated using the Ecometrica Sustainability platform, a software which automatically selects the most geographically and temporally appropriate emission factors and non-standard conversions (e.g. fuel efficiency, heat content) for each emission source. Each of the emission factors and non-standard conversions is associated with a level of uncertainty, assigned by the tool based on its associated level of scientific certainty.
- There was no review of the raw data or internal data collection systems. All data provided for ILAP is assumed to be accurate and complete.

### Market-Based Instruments

- It was confirmed by ILAP that none of the sites included in the 2022 assessment purchased any market-based instruments for Scope 2. Therefore, the results are expressed according to the location-based method (emissions equivalent to the Market-based method).

### Business Travel

- For the flight records planned for ILAP, Carboneutral made its classification according to the distance covered in short, medium and long distance.
- The hotels were assumed to be equivalent to standard business practice hotels, and applied nightly emission factors were developed through an internal model at Ecometrica that makes assumptions regarding heating and cooling, the typical size of the hotel room and is specific to the country of each night of hotel stay.
- Stays at cabins or accommodation sites the wind farms operations were assumed to be equivalent to standard practice hotels, calculating on a passenger-night basis.
- The distance traveled in leased vehicles was calculated from the difference in the mileage of delivery and return of the vehicle. Logs is provided by the service provider (Mitta).

### Company-owned vehicles

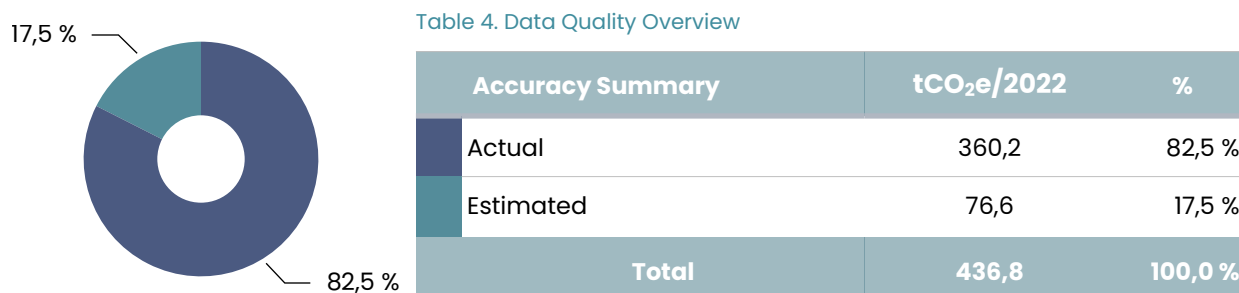
- Leased vehicles whose fuel is provided by ILAP were assumed to be company vehicles.

### Staff Commuting

- The emissions associated with third-party vans that provide the service of transporting workers to the wind farms were quantified. Emissions associated with transport carried out by public transport or workers' own vehicles were excluded.

## 6. DATA QUALITY AND AVAILABILITY

In order to provide the most accurate estimate of an organisation's GHG emissions, primary (actual) data should be used where it is available, up to date and geographically relevant. Secondary data in the form of estimates, extrapolations and industry averages may be used when primary data is not available. The data used for the GHG assessment of ILAP for the period 2022 comes from 82.5 % of primary data and 17.5 % from estimated data (Table 4).



The quality of the data by emission sources included in the evaluation are detailed in Table 5.

Table 5. Data Quality and Availability by emission source

Emission Sources	Data Quality
<b>Premises</b>	<b>2022</b>
Electricity	Actual
Landfill Waste	Mixed
Recycled residues	Mixed
Hazardous residues	Actual
Diesel	Actual
Gasoline	Actual
Other fuel(s)	Actual
Loss of refrigerant gas and Fugitive Emissions	Actual
Water supply and treatment potable	Mixed
<b>Company-owned vehicles</b>	
Vehicles	Actual
Motorcycle	Actual

<b>Emission Sources</b>	<b>Data Quality</b>
Vans	Actual
<b>Business travel</b>	
Flights	Actual
Hotel night stays	Mixed
Taxi	Estimated
Ground Transportation - Rented Vehicles	Estimated
<b>Third-Party deliveries</b>	
Road freight, shared vehicle (tonne.km factors)	Estimated
<b>Staff Commuting</b>	
Vans	Estimated



## 7. RESULTS

### 7.1. RESULTS ILAP

Total GHG Emissions : 436,8 tCO<sub>2</sub>e

The ILAP Results are made up of greenhouse gas emissions from the operations of the San Juan y Totoral wind farm.

#### Key Performance Indicators

The relative greenhouse gas emissions associated with ILAP's operations are indicated in the following table:

Table 6. Key Performance Indicators ILAP Chile

Data	Value		KPI
Full Time Employees	11	39,71	tCO <sub>2</sub> e/employee
Electricity produced	530.799	0,82	kgCO <sub>2</sub> e/MWh

While the relative emissions by ILAP plants are detailed in Table 7.

Table 7. Key Performance Indicators Totoral y San Juan

Data	San Juan		Totoral		KPI
	Value	KPI	Value	KPI	
Full Time Employees	4	24,01	7	48,69	tCO <sub>2</sub> e/employee
Electricity produced	451.029	0,21	79.770	4,27	kgCO <sub>2</sub> e/MWh

## 7.1.1. SUMMARY RESULTS

Summary by Site (based on market-location), tCO<sub>2</sub>e

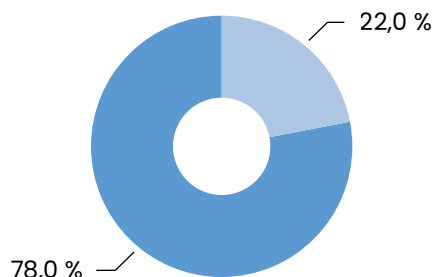


Tabla 8. GHG emissions by site

Country	tCO <sub>2</sub> e	%
Total	340,80	78,0 %
San Juan	96,03	22,0 %
<b>ILAP Total</b>	<b>436,83</b>	<b>100,0 %</b>

During the 2022 period ILAP emitted 436.8 tons of CO<sub>2</sub>e, emissions that come mainly from Total's operations (78.0%).

Summary by Activity (based on market-location), tCO<sub>2</sub>e

Table 9. Summary of GHG emissions by Activity ILAP

Activity	San Juan		Total		ILAP (Total)	
	tCO <sub>2</sub> e	%	tCO <sub>2</sub> e	%	tCO <sub>2</sub> e	%
Premises	9,28	9,7 %	249,26	73,1 %	258,54	59,2 %
Business Travel	40,58	42,3 %	26,94	7,9 %	67,52	15,5 %
Company-owned vehicles	33,61	35,0 %	39,80	11,7 %	73,41	16,8 %
Staff Commuting	12,12	12,6 %	24,64	7,2 %	36,76	8,4 %
Home Office	0,00	0,0 %	0,00	0,0 %	0,00	0,0 %
Third-Party deliveries	0,44	0,5 %	0,16	0,0 %	0,60	0,1 %
<b>Total</b>	<b>96,03</b>	<b>100,0 %</b>	<b>340,80</b>	<b>100,0 %</b>	<b>436,83</b>	<b>100,0 %</b>

According to Table 9, ILAP's GHG emissions in 2022 was generated mainly in the Premises (59.2%), followed by Company owned vehicles (16.8%).

Summary by Scope (based on market-location), tCO<sub>2</sub>e

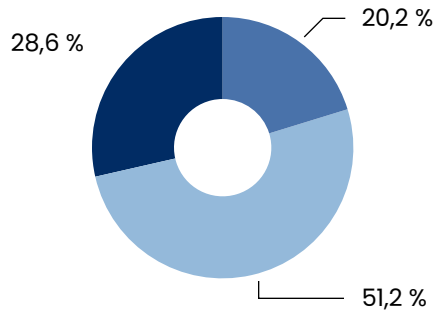
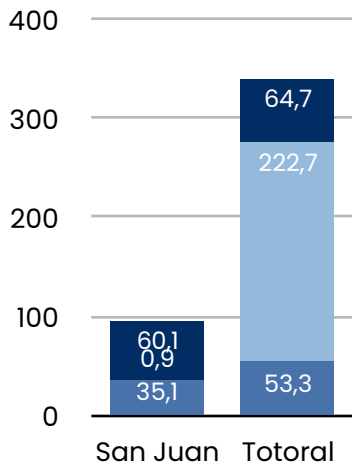


Table 10. Summary of GHG emissions by Scope ILAP

Scope	tCO <sub>2</sub> e	%
Scope 1	88,5	20,2 %
Scope 2	223,58	51,2 %
Scope 3	124,79	28,6 %
<b>ILAP Total</b>	<b>436,83</b>	<b>100,0 %</b>

ILAP's GHG emissions come mainly from other indirect emissions from electricity consumption (Scope 2); 51.2%. As indicated in Table 11; 222.73 tons of CO<sub>2</sub>e correspond to the electricity consumption of the Totoral wind farm, emissions that represent 51% of ILAP emissions.

Table 11. Summary of GHG emissions by Scope Totoral and San Juan



Scope	San Juan		Totoral	
	tCO <sub>2</sub> e	%	tCO <sub>2</sub> e	%
Scope 1	35,1	36,6 %	53,3	15,7 %
Scope 2	0,85	0,9 %	222,73	65,4 %
Scope 3	60,07	62,6 %	64,73	19,0 %
<b>Total</b>	<b>96,03</b>	<b>100,0 %</b>	<b>340,80</b>	<b>100,0 %</b>

## Summary ILAP emissions by type of Greenhouse Gas (based on market-location)

Table 12. Summary by type of Greenhouse Gas

Greenhouse Gas	GWP	tGHG	tCO <sub>2</sub> e
CO <sub>2</sub>	1	189,393	189,39
CH <sub>4</sub>	28	0,127	3,55
N <sub>2</sub> O	265	0,005	1,36
SF <sub>6</sub>	23.500	0,001	13,40
CO <sub>2</sub> e	1	229,140	229,14
<b>Total</b>			<b>436,83</b>

## 7.1.2. DETAIL OF ILAP'S GHG EMISSIONS BY SCOPE

### Scope 1 - Direct Emissions

Direct GHG emissions are detailed below:

Table 13. Detail of direct GHG emissions

Activity	San Juan		Total		ILAP (Total)	
	tCO <sub>2</sub> e	%	tCO <sub>2</sub> e	%	tCO <sub>2</sub> e	%
Stationary Sources -						
Back up generators and machinery	1,50	4,3 %	0,15	0,3 %	1,65	1,9 %
Mobile sources	33,61	95,7 %	39,80	74,6 %	73,41	83,0 %
Vehicles	0,00	0,0 %	0,00	0,0 %	0,00	0,0 %
Vans	33,61	100,0 %	39,80	100,0 %	73,41	100,0 %
Motorcycle	0,00	0,0 %	0,00	0,0 %	0,00	0,0 %
Fugitive Emissions	0,0	0,0 %	13,4	25,1 %	13,4	15,1 %
<b>Total</b>	<b>35,11</b>	<b>100,0 %</b>	<b>53,35</b>	<b>100,0 %</b>	<b>88,45</b>	<b>100,0 %</b>

### Scope 2 - Indirect emissions, associated with electricity

Totoral represents 99.6% of ILAP Scope 2 emissions.

Since the organization does not hold energy supply contracts, market and location based GHG emissions are equivalent.

Table 14. Scope 2 GHG emissions

Site	kWh	tCO <sub>2</sub> e	%
San Juan	2.181	0,85	0,4 %
Totoral	570.071	222,73	99,6 %
ILAP (Total)	572.252	223,58	100,0 %

### Scope 3 - Other indirect emissions

ILAP Scope 3 is made up of seven categories, which are detailed in Table 15.

Table 15. Scope 3 GHG emissions

Source	tCO <sub>2</sub> e			%
	San Juan	Totoral	ILAP (Total)	
Business Travel	40,58	26,94	67,52	54,1 %
Staff Commuting	12,12	24,64	36,76	29,5 %
Waste	6,79	1,94	8,72	7,0 %
T&D Losses	0,04	11,02	11,06	8,9 %
Home Office	0,00	0,00	0,00	0,0 %
Third-Party deliveries	0,44	0,16	0,60	0,5 %
Water supply and treatment	0,10	0,03	0,13	0,1 %
<b>Total</b>	<b>60,07</b>	<b>64,73</b>	<b>124,79</b>	<b>100,0 %</b>



### 7.1.3. CONCLUSIONS ILAP

ILAP's total emissions decreased by 63% in 2022, from 1,190 tons of CO<sub>2</sub>e in 2021 to 437 tons of CO<sub>2</sub>e in 2022. With a relative decrease in emissions of 60%, with respect to the electricity produced, emitting in 2022 0.82 kg CO<sub>2</sub>e/MWh. The main aspect responsible for the reduction in emissions is electricity consumption, a category that decreased by 78% for the period 2022, compared to the base year.

Electricity accounts for most of the emissions with 224 tons of CO<sub>2</sub>e, or 51% of total ILAP's emissions. Emissions attributable to Totoral's electricity consumption, from the national electricity grid.

Company-Owned Vehicles account for the second largest share of emissions with 73 tons of CO<sub>2</sub>e or 17% of total emissions.

## 8. ANNEX

### Detailed Summary by WBCSD/WRI Scope Location/Market Based Methodology

Source of Emissions	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	tR410a	tSF <sub>6</sub>	tCO <sub>2</sub> e	%
<b>Scope 1</b>	<b>74,21</b>	<b>4,0E-03</b>	<b>2,8E-03</b>	<b>0,0E+00</b>	<b>5,7E-04</b>	<b>88,45</b>	<b>20,25 %</b>
Premises	1,64	2,21E-04	1,33E-05	0,00E+00	5,70E-04	15,04	3,44 %
Others fuel(s)	1,64	2,21E-04	1,33E-05	0,00E+00	0,00E+00	1,65	0,38 %
Refrigerant gas loss and other fugitive emissions	0,00	0,00E+00	0,00E+00	0,00E+00	5,70E-04	13,40	3,07 %
Company owned vehicles	72,57	3,75E-03	2,76E-03	0,00E+00	0,00E+00	73,41	16,81 %
Vans	72,57	3,75E-03	2,76E-03	0,00E+00	0,00E+00	73,41	16,81 %
<b>Scope 2</b>	<b>0,00</b>	<b>0,00E+00</b>	<b>0,00E+00</b>	<b>0,00E+00</b>	<b>0,00E+00</b>	<b>223,58</b>	<b>51,18 %</b>
Premises	0,00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	223,58	51,18 %
Electricity	0,00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	223,58	51,18 %
<b>Scope 3</b>	<b>115,18</b>	<b>1,23E-01</b>	<b>2,35E-03</b>	<b>0,00E+00</b>	<b>0,00E+00</b>	<b>124,79</b>	<b>28,57 %</b>
Business Travel	67,22	2,78E-03	8,18E-04	0,00E+00	0,00E+00	67,52	15,46 %
Air travel	9,05	2,77E-04	2,88E-04	0,00E+00	0,00E+00	9,13	2,09 %
Hired cars	2,98	7,86E-05	6,98E-05	0,00E+00	0,00E+00	3,00	0,69 %
Hotel night stays	42,01	2,18E-03	2,95E-04	0,00E+00	0,00E+00	42,15	9,65 %
Taxi	13,20	2,48E-04	1,66E-04	0,00E+00	0,00E+00	13,25	3,03 %
Commuting	36,34	1,88E-03	1,38E-03	0,00E+00	0,00E+00	36,76	8,42 %
Vans	36,34	1,88E-03	1,38E-03	0,00E+00	0,00E+00	36,76	8,42 %
Premises	11,02	1,18E-01	1,39E-04	0,00E+00	0,00E+00	19,92	4,56 %
Electricity - transmission & distribution losses (MCR)	11,02	1,33E-04	1,39E-04	0,00E+00	0,00E+00	11,06	2,53 %
Hazardous waste	0,00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,42	1,24 %
Landfilled waste	0,00	1,18E-01	0,00E+00	0,00E+00	0,00E+00	3,30	0,76 %
Water supply	0,00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,05	0,01 %

Source of Emissions	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	tR410a	tSF <sub>6</sub>	tCO <sub>2</sub> e	%
<b>Scope 1</b>	<b>74,21</b>	<b>4,0E-03</b>	<b>2,8E-03</b>	<b>0,0E+00</b>	<b>5,7E-04</b>	<b>88,45</b>	<b>20,25 %</b>
Water treatment	0,00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,08	0,02 %
Third-Party Deliveries	0,59	5,61E-06	1,38E-05	0,00E+00	0,00E+00	0,60	0,14 %
Road freight, shared vehicle (tonne.km factors)	0,59	5,61E-06	1,38E-05	0,00E+00	0,00E+00	0,60	0,14 %
<b>Total</b>						<b>436,83</b>	<b>100 %</b>

Annual Activity Data  
Source of Emissions

Source of Emissions	Value	Unit
Business Travel		
Air travel		
Medium-haul, economy	1.835	pass.km
Short-haul	69.147	pass.km
Hired cars		
Average car (unknown fuel)	14.051	km
Hotel night stays		
Hotel night stays	1.535	night
Taxi		
Average taxi	55.508	km
Commuting		
Vans		
Diesel light duty truck, passenger transportation	104.080	km
Company owned vehicles		
Vans		
Diesel light duty truck, passenger transportation	26.907	L
Premises		
Electricity		
Electricity consumption (SEN)	572.252	kWh
Electricity - transmission & distribution losses (MCR)	-	-
Waste		
Mixed commercial and industrial waste, landfilled	11.612	kg
Waste, landfilled, MSW	2.939	kg
Others fuel(s)		
Diesel	604	L
Refrigerant gas loss and other fugitive emissions		

Source of Emissions	Value	Unit
SF6 (sulphur hexafluoride) emissions	0,57	kg
Water		
Water supply	312	m3
Water treatment	312	m3
Third-Party Deliveries		
Road freight, shared vehicle (tonne.km factors)		
Truck deliveries	4.098	tonne.km

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## Climate Change and Sustainability

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