





# **ECA 2020 Carbon Footprint Report**

Calculation of the ECA's carbon footprint using the GHG Protocol and the Bilan Carbone® methodology

# ECA 2020 Carbon Footprint Report



- Executive summary
- Context of the study
- Overview of the Bilan Carbone® and the GHG Protocol methods
- Overall results
- Results by scope

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# **Executive summary**







936,8 FTE<sup>1</sup>



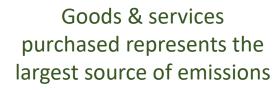
buildings







68%









6 144 tCO<sub>2</sub>e 3 939 tCO<sub>2</sub> e

#### Total 2020 GHG

emission 6,6 tCO<sub>2</sub>e/FTE<sup>1</sup> (total uncertainties 19%)

emission 4,2 tCO<sub>2</sub>e/FTE¹ (total uncertainties 28%)



-44%

Overall decrease in emissions since 2014

# ECA 2020 Carbon Footprint Report

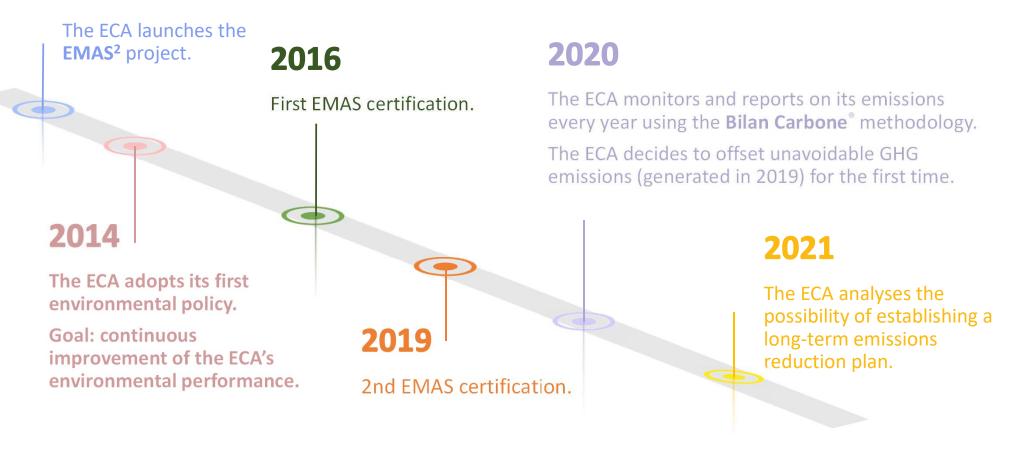


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# Context of the study

### 2013



2 Eco-Management and Audit Scheme

# 2

# Context of the study

# **Specific targets for 2021**

The objective of this study is to provide a **high-quality estimate of the greenhouse gas emissions** generated by the ECA using both the GHG protocol methodology and the Bilan Carbone<sup>®</sup>.

The ECA will also be provided with a set of applicable emissions reduction action measures in order to provide fresh impetus for its climate strategy and be prepared for a potential submission for the science-based targets initiative.

Main developments for the 2021 carbon footprint assessment:

- Assessment using both the GHG protocol and the Bilan Carbone® to draw comparisons with 2014 and 2019
- Report on teleworking carbon emissions due to COVID-19 and overnight hotel stays
- Report on IT carbon emissions, with specific analysis of the impact of digitalisation compared with the standard use
  of paper documents
- Update on emissions factors

# ECA 2020 Carbon Footprint Report

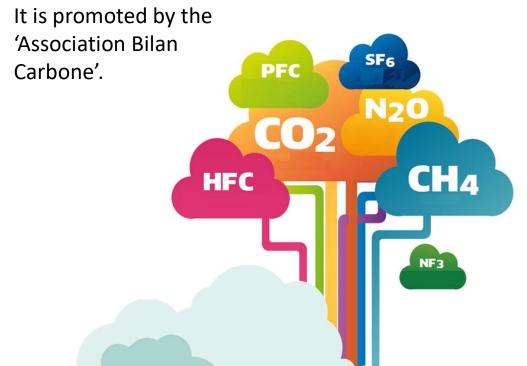


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# Overview of the Bilan Carbone® method

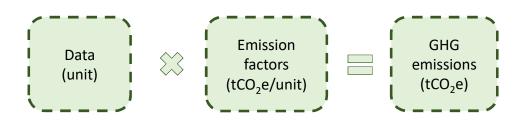
The Bilan Carbone® method was developed in 2004 by the French Environment and Energy Management Agency, ADEME, to quantify organisations' GHG emissions.



### The method takes account of the following gases:

- ✓ Kyoto Protocol gases:  $CO_2$ ,  $CH_4$ ,  $N_2O$ ,  $SF_6$  hydrofluorocarbons  $(C_nH_mF_p)$ , perfluorocarbons  $(C_nF_{2n+2})$ ,  $NF_3$
- ✓ other non-Kyoto Protocol gases (CFCs)
- √ water vapour emitted by planes in the stratosphere

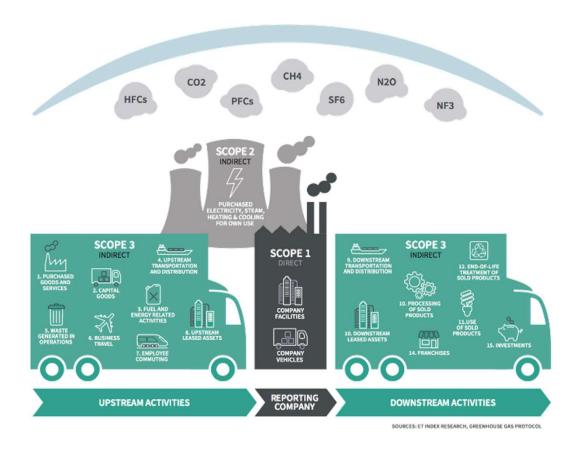
As it is not possible to measure GHG emissions directly, the Bilan Carbone® method estimates GHG emissions by multiplying data on an organisation's activity by an emission factor (EF).





# Overview of the GHG Protocol method

The GHG protocol is an international standard to conduct a carbon asssessment on the value chain of an activity: both direct (scope 1) and indirect (scopes 2 and 3) emissions are calculated (see figure below):





### **Expected benefits for the ECA:**

- ➤ Will enable better comparison of the ECA's carbon footprint with that of other international financial entities
- Will better reflect direct GHG reduction efforts by considering the purchase of renewable energy
- No change required if the decision is taken to commit to the <u>science-</u> <u>based target</u> and <u>report to the CDP</u>







### Differences between Bilan Carbone® & GHG Protocol



	GHG PROTOCOL	BILAN CARBONE®
Presentation of the results	By Scope	By emission categories
Capital goods	Bears 100% of the fixed assets over the year of purchase of the asset	Capital asset: Amortization over the life of the durable good
Investments	Can be taken into account in Scope 3 (Category 15)	Not taken into account
Franchises	Taken into account in Scope 3 (Category 14)	Not taken into account
End of life	Distinction if the product is rented	End of life without distinction
Renewable energy certificates	Taken into account	Not taken into account



### 1 - Collect activity data











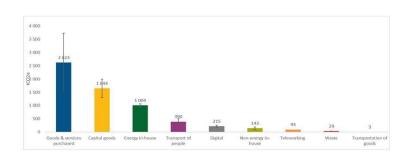








### 3- Visualize and analyze the results



# 2- Use the emission factors from the Bilan Carbone® database

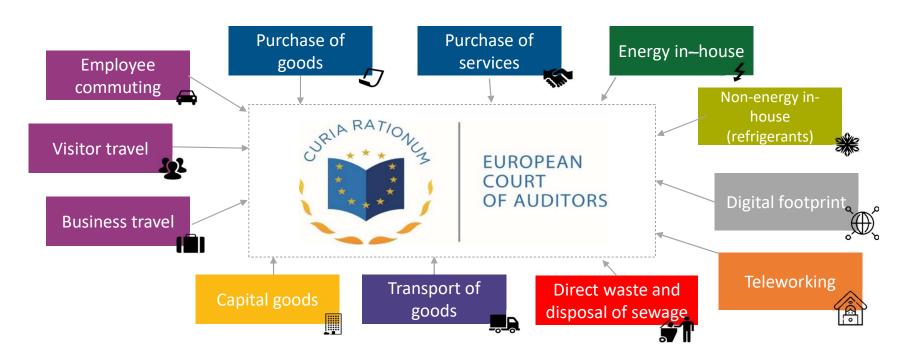


### 4- Identify and prioritize GHG reduction actions

Actions préconisées	Difficulté de mise en œuvre	investissement	Gains CO2	Délai de mise en œuvre	Possibilités de réduction
		Ener	gie		
Automatiser la gestion du chauffage et de la climatisation des locaux  Mettre en piace un système de réguliation de la température.  La température réglementaire dans les bâtiments est de 19°C en neve et 26°C en été.	(9)	€	**	Immédiat	Un système de régulation permet une diminution de 10% de la consommation d'énergie liée au chauffage
Automatiser l'extinction des ordinateurs	0	€	+	Immédiat	Près de 60% des utilisateurs avouent ne pas éteindre régulièrement leur ordinateur
Réduire les consommations d'électricité liées à l'utilisation d'appareils électroniques Généraliser les interrupteurs sur les multiprises afin de limiter les consommations dues aux veilles des équipements électroniques. Choix d'un matériel économe en énergie (exemple du label finerus star).	(9)	€	٠	Immédiat	La plupart des appareils électroniques, même éteints, continuent à consommer de Félectricité en mode veille. Cette consommation représente couramment 15% de la consommation totale d'un appareil.



# Operational scope of the Bilan Carbone® method in 2020



The ECA's footprint exercise includes direct and indirect GHG emissions (scopes 1, 2 and 3).



# Temporal and organisational boundaries

Bilan Carbone® approach: operational control approach

**Temporal scope**: ECA activities in 2020

Organisational scope: three buildings in Luxembourg (K1, K2, K3)

Building	Area (m²)	FTE
K1	23 720	283
K2	18 619	182
K3	28 245	449
Not assigned	25	



These buildings include office space, basements, underground car parks, two cafeterias, a canteen, archives, a library, walkways between buildings, and other amenities.

Activities of ECA officials and other employees: at the end of 2020, there were 936,8 full-time equivalent employees (FTEs).

# ECA 2020 Carbon Footprint Report



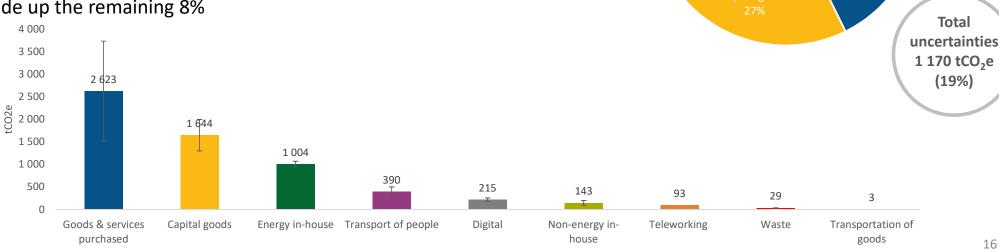
- Executive summary
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# 2020 Bilan Carbone® results

- √ Total GHG emissions reached 6 144 tCO₂e
- The largest sources of emissions in the 2020 Bilan Carbone® were:
  - goods and services purchased (43%)
  - capital goods (27%)
  - energy (in-house) (16%)
  - transport of people (6%)

Digital, non-energy in-house, waste, teleworking and transport of goods made up the remaining 8%



Non-energy in-

house

Digital

4%

Energy in-

house

16%

Transport of

people

6%

Waste

<1%

6 144

tCO2e

Teleworking

<1%

Goods &

services purchased

43%

Transportation of

goods

<1%

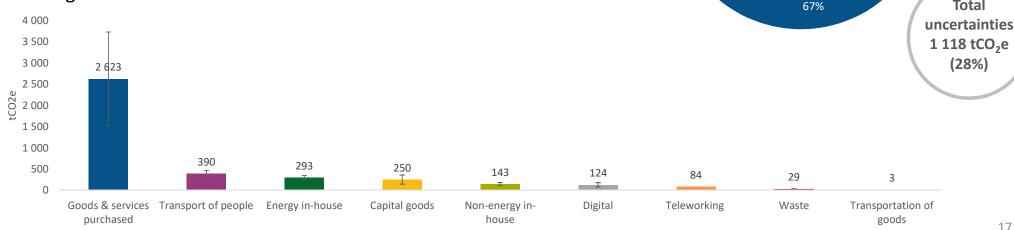
**Total** 

(19%)



# 2020 GHG Protocol results

- √ Total GHG emissions reached 3 939 tCO₂e
- The largest sources of emissions in the 2020 GHG Protocol were:
  - goods and services purchased (67%)
  - transport of people (10%)
  - energy (in-house) (7%)
  - capital goods (6%)
- Non-energy in-house, waste, and transport of goods made up the remaining 10%



17

Waste

<1%

3 9 3 9

tCO2e

Goods & services

purchased

Teleworkin

Transportation of

goods

0%

**Total** 

Digital

3%

Transport o

people 10%

Non-energy in-

house

4%

Capital goods

6%

Energy in-

house 7%



# Emissions by building - Bilan Carbone®

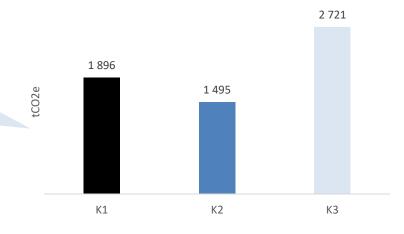
3 000

Emissions were divided between the buildings according to

the number of staff in each building.

Building	FTE	Share (%)
K1	291	31%
K2	190	20%
К3	456	49%
Total	936,75	100%

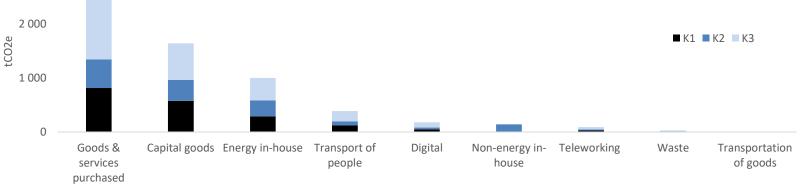
K3 houses the greatest number of staff and so produces the largest share of emissions.



**Total GHG emissions by building** 

### Emission categories by building

Building	tCO <sub>2</sub> e
K1	1 896
K2	1 495
К3	2 721
TOTAL	6 112





# Emissions by building - GHG Protocol

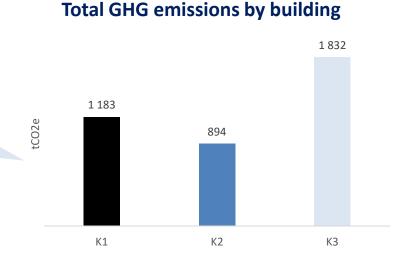
3 000

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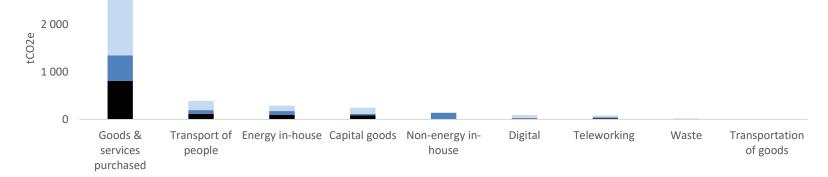
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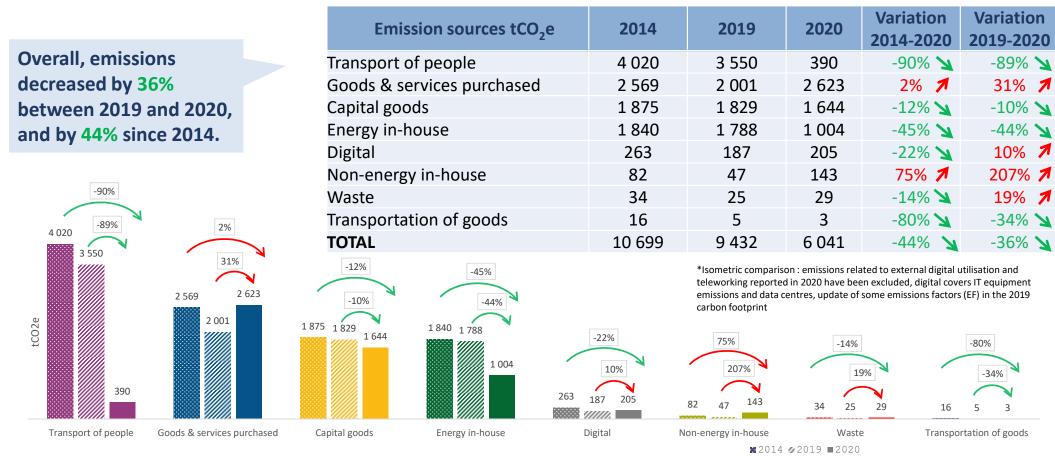
### **Emission categories by building**

Building	tCO <sub>2</sub> e
K1	1 183
K2	884
К3	1 832
TOTAL	3 910



■ K1 ■ K2 ■ K3

# Bilan Carbone® comparison\* with previous years



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# Bilan Carbone® (43%) / GHG Protocol (67%)

### **Data and assumptions**

- ✓ Goods & services: (see page 22)
- ✓ Paper consumption: A4 80gr (95%), and A3 80gr and others (5%), converted into weight (5g/page)
- Water purchased: total water consumption for 2020
- Food (meals)
- ✓ **Gifts** Methodology: number and type of gifts converted into weight and types of material

tCO<sub>2</sub>e

(42%)

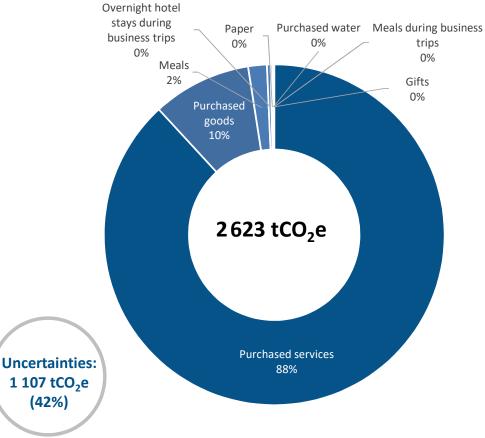
- ✓ Meals: (see page 23)
- ✓ Goods and services purchased: (see page 23)

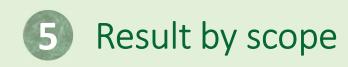
Type of good or service

R <sub>P</sub>	SH	lts	

Purchased services	2 313
Purchased goods	246
Meals	47
Hotel nights during business trips	9
Paper	5
Purchased water	1.5
Gifts	1.1
Meals during business trips	1.0
Total	2 623

### Total GHG emissions from goods and services purchased







# Services

### **Data and assumptions**

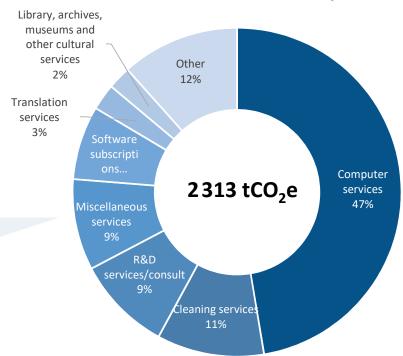
Data provided: goods and services purchased by category type and amount in euros

The amount spent on computer services in 2020 was 26 times higher than previously (6 444 k€ vs. 247 k€). This includes subscription to Teams services to ensure remote communication. The amount spent on cleaning services has also increased due to COVID-19 (1 435 k€ vs. 5 k€).

#### **Results**

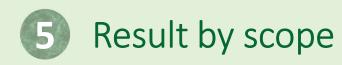
Type of service	tCO <sub>2</sub> e
Computer services	1 096
Cleaning services	244
R&D services/consult	217
Miscellaneous services	
Software subscriptions	
Translation services	
Library, archives, museums and other cultural services	
Other	
Total	

### **GHG** emissions from services purchased



Miscellaneous services were assigned an average services emissions factor extrapolated from the Bilan Carbone® database.

These services ranged from rental equipment, to training (language classes, etc.), painting, document destruction, etc.





# Meals

### **Data and assumptions**

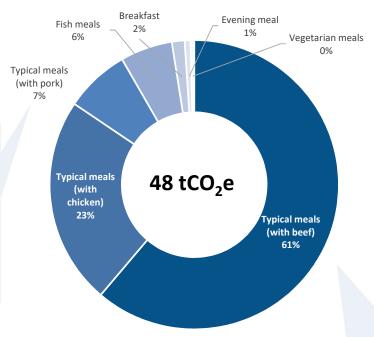
- ✓ Number of meals and quantities of organic and non-organic meat (pork, beef, chicken) and fish purchased
- ✓ Meals broken down according to quantities purchased (29% chicken, 21% beef, 20% pork, 29% fish)
- ✓ Meals during business trips: breakfast and evening meal (categorised as average meals)

D	00	11	l+c
$\mathbf{r}$		ш	11.5

Type of meal	tCO <sub>2</sub> e
Typical meals (with beef)	29
Typical meals (with chicken)	11
Typical meals (with pork)	3
Fish meals	3
Breakfast	1
Evening meal	0
Vegetarian meals	0
Total	48

Replacing a pork dish with a vegetarian dish would reduce the meal's carbon impact by 50%

#### **GHG** emissions from meals



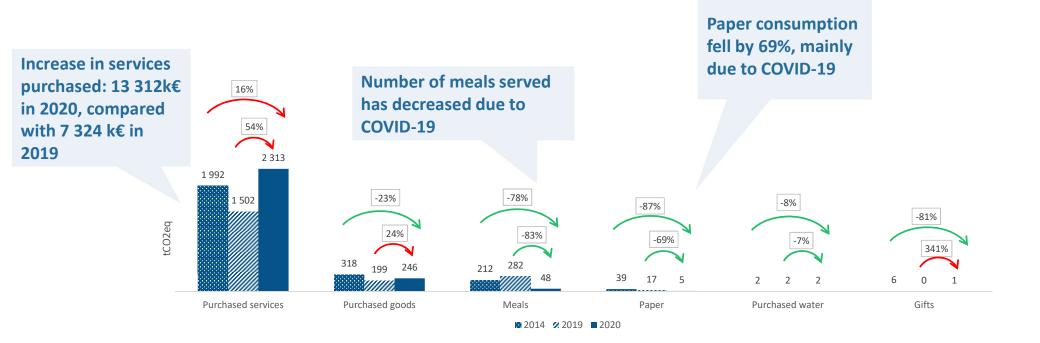
Replacing beef with chicken would reduce a dish's carbon impact by 79%





# Comparison with previous years

GHG emissions tCO <sub>2</sub> e	2014	2019	2020	2014-20 variatio		2019-20 variati	
Total goods and services purchased	2 569	2 001	2 614	2 %	7	31 %	7





# Capital goods



# Bilan Carbone® (27%)

### **Data and assumptions**

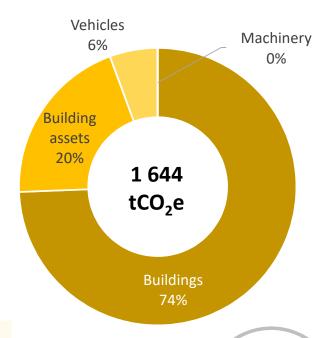
- ✓ Buildings and car parks: m² of parking and office space Depreciation: forty years
- ✓ Building assets: generators, refrigerators, air conditioning units, machinery etc., in units per building, and furniture, equipment and tools per building in terms of purchase price Depreciation: eight years
- ✓ Vehicles: vehicle model and type, and leased or owned vehicles across
  all three buildings
- ✓ Depreciation: four years
- ✓ IT equipment is included in the digital footprint

### Results

Type of capital goods	tCO <sub>2</sub> e
Buildings	1 223
Building assets	329
Vehicles	92
Machinery	0
Total	1 644

No machinery was taken into account for 2020

### Total GHG emissions from capital goods





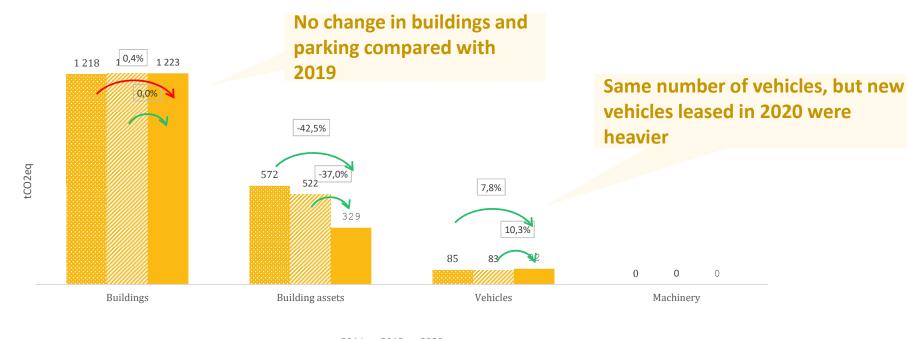


# Capital goods



# Comparison between 2019 and 2020

GHG emissions tCO <sub>2</sub> e	2014	2019	2020	2014-2020 variation	
Total capital goods	1 875	1 829	1 644	-12 %	-10 %





**Results** 

# Result by scope

# Capital goods



### GHG Protocol (6%)

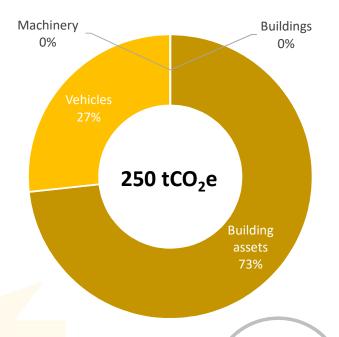
### **Data and assumptions**

- ✓ Buildings and car parks: m² of car parking and office space
- ✓ **Building assets**: generators, refrigerators, air conditioning units, machinery etc., in units per building, and furniture, equipment and tools per building in terms of purchase price
  - IT equipment: IT inventory by type of goods
- ✓ Vehicles: vehicle model and type, and leased or owned vehicles across
  all three buildings
- ✓ IT equipment is considered in the digital footprint
- ✓ No depreciation has been included in this method

Type of capital goods	tCO <sub>2</sub> e
Building assets	183
Vehicles	67
Machinery	0
Buildings	0
Total	250

No new buildings, car parks or machinery were acquired in 2020

### Total GHG emissions from capital goods



Uncertainties 75 tCO<sub>2</sub>e (27%)



# Passenger transport |



# Bilan Carbone®(6%) / GHG Protocol (10%)

### **Data and assumptions**

#### **Emissions sources**

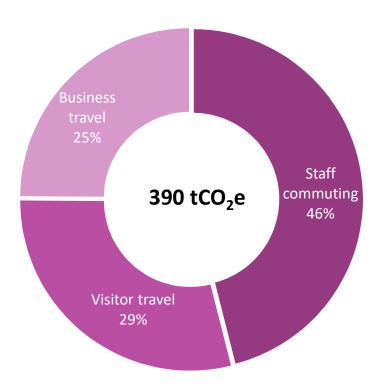
- ✓ Staff commuting between home and work, and use of official cars for non-business travel
- ✓ Business travel (including official cars)
- ✓ Visitor travel

### Results

Type of transportation	tCO <sub>2</sub> e
Staff commuting	179
Visitor travel	113
Business travel	97
Total	390



# Emissions from the transport of people by type of travel





# Passenger transport



# Staff commuting

### **Data provided**

✓ Data from a 2018 ECA survey on staff commuting has been reused

### **Hypothesis**

**Extrapolated** 

results

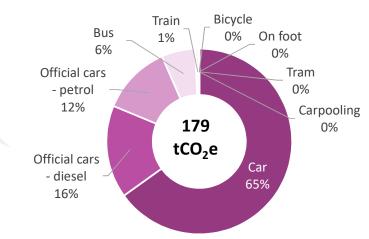
Cars: 93% of GHG emissions from 84% of kilometres travelled

<b>√</b>	Teleworking days were not included in th	e
	calculation	

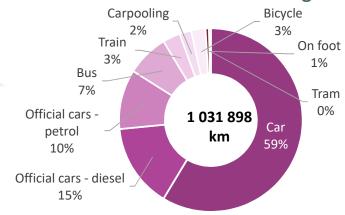
Staff commuting	tCO <sub>2</sub> e	km
Car	117	604 992
Official cars – diesel	29	152 747
Official cars - petrol	22	108 386
Bus	11	76 827
Train	1	31 958
Carpooling	0	21 114
Bicycle	0	26 314
On foot	0	6 103
Tram	0	3 456
Total	179	1 031 898

**Daily** average of 26 km per FTE

### **GHG** emissions from commuting



### Kilometres<sup>5</sup> travelled for commuting



<sup>&</sup>lt;sup>5</sup> Litres were used for the carbon footprint calculation for official cars



# Passenger transport



### Visitor travel

### **Data provided**

Number of visitors by country of origin in 2020:

- ✓ 17 visits
- ✓ 398 visitors

### Assumptions regarding mode of transport

✓ Short-haul flights: EU-ES

✓ Car: BE-LU ✓ Bus: DE

✓ Train: FR

Train: 2% of GHG emissions from 9% of kilometres travelled

Plane: 89% of GHG

emissions from 82%

of kilometres

travelled

### Results

Visitor travel	tCO <sub>2</sub> e	km
Short-haul flights	101	594 003
Bus	7	51 870
Car	3	16 390
Train	2	62 408
Total	113	724 671

# Sources of 2020 GHG emissions from the transport of visitors



# Kilometres<sup>5</sup> travelled by visitors





# Passenger transport



### **Business travel**

### **Data provided**

Total number of kilometres by mode of transport

Car: personal, official and rented cars

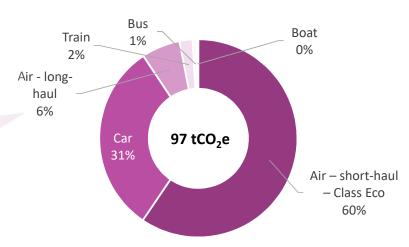
### **Results**

Business travel	tCO <sub>2</sub> e	km
Air – short-haul - Class Eco	58	340045
Car	30	155958
Air - long-haul	6	37755
Train	2	52042
Bus	1	4936
Boat	0	273
Total	97	591009

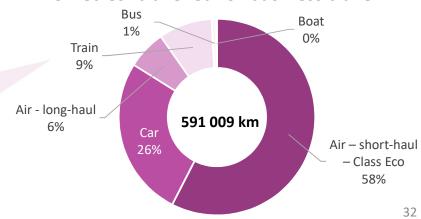
Plane: 66% of GHG emissions for 64% of distance travelled

Train: 2% of GHG emissions for 9% of distance travelled

### **GHG** emissions from business travel



#### Kilometres<sup>5</sup> travelled for business travel





# Passenger transport



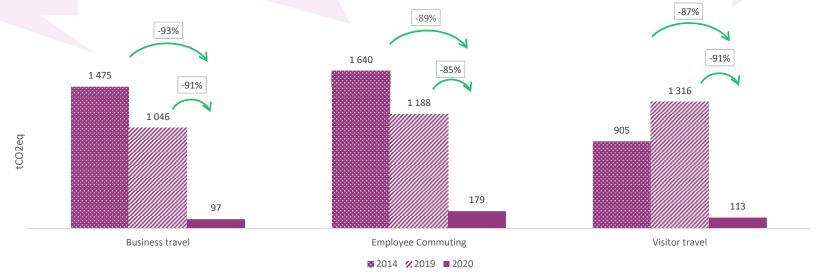
# Comparison with previous years

GHG emissions tCO <sub>2</sub> e	2014	2019	2020	2014-2020 variation	2019-2020 variation
Total transport	4 020	3 550	390	-90% 🌂	-89%

**-91%** in GHG emissions from **business travel**, as the distance travelled decreased due to COVID-19.

**-85%** in GHG emissions from **staff commuting**, mainly due to COVID-19 restrictions (new teleworking scheme introduced on 1st June 2019).

-91% in GHG emissions from visitor travel as visits have decreased largely due to COVID-19.





# Energy (in-house)



# Bilan Carbone® (16%)

### **Data and assumptions**

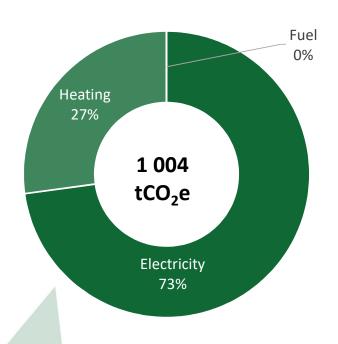
- ✓ **Electricity consumption** The ECA purchases green electricity with "guarantees of origin". However, the Bilan Carbone® method takes into account true electricity consumption from the national grid (location-based approach).
- ✓ Heat consumption 2020 consumption for each building. The emissions factor is based on the provider's energy mix.
- ✓ Fuel consumption (by generator): litres purchased.

### Results

Energy source	tCO <sub>2</sub> e
Electricity	731
Heating	273
Fuel	0
Total	1 004



### Total GHG emissions from energy



No fuel purchase in 2020. Fuel used during the reporting period was accounted for in 2019.



# Energy (in-house + EDC)



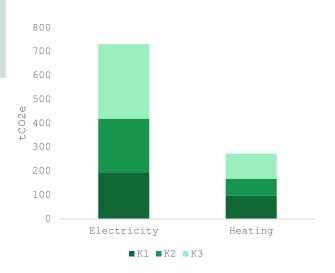
# Comparison with previous years

GHG emissions tCO <sub>2</sub> e	2014	2019	2020	2014-2020 variation	
Total energy	1 840	1 788	1 004	-45%	-44%

Decrease mainly due to COVID-19, but less significant than for other categories because of the use of some equipment as a -58% preventive measure. The same 2021 updated emissions factors for heating and electricity -51% 1 759 have been applied. 247% tC02eq -100% -100% 3 Electricity Fuel Heating **2**014 **2**2019 ■ 2020

Due to its size, the K3 building accounts for the greatest share of energy emissions.

### 2020 Emissions by building





# Energy (in-house) 🗲

# GHG Protocol (7%)

### **Data and assumptions**

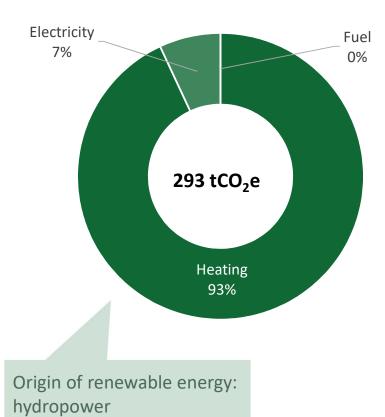
- ✓ **Electricity consumption** The ECA purchases green electricity with "guarantees of origin". The source of green energy is taken into account using the GHG Protocol methodology (market-based approach).
- ✓ Fuel consumption (by generator): litres purchased.
- ✓ Heat consumption 2020 consumption for each building. The emissions factor is based on the provider's energy mix.

### Results

Energy source	tCO <sub>2</sub> e
Electricity	20
Heating	273
Fuel	0
Total	293



### Total GHG emissions from energy





# Non-energy in house



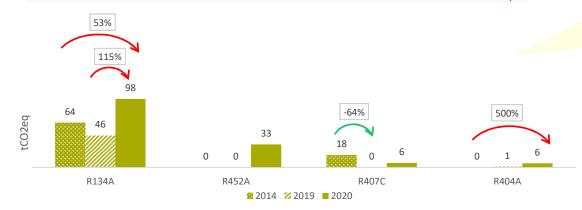
# Bilan Carbone®(2%) / GHG Protocol (4%)

### **Data and assumptions**

**Refrigerant gases:** cooling installations refilled with refrigerant gases (R134a, R404a, R407a and R452a) throughout 2020. Refills were considered as leaks.

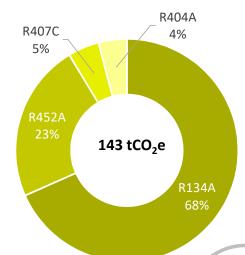
### Results and comparison with previous years

GHG emissions tCO <sub>2</sub> e	2014	2019	2020	2014-2020 variation	2019-2020 variation
R134A	64	46	98	53% 🖊	115% 🞵
R452A	0	0	33		
R407C	18	0	6	-64% 🔌	
R404A	0	1	6		500% 🗷
Total	82	47	1/13	75% 7	207%



### **Total non-energy GHG emissions**

Refilling refrigerator and freezer refrigerants after shutdown during COVID-19



#### Refrigerant gases have a huge impact:

- 1 tonne of R134a is equivalent to 1 300 tCO<sub>2</sub>
- ✓ 1 tonne of R407a is equivalent to 3 940 Tco<sub>2</sub>
- ✓ 1 tonne of R404c is equivalent to 1 620 tCO<sub>2</sub>
- 1 tonne of R452a is equivalent to 2 141 tCO<sub>2</sub>

Uncertainties
52 tCO<sub>2</sub>e
(36%)



# Waste



# Bilan Carbone®/GHG Protocol (<1%)

### **Data and assumptions**

#### ✓ Waste

Non-hazardous: food and household waste, plastic, paper, cardboard and glass packaging

Hazardous: waste water and sewage, light bulbs and fluorescent tubes, packaging waste containing dangerous products, scrap metal, batteries, accumulators, and electronic waste

### ✓ Water use (sewage)

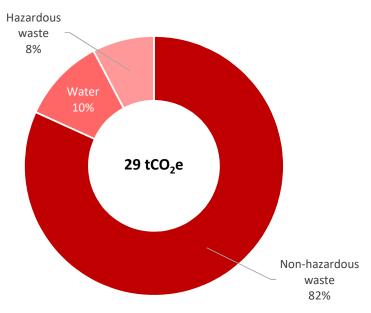
Data: based on water consumption, allocated to buildings according to the level of occupancy

### Results

Type of waste	tCO <sub>2</sub> e
Non-hazardous waste	24
Water	3
Hazardous waste	2
Total	29



### **Total GHG emissions from waste**





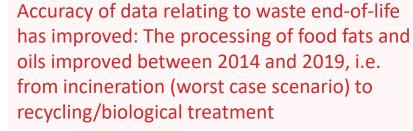




# Comparison with previous years

GHG emissions tCO <sub>2</sub> e	2014	2019	2020	2014-2020 variation	2019-2020 variation
Total waste	34	25	29	-14%	+19% 🖊

-33% cardboard and paper under non-hazardous waste in 2020 compared with 2019







# Transport of goods



# Bilan Carbone®/GHG Protocol (<1%)

### Data and assumptions

**Transport by suppliers:** 2018 data for 2019 (no data available because of COVID-19). Real data was available for 2020.

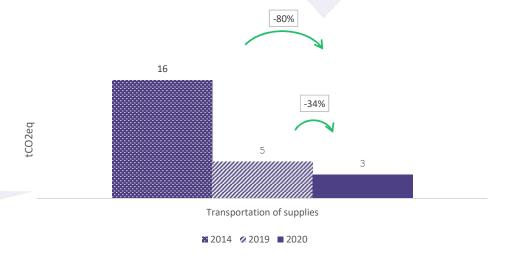
### **Results**

Emission source	tone.km	tCO₂e
Total transport of goods	17 332	3

Increase of 68% in the total number of tonnes/km in 2020 compared to 2019. The decrease in emissions is due to a change in emissions factors.



Average annual distance driven by each supplier: 4 394 km









# Bilan Carbone® (4%)

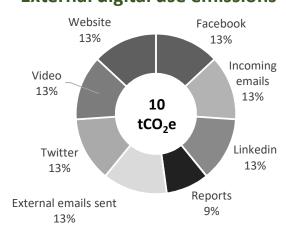
### **Data and assumptions**

- ✓ Internal digital use
  Energy emissions related to both datacentres: K3 and CETREL.
- ✓ External digital use Emissions linked to the ECA consumers' use of: website, Facebook, Linkedin, Twitter, emails, reports and online videos.
- ✓ IT equipment
   IT inventory by type of goods.
   No depreciation has been included.

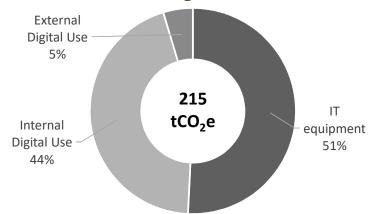
### Results

Type of emissions	tCO <sub>2</sub> e
IT equipment	109
Datacentre K3	66
CETREL	30
External Digital Use	10
Total	215

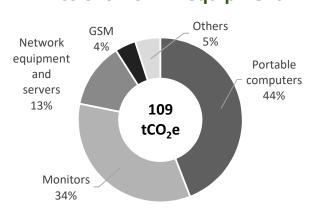
### **External digital use emissions**



### **Total GHG digital emissions**



### **Emissions from IT equipment**









### GHG Protocol (3%)

### **Data and assumptions**

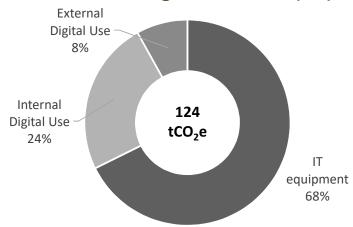
- ✓ Internal digital use Energy emissions related to both datacentres: K3 and CETREL.
- External digital use Emissions linked to the ECA consumers' use of: website, Facebook, Linkedin, Twitter, emails, reports and online videos.
- ✓ IT equipment
   IT inventory by type of goods.

   No depreciation has been included, only equipment purchased in 2020.

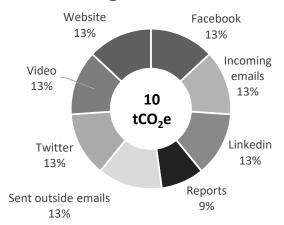
### Results

Type of emissions	tCO <sub>2</sub> e
IT equipment	84
Data centre K3	0,2
CETREL	30
External Digital Use	10
Total	124

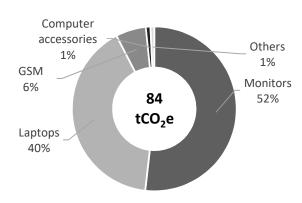
# Total GHG digital emissions (3%)



### **External digital use emissions**



### IT equipment emissions





# Teleworking



# Bilan Carbone® / GHG Protocol (<1%)

### **Data and assumptions**

### ✓ Heating

Emissions related to household heating: natural gas, fuel, heat pump, electricity and green electricity for the GHG Protocol, district heating and wood.

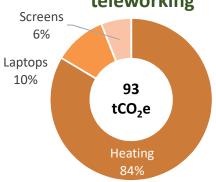
### ✓ Laptops and Screens

Emissions related to the IT equipment energy consumption (electricity and green electricity for the GHG Protocol)

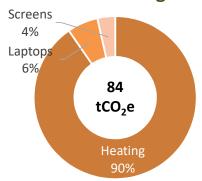
#### **Results**

Bilan Carbone®	tCO <sub>2</sub> e	GHG Protocol	tCO <sub>2</sub> e
Heating	78	Heating	76
Laptops	10	Laptops	5
Screens	6	Screens	3
Total	93	Total	84

# Bilan® Carbone emissions from teleworking



# GHG Protocol emissions from teleworking



This report was prepared for the European Court of Auditors (ECA) by Argest S.A. and EcoAct France, based on data provided by the ECA.





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