

March 2017

CARBON FOOTPRINT OF THE EUROPEAN COURT OF AUDITORS



EUROPEAN
COURT
OF AUDITORS

SCOPE

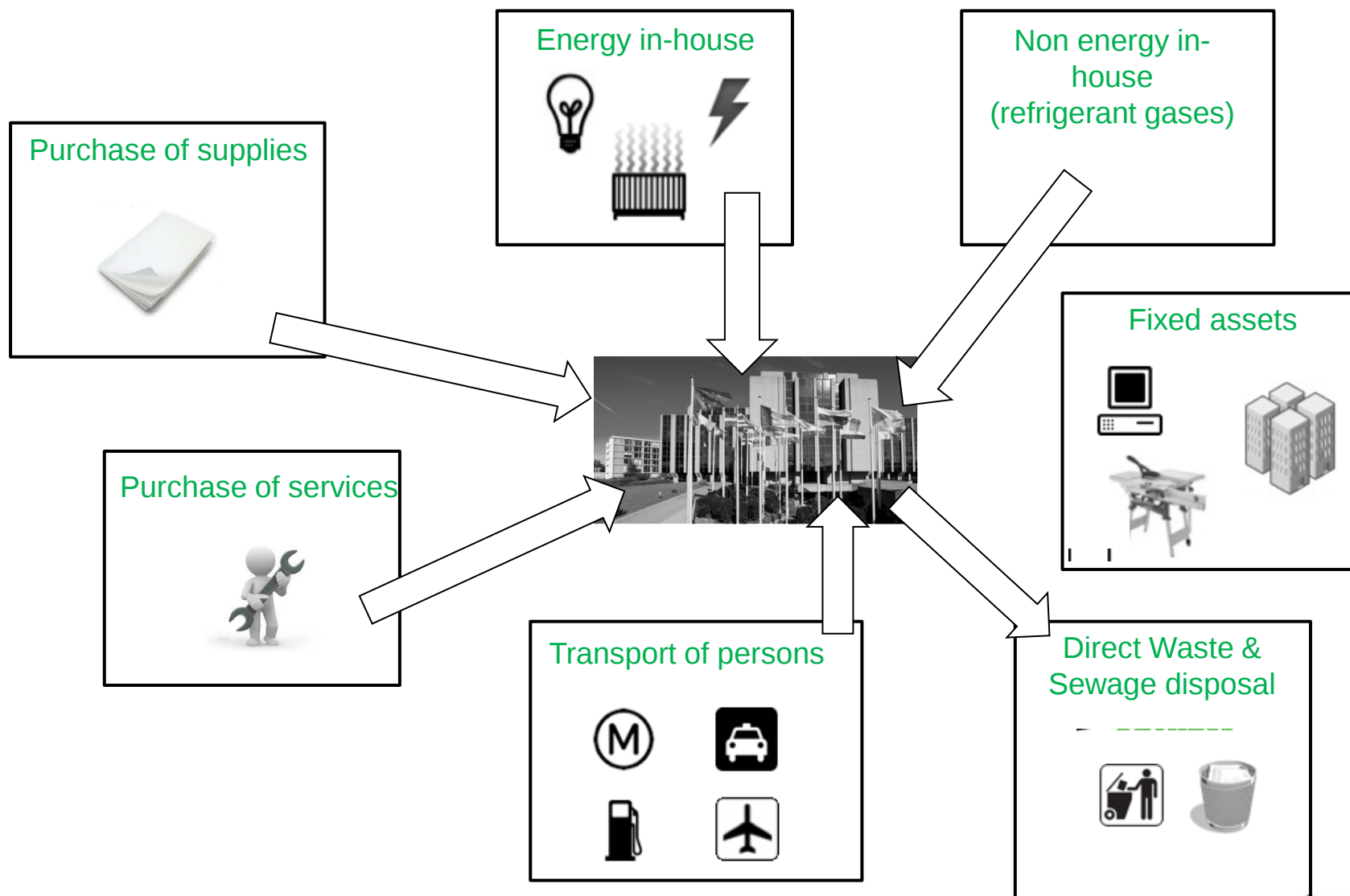
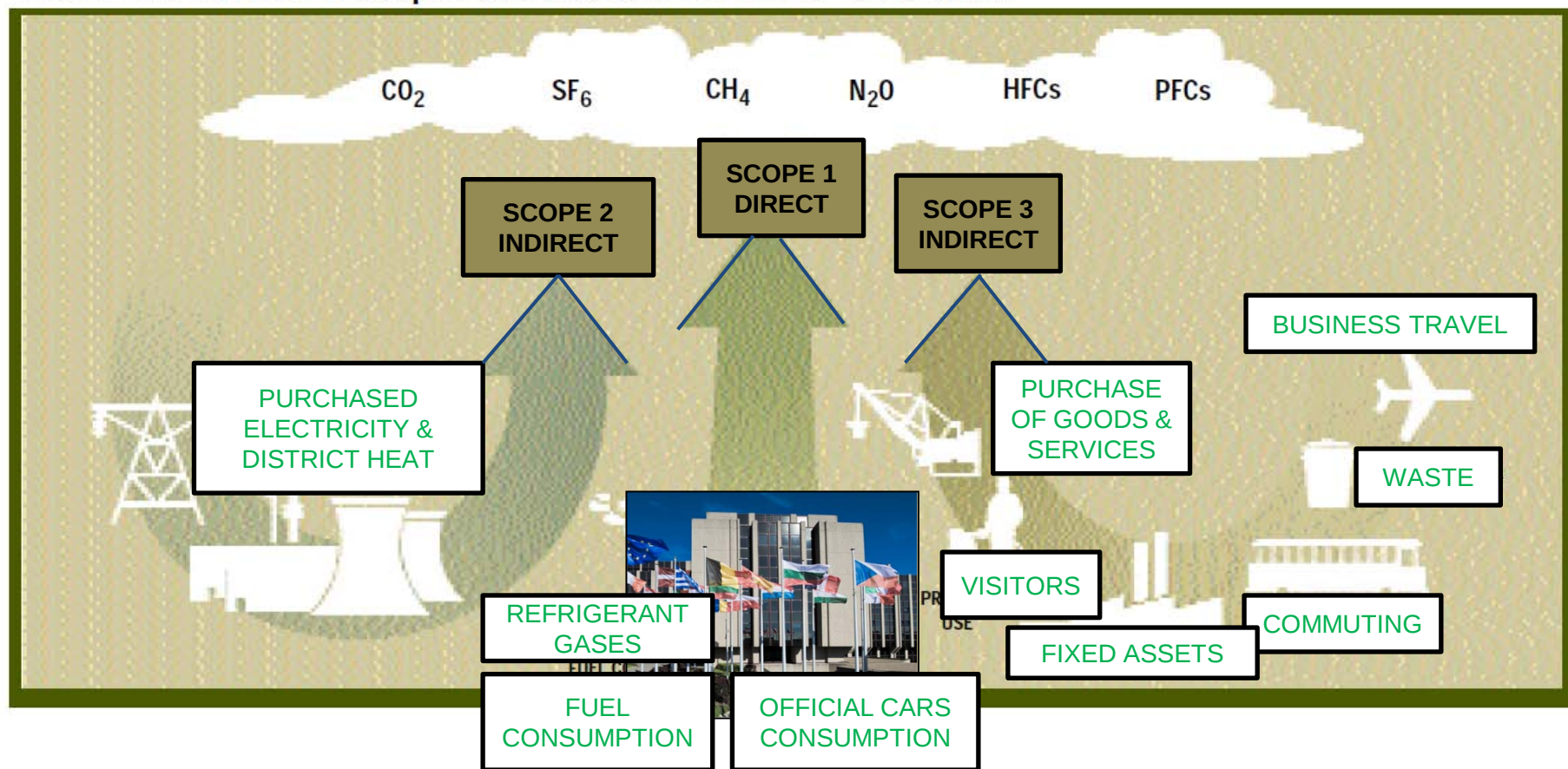


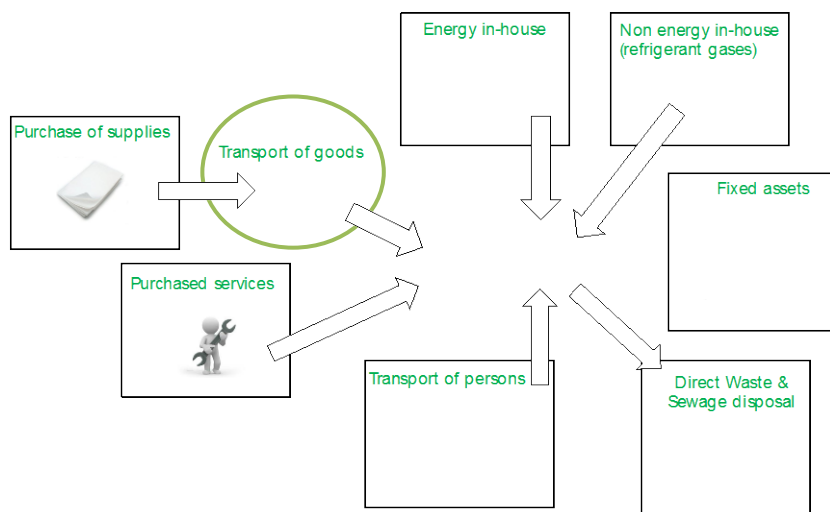
FIGURE 3. Overview of scopes and emissions across a value chain



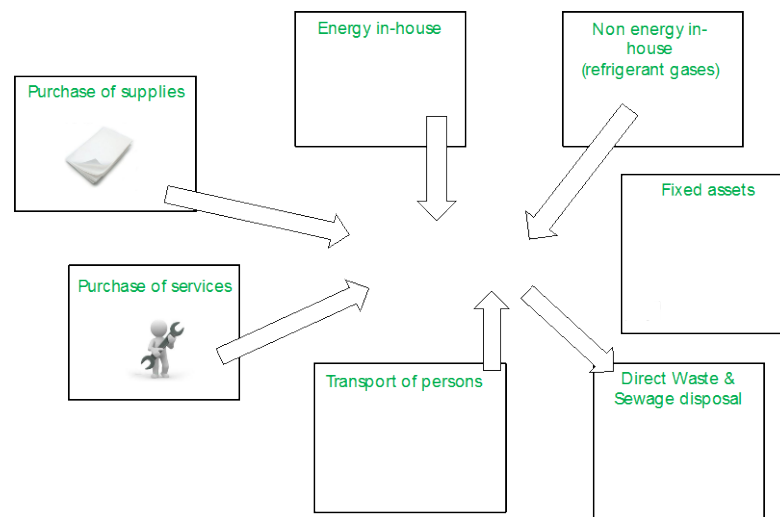
Adopted from NZBCSD, 2002

SCOPE VARIATION BETWEEN 2014 & 2015

SCOPE in 2014



SCOPE in 2015



For 2014, GHG emissions related to goods transportation between ECA suppliers and its offices (i.e. the last link in the chain) were estimated.

However, this calculation does not take into account all the GHG emissions produced by goods transportation all along the product value chain. Freight emissions were therefore underestimated.

- ⇒ This is the reason why goods transportation emissions were not **included in the scope for 2015**.
- ⇒ To be able to **compare the results between 2014 and 2015**, freight emissions were also removed from 2014 carbon footprint.

GHG emissions are estimated on the basis of a multiplication between activity data and emission factor :



$$\text{GHG emissions} = Q \times EF$$



QUANTITY (Activity data)

- kWh (energy consumption)
- Travelled km by car/plane/train/...
- Number of served meals
- Kg of purchased paper



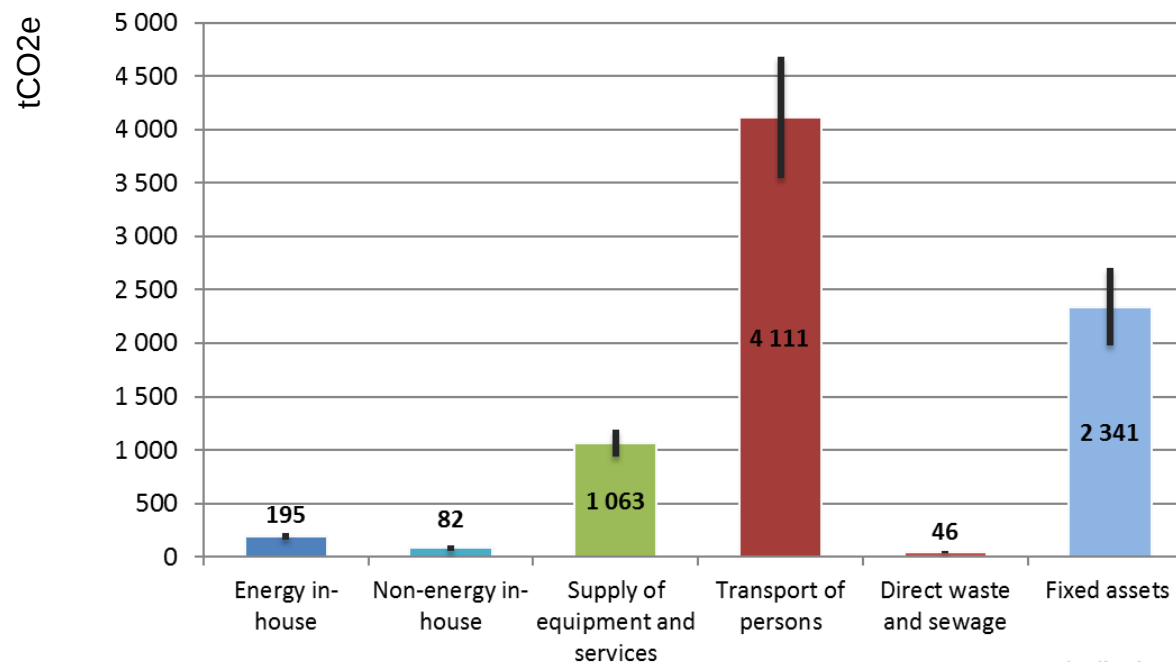
EMISSION FACTOR

- 1 kWh (hydraulic electricity*) = 0.004 kg CO₂e.
- 1 km by car, suburbs = 0.325 kgCO₂e.
- 1 classic meal (with beef) = 4.51 kg CO₂e.
- 1 kg of recycled paper = 0.47kg CO₂e

* Luxembourg Energy Office (LEO) provides electricity from hydroelectric plants in Norway to ECA.

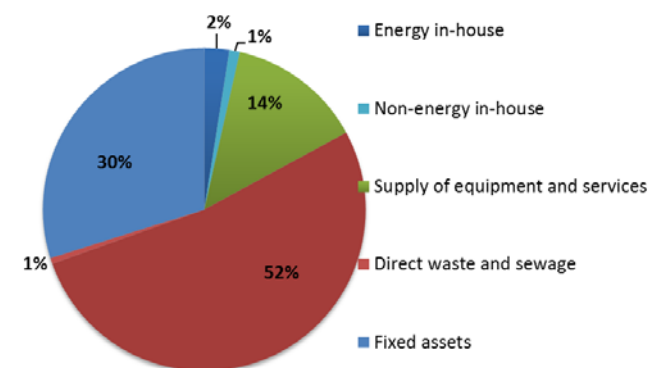


2015 GLOBAL RESULTS



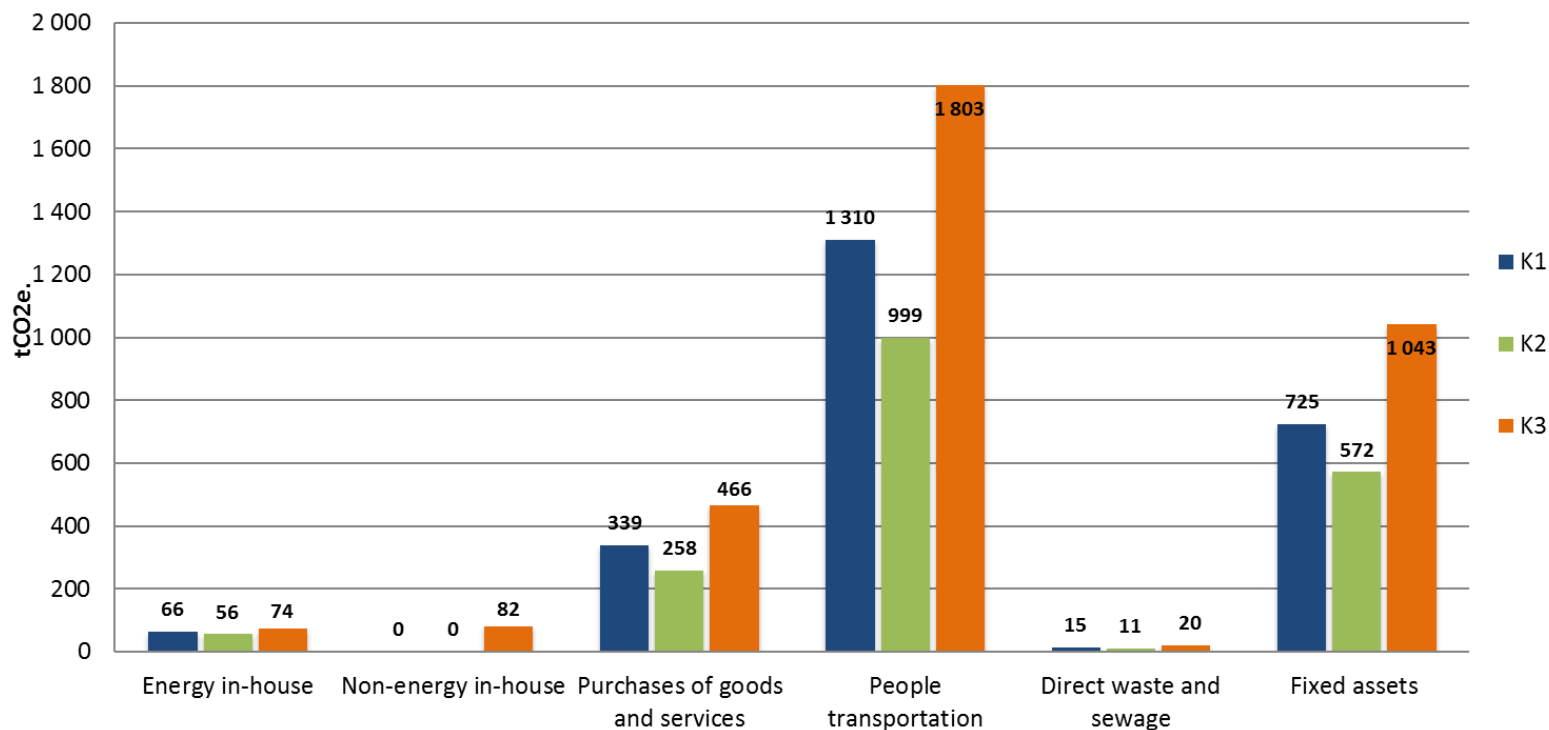
Emission sources	tCO2e	% of the 2015 CF	Uncertainties (in tCO2eq.)	Uncertainties (%)
Energy in-house	195	2%	30	16%
Non-energy in-house	82	1%	25	30%
Supply of equipment and services	1 063	14%	127	12%
Transport of persons	4 111	52%	567	14%
Direct waste and sewage	46	1%	13	27%
Fixed assets	2 341	30%	363	15%
TOTAL Carbon footprint	7 838	100%	686	8.75%

Distribution of emission sources

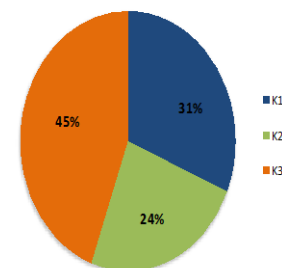


2015 GLOBAL RESULTS PER BUILDING

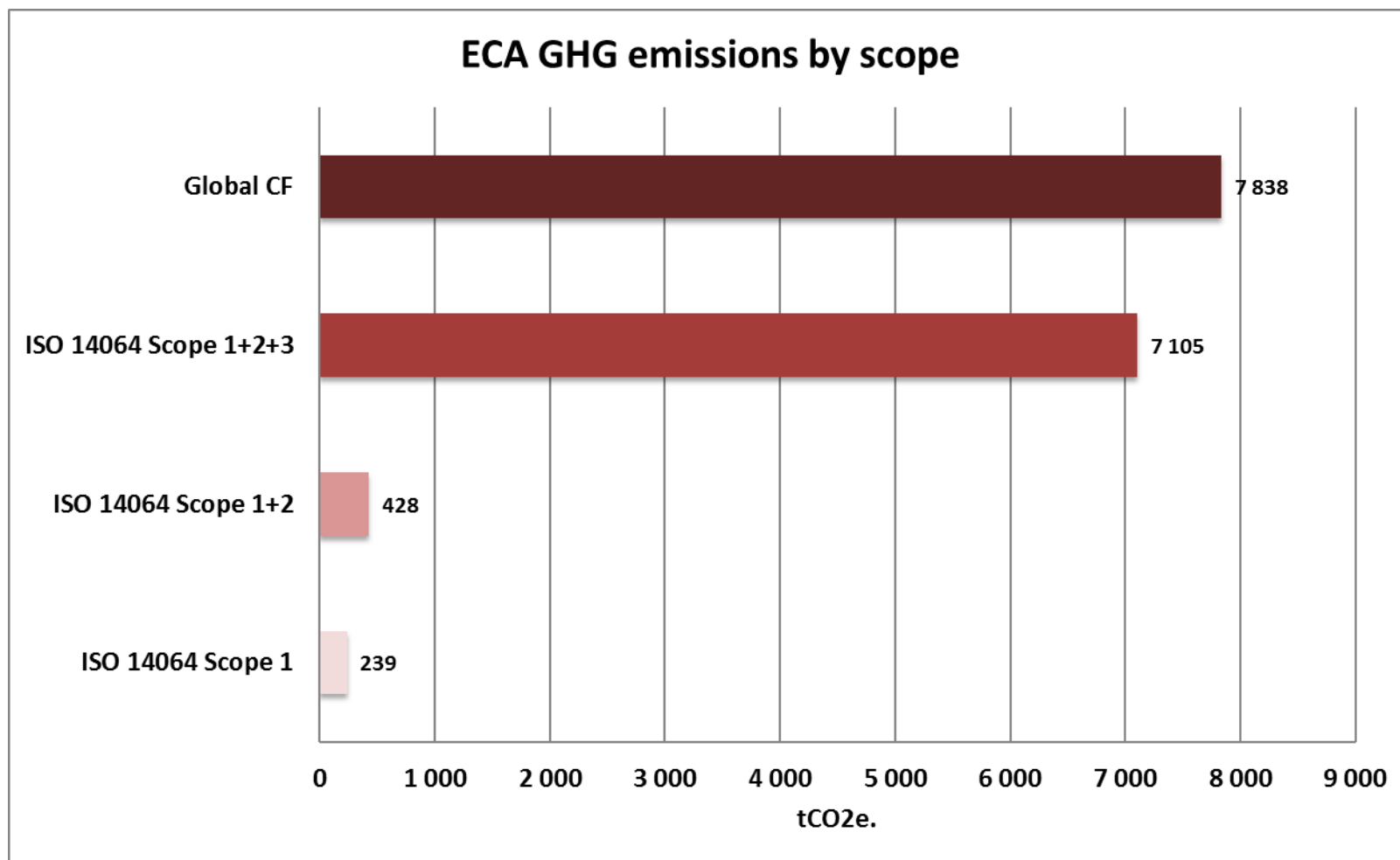
GHG emissions per building and emission sources



Distribution of GHG by building



2015 RESULTS ACCORDING TO ISO 14064 SCOPE



* *Global Carbon Footprint* also includes emissions from GHG not covered by Kyoto Protocol such as water vapor contrails from aircraft



EMISSION SOURCES

Heat consumption
Electricity
Fuel for power generator

K1



Heat consumption
Electricity
Fuel for power generator

K2



Heat consumption
Electricity
Fuel for power generator

K3



METHODOLOGY & DATA & ASSUMPTIONS

DATA & ASSUMPTION

Electricity consumption

- Data provided : 2015 consumption for K1, K2, K3 for each building separately

Electricity inline losses : Consuming electricity at low voltage (i.e. 220 volts) means that, for every 1 kWh which "passes" your meter, your electricity manufacturer must inject 1.1 kWh into the electricity network, as 10% of the total is lost en route by thermal dissipation (by Joule effect).

⇒ The rate considered in the Bilan Carbone® method is 8%.

Fuel consumption (for electricity generator)

- Data provided : Global purchased volume from Invoice
K1/K2/K3 Tanks, maximum capacity
- Breakdown per building based on proportion of K1/K2/K3 tanks maximal capacity

Heat consumption

- Data provided : 2015 consumption for each building separately

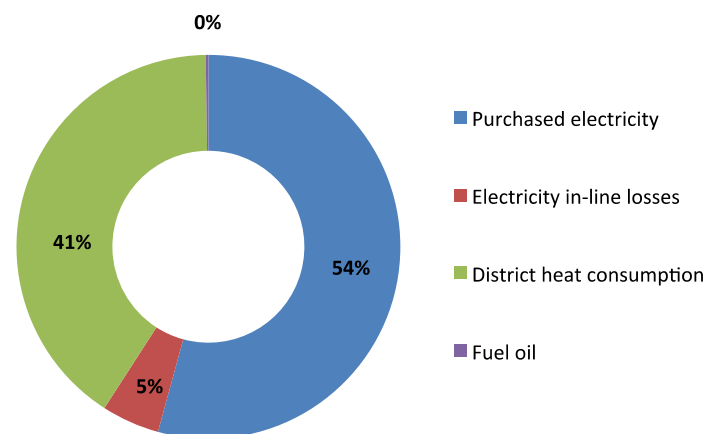
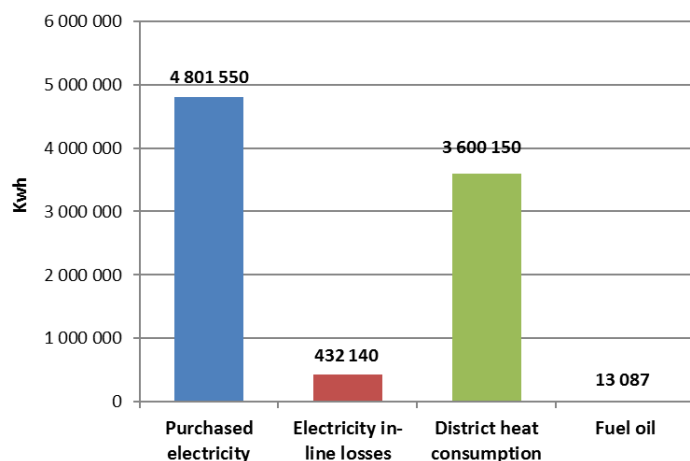
ENERGY

DATA

2015			2014		Trend
Type of energy	kWh	litres	kWh	litres	
Purchased electricity	4 801 550		5 024 031		↓
Electricity inline losses	432 140		452 163		↓
District heat consumption	3 600 150		3 762 880		↓
Fuel oil		1 314		952	↑
TOTAL	8 833 840		9 239 074		↓

Between 2014 and 2015, ECA reduced its energy consumption

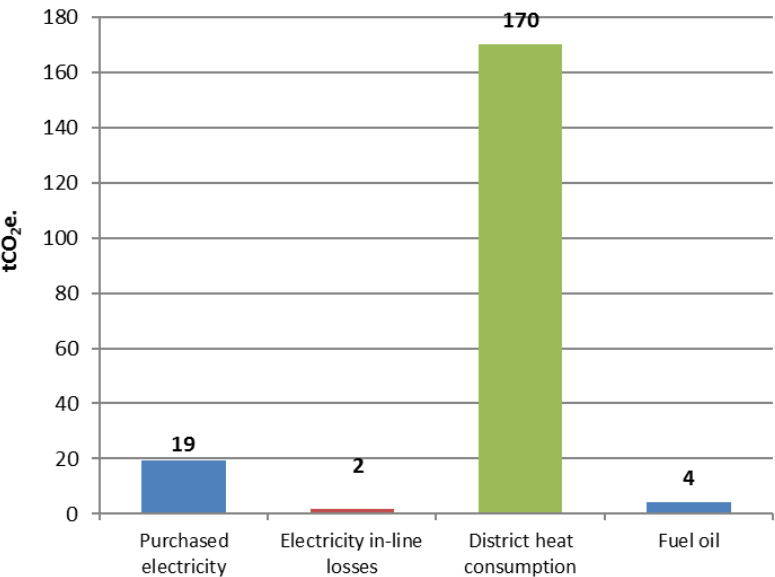
Distribution of energy consumption - 2015



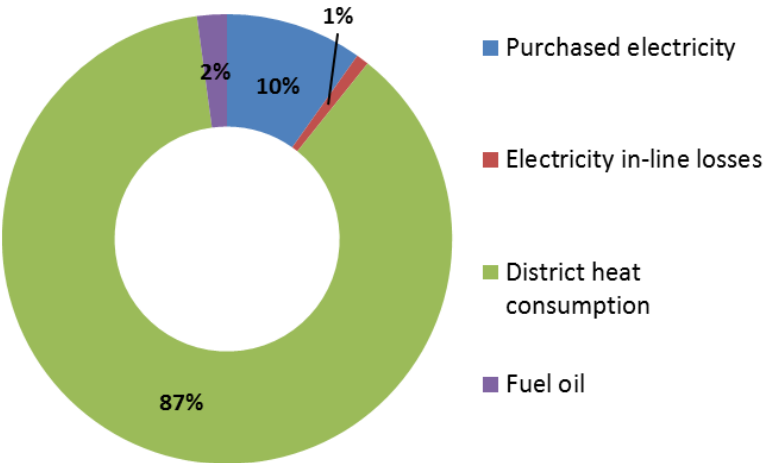
2015 RESULTS

Type of energy	tCO2eq.	kWh
Purchased electricity	19	4 801 550
Electricity inline losses	2	432 140
District heat consumption	170	3 600 150
Fuel oil	4	13 087
TOTAL	195	8 846 927

GHG emissions per type of energy

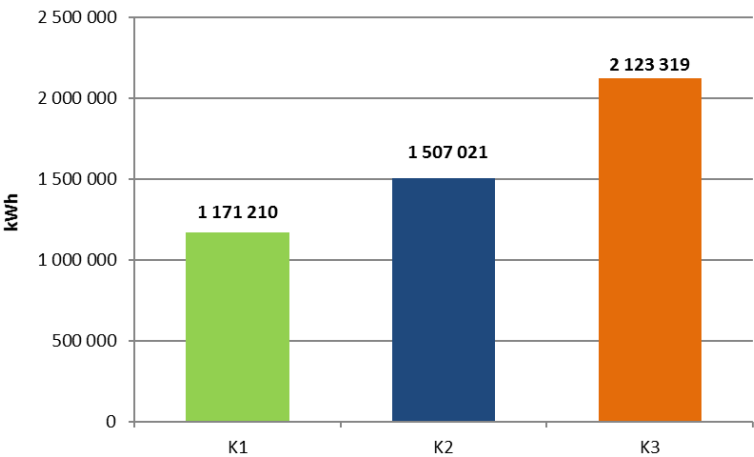


Distribution of energy-related GHG emissions

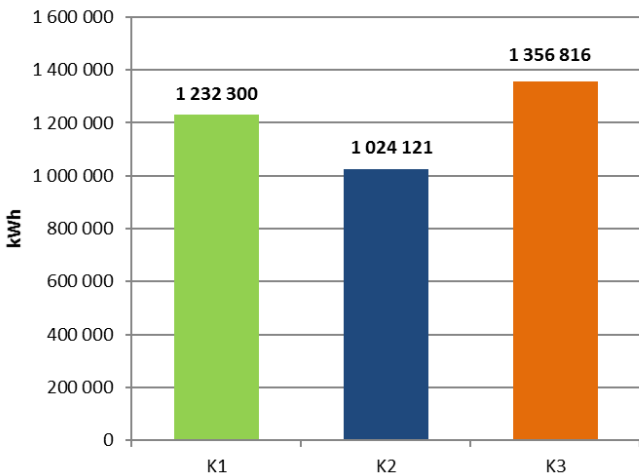


DATA & RESULTS PER BUILDING - 2015

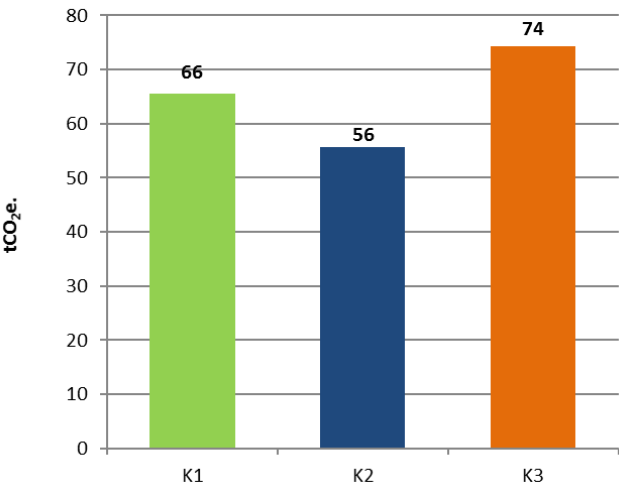
Electrical Energy per building



Heating Energy per building



Energy-related GHG emissions per building



EMISSION SOURCES

Cooling installations



Cooling installations



Cooling
Air conditioning
Kitchen refrigeration



RESULTS

Types of cooling fluid	Leak (in kg) 2015	tCO2e 2015
R134a	53	82
R407C	0	0
R404a	0	0
TOTAL	53	82

GHG emissions by building	tCO2e 2015	tCO2e 2014	Trend
Building K1	0	21	↘
Building K2	0	17	↘
Building K3	82	163	↘
TOTAL	82	201	↘

⇒ The variation in the GHG emission for this category is due to more precise data collection, allowing more accurate methodology

EMISSION SOURCES

Purchase of supplies

Services provided by third parties

K1



K2



K3



METHODOLOGY & DATA & ASSUMPTIONS

PAPER

ECA Journal published / Leaflets / Reports

- Data provided: number of pages
- Assumption: all these documents are printed two-sided

Printed pages

- Data provided: number of pages
- Assumption : 75% of pages are printed two-sided
- Assumption : % of recycled paper used = 97%

FOOD

Distribution of meals by type

- Organic meals: 15.10% (ratio calculated from the quantity of organic products purchased compared to the total quantity of products purchased)

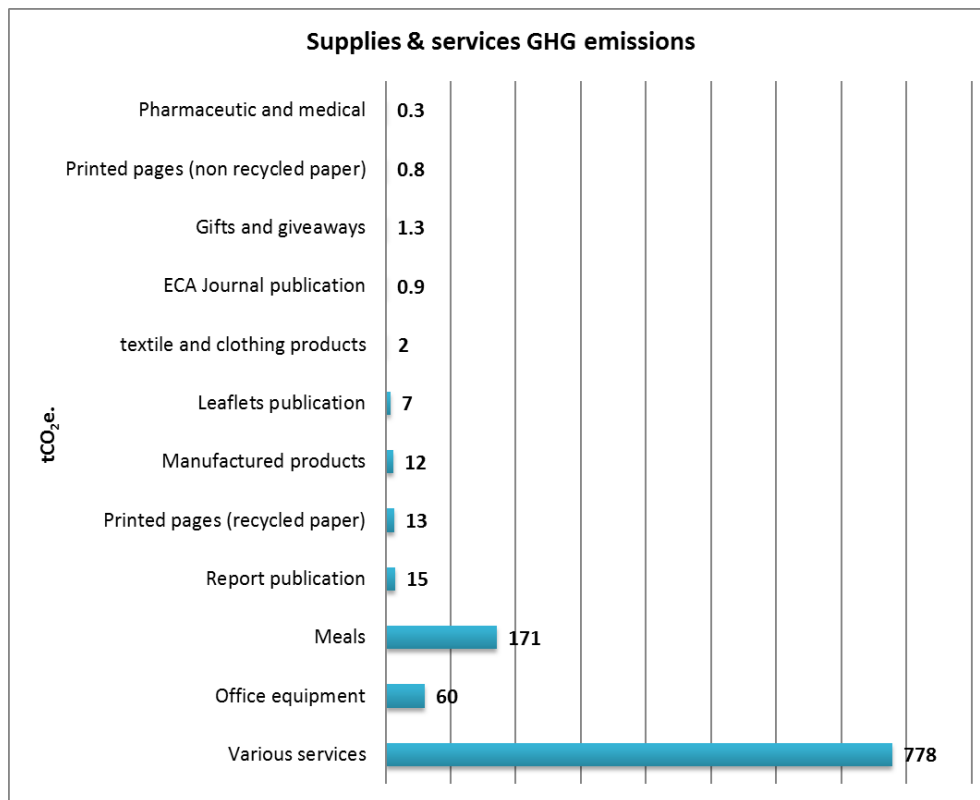
Assumptions:

- Typical meals with chicken: 22%
- Typical meals with beef: 22%
- Typical meals with pork: 22%
- Fish meals: 15.77%
- Vegetarian meals: 3.13 %

SUPPLIES & SERVICES

DATA & RESULTS
2015

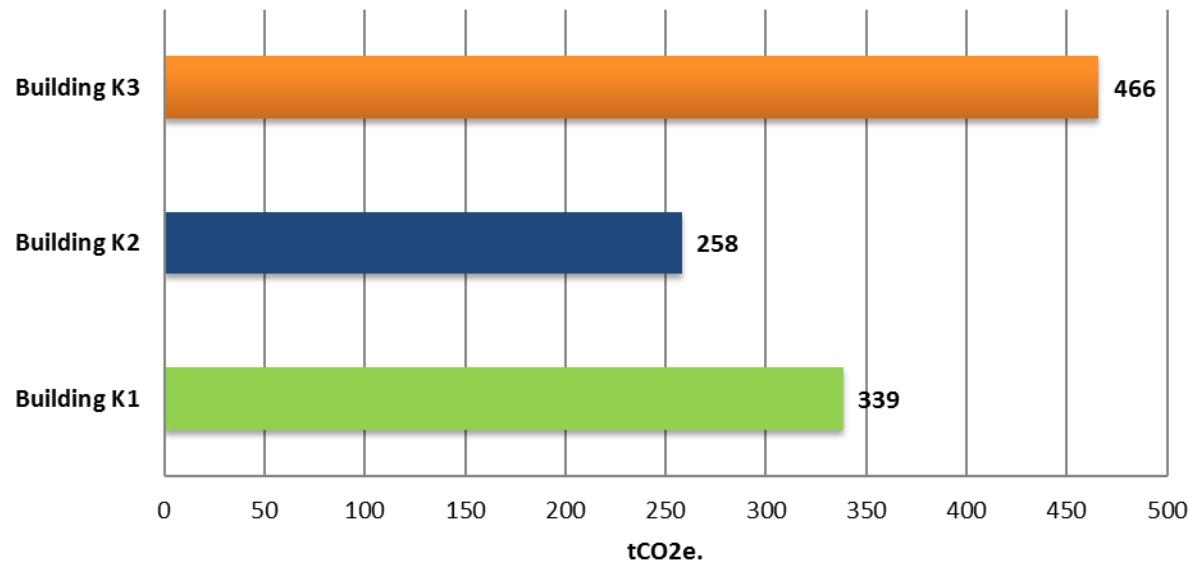
Type of purchases	Quantity	k€ spent	tCO2e
Pharmaceutical and medical		0.4	0.3
Printed pages (non recycled paper)	0.9 tonnes		0.8
Gifts and giveaways	0.8 tonnes		1.3
ECA Journal publication	1.0 tonnes		0.9
Textile and clothing products		4	2
Leaflets publication	7.9 tonnes		7
Manufactured products		21	12
Printed pages (recycled paper)	27.7 tonnes		13
Report publication	16.4 tonnes		15
Meals	70 888 units		171
Office equipment		69	60
Various services		6 261	778
TOTAL	70 888 units	6 355	1 063
	54.6 tonnes		



RESULTS PER BUILDING 2015

Buildings	tCO2e	Occupants
Building K1	339	324
Building K2	258	247
Building K3	466	446
TOTAL	1 063	1 017

**Purchased goods & services-related GHG emissions allocated
by building**



TRENDS TOTAL ANNUAL PAPER CONSUMPTION

Type of purchases	2015		2014	
Printed pages (non recycled paper)	0.9	tonnes	1.0	tonnes
ECA Journal publication	1.0	tonnes	1.1	tonnes
Leaflet publication	7.9	tonnes	7.9	tonnes
Printed pages (recycled paper)	27.7	tonnes	32.3	tonnes
Report publication	16.4	tonnes	16.5	tonnes
TOTAL	53.8	tonnes	58.9	tonnes

TRENDS

Type of purchases	tCO2e 2015	tCO2e 2014	Trend
Pharmaceutical and medical	0.3	-	☐
Printed pages (non recycled paper)	0.8	0.9	↓
Gifts and giveaways	1.3	11	↓
ECA Journal publication	0.9	1	↓
Textile and clothing products	2	-	-
Leaflet publication	7	7	→
Fabricated products	12	-	-
Printed pages (recycled paper) *	13	15	↓
Report publication	15	15	→
Meals	171	169	↗☐
Consumables	-	65	
Office equipment	69	260	↓
Various services	778	843	↓
TOTAL	1 063	1 387	↓

The carbon impact of many types of purchase decreased between 2014 and 2015:

- Gifts and giveaways
- ECA journal publication
- Printed pages (recycled and non-recycled paper)
- The amount for various services

→ The carbon impact of various services has decreased mainly because of a data improvement of IT services. Computer and IT services have been analyzed in detail to keep only relevant data and avoid double counting with assets.

TRANSPORT OF PERSONS

EMISSION SOURCES

Commuting between home and work

Transport related to missions

Transport for visitors' groups

Allocation rule

⇒ Based on numbers of occupants per building

Transport related
to official cars

K1



K2



K3



METHODOLOGY & DATA & ASSUMPTIONS

METHODOLOGY

Official cars

- Based on official car fuel (Diesel) consumption

Business travel

- Based on travelled kilometres from business travel statistics

Commuting

- Based on travelled kilometres estimated from a 2015 mobility survey

Visitors travel

- Based on travelled kilometres from visitors' origin 2015 statistics

DATA & ASSUMPTIONS

Official cars

Data provided:

- 2015 Fuel consumption = 60 973 l
- Travelled km = 785 980 km
 - mean consumption = 7.8 l/100 km
 - Average distance travelled by official car = 24 562 km
- **Official mission** = 751 376 km
- **Commuting** by official cars = 785 980 - 751 376 = 34 604 km

DATA & ASSUMPTIONS

Commuting of occupants

Data provided:

- **2015 Survey :**
 - 506 participants
 - 1 017 occupants
 - 93% Rate of part time work (taking into account part-time work, flextime and homeworking)

Assumptions:

- 200 working days
- 2 persons per car when carpooling

Transportation mean	2015 Total round trip	
	km	
Official car	34 604	0%
Car	5 045 464	71%
Carpooling	353 499	5%
Train	529 636	8%
Bus	1 079 937	15%
Motorbike	18 309	0%
Bicycle	73 619	1%
Foot	94 033	1%
	7 061 449	100%

DATA & ASSUMPTIONS

Transport of visitors' groups

Data provided:

- **Number of visitors by country of origin in 2015**

- 2 726 visitors
- 108 Visits

Assumptions:

- **Mode of transport**

- *Short haul aircraft:*
 - AT / BG / CY / DK / EE / ES / FI / HR / HU / IT / LT / MT / PL / PT / RO / SE / SL / SV / UK
 - Albania / Azerbaijan / Belarus / Bosnia / FYROM / Kosovo / Moldova / Montenegro / Serbia / Switzerland / Turkey / Ukraine
- *Long haul aircraft:* BRAZIL / CAP VERDE / GEORGIA / INDIA / KAZAKHSTAN / KOREA REP. / NICARAGUA / NIGERIA / RUSSIA / SINGAPORE / SOUTH AFRICA / USA
- *Car:* BE / LU
- *Bus:* CZ / DE / NL
- *Train:* FR

TRANSPORT OF PERSONS

DATA & ASSUMPTIONS

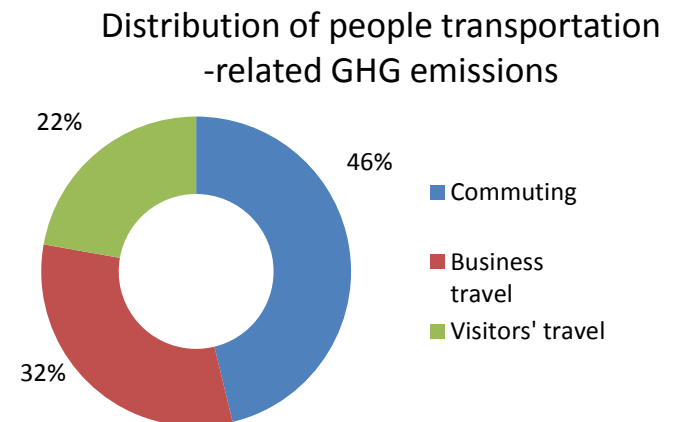
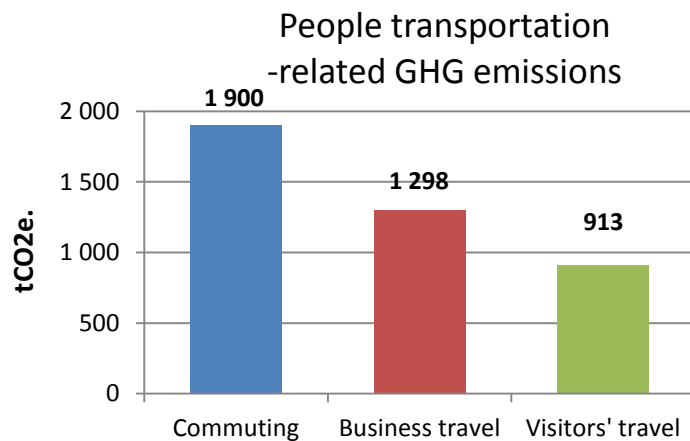
Business travel

Transport means	Travelled distance in km 2015	%
Official cars	751 376	14 %
Rented cars	98 481	2 %
Private cars	330 944	8 %
Plane	4 456 326	72 %
Boat	198	0 %
Train	646 189	2 %
Other	106 039	1 %
TOTAL	6 383 343	100 %

TRANSPORT OF PERSONS

RESULTS

Type of transportation	tCO ₂ e 2015	tCO ₂ e 2014	Trend
Commuting	1 900	1 973	↘
Business travel	1 298	1 291	↗
Visitors' travel	913	823	↗
TOTAL	4 111	4 087	↗



TRANSPORT OF PERSONS

BUSINESS TRAVEL RESULTS 2015

Transport means	Travelled distance in km	tCO2e
Official cars	751 376	185
Rented cars	98 481	32
Private cars	330 944	108
Plane	4 456 326	932
Boat	198	0
Train	646 189	26
Other	106 039	16
TOTAL	6 389 553	1 298

COMMUTING RESULTS 2015

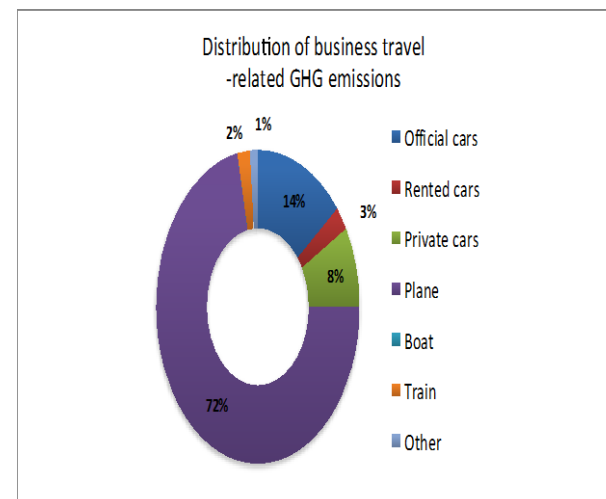
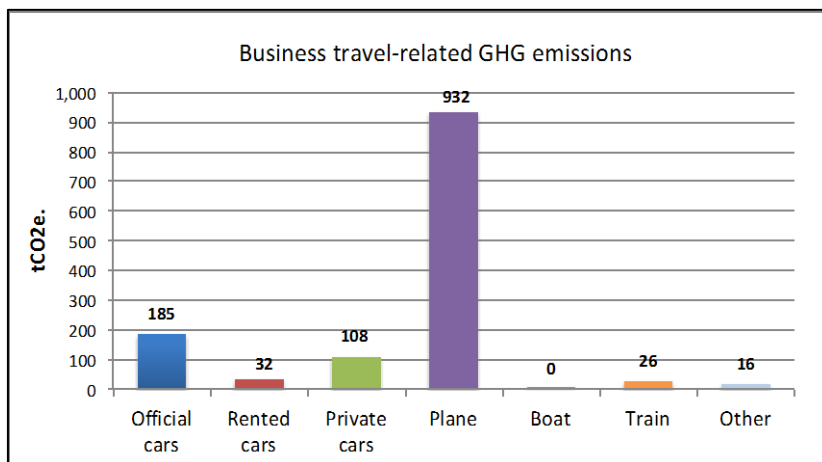
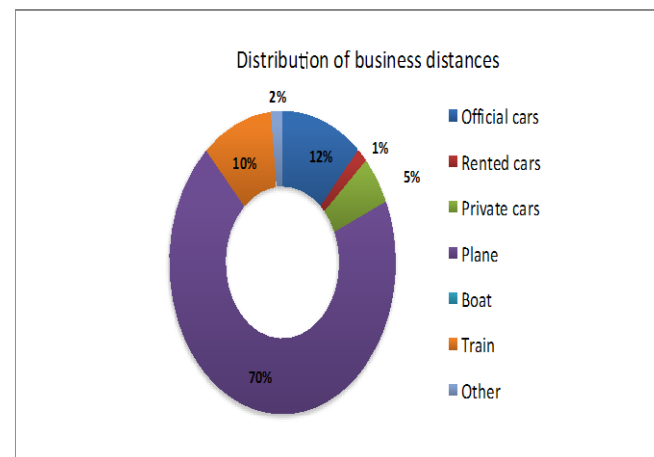
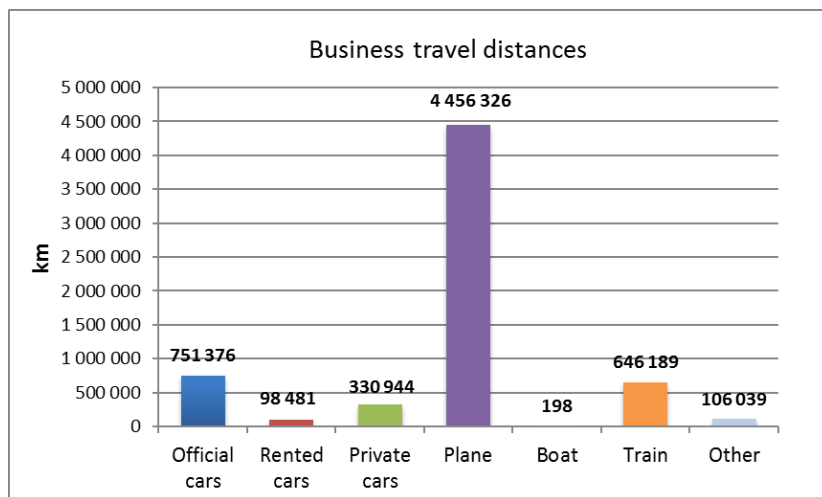
Transport means	Travelled distance	tCO2e
Official cars	34 604	9
Car - alone	5 045 464	1642
Carpooling	353 499	58
Train	529 636	21
Bus	1 079 937	166
Motorbike	18 309	4
Bicycle	73 619	0
Foot	94 033	0
TOTAL	7 061 449	1 900

VISITORS' TRAVEL RESULTS 2015

Transport means	Travelled km	tCO2e
Car	189 280	62
Bus	973 900	150
Short haul aircraft	1 551 950	325
Long haul aircraft	1 632 800	365
Train	305 500	12
TOTAL	4 653 430	913

RESULTS 2015

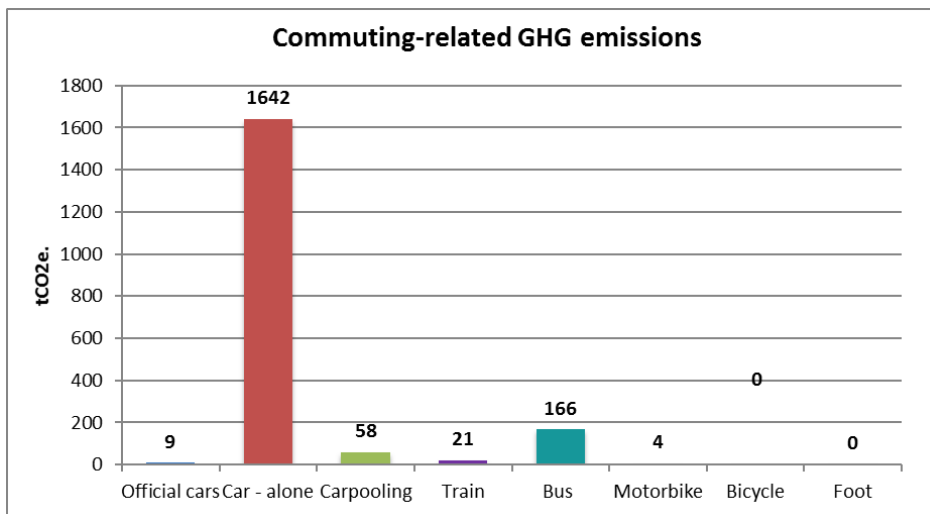
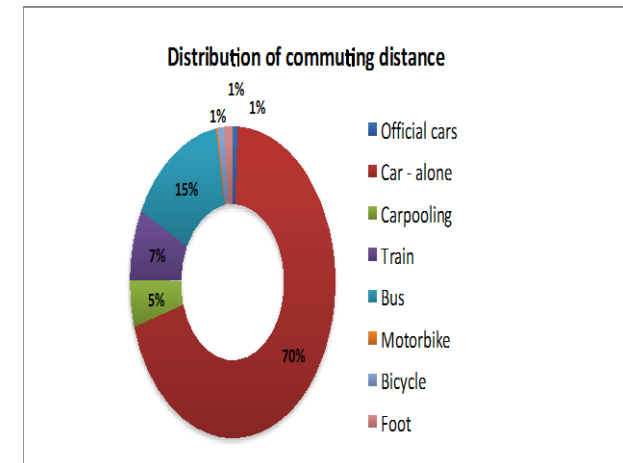
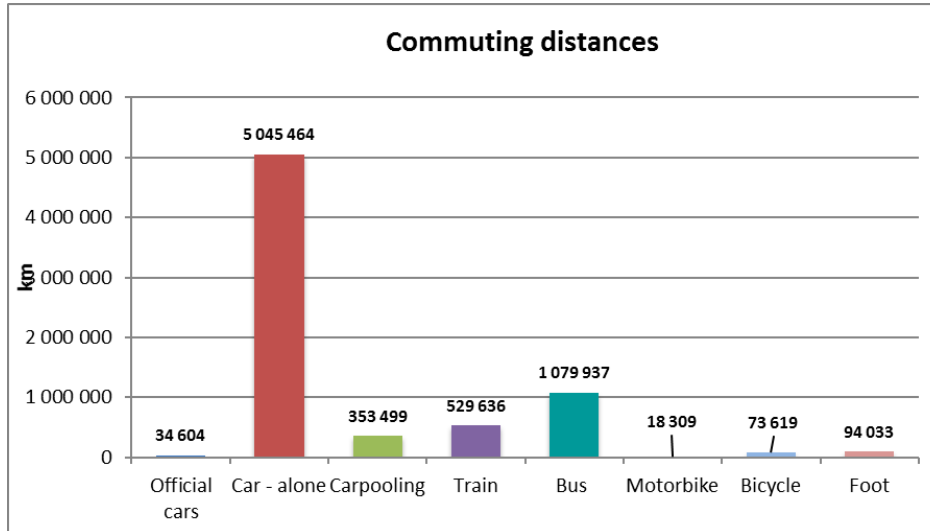
Business travel



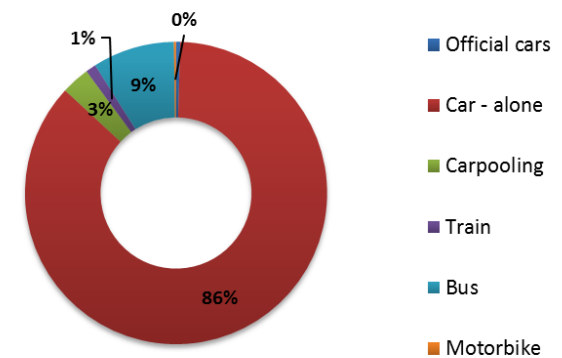
TRANSPORT OF PERSONS

RESULTS 2015

Commuting of occupants



Distribution of commuting-related GHG emissions

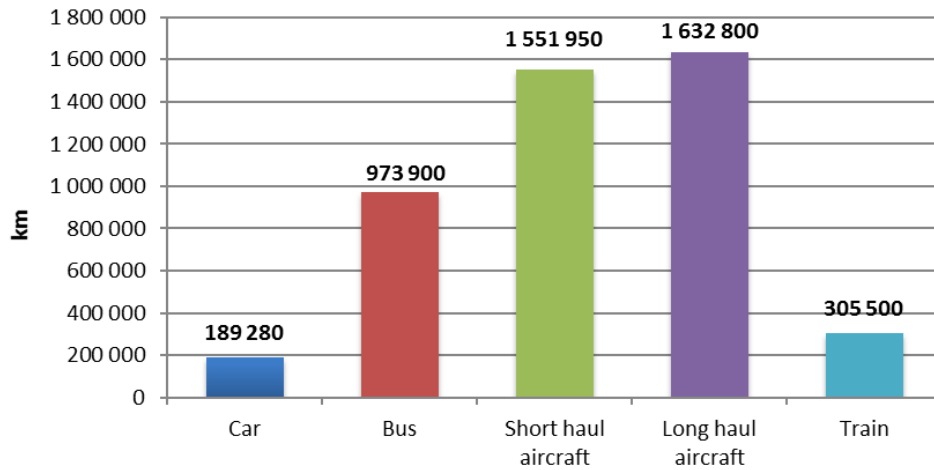


TRANSPORT OF PERSONS

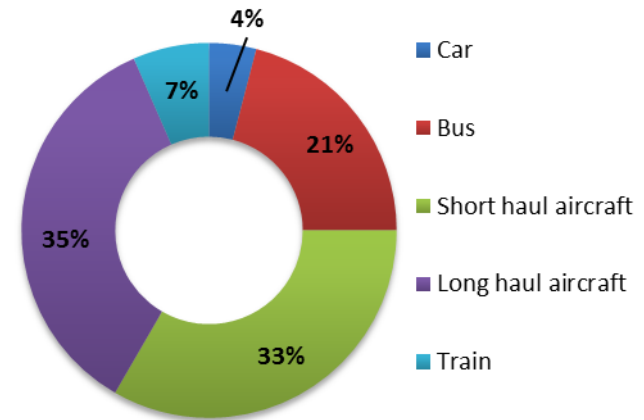
RESULTS 2015

Visitors travel

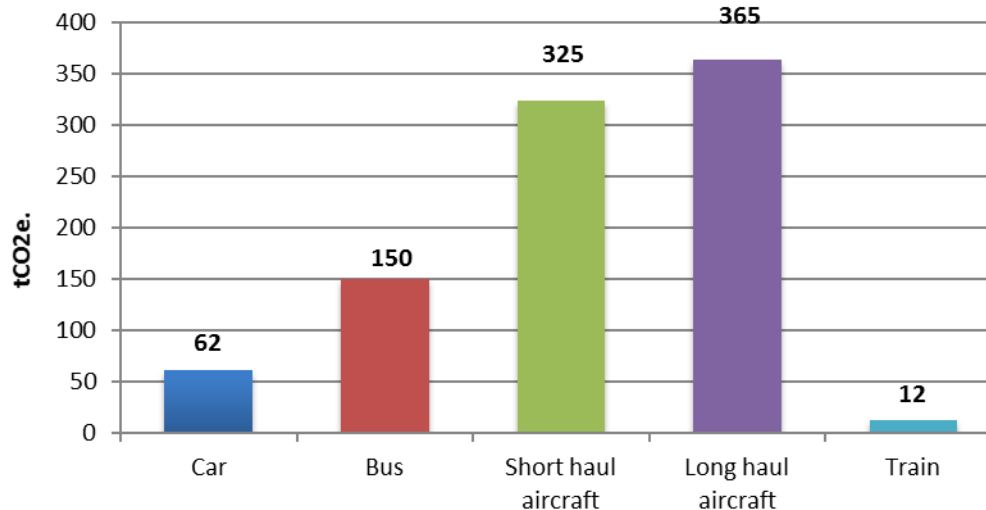
Visitors' travelled distances



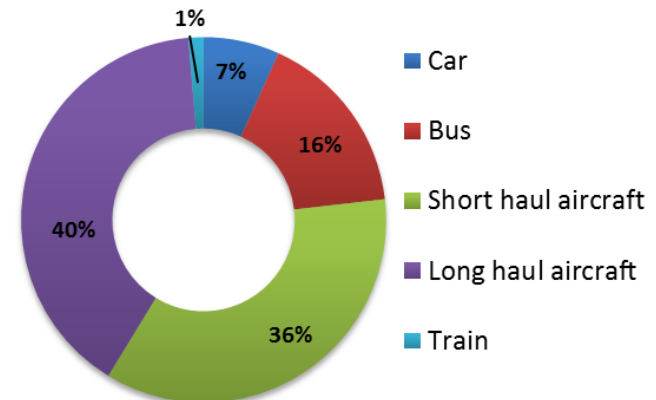
Distribution of visitors' travelled distances



Visitor-related GHG emissions



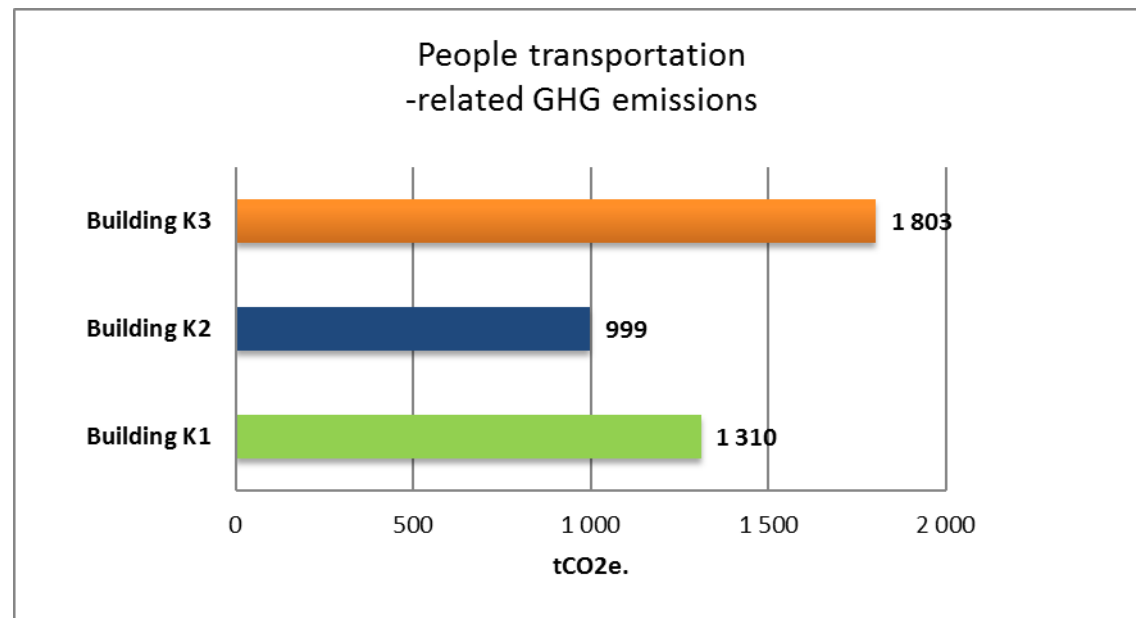
Distribution of visitor-related GHG emissions



TRANSPORT OF PERSONS

RESULTS PER BUILDING 2015

Buildings	Occupants	tCO2e
Building K1	324	1 310
Building K2	247	999
Building K3	446	1 803
TOTAL	1 017	4 111



EMISSION SOURCES

Waste production

Waste water

K1



K2



Waste water

K3



Allocation rule

⇒ Based on numbers of occupants per building

METHODOLOGY & DATA & ASSUMPTIONS

METHODOLOGY

Waste

- Based on quantity and type of treatment

Sewage disposal

- Based on water consumption

DATA

Waste

- Waste Data provided in tonnes or m³ for K1, K2, K3 buildings together
- Type of disposal known

Sewage disposal

- Water consumption data provided in m³ separately for K1 → 2 564 m³
- Aggregate data for buildings K2 and K3: 11 291 m³

→ Use of an allocation key: % of occupants per building

Building K2: 247 occupants – 36% → 4 024 m³

Building K3: 446 occupants – 64% → 7 267 m³

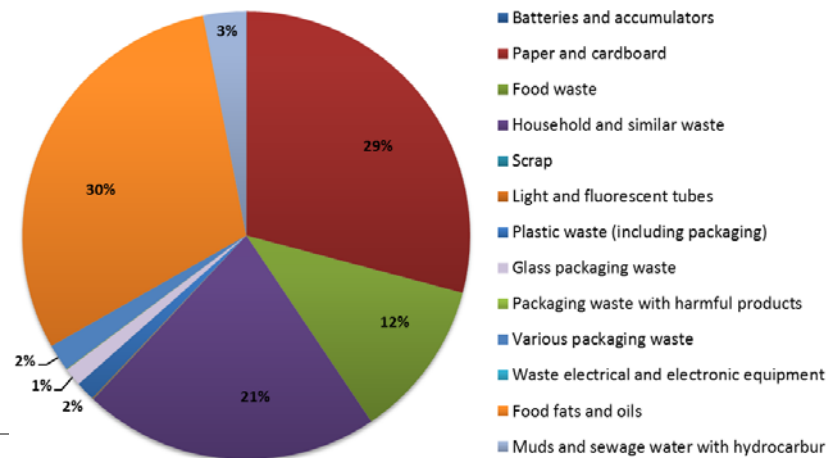
DATA & RESULTS Waste and Sewage disposal

Type of waste	tonnes	m ³	tCO2e 2015	tCO2e 2014	Trend
Batteries and accumulators	0.05		0.002	0.002	→
Paper and cardboard	52.9		1.75	2.2	↘
Food waste	20.8		0.99	0.86	↗
Domestic and similar waste	38.9		14.12	14.6	↘
Scrap	0.07		0.002	0.001	↗
Light and fluorescent tubes	0.13		0.02	0.02	→
Plastic waste (including packaging)	2.6		0.08	0.01	↗
Glass packaging waste	2.4		0.08	0.11	↘
Packaging waste with harmful products	0.09		0.07	0.07	→
Various packaging waste	3.6		0.12	0.14	↘
Waste electrical and electronic equipment	0		0	0.01	↘
Food fats and oils	54.8		19.9	12.8	↗
Muds and sewage water with hydrocarbons	5.6		5.4	-	↗
Waste water		13 855	3.6	3.5	↗
TOTAL	181.9	13 855	46	34	↗

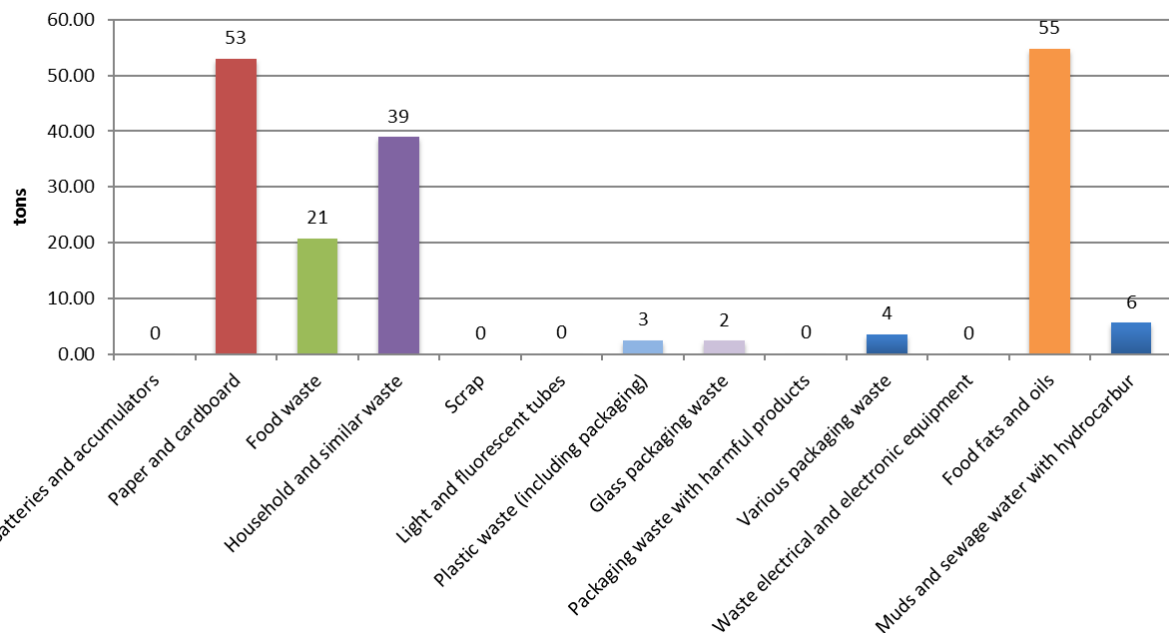
RESULTS 2015

Waste and Sewage disposal

Distribution of waste quantity

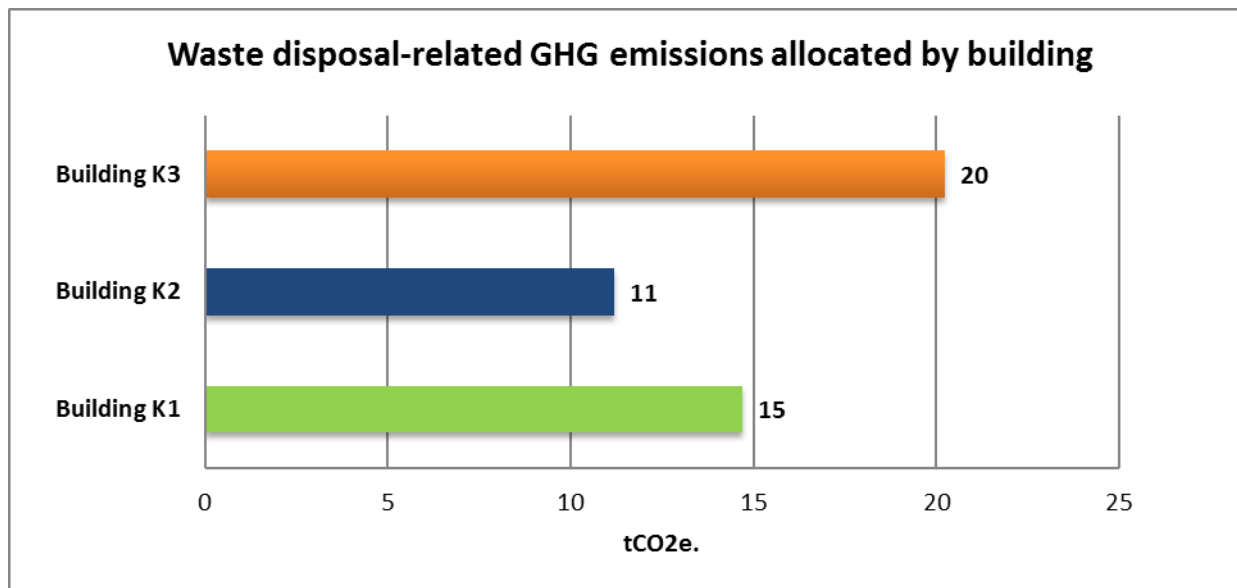


Waste quantity



RESULTS BY BUILDING 2015

Type of building	Occupants	tCO2e
Building K1	324	15
Building K2	247	11
Building K3	446	20
TOTAL	1.017	46



FIXED ASSETS

EMISSION SOURCES

- Building
- Car parks
- IT
- Vehicles
- Furniture
- Machinery
- Equipment

K1



- Building
- Car parks
- IT
- Furniture
- Equipment

K2



- Building
- Car parks
- IT
- Furniture
- Equipment

K3



METHODOLOGY & DATA & ASSUMPTIONS

METHODOLOGY

This category includes all upstream emissions from the production of capital goods purchased, built or acquired by the ECA.

In financial accounting, capital goods are treated as fixed assets or as plant, property, and equipment (PP&E). Examples of capital goods include equipment, machinery, buildings, facilities, and vehicles.

Capital goods are typically depreciated or amortized over the life of the asset as in financial accounting

IT

- Method based on number of IT devices

Vehicles/machines/kitchen assets

- Method based on number and weight of vehicles/machines/assets

Building and car parks

- Method based on surface area and type of building

Building assets

- Method based on the purchased (acquisition) value of assets

METHODOLOGY & DATA & ASSUMPTIONS

DATA & ASSUMPTIONS

IT

- 2015 IT inventory
- Depreciation period = **4 years**

Vehicles

- All vehicles allocated to K1 building (including the official cars)
- Depreciation period = **4 years** (except technical vehicles - 6 years)

Kitchen assets

- 2015 K1 assets / 2015 K2 assets / 2015 K3 assets
- Depreciation period = **8 years**
- Assumption : Weight of each item has been estimated when not declared

Building assets

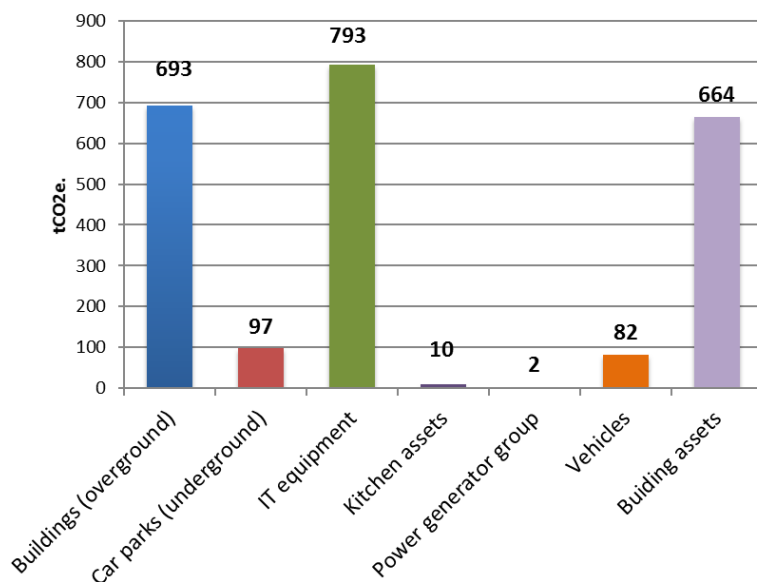
- Based on the purchased (acquisition) value of assets
- K1 assets / K2 assets / K3 assets
- Depreciation period = **8 years**
- To avoid overlapping with kitchen assets, rows related to kitchen items have been removed from K3 assets

FIXED ASSETS

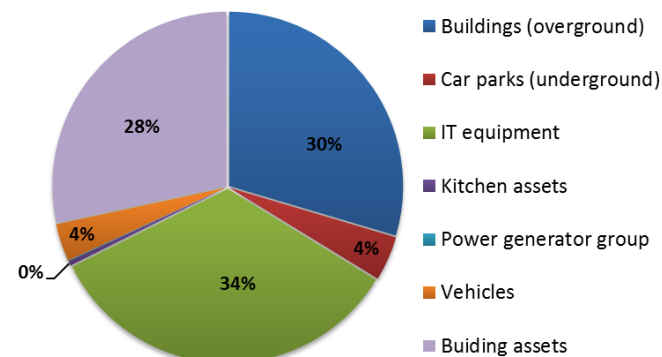
RESULTS

Type of assets	tCO2e 2015	tCO2e 2014	Trend
Buildings (overground)	693	702	↓
Car parks (underground)	97	94	↑ □
IT equipment	793	782	↑ □
Kitchen assets	10	11	↓ □
Power generator	2	2	→
Vehicles	82	85	↓
Building assets	664	670	↓
TOTAL	2 341	2 345	↓

Fixed assets-related GHG emissions



Distribution of fixed assets-related GHG emissions

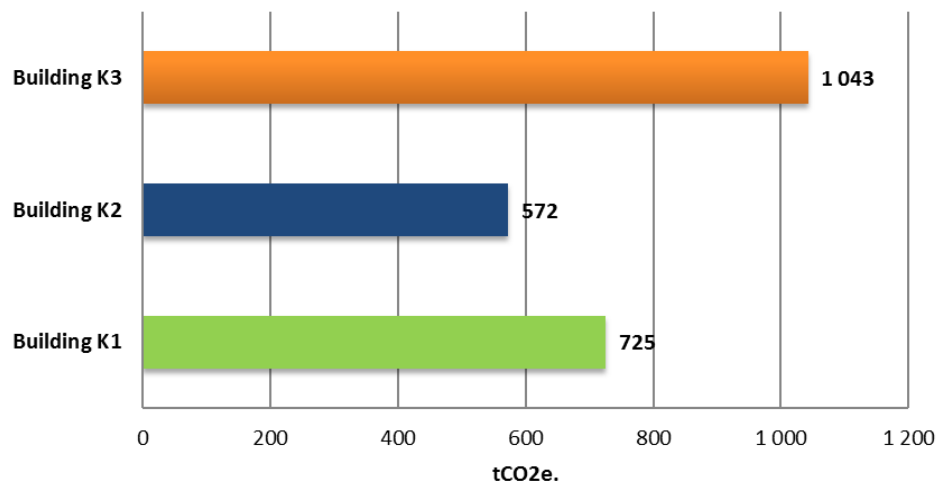


FIXED ASSETS

RESULTS BY BUILDING 2015

Type of buildings and car parks	tCO2e	Surface area in m2	Occupants
Building K1	725	26 550	324
Building K2	572	21 500	247
Building K3	1 043	34 000	446
TOTAL	2 341	82 050	1 017

Fixed assets-related GHG emissions allocated by building



COMPARISON OF CARBON FOOTPRINT RESULTS BETWEEN 2014 AND 2015



The second calculation of the carbon footprint enabled us to improve data collection and analysis, especially regarding:

- Non-energy process
- Goods transportation
- IT purchases

To be able to compare the CF results between 2014 and 2015 at a constant scope, the 2014 CF has been adapted:

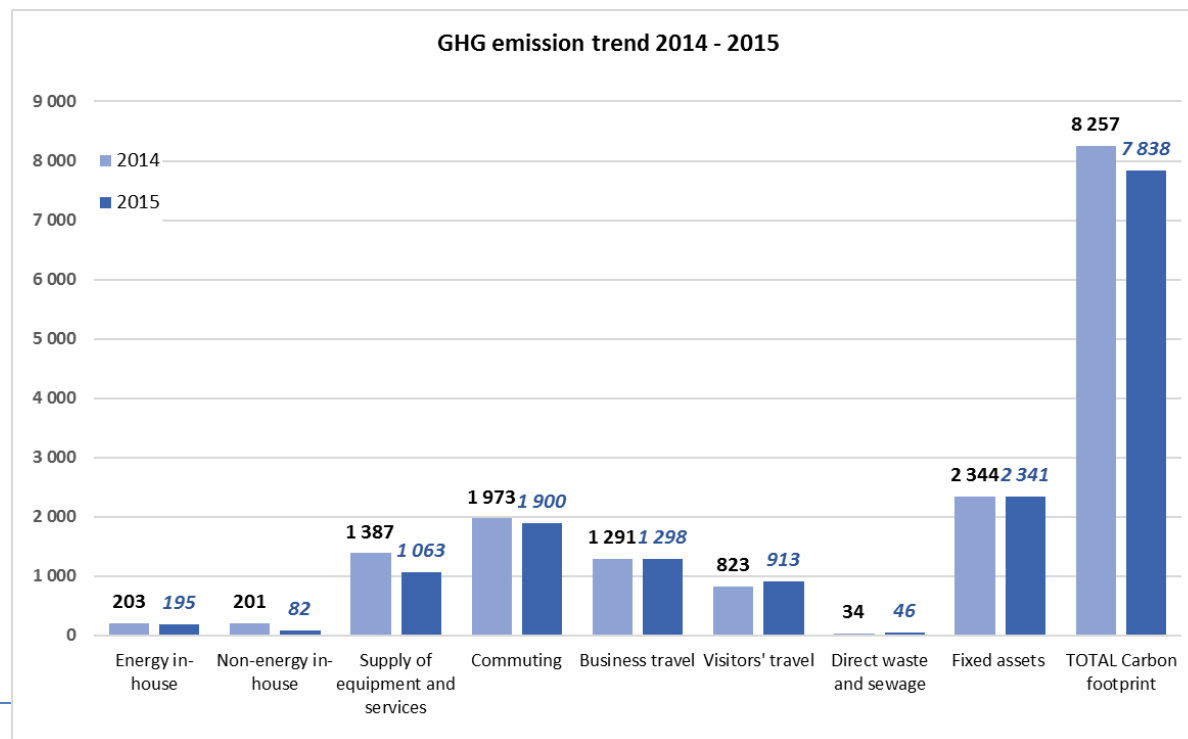
- The impact of goods transportation has been removed
- Due to more precise data, new methodology has been taken into account for non-energy process
- More precise data have been taken into account for IT purchases
- Fuel oil consumption has been updated to take into better consideration purchased oil volume from the invoice
- Water consumption has been updated to take into consideration the three-year adjustment invoice

2014/2015 GHG EMISSIONS TRENDS

GHG EMISSIONS (tCO ₂ e.)	2014	2015	Δ2015/2014	Causes
Energy in-house	203	195	-4%	- Less Energy consumption
Non-energy in-house	201	82	-59%	- More accurate methodology
Supply of equipment and services	1 387	1 063	-23%	- Data improvement for IT purchases
Commuting	1 973	1 900	-4%	- More teleworking and flexitime
Business travel	1 291	1 298	1%	
Visitors' travel	823	913	11%	- More visitors and visits
Direct waste and sewage	34	46	34%	- Higher amount of food fats and oils
Fixed assets	2 344	2 341	-0.1%	
TOTAL	8 257	7 838	- 5.1%	

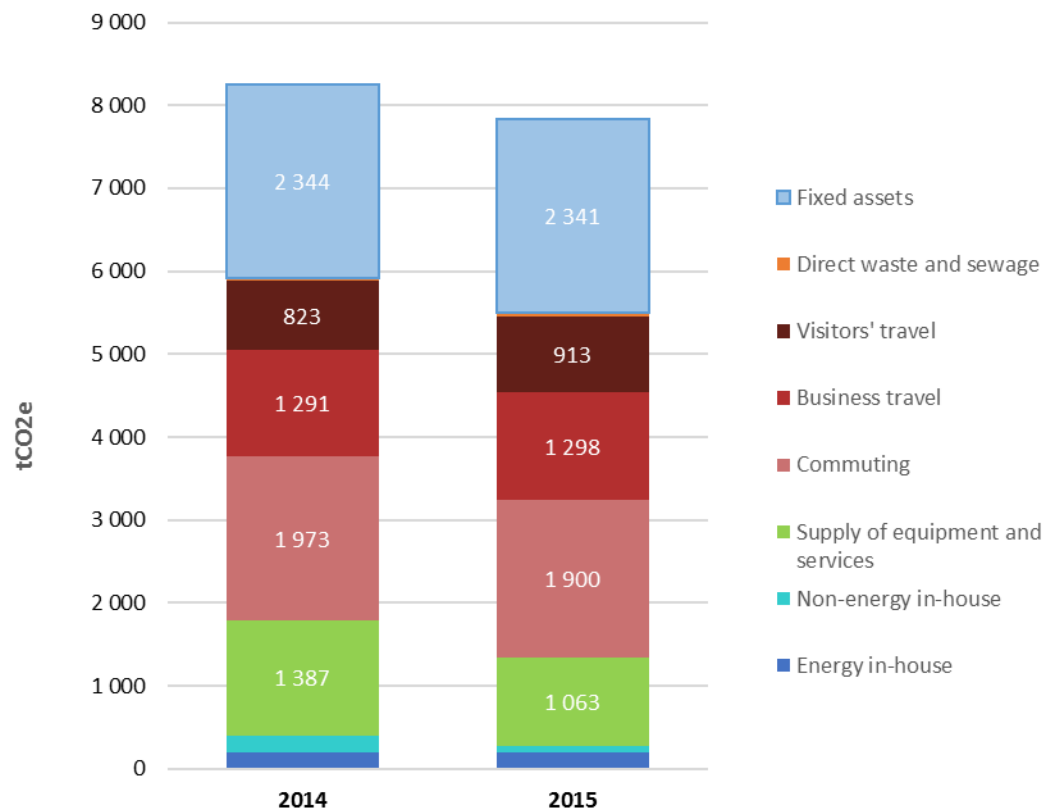
	2014	2015
Global uncertainties	8.3%	8.8%
Lower limit	7 572	7 152
Higher limit	8 943	8 525

With regard to uncertainty levels, the observed shift (-5.1%) is NOT significant



2014/2015 GHG EMISSIONS TRENDS

ECA's Carbon footprint trends



Energy : less electricity and heat consumption

Non energy : Decrease due to a better methodology based on more accurate data

Supply of equipment, goods and services :

- Fewer purchases of gifts and giveaways
- Less printing (ECA journal publication, printed pages)
- Fewer purchases of various services

Transport of persons:

- Commuting : Slightly lower because of more teleworking and flexitime in 2015
- Business travel: Similar activities
- Visitor travel: Higher in 2015 (+90 tCO₂e)
 - More activities : +2 726 visitors + 109 visits
 - More accurate data (previous "EU" labelled visitors have been split by country)

Waste:

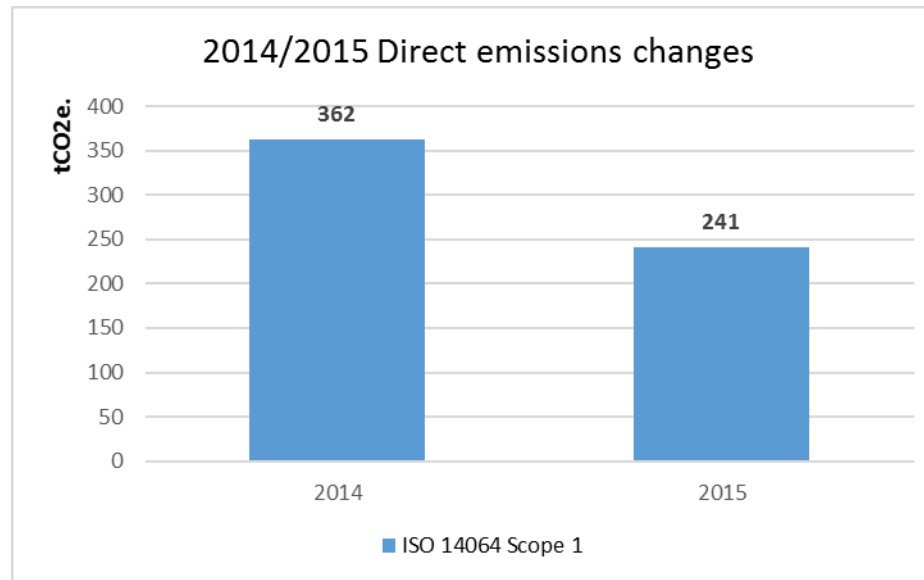
- Higher quantity of food fats and oils

Fixed assets

Similar activities

2014/2015 DIRECT EMISSIONS TRENDS

GHG EMISSIONS (tCO ₂ e.)	2014	2015	Δ 2015/2014
ISO 14064 Scope 1	362	241	- 33%



Non energy : Decrease due to a better methodology, based on more accurate data

2014/2015 SPECIFIC DEMANDS

TRENDS TOTAL ANNUAL PAPER CONSUMPTION

Total annual paper consumption	2015		2014	
Printed pages (non recycled paper)	0.9	tonnes	1.0	tonnes
ECA Journal publication	1.0	tonnes	1.1	tonnes
Leaflets publication	7.9	tonnes	7.9	tonnes
Printed pages (recycled paper)	27.7	tonnes	32.3	tonnes
Reports publication	16.4	tonnes	16.5	tonnes
TOTAL	53.8	tonnes	58.9	tonnes

TRENDS CAR FLEET (MISSION & COMMUTING) GHG EMISSIONS (IN TCO2E.)

Car fleet	2015		2014		2015		2014	
Missions	751 376	km	745 166	km	185	tCO2e.	179	tCO2e.
Commuting	34 604	km	59 536	km	9	tCO2e.	14	tCO2e.
TOTAL	785 980	km	804 702	km	194	tCO2e.	193	tCO2e.