EUROPEAN COMMISSION

Environmental Management System

EMAS
VERIFIED ENVIRONMENTAL MANAGEMENT
BE-BXL-000003

Environmental Statement

2019 results

Annex A: Brussels

Draft for verification

For further information on environmental performance in Brussels please contact:

Functional mailbox: OIB RE3 EMAS;

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Foreword

The mission of OIB is to ensure a functional, safe and comfortable workplace for Commission staff and to provide good quality support and well-being services, based on a client-oriented approach in an environmentally friendly and cost-effective way. This mission statement translates into concrete actions by the OIB, which are consistent with the Commission objective to reduce the environmental impact of its everyday activities. The OIB, as manager of the Commission's headquarters in Brussels, plays a fundamental role in the implementation of this policy.

In this annex to the Environmental Statement, dedicated specifically to the Commission's environmental performance in Brussels, we highlight the main achievements of 2019, such as the reduction in energy consumption, CO_2 emissions, office paper consumption, as well as further improvements in waste sorting.

The Commission does not only foresee short and long term improvements in the real estate portfolio in Brussels, but will also continue the efforts in energy saving measures, further reduction of single use plastics and better waste sorting facilities. The success of these actions relies heavily on the awareness and the participation of each Commission staff member.

In a future of environmental challenges, such as the Green Deal and a new legal framework, the EC services and in particular OIB will continue to invest in the improvement of the Commission's environmental performance, contributing this way to a more sustainable European Union.

Signed
Marc Becquet

Director
Office of Infrastructures in Brussels (OIB)

ANNEX A: BRUSSELS

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ANNEX A: BRUSSELS – ADMINISTRATIVE ACTIVITIES

Brussels is the largest site in the European Commission real estate portfolio hosting the headquarters of the Commission, including its flagship building the Berlaymont. The Office for Infrastructures and Logistics in Brussels (OIB) has the mission of ensuring a functional, safe and comfortable workplace for more than 27 000 staff members, spread across over 1 000 000 m² of mostly office space.

A1 Overview of core indicators at Brussels since 2005

OIB has been collecting data on core indicators for the Brussels site since 2005. Their values in 2005 and from 2014 to 2019 are shown in Table A1, along with performance trend, and targets where applicable for 2020.

Table A1: Historical data, performance and targets for core indicators for Commission level reporting

Physical indicators: (Number, desciption and unit)	Historic data values 2005 (1)	2014	2017	2018	2019	Performance trend (%) since: 2005	2014	2017	2018	Target 2020* Δ % (2,3)	value (2, 3)
1a) Energy bldgs (MWh/p)	19,06	**6,95**	7,20	7,16	6,59	**-65,4**	**-5,1**	**-8,4**	**-7,9**	-5,0	6,600
1a) Energy bldgs (KWh/m^2)	373	**166**	174	176	170	**-54,5**	2,3	-2,7	-3,9	-5,0	158
1c) Non ren. energy use (bldgs) %		**41,2**	44,0	43,3	43,3		**5,2**	-1,5	0,1	0,0	41,2
1d) Water (m^3/p)	28,44	**12,57**	11,98	11,91	12,00	**-57,8**	-4,5	0,2	0,7	-8,0	11,56
1d) Water (L/m^2)	556	**300**	290	294	308	**-44,5**	2,9	**6,4**	**5,1**	-4,0	288
1e) Office paper (Tonnes/p)	0,081	**0,033**	0,024	0,024	0,022	**-73,2**	**-33,1**	**-7,7**	**-8,0**	-35,0	0,021
1e) Office paper (Sheets/p/day)	77	**33**	24	24	22	**-71,4**	**-33,1**	**-7,7**	**-8,0**	-35,0	21
2a) CO_2 buildings (Tonnes/p)	4,77	**0,71**	0,70	0,69	0,64	**-86,5**	**-8,9**	**-8,6**	**-6,4**	-5,0	0,671
2b) CO_2 buildings (kg/m^2)	93	**17**	17	17	17	**-82,2**	-1,8	-2,9	-2,3	-5,0	16,0
2c) CO_2 vehicles (g/km, manu.)	249	**148**	118	116	119	**-52,2**	**-19,6**	0,8	2,3	-25,0	111
2c) CO_2 vehicles (g/km, actual)		**213**	205	227	236		**10,8**	**15,1**	4,0	-5,0	202
3a) Non haz. waste (Tonnes/p)	0,300	**0,222**	0,208	0,188	0,186	**-38,0**	**-16,2**	**-10,6**	-1,1	-10,0	0,200
3c) Separated waste (%)	53,9	**59,2**	59,0	57,4	58,4	8,3	**-1,3**	**-1,0**	**1,6**	5,2	62,2
Economic indicators (Eur/p)											
Energy consumption (bldgs)	1 168	**515**	428	428	394	**-66,2**	**-23,4**	**-7,8**	**-7,9**	-5,0	489
Water consumption		**46,7**	45,1	44,9	45,2		-3,3	0,2	0,7	0,0	46,7
Non haz. waste disposal			33,9	30,6	30,3			**-10,6**	-1,1	-2,0	35,5

Note: (1) Earliest reported data, for a reduced scope of buildings (2) compared to 2014; (3) EMAS Annual Action Plan 2019
* Target for %improvement for the period 2014-2020, reviewed in 2018
(upwards for indicators already met, while keeping the ones not yet achieved- decision EMAS Steering Committee Sept/2018)

Since EMAS registration in 2005 consumption for all parameters has reduced considerably. Per capita figures in 2019 show improved environmental performance since 2018 for every parameter except water consumption. Vehicles CO_2 emissions per km have also increased. Energy consumption a show significant decrease (of 7.9 %, 3.9% respectively) measured per person and per square metre in relation to 2018, due to the inclusion in the scope of two new buildings (MERO and MO15), accounting for an addition in floor space of 24 688 m². CO_2 emissions in buildings follow the same trend, showing a 6.4% decrease measured per capita and 2.3% measured per m² when compared with 2018 figures. Water consumption has increased by 0.7% and 5.1%, per capita and per m², due to technical incidents recorded in three buildings. Non-hazardous waste production per capita decreased by 1.1% compared to the previous year and the ratio of separated waste improved further by 1.6%. Office paper consumption per person dropped an extra 8.0%.

Overall progress towards the targets set for 2020 is quite positive is most areas – these having already been met for energy and water (measured per person) and office paper consumption and for non hazardous waste generation, while for vehicle fleet CO_2 emissions the target has almost been achieved as well. Buildings energy consumption and, as a consequence, associated CO_2 emissions, reflect relatively harsh weather conditions compared to 2014 (reference year), which was quite mild. The evolution of the EMAS system in Brussels is as shown below:

Table A2: EMAS baseline parameters

	2005	2014	2015	2016	2017	2018	2019
Population: staff in EMAS perimeter	4 033	25 667	25 698	26 562	25 757	25 689	27 440
Population: total staff	21 203	27 392	27 089	26 927	26 834	26 929	27 866
No. buildings for EMAS registration	8	62	62	62	62	58	60
Total no. operational buildings		62	62	64	64	61	61
Useful surface area in EMAS perimeter, (m^2)	206 166	1 075 372	1 067 270	1 069 482	1 063 935	1 042 037	1 067 075
Useful surface area for all buildings, (m^2)		1 075 372	1 069 673	1 082 033	1 090 075	1 069 020	1 069 020

Surface measured according to Brussels EBP specifications

Staff in the EMAS perimeter includes those working for Executive Agencies that are located in buildings managed by the Commission and within the EMAS scope[1]. EMAS applies to the whole of the Brussels site. From year to year however, there may be changes in the total number of buildings as the portfolio of occupied buildings evolves. Only one building is not registered under EMAS in 2019, PALM, which will undergo major refurbishment, while MERO and MO15, recently occupied by the Commission in Brussels, have been added to the scope.

A2 Description of Brussels activities[2], context and key stakeholders

A2.1 Activities

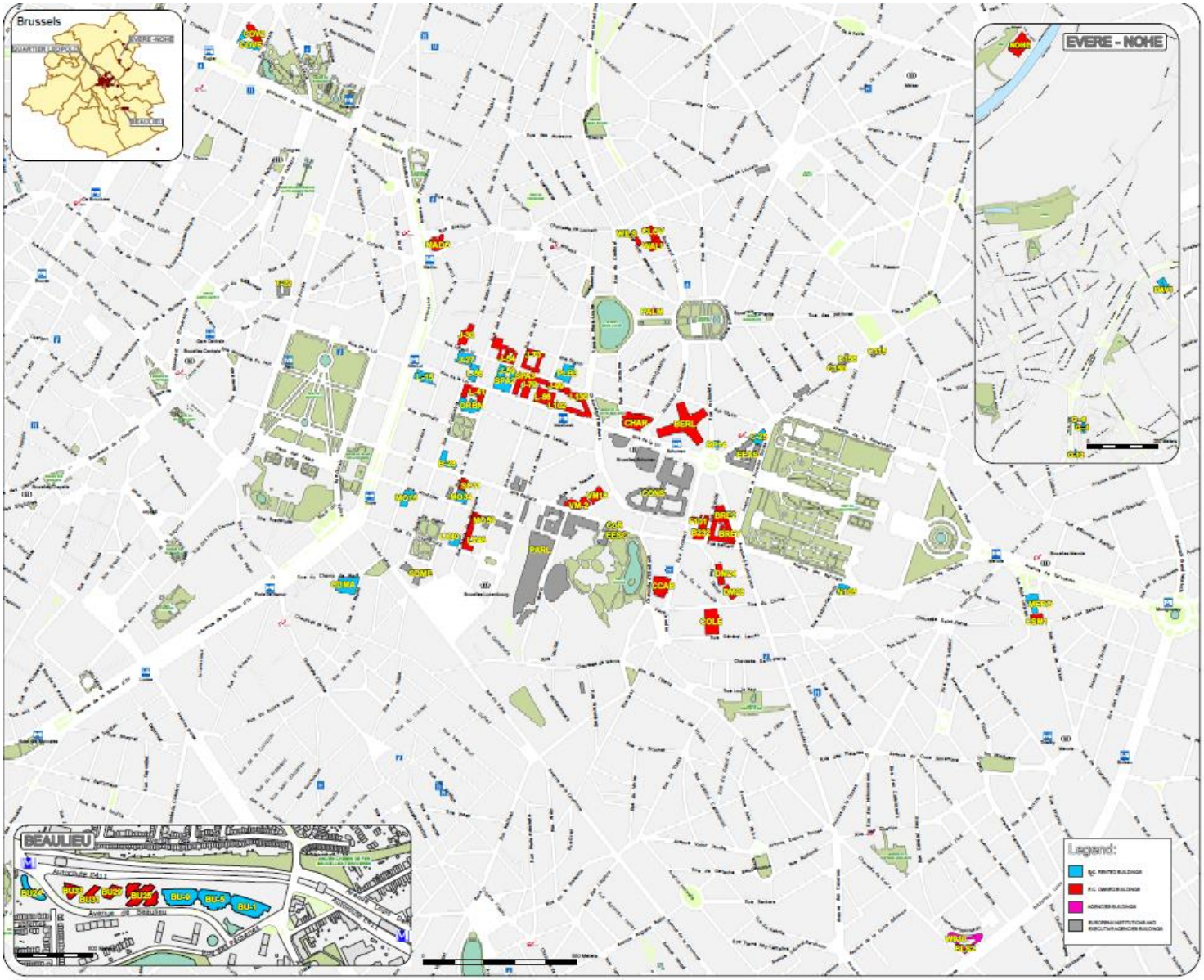
Most of the Commission's activities in Brussels are classic administrative tasks. Other services, include 22 cafeterias, 13 canteens, restaurants, archives, print shops, a car fleet, a medical service, crèches and after school day care centres. The distribution of buildings is shown on page A8. Table A14 shows a summary of some of the main characteristics of the buildings. The largest buildings are BERL, CHAR and MADO, together representing 23% of the area (over 247 000m²) around 29% of the electricity consumption and 22% of the gas consumption.

A2.2 Context – risks, and opportunities

Many of the buildings are located around the European Quarter on the Eastern side of Brussels. A cluster of 10 buildings is located further afield in the south east of the city, in the "Beaulieu" area. A further few buildings are located outside the centre to the north and the south of Brussels including a sports centre at Overijse, three office buildings, printing and central mail facilities in the Commune of Evere and historical archives in Kortenberg.

[1] Staff figures in 2017 and 2018 were corrected (double counting of agencies staff in building COVE).

[2] NACE codes associated with Brussels activities are: 99 – Activities of extraterratorial organisations and bodies; 84.1 Administration of the state and the economic and social policy of the community.


Brussels
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External issues and circumstances affecting Brussel's environmental performance

These have been analysed using PESTLE [3] criteria, and both risks and opportunities identified, and reference to actions are presented below for the three most important points (the different criteria were reanalysed, integrating the suggestions made by the external verifier during the audit in 2019):

1. Economic – Budget variations influence possible investments to reduce resource consumption. Significative energy savings, leading to relevant reductions in the carbon footprint of the EC depend on substantial investments in the real estate portfolio.
2. Environmental - Variation of seasonal temperatures from one year to another have an important impact on energy consumption and generate variable buildings performances. The regulation of a large number of technical installations is complex, but there is an opportunity to use technological development for better efficiency and more rapid actions.

3. Legal – There is a growing number of environmental regulations and regional legal framework to apply to the large portfolio of buildings in Brussels. It may become more difficult to comply with requirements. Close collaboration with local authorities and regulatory bodies help improve the environmental performance whilst ensuring legal compliance.

Internal issues and circumstances affecting Brussel's environmental performance

These have been analysed using ASCPF[4] criteria, with consideration of both risks and opportunities, the two most important are as follows:

1. Activities – Brussels' site has a large portfolio of aging buildings, and OIB manages a large range of activities and number of contractors, which increase the complexity of implementing many environmental initiatives. However, there is an opportunity to act at many different levels and to initiate a wide scope of actions.

2. Culture & employees – OIB has a client oriented culture and the needs of its clients have to be addressed. Sometimes, political and operational realities are difficult to combine and there might also be a divergence between clients' needs and environmental priorities.

A2.3 Stakeholders (interested parties), compliance obligations risks and opportunities

The table below summarises the main OIB stakeholders, organised in "clusters" due to their large number, especially in terms of contractors and suppliers.

[3] PESTLE criteria– Political, Economic, Social, Technological, Legal, Environmental

[4] ASCPF criteria – Activities, Strategic direction, Culture and employees, Processes and systems, Financial

Table A.3: Summary of main stakeholders' requirements to be addressed in the management system as obligations

Stakeholder Group	Stakeholder needs & expectations	EMS obligations
European Institutions	Development plans and operational activities run according the policy laid out at Institutional level	To ensure a high quality service whilst complying with political and budgetary constraints (example, the implementation of the EMS).
Clients	Correct and timely facility management services by OIB, in compliance with environmental legislation	Implementation by management: quality of the facility management services and modern infrastructure supplied by the OIB (examples, meetings between DGs and OIB to improve the quality of the service provided, and continuous improvement of the environmental performance).
Suppliers / contractors	Information on environmental requirements, targets and technical specifications	Implementation by management: to define appropriate environmental criteria at the relevant stages of the procurement and project management process (examples, use of GPP toolkit and environmental requirements in tenders).
Staff	Responsible environmental behaviour, transparent communication regarding environmental procedures and impacts	Infrastructure and operational services quality; communication plan: environmental engagement by OIB, reflecting the needs and aspirations of the staff, through communication plans and activities (example, communication to staff on OIB initiatives like Velo Mai, sorting stations or posters on building environmental profile).
Regulatory authorities	Compliance with Regional and EMAS regulations.	To ensure legal compliance on OIB facility management activities, insofar contractors and suppliers as well as the staff are concerned. Legal Register; Communication to management; Implementation by management; Compliance Evaluation and audits (example, Site Management Reviews and reports on the performance of the EMS)
Policy makers	Strategic and operational plans compliant with National and Regional regulations and targets (example Energy Efficiency Directive)	Implementation of the EMS: to promote the OIB role of leading by example regarding environmental compliance and practices, by setting challenging targets and plans to comply with the ones set to other public or semi-public actors (example, the actions under the EED).
General Public	Transparent communication, accountability	Proactive planning and communication giving reassurances on OIB activities to the public, press and NGOs (example, the publication of the Environmental statement).
Neighbours	Transparent communication, accountability	Proactive planning and communication, as well as corrective measures, if necessary, giving reassurances on OIB activities to the public.

A3 Environmental impact of Brussels activities

The Commission fully updated its assessment of environmental aspects for the Brussels site in 2018, the results of which are summarised in the table below. The next update, under the three year EMAS cycle, is due in 2021.

Table A3 – Summary of significant environmental aspects for the Brussels site

Aspect group	Environmental Aspect	Environmental impact	Activity, Product or Service	Indicators	Risk	Opportunity
1) Air	Emissions of CO2, NOx, SOx and VOCs.	Resources depletion, air emissions, global warming, acid rain	Heating systems	T/year	Less performant installations increase gas consumption, emissions and resources depletion	Environmental performance improved by renewed installations and better regulation
	Emissions of CO2, NOx, SOx and VOCs.	Resources depletion, air emissions, global warming, acid rain	Fleet use	T/year	Less performant vehicles increase fuel consumption, emissions and resources depletion	Reduction of parking space, through compliance with COBRACE regulation, could decrease emissions
2) All	Fire prevention	Air, soil and water contamination	Emergency preparedness	n° of incidents	Impact on business continuity	Regular drills improve awareness and preparedness
3) Biodiversity	Ingredient origin and use	Ressources depletion, loss of biodiversity, land degradation	Procurement	Green criteria	Potential impact on price	Impulse for sustainable catering/canteens
4) Life cycle	Contruction/ Renovation	Resources depletion, air emissions, soil-water contamination, transport	Real Estate Planning	LEVELS	Poorer quality works lower environmental performance	Environmental performance improved by quality renovation works
5) Ressources	Gas, Fuel	Resources depletion, air emissions, global warming	Energy	MWh/y/person	Less performant installations increase electrical consumption, emissions and resources depletion	Environmental performance improved by renewed installations and better regulation
	Electricity	Ressources depletion, air emissions, global warming	Energy	MWh/y/person	Less performant installations increase electrical consumption, emissions and resources depletion	Environmental performance improved by renewed installations and better regulation
	Water	Resources depletion	Water consumption	m^3/y/person	Less performant installations increase water consumption, emissions and resources depletion	Environmental performance improved by renewed installations and better regulation
	Office supplies and furniture	Resources depletion, air emissions, global warming	Office work	Green criteria	GPP criteria may have a potential impact on price	GPP criteria help the markeplace go greener
6) Soil/Water contamination	Chemicals disposal/ leaks of chemicals/ leaks of Gasoil	Soil/Water contamination	Maintenance	n° of incidents	Non compliance with regulations could hinder the use of the building	Environmental performance improved by compliance with better regulation
7) Waste	Hazardous waste	Air, soil and water contamination	Maintenance	T/person	Non compliance with waste management flows could hinder the use of the building	Complying with waste management flows represents an improvement opportunity in itself.

	waste production: organic / non organic.	Air, soil and water contamination	Production of meals	T/y/person	Poorer organic waste management reduces the quantities sent to gas production (bio-méthanol)	Improving management of organic waste reduces quantity of waste being incinerated
	Waste	Resources depletion, pollution	Waste	Green criteria	Although all plastic items are recycled or incinerated, the risk is resources depletion (oil based products). Potential impacts on cost.	To lead by example.

* These indirect aspects are managed via a series of specific mechanisms, including impact analysis (see Corporate volume point 2.1), and regulatory measures.

A4 More efficient use of natural resources

A4.1 Energy consumption

Buildings energy consumption data should be considered in the context of climatic conditions. Analysis of degree data suggests that climatic conditions were significantly cooler over the summer than the previous year, although warmer than every year since 2014 and thus more cooling was necessary.

Table A4: Indicative climate conditions

Indicative climate conditions (1)	2012	2013	2014	2015	2016	2017	2018	2019
Heating degree days, heating required	2 184	2 397	1 722	1 986	2 111	1 991	1 989	1 940
Cooling degree days, cooling required	325	360	345	365	409	415	584	435
Total degree days	2 509	2 757	2 067	2 351	2 520	2 406	2 573	2 375
kWh/person/degree day (2)	**3,08**	**2,65**	**3,36**	**3,18**	**2,87**	**2,90**	**2,73**	**2,78**

(1) www.degreedays.net; monthly data for EBBR station (15.5 C reference temperature)

(2) using buildings energy consumption data for Brussels site

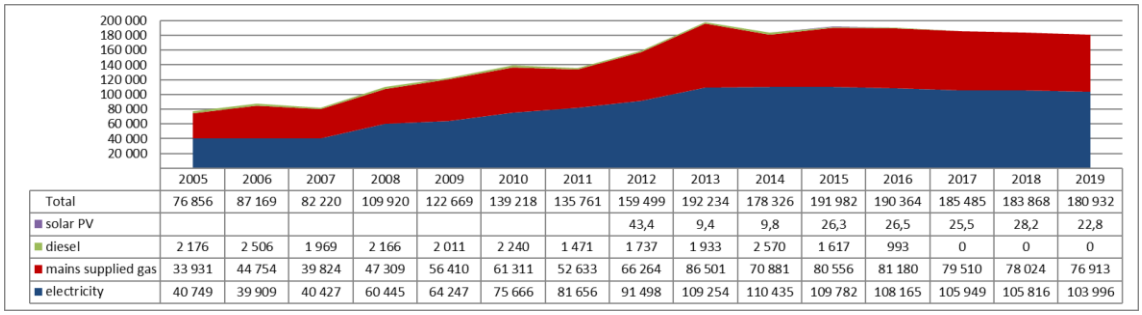
a) Buildings

Figure A1 shows the evolution of total annual energy consumption in the EMAS while Table A14 provides indicative data for individual buildings. The total has increased over time as more buildings were registered under EMAS each year and since 2014 almost all buildings are included. Electricity[5] represented 53% of the total in 2005, peaked at 62% in 2014 (a mild year) having stabilised at 57% since 2017.

5 Solar PV data is theoretical.

ANNEX A: BRUSSELS

Figure A1 Annual buildings energy consumption (MWh) in the EMAS perimeter[6] (indicator 1a)

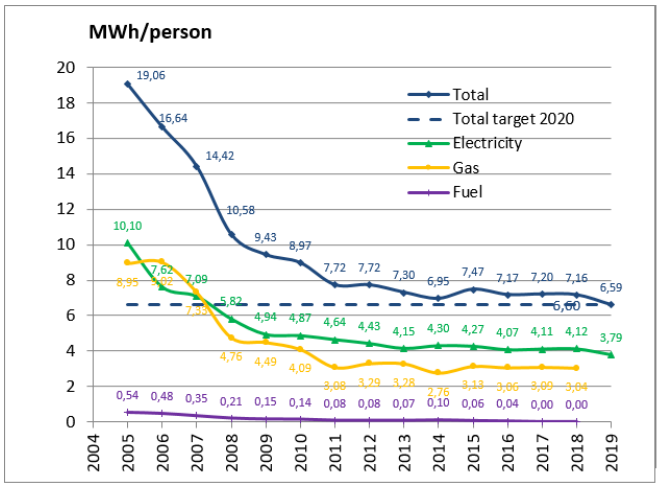


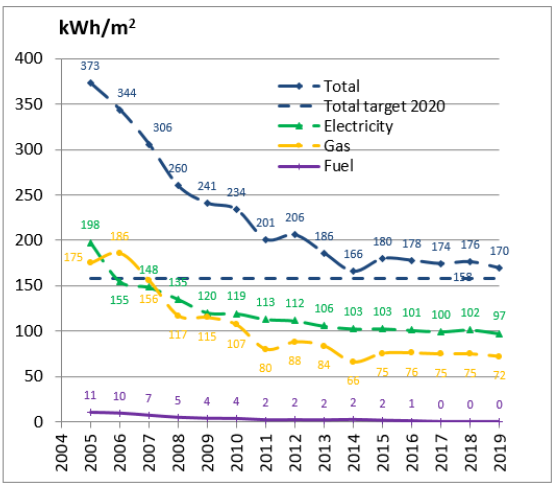
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	76 856	87 169	82 220	109 920	122 669	139 218	135 761	159 499	192 234	178 326	191 982	190 364	185 485	183 868	180 932
solar PV								43,4	9,4	9,8	26,3	26,5	25,5	28,2	22,8
diesel	2 176	2 506	1 969	2 166	2 011	2 240	1 471	1 737	1 933	2 570	1 617	993	0	0	0
mains supplied gas	33 931	44 754	39 824	47 309	56 410	61 311	52 633	66 264	86 501	70 881	80 556	81 180	79 510	78 024	76 913
electricity	40 749	39 909	40 427	60 445	64 247	75 666	81 656	91 498	109 254	110 435	109 782	108 165	105 949	105 816	103 996

Note: Diesel (fuel oil) is no longer used for heating buildings, but a small amount is consumed during periodic testing of emergency diesel generators.

Per capita and consumption per square metre are presented in figures A2 and A3.

Figures A2 and A3: Evolution of total annual energy consumption for Brussels EMAS buildings





Total energy consumption for EMAS buildings (indicator 1a) reduced by 65% and 54% per capita and per square metre respectively since the first EMAS registration in 2005. It decreased most rapidly between 2005 and 2009, with smaller and more gradual gains recorded since. The reduction in both indicators follows similar trends. Since heating uses gas (and not fuel oil) in all buildings, fuel consumption is insignificant in comparison to that of electricity and gas, as it is only used for emergency units, and not reported in this data. The overall gas consumption has decreased a further 1.4% in 2019, compared with the previous year, even though the last building that was heated with fuel oil had seen its boilers changed to gas in 2016 (L-84/86, thus increasing the scope).

The electricity consumption decreased by 1.7% between 2018 and 2019 also reflecting the slightly cooler conditions in the summer of 2018. This result contributed to a reduction in total energy consumption of 1.6%, translated in a reduction of 8.0% measured per person and 3.9% measured per square metre. The ocurrence of warmer temperatures in the summer, as witnessed in 2018, risks adversely impacting electricity consumption, but guaranteeing a comfortable working environment for staff remains a paramount concern.

Primary and normalised primary energy and the regional regulation for energy performance

6 Which has expanded steadily since first registration in 2005.

Aiming at more comparable reporting on energy consumption, OIB has also adjusted the consumption to the heating/cooling degree days (going into greater detail than in table A4), and used primary energy figures rather than final energy as reported above. This will also allow for a more accurate follow-up of the measures to be implemented under the regional legislation PLAGE (Plan Local d'Action de Gestion Énergétique), which will use this metric and 2019 (or the 2018-2020 average) as reference year.

The indicator kWh/m² represents the average of the Environmental Building Perfomance (EBP) certificates for the whole portfolio, as issued by the regional authorities (Brussels Environment) for each building.

New metric	Historic data values							Performance trend (%) 2019/				EMAS Target	
ith Primary & normalised energy(1)	2005	2014	2015	2016	2017	2018	2019	2005	2014	2017	2018	2020/2014	
1a) Energy bldgs P&N (total MWh)	449.448	365.027	368.496	352.400	349.708	350.276	345.018	-23,2%	-5,5%	-1,3%	-1,5%	-5,0	346.776
1a) Energy bldgs P&N (MWh/p)	26,7	18,0	18,3	16,4	16,9	17,0	15,7	-41,3%	-12,9%	-7,1%	-7,7%	-5,0	17
1a) Energy bldgs P&N (KWh/m2)	511,3	346,6	344,6	329,5	324,5	336,2	323,4	-36,7%	-6,7%	-0,3%	-3,8%	-5,0	329

(1) Primary and normalised energy (P&N): = electricity final consumption (invoices)*2,5 (reference for BE))+(gas consumption(invoices)*DD factor)

(2) Degree days factor =total year degree days / total degree days BE reference http://www.gaznaturel.be/fr/particulier/degres-jours

The table above shows not only the very significant reductions made since 2005, but also that 2019 figures are already below the 2020 target (if these targets had been set using primary and normalised energy), both per person and per square metre as well as in total terms.

The Annual action plan includes 20 active measures prioritising the reduction of energy consumption, grouped and summarized here below:

- Energy efficiency plans, under the Energy Performance of Buildings (EPB) directive[7] as well as following recommendations from energy audits.

- Comfort and lighting hour's optimization.

- Upgrading of lighting systems and installation of motion detectors.

- Insulation of heating pipes.

- Closure of buildings during the End of Year holiday period.

- Optimization of air flows.

- Launching of call for tender for energy meters, and

- Communicating with building owners on energy saving measures.

b) Vehicles

Table A5: Summary vehicle energy consumption

	2012	2013	2014	2015	2016	2017	2018	2019
Total (MWh/yr)	2 535	2 468	2 292	2 313	2 322	2 177	2 170	2 208
MWh/person	0,123	0,094	0,089	0,090	0,087	0,085	0,084	0,080
kWh/km (per 1000 kms)				0,47	1,34	0,97	1,09	1,04
Diesel used (m^3)	219,4	215,4	201,0	203,9	197,8	177,6	144,1	132,1
Petrol used (m^3)	10,63	8,16	6,46	5,33	13,40	21,88	60,68	85,39

[7] Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings

Total annual vehicle energy consumption[8] illustrated above shows a slight increase due to the higher number of kilometres made by the fleet (1.5%, 2 346 590 compared to 2 311 311 in 2018).

c) Renewable energy use in buildings and vehicles

The following table shows the evolution in non-renewable energy use for the buildings.

Table A6: Renewable and non-renewable energy use in buildings (MWh and percentage of total)

Contribuutions to renewable energy	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
i a) electricity contract 1 (% renewables)	60	100	100	100	100	100	100	100	100	100	100
electricity contract 1 (MWh renewable)	36 621	71 883	77 573	86 923	103 791	104 865	104 246	106 414	103 891	104 238	102 519
viii) (PV) (% renewable)	100	100	100	100	100	100	100	100	100	100	100
(MWH renewable)	0	0	0	43,4	9,4	9,8	26,3	26,5	25,5	28,2	22,8
Total renewables (MWh)	36 621	71 883	77 573	86 967	103 801	104 875	104 273	106 440	103 916	104 266	102 542
Total renewables (%)	29,9	51,6	57,1	54,5	54,0	58,8	54,3	55,9	56,0	56,7	56,7
Total non ren. energy use, (MWhr/yr)	86 048	67 335	58 188	72 532	88 434	73 451	87 709	83 924	81 569	79 602	78 370
non ren. energy as part of total, (%)	70,1	48,4	42,9	45,5	46,0	41,2	45,7	44,1	44,0	43,3	43,3

The overall share of renewable energy represented 57% of the total buildings energy consumption, and this was achieved by purchasing electricity from renewable sources since August 2009. No additional renewable energy sources were installed on site in 2019.

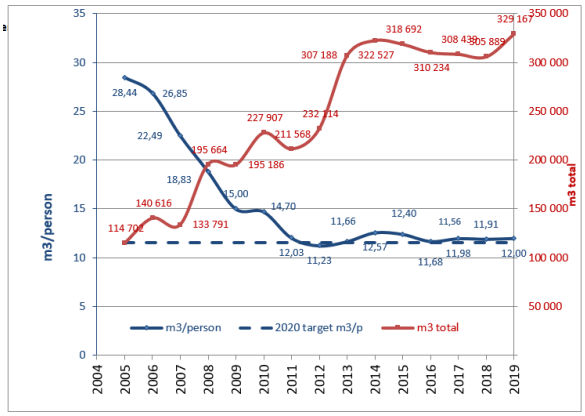
In 2018 20 plug-in hybrid vehicles were added to the fleet, replacing mostly diesel engine cars, adding to the 13 fully electric already in use since 2017. In 2019 12 plug-in hybrid cars replaced mostly diesel engine cars, thus bringing the total of full electric/plug-in hybrid vehicles to 45, representing 34% of the fleet.

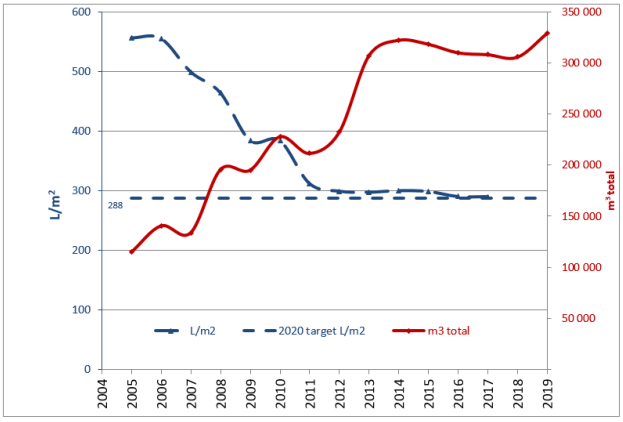
At the end of 2017, 122 electrical chargers were installed in across 12 Commission buildings (B-28, BERL, BU25, CHAR, CSM1, F101, J-79, LX46, MADO, NOHE, ORBN and OVER), and the target is to make such facilities available in all Commission car parks by 2023. This project seeks to facilitate the use of electric cars, in line with the general policy of promoting greener transport modes, going beyond the Brussels Region's requirement (10% of parking spaces in existing buildings equipped with electric chargers by 2023).

[8] The emission factor was harmonised for whole Europe (10.62 instead of 11.10), based on the updated version of the Carbontrust study (Conversion factors 2016- www.carbontrust.com)

A4.2 Water consumption

Figures A4 and A5: Evolution of total annual water consumption for Brussels EMAS buildings





Note total consumption increased up until 2013 because reporting was only for EMAS registered buildings

Figures A4 and A5 show a considerable reduction in water consumption since the initial EMAS registration in 2005, with the 2019 value representing only 43% and 56% of the 2005 figure when measured on a per capita and per square metre basis respectively. The rising trend in total water consumption before 2013 is related to the steady growth of the EMAS area in that period.

Water consumption has remained relatively stable since 2013. Consumption dropped in 2016 from its 2014 peak, due to water saving measures implemented in several buildings, such as the widespread installation of tap aerators , showing another significant (5.3%) reduction in 2018. In 2019 however, a sharp (7.6%) increase in total consumption, translated into increases of 0.7% (per capita) and 5.1% (per sq. m) that were due to technical incidents in three buildings (BREY, COVE and L130), which have been addressed.

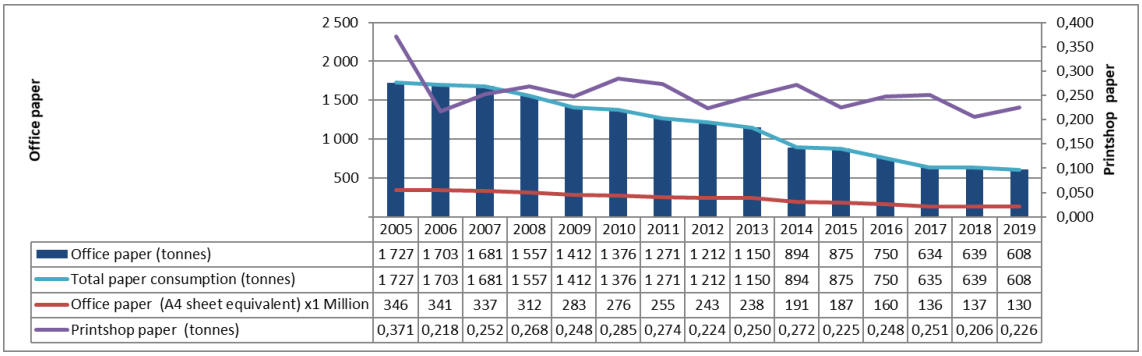
Saving measures undertaken since 2015 include improved water management, installation of leak detection systems and loss prevention mechanisms. Installation of water saving devices in 10 priority buildings[9] has been also implemented across most of the remaining buildings. Initiatives aiming at the reduction of Single Use Items, such as the installation of water fountains in the cafeterias, may have an impact in overall consumption, as well as warmer temperatures during summer months, requiring for an increased use of water for cooling and humidification.

A4.3 Office and printshop paper

Total office and printshop paper consumption at Brussels shows a long-term downward trend as shown below.

[9] Action 58 in the EMAS Global Annual Action Plan

Figure A6: Evolution of total paper consumption at Brussels



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Office paper (tonnes)	1 727	1 703	1 681	1 557	1 412	1 376	1 271	1 212	1 150	894	875	750	634	639	608
Total paper consumption (tonnes)	1 727	1 703	1 681	1 557	1 412	1 376	1 271	1 212	1 150	894	875	750	635	639	608
Office paper (A4 sheet equivalent) x1 Million	346	341	337	312	283	276	255	243	238	191	187	160	136	137	130
Printshop paper (tonnes)	0,371	0,218	0,252	0,268	0,248	0,285	0,274	0,224	0,250	0,272	0,225	0,248	0,251	0,206	0,226

Per capita breakdown is represented below:

Figure A7: Evolution of total paper consumption at Brussels (per capita)

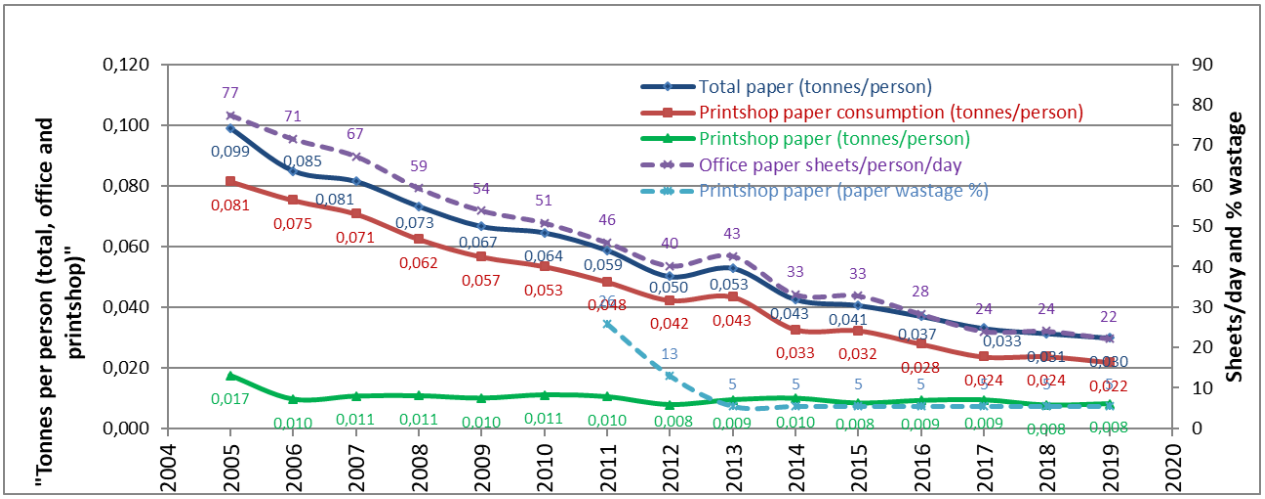


Figure A7 shows that paper consumption[10] (kg/person) follows a long lasting downwards trend, reducing by more than 70% since 2005. In 2019 there was a 4.8% reduction over 2018 as consumption fell from 639 tonnes to 608 tonnes.

These reductions are down to continued efforts to increase digital circulation and management of documents, use of scanned documents, email and e-signing transfer of documents, replacing paper signataires as well as the use of double sided printing when paper is necessary. The new print-on-demand network printers, which started to be installed in 2018, have also contributed to this result. Further significant reductions can only be achieved by more widespread use of digitalised procedures, which require heavy investments in technology (on both hardware and software), thus enabling deeper changes in staff printing behaviour.

Consumption of higher grade paper in the printshop is largely unchanged since 2006, although in 2019 it increased by 10% (to 226 kgs) due to a greater centralisation of printing services in Brussels.

The following actions have sought to reduce printshop paper consumption:

- close monitoring of paper consumption;

- improving electronic processes;

[10] Historically reported for total Commission staff.

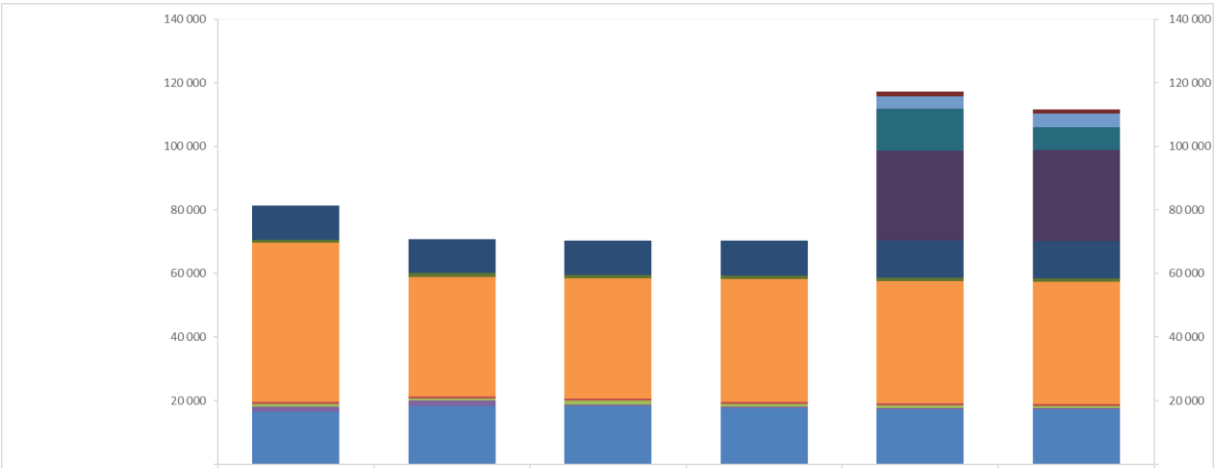
- fostering the use of electronic signature and distribution of documents.

A5 Reducing carbon footprint and air emissions

A5.1 Carbon footprint

Figures A8 and A9 show the contribution of components[11] of the Commission's carbon footprint measured as equivalent tonnes of CO_2 emissions (T CO_2e) for Brussels[12].

Table A7: Annual CO_2 (and equivalent) emissions (Tonnes CO_2e)



	2014	2015	2016	2017	2018	2019
Sum	81 255	70 760	70 280	70 338	117 184	111 582
Own waste	0	0	0	0	1391	1370
Goods and service contracts	0	0	0	0	3883	4182
Fixed assets - Commission vehicles	0	0	0	0	116	117
Fixed assets - IT	0	0	0	0	13080	6957
Fixed assets - buildings	0	0	0	0	28466	28919
Staff commuting	10 672	10 672	10 672	11 046	11 565	11 565
Missions (excluding air)	947	1 199	1 186	1 087	1 092	1 117
Missions (air, RFI 2)	50 044	37 543	37 719	38 711	38 466	38 466
Vehicle fleet - fuel consumption	653	659	663	623	626	657
Buildings - coolant losses	821	763	1 315	749	809	542
Buildings - district heating/cooling	0	0	0	0	0	0
Buildings - electricity	1 662	1 652	522	614	510	484
Buildings - fuels for heating	16 456	18 272	18 204	17 508	17 181	17 206

Up until 2017 (and based on the reported data, which didn't include fixed assets), the largest contributors were emissions due to air travel for missions, combustion of fuels for buildings energy consumption, and combustion of fuels for staff commuting. Starting 2018, the Commission also reports on additional categories of scope three emissions[13], such as fixed assets (buildings and IT), contracts for goods and services as well as waste production. As shown in table A7, emissions from buildings, as fixed assets, are estimated at over 28 000 tonnes, representing over 25% of the total, and thus becoming the second largest source of emissions, underlining the importance of real estate policy.

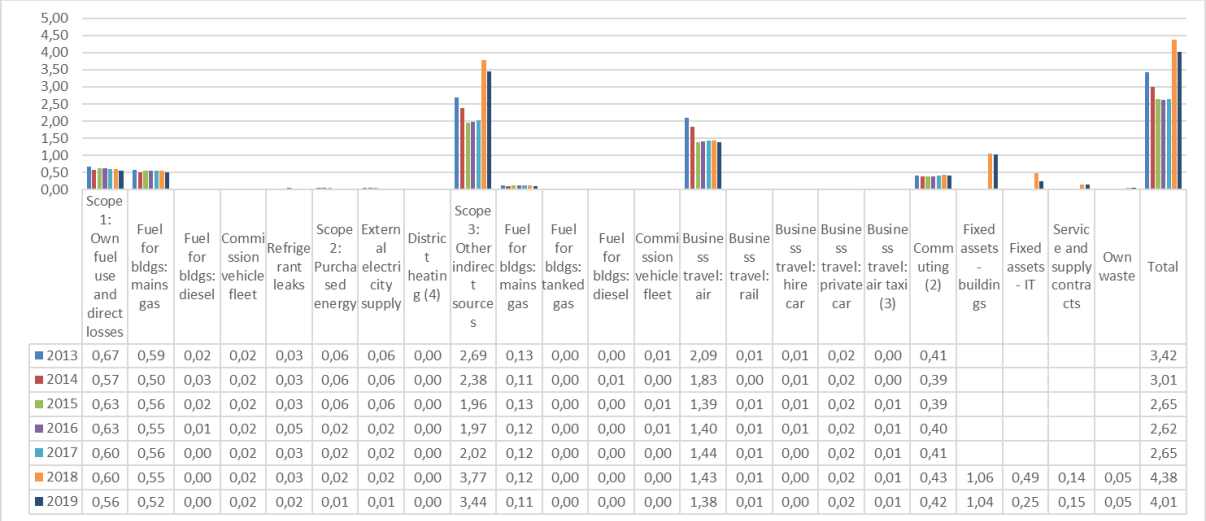
Gas consumption for buildings heating is the third largest component, higher than emissions estimated from commuting, and less than half of the estimated emissions due to air travel, which, with more than 34%, are the biggest contributor. Emissions due to electricity consumption are very low because 100% of the supply comes from renewable sources.

[11] Figures regarding potentially important contributors such as fixed assets, such as service contracts over which management has more limited influence, are included only as of 2018. Goods and service contracts do not include catering.

[12] Air travel emissions calculated using RFI[12] = 2; Conversion factor used to calculate equivalent emissions for fuel consumption include combustion (scope 1) and small upstream component (scope 3)

[13] Reporting for buildings and fleet energy use also includes upstream emissions

Figure A9: Carbon footprint elements (tonnes CO_2e/person)



	Scope 1: Own fuel use and direct losses	Fuel for bldgs: mains gas	Fuel for bldgs: diesel	Commission vehicle fleet	Refrigerant leaks	Scope 2: Purchased energy	External electricity supply	District heating (4)	Scope 3: Other indirect sources	Fuel for bldgs: mains gas	Fuel for bldgs: tanked gas	Fuel for bldgs: diesel	Commission vehicle fleet	Business travel: air	Business travel: rail	Business travel: hire car	Business travel: private car	Business travel: air taxi (3)	Commuting (2)	Fixed assets - buildings	Fixed assets - IT	Service and supply contracts	Own waste	Total
2013	0,67	0,59	0,02	0,02	0,03	0,06	0,06	0,00	2,69	0,13	0,00	0,00	0,01	2,09	0,01	0,01	0,02	0,00	0,41					3,42
2014	0,57	0,50	0,03	0,02	0,03	0,06	0,06	0,00	2,38	0,11	0,00	0,01	0,00	1,83	0,00	0,01	0,02	0,00	0,39					3,01
2015	0,63	0,56	0,02	0,02	0,03	0,06	0,06	0,00	1,96	0,13	0,00	0,00	0,01	1,39	0,01	0,01	0,02	0,01	0,39					2,65
2016	0,63	0,55	0,01	0,02	0,05	0,02	0,02	0,00	1,97	0,12	0,00	0,00	0,01	1,40	0,01	0,01	0,02	0,01	0,40					2,62
2017	0,60	0,56	0,00	0,02	0,03	0,02	0,02	0,00	2,02	0,12	0,00	0,00	0,00	1,44	0,01	0,00	0,02	0,01	0,41					2,65
2018	0,60	0,55	0,00	0,02	0,03	0,02	0,02	0,00	3,77	0,12	0,00	0,00	0,00	1,43	0,01	0,00	0,02	0,01	0,43	1,06	0,49	0,14	0,05	4,38
2019	0,56	0,52	0,00	0,02	0,02	0,01	0,01	0,00	3,44	0,11	0,00	0,00	0,00	1,38	0,01	0,00	0,02	0,01	0,42	1,04	0,25	0,15	0,05	4,01

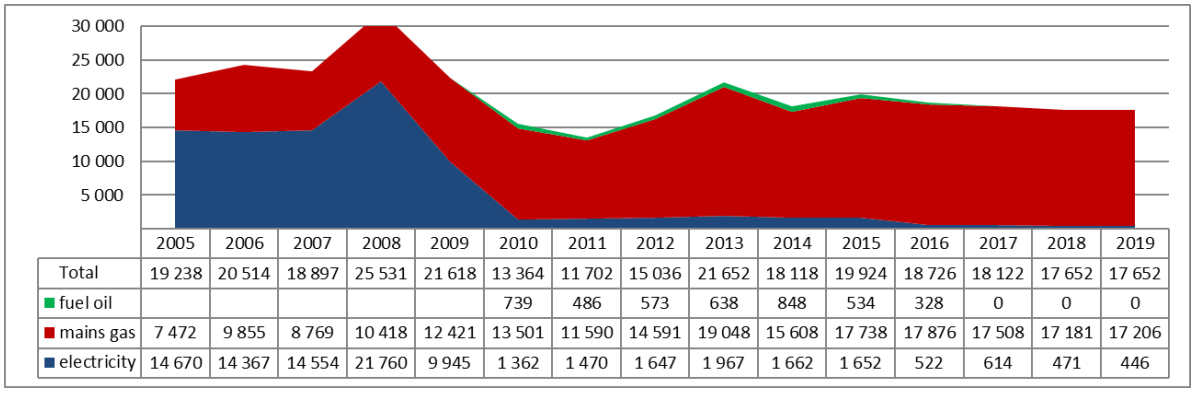
The data in Figure A9 show the carbon footprint per person, with 2018 representing a significant increase due to the inclusion of the above-mentioned additional scope 3 data (4.38 tonnes CO_2e/person instead of 2.65). Figures for 2019 show a further reduction to 4.01 tonnes CO_2e/person.

A5.2 CO_2 emissions from buildings

a) Buildings (energy consumption)

The evolution of total emissions from buildings energy consumption is shown in Figure A10, followed by per capita and per square metre in Figure A11. These follow broadly the same trend as energy consumption. Emissions due to electricity consumption reduced considerably in 2009, when green electricity was purchased accounting currently for 95% of the total consumption. Since 2018, diesel fuel consumption has been insignificant, following the installation of gas boilers in the last remaining building with diesel boilers (L-84/86).

Figure A10: CO_2 emissions from buildings heating in the EMAS perimeter, (tonnes)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	19 238	20 514	18 897	25 531	21 618	13 364	11 702	15 036	21 652	18 118	19 924	18 726	18 122	17 652	17 652
fuel oil						739	486	573	638	848	534	328	0	0	0
mains gas	7 472	9 855	8 769	10 418	12 421	13 501	11 590	14 591	19 048	15 608	17 738	17 876	17 508	17 181	17 206
electricity	14 670	14 367	14 554	21 760	9 945	1 362	1 470	1 647	1 967	1 662	1 652	522	614	471	446

Figure A11: CO_2 emissions from buildings heating in the EMAS perimeter, (tonnes per person and kg per square metre)

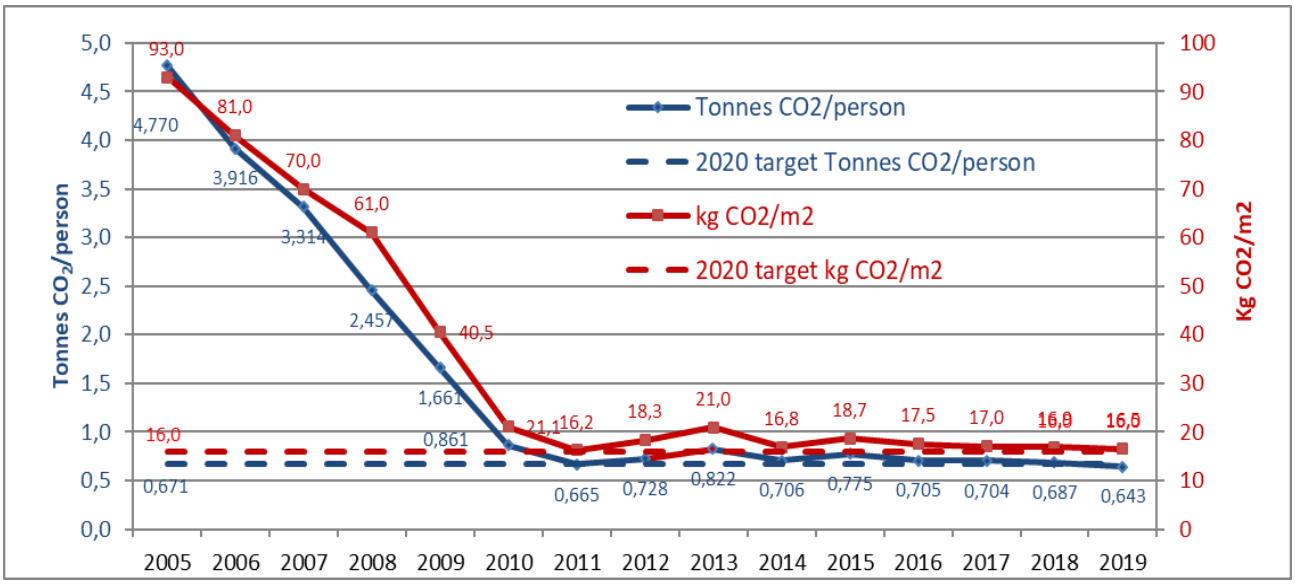


Figure A11 shows that CO_2 emissions have reduced considerably since the first EMAS registration in 2005, with a large drop since purchasing around all electricity from 100% renewable sources in August 2009 (and assuming that renewable electricity does not generate CO_2 emissions). However since 2011, emissions are largely unchanged which is consistent with Figures A1 and A2 that show gas consumption has decreased very slightly over this period on a per person and square metre basis. Nevertheless, 6.4% and 2.3% reductions in CO_2 emissions (in tonnes/person and kg/m², respectively) have been recorded in 2019, compared to 2018.

b) Buildings -other greenhouse gases (refrigerants)

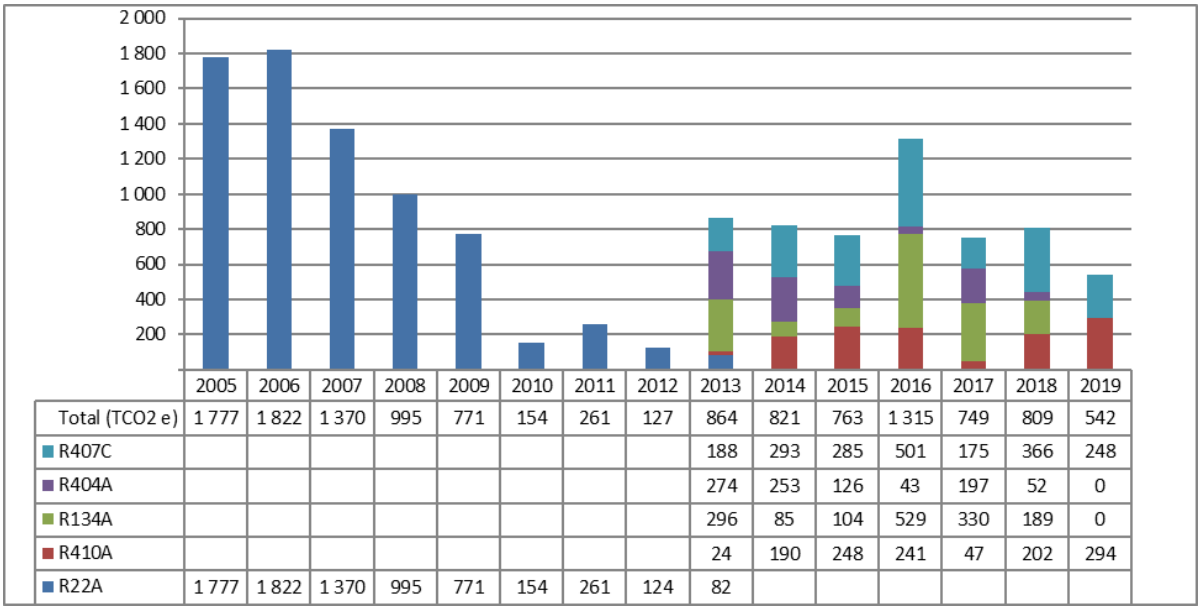
A **refrigerant** is a substance, commonly a fluid, used in refrigeration cycles. In previous years, special attention was given to fluorocarbons, particularly R22 gas, which in compliance with the legislation on ozone depletion had to be phased out. A large-scale operation was launched in 2014-2015 either replaced installations containing R22 by new ones using a different gas (operation "lift & drop"), or by removing R22 and recharging with a new gas (operation "retrofit"). Additional refrigerants have been monitored since 2013.

Table A7: Emissions of equivalent CO_2 emissions (tonnes) from cooling installations

	2005	2014	2015	2016	2017	2018	2019
Total (TCO2 e)	**1777**	**821**	**763**	**1315**	**749**	**809**	**542**
tonnes CO2 equiv/person	0,084	0,030	0,028	0,049	0,028	0,030	0,019
kg CO2 equiv/m2	0,009	0,001	0,001	0,001	0,001	0,001	0,001

OIB has monitored the total quantity of refrigerants in technical installations (excluding catering), and losses since 2005. Figure A12 shows that total losses have decreased significantly by 33% in 2019 from 809 to 542 tonnes of CO_2 equivalent. Each kilogram of refrigerant lost may be equivalent to between 1 000 and 5 000 kg of CO_2 e.

Figure A12: Losses of refrigerants in Brussels EMAS perimeter, (tCO2e)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total (TCO2 e)	1 777	1 822	1 370	995	771	154	261	127	864	821	763	1 315	749	809	542
R407C									188	293	285	501	175	366	248
R404A									274	253	126	43	197	52	0
R134A									296	85	104	529	330	189	0
R410A									24	190	248	241	47	202	294
R22A	1 777	1 822	1 370	995	771	154	261	124	82						

Actions were undertaken since 2011 to phase out certain HFC and HCFC installations, such as the removal of R22 in 2014. The phasing out and substitution of refrigerants type R404a, R507 or R134a, used in kitchen cooling equipments, and R407c, R410a, used in HVAC installations, is scheduled for 2020, 2025 or 2030, following the applicable legislations, which are closely monitored. Losses in 2019, acccording to Figure 12 were from R410A and R407C, the most widely used colling fluids.

A5.3 CO_2 emissions from vehicles

a) Commission vehicle fleet

Table A9: Fleet vehicle characteristics and tailpipe CO_2 emissions

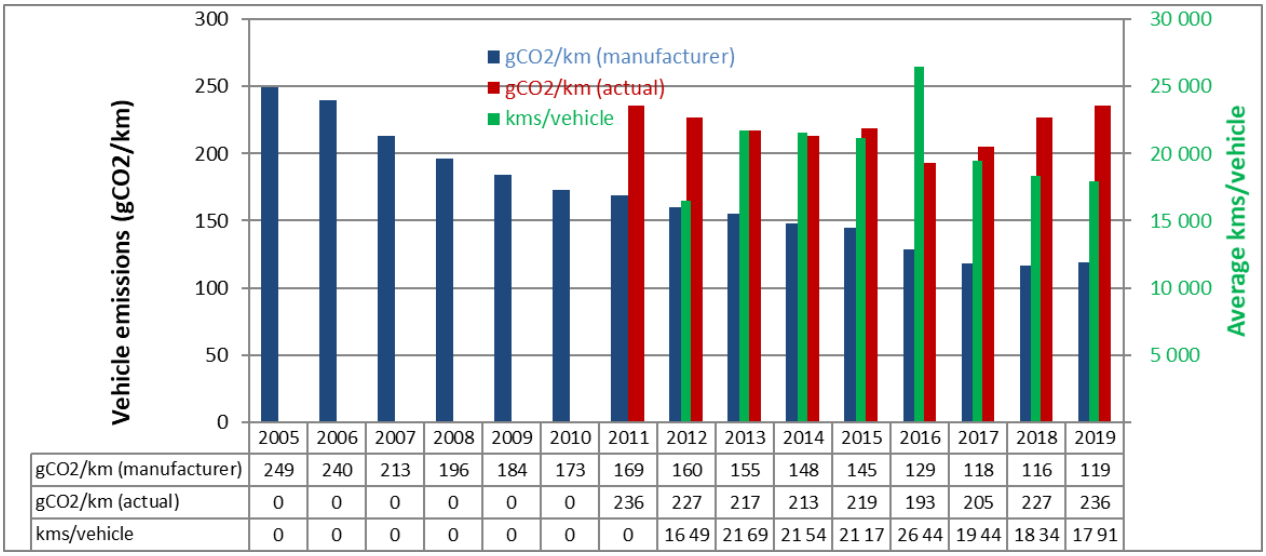
	2012	2013	2014	2015	2016	2017	2018	2019
Number of vehicles (avg. fleet size)	160	120	114	117	107	129	126	131
of which electric/hybrid engine				10	10	13	33	45
of which Euro 6 engine				56	74	98	93	86
of which Euro 5 engine				51	23	18	0	0
Internal fleet efficiency (litres/100km)	8,7	8,6	8,4	8,4	7,5	8,0	8,9	9,3
CO_2 emissions								
i) from diesel (tonnes)	693	681	635	644	625	561	455	418
ii) from petrol (tonnes)	29,9	22,9	18,1	15,0	37,7	61,5	171	240
Total vehicle tailpipe emissions	**595**	**704**	**653**	**659**	**663**	**623**	**626**	**657**

Brussels operates a vehicle fleet of 131 leased cars, a number that has stabilised since 2017 as indicated in Table A9. In 2019, both the number and the proportion of cars with Euro 6 engines decreased, following the inclusion in the fleet of an extra 12 plug-in hybrid vehicles, which, adding the full electric vehicles, represented in 2019 33% of the whole fleet.

The CO_2 emissions have steadily reduced since 2013. Table A9 also shows a switch from diesel to petrol engines, demonstrated by the respective CO_2 emissions: while in 2013 CO_2 emissions from diesel represented 97% of the total, in 2019 it represented only 64%.

Figure A13 shows how vehicle emissions (per km) and average vehicle use have evolved.

Figure A13: Emissions per km and distance travelled per vehicle



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
gCO2/km (manufacturer)	249	240	213	196	184	173	169	160	155	148	145	129	118	116	119
gCO2/km (actual)	0	0	0	0	0	0	236	227	217	213	219	193	205	227	236
kms/vehicle	0	0	0	0	0	0	0	16 49	21 69	21 54	21 17	26 44	19 44	18 34	17 91

Initiatives undertaken since 2015 include systematic replacement of vehicles having reached the end of their economic life-cycle with more environmentally friendly models, with features such as lower engine capacity, hybrid technology or electric motors (new hybrid engine vehicles added in 2018- 20 and 2019- 12, adding to the 13 electrically powered vehicles in place). The Commission also provides drivers with ‘eco-driving’ training. Since 2015, OIB includes the "ecoscore" label for cars, advised by the Brussels Capital Region, in its car fleet management.

b) Missions and local work based travel (excluding Commission vehicle fleet)

There were no specific site level targets since 2014 or management approved action plans to reduce CO_2 emissions from missions. Ongoing initiatives undertaken at corporate level in 2015 to encourage staff to consider less energy intensive alternatives for mission travel included:

i) evaluating the use of videoconferencing within the Commission;

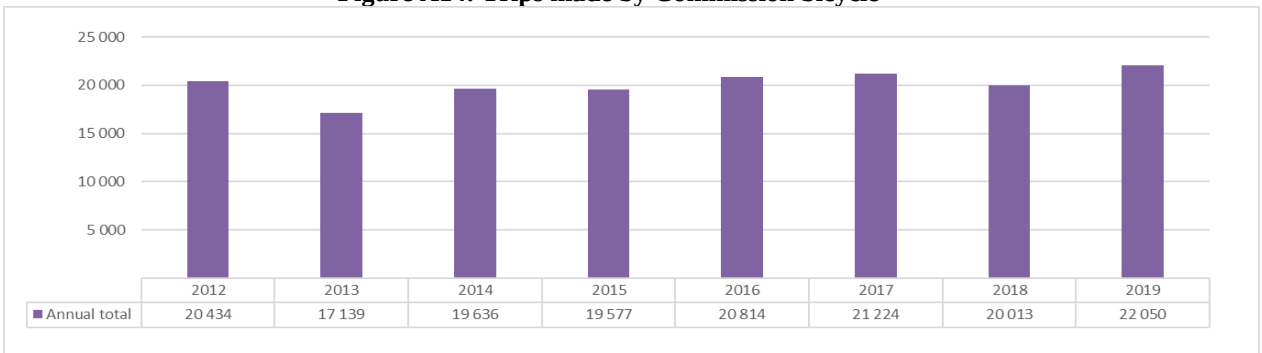
ii) promoting videoconferencing in DGs and using monthly utilisation reports;

iii) continuing to promote the use of service bicycles; and

iv) continuing to distribute tickets for journeys on public transport within Brussels.

Figure A14 shows the number of trips undertaken using service bicycles to attend internal or external meetings or events in Brussels.

Figure A14: Trips made by Commission bicycle



	2012	2013	2014	2015	2016	2017	2018	2019
Annual total	20 434	17 139	19 636	19 577	20 814	21 224	20 013	22 050

Overall, each year around 20 000 trips are made using Commission bikes. Figures for 2019 show a significant increase in bike trips of over 10%, including the ones using the 35 electrical bikes (out of 280) introduced to the fleet in the last two years.

c) Commuting

Initiatives undertaken in 2019 concerning commuting included:

i) continued financial support for public transport season tickets for staff who give up the right to permanent access to a parking space;

ii) installing additional bicycle parking and showers in Commission buildings;

iii) promoting the "Bike to Work" and "Bike Experience" schemes of external organisations;

iv) promoting car-pooling, and assisting staff in finding car-pooling partners via a dedicated Intranet site;

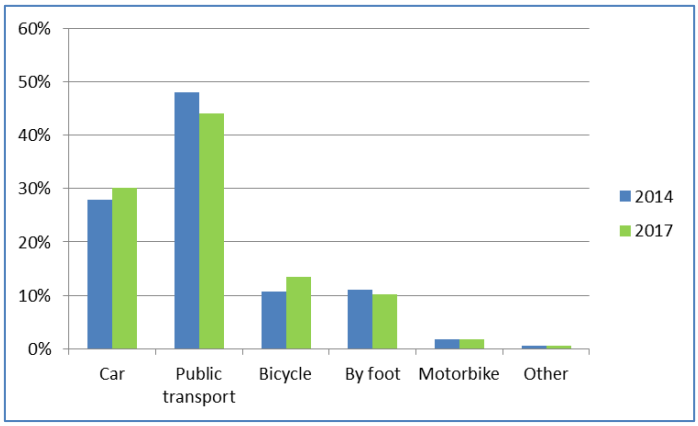
v) exploring options for joint schemes with local bike partners such as "Villo";

vi) drafting the new multi-annual Mobility Plan;

vii) compliance with the regional legislation COBRACE, aiming at the reduction of parking space in office buildings

The graph below shows the split between the main commuting modes used by the EC staff in Brussels in 2017, compared with 2014 figures (date of the previous triannual Mobility Survey). Public transport is consistently the preferred means of transport, followed by private car and bicycle, as main commuting mode.[14]

Figure A14a: Commuting modes for EC Staff in Brussels



A5.4 Total air emissions of other air pollutants (SO_2, NO_2, PM)

Brussels is one of several European cities experiencing high levels of airborne pollution. The EC occupies more than 60 buildings with large HVCA (Heating, Ventilation, Cooling and Air Conditioning) installations, and uses a fleet of over 100 predominantly diesel vehicles, even though their numbers and percentage of the total are reducing: the Commission must ensure that it is not unduly contributing to this problem.

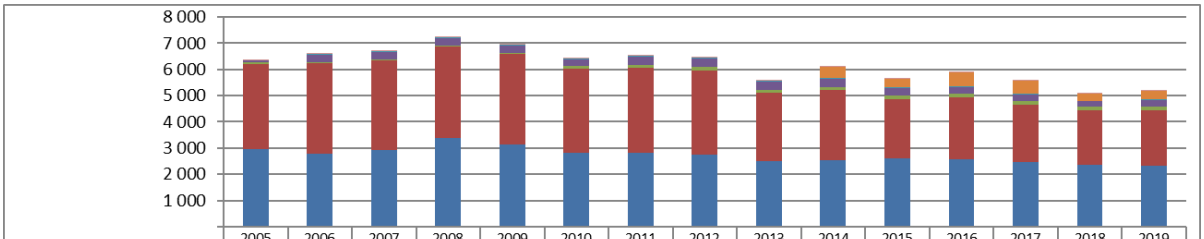
The pollutants typically released into the air are those of combustion; therefore, boilers and vehicle engines constitute a source of pollution. OIB started to collect data in 2013 to improve reporting on these atmospheric pollutants, and the Commission completely phased out fuelled boilers, in 2017.

[14] Source: 2017 Mobility Survey

A6 Improving waste management and sorting

A6.1 Non hazardous waste

Figure A15: Evolution of total non-hazardous waste in Brussels (tonnes)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	6 359	6 581	6 692	7 230	6 936	6 423	6 529	6 443	5 562	6 081	5 654	5 882	5 580	5 063	5 183
Total (tonnes/person)	0,300	0,291	0,282	0,290	0,278	0,249	0,248	0,225	0,210	0,222	0,209	0,218	0,208	0,188	0,186
(Oxfam contract non WEEE)										404,1	348,6	527,7	506,0	256,1	305,1
Glass	12,5	15,5	19,1	21,5	27,4	32,5	31,4	37,4	33,3	29,4	26,5	25,6	23,0	27,7	40,1
Organics	83,7	293	281	292	273	248	314	313	302	311	289	261	243	213	244
PMC	46,9	35,8	42,0	49,8	54,5	102	121	127	121	116	123	142	147	144	151
Paper and card	3265	3438	3420	3500	3454	3238	3249	3219	2590	2675	2274	2349	2212	2072	2108
Unsorted waste	2951	2799	2929	3366	3127	2804	2813	2747	2516	2545	2594	2577	2449	2351	2334

Figure A15 indicates that waste generated[15] per person has reduced by over 35% since 2005. Unsorted waste and paper/carton make up a large percentage (over 82%). From 2014 to 2016, data include the weight of office furniture recovered by Oxfam under a contract that was also used for recycling/reuse of obsolete IT equipment. As of mid-2016 and throughout 2017, 2018 and 2019, this procedure was replaced by the sorting of the materials (metal and wood) performed at the OIB's warehouse (and then recovered by Suez) as well as the return to the suppliers (for chairs and desks) for reuse/recycling. (For DIGIT IT obsolete equipment, see section A6.2).

Results in 2019 show a significant per capita reduction of 16%, compared with the 2014 reference year. In overall terms, the figures show a transfer of unsorted waste to other categories, which may indicate a better sorting behaviour by the staff.

The digitalisation of archives have contributed to an increase in paper waste (1.7%, from 2072 in 2018 to 2108 tonnes in 2019).

Principles of circularity were incorporated into a new waste management contract that came into force in May 2017. OIB has launched other initiatives on waste management since 2015, which are still ongoing, such as:

i) improving the selective sorting of waste using sorting bins in areas and buildings for public use;

ii) exploring ways of reducing transport distances to reduce the environmental impact of vehicles used by staff engaged in waste transport;

iii) promoting the implantation of collaborative working areas which reduces the number of waste containers available and consequently improve waste sorting; and

iv) reducing the number of individual bins.

In 2019, the measures introduced in the previous years with regard to the reduction of Single Use Plastic items continued to receive great attention. The OIB has successfully launched a series of initiatives in this regard, namely the full replacement of plastic cups in water fountains and vending machines by recycled and recyclable paper ones and the use of specific bins aimed at this type of

[15] Historically reported for total Commission staff

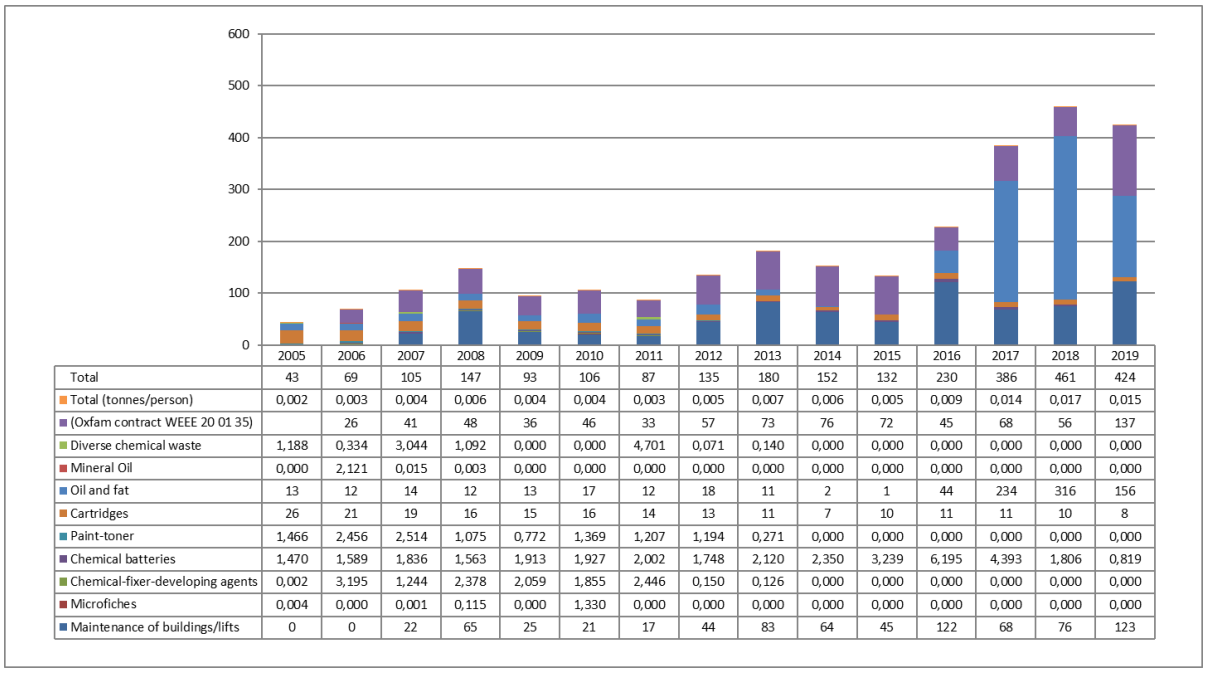
waste, spread all over the Commission buildings in Brussels. Wooden stirrers replaced plastic stirrers in cafeterias and restaurants, and the latter removed from vending machines. In addition, it is no longer possible to order plastic cups for catering services and events. In 2018, this approach was applied to all the restaurants and cafeterias in all buildings in Brussels, where new water fountains were installed.

The introduction of sorting stations, allowing for a better waste sorting in offices, has been successful. From installation mostly in buildings with open office space, starting in 2018 as a pilot project, it was extended in 2019 to more buildings (B-28, MO15, J-99, PLB3, BU-1/5/9) and on the upper floors of the Commission's flagship buildings, BERLAYMONT (BERL). New pilot projects will be implemented in 2020, such as COVE/COV2 and the remaining floors in the BERL.

A6.2 Hazardous waste

Per capita hazardous waste generation represents less than 10% of total waste. Since 2014, data supplied by DG DIGIT relating to the weight of IT material collected by Oxfam (and more recently by Close the Gap) for recycling and re-use have been incorporated in the hazardous waste data, and the data series extrapolated back to 2006. In 2019, these figures increased from 55 to 137 tonnes, due to higher quantities of PCs, laptops and portable phones collected. Regarding the other two main contributors, the data for 2019 show a strong reduction in the "oil and fat" category (from 315.8 in 2018 to 156 tonnes in 2019), and a sharp increase in "buildings and lifts" (75.6 tonnes in 2018 to 122.8 in 2019).

Figure A16: Evolution of total hazardous waste in Brussels (tonnes)



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Total	43	69	105	147	93	106	87	135	180	152	132	230	386	461	424
Total (tonnes/person)	0,002	0,003	0,004	0,006	0,004	0,004	0,003	0,005	0,007	0,006	0,005	0,009	0,014	0,017	0,015
(Oxfam contract WEEE 20 01 35)		26	41	48	36	46	33	57	73	76	72	45	68	56	137
Diverse chemical waste	1,188	0,334	3,044	1,092	0,000	0,000	4,701	0,071	0,140	0,000	0,000	0,000	0,000	0,000	0,000
Mineral Oil	0,000	2,121	0,015	0,003	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Oil and fat	13	12	14	12	13	17	12	18	11	2	1	44	234	316	156
Cartridges	26	21	19	16	15	16	14	13	11	7	10	11	11	10	8
Paint-toner	1,466	2,456	2,514	1,075	0,772	1,369	1,207	1,194	0,271	0,000	0,000	0,000	0,000	0,000	0,000
Chemical batteries	1,470	1,589	1,836	1,563	1,913	1,927	2,002	1,748	2,120	2,350	3,239	6,195	4,393	1,806	0,819
Chemical-fixer-developing agents	0,002	3,195	1,244	2,378	2,059	1,855	2,446	0,150	0,126	0,000	0,000	0,000	0,000	0,000	0,000
Microfiches	0,004	0,000	0,001	0,115	0,000	1,330	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Maintenance of buildings/lifts	0	0	22	65	25	21	17	44	83	64	45	122	68	76	123

A6.3 Waste sorting

OIB seeks to maximise the sorting of waste into potentially useful recycling streams, and minimise the amount of unsorted "general" waste. Table A10 shows the proportion of total waste sorted typically

fluctuated between 54 and 58%, with 2019 showing a positive result closer to 60%. This result compares favourably against the 53% average of waste sorting in Brussels-based companies[16].

Table A10: Evolution of waste sorting at the Commission in Brussels

	2005	2014	2015	2016	2017	2018	2019
Percentage of waste sorted	53,9	59,2	55,2	57,8	59,0	57,4	58,4
Percentage of waste not sorted	46,1	40,8	44,8	42,2	41,0	42,6	41,6

A7 Protecting biodiversity

The OIB continuously strives to improve environmental impact in the building sector, despite the urban character of the site (which explains the absence of a specific indicator), including adopting several measures contributing, directly or indirectly, to protect biodiversity and including:

i) integrating and managing several green areas in its buildings;

ii) managing a green park at the Overijse site, with an area of 13 000 m²;

iii) introducing infrastructure measures such as green roofs in building projects such as that at Overijse (roof 1 800 m²);

iv) opting for green procurement of goods and services: (e.g. where possible integrating environmental considerations in the selection of construction materials); and

v) introducing the BREEAM assessment in recent real estate projects (MO15: BREEAM Excellent rating; MERO building: BREEAM Very Good rating, and the future L130 project[17]).

A new project will be launched in 2020, looking at other possibilities of introducing biodiversity protection in an urban environment (action 505 in the Global Annual Action Plan).

A8 Green Public Procurement

A8.1 Incorporating GPP into procurement contracts

OIB aims to apply "green" public procurement principles into its contracts exceeding 135 000 EUR and has increased the number of contracts including such criteria in the last few years. The target was to incorporate the criteria into all relevant contracts over 135 000 EUR (following the thresholds defined in the EC Financial Regulation), and in 2019 this was achieved in all contracts, increased from 93% in 2017.

In 2016 a new IT programme, PPMT, was introduced, allowing for a closer identification and follow-up of the GPP criteria indicator included in OIB procurement. OIB uses a three level classification of the tenders (green, not green and green by nature), which gives sufficient detail in the analysis of the environmental criteria. Tenders in 2019 have been ranked according to their degree of incorporating of sustainable criteria from not green, to green by nature. Of 18 contracts 15 were considered as “green” and 1 as “green by nature”, while the remaining 2 had no environmental features.

Action 54 of the Commission's Global Annual action plan has, since 2012, sought to integrate systematically GPP or environmental criteria in call for tenders’ terms of reference and technical specifications.

[16] Brussels Green Network (www.beci.be) https://activityreport.valipac.be/monitoring-de-la-production-de-dechets-industriels/ (rapport d’activité 2018)

[17] A major new development for office space in the European Quarter, due for completion in the mid 2020s

A9 Demonstrating legal compliance and emergency preparedness

A9.1 Management of the legal register

Several services at the OIB are registered users of the Regulation Monitoring contract REMO, for legislation relating to EMAS, technical equipment and persons with reduced mobility, launched by the European Parliament. This monitors new regulations, and enables the OIB (through emails and links to designated users) to be up-to-date on relevant legislation.

The Brussels environmental legal register (for the Brussels and Flemish regions) is updated every year by an external consultant, and checked by OIB, ensuring the completeness and adequacy of the registers in relation to the Commission's obligations. The EMAS page in OIB's intranet site invites potential interested services to contact the EMAS team asking for further support on the follow-up of legislative matters.

In Brussels, occupying a building requires an environmental permit, issued by the regional authorities. In order to obtain these, the Commission must comply with the environmental legislation. Brussels Environment, the regional environment and energy administration department, performs legal compliance audits of the buildings on a regular basis. In addition, internal EMAS audits performed by specialist external consultants and the external verification exercise check how the Commission demonstrates legal compliance in relation to environmental legislation. From these audits we can conclude that, for the Brussels site, the Commission correctly manages legal compliance in its premises and engages in regular dialogue with local authorities on the subject.

A9.2 Prevention and risk management

OIB records statistics relating to the findings of buildings inspections of health, safety and environment. These audits and inspections are based on permits and legal requirements for each building and technical installation. Out of 1998 reports issued in 2019, 46% had no remarks, while 39 % stated minor and 15% major non-conformities.

None of the major non-conformities recorded in 2019 by integrated inspections at OIB were EMAS related. A number of previous controls have been updated to better meet environmental needs:

Test/control	Reference	No. buildings controlled 2019
Cogeneration systems and associated air analysis	6G	3
Air conditioning installations over 15 years old	6F	5
Generators and associated air analysis	6H	49
Boilers and associated air analysis	6A	65
Gas supply installations	6B	26
CO in parking and underground levels (48h)	7B	71
Fine particles (copy machines)	7C	50

A9.3 Emergency preparedness

Beyond the procedures and services in place at the European Commission, concerning emergency preparedness and response related to health, safety and security incidents at work (24/7 helpdesk line 22222), the OIB monitors the application of the legislation on well-being at work, in particular the evaluation of risks and corrective measures with an impact on the environment.

With regard to technical issues, the OIB also manages the 24/7 helpdesk line 55555, which deals with technical malfunctioning in the buildings (lighting, heating, cooling, water, etc.).

A10 Communication

A10.1 Internal communication

Internal communication may involve Commission staff and contractors. A summary of the actions (aimed at Commission staff in all buildings, and not only OIB's) is included below.

Table A11: Summary of main internal communication actions in 2019

Action description	Participation at Brussels site level	Dates in 2019
Articles published on OIBNet	Invitation to attend the lunchtime conference entitled: "Marine litter and screening of the documentary A Plastic Ocean".	January
Articles published on OIBNet and flatscreens	Interinstitutional EMAS Days 2019: Let's get more sustainable together!	March
MyIntraComm	World water Day 2019	March
MyIntraComm	Automatic switch-off of the lights in the EC buildings in Brussels. (Saturday 30 March)	March
Articles published on OIBNet and flatscreens	Gearing up to VéloMai	April
Articles published on OIBNet and flatscreens	La mode créative et durable défile à la cafétéria ORBAN	October
Articles published on OIBNet and flatscreens	Reduction of single-use plastics in the EU Institutions	October
Articles published on OIBNet and flatscreens	Zero waste guided walking tours workshops at the European Quartier	November
Articles published on OIBNet and flatscreens	"Less Waste, More Action" workshop on 29 November	November
Articles published on OIBNet and flatscreens	Not one, by two Less Waste, More Action competitions!	November
Articles published on OIBNet and flatscreens	Microplastic pollution, lunchtime presentation and exhibition	November
Articles published on OIBNet and flatscreens	Coworking Hubs in Brussels over the Christmas break	December
Articles published on OIBNet and flatscreens	For more sustainable end-of-the-year parties	December
OIB m@g' n° 12 – la newsletter de l'OIB	Action de fin d'année EMAS, résultats 2018-Objectif 2019	December
OIB m@g' – la newsletter de l'OIB Staff Matters Newsletter	Nouveau système de livraison des fournitures de bureau-Donner une seconde vie aux anciennes fournitures	December

A10.2 External communication and stakeholder management

The main external actions conducted by Brussels in relation to environmental matters:

Action description	**Participation at Brussels site level**	**Organisation and external stakeholders**	**Dates in 2019**
Annual Earth hour lights out campaign	Automatic switch-off of the lights in the EC buildings in Brussels. (Saturday 30 March)	Commission wide and with other EU institutions in BXL	30/03
Communication with Regional authorities	Planning, organization, participation, follow-up and reporting on audits performed by the IBGE or the Fire Department (SIAMU); training and seminars taken at IBGE facilities; participation in meetings, held at IBGE, concerning the future legislation on energy savings and the legislation COBRACE, as well as the annual EMAS meeting; frequent contacts with building owners and property managers.	OIB and IBGE, SIAMU and property owners and managers	Through-out the year
Commission open day	Presentation of the EC activities to the general public (approximately 25 000 visitors)	Commission wide organisation for all sites	04/05
Presentation of EMAS	A presentation of the EMAS system to college students in urbanism (Haute École in Charleroi)	College students	15/05
European Union Sustainable Energy Week	Presentation by the EMAS team @OIB in collaboration with OIB RE.1	All the main players in the energy sector in Europe	20/06
GPP Lunchtime conference at EP	Presentation by EMAS team on the suppression of single-use items	Interinstitutional	14/10

A11 Training

A11.1 Internal training

Table A13: Action plan training

Description	**Participation at Brussels site level**	**Participants (estimated)**	**Dates in 2019**
Presentation of the new contract for office supplies	Members of the Logistic Proximity Teams in Brussels	40	17/09/2019
Presentation of the sorting stations	Each installation of the new sorting stations is followed by a short presentation to the EMAS correspondents and other staff, including senior management	50	Several throughout the year

A11.2 External training

The EMAS coordination team at OIB followed several training sessions during 2019 on the following subjects:

- Choice of building materials;
- Environmental permits;
- Building commissioning;
- PEB certification in public buildings;
- PLAGE [18]coordination
- ISO 14001 lead auditor;
- PLAGE Energy management training
- IPMVP (International performance measurement verification protocol).

Two of the members of the EMAS team at OIB are Energy Building Performance (EBP) public buildings registered certifiers and EBP advisers. Another member of the team has successfully completed the IRCA[19] training in ISO 14001 lead audit. Another one has completed a Master's degree in Environmental Sciences and Management at ULB (Université Libre de Bruxelles). The final dissertation, to be presented in September 2020, is linked to his work at OIB.

Starting in March 2019, the EMAS team at OIB welcomed a trainee under the Blue Book Program in the European Commission.

A12 EMAS Costs and saving

For several years, the costs associated with running EMAS in terms of staff time and that of supporting contracts and savings have been monitored. The estimated costs associated with parameters such as energy and water consumption and waste generation and disposal have also been estimated. These are presented in Table A14.

Table A14: EMAS administration and energy costs for buildings in the EMAS area

Parameter	2005 (1)	2014	2015	2016	2017	2018	2019
Total Staff (EMAS Office Buildings)	4 033	25 667	25 698	26 562	25 757	25 689	27 440
Total Staff (Commission)	21 203	27 392	27 089	26 927	26 834	26 929	27 866
EMAS administrative cost (EUR)/staff		**4,82**	**4,95**	**4,98**	**5,14**	**5,50**	**5,38**
Total energy cost for EMAS office buildings (EUR)	4 710 826	13 221 363	12 762 057	11 923 315	11 013 691	10 997 061	10 820 550
Total energy cost for all Commission buildings (3) (EUR)	24 766 587	14 109 930	13 452 851	12 087 158	11 474 439	11 528 110	10 988 737
Total per capita energy cost for EMAS office buildings (EUR/person)	**1 168**	**515**	**497**	**449**	**428**	**428**	**394**
Electricity (Eur/person)	845	395	365	341	333	335	309
Gas (Eur/person)	307	113	129	107	94	93	85
Fuel (Eur/person)	16	7	3	1	0	0	0

Notes:
1) Unit costs: Assume 2005 same as 2006, 2008 still under review
2) Including, in 2016 Executive Agencies in Commission managed buildings
3) Assuming non EMAS area have similar costs for energy as EMAS area

Energy is by far the largest single resource cost. The total energy costs decreased more than 55% since 2005, year of the first EMAS registration (approximately 11 Mio EUR in 2019, compared with almost 25 Mio EUR in 2005).

[18] PLAGE (Programme Local d'Actions pour la Gestion Énergétique) https://environnement.brussels/thematiques/batiment/obligations/plan-local-daction-pour-la-gestion-energetique/un-plage-pour-les

[19] International Register of Certified Auditors

A13 Conversion factors

Table A15: Conversion factors used in producing data for the Brussels site[20]

Table A15: Conversion factors used in producing data for the Brussels site

Parameter and units	2005 - 10	2011	2012	2013	2014	2015	2016	2017	2018	2019
Assumed output, (% of kWh/p)				20	20	20	20	20	20	20
kWh from on litre diesel (1), (8)			11,1	11,1	11,1	11,1	11,1	11,1	11,1	10,6
KWh from one litre petrol (1)			9,4	9,4	9,4	9,4	9,4	9,4	9,4	9,4
Paper Density (g/m2)	80	80	80	78	75	75	75	75	75	75
Kg CO_2e from 1 KWh of electricity (3)	0,275	0,275	0,275	0,275	0,275	0,275	0,275	0,275	0,275	0,275
Kg CO_2e from 1 KWh natural gas PCI (5)	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,200	0,205
Kg CO_2e from 1 KWh domestic fioul (5)		0,270	0,270	0,270	0,270	0,270	0,270	0,270	0,270	0,266
GWP of R22 (2)	1 810	1 760	1 760	1 760	1 760	1 760	1 760	1 760	1 760	1 760
GWP of R410A (2)				1 920	1 920	1 920	1 920	1 920	1 920	1 920
GWP of R134A (2)				1 300	1 300	1 300	1 300	1 300	1 300	1 300
GWP of R404A (2)				3 940	3 940	3 940	3 940	3 940	3 940	3 940
GWP of R407C (2)				1 620	1 620	1 620	1 620	1 620	1 620	1 620
Kgs CO2e from one litre diesel (6)				2,50	2,50	2,50	2,50	2,50	2,50	2,50
Kgs CO2e from one litre petrol (6)				2,28	2,28	2,28	2,28	2,28	2,28	2,28
Annual cost of one FTE (4)			132 000	132 000	132 000	134 000	134 000	138 000	148 000	150 000
Number of working days in the year (7)				211	211	211	211	211	211	211

Notes:
(1) Beginner's Guide to Energy and Power, Neil Packer 2011 available at http://studylib.net/download/18346856
(2) IPCC 5th Assessment Report (2014, from p 731 on) https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf
(3) IGBE, 2013
(4) Figure from DG BUDG Finance unit network (RUF) for AD staff and in place at the beginning of reportingyear
(5) Base carbone, ADEME, 2017 Europe average, (combustion only, excluding upstream emissions)
(6) Base carbone, ADEME, 2017 value for vehicle fleet, France (combustion only, excluding upstream emissions)
(7) Used for estimating emissions from commuting, source DG HR A.3
(8) Harmonized factor for Europe based on Carbontrust study (updated), conversion factors 2016 www.carbontrust.com

[20] Source: IPCC 5th Assessment Report (2014, please see from p 731 on) https://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WG1AR5_Chapter08_FINAL.pdf and summarised in Base Carbone, ADEME, 2017

A14 Site breakdown: characteristics of buildings and performance of selected parameters (indicative data)

Building	Address	Occupant	EMAS registration	Useful surface area (PEB in m^2)
1) Building essential details 2019:				

B232	Rue Breydel 4	SANTE	BXL 2009/016	11 584	469	X								1 153 263	750886	3623,8	40,00	
B-28	Rue Belliard 28	DIGIT	BXL 2007/009	14 987	804	X	X							2 077 812	361725	4123,4	58,82	
BERL	Rue de la Loi 200	Collège, SG, SJ, COMM, OIB, EPSC, HR	BXL 2005/001	151 410	2 166	X	X	X						19 936 352	10644569	24800,8	246,70	
BRE2	Avenue d'Auderghem 19	HR, BUDG	BXL 2005/002	18 747	567	X	X				X			1 700 886	963521	4545,2	72,42	
BREY	Avenue d'Auderghem 45	BUDG, GROW, HR	BXL 2009/015	35 198	825	X	X	X						3 417 505	2370083	21370,4	158,12	Includes HT and LT
BU-1	Avenue Beaulieu 1-3	REGIO	BXL 2008/013	13 911	411	X					X			1 209 174	1361547	5518,4	249,00	Includes figures for waste for buildings BU-5 and BU-9.
BU24	Avenue de Beaulieu 24	CLIMA, EEAS	BXL 2012/043	6 425	210	X								454 645	621883	1476,8	22,49	
BU25	Avenue de Beaulieu 25	CNECT	BXL 2012/044	18 130	532	X								1 636 881	895232	3309,6	118,96	
BU29	Avenue de Beaulieu 29	REGIO	BXL 2011/033	6 131	190	X	X							594 186	322453	1467,9	75,81	
BU31	Avenue de Beaulieu 31	CNECT	BXL 2011/034	6 185	123	X								396 178	355324	1061,1		Includes figures for waste for BU33.
BU33	Avenue de Beaulieu 33	CNECT	BXL 2011/035	6 843	176	X								897 463	353353	1786,9		
BU-5	Avenue de Beaulieu 5-7	ENV, REGIO	BXL 2005/003	11 843	268	X	X	X						1 477 110	1131951	5719,3		Figures for waste included in BU-1.
BU-9	Avenue de Beaulieu 9-11	ENV, OIB	BXL 2005/004	13 040	419	X					X			1 121 579	1406363	5645,9		Figures for waste included in BU-1.
C-25	Avenue de Cortenbergh 25	EPSO, DIGIT		8 574	141	X								711 036	737723	934,4	21,98	
CCAB	Rue Froissart 36	SCIC	BXL 2013/049	18 634	533	X	X	X						2 774 572	1978646	9516,5	98,58	
CDMA	Rue du Champ de Mars 21	RTD, JRC	BXL 2009/017	19 096	620	X	X							1 841 352	1729732	4770,7	107,78	
CHAR	Rue de la Loi 170	ECFIN, COMM, TRADE, IAS	BXL 2013/050	55 342	1 354	X	X	X						6 018 049	3447573	22893,4	238,16	
COVE-COV2	Placer Rogier 16	DIGIT, RTD + Agencies	BXL 2014/055	71 430	1 781	X	X	X						6 656 931	6634983	36838,0	209,26	
CSM1	Rue Père de Deken 23	OIB	BXL 2011/026	12 276	514	X	X							818 244	933049	4165,1	45,75	
DM24	Rue Demot 24	MOVE, ENER, EAS, SANTE, EPSO	BXL 2014/055	15 827	525	X	X							1 382 555	1111889	4898,0	78,65	
DM28	Rue Demot 28	MOVE	BXL 2013/051	11 277	377	X								850 827	1029087	4390,2	46,93	
F101	Rue Froissart 101	SANTE, JUST	BXL 2010/031	8 351	225	X	X							681 702	697123	2162,2	53,77	
G--1	Avenue de Genève 1	DGT, OIB, AGRI, DIGIT	BXL 2011/037	12 580	283	X			X					1 166 731	619025	3424,6	60,52	
G-12	Avenue de Genève 12	DGT	BXL 2011/038	16 946	531	X	X							1 228 411	1267614	3770,2	77,94	
G--6	Avenue de Genève 6	DGT	BXL 2011/039	17 240	464	X	X	X						1 238 458	1181549	4355,3	92,13	

ANNEX A: BRUSSELS

Building	Address	Occupant	EMAS registration	Useful surface area (PEB in m²)	Staff	Office	Café	Self rest	Creche/	Printing and	Medical	Depot, large	Workshop	Sports/	Electricity	Mains gas	Water (m3)	Non hazardous waste (tonnes)	Comment					
1) Building essential details 2019:						**2) Building use 2019**									**3) Energy sources and amount**		**4) Water and waste consumption**							
J-27	Rue Joseph II 27	EMPL	BXL 2009/019	13 265	425	X	X								1 056 497	559634	3405,7	68,85				933 338	859045	2358,6	90,16	Figures for waste include figures for VM-2.
J-30	Rue Joseph II 30	OLAF	BXL 2009/020	18 157	516	X	X							EAC, SCIC	2 671 919	1127494	4210,3	76,98								
J-54	Rue Joseph II 54	DIGIT, DEVCO, EMPL, NEAR	BXL 2007/012	19 739	576	X	X							OIB	1 488 978	1094961	4520,4	76,91	X			526 076	573958	6209,7	64,17	
														OIB					X			1 152 164	894856	1140,2	83,56	
J-59	Rue Joseph II 59	DEVCO	BXL 2010/030	9 396	276	X									774 994	529977	2845,3	51,40								
J-70	Rue Joseph II 70	EAC, OSP	BXL 2010/029	20 082	625	X	X							OIB	1 404 614	1537097	4183,8	97,17	Electricty in J-70 is exclusively LT.						14,65	Electricity and gas for WILSON are included in CLOVIS figures (one single EAN)
J-79	Rue Joseph II 79	CDP-OSP , MARE, TAXUD	BXL 2009/021	16 134	451	X	X								1 509 042	779272	4365,9	51,86								
J-99	Rue Joseph II 99	MARE	BXL 2014/056	8 281	299	X								Cercles de Loisirs, le	588 781	373384	3882,6	56,57				1 120 301	1455986	4010,3		Waste figures included in VM18.
L102	Rue de la Loi 102	AGRI	BXL 2013/052	4 935	143	X								Foyer, Brasserie	286 026	320861	945,7		Waste figures included in L-86							
L130	rue de la Loi, 130	AGRI	BXL 2014/057	37 043	1.036	X	X	X						OIB	3 607 308	4386585	15462,9	202,79	Includes HT and LT			638 480	1179380	4453,4	66,15	
L-15(3)	Rue de la Loi 15	NEAR	BXL 2013/053	17 482	482	X	X								1 521 552	922674	2346,0	114,14								
L-41	Rue de la Loi 41	DEVCO	BXL 2009/022	27 864	855	X	X	X						OIB.Archives Historiques	2 522 354	1588380	7271,6	175,23		X		785 781	540988	205,6	40,82	
L-56	Rue de la Loi 56	COMM ,Galileo	BXL 2012/046	9 666	349	X								OIB	866 328	574849	2282,3	33,58		X		290 028	352904	1761,1	40,06	
L-86/L-84	Rue de la Loi 86	ECHO	BXL 2011/032	13 355	448	X	X								1 398 128	1322216	4023,0	97,76	Includes L102 waste figures			162 914	228570	895,2	39,03	
LX40	Rue de Luxembourg 40	TAXUD, JUST	BXL 2013/054	7 803	248	X									565 227	366170	1332,9	51,66			X					
LX46	Rue de Luxembourg 46	HOME, JUST	BXL 2010/023	17 478	505	X									1 665 344	1718084	5997,8	81,08	Includes consumption MO59							
MADO	Place Madou, 1	DIGT, COMP,AGRI	BXL 2014/058	40 716	1 093	X	X	X							3 983 903	3120507	17834,8	188,77				**103 996 689**	**76913075**	**329 167**	**4718**	
MERO	Av. Tervuren, 41	PMO		13 145	480	X	X								810 674	723371	3025,8	67,13								
MO15	Rue Montoyer 15	DIGIT		11 543	509	X	X								1 031 646	157056	2445,0	37,53								
MO34	Rue Montoyer 34	DIGIT, HR	BXL 2005/007	12 820	337	X		X							1 548 406	898789	3960,0	110,20	Include waste figures ofr SC11.							
MO59	Rue Montoyer 59	JUST	BXL 2010/024	8 671	251	X	X											62,49	Consumption included in LX46.							
N105	Avenue des Nerviens 105	GROW	BXL 2010/025	9 546	310	X									945 286	1118487	5697,8	42,51								
ORBN	square Frère Orban, 8	RTD	BXL 2014/059	25 141	724	X	X	X							1 742 896	1055748	3626,8	79,98								
PLB3	Philippe Le Bon 3	EMPL, HR et Formation	BXL 2015/060	16 584	219	X	X	X							2 072 047	1320123	5841,4	106,91								
SC11	Rue de la Science 11	HR	BXL 2005/008	9 002	214	X	X								772 531	686124	2467,2		Figures for waste included in MO34.							
SPA2	Rue de SPA 2	FISMA	BXL 2012/047	19 567	555	X	X								1 322 301	991361	5838,8	129,49								
SPA3	Rue de Spa 3	TAXUD, EMPL	BXL 2012/048	12 288	464	X									788 929	647301	3751,6	44,50								

Building	Address	Occupant	EMAS registration	Useful surface area (PEB in m²)
1) Building essential details 2019:				

ANNEX A: BRUSSELS