Europäisches Patentamt
European Patent Office
Office européen des brevets

Environmental Report 2014

In accordance with Regulation (EC) No 1221/2009

ENVIRONMENTAL REPORT[1] 2014[2]

1 The scope of this report is wider than in previous years where it was limited to the EMAS environmental statement. This is why the title was changed from “environmental statement” to “environmental report”.

2 The content of this report mainly refers to achievements in 2014. This is why its title is „environmental report 2014“. In previous statements, the title referred to the year of publication, not the year that was reported on.

Environmental Report

1. The European Patent Office

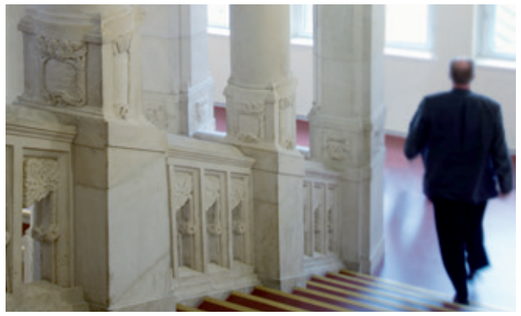
The European Patent Office (EPO) with its roughly 7 000 staff is the second-largest international organisation in Europe. It has its headquarters in Munich and offices in The Hague, Berlin, Vienna and Brussels. Since 2009 it has been certified as
complying with the eco-management and audit scheme EMAS at all its sites apart from Brussels due to its small size.

The EPO's EMAS-certified sites are:

- **European Patent Office Munich I** (Isar building), Germany
  Bob-van-Benthem-Platz 1, 80469 Munich
- **European Patent Office Munich II** (PschorrHöfe 1 – 8), Germany
  Bayerstr. 34, 80335 Munich
- **European Patent Office Munich III** (Capitellum), Germany
  Landsberger Str. 30, 80339 Munich
- **European Patent Office Berlin,** Germany
  Gitschiner Str. 103, 10969 Berlin
- **European Patent Office The Hague I** (Main, Shell, Hinge), Netherlands
  Patentlaan 2, 2288 EE Rijswijk
- **European Patent Office The Hague II** (Le Croisé), Netherlands
  Verrijn Stuartlaan 2a, 2288 EL Rijswijk
- **European Patent Office The Hague III** (Rijsvoort), Netherlands
  Visseringlaan 19 – 23, 2288 ER Rijswijk
- **European Patent Office Vienna**, Austria
  Rennweg 12, 1030 Vienna

In accordance with EMAS Regulation (EC) No 1221/2009, the EPO issues an (updated) Environmental Report every year, setting out its environmental data and reporting on its progress in environmental performance. The present Report is an updated version and can be downloaded from the EPO website (www.epo.org).

Since 2012 the EPO has each year set itself specific environmental objectives. The objective it set in 2014 was to reduce energy consumption for heating and electricity by 1.5%, and with energy savings of 1.56% it exceeded its target. The target for energy savings in 2015 has again been set at 1.5%, and this is binding on all the EPO's sites. This Environmental Report describes how the EPO ensures that these objectives are achieved.



1.1 EPO Berlin

The Berlin sub-office is housed in a building that was constructed in the early 20th century and thus has a historic structure; however, the age of the building also entails certain deficiencies in its insulation and energy efficiency. The proprietor regularly undertakes structural improvements, some of them extensive, with a view to enhancing the building's energy efficiency. Facilities with environmental relevance include a gas-powered heating system, several cooling installations, a small storage area for cleaning agents, an X-ray machine in the post room and a kitchen/canteen operated by an external service provider. Responsibility for operating the building heating systems and the canteen's refrigeration units lies with the proprietor; responsibility for operating the air-conditioning systems in individual meeting rooms lies with the EPO. No information is available about land contamination at the Berlin site. The only forms of hazardous waste are spent batteries and fluorescent tubes.

Site/building	Gross floor area	Gross floor area without basement	Workplaces	Status
EPO Berlin	18 100 m²	17 600 m²	304	Rented

Most relevant areas of environmental law	Relevant facilities/activities
Water regulations	Water discharge into sewage system
Waste regulations	Recycling/separation/disposal of various types of waste
Building energy efficiency regulations	Building insulation, energy-efficient technologies
Health & Safety, hazardous materials regulations	Risk assessment, fire prevention, restrictions on certain chemical agents

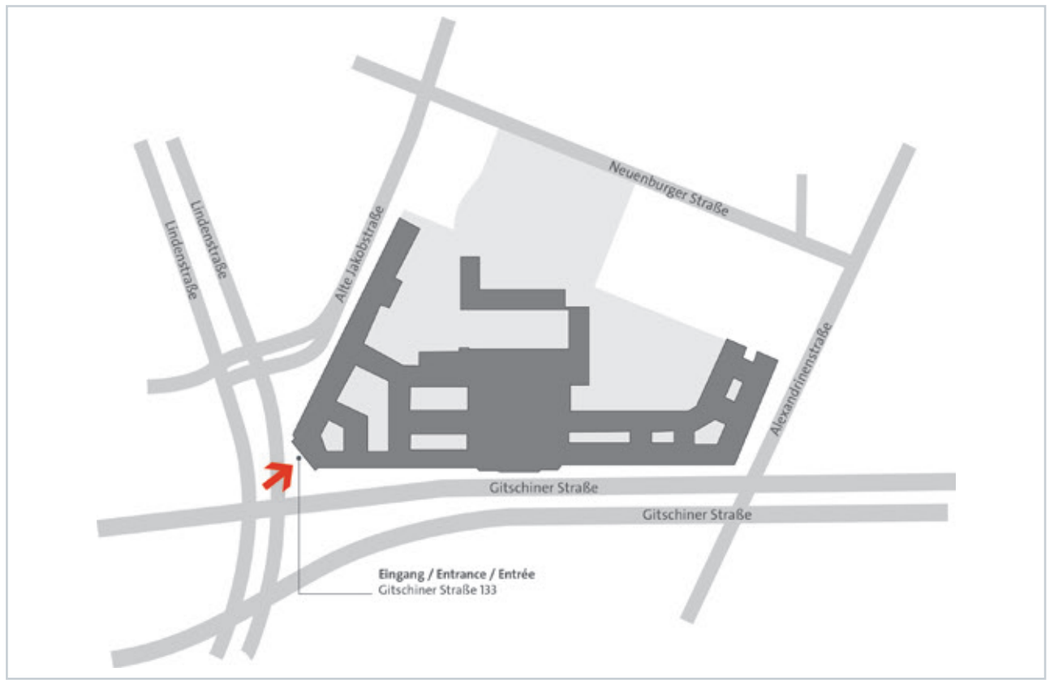


Fig. 1: EPO Berlin

1.2 EPO Munich

Munich is the largest of all the duty stations in terms of gross floor area and staff numbers. The condition of the buildings varies, some of them being relatively old, such as the Isar building, others more recent, including PschorrHöfe 7 and 8. The Isar building and the PschorrHöfe have district heating; the Capitellum has gas heating. Other facilities with environmental relevance are primarily situated in the Isar building. They include a repair shop and carpenter's workshop, a water treatment installation and tanks for acid and lye solutions for water treatment. The Isar building was extensively renovated between 2010 and 2012 to improve its energy rating.

The Isar building and PschorrHöfe 1-8 have an oil and/or grease trap and a kitchen/canteen and dish-washing area. All the Munich buildings have (small) storage areas for cleaning agents and chemicals. No information is available about land contamination at the Munich sites. Hazardous waste consists mainly of spent batteries and fluorescent tubes.

Site/building	Gross floor area	Gross floor area without basement	Workplaces	Status
Isar building	91 400 m²	57 800 m²	793	Proprietor
PschorrHöfe 1-8	276 300 m²	210 600 m²	3013	Proprietor
Capitellum	25 800 m²	16 200 m²	225	Rented*

* Vacated on 31 March 2015.

Most relevant areas of environmental law	Relevant facilities/activities
Pollution regulations governing small and medium-sized heating systems	Heating system (natural gas)
Water regulations	Storage of diesel, acids and lyes, operation of oil traps, cooling and waste water discharge into sewage system
Regulations on climate protection and refrigerants	Cooling installations with at least 5 kg GWP
Building energy efficiency regulations	Energy certification, building insulation, energy-efficient technologies
Health & Safety, hazardous materials regulations	Risk assessment, fire prevention, requirements for use of hazardous substances (e.g. acids, lyes)
Pollution regulations governing sawdust	Carpenter's workshop
Waste regulations	Recycling/separation/disposal of various types of waste

Fig. 2: EPO Munich, Isar building

Fig. 3: EPO Munich, PschorrHöfe

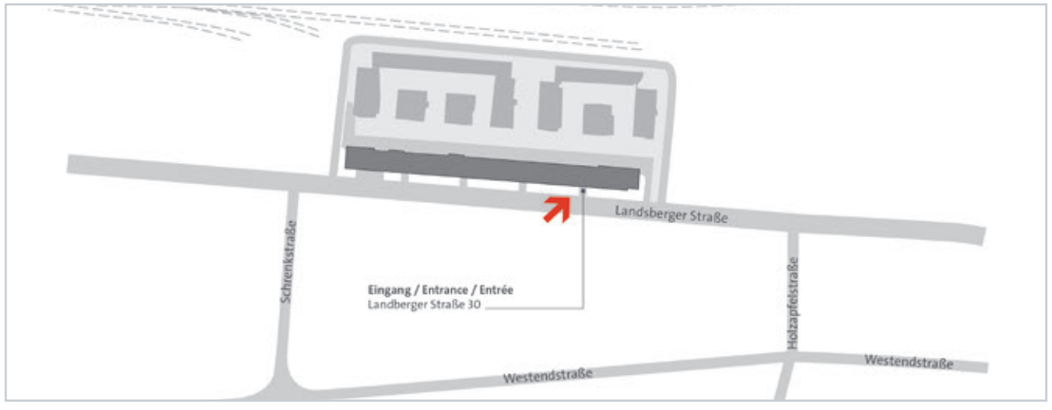


Fig. 4: EPO Munich, Capitellum

1.3 EPO The Hague

After Munich, The Hague is the second-largest duty station, comprising three sites in Rijswijk, one owned by the EPO and two rented buildings. Owing to their size and condition, certain buildings consume a large amount of heat energy, but this has shown a clearly positive trend over recent years. All buildings are heated by natural gas. The gas-powered heating boilers are regularly inspected and comply with emissions thresholds. There are also regular leak tests on the air-conditioning units, which to date have detected no major leaks. All testing is performed by an external service provider in accordance with Dutch law.

In the Shell building there are diesel fuel tanks which feed the emergency generators. Outside the building there is an underground storage area for diesel fuel (three tanks with a capacity of 5 000 litres each and one with a capacity of 4 000 litres). These likewise feed the emergency generators in the Shell building in the event of power outages. The three kitchens have grease traps and a dish-washing area. In various places there is storage for further hazardous substances. These include cleaning agents and several 200-litre containers with glycol for the ventilation system (Shell building). All substances are stored in accordance with legal requirements, for example using double-walled tanks or drip collectors. The necessary information such as safety information sheets and operating instructions is available. No information is available about land contamination at the sites in The Hague. Hazardous waste consists of spent batteries, old fluorescent tubes and waste oil. Under Dutch law the site is subject to an "activity decree", a simplified environmental permit.

Since 2013 construction work has been in progress on the „New Main" building in The Hague, due to replace the present main building by 2017/2018. In several respects „New Main" is being constructed on sustainable principles, e.g. minimisation of environmental impact in the construction phase, greatly reduced energy consumption once in use, optimum and particularly user-friendly air-conditioning. The EPO has voluntarily decided to comply with the certification criteria of two standards for sustainable buildings (BREEAM and BNB) and to aim for an energy efficiency rating 20% above the statutory values. In addition, a likely 15% of the energy required for building operation will be generated on site, e.g. from groundwater heat and solar power.

Site/building	Gross floor area	Gross floor area without basement	Workplaces	Status
Main, Shell, Hinge	192 605 m²	176 421 m²	2390	Proprietor
Le Croisé	28 700 m²	24 893 m²	411	Rented
Rijsvoort	12 600 m²	9 763 m²	178	Rented

Most relevant areas of environmental law	Relevant facilities/activities
Rules on general environmental management	Environmental permit, annual environmental report to the municipality of Rijswijk
Pollution regulations governing combustion units of type B	Heating system
Water regulations	Water discharge into sewage system
Hazardous materials regulations	Handling/storage/transport of hazardous substances, e.g. glycol, asbestos; transmission of hazardous waste (potential); grease traps
Regulations on underground storage of hazardous substances	Underground storage area for diesel fuel
Regulations on climate protection and refrigerants	Cooling installations with at least 5 kg GWP
Waste regulations	Recycling/separation/disposal of various type of waste
Building regulations	Building activities: criteria for renovation/alteration and new buildings
Health & Safety	Appropriate risk assessment, fire prevention, restrictions on certain chemical agents

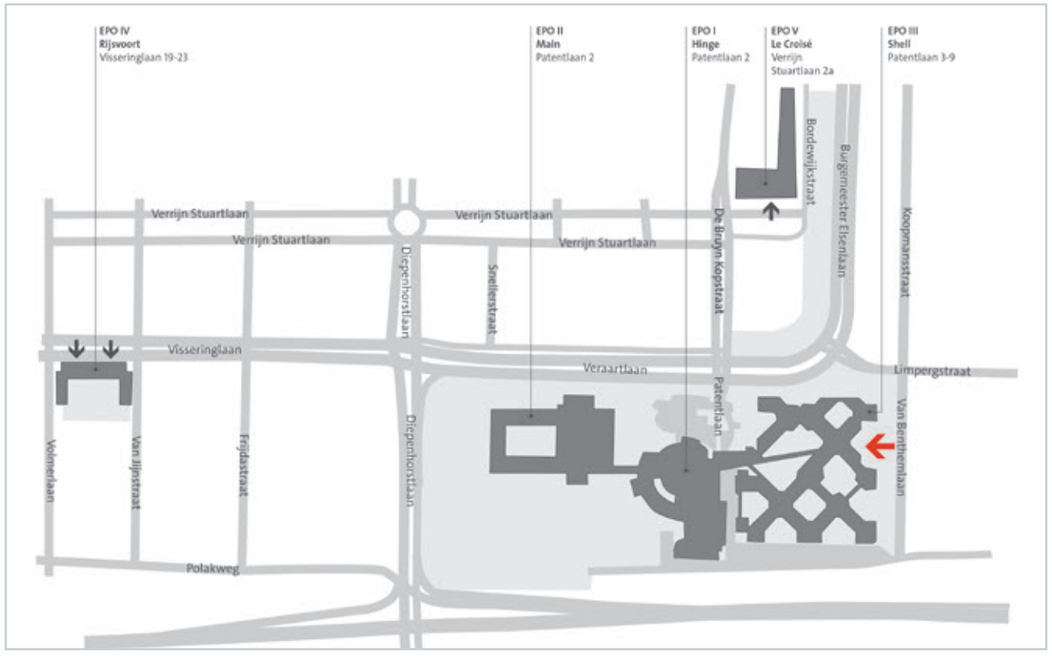


Fig. 5: EPO The Hague

1.4 EPO Vienna

Vienna is the smallest of all the sites, in terms of both gross floor area and staff numbers. The Vienna office uses district heating. Facilities with environmental relevance are limited to a small store for cleaning agents. No information is available about land contamination at the Vienna site. The only forms of hazardous waste are spent batteries and fluorescent tubes.

Site/building	Gross floor area	Gross floor area without basement	Workplaces	Status
EPO Vienna	12 300 m²	6 979 m²	107	Proprietor

Most relevant areas of environmental law	Relevant facilities/activities
Water regulations	Water discharge into sewage system
Waste regulations	Recycling/separation/disposal of various types of waste
Building energy efficiency regulations	Energy certification, building insulation, energy-efficient technologies

Fig. 6: EPO Vienna

2. Environmental policy

In 2009, the president approved the EPO´s Environmental Policy.
Our environmental policy provides a strategic framework for all activities at the EPO and emphasises the importance of environmental protection at the Office. The policy is binding upon all departments. Senior managers are committed to ensuring that this policy is well understood and applied in all departments.

Our environmental policy is formulated as follows:

The European Patent Office consumes energy for heating and electrical power, as well as large volumes of water and paper, and generates both waste and CO_2 emissions. It has addressed these environmental issues by introducing an environmental management system that meets the requirements of the eco-management and audit scheme EMAS.

With a view to improving its environmental performance, the EPO continuously assesses the environmental impact of its operations. It sets objectives and targets and reviews them on a regular basis.

The following principles and objectives govern the EPO‘s actions:

- **Promote responsible environmental awareness within the EPO and communicate and implement this policy at all levels of the Office**
- **Minimise the consumption of energy, water, paper and other resources**
- **Minimise waste and environmental pollution**
- **Comply with relevant environmental legislation, administrative regulations and other requirements**
- **Provide suitable resources to fulfil the Office‘s environmental policy obligations**
- **Promote local environment protection initiatives and schemes and encourage active involvement in them**
- **Communicate this policy to stakeholders**

Since the EPO considers it the responsibility of every staff member to help meet the objective of achieving optimum environmental protection, it provides its staff with appropriate training, advice and information and encourages them to develop new ideas on how to implement the Office‘s environmental policy effectively.

In 2014, a new governance for all environmental activities has been discussed. A document will be submitted to the president and the MAC in 2015 for review and approval. The key elements of this new governance will be:

- framework for all environmental activities
- integration of EMAS projects into the normal yearly budget cycle
- clear commitment of EPO´s high management to environmental topics
- enlarged environmental report of which the EMAS statement is part of

3. Environmental management system

The 2009 environmental policy implemented an environmental management system under EMAS and the EPO took on a leading environmental role as an adminstrative institution.
The management system integrates environmental aspects into all the Office‘s operational processes. All the EPO‘s processes are regularly assessed with a view to potential improvements to environmental protection. All employees are regularly addressed and encouraged through recommendations and information to adopt environmentally friendly behaviour. The structure of the environmental management system is defined in our environmental management handbook, which applies to all sites.

Environmental management is organised and co-ordinated centrally by the EPO in Munich. In addition, there are site-specific procedures and documents for each location. These include environmental data and the environmental programme with suggestions for improvements at each site. The central Environmental Management Officer is in charge of implementing and further developing the environmental management system within the EPO. In addition, there are local environmental representatives at each site. They are in charge of planning, co-ordinating and monitoring local environmental activities and ensuring that environmental aspects are integrated into everyday operations.

The Environmental Management Officer and the local environmental representatives, together with representatives from Procurement, Information Management and Technical Services, form the EPO‘s central environmental team, which meets at least twice a year. A voluntary environmental group initiated by staff in Munich and The Hague supports the team‘s work and adds its own proposals to the environmental programme. The Office‘s environmental management system is regularly assessed in internal audits, thus ensuring a continuous improvement process. All relevant information is communicated to our staff members through the intranet, regular articles in the staff gazette, etc., and is made available to the public in this Environmental Report.

4. Compliance with legal requirements

EMAS and the applicable environmental law for the different duty stations constitute external requirements to be met by the EPO and its environmental management system. We have identified the legal requirements which are relevant and obligatory for each duty station. They are documented in the legal register for each country in which the EPO is situated. By continuously reviewing and updating the legal register, we identify changes to environmental laws and implement new requirements. Moreover, all periodic obligations at the different sites (e.g. periodic inspection of diesel tanks) are documented in local registers of periodic duties. Compliance with legal requirements is verified in yearly internal audits. These have not identified any violations of the legal requirements.

5. Direct environmental aspects

Our activities have an environmental impact. In accordance with our environmental policy we aspire to reduce this impact by applying our environmental management system and continually improving our environmental performance. All significant environmental aspects are recorded and assessed on an annual basis. This evaluation serves as a basis for developing new environmental objectives and measures for improvement in the future. Environmental aspects are subdivided into direct and indirect aspects. The indirect aspects are described in section 6. The main direct environmental aspects at the EPO include

– energy consumption for electricity and heating,
– CO_2 emissions from heating energy consumption and business travel,
– water and paper consumption and
– residual waste generation.

The environmental data has been compared across all sites in order to assess the relevance of the environmental aspects. The electricity and heating energy data has also been compared with external benchmarks.

Not all these aspects apply at all sites. In Vienna and Berlin, for example, the nature of the meter infrastructure means that the recording of electricity consumption is not as detailed as in Munich and The Hague. In these cases that aspect is either assessed at a higher level (e.g. „Overall aspect/Resource consumption/Electricity“) or not assessed at all (e.g. „Resource consumption/Cooling water/Water for other systems“).

The environmental aspects have been assigned to the following categories to help assess their relevance and the need for action:

A = very significant environmental aspect with above-average need for action
B = significant environmental aspect with average need for action
C = less significant environmental aspect with low need for action

In addition, the extent to which the various aspects can be controlled is classified in the following categories:
I = short-term control possible
II = mid- to long-term control possible
III = control not possible or only in long term or subject to third-party decisions

All direct environmental aspects under the EMAS III Regulation have been assessed for relevance to the EPO. Only the aspects that were found to be relevant are included below.

		Berlin	MUC Isar	MUC PH 1-8	TH Hinge	TH Shell	TH Main	TH Le Croisé	TH Rijsvoort	Vienna
Direct environmental aspects										
Resource consumption Electricity	Overall aspect Resource consumption Electricity	A II	A II	A II	A II	A II	A II	A II	A II	A II
	Computer centre	–	A II	A II	–	A III	–	–	–	A II
	Garages	–	A I	A I	A I	A I	–	–	–	A I
	HVAC	–	A II	A II	A II	A I	A II	–	–	A II
	Canteen	–	A III	A III	A III	–	–	–	–	–
	Cooling/cold water	–	A II	A II	A II	A II	–	–	–	A II
	Humidification	–	B II	B II	A I	A I	–	–	–	–
Emissions from electricity generation		C II	C II	C II	C I	C I	C I	C III	C III	C I
Resource consumption Heating energy	Overall aspect Resource consumption Heating energy	A II	–	–	–	–	–	B II	B II	B II
	Building heating	–	A II	A II	A II	A II	A II	–	–	–
	Hot water	–	B III	B II	A II	B II	–	–	–	–
	Humidification	–	B II	–	B III	A II	–	–	–	–
Emissions from district heating		B III	B III	B III	–	–	–	–	–	B III
Emissions from gas		–	–	–	A III	A III	A III	A III	A III	–
Emissions from business travel by air		A II	A II	A II	A II	A II	A II	A II	A II	A II
Emissions from other business travel		C II	C II	C II	C II	C II	C II	C II	C II	C II
Resource consumption Water for sanitary facilities/canteen		B II	B II	A II	A II	A II	A II	B II	B II	B II
Resource consumption Cooling water/Water for other systems		–	B II	B II	B II	B II	–	–	–	–
Hazardous substances in waste water		B II	B II	B II	B II	B II	B II	B II	B II	B II
Waste – non-hazardous		B II	B II	B II	C II	C II	C II	C II	B II	B II
Waste – hazardous		C III	B II	B II	B II	B II	B II	C II	C II	c II
Resource consumption - paper		B II	A II	A II	A II	A II	A II	A II	A II	B II
Risk of environmental accidents		C II	B II	B II	B II	B II	B II	B II	C II	C II

Overview of all sites

The consumption data for each site and the resultant index figures are an important instrument for assessing current environmental performance, planning and monitoring environmental activities and regularly reviewing the continuous improvement process.

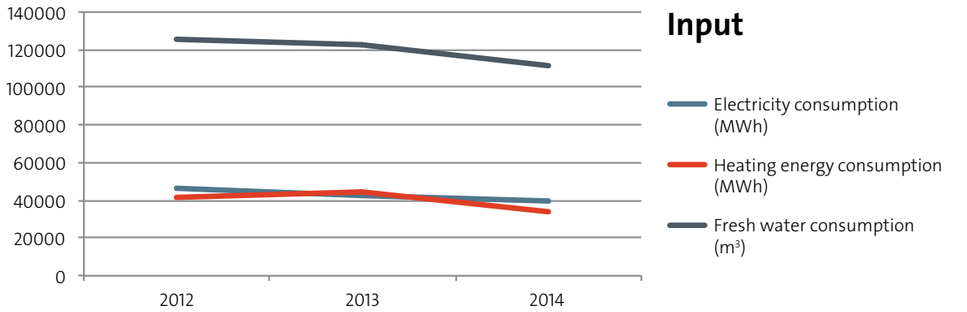
The following table summarises the chief environmental data for all buildings.

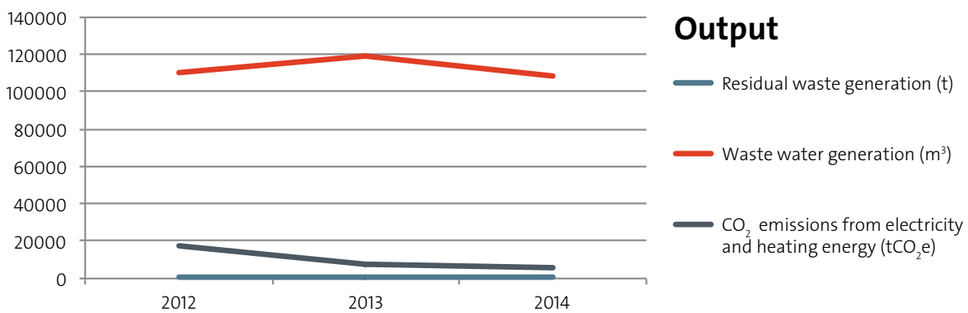
Input	Unit	2012	2013	2014
Electricity consumption	MWh	46 196.88	42 958.73	**39 491.47**
Heating energy consumption (all factors)	MWh	41 561.62	44 987.20	**33 973.13**
Fresh water consumption	m^3	125 203	122 555*	**111 515**

Output	Unit	2012	2013	2014
Residual waste generation	t	474	509	**560**
Waste water generation	m^3	110 431	119 472*	**108 537**
CO_2 emissions from electricity and heating energy	tCO_2e	17 618	7 792**	**5 795****

* Consumption data for TH Rijsvoort not supplied by proprietor.

** Change from previous year due partly to switch from conventional to "green" electricity.





EMAS core indicators

The following tables present the EMAS core indicators for environmental aspects. The emission values for SO_2, NO_x and particulates are shown only if they arise directly at the building in question. They are not calculated for electricity and district heating. The value for paper consumption in Munich and The Hague is in each case the average of the values for all sites there.

The EPO considers some of the core indicators to be irrelevant on the basis of its assessment of the environmental aspects, so it does not include them below. At the same time in this Report it goes into more detail on other criteria more relevant to the EPO.

EPO Berlin	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	9.36	9.26	**7.44**
Renewable energy as percentage of total consumption (electricity and heat)	%	4.49	4.03	**19.85**[1]
Paper consumption (material efficiency)	sheet/empl	12 017	8 000	**6 250**
Water consumption	m^3/empl	12.92	12.72	**8.72**
Total waste generation				
Residual waste	t/empl	0.11	0.11	**0.12**
Paper/card	t/empl	0.06	0.06	**0.14**
Food waste	t/empl	0.04	0.04	**0.04**
Grease trap residues	t/empl	0.03	0.05	**0.04**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	11 250	11 250	**11 250**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2.31	2.47	**1.20**
SO_2	kg/empl	0	0.009[2]	**0.007**
NO_x	kg/empl	0	0.15[2]	**0.11**
Particulates	kg/empl	0	0.06[2]	**0.04**

1 Rise due to switch from conventional to green electricity.
2 Rise due to switch from district heating to gas-powered heat generation.

EPO Munich – Isar building	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	24.08	23.63	**19.64**
Renewable energy as percentage of total consumption (electricity and heat)	%	16.08	50.13	**57.31**
Paper consumption (material efficiency)	sheet/empl	14 077	13 985	**15 128**
Water consumption	m^3/empl	25.71	28.43	**23.23**
Total waste generation				
Residual waste	t/empl	0.13	0.14	**0.19**
Paper/card	t/empl	0.07	0.07	**0.72**
Food waste	t/empl	0.07	0.05	**0.07**
Grease trap residues	t/empl	0.15	0.14	**0.16**
Total hazardous waste generation	kg/empl	12.00	1.56[1]	**5.37**[2]
Built-up area (sealed)	m^2	18 113	18 113	**18 113**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	6.66	1.44	**1.02**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

1 The lower value is attributable to the completion of renovation work and the associated fall in special waste disposal.
2 The higher value is attributable to renovation and clearance work due to removals.

EPO Munich – PschorrHöfe 1-8	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	7.75	7.74	**6.72**
Renewable energy as percentage of total consumption (electricity and heat)	%	16.88	48.66	**52.56**
Paper consumption (material efficiency)	sheet/empl	14 077	13 985	**15 128**
Water consumption	m^3/empl	15.65	14.38	**13.89**
Total waste generation				
Residual waste	t/empl	0.04	0.04	**0.05**
Paper/card	t/empl	0.09	0.11	**0.11**
Food waste	t/empl	0.03	0.03	**0.03**
Grease trap residues	t/empl	0.05	0.04	**0.06**
Total hazardous waste generation	kg/empl	1.89	1.36	**2.04**
Built-up area (sealed)	m^2	42 641	42 641	**42 641**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2.21	0.49	**0.39**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

EPO Munich – Capitellum	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	12.91	11.10	**8.87**
Renewable energy as percentage of total consumption (electricity and heat)	%	11.13	32.64	**35.40**
Paper consumption (material efficiency)	sheet/empl	14 077	13 985	**15 128**
Water consumption	m^3/empl	9.94	8.40	**9.43**
Total waste generation				
Residual waste	t/empl	0.11	0.09	**0.14**
Paper/card	t/empl	0.11	0.09	**0.15**
Food waste	t/empl	0.03	0.03	**0.02**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	3 502	3 502	**3 502**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	3.75	1.51	**1.16**
SO_2	kg/empl	0.01	0.01	**0.01**
NO_x	kg/empl	1.57	1.62	**1.07**
Particulates	kg/empl	0.06	0.06	**0.04**

EPO The Hague – Main, Hinge, Shell	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	12.24	13.14	**10.79**
Renewable energy as percentage of total consumption (electricity and heat)	%	58.54	53.19	**59.07**
Paper consumption (material efficiency)	sheet/empl	15 951	16 560	**18 690**
Water consumption	m^3/empl	17.69	18.82	**16.01**
Total waste generation				
Residual waste	t/empl	0.06	0.07	**0.06**
Paper/card	t/empl	0.08	0.06	**0.07**
Food waste	t/empl	0.03	0.04	**0.04**
Grease trap residues	t/empl	0.02	0.01	**0.01**
Total hazardous waste generation	kg/empl	17.70[1]	1.05	**5.63[2]**
Built-up area (sealed)	m^2	94 450	94 450	**94 450**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	1.03	1.24	**0.89**
SO_2	kg/empl	0.01	0.01	**0.01**
NO_x	kg/empl	0.95	1.15	**0.83**
Particulates	kg/empl	0.04	0.04	**0.03**

1 High values due to building work. Rubble counted as hazardous waste.
2 Rise attributable to increase in building waste disposal work and improved availability of disposal data.

EPO The Hague – Le Croisé	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	14.10	**9.35[1]**	**9.19**
Renewable energy as percentage of total consumption (electricity and heat)	%	n.a.[2]	**n.a.[2]**	**n.a.[2]**
Paper consumption (material efficiency)	sheet/empl	15 951	**16 560**	**18 690**
Water consumption	m^3/empl	9.94	**7.98**	**8.94**
Total waste generation				
Residual waste	t/empl	0.04	**0.04**	**0.04**
Paper/card	t/empl	0.05	**0.03**	**0.04**
Food waste	t/empl	0.02	**0.03**	**0.02**
Total hazardous waste generation	kg/empl	0	**0**	**0**
Built-up area (sealed)	m^2	4 200	**4 200**	**4 200**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	1.95	**1.34**	**1.32**
SO_2	kg/empl	0.005	**0.004**	**0.004**
NO_x	kg/empl	0.76	**0.59**	**0.60**
Particulates	kg/empl	0.03	**0.02**	**0.02**

1 Electricity consumption extrapolated as only values for less than a year are available.
2 Values could not be established.

EPO The Hague - Rijsvoort	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	13.19	13.50	**10.00**
Renewable energy as percentage of total consumption (electricity and heat)	%	n.a.[1]	n.a.[1]	**n.a.[1]**
Paper consumption (material efficiency)	sheet/empl	15 951	16 560	**18 690**
Water consumption	m^3/empl	17.25	n.a[1]	**15.70**
Total waste generation				
Residual waste	t/empl	0.06	0.07	**0.05**
Paper/card	t/empl	0.03	0.02	**0.02**
Food waste	t/empl	0.05	0.05	**0.09**
Total hazardous waste generation	kg/empl	0	0	**0**
Built-up area (sealed)	m^2	4 558	4 558	**4 558**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2.46	2.56	**1.89**
SO_2	kg/empl	0.01	0.02	**0.01**
NO_x	kg/empl	2.03	2.18	**1.59**
Particulates	kg/empl	0.08	0.08	**0.06**

1 Values could not be established.

EPO Vienna	Unit	2012	2013	2014
Total direct energy consumption (electricity and heat)	MWh/empl	12.64	12.44	**13.42**
Renewable energy as percentage of total consumption (electricity and heat)	%	15.06	15.32	**10.76**
Paper consumption (material efficiency)	sheet/empl	10 263	8 871	**8 178**
Water consumption	m^3/empl	10.63	7.79	**10.38**
Total waste generation				
Residual waste	t/empl	0.12	0.12	**0.14**
Paper/card	t/empl	0.20	0.20	**0.23**
Food waste	t/empl	n.a.[1]	n.a.[1]	**n.a.[1]**
Total hazardous waste generation	kg/empl	5.46	0	**2.43**
Built-up area (sealed)	m^2	2 547	2 547	**2 547**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2.22	0.31[2]	**0.89[3]**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

1 Disposal handled by canteen service provider. Waste removed and disposed by head office.
2 Sharp drop in emission factor for electricity due to change of provider.
3 Emission factors for electricity higher because of further change of provider.

5.1 Energy

Energy consumption in the form of electricity and heating is the most significant environmental aspect at the EPO and generates the highest costs. Electricity consumption is essentially made up of:
– cooling/ventilation and air-conditioning
– IT
– PCs and printers
– lighting in offices and public areas.

Heating energy at the different sites is generated from various sources. While Munich Isar, Munich PschorrHöfe and Vienna use district heating, Berlin, Munich Capitellum and all the buildings in The Hague use natural gas. The tables and charts below offer a comparison of the total electricity and heating energy consumption at each site. They show both the absolute figures and index figures relative to the size of the sites (shown as consumption per square metre of heated area and per employee).

In 2014, absolute electricity consumption fell at all sites (Berlin -9.2%, Munich -8.0%, The Hague -8.2%, Vienna -5.6%, EPO overall -8.1%). This positive trend is attributable both to technical measures and to improved user behaviour on the part of staff.

In The Hague and Munich, the energy monitoring and control system in operation since 2012 provides valuable information on load points (installations, production areas, etc.) where there might be energy saving potential. This information can be used to optimise installations such as HVAC systems, thereby helping to reduce electricity consumption.

At all sites, new central LAN printers were installed in the course of 2014, and local printers are gradually being removed. The regular staff information campaigns were continued at nearly all sites in 2014 and may also have made an unquantifiable contribution to the fall in energy consumption.

The EPO's heating energy demand fell by 24.5% in 2014 (Berlin -20.5%, Munich -24.9%, The Hague -25.3%, Vienna -7.8%). Weather-adjusted figures[1] show a 2.16% fall (Berlin +1.4%, Munich -1.11%, The Hague -5.3%, Vienna +15.1%). Here too the energy monitoring and control system supplies valuable information on load points where there might by heating energy saving potential, allowing optimisation action to be taken in the heat/heating energy field as well.

1 Weather adjustment of consumption figures allows controlling for the influence of the weather. Weather adjusted figures show what would have been consumed if the weather had conformed to normal or the longtime average. The influence of e.g. particular cold winter and hot summer months can thus be extracted.

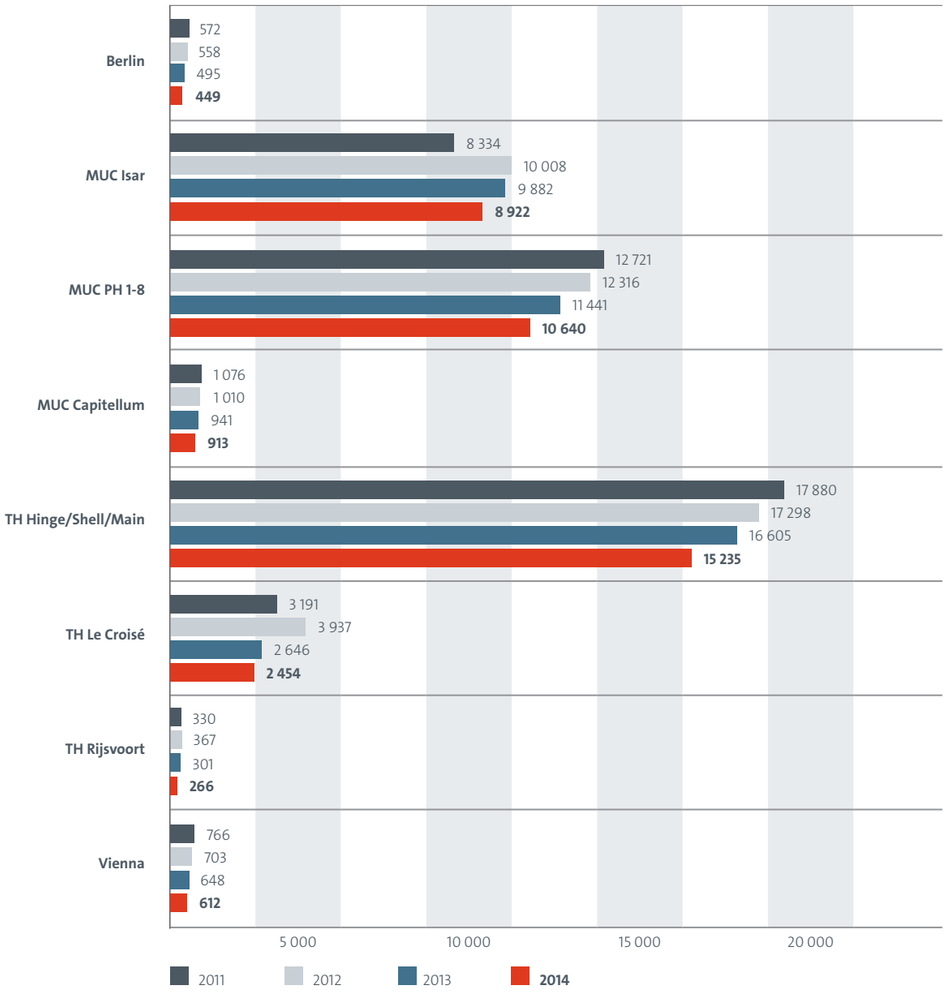


Fig. 7: Absolute electricity consumption (MWh per year)

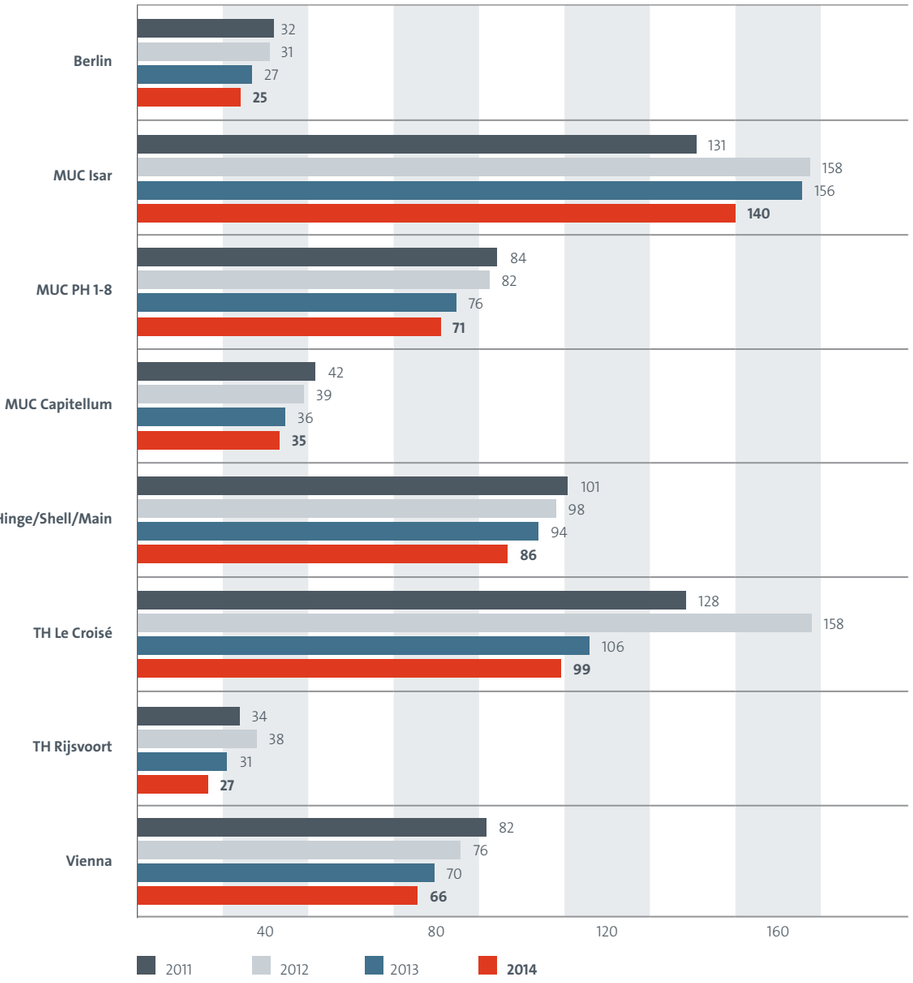


Fig. 8: Specific electricity consumption (kWh per m² floor area)

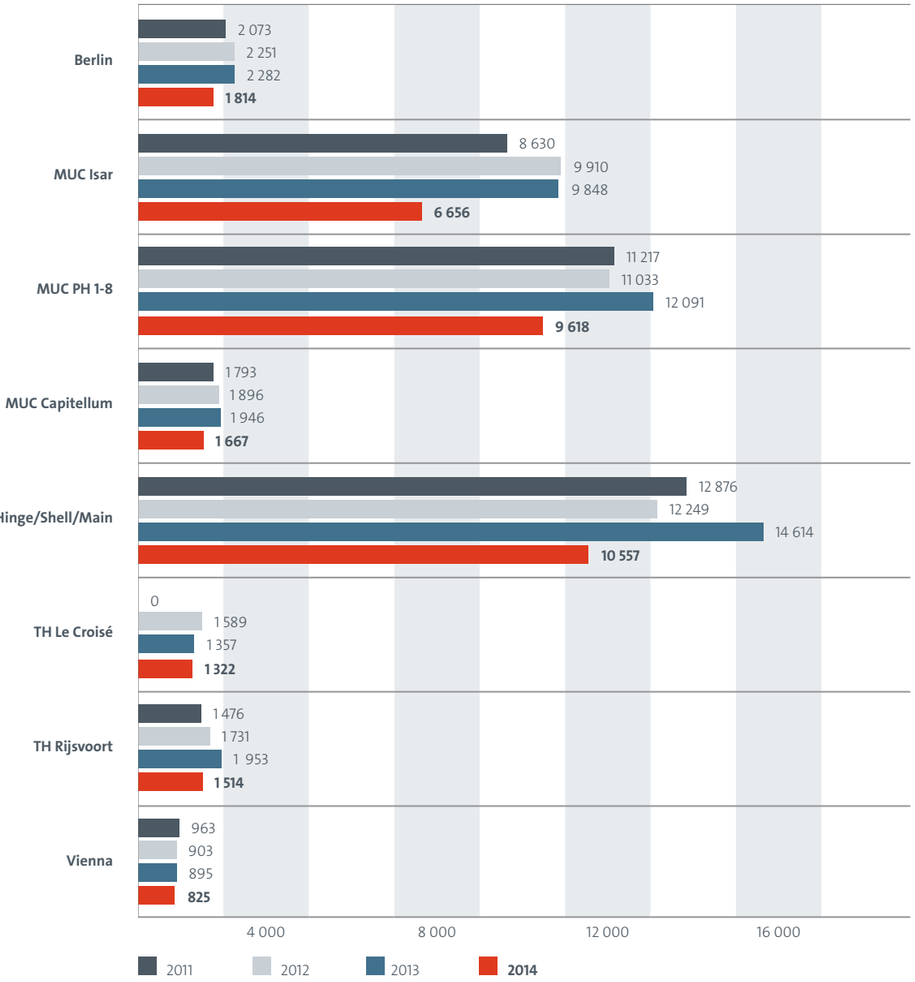


Fig. 9: Absolute heat energy consumption (MWh per year)

0: TH Le Croisé 2011: no figures received from proprietor.

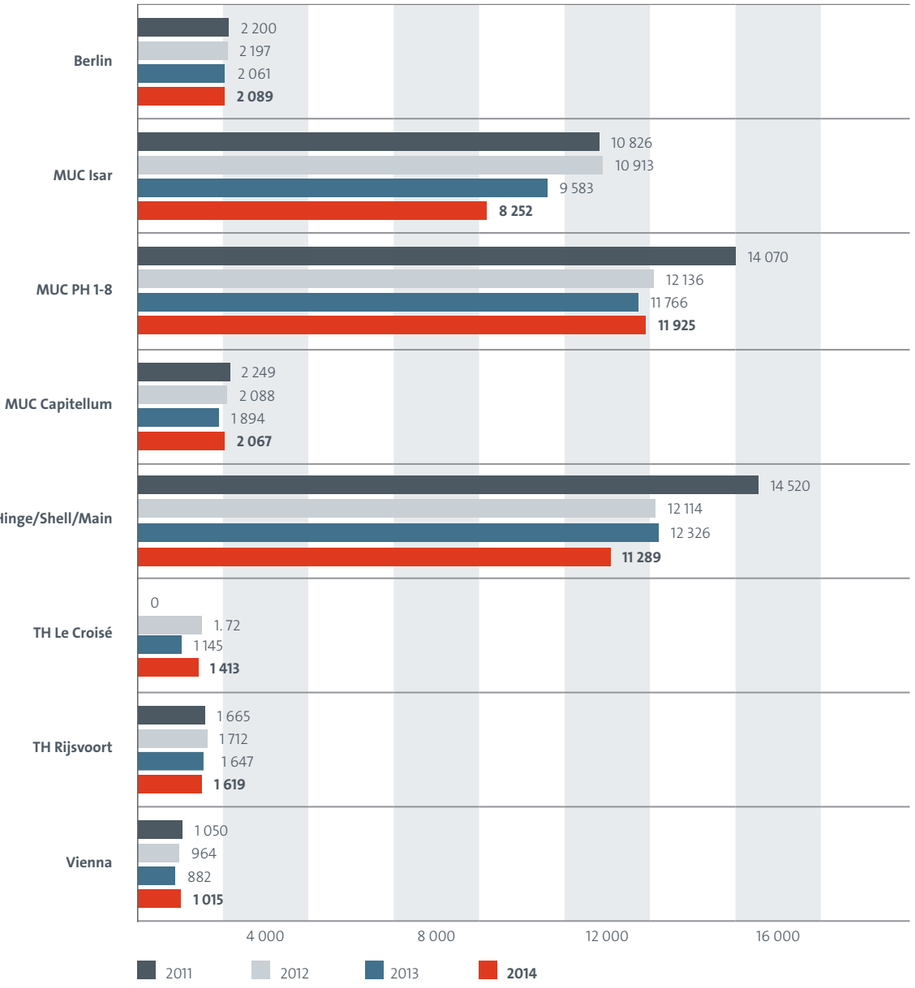


Fig. 10: Weather-adjusted heat energy consumption (MWh per year)
At all sites based on NASA climate data.
0: TH Le Croisé 2011: no figures received from proprietor.

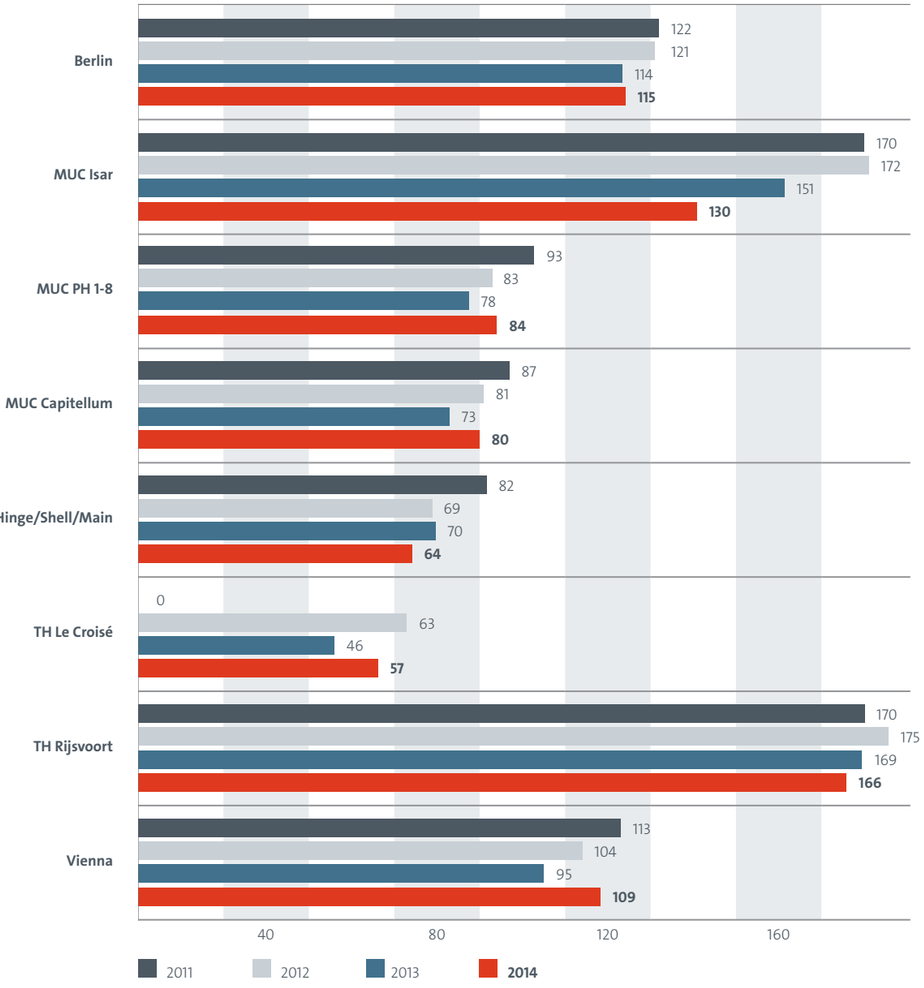


Fig. 11: Specific weather-adjusted heat energy consumption (kWh per m² floor area)
0: TH Le Croisé 2011: no figures received from proprietor.

5.2 Water/waste water

At all sites we receive our fresh water from the municipality. Most of it is deployed in sanitary facilities and kitchens and (in individual cases) for washing vehicles. Moreover, at the Isar and PschorrHöfe buildings in Munich and the Main, Shell and Hinge buildings in The Hague, fresh water is used for the air-conditioning system and for watering plants and green spaces on-site. That explains the high water consumption there compared with other sites. Waste water contamination consists mainly of organic substances. Where needed, oil and grease traps are installed in specific locations to remove contaminants from waste water.

The EPO's water consumption in 2014 was 9.0% lower than the year before. At the individual sites there were differing trends. At some, water consumption fell, in some cases sharply (Berlin -30.5%, MUC Isar -22.4%, MUC PschorrHöfe -4.3%, TH Hinge/Shell/Main -14.4%), while at others there was a marked rise (MUC Capitellum +25.7%, TH Le Croisé +7.6%, Vienna +15.0%). In Berlin the fall may be attributed to the use of rainwater in the new watering system. In Vienna the rise is attributable to the installation of water meters which allow consumption to be more accurately assigned to the EPO. Water consumption at MUC Capitellum was higher than the previous year because of higher staff numbers.

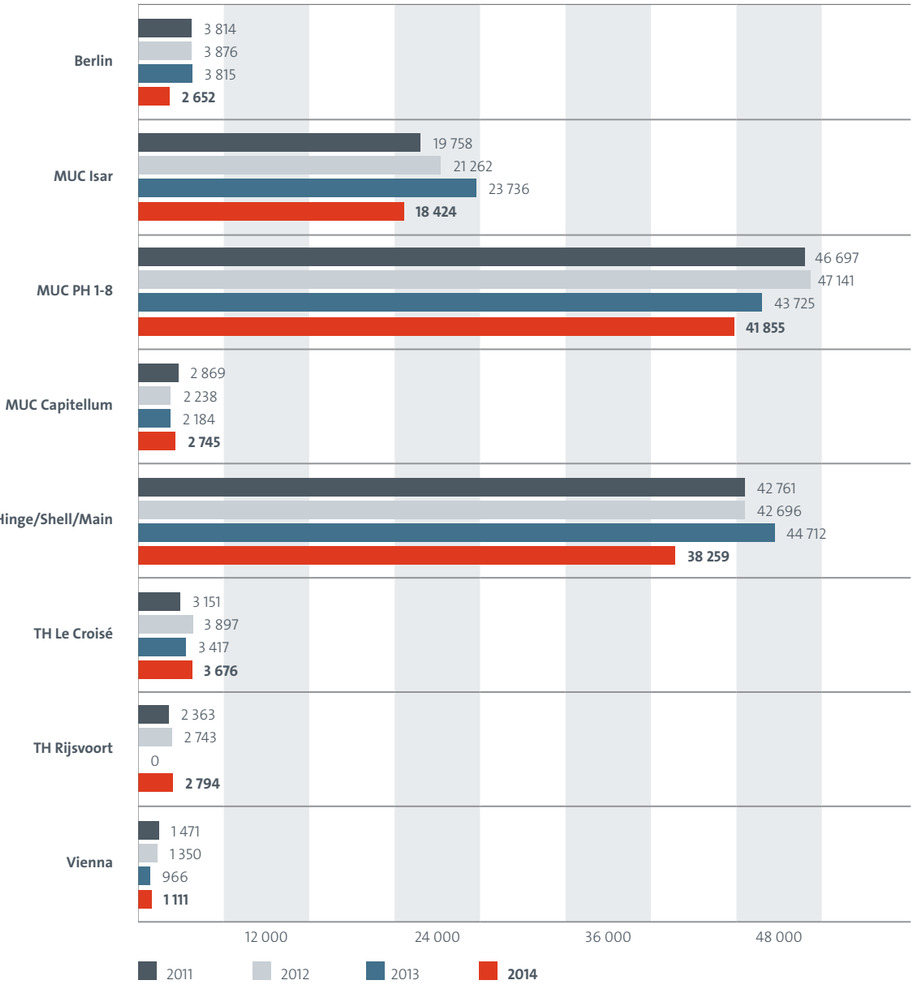


Fig. 12: Fresh water consumption (m³ per year)
0: TH Rijsvoort 2013: no figures received from proprietor.

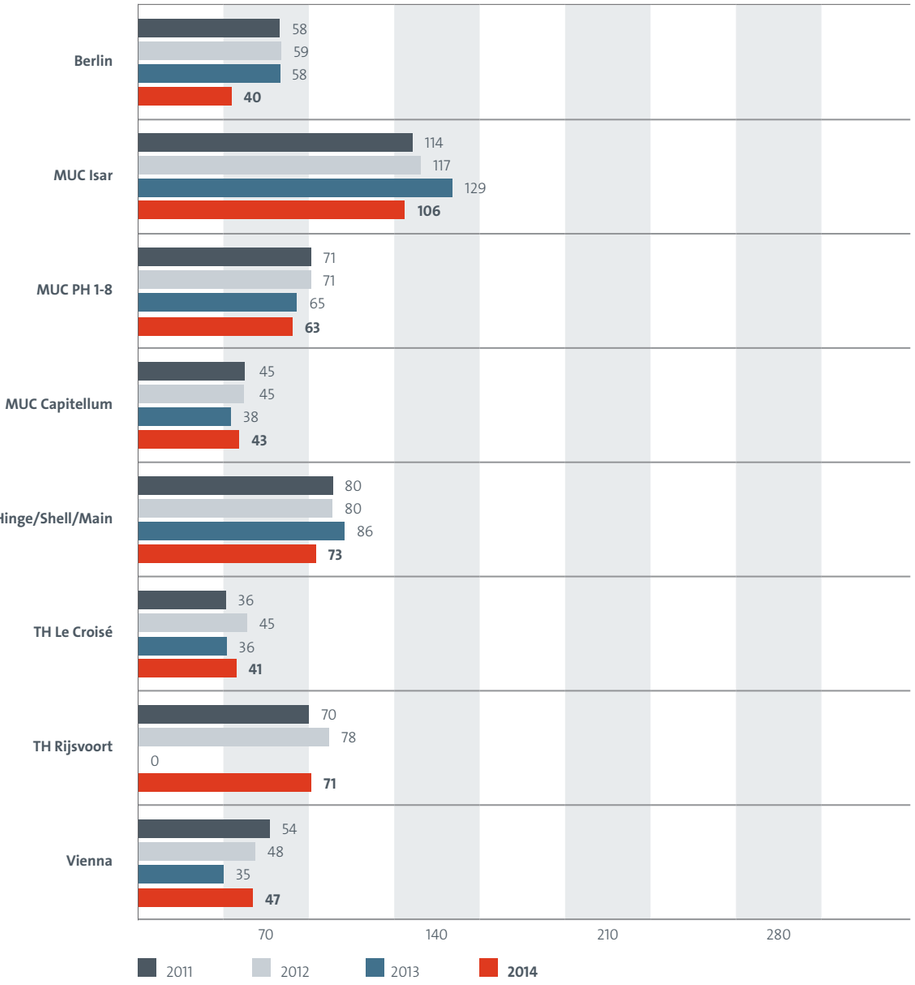


Fig. 13: Fresh water consumption per employee and day (l/employee/day)
0: TH Rijsvoort 2013: no figures received from proprietor.

5.3 Waste

To guarantee that waste is collected and disposed of separately, we have established a waste separation system with clearly identifiable and distinguishable waste containers in all rooms and work areas at all our sites. Our staff are briefed on waste avoidance, recycling and correct disposal. From day to day, residual waste and waste paper constitute the main categories of waste at all sites.

In 2014 the total quantity of residual waste was 10% higher than the previous year. This trend was particularly marked at the Munich sites (Isar +29.9%, PH +13.2%, Capitellum +83%) because of all the clearance work in preparation for vacating the Capitellum. In The Hague on the other hand total residual waste was 11% down. It had risen by 18.5% the year before because of the high number of removals, so a subsequent fall was to be expected.

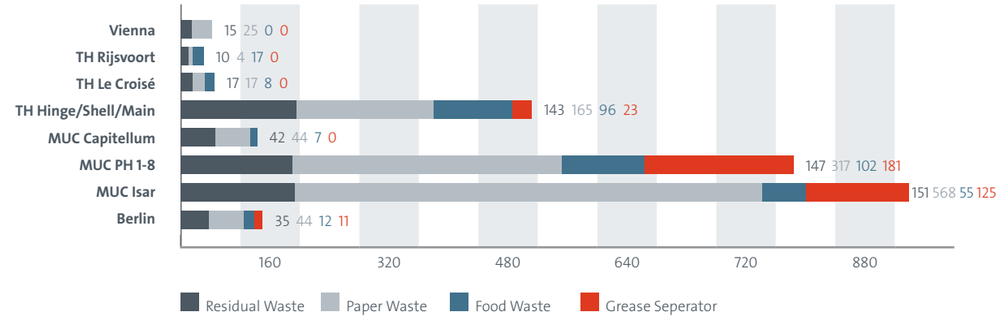


Fig. 14: Composition of waste in 2014 (in tonnes)

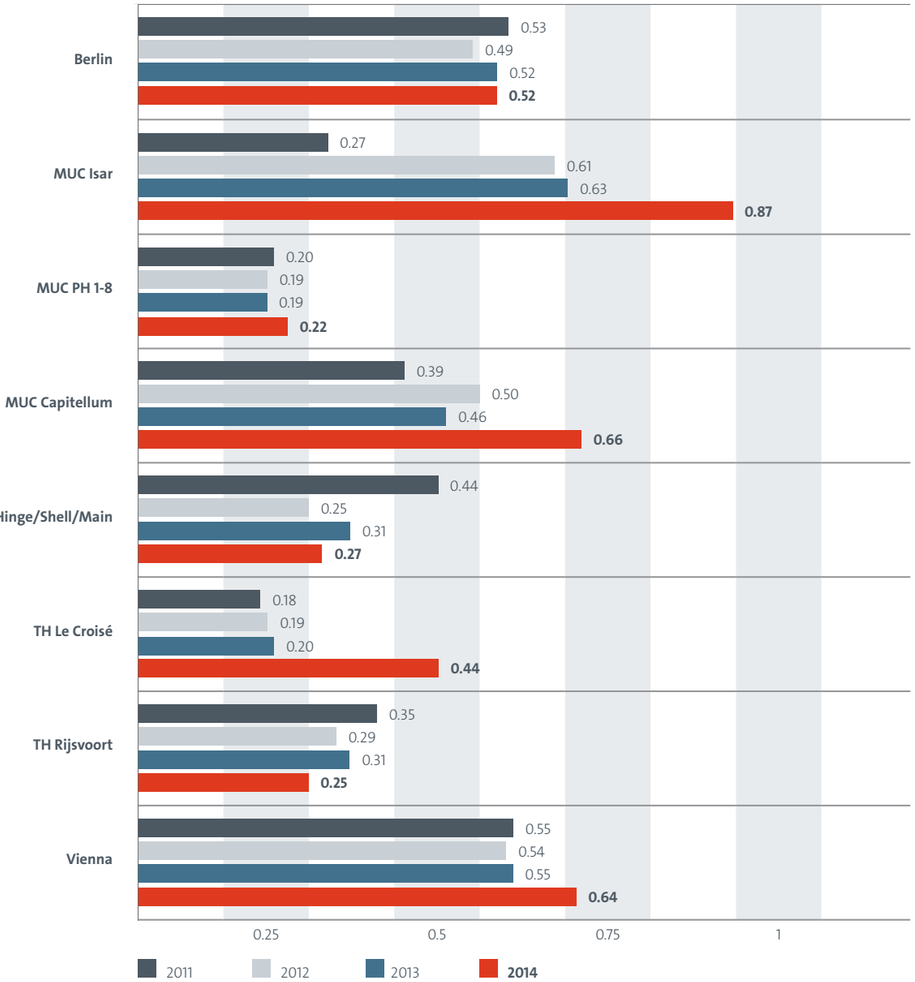


Fig. 15: Residual waste per employee and day (in kg)

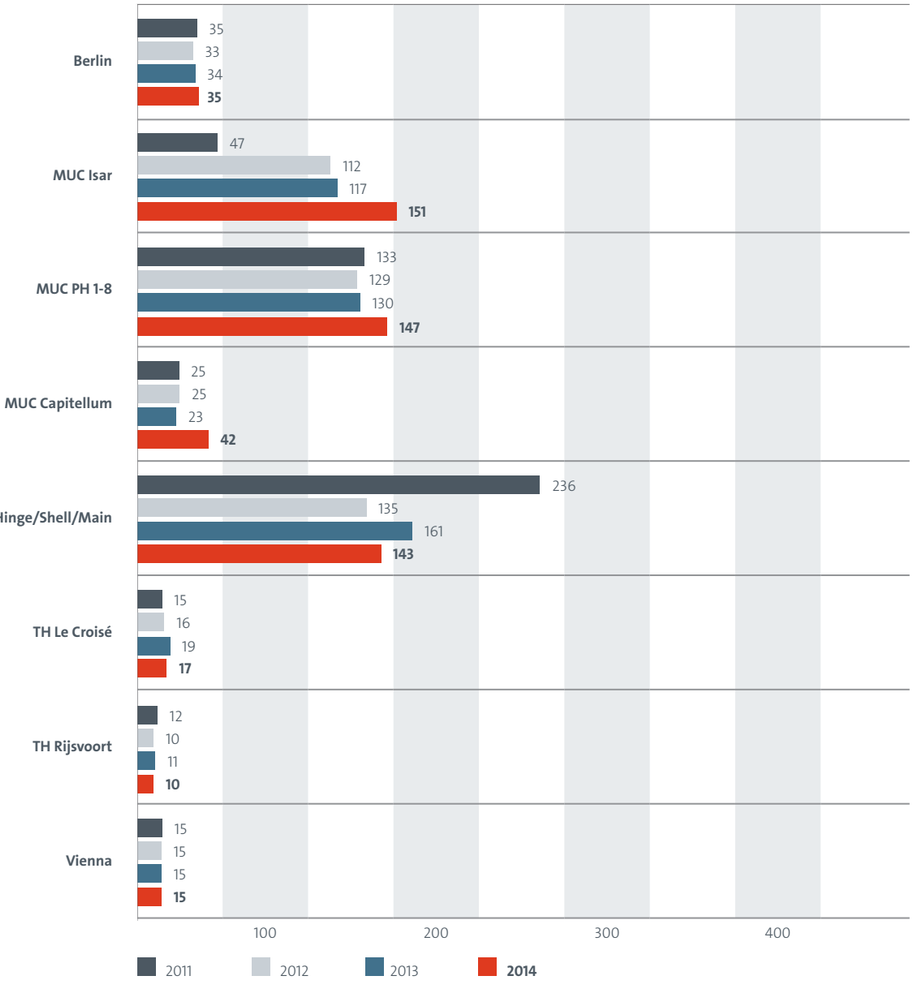


Fig. 16: Total residual waste generation (t per year)
TH Hinge/Shell/Main 2011: high increase due to emptying of storerooms and accommodation of additional containers.

5.4 Mobility

Business trips between the EPO sites constitute the main component of travel at the EPO. To a lesser extent, employees travel to meet customers and other partners or attend conferences and other events. To date, only data for business trips between sites has been collected.

In the light of the EPO's efforts to reduce its carbon footprint, employees at all sites are informed of the CO_2 emissions associated with business travel and are encouraged to use the videoconference rooms.

Fig. 17 below shows a 10.34% rise in emissions from air travel (measured in CO_2 equivalent) on average for all sites in 2014. At the same time, use of the videoconference rooms fell from 16 539 hours in 2013 to 13 660 in 2014 (-17.4%). A contributory factor in this is probably the installation of the Lync system in 2014, which allows staff to conduct videoconferences from their own PCs, without using the videoconference rooms.

Fig. 18 shows CO_2 emissions from train travel. There has been a fall in the use of trains for business travel: having risen by 497% from 2012 to 2013, in 2014 the distance travelled by train fell by 14%, from 362 882 km to 310 519 km. Consequently the resultant CO_2 emissions also fell by 14%.

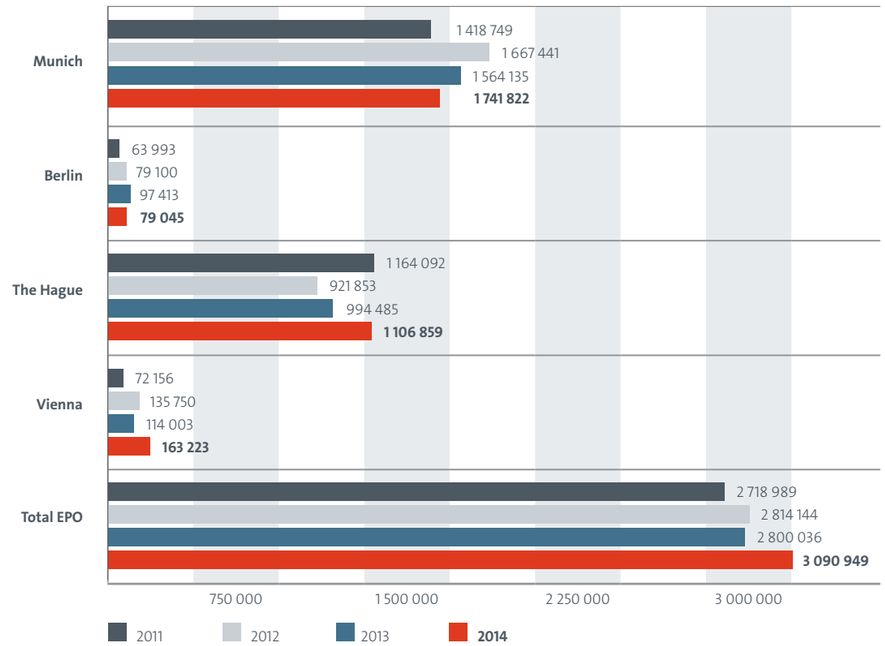


Fig. 17: CO_2 emissions from air travel (in kg CO_2e)
Source: BCD Travel data manager/DEFRA 2014.
Note: Emissions allocated to place of departure.

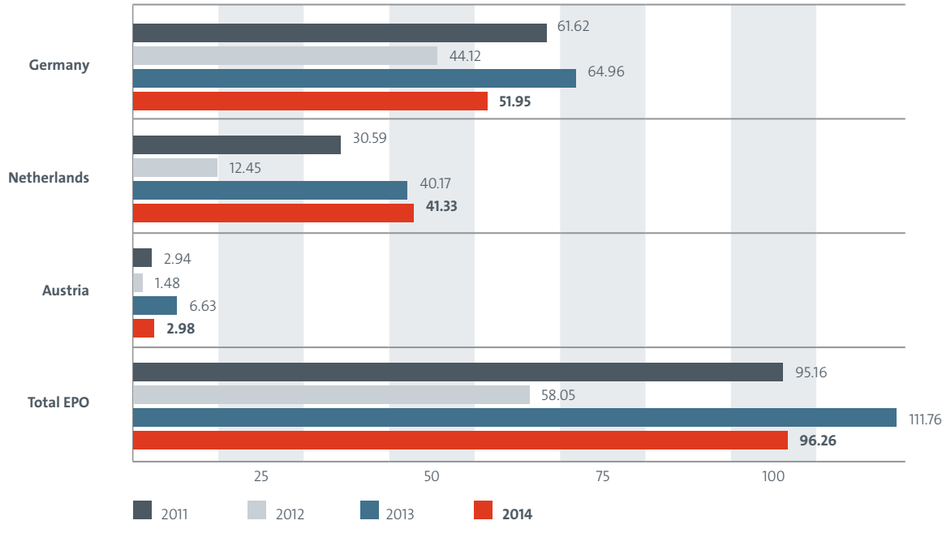


Fig. 18: CO_2 emissions from train travel (in kg CO_2)
Source: BCD Travel data manager/DEFRA 2014.
Note: Emissions allocated to place of departure.

5.5 Other emissions

Electricity and heating energy consumption gives rise primarily to CO_2 emissions. SO_2, NO_x and particulates are considered only if they arise directly at the building in question. Our primary objective in minimising emissions is the reduction of energy consumption. We also regularly inspect and maintain our heating systems. In addition, we aim to use district heating and „green“ electricity.

The factors for converting electricity and heating energy into individual emission types (kg/kWh) are based on the GEMIS database and the information supplied by the energy providers at each site.

All the Munich sites were converted to green electricity in 2013, and in 2014 Berlin followed suit. So at the Munich and Berlin sites there were no emissions from electricity consumption. Consumption in Vienna fell by 5.6% in 2014, but the switch to a provider with a relatively low green-electricity share meant that emissions from electricity consumption rose by 290%. Office-wide, emissions from electricity consumption fell by 39%, those from heating energy consumption by 24%.

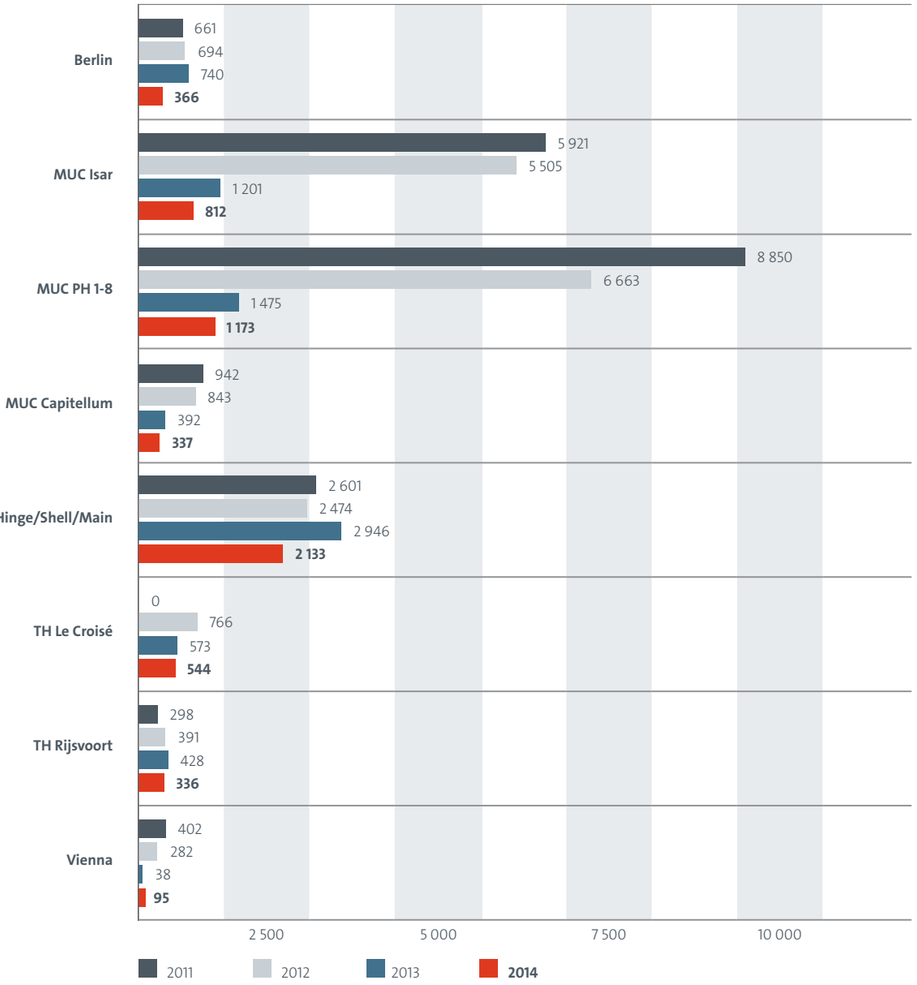


Fig. 19: Total CO_2 emissions from electricity and heating (t per year)
0: Le Croisé 2011: no figures received from proprietor.
2013: The sharp fall in emissions in Munich is primarily attributable to the switch to green electricity.

5.6 Paper consumption

In addition to residual waste, a large amount of paper (green and white) is used at the Office. In 2014 paper consumption grew by 9.45% from around 110 million sheets to around 120.5 million. For Munich and The Hague, paper consumption can be indicated only for the entire duty station, not for the individual buildings.

Thanks to the Office-wide introduction of central LAN printers with default paper-saving settings starting in 2014, paper consumption fell by 500 000 sheets (-20.83%) in Berlin and by 225 000 sheets (-20.45%) in Vienna. However, it increased in Munich (+8.09%) and The Hague (+13.17%) even though central LAN printers have been installed there too, because there they were also used for print jobs which had previously been outsourced or carried out in other departments. So overall there was an increase in paper consumption.

As part of the increasing digitisation of administrative processes we are aiming to significantly reduce paper consumption. Staff will continue to be encouraged to avoid unnecessary printing or to print double-sided or condensed.

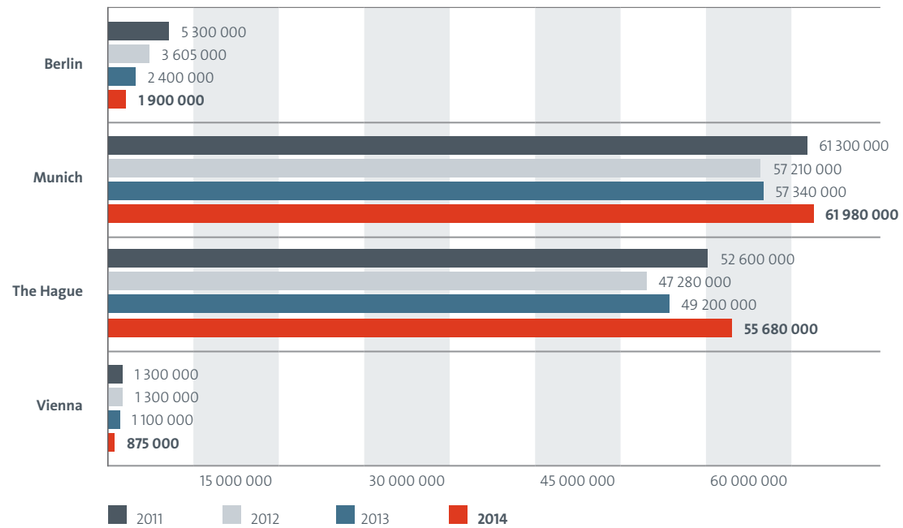


Fig. 20: Paper consumption per site (sheets)

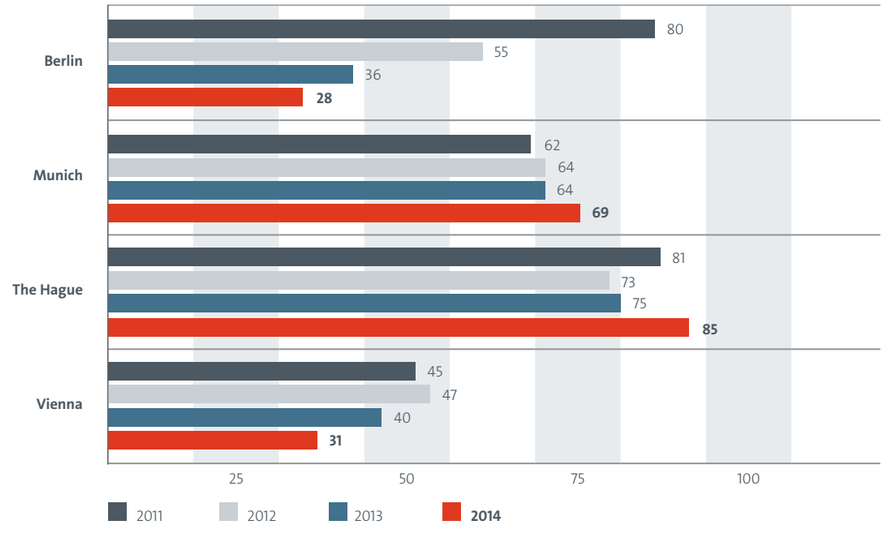


Fig. 21: Paper consumption per employee and day (sheets)

6. Indirect environmental aspects

Indirect environmental aspects are negative or positive environmental consequences of our activities which we cannot fully control or directly influence. For instance, they result from the behaviour of our suppliers and contractors or our employees' journeys to and from the office. The table below provides an overview of our indirect environmental aspects and the priorities we have set in respect of them (for assessment categories see section 5, „Direct environmental aspects").

The EPO considers the patent grant procedure to be a significant indirect environmental aspect. Its free public patent document database can be viewed as a lever to promote the development of environment-friendly technologies, but also to stimulate political action. Within this database the EPO has developed a new classification scheme which makes it easier to find environment-related patents. Continuous updates will ensure comprehensive information for inventors, scientists and politicians.

We are focusing on long-term co-operation with contractors and suppliers, such as cleaning and canteen services. In doing so, we are aiming in particular to achieve the following objectives:

– supplying regular information on the EPO's environmental activities to contractors and suppliers to encourage them to improve their environmental performance
– promoting local/regional food in canteens

In purchasing goods and services, all departments are encouraged to consider environmental impact as an additional factor in tender procedures and contract award decisions under the EPO's Financial Regulations. Moreover, environmental aspects are specified in procurement guidelines and handbooks and dedicated procurement catalogues. These documents offer guidance for all procurement units.

We are promoting a job ticket for public transport to/from the Office for our staff. We are also supporting teleworking from home.

The indirect environmental aspects have been identified for all EPO sites and assessed as equally relevant for all sites. All indirect environmental aspects under the EMAS III Regulation have been assessed for relevance to the EPO. Only the aspects that were found to be relevant are included below.

Indirect environmental aspects		Rating
Services		
	Patent grant procedure	B III
	"Green" patent classification scheme	A I
Environmental performance and conduct of contractors/Procurement		
	Environmental impact of canteen operators/catering companies	A II
	Environmental impact of technical maintenance providers	A II
	Environmental impact of cleaning companies	B II
	Environmental impact of other contractors	B II
	Procurement, e.g. of furniture	B II
	Purchasing of food for canteens	A II
	Use of ecological resources for building/renovation, e.g. paint	A I
Travel		
	To/from work	A III
	Capital investments	B III

7. Improvements: objectives and actions

In accordance with its environmental policy the Office primarily seeks to:

– minimise the consumption of energy, water, paper and other resources, and reduce costs
– reduce its CO_2 emissions through optimised energy and mobility management
– standardise procedures within and between the different sites
– act as a role model for its contractors and suppliers
– regularly inform all members of staff and the public of its environmental activities

To achieve these overall goals, the central environmental management team each year defines an environmental programme with environmental targets and improvement measures. It takes account of developments in environmental aspects, suggestions for improvements from internal audits and external inspections, and suggestions from local employees and environmental groups. The tables below present an extract including the chief actions from 2014 and for 2015/2016. The technical measures of the environmental programme essentially relate to the EPO's own buildings. The Office has less influence over rented buildings, though here too we try to exert some influence on the proprietors, to implement improvements and to make our staff more environmentally aware.

7.1 Action taken in 2014

Berlin
Local printers replaced with central LAN printers with energy- and paper-saving print settings; savings approx. 16 533 kWh
Munich
Timer program installed for cooled-ceiling feed pumps (PschorrHöfe 6-8); savings approx. 195 000 kWh
Under-cabinet lighting in Isar building kitchenettes upgraded; savings approx. 3 900 kWh
Four charging stations for electric cars provided in PschorrHöfe and Isar building garages
Energy metering system for differentiated consumption recording introduced in PschorrHöfe and Isar
LED lighting installed in PschorrHöfe 8 foyer; savings approx. 5 500 kWh
Isar building refrigeration centre Assembly and installation/welding of additional instruments, flowmeters, valves and thermowells during renovation of refrigeration centre instrumentation (Lot 3) in Isar building; savings approx. 100 000 kWh
Post-startup optimisation of HVAC system control and regulation in Isar building; savings approx. 400 000 kWh
Continuous optimisation of PschorrHöfe HVAC systems; savings approx. 250 000 kWh
Local printers replaced with central LAN printers with energy- and paper-saving print settings; savings approx. 251 422 kWh
The Hague
Local printers replaced with central LAN printers with energy- and paper-saving print settings; savings approx. 133 022 kWh
Vienna
Local printers replaced with central LAN printers with energy- and paper-saving print settings; savings approx. 12 926 kWh
Bare heating pipes in heating room insulated
All sites – Information Management
Energy savings through partial operating system switchover (new system has optimised energy consumption values and settings)

The “Garamont font campaign” originally scheduled for 2014 (approx. 30% lower ink consumption than e.g. Times New Roman; see Environmental Statement 2014) was not pursued. One reason is that the font differs greatly from the official EPO style, so Office-wide restructuring would have entailed a major administrative effort. Another is that in the light of the 2014 replacement of local printers with LAN printers with far lower consumption levels the action would have been out of reasonable proportion to the anticipated savings.

All other actions scheduled for but not implemented in 2014 were postponed to 2015. These include converting the escalator lighting to LED, installing daylight-dependent lighting control in Isar building offices and replacing the boiler in The Hague.

7.2 Action planned for 2015/2016

Munich
Adapt 2.20 ventilation switching times to booking system; savings approx. 160 000 kWh
Install daylight-dependent lighting control in offices; savings approx. 178 000 kWh
HVAC energy optimisation in Isar building; savings approx. 200 000 kWh
HVAC energy optimisation in PschorrHöfe; savings approx. 125 000 kWh
Adjust security lighting in Isar building; savings approx. 3 000 kWh
Install daylight-dependent lighting control for facade; savings approx. 30 000 kWh
Convert escalator lighting in Isar building to LED; savings approx. 2 000 kWh
Upgrade ceiling lights in Isar building core and corridors; savings approx. 10 000 kWh
Renew four garage ramp heating systems and associated control cabinets, including central components for the canopy, expansion joint and drain heating systems; savings approx. 300 000 kWh
The Hague
Install LED lighting in Hinge building sports facilities; savings approx. 103 000 kWh
Install LED lighting in underground garages; savings approx. 270 000 kWh
Improve cooling water pipe insulation
Backfit existing stairwell lighting with motion sensors
Extend meter infrastructure in Shell and Main
Improve insulation on first floor of Shell building
Replace boiler in Shell with HP boiler
All sites – Information Management
Add environmental criteria to tenders for external IT services
Apply EU code of conduct for data centres in implementing the new computer centre project
Energy savings during ongoing server virtualisation
Energy savings from final operating system switchover

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