Europäisches Patentamt
European Patent Office
Office européen des brevets

Environmental Statement 2014

(consolidated version)
In accordance with Regulation (EC) No 1221/2009

ENVIRONMENTAL STATEMENT

Environmental Statement

1. The European Patent Office

The European Patent Office (EPO) with its roughly 7 500 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.

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 EE 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 Statement every year, setting out its environmental data and reporting on its progress in environmental performance. The present Statement is a consolidated version and can be downloaded from the EPO website (www.epo.org).

In 2013 the EPO set itself the ambitious environmental objective of reducing its energy consumption for heating and electricity by 3%, and with energy savings of 3.38% it actually did even better. Now that the major potential savings have been achieved in recent years, the target for energy savings in 2014 has been set at 1.5%.

With this savings target the Office is going beyond the EMAS requirements and setting its own sweeping environmental goals. This Environmental Statement describes how these objectives are being 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	300	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

1.2 EPO Munich

Munich is the largest of all the sites in terms of gross floor area and staff numbers. The condition of the buildings varies: some are older, such as the Isar building, while more recent ones include PschorrHöfe 7 and 8. The Capitellum building is rented. 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 shop, 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.

Several buildings (e.g. Isar, 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	835	Proprietor
PschorrHöfe 1-8	276 300 m²	210 600 m²	3040	Proprietor
Capitellum	25 800 m²	16 200 m²	260	Rented

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 containing 3 kg or more of coolant
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 shop
Waste regulations	Recycling/separation/disposal of various types of waste

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 heating 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 Shell 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 dishwashing area. In various places there is storage for further hazardous substances. These include cleaning agents, several 200 litre containers with glycol for the ventilation system (Shell building) and small quantities of hydrogen peroxide for treating the fountain water (Hinge building). All substances are stored in accordance with legal requirements, such as 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	2376	Proprietor
Le Croisé	28 700 m²	24 893 m²	428	Rented
Rijsvoort	12 600 m²	9 763 m²	167	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 containing 3 kg or more of coolant
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

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	124	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

2. 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 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.

3. Environmental management system

By implementing an environmental management system under EMAS in 2009, the EPO took on a leading environmental role as an administrative institution. The management system integrates environmental elements 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 on-site 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 through 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 the Environmental Statement.

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 important 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 environmental 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 the generation of residual waste. The environmental data has been compared across all sites in order to assess the relevance of the environmental aspects. The electricity and heating 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	MUC Capitellum	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	A II
	Computer centre	–	A II	A II	–	–	A II	–	–	–	A II
	Garages	–	A I	A I	–	A I	A I	–	–	–	A I
	HVAC	–	A I	A I	–	A I	A I	A I	–	–	A II
	Canteen	–	A II	A II	–	A II	–	–	–	–	–
	Cooling/cold water	–	A II	A II	–	A II	A II	–	–	–	A II
	Humidification	–	B II	B II	–	B II	B II	–	–	–	–
Emissions from electricity generation		C I	C I	C I	C I	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 I	–	–	–
	Hot water	–	B II	B II	–	A II	B II	–	–	–	–
	Humidification	–	B II	–	–	B II	B 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	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	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	C II
Resource consumption Water for sanitary facilities/canteen		B II	A II	B II	B 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	A II	B II	B II	B II	B II	B II	B II	B II
Waste – non-hazardous		B II	B II	C II	B II	C II	C II	C II	C II	B II	A II
Waste – hazardous		B II	B II	B II	B II	B II	B II	B II	B II	B II	B II
Resource consumption - paper		A II	A II	A II	A II	A II	A II	A II	A II	A II	A II
Risk of environmental accidents		C II	B II	B II	C 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 resulting 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	2010	2011	2012	2013
Electricity consumption	MWh	45 717.60	45 893.39	46 196.88	**42 958.73**
Heating energy consumption (all items)	MWh	51 597.95	40 471.63	41 561.62	**44 987.20**
Fresh water consumption	m^3	125 753	127 091	125 203	**122 555***

Output	Unit	2010	2011	2012	2013
Residual waste generation	t	503	565	474	**509**
Waste water generation	m^3	119 361	114 284	110 431	**119 472***
CO_2 emissions from electricity and heating energy	t CO_2e	21 034	20 517	17 132	**7 460****

* Consumption data for TH Rijsvoort not supplied by proprietor.
** Change from previous year due partly to switch from conventional to "green" electricity.

EMAS III core indicators

The following tables present the EMAS III 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 Statement it goes into more detail on other criteria more relevant to the EPO.

EPO Berlin	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	8.81	9.36	**9.26**
Renewable energy as percentage of total consumption (electricity and heat)	%	4.00	4.49	**17.81**
Paper consumption (material efficiency)	sheet/empl	15 595	12 017	**8 000**
Water consumption	m^3/empl	12.71	12.92	**12.72**
Total waste generation				
Residual waste	t/empl	0.12	0.11	**0.11**
Paper/card	t/empl	0.07	0.06	**0.06**
Food waste	t/empl	0.04	0.04	**0.04**
Grease trap residues	t/empl	0.05	0.03	**0.05**
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	2.20	2.55	**2.47**
SO_2	kg/empl	0	0	**0.0076**
NO_x	kg/empl	0	0	**0.6089**
Particulates	kg/empl	0	0	**0.0761**

EPO Munich – Isar building	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	21.26	24.08	**23.63**
Renewable energy as percentage of total consumption (electricity and heat)	%	9.13	16.08	**50.13**
Paper consumption (material efficiency)	sheet/empl	13 683	14 043	**12 799**
Water consumption	m^3/empl	25.17	25.71	**28.43**
Total waste generation				
Residual waste	t/empl	0.06	0.13	**0.14**
Paper/card	t/empl	0.07	0.07	**0.07**
Food waste	t/empl	0.04	0.07	**0.05**
Grease trap residues	t/empl	0.03	0.15	**0.14**
Total hazardous waste generation	kg/empl	133.69	12.00	**1.56**[1]
Built-up area (sealed)	m^2	18 113	18 113	**18 113**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	7.54	6.66	**1.44**
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.

EPO Munich – PschorrHöfe 1-8	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	7.96	7.75	**7.74**
Renewable energy as percentage of total consumption (electricity and heat)	%	9.87	16.88	**48.66**
Paper consumption (material efficiency)	sheet/empl	13 683	14 043	**12 799**
Water consumption	m^3/empl	15.52	15.65	**14.38**
Total waste generation				
Residual waste	t/empl	0.04	0.04	**0.04**
Paper/card	t/empl	0.09	0.09	**0.11**
Food waste	t/empl	0.03	0.03	**0.03**
Grease trap residues	t/empl	0.06	0.05	**0.04**
Total hazardous waste generation	kg/empl	1.64	1.89	**1.36**
Built-up area (sealed)	m^2	42 641	42 641	**42 641**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	2.94	2.21	**0.49**
SO_2	kg/empl	0	0	**0**
NO_x	kg/empl	0	0	**0**
Particulates	kg/empl	0	0	**0**

EPO Munich – Capitellum	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	9.83	12.91	**11.10**
Renewable energy as percentage of total consumption (electricity and heat)	%	6.94	11.13	**32.64**
Paper consumption (material efficiency)	sheet/empl	13 683	14 043	**12 799**
Water consumption	m^3/empl	9.83	9.94	**8.40**
Total waste generation				
Residual waste	t/empl	0.09	0.11	**0.09**
Paper/card	t/empl	0.10	0.11	**0.09**
Food waste	t/empl	0.02	0.03	**0.03**
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	3.23	3.75	**1.51**
SO_2	kg/empl	0.0061	0.0009	**0.0008**
NO_x	kg/empl	0.4913	0.6743	**0.5988**
Particulates	kg/empl	0.4913	0.6743	**0.0749**

EPO The Hague – Main, Hinge, Shell	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	12.71	12.24	**13.14**
Renewable energy as percentage of total consumption (electricity and heat)	%	58.14	58.54	**53.19**
Paper consumption (material efficiency)	sheet/empl	17 734	15 951	**16 560**
Water consumption	m^3/empl	17.68	17.69	**18.82**
Total waste generation				
Residual waste	t/empl	0.10	0.06	**0.07**
Paper/card	t/empl	0.07	0.08	**0.06**
Food waste	t/empl	0.04	0.03	**0.04**
Grease trap residues	t/empl	0.01	0.02	**0.01**
Total hazardous waste generation	kg/empl	2.58	17.70[1]	**1.05**
Built-up area (sealed)	m^2	94 450	94 450	**94 450**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	1.08	1.03	**1.24**
SO_2	kg/empl	0.0053	0.0005	**0.0006**
NO_x	kg/empl	0.4258	0.4061	**0.4921**
Particulates	kg/empl	0.4258	0.4061	**0.0615**

1 High values due to building work. Rubble counted as hazardous waste.

EPO The Hague – Le Croisé	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	n.a.[2]	14.10	**9.35[3]**
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	17 734	15 951	**16 560**
Water consumption	m^3/empl	8.02	9.94	**7.98**
Total waste generation				
Residual waste	t/empl	0.04	0.04	**0.04**
Paper/card	t/empl	0.05	0.05	**0.03**
Food waste	t/empl	0.03	0.02	**0.03**
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	n.a.[2]	0.82	**0.64**
SO_2	kg/empl	n.a.[2]	0.0004	**0.0003**
NO_x	kg/empl	n.a.[2]	0.3243	**0.2537**
Particulates	kg/empl	n.a.[2]	0.3243	**0.0317**

1 Values could not be established.
2 Data for 2011 not available from proprietor.
3 Electricity consumption extrapolated as only values for less than a year are available.

EPO The Hague - Rijsvoort	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	11.73	13.19	**13.50**
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	17 734	15 951	**16 560**
Water consumption	m^3/empl	15.34	17.25	**n.a.[1]**
Total waste generation				
Residual waste	t/empl	0.08	0.06	**0.07**
Paper/card	t/empl	0.03	0.03	**0.02**
Food waste	t/empl	0.06	0.05	**0.05**
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	1.94	2.20	**2.36**
SO_2	kg/empl	0.0006	0,0001	**0,0001**
NO_x	kg/empl	0.7668	0.8709	**0.9354**
Particulates	kg/empl	0.7668	0.8709	**0.1169**

1 Values could not be established.

EPO Vienna	Unit	2011	2012	2013
Total direct energy consumption (electricity and heat)	MWh/empl	13.94	12.64	**12.44**
Renewable energy as percentage of total consumption (electricity and heat)	%	20.00	15.00	**15.20**
Paper consumption (material efficiency)	sheet/empl	10 484	10 263	**8 871**
Water consumption	m^3/empl	11.86	10.63	**7.79**
Total waste generation				
Residual waste	t/empl	0.12	0.12	**0.12**
Paper/card	t/empl	0.20	0.20	**0.20**
Food waste	t/empl	n.a.[1]	n.a.[1]	**n.a.[1]**
Total hazardous waste generation	kg/empl	0	5.46	**0**
Built-up area (sealed)	m^2	2 547	2 547	**2 547**
Emissions (electricity and heat)				
CO_2 equivalent	t CO_2e/empl	3.24	2.2	**0.31[2]**
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 manager. Waste removed and taken away to disposal centre.
2 Sharp drop in emission factor for electricity due to 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 2013, absolute electricity consumption fell at all sites (Berlin -11.2%, Munich -4.6%, The Hague -9.5%, Vienna -7.8%, EPO overall -7%). This positive trend is attributable both to technical measures and to improved user behaviour on the part of staff.

In The Hague, for example, action was taken to optimise the air-conditioning, and printers and copiers were replaced. The savings at the PschorrHöfe in Munich may be attributed to various technical measures, in particular to demand-driven control of the ventilation system in the conference rooms. In the Isar building the savings were partly due to measures such as air-conditioning demand matching and adaptation of the lighting control system in the underground garage.

At all sites, in the course of 2013 the desktop computers were replaced with new, more energy-efficient PCs. The regular staff information campaigns were continued at nearly all sites in 2013 and may also have made an unquantifiable contribution to the fall in energy consumption.

The EPO's heat consumption rose by 8.2% overall (unadjusted) in 2013 (Berlin +1.5%, Munich +3.4%, The Hague +15.1%, Vienna +0.9%). Weather-adjusted figures show a 5.5% fall. As there was little opportunity in 2013 for technical measures to reduce heating energy consumption, the fall in heating demand may be attributed in particular to improved user behaviour.

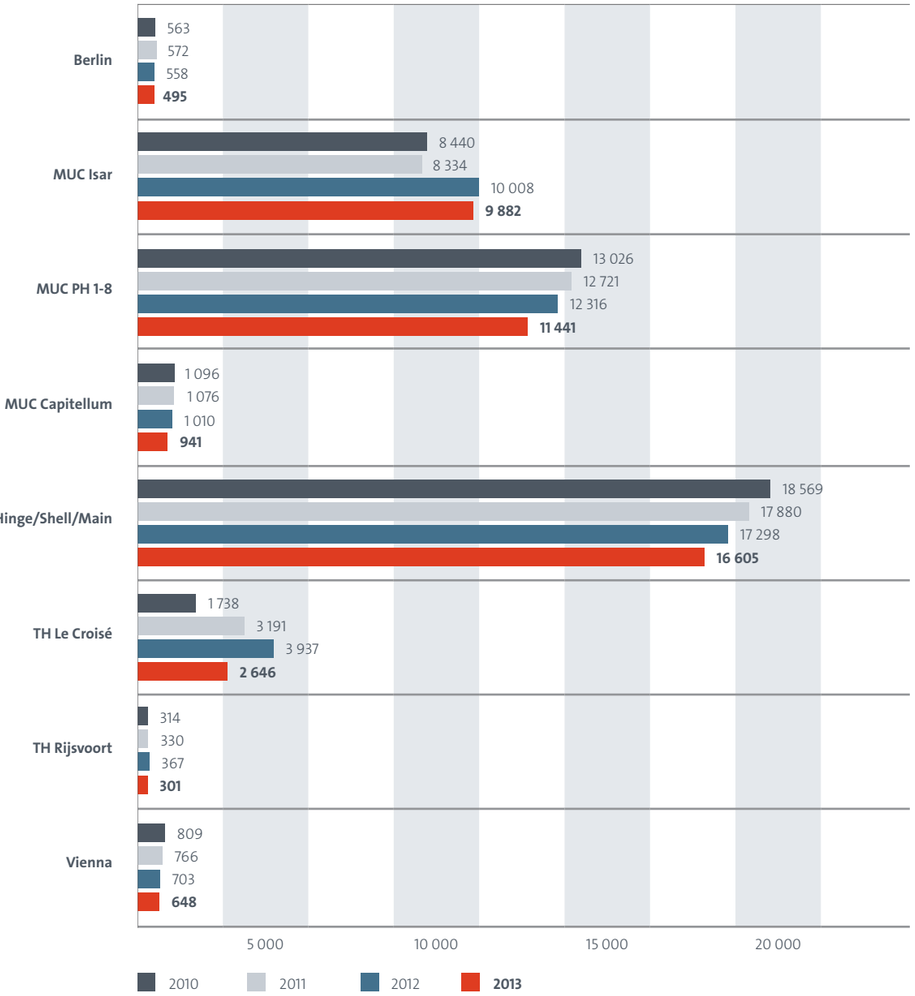

Fig. 1: Absolute electricity consumption (MWh per year)
TH Le Croisé: new basis for calculations from 2011.

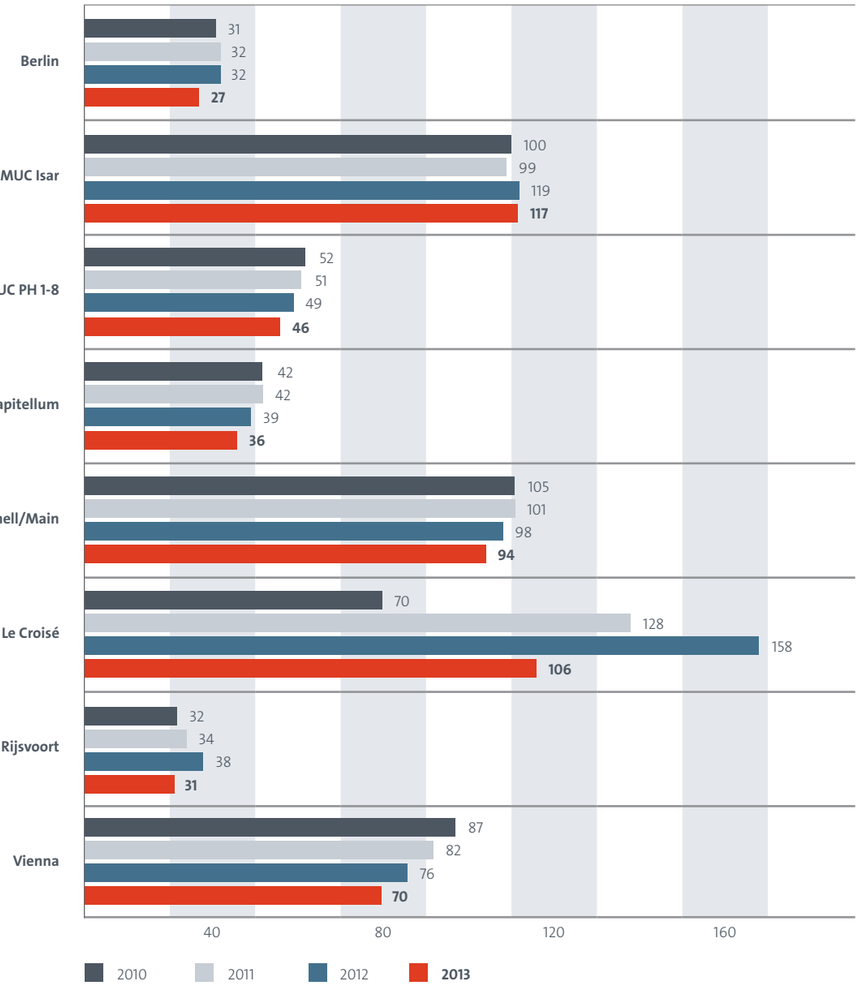

Fig. 2: Specific electricity consumption (in kWh per m² floor area)

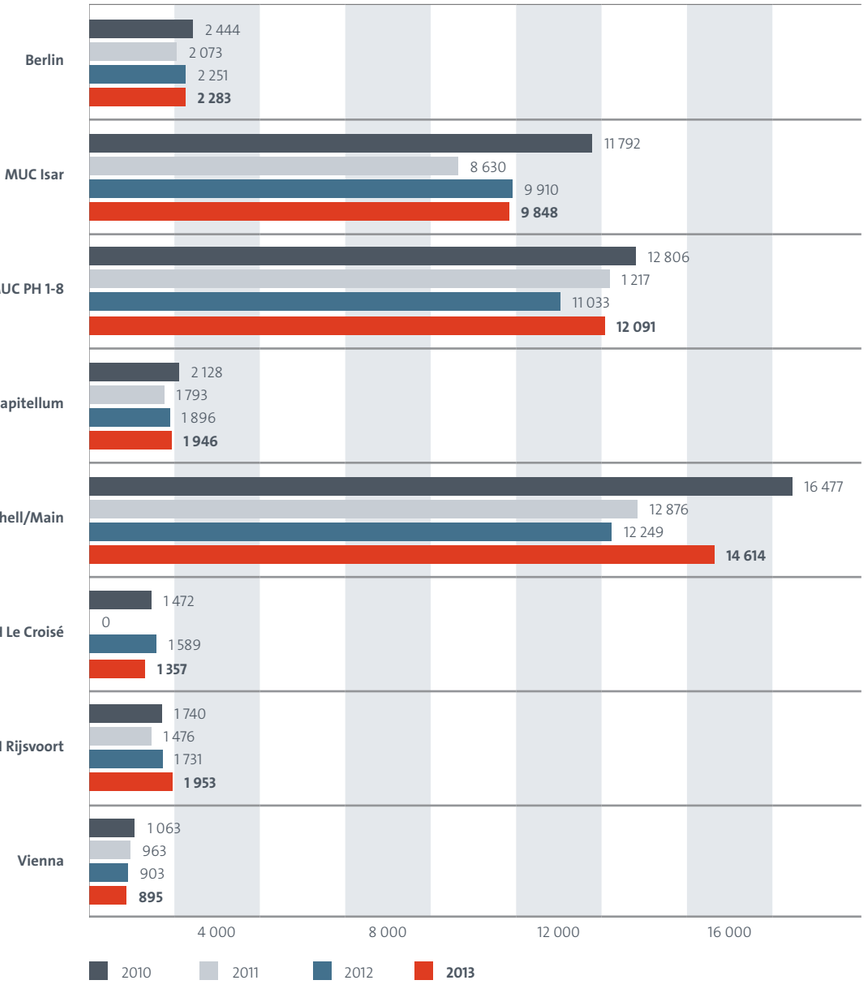

Fig. 3: Absolute heat energy consumption (MWh per year)

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

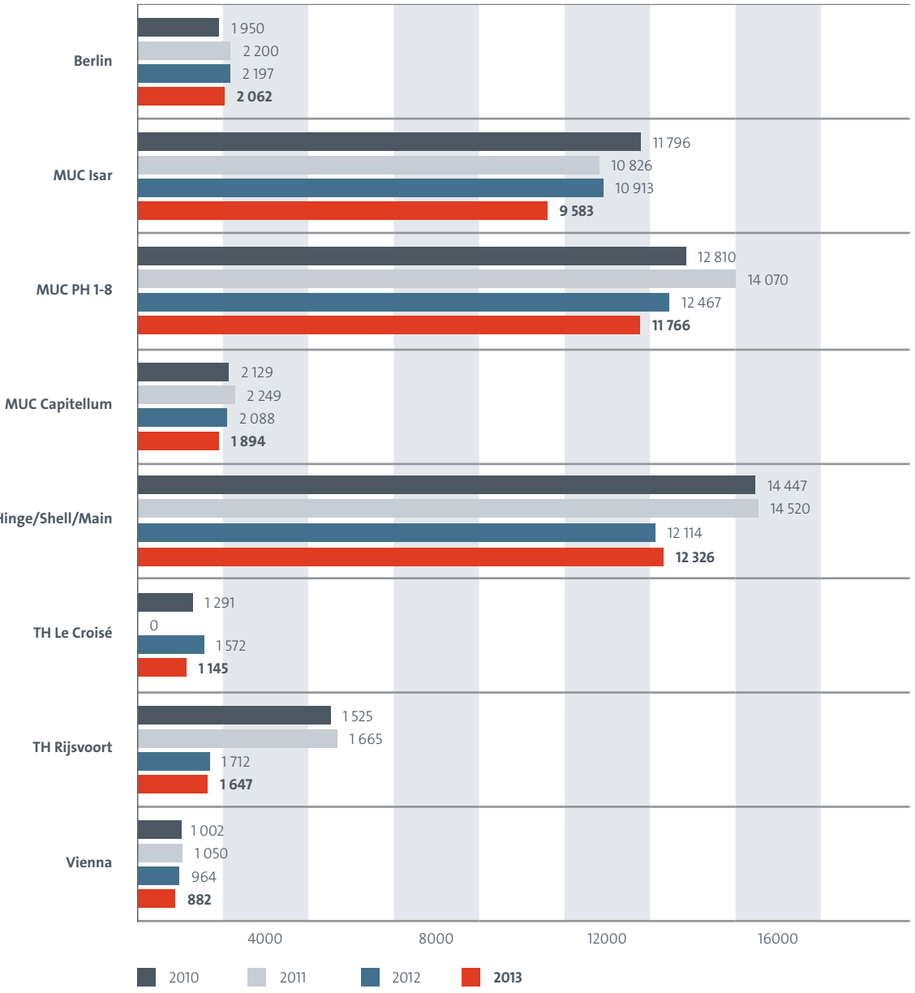

Fig. 4: Weather-adjusted heat energy consumption (MWh per year)
At all sites based on NASA climate data.
0: TH Le Croisé: no figures received from proprietor.

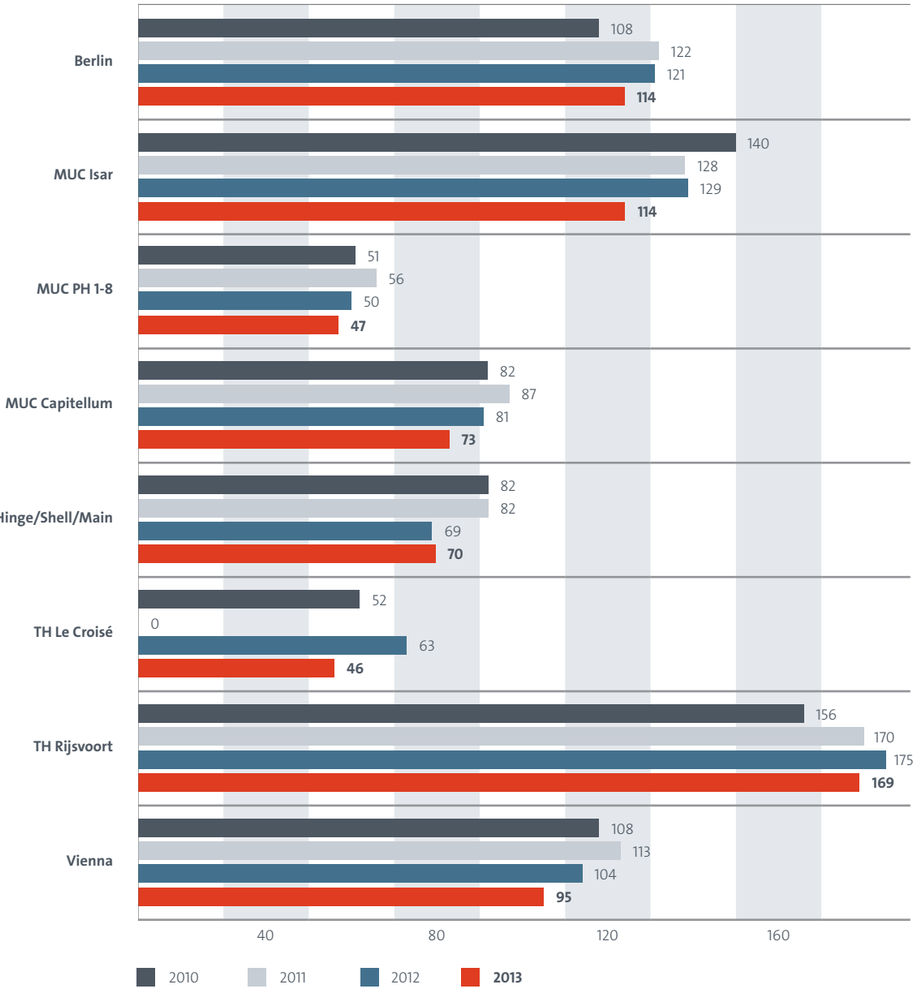

Fig. 5: Specific heat energy consumption, weather-adjusted (in kWh per m² floor area)
0: TH Le Croisé: no figures received from proprietor.

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 elements. Where needed, oil and grease traps are installed in specific locations to remove contaminants from waste water.

The EPO's water consumption in 2013 was 2.1% lower than the year before. At the individual sites there were differing trends. At some, water consumption changed only marginally (Berlin -1%, Munich Capitellum -2.4%), while at others there was a marked rise (Munich Isar +11.6%, TH Hinge/Shell/Main +4.7%) or a marked fall (Munich PschorrHöfe -7.2%, TH Le Croisé -12.3%, Vienna -28.4%). In the case of Vienna, this fall may be attributed to a reduction in the absolute volumes used for watering the garden.

For TH Rijsvoort in 2013 the proprietor was unable to provide any data on water consumption and waste water generation.

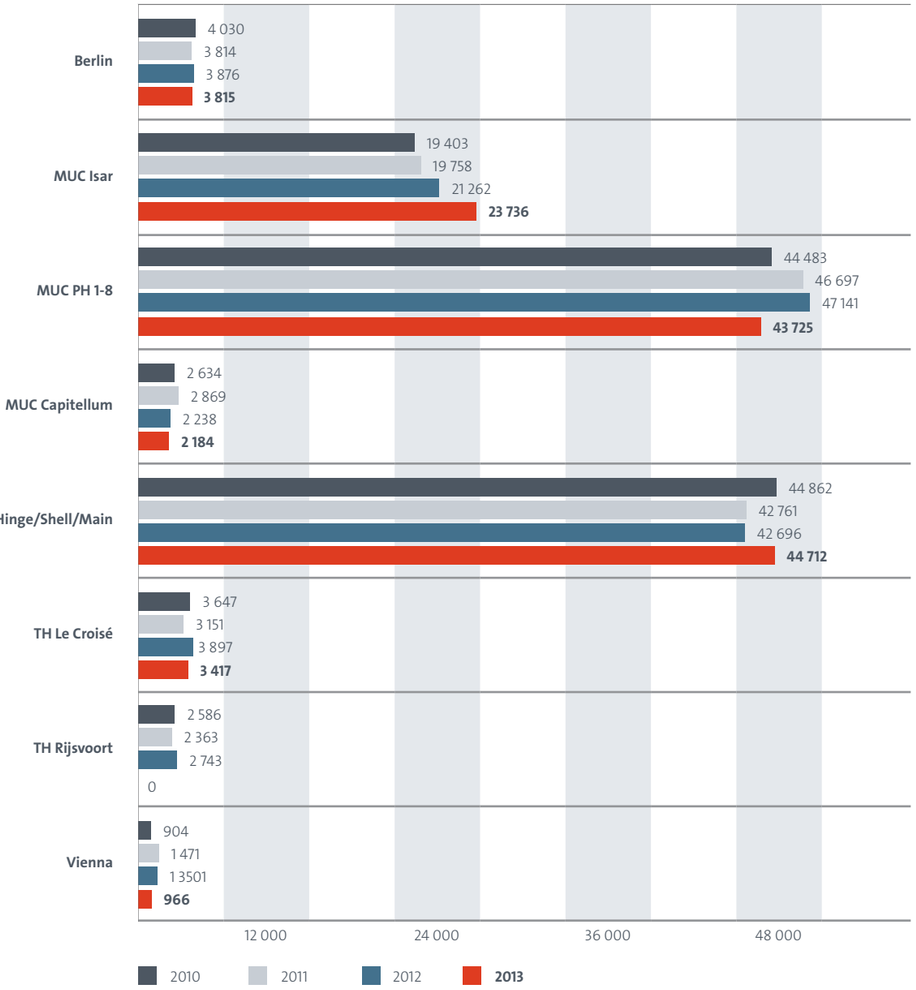

Fig. 6: Fresh water consumption (m³ per year)
0: TH Rijsvoort 2013: no figures received from proprietor.

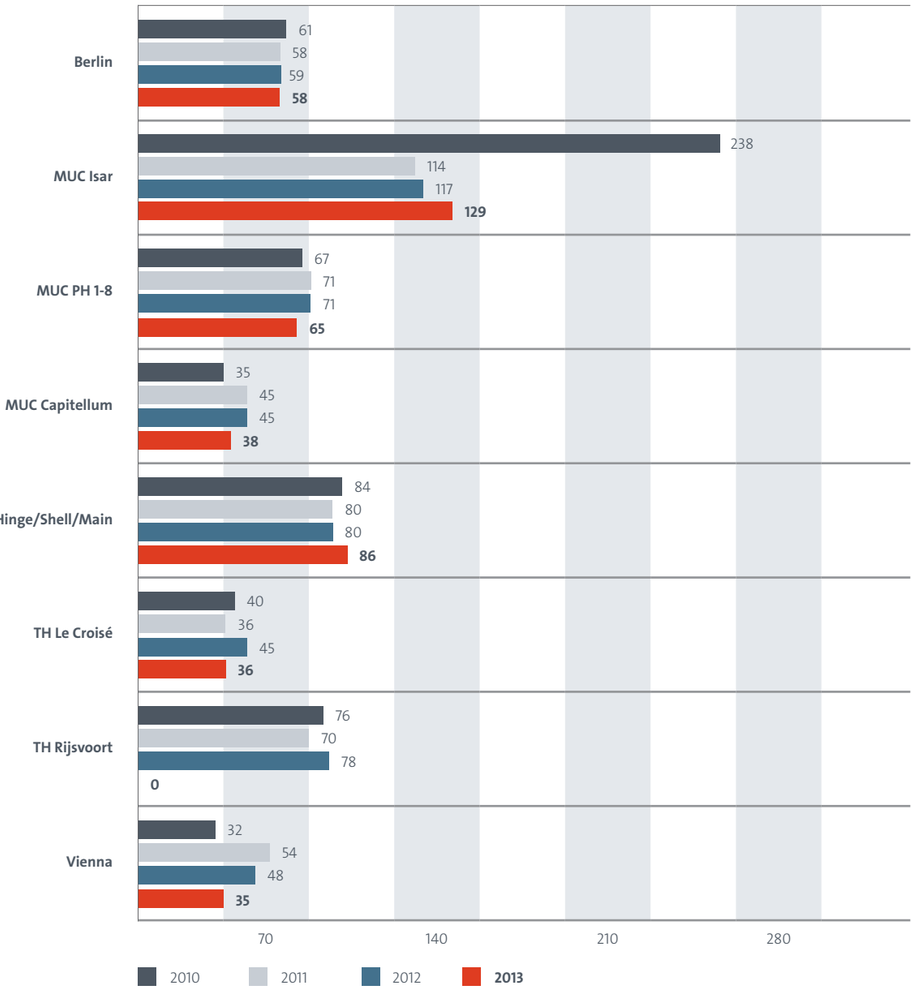

Fig. 7: Fresh water consumption per employee and day (l/employee/day)
0: TH Rijsvoort 2013: no figures received from proprietor.
MUC Isar 2010: The high values are attributable to the extensive renovation work combined with low office occupancy.

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 2013 the total quantity of residual waste was 7.5% higher than the previous year. This trend was particularly marked in some buildings in The Hague (Main/Hinge/Shell +19.4%, Le Croisé +16%, Rijsvoort +9%) and at the Isar building in Munich (+4.4%). In The Hague the rise was caused by the high number of removals. The only site where residual waste generation fell in 2013 was Munich Capitellum (-7.1%).

There were no significant changes in the quantity of residual waste per employee and working day, except at Munich Capitellum (-19.6%) and TH Hinge/Shell/Main (+21.3%).

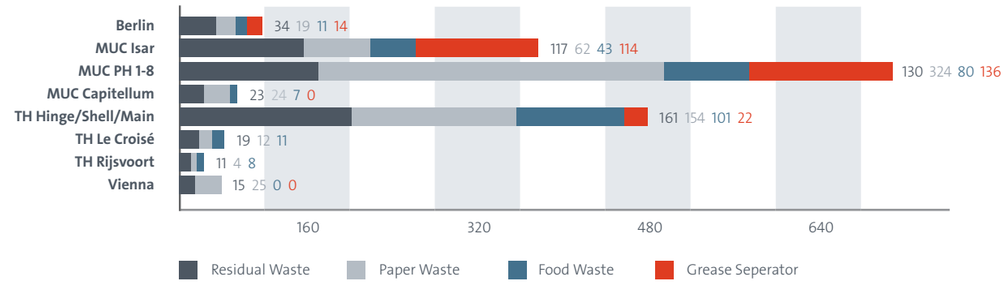

Fig. 8: Composition of waste in 2013 (in tonnes)

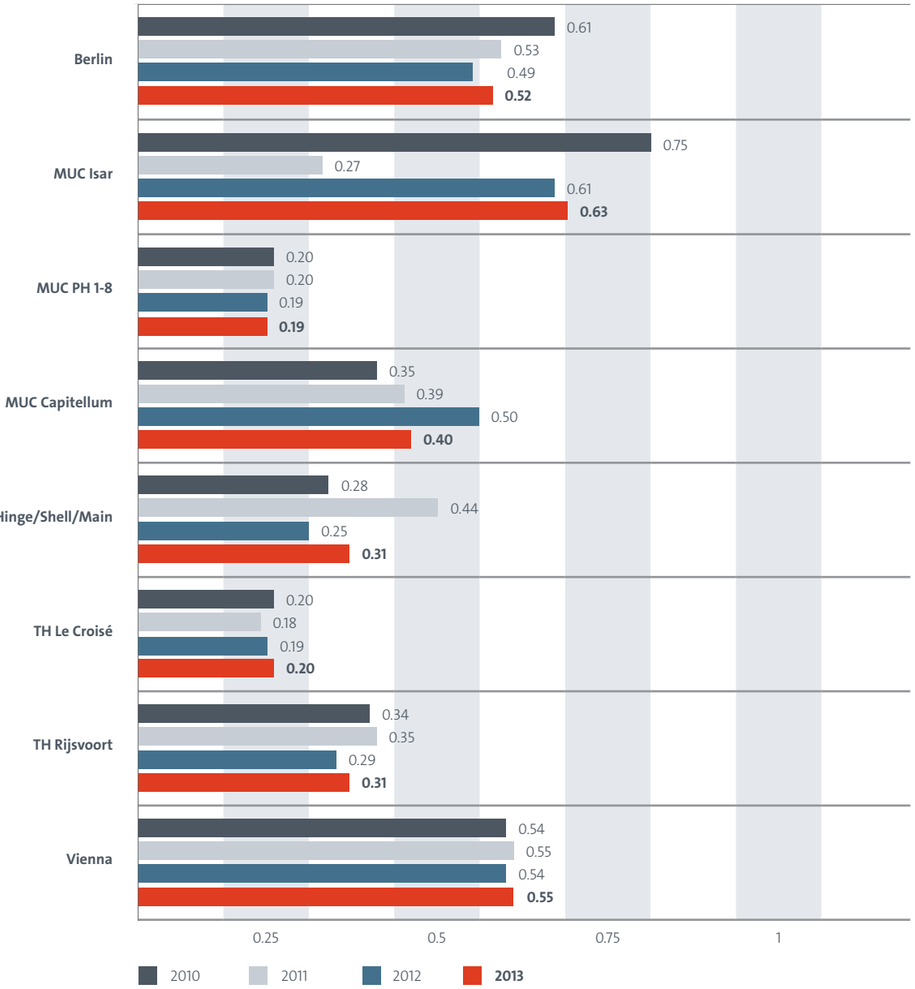

Fig. 9: Residual waste per employee and day (in kg)

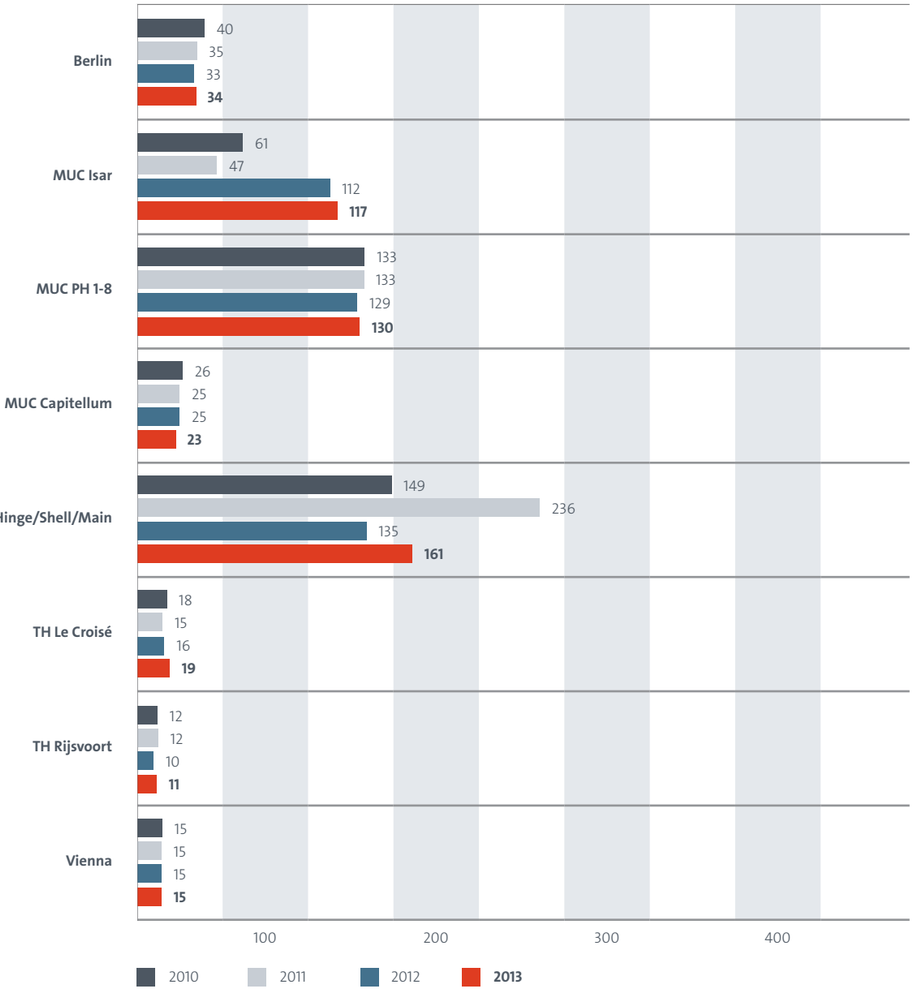

Fig. 10: Total residual waste generation (t per year)
TH Hinge/Shell/Main 2011: high increase due to emptying of storerooms and accommodation of additional containers.

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 is 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 videoconferencing facilities.

Since 2008/2009 the videoconferencing facilities have been constantly expanded. Fig. 11 below shows a 0.5% fall in emissions from air travel (measured in CO_2 equivalent) on average for all sites in 2013. At the same time, use of the videoconference rooms rose from 16 172 hours in 2012 to 16 539 hours in 2013 (+2.27%). In the same period the number of oral proceedings conducted by videoconference increased from 222 to 413 (+86%).

The slightly higher use of the videoconference rooms may have prevented a rise in CO_2 emissions from air travel. However, the EPO's aim is still to reduce air travel by offering suitable alternatives, thereby improving its CO_2 footprint.

Fig. 12 shows CO_2 emissions from train travel. There has been a marked rise in the use of trains for business travel: compared to 2012, the distance travelled by train rose from 73 037 km to 362 882 km (497%), and in the same period the resultant CO_2 emissions increased by 92.5%.

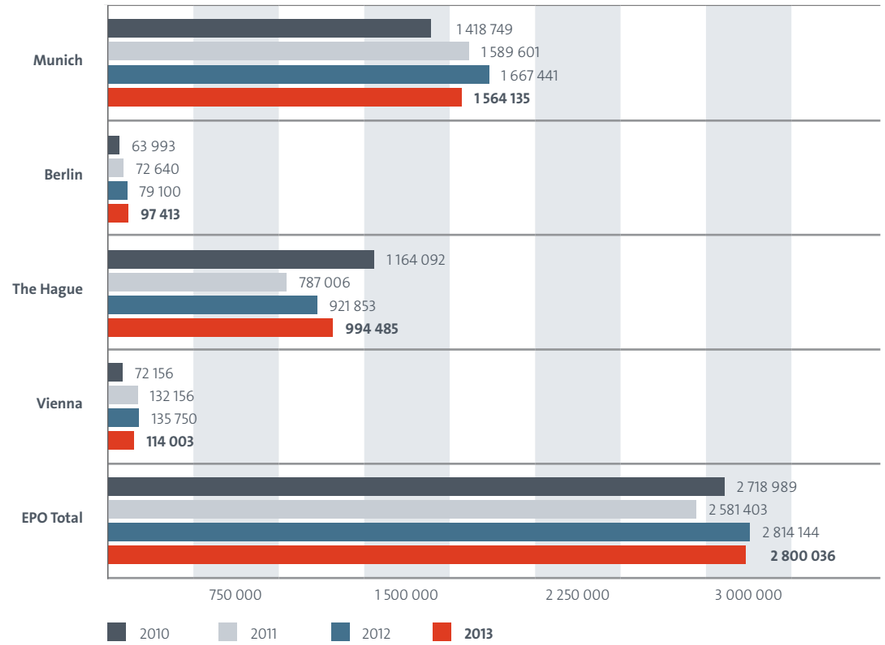

Fig. 11: CO_2 emissions from air travel (in kg CO_{2e})
Source: BCD Travel data manager/DEFRA 2014.
Note: Emissions are allocated to the place of departure.

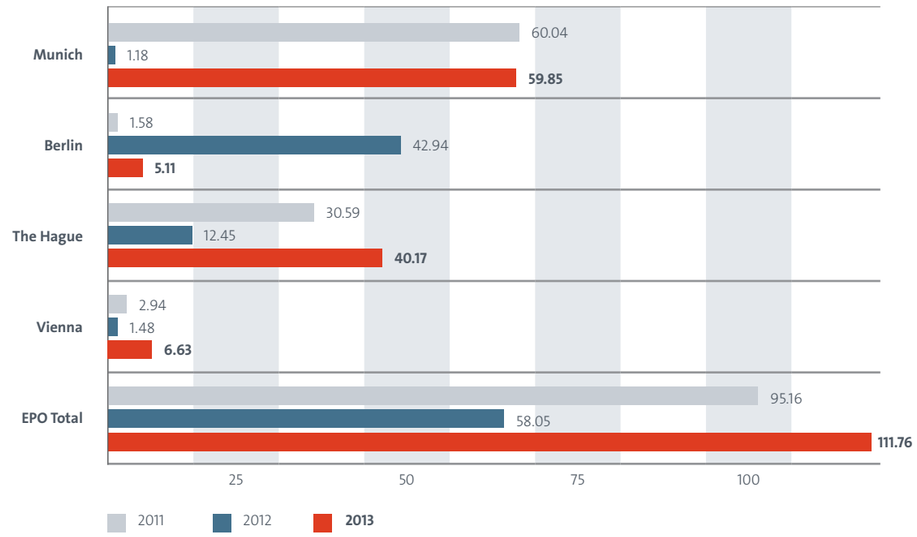

Fig. 12: CO_2 emissions from train travel (in kg CO_2)
Source: BCD Travel data manager/DEFRA 2014.
Note: Emissions are allocated to the place of departure.

5.5 Other emissions

Electricity and heating energy consumption give 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.

In 2013 all Munich sites plus Berlin were converted to 100% green electricity, which has a positive impact on the EPO's CO_2 footprint. Thus in 2013 CO_2 emissions from electricity generation fell by 97.3% Office-wide. Overall, CO_2 emissions from electricity and heat consumption fell by 56.5% in 2013.

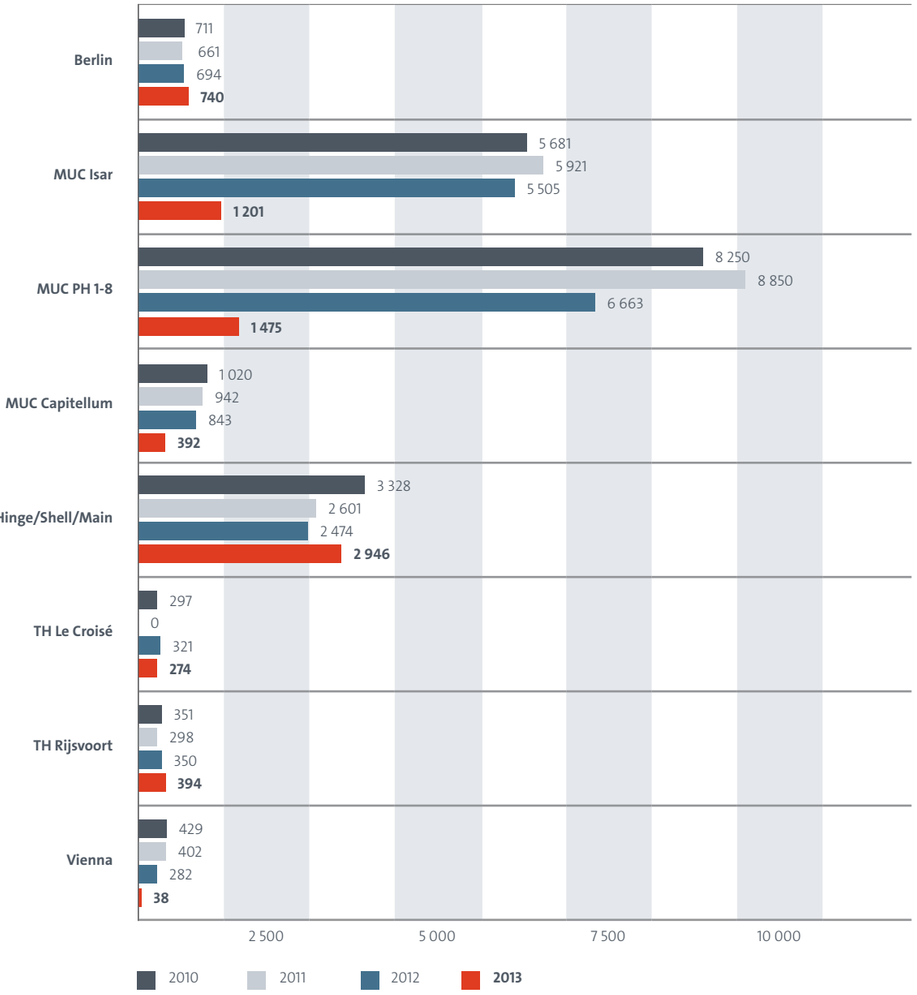

Fig. 13: Total CO_2 emissions from electricity and heating (t per year)
0: Le Croisé 2011: no figures received from proprietor.
2013: The sharp fall in emissions in Munich is primarily attributable to the switch to green electricity.

5.6 Paper consumption

In addition to residual waste, a large amount of paper (green and white) is used at the Office. Total paper consumption at all sites in 2010 was still around 122 million sheets, but by 2013 had fallen by around 10% to 110 million. For Munich and The Hague, paper consumption can be indicated only for the entire duty station, not for the individual sites.

Paper consumption in Berlin was significantly reduced by 2.2 million sheets (-33.4%) through the replacement of desktop printers with central LAN printers. In The Hague it rose slightly in 2013, as that was the first year in which green paper too was included in consumption statistics.

As part of the increasing digitisation of administrative processes we are aiming at a further significant reduction in paper consumption. Staff will continue to be encouraged to avoid unnecessary printing or to print double-sided or condensed.

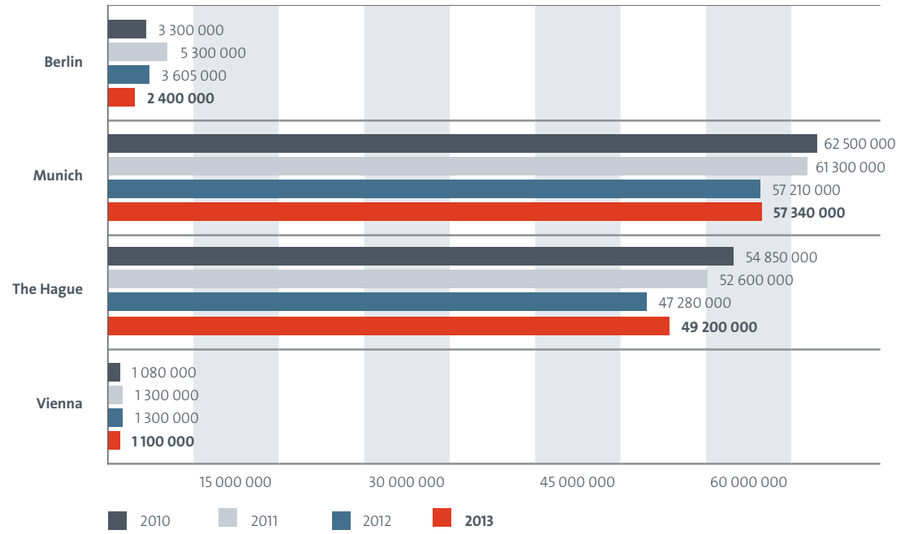

Fig. 14: Paper consumption per site (sheets)

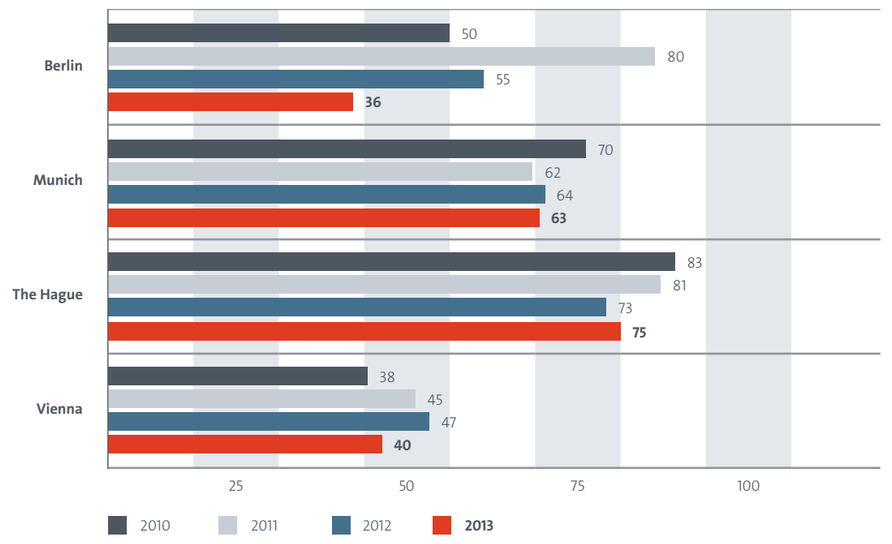

Fig. 15: Paper consumption per employee and day (sheets)

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 decisions to award contracts 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 of contractors/Procurement		
	Performance of contractors	B II
	Procurement e.g. of furniture	B II
	Purchase of food for canteen	A II
	Use of ecological resources for building/renovation, e.g. paint	A I
Miscellaneous		
	Travel to/from office	A III
	Capital expenditure	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 our contractors and suppliers
- regularly inform all members of staff and the public of our 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 goals from 2013 and for 2014. 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 2013

Berlin
All desktop PCs replaced with new energy-efficient models (savings approx. 87 000 kWh/year)
Number of LAN printers reduced (savings approx. 1 800 kWh/year)
Rainwater used for garden watering
Green energy share increased to 100%
Insect hotel installed
Munich
All desktop PCs replaced with new energy-efficient models (savings approx. 1 100 000 kWh/year)
100% green electricity procured for Munich sites (savings approx. 10 000 tonne CO_2/year)
Emergency lighting replaced in Capitellum (savings approx. 2 700 kWh/year)
Garage lighting replaced in Capitellum (savings approx. 14 000 kWh/year)
Lighting adjusted in PschorrHöfe 7 garage (savings approx. 2 000 kWh/year)
PA system converted to standby operation in PschorrHöfe 7 (savings approx. 200 kWh/year)
Ventilation operating times adjusted in PschorrHöfe 8 sports hall (savings approx. 15 000 kWh/year)
PschorrHöfe 6-8 conference and training room ventilation linked to booking system (savings approx. 110 000 kWh electrical and 300 000 kWh heating energy/year)
Lamps exchanged in PschorrHöfe 8 lobby - 39W/21W
LED lamps installed in PschorrHöfe 7 (Skybar)
Daylight-dependent control of stairwells in PschorrHöfe 7
Escalator from 9th to 10th floor in Isar building converted to standby operation
Lighting control adjusted in Isar building garage (savings approx. 11 500 kWh/year)
Isar air-conditioning split into six units for demand-driven operation
Operating times of Isar building HVAC systems adapted to actual demand (savings approx. 425 000 kWh/year)
Awareness activities continued: travelling exhibition by Bavarian consumer protection agency (“Climate protection - everyone can do their bit!”); year-long poster campaign and regular Gazette articles
The Hague
All desktop PCs replaced with new energy-efficient models (savings approx. 850 000 kWh/year)
Lighting reduced in printer rooms in Main
Four-stage introduction of ecological procurement guidelines
Central water softener installed in P9 and P5 to replace 10 decentralised softeners
Pilot project for implementing separate plastic collection at six locations in different buildings
Cleaning contract including various sustainability measures signed
Insulation on main cooling water pipe in P9 thickened from 13 mm to 25 mm
Vienna
All desktop PCs replaced with new energy-efficient models (savings approx. 43 000 kWh/year)
All window seals inspected
Existing ventilation system adjusted
Lighting replaced in meeting rooms
All sites
Existing LAN printers replaced with new, more energy-efficient models (savings approx. 416 000 kWh/year)

7.2 Action planned for 2014

Berlin
No structural action planned in the light of the extensive renovation work due to start in 2015
‘Garamont’ font campaign (uses around 30% less ink than e.g. ‘Times New Roman’)
Munich
Introduce an energy metering system for differentiated consumption recording in PschorrHöfe and Isar
Provide four charging stations for electric cars in PschorrHöfe and Isar building garages
Upgrade under-cabinet lighting in Isar building kitchenettes (savings approx. 3 900 kWh/year)
Convert escalator lighting in Isar building to LED (savings approx. 3 900 kWh/year)
Backfit a timer program for controlling the cooled ceilings in PschorrHöfe 6-8 (savings approx. 195 000 kWh/year)
Install daylight-dependent lighting control in Isar building offices (savings approx. 150 000 kWh/year)
The Hague
Extend meter infrastructure in Shell and Main
Replace boiler in P5
Vienna
Insulate bare heating pipes in heating room

Imprint

Issued by
European Patent Office
Munich
Germany

Responsible for content
Lars Hansen,
Environmental Management Officer

Design
Graphic Design Munich