

Environmental Report 2023

Annex to the Annual Review



Executive summary

The EPO is committed to becoming a carbon neutral organisation by 2030. We are translating this ambition into meaningful and measurable actions, in recognition of the urgency of the climate crisis. Our overarching aim is to contribute to the world's transition to a lower-carbon future and the global achievement of the UN Sustainable Development Goals (UN SDGs).

To meet this aim, we are progressively addressing all our emissions (direct and indirect) along the value chain. We report on our emissions according to the Greenhouse Gas (GHG) Protocol Corporate Standards (Scopes 1, 2 and part of Scope 3¹).

Over the four years of the Strategic Plan 2023 (SP2023), we significantly reduced our carbon footprint: emissions were 56% lower in 2023 than in 2019. In 2023, the EPO's gross reported GHG emissions amounted to 4 325 t CO₂e. This represented a 9% increase in total carbon emissions since 2022. The increase was due to cooling agent losses caused by ageing infrastructures for which a mitigation plan is in place, higher emissions from employee commuting consistent with higher staff presence on our premises, and new higher emission factors from a logistics services provider.

All environmental targets set for the KPIs of SP2023 have been exceeded. Paper procured fell to 13.8 million sheets in 2023 (-89% compared to 2019). The record low number of printed sheets this year (13.9 million) is due to the benefits of the increasingly digitalised Patent Grant Process.

The "Vienna Green Hub" project, our flagship initiative to achieve carbon neutrality by 2030, has progressed and advances according to plan. This is due to be completed by the end of 2024 and should provide 50 years of service.

Additionally, we have begun to collect data on the impact of Scope 3 emissions from purchased goods and services in line with our commitment to address all emissions caused along the value chain of our activities.

In 2023, we continued to highlight the EPO's efforts in promoting innovation in climate change technologies as a force for good, supporting innovators in their efforts to solve global challenges and contributing to the UN SDGs for a more sustainable world. We have launched Espacenet platforms, economic studies and insight reports on the three UN SDGs in focus this year: clean energy (UN SDG7), responsible production and consumption (UN SDG12), and climate action (UN SDG13).

Looking ahead, within the framework of the Strategic Plan 2028 (SP2028²), the EPO will have one goal – sustainability – across its environmental, social, corporate governance and finance operations.

In our journey to carbon neutrality, we will continue to mitigate the environmental impact of our buildings across the EPO's different sites as well as implementing changes to our digital homes that will strengthen our environmental sustainability. Green procurement will be another pillar of our sustainability effort.

¹ See 5.1 Greenhouse gas emissions

² Available at https://www.epo.org/en/about-us/office/strategic-plan-2028

Figure 1 – Key environmental data*



Source: EPO

*Employee number in EMAS certified sites namely Munich Isar, Munich PschorrHöfe (PH), The Hague, Berlin, and Vienna.

Figure 2 – Footprint of staff in 2023



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1. The European Patent Office

The European Patent Office (EPO) examines European patent applications, enabling inventors, researchers, and companies from around the world to obtain protection for their inventions in up to 45 countries through a centralised and uniform procedure that requires just one application. The EPO is also the world's leading authority in patent information and patent searching.

Set up in 1973, from the 16 signatory states of the European Patent Convention in 1973, the Organisation has now grown to 39 member states. Today, the EPO is one of the largest public service organisations in Europe, employing over 6 000 staff of 34 different nationalities. Of them, over 4 000 are highly qualified scientists and engineers working as patent examiners in all fields of technology.

As the patent office for Europe, the EPO supports innovation, competitiveness, and economic growth across the continent. Innovation plays a vital role in mitigating and adapting to climate change. Through our core business of granting patents on inventions and making patent knowledge accessible to all, we contribute directly to technological advances that address climate change.

Headquartered in Munich with offices in Berlin, Brussels, The Hague and Vienna, the EPO has been certified since 2009 as complying with the EMAS ecomanagement and audit scheme at the following sites: Munich Isar, Munich PschorrHöfe (PH), The Hague, Berlin and Vienna (presented in more detail in Annex 3). The Vienna site is being renovated and is therefore closed. Meanwhile, EPO staff working from Vienna can use a rented office space, which is not included in the EMAS scope. However, the related consumption figures are reported to ensure comparability with previous reports.

In 2022 the EPO extended its environmental reporting beyond the EMAS requirements and adopted the Greenhouse Gas Protocol as the standard for reporting on its carbon footprint (see 5.1 Greenhouse gas emissions).

The present report, setting out our environmental data and reporting on our environmental performance, is issued in accordance with EMAS Regulation (EC) No 1221/2009, Commission Regulation (EU) 2017/1505 and Commission Regulation (EU) 2018/2026. It can be downloaded from our website (www.epo.org).

2. Our environmental policy

Every year, the impact of climate change on our planet is more tangible, making any mitigating or adaptive action increasingly urgent.

For this reason, the European Patent Office (EPO) is committed to becoming a more environmentally sustainable organisation.

This policy guides all aspects of our work in achieving this goal. By reducing the environmental impact of our operations and by fostering innovation and access to knowledge on climate change technologies, we also contribute to the United Nations Agenda 2030 and its Sustainable Development Goals.

Our principles:

- Take a holistic approach to meeting our commitments.
- Comply with relevant environmental legislation and regulations.
- Reduce our consumption of resources and minimise our environmental footprint by promoting re-use, recovery and recycling.
- Encourage and engage our staff to embrace sustainable behaviour.
- Join forces with our external stakeholders to work towards environmental sustainability.
- Highlight the role of IP and innovation in mitigating climate change.

Our objectives:

- Become carbon neutral by 2030.
- Assess our carbon footprint, accounting for and reporting on direct and indirect emissions across the value chain of our activities according to the Greenhouse Gas Protocol.
- Implement initiatives to mitigate our environmental impact towards our carbon neutrality goal.
- Conduct business with responsible suppliers that respect the rule of law and human rights and recognise their responsibility to protect the environment.
- Engage with local, national and international institutions and organisations.
- Provide our staff with appropriate training, advice and information on how they can play their part.
- Report regularly and transparently to the public on the implementation status of this policy.

At the EPO, we are deeply committed to sustainability and ready to embrace new and more sustainable ways of working. Success can only be achieved by joining forces within and outside the EPO. Every stakeholder has an important role to play in making this policy successful, and ultimately contributing to a more sustainable world.

3. Environmental goals

In 2021, the EPO set itself the ambitious objective of becoming a carbon-neutral office by 2030, in line with the goals of the European Union's Green Deal (no net emissions of greenhouse gases by 2050) and the goals of the United Nation's Paris Agreement (limit global warming to well below 2 degrees, preferably 1.5 degrees Celsius, compared with pre-industrial levels).

SP2023 delivered on this commitment. All the targets set for the six chosen KPIs were exceeded (Figure 3). Our main direct impact on the environment is caused by the operation of our buildings and, as such, four of the KPIs related to this. In particular, the New Ways of Working (NWoW) pilot scheme, which offers EPO staff broad flexibility on where they choose to work, has enabled us to improve our environmental performance by rationalising our office space.

Looking ahead, within the framework of SP2028 the EPO will have one goal: sustainability, based on the framework of environmental, social, and corporate governance, as well as financial aspects. Thereby, we aim at a carbon footprint of less than 1 000 tonnes of CO_2e by the end of 2028.





4. Assessment of environmental aspects

All EPO activities have an environmental impact, directly or indirectly. In accordance with our environmental policy, we strive to reduce this impact by applying an environmental management system and continually improving our environmental performance.

To establish a basis for developing environmental objectives and measures, we have identified and evaluated our environmental aspects according to the following criteria:

- the potential harm or benefit to the environment
- the condition of the environment
- the size, amount, frequency and reversibility of the aspect or impact
- the existence and requirements of relevant environmental legislation
- the concerns of interested parties, including EPO staff.

All significant environmental aspects are recorded and assessed on an annual basis. This assessment is taken into consideration when developing new policies and measures for further improvement.

Environmental aspects are subdivided into direct and indirect aspects. To align EMAS reporting with the requirements of the Greenhouse Gas Protocol, our direct environmental aspects include our scope 1 and scope 2 emissions, while our scope 3 emissions are mostly covered by the indirect environmental aspects. To help assess their relevance and the need for action (significance), the different direct and indirect environmental aspects have been rated as follows:

- 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 they can be influenced (control) is indicated by the following ratings:

- I = short-term control possible
- II = mid to long-term control possible

III = control not possible or possible only in the long term or subject to third-party decisions.

Figure 4 shows the direct environmental aspects of the EPO activities. A detailed assessment of the direct environmental aspects is included in Annex 2.

Figure 4 – Direct environmental aspects of EPO activities

S	А		Consumption for Electricity consumption for installations incl. heat pumps Greenhouse gas emissions from refrigerants			
gnificance increases	в	Greenhouse gas emissions from gas and district heating Greenhouse gas emissions from electricity Will Natural gas consumption for heating	Water for technical facilities, cooling, sanitary facilities and canteens ▲ Hazardous waste ■ Paper consumption ▲ Risk of environmental accidents			
<u></u>	с	Fuel consumption emergency generator	Impacts on biodiversity	ित्तु Fuel consumption vehicle fleet		
		Ш	Ш	1		
	Control increases					

Source: EPO

All indirect environmental aspects under the EMAS III Regulation have been assessed for their relevance to the EPO. Figure 5 illustrates the indirect environmental aspects identified at the EPO.

Figure 5 - Indirect environmental aspects of EPO activities



Control increases

Source: EPO

5. Environmental performance

The consumption data for each site and the resulting index figures are important instruments for assessing our current environmental performance, as well as planning environmental activities and regularly monitoring progress. The following sections outline the major developments in 2023.

5.1 Greenhouse gas emissions



In the Environmental Report 2021, the EPO aligned its accounting and reporting of emissions to the Greenhouse Gas (GHG) Protocol standard with its well-known scopes (Figure 6). Scope 1 includes direct GHG emissions from facilities owned or controlled by the

reporting organisation, such as natural gas burnt at premises owned by the EPO, fuels used for vehicles or leakages of cooling agents. Scope 2 covers indirect GHG emissions from purchased energy, in our case electricity and district heating³. Scope 3 includes all other indirect GHG emissions originating in the value chain. Biogenic CO₂ emissions from the combustion of gas obtained from biomass are reported separately. Emissions are indicated in CO₂ equivalents (CO₂e), which includes carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

Our GHG inventory includes emissions in scopes 1 and 2 for the owned sites Munich Isar and Munich PH, The Hague and Vienna (until October 2022). GHG emissions in scope 3 include the categories of fuel and energy-related activities (for the part not already included in scopes 1 and 2), transportation and distribution (upstream activities), waste, business travel, employee commuting and teleworking and leased assets (Berlin and the rented space in Vienna as of November 2022). For the category "Capital goods", emissions will be first reported after the closing of the Vienna Green Hub project (see 5.8 Capital goods).

7 GHG according to the Kyoto Protocol CO. PCFs N₂O CH4 HFCs NF₂ SF Scope 1 Î Scope 3 upstream Scope 3 downstream Scope 2 Q Ê ۰, apita ┢╈ Emissions from Emissions Emissions from upstream activities within the downstream activities organisation

Figure 6 - Scope 1, 2 and 3 categories, according to the GHG Protocol

Environmental Report 2020 Environmental Report 2021 Environmental Report 2022 In progress

Source: EPO

Total GHG emissions 2023: 4 325 t CO₂e

+9% compared with 2022

-56% compared with 2019

³ District heating distributes heat centrally generated for residential and commercial purposes.

Table 1 summarises our GHG inventory for 2019 (the first year reported according to the GHG Protocol) and the last three years. Details of the methodology and emission factors⁴ used as well as site-specific scope 1 and 2 emissions, are included in Annex 1 and Annex 3 respectively.

Table 1 – Total GHG emissions (t CO₂e per year)

	2019	2021	2022	2023	Change 2022-23 in %
Scope 1	2 070	147	776	1 036	+34
Facilities	1 475	21	194	19	-90
Vehicle fleet	14	11	9	11	+14
Cooling agents' losses	581	115	572	1 006	+76
Scope 2	2 829	1 358	1 072	893	-17
Purchased electricity⁵	0	0	0	0	0.0
District heating	2 829	1 358	1 072	893	-17
Scope 3	4 950	3 201	2 104	2 396	+14
Fuel and energy-related activities not included in scope 1 or 2 ⁶	1 194	1 485	444	356	-20
Upstream transportation and distribution	-	128	100	249	+150
Waste generated in operations	-	69	69	86	+25
Business travel	1 297	3	79	135	+70
Employee commuting and teleworking	1 984	1 032	1 027	1 159	+13
Upstream leased assets (Berlin ⁷ , Vienna as of November 2022)	474	485	385	411	+7
Total scope 1, 2, 3	9 849	4 706	3 951	4 325	+9
Biogenic CO ₂	-	1 357	1 049	930	-11

⁴ Emission factors are used to calculate the GHG emissions for a given source, relative to units of activity. They reflect average values by sector, technology type, and/or fuel type.

⁵ For calculating GHG emissions from purchased electricity, we use the market-based approach from the GHG Protocol, reflecting the emissions from the electricity mix (100% green electricity) purchased by the EPO via its electricity contracts. Using the location-based approach, emissions amount to 11 907 t CO₂e (2021), 10 266 t CO₂e (2022) and 9 013 t CO₂e (2023), respectively.

⁶ 2021 figure differs from previous report due to more specific emission factors

⁷ 2021 and 2022 figures differ from previous report respectively due to use of more specific emission factors and updated consumption figures from the landlord in Berlin. 2023 figure is based on preliminary meter readings by the landlord.

In 2023, the EPO's total carbon footprint in scopes 1, 2 and 3 was 4 325 t CO₂e, a 9% increase (+374 t CO₂e) compared with 2022. Trends per scope differ substantially.

Scope 1 emissions

Scope 1 emissions increased by 34% (+260 t CO₂e), primarily due to cooling agents' losses in Munich PschorrHöfe and The Hague. Related emissions account for 24% of the reported carbon footprint in 2023. Leakages occur due to defects in cooling facilities and maintenance is performed at regular intervals to minimise the risk of losses. To keep these emissions as low as possible, we have implemented a mitigation plan. In essence, we have intensified the frequency of leakage testing for higher risk installations and switched to cooling agents with lower global warming potential where possible. Some of the technical installations have reached the end of their lifespan, increasing the risk of further leakages. Corresponding investments will be considered under SP2028.

Other Scope 1 emissions from our facilities originate from diesel and heating oil consumption for our emergency generators in Munich and The Hague and from biomethane consumption for heating in The Hague (methane and nitrous oxide). Overall, these decreased by 90% compared with 2022 because it was not necessary to activate the emergency generators as in The Hague in 2022.

Scope 2 emissions

Scope 2 emissions include emissions from purchased electricity in Munich, The Hague and Vienna and from district heating in Munich and Vienna (until October 2022⁸). As the EPO has purchased green electricity since 2019, emissions from electricity consumption are set to zero according to the market-based calculation approach.

Emissions from district heating decreased by 17% in 2023 compared to the previous year (-179 t CO₂e). Consequently, district heating consumption no longer represents the biggest source of GHG emissions for the EPO.

The main drivers for this decrease were the implementation of a software solution for weather-dependent regulation of heating and cooling in the Isar building and the rationalisation of office space following the implementation of the NWoW pilot scheme (see impact on energy consumption in 5.2 Energy). Keeping a strong focus on reducing our energy consumption together with the ongoing efforts made by our suppliers to decarbonise their products will be essential if the related emissions are to be further reduced.

Scope 3 emissions

Scope 3 emissions represent over half of the reported total in 2023. In comparison to the previous year, they increased by 14% (+292 t CO₂e).





⁸ Emissions from electricity and district heating for the rented office space in Vienna to which staff has been moved as of November 2022 are accounted for in scope 3 Upstream leased assets.

Upstream emissions from the supply chain of the electricity, biomethane and fuel consumed at our own sites⁹ decreased by 20% (-88 t CO₂e) in comparison to 2022. This positive result is mainly due to the energy saving measures detailed in 5.2 Energy and the lower 2022 emission factors for the purchased electricity and biomethane.

Other emissions, such as SO_2 (sulphur dioxide), NO_x (nitrogen oxide) and particulates, are considered only if they arise directly at one of our sites. This applies exclusively to natural gas and biomethane consumption at the sites Berlin, The Hague and the rented space in Vienna, and diesel and petrol used for our emergency generators, boilers and cars. Since these emissions are of minor relevance, they are presented with the core indicators in Annex 3.

Emissions from logistic services purchased by the EPO (Scope 3 category Upstream transportation and distribution), which relate to letters, parcels and other deliveries mainly sent from our sites in Munich and The Hague, are reported according to primary data from our service providers or, when not available, estimated based on the number of items sent and emission factors from the International Post Corporation (IPC).

While in 2023 the number of documents sent and the corresponding amounts of printed paper has decreased (see 5.5 Paper consumption), the reported emissions have increased by 150% compared with 2022 due to significantly higher emission factors supplied by one of our service providers as of 2023.

The category "Waste generated in operations" covers the disposal and treatment of both solid waste and wastewater produced in our operations by third parties. The impact is assessed by applying the waste-type-specific method which involves using specific emission factors per type of waste and method of treatment (e.g., recycling, incineration, or landfill). Emission conversion factors from the UK Department for Environment, Food & Rural Affairs (DEFRA), which are highly regarded in the literature, are used in the absence of primary data and comprehensive sources specific to our hosting countries.

Compared with 2022, in 2023 emissions from waste generated in operations increased by 25%, primarily due to the disposal of documents resulting from clean-up actions and the disposal of old archives of paper files (5.4 Waste).

In 2023, emissions from scope 3 category "Business travel" totalled 135 t CO₂e, 90% below the pre-pandemic year 2019, when business travel was a significant contributor to the EPO's carbon footprint with almost 1300 t CO₂e reported emissions. Travel by air is responsible for 94% of total emissions in this category (see 5.7 Business travel).

The combined estimated emissions from "Employee commuting and teleworking" accounted for 27% of the EPO's total emissions in 2023 compared to 26% in 2022, an increase consistent with the higher staff presence on our premises (see 5.10 Employee commuting and teleworking).











⁹ According to the GHG Protocol, the category includes: emissions for the extraction, production and transportation of fuels consumed at EPO premises; emissions for the extraction, production and transportation of fuels consumed in the generation of electricity, steam, heating and cooling consumed by the EPO; and transmission and distribution losses.

Building-related emissions (electricity, natural gas, district heating, cooling agents) at our rented sites in Berlin and Vienna, over which we do not have full operational control, represent 9% of the EPO's reported carbon footprint (411 t CO₂e). Compared with 2022, related emissions increased by 7% (+26 t CO₂e), mainly because of the increased natural gas consumption in Berlin.



Figure 7 summarises the proportion of emissions per reported category.



Figure 7 - GHG emissions in 2023 (% of total, without biogenic emissions)

Source: EPO

Finally, biogenic CO_2 emissions decreased by 11% in line with the reduction in the consumption of biogas in The Hague following the emptying of the Shell building.

Looking forward, we have started to collect data on emissions related to the last outstanding scope 3 upstream category "Purchased goods and services", in line with our commitment to include all significant emission sources and obtain a complete picture of the climate impact of our activities (see 5.6 ICT sustainability and 5.9 Other purchased goods and services).



5.2 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 essentially consists of:

- cooling/heating systems
- ventilation and air conditioning
- IT equipment (e.g., data centres, workstations and printers)
- lighting in offices and public areas (e.g., canteens, parking), and other equipment.

Table 2 summarises the energy input from the different sources used. In 2023, overall electricity consumption decreased by 4% compared with 2022. The main driver was the progressive emptying of the buildings PschorrHöfe 5-7 in Munich and Shell in The Hague during the second part of the year. It is noted that the 2023 energy consumption of the Vienna rented space reflects a whole year compared to two months in 2022. The positive trend is reflected in our performance indicator "Total electricity consumption per employee", which decreased from 4.4 to 4.2 MWh per employee (Figure 8).

Figure 8 – Total electricity consumption per employee (MWh/employee)

Total electricity consumption in 2023: 25 498 MWh

-4% compared with 2022

Total district heating consumption in 2023: 13 622 MWh

-18% compared with 2022



Source: EPO

Table 2 – Total energy input (MWh per year)

					Change
		2021	2022	2023	2022-23 in %
Electricity from the	Berlin ¹⁰	419	351	351	0
gria	MUC Isar	5 943	5 471	5 633	+3
	MUC PH	8 021	7 862	7 536	-4
	The Hague	14 808	12 438	11 917	-4
	Vienna	419	311	0	-100
	Vienna – rented space	0	10	57	+500
Electricity from solar panels	The Hague	0	2	3	+95
Total electricity		29 609	26 444	25 498	-4
District heating energy	MUC Isar	9 814	8 470	6 154	-27
	MUC PH	10 525	7 638	7 373	-3
	Vienna	714	389	0	-100
	Vienna – rented space ¹¹	0	16	95	+500
Total district heating		21 053	16 513	13 622	-18
Biomethane	The Hague	7 446	5 746	5 113	-11
Natural gas	Berlin ¹²	2 110	1 650	1 658	+1
Diesel (emergency power)	The Hague	29	153	39	-75
Heating oil	MUC Isar	6	8	2	-73
(emergency power) ¹³	MUC PH	32	30	21	-30
Diesel (heating)	The Hague	0	524	0	-100
Diesel (vehicles)	MUC Isar	20	3	17	+480
	The Hague	11	12	7	-39
Petrol (vehicles)	MUC Isar	0	6	0	-100
	The Hague	9	14	20	+38
All inputs	EPO total	60 324	51 103	45 997	-10

¹⁰ The figures for Berlin are provided by the landlord based on the overall electricity consumption of the building and the size of the space rented by the EPO. For 2023, data was not available at the time of compiling of this report. To ensure comparability, the 2022 data was used as an estimate.

¹¹ No data from landlord available. Figure estimated based on average mean annual heat energy per square metre in office buildings in Austria (two months in 2022).

¹² Compared with last year's report, 2022 consumption has been updated with figures from the landlord. 2023 consumption from preliminary meter readings from the landlord.

¹³ In previous years, these consumptions were reported as diesel, which has now been corrected.

Heating energy at the different sites is generated from various sources: district heating in Munich and Vienna (including the rented office space), heat pumps and biomethane in The Hague¹⁴ (respectively in the Main and in the Shell buildings), natural gas in Berlin. In The Hague and Munich, an energy monitoring and control system is connected to a software for weather-dependent regulation of our systems to maximise its efficiency.

The implementation in Munich Isar, which was completed in 2023, was the main driver for a decrease in the building's energy consumption by 27% compared to 2022. Overall, district heating consumption in Munich decreased by 16%. In The Hague, biomethane consumption decreased by 11% following the emptying of the Shell building. The milder climate and higher average temperature for Munich and The Hague in 2023 (see box below) helped in saving energy. Heat energy consumption per unit of heated floor space dropped from 62 to 54 kWh per square metre (Figure 9).

Finally, optimisation of the monthly running time of the emergency generators has reduced the corresponding fuel consumption by 68%.

Figure 10 is a representation of the energy consumption in owned buildings by source and purpose (e.g., main categories of usage).





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Source: EPO
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¹⁴ In 2022 a small amount of heating energy was generated by burning fuel.

Weather patterns and energy performance

Assessing the energy performance of a building involves understanding its efficiency in maintaining a comfortable indoor environment relative to the external climate conditions. One key factor is the heating degree days (HDD) specific to the building's location, a weather-based technical index designed to describe the need for heating energy of buildings. The HDD index quantifies the severity and duration of cold weather in a particular area over a specified period, typically a year. It is calculated as the cumulative sum of the positive differences between the base internal temperatures and the average outdoor temperatures.

We correlate energy usage with HDD data to patterns and trends in energy consumption during different weather conditions. This analysis helps in assessing the building's energy performance and identifying areas for improvement. By leveraging this data alongside other factors (e.g., occupancy data), we can make informed decisions to enhance energy efficiency and reduce operational costs while ensuring occupants' comfort.

For example, considering that 2023 has been a slightly warmer year than 2022, the correlation between heating consumption and HDD indicates that 4% of the district heating reduction in Munich and 3% of the biomethane reduction in The Hague relate to the warmer weather, while the remaining 12% and 8% respectively are due to the optimisation measures carried out in the buildings.



Figure 10 – Energy flows in owned buildings associated with main input sources and purposes¹⁵

Source: EPO

¹⁵ Including energy losses from transmission, distribution and transformation.

5.3 Water



At all sites, water is provided by the municipal supplier. It is mostly deployed in sanitary facilities and kitchens. In the Isar and PH buildings in Munich, and the New Main, Shell and Hinge buildings in The Hague, water is also used for the air conditioning systems and

for watering plants and green spaces on site. Wastewater contamination consists mainly of organic substances. Where needed, grease traps are installed in specific locations to remove contaminants from wastewater.

Water consumption decreased by 20% in comparison to 2022 (Table 4 and Figure 11 for water consumption per employee). The main driver was ceasing to fill the pond around the Main building in The Hague, which counterbalanced the higher water consumption due to higher occupancy rates in our buildings.

Total water consumption in 2023: 75 818 m³

-20% compared with 2022

Change

	2021	2022	2023	2022-23 in %
			2020	
Berlin	1 201	1 021	1 280	+25
MUC Isar	26 682	15 422	18 428	+19
MUC PH	26 484	35 031	33 229	-5
The Hague	29 988	43 023	22 367	-48
Vienna	943	648	0	-100
Vienna – rented space ¹⁶	0	86	515	+500
Total	85 298	95 231	75 818	-20

Table 4 – Water consumption (m³ per year)

¹⁶ No data from landlord available. Figure estimated based on mean annual water consumption per employee from 2019 to 2021 at the owned site in Vienna.

Figure 11 – Freshwater consumption per employee (m³/empl)





5.4 Waste

In 2023, the resumption of normal operations, site clearances and renovation work led to an increase in overall waste figures compared to 2022. Wastepaper and residual waste constitute the main categories at all sites and the EPO has established a waste

separation system with clearly identifiable and distinguishable waste containers on all sites. Staff are briefed on waste avoidance, recycling and correct disposal.

While wastepaper from operations continues to decrease with paper printing (see 5.5 Paper consumption), site clearances in Munich PH, The Hague and Berlin, and renovation work in Munich Isar resulted in the disposal of old paper archives. Site clearances also explain the rise in residual and hazardous waste (e.g., appliances, fluorescent lights and other electrical material).

Food and grease separator waste increased in Munich and The Hague in line with higher occupancy. In Vienna the canteen remained closed and for Berlin no separate food waste is reported in view of the minimal quantities because meals are provided by an online catering service.

The treatment of e-waste (i.e., ICT devices) is managed via a dedicated service provider. In 2023, over 50% of the collected e-waste could be repaired and reused, the rest being recycled. This is a major achievement and a concrete example of our commitment to UN SDG 12 – Responsible Production and Consumption. A further example of promoting reusing and recycling are the donations to staff of old furniture and equipment resulting from the emptying of buildings.

Total paper waste in 2023: 471 t

+29% compared with 2022

Table 5 – Total waste generation (t per year)

				Change
	2021	2022	2023	2022-23 in %
Residual waste				
Berlin ¹⁷	40	40	40	0
MUC Isar	21	23	19	-19
MUC PH	30	32	53	+69
The Hague	44	43	70	+64
Vienna	15	13	0	-100
Vienna – rented space ¹⁸	0	1	4	+460
Total	151	151	186	+24
Paper waste				
Berlin	19	11	18	+62
MUC Isar	167	121	142	+17
MUC PH	64	105	184	+75
The Hague	105	58	126	+118
Vienna	24	70	0	-100
Vienna – rented space	0	0	1	+200
Total	379	365	471	+29
Plastics			1	
Berlin	4.7	4.7	4.7	0
MUC Isar	0.7	2.3	2.3	+2
MUC PH	0.2	0.4	6.4	+1 546
The Hague	0.4	2.3	4.7	+102
Total	6	10	18	+87
Food waste			1	
MUC Isar	1	7	18	+150
MUC PH	1	12	37	+219
The Hague	11	14	23	+60
Total	13	33	78	+136
Grease separator waste			1	
MUC Isar	22	67	106	+60
MUC PH	23	8	22	+194
The Hague	23	30	41	+39
Total	67	104	170	+64
Hazardous waste			1	
MUC Isar	16	40	13	-69
MUC PH	13	5	17	+214
The Hague	5	12	32	155
Vienna	0	1	-	-100
Total	35	59	61	+3

 $^{^{\}rm 17}$ In Berlin, residual waste and plastics/packaging waste are calculated based on the containers'

volume and the number of collections by the disposal companies.

¹⁸ In Vienna, plastic waste is not collected separately and is included in the figures of residual waste.

5.5 Paper consumption



Paper consumption is measured as input (paper procured) and output (paper sheets printed). The former is relevant for assessing the carbon footprint of the goods we purchase; the latter reflects the impact of the digitalisation of our core business and corporate

services on printing patterns.

Having significantly reduced our paper stocks in the previous year, paper procured increased in 2023 (+6%, see Table 6). However, printing reached a record low of 13.9 million sheets, 18% less than in the previous year. Over 50% related to documents mailed to externals (7.2 million sheets, -22% compared to 2022).

The increasing adoption of MyEPO Portfolio, an integrated suite of services that makes it easy for inventors, companies and their representatives to conduct their EPO business online, is directly linked to the decrease in paper mailing.

These services are increasingly becoming the standard means of accessing all aspects of the patent grant procedure. The month-on-month growth in the number of users and the extension of the MyEPO Portfolio functionalities are expected to enable further reductions in the number of documents we print and mail to externals.

Total paper consumption in 2023 (procured): 13.8 million sheets

+6%

compared with 2022

Total paper consumption in 2023 (printed): 13.9 million sheets

-18% compared with 2022

	2021	2022	2023	Change 2022-23 in %
Berlin	410 000	96 500	0	-100
Munich	14 140 000	5 020 000	5 760 000	+15
The Hague	16 900 000	7 920 000	7 920 000	0
Vienna	75 100	0	120 000	-
Total	31 525 100	13 036 500	13 800 000	+6

Table 6 – Total procured paper (paper sheets per year)

5.6 ICT sustainability



Up to 4% of global greenhouse gas emissions come from the IT sector¹⁹. Moreover, e-waste around the world amounted to 53.6 million metric tonnes in 2019 and is considered the fastest growing domestic waste-stream²⁰. As a knowledge-intensive organisation, the

EPO is highly dependent on Information and Communication Technology (ICT) for its core business and will become even more so as it continues to digitalise all its processes. ICT sustainability is therefore an essential aspect of the EPO's environmental performance. With increasing demands on ICT systems and end-to-end digital workflows, it is essential to choose environmentally friendly options and find sustainable and efficient ways to operate them.

To facilitate smart, sustainable decisions concerning its ICT systems, the EPO has developed a specific policy on ICT sustainability. In doing so, our objective is to reduce electricity consumption and CO₂ emissions associated with ICT. This is achieved by making ICT operations as sustainable as possible, partnering with other corporate functions to leverage ICT in making their business processes more sustainable.

A concrete example of how we have successfully embedded ICT Sustainability in our operations is the treatment of e-waste which, with the closure of SP2023, has become fully operational. In 2023, for the first time over 50% of the EPO collected e-waste could be repaired and reused (2 383 devices, +2% compared with 2022), while the rest was recycled.

Overall, our aim is to build a culture of ICT sustainability across the EPO. Internally designed online digital training modules on "E-waste Sobriety" and "Digital Responsibility" are available for all staff and are mandatory for all newcomers and Young Professionals. Additionally, we promote ICT Sustainability in two regular annual events, the Digital Cleanup Day and the E-Waste Day.

E-waste devices repaired and reused in 2023: 2 383 (50% of total)

+2% compared with 2022

¹⁹ "World Bank. 2023. Green Digital Transformation: How to Sustainably Close the Digital Divide and Harness Digital Tools for Climate Action. Climate Change and Development Series. © Washington, DC: World Bank. License: CC BY 3.0 IGO."

²⁰ Forti V., Baldé C.P., Kuehr R., Bel G. The Global E-waste Monitor 2020: Quantities, flows and the circular economy potential. United Nations University (UNU)/United Nations Institute for Training and Research (UNITAR) – co-hosted SCYCLE Programme, International Telecommunication Union (ITU) & International Solid Waste Association (ISWA), Bonn/Geneva/Rotterdam.

Measuring the carbon footprint of ICT goods and services

In line with our commitment to address all emissions caused along the value chain of our activities, we have started to account for the impact of ICT purchased goods and services. In doing so, our aim is to use supplier-specific data whenever possible because it is considered more accurate than a spendbased approach. In a first phase, we have assessed the emissions from selected goods and services, namely the rented Data Centre in Luxembourg, the three main cloud service providers, and purchased and leased IT hardware.

For the latter, we used the cradle-to-gate emission factors from the provider because the usage and end-of-life phase are already covered in our reported carbon footprint (i.e., in our Scope 2 for the electricity consumption on premises, Scope 3 category "Employee commuting and teleworking" for the electricity consumption when teleworking and Scope 3 "Waste originated in operations" for the treatment of e-waste). The resulting emissions are shared over the years following purchase by taking into consideration the life expectancy of each ICT hardware device.

This first pilot has helped us to gain first-hand experience in assessing the environmental impact of the goods and services we procure, for example by addressing limitations in data availability. We will leverage the lessons learned in the coming years to extend the scope of our measured emissions from ICT purchased goods and services.

5.7 Business travel



Up to 2019, business travel was a significant contributor to the EPO's carbon footprint with almost 1 300 t CO₂e reported emissions. In 2022, with the end of the pandemic, the EPO adopted ten key principles of eco-friendly duty travel, encouraging the use of trains

where feasible, and avoiding stopovers for long-haul air travel to cite a couple of examples.

Leveraging the benefits of the NWoW pilot scheme and digital videoconferencing tools, a wide range of activities, including training and outreach, have successfully been migrated to online formats, drastically reducing duty travel as well as travel by our stakeholders to attend our events and meetings.

Consequently, in 2023 business travel emissions remained well below prepandemic levels, with a 90% decrease compared to 2019, albeit increasing compared to 2022 (Table 7). Emissions from travel by air represented 94% of total business travel emissions. GHG emissions from air travel in 2023: 135 t CO₂e

+70% compared with 2022

Table 7 – GHG emissions from business travel (kg CO₂e)

	2021	2022	2023	Change 2022-23 in %
Flights	2 712	75 298	126 520	+ 68
Rail	0	367	1 072	+ 192
Public transport	14	365	1 014	+178
Taxi	57	866	1 416	+ 64
Private cars	223	2 412	4 827	+ 100
Total	3 006	79 308	134 849	+ 70

5.8 Capital goods



Capital goods are assets that organisations use to manufacture products and services (e.g., equipment, machinery, buildings, facilities, and vehicles). At the EPO, we will report all emissions relating to the acquisition or refurbishment of owned buildings in this

category, starting with the Vienna Green Hub.

Our goal is a carbon neutral building over its entire lifecycle, which includes renovation, usage and activities related to its end of life. Having compared the requirements from the Austrian Sustainable Building Council (Österreichische Gesellschaft für Nachhaltige Immobilienwirtschaft, ÖGNI) and those of the GHG Protocol, which foresees cradle-to-gate emissions as the minimum boundary for accounting for carbon emissions in this category, the EPO aims to provide an accurate assessment based on primary data from our suppliers complemented by secondary data when this is unavoidable.

As per the current design, the carbon emitted during renovation will be compensated over the assumed 50 years of operational lifetime by onsite generation of more energy than needed to run the building's basic operations (i.e., heating, cooling, ventilation, lighting and hot water). The renovation activities, including all products and materials used, are therefore closely monitored to verify the alignment with planned figures.

The emissions relating to the refurbishment of the building are estimated to total 1 089 t CO₂e (including materials extraction, transport and production), 55% less than if we had decided on a complete reconstruction of the building. Emissions are assessed monthly during the construction phase and those accounted for by the project in 2023 are in line with the initial estimates. The total will be reported in the EPO carbon footprint once EPO staff return to the building. According to the latest assessment, carbon neutrality could be achieved prior to 40 years of operations, providing sufficient contingency to deal with deviations up until the completion time. In view of the envisaged progress in the decarbonisation and overall greening of the economy (e.g., power grid in Austria, supply chain of goods and services for the maintenance of the building), we will continue to monitor the carbon footprint of the building over its lifecycle and take appropriate measures when necessary.

Vienna Green Hub Project – Progress of the execution phase

The execution phase started in November 2022 and last year's activities were primarily focused on civil works. The old building has been meticulously depolluted to remove various type of hazardous substances and contaminants (e.g., asbestos). About 90% of the demolition rubble and dismantled elements have been sent to treatment facilities for recycling. This high percentage was obtained thanks to a tightly monitored workflow and onsite pre-sorting. The existing concrete skeleton has been repaired and reinforced to ensure a further 50 years of service, thus avoiding the huge carbon emissions a completely new structure would have entailed. Once the civil works on the building envelope have been completed, the construction activities will focus on equipping the building and will enable staff to return to our owned site by the end of 2024.

One piece of the puzzle in minimising the carbon footprint of the building operations is use of a low-consumption heating & cooling system. A heat pump system has been installed and connected to a series of 20 underground geothermal probes drilled over the last few months. In operation, the system will collect geothermal heat during the winter and dissipate part of the building heat during the summer. The system has been tested to verify the effective geothermal potential of the site against the preliminary predictions of the computer models and the results were used in the design phase.

Another piece in the puzzle is reducing the energy required to operate the building. The site has been equipped with a redesigned façade equipped to provide a high level of thermal insulation against hot and cold weather (e.g., Austrian larch, triple-glazed windows, embedded foam, motorised stores). Moreover, photovoltaic panels have been installed on the south and west facades and on the roof.



Source: ATP Wien Planungs GmbH

5.9 Other purchased goods and services



The Office seeks to achieve high standards of integrity, inclusivity, transparency and stewardship in its supply chain. We want to conduct business with responsible suppliers – companies that respect the rule of law and human rights, understand the nature and impact of the

products, materials and production and transport methods they provide and use, and recognise their responsibility to protect the environment.

With the implementation of the Sustainable Procurement Policy in 2024, suppliers will be evaluated against EPO-specific sustainability requirements, both environmental and social. Accordingly, we have started assessing the emissions associated with the goods and services we purchase, aiming at including them in the perimeter of our reported emissions (see 5.6 ICT sustainability).

In 2023, we adjusted the cleaning cycle for our offices in line with the actual occupancy of the buildings and flexible use of office space (i.e., workplaces on demand). Wherever possible, the EPO avoids products containing hazardous substances and gives priority to carbon neutral products, in line with its environmental goals.

Building on the results of the previous years, we continued to convert our office supplies to green versions, and environmentally-friendly products now constitute 82% of the total. We also fostered biodiversity by leveraging the large green spaces around our buildings in Munich and The Hague. On these premises, we plant native tree and plant species to help insects and birds throughout the year, apply certified organic fertilisers, bioherbicides and bioinsecticides, and use electrical tools and equipment to maintain the green areas thereby reducing noise pollution and gas emissions.

5.10 Employee commuting and teleworking



Early in 2021, we internally launched the staff commuting dashboard to raise awareness of emissions caused by employees travelling to and from work. As employees were asked to work from home during the pandemic, commuting emissions decreased significantly. At the

same time, we acknowledged the shift in emissions away from our premises due to teleworking (i.e., employees working remotely).

2023 represents the first full post pandemic year, where staff have the flexibility to choose between working on our premises and teleworking (within the NWoW pilot). The combined estimated emissions from commuting and teleworking amounted to 1 159 t CO₂e, slightly higher than in 2022. As expected, the estimated emissions from commuting increased, remaining well below prepandemic levels and, conversely, those from teleworking decreased (Figure 12).

To engage our staff in optimum sustainable practices, we introduced a microlearning module on green mobility during the European Mobility Week, which highlighted the benefits of smart commuting. The sustainable mobility guide first published in 2022, illustrating sustainable transportation options available at all our sites, was enhanced with additional information provided by our colleagues.

We have installed over 2 100 bike racks and dedicated repair stations on our premises. Additionally, charging stations and lockers for e-bike batteries are available in The Hague and Munich. To support colleagues who still need to drive to work in transitioning to more sustainable solutions, in 2022 we equipped 20% of our parking spaces with electric vehicle (EV) charging points, which are available free of charge. Accordingly, we take into consideration the impact of EVs in estimating emissions in this category (see Annex 1 Methodology).





Source: EPO

5.11 Communication and staff engagement



Through internal and external communication, the EPO seeks both to promote sustainable thinking among its stakeholders and the public, and to actively involve staff as multipliers of its environmental policies and activities. In addition, the EPO aims to promote the role of

innovation in mitigating climate change. To do so, information on available technologies is provided to support innovators in their efforts to solve global challenges and to contribute to the UN SDGs for a more sustainable world.

Environmental communications at the EPO during 2023 focused on raising awareness both internally and externally of the EPO as an environmentally sustainable organisation and of the Office's goal of reaching carbon neutrality by 2030. A further aim is to engage staff in sustainable ways of working.

Two new dashboards were launched internally showing the energy consumption of the Office's owned buildings and our progress towards carbon neutrality. Further, a new sustainable events policy was introduced and communicated to staff to raise awareness of our commitment to reducing the environmental impact of the events we organise.

Options for sustainable mobility on our sites were communicated internally, which included raising awareness of the bicycle and e-charging facilities in our buildings. Communication also reinforced awareness of the EPO's commitment to sustainability on our sites with initiatives such as local clean-up events in Munich, The Hague and Vienna – to mark 50 years of the European Patent Convention – and cooperation with local municipalities, such as the Office's continued participation in the City of Munich's climate pact.

A number of internal events, such as meetings, learning and training courses, focused on sustainability and were well attended by staff from all areas. "EcoChat", an informal channel for colleagues to exchange ideas, best practice and tips on environmental matters, continued to grow, reaching almost 450 members by the end of 2023.

Cooperation with the Office's Environmental Group continued, with the promotion of bicycle repair services at our buildings and donation campaigns for toys and schoolbags.

Sustainable consumption of resources was also promoted to staff by encouraging the reuse of resources during office moves.

Dedicated news articles informed staff about efforts to make our buildings more sustainable, such as the replacement of the lightbulbs in our Munich buildings with more modern and environmentally sustainable LEDs, the construction progress of the Office's green hub in Vienna, the reduction in the number of LAN printers Office-wide and the installation of new more environmentally friendly printers.

External events were promoted via social media campaigns and targeted internal communication. Examples were "Earth Hour 2023", "Cyber world clean-up day", "European mobility week" and "International e-waste day".

All initiatives were the result of cross-departmental collaboration, demonstrating the strong personal engagement of our staff in terms of raising awareness and sharing information for a more sustainable future. The high level of participation and the lively contributions indicate how close the topic is to the hearts of our staff.

5.12 Impact of services



The EPO actively promotes the dissemination of sustainable technologies by making information on inventions available to the public via its patent databases, thereby directly supporting the further development of climate-friendly technology. To facilitate access to

this information, the EPO has developed a patent classification scheme dedicated to climate change mitigation and adaptation technologies. Mitigation technologies focus on controlling, reducing, or preventing anthropogenic emissions of greenhouse gases, as covered by the Paris Agreement 2015, while adaptation technologies support human action in adapting to existing effects.

The resulting Y02/Y04S patent classification scheme simplifies the search for relevant patents, making it possible to map sustainable technology, identify trends and facilitate further R&D. Y02/Y04S has become a global standard when searching for patents in the field of climate change technology. It is widely used by patent offices, governmental agencies, intergovernmental organisations and academics to produce empirical analyses and support decision-making in the field.

In co-operation with international partners, the EPO promotes the potential of the patent system in addressing climate change. These partnerships are instrumental in disseminating relevant patent information well beyond the traditional patent expert circles. By these means, businesses, inventors, researchers and policymakers committed to combating climate change can exploit the full potential of this invaluable source of knowledge.

In 2023, the EPO remained steadfast in its commitment to disseminating how innovation supports the global agenda for a more sustainable future, inspiring and empowering innovators and the general public to tackle sustainability challenges. The EPO comprehensive highlight report "Patents paving the way to a more sustainable future", linking 20 of the EPO's most recent knowledge initiatives to seven UN SDGs, outlines the main examples of how patent knowledge serves as a catalyst for innovation and positive change. Examples are EPO platforms, which utilise patent knowledge and make it readily available to our users via ready-made searches that can be input into Espacenet to support ongoing research or potentially spark new ideas.

Other examples include some of the latest patent insight reports on innovation trends in emerging technologies. Our patent insight reports use patent knowledge to analyse trends in up-and-coming industries to provide insights into potentially transformative technologies. Additionally, several studies from our Chief Economist Unit are also featured in the report, aiming to provide high-level expertise and analysis on innovation-related topics.

Specifically, in 2023 activities focused on UN SDG 7 Affordable and Clean Energy, UN SDG 12 Responsible Consumption & Production and UN SDG 13 Climate Action. The main related initiatives are listed below.

In relation to UN SDG7, the EPO released a joint study with the International Energy Agency (IEA) on "Hydrogen patents for a clean energy future" while a patent insight report on "Offshore wind energy" was published in November in cooperation with the International Renewable Energy Agency (IRENA). Since unlocking the potential of Carbon Capture and Storage (CCS) technologies is becoming a global priority in the fight against climate change, the Espacenet platform on clean energy launched in 2022 was expanded to include sections on CCS technologies, and an event highlighting the challenges and opportunities that this technology brings for slowing down the pace of climate change took place.

In relation to UN SDG 12, two initiatives took place. The CodeFest on Green Plastics included a coding competition on developing AI models for automating the identification of patents related to green plastics. Additionally, the EPO released a study on "Innovation trends in additive manufacturing".

In relation to UN SDG 13, EPO released an Espacenet platform on firefighting technologies offering easy access to information on technologies that help fight and mitigate the environmental impact of forest wildfires. Furthermore, the EPO joined forces with the IP5 Offices' Initiatives on Climate Change.





6. Action Plan

In accordance with our environmental policy, we seek to minimise our environmental footprint. Under SP2023, we have defined long-term environmental goals, including energy savings as well as improvements in resource efficiency, waste avoidance and organic food catering. These goals have enabled us to take a strategic approach, complementing our annual monitoring and ensuring the fulfilment of our objectives over time.

The action plan considers developments in environmental aspects, suggestions for improvements from internal audits and external inspections, and suggestions from staff and environmental groups. It also takes account of best environmental management practices as recommended in the European Commission's sectoral reference document for public administration²¹ and uses them as inspiration in developing improvement measures.

The tables below present the main actions implemented in 2023 and those planned for 2024. Measures regarding technical installations relate exclusively to the buildings owned by the EPO, as rented buildings are operated and maintained by the respective landlords.

Total number of improvement measures completed in 2023: 35

Table 8 – Status icon



6.1 Initiatives completed in 2023

Action	Site	Benefits	Status	Impact
Implementation of software for weather- dependent regulation of heating and cooling	Munich Isar	1 917 thermal and 223 electrical MWh per year	\bigcirc	6
Implementation of software for weather- dependent regulation of heating and cooling	The Hague	1 582 thermal and 490 electrical MWh per year	\bigcirc	
Installation of LED lighting in PH 1-6	Munich PH	1 435 MWh per year	\bigcirc	(
Installation of e-charging stations in 20% of parking lots	Munich, The Hague	Reduce emissions from employee commuting	\oslash	8% 8% (D)

²¹ Commission Decision (EU) 2019/61 of 19 December 2018.

Action	Site	Benefits	Status	Impact
Installation of e-bike chargers	All sites	Reduce emissions from employee commuting	\oslash	<u>کی ۲۹۹ (</u>
Participation in local green mobility initiatives Zuid-Holland Bereikbaar and EU mobility week	All sites	Raise awareness, reduce emissions from employee commuting	\oslash	<u>ه</u> گ ۲۹۹ (ف)
Collection of office supplies not in use and promotion of "Second-hand shop"	Munich, The Hague	Promote reuse and reduce waste	\bigcirc	878 @ 🗑
Collection and donation of clothes and toys	Munich	Promote reuse and reduce waste	\oslash	848 🕲 🕅
Repair café	Munich	Promote reuse and reduce waste	\oslash	848 🕲 <u>ଲ</u> ି
Development of a dashboard on energy consumption of owned buildings	All sites	Raise awareness, reduce the EPO carbon footprint	\bigcirc	8*8 @
Development of a carbon footprint dashboard	All sites	Raise awareness, reduce the EPO carbon footprint	\oslash	8*8 @
Inclusion of further cloud service emissions in the ICT dashboard	All sites	Raise awareness, reduce the ICT emissions	\oslash	87 (G)
Inclusion of emissions from teleworking in the environmental dashboard	All sites	Raise awareness, reduce emissions from teleworking	\oslash	@ <mark>&*</mark> &
Publication of the emission and conversion factors used at EPO	All sites	Raise awareness, standardised communication	\bigcirc	<mark>A:</mark> A
Creation of environmental sustainability tips to publish in the Continuous Knowledge Transfer intranet page	All sites	Raise awareness	\oslash	A.A.
New event management policy	All sites	Raise awareness, reduce the EPO carbon footprint	\bigotimes	
Come and clean the green! (local clean-up initiatives)	All sites	Raise awareness, engage staff	\bigcirc	Are ()
Encourage staff to reduce paper consumption by printing less and shifting to follow-me printing mode, which saves on green cover sheets	All sites	Up to 5 million paper sheets per year	\oslash	
Reduce the number of LAN printers	All sites	Reduce carbon footprint	\oslash	

Action	Site	Benefits	Status	Impact
Update of the ICT iLearning modules "Digital responsibility" and "E-waste sobriety"	All sites	Promote ICT sustainability	\bigcirc	88 (
VICO by default to oral proceedings in opposition	All sites	Reduce emissions from business travel	\bigcirc	<u>ک</u> پیر ک
Participate in local initiative Klimapakt3	Munich	Reduce carbon footprint	\oslash	<u>(@)</u>
Lunchtime talks and events on environmental topics (e.g., pollution of the oceans, transfer of green technology, home cooling systems, home battery and solar panels, plastics/packaging) organised by the environmental groups	The Hague	Raise awareness	\oslash	Af A
Climate Fresk workshop during Campus Days	Munich, The Hague	Raise awareness	\oslash	<mark>ଜ</mark> ିନ୍ଦ୍ର ଜୁନ୍ଦି
Campaigns: Cyber world clean-up day World water day Earth hour Earth day World environment day European mobility week International e-waste day	All sites	Raise awareness and promote internal knowledge	\bigotimes	AR
Increase the number of flowering plants on the roof of the PH 7 building to help save bees	Munich PH	Increase local biodiversity	\oslash	
Integrate sustainability criteria into the following contracts (start date in 2023):		Reduce environmental		
 Physical removal of EPO patents and related documents to an external archive with environmental and sustainability measures in place 	All sites	impact relating to the procurement of goods and services	\oslash	
 Companies providing e-learning products and services should present certification of their carbon footprint or outline environmental measures they implement 	All sites		\odot	
 ISO certification and similar services 	All sites		\oslash	
EPO-IEA study on "Hydrogen patents for a clean energy future"	n/a	Easier access to patent	\bigcirc	
IPO green webinar	n/a	climate change mitigation or	\bigcirc	**
Launch of platform on firefighting technologies	n/a	adaptation technologies	\oslash	**

Action	Site	Benefits	Status	Impact
Patent insight reports on Offshore wind energy	n/a		\bigcirc	2000 2000 2000
Codefest on Green Plastics to develop an Al model (23/02/2023)	n/a	Use AI to identify patents in green plastics	\oslash	R ^{ar} A
New EPO.org developed eco-design and Eco Index	n/a	Promote a responsible development of our digital communication	\oslash	88 @ @

6.2 Initiatives planned for 2024

Action	Site	Benefits	Status	Impact
iLearn day on digital sobriety	All sites	Raise awareness, reduce the ICT emissions	\oslash	8f8 @
Vienna Green Hub	Vienna	Reduce energy consumption and related emissions		
Develop a high-level plan for carbon neutral buildings by 2030	All sites	Reduce energy consumption and related emissions		
Participation in local green mobility initiatives. For example: Zuid-Holland Bereikbaar and EU mobility week	All sites	Reduce emissions from employee commuting and awareness		گر کی (۱۹) (۱۹) (۱۹)
Extend carbon footprint calculation to further material scope 3 categories (purchased goods and services)	All sites	Assess and reduce carbon footprint		<u>ه</u> ه ه
Include emissions from further cloud services in the ICT dashboard		Raise awareness, reduce the ICT emissions	()	8*8 @
Collection and donation of clothes and toys	Munich	Promote reuse and reduce waste	(848 🕲 🗑
Campaigns: Digital clean-up day World Water Day Earth Hour UN Zero-Waste Day Earth Day World Bicycle Day	All sites	Raise awareness and promote internal knowledge	(R.R.

Action Site		Benefits	Status	Impact	
•	World Environment Day European Mobility Week International E-Waste Day				
Su	stainable procurement policy	All sites	Reduce environmental impact relating to the procurement of goods and services	\oslash	
Inte folle	egrate sustainability criteria into the owing contracts (start date in 2024):		Reduce environmental		
•	Supply, operation and maintenance of network printing, copying and scanning services	All sites	the procurement of goods and services	\oslash	
-	Framework contract for electrical installations	Munich		\oslash	
•	Partial renovation PH (fire protection)	Munich		\oslash	
•	Support services for Information Security Services	All sites		\oslash	
•	Landscaping and interior green	The Hague		\oslash	
•	Energy planning for energy optimisation and renovation in Isar	Munich			
•	Main kitchen, kitchenettes and fixed furniture for the Vienna Green Hub building	Vienna			
•	General framework contract for the supply of office furniture	All sites			
EP inv	O-EIB study on the commercialisation of entions contributing to the EU Green Deal	n/a	Easier access to patent		×
Chi pla	ef Economist study and Espacenet form on water-related technologies	n/a	Information on climate change mitigation or	(L)	×
Chi par	ef Economist study on energy transition in tnership with International Energy Agency	n/a	adaptation technologies)
Ext Gre	nibition on firefighting technologies in sece and Slovenia	n/a		())
Up	dated environmental page on EPO.org	n/a	Raise awareness	()	<mark>ନ</mark> ୍ଧି କ

Annex 1 Methodology

Greenhouse gas emissions are calculated in accordance with the requirements of the Greenhouse Gas Protocol Corporate Accounting and Reporting Standard and the Corporate Value Chain (Scope 3) Standard. The sources of activity data and the emission factors used for the calculation are shown in the table below.

Table 9 – Conversion factors for GHG emission sources

Emission source	Source of activity data	Source of emission factor
Energy		
Natural gas (The Hague)	Invoices, meter readings (if invoices are not available)	Milieu Centraal, Stimular, SKAO, Connekt, Rijksoverheid, CO₂emissiefactoren 2023
Natural gas (Berlin)	Data provided by landlord	Umweltbundesamt Deutschland, 49/2023, Emissionsbilanz erneuerbarer Energieträger, Bestimmung der vermiedenen Emissionen im Jahr 2022
Biomethane (The Hague)	Invoices, meter readings (if invoices are not available)	Direct emissions: Factor for natural gas (The Hague) due to comparable chemical composition; CO_2 reported under biogenic, CH_4 and N_2O reported in scope 1
		Upstream emissions: Certificate from energy provider
Heating oil (The Hague)	Invoices for the refill of the tank	Milieu Centraal, Stimular, SKAO, Connekt, Rijksoverheid, CO₂emissiefactoren 2023
Heating oil (Munich)	Runtimes and refuelling quantities of emergency generators	Umweltbundesamt Deutschland, 49/2023, Emissionsbilanz erneuerbarer Energieträger, Bestimmung der vermiedenen Emissionen im Jahr 2022
Diesel, Petrol (Munich)	Fuelling records of cars	GEMIS 5.1
Diesel, Petrol (The Hague)	Fuelling records of cars, runtimes and refuelling quantities of emergency generators	Milieu Centraal, Stimular, SKAO, Connekt, Rijksoverheid, CO₂emissiefactoren 2023
District heating (Munich, Vienna)	Invoices, meter readings (if invoices are not available) Rented site Vienna: calculated based on average consumption per m ²	Certificate from energy provider
Electricity (100%	Invoices, meter readings (if	Scope 2 market-based: Electricity provider
renewable) Munich	invoices are not available)	Scope 2 location-based: Umweltbundesamt Deutschland, 2023, Entwicklung der spezifischen Treibhausgas-Emissionen des deutschen Strommix in den Jahren 1990 - 2022
		Scope 3: Study "The inventory and life cycle data for Norwegian hydroelectricity" (2020), M. Silva & I. Saur Modahl, Ostfold Research

Electricity (100% renewable)	Invoices, meter readings (if invoices are not available)	Scope 2 market-based: Energy provider		
The Hague		Scope 2 location-based, scope 3: Milieu Centraal, Stimular, SKAO, Connekt, Rijksoverheid, CO ₂ emissiefactoren 2023		
Electricity (100%	Owned building: invoices,	Scope 2 market-based: Energy provider		
renewable) Vienna	meter readings (if invoices are not available) Rented space: calculated based on average consumption per m ²	Scope 2 location-based: Umweltbundesamt Österreich, 2023, Harmonisierte österreichische direkte und indirekte THG-Emissionsfaktoren für relevante Energieträger & Technologien		
		Scope 3: Study "The inventory and life cycle data for Norwegian hydroelectricity" (2020), M. Silva & I. Saur Modahl, Ostfold Research		
Electricity (100%	Invoices	Scope 2 market-based: Energy provider		
renewable) Berlin		Scope 2 location-based, scope 3: Umweltbundesamt Deutschland, 2023, Entwicklung der spezifischen Treibhausgas-Emissionen des deutschen Strommix in den Jahren 1990 - 2022		
Cooling agents				
Fluorinated gases	Maintenance protocols	Umweltbundesamt Deutschland, 2019, GWP ₁₀₀ according to IPCC AR4		
Upstream transportation and distribution				
Transport of letters and parcels	Internally registered amount	Emissions calculated by service providers, average factor per letter/parcel from International Post Corporation (if emissions from service providers are not available)		
Waste				
Different waste categories (incl. wastewater)	Invoices from disposal companies (Munich, The Hague), waste amount calculated based on volume of containers and number of collections (Berlin, Vienna)	UK Government GHG Conversion Factors for Company Reporting 2023		
Business travel				
Air	Travel agency	American Express Global Business Travel		
Rail	Duty travel requests	European Energy Agency, 2015, specific CO ₂ emissions per passenger-km rail travel in Europe		
Тахі	Duty travel requests	Calculated by EPO using specific emission factors and estimated distance per trip		
Public transport	Duty travel requests			
Private cars	Duty travel requests (flight is taken as mean of transport when distance is more than 500 km)	European Energy Agency, 2023, CO ₂ performance of new passenger cars in Europe		

Employee commuting		
Car	Estimates on km travelled per mode of transport based on: Average commuting distance per site Data on building occupancy and number	European Energy Agency, 2023, CO ₂ performance of new passenger cars in Europe
Public transport		European Energy Agency, 2015, specific CO ₂ emissions per passenger-km rail travel in Europe
Bike or walking	of employee cars entering our parking spaces Expert estimates on commuting patterns per site (e.g. means of transport)	No emission calculation
Teleworking		
Electricity (Germany)	Average estimated electricity consumption per employee based on:	Umweltbundesamt Deutschland, 2023, Entwicklung der spezifischen Treibhausgas-Emissionen des deutschen Strommix in den Jahren 1990 - 2022
Electricity (Netherlands)	 working days per year hours worked per day percentage of 	Milieu Centraal, Stimular, SKAO, Connekt, Rijksoverheid, CO ₂ emissiefactoren 2023
Electricity (Austria)	 IT equipment power²² light power 	Umweltbundesamt Österreich, 2023, Harmonisierte österreichische direkte und indirekte THG- Emissionsfaktoren für relevante Energieträger & Technologien
Data transmission	Average emissions per working hour	Umweltbundesamt Deutschland, 2020, Energie- und Ressourceneffizienz digitaler Infrastrukturen Ergebnisse des Forschungsprojektes "Green Cloud-Computing"
Heating energy mix (Germany, Netherlands, Austria)	 Average heating energy consumption per employee based on: average heating energy consumption per m² in Germany²³ estimated size of working area estimated additional heating energy consumption due to teleworking (%) 	GEMIS 5.1, factors for national heating energy mixes

Key environmental data has been presented with real-life examples to facilitate the understanding of our impact. The conversion factors are presented below.

²² IT equipment refers to screen 38", PC, iPad, webcam, headset, wireless keyboard, network, router.

 $^{^{\}rm 23}$ Germany heating consumption per m^2 applied to all sites.

comparative bace		
Carbon footprint	Average electricity usage per household in the Netherlands	Odyssee-Mure, Publication, Sectoral profile, Households, Energy consumption per dwelling
	Electricity emission factor – Netherlands	Milieu Centraal, Stimular, SKAO, Connekt, Rijksoverheid, CO₂emissiefactoren 2023
Energy consumption	Average energy usage per person in Germany	Eurostat, Energy statistics - quantities, annual data, Energy indicators, "Available energy, energy supply and final energy consumption per capita"
	Average people per household in Germany	Eurostat, Household composition statistics
Water	Volume of water in an Olympic swimming pool	Wikipedia, "Olympic-size swimming pool"
Printed paper	Paper sheet A4 (80gr/m ²)	Zxprinter, Blog, The Thickness of Printing Paper List
	The Main	EPO, 2019, News on "European Patent Office's new premises in The Hague receives international award as Best Tall Office Building"

Table 10 – Conversion factors for real-life examples Comparative base Real-life comparative

Source of conversion factor

Annex 2 Evaluation of environmental aspects

To help assess their relevance and the need for action, the different direct and indirect environmental aspects have been rated as follows:

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 they can be influenced is indicated by the following ratings:

I = short-term control possible

II = mid to long-term control possible

III = control not possible or possible only in the long term or subject to third-party decisions

With regard to the assessment of indirect aspects, there is no differentiation between the sites (Figure 5). All direct environmental aspects under the EMAS III Regulation were assessed according to their relevance for the EPO and only those found to be relevant are included below, differentiated by site.

Environmental aspect and impact		Berlin	MUC Isar	MUC PH	The Hague	Vienna
Electricity: resource consumption	General power	AII	AII	AII	AII	AII
	Data centre	_	BII	BII	C III	AII
	Garages	-	BI	AI	BII	AI
	HVAC	_	BI	AI	AII	AII
	Canteen	_	A III	A III	A III	_
Electricity: GHG emissions		B III	B III	B III	B III	B III
Heating energy: resource consumption	District heating	_	AII	AII	_	B III
	Natural gas / Biomethane	B III	_	_	BII	-
	Diesel / Fuel	_	_	_	C III	
	Electricity consumption of heat pumps	_		-	A II	-

Environmental aspect and impact		Berlin	MUC Isar	MUC PH	The Hague	Vienna
Heating energy: GHG and other emissions	Natural gas / biomethane	B III	_	_	B III	-
	District heating	_	B III	B III	_	B III
	Diesel / Fuel	_	_	_	C III	_
Fuel consumption: resource consumption	Vehicle fleet	_	СІ	_	CI	_
	Emergency generator	_	CIII	CIII	CIII	_
Fuel consumption: GHG and other emissions	Vehicle fleet	_	CI	_	CI	-
	Emergency generator	_	CIII	C III	CIII	-
Direct emissions from refrigerants: GHG emissions contributing to global warming		—	AII	AII	AII	A II
Freshwater for sanitary/canteen use: resource consumption		CII	BII	AII	BII	BII
Freshwater for technical/cooling use: resource consumption		_	BII	BII	BII	-
Wastewater: energy and resource consumption for water treatment, risk of water pollution		CII	BII	BII	BII	BII
Waste – non-hazardous: resource and energy consumption for waste treatment		CII	CII	CII	CII	CII
Waste – hazardous: resource and energy consumption for waste treatment; emissions from waste combustion, risk of environmental pollution		CIII	BII	BII	BII	CII
Paper: resource and energy consumption for paper production		BII	BII	BII	BII	BII
Risk of environmental accidents: pollution of ground water		CII	BII	BII	BII	CII
Impacts on biodiversity: sealing of soils for construction purposes		C III	CII	CII	CII	CII

Annex 3 Overview per site

The following chapters contain a detailed overview of our EMAS-certified sites. For each site, we present environmentally relevant facilities and legal aspects, and the core indicators for environmental performance. In the process of aligning the environmental reporting with the GHG Protocol, we thoroughly reviewed our databases and updated some of the reference data used for calculating the core indicators. Some of the data presented in the tables below might therefore differ from last year's report.

1. Munich

Munich is the largest of our sites in terms of gross floor area and staff numbers. The condition of the buildings varies, with some being relatively old, such as the Isar building (opened in 1980), and others newer, namely PschorrHöfe 7 (2005) and 8 (2008). The Isar building and the PschorrHöfe have district heating. Other facilities of 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 Iye solutions for water treatment.

The Isar building and PschorrHöfe 1-8 have an oil and/or grease trap and a kitchen/canteen and dishwashing area. All Munich buildings have storage areas for cleaning agents and chemicals. There is no information to suggest any land contamination at the Munich sites. Hazardous waste consists mainly of spent batteries and fluorescent tubes.

PschorrHöfe 5-7 were emptied by Q4 2023 following the rationalisation of office space after the implementation of the NWoW pilot scheme.

GHG emissions from energy and cooling agents' losses in 2023: 407 t CO₂e

+23% compared with 2022



Figure 13 – EPO Munich, Isar building

Source: EPO

Figure 14 – EPO Munich, PschorrHöfe complex



Source: EPO

Table 11 - Environmental law and relevant facilities, EPO Munich

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

EPO Munich – Isar building

Address	Bob-van-Benthem-Platz 1, 80469 Munich, Germany				
Status	Owned by EPO				
Reference values	Unit	2021	2022	2023	
Gross floor area	m²	91 346	91 346	91 346	
Heated floor area	m ²	67 847	67 847	67 847	
Built surface area (sealed)	m ²	18 113	18 113	18 113	
Nature-oriented area on-site	m ²	10 579	10 579	10 579	
Number of employees	empl	504	653	997	
Emissions					
GHG emissions (electricity, heating and fuels incl. upstream emissions, cooling agents) ²⁴	t CO2e/empl	2.01	1.20	0.43	
SO ₂ (fuels)	kg/empl	0.00	0.00	0.00	
NO _x (fuels)	kg/empl	0.02	0.01	0.01	
Particulates (fuels)	kg/empl	0.00	0.00	0.00	
Energy, water and paper consumption					
Electricity consumption	kWh/empl	11 791	8 378	5 650	
Heat energy consumption (district heating)	kWh/m ²	145	125	91	
Adjusted heat energy consumption (district heating)	kWh/m ²	138	138	102	
Renewable energy as a percentage of total consumption (electricity and heat)	%	46	48	59	
Heating oil consumption ²⁵	I	580	840	230	
Diesel consumption	I	1 993	286	1 658	
Petrol consumption	I	0	700	0	
Water consumption	m ³ /empl	53	24	18	
Paper consumption (procured)	sheet/empl	4 340	1 500	1 727	
Waste generation		1			
Residual waste	kg/empl	41.61	35.57	18.93	
Paper/cardboard	kg/empl	331.81	184.61	142.04	
Plastics	kg/empl	1.43	3.45	2.31	
Food waste	kg/empl	1.43	11.03	18.05	
Food waste per meal served	kg/meal	0.00	0.40	0.35	
Grease trap residues	kg/empl	43.35	101.84	106.72	
Hazardous waste	kg/empl	32.60	61.23	12.61	

 ²⁴ 2021 figure updated compared with last year's report due to change in emission factors.
 ²⁵ Reported under diesel oil consumption in previous years.

EPO Munich – PschorrHöfe 1-8

Address	Bayerstr. 34, 80335 Munich, Germany				
Status	Owned by EPO				
Reference values	Unit	2021	2022	2023	
Gross floor area	m²	276 180	276 180	276 180	
Heated floor area	m²	178 320	178 320	178 320	
Built surface area (sealed)	m²	42 641	42 641	42 641	
Total nature-oriented area on site	m²	18 422	18 422	18 422	
Number of employees	empl	2 754	2 693	2 339	
Emissions		I I			
Greenhouse gases (electricity, heating and fuels incl. upstream emissions, cooling agents) ²⁶	t CO ₂ e/empl	0.43	0.25	0.40	
SO ₂ (fuels)	kg/empl	0.00	0.00	0.00	
NO _x (fuels) ²⁷	kg/empl	0.01	0.01	0.00	
Particulates (fuels)	kg/empl	0.00	0.00	0.00	
Energy, water and paper consumption		1			
Electricity consumption	kWh/empl	2 913	2 919	3 222	
Total heat energy consumption (district heating)	kWh/m ²	59	43	41	
Renewable energy as a percentage of total energy consumption	%	51	58	61	
Diesel consumption	I	3 180	3 020	2 119	
Water consumption	m ³ /empl	9.62	13.01	14.21	
Paper consumption (procured)	sheet/empl	4 340	1 500	1 727	
Waste generation					
Residual waste	kg/empl	11.01	11.70	22.74	
Paper/cardboard	kg/empl	23.26	39.15	78.80	
Plastics	kg/empl	0.09	0.14	2.74	
Food waste	kg/empl	0.23	4.31	15.87	
Food waste per meal served	kg/meal	0.00	0.21	0.29	
Grease trap residues	kg/empl	8.28	2.82	9.55	
Hazardous waste	kg/empl	4.76	1.96	7.1	

²⁶ 2021 figure updated compared with last year's report due to change in emission factors.

²⁷ 2021 and 2022 figures updated compared with last year's report due to change in emission factors.

2. The Hague

The Hague is our second-largest site after Munich. The New Main building is partly heated and cooled by groundwater heat pumps and additionally heated by natural gas. There is no information to suggest any land contamination at the site in The Hague. Under Dutch law, the site in The Hague is subject to an "activity decree", a simplified environmental permit.

Construction work on the New Main and new Hinge buildings in The Hague was completed in the summer of 2018 and the old buildings have since been demolished. The new buildings were constructed according to high sustainability standards, such as minimising the environmental impact in the construction phase, significantly reduced energy consumption, optimal and particularly user-friendly air conditioning. The EPO has chosen to comply with the certification criteria of multiple standards for sustainable buildings (Dutch Bouwbesluit Building Decree 2012, BREEAM²⁸) and to aim for an energy efficiency rating of 20% above the requirements laid down in the 2012 Dutch building regulations. In the long term, 15% of the energy required for building operation is expected to be generated on-site, from groundwater heat and solar power, for example.

The Shell building was emptied by Q4 2023 following the rationalisation of office space after the implementation of the NWoW pilot scheme.

GHG emissions from energy and cooling agents' losses in 2023: 356 t CO₂e

+146% compared with 2022



Figure 15 – EPO The Hague, New Main building

Source: EPO

²⁸ BREEAM (Building Research Establishment Environmental Assessment Method) is a leading method for master planning projects, infrastructure and buildings. It recognises and reflects the value of higher-performing assets across the built environment lifecycle, from new construction to in-use refurbishment.

Table 12 – Environmental law and relevant facilities, EPO The Hague

Most relevant areas of environmental law	Relevant facilities/activities
Rules on general environmental management	Environmental permit, annual environmental report to the municipality of Rijswijk
Building regulations	Building activities: criteria for renovation/rebuilding and new buildings
Water regulations	Water discharge into sewage system
Waste regulations	Recycling/separation/disposal of various types of waste, handling of hazardous waste (spent batteries, old fluorescent tubes and waste oil)
Pollution regulations governing combustion units of type B	Heating system (natural gas), checked to comply with emission thresholds
Regulations on climate protection and refrigerants	Cooling installations with at least 5 kg GWP, performance of density checks
Hazardous materials regulations	Handling/storage/transport of hazardous substances, e.g. glycol (400 I on site), asbestos; transmission of hazardous waste (potential); grease traps, cleaning agents (approximately 400 I on site)
Regulations on underground storage of hazardous substances	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 for emergency generators)
Health and safety	Appropriate risk assessment, fire prevention, restrictions on certain chemical agents, availability of safety information sheets and operating instructions

EPO The Hague

Address	Patentlaan 2, 2288 EE Rijswijk, Netherlands			
Status	Owned by EPO			
Reference values	Unit	2021	2022	2023
Gross floor area	m²	217 465	217 465	217 465
Heated floor area	m²	159 884	159 884	159 884
Built surface area (sealed)	m ²	51 196	51 196	51 196
Total nature-oriented area on site	m ²	43 018	43 018	43 018
Number of employees	empl	2 474	2 438	2 437
Emissions				
Greenhouse gases (electricity, heating and fuels	t CO2e/empl	0.31	0.34	0.38
incl. upstream emissions, cooling agents)				
SO ₂ (fuels, natural gas, biomethane)	kg/empl	0.00	0.01	0.00
NO_x (fuels, natural gas, biomethane) ²⁹	kg/empl	0.17	0.23	0.12
Particulates (fuels, natural gas, biomethane)	kg/empl	0.00	0.00	0.00
Energy, water and paper consumption				
Electricity consumption	kWh/empl	5 986	5 102	4 891
Heat energy consumption (2021 and 2023: biomethane, 2022: biomethane and diesel)	kWh/m ²	47	39	32
Renewable energy as a percentage of total energy consumption	%	100	97	100%
Diesel consumption	I	4 004	16 559	4 599
Petrol consumption	I	1 041	1 607	2 220
Water consumption	m ³ /empl	12.12	17.65	9.18
Paper consumption (procured)	sheet/empl	6 831	3 249	3 250
Waste generation				
Residual waste	kg/empl	17.94	17.53	28.72
Paper/cardboard	kg/empl	42.50	23.61	51.59
Plastics	kg/empl	0.15	0.94	1.90
Food waste	kg/empl	4.56	5.80	9.31
Food waste per meal served	kg/meal	0.21	0.17	N/A
Grease trap residues	kg/empl	9.09	12.11	16.79
Hazardous waste	kg/empl	2.20	5.07	12.94

²⁹ 2022 figure updated compared with last year's report due to change in emission factors.

3. Berlin

The Berlin sub-office is housed in a building that was constructed in the early 20th century. Due to the age of the building, there are certain deficiencies in its insulation and energy efficiency. The landlord – the Bundesanstalt für Immobilienaufgaben – regularly makes structural improvements. Major renovation began in 2017, including measures intended to improve energy efficiency (e.g., lighting systems and cooling ceilings in specific areas). In 2021, some EPO staff moved to the new Z wing, which is equipped with new windows, LED lights and solar panels on the roof.

Facilities of environmental relevance include a gas-powered heating system, several cooling installations, a small storage area for cleaning agents, and an X-ray machine in the post room. Responsibility for operating the building's heating systems and the canteen's refrigeration units lies with the landlord, while responsibility for operating the air conditioning systems in individual meeting rooms lies with the EPO. According to the landlord, there is no land contamination at the Berlin site.

GHG emissions from rented space in Berlin in 2023: 406 t CO₂e

+6% compared with 2022

Figure 16 – EPO Berlin



Source: EPO

Table 13 - Environmental law and relevant facilities, EPO Berlin

Most relevant areas of environmental law Relev

Relevant facilities/activities

Building energy efficiency regulations	Building insulation, energy-efficient technologies
Water regulations	Water discharge into sewage system
Waste regulations	Recycling/separation/disposal of various types of waste, handling of hazardous waste (spent batteries and fluorescent tubes)
Regulations on health and safety and on hazardous materials	Risk assessment, fire prevention, restrictions on certain chemical agents

EPO Berlin

Address	Gitschiner Str. 103, 10969 Berlin, Germany			
Status	Rented by EPO			
Reference values	Unit	2021	2022	2023
Gross floor area	m²	20 000	20 000	24 090
Heated floor area	m ²	16 064	16 064	16 064
Built surface area (sealed) ³⁰	m²	11 250	11 250	11 250
Total nature-oriented area on site	m ²	12 339	12 339	12 339
Number of employees	empl	198	192	187
Emissions		1		
Greenhouse gases (electricity, heating and fuels incl. upstream emissions, cooling agents) ³¹	t CO ₂ e/empl	2.45	2.00	2.17
SO ₂ (natural gas)	kg/empl	0.02	0.00	0.00
NO _x (natural gas)	kg/empl	0.59	0.00	0.00
Particulates (natural gas)	kg/empl	0.01	0.00	0.00
Energy, water and paper consumption				
Electricity consumption ³²	kWh/empl	2 114	1 829	1 878
Heat energy consumption (natural gas) ³³	kWh/m ²	131	103	103
Renewable energy as a percentage of total energy consumption ³⁴	%	16.56	17.55	17.48
Water consumption	m ³ /empl	6.06	5.32	6.84
Paper consumption (procured)	sheet/empl	2 071	503	0
Waste generation				
Residual waste	kg/empl	202.02	208.33	213.90
Paper/card	kg/empl	95.00	58.96	98.24
Plastic	kg/empl	23.83	24.58	25.24
Food waste	kg/empl	4.36	0.00	0.00
Hazardous waste	kg/empl	0.00	0.00	0.00

 $^{^{\}rm 30}$ Area rented by the EPO (50% of the total building area).

³¹ 2021 and 2022 figures changed compared with last year's report due to change in emission factors and updated consumption values from landlord.

³² Electricity consumption at the EPO's Berlin site is estimated, based on the landlord's division of overall electricity consumption among the tenants according to the size of the area rented.

³³ 2022 figure changed compared with last year's report due to updated value from the landlord.

³⁴ 2022 figure changed compared with last year's report due to updated value from the landlord.

4. Vienna

Vienna is the smallest of all EMAS-certified sites, in terms of both gross floor area and staff numbers. The Vienna office uses district heating. Facilities of environmental relevance are limited to a small storage area for cleaning agents. There is no information to suggest any land contamination at the Vienna site. The only forms of hazardous waste are spent batteries and fluorescent tubes.

The building in Vienna will be completely renovated by 2024, leaving only the skeleton of the building intact and converting it into a carbon neutral building ("Vienna Green Hub", see 1. The European Patent Office). The building was emptied in October 2022. Since November 2022, the staff has been working in a rented office space in Vienna. To ensure comparability with previous reports, energy and water consumption, and waste generation in the rented space are reported in chapter 5.

It is noted that the 2023 energy consumption of the Vienna rented space reflects a whole year compared to two months in 2022. The figures are only estimates because the metering system does not allow an exact assessment of the EPO's consumption by the landlord. Since the rented space is not part of the EMAS scope, the core indicators reported below cover only the owned site until October 2022. They will be reported again when the renovated building is in operation. GHG emissions from energy consumption for construction works will be reported in the scope 3 category "Capital goods" when the building is completed.

Figure 17 – EPO Vienna



Source: EPO

GHG emissions from rented space in Vienna in 2023: 5 t CO₂e

+500% compared with 2022

Table 14 - Environmental law and relevant facilities, EPO Vienna

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

EPO Vienna

Address	Rennweg 12, 1030 Vienna, Austria			
Status	Owned by EPO			
Reference values ³⁵	Unit	2021	2022	2023
Gross floor area	m ²	11 420	11 420	11 420
Heated floor area	m ²	7 260	7 260	N/A
Built surface area (sealed)	m ²	2 547	2 547	2 547
Total nature-oriented area on site	m ²	1 966	1 966	1 966
Number of employees	empl	72	65	68
Emissions				
Greenhouse gases (electricity, heating and fuels incl. upstream emissions, cooling agents) ³⁶	t CO2e/empl	0.30	0.16	0.07
SO ₂ (fuels)	kg/empl	0.00	0.00	0.00
NO _x (fuels)	kg/empl	0.00	0.00	0.00
Particulates (fuels)	kg/empl	0.00	0.00	0.00
Energy, water and paper consumption		1		
Electricity consumption	kWh/empl	5 813	4 783	N/A
Heat energy consumption (district heating)	kWh/m ²	98	54	N/A
Renewable energy as a percentage of total energy consumption	%	51.45	57.54	52.23
Water consumption	m ³ /empl	13.10	9.97	N/A
Paper consumption (procured)	sheet/empl	1 043	0	1 765
Waste generation				
Residual waste	kg/empl	208.33	192.31	N/A
Paper/card	kg/empl	333.33	1 076.92	N/A
Plastics ³⁷	kg/empl	N/A	N/A	N/A
Food waste ³⁸	kg/empl	N/A	N/A	N/A
Hazardous waste	kg/empl	2.50	19.40	N/A

 $^{^{\}rm 35}$ The reference values are indicated for the owned office in Vienna. Please note that we do not calculate KPIs for the Vienna rented space.

³⁶ 2022 figure changed compared with last year's report due to change in emission factors.

³⁷ Plastic waste is not collected separately in Vienna and is therefore included in the figures of residual waste.

³⁸ Disposal handled by canteen service provider.

Annex 4 Environmental management system

Following the adoption of an initial environmental policy more than ten years ago, we implemented an environmental management system under EMAS and took on a leading environmental role as an administrative institution. The system integrates environmental aspects into all operational processes, which are regularly assessed with a view to identifying potential improvements in environmental protection.

1. Structure and responsibilities

The structure of our environmental management system is set out in our environmental management handbook, which applies to all sites. We regularly evaluate our environmental context to identify relevant stakeholders and their expectations regarding the environmental management system. The system is also regularly assessed in internal audits, thus ensuring a continuous improvement process. Staff are encouraged to adopt environmentally friendly behaviour. Relevant information is communicated to staff via info screens in the office buildings and the intranet and is made available to the public in the Environmental Report.

The Chief Sustainability Officer acts as EMAS Management Representative and is responsible for implementing and further developing the environmental management system in the EPO with the support of the Environmental Management Officer. In addition, site representatives plan, co-ordinate and monitor local environmental activities and ensure that environmental aspects are integrated into everyday operations at each site.

Together with business area representatives from each directorate-general (DG), the Environmental Management Officer and the site representatives form the EPO's central environmental team, which meets at least twice a year. The business area representatives are tasked with integrating environmental aspects in their respective departments, thereby strengthening the organisation-wide implementation of EMAS. Voluntary environmental groups initiated by staff in Munich and The Hague support the team's work by submitting their own proposals to the environmental programme.

Figure 18 – EMAS governance structure



Source: EPO

2. Compliance with binding obligations

EMAS and the environmental laws applying to the different EPO sites constitute external requirements to be met by the EPO and its environmental management system. The legal requirements and other binding obligations relevant for each place of employment have been identified. The most relevant environmental regulations for each place of employment are set out in the previous section. All binding obligations are documented in the legal register for each country in which the EPO is located. By continuously reviewing and updating the legal register, we identify changes to environmental law and implement new requirements. Moreover, all periodic obligations at the different sites are documented in local registers of periodic duties. Compliance with legal requirements is verified by annual internal audits. Minor non-compliances detected during the audits are corrected. ENVIRONMENTAL VERIFIER'S DECLARATION

Dr. Hans-Peter Wruk, with EMAS environmental verifier registration number DE-V-0051, accredited for the scope 841 (NACE-Code) "administration of the state" declares to have verified whether the listed sites

Bob-van-Bentheim-Platz 1, 80469 Munich, Germany

Bayerstr. 34, 80335 Munich, Germany

Patentlaan 2, 2288 EE Rijswijk, Netherlands

Rennweg 12, 1030 Vienna, Austria

Gitschiner Str. 103, 10969 Berlin, Germany

of the organization

European Patent Office Bob-van-Bentheim-Platz 1 D-80469 Munich

as indicated in the environmental statement with registration number DE 155-00278 meets all requirements of

Regulation (EC) 1221/2009

in the version of 19th of December 2018 of the European Parliament and of the Council on the voluntary participation by organizations in a Community eco -management and audit scheme (EMAS).

By signing this declaration, I declare that:

- the verification and validation has been carried out in full compliance with the requirements of Regulations (EC) No 1221/2009 in the version of 19th of December 2018
- the outcome of the verification and validation confirms that there is no evidence of non-compliance with applicable legal requirements relating to the environment,
- the data and information of the environmental statement of the organization reflect a reliable, credible and correct image of all the organizations activities, within the scope mentioned in the environmental statement.

Done at Pinneberg on 25th of Mai 2024

Dr.-Ing. Hans-Peter Wruk Environmental Verifier

accredited by: DAU - Deutsche Akkreditierungs- und Zulassungsgesellschaft für Umweltgutachter mbH Accreditation-No. DE-V-0051

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Dr. Hans-Peter Wruk Environmental Verifier