Europaisches Patentamt
European Patent Office
Office européen des brevets

Environmental Report 2020

Executive summary

The EPO is fully committed to promoting sustainability and reducing its environmental footprint, with a view to achieving its long-term goal of going CO_2-neutral by 2030. In 2009 it adopted the Eco-Management and Audit Scheme (EMAS[1]) as a framework to minimise its environmental impact and foster a sustainable work environment for staff. In 2020 initiatives launched by the EPO under its Strategic Plan 2023 (SP2023), and accelerated by developments related to the pandemic, delivered some impressive early wins.

The digitalisation of workflows in the EPO's core processes, for example, led to a dramatic drop in paper consumption. In 2020 the EPO used 58.7 million fewer sheets of paper than in 2019, representing a decrease of -47.5% in total annual paper consumption. Initiatives like the launch of the digital search file in May, for example, saved six million sheets of paper alone. Overall, paper consumption fell to its lowest level since the introduction of EMAS, with potential for further reductions in the future.

Last year also saw a drastic drop in CO_2 emissions[2], largely thanks to an 80% decrease in duty travel during 2020. This was primarily due to the pandemic, but accelerated a positive trend proactively supported by changes to the EPO's travel policy in favour of online meetings. Similar trends were seen in waste generation, which fell by 39.8% compared with 2019. We will carefully monitor these trends in the new normal to ensure that we build on these results and leverage the lessons learned in the past year.

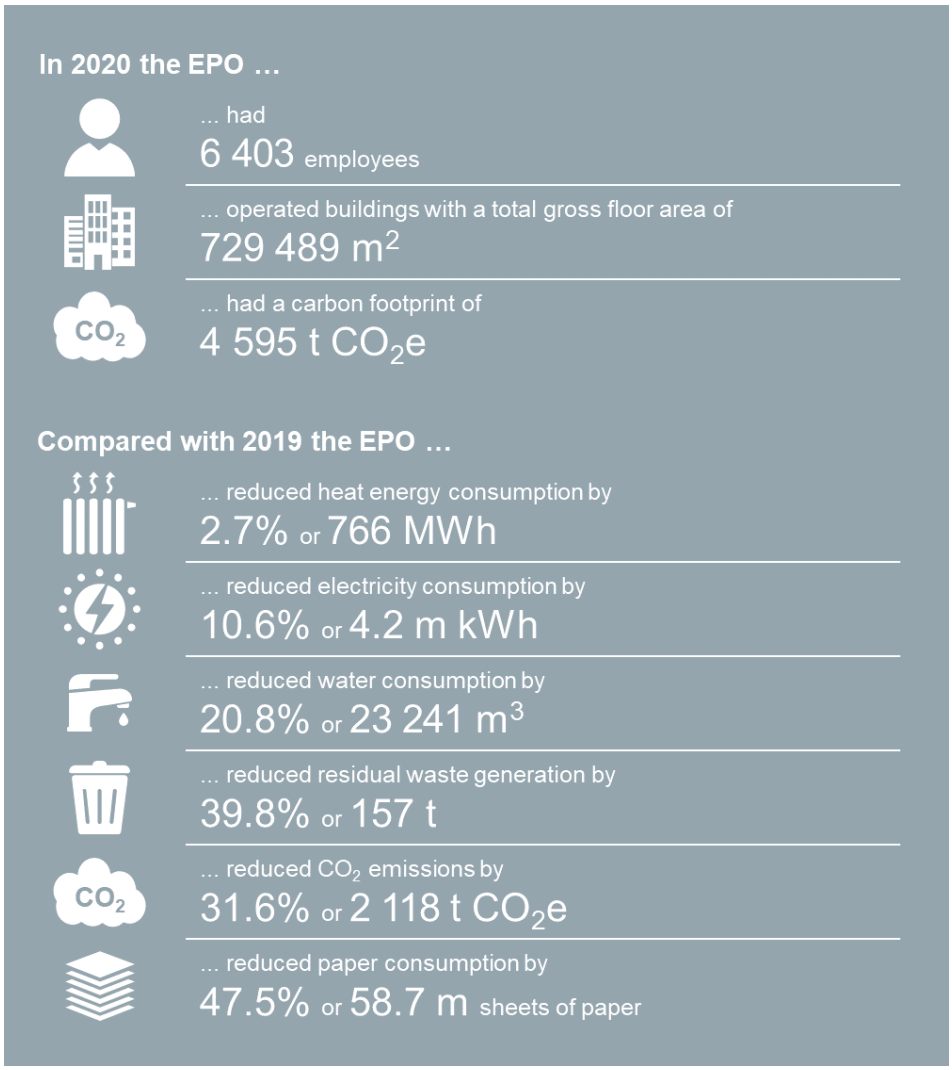
Pursuing a more sustainable approach to information and communications technology (ICT) was also a priority for the EPO in 2020. The roll-out of new, more energy-efficient laptops resulted in energy gains of 300 MWh/year; while deploying a technique to eliminate duplicate copies of data led to savings of 1.1 million GB in storage capacity. Staff were also encouraged to declutter their laptops and devices by participating in World Digital Cleanup Day to save energy and storage space, while reducing carbon emissions.

Going forward, the EPO is starting to collect data on additional indicators to cover all aspects of its environmental footprint. This information will be consolidated into a single dashboard that provides a comprehensive overview of the Office's environmental performance, as well as individual consumption in some areas. Overall, the EPO aims to raise awareness among both staff and stakeholders of how everyone can contribute effectively to achieving carbon-neutrality by 2030.

[1] In accordance with Regulation (EC) No 1221/2009 of the European Parliament, Commission Regulation (EU) 2017/1505 and Commission Regulation (EU) 2018/2026.

[2] CO_2 emissions are indicated in CO_2 equivalents (CO_2e) and include all greenhouse gas emissions (CO_2, CH_4, NO_2, and fluorinated gases).

EMAS at the EPO[3]



[3] The number of employees and total gross floor area are for the EPO as a whole. All other data relates to our EMAS-certified sites only (see section 2). The EPO's carbon footprint is calculated on the basis of emissions caused by business travel (air and rail), heating energy, electricity, and cooling agent refills in air conditioning units. At the time this report was compiled, the heat energy consumption figures for the year 2020 and the electricity consumption figures for the Berlin site for December 2020 were not available. For heat energy consumption, the figures for 2019 were used as an estimate. The average monthly electricity consumption from January to November 2020 was used as an estimate for December.

Contents

1. Environmental policy

Every year, the impact of climate change on our planet is more tangible, making any mitigating or adaptive actions increasingly urgent. For this reason, the EPO has decided to step up its commitment to sustainability by designing an ambitious, comprehensive and collaborative environmental policy guiding all aspects of its work, including its core business: the patent granting process. By transforming the EPO into a more sustainable organisation and by fostering innovation and access to knowledge on climate change technologies, we intend to contribute to the United Nations Agenda 2030 and its Sustainable Development Goals, as well as to the more recent European Union action plan for climate-neutrality: the European Green Deal.

The following objectives guide our actions:

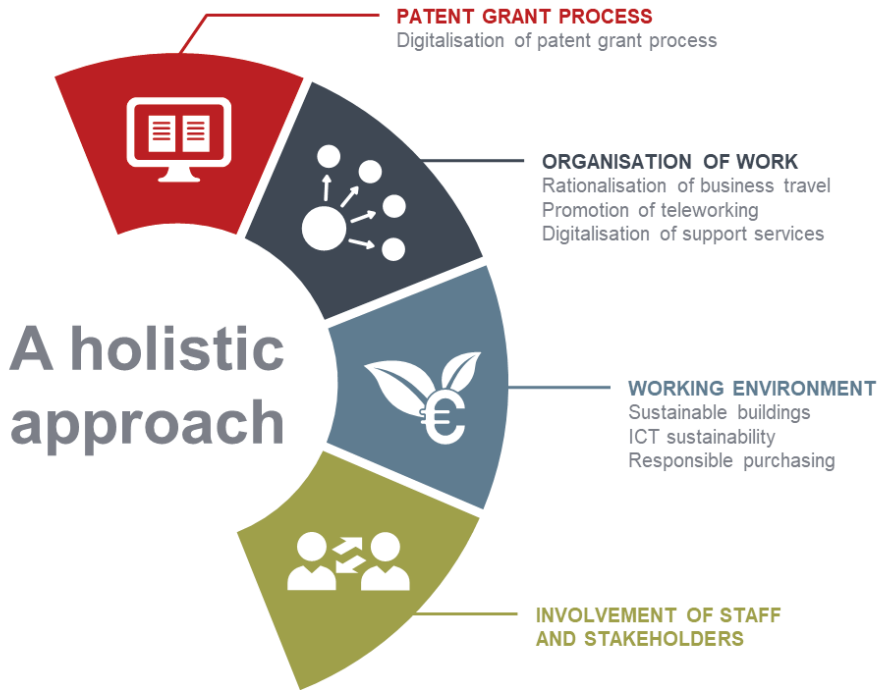
- Minimise the EPO's environmental footprint, reducing the consumption of resources and the generation of waste
- Comply with relevant environmental legislation and regulations
- Promote, encourage and contribute to local environmental initiatives and schemes in member states and in our sites of employment
- Involve all staff in the endeavour, whereby each and every staff member is asked to contribute – and encouraged to develop – new ideas on how to implement this policy effectively.

Accordingly, we will:

- Define and review measurable targets, assessing their achievement on the way to the overall objective of carbon-neutrality
- Engage with local and regional institutions
- Provide our staff with appropriate training, advice and information on how they can play a part in reducing the EPO's environmental footprint
- Report transparently on the implementation status of this policy, internally via the environmental dashboard and externally via the yearly Environmental Report.

We take a holistic approach to meeting our commitments. These aim to cover emissions directly attributable to our organisation's activities, indirect emissions resulting from our energy consumption and other indirect emissions caused along the value chain of our activities. Overall, we foster environmental sustainability in and through the patent grant process, our core business, by optimising workflows and creating a working environment that minimises the EPO's environmental footprint while ensuring high-quality services. Through internal and external communication, the EPO seeks to disseminate sustainable thinking among stakeholders and the public, and to actively involve staff as multipliers of its environmental policies and activities.

Figure 1 − A holistic approach



Source: EPO

2. The European Patent Office

The European Patent Office (EPO), with just over 6 400 staff, is the second largest international organisation in Europe. Its headquarters are in Munich and it has offices in The Hague, Berlin, Vienna and Brussels. Since 2009 it has been certified as complying with the EMAS eco-management and audit scheme at all its sites, apart from Brussels (due to its small size) and Haar, Munich, where the Board of Appeals moved in 2017.

The EPO's EMAS-certified sites are:

- EPO Munich I (Isar building), Germany
  Bob-van-Benthem-Platz 1, 80469 Munich
- EPO Munich II (PschorrHöfe 1–8), Germany
  Bayerstr. 34, 80335 Munich
- EPO Berlin, Germany
  Gitschiner Str. 103, 10969 Berlin
- EPO The Hague I (Main, Shell and Hinge), Netherlands
  Patentlaan 2, 2288 EE Rijswijk
- EPO Vienna, Austria
  Rennweg 12, 1030 Vienna

Our former sites at Rijsvoort and Le Croisé in The Hague (EPO The Hague II (Le Croisé) and EPO The Hague III (Rijsvoort)), which were rented until the end of October 2018, were also EMAS-certified. Both sites have been vacated and the staff working there moved to other sites. For the purposes of comparability, this report shows the consumption data for Rijsvoort and Le Croisé up to and including the date on which they were vacated.

In accordance with EMAS Regulation (EC) No 1221/2009, Commission Regulation (EU) 2017/1505 and Commission Regulation (EU) 2018/2026, we issue an annual Environmental Report, setting out our environmental data and reporting on our environmental performance. The present report can be downloaded from our website (www.epo.org).

2.1 EPO Munich

Munich is the largest of all our sites in terms of gross floor area and staff numbers. The condition of the buildings varies, some of them being relatively old, such as the Isar building (opened in 1980), others being newer, namely PschorrHöfe 7 (2005) and 8 (2008). The Isar building and the PschorrHöfe have district heating. Other facilities with environmental relevance are primarily situated in the Isar building. They include a repair shop and carpenter's workshop, a water treatment installation and tanks for acid and lye solutions for water treatment.

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

Electricity consumption in 2020: 17 166 MWh

-9% compared with 2019 (18 915 MWh)

Heat energy consumption in 2020: 18 698 MWh

+4% compared with 2019 (18 047 MWh)

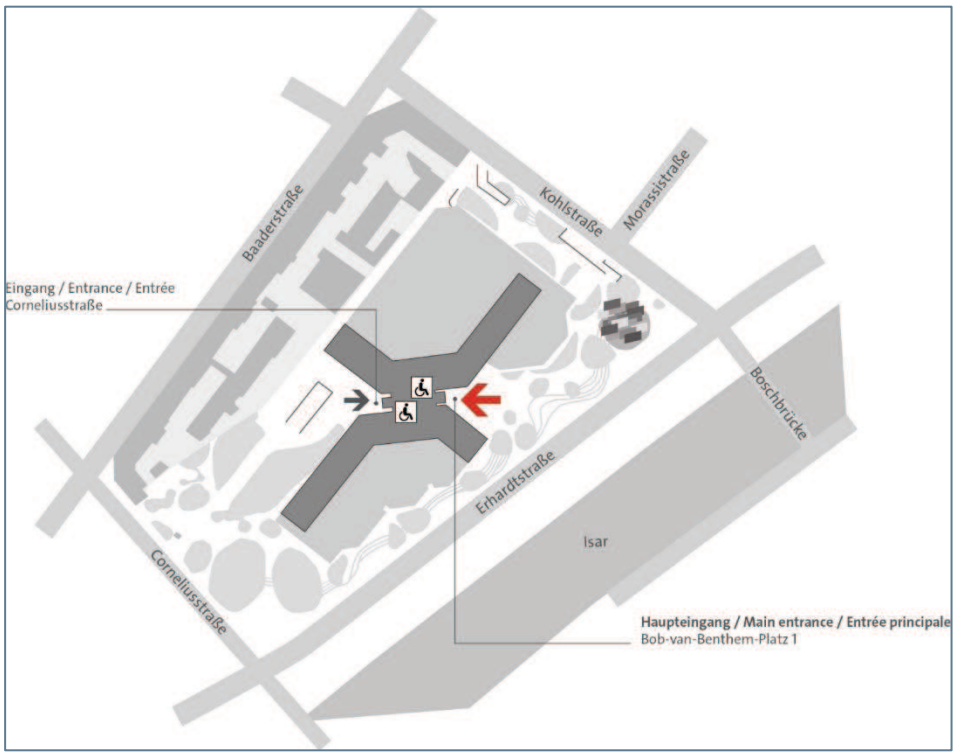
Figure 2 – EPO Munich, Isar building

Source: EPO

Table 1 – EPO Munich

Site/building	Gross floor area	Net building area	Workplaces	Status
Isar building	91 400 m²	67 847 m²	4 570	Owned by EPO
PschorrHöfe 1-8	276 300 m²	178 320 m²		Owned by EPO

Figure 3 – EPO Munich, Isar building

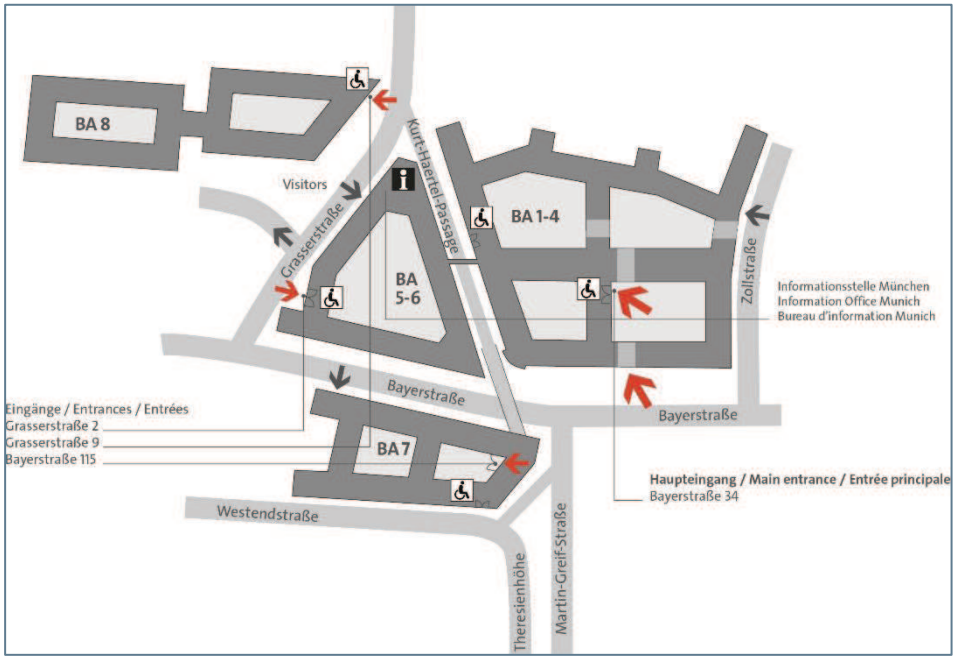


Source: EPO

Figure 4 – EPO Munich, PschorrHöfe complex

Source: EPO

Figure 5 – EPO Munich, PschorrHöfe complex



Source: EPO

Table 2 − 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 waste-water 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)

2.2 EPO The Hague

The Hague is our second-largest site after Munich. While there used to be three sites in The Hague, all staff are now accommodated on the New Main site and the leases for the rented Rijsvoort and Le Croisé buildings were terminated as of the end of 2018.

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

Electricity consumption in 2020: 16 998 MWh

-12%
compared with 2019 (19 301 MWh)

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, e.g. minimising the environmental impact in the construction phase, significantly reduced energy consumption, optimum and particularly user-friendly air conditioning. The EPO has voluntarily chosen to comply with the certification criteria of multiple standards for sustainable buildings (Dutch *Bouwbesluit* Building Decree 2012, BREEAM[4]) 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, e.g. from groundwater heat and solar power.

Water consumption in 2020:
29 469 m^3

-17%
compared with 2019
(35 451 m^3)

Figure 6 – EPO The Hague, New Main building

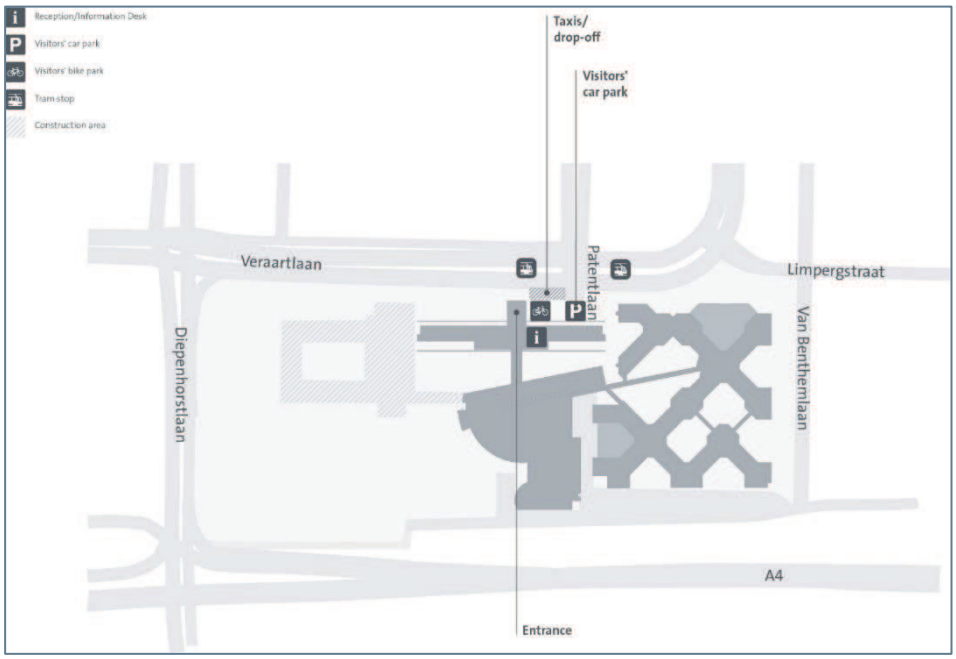
Source: EPO

Table 3 – EPO The Hague

Site/building	Gross floor area	Net building area	Workplaces	Status
Main, Shell, Hinge	218 966 m²	189 953 m²	3 310	Owned by EPO

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

Figure 7 – EPO The Hague



Source: EPO

Table 4 – 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 l on site), asbestos; transmission of hazardous waste (potential); grease traps, cleaning agents (approximately 400 l 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

2.3 EPO 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. A major renovation began in 2017, including measures intended to improve energy efficiency (e.g. in lighting systems and air conditioning). The cost of this work will primarily be borne by the landlord, with the EPO contributing to individual aspects. Much of the work will be devoted to energy-saving items such as thermal insulation and lighting control/modification.

Electricity consumption in 2020: 429 MWh

-11% compared with 2019 (480 MWh)

Facilities of environmental relevance include a gas-powered heating system, several cooling installations, a small storage area for cleaning agents, an X-ray machine in the post room and a kitchen/canteen operated by an external service provider. Responsibility for operating the building'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.

Paper consumption in 2020: 1 403 000 sheets

-37% compared with 2019 (2 227 500 sheets)

Figure 8 – EPO Berlin

Source: EPO

Table 5 – EPO Berlin

Site/building	Gross floor area	Net building area	Workplaces	Status
EPO Berlin	24 090 m²	19 851 m²	290	Rented by EPO

Figure 9 – EPO Berlin

Source: EPO

Table 6 – Environmental law and relevant facilities EPO Berlin

Most relevant areas of environmental law	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

2.4 EPO Vienna

Vienna is the smallest of all the 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.

Electricity consumption in 2020: 457 MWh

-14%
compared with 2019 (531 MWh)

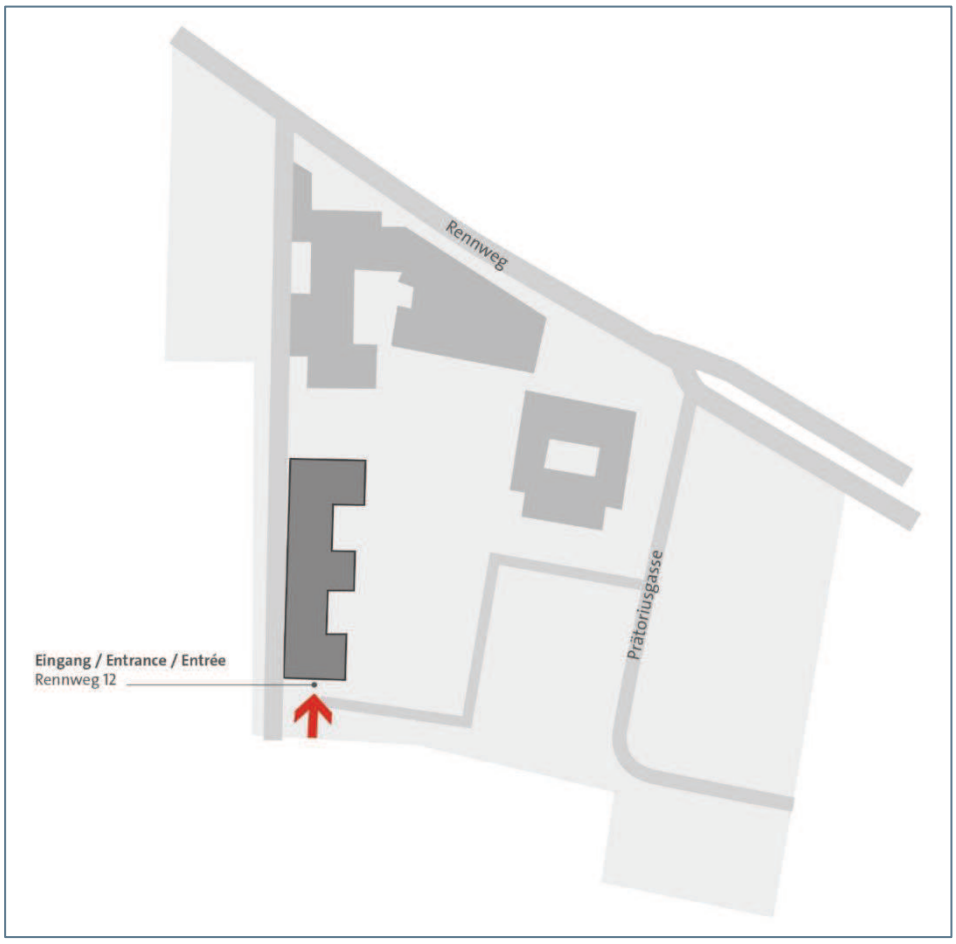
Figure 10 – EPO Vienna

Source: EPO

Table 7 – EPO Vienna

Site/building	Gross floor area	Net building area	Workplaces	Status
EPO Vienna	11 420 m²	10 600 m²	120	Owned by EPO

Figure 11 – EPO Vienna



Source: EPO

Table 8 – 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

3. Environmental management system

Following the adoption of a first environmental policy 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 our operational processes, which are regularly assessed with a view to identifying potential improvements in environmental protection.

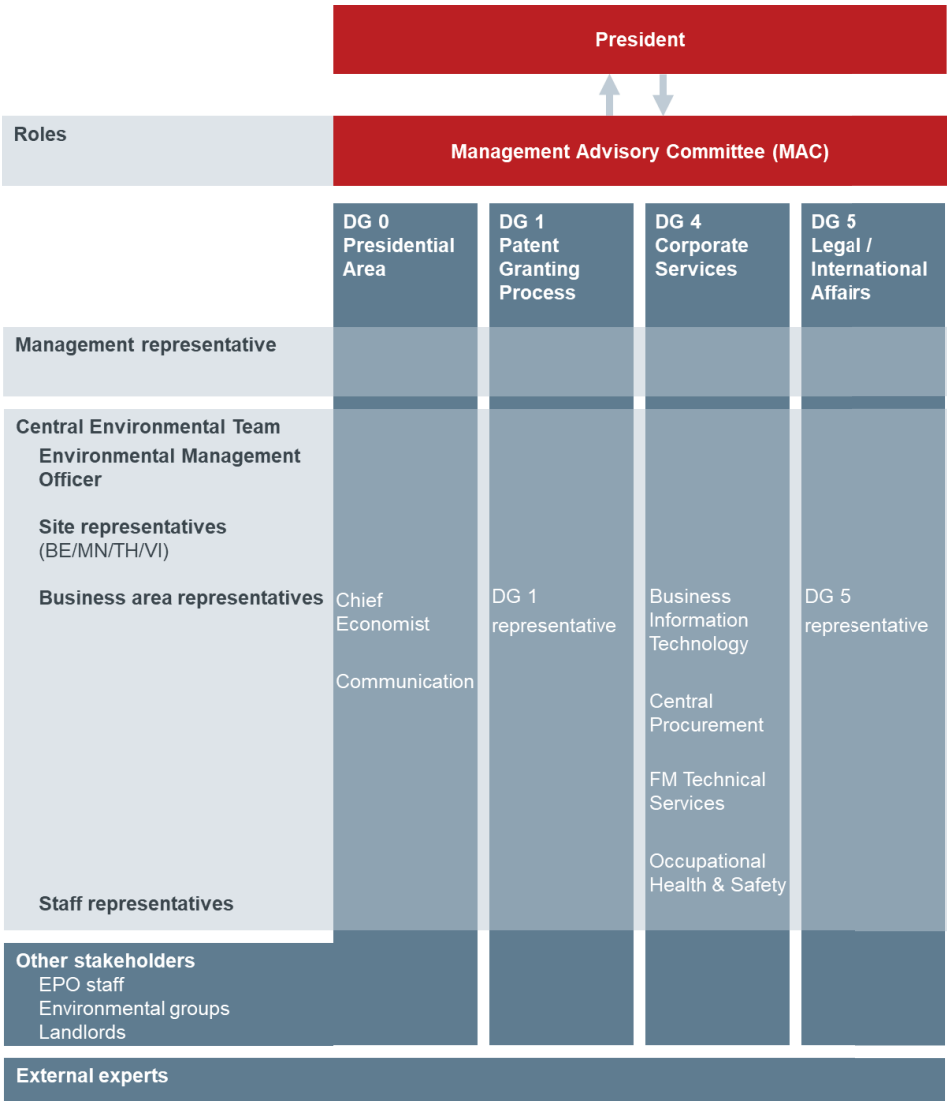
3.1 Structure and responsibilities

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 with regard to 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.

Environmental management is organised and co-ordinated by the Environmental Management Officer, who is in charge of implementing and further developing the environmental management system within the EPO. In addition, there are local environmental representatives at each site. They are in charge of planning, co-ordinating and monitoring local environmental activities and ensuring that environmental aspects are integrated into everyday operations at the sites.

The Environmental Management Officer and environmental representatives, together with business area representatives from each DG, form the EPO's central environmental team, which meets at least twice a year. The business area representatives are in charge of integrating environmental aspects into the DG's specialised processes and environment-related activities in their respective area, 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 12 – EMAS governance structure



Source: EPO

3.2 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.

4. Strategic Plan 2023 and the EPO's environmental goals

In 2019 the EPO published its strategic plan for the period 2019 to 2023. In this strategic plan we committed ourselves to sustainability in general, and environmental sustainability in particular. In 2021 the EPO has set itself the ambitious objective of becoming a carbon-neutral organisation by 2030. We are thereby also contributing to reaching 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, preferably 1.5 degrees Celsius, compared with pre-industrial levels).

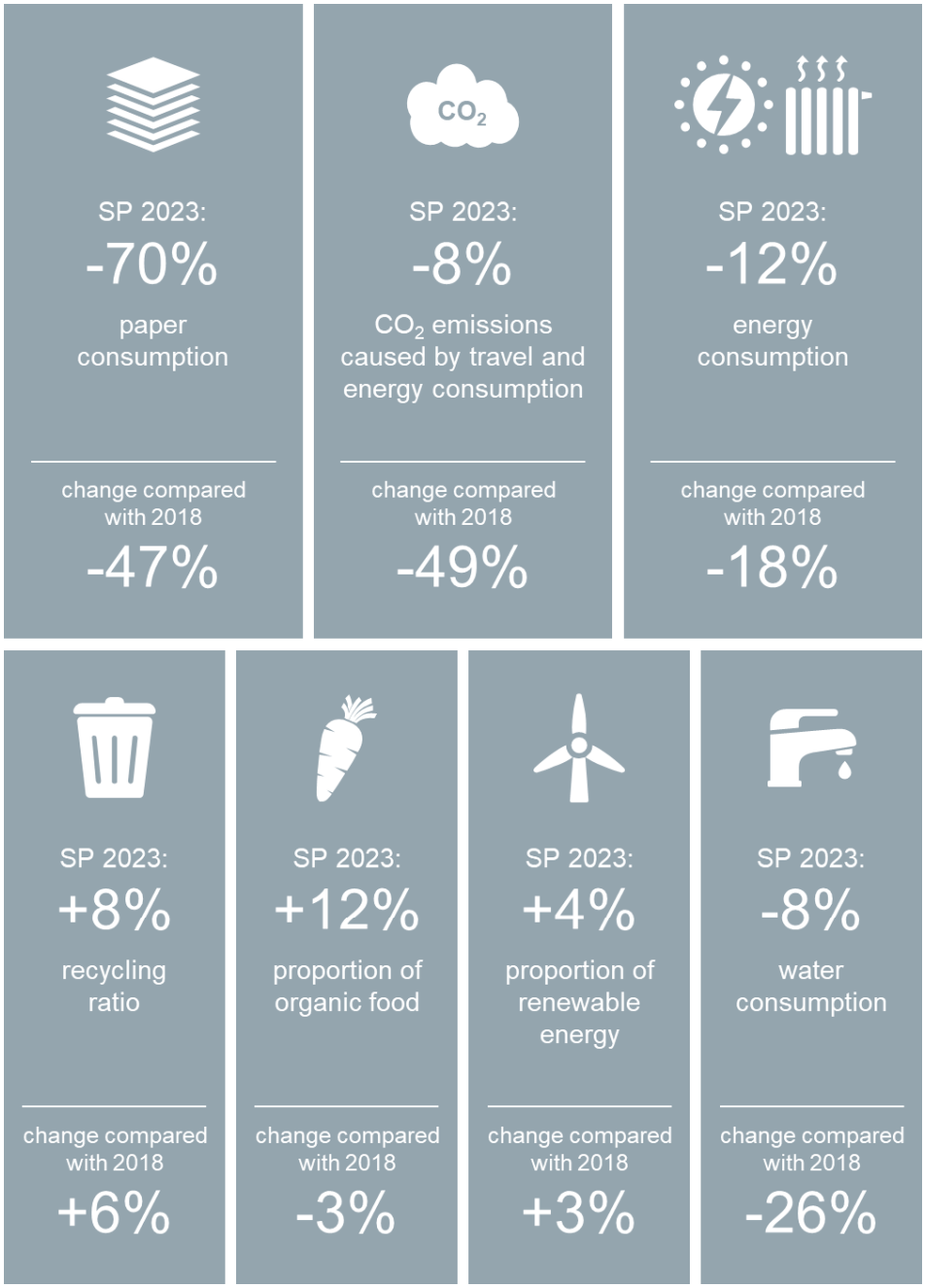
Our overarching objective of carbon-neutrality is complemented by seven environmental KPIs and corresponding targets set out in the Strategic Plan 2023. All targeted improvements relate to the period 2019-2023. The year 2018 is used as a reference to measure the achievement of the goals. As we proceed on our way towards carbon-neutrality, these targets will be adjusted as necessary and aligned with our strategy to become carbon-neutral.

As an administrative organisation, our main direct impact on the environment is caused by the operation of our buildings, i.e. by the provision of a modern and healthy working environment for our staff. Consequently, five of the seven goals are connected to building operations, three of these to energy consumption. Reducing energy consumption by 12% will reduce both CO_2 emissions caused by natural gas and district heating energy consumption. In addition, the increased proportion of renewable energy will support our goal to reduce CO_2 emissions and become carbon-neutral by 2030. The reductions in energy and water consumption and CO_2 emissions in 2020 have already exceeded the goals set in 2019. We acknowledge that these savings can be attributed in large part to the small number of staff working on the EPO premises and the limited possibilities for business trips. It is therefore difficult to assess the degree of target achievement based on the 2020 figures. Energy and water consumption have also been shifted in part to our employees' households, which is not considered in the figures presented below.

However, we were also able to derive benefit from the changed working conditions. As the pandemic pushed forward the digitalisation of our core processes, paper consumption was reduced significantly from 2019 to 2020. We have thus already exceeded our initial goal of a 30% reduction by 2023. To keep the ambition level high, the paper saving target has therefore been extended to a 70% reduction by 2023, compared with the level of 2018.

The only target setback resulting from the pandemic was the proportion of organic food offered in our canteens. Our service providers had to cope with the economic consequences of the shutdown. When the canteens reopened, the highest priority was adapting to the new operating conditions. However, in the new normal we will build on the work done in pre-pandemic times and continue to pursue this goal.

Figure 13 – Environmental goals in the Strategic Plan 2023: status 2020 compared with 2018



Source: EPO

5. Direct environmental aspects[5]

The EPO's activities have an environmental impact. 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 the development of environmental objectives and measures, we have identified and evaluated our environmental aspects according to the following criteria:

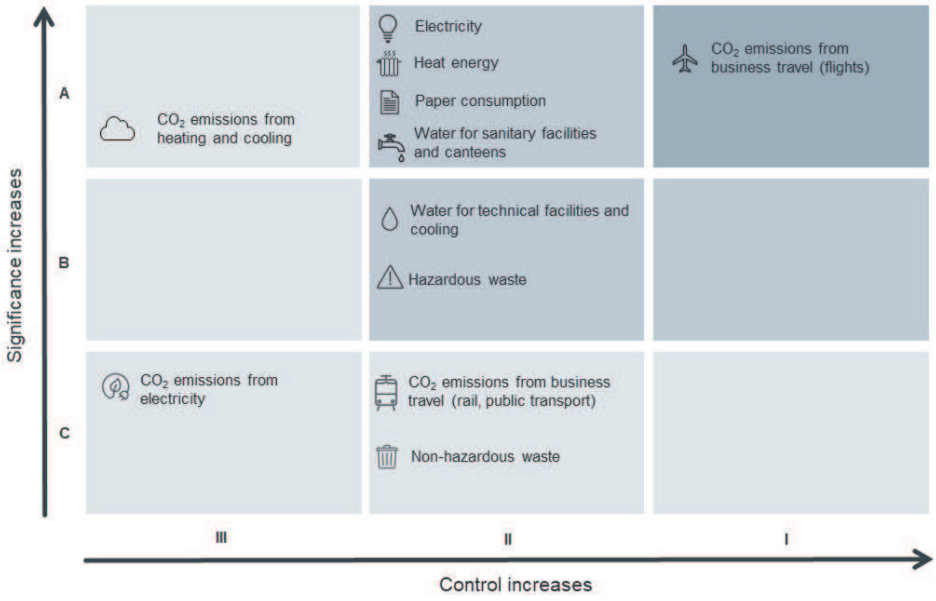
- the potential harm or benefit to the environment
- the condition of the environment
- the size, amount, frequency and reversibility of the aspect or impact
- the existence and requirements of relevant environmental legislation
- the concerns of interested parties, including EPO staff

All significant environmental aspects are recorded and assessed on an annual basis. This assessment is considered when developing new environmental objectives and measures for further improvement. Environmental data has been compared across all sites to assess the relevance of the environmental aspects. Electricity and heating energy data has also been compared with external benchmarks.

Environmental aspects are subdivided into direct and indirect aspects. The main direct environmental aspects at the EPO are shown in Figure 14 below. For a detailed evaluation of all the environmental aspects, see section 8.1 (annex). The indirect environmental aspects are described in section 6.

[5]The EMAS core indicators are shown in section 8. Not all environmental data is reported on in sections 5 and 8, as some data was considered not significant for the evaluation of environmental aspects.

Figure 14 – Direct environmental aspects of the EPO



Source: EPO

5.1 Overview of all sites

Impact of the COVID-19 pandemic

The COVID-19 pandemic has affected our environmental performance in many ways. In March 2020, the Office took preventative measures in line with the recommendations issued by national and international health authorities, including offering staff the option of working from home, if need be, while ensuring business continuity. Building occupancy was drastically reduced as staff were encouraged to work from home. Canteens, coffee bars and fitness rooms were initially closed (canteens subsequently reopened with largely reduced capacities). Maximum permitted building occupancy limits were set across all EPO sites in accordance with national regulations.

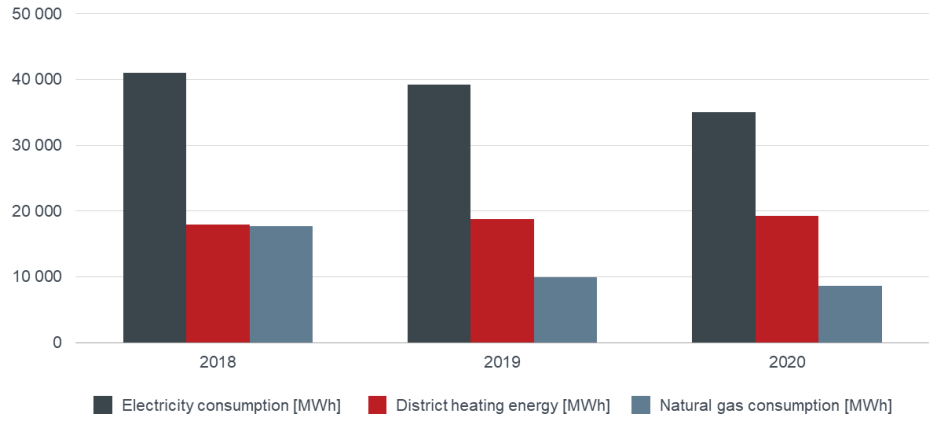
Overall, since the beginning of the pandemic, 80% of staff on average have been working from home. Consequently, a number of indicators have shown significant progress, albeit less than might have been expected. The reasons for this are presented in the following sections. Moreover, as a consequence of teleworking, there has been a shift in energy and water consumption from the EPO premises to the homes of its employees. Nevertheless, the EPO continued to organise its business operations as sustainably as possible in 2020, for example by rolling out new, more energy-efficient laptops and digitalising the patent examination process.

The consumption data for each site and the resulting index figures are an important instrument for assessing current environmental performance, as well as planning and monitoring environmental activities and regularly reviewing the continuous improvement process. The following tables and figures summarise the major environmental data for all sites.

Table 9 – Input (all sites)

Input	Unit	2018	2019	2020	Change 2019-20 in %
Energy consumption	MWh	76 578	67 941	62 998	-7.3
▪ Electricity consumption	MWh	40 971[6]	39 227	35 050[7]	-10.6
▪ District heating energy	MWh	17 922	18 732	19 320	+3.1
▪ Natural gas consumption	MWh	17 685	9 982[8]	8 628[9]	-13.6
Fresh water consumption	m^3	119 519	111 744[8]	88 503	-20.8

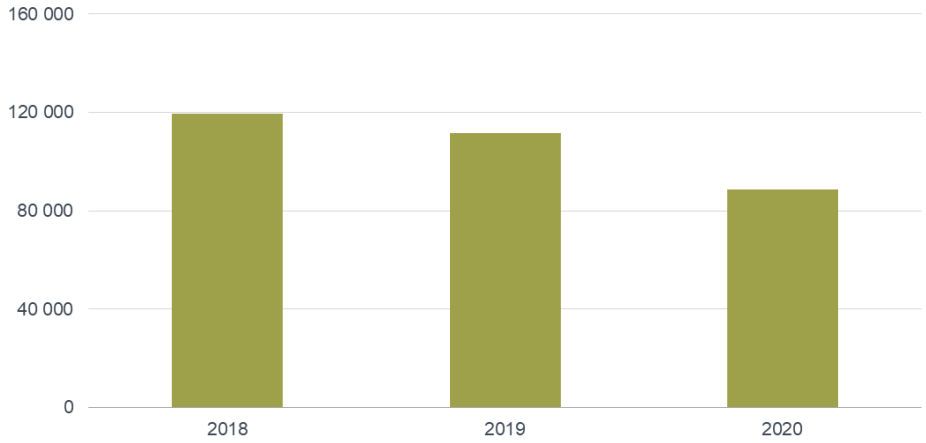
Figure 15 – Energy consumption for all sites



Source: EPO

[6] The Rijsvoort data for 2018 was not available due to termination of the lease. To ensure comparability, the 2017 data was used as an estimate to calculate the figure shown here.
[7] The Berlin data for December 2020 was not available at the time of compiling this report. To ensure comparability, the average monthly consumption from January to November 2020 was used as an estimate for December. Any discrepancy will be corrected in next year's report.
[8] The Berlin data for 2019 was not available at the time of compiling last year's report. This figure has been updated.
[9] The Berlin data for 2020 was not available at the time of compiling this report. To ensure comparability, the 2019 data was used as an estimate to calculate the figure shown here. Any discrepancy will be corrected in next year's report.

Figure 16 – Fresh water consumption for all sites (m^3)



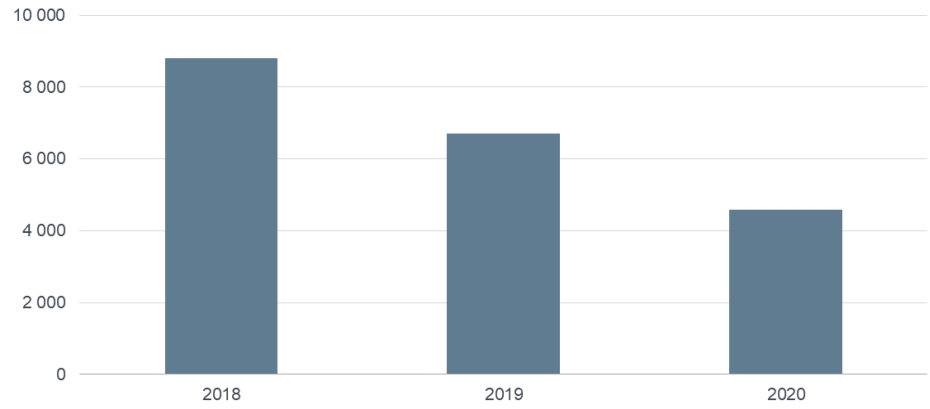
Source: EPO

Table 10 – Output (all sites)

Output	Unit	2018	2019	2020	Change 2019-20 in %
CO_2 emissions from electricity, heating energy, cooling agent losses and business travel	t CO_2e	8 800[10]	6 713[11]	4 595[12]	-31.6
Residual waste generation	t	557	395	238	-39.8
Waste-water generation	m^3	108 332	102 070[13]	80 150	-21.5

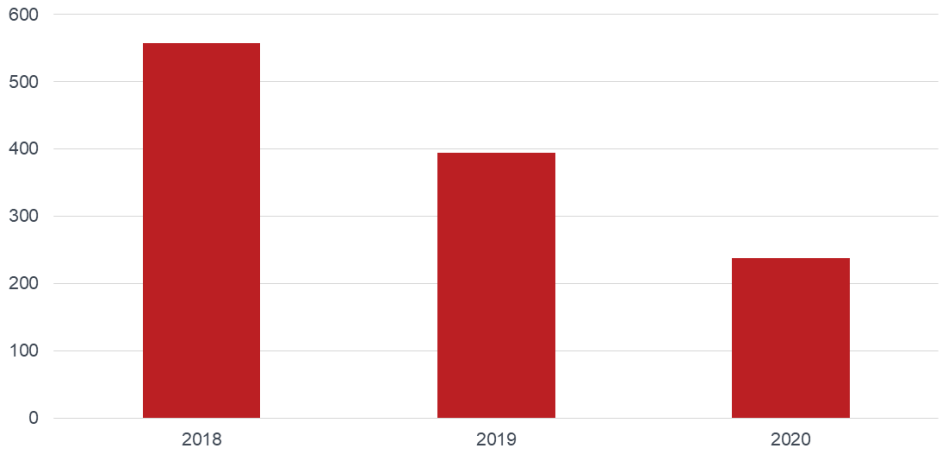
[10] The Rijsvoort data for electricity for 2018 was not available due to termination of the lease. To ensure comparability, the 2017 data was used as an estimate to calculate the figure shown here.
[11] The Berlin data for heat energy for 2019 was not available at the time of compiling last year's report. This figure has been updated.
[12] The Berlin data for heat energy for 2020 was not available at the time of compiling this report. To ensure comparability, the 2019 data was used as an estimate to calculate the figure shown here. Any discrepancy will be corrected in next year's report.
[13] The Berlin data for 2019 was not available at the time of compiling last year's report. This figure has been updated.

Figure 17 – CO_2 emissions from electricity, heating energy, cooling agent losses and business travel for all sites (t CO_2e)



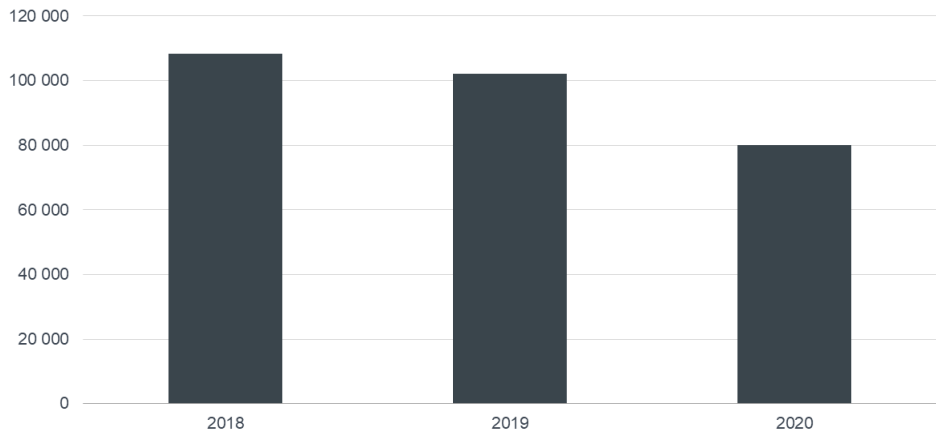
Source: EPO

Figure 18 – Residual waste generation for all sites (t)



Source: EPO

Figure 19 – Waste-water generation for all sites (m^3)



Source: EPO

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 is essentially made up of:

- cooling/ventilation and air conditioning
- lighting in offices and public areas
- IT equipment (e.g. PCs and printers)

Total electricity consumption 2020: 35 050 MWh

-10.6% compared with 2019

Heating energy at the different sites is generated from various sources. While Munich Isar, Munich PschorrHöfe and Vienna use district heating, the buildings in Berlin and The Hague use natural gas. In the New Main building in The Hague, a heat recovery system and heat pumps are operated to provide heat energy.

In The Hague, Munich and Vienna, the energy monitoring and control system provides valuable information on load points (installations, production areas, etc.) that can be used to optimise heating, ventilation and air conditioning (HVAC) systems, thereby helping to reduce energy consumption.

Total heat energy consumption (weather-adjusted) 2020: 29 959 MWh

-6.2% compared with 2019

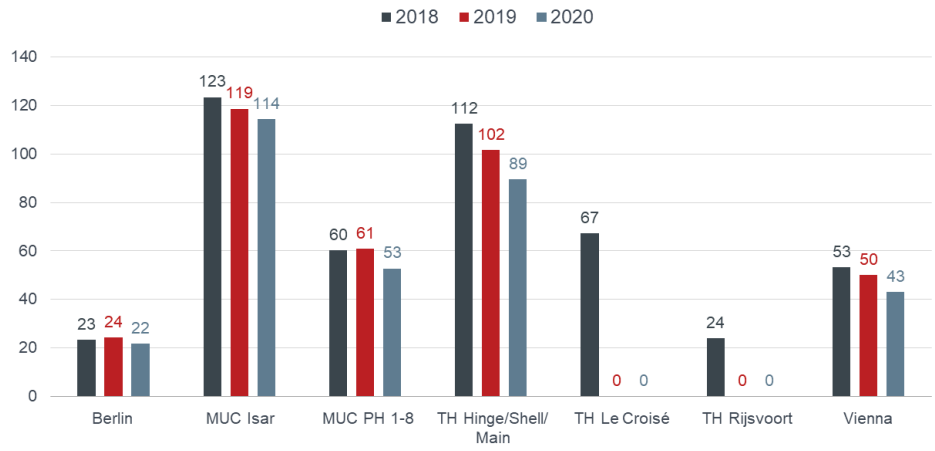
The tables and charts on the next pages show the electricity and heating energy consumption for each site in absolute terms and per square metre of floor area. Overall, electricity consumption decreased by 10.6% compared with 2019, less than expected in view of the low occupancy rate. This was because the run times of air conditioning and ventilation units were significantly extended, despite canteens, coffee bars and sport facilities being closed for several weeks and the majority of staff working from home.

For the same reasons, weather-adjusted heating energy consumption in Munich fell only slightly (PschorrHöfe) or rose (Isar): the ventilation systems were adjusted to use only fresh instead of recirculated air, thereby increasing heating consumption, especially when outside temperatures were low. Nevertheless, weather-adjusted heat energy consumption decreased by 6.2% compared with 2019. Considerable reductions were achieved in The Hague and Vienna. In The Hague, several measures were taken to improve the monitoring of energy use and distribution in the buildings. The efficiency of the groundwater heat pumps was further increased, reducing the need for natural gas heating. Although the heat pumps are powered by electricity, total electricity consumption also fell by almost 12%. In Vienna, the sharp drop in district heating consumption is mainly due to lower occupancy of the building.

Table 11 – Total electricity consumption for all sites 2018-2020 (MWh per year)

	2018	2019	2020	Change 2019-20 in %
Berlin[14]	462	480	429[15]	-10.7
MUC Isar	8 379	8 052	7 763	-3.6
MUC PH 1-8	10 743	10 863	9 403	-13.4
TH Hinge/Shell/Main	19 065	19 301	16 998	-11.9
TH Le Croisé	1 503	0	0	-
TH Rijsvoort	255[16]	0	0	-
Vienna	564	531	457	-14.0
Total	**40 971**	**39 227**	**35 050**	**-10.6**

Figure 20 – Electricity consumption per floor area (kWh per m^2)



Source: EPO

[14] The figures for electricity consumption at the EPO's Berlin site are estimates, based on the landlord's division of overall electricity consumption among the tenants according to the size of the area rented in the building.

[15] The Berlin data for December 2020 was not available at the time of compiling this report. To ensure comparability, the average monthly consumption from January to November 2020 was used as an estimate for December. Any discrepancy will be corrected in next year's report.

[16] The Rijsvoort data for 2018 was not available due to termination of the lease. To ensure comparability, the 2017 data was used as an estimate to calculate the figure shown here.

Table 12 – Total heat energy consumption (MWh per year)

	2018	2019	2020	Change 2019-20 in %
Berlin	1 849	2 050[17]	2 050[18]	0
MUC Isar[19]	7 577	8 212	8 746	+6.5
MUC PH 1-8	9 667	9 835	9 951	+1.2
TH Hinge/Shell/Main	12 814	7 932[20]	6 578[20]	-17.1
TH Le Croisé	1 477	0	0	-
TH Rijsvoort	1 545[21]	0	0	-
Vienna	678	684	622	-9.1
Total	**35 607**	**28 513**	**27 947**	**-2.7**

Table 13 – Weather-adjusted total heat energy consumption (MWh per year)

	2018	2019	2020	Change 2019-20 in %
Berlin	2 164	2 419[17]	2 273[18]	-6.0
MUC Isar[19]	8 661	9 197	9 324	+1.4
MUC PH 1-8	11 051	11 016	10 586	-3.9
TH Hinge/Shell/Main	13 477	8 537[20]	7 160[20]	-16.1
TH Le Croisé	1 553	0	0	-
TH Rijsvoort	1 625[21]	0	0	-
Vienna	710	766	637	-16.9
Total	**39 241**	**31 935**	**29 959**	**-6.2**

[17] The Berlin data for 2019 was not available at the time of compiling last year's report. This figure has been updated.

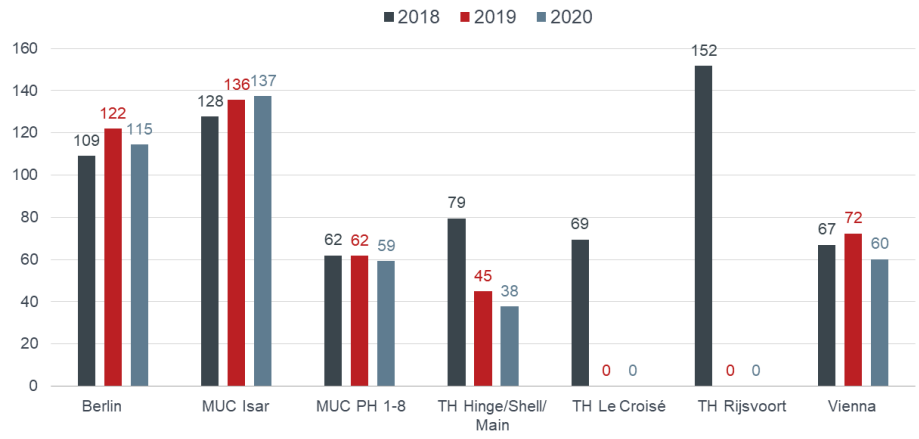
[18] The Berlin data for 2020 was not available at the time of compiling this report. To ensure comparability, the 2019 data was used as an estimate to calculate the figure shown here. Any discrepancy will be corrected in next year's report.

[19] District heating in Munich Isar is provided as steam. The conversion factor from steam to kWh is provided by the energy supplier. This same factor is used for the entire Munich district heating system.

[20] This data does not include the electricity required to operate the heat pumps.

[21] The Rijsvoort data for 2018 was not available due to termination of the lease. To ensure comparability, the 2017 data was used as an estimate to calculate the figure shown here.

Figure 21 – Weather-adjusted heat energy consumption per floor area (kWh per m^2)



Source: EPO

We acknowledge that some of the reductions in energy consumption are counterbalanced by a shift in emissions due to staff working from home. However, a precise assessment of the impact would require highly detailed information on the specific situation of each staff member (e.g. number of family members at home before and during the pandemic, type and size of housing, heating patterns). Given the expected relevance that this will have in the new normal, we plan to develop and implement a methodology for assessing emissions relating to teleworking, thereby supporting a more complete assessment of the EPO's environmental footprint.

5.3 Water/waste water

At all sites, water is provided by the municipal supplier. Most of it is deployed in sanitary facilities and kitchens. In the Isar and PschorrHöfe 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. Waste-water contamination consists mainly of organic substances. Where needed, grease traps are installed in specific locations to remove contaminants from waste water.

Total water consumption 2020:
88 503 m3

-20.8%
compared with 2019

The EPO's water consumption decreased by between 14% and 35% at the different sites. During the COVID-19 pandemic, less water was needed for sanitary purposes and in the kitchens and canteens. Moreover, the cleaning cycle in offices was reduced and adjusted in line with actual occupancy. In Vienna, a malfunction in the irrigation system in the garden led to relatively high fresh water consumption at the beginning of 2020, bringing about a smaller decrease compared with the other sites.

Table 14 – Water consumption (m^3 per year)

	2018	2019	2020	Change 2019-20 in %
Berlin	3 000	2 657[22]	1 725	-35.1
MUC Isar	23 102	26 684	22 246	-16.6
MUC PH 1-8	43 770	44 972	33 363	-25.8
TH Hinge/Shell/Main	42 554	35 451	29 469	-16.9
TH Le Croisé	3 213	0	0	-
TH Rijsvoort	1 998[23]	0	0	-
Vienna	1 882	1 980	1 700	-14.1
Total	**119 519**	**111 744**	**88 503**	**-20.8**

[22] The Berlin data for 2019 was not available at the time of compiling last year's report. This figure has been updated.

[23] The Rijsvoort data for 2018 was not available due to termination of the lease. To ensure comparability, the 2017 data was used as an estimate to calculate the figure shown here.

5.4 Waste

To guarantee that waste is collected and disposed of separately, the EPO has established a waste separation system with clearly identifiable and distinguishable waste containers at all sites. Staff are briefed on waste avoidance, recycling and correct disposal. Day-to-day residual waste and waste paper constitute the main categories of waste at all sites.

Residual waste generation 2020: 238 t

-39.8% compared with 2019

In Berlin, the quantities of residual waste and food waste are calculated on the basis of container volume and the number of collections by the disposal companies, as these amounts are not weighed. The same applies to residual waste and paper waste in Vienna.

Across all sites, waste decreased by at least one quarter compared with 2019. The sharpest decline was registered for food waste (-60.7%), indicating the reduced number of meals served. This figure was down almost 70% across all sites as the canteens were completely closed for several weeks before resuming operations with limited capacities. This is also reflected in the lower amounts of grease/oil-separator waste.

The reduced figures for paper waste (-26.4%) and residual waste (-39.8%) can be partially attributed to the lower number of people on site. However, the main driver was the accelerated digitalisation of the patent granting process, which led to significant savings in paper consumption (see also section 5.6) and thus in paper waste.

Table 15 – Total residual waste generation (t per year)

	2018	2019	2020	Change 2019-20 in %
Residual waste				
Berlin	40	40	40	0
MUC Isar	59	59	34	-41.9
MUC PH 1-8	131	122	59	-51.3
TH Hinge/Shell/Main	239	159	89	-43.9
TH Le Croisé	39	0	0	-
TH Rijsvoort	34	0	0	-
Vienna	15	15	15	0
Total	**557**	**395**	**238**	**-39.8**
Paper waste				
Berlin	17	19	18	-5.3
MUC Isar	125	156	137	-12.4
MUC PH 1-8	197	148	96	-35.3
TH Hinge/Shell/Main	351	239	157	-34.4
TH Le Croisé	35	0	0	-
TH Rijsvoort	17	0	0	-
Vienna	24	24	24	0
Total	**766**	**587**	**432**	**-26.4**

	2018	2019	2020	Change 2019-20 in %
Food waste				
Berlin	11	12	12	0
MUC Isar	38	37	13	-64.2
MUC PH 1-8	76	81	30	-63.3
TH Hinge/Shell/Main	59	71	24	-66.2
TH Le Croisé	5	0	0	-
TH Rijsvoort	5	0	0	-
Vienna	0	0	0	0
Total	**195**	**201**	**79**	**-60.7**
Grease separator waste				
Berlin	10	12	11	-10.0
MUC Isar	132	150	132	-12.0
MUC PH 1-8	182	118	102	-14.0
TH Hinge/Shell/Main	100	114	58	-48.9
TH Le Croisé	0	0	0	-
TH Rijsvoort	0	0	0	-
Vienna	0	0	0	0
Total	**424**	**395**	**303**	**-23.2**

5.5 CO_2 emissions

CO_2 emissions attributable to the EPO's activities are calculated for energy consumption, cooling agent losses and business travel. They are indicated in CO_2 equivalents (CO_2e), which includes emissions of the seven greenhouse gases according to the Kyoto Protocol (carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3)). An overview of the emission factors used to calculate the carbon footprint is included in the annex (section 8.4).

Other emissions to the air, 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 consumption at the sites in Berlin and The Hague. Since these emissions are of minor relevance, they are presented with the core indicators in the annex (section 8.3). Most of our CO_2 emissions are caused by heating energy consumption. Our primary objective in minimising emissions is therefore to reduce energy consumption. We aim to use "green" electricity and district heating, which is more climate-friendly than natural gas or heating oil. We also regularly inspect and maintain our heating systems.

CO_2 emissions from energy consumption 2020:
4 142 t CO_2e

-14.5%
compared with 2019

In 2020, CO_2 emissions from energy consumption decreased by 14.5% compared with 2019. All our sites, apart from Le Croisé and Rijsvoort in The Hague, have been using green electricity for several years. As the leases for Le Croisé and Rijsvoort were terminated at the end of 2018, all electricity used by the EPO has come from renewable sources since 2019. Although heat energy consumption at the Munich sites did not decrease significantly compared with 2019, the associated CO_2 emissions declined. This was due to an updated and lower conversion factor for calculating CO_2 emissions from district heating, provided by the energy supplier. In The Hague, the use and control of the heat pumps was optimised further, resulting in less natural gas being used for heating, thereby also reducing the associated CO_2 emissions.

Further building-related emissions originate from losses of cooling agents, which occur sporadically due to defects and/or repairs of cooling facilities. Maintenance of cooling facilities is performed at frequent intervals to minimise the risk of cooling agent losses. In 2018, there was a leakage in Vienna, which explains the high level of CO_2 emissions at this site.

Table 16 – Total CO_2 emissions from electricity, heating and cooling agent losses[24] (t CO_2e per year)

	2018	2019	2020	Change 2019-20 in %
Berlin	374	414	413	-0.2
MUC Isar[25]	1 209	1 315	1 158	-11.9
MUC PH 1-8[25]	1 748	1 659	1 272	-23.4
TH Hinge/Shell/Main	2 589	1 960	1 631	-16.8
TH Le Croisé	471	0	0	-
TH Rijsvoort	341	0	0	-
Vienna[26]	147	14	12	-9.1
Total	**6 878**	**5 362**	**4 486**	**-16.3**

After energy consumption, business travel is the second-largest source of CO_2 emissions caused by the EPO. Business trips between the EPO sites constitute the main component of travel at the EPO. A lesser component is staff trips to meet customers and other partners or to attend conferences and other events.

Having already fallen in the preceding years, CO_2 emissions from train travel were set at zero in 2018, due to the fact that, since then, the railway companies in the Netherlands, Germany and Austria have been using renewable energy if not across the board then at least for business customers. Since then, the only source of CO_2 emissions from business travel taken into consideration for EMAS is air travel.

From the beginning of the pandemic, duty-travel restrictions were introduced for trips to countries with a high number of infections. CO_2 emissions from air travel dropped by almost 92%, equivalent to a saving of around 1 250 tonnes of CO_2e. The restrictions have been extended to September 2021, which will lead to further savings.

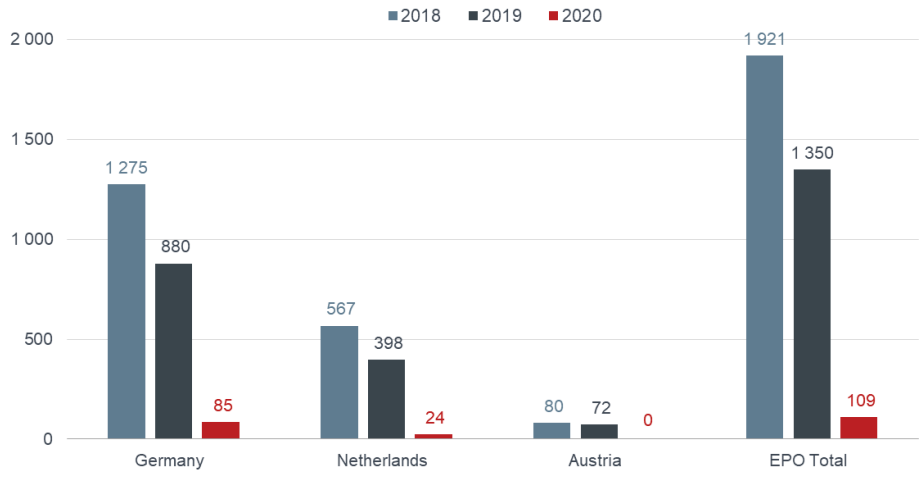
CO_2 emissions from air travel 2020: 109 t CO_2e

-92% compared with 2019

[24] Data may differ from the previous report as GWP figures for cooling agents have been updated.
[25] The conversion factor for heat energy to CO_2e is provided by the energy supplier. It is the same for all heat energy from district heating provided by the supplier.
[26] The conversion factor for heat energy to CO_2e was provided by the energy supplier in 2015. No update is available.

Although this is largely due to the pandemic, we are continuing to rationalise business travel and expand options for working digitally. In line with our goal to reduce CO_2 emissions from business travel, we encourage staff to use alternative means of collaboration and communication (e.g. videoconferences). When business travel is deemed necessary, travel by train is recommended wherever feasible. Moreover, the EPO encourages the use of online meetings for its governing bodies and for oral proceedings, providing remote simultaneous interpretation when necessary, thereby reducing travel to other sites.

Figure 22 – CO_2 emissions from air travel (t CO_2e)



Source: American Express Global Business Travel

5.6 Paper consumption

Paper consumption is a key indicator of our environmental performance and the digitalisation of our processes. Compared with 2019, overall paper consumption decreased by 47.5%. With most staff working from home, having limited access to printers and paper-based files, the digitalisation of our core business, the patent granting process, was dramatically accelerated by the pandemic.

Within weeks, equipment was made available to staff working from home and new software tools were deployed (e.g. Patent Workbench), transforming processes that still relied on the availability of the paper dossier. These changes led to an enormous saving in printed paper, even considering the partial shift in consumption due to teleworking.

Total paper consumption 2020:
65 million sheets

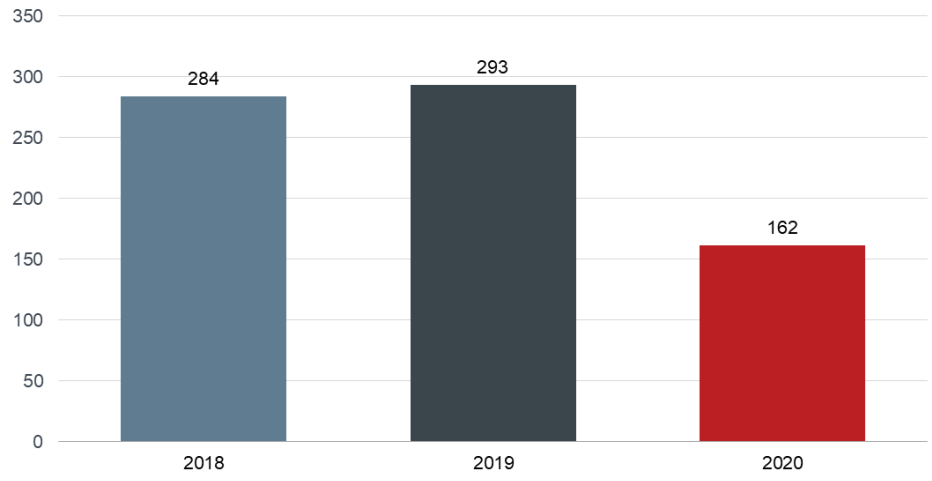
-47.5%
compared with 2019

As a result, in 2020, paper consumption per product dropped to the lowest level since the introduction of EMAS. Moreover, we can leverage our efforts in response to the pandemic to continue reducing our paper consumption in line with the further digitalisation of our processes.

Table 17 – Paper consumption per site (sheets)

	2018	2019	2020	Change 2019-20 in %
Berlin	2 792 500	2 227 500	1 403 000	-37.0
Munich[27]	53 889 180	58 730 000	29 600 000	-49.6
The Hague	65 160 000	62 330 000	33 840 000	-45.7
Vienna	338 250	326 525	108 400	-66.8
Total	**122 179 930**	**123 614 025**	**64 951 400**	**47.5**

Figure 23 – Paper consumption (sheets) per product[28]



Source: EPO

[27] In Munich, paper consumption is only available as a combined figure for Isar and PschorrHöfe.
[28] A "product" is the output of a single patent examination process.

ICT sustainability, green IT and green by IT

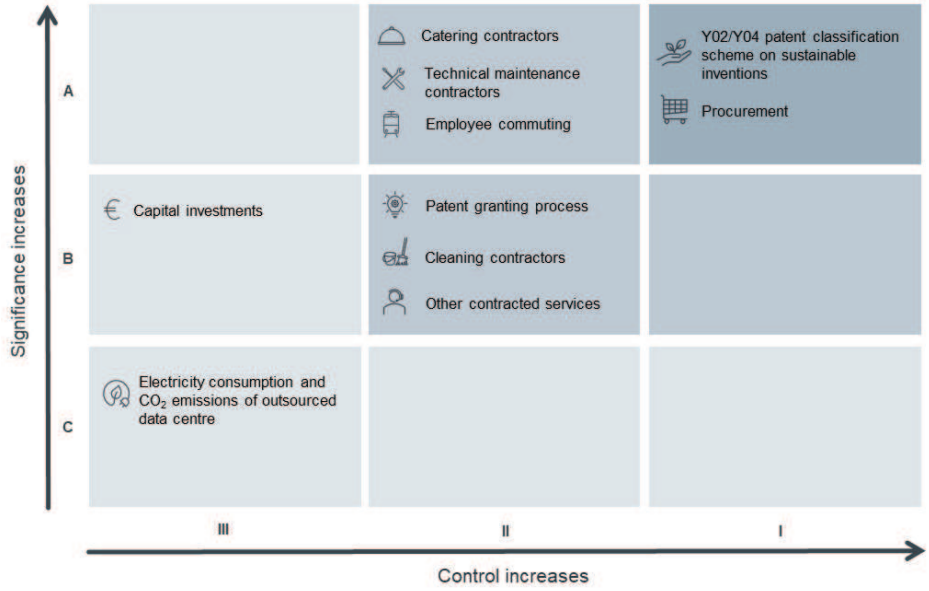
Some four percent of global greenhouse gas emissions originate in the IT sector, with this figure expected to rise in the coming years. As a knowledge-intensive organisation, the EPO is highly dependent on ICT technologies for its core business and will become more so as the digitalisation of its entire processes continues. ICT sustainability is therefore an essential aspect of the EPO's environmental performance. With increasing demand placed on ICT systems and digital end-to-end workflows, it is essential to choose environmentally friendly options, as well as sustainable and efficient ways of running them.

To facilitate smart and sustainable decisions concerning its ICT systems, the EPO has developed a specific policy on ICT sustainability, launching a dedicated project in the Strategic Plan 2023. The project will pursue the objective of reducing electricity consumption and CO_2 emissions associated with ICT. This will be achieved by making ICT operations as sustainable as possible, partnering with other corporate functions to leverage ICT in making business processes more sustainable and by building a culture of ICT sustainability across the EPO.

6. Indirect environmental aspects

All indirect environmental aspects under the EMAS III Regulation have been assessed for their relevance to the EPO. Fig. 24 illustrates the indirect environmental aspects identified at the EPO. For a detailed assessment see section 8.2 (annex).

Figure 24 – Indirect environmental aspects of the EPO



Source: EPO

6.1 Procurement of goods and services

In terms of sustainable procurement, improvements have been achieved based on regulatory changes in recent years that enable environmental criteria to be taken into consideration when making procurement decisions. All staff responsible for procurement processes are required to consider environmental aspects wherever applicable. The main contracted services with environmental impact are catering, cleaning and technical facility management.

Wherever possible, the EPO avoids products containing hazardous substances and gives priority to carbon-neutral products, in line with its environmental goals. In 2020, however, some of these targets were affected by the necessary health measures adopted in view of the pandemic. In the first few weeks after the canteens reopened, disposable packaging had to be used for takeaway food. Wherever possible, biodegradable packaging was then introduced and a return to crockery made possible for on-site employees. Furthermore, the percentage of organic food decreased compared with 2019 due to the difficult economic and operational conditions of our service providers. We also adjusted the cleaning plans for our offices in line with the actual occupancy of the buildings. The cleaning cycle was reduced while still ensuring thorough cleaning and disinfecting of spaces.

6.2 Employee commuting

In 2020, we worked on improving our database to monitor the level of emissions from employee commuting. This resulted in the launch of a staff commuting dashboard, illustrating the office-wide emissions caused by employees travelling to and from work. The calculation of commuting emissions is based on the following: (a) the estimated distance travelled per employee; (b) data collected from building occupancy levels; (c) the split between the different means of transport, based on mobility trends published by research institutes at sites of employment.

As a result, we can identify commuting as a significant source of greenhouse gas emissions originating, albeit indirectly, from the EPO's activities. In 2019, the estimated emissions totalled almost 1 700 t CO_2e, 25% more than the reported emissions from air travel. Estimated emissions fell significantly in 2020 to 800 t CO_2e (-52%), following the increase in working from home. However, those working on the premises tended to commute by car as staff were advised to avoid public transport to minimise the risk of exposure to the COVID-19 virus.

Leveraging the experience of managing the impact of the COVID-19 pandemic, the EPO intends to offer staff greater flexibility concerning their place of work, thereby increasing their well-being. We will continue to incentivise the use of public transport and bicycles for staff travelling to our premises: funding schemes for public transport tickets are available to Munich staff and plans are in place to extend them to other sites. Moreover, additional roofed and fenced bicycle racks have been installed to create safe parking facilities. In Munich and The Hague, the EPO is gradually increasing the number of e-charging stations. The next step is to launch a comprehensive mobility concept to reduce emissions from business travel and commuting, taking into account the specific needs of each EPO site.

6.3 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 commonly 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 such as the UN Environmental Programme, the International Renewable Energy Agency and, most recently, the International Energy Agency (IEA), the EPO has studied the potential of the patent system in addressing climate change. As an example, in 2020, we published a study on innovation in batteries and electricity storage technology in collaboration with the IEA, showing the importance of these technologies for the clean energy transition. These partnerships have been 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.

7. Activities supporting SP2023

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 will enable us to take a strategic approach that will complement our annual monitoring and ensure the fulfilment of our objectives over time.

Total number of improvement measures completed in 2020:

31

To achieve these overall goals, the central environmental management team draws up an annual environmental action plan with targets and improvement measures. 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 administration[29] and uses them as inspiration in developing improvement measures.

Despite the restrictions due to COVID-19, we were able to put several improvement measures of environmental relevance into practice. The tables below present the main actions implemented in 2020 and those planned for 2021 and 2022. Measures with regard to technical installations relate exclusively to the buildings owned by the EPO, as rented buildings are operated and maintained by the respective landlords.

[29] Commission Decision (EU) 2019/61 of 19 December 2018.

7.1 Energy

Action	Site	Savings/impact	Status
2020			
Deploy new laptops with lower energy consumption	All sites	300 MWh per year	Completed
Enable data deduplication (technique for eliminating duplicate copies of data)	All sites	Around 1.1 million GB storage capacity	Completed
Outsourced data centre in Luxembourg with higher power use efficiency and higher environmental standards	All sites	Reduces indirect emissions related to the operation of the data centre	Completed
Build a KPI to measure the efficiency of the data centre migration and decommissioning of The Hague to Luxembourg	All sites	Better monitoring of energy consumption of our data centres	Completed
Set out requirements and select a company to eco-design the new intranet and EPO.org website to improve its environmental footprint	All sites	Reduces direct and indirect energy consumption	Completed
Extend software for weather-dependent regulation of heating and cooling to PH 6 and PH 8	Munich PH	425 thermal and 146 electrical MWh per year (estimated)	Completed
Install LED lighting in underground car park PH 7 and PH 8	Munich PH	65.7 MWh per year	Completed
Optimise data centre: more efficient air conditioning architecture	Munich PH	Reduces direct energy consumption	Completed
Optimise data centre: server virtualisation and right-sizing data centre physical infrastructure	Munich PH	Reduces direct energy consumption	In progress
Install LED lighting in Shell carpark	The Hague	5.1 MWh per year	Completed

Action	Site	Savings/impact	Status
2020			
Procure additional meters to measure electricity consumption of IT network switch equipment	The Hague	Better monitoring of energy consumption of ICT equipment	Completed
Install heat pump in the Shell building	The Hague	Reduces CO_2 emissions from energy consumption	Completed
Ensure full functioning of the metering system in the New Main building	The Hague	Better monitoring of energy consumption	Completed
Implement a monitoring system for the two wells in the New Main building	The Hague	Increases efficiency through better monitoring of energy consumption	Completed
Optimise heat and cold storage (Hinge/Main)	The Hague	Reduces direct energy consumption	Completed
Replace light bulbs in desktop lights with LED lights	Berlin	135 kWh per year	In progress

Action	Site	Savings/impact	Status
2021			
Reduce energy consumption of LAN printers	All sites	5.25 MWh per year	Completed
Launch a dashboard to monitor energy consumption for ICT infrastructure	All sites	Better monitoring of energy consumption of ICT equipment	Completed
Install LED lighting in staircases	Munich Isar	12 MWh per year	Planned
Assess the saving potential of software for weather-dependent regulation of heating and cooling in Isar and New Main building	Munich Isar The Hague	Reduce direct energy consumption	Planned
Extend software for weather-dependent regulation of heating and cooling to PH 1-5	Munich PH	982 thermal MWh and 97 electrical MWh per year	Planned
Install LED lighting in underground car park (PH 1-5)	Munich PH	60 MWh per year	Planned
Install LED lighting in corridors of PH8	Munich PH	33 MWh per year	Planned
Renew lighting in underground car park PH 6	Munich PH	10 MWh per year	In progress
Install LED lighting in floors, auditorium and bridge from Shell to Hinge building	The Hague	97 MWh per year	Planned
Adapt the cooling system of the caterer in the New Main building	The Hague	Reduces direct energy consumption	In progress
Connect booking system of meeting rooms with building management system to efficiently manage energy supply of meeting rooms	The Hague	Reduce direct energy consumption	Planned
Adapt the ventilation system of the canteen to actual number of users	Berlin	Reduce direct energy consumption	Planned

Action	Site	Savings/impact	Status
2022 onwards			
Install LED lighting in floors of PH 1-6	Munich PH	1 300 MWh per year	Planned

7.2 Water

Action	Site	Savings/impact	Status
2021			
Introduce microplastic-free liquid soaps in sanitary rooms	Berlin	Substitute approximately 480 l of soap containing microplastic per year	Planned

7.3 Waste

Action	Site	Savings/impact	Status
2020			
Toy and clothes collection	Munich	20 m³ toys and 20 m³ clothes	Completed
Add "biological waste" to the waste separation scheme	Berlin	Approximately 3 120 l of residual waste per year	Completed
2021			
Toy and clothes collection	Munich	20 m³ toys and 20 m³ clothes	Planned

7.4 CO_2 emissions

Action	Site	Savings/impact	Status
2021			
Launch interactive dashboards on employee commuting and business travel, which allow full monitoring of the associated CO_2 emissions	All sites	Increases staff awareness of how everyone can contribute directly to improving the environmental footprint of the Office	Completed
Extend carbon footprint calculation and reporting according to the Greenhouse Gas Protocol	All sites	Adopting a globally accepted framework for reporting on our environmental footprint will make our CO_2 output transparent and comparable with other organisations	Planned
Develop and implement corporate mobility management at the EPO for business travel and employee commuting	All sites	Reduce emissions from business travel and commuting, taking the specific needs of each EPO site into account.	Planned
Participate in local initiative ClimateBase (Klimapakt2)	Munich	24 000 t CO_2 per year estimated potential saving between all companies participating in Klimapakt2 as a result of knowledge-sharing	Planned

7.5 Paper consumption

Action	Site	Savings/impact	Status
2020			
On-demand paper search file: printing of certain files has to be ordered	All sites	Decreases number of printed search files by more than 95 000	Completed
Launch/increase use of digital patent workbench (PWB) for examiners and formalities officers	All sites	Following a gradual implementation, digital handling of 98% of all actions by the end of the year	Completed
Feedback scheme/survey on how to reduce paper consumption in daily business	All sites	Raises awareness, 399 written submissions from 182 staff members	Completed
2021			
Launch a dashboard on paper consumption that makes it possible to track the amount of paper used	All sites	Raises awareness, identifies hot spots, monitors the impact of implemented measures	Completed
Encourage staff to reduce paper consumption by printing less and shifting to printing mode P5000, which saves on green cover sheets	All sites	Up to 5 million paper sheets per year	Planned
Pilot project on paperless examination "On-demand examination files"	All sites	Over 3 million paper sheets per year	Planned
Do without desktop printers and dispose of them responsibly	All sites	Decommission 800 desktop printers, save over 10K printer cartridges per year	Planned
Plant trees	Munich	Raise awareness	Planned

7.6 Biodiversity

Action	Site	Savings/impact	Status
2020			
Plant native geophytes in the outdoor area to provide additional food sources for insects during periods of low flowering	Munich Isar and PH	More than 10 000 bulbs planted	Completed
2021			
Additional flowering plants on the roof of the PH 7 building to help save bees in Munich	Munich PH	Increase local biodiversity	Planned

7.7 Communication and staff engagement

Action	Site	Savings/impact	Status
2020			
Participate in Digital Cleanup Day	All sites	Deleted almost 1.9 million emails with an average size of 50Kb	Completed
Present the BIT policy on ICT sustainability to BIT staff	All sites	140+ participants	Completed
Lunchtime talk on green finance	All sites	70 participants	Completed
Webinar sessions on ICT sustainability awareness for EPO staff and internal BIT stakeholders	All sites	Around 40 participants per webinar	Completed
Zero waste workshop for EPO staff and their families	All sites	22 participants	Completed

Action	Site	Savings/impact	Status
2021			
Organise lunch event with a high-profile speaker	All sites	200+ participants expected	Planned
Organise lunchtime talks on different topics (e.g. pollution of the oceans, transfer of green technology, home cooling systems, home battery and solar panels)	All sites	50+ participants expected	Planned
Set up an environmental hub on the intranet for internal communication and exchange on environmental topics	All sites	Raise awareness	In progress
Knowledge-sharing initiatives with other (European) international organisations and companies at sites of employment	All sites	Raise awareness	Planned
Online session with the Central Procurement team to raise awareness and share tips on green procurement	All sites	Reduce environmental impact relating to the procurement of goods and services	Planned
Organise a lecture on the topic of plastics/packaging	Munich	Raise awareness	Planned
Organise e-mobility fair	The Hague	100-150 participants expected	Planned
Raise awareness of closing the heating valves in offices before working from home several days in a row	Berlin	Reduce direct energy consumption	Planned

7.8 Procurement of goods and services

Action	Site	Savings/impact	Status
2020			
Increase awareness of ICT sustainability criteria in Central Procurement and BIT Vendor Management	All sites	Reduces environmental impact relating to the procurement of goods and services	Completed
Integrate sustainability criteria into the following contracts (start date in 2020):	All sites	Reduces environmental impact relating to the procurement of goods and services	Completed
▪ Stationery and IT consumables	All sites	25% of technical evaluation to environmental criteria	Completed
▪ Technical IT consultancy	All sites	Bidders asked to list environmental measures in place	Completed
▪ Gardening and landscaping services	Munich	Bidders asked to list environmental measures in place	Completed

Action	Site	Savings/impact	Status
2021			
Minimise travel for consultancy projects (from on-site to off-site)	All sites	Reduce indirect emissions relating to the procurement of goods and services	Planned
CO_2 footprint per consultant required on offer form	All sites	Reduce indirect emissions relating to the procurement of goods and services	Planned
Integrate sustainability criteria into the following contracts (start date in 2021):		Reduce environmental impact relating to the procurement of goods and services	
▪ Hardware acquisition channel	All sites		Planned
▪ Canteen	Munich		Planned
▪ Technical maintenance	Munich		Planned
▪ Floor covering and sun blinds	The Hague		Completed
▪ Cleaning and related services	The Hague		Planned
▪ General planner new office building	Vienna		Planned

7.9 Employee commuting

Action	Site	Savings/impact	Status
2020			
Install new e-car charging stations in Isar building	Munich Isar	15 new charging stations	Completed
Extend bicycle parking at the Isar site, including electrical charging points, and repair station with tools available at all times	Munich Isar	3 additional repair stations with tools	Completed
2021			
Install new e-car charging stations in The Hague	The Hague	Up to 83 new charging stations	Planned
2022 onwards			
Plan installation of e-car charging stations with landlord	Berlin	Up to 4 new charging stations	In progress

7.10 Impact of services

Action	Site	Savings/impact	Status
2020			
Simplify the Y02-Y04S scheme in consultation with advanced users (OECD, IEA and IRENA)	n/a	Easier access to patent information on climate change mitigation or adaptation technologies	Completed
Review preparations of the Y tags for clean energy (Y02E) and smart grids (Y04S)	n/a	Easier access to patent information on climate change mitigation or adaptation technologies	Completed

Action	Site	Savings/impact	Status
2021			
Review preparations of the Y tags for waste and water (Y02W)	n/a	Easier access to patent information on climate change mitigation or adaptation technologies	Planned

8. Annex

8.1 Evaluation of direct environmental aspects

To help assess their relevance and the need for action, the different 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

All direct environmental aspects under the EMAS III Regulation were assessed on the basis of their relevance to the EPO and only those found to be relevant are included below. Compared with 2019, the main changes are the following:

- The data centre in the Shell building in The Hague was decommissioned and outsourced to an external data centre in Luxembourg, so the electricity consumption of the data centre in TH Shell was reduced from A to C.
- CO_2 emissions from electricity were downgraded from CII to CIII. All EPO sites operate with 100% green electricity, so direct emissions from electricity production are zero. Further improvement is only possible if energy providers reduce emissions in the upstream chain.
- In The Hague, monitoring, storage and distribution of hot and cold air produced by the heat pumps was further optimised in 2020, meaning that no natural gas was used to heat the Main building. Therefore, the control of heat energy consumption for space heating, CO_2 emissions from natural gas and electricity consumption for HVAC in TH Main increased from II to I. The relevance of CO_2 emissions from natural gas in the Main building decreased to C. In the Shell building, a heat pump was installed, which will reduce the need for natural gas and help avoid the associated CO_2 emissions. Hence, control of CO_2 emissions from natural gas consumption in TH Shell increased from III to II.

		Berlin	MUC Isar	MUC PschorrHöfe	TH Hinge	TH Shell	TH Main	Vienna
Relevant direct environmental aspects								
Resource consumption: energy								
Resource consumption: electricity	General power	A II	A II	A II	A II	A II	A II	A II
	Data centre	-	A II	B II	-	C III	C II	A II
	Garages	-	B I	A I	B II	B II	-	A I
	HVAC	-	B II	A III	A II	A II	A I	A II
	Canteen	-	A III	AIII	AIII	-	C III	-
Resource consumption: heating energy	General resource consumption	A II	A I	B I	B II	A II	B II	B III
	Space heating	-	A I	A I	AII	AII	B I	BII
	Hot water	-	B III	B II	A II	B II	B II	B II
	Humidification	-	B II	-	BIII	A II	C II	-

	Berlin	MUC Isar	MUC PschorrHöfe	TH Hinge	TH Shell	TH Main	Vienna
CO_2 emissions							
Emissions from electricity consumption	C III	C III	C III	C III	C III	C III	C III
Emissions from district heating	-	B III	B III	-	-	-	B III
Emissions from gas	B III	-	-	A III	A II	C I	-
Emissions from business travel by air	A I	A I	A I	A I	A I	A I	A I
Emissions from business travel by other means of transport	C II	C II	C II	C II	C II	C II	C II
Resource consumption: water							
Resource consumption: water for sanitary/canteen use	B II	B II	A II	A II	A II	A II	B II
Resource consumption: water for technical/cooling use	-	B II	B II	B II	B II	A II	-
Pollutant input from waste water	B II	B II	B II	B II	B II	BII	B II
Resource consumption: waste							
Waste – non-hazardous	B II	B II	B II	C II	C II	C II	B II
Waste – hazardous	C III	B II	B II	B II	B II	B II	C II

	Berlin	MUC Isar	MUC PschorrHöfe	TH Hinge	TH Shell	TH Main	Vienna
Resource consumption: paper							
Resource consumption: paper	B II	A II	A II	A II	A II	A II	B II
Risk: environmental accidents							
Risk of environmental accidents	C II	B II	B II	B II	B II	B II	C II

8.2 Evaluation of indirect environmental aspects

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

Compared with 2019, the most important changes are:

- The outsourced data centre in Luxembourg now replaces the data centre in the TH Shell building. The environmental impact and the steering potential of electricity consumption and the associated CO_2 emissions are rated low because the data centre is operated under high environmental standards and with 100% green electricity.
- Control of staff commuting increased from III to II. With the COVID-19 pandemic, the infrastructure for working from home has been expanded. The EPO is now able to develop ideas for the new normal, combining working from home and at the EPO premises. In addition, the EPO plans a comprehensive mobility concept aimed at reducing the environmental impact of employee commuting and other aspects.

Relevant environmental aspect (indirect)	Impact	Influence
Impact of services		
Patent granting process	B	II
Classification scheme "green" patents	A	I
Environmental behaviour of contractors/procurement		
Environmental impact of catering/canteen contractors	A	II
Environmental impact of technical maintenance contractors	A	II
Environmental impact of cleaning contractors	B	II
Environmental impact of other contractors	B	II
Procurement	A	I
Outsourced processes		
Electricity consumption and CO_2 emissions of data centre Luxembourg	C	III
Others		
Staff travel to/from office	A	II
Capital investments	B	III

8.3 EMAS core indicators[30]

The following tables show the EMAS core indicators for environmental aspects. The emission values for SO_2 (sulphur dioxide), NO_x (nitrogen oxide) and particulates are shown only if they arise directly at the building in question. They are not calculated for electricity and district heating. The figure for paper consumption in Munich is the average figure for all buildings (Isar and PschorrHöfe).

Based on our assessment of the environmental aspects, we consider some of the core indicators to be irrelevant, which is why they are not included below. At the same time, this report goes into more detail on other criteria more relevant to the EPO.

[30] Not all environmental data is reported on in sections 5 and 8, as some data was considered not significant for the evaluation of environmental aspects.

EPO Berlin	Unit	2018	2019	2020
Number of employees	empl	236	219	201
Electricity consumption[31]	kWh/empl	1 959	2 193	2 134[32]
Heat energy consumption (natural gas)	kWh/m^2	93	103[33]	103[34]
Renewable energy as a percentage of total consumption (electricity and heat)	%	20.00	18.98[33]	17.31
Paper consumption (material efficiency)	sheet/empl	11 833	10 171	6 980
Water consumption	m^3/empl	12.71	12.13[33]	8.58
Waste generation				
▪ Residual waste	t/empl	0.17	0.18[33]	0.20
▪ Paper/cardboard	t/empl	0.07	0.09	0.09
▪ Food waste	t/empl	0.05	0.05	0.06
▪ Food waste per meal served	kg/meal	0.39	0.60	1.16
▪ Grease trap residues	t/empl	0.04	0.05	0.05
Hazardous waste generation	kg/empl	0.00	0.00	0.00
Built surface area (sealed)[35]	m^2	9 294	9 294	9 294
Nature-oriented area on site[35]	m^2	2 500	2 500	2 500

[31] The figures for electricity consumption at the EPO's Berlin site are estimates, based on the landlord's division of overall electricity consumption among the tenants according to the size of the area rented by them in the building.

[32] The electricity consumption data for December 2020 was not available at the time of compiling this report. To ensure comparability, the average monthly consumption from January to November 2020 was used as an estimate for December. Any discrepancy will be corrected in next year's report.

[33] The data for 2019 was not available at the time of compiling last year's report. This figure has been updated.

[34] The Berlin data for 2020 was not available at the time of compiling this report. To ensure comparability, the 2019 data was used as an estimate to calculate the figure shown here. Any discrepancy will be corrected in next year's report.

[35] Since the EPO as a tenant only uses 50% of the building area, only 50% of the total area is indicated here.

EPO Berlin	Unit	2018	2019	2020
Emissions (electricity, heat and cooling agent losses)				
▪ CO_2[36]	t CO_2e/empl	1.58	1.89	2.06
▪ SO_2	kg/empl	0.00	0.00	0.00
▪ NO_x	kg/empl	0.05	0.06	0.06
▪ Particulates	kg/empl	0.01	0.01	0.01

[36] Data may differ from the previous report as GWP figures for cooling agents have been updated.

EPO Munich – Isar building	Unit	2018	2019	2020
Number of employees	empl	830	720	691
Electricity consumption	kWh/empl	10 095	11 183	11 235
Heat energy consumption (district heating)	kWh/m^2	112	121	129
Renewable energy as a percentage of total consumption (electricity and heat)	%	55.98	53.19	47.02
Paper consumption (material efficiency)	sheet/empl	14 459	17 112	8 908
Water consumption	m^3/empl	27.83	37.06	32.19
Waste generation				
▪ Residual waste	t/empl	0.07	0.08	0.05
▪ Paper/cardboard	t/empl	0.15	0.22	0.20
▪ Food waste	t/empl	0.05	0.05	0.02
▪ Food waste per meal served	kg/meal	0.30	0.29	0.39
▪ Grease trap residues	t/empl	0.16	0.21	0.19
Hazardous waste generation	kg/empl	9.09	3.52	2.95
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
Emissions (electricity, heat and cooling agent losses)				
▪ CO2[37]	t CO_2e/empl	1.66	1.83	1.66
▪ SO2	kg/empl	0	0	0
▪ NOx	kg/empl	0	0	0
▪ Particulates	kg/empl	0	0	0

[37] Data may differ from the previous report as GWP figures for cooling agents have been updated.

EPO Munich – PschorrHöfe 1-8	Unit	2018	2019	2020
Number of employees	empl	2 897	2 712	2 632
Electricity consumption	kWh/empl	3 708	4 006	3 572
Heat energy consumption (district heating)	kWh/m^2	54	55	56
Renewable energy as a percentage of total consumption (electricity and heat)	%	56.09	55.95	52.70
Paper consumption (material efficiency)	sheet/empl	14 459	17 112	8 908
Water consumption	m^3/empl	15.11	16.58	12.68
Waste generation				
▪ Residual waste	t/empl	0.05	0.04	0.02
▪ Paper/cardboard	t/empl	0.07	0.05	0.04
▪ Food waste	t/empl	0.03	0.03	0.01
▪ Food waste per meal served	kg/meal	0.20	0.22	0.94
▪ Grease trap residues	t/empl	0.06	0.04	0.04
Hazardous waste generation	kg/empl	1.88	2.18	2.85
Built surface area (sealed)	m^2	42 641	42 641	42 641
Nature-oriented area on site	m^2	18 422	18 422	18 422
Emissions (electricity, heat and cooling agent losses)				
▪ CO_2[38]	t CO_2e/empl	0.60	0.61	0.47
▪ SO_2	kg/empl	0	0	0
▪ NO_x	kg/empl	0	0	0
▪ Particulates	kg/empl	0	0	0

[38] Data may differ from the previous report as GWP figures for cooling agents have been updated.

EPO The Hague – Main, Hinge, Shell	Unit	2018	2019	2020
Number of employees	empl	2 580	2 624	2 536
Electricity consumption	kWh/empl	7 389	7 356	6 703
Heat energy consumption (natural gas)	kWh/m^2	76	42	35
Renewable energy as a percentage of total consumption (electricity and heat)	%	59.80	70.87	72.10
Paper consumption (material efficiency)	sheet/empl	20 173	23 754	13 344
Water consumption	m^3/empl	16.49	13.51	11.62
Waste generation				
▪ Residual waste	t/empl	0.09	0.06	0.04
▪ Paper/cardboard	t/empl	0.14	0.09	0.06
▪ Food waste	t/empl	0.02	0.03	0.01
▪ Food waste per meal served	kg/meal	0.26	0.30	0.28
▪ Grease trap residues	t/empl	0.04	0.04	0.02
Hazardous waste generation	kg/empl	0.00	0.49	1.01
Built surface area (sealed)	m^2	51 196	51 196	51 196
Nature-oriented area on site	m^2	43 018	43 018	43 018
Emissions (electricity, heat and cooling agent losses)				
▪ CO_2[39]	t CO_2e/empl	1.00	0.61	0.52
▪ SO_2	kg/empl	0.00	0.00	0.00
▪ NO_x	kg/empl	0.30	0.18	0.14
▪ Particulates	kg/empl	0.00	0.00	0.00

[39] Data may differ from the previous report as GWP figures for cooling agents have been updated.

EPO The Hague – Le Croisé (lease ended 2018)	Unit[40]	2018	2019	2020
Number of workplaces	wp	450	-	-
Electricity consumption	kWh/wp	3 341	-	-
Heat energy consumption (natural gas)	kWh/m^2	66	-	-
Renewable energy as a percentage of total consumption (electricity and heat) [41]	%	N/A	-	-
Paper consumption (material efficiency)	sheet/wp	20 173	-	-
Water consumption	m^3/wp	7.14	-	-
Waste generation				
▪ Residual waste	t/wp	0.09	-	-
▪ Paper/cardboard	t/wp	0.08	-	-
▪ Food waste	t/wp	0.01	-	-
▪ Food waste per meal served	kg/meal	0.32	-	-
Hazardous waste generation	kg/wp	0.00	-	-
Built surface area (sealed)	m^2	4 200	-	-
Nature-oriented area on site[42]	m^2	N/A	-	-
Emissions (electricity, heat and cooling agent losses)				
▪ CO_2	t CO_2e/wp	1.05	-	-
▪ SO_2	kg/wp	0.00	-	-
▪ NO_x	kg/wp	0.20	-	-
▪ Particulates	kg/wp	0.00	-	-

[40] As the building was gradually vacated over the course of 2018, reporting the number of employees would not have been representative of consumption, so workplaces have been chosen as the reference unit.

[41] No data provided by landlord.

[42] The lease was terminated at the end of 2018 and the landlord no longer provides data.

EPO The Hague – Rijsvoort (lease ended 2018)	Unit[43]	2018	2019	2020
Number of workplaces	wp	200	-	-
Electricity consumption	kWh/wp	1 275	-	-
Heat energy consumption (natural gas)	kWh/m^2	144	-	-
Renewable energy as a percentage of total consumption (electricity and heat)[44]	%	N/A	-	-
Paper consumption (material efficiency)	sheet/wp	20 173	-	-
Water consumption	m^3/wp	9.99	-	-
Waste generation				
▪ Residual waste	t/wp	0.17	-	-
▪ Paper/cardboard	t/wp	0.09	-	-
▪ Food waste	t/wp	0.03	-	-
▪ Food waste per meal served	kg/meal	0.96	-	-
Hazardous waste generation	kg/wp	0.00	-	-
Built surface area (sealed)	m^2	4 558	-	-
Nature-oriented area on site[45]	m^2	N/A	-	-
Emissions (electricity, heat and cooling agent losses)				
▪ CO_2	t CO_2e/wp	1.71	-	-
▪ SO_2	kg/wp	0.00	-	-
▪ NO_x	kg/wp	0.47	-	-
▪ Particulates	kg/wp	0.01	-	-

[43] As the building was gradually vacated over the course of 2018, reporting the number of employees would not have been representative of consumption, so workplaces have been chosen as the reference unit.

[44] Figures not provided by landlord.

[45] The lease was terminated at the end of 2018 and the landlord no longer provides data.

EPO Vienna	Unit	2018	2019	2020
Number of employees	empl	110	87	82
Electricity consumption	kWh/empl	5 126	6 106	5 571
Heat energy consumption (district heating)	kWh/m^2	64	65	59
Renewable energy as a percentage of total consumption (electricity and heat)	%	55.68	54.29	55.60
Paper consumption (material efficiency)	sheet/empl	3 075	3 753	1 322
Water consumption	m^3/empl	17.11	22.76	20.73
Waste generation				
▪ Residual waste	t/empl	0.14	0.17	0.18
▪ Paper/cardboard	t/empl	0.22	0.28	0.29
▪ Food waste[46]	t/empl	N/A	N/A	N/A
Hazardous waste generation	kg/empl	1.36	0.34	0.24
Built surface area (sealed)	m^2	2 547	2 547	2 547
Nature-oriented area on site	m^2	1 966	1 966	1 966
Emissions (electricity, heat and cooling agent losses)				
▪ CO_2[47]	t CO_2e/empl	1.33[48]	0.16	0.15
▪ SO_2	kg/empl	0	0	0
▪ NO_x	kg/empl	0	0	0
▪ Particulates	kg/empl	0	0	0

[46] Disposal handled by canteen service provider.
[47] Data may differ from the previous report as GWP figures for cooling agents have been updated.
[48] Significant increase in emissions due to cooling agent losses in Vienna.

8.4 Emission factors for calculating CO_2 emissions

Emission source	Emission factor	Data source
Energy		
Natural gas	0.202 kg CO_2e/kWh	GEMIS Version 5.0, Gas-Heizung-DE-2010 (Endenergie)
District heating Munich	0.156 kg CO_2e/kWh (until 31.10.2020) 0.066 kg CO_2e /kWh (since 01.11.2020)	Energy provider (SWM München)
District heating Vienna	0.020 kg CO_2e /kWh	Energy provider (Wien Energie)
Electricity (100% renewable)	0 kg CO_2e/kWh	
Cooling agents		
R134a	1 430 kg CO_2e/kg	*Umweltbundesamt* (German Environment Agency)
R401a	1 182 kg CO_2e/kg	
R404a	3 392 kg CO_2e/kg	
R407c	1 774 kg CO_2e/kg	
R410a	2 088 kg CO_2e/kg	
R452a	2 140 kg CO_2e/kg	
Emissions from travel		
Business travel – flights	kg CO_2e per route	American Express Global Business Travel
Employee commuting	By car: 120.4 g/Km CO_2e By public transport (per trip): 900 g CO_2e By bike or walking (per trip): 0 g CO_2e	Own estimate based on: ▪ Average commuting distance per site ▪ Data on building occupancy and number of employee cars entering our parking spaces ▪ Expert estimates on commuting patterns per site (e.g. means of transport)

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 whole 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 18th of Mai 2021

Dr.-Ing. Hans-Peter Wruk
Environmental Verifier

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

Dr. Hans-Peter Wruk
Environmental Verifier