

2023 update of the ECB's Environmental Statement



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Foreword



Throughout 2022 we experienced an increase in extreme weather events, such as significant aridity in the summer months and heavy rainfall leading to floods across Europe in autumn and winter. The impact of climate change can already be felt and is only expected to increase in the future. The European Central Bank (ECB) recognises its role in supporting an orderly transition to a climate-neutral economy. It also recognises the importance of continuing to drive positive change by reducing its own impact on the environment.

We are therefore taking action on many fronts, including in our day-to-day activities. In 2022 we reached several milestones that bring us closer to fulfilling our commitment to reducing our carbon emissions in line with the 1.5 degrees Celsius trajectory outlined in the Paris Agreement. This translates into a 46.2% reduction in our organisational carbon footprint.

To further decarbonise the operations of the ECB buildings, the heating source for the Eurotower was replaced by a renewable alternative – biogas instead of natural gas – resulting in considerable environmental gains. In addition, the ECB implemented various energy-saving measures in 2022 to actively support the European Union's efforts on short-term energy conservation. These measures led to an 18.6% reduction in heating and cooling energy compared with the previous year.

Like many organisations, over the past year the ECB has rethought its way of working and has introduced a new teleworking policy. This seeks to strike a balance between providing staff with flexibility on where they work and fostering collaboration and social interaction. As of May 2022 our staff members gradually returned to the offices, repopulating the ECB's buildings. Occupancy of these buildings had been very low throughout the pandemic years, as staff had been asked to work from home to help slow the spread of COVID-19. The gradual withdrawal of pandemic-related restrictions led to an increase in the take-up of all services offered onsite, ranging from meals served in the ECB's staff restaurants to cleaning services. In addition, travel activities resumed after having been on hold for almost two years. These included business trips not only by ECB staff but also by external colleagues travelling to the ECB for meetings and conferences. In order to manage the associated emissions and mitigate the rebound of emissions to pre-pandemic levels, various environmental objectives and measures were put in place under the latest Environmental Management Programme, such as the restriction of business travel-related emissions to 60% of 2019 levels.

Fostering collaboration and engagement remained a guiding principle of our strategic environmental work, both within and outside the ECB. The ECB reaffirmed its commitment to the environment by increasing its internal and external communication. Within the organisation, this included running an environmental competition and staging an awareness-raising campaign on sustainable mobility. At the same time, the ECB deepened its valuable channels of exchange with other official institutions.

Looking to the future, we will continue to honour our commitments to stepping up our sustainability and climate protection efforts. Together with all staff members, I am looking forward to the road ahead as we strive to meet the goals of the Paris Agreement and the European Union's climate neutrality objectives. Along the way, we will continuously monitor and adjust our actions to ensure that we stay on track by achieving our intermediate targets.

Luis de Guindos
Vice-President of the European Central Bank

1 The year in figures

Figure 1
2022 highlights

 Switch to biogas from natural gas for heating in the Eurotower	 Introduction of additional energy-saving measures	 Launch of additional internal quarterly reporting of relevant carbon footprint shares to better monitor and steer environmental performance	 Launch of “Road to Paris” awareness-raising campaign: an innovative competition among business areas to stimulate environmentally conscious behaviours
 Introduction of meat-free day in staff restaurants			 Conversion of almost 2,000m ² of lawn into additional wildflower meadows at the Main Building
 Removal of 100 (~30%) physical on-floor office printers from all ECB buildings	 Introduction of aqueous ozone for disinfection of surfaces		 Launch of in-house print centre and introduction of QR codes on permanent and digital business cards respectively

Source: ECB.

Figure 2
2022 in figures

(2022 figures and percentage changes from 2021 to 2022 and from 2019 to 2022)

	2022	% change compared with 2021	% change compared with 2019
 Energy consumption in premises (electricity, heating and cooling)	50,447 MWh	-6.7%	-18.0%
 Electrical energy consumption	30,330 MWh	+3.3%	-13.7%
 Heating and cooling energy consumption	20,117 MWh	-18.6%	-23.8%
 Total renewable energy	32,483 MWh	+7.6%	-7.8%
 Fresh water consumption	59,396 m³	+20.6%	-47.7%
 Waste	525 tonnes	+50.3%	-44.5%
 Chemicals for cleaning	8 tonnes	+201.6%	-46.6%

Source: ECB.

Note: Developments in environmental data by workplace in 2022 are included in [Chapter 5 – Technical information](#).

Further details on all these developments are provided in [Chapter 4 – Environmental aspects and impact of the ECB's activities](#).

2

Environmental management at the ECB

2.1

Organisational context



At the start of 2022, the COVID-19 pandemic continued to affect the daily operations of the ECB, as staff attendance at its premises was still impacted by travel restrictions, social distancing requirements and remote working practices. From May onwards, the restrictions and security requirements were gradually lifted, resulting in a larger number of ECB staff members returning to the offices or traveling for business compared with the previous years. To avoid a sharp increase in emissions following the pandemic, internal guidelines aimed at containing business travel emissions and limiting the environmental impact of travel by conference participants to the ECB had already been drawn up in 2021. Although business travel activities increased in 2022, leading to an expected rebound effect, the emissions resulting from business travel were still 64% lower than before the pandemic in 2019 (see [Chapter 3.2 - Indirect emissions](#) for more details).

Reducing emissions and contributing to combating climate change on an organisational level continues to be of major importance to the ECB. In the light of the European and German guidelines and regulations on energy efficiency, many measures were introduced to achieve additional energy savings as of summer 2022. Going forward, changes in the organisational environment, including associated opportunities and risks, as well as stakeholder expectations, will continue to be significant inputs in developing the ECB's environmental management system (EMS), including its objectives and measures.

Beyond the scope of the EMS, the ECB is committed to doing its part to address climate change through its activities to maintain price stability in the euro area and contribute to the safety and soundness of the European banking system, within its mandate. In 2021 the ECB established the climate change centre (CCC), which is responsible for designing and steering the ECB's strategy on climate and advancing climate-related work in collaboration with relevant internal and external stakeholders, including at Eurosystem level via the relevant committees and fora. In its role steering and coordinating work on climate change related issues, the CCC has developed the [ECB climate agenda](#), which contains the planned priority areas and actions, and has published this on its new external webpage on [Climate change and the ECB](#). The agenda focuses on the three main objectives that steer the ECB's work on climate change: managing and mitigating the financial risks associated with climate change and assessing its economic impact, promoting sustainable finance to support an orderly transition to a low-carbon economy, and sharing its expertise to foster wider changes in behaviour. The ECB's EMS contributes to this last objective

by reducing the organisation's own environmental impacts and being transparent about its environmental performance in the annual Environmental Statement.

The ECB reports yearly on its key work on climate in both the [ECB's Annual Report](#) and the [Annual Report on supervisory activities](#), in addition to the regular publications on its external website. In 2023, together with the Eurosystem central banks, the ECB has also published for the first time the climate-related financial disclosures of the Eurosystem's [corporate sector holdings for monetary policy purposes](#) and its [non-monetary policy portfolios](#).

2.2

Overview of the environmental management system



The ECB's Environmental Statement 2023 highlights the environmental data for the three buildings that fall within the scope of the EMS: the ECB's own main building, as well as the leased assets in the city centre of Frankfurt – the Eurotower and the Japan Center. Since 2018 the ECB has occupied all available office space in the three buildings.

As the buildings follow different construction standards and were built in different years, the data on the main building are reported separately from the aggregated data on the city centre premises to assess the environmental performance of the buildings.

For its EMS, the ECB follows the three-year reporting cycle of the European Union's Eco-Management and Audit Scheme (EMAS) standard. This year's Environmental Statement is the first update of the [ECB Environmental Statement 2022](#).

The ECB's environmental policy describes the ECB's commitment to protecting the environment and its strategic priorities for improving its environmental performance. Further information on the ECB's environmental policy and the governance of its EMS is available on its [website](#).

3 The ECB's carbon footprint

Objectives CO₂e emissions

Type of objective/timeline	Objective and status 2022
Long-term: 2030	Reduction of carbon footprint by 46.2% (relative to 2019 levels) by 2030, in line with the Paris Agreement objective (1.5°C) Status 2022: -57%
Short-term: 2024	Keep annual business travel-related carbon emissions within 60% of 2019 levels Status 2022: 36%
Short-term: 2024	Set a limit of 50% of ECB meetings with external conference and meeting participants to take place in person over a two-year cycle (2023-24) Status 2022: 36.1% physical meetings with external participants planned for 2023

Note: Developments in 2022 were still influenced by the pandemic and related developments, such as travel-related restrictions.

Measures CO₂e emissions

Measure	Status
Include specifications for an electric alternative in the next tender procedure for the shuttle service between ECB premises	The shuttle service was discontinued (due to low demand)
Switch from natural gas to biogas supply in all premises	Completed Biogas was introduced for heating in the Eurotower, which concluded the switch to biogas in all buildings formerly supplied with natural gas
Reduce emissions resulting from meetings of ESCB committees and substructure by limiting the number of physical meetings to a maximum of 50% of the planned meetings each year	In progress New rules were introduced targeting a 50% reduction in physical meetings of committees and substructures of the European System of Central Banks (ESCB). The environmental benefit from this reduction is to be observed over the next two years
Green the ECB car fleet by moving towards hybrid and electric vehicles and extending the vehicles' lifecycles	In progress Hybrid and electric cars were procured for the ECB car fleet in 2022. The extension of their lifecycle is planned
Introduce a meat-free day in the staff restaurants	Completed A meat-free day was introduced in all ECB staff restaurants in 2022
Reduce emissions from conferences, events and technical meetings hosted at the ECB via the implementation of guidelines for event organisers	In progress A sustainable events guideline was rolled out to staff and event organisers. As only a small number of events were hosted at the ECB in 2022
Improve collection of scope 3 data in collaboration with internal stakeholders and external service providers	Completed Relevant scope 3 data shares are collected via dedicated templates and automated calculations were implemented where feasible

Measure	Status
Assess opportunities to increase the frequency of internal environmental data reporting	Completed Relevant data shares of the carbon footprint are collected on a quarterly basis to better monitor and steer environmental performance
Shorten the food supply chain and increase regional diversity and plant-based options in meals offered in the staff restaurants	Pending
Re-introduce regular bicycle safety checks for staff	Completed Two bicycle check events were held in the city centre and three bicycle check events were conducted in the main building in 2022 and have been introduced into the regular cycle of events
Train the safety inspectors on environmental matters	Completed Environmental topics have been included in the scope of the regular safety walks as of 2022
Green the maintenance of the ECB car fleet by digitalising the administrative processes and investigating environmental opportunities for the fleet's maintenance and cleaning supplies	In progress Logbooks were digitalised via an app solution and exploration of fuel-charging cards is ongoing
Include specifications for greening externally provided transportation services	Pending
Set up working groups with frequent travellers to reduce business travel emissions	In progress Various exchanges have taken place with business areas with high business travel needs to explore further opportunities for greening business travel
Update travelling rules to favour train travel over air travel	Completed New business travel rules including mandatory train travel routes were rolled out to staff in January 2023
Include environmental and social impact assessment in the project assessment related to facility management and construction	Pending
Develop further analytical tools to support decision-making processes and facilitate the inclusion of environmental considerations in facility management projects	Pending
Consider possibilities of and technologies for adjusting building operation to building occupation rates in response to new working patterns in the future	Pending
Contribute to the hybrid working model by exploring solutions for workplaces, meeting rooms, and videoconferencing tools	In progress Continuous improvements are ongoing to further facilitate hybrid meetings with improved hardware being rolled out
Consider integrating sustainability impact considerations into proposals submitted to decision-making bodies	In progress Work has started on developing internal frameworks for more systematic integration of environmental considerations

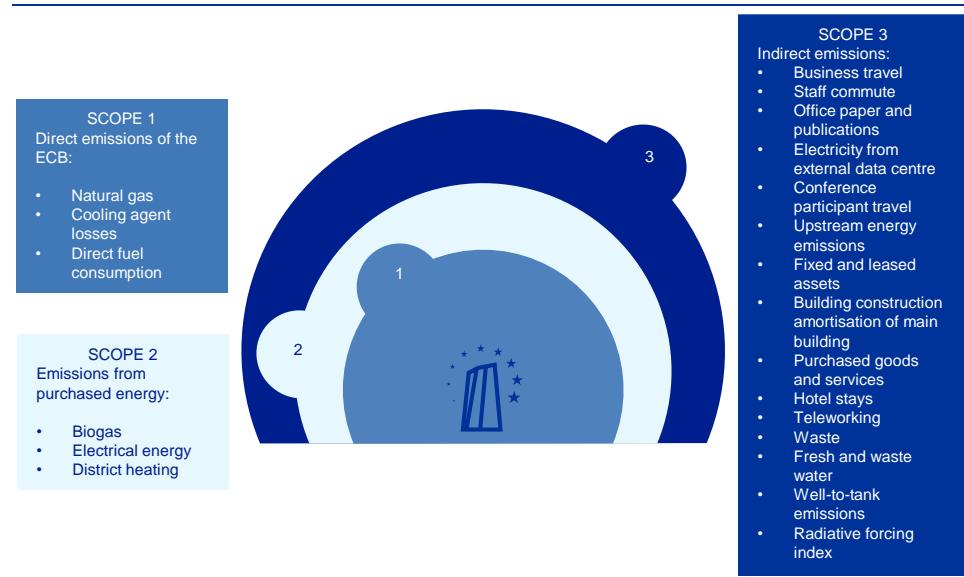
Note: "Completed" = measure completed; "In progress" = measure in progress; "Pending" = measure still to be implemented.



Overview CO₂e emissions at the ECB

The ECB's carbon emissions are calculated in alignment with the Greenhouse Gas Protocol framework, according to which direct and indirect emissions are allocated to scopes 1, 2 and 3. The carbon footprint boundary remains unchanged compared to the [ECB's previous Environmental Statement](#) following a considerable scope 3 extension exercise in 2021. The components of the ECB's current carbon footprint are shown in Figure 3.

Figure 3
Components of the ECB's carbon footprint



Source: ECB.

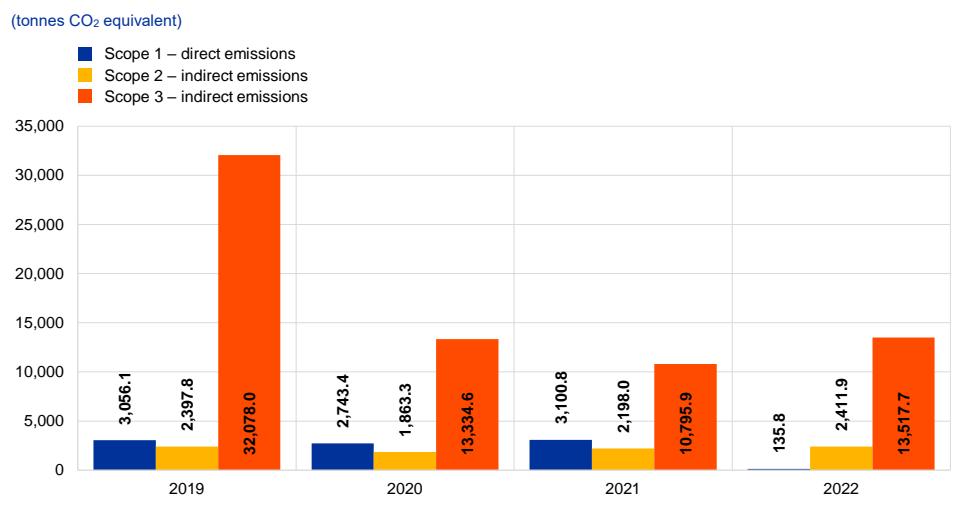
In 2022 total emissions remained relatively stable compared with 2021 (Chart 1). However, significant changes were observed in the individual scopes. Scope 1 emissions have decreased considerably since the heating source in the Eurotower was changed from natural gas to biogas. This is reported under scope 2 in line with the Greenhouse Gas Protocol framework.

Compared with 2021, scope 2 emissions increased by 9.7% owing to increased occupancy of the buildings as staff returned to their offices in 2022 and the related increase in district heating. This increase in scope 2 emissions was partly offset by energy-saving measures implemented as of 1 September 2022 in line with the German government's short-term energy-saving ordinances.¹ Scope 3 emissions increased by 25.2% compared with 2021 owing to increases in business travel and travel by conference participants to the ECB following the end of pandemic restrictions. However, the level of scope 3 emissions is still well below pre-pandemic levels. Overall, the ECB's reported emissions decreased by 0.2% between 2021 and 2022.

¹ As of 1 September 2022, the [German government published its energy conservation ordinances](#) to support the European Commission's [Gas Demand Reduction Plan](#).

Chart 1

Total CO₂e emissions – scopes 1, 2 and 3



Source: ECB.

Note: Scope 3 values were adjusted from 13,334.5 to 13,334.6 tonnes CO₂e for 2020 and from 10,724.4 to 10,795.9 tonnes CO₂e for 2021 due to updates of the database.

While avoiding emissions and reducing the carbon footprint remain the ECB's key priorities, as a remedial measure the ECB also offsets its unavoidable emissions. The ECB has been purchasing Gold Standard and Verified Carbon Standard-certified carbon credits to offset its reported greenhouse gas emissions since 2018. The chosen carbon credits contribute to sustainable projects worldwide. In 2022 the credits purchased to offset the 2021 residual carbon footprint supported the installation of boreholes to ensure access to clean drinking water, thereby contributing to improving the health and well-being of local communities. It also supported a project to give access to clean and affordable energy through the regional development of a windfarm. To continue this practice, the ECB is currently preparing a public procurement process to compensate for its residual carbon emissions from 2022.

Emissions from certain goods and services purchased by the ECB are already compensated by the suppliers and service providers themselves, for example part of the purchased office paper and upstream emissions from train travel within Germany that are covered by the related certificate². From 2022, and retrospectively to 2019, emissions from the compensated office paper are accounted for within scope 3 and additionally displayed outside the scopes.

[Chapter 5 – Technical information](#) provides more information on the relevant data.

² Under the Deutsche Bahn certificate, direct emissions are covered by the use of renewable energy certificates and therefore accounted as zero, while upstream (well-to-tank) emissions are 100% compensated. Owing to a lack of data on the upstream energy consumption per km and the related emission factors, these emissions are currently not accounted for under scope 3 emissions.

3.1

Emissions related to the operation of ECB premises

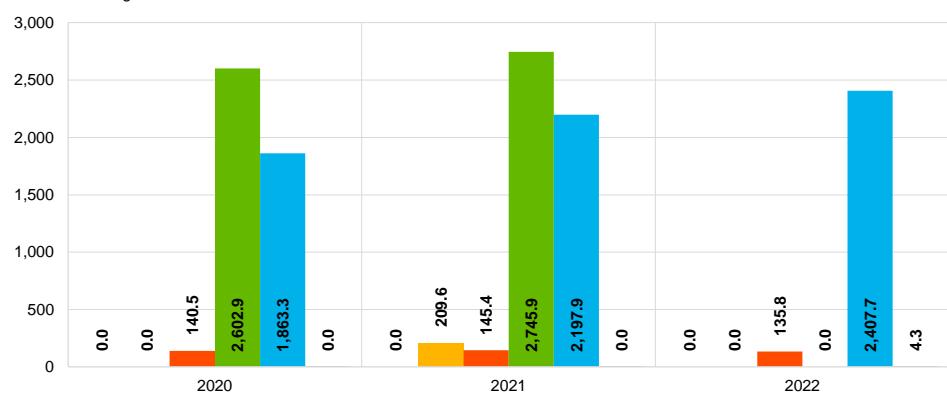
Direct emissions (scope 1) and indirect emissions from purchased energy (scope 2) associated directly with the operation of the ECB's premises arise mainly from heating and cooling energy consumption and fuel use. In 2022 these emissions accounted for 15.9% of the ECB's total carbon footprint. Upstream emissions from all energy sources are reported under scope 3 and described in [Chapter 3.2 – Indirect emissions](#). Electricity consumption-related emissions (included under scope 2) are accounted for as zero under the market-based approach, as the ECB has been using 100% renewable energy sources for its buildings since 2016. However, improving energy efficiency and reducing energy consumption remain main targets of the ECB's EMS.

Chart 2

CO₂e emissions – scopes 1 and 2

(tonnes of CO₂ equivalent)

- Electrical energy consumption (100% renewable)
- Cooling agent losses
- Fuels
- Natural gas
- Heating and cooling
- Biogas



Source: ECB.

3.2

Indirect emissions

Indirect emissions (scope 3) accounted for a total of 84.1% of the ECB's carbon footprint in the reported year. [Chapter 4 – Environmental aspects and impacts of the ECB's activities](#) describes the specific changes in scope 3 emissions in 2022.

Business travel and hotel stays

From May 2022 pandemic-related restrictions on business travel were gradually lifted. As a result, emissions from hotel stays and business travel increased more than tenfold in 2022 compared with the previous year but remained well below 2019 levels. This development risks causing a sharp increase in CO₂e emissions from business travel in the future compared with the years affected by the pandemic. To

avoid a rebound effect in emissions, the ECB has set a target to limit annual travel-related CO₂e emissions to a maximum of 60% of 2019 levels between 2022 and 2024. In 2022 business travel emissions reached 35.8% of 2019 levels. The sharp increase in emissions from business travel highlights the importance of closely monitoring this trend and the need to set ambitious targets early on in order to achieve a permanent reduction in business travel emissions.

Emissions from business travel include Well-To-Tank (WTT) emissions³ for all fossil fuel-based transport and considers the Radiative Forcing Index (RFI) factor for air travel.⁴ The ECB follows a best practice approach by measuring both RFI and WTT emissions to provide a broad overview of the environmental impact of its travel emissions. This category also includes emissions from hotel stays. For more information, see [Chapter 4.9 – Travel](#).

Travel by conference participants

The ECB's carbon footprint also includes emissions from travel by participants to conferences and events held at the ECB premises. To calculate these emissions, the RFI-factor for air travel and WTT emissions for fuel-based transport options are taken into account. Although it is likely that delegates' business travel is double-counted, and despite the ECB's low influence on the means of travel used by external delegates, it was decided to include these emissions in the carbon footprint during the scope 3 extension exercise in 2021. It is acknowledged that calculating these emissions requires making a large number of estimations and assumptions owing to data quality issues. However, the ECB monitors these emissions and is aiming to contain rebound effects following the lifting of pandemic-related restrictions by upholding its objective to limit the number of conferences and meetings held at the ECB with external conference participants to 50% of total events. [Chapter 4.9 – Travel](#) describes developments in 2022.

Staff commuting and teleworking

Most ECB staff worked remotely in 2020, 2021 and partly in 2022 owing to the pandemic. This meant that a portion of energy consumption was shifted from ECB premises to staff homes. The ECB therefore decided to include emissions from teleworking in its carbon footprint boundary under the category "Emissions from staff commuting". In 2021 the ECB conducted its biennial detailed staff survey to assess emissions stemming from teleworking and commuting. In 2022 this data was complemented with occupancy rates for the buildings, and other factors were used to

³ Well-to-tank emissions are upstream emissions stemming from the production, processing and delivery of fuels.

⁴ In relation to air travel, radiative forcing is defined as "[...] the sum of all forcings, including direct emissions (e.g. CO₂, soot) and indirect atmospheric responses (e.g. CH₄, O₃, sulfate, contrails)" and as such, the radiative forcing index (RFI) is "[...] a measure of the importance of aircraft-induced climate change other than that from the release of fossil carbon alone." (Source: IPCC: "Aviation and the Global Atmosphere", <https://archive.ipcc.ch/ipccreports/sres/aviation/index.php?idp=71>, last accessed 17/04/2023, 16:13)

enhance calculations of teleworking emissions. The survey included emissions from energy consumption for office equipment, lighting, heating and cooling. In addition, the survey provided information on changes in emissions from employee commuting during the pandemic. Based on the survey responses, emissions for teleworking amounted to 631.1 tonnes CO₂e in 2022, a decrease of 37.1% compared with 2021. Emissions from commuting amounted to 1,134.0 tonnes CO₂e in 2022 representing a decrease of 11.5% compared with the previous year. However, it is important to note that the conclusions and magnitude of environmental impacts associated with commuting and teleworking should be interpreted with caution owing to the inherent limitations and necessary underlying assumptions of a survey-based approach. Further information on the survey approach is available in [Chapter 4.9 – Travel](#).

Waste

Between 2019 and 2022 the ECB continuously reduced emissions from the disposal of waste on its premises. However, as more staff returned to working on-site in the course of 2022, emissions from waste disposal rose by 39.8% compared with the previous year. More detailed information can be found in [Chapter 4.5 – Waste and recycling](#).

Purchased goods and services

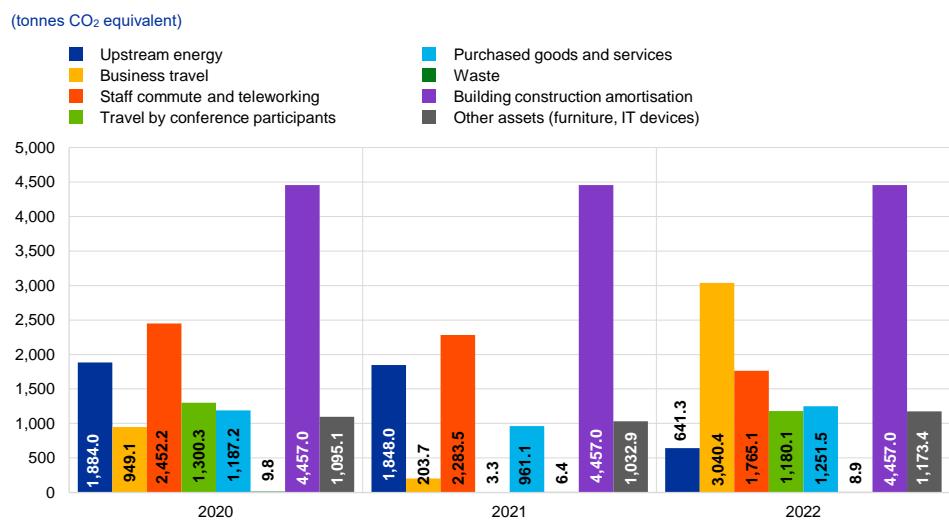
This category includes the following emission sources: catering and cleaning services, external printing services, information and communications technology (ICT) services, gardening services, office supplies and stationery, paper consumption for office purposes, ECB publications and other paper items, electricity consumption at the external data centre, and fresh and waste water.

Emissions from catering services are calculated based on the lifecycle emissions of the ingredients, taking into account aspects such as transport. Gardening services emissions are estimated based on fuel consumption during gardening activities. Emissions from printing services include electricity consumption and paper-related emissions. Owing to a lack of available consumption data, the ECB reports on emissions from office supplies and stationery as well as emissions from cleaning services based on value-based emission factors. Emissions from ICT services are calculated based on the duration of videoconferences conducted by ECB staff.

Overall, emissions from purchased goods and services represented 9.3% of total scope 3 emissions in 2022. As staff returned to the offices and on-site service activities picked up, emissions from purchased goods and services increased by 30.2% from 2021 to 2022. Emissions from fresh and waste water steadily decreased between 2019 and 2021. However, this trend was interrupted in 2022, when higher building occupancy led to an increase of 25.1% compared with the previous year. Further information can be found in [Chapter 4.3 – Material efficiency](#) and [Chapter 4.4 – Water and waste water](#).

Chart 3

CO₂e emissions – scope 3

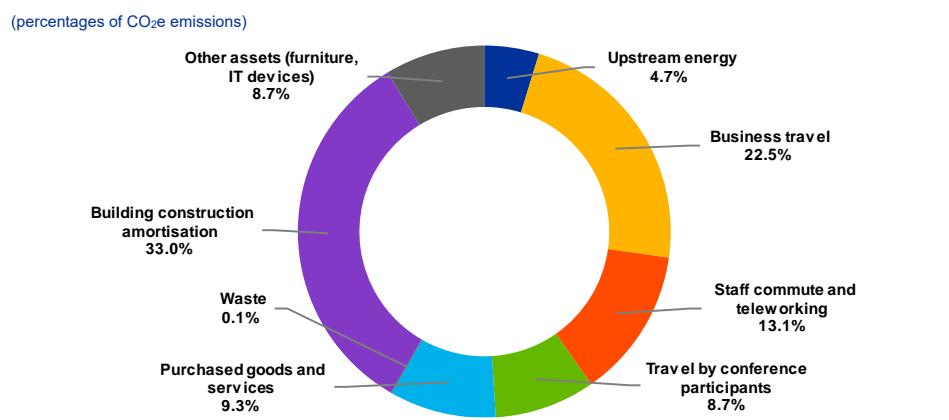


Source: ECB.

Notes: Business travel includes emissions from business-related trips by bus, train or plane and hotel stays. Emissions from purchased goods and services were adjusted for 2020 from 1,187.1 tonnes CO₂e to 1,187.2 tonnes CO₂e and for 2021 from 945.3 tonnes CO₂e to 961.1 tonnes CO₂e. For 2021 waste emissions were adjusted from 8.7 tonnes CO₂e to 6.4 tonnes CO₂e, and emissions from other assets from 974.9 tonnes CO₂e to 1,032.9 tonnes CO₂e. These changes were necessary owing to updates of the database.

Chart 4

Breakdown of scope 3 emissions



Source: ECB.

Beyond CO₂e emissions, the ECB keeps track of and reports on other emissions produced as a result of its activities. These encompass the quantities of sulphur dioxide (SO₂), nitrogen oxides (NO_X) and particulate matter (PM) released by the ECB's vehicle fleet and emergency power unit test runs. In alignment with the requirements of the Greenhouse Gas Protocol, the ECB now also accounts for biogenic emissions⁵ outside of scopes 1, 2 and 3 in relation to its biogas consumption. [Chapter 5 – Technical information](#) provides more information on the relevant data.

⁵ Biogenic emissions are CO₂ emissions arising from biomass combustion and are tracked separately from fossil CO₂e emissions.

4 Environmental aspects and the impact of the ECB's activities

4.1 Update of the environmental aspects assessment

The ECB assesses direct and indirect environmental aspects based on its ability to influence the aspects and their significance for the ECB's environmental performance. Compared with previous years, the impact of the COVID-19 pandemic on the ECB's operations decreased throughout 2022. However, it has had a long-term impact on the ECB's way of working. A new teleworking policy has been established, which increased recurrent staff presence on-site to a minimum of 110 office days per year. To limit the resurgence of emissions and environmental impacts from business travel and conference participants travelling to the ECB following the gradual lifting of pandemic-related mobility restrictions, applicable measures and goals have been set in the Environmental Management Programme (for more details, see [Chapter 3 – The ECB's carbon footprint](#)).

The energy-saving measures implemented in line with the short-term energy-saving regulation by the German government led to significantly lower energy consumption of the ECB's premises. Overall, there were no drastic changes to the environmental aspects, as most developments, for example teleworking and business travel emissions, were impacted by effects related to social distancing regulations.

Figure 4
Assessment of the ECB's direct environmental aspects

	Main building	City centre	All sites
Significance	HIGH (A)	MEDIUM (B)	LOW (C)
	Ability to influence		
HIGH (A)	Electricity Technical water (evaporation and air conditioning) Total CO ₂ emissions resulting from heating and cooling	Fresh water Electricity Heating and cooling	Heating and cooling
MEDIUM (B)	Total CO ₂ emissions resulting from heating and cooling Emissions from cooling agent losses	Fresh water Technical water (evaporation and air conditioning) Non-hazardous waste Hazardous substances and cleaning materials used by contractors	
LOW (C)	Waste water (direct discharge) Total CO ₂ emissions resulting from electricity consumption	Recycled paper Publications Hazardous waste	White paper Emissions from cooling agent losses

Source: ECB.

Notes: There were no cooling agent losses in 2022 in the city centre premises or in the main building. This is why the environmental significance in the city centre decreased from A to B. In addition, drip pans were installed in the Eurotower to detect future losses at an earlier stage and the number of cooling machine inspections conducted throughout the calendar year was increased. The ability to influence of heating and cooling measures was changed from II to I in the main building and from III to II in the city centre since decreasing the office temperature led to high energy savings. The significance of total CO₂e emissions from heating and cooling in the city centre was changed from A to B as a result of the switch from natural gas to biogas.

Figure 5
Assessment of the ECB's indirect environmental aspects

		Main building	City centre	All sites
Significance	HIGH (A)	 Environmental performance of technical maintenance companies	 Integration of employees into the EMS	
MEDIUM (B)		 Green procurement related to environmental performance of cleaning companies  Green procurement related to environmental performance of goods and services  Total CO ₂ emissions from business travel - air  Total CO ₂ emissions from conference participant travel  Environmental performance of catering companies		
LOW (C)	 Biodiversity  Total CO ₂ emissions from teleworking  Environmental performance of other service providers	 Total CO ₂ emissions from business travel - road  Total CO ₂ emissions from business travel - rail  Emissions from staff commute to the ECB's premises		
	Ability to influence	LOW (III)	MEDIUM (II)	HIGH (I)

Source: ECB.

Notes: Total CO₂e emissions from business travel: air travel increased from 2021 to 2022 and nearly reached the level of emissions in 2020. This is why the significance of business travel by air was increased from C to B. Conference participant travel emissions rose owing to an increase in in-person conferences with external counterparts, which led to the change in the ranking from C to B. Owing to the decrease in the environmental impact from teleworking emissions, the significance was changed from B to C. The significance of the environmental performance of catering companies was increased from C to B because the number of meals served grew as more staff members returned to working on-site.

4.2

Energy efficiency



Objectives Energy efficiency

Type of objective/timeline	Objective and status in 2022
Short-term: 2023	Reduce electricity consumption at the main building by 3% (baseline 2018) Status 2022: -12.1%
Long-term: 2030	Optimise energy consumption of ECB premises, reducing total energy consumption per workplace by 20% (baseline 2018) Status 2022: -22.4%
Ongoing:	Maintain 100% renewable electricity in all owned and rented premises and in the external data centre Status 2022: 100%

Note: The 2022 status is influenced by energy-saving measures implemented to contribute to Germany's energy-saving efforts.



Measures Energy efficiency

Measure	Status
Evaluate adherence to the European Code of Conduct on Data Centre Energy Efficiency (ECA ¹ recommendation)	In progress The ECB's assessment against and adherence to the European Code of Conduct on Data Centre Energy Efficiency will be evaluated as part of the work programme 2022-24 of the ECB's Directorate General Information Systems.
Conduct lighting assessments to evaluate lighting needs and technical set-up	In progress LEDs are continuously being exchanged where feasible and applicable following ongoing assessments of the lifecycle of the current lights.
Gradually replace lights with LEDs in the main building	In progress Replacement is ongoing and will be considered on the basis of the above lighting assessment.
Further expand and optimise data collection and analysis of energy consumption from the data centres at the main building	In progress An energy dashboard with real-time and weather-adjusted energy consumption data has been established with an additional forecasting feature.
Provide a training video for staff on safe charging of e-vehicles	In progress A training video is currently being developed.
Evaluate the ability to measure the environmental impact of cloud services from different providers and explore market best practices	In progress First reports including various environmental performance indicators have been received. Work on establishing alignment and regular reporting is planned in the coming years.
Permanent decommissioning of non-essential technical installations in the main building after the pandemic	In progress A water feature installation has been permanently shut down after a period of non-use due to low occupation levels of the building.

<p>Test and roll-out improvements to temperature control processes in the high-rise sections of the main building</p>	<p>In progress Energy efficiency measures were introduced widely across the ECB buildings in response to the European and German guidelines and regulations on energy efficiency. Long-term energy-saving measures are being monitored and a decision on permanent implementation is being assessed.</p>
<p>Support the ECB Unified Communication and Collaboration (EUCC) project by rolling out new telephone systems and developing environmentally efficient policies</p>	<p>In progress The removal of desk phones has been scheduled for the end of 2023 and related virtual applications have been expanded to replace them.</p>

Note: Completed = measure completed; in progress = measure in progress; pending = measure still to be implemented.
1) European Court of Auditors.



Overview Energy efficiency at the ECB

Energy consumption at the ECB's buildings decreased by 6.7% in 2022 compared with the previous year and was 18% lower than in 2019. Although staff have returned to the premises, it has still been possible to lower energy consumption. This is due to the energy-saving measures implemented in line with the German federal government's energy-saving regulation. However, the ECB recognises that part of the energy consumption remains deferred to staff homes as a result of teleworking.

To further reduce energy consumption on the ECB's premises, several energy efficiency measures were implemented, such as lowering set heating points in offices and extending the automatic lighting switch-off schedule during the night and at weekends. In addition, the ECB is striving to identify further potential savings by participating in a local energy efficiency network and took part in alignment exchanges on energy-saving measures at the Eurosystem level.

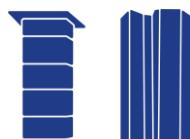
The ECB recognises that changes in working environments and modalities affect environmental aspects and is thus continuously exploring the need to adjust its approach accordingly. For example, with regard to the environmental impact of cloud services, the ECB is currently evaluating its ability to measure this effect and explore market best practices.



Compared with the previous year, in 2022 the use of electrical energy increased by 3.5%, while heating and cooling energy consumption decreased by 17.9%. Owing to the rising number of employees working on-site, in line with expectations, the amount of biogas used for cooking in the main building's kitchen increased by 76.1% compared with 2021. In 2022 the ECB's canteen returned to a pick-and-weigh

system to avoid food waste, allowing staff to decide on portion sizes. As a result, it is no longer possible to report on the number of meals provided.

In previous years, an energy consumption dashboard was developed to track weather-adjusted energy consumption at the main building in real-time and based on an additional forecasting feature, to steer building management accordingly. In 2022 this dashboard was used to great advantage to track the savings achieved through energy-saving measures such as the reduction in office temperatures.



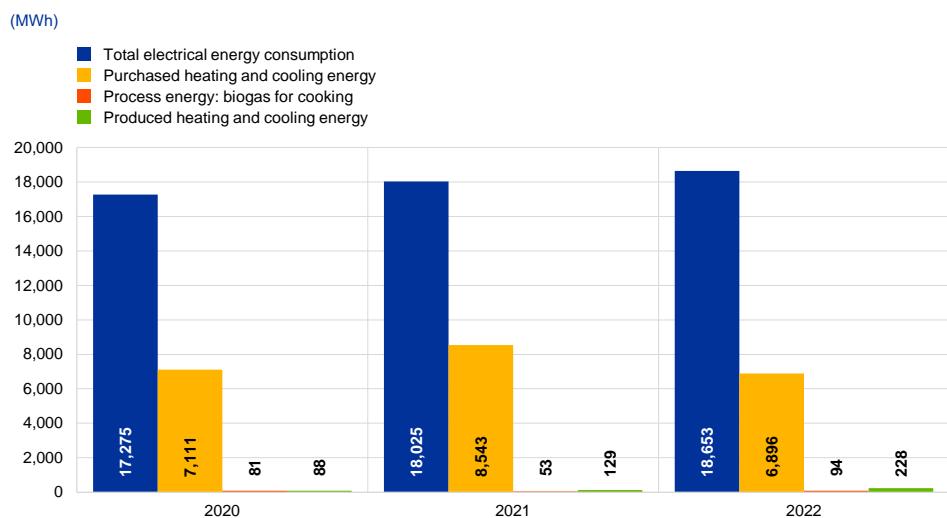
In the city centre premises, electrical energy consumption increased by 3.1% compared with 2021. By contrast, energy consumption for heating and cooling decreased by 19%.

In 2022 the heating source in the Eurotower was changed from natural gas to biogas. The consumption of biogas decreased by 20.08% compared with the natural gas consumption used for heating in 2021 as a result of the energy conservation measures. In the Eurotower, two cogeneration plants generate heat and electrical energy by means of biogas (formerly natural gas) through which the amount of purchased energy is reduced.

The consumption of district heating also fell by 15.8% in the Japan Center compared with the previous year. By contrast, electricity consumption remained relatively stable and increased slightly by 1.2%. Energy measures such as the gradual replacement of lighting with LEDs are implemented to continuously increase energy efficiency. Also, three cooling machines were replaced by more energy-efficient models in 2022 and a fourth cooling machine was installed in January 2023. This is expected to lead to a significant decrease in energy consumption for cooling.

Chart 5

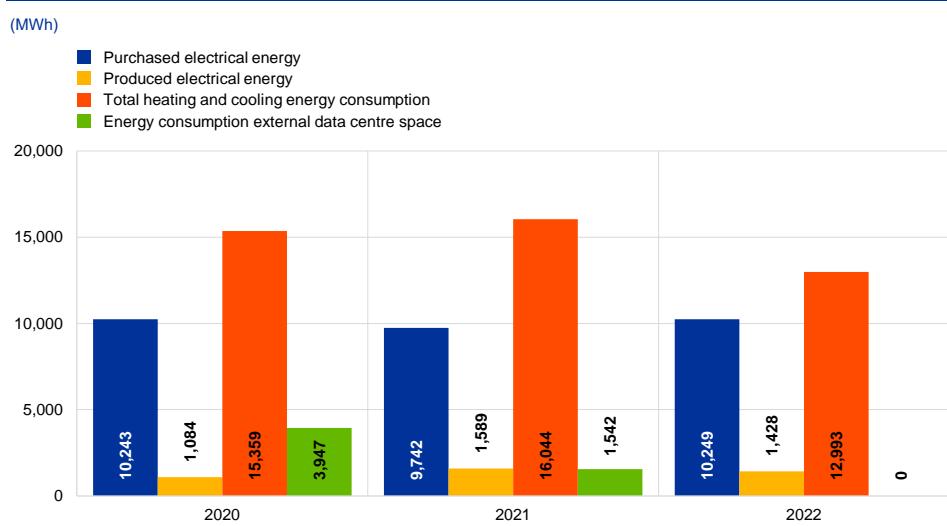
Energy consumption – main building



Source: ECB.

Chart 6

Energy consumption – city centre buildings



Source: ECB.

For more information on greenhouse gas emissions associated with energy consumption, see [Chapter 3.1 – Emissions related to the operation of ECB premises](#).

4.3

Material efficiency

Objectives Material efficiency

Type of objective/timeline	Objective and status 2022
Short-term: 2023	Increase eco-friendly stationery to 42% of all stationery (baseline: 2018) Status 2022: 38%
Short-term: 2024	Phase-out all disposable plastic items in catering outlets and kitchen operations Status 2022: In progress

Measures Material efficiency

Measure	Status
Request electronic learning materials in training tenders to reduce paper consumption	Completed This was implemented through tenders for training needs in 2022. Most training courses are now being conducted online.
Promote possibilities to unsubscribe from unnecessary physical mail and newsletters	Completed The Mail Services team conducted a successful exercise to encourage unsubscribing from physical newsletters. Additionally, a dedicated Intranet page was set up to raise awareness.
Launch green printing centre tender procedure for printing on-site	Completed A new print centre with various environmental features such as on-demand printing (cease of minimum quantity orders) was established on-site.
Continue digital contract management beyond the pandemic	In progress With the successful roll-out of almost exclusive use of digital signatures, contracts continue to be managed virtually.
Continue paper-free training beyond the pandemic	In progress Paper-free training courses remain the standard practice at the ECB.
Continue monitoring the share of eco-friendly cleaning products and adjusting according to pandemic measures	Completed The return to exclusive microbiological cleaning agents was implemented and surface disinfection, if necessary, is conducted with environmentally friendly alternatives (aqueous ozone).
Switch to cleaning equipment made from recycled materials and improve eco-friendliness of technical equipment for cleaning	Completed Various types of equipment made from recycled materials are now in place such as the floor mats made from recycled plastic bottles and restroom dispensers made from recycled Tetra Paks.
Further reduce water usage in cleaning processes	Completed A floor-cleaning machine and a water tank that professionally purifies water for cleaning and can save up to 25,000 litres of water a year is in use.
Include environmental criteria relating to the reuse/recycling of furniture in the next tender procedure for furniture	Pending

Launch campaign for voluntary return of unused IT equipment	In progress Two successful campaigns on voluntary return of staff equipment and on-floor printing machines were conducted in 2022.
Whenever feasible, prioritise the repair and reuse of equipment in the context of facility management projects, maintenance and refurbishment, subject to cost considerations and urgency	In progress For refurbishments, the re-use of existing stock is the current priority.

Note: Completed = measure completed; in progress = measure in progress; pending = measure still to be implemented.

The ECB is continuously working towards its target to eliminate all single-use plastic items in customer-facing outlets and kitchen operations by 2024. Various measures to reduce packaging were successfully implemented in cooperation with the catering service, such as the elimination of single-use plastic take-away containers. The ECB continues to explore options to reduce individual packaging of food and cutlery. For example, in 2022 approximately 2,500 wooden stir sticks were saved by replacing them with steel coffee spoons in the staff restaurants and bistro in the main building. In the Japan Center and the Eurotower restaurants, disposable packaging made from sugar cane is less visible and must be requested by guests, while circular alternatives are offered in return for a deposit as first choice. A meat-free day per week was introduced in all staff restaurants, and vegan and vegetarian choices are offered more frequently and prominently. In order to raise awareness about the environmental impact of food choices, information on the carbon footprints of the meals is provided by means of signs next to the dishes. This measure has now been permanently implemented following a successful pilot project in 2021. In March 2022, as in previous years, the caterers also took part in the World Wildlife Fund's Earth Hour. In addition, an interactive exhibition on the carbon footprint of food was displayed in the main building in cooperation with the City of Frankfurt and the ECB's caterer from August to September 2022.

In 2022 the ECB also established an in-house print centre, improving the sustainability of its printing activities, for example by establishing an on-demand service reducing potential waste from larger orders that resulted from the minimum order requirements applying previously. QR-codes were introduced on permanent business cards to reduce the amount of paper business cards. Additionally, to reduce printing and related materials, 100 on-floor printers were removed from all three ECB buildings, representing about 30% of all on-floor printers.

The following sections describe in more detail the resource consumption arising from publications, office paper, cleaning agents, office supplies and chemicals for water treatment and cooling. Information on the associated CO₂e emissions can be found in [Chapter 3.2 – Indirect emissions](#) (subsection on purchased goods and services).

4.3.1

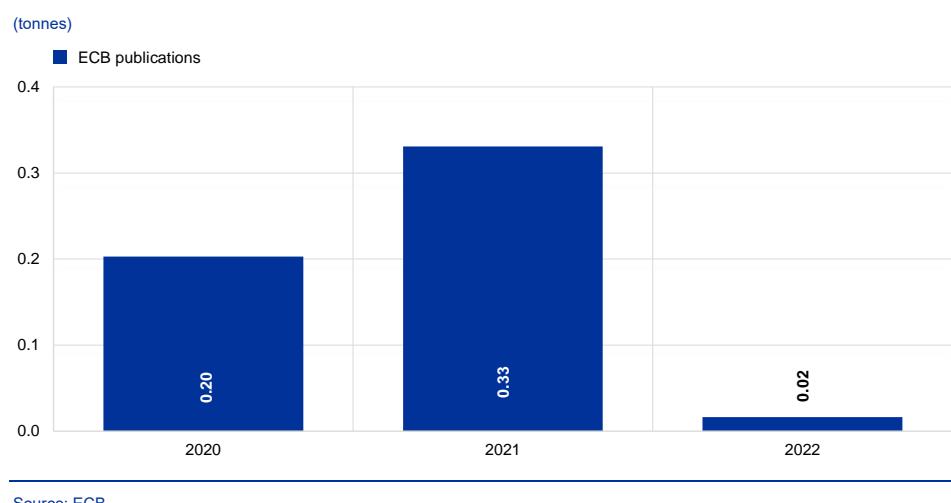
Publications



Paper consumption for official ECB publications fell by 0.31 tonnes in 2022, leading to a decrease of 95.0% compared with 2021. However, as illustrated in Chart 7,

paper consumption for ECB publications fluctuates, as it is determined by the volume of external communication campaigns. However, it is noteworthy that consumption in 2020, 2021 and 2022 remained well below one tonne, in contrast to the figures for former years.

Chart 7
Paper consumption for official publications



Source: ECB.

4.3.2 Office paper

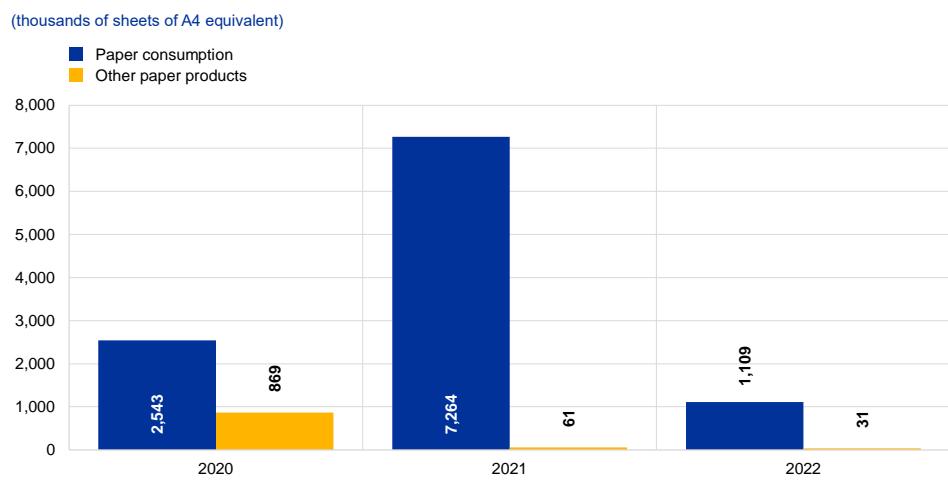


The ECB was able to improve its environmental impact by reducing office paper consumption by 84.7% compared with 2021. This sharp reduction stemmed from the increasing digitalisation of processes and digitisation of paper-based documentation. Compared with 2019, office paper consumption decreased by around 93.3%.

The share of recycled paper in the remaining paper consumption decreased. While it amounted to 99.3% in 2021, the share of recycled paper was only 3.5% in 2022. This development can be explained by the steep decline in paper consumption. Supply chain disruptions and price developments on the market also affected the availability of recycled paper. However, a corrective action plan has already been agreed upon to increase this share again.

Other paper products, mainly calendars, accounted for about 3% of the ECB's paper consumption. Except for A0 wall calendars, all print products have been produced on-site since the summer of 2022 in order to better control energy and resource consumption from printing activities.

Chart 8
Office paper consumption



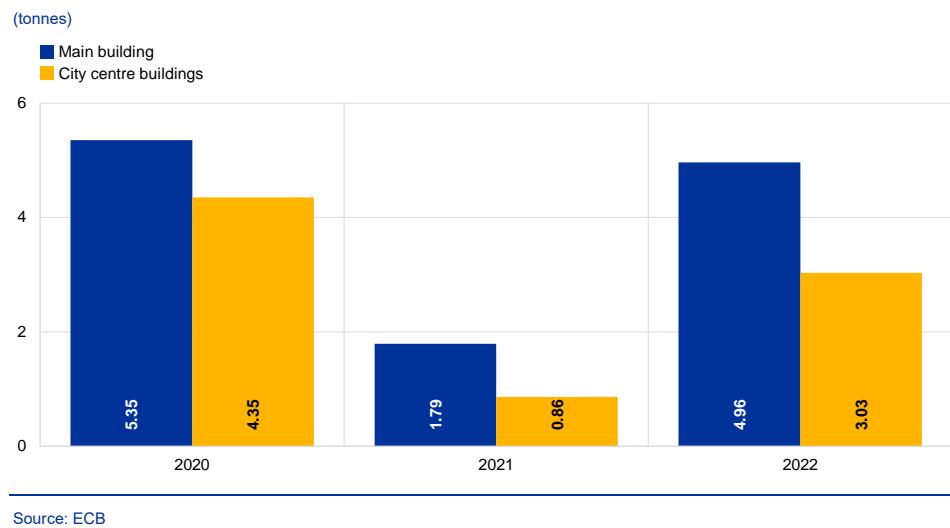
Source: ECB.

4.3.3 Cleaning agents



In 2022 the ECB used biodegradable, microbiological cleaning agents. In addition, surface disinfection was carried out using aqueous ozone. Overall, the consumption of cleaning agents in the main building and city centre buildings increased significantly compared with 2021 by around 177% and 253% respectively. This increase was driven by the need to clean more frequently owing to higher building occupancy. However, consumption decreased 40.9% and 53.9% respectively compared with 2019. The use of disinfectants also increased in comparison to 2021, but is lower than in 2020.

Chart 9
Cleaning agent consumption



Source: ECB

4.3.4 Office supplies



Environmental labels are illustrated in the ECB's stationery catalogue to steer staff towards making less environmentally impactful choices. In both 2021 and 2022, 38% of the stationery in the catalogue was labelled eco-friendly. Work is ongoing to further increase the share of eco-friendly stationery in the catalogue.

Staff members continue to have the possibility to return unused stationery and other office materials to the logistics storeroom so that these items can be re-used. A dedicated campaign was launched to limit an increase of stationary orders as staff returned to the offices and to make staff aware of the alternatives on offer. Subsequently, material efficiency topics were also included in the Road to Paris staff campaign. For further information, see [Chapter 4.10 – Communication, engagement and awareness-raising](#).

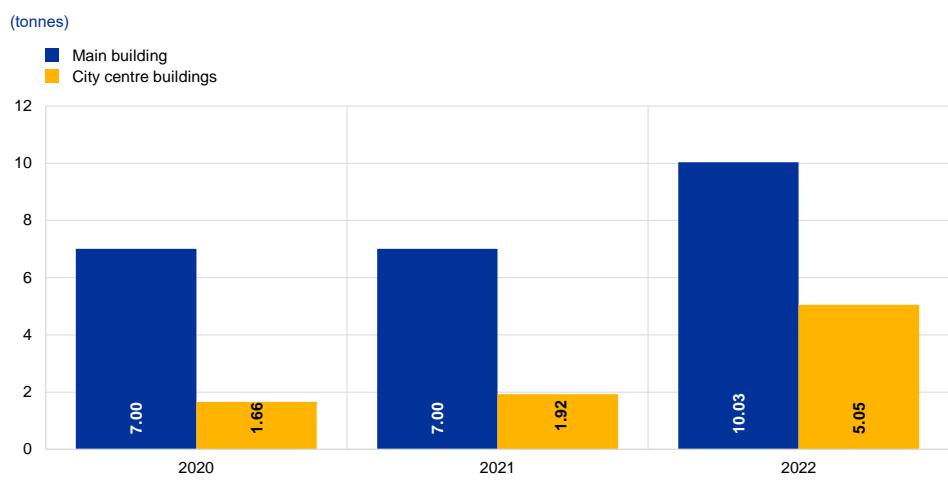
4.3.5 Chemicals for water treatment and cooling agents



Chemical consumption for water treatment, mainly consisting of salt for water softening, increased in 2022. While the increase in the main building was 43.2%, chemical consumption in the buildings in the city centre increased by more than 2.5 times (+163.0%), both as a consequence of higher building occupancy. In 2022 the

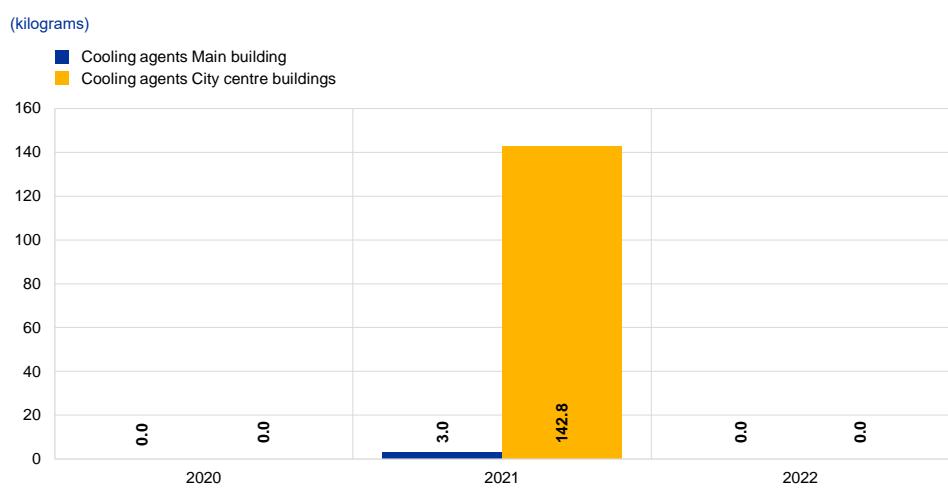
use of chemical substances for water treatment was in a similar range to that in 2019. Furthermore, no cooling agent losses were detected in any of the ECB's premises. However, efforts to prevent leakages were established in 2022 to prevent future losses and detect potential leakages in the Eurotower at an earlier stage.

Chart 10 Chemicals used for water treatment



Source: ECB.

Chart 11 Cooling agent losses



Source: ECB.

4.4 Water and waste water



Water consumption in the ECB's premises includes technical and non-technical water. Technical water is consumed by processes within the building for temperature control, whereas non-technical water consumption arises from kitchenettes, canteens and sanitary facilities. Non-technical water from the main building includes gardening water for the irrigation of trees. This effect needs to be considered when comparing the non-technical water consumption of the main building with that of the city centre premises.



Fresh water consumption in the main building increased by 41.4% in 2022 compared with 2021 owing to increased staff presence on-site. Technical water consumption increased by 179.0% and non-technical water consumption by 13.2%. A part of the non-technical water consumption arises from the maintenance of the green areas. For greenkeeping at the main building and for sanitary facilities on the lower floors, the ECB uses some of the rainwater collected on the roof of the Grossmarkthalle to reduce fresh water consumption. Despite the increase from 2021 to 2022, total fresh water consumption decreased 58.7% compared with 2019 as a result of several water-saving measures, such as irrigation bags for trees, and lawns were not watered during the summer months.

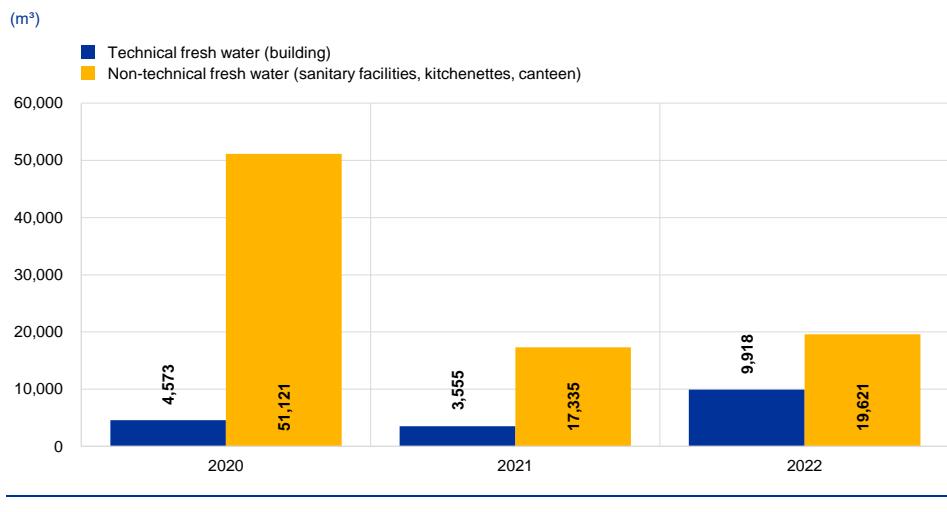


Compared with 2021, fresh water consumption at the city centre premises increased by 5.2%, whereas technical fresh water consumption decreased by 1.9% and non-technical fresh water increased by 8.3%. Total fresh water consumption at the city centre premises remained relatively stable throughout 2020 and 2021, but dropped by 29% compared with 2019.

See [Chapter 3.2 – Indirect emissions](#) (subsection on purchased goods and services) for more details on CO₂e emissions related to water and waste water.

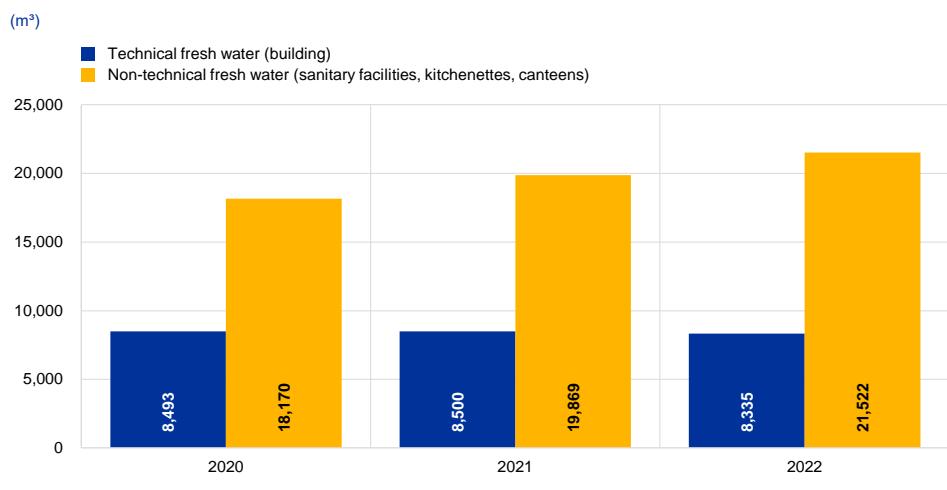


Chart 12
Water consumption – main building



Source: ECB.

Chart 13
Water consumption – city centre buildings



Source: ECB.

For more information on greenhouse gas emissions associated with water and waste water, see [Chapter 3.2 – Indirect emissions \(purchased goods and services section\)](#).

4.5 Waste and recycling



Objectives Waste

Type of objective/timeline	Objective and status 2022
Short-term: 2023	Reduce the amount of residual waste per workplace by 5% relative to 2018 Status 2022: -69%



Measures Waste

Measure	Status
Assess possibilities to further harmonise the separate collection of recyclable office waste across buildings	In progress It is planned to further upgrade the waste infrastructure in the Eurotower.
Assess opportunities to centralise the collection of the various types of office waste	In progress The main building and Japan Center waste collection set-up has been optimised. Further improvements in the Eurotower are planned.
Expand the separate collection of waste to include dedicated arrangements for used coffee grounds	In progress Separate collection of coffee grounds is already available in the main building and the Japan Center and implementation is planned for the Eurotower
Replace portioned coffee with coffee beans in the city centre premises and thus avoid unnecessary packaging waste	In progress Implemented in the main building and Japan Center. Implementation in the Eurotower is planned for 2024.
Pilot reusable FFP2 masks for staff working onsite	Completed So far, no solution has been identified that complies with hygiene requirements. Masks are no longer mandatory on-site, but available on request and stored for potential future events.
Offer waste training and/or awareness-raising activities for all suppliers	Completed A training course on waste was offered to service suppliers and interested colleagues in 2022. Additional awareness-raising communications specifically on waste were also organised.
Reduce packaging waste from stationery	In progress Various options to bundle orders and promoting these are being explored.
Introduce guidelines for waste disposal in contracts with external service providers	Pending
Rethink positioning and quantity of shared workplace bins	Pending
Launch waste separation training for staff	Completed A waste management training course was held for ECB staff and suppliers. Additionally, a waste separation game was included in an all-staff climate change and environmental management training to be launched in 2023.

Inform staff about waste management at the ECB and about waste sorting and zero-waste concepts at the home office

In progress
Dedicated and updated information on waste separation at the ECB and in Germany is provided to all newcomers, suppliers and staff. More communication activities are planned for the European Week for Waste Reduction 2023.

Completed = measure completed; in progress = measure in progress; pending = measure still to be implemented.



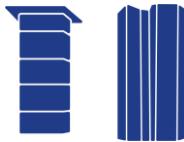
Overview Waste and recycling at the ECB

In order to reduce the environmental impact of waste generation, avoiding and reducing waste are among the ECB's environmental targets. To reach its target of obtaining a 5% reduction in residual waste per workplace in 2023 relative to 2018 levels, collaboration and awareness-raising measures among both staff and service providers were implemented in 2022.

Owing to higher building occupancy in 2022, waste amounts increased by 50.3% compared with 2021. Non-hazardous waste, which includes components such as plastic packaging, organic waste, residual waste, confidential paper waste, and paper and cardboard, accounted for 90.3% of total waste generation. Hazardous waste accounted for 9.7% of total waste generation, reaching 51 tonnes in absolute amounts. Hazardous waste includes the subsections electronic waste (4.2 tonnes) and other hazardous waste (46.8 tonnes), which mainly consists of batteries. In 2022 the ECB reduced its IT waste by participating in programmes targeting the re-use of IT equipment. In principle, furniture and technical equipment are re-used as far as possible.



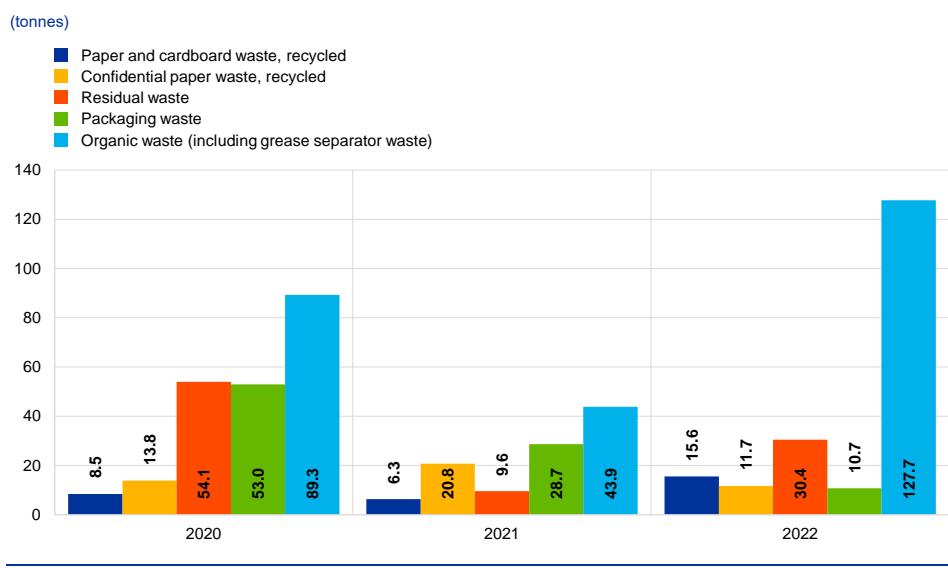
Total waste generation at the main building increased by 34.2% in 2022 in comparison to the previous reporting period. Notably, there was an increase in the volume of all categories of waste. This is because greater on-site staff presence resulted in higher consumption of packaged products at the ECB's premises. Organic waste, which also includes grease separator waste, increased drastically from 2021 to 2022. The increase of 81.4% reflects higher demand in the staff restaurants. However, the ECB decreased its total amount of waste from the main building by around 42.5% compared with 2019.



Waste generated at the city centre premises also increased by 85.1% in 2022 compared with 2021. However, changes in the individual waste categories varied greatly: waste from confidential paper and packaging decreased (-43.7% and -62.6% respectively), whereas paper and cardboard waste (+147.1%), residual waste (+217.7%) and organic waste including grease separator waste (+191.0%) increased. These increases are due to higher demand for services from kitchens and kitchenettes. Compared with 2019, the ECB decreased its total waste amounts generated at the city centre premises by 47.5%.

Chart 14

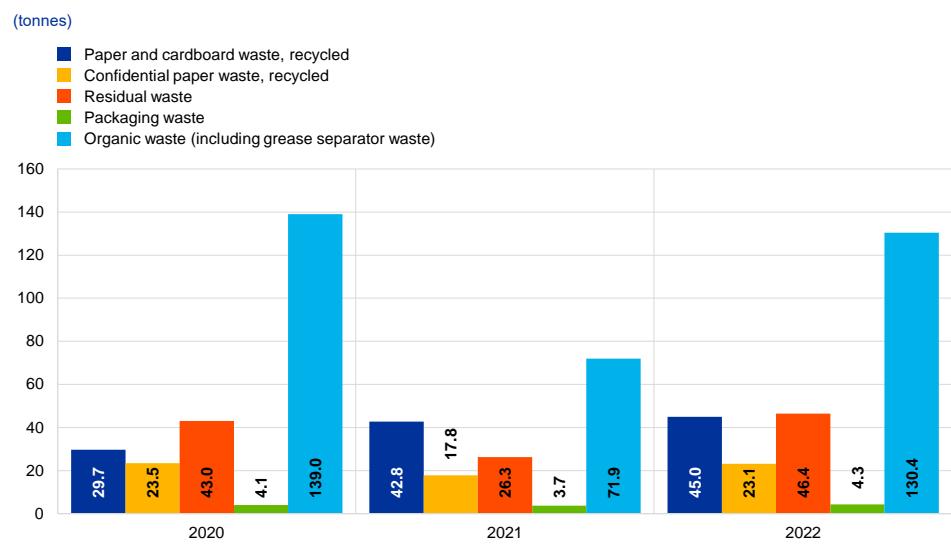
Waste and recycling – main building



Source: ECB.

Chart 15

Waste and recycling – city centre buildings



Source: ECB.

Note: For more information on greenhouse gas emissions associated with waste, see Chapter 3.2 – Indirect emissions.

Table 1
Breakdown of waste types in accordance with the German Commercial Waste Ordinance

	Commercial waste	Waste amounts in 2022 (tonnes)
ECB total	Organic waste	174.7
	Residual waste	76.81
	Paper waste	95.41
	Packaging waste	11.51
	Glass waste	5.19
	Bulky waste	0.87
	Aluminium cans and foils	1.32
	Tyres	0.01
	Packaging waste (wood)	5.91
Total waste in accordance with the Commercial Waste Ordinance	Total commercial waste	371.73

Notes: Waste amounts displayed in Table 1 partly differ from amounts displayed in Charts 14 and 15 owing to the different categorisation of waste under the Commercial Waste Ordinance: organic waste does not include grease separator waste; packaging waste does not include packaging waste disposed of via the German dual system "Der Grüne Punkt"; paper waste includes both paper and cardboard waste and confidential paper waste.

In 2022 total waste in accordance with the German Commercial Waste Ordinance amounted to 371.73 tonnes. As part of this, in 2022 separately collected commercial waste (i.e. excluding residual waste) amounted to 294.9 tonnes, representing 79% of total waste in accordance with the Commercial Waste Ordinance. The disposed residual waste is pre-sorted in a certified treatment plant.

4.6 Biodiversity



Objectives Biodiversity

Timeline	Objective and status 2022
Medium-term – by 2023	Evaluate possibilities to further foster biodiversity at the main building in close collaboration with the landscape architect and other relevant stakeholders Status 2022: In progress



Measures Biodiversity

Measure	Status
Launch a campaign about insect hotels at home and insect-friendly gardening	Pending
Expand general awareness-raising on biodiversity	In progress Guided walks in the garden of the ECB's main building restarted in 2022 to raise awareness about biodiversity. In addition, the ECB plans to host a biodiversity week in 2023 and create a nature trail.

Note: "Completed" = measure completed; "In progress" = measure in progress; "Pending" = measure still to be implemented.



Overview Biodiversity at the ECB

In the past few years, the ECB has advanced its efforts to further foster biodiversity on its premises. In 2022 an additional 2,000 m² of lawn were replanted as meadows with regional wildflowers and a separate meadow was developed (making a total of 23,490 m² of meadows planted in the gardens of the ECB's main building).

The ECB grounds provide a natural habitat for wild bees and other species living in the wildflower meadows, which are mowed only when all flowers have naturally reached the end of their life cycle. Special attention is also paid to protecting flowers and weeds in bloom when lawns need to be mowed.

Moreover, a transportable compost container for fallen leaves was introduced, which also provides a hiding place for various animals. In addition to the existing water collection system of the Grossmarkthalle, water is collected from the roofs of the dog kennels and used, for example, for watering the raised beds. Special water-retaining bags are placed around trees every year during the summer months to minimise water loss and ensure the numerous species on-site survive the increasingly dry summers.

Additionally, the seven herbs that make up the famous Frankfurt herb sauce “*Grie Soß*” (borage, chervil, garden cress, parsley, salad burnet, sorrel, and chives) are now cultivated and maintained in a raised bed. Two of these herbs, borage and chives, attract and provide nutrition for various insects.

Work is ongoing to create a nature and information trail. Information boards will be placed in front of individual trees, meadow species and the beehives. The information boards will provide general information to staff and visitors to the ECB’s main building on the species present and their environmental impact.

Various activities to raise staff awareness about the importance of biodiversity and its protection were conducted in 2022. ECB staff can join guided tours of the garden of the ECB’s main building and learn more about its design concept, history, and the role it plays as a natural habitat for numerous species of insects, animals, plants and trees.

The staff-led urban gardening project group continued its work in 2022. For example, ECB staff members built and planted two additional wooden beds for vegetables in the garden of the ECB’s main building as part of a team event.

In addition, to celebrate World Environment Day on 5 June 2022, the Green ECB team launched the Road to Paris campaign to accompany the journey to reach the ECB’s Paris-aligned objectives. As part of the campaign, staff members were challenged to reduce their own personal footprint, earn points and compete with their colleagues. Particular focus was placed on what the ECB is doing to foster biodiversity at its premises. Further information on the Road to Paris campaign is provided in [Chapter 4.10 – Communication, engagement and awareness-raising](#).

4.7 Banknotes



As part of the Eurosystem’s cash strategy, the ECB endeavours to improve the safety and sustainability of euro banknotes throughout the cash cycle.

The ECB and the national central banks (NCBs) of the Eurosystem have the exclusive right to authorise the issuance of banknotes within the euro area. At the end of 2022 there were 29.5 billion euro banknotes in circulation.

The ECB's Directorate Banknotes coordinates, monitors and regulates the design, production and circulation of euro banknotes. The ECB promotes good environmental management and seeks to avoid any risk to the health and safety of the general public, as well as to the workers involved in the production and circulation of euro banknotes. All manufacturers producing euro banknotes and the main raw materials must provide the ECB with copies of their ISO 9001, ISO 14001, ISO 45001 certificates and specific declarations showing that they conform to the applicable standards for quality, environmental, health and safety management, and ethical conduct of business. The Directorate Banknotes also monitors and assesses the environmental impact of the production processes.

Based on this assessment, the ECB and Eurosystem NCBs are implementing policies to further minimise the environmental impact of euro banknotes. For example, in 2022 approximately 85% of the 6,000 tonnes of cotton fibres used to produce euro banknote paper came from environmentally and socially sustainable sources. The ECB is firmly committed to increasing the amount of sustainable cotton in euro banknote paper to 100% by the end of 2023.

A series of research and development projects are being undertaken to improve the environmental sustainability of current and future euro banknotes by increasing their circulation lifetime and reducing the environmental impact of (i) the production of raw materials, and (ii) their end-of-life treatment. The ECB is engaging with all stakeholders to identify potential improvements and solutions as regards the environmental sustainability of euro banknotes throughout the cash cycle, including the eco-design of future euro banknotes.

Detailed information on the environmental impact of euro banknotes is available on the ECB's website in the section on "[The euro](#)".

4.8 Green public procurement



Objectives Green procurement

Timeline	Objective and status 2022
Medium-term – by 2024	Increase the number of green procurement procedures to at least 22.5% of total ECB procurement procedures as an average over the period 2022-24 Status 2022: 18%
Medium-term – by 2024	Increase the value of green procurement procedures to at least 25% of the total value of the above-mentioned procurement procedures as an average over the period 2022-24 Status 2022: 27%

Notes: The 2022 status only reflects figures for 2022 itself, rather than the three-year average. "Green procurement procedures" means procurement procedures that include environmental considerations (i) in the contract subject matter, (ii) in the technical specifications and requirements, (iii) through environmental selection and award criteria, (iv) by means of contract performance clauses, or (v) through a combination of (i) to (iv). "ECB procurement procedures" means public tender procedures, three/five-quote procedures and direct awards on the basis of Articles 2 and 6 of the [ECB's rules on procurement](#).



Measures Green procurement

Measure	Status
Regular revision of the sustainable procurement guidelines to include references to products and services covered by updates to the EU Green Public Procurement (GPP) Handbook and relevant criteria	In progress Work on the update started in 2022 and is scheduled for completion in 2023
Include advanced environmental and social criteria in the next tender procedure for cleaning providers	Completed Environmental and social criteria were included in the tender procedure for the new cleaning supplier. The tender procedure was launched in 2022 and is expected to close in 2023.
Maintain daytime cleaning on-site	Completed Daytime cleaning remained the default arrangement throughout 2022 and was included as a mandatory requirement in the tender procedure expected to close in 2023.
Include environmental requirements in the tender procedure for catering and implement related key performance indicators to monitor and steer suppliers' performance over time	Pending
Increase the percentage of ethically sourced ingredients in dishes in the staff restaurants	Pending
Organise a sustainable procurement open day to raise general awareness on sustainable procurement features, challenges, and opportunities	In progress Planning and preparation started in 2022. It is envisaged for the event to take place at the end of 2023.
Foster a wider use of sustainable procurement by continuing to explore and promote sustainable procurement opportunities in the procurement planning (MAPP) and individual procurement preparation phases, in cooperation with procuring business areas	Completed Green procurement opportunities were identified and reflected in the ECB's 2023-25 Multi-Annual Procurement Plan drawn up at the end of 2022.
Review and, if need be, update the ECB's procurement guidelines (procurement handbook and sustainable procurement guidelines), as well as procurement templates, in order to facilitate wider use of sustainable procurement practices across most procurement categories	In progress Work on the update started in 2022. Guidelines and templates to be revised by end-2023
Review and adapt procurement training products in order to place additional focus on empowering ECB staff to apply and strengthen sustainable procurement practices (i.e. green/social technical specifications, selection and award criteria, contract performance clauses, etc.)	In progress Planning and development of a dedicated sustainable procurement training module started in 2022 and is ongoing. Between two and three training courses are planned to take place by the end of 2023
Improve environmental and social aspects of temporary residences for ECB staff	Pending

Notes: "Completed" = measure completed; "In progress" = measure in progress; "Pending" = measure still to be implemented.



Overview Green procurement at the ECB

Procurement is of great relevance for the ECB's environmental management system, given the potential to steer the integration of sustainability aspects into procurement processes and specifications, as well as the ECB's value chain.

In 2022 the ECB conducted 307 new procurement procedures, of which 54 are considered to be “green procurement procedures”, in which environmental considerations were incorporated, for example in the procurement specifications for a waste disposal supplier and a cleaning service supplier. As such 18% of all new procurements in 2022 were green procurements, which is comparable to the 2021 figure of 18.2%. Similarly, in value terms, procurement procedures that included environmental considerations accounted for 27% of the total value of all new procurement procedures in 2022, which is a 6 percentage point increase on 2021.

In 2022 all 64 public tender procedures and 97 three-five quote procedures were conducted via electronic means (via the ECB's e-tendering platform, ASTRA, other electronic means of e-communication and e-submission). The full implementation of an electronic end-to-end procurement process affords considerable environmental gains in terms of paper consumption, printing consumables, packaging material and shipping emissions. In addition, the ECB continues to hold supplier meetings almost exclusively virtually in order to reduce emissions stemming from the travel of suppliers to the ECB. Moreover, electronic signatures remain standard practice for contracts, thereby also supporting material efficiency and energy reduction objectives. In 2022 almost all contracts, purchase orders and outcome letters, with only a few exceptions, were signed digitally at the ECB.

Training and awareness-raising activities on green procurement were again offered to ECB procurement practitioners. In 2022, 14 ECB staff members participated in the online procurement training course on drafting green specifications, and 28 procurement staff members attended a divisional meeting on promoting green procurement in the ECB. A dedicated training video on sustainable procurement and an associated presentation have been made available to all staff on the ECB's internal web-based environment.

Together with other European institutions, the ECB takes part in a joint activity regarding a Green Public Procurement Helpdesk. The participating institutions benefit from the Helpdesk's database, best practices and market knowledge on green procurement. From 2022 the scope of the Helpdesk was expanded to include a social responsibility dimension.

4.9 Travel



Travel activities in 2022 grew considerably compared with 2020 and 2021, largely owing to the lifting of pandemic-related travel restrictions from June onwards. Nevertheless, travel-related emissions remained well below pre-pandemic levels. Compared with 2019, business travel emissions in 2022 were 64.2% lower and

accounted for 2,770 tonnes CO₂e.⁶ Aviation-related travel remains the largest source of emissions, accounting for 95.9% of all business travel emissions in 2022.

Owing to a change of travel services provider, the data on business travel for the first three months of 2022 are incomplete. Proxy data based on available travel emission data from April are instead used to cover that period, since the same travel restrictions were still applicable at that time.

As the increase in travel-related activities was expected, the ECB included travel objectives and measures in its Environmental Management Programme to limit a strong rebound effect. Most measures have been implemented as of 2023 and include an update of the internal travel rules to favour rail travel over air travel for specific routes.

Conference activities at the ECB started up again in 2022 after a long halt owing to pandemic-related restrictions. Emissions from the travel of conference participants to the ECB accounted for 1,180.1 tonnes of CO₂e in 2022, which was still significantly lower than 2019 levels (-89.1%). Steps were taken to reduce the impact of meetings at the ECB by targeting a 50% reduction of physical meetings and conferences with external participants over a two-year period (2023-24). Specifically, additional and more advanced hybrid technology was installed in meeting rooms across the ECB. To facilitate the uptake of this technology, increased training and support was provided to users in the form of informative videos, dedicated hands-on sessions, and a hybrid meeting toolkit. The ECB also published an internal guideline on sustainable events to reduce the impact of physical conferences. For further details on the status of these measures, refer to [Chapter 3 – The ECB's carbon footprint](#).

Data on staff commuting and teleworking are subject to a higher degree of uncertainty as a result of the changing working modalities and available datasets. It therefore has to be interpreted with caution, in particular for the period since 2020, as commuting patterns have constantly evolved, and information sources changed. Teleworking and commuting emissions are calculated on the basis of a staff survey that was launched in 2021 and is repeated every two years. The next staff survey is scheduled to take place in 2023. In 2022 the calculation of teleworking emissions was refined, as data on the daily occupancy levels on ECB's premises became available, allowing for more accurate estimations of staff teleworking. Besides commuting patterns, the survey focuses on the incremental energy use related to remote working (for example office devices such as laptops, monitors, desktop computers, phones, tablets, etc., as well as lighting, cooling and heating). The largest share of teleworking emissions stems from heating, at 78.3%. In 2022 emissions from teleworking and commuting fell by 22.7% compared with 2021, most likely due to the more accurate calculation of on-site presence, which was overestimated for 2021, as it was exclusively based on survey data (for example it did not exclude sick days, absences due to business travel, etc. from the calculation) and the mandatory office days paired with the requirement to reside in the Frankfurt area, which led to a reduction in the assumptions used for commuting distances. Additionally, teleworking emissions were reduced as staff were entitled to fewer

⁶ including radiative forcing for aviation and well-to-tank emissions for air and motor vehicle travel.

teleworking days under the new policy. From January 2023 the ECB decided that remote working should remain an integral part of working life at the bank, granting a maximum of 110 teleworking days per calendar year. The decision was taken following an interim trial period between May and December 2022 during which a minimum number of eight on-site working days per month was set, following the first four months of the year, when most staff members worked remotely.

The greenhouse gas emissions associated with teleworking and commuting are described in [Chapter 3.2 – Indirect emissions](#).

4.10 Communication, engagement and awareness-raising



Objectives

Environmental communication, engagement and awareness-raising activities

Timeline	Objective and status 2022
Medium-term – by 2024	<p>Foster interinstitutional collaboration by holding at least two virtual ENCB meetings per year</p> <p>Status 2022: In progress (three virtual ENCB meetings took place in 2022)</p>



Measures

Environmental communication, engagement and awareness-raising activities

Measure	Status
Pilot a green event or conference at the ECB and build a case study for the organisation	<p>Completed</p> <p>A guideline on enhancing the sustainability of on-site events has been shared with responsible staff to facilitate greener events. A case study is not planned as the guideline provides a mainstreamed framework.</p>
Assess further opportunities to improve environmental data collection and analysis	<p>Completed</p> <p>The frequency of data reporting on the relevant shares of the carbon footprint using dedicated templates has been increased to quarterly. Analysis of the data has been automated where feasible.</p>
Introduce climate change training for all staff	<p>In progress</p> <p>Training to be launched in 2023.</p>
Run a "Road to Paris" campaign in 2022 to increase staff awareness	<p>Completed</p> <p>The Road to Paris campaign was the flagship communications event of the year and was launched in the context of World Environment Day on 5 June 2022.</p>

Measure	Status
Provide information about the carbon footprints of meal choices in all staff restaurants to raise awareness among customers	Completed Information about the carbon footprint of meal choices has been made available on a permanent basis in all staff restaurants and online menus at the ECB since January 2022
Improve the internal accessibility and transparency of environmental performance data for all staff	Completed A new environmental inventory exploration tool was launched in October 2022 on the Intranet. The tool allows all staff members to explore in greater detail the environmental data used in the computation of the ECB's annual environmental footprint.
Improve the internal accessibility of business area-level environmental performance data for Environmental Representatives	Completed An Environmental Representatives Dashboard was created that allows Environmental Representatives to view business area-level data for various environmental performance indicators. This could further help with monitoring the environmental performance of the business areas and raise awareness on their environmental impact.
Assess possibilities and implement changes to improve internal communication with Environmental Representatives	In progress Based on feedback from the Environmental Representatives, a dedicated virtual channel is planned to foster informal exchange within the network and facilitate cooperation and communication.

Note: "Completed" = measure completed; "In progress" = measure in progress; "Pending" = measure still to be implemented.

2022 proved to be a very dynamic and fruitful year for the ECB's environmental communication strategy, and plenty of awareness-raising activities were carried out both online and on-site.

In February 2022 the ECB celebrated the 2022 Interinstitutional EU Eco-Management and Audit Scheme (EMAS) days. These included a wide range of interesting environment-related events. The ECB contributed to many of the events, giving several presentations on climate neutrality strategies, the organisation of sustainable conferences and events, and empowerment for staff awareness and engagement.

On the occasion of the World Wildlife Fund's Earth Hour in March 2022, the ECB showed its support by joining the event for the eleventh consecutive year. During Earth Hour, all non-essential lights across all three ECB locations were switched off, in addition to the regular evening switch-off schedule, to raise awareness about the challenges posed by climate change. The event was supported by the ECB's catering service providers, who introduced several initiatives that helped colleagues celebrate Earth Hour at home or in the office.

The Road to Paris campaign was the flagship communications event throughout 2022. To celebrate World Environment Day on 5 June, the Green ECB team launched the Road to Paris campaign initiating a friendly competition among staff members and encouraging environmentally friendly behaviour to accompany the ECB on its journey to reach the Paris-aligned objectives.

The internal challenge included the use of an app where colleagues could learn more about their personal environmental footprint and complete challenges to reduce it. To earn points, staff members were invited to complete different challenges which involved incorporating environmentally friendly behaviours in everyday life activities. The categories included shopping behaviour, business, nutrition, living, mobility, leisure and digital life.

The campaign was designed to directly support the emissions reduction trajectory necessary to meet the 2030 objectives, by rewarding environmentally conscious behaviours that reduced the carbon footprint of ECB staff. By introducing a gamified element to the communication activities, combined a longer overall duration, the aim was to keep staff engagement high as they participated in new and exciting activities.

Throughout the campaign, which lasted until October 2022, five videos were filmed to provide more information to staff about different areas of action by the ECB. These highlighted biodiversity measures, waste management, the newly established in-house print centre, health and environmental activities within the catering services, and sustainable transport and commuting options at the ECB.

In addition, three themed sprint challenges were launched during the campaign, which gave participants the opportunity to obtain additional points while also providing tips on how to be more environmentally friendly at home and in the office. The sprint challenges focused on energy saving, waste reduction and responsible consumption, as well as sustainable mobility and travel. Each sprint had a business area winner. The three sprint champions were recognised alongside the overall campaign victors from among the business areas and the winning team during the closing ceremony in November.

At the closing ceremony of the Road to Paris campaign, organised in the context of the [ECB Climate Days](#) launched by the climate change centre, President Lagarde awarded the winners of the Road to Paris campaign.

Thanks to participants' commitment to the campaign and the ensuing completion of over 3,100 challenges involving staff from almost all of the ECB's business areas, 92.2 tonnes of CO₂e were saved during the five-month campaign. The completion of the top two most popular challenges alone contributed savings of approximately 18 tonnes of CO₂e. This shows that even seemingly small actions, when done consistently and frequently, can end up having a large impact.

"Better connections" was the theme and key message of the European Mobility Week that took place in September 2022. The ECB participated in this annual awareness-raising campaign organised by the European Commission by promoting several options for sustainable mobility (bicycle parking infrastructure, Deutsche Bahn "Call-a-Bike" scheme and RMV Job Ticket⁷). During that week, free bicycle safety checks were also again offered to ECB staff members.

In 2022 the European Week for Waste Reduction focused on the topic of the circular economy and sustainable textiles. Over the course of a week in November several awareness-raising actions about sustainable resource and waste management were carried out across Europe, with a spotlight on recycling in the textile sector. Activities ranged from clean-up actions and waste-sorting gatherings to recycling drives and sessions on preparing materials for re-use. At the ECB, staff members could test

⁷ In 2022 the ECB offered its staff a ticket for the local public transportation service (RMV) at a reduced price.

their knowledge on the sustainability of the fashion industry through a quiz, in the process learning more about the true environmental impact of our fashion choices.

EMS-related activities within the ECB are also supported by the network of Environmental Representatives (ERs). ERs play a crucial role in raising awareness on environmental and sustainability issues. They act as contact persons between their business areas and the Environmental Coordinator and Green ECB team on relevant environmental topics and help implement the EMS in their business area. As usual, in 2022 ERs ran individual awareness-raising activities and events, focusing on energy saving, “green challenges” that involved revisiting habits and actions in everyday life, greener teambuilding options, as well as ways of reducing household waste. The Environmental Representatives Dashboard was also rolled out in 2022. The Dashboard allows ERs to view business area-level data on various environmental performance indicators, aimed at enhancing the monitoring of business areas’ environmental performance and raising awareness on their environmental impact.

Interinstitutional collaboration with other European institutions and Eurosystem central banks focused on developing and exchanging expertise and best practices on environmental management was once again very high on the agenda in 2022. This mainly takes place through the environmental network for European institutions (GIME) and the Environmental Network of Central Banks (ENCB), as well as through bilateral exchanges with peer organisations. In 2022 the ECB achieved its objective to foster interinstitutional collaboration by facilitating at least two ENCB meetings and even exceeded it, since three meetings took place. The meetings took place online in order to set an example and reduce travel-related emissions beyond the pandemic.

5 Technical information

The previous chapters illustrated the main environmental developments and measures undertaken by the ECB. This chapter presents additional information on the ECB's environmental performance in accordance with the requirements set out in the EMAS regulation.⁸

Workplace overview

Number of workplaces	2020	2021	2022
Main building	3,063	2,982	2,993
City centre buildings	2,374	2,332	2,356

Source: ECB.

Notes: Workplace indicators are reported as a requirement for EMAS. It should be noted that a slight bias exists compared with pre-pandemic years owing to the updated teleworking policies. Not all workplaces are occupied on a day-to-day basis. Thus, workplace indicators do not fully represent actual developments.

5.1 Updates to conversion factors

The table below presents the percentage differences of CO₂e emission conversion factors used to calculate the emissions for 2021 and 2022 (for more information, see [Chapter 3 – The ECB's carbon footprint](#)). Although most emission factors are updated annually, only those factors that have changed by more than 5% compared with 2021 are listed in the table. This overview gives further information on the developments set out in this statement. The year-on-year differences are calculated based on the most recent factors from the corresponding sources.

⁸ Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS), repealing Regulation (EC) No 761/2001 and Commission Decisions 2001/681/EC and 2006/193/EC (OJ L 342, 22.12.2009, p. 1).

Conversion factor updated	Source	Change 2021/2022
Energy – emissions scope 2		
District heating	Energy provider	33.9%
Energy – emissions scope 3		
Biogas	2022 Guidelines – DEFRA/DECC's Greenhouse Gas Conversion Factors for Company Reporting	-34.9%
District heating	Energy provider	-86.0%
Electricity renewable – hydropower	GEMIS database, version 5.1.0	-92.9%
Electricity renewable – wind	GEMIS database, version 5.1.0	7.0%
Business travel – emissions scope 3		
Medium car (battery electric vehicle)	2022 Guidelines – DEFRA/DECC's Greenhouse Gas Conversion Factors for Company Reporting	-7.2%
Public transport (ÖPNV)	TREMOD 6.42 Umweltbundesamt 12/2022	6.7%
Rail travel, long distance travel	TREMOD 6.42 Umweltbundesamt 12/2022	-8.0%
Rail travel, short distance travel	TREMOD 6.42 Umweltbundesamt 12/2022	9.4%
Business travel – WTT emissions		
Purchased goods and services – fresh water	GEMIS database, version 5.1.0	5.4%

Location-based emissions

Conversion factor updated	Source	Change 2022/2021	CO ₂ e emissions 2022 ECB's premises (tonnes)
Electricity mix Germany (including upstream emissions)	GEMIS database, version 5.1.0	5.4%	10,707.2

Note: The ECB reports its emissions in accordance with the marked-based approach, which allows the use of emission factors from contractual instruments. For example the ECB accounts for zero emissions in scope 2 as it uses a certified renewable electricity supply for all premises. Upstream emissions from renewable electricity consumption are included in the calculation of scope 3 emissions. As the Greenhouse Gas Protocol recommends also reporting following the location-based approach, the ECB additionally calculates and displays emissions from electricity use, based on the emission factor for the German electricity mix.

5.2 Workplace-based environmental performance indicators 2020-22

Energy consumption	Performance indicators per workplace [kWh/workplace/year]	2020	2021	2022
ECB total	Electrical energy per workplace	5,261	5,524	5,670
	Heating and cooling energy per workplace	4,149	4,651	3,761
	Total energy premises per workplace	9,410	10,175	9,431
Main building	Electrical energy per workplace	5,640	6,045	6,232
	Heating and cooling energy per workplace	2,350	2,908	2,380
	Process energy per workplace	26.4	18	31.4
City centre buildings	Electrical energy per workplace	4,772	4,859	4,956
	Heating and cooling energy per workplace	6,470	6,880	5,515

Office paper consumption	Performance indicators per workplace [sheets of A4 equivalent/workplace/year]	2020	2021	2022
ECB total	Office paper per workplace	628	1,378	213

Note: Includes consumption of other paper products such as letterheads, calendars and notepads.

Water consumption	Performance indicators per workplace [m³/workplace/year]	2020	2021	2022
ECB total	Total fresh water per workplace	15.2	9.3	11.1
Main building	Non-technical fresh water per workplace (sanitary facilities, kitchenettes, canteen)	16.7	5.8	6.6
	Total fresh water per workplace	18.2	7.0	9.9
City centre buildings	Non-technical fresh water per workplace (sanitary facilities, kitchenettes, canteen)	7.7	8.5	9.1
	Total fresh water per workplace	11.2	12.2	12.7

Waste generation	Performance indicators per workplace [kg/workplace/year]	2020	2021	2022
ECB total	Non-hazardous waste per workplace	89.8	53.8*	88.6
	Hazardous waste per workplace	3.61	11.97*	9.53
Main building	Paper and cardboard waste per workplace	9.7	14.3	15.0
	Confidential paper waste per workplace	7.7	6.0*	7.7
	Residual waste per workplace	14.0	8.8	15.5
	Packaging waste per workplace	1.3	1.2	1.4
	Organic waste (including grease separator waste) per workplace	45.4	24.1	43.6
City centre buildings	Paper and cardboard waste per workplace	3.6	2.7	6.6
	Confidential paper waste per workplace	5.8	8.9	5.0
	Residual waste per workplace	22.8	4.1	12.9
	Packaging waste per workplace	22.3	12.3	4.6
	Organic waste (including grease separator waste) per workplace	37.6	18.8	54.2

Notes: *The performance indicators for non-hazardous waste and hazardous waste per workplace for 2021 were adjusted on the basis of an improvement in the monitoring and reporting process. The non-hazardous waste indicator was adjusted from 57.8 kg to 53.8 kg, and the hazardous waste indicator from 12.0 kg to 11.97 kg.

Emissions of CO ₂ equivalents	Performance indicators per workplace [kgCO ₂ equivalent/workplace/year]	2020	2021	2022
Direct emissions – scope 1	Direct emissions – scope 1	504.6	583.5	25.4
	Fuels	25.8	27.4	25.4
	Natural gas	478.8	516.7	0
	Cooling agent losses at ECB premises	0	39.4	0
Indirect emissions – scope 2	Indirect emissions – scope 2	342.7	413.6	450.9
	Electrical energy consumption at ECB premises	n/a	n/a	n/a
	Heating and cooling of ECB premises	342.7	413.6	450.1
	Biogas	0.006	0.004	0.7964

Emissions of CO ₂ equivalents	Performance indicators per workplace [kgCO ₂ equivalent/workplace/year]	2020	2021	2022
Indirect emissions – scope 3	Indirect emissions – scope 3	2,452.7*	2,031.6*	2,527.2
	Business travel	174.6*	38.3*	568.4
	Staff commuting and teleworking	451.0	429.7	330.0
	Building construction amortisation	819.8	838.7	833.2
	Upstream energy	346.5	347.8	119.9
	Conference participants travel	239.2	0.6	220.6
	Waste	1.8	1.2*	1.7
	Purchased goods and services	218.4	180.9*	234.0
	Other assets (furniture, IT devices)	201.4	194.4*	219.4
Total CO₂e emissions per workplace	Total CO₂e emissions per workplace	3,300*	3,029*	3,003
Outside of scope emissions	Biogas	3.0	2.0	414.3

Notes: *Biogas for heating in the Eurotower replaced natural gas as of 2022. Biogenic emissions from biogas were added outside of scope. Waste emissions were adjusted from 1.6 kg to 1.2 kg in 2021. In 2021 purchased goods and services emissions were adjusted from 177.9 kg to 180.9 kg, and other assets emissions from 183.5 kg to 194.4 kg. Total scope 3 emissions per workplace changed from 2,018.1 kg to 2,031.6 kg in 2021. CO₂e emissions per workplace were adjusted from 3,015 kg to 3,029 kg in 2021. These changes resulted from an improvement in the monitoring and reporting process.

	Performance indicators per workplace [kg/workplace/year]	2020	2021	2022
Air emissions	SO ₂ per workplace	0.004	0.004	0.003
	NO _x per workplace	0.142*	0.146*	0.131
	PM per workplace	0.014	0.015	0.013

	Total air emissions [tonnes]	2020	2021	2022
Air emissions	SO ₂	0.02	0.02	0.02
	NO _x	0.77	0.77	0.70
	PM	0.08	0.08	0.07

Note: *The performance indicator for NO_x per workplace was adjusted from 0.141 kg to 0.142 kg for 2020 and from 0.145 kg to 0.146 kg for 2021 based on an improvement in the monitoring and reporting process.

Biodiversity	Used land [ha]	2020	2021	2022
Land use main building	Total land use	11.9	11.9	11.9
	Sealed area	4.6	4.6	4.6
	Unsealed area	7.3	7.3	7.3
	Nature-oriented area	6.5	6.5	6.5
Land use city centre buildings	Total land use	0.7	0.7	0.7
	Sealed area	0.5	0.5	0.5
	Nature-oriented area	0.2	0.2	0.2

5.3 Uncertainty assessment of the ECB's carbon footprint 2022

Category	Scope	Details	Certainty ranking	Comments
Energy	1, 3	Car fleet	Very good	data: very good (internal reports), factor: very good (GEMIS ¹)
	1, 3	Emergency unit	Good	data: good (amount of refill), factor: very good (GEMIS)
	2, 3	Biogas	Very good	data: very good (meter readings/invoice, certificate); factor: very good (DEFRA ²)
	2, 3	District heating	Very good	data: very good (meter readings/invoice); factor: very good (Mainova)
	2, 3	Electricity from renewable – wind	Very good	data: very good (meter readings/invoice, certificate); factor: very good (GEMIS)
	2, 3	Electricity from renewable – hydropower	Very good	data: very good (meter readings/invoice, certificate); factor: very good (GEMIS)
Business travel	3	Airplane with RFI and WTT	Good	data: fair for January until mid-March (extrapolation), good for mid-March until December (travel agency); factor: very good (DEFRA)
	3	Train	Good	data: fair (travel agency and estimates, rail service provider); factor: very good (TREMOD ³)
	3	Car personal	Good	data: good (internal reports); factor: very good (DEFRA)
	3	Hotel stays	Good	data: good (travel agency, no data available concerning the hotel category); factor: good (DEFRA; averages based on DEFRA)
Staff commuting	3	Teleworking	Fair	data: fair (survey and extrapolation); factor: fair (general factors from GEMIS, UBA ⁴)
	3	Staff commuting	Fair	data: fair (survey and extrapolation); factors: good (general factors from DEFRA, TREMOD)
Conference participants	3	Travel of conference participants	Fair	data: fair (internal reports, estimates); factor: very good (DEFRA, TREMOD)
Building construction amortisation	3	Fixed assets – building construction	Fair	data: good (square metres), factor: fair (ADEME ⁵ , not specific)

1) Global Emission Model for Integrated Systems (GEMIS)

2) Department for Environment, Food and Rural Affairs (DEFRA)

3) Transport Emission Model (TREMOD)

4) German Federal Environment Agency (UBA)

5) French Environmental and Energy Management Agency (ADEME)

Category	Scope	Details	Certainty ranking	Comments
Waste	3	Waste	Fair	data: fair (internal reports/invoices, estimates); factor: good (DEFRA, extrapolation based on DEFRA)
Purchased goods and services	3	Catering services	Good	data: good (catering agencies - uncertainties cannot be excluded); factor: good (IFEU ¹ : Klimatarier)
	3	Gardening	Good	data: good (amount of diesel used), factor: very good (GEMIS)
	3	Fresh and waste water	Good	data: good (meter readings and calculations); factor: very good (GEMIS)
	3	Office supplies & stationery	Fair	data: fair (costs), factor: fair (ADEME, value-based)
	3	Cleaning services	Fair	data: fair (costs), factor: fair (ADEME, value-based)
	3	Office paper, paper for publication, and other paper products	Fair	data: good (weight or service provider, minor data gaps cannot be excluded); factor: fair (not specific, IFEU)
	3	Electricity external print centre	Fair	data: fair (reports and estimates), factor: good (general factor from GEMIS)
	3	ICT Services - videoconferences	Fair	data: good (reports from service providers); factor: fair (Ökoinstitut)
	3	Electricity from data centre	Very good	data: very good (meter reading, certificate); factor: very good (GEMIS)
Other assets (furniture, IT devices)	3	Furniture	Fair	data: good (internal reports, general furniture categories); factor: fair (ADEME, factors not specific for the furniture type)
	3	IT devices	Fair	data: good (internal reports, general IT device categories); factor: fair (ADEME, UBA, factors not specific for all devices)

Note: Changes to the previous certainty ranking are marked in bold.

1) German Institute for Energy and Environmental Research (IFEU)

The following ranking was applied to estimate the uncertainty of the activity data and the emission factors.

Certainty ranking	Uncertainty of activity data	Uncertainty of emission factor
Poor	Activity data are roughly estimated, for example based on studies, comparable baseline situations.	Emission factors have been determined in a first step, but are still very general, for example emission factor is extrapolated from another factor for a similar process.
Fair	Activity data is available, but incomplete, for example activity data is not available for the whole assessment period and extrapolated. Evidence for activity data is incomplete and/or not reliable. Only costs of the data can be provided.	Emission factors are available, but they are not yet specific and robust. Emission factor is value-based (for example kgCO ₂ e/euro).
Good	Activity data are complete and plausible, evidence is available. Minor uncertainties/data gaps cannot be excluded/avoided but do not have a significant negative impact on the result. The share of assumptions, estimates and calculations is reduced to an unavoidable minimum, is comprehensible and plausible and has no significant negative impact on the result.	Emission factors are specific and robust. Final, minor uncertainties cannot be excluded/avoided. Use of averages or calculations based on ADEME, DEFRA, UBA or GEMIS or other non-German databases.

Very Good	<p>Data are complete and plausible, evidence is available e.g., meter readings, accurate measurements.</p> <p>Uncertainties/data gaps can be excluded. No assumptions or estimations are made.</p>	All emission factors are specific and reliable (for example use of provider-specific emission factors or widely known/recognised databases such as ADEME, DEFRA, UBA, GEMIS/ UBA/ GEMIS or other German databases).
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5.4 Compliance obligations



The environmental compliance obligations to be met by the ECB are defined by regulations at the municipal and German levels and are summarised in a register that is regularly reviewed and updated by legal experts. Changes and required measures are carefully monitored to ensure that all environmental regulations are met. Most of the ECB's compliance obligations are connected to the operation and maintenance of its buildings and contracted services, such as cleaning and catering. Annual internal environmental audits are conducted to evaluate the ECB's compliance with these regulations. No deviations from the legal requirements were detected in the latest assessments.

Table 2
Relevant areas of environmental legislation and related facilities/activities

Most relevant area of environmental legislation	Relevant facilities/activities
Water regulations	Storage of diesel, storage of cleaning agents, use of oil traps, cooling, waste water discharge into sewerage system
Regulations on climate protection and refrigerants	Cooling installations containing coolants characterised by more than 5 tonnes of global warming potential expressed in tonnes of CO ₂ equivalent
Regulations on energy efficiency of buildings	Energy certification, building insulation, energy-efficient technologies
Energy efficiency regulations	Energy audit requirements fulfilled by EMAS
Regulations on health and safety and hazardous materials	Risk assessment, fire prevention, requirements for use of hazardous substances (e.g. acids, lye)
Waste regulations	Separation/recycling/disposal of various types of waste

In addition to its obligations under environmental law, the ECB is also committed to additional environmental obligations. These include the Sustainable Procurement Guidelines and the objectives of the Environmental Management Programme. Additionally, a variety of communication campaigns raise awareness of environmental issues among ECB staff.

Further information on climate change and on the related action by the ECB within its mandate is available on the [ECB's website](#).

6 Environmental verifier's declaration

The environmental verifiers named below confirm that the European Central Bank (ECB) premises at Sonnemannstrasse 20, 60314 Frankfurt am Main, Germany (main building), Taunustor 2, 60311 Frankfurt am Main, Germany (Japan Center) and Kaiserstrasse 29, 60311 Frankfurt am Main, Germany (Eurotower), as described in this Environmental Statement by the ECB (which has the registration number DE-125-00045), meet all the requirements laid down in Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009, as amended on 28 August 2017 and 19 December 2018, on the voluntary participation by organisations in a Community Eco-Management and Audit Scheme (EMAS).

Name of the environmental verifiers	Registration number	Approved for NACE sector(s):
Prof. Dr.-Ing. Jan Uwe Lieback	DE-V-0026	64.11 Central banking
Brane Papler	DE-V-0425	

In signing this declaration, we confirm that:

- the assessment and validation have been carried out in full compliance with the requirements of Regulation (EC) No 1221/2009 as amended by Commission Regulation (EU) 2017/1505 and (EU) 2018/2026;
- the result of the assessment and validation confirms that there is no evidence of non-compliance with applicable environmental legislation;
- the data and information in this Environmental Statement provide a reliable, credible and accurate picture of all the organisation's activities.

This declaration cannot be equated with EMAS registration. EMAS registration can only be carried out by a competent body in accordance with Regulation (EC) No 1221/2009. This declaration may not be used as a stand-alone piece of public communication.

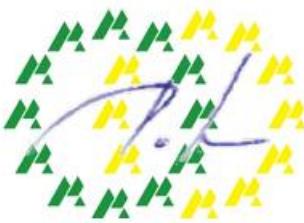
Frankfurt am Main, 14 June 2023



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Disclaimer



This ECB Environmental Statement provides information to the general public and other interested parties about the environmental performance and activities of the European Central Bank (ECB) in 2022. It can be found on the ECB's website (see the page entitled "[Environmental protection at the ECB](#)").

The ECB was first validated under the EU Eco-Management and Audit Scheme (EMAS) in 2010. This Environmental Statement, which is the 14th to be produced within the EMAS validation cycle, is a follow-up to the consolidated Environmental Statement for 2022. It is only complete when read together with this publication and contains updated data for the year 2022.

This Environmental Statement was drafted in line with EMAS standards in accordance with Regulation (EC) No 1221/2009 and the updated annexes of the EMAS Regulation in accordance with Regulation (EC) No 2017/1505.

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For specific terminology please refer to the [ECB glossary](#) (available in English only).