UNIVERSITY OF COPENHAGEN

CLIMATE ACCOUNT
2018-2024

Contents

Climate goal

UCPH wants to reduce its climate footprint by 50% per full-time equivalent and per student in 2030 compared with 2018.

The climate goal is set out in the University's sustainability strategy 'Knowledge & Responsibility – Sustainable Institution 2030'. The goals of the strategy were approved by the University Board in 2020, and management decided to draw up an annual climate account to follow up on the climate goal.

The climate account can be used to:

- assess whether UCPH is on track towards the 2030 climate goal
- assess key sources of emissions by category
- form the basis for adjustments and prioritisation of initiatives

In addition to the climate goal, the sustainability strategy has goals for:

- Resources
- Biodiversity
- Chemistry
- Participation
- Collaboration

For more information about the University's sustainability strategy and effort, visit: https://sustainability2030.ku.dk/

Main results

The University's total climate footprint per full-time equivalent (FTE) and student (STÅ) has increased by approximately 11% since 2018. From 2023 to 2024, the climate footprint per FTE and STÅ increased by approximately 20%.

The increase in the climate footprint from 2018 to 2024 is primarily due to the commisioning of the Niels Bohr Building in 2024, with the entire emissions associated with the new construction being attributed to the year in which the building is commisioned. Exluding the commisioning, the University's climate footprint would have decreased by approximately 8% from 2018 to 2024.

Scope 1
accounts for less than 1% of the total climate footprint and is not considered separately.

Scope 2
has decreased by approximately 63% since 2018 and accounted for approximately 4.5% of the total climate footprint in 2024. The reduction of scope 2 can primarely be attributed to a higher share of renewable energy in electricity and district heating supplies.

Scope 3
has increased by approximately 29% since 2018 and accounted for approximately 95% of the total climate footprint in 2024. From 2023 to 2024, total emmisions from scope 3 increased by approximately 24%.

The following are significant changes to total emmisions in 2018-2024:

- Buildings up by approximately 73%
- Laboratories up by approximately 11%
- Air travel down by approximately 7%

Overview 2024

Total climate footprint

184,934 tonnes of CO2e

Climate footprint per capita

4.8 tonnes of CO2e

Largest sources of emissions

Buildings and laboratories

Development 2018 - 2024
(including new buildings)

+ 11%

Development 2018 - 2024
(excluding new buildings)

- 8%

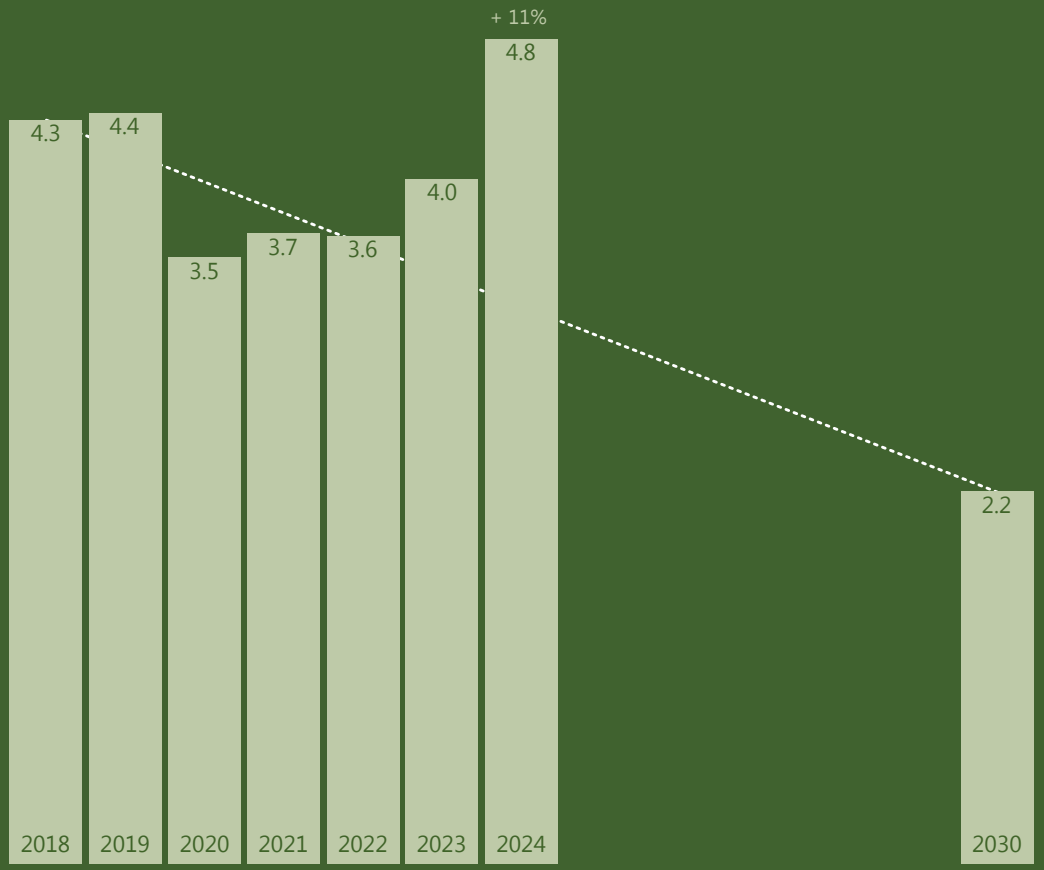
38,569 staff and students

1 million square meters

6 faculties and 36 departments

Status objective 1 of 2

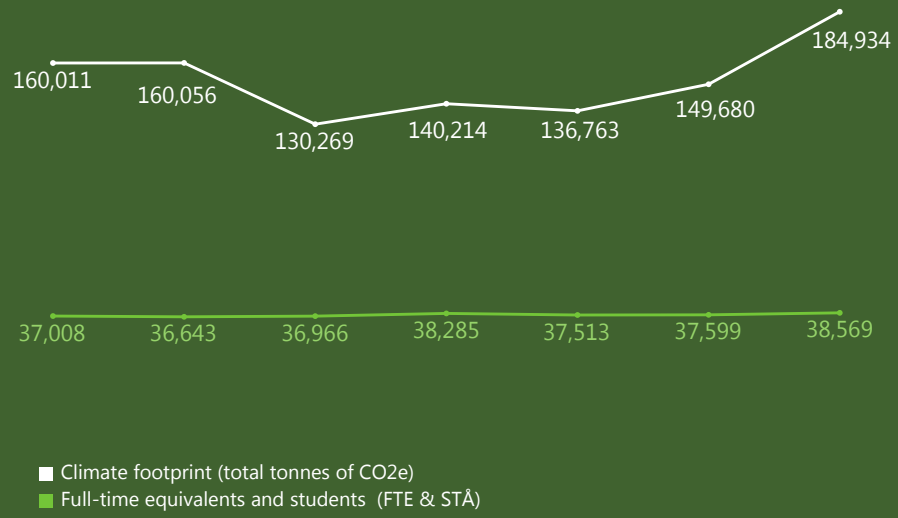
Climate footprint per full-time equivalent and student
(shown in tonnes of CO2e per FTE & STÅ)



The climate footprint per full-time equivalent and student has increased by approximately 11% since 2018. The increase in 2024 is primarily due to the commissioning of new buildings. Without new buildings, the climate footprint per full-time equivalent and student would have decreased by approximately 8%. See comments on the development on the next page.

Since 2023, the climate footprint per full-time equivalent and student has increased by approximately 20%.

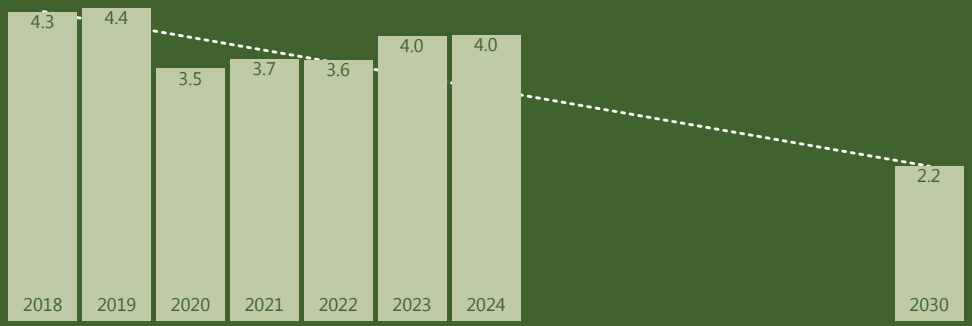
From 2018 to 2024, the total climate footprint increased by approximately 16%, while the total number of full-time equivalents and students increased by 4%. The development is shown in the graph below, which also shows that **the development in climate footprint per full-time equivalent and student is primarily influenced by the development in total tonnes of CO2e**, which fluctuates year-on-year, while full-time equivalent and student numbers are more stable.



Status objective 2 of 2

Climate footprint per full-time equivalent and student excluding new buildings

(shown in tonnes of CO2e per FTE & STÅ)



Development without commissioning of new buildings

The climate footprint in 2024 was particularly affected by the Niels Bohr Building. **According to the GHG protocol (see methodology), all emissions associated with fixed assets are recognised in the years in which they are consumed**, which is in contrast to financial accounting, where fixed assets are depreciated over several years. This means that year-on-year climate accounts can fluctuate to a greater extent. **As new construction is considered as one-off consumption, the development should be assessed both with and without new construction.** On the left is the climate footprint and the development towards 2030 if new construction is excluded from the 2024 climate footprint.

The diagram shows that the climate footprint in 2024 without new construction is approximately 4.0 tonnes of CO2e per FTE & STÅ compared to the 4.8 tonnes of CO2e per FTE and STÅ including new construction. **The development in 2018-2024 thus shows a decrease of approximately 8% without new construction.**

The diagram also shows a largely unchanged **development from 2023 to 2024 without new construction.**

Development per full-time equivalent, without students

The 2030 target is defined on the basis of a relative climate footprint in relation to staff (FTEs) and students (STÅ). It should be noted that **students generally have a lower climate footprint than employees**. The diagram shows that the increase since 2018 for FTEs (+14%) is bigger than the increase for STÅ (+ 1%).

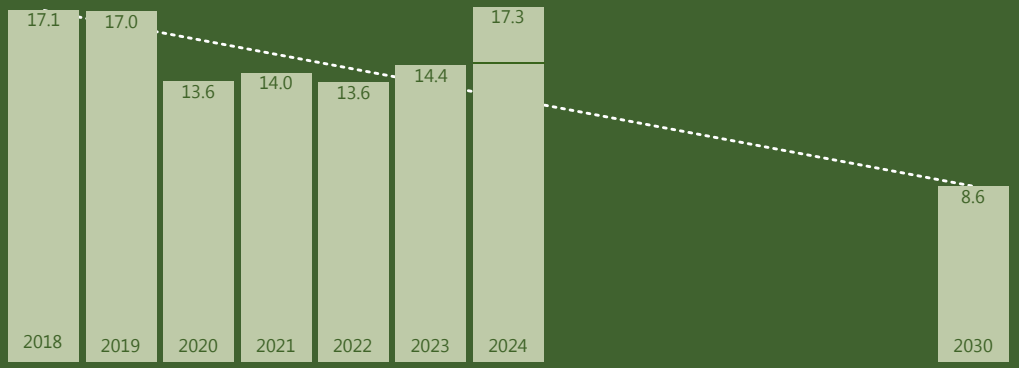
The development towards the 2030 target is shown to the right, with only FTEs included and not STÅ.

The diagram shows that **since 2018, the climate footprint has increased by 1% including new construction if measured only per FTE**, compared to an increase of 11% when calculating the climate footprint per FTE and STÅ. **It also shows that since 2018, the climate footprint has decreased by approximately 16% excluding new construction if measured per FTE**, compared to a decrease of approximately 8% if calculated per FTE and STÅ.

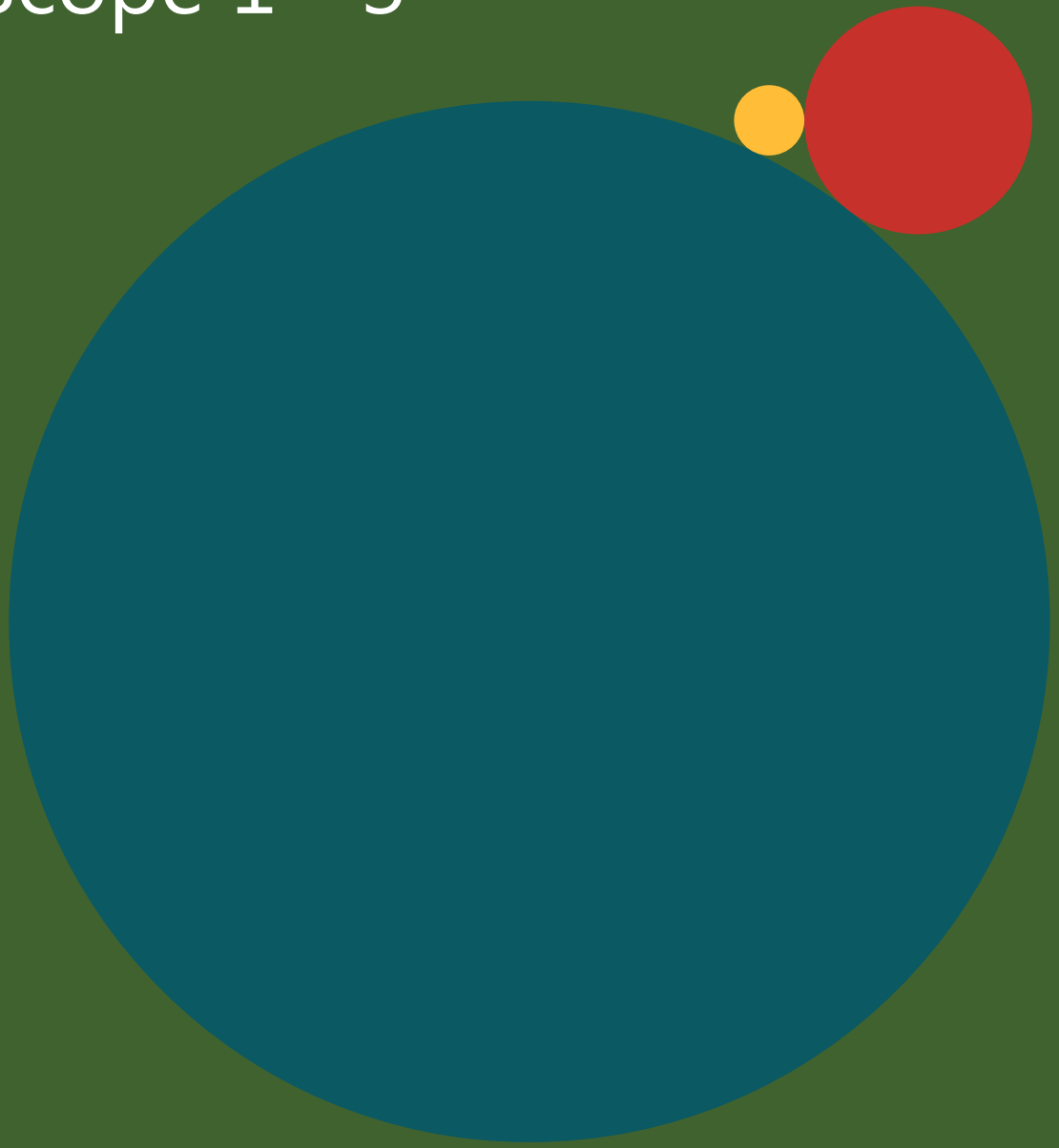
The line in the 2024 column indicates emissions without new construction.

Total climate footprint per full-time equivalent

(Shown in tonnes of CO2e per FTE)



Scope 1 - 3

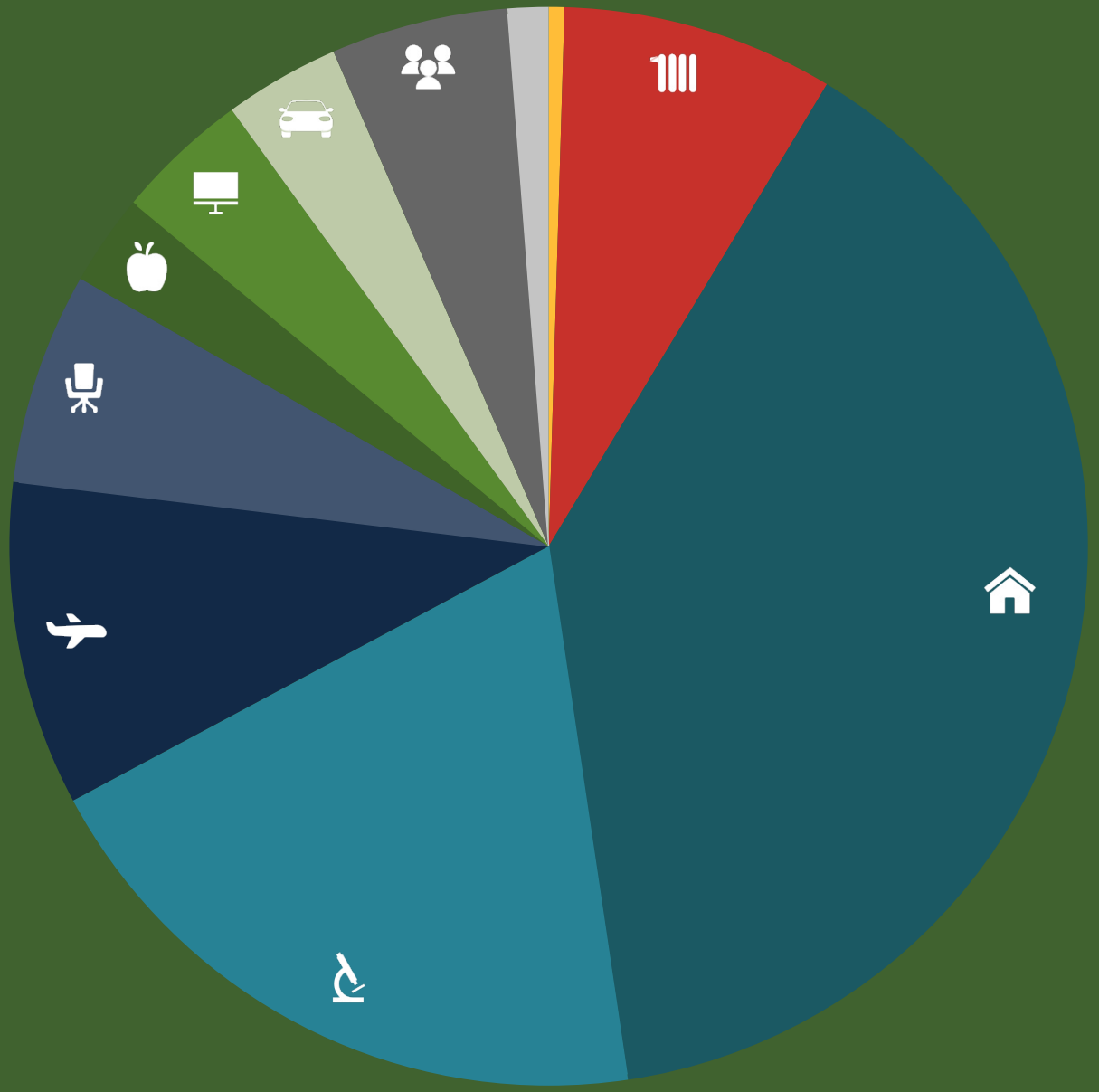


Scope 1 (0.5%)
Direct emissions from fuel for UCPH's own vehicles and ships as well as emissions from oil and natural gas boilers and refrigerants.

Scope 2 (4.5%)
Indirect emissions from energy consumption purchased from utilities, i.e. district heating, electricity and district cooling.

Scope 3 (95%)
Indirect emissions from procurement, including upstream and downstream emissions associated with procurement of goods and services.

Emissions by categories 2024



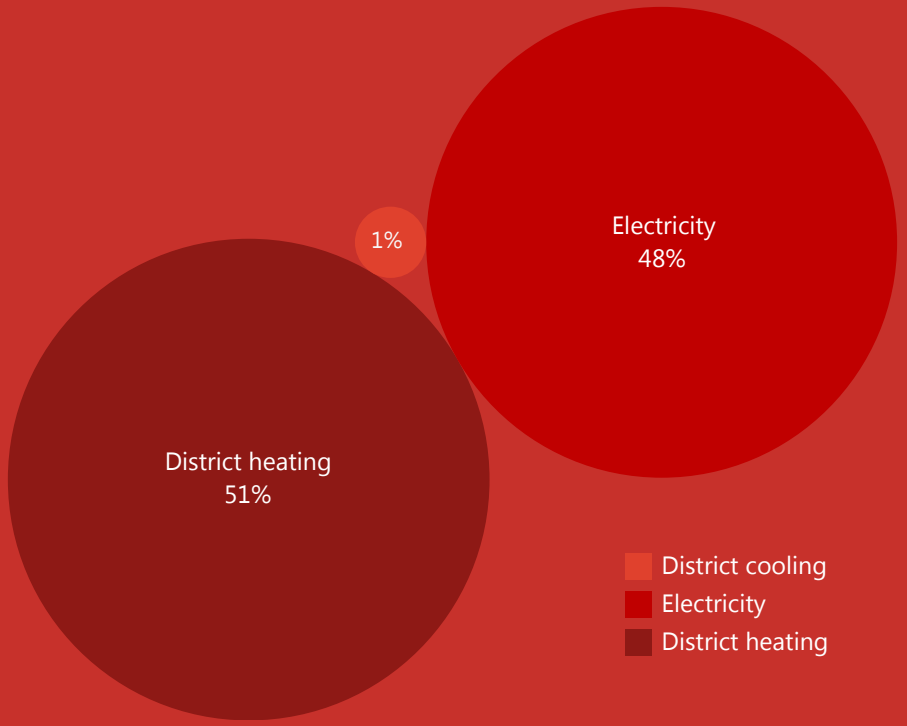
- Fuel < 1%
- Energy 8%
- Buildings 39%
- Laboratories 20%
- Travels 10%
- Office equipment 6%
- Staff expenses 3%
- IT 4%
- Commuting 3%
- Corporate agreements 5%
- Other 1%

Energy

Energy accounted for approximately 8% of the total climate footprint in 2024, down by approximately 46% since 2018. The decrease is due to a larger share of renewable energy in the supply, resulting in an average reduction of emission factors of 67% since 2018, whereas energy consumption has increased by about 14% since 2018. **Since 2023, the climate footprint has increased by approximately 9%,** due**,** among other things, to the commissioning of new buildings and an increase in emission factors.

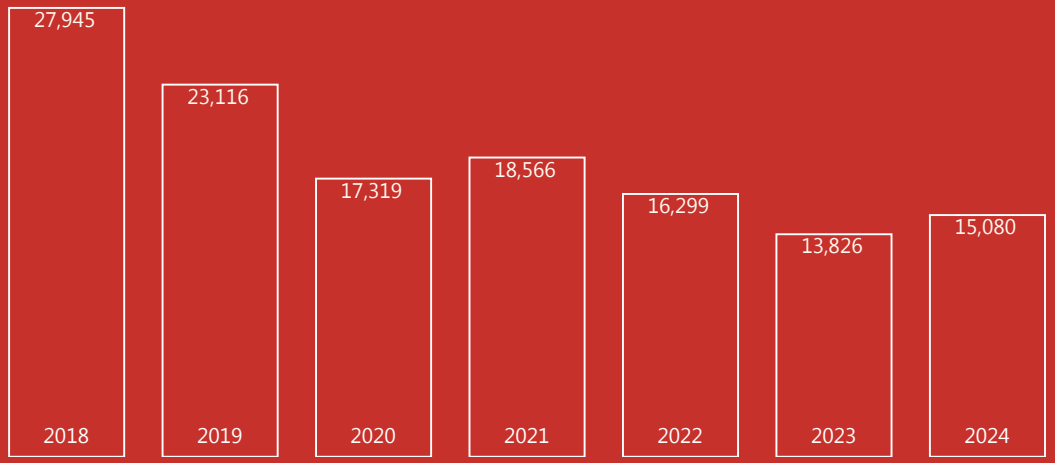
Electricity is to a greater extent supplied by wind power, hydropower, solar cells, nuclear power, etc, with district heating increasingly being provided by biofuels. These types of energy are recognised as 0 tonnes of CO2e. However, emissions from biofuels must be accounted for separately, as shown under methodology.

Note that the category 'Energy' includes emissions from scope 3.3 (production and distribution of energy), which is not included in scope 2.



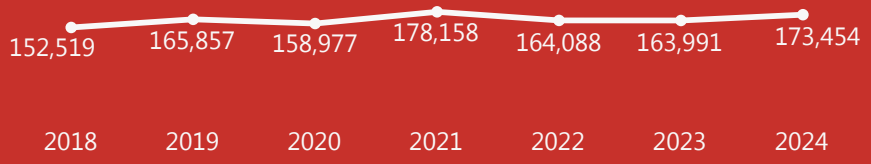
Climate footprint from energy

(shown in total tonnes of CO2e)



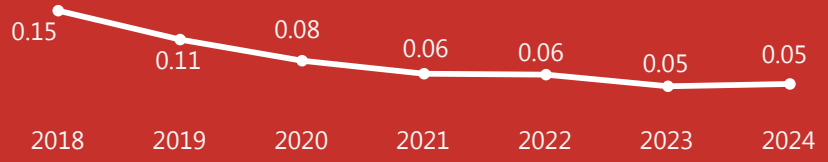
Energy consumption (excluding subleased premises)

(shown in MWh)



Emission factors (average)

(shown in tonnes CO2e per MWh)



Buildings

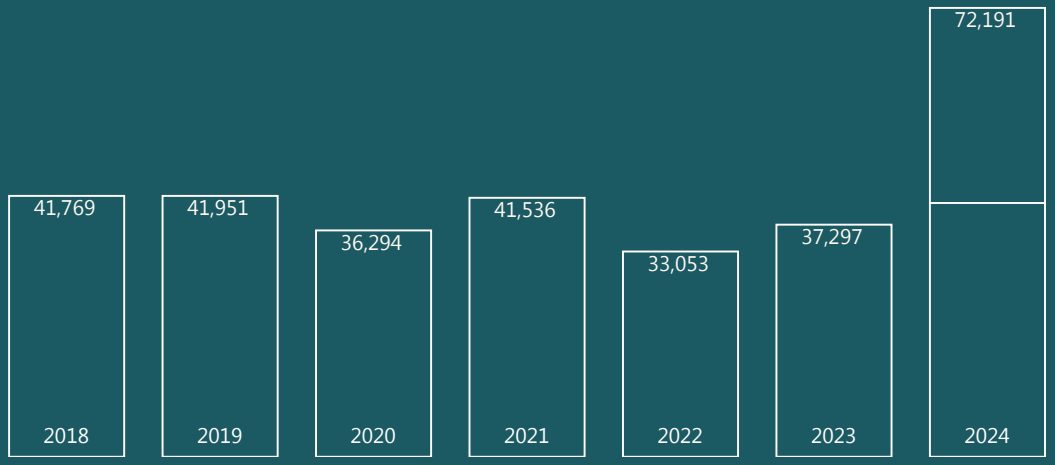
Buildings accounted for approximately 39% of the University's total climate footprint in 2024, up by approximately 73% since 2018, which is primarily due to the commissioning of new buildings. New construction is an extraordinary category, not included in previous accounts. In 2024, new construction included the commissioning of the Niels Bohr Building, which is also the main reason that **the climate footprint from buildings increased by approximately 94% from 2023.**

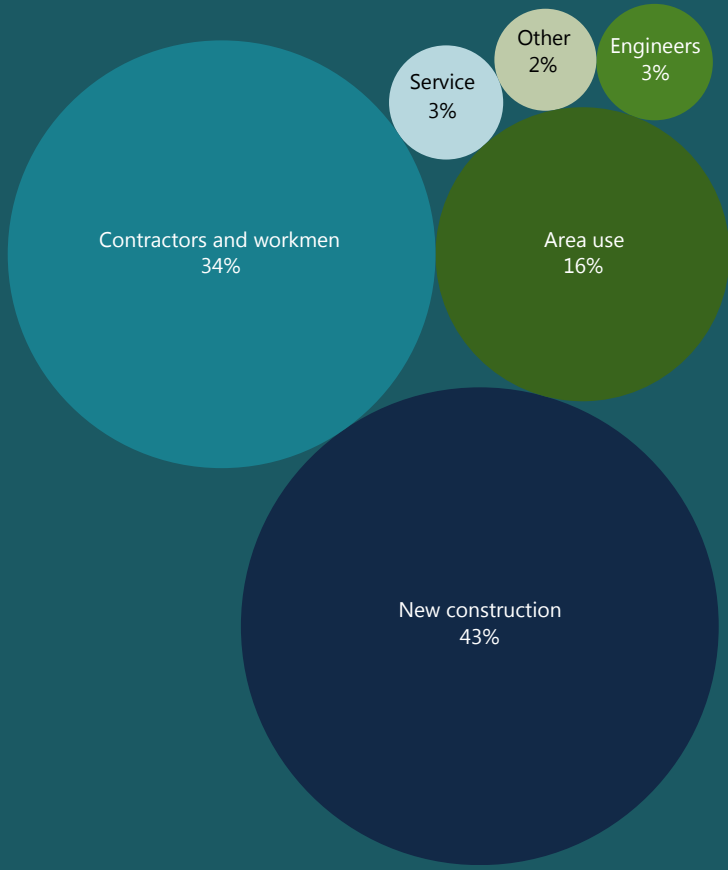
Without new construction, the category would have emitted a total of 41,343 in 2024 (as seen in the 2024 column), resulting in a decrease from 2018 of approximately 1%.

In 2024, new construction accounted for 43%, contractors and workmen 34%, and area use 29%, totalling 93% of the entire category. 'Area use' follows the University's total square metres, which increased by 10% in the period (excluding subleased premises).

Climate footprint from buildings

(shown in tonnes of CO2e)





New construction, emissions associated with the Niels Bohr Building, which are recognised at the time of commissioning.

Contractors and workmen, e.g. technical inspection and services, plumbing, carpentry, glazing, painting, bricklaying, flooring.

Area use accounts for the climate footprint of the University's area use, excluding subleased premises.

Engineers and architects, e.g. surveyors, engineers, architects and general building consultancy.

Service includes for example laundry, lift and sewer services, outdoor areas.

Other includes own building materials, tools and machines.

Laboratories

Laboratories accounted for approximately 20% of the total climate footprint in 2024, up approximately 11% since 2018.

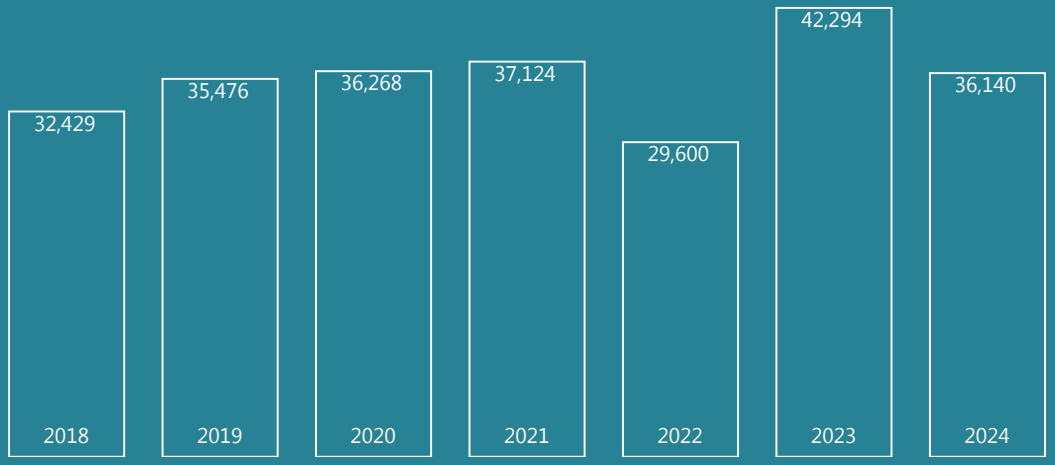
In 2023, laboratories accounted for 28% of the total climate footprint. The lower share in 2024 is primarily due to the recognition of new construction under the category 'Buildings', which leaves a higher share of the climate footprint for buildings than would normally be the case.

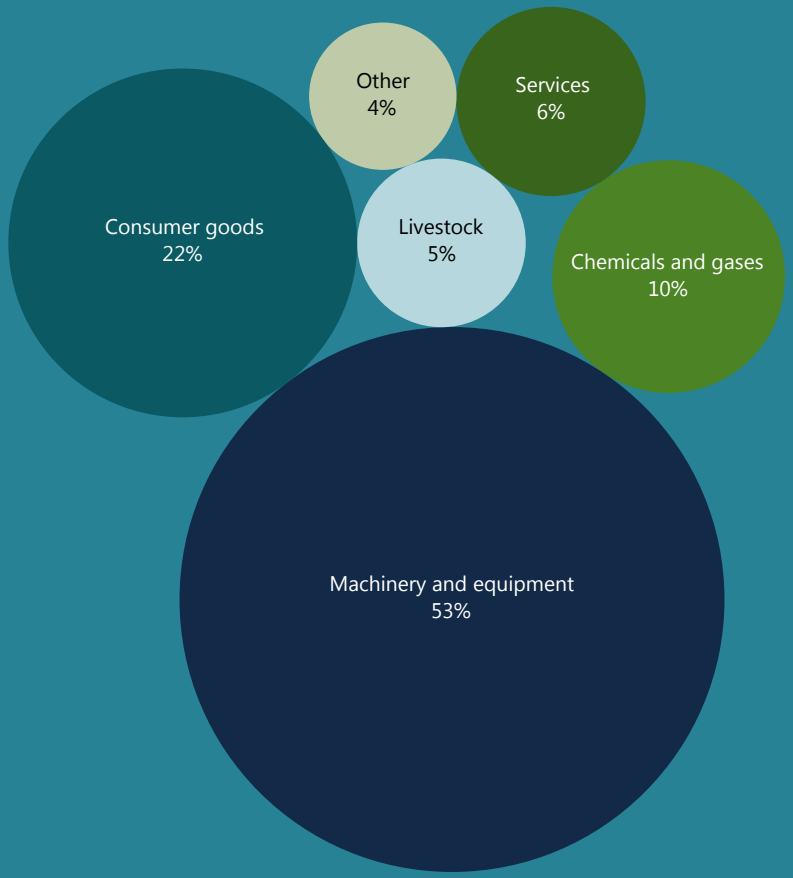
The climate footprint from laboratories rose significantly from 2022 to 2023, due to increased procurement of machinery and equipment, including extraordinary investments, which decreased again in 2024, causing the **climate footprint to decrease by approximately 15% since 2023.**

In 2024, machinery and equipment accounted for 53% and consumer goods 22%, representing 75% of the entire category.

Climate footprint from laboratories

(shown in tonnes CO2e)





Machinery and equipment include cooling and freezing equipment, measuring instruments, spectroscopic equipment and microscopes.

Consumer goods include surgical equipment, cell culture equipment, filters, pipettes and pipette tips.

Chemicals and gases include advanced chemicals, basic chemicals, gases for teaching and research, bottle rental and tanks, etc.

Services include servicing and inspection of laboratory equipment, dental services and funerals.

Livestock includes laboratory animals, feed, litter, equipment for animal experiments and animal hospital.

Other includes equipment for plants, forestry and aquaculture etc.

Travels

Travels accounted for approximately 10% of the total climate footprint in 2024, down by approximately 7% since 2018.

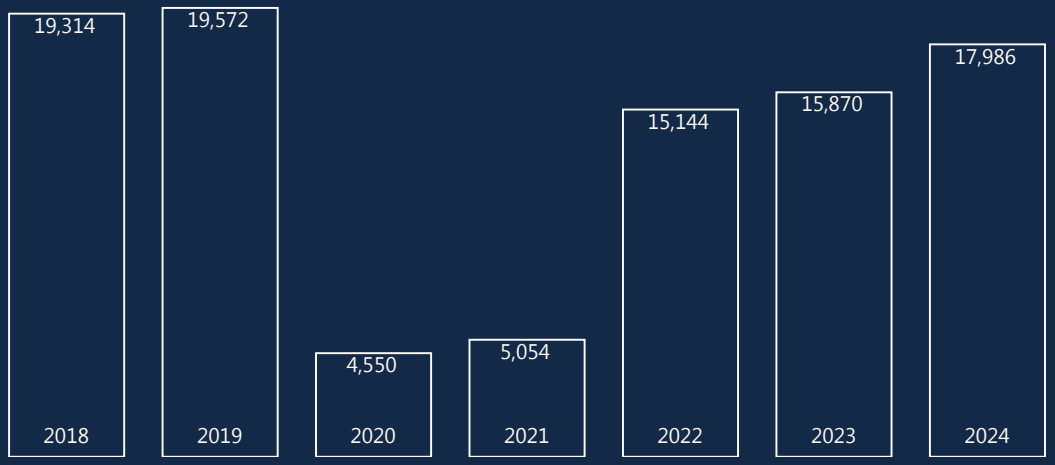
During the COVID-19 pandemic in 2020 and 2021, the climate footprint from travels reduced significantly, primarily due to a decrease in air travel. The reduction in the travel climate footprint was among the main reasons why the University's overall climate footprint also decreased in those years.

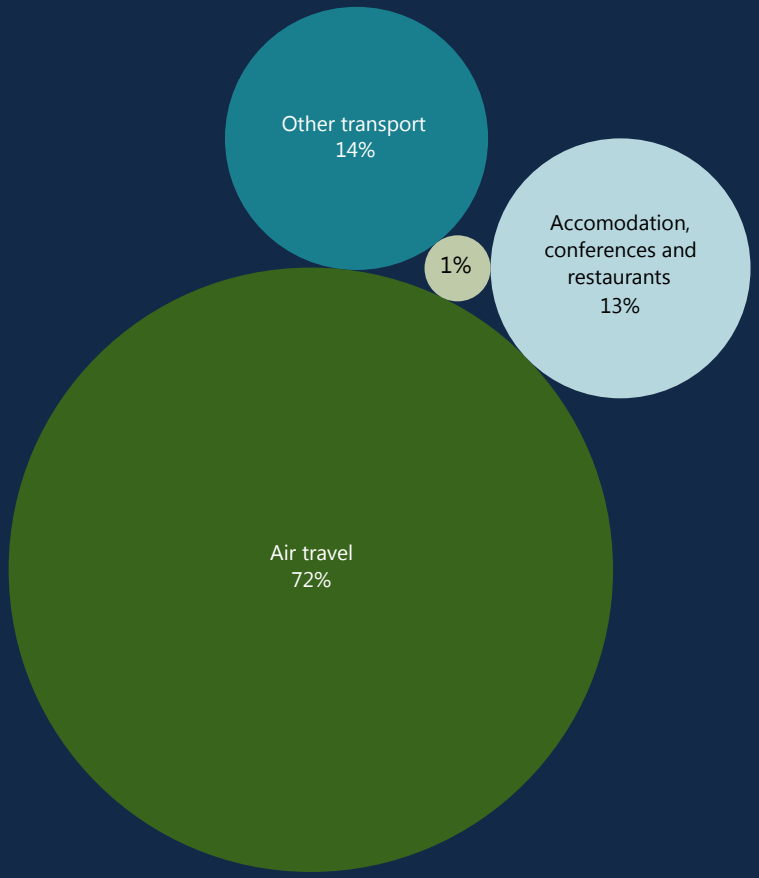
2022 saw a significant increase in travels on account of society returning to normal after the pandemic. The climate footprint continued its upward trend in 2023 and 2024. **From 2023 to 2024, the climate footprint rose approximately 13%.**

In 2024, air travel accounted for 72% of the category, thus constituting the primary category for reducing the climate footprint from travel.

Climate footprint from travels

(shown in tonnes CO2e)





Air travel in connection with work-related travelling, conferences, seminars, fieldwork, etc.

Other transport, including buses, trains, taxis and car rental in connection with work-related travel. Commuting is not included.

Accommodation, conferences and restaurants in connection with work-related travel.

Travel-related services, including travel agents, interpreters, guides, etc.

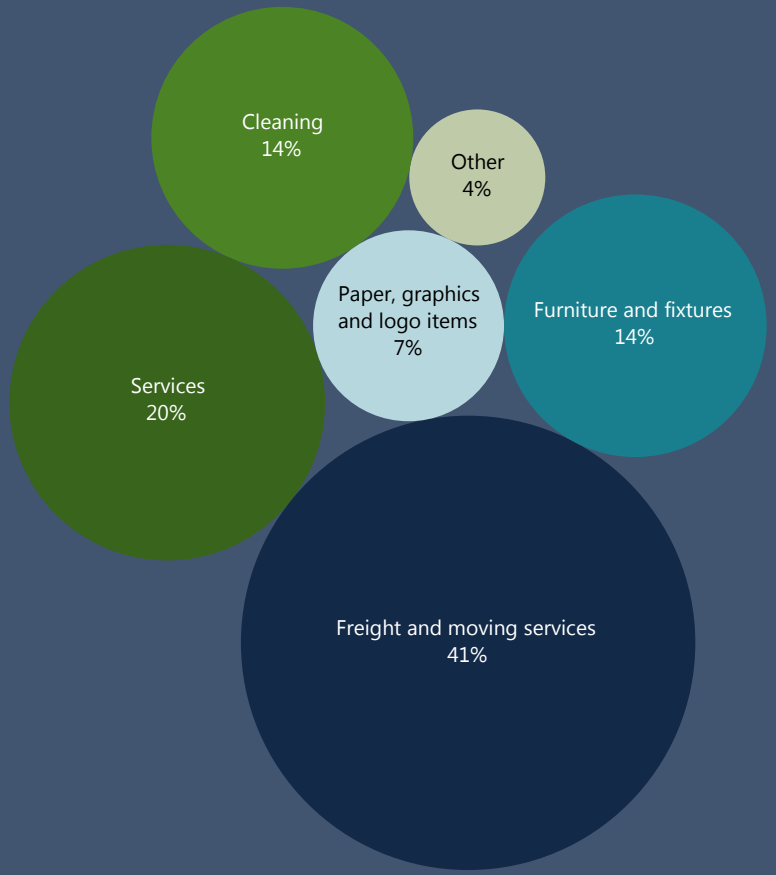
Office equipment

Office equipment accounted for approximately 6% of the total climate footprint in 2024, down by approximately 7% since 2018. The decrease is primarily due to lower consumption of furniture and fixtures.

Office equipment consists of many different types of products and services that support the daily workplace (both physically and professionally) and therefore chiefly relates to staff.

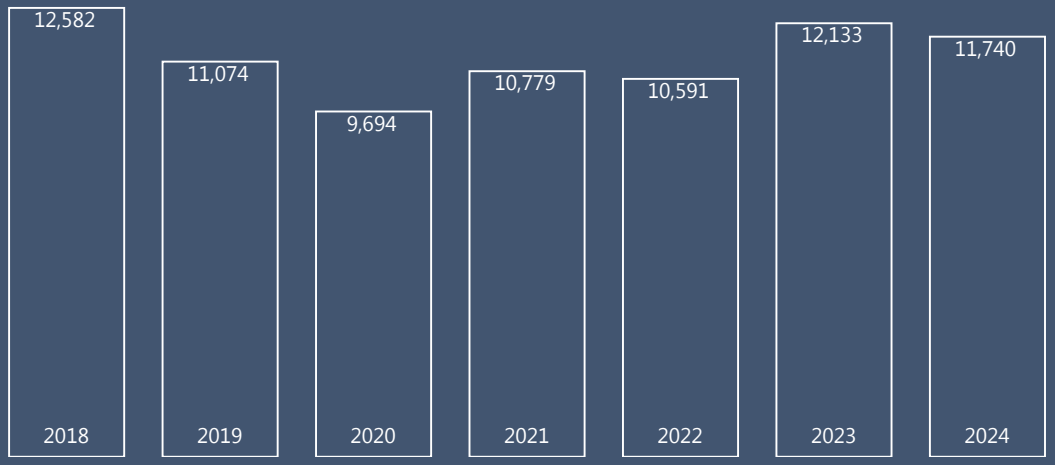
Since 2023, the climate footprint has decreased by approximately 3% due to lower consumption of furniture and fixtures, and various services.

In 2024, freight and moving services accounted for 41% and services 20%, totalling 61% of the category. In addition, furniture and fixtures, along with cleaning, accounted for 28% of the category.



Climate footprint from office equipment

(shown in tonnes of CO2e)



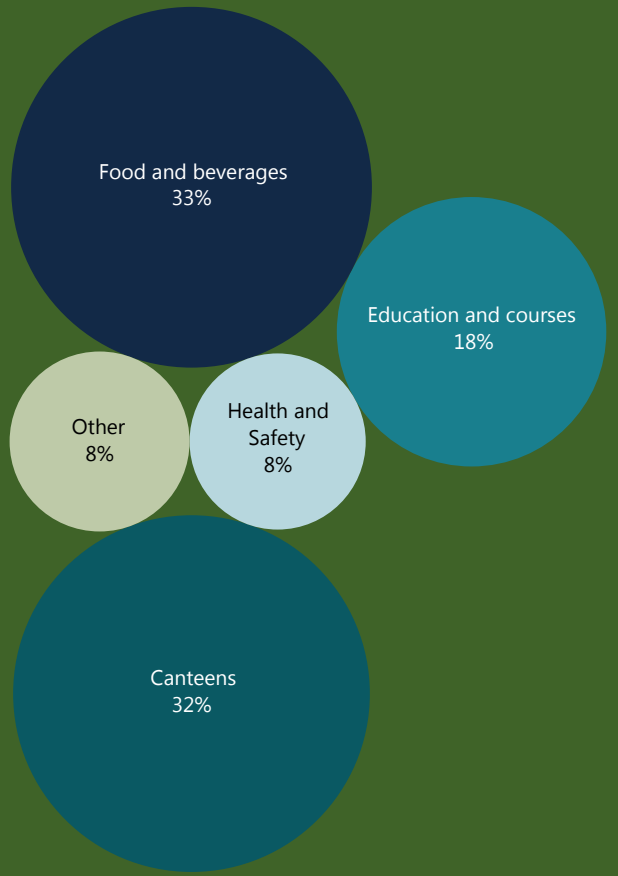
- **Freight and moving services** include shipping of goods, stamps, storage and removal for UCPH, etc.
- **Services** include management consultancy, analysis services, HR consultancy, PR consultancy, recruitment, temp services, etc.
- **Cleaning** includes cleaning services, window cleaning, dry cleaning services, cleaning products and tools, etc.
- **Furniture and fixtures** include lighting, tables, canteen furniture, cupboards, sofas, etc.
- **Paper, graphics and logo items** include advertisements, merchandise, photocopying etc.
- **Other** includes boards, desk accessories, etc.

Staff expenses

Staff expenses accounted for approximately 3% of the total climate footprint in 2024, down approximately 8% since 2018. The decrease is primarily due to a reduced consumption of food and beverages purchased outside the canteens. Staff expenses primarily consists of food and beverages bought either for work purposes or in the University's canteens for lunch and meeting catering. The category does not include food and beverages consumed at restaurants and hotel stays, which are included under travel.

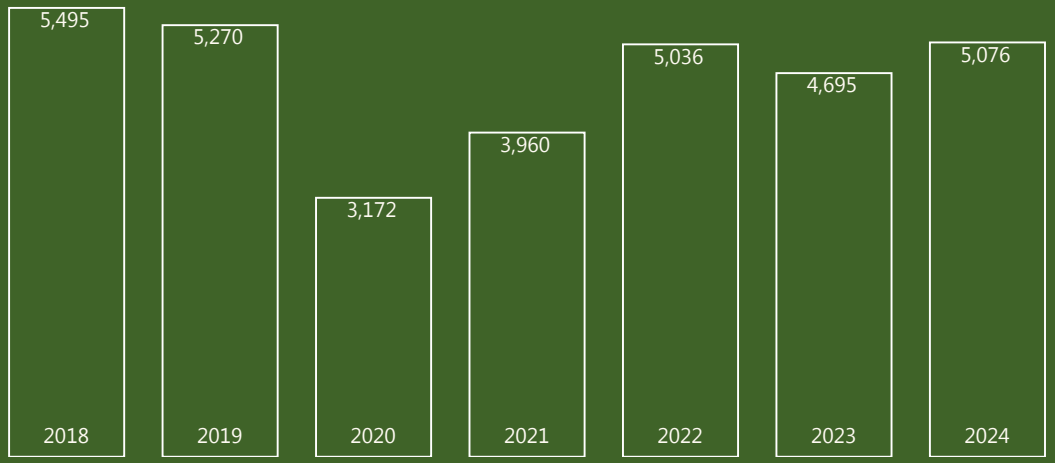
Since 2023, the category has increased by approximately 8%, primarily due to increased emissions from canteens, reflecting the increase in full-time equivalents and students.

In 2024, food and beverages accounted for 33% and canteens 32%, totalling 65% of the category.



Climate footprint from staff

(shown in tonnes of CO2e)



Food and beverages not purchased from canteens include purchases made at external locations for trips, meetings, conferences, etc.

Canteens include all food and beverages purchased in UCPH's canteens, including catering. Equipment and energy consumption are not included.

Education and courses include mentor schemes, skills development, courses, teambuilding, etc.

Health & Safety and associations include psychological services, aids, physiotherapy, chiropractors, etc.

Other includes, for example, entertainment and art.

IT

IT accounted for approximately 4% of the total climate footprint in 2024, up by approximately 60% since 2018.

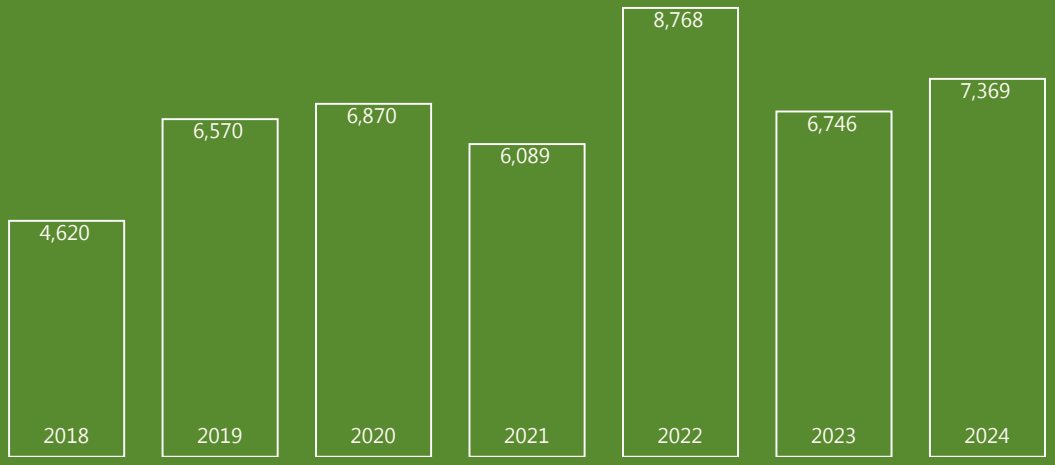
The hardware category is the primary cause of climate footprint fluctuations over the years and the chief cause of the increase from 2018 to 2024, as well as an extraordinary increase in 2022. For hardware, as for new buildings, the climate footprint from investments in installations is included in the year in which they are purchased. That is why fluctuations occur in some years.

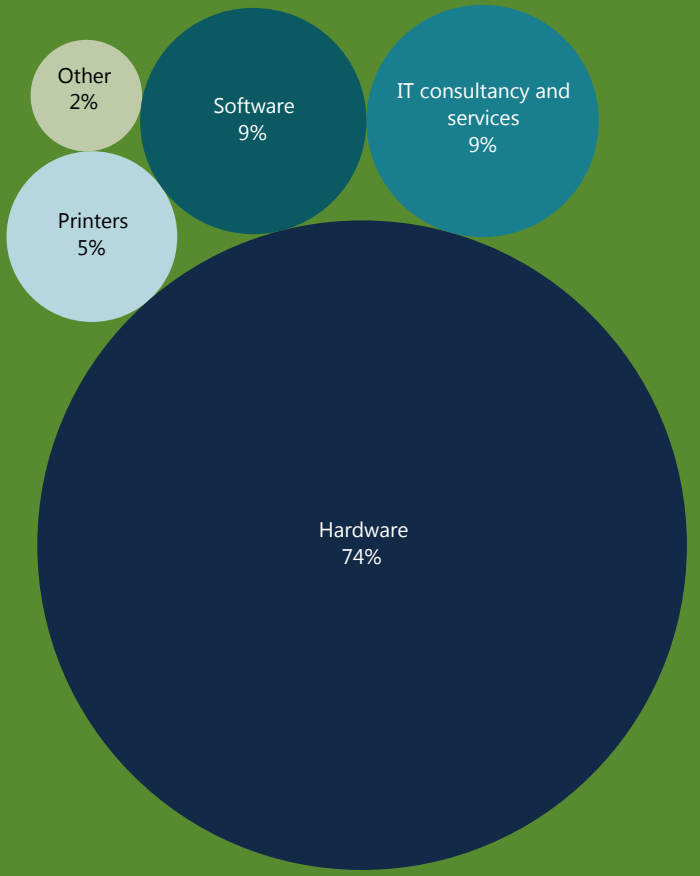
Since 2023, the climate footprint from IT has increased by approximately 9%.

In 2024, hardware accounted for 74%, constituting the key category for reducing emissions from IT. Hardware includes, for example, computers, phones, storage and servers. Energy consumption associated with the University's own servers is included under the category 'Energy'.

Climate footprint from IT

(shown in tonnes of CO2e)





Hardware includes computers, phones, monitors, keyboards, storage, servers and network components.

Software includes network software, development software, enterprise management, IT security.

IT consultancy and services include software support, mobile subscriptions and Internet services.

Printers and multi-purpose machines include photocopiers, printers and multi-purpose machines.

Other includes, for example, AV equipment, photo equipment and technical inspections.

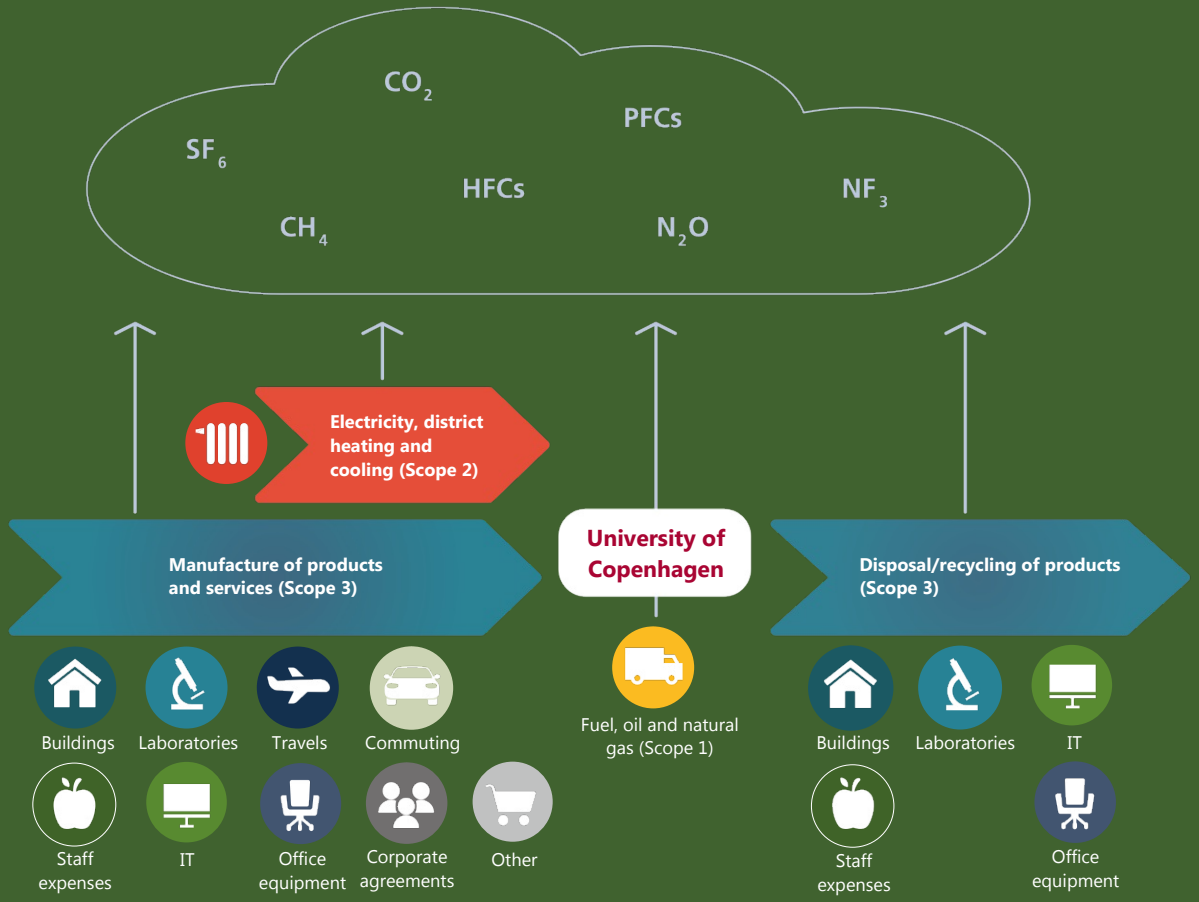
Methodology

Approach

UCPH follows the internationally recognised Greenhouse Gas Protocol (GHG Protocol) to prepare the University's climate accounts. For more information about the GHG protocol, see http://ghgprotocol.org. The GHG Protocol divides an organisation's emissions into three 'scopes' (sources of emissions). To the right are the three scopes, which are illustrated based on activities at the University.

In addition to the standards of the GHG protocol, the methods used for data collection and calculation are based on approaches developed in collaboration with the other Danish universities, which, under Universities Denmark, have drawn up a joint consensus document (Collaborative approaches to greenhouse gas inventory in higher education: Insights from the Universities Denmark Group). UCPH keeps improving the quality of data sources with the accounts improving year by year. **The baseline is revised as better methods and more accurate data become available, and the latest accounts are the most accurate.**

Improved data and method development are still needed for some categories under scope 3 (procurement). To assess more accurate effects of sub-initiatives, alternative category-specific life-cycle based methods must be used.



Description of methodology

Methods and data

The climate account is based on a combination of methodology and data, including:

- Supplier data: Collecting CO2e data from suppliers in high quality and carried out using recognised methods.
- Unit data: Quantitative consumption data (quantities) are used where possible and multiplied by an emission factor.
- Average data: Average national or global data converted to UCPH circumstances.
- Financial data Financial data (procurement data) is used when other data is unavailable and multiplied by an emission factor.

For several categories in scope 3, EXIOBASE is used as the best possible database of emission factors. The database is nationally used, for example in connection with global reporting, the national green procurement strategy and in nationally offered tools for calculation etc. The database is also used by recognised climate advisors, e.g. NIRAS, VMAS and Concito. The latest version was developed in 2021-2023 based on 2016 statistics. EXIOBASE is continuously being developed.

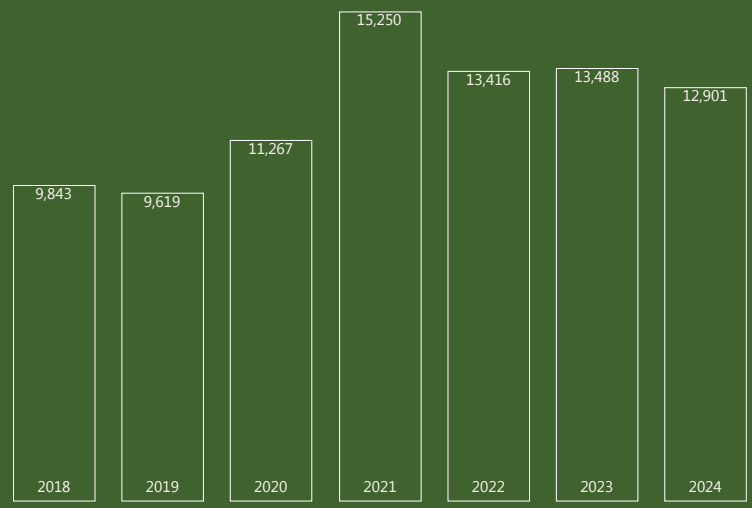
Comments on energy

All renewable energy sources are made up as 0 tonnes of CO2e by the utilities. Life-cycle-based emissions from the production of plant or indirect emissions from the burning of biomass are not included.

Currently, biogenic emissions must be made up as 0 tonnes of CO2e according to IPCC, as emissions are included in the country where the biomass is produced. According to the GHG protocol, biogenic emissions should not be included in the total climate footprint but calculated separately. The diagram to the right shows total emissions associated with biofuels in district heating. Total tonnes of CO2e from biogenic emissions increased from 2018 to 2024, as heating supplies from HOFOR increasingly consist of biofuels.

If biogenic emissions are included in the 'Energy' category, the climate footprint would increase by approximately 86% in 2024, and energy would account for approximately 14% instead of approximately 8% of the total climate footprint in 2024. In addition, the University's total climate footprint would increase by approximately 7% in 2024.

Biogenic emissions
(shown in tonnes of CO2e)



GHG Scope	KU-data source	Emission factor	Comments (low to high data quality)
Scope 1 • Fuel • HFC (refrigerants) • Natural gas • Heating oil • Town gas	HFCs and fuel: Recorded consumption is obtained from procurement data. Heating oil, natural gas and town gas: Measured consumption is obtained through MinEnergi2.	HFC: Australian Government Natural gas and heating oil: Danish Energy Authority. Town gas: HOFOR. Fuel: DEFRA.	The quality of scope 1 data is estimated to be medium.
Scope 2 • Electricity • District heating • District cooling	Measured consumption (MWh) is obtained fromthe energy data collection systemMinEnergi2.	Official emission factors from the utilities' environmental declarations are obtained. Environmental declarations calculated using the 125 % method are used. Electricity: Energinet. District heating and district cooling: HOFOR.	The quality of scope 2 data is estimated to be medium to high. National change in the biomass emission factor from 0 tonnes of CO2e today could mean significant increases in scope 2 emissions. Emissions from biomass have been estimated, as shown under methodology.
Scope 3 • Laboratories • Office equipment • Corporate agreements • Other	Consumption (DKK) from invoice data is obtained through the procurement system.	EXIOBASE version 4.	The data quality for scope 3 depends on whether the data source is 'spend-based' or 'process-based'. For 'spend-based' calculations, the data quality is estimated to be low to medium, and for 'process-based' calculations, the data quality is estimated to be medium to high.
• Area use	Total square meters at UCPH.	Emission factors prepared by Aalborg University (AAU) using data from LCAbyg.	The calculations are based on the consequences of area use. Data quality: low to medium.
• New buildings	Total square metres for buildings commissioned by the University.	Emission factors from the Real ESG tool developed by Property Denmark.	The calculations are based on generic values for new construction. Data quality: low to medium.
• Air travel	CO2e statements from suppliers.	DEFRA.	Data quality: medium to high.
• Canteens	CO2e statements from suppliers.	The Big Climate Database.	Data quality: medium to high.
• Commuting	Full-time equivalents and student full-time equivalents.	DTU Transport Habits Survey.	Data quality: low.

Contact

Publication

The climate accounts were prepared by the group unit UCPH Buildings at the University of Copenhagen in the first half of 2025 and approved by management in August 2025. The accounts were published in autumn 2025 at: http://sustainability2030.ku.dk

Contact

For further information on methodology and data, please contact Rikke Lindahl Olsen, the University's data manager for sustainability, at klimadata@ku.dk.