Carbon Accounting

Measuring, tracking, and reporting our carbon footprint

2024/25

UNIVERSITY OF BIRMINGHAM

Our approach to sustainability at the University of Birmingham

The University of Birmingham was England's first civic university, founded on social responsibility. Now, 125 years later, we see no greater responsibility than ensuring our planet thrives to support future generations. We have embodied our commitment to sustainability within our Birmingham 2030 Strategic Framework, outlining our approach to delivering positive change, not only through our research, education, operations and partnerships, but through the behaviour and actions of our students and staff, and our engagement with our local communities.

You can read more about our progress on our website.

UNIVERSITY OF BIRMINGHAM

43rd

Globally

QS World University rankings: Sustainability 2026

Read more about our Top 50 position

16th

In the UK

QS World University rankings: Sustainability 2026

Read more about our national position

84th

In the UK

People & Planet University League 2025/26

Read more about our ranking

Carbon Targets

Our journey towards net zero

UNIVERSITY OF BIRMINGHAM

Our net zero goals

***Our Strategy*: We will make annual gains in reducing our carbon footprint, aiming to achieve net zero carbon for scope 1 and 2 by 2035 and overall by 2045**

To track our longer-term progress to net zero, we have set interim 'stepping-stone' targets to 2030; these will measure our performance in the short term to ensure that we remain on the right trajectory towards achieving our net zero goals by 2045.

We aim to meet our 'stepping-stone' reduction targets for Scopes 1 and 2 by investing in building maintenance and targeted capital improvements; we anticipate achieving our most significant reduction in Scope 1 and 2 emissions between 2030 and 2035, through the decarbonisation of our on-site energy centre and the ongoing decarbonisation of Britain's electricity mix. We aim to reduce our Scope 3 supply-chain emissions by a third by 2030, adapting our internal frameworks and practices and working with suppliers who mirror our sustainability goals and values.

Our approach to carbon reduction is outlined in our Carbon Management Plan.

- 2020/21 Base year
- 2024/25 Reporting year
- 2027/28 **Stepping-stone target 2027:** 18% reduction in Scopes 1 & 2
- 2030/31 **Stepping-stone target 2030:** 20% reduction in Scopes 1 & 2; 36% reduction in emissions from purchased goods and services
- 2035/36 **Strategic goal 2035:** aiming to achieve net zero in Scopes 1 & 2
- 2045/46 **Strategic goal 2045:** aiming to achieve net zero in Scope 3

UNIVERSITY OF BIRMINGHAM

Our Progress

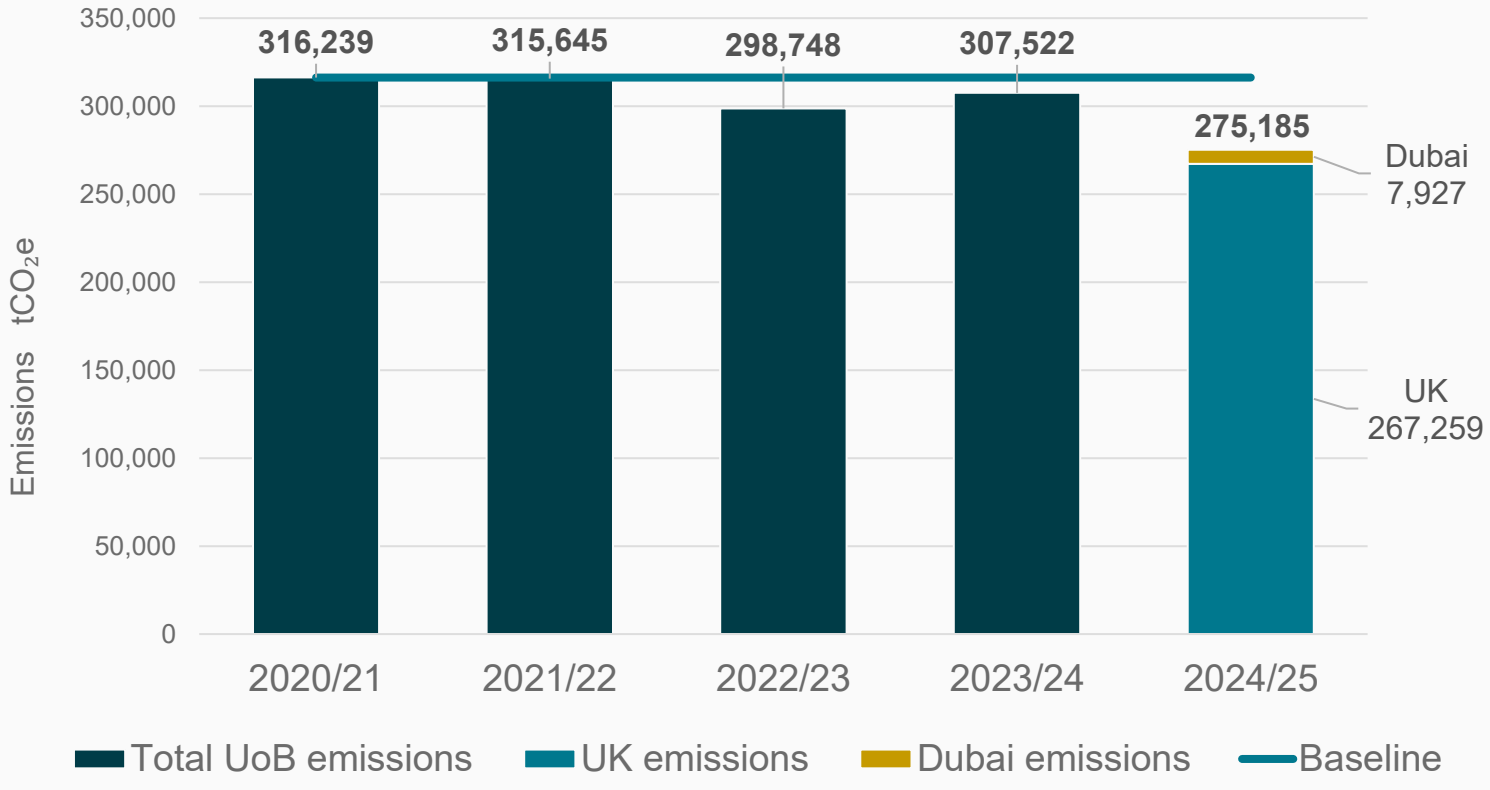
Institutional performance 2024/25 against our baseline and our carbon-reduction activity (last 12 months)

UNIVERSITY OF BIRMINGHAM

Our institutional carbon performance (by tCO_2e)

Our carbon emissions total is now **13% below our baseline**, which was set in 2020/21.

From this year onward, we will present our emissions derived from our UK operations and satellite campus in Dubai separately within our institutional performance data. Separating emissions by campus' gives a clearer picture of performance and supports more targeted carbon management.



tCO_2e = tonnes of carbon dioxide equivalent; a standard measure of carbon emissions.

2020/21 Base year

2024/25 Reporting year – Achieved:
14% reduction in Scopes 1 & 2;
20% reduction in emissions from purchased goods and services;
13% reduction in Scope 3

2027/28 **Stepping-stone target 2027:**
18% reduction in Scopes 1 & 2

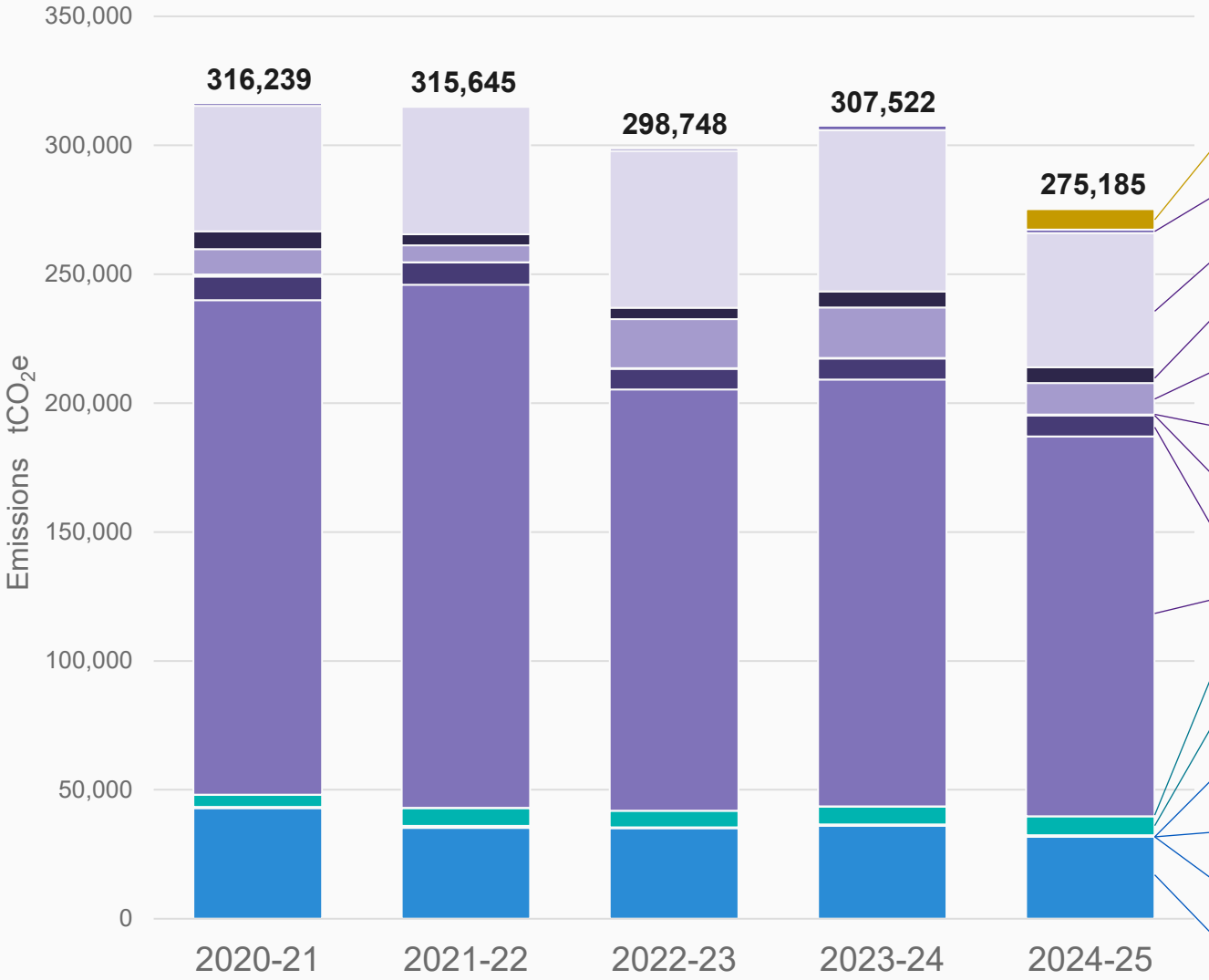
2030/31 **Stepping-stone target 2030:**
20% reduction in Scopes 1 & 2;
36% reduction in emissions from purchased goods and services

2035/36 **Strategic goal 2035:**
aiming to achieve net zero in Scopes 1 & 2

2045/46 **Strategic goal 2045:**
aiming to achieve net zero in Scope 3

Our institutional carbon performance (by emissions category)

UNIVERSITY OF BIRMINGHAM



Emissions (tCO_2e)	Emissions category
7,927	Dubai operations
1,305	Leased buildings (downstream)
52,026	Student commuting and home visits
6,166	Staff commuting and working from home
12,262	Business travel
14	Waste
235	Water and wastewater
8,125	Fuel and energy procurement emissions
147,343	Purchased goods and services (procurement) emissions
75	Heat and steam
7,278	Purchased electricity
10	Other fuels
448	Refrigerants
149	Fleet fuel
31,822	Natural gas

Scope 3

Indirect emissions that occur because of University activity, from sources we don't own e.g., purchased goods and services, travel, disposal of waste

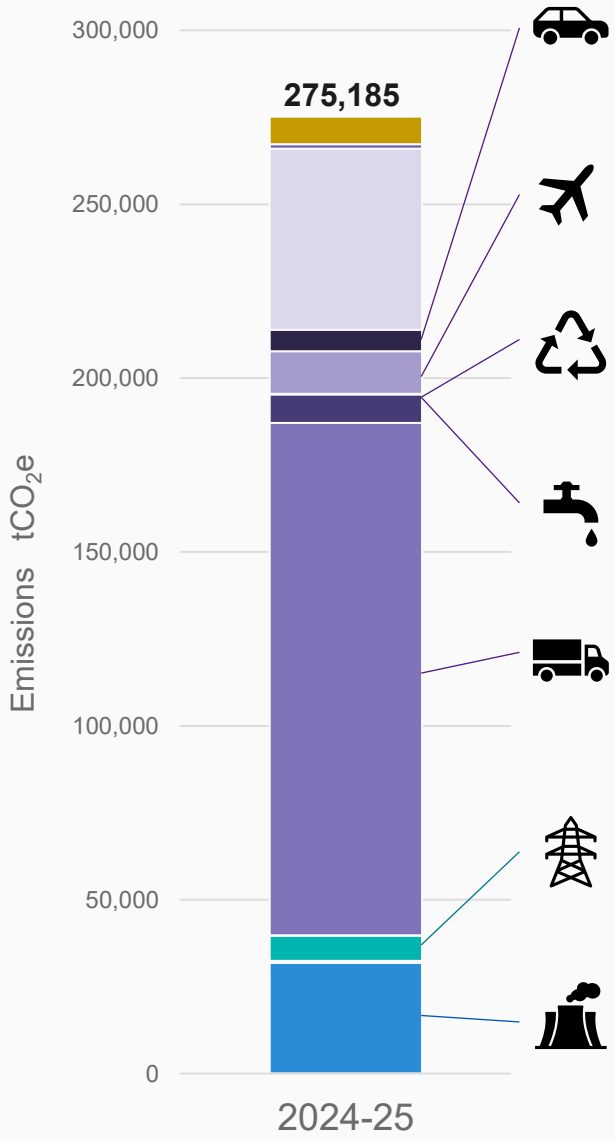
Scope 2

Indirect emissions that result from the generation of purchased energy that we consume, e.g., imported electricity.

Scope 1

Emissions that come from sources that we directly own and control, e.g., combustion of fuel in boilers and for power generation, laboratory infrastructure, and university-owned vehicles.

What are we doing to reduce our Carbon Footprint?



Staff commuting and working from home
We are improving facilities and services to support more sustainable commuting, including discounted bus passes, a low-emissions vehicle scheme, expanded EV charging, and enhanced cycling provision such as training, repairs, and secure storage. Hybrid working also continues to reduce commuting emissions.

Business travel
We have shared travel guidance to encourage lower-carbon options for essential journeys and are improving travel data insight and reporting to support informed decisions on when and how to travel.

Waste
In line with UK Simpler Recycling reforms, we have introduced food waste collections in our student accommodation, alongside new bin signage across campus to reduce contamination. Opportunities to adopt more circular approaches are also being explored, including within our research laboratories, supported by the development of a dedicated strategy. Building on our successful Junkbusters reuse campaign, we are holding a 'Pack & Pass' event to promote reuse at our on-campus accommodation.

Water and wastewater
We are expanding data logging of water supplies across campus to support targeted water investigations. We are developing a water infrastructure management plan which will help us to identify opportunities to rationalise supplies and reduce losses from ageing infrastructure.

Purchased goods and services (procurement) emissions
We have updated our Sustainable Procurement Policy and how we run tenders to support more sustainable purchasing. We are working with colleagues and suppliers to improve how we measure emissions from the goods and services we buy (Scope 3), and to build partnerships that support shared sustainability goals. We are also working with other UK universities to develop a common approach to engaging suppliers and collecting data and take more joined-up action to reduce emissions across our supply chains.

Purchased electricity
We are planning for the long-term future of our electrical networks so they can support heat pumps and the infrastructure needed for our net zero and growth ambitions. Our capital-project plans prioritise efficient electric design. We are improving our energy-performance dashboards to help us understand how buildings use electricity and how we can reduce demand.

Natural gas
We are installing a heat pump to replace fossil-fuel heating and cooling at our Institute for Biomedical Research, due for completion in 2027. We are also exploring where heat pumps could replace gas in other buildings, alongside options to decarbonise our energy centre and heat networks. We continue to upgrade outdated building-management systems and develop our energy-performance dashboards so we can spot opportunities to reduce gas use and improve efficiency.

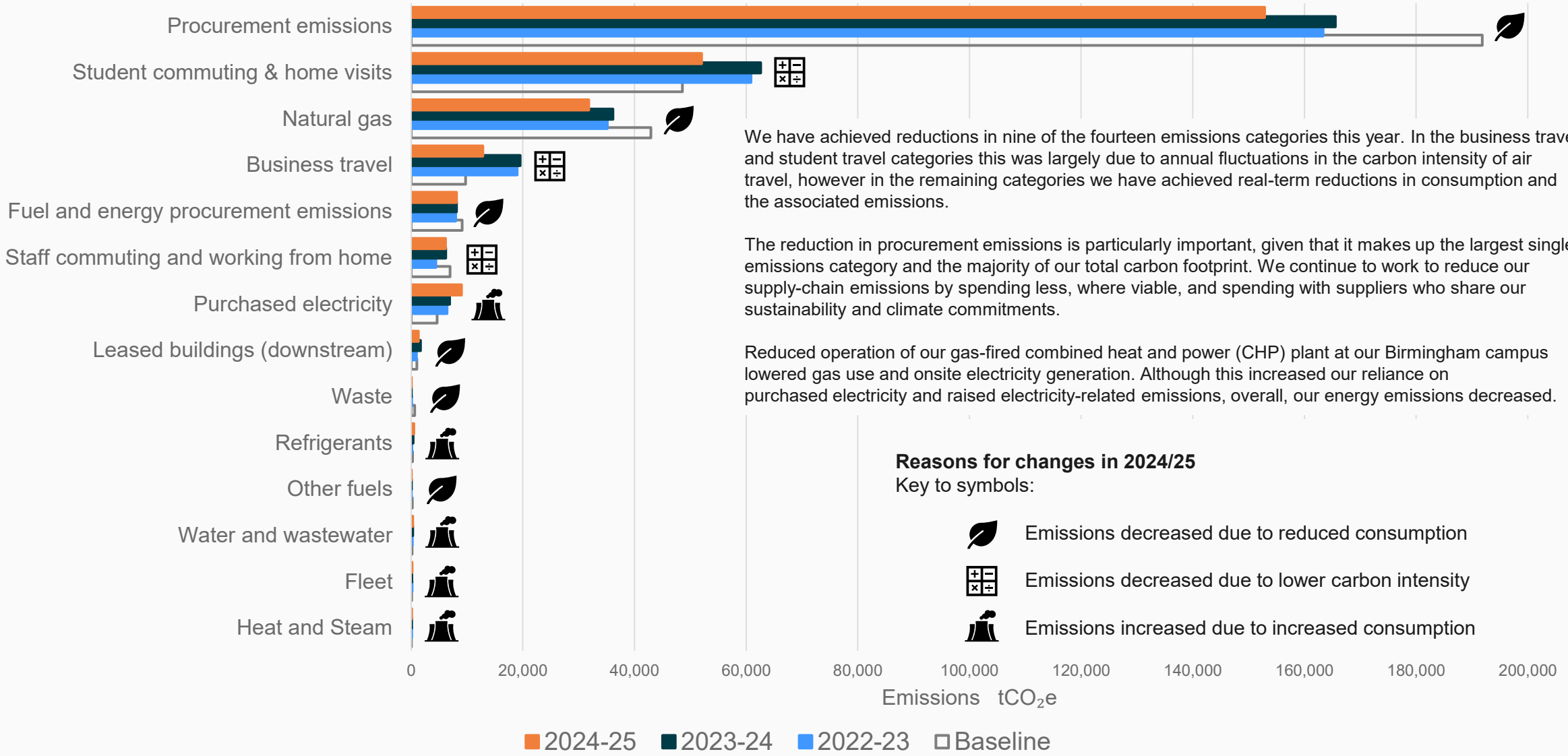
Carbon performance: baseline to 2024/25

UNIVERSITY OF BIRMINGHAM

Scope	Emission category	2020/21 Emissions (tCO_2e)	2021/22 Emissions (tCO_2e)	2022/23 Emissions (tCO_2e)	2023/24 Emissions (tCO_2e)	2024/25 Emissions (tCO_2e)
1	Natural gas	42,923	35,208	35,150	36,122	31,822
1	Fleet fuel	75	340	154	124	149
1	Refrigerants	225	500	111	345	448
1	Other fuels	192	17	23	42	10
2	Purchased electricity	4,652	6,833	6,426	6,883	7,278
2	Heat and steam	24	85	93	75	75
3	Purchased goods and services (procurement) emissions	191,866	202,948	163,336	165,533	147,343
3	Fuel and energy procurement emissions	9,145	8,516	7,974	8,136	8,125
3	Water and wastewater	185	168	210	263	235
3	Waste	628	57	75	25	14
3	Business travel	9,767	6,555	18,975	19,534	12,262
3	Staff commuting and working from home	6,962	4,204	4,434	6,179	6,166
3	Student commuting and home visits	48,565	49,532	60,854	62,587	52,026
3	Leased buildings (downstream)	1,031	680	933	1,672	1,305
All	Dubai operations	*	*	*	*	7,927
	Total	**316,239†**	**315,645**	**298,748**	**307,522**	**275,185**

* Prior to 2024/25, Dubai data was reported in the main emissions categories along with our UK emissions.
† The 2020/21 total was incorrectly rounded to 316,240 in the report for 2022/23 and 2023/24.

Changes over time



We have achieved reductions in nine of the fourteen emissions categories this year. In the business travel and student travel categories this was largely due to annual fluctuations in the carbon intensity of air travel, however in the remaining categories we have achieved real-term reductions in consumption and the associated emissions.

The reduction in procurement emissions is particularly important, given that it makes up the largest single emissions category and the majority of our total carbon footprint. We continue to work to reduce our supply-chain emissions by spending less, where viable, and spending with suppliers who share our sustainability and climate commitments.

Reduced operation of our gas-fired combined heat and power (CHP) plant at our Birmingham campus lowered gas use and onsite electricity generation. Although this increased our reliance on purchased electricity and raised electricity-related emissions, overall, our energy emissions decreased.

Reasons for changes in 2024/25

Key to symbols:

- Emissions decreased due to reduced consumption
- Emissions decreased due to lower carbon intensity
- Emissions increased due to increased consumption

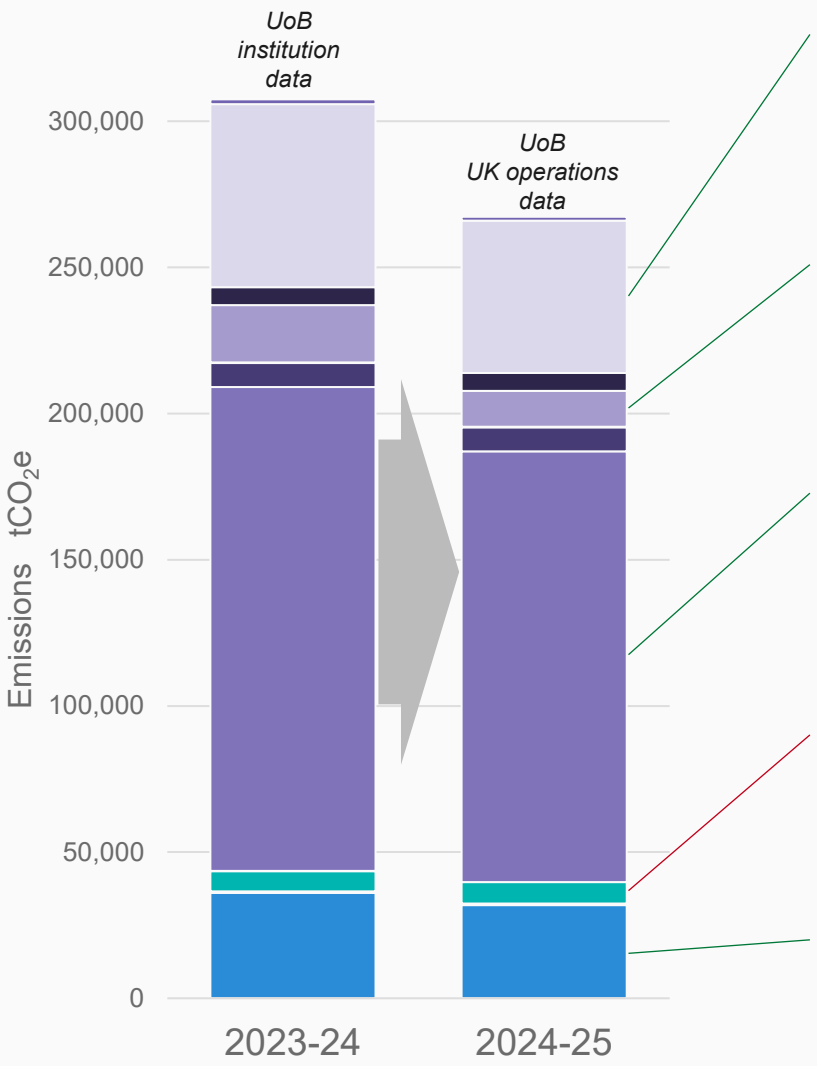
Our Data

UK Emissions 2024/25

A closer look at the carbon performance of our UK operations in key categories

UNIVERSITY OF BIRMINGHAM

Key changes 2024/25 (UK)



Student commuting & home visits

Down 16.9%

The carbon intensity of flying fell significantly in 2024/25, with carbon emissions from domestic flights down 16%, short-haul flights down 31%, international flights down 19%, and long-haul flights down 42%. This resulted in a drop in our emissions for student home travel despite a 7% increase in our student population (FPE). For more about changes to flight conversation factors, see this DESNZ paper.

Business travel

Down 37.2%

The lower carbon intensity of flying significantly reduced our business travel emissions. While total travel distance increased by 10% during 24/25, spending on other travel decreased. An error that had overstated emissions in past years was also identified and has been corrected for 2024/25.

Purchased goods and services (procurement)

Down 11.0%

The reported reduction in our UK operations procurement emissions is largely due to a decrease in overall procurement spend, alongside the separation of Dubai campus' emissions into its own category, the increased proportion of spend for which our supplier-specific method was used, and the updated spend factors in the Higher Education Supply Chain Emissions Tool (HESCET).

Purchased electricity

Up 5.7%

We imported 39% more electricity than in 2023/24, due to reduced operation of our CHP plant (see slide 10).

Natural gas

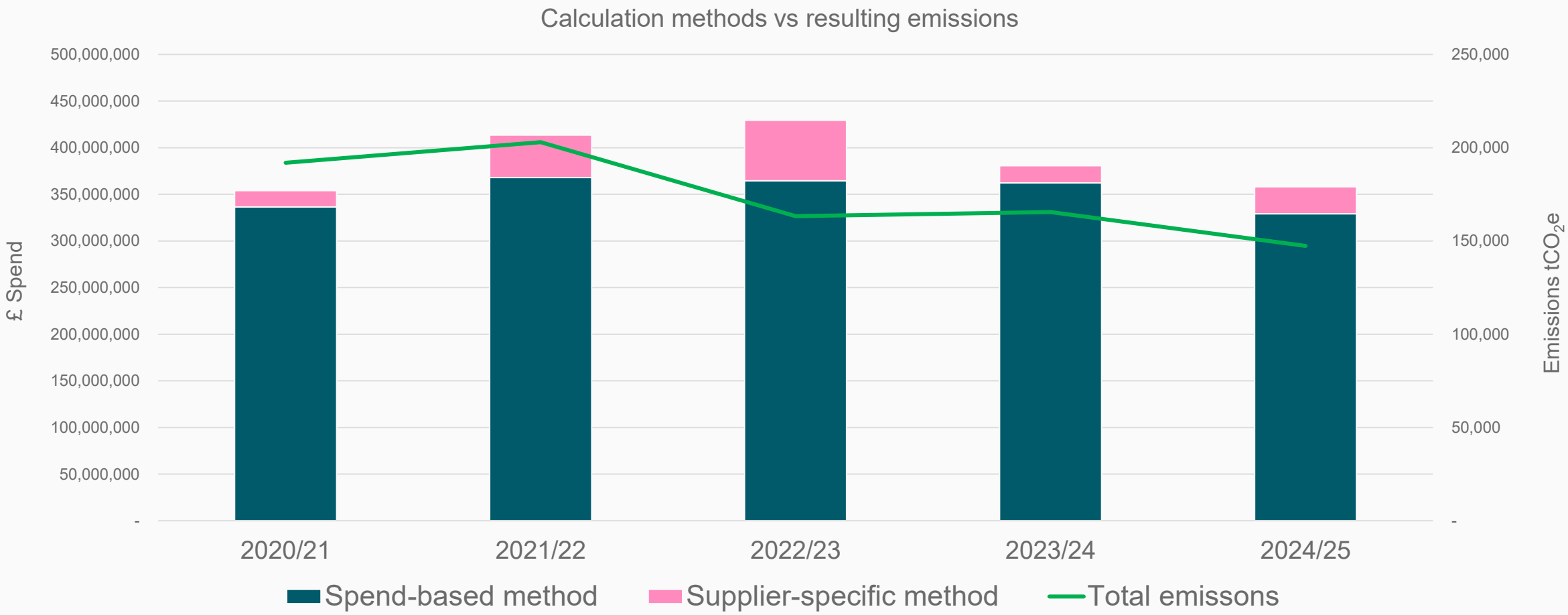
Down 11.9%

Natural gas emissions decreased by 11.9% this year, driven by reduced operation of the CHP plant (see slide 10)

N.B. Business travel, procurement, water, and electricity figures for 2023-24 include Dubai emissions. For 2024/25, our Dubai emissions in these categories amounted to 7,915 tCO2e (see Our Data: Dubai Emissions 2024/25 below). Our annual comparison will be limited in the short-term until we can build our volume of UK operations data.

Key categories – Procurement (UK)

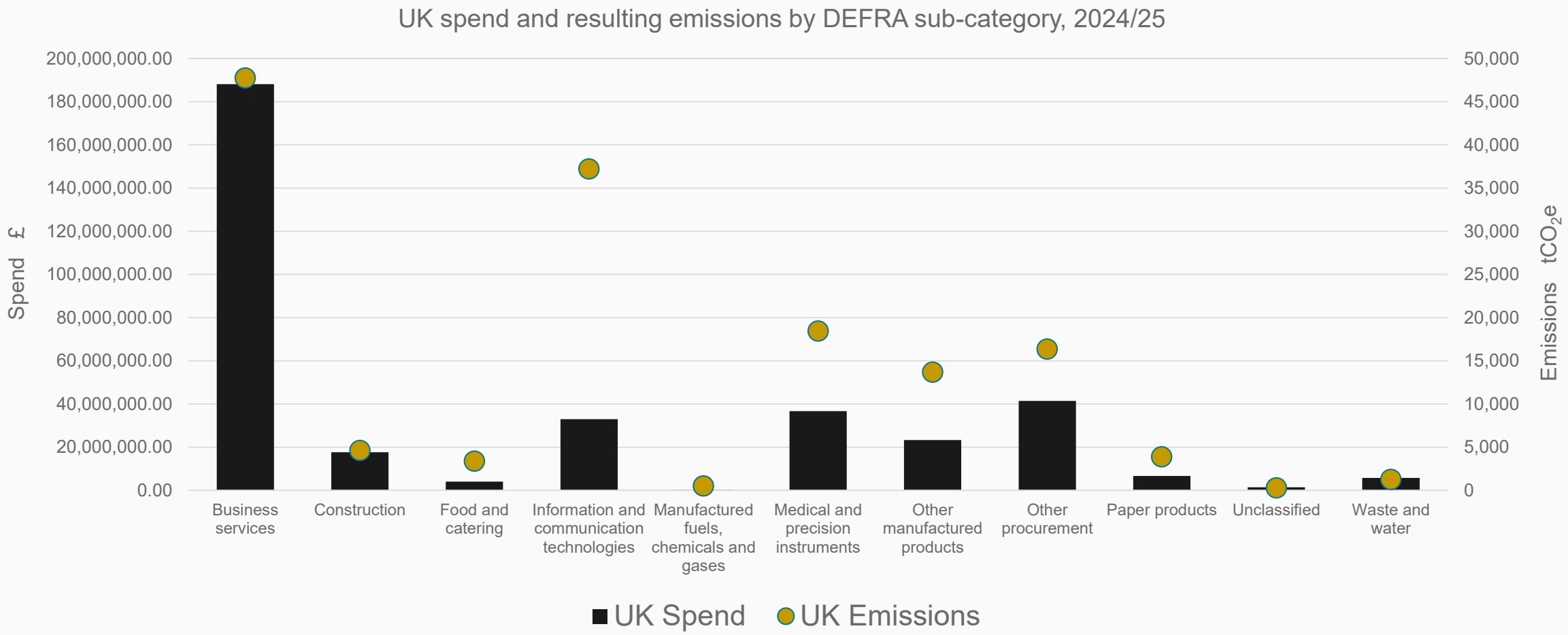
Emissions from purchased goods and services (procurement) decreased in 2024/25 due to reduced overall spend and increased use of supplier-specific emissions data. We aim to use actual emissions data from suppliers wherever possible, replacing spend-based estimates.



N.B. Figures for years before 2024/25 incorporate Dubai operations. For 2024/25, our Dubai spend amounted to £11.3M (see Our Data: Dubai Emissions 2024/25 below).
Our annual comparison will be limited in the short-term until we can build our volume of UK operations data.

Key categories – Procurement by type (UK)

In 2024/25, UoB's UK operations spent more on business services than any other category; these services include professional, digital, facilities, communications and other administrative support services. This category also generated the highest supply-chain emissions. The second-largest source was information and communication technology, which has high emissions compared to spend, as shown below.



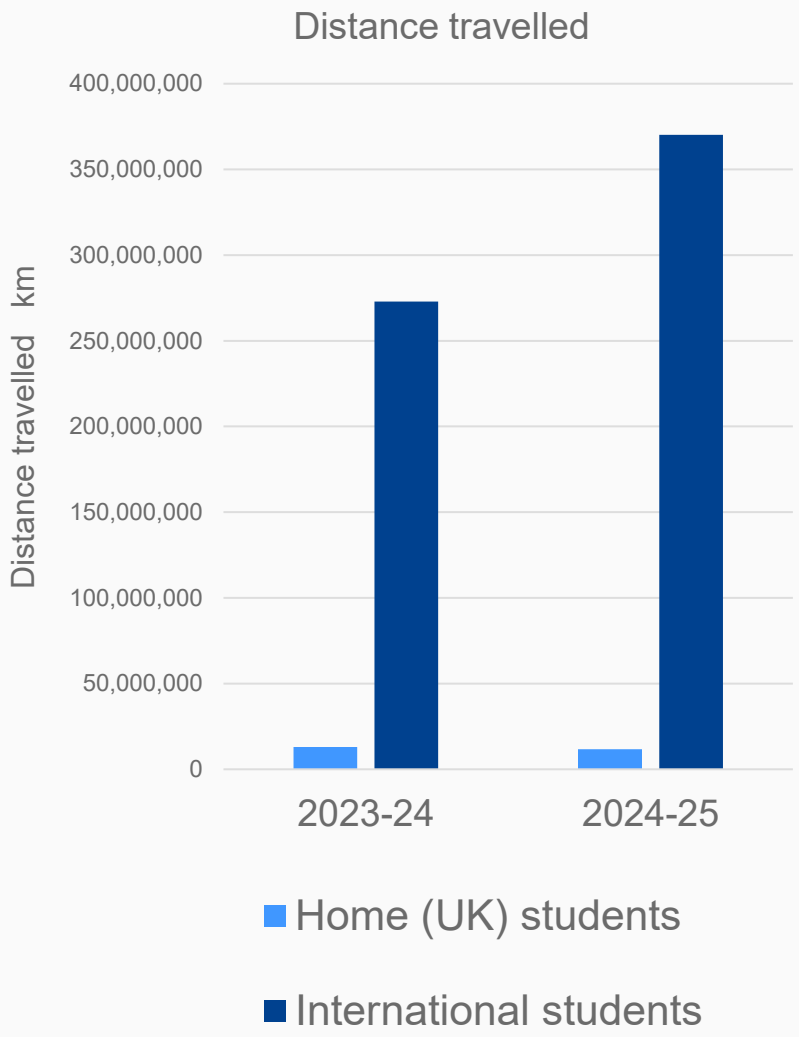
Key categories – Student home visits (UK)

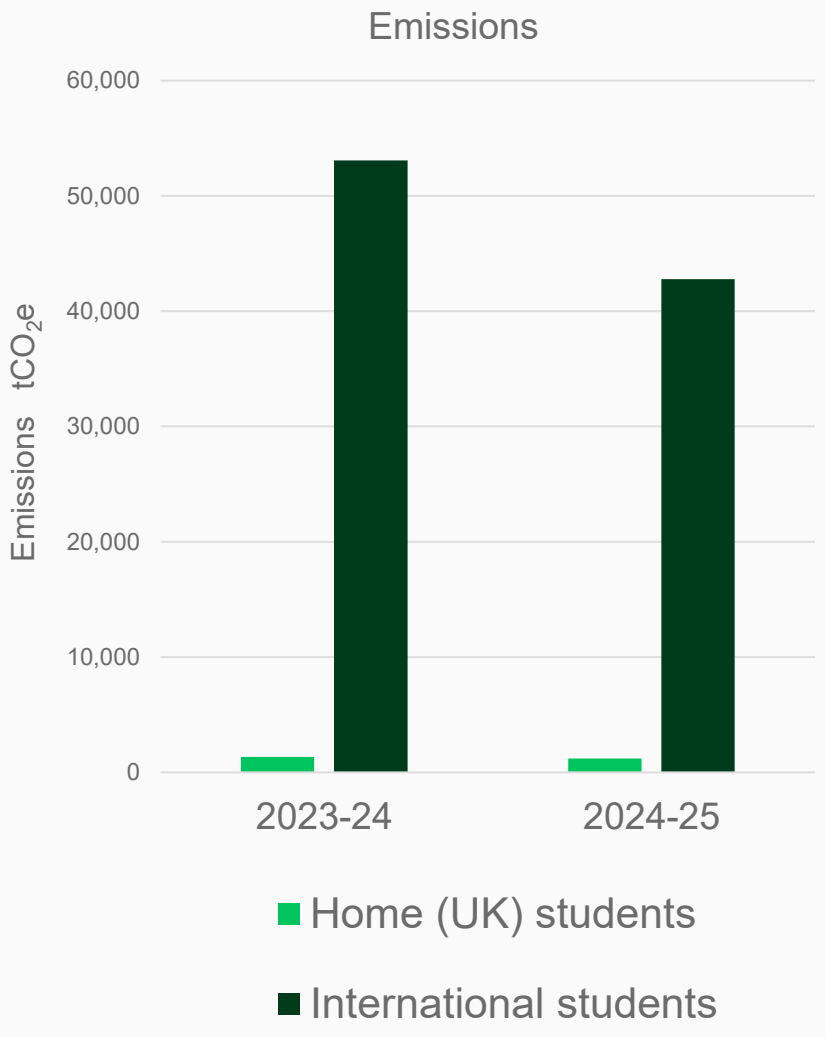
We estimate emissions from student travel by assuming each student makes two return trips home per year, using a recognised tool developed by the University of Aberdeen and EAUC Scotland.

Emissions from student travel decreased in 2024/25, despite increases in student numbers and estimated travel distances for international students. This reduction is primarily due to a significant decrease in the government-published carbon intensity factors for air travel, rather than a reduction in travel itself.

Reducing student numbers is not a feasible mitigation approach for our University. As a result, student travel remains one of our most challenging carbon emissions sources.

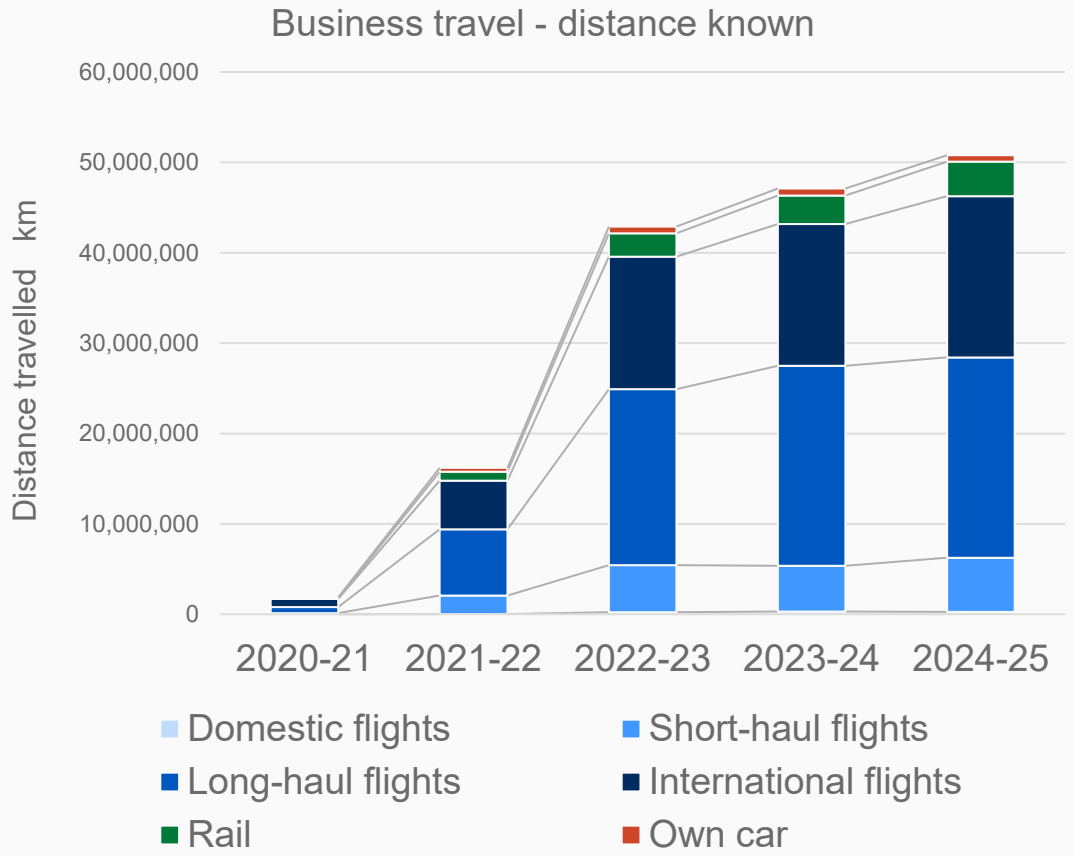
We will continue to explore options to better understand and influence travel behaviour, improve data quality, and identify practical interventions to reduce our impact over time.

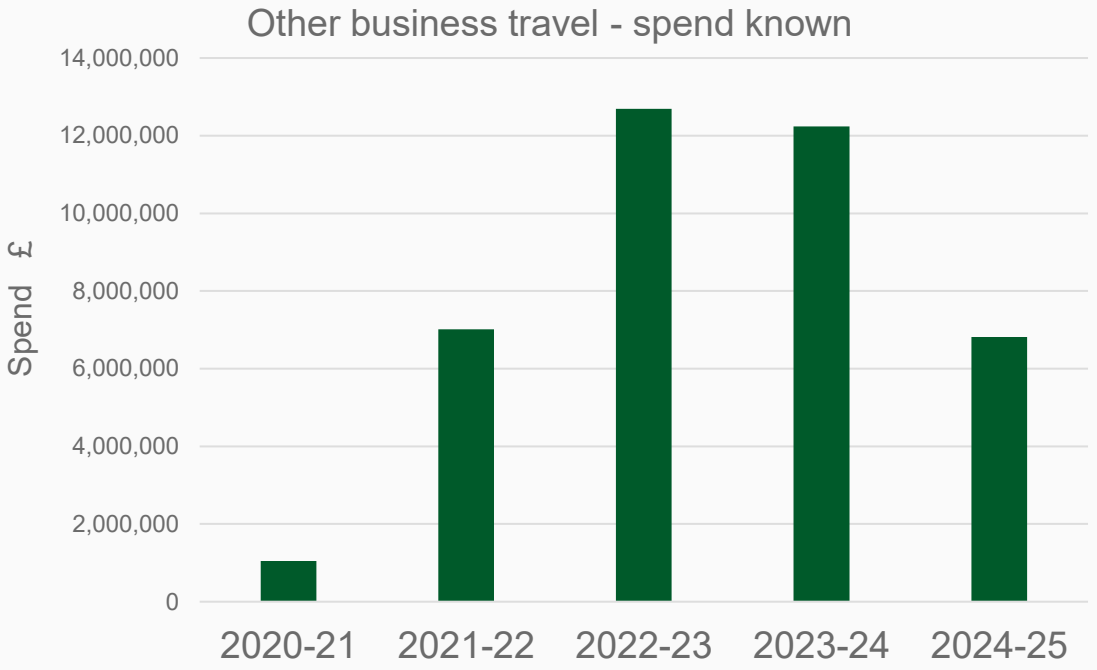




Key categories – Business travel (UK)

Although business travel emissions decreased in 2024/25, this reflects changes in how emissions are calculated by UK Government rather than reduced travel. We travelled more overall during 2024/25. As a global University that engages with the world through research, field trips, conferences, and collaborations, it is recognised that travel will be necessary for learning, teaching, research, and developing partnerships. We do not want to limit essential travel, but we do want to ensure that we use the most sustainable travel options available; we will continue to explore and adopt more sustainable travel practices.





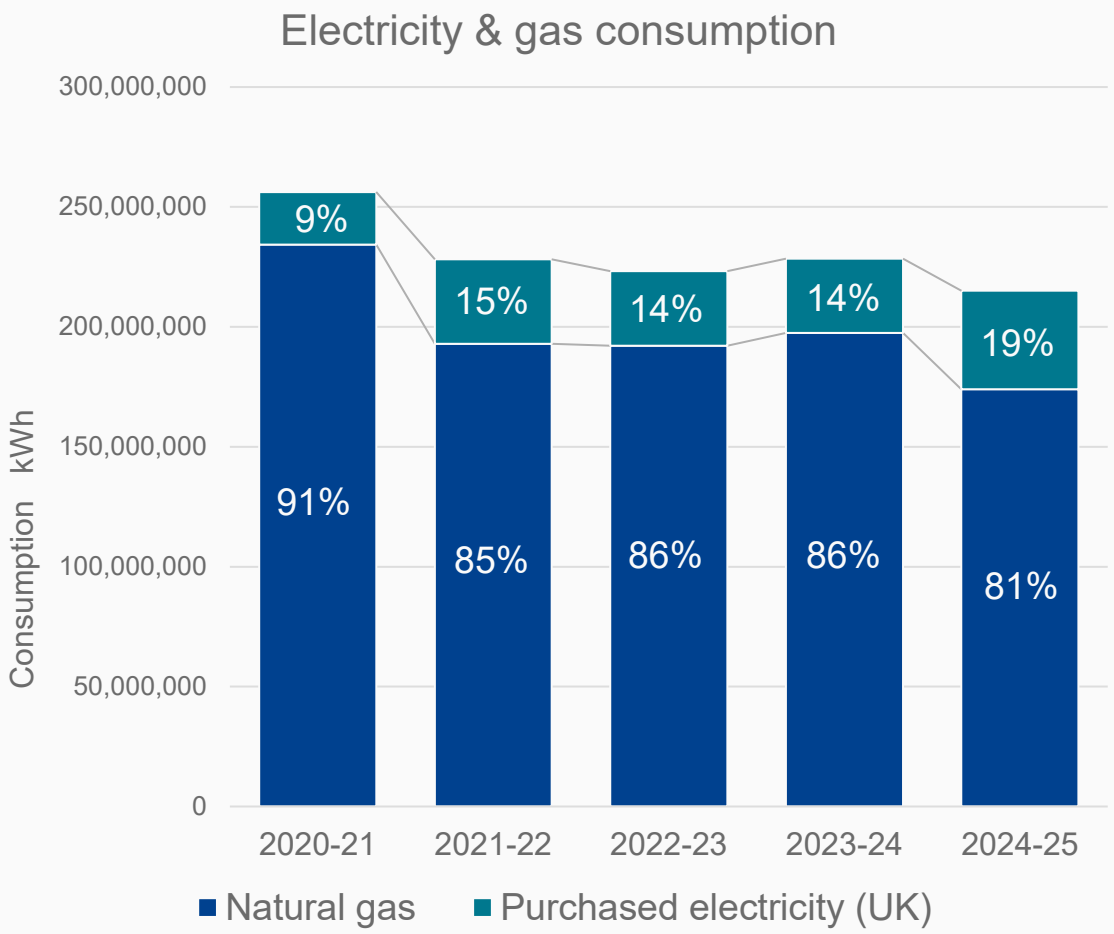
Flight classification

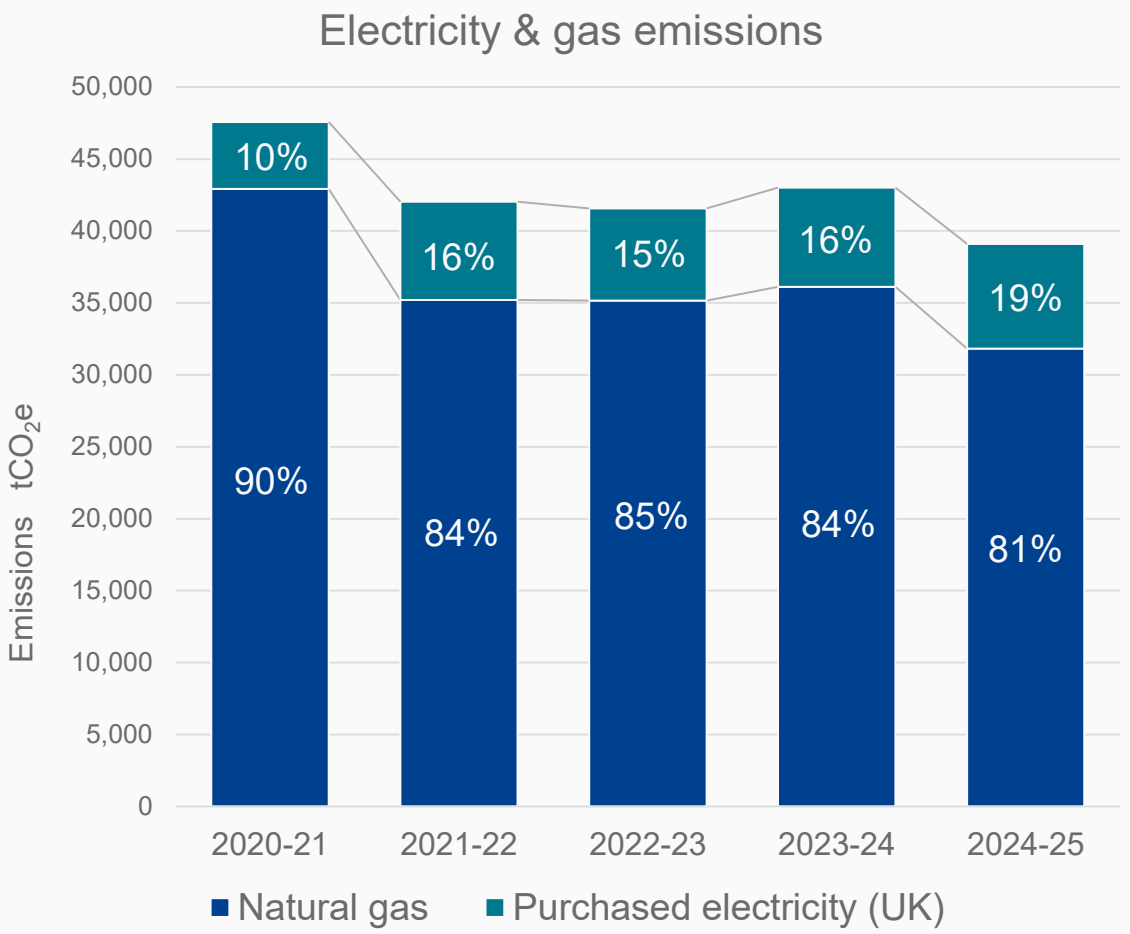
- Domestic flights are entirely within the UK
- Short-haul flights are between Great Britain and a destination within Europe
- Long-haul flights are between Great Britain and a destination outside of Europe
- International flights are between two destinations that are outside of Great Britain

N.B. Figures for years before 2024/25 incorporate Dubai operations. For 2024/25, the distance travelled as part of our Dubai operations amounted to 0.95M km (see Our Data: Dubai Emissions 2024/25 below). Our annual comparison will be limited in the short-term until we can build our volume of UK operations data.

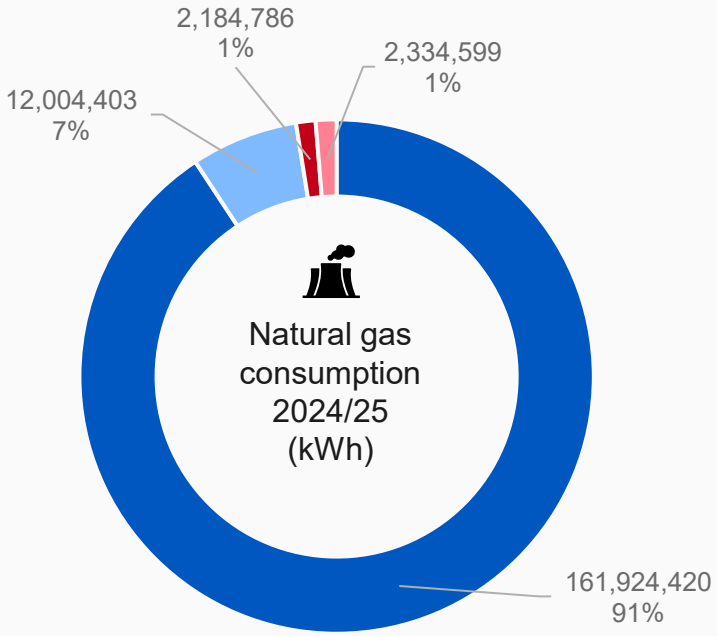
Key categories – Our energy mix (UK)

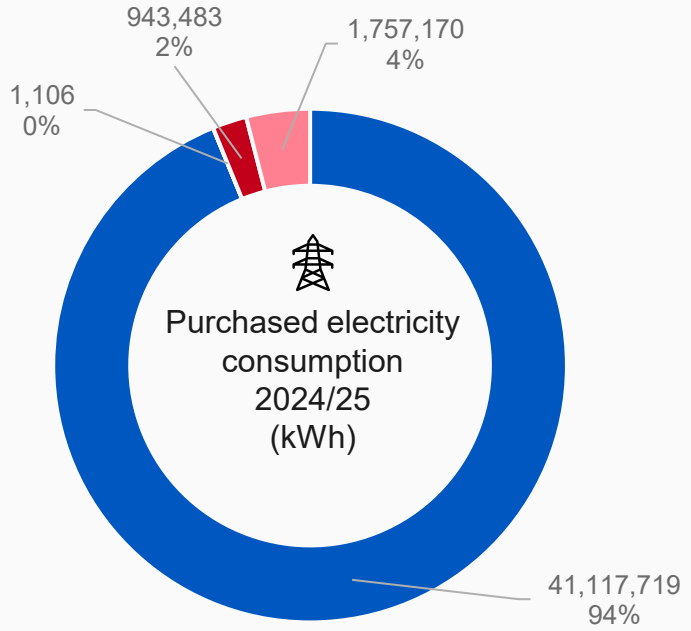
Purchased electricity is expected to make up an increasing share of our energy mix as we move away from fossil-fuel heating. We aim to decarbonise our energy supply by transitioning from imported natural gas that we use to create heat and power onsite to lower-carbon imported electricity.





Key categories – How we use energy on campus (UK)





Most of our energy (about 80% of our scope 1 and 2 emissions) comes from natural gas. We use most of this gas in our on-site Energy Centre, where it provides heating and generates electricity for buildings across campus. Because we make a lot of our own electricity, we only purchase additional electricity when we need it (the 'purchased electricity' figures); this is used to supplement on-site energy generation and by buildings that are not connected to our campus system.

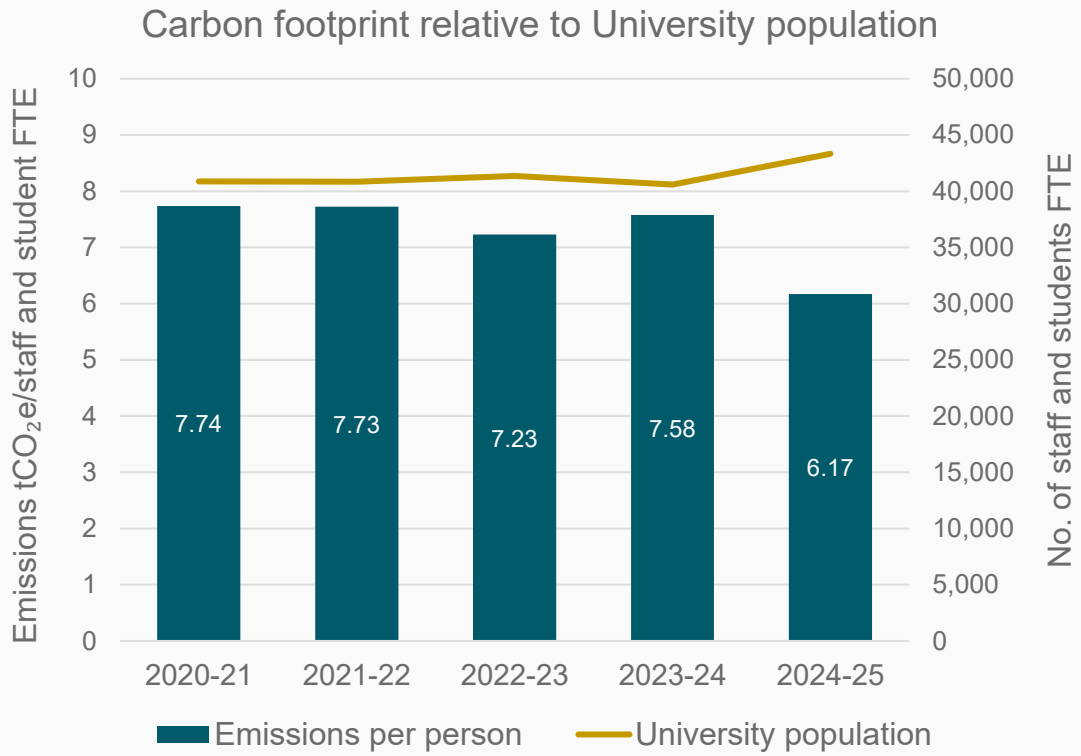
As Britain's electricity supply gets cleaner, we plan to use less natural gas and rely more on lower-carbon electricity to help cut our emissions.

Key:

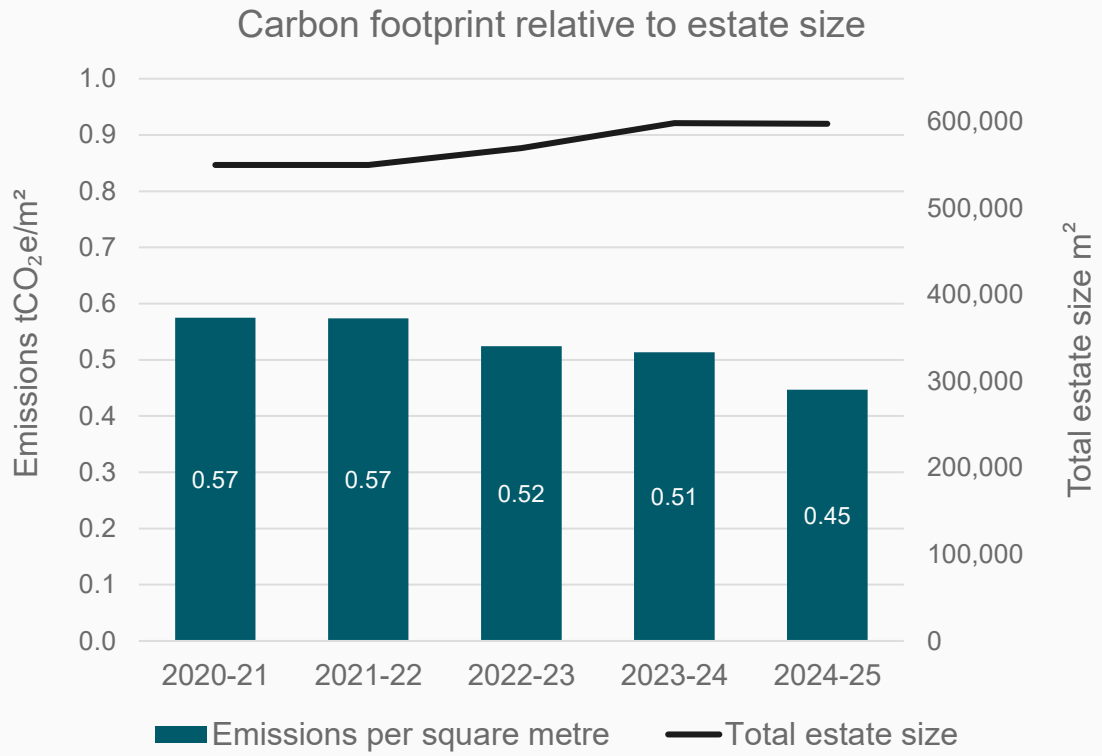
- Operational control – Teaching & research
- Operational control – Halls of residence
- Downstream leased – Teaching & research
- Downstream leased – Halls of residence

Carbon intensity (UK)

Carbon intensity is a measure of our carbon efficiency. Our carbon performance in absolute terms is outlined above; this slide shows another way of analysing our performance: environmental efficiency. For this we can look at carbon emissions per person and per square metre of our campus buildings. The smaller the number the better – a lower carbon intensity indicates a greater environmental efficiency and smaller climate impact per person or per square metre of our campus buildings.



Our environmental efficiency per person has improved this year, as we increased our population whilst reducing our carbon footprint



We have continued to improve our environmental efficiency comparative to the size of our UK estate (buildings), emitting less carbon per square metre

N.B. Emissions figures, though not population or estate size figures, for all years before 2024/25 include Dubai emissions. The calculation for 2024/25 comprises only UK emissions, making it an accurate comparison with our UK population and estate for the first time.

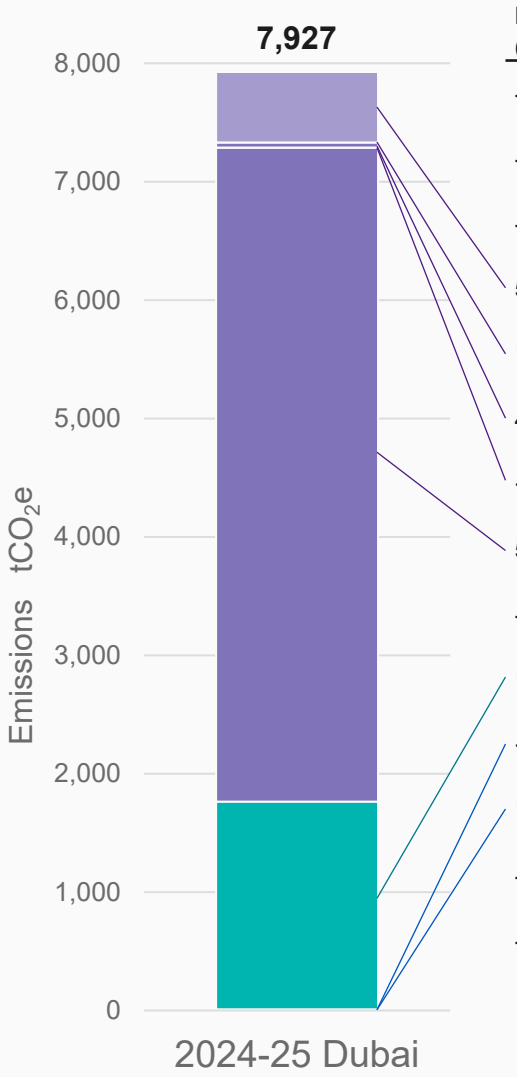
Our Data

Dubai Emissions 2024/25

A closer look at the carbon performance of our Dubai campus operations in key categories

UNIVERSITY OF BIRMINGHAM

Our carbon footprint in Dubai

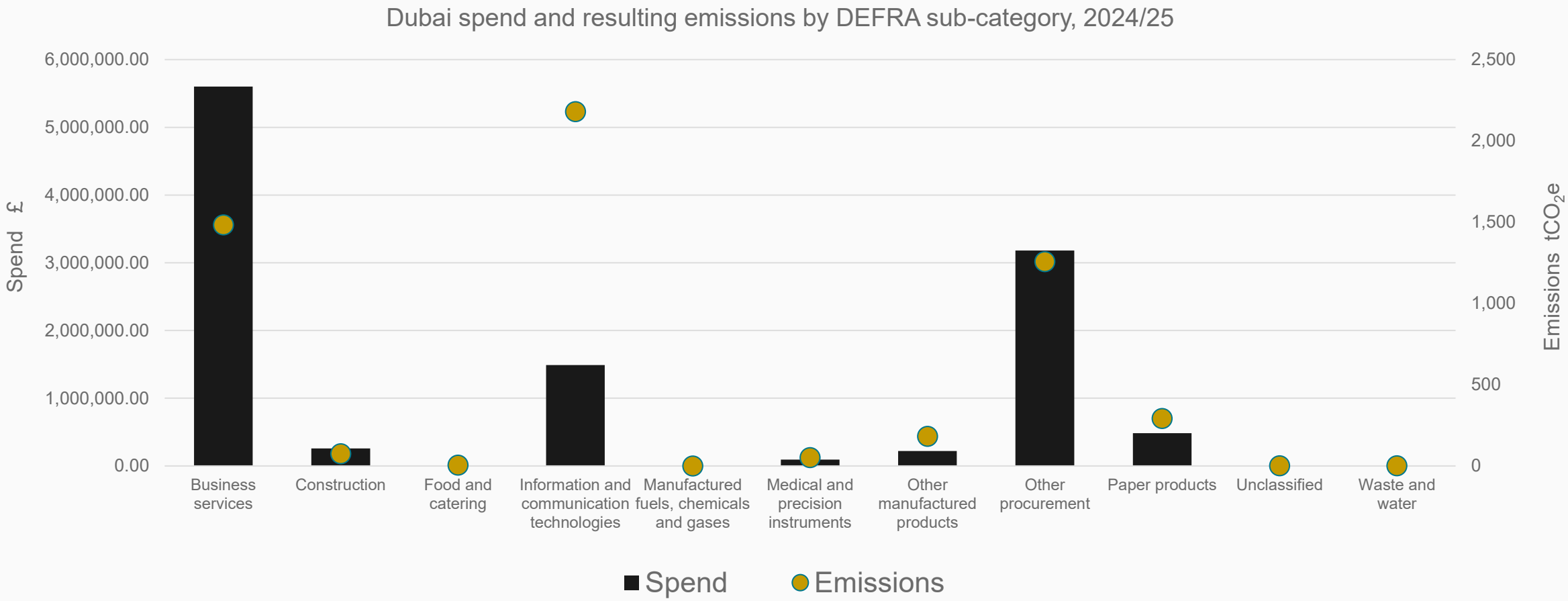


Emissions (tCO_2e)	Emissions category	Notes
-	Leased buildings (downstream)	N/A – UoB Dubai has no downstream-leased buildings
-	Student commuting and home visits	Reporting not currently available
-	Staff commuting and working from home	Reporting not currently available
594	Business travel	UK Government emissions factors used; moderate accuracy as fuel combustion emissions are comparable
1	Waste *	UK Government emissions factors used as approximation; low accuracy
42	Water and wastewater	Dubai emissions factor used
<1	Fuel and energy procurement emissions	Procurement emissions for electricity are factored into the purchased electricity category; UK Government emissions factors used as approximation for refrigerants and other fuel
5,525	Procurement emissions	UK Government emissions factors used as approximation; low accuracy
-	Heat and steam	N/A – UoB Dubai does not use heat or steam
1,755	Purchased electricity	Dubai emissions factor used; incorporates energy procurement emissions
<1	Other fuels *	UK Government emissions factors used; high accuracy as fuel combustion emissions are comparable
10	Refrigerants *	UK Government emissions factors used; high accuracy as fuel combustion emissions are comparable
-	Fleet fuel	N/A – UoB Dubai has no vehicle fleet
-	Natural gas	N/A – UoB Dubai does not use natural gas

* New for 2024/25. The categories marked with an asterisk represent data that we have not captured in previous years' reporting. For the others, these emissions were incorporated within the institutional UoB emissions categories and not separated by campus.

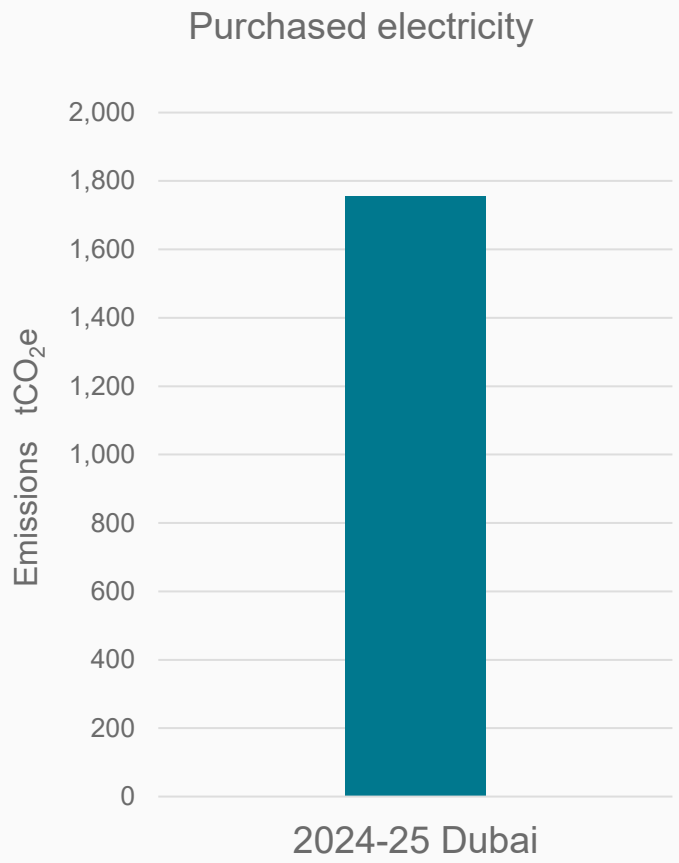
Dubai procurement

This is the first year we have separated spending in Dubai from our UK supply-chain spend. We cannot calculate procurement emissions for Dubai as accurately as we do in the UK, because there is no equivalent tool to the UK's HESCET. Instead, we have used HESCET to estimate the emissions linked to goods and services bought for our Dubai campus. This keeps our method consistent with previous years, when all spending was assessed together. In Dubai, ICT purchasing produces the most emissions, dispite being only the third largest area of spend.



Dubai – other key categories

Electricity is one of the areas where we can use Dubai-specific data to estimate emissions (the other is water). This includes emissions from how electricity is made and delivered to campus.



Most business travel linked to our Dubai operations in 2024/25 involved long-distance international flights, reflecting travel between our campuses to support teaching, study, engagement, and collaboration. We want to ensure we use the most sustainable options available where travel is necessary; we will continue to explore and adopt more sustainable travel practices when engaging with our international campus.