IMPERIAL

Sustainable Imperial

Telling Imperial's story of sustainability

Annual sustainability report 2022–23

Dangoor Plaza, South Kensington Campus

Contents

Foreword

Welcome to Imperial's first Annual Sustainability Report. This report tells the story of our journey towards sustainability from August 2022 to July 2023, building on the foundations laid out in our previous Carbon Management Reports. This isn't just a collection of data and statistics, here you'll discover not only the milestones we've reached over the past year, but also the ambitious goals we have for the future. It's all part of our ambition to transform Imperial into a beacon of sustainability, to be net zero by 2040.

Professor Nigel Brandon
OBE FREng FRS
Dean of the Faculty of Engineering, Chair of Sustainability Strategy Committee

Sustainability is being built into new developments such as at our White City Campus

Through the Imperial Zero Pollution (IZP) programme, we're on a journey towards a sustainable, zero pollution future under the four pillars of Our Research, Our Partnerships, Our Education, and Our Campuses. On our university campuses, we want to become one of the lowest carbon, zero polluting, low consumption and biodiverse ecosystems within the constraints of our urban environments. And we plan to achieve this by applying our academic strength and our commitment to safeguarding the future.

We are building the IZP: Our Campuses sustainability programme to deliver our ambitions, and we have much work to do to realise it. Universities across the globe face similar challenges. But here's the exciting part: we're not daunted, we're driven. Our plans include retrofitting our buildings for much higher thermal efficiency, decarbonising our heating systems, and breathing sustainability into every new capital development such as our White City Campus. But it's not just about the large-scale, visible changes, we're focused on the everyday choices, too. We're building a stronger approach to sustainable procurement, considering climate-conscious travel options, and working sustainability into all areas of our work from energy monitoring, data analysis and reporting, to laboratory sustainability, waste reduction and enhancing biodiversity.

> **"Our Sustainability Strategy for 2021–2026 set a goal of reaching net zero for Scope 1 and 2 emissions (energy and campus transport) by 2040 and minimising Scope 3 emissions (goods and services we buy) as far as possible."**

This year we've made strides in our sustainability efforts as we transition into the implementation phase of the Sustainability Strategy. It has been a team effort, with central divisions working on decarbonising our estate and understanding our carbon footprint. But our efforts extend far beyond these initial steps. Colleagues across teams, departments, and academic and professional services have been making sustainable choices across their daily practices. From ICT solutions to biodiversity champions, and energy efficient methods, everyone has contributed their unique expertise.

Staff and students are encouraged to make sustainable travel choices, like cycling to campus

We now have a more thorough analysis of our carbon footprint, which has been a huge step forward. By breaking down our Scope 3 emissions (which account for up to 80% of our emissions), we have been able to pinpoint the areas that need the most attention. To tackle these areas, over the past year we have developed our Sustainable Business Travel Policy and launched the Sustainable Food and Drink Policy. Our colleagues are now working hard to embed these policies into everyday operations.

We have continued to grow programmes such as the Laboratory Efficiency Assessment Framework (LEAF), empowering individual labs to reduce their carbon footprint. Our Sustainable Procurement Strategy and Policy will support us to choose more sustainable suppliers and purchases wherever we can, and work with our supply chain to improve their practices and reduce their footprints.

As well as working to understand our Scope 3 emissions in detail, our Estates colleagues, in collaboration with Arup, have been progressing a decarbonisation plan for our campuses to tackle our Scopes 1 and 2 emissions. This plan focuses on energy efficiency and infrastructure upgrades, such as moving to electrical heating and discontinuing the use of on-site gas-fired combined heat and power plant (CHP). Our goal is to achieve net zero for Scopes 1 and 2 emissions without offsets. This will be achieved through implementing the decarbonisation plan alongside wider decarbonisation of the UK's electricity supply and securing increased grid capacity for our campuses.

The results from our summer 2023 all-staff and student sustainability survey revealed a resounding call for enhanced university action. The survey also showed that people are willing to play their part. This highlights the need for a two-pronged approach: Beyond these internal efforts, we are committed to growing the positive impact of our research, partnerships, and education on sustainability.

1 Central actions

- retrofitting older campus buildings to improve energy efficiency and comfort
- embedding sustainability into all decisions
- enhancing communication of sustainability efforts

2 Individual actions

- implementing sustainable practices in laboratories and offices
- choosing a climate-conscious travel approach
- using sustainable catering options
- being a sustainability champion
- buying less, buying sustainably, re-using and recycling

Imperial's new ten-year university strategy places sustainability at the core. It reaffirms the goals set out above and sets a path for the next several years. We are clear on our ambitions and what is needed to achieve them and are determined to make progress on this over the year ahead.

Professor Nigel Brandon OBE FREng FRS
Dean of the Faculty of Engineering,
Chair of Sustainability Strategy Committee

Executive summary

We are driven by a bold mission to achieve net zero by 2040. This ambitious goal encompasses all Scope 1 and 2 emissions, and we are committed to reducing Scope 3 emissions wherever possible. For the academic year 2022–23, we began reporting our carbon emissions using the new EAUC (Environmental Association for Universities and Colleges) Standardised Carbon Emissions Framework (SCEF) for the first time – wherever data availability permits.

The SCEF is based on the Greenhouse Gas Protocol and has been proposed as a new good practice voluntary standard for the Higher and Further Education sectors to report emissions from academic activities. It has broader coverage of Scope 3 than both the existing Higher Education Statistics Agency (HESA) reporting required for the Higher Education Sector and the Streamlined Energy and Carbon Reporting (SECR) reporting required for companies. The carbon emissions published in the Imperial College London Annual Financial Report used SECR and differ within Scope 1 and 2 from this report as SECR includes wider commercial activities, while SCEF focuses on only academic activities in those Scopes.

This report, compiled by the Imperial Zero Pollution (IZP): Our Campuses team, unveils a fascinating landscape of our carbon footprint. Using the EAUC SCEF, we have expanded our reporting to encompass previously unexplored areas, including staff homeworking and student travel, to provide a more holistic and detailed summary of our total carbon emissions. We have also revised our methodology for calculating emissions from spend data.

This report has been completed by the Imperial Zero Pollution (IZP): Our Campuses team with thanks to colleagues in Property and Major Projects, Campus Operations, and Procurement.

Figure 1: EAUC SCEF categories and their current application to Imperial College London's carbon emissions report

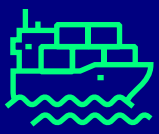
Scope 1 Direct	Scope 2 Indirect	Scope 3 Indirect	Scope 3 Indirect
■ Combustion of fuel in company facilities ■ Company vehicles	■ Purchased electricity for own use	■ Employee and student commuting ■ Employee homeworking ■ Water ■ Business travel ■ Waste ■ Purchased goods and services ■ Fuel and energy related	■ Student accommodation ■ Transport and distribution of goods ■ Investments ■ Franchises
Imperial College London	**Upstream activities**		**Downstream activities**

Data currently unavailable

Land and livestock

Refrigerants and volatile organic compounds

Student residence



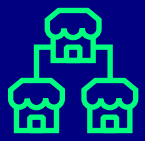
Transport and distribution of goods

Leased assets

Investments

Out of scope

Purchased heat and steam for own use



Franchises

End-of-life treatment of sold products

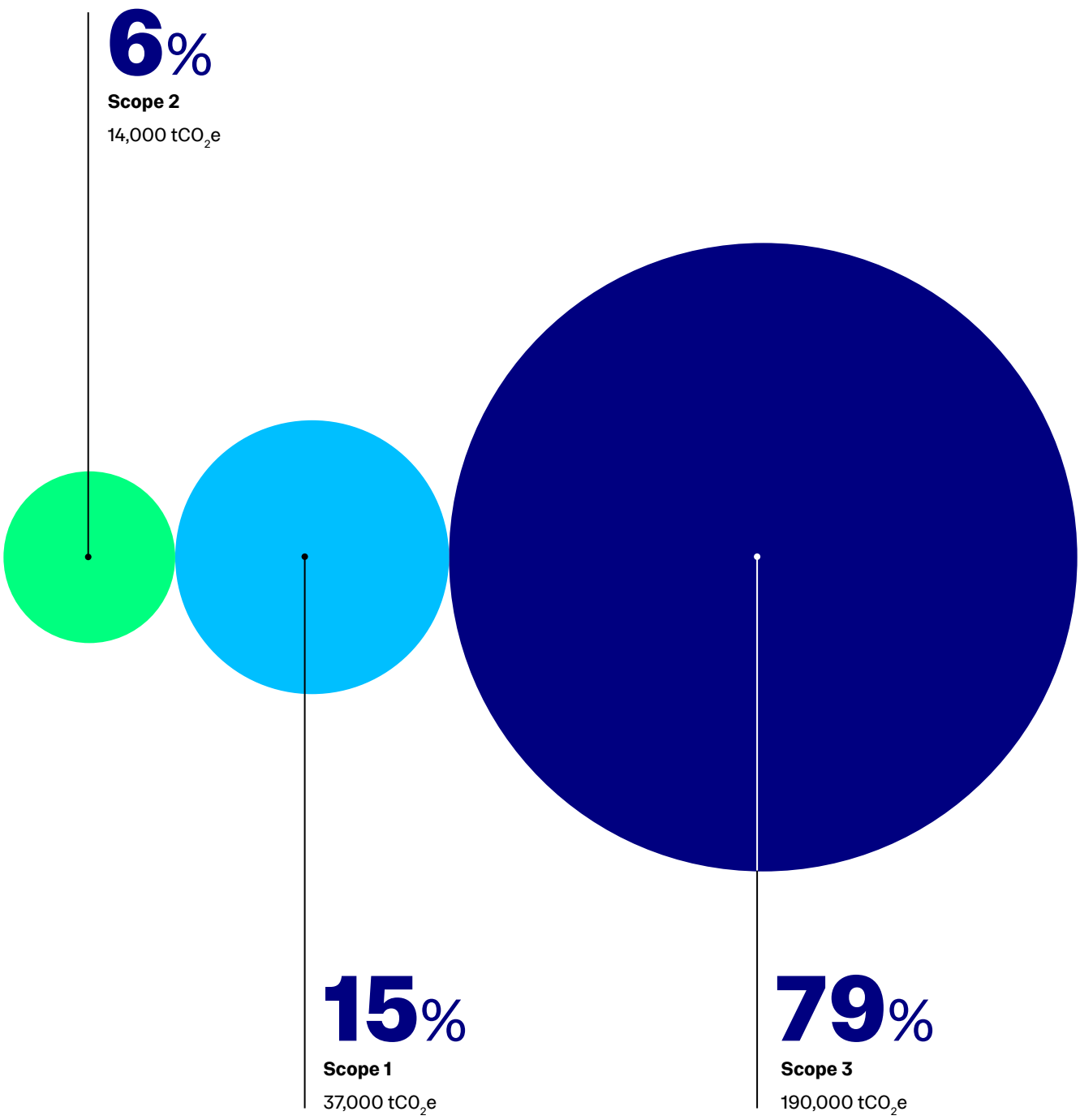
Processing and use of sold products

Figure 2: Imperial's total carbon emissions for 2022–23

Our total carbon emissions for 2022–23 were **Ca.240,000 tCO_2e**. This is a Ca.930 tCO_2e increase compared to 2021–22 using the new methodology. This is largely due to an increase in business travel emissions as business travel increases back to pre-pandemic levels.

Throughout the report, we have broken down the carbon emissions per section to illustrate where our biggest carbon impacts lie.

Intrigued to delve deeper? Dive into the full methodology detailed in the Annex of this report.



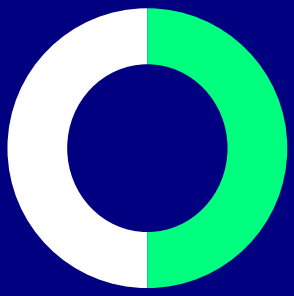
Highlights from 2022–23

13
Laboratory efficiency assessment framework (LEAF) assessments, with

63
labs achieving bronze

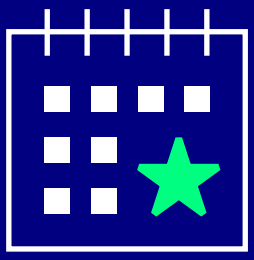
24
labs achieving silver and

2
labs achieving gold status



50%
reduction in cooking oil consumption saving around 16,000 litres of cooking oil a year

19 events
across 5 days of Sustainability Week. Including 7 panels, 3 networking events, 1 mock-COP, 3 exhibits)



47%
reduction in beef from our menus since 2017

87%
increased efficiency from our desteaming project

2.1t
of food donations for the Felix Project, a London-based foodbank

491
students engaged in our SOS-UK Sustainable Halls campaign

31
people registered to join our Sustainability Champions Network

Carbon and energy

2022–23 achievements:

To help achieve Imperial's net-zero target by 2040 for Scopes 1 and 2, Arup, a London-based engineering consultancy, have been helping us in identifying the necessary investments to achieve this goal.

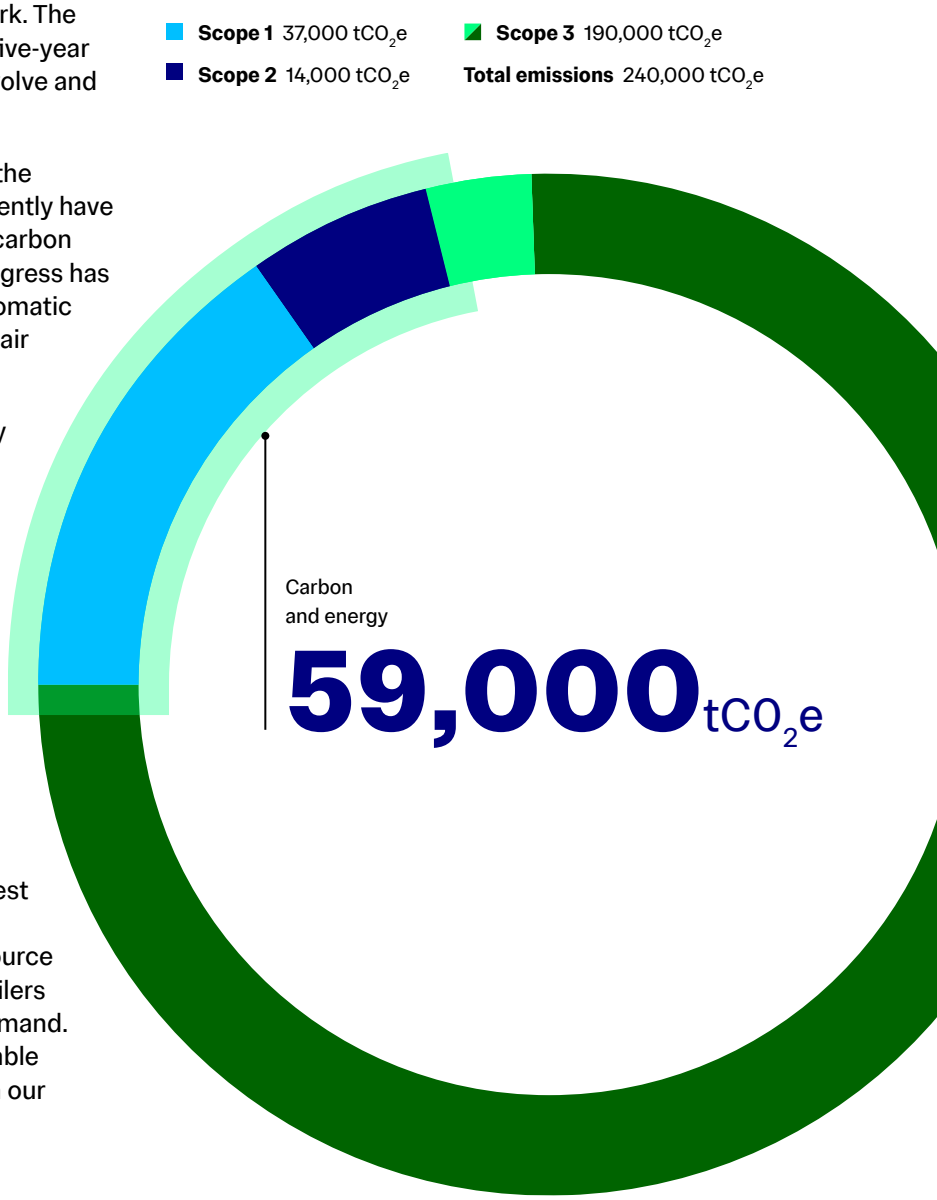
Their study focuses on attaining net zero for power and heating emissions in more than 130 buildings across all campuses including the hospital sites, White City North, South Kensington and Silwood Park. The programme has been modelled within three five-year financial cycles to allow the programme to evolve and include new technology over time.

The challenge lies in the age and diversity of the central London campus buildings, which currently have limited incoming electrical power to run low carbon heat solutions. Despite these constraints, progress has been made by installing LED lighting and automatic control upgrades for heating, ventilation, and air conditioning systems.

The study shows just how complex our journey is towards net zero. Highlighting the challenge are our energy-intensive laboratories and the difficulties in relocating occupants during necessary renovations. Unlike typical net zero projects in the property sector, which usually prioritise fabric improvements, Imperial's journey takes on specific constraints. Many of our historic buildings hold listed status, limiting the ease of retrofitting, and the dense nature of our site presents further challenges.

However, where challenges arise, so too do innovative solutions. Our investigations suggest that a hybrid approach may be the quickest route to achieving net zero – combining air source heat pumps for baseload heating with gas boilers as backup during colder periods and peak demand. This solution will bridge the gap until we are able to configure a fully heat-pump solution within our constraints.

Figure 3: 2022-23 emissions including fuel and energy



Removing the steam network at South Kensington to reduce energy use

Current works:

- Installation of three new Cochran 10-megawatt water boilers with integrated heat recovery units (from the CHP engine exhaust) replacing end-of-life steam boilers.
- Tunnels and heat network: larger, higher capacity heated water network pipes are being installed to improve efficiency.
- Plant rooms: new systems to provide services from the district heat network to replace steam heat interface units.
- Buildings: modifying units to receive heated water instead of steam (such as air handling units).

Results in:

- Increase efficiency to 87%, from 79%, through extracting more waste heat from CHP engines.
- Significant reduction in NOx emissions, associated with poor air quality and respiratory conditions.
- Savings over 2,400 tonnes of CO_2 per annum.

Next phase:

- Installation of all the pipework, heat exchangers and heating coils.
- In early 2024, the temporary boilers will be removed.

Long-term ambition:

- All South Kensington Campus to be on a low temperature, hot water system running at 80ºC in preparation for further heat decarbonisation.

What about solar power?

With the cost of technology reducing, we are investigating where solar power can help achieve our net zero ambitions through a whole-site solar study.

Up until now, our South Kensington Campus focus has been on the use of combined heat and power which generates 80–90% of the electrical power needs alongside its heat output. We have also been investing in methods that give greater fuel or carbon reductions than solar, as it has been estimated that solar could potentially meet only 0.6% of our campus needs.

Unfortunately, many of our roofs are not suitable locations for solar, because of roof designs, construction, and access requirements to other plant equipment housed on them. At our Silwood Park campus there is greater potential for solar solutions, and we are developing options for this site. The site has large number of suitable roofs and there is the potential to generate up to 11.3% of the site's needs from solar.

SPOTLIGHT

The Business School for Sustainable Development Committee

The committee made up of students, faculty and professional staff from Imperial College Business School, leads on solutions and approaches for issues related to sustainable development with the aim of positioning the Business School as a globally recognised leader in the study and learning of environmental and social sustainability as a core purpose of business. Working with Ecofye (an environmental consultancy run by two of the Business School's alumni), the Committee has run Imperial's very first faculty-wide carbon footprint baseline report. Its findings will be used to complement university-wide work in carbon reduction, as well as create an action plan at a School level.

A new boiler in the energy centre, South Kensington Campus

Our commitments:

- Reduce total Scope 1 and 2 carbon emissions from energy consumption by 15% by 2025–26 (against the baseline year 2018–19).
- Currently on target as a result of the ongoing works to remove steam from the South Kensington Campus, energy efficiency works including LED installation and solar PV at Silwood. Read our full carbon footprint in the accompanying annex.

Sustainable procurement

2022–23 achievements

Procurement is one of our biggest contributors to our Scope 3 emissions and overall footprint. Sustainable procurement was therefore identified as an important area of focus in our sustainability strategy.

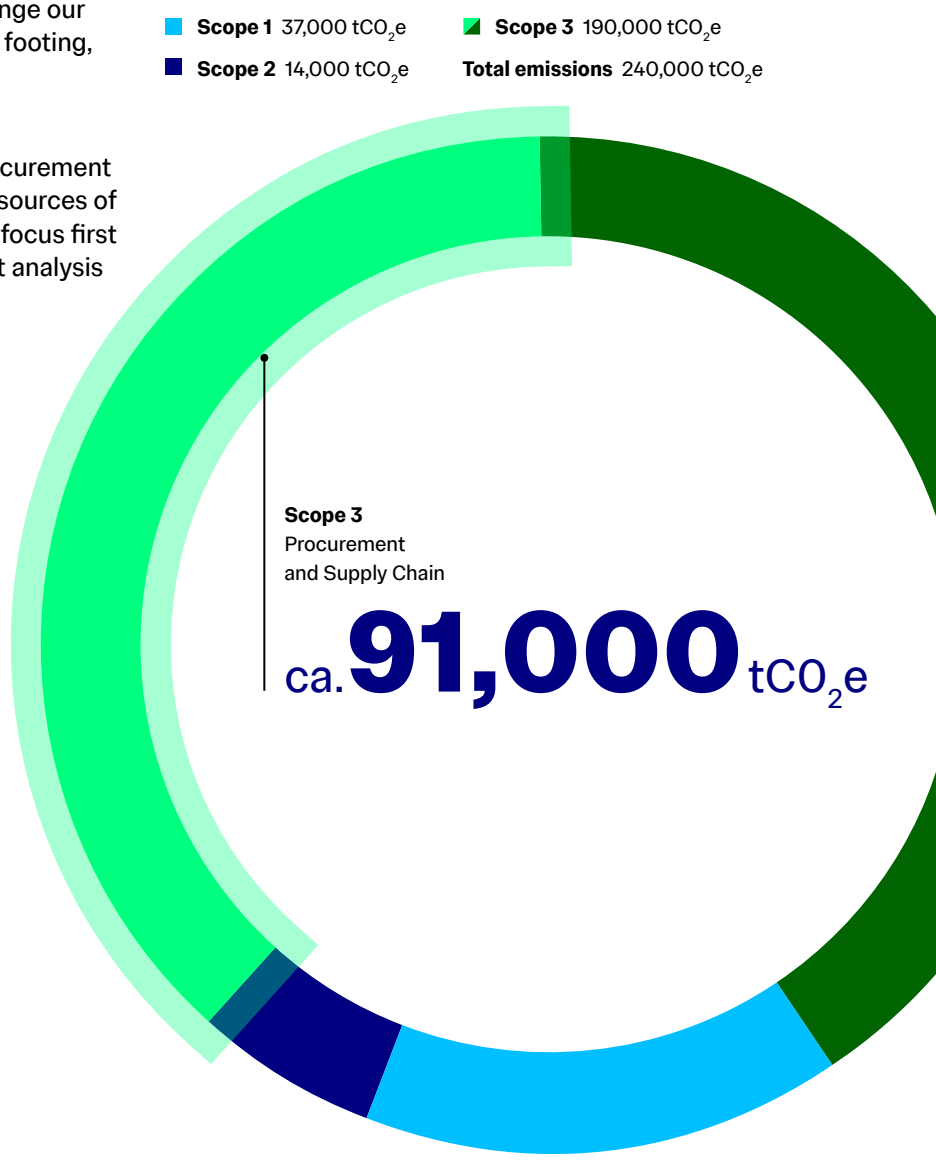
This year, the central Procurement team hired sustainability procurement consultancy, Action Sustainability, to help support our plans in refreshing our sustainable procurement policy and improving our practices. A refreshed policy will help change our procurement approach to a more sustainable footing, improve our skills and ways of working.

We have also carried out a more detailed materiality analysis of our emissions from procurement of goods and services to identify the biggest sources of emissions in our supply chain, so that we can focus first on the most material areas. The results of that analysis are set out in the carbon footprint annex.

Our commitments:

- Major suppliers assessed on environmental policies by September 2024.
- Where policies are weaker, engage with major suppliers by August 2025 to encourage them to put in place a credible net zero plan and more sustainable products and services.
- All suppliers assessed based on environmental policies by August 2026.

Figure 4: 2022-23 emissions including procurement and supply chain - with ICT, construction and refurbishment, and laboratories



Progress against targets:

- Major suppliers assessed on environmental policies by September 2024.
- Where policies are weaker, engage with major suppliers by August 2025 to encourage them to put in place a credible net zero plan and more sustainable products and services.
- All suppliers assessed based on environmental policies by August 2026.
  The incoming sustainable procurement policy will include the drivers for sustainable procurement, triple bottom line sustainability, clear procurement and supply chain specificities, resources for the supply chain, a PLAN-SOURCE-MANAGE guide, and a procurement checklist. Once in place in 2024, we will be able to refresh our assessment of suppliers based on their environmental policies, and place higher demands on suppliers for their net zero targets and environmental practices.

Forward look towards 2024:

The central Procurement team, with support from Action Sustainability, will:

- Develop a Sustainable Procurement Strategy and Policy, alongside an implementation plan in 2024. To achieve this, the remit includes:
  - a review of the current procurement approach and alignment with National Consortia
  - best practice benchmarking
  - the 2024 roll out and implementation of the new Sustainable Procurement Policy, the Sustainability Strategy, and the alignment of procurement practices to embed sustainability considerations
- Provide skills, training, and support tools to those who make purchasing decisions both centrally and across Imperial.
- Work with our procurement consortium (SUPC) to identify where the assessment and engagement of suppliers will be done through the consortium on behalf of all members and where it will be done by Imperial directly.

Construction and refurbishment

2022–23 achievements

At Imperial we consider sustainability at all stages of refurbishment and new building planning, and work with architects and contractors to minimise the environmental impact of construction.

The Clinical Research Building on Hammersmith Campus is currently under refurbishment and will be Imperial's first fossil fuel free building heated by air source heat pumps. Infrastructure upgrades include new heating, cooling, and power for the whole building.

The three main interventions are to:

1. **Disconnect the building from the Trust Steam Network**

"The installation of air source heat pumps was [done] in a way that it would cover the whole building to future proof it." Paco Villegas Ruiz, Project Manager.

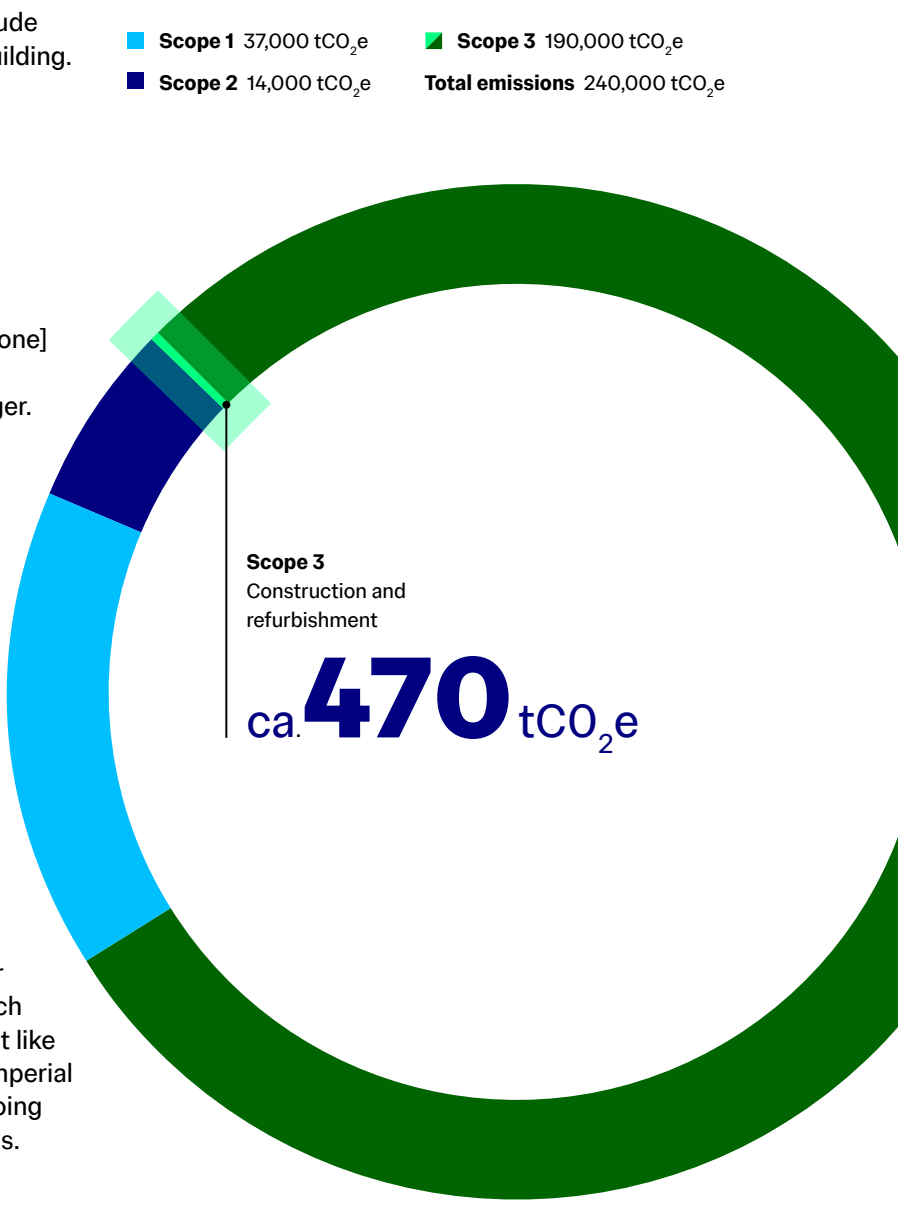
2. **Improve the building fabric**

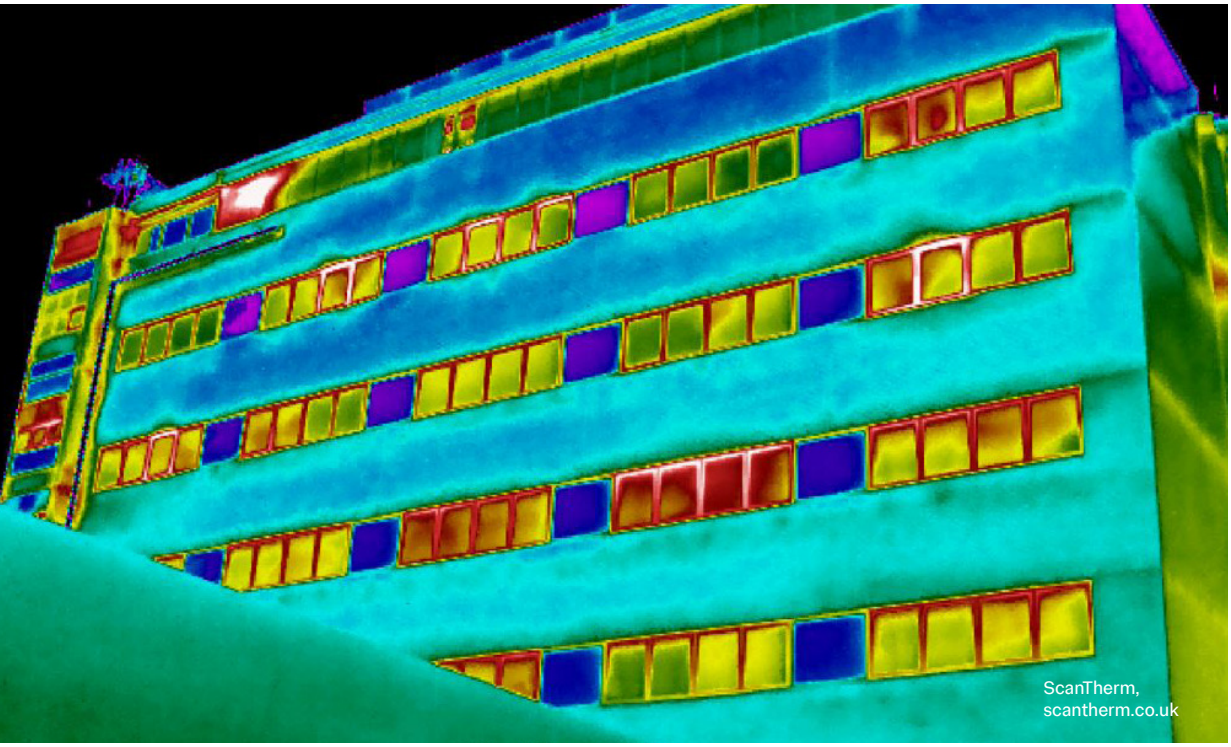
Thermal imaging shows that the building is well insulated as heat is not being emitted from the inside, but the yellow and red shows heat is escaping the building by the windows. To solve this, all the windows and the existing curtain wall in the south façade are being replaced with triple glazed windows, saving around 22% in energy for the life of the building.

3. **Improve the overall energy efficiency**

Water source heat pumps have also been introduced, working as a heat recovery system and supply of domestic hot water and heating for Central Biomedical Services. Other measures such as replacing end-of-life energy-hungry equipment like autoclaves and a tunnel wash, will initially save Imperial around £300,000 a year in energy bills with ongoing savings subject to the fluctuation in energy prices.

Figure 5: 2022-23 emissions including construction and refurbishment





Thermal image of the Clinical Research Building, Hammersmith Campus

Our commitments:

- All properties in the investment portfolio to have an Energy Performance Certificate rating of B by December 2030.
- Reduce carbon consumption of properties by 20%.
- All new buildings and major refurbishments (over £5 million) to be Building Research Establishment Environmental Assessment Method (BREEAM) rated or other certificates from 2023–24 onwards.

We are currently on target, with the Property and Major Projects Teams aware of the requirements around Building Research Establishment Environmental Assessment Method (BREEAM).

Current on-site projects include the School of Public Health new build (completion expected January 2024), which is on track to meet BREEAM Excellent target, and the Sir Alexander Fleming Building's Department of Infectious Disease element of the build, which is on track to meet BREEAM Very Good target.

Some of the current building management system improvements include:

- tighter controls for energy-hungry plant
- weather predictive control of heating circuits
- daily reset to defined setpoint to mitigate energy intensive or incorrect operational changes

Future projects include the target Very Good BREEAM for the refurbishment of the Catering Kitchen in Level 1 of the Sherfield Building. This project will include the removal of existing gas catering equipment and replacement with electric versions. Where possible, existing building infrastructure will be retained and upgraded where required.

Sustainable labs

2022–23 achievements

This year, more labs were involved in the Laboratory Efficiency Assessment Framework (LEAF) scheme. 13 assessments have taken place, with 63 laboratories achieving bronze, 24 achieving silver and two laboratories achieving gold status.

LEAF is an environmental accreditation scheme designed to improve sustainability within higher education teaching and research. Participating laboratories are given environmental actions to carry out including across waste, energy, and procurement.

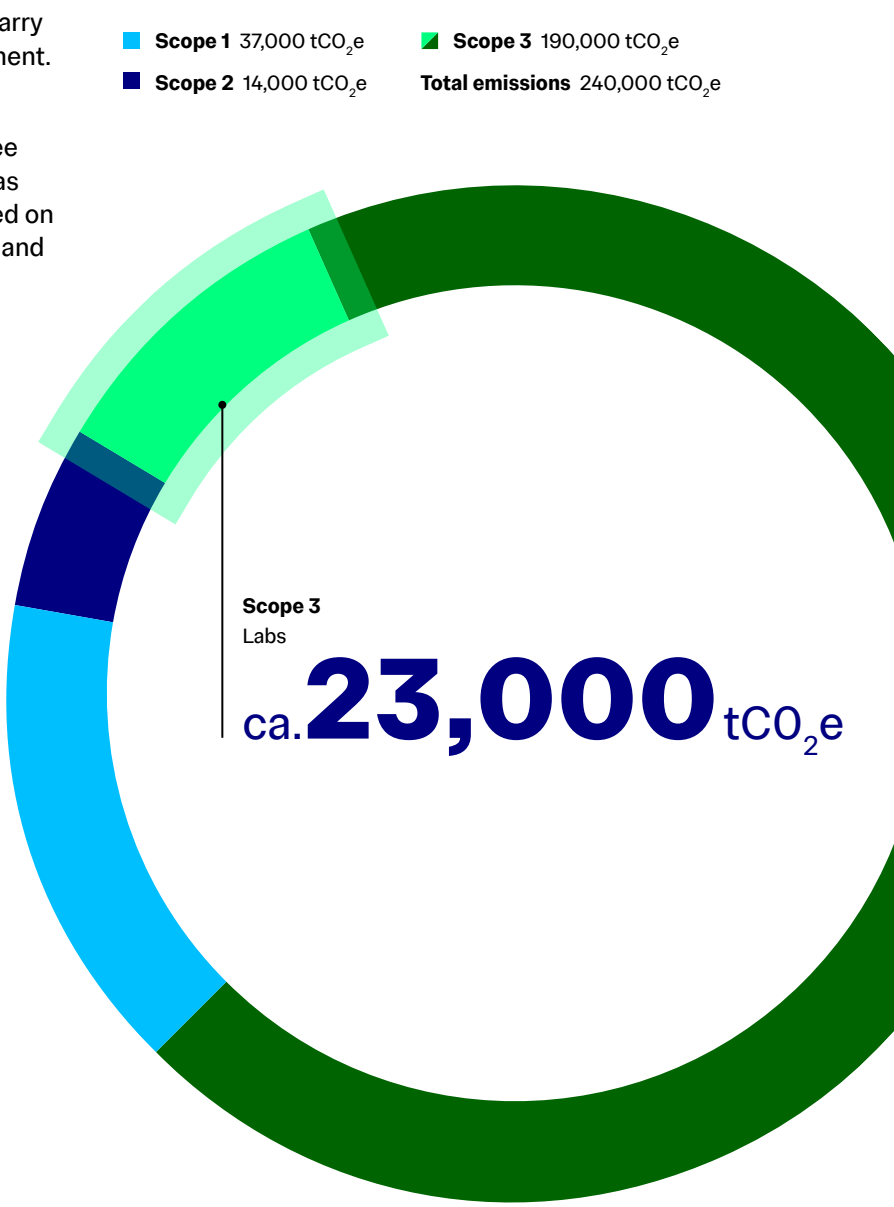
A full energy, condition and usage audit for all laboratory equipment was conducted across three buildings in Hammersmith and White City. This has given lab managers the vital information they need on energy and carbon savings through replacement and behavioural changes.

In August 2023, a Laboratory Resource Efficiency Advisor started in their position and in November 2023, a Sustainability Initiatives Coordinator will join the Estates team to help drive sustainable laboratory practices across the university, looking at best practice in energy efficiency, waste and water reduction and management, procurement opportunities and other areas.

Progress against targets:

- Increase laboratories engaged in a lab efficiency programme to 50% summer 2025 and 100% by summer 2026.
- 10% decrease in energy consumption, water usage and wastage by August 2026.

Figure 6: 2022-23 emissions including laboratory and research



Examples of existing good practice:

- Yearly lab clear-outs are considered opportunities to give equipment to other labs that may need it, rather than disposing of it or storing it for undetermined amounts of time.
- ULT freezers increased from -80 to -70C saves 30% of energy.
- Adoption of the Labcup system to cut down on range and quantity of chemicals used.

(from all-staff survey summer 2023)

Forward look towards 2024:

With the introduction of two new team members dedicated to laboratory sustainability, this year we will:

- Create targeted energy efficiency communication campaigns to engage different laboratory users to be more conscious of high consuming equipment and where changes can be made to be more efficient.
- Launch a laboratory kit fund from the central Sustainability Hub. The Lab Kit Fund will help drive the shift to sustainable laboratory equipment. More sustainable and efficient equipment tends to come with a higher initial price tag; this fund hopes to bridge that financial gap and enable groups to make the more environmental choice. Applications will be open to any groups looking purchase, replace or repair equipment.
- Run the Freezer Challenge from January 2024 – 30 June 2024 to encourage best practice in freezer use and management and to reduce our cold storage energy consumption.
- Continue to encourage and support laboratories to join a lab efficiency programme by developing a LEAF community of practice supported by the Sustainability Initiatives Coordinator.
- Carrying out more energy, condition, and usages audits for laboratories across the university.

To get involved, please email lab-sustainability@imperial.ac.uk to receive the LEAF user guide to help you create an account and provide a step-by-step guide on how to register your lab via the online portal.

ICT

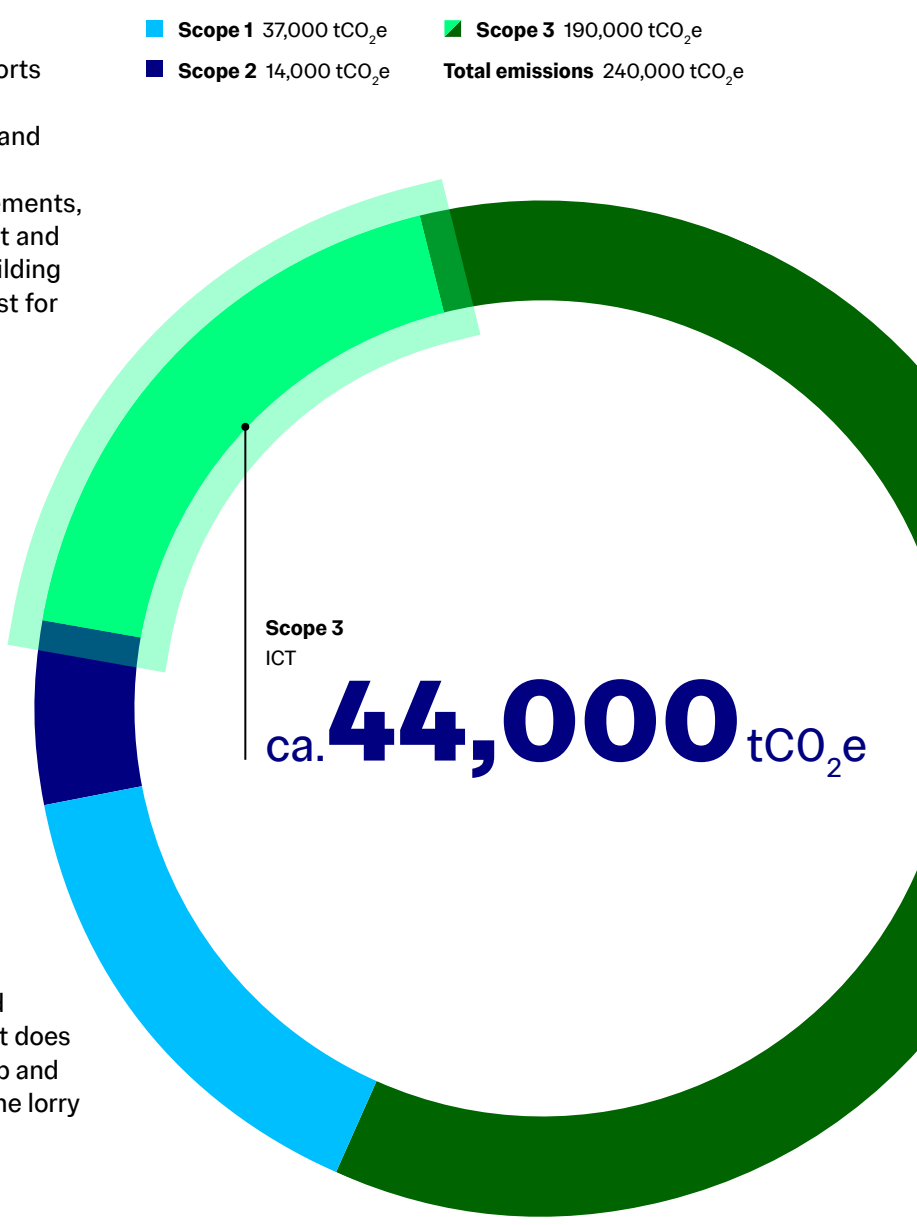
2022–23 achievements: Energy consumption dashboards

Over the past year, the ICT team have been working on energy consumption dashboards and looking at procurement and contracts.

This year, the Digital Campus team have been working to understand the energy consumption across the university estate.

The Digital Campus team have developed reports to show total energy use across the university estate, then broken down by building, faculty, and department. This has shown trends over time, consumption averages from multiple measurements, provided league tables per faculty, department and building and can show users the nuance of building space and consumption impacts which is a first for the university.

Figure 7: 2022-23 emissions including ICT



Procurement and contracts

ICT recently completed a contract renewal, which considered sustainability, for the supply of End User Computing (EUC) devices such as laptops and desktops from HP.

These considerations included:

1. **Device delivery once ordered**

   - Device delivery through HP (Imperial's preferred partner for EUC) has been improved under the new contract. Here we have ensured that device deliveries are palletised where possible, without associated packaging usually associated with PC / Mac orders. The packaging that does come with the pallet (usually plastic wrap and cardboard surrounds) is taken away by the lorry and recycled appropriately.

2. **Leveraging HP sustainability and renewable processes**

   - HP have built environmental considerations into their processes including in manufacturing. One particular point of interest is in the construction of laptop devices using waste material from ocean plastics. The HP Dragon Fly has a chassis made from this material, whilst other models have internal components made from the same material.

3. **Buying lower powered devices**

   - Using lower powered devices reduces the amount of electricity they use day to day whilst delivering modern performance. Previously, ICT bought top of the range processors with no real consideration for the overall impact. Reducing the power of the processor to the next level down provides a device that is more than adequate for most use cases with a reduced power requirement. Where a higher-powered device is required through a justification, one can be provided.

4. **Recycling**

   - ICT has an agreement with a third-party supplier (Stone) to recycle old computers, ensuring that parts that can be reused are stored and other components are disposed of responsibly (this also guarantees secure disposal of storage devices).
   - When requested, we are giving away old devices that still function for charitable purposes. This contributes to the reduction of supply chain usage where an organisation would otherwise buy new computers.

Forward look for 2024:

Consumption dashboards

- Developing further on the work done this year to show the energy use at university, Faculty, Department and Building level, in the future, ICT are working towards building similar consumption reports to show heat, gas, water, etc.
- Currently the reports only show electric consumption across the 60 main buildings, over time, we hope to have data for all buildings.
- Further work is currently underway to create a Scope 3 emissions report using purchasing data. This work will be underpinned by a PhD project by PhD student Yasmine Baghdadi. The logic currently sits in Excel, and we intend to move this to PowerBI and automate the process.

Reduction in power consumption

- Baseline the current client computer estate to understand our current position on energy use and the impact it has on building environment through heat generation.
- Begin the process of switching off devices during idle periods to ensure energy isn't wasted. This will follow a period of consultation with colleagues to ensure work isn't interrupted in specific areas. There are at least 5,000 devices involved in this and once scaled up, would represent a significant saving.
- Follow up later in the year with another check on power usage to measure any increase or decrease based on change activities.

Deliveries

- Working with internal colleagues and external suppliers to understand whether delivery consolidation can happen, reducing the number of delivery vans coming to campus with goods.

Travel

2022–23 achievements

This year, the Sustainability Strategy Committee agreed that travel should be a priority area of work. Business travel makes up 10% of the university's carbon footprint – nearly as much as our electricity consumption – and there are realistic switches of practices that could reduce this significantly.

In March 2023, the Travel Working Group was formed to develop a sustainable travel policy. The working group (made up of academics, operational teams, communications, and trade union representatives) looked at all areas of sustainable travel (such as active travel, electric vehicles, and car parking). The group focused on business travel in the first instance due to the potential for high impact.

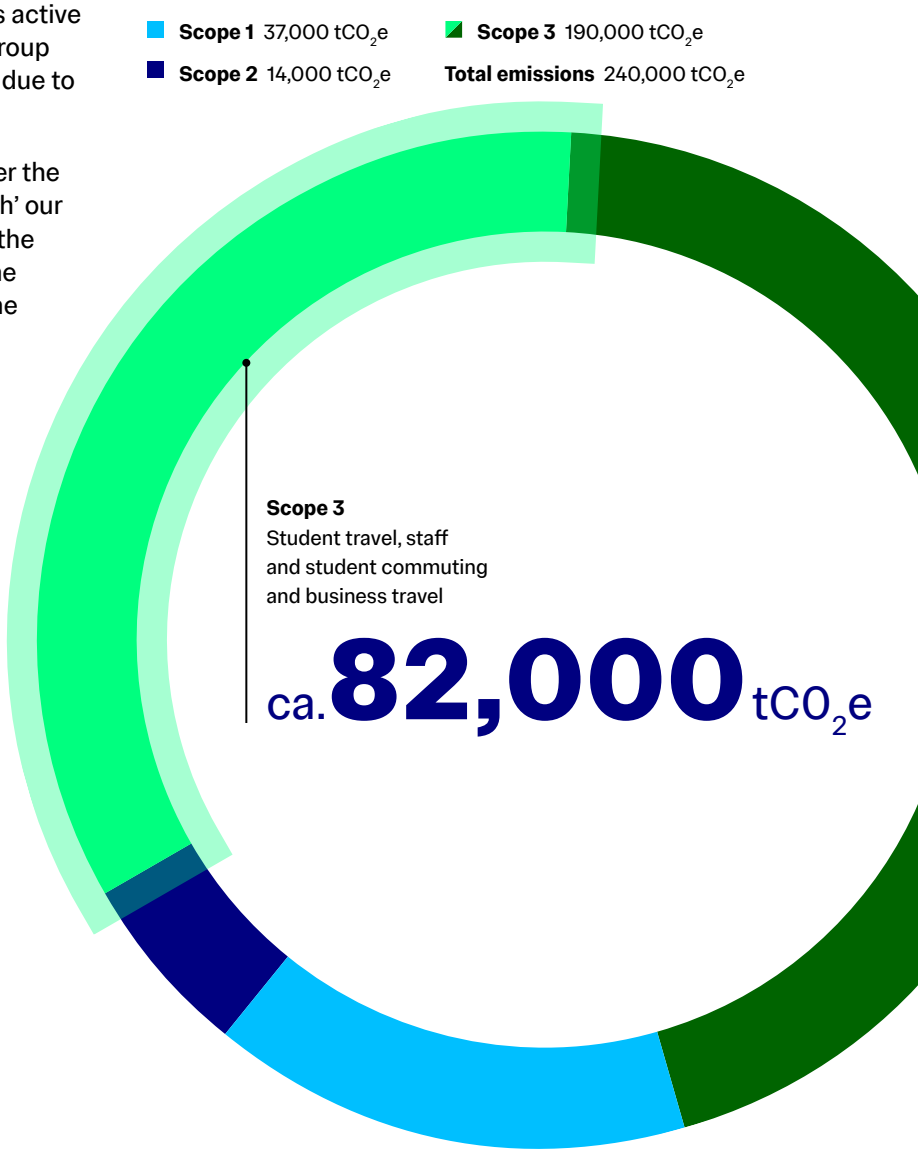
We engaged with the university community over the summer, launched with an 'In Conversation With' our President, Hugh Brady, and staff to help shape the policy so it would be practical to implement. The Sustainable Travel Policy is to be launched in the spring term 2024.

Our commitments:

Carbon emissions from air travel reduced by 25% per staff FTE by 2025–26, compared to 2017–18 baseline.

Business travel makes up 10% of the university's carbon footprint and there are realistic switches that could reduce this"

Figure 8: 2022-23 emissions including student travel, staff and student commuting and business travel



Progress against target:

- Reducing air travel carbon emissions
- We have developed a Sustainable Travel Policy, which commits to monitoring our air travel every six months to review our position and whether our carbon emissions have been reduced. We have made progress by establishing frameworks to enable change, but as yet, it is too early to see results. The Sustainable Travel Policy will be effective from spring term 2024.

Forward look towards 2024:

Sustainable Travel Working Group – next priorities

The remit of the Sustainable Travel Working Group extends beyond business travel at Imperial and as we move to implementation phase of the policy, the group will look at making the travel policy operational, as well as starting to develop an Active Travel Action Plan and, exploring options for carbon pricing along with other incentives and initiatives to enable take-up.

Our sustainable travel policy encourages climate conscious travel approaches

Catering

2022–23 achievements:

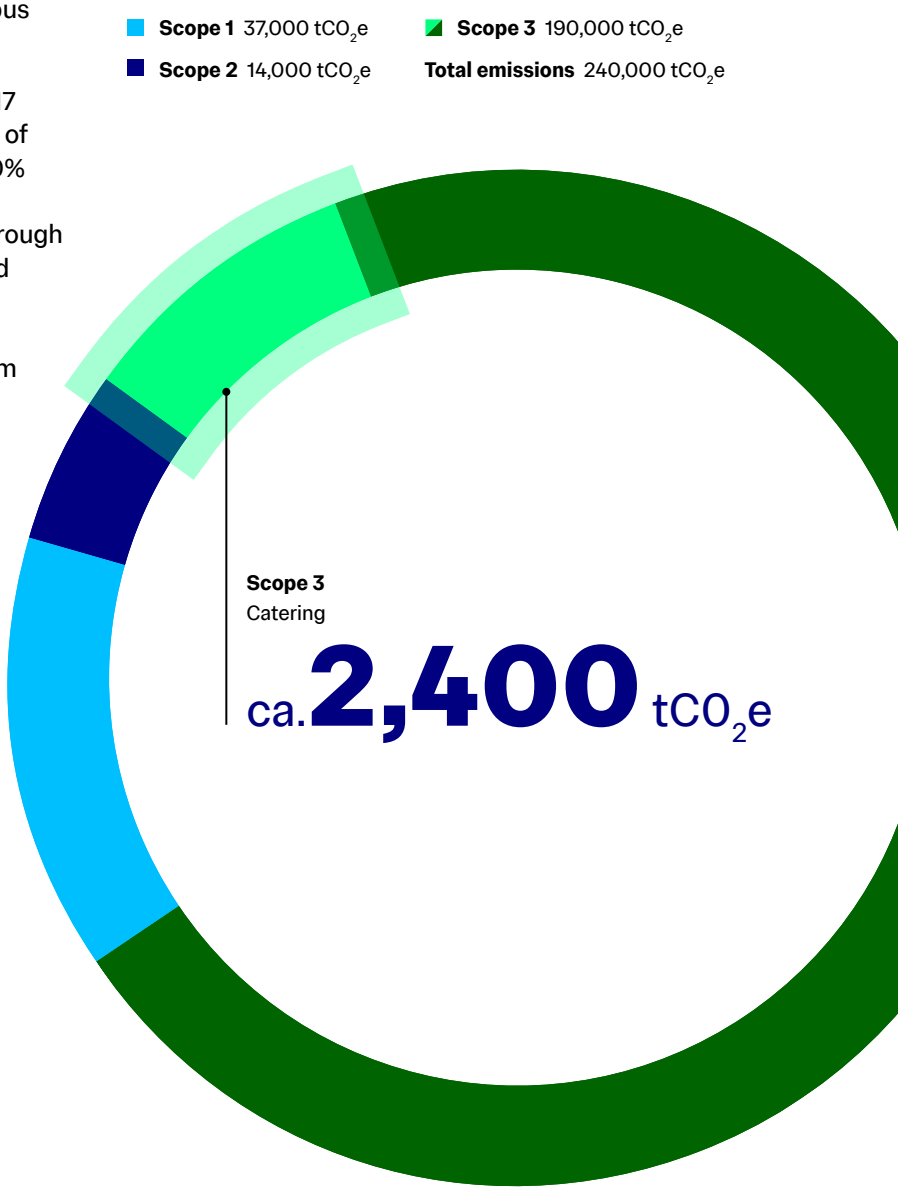
Following the publication of the Sustainable Food and Drink Policy at the end of 2022, the Catering team have been focusing on implementing the policy and have made great improvements over the past academic year.

Imperial College London were finalists for the Sustainability Award at The University Caterers Organisation (TUCO) Awards 2023. This recognised a vast array of sustainability initiatives that Campus Operations have achieved, including:

- 47% reduction in beef consumption since 2017 (a 2021 report found that a complete removal of red meats from our menus could provide a 20% reduction in total carbon emissions).
- 50% reduction in cooking oil consumption through installing a new filtering system saving around 16,000 litres of cooking oil a year.
- Increasing proportion of plant-based food.
- Eliminated 850,000 plastic cups per year from campuses.
- Introduction of the MiCup initiative where customers can pay a deposit for a reusable cup for takeaway drinks, to then return the cups to outlets where they are cleaned and made ready for reuse.
- A large reduction in single-use cups due to the 25p levy (formerly approx. 2,750 were used per day).

Following this, The University Caterers Organisation featured Imperial in their November magazine with a three-page spread titled ‘Imperial’s Sustainability Triumph’.

Figure 9: 2022-23 emissions including food and catering

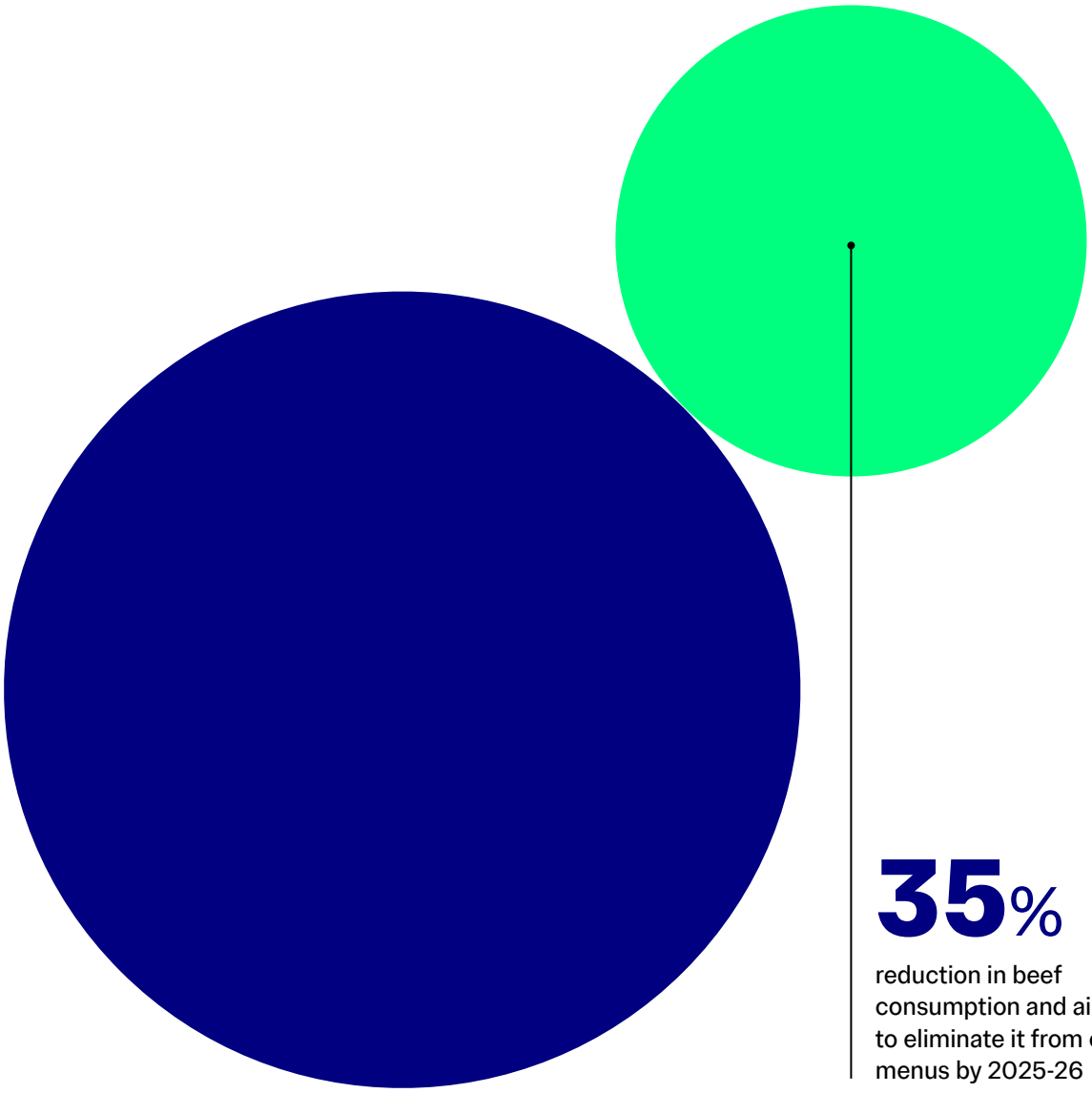


Progress on our targets:

- Elimination of beef: We have committed to the elimination of beef from our menus by 2025–26, following a year-on-year reduction of 35%. The catering and procurement teams are resolute in delivering this target.
- Kitchen operations: The full electrification of the central production kitchen, subject to feasibility, as part of a major renovation. The project has started, a Project Manager and a Quantity Surveyor have been appointed. The feasibility study will soon be underway.
- Accreditation: The exploration of external food accreditation, in line with the People and Planet criteria. Client lead has been appointed (Special Projects and Sustainability Manager). Feasibility and delivery to be explored in HQ 1 2024.

Forward look towards 2024:

- Campus Operations will continue to proceed with major refurbishment project for the central production kitchen, including making it full electric.
- Campus Operations will continue to pursue sustainable food policy objectives, including the trend towards majority plant-based menus and elimination of beef.
- We will be exploring the feasibility of providing water fountains on campus to further reduce single-use plastic in the form of water bottles.



35%

reduction in beef consumption and aiming to eliminate it from our menus by 2025-26

Waste and recycling

2022–23 achievements

Over the past year, our Waste and Recycling team have introduced trial schemes and have begun working on developing SMART targets for the next few years.

In July 2023, the Waste and Recycling team supported student departures from Halls of Residence. The team collected a record 2.1 tonnes of food donations for the Felix Project, a London-based foodbank, as part of their scheme in student kitchens.

The British Heart Foundation received clothes donations and for the first time we worked with Better Reuse, who take used bedding, pillows and similar, which would otherwise go to landfill.

The team have run a number of trial schemes this year, with plans to roll out further in the future, such as:

- recycling non-contaminated disposable gloves
- using Purex Water (a destabilised water which traps dirt to become stable). This has enabled some cleaning without the use of chemical products. Created on site, it reduces deliveries and packaging, and reduces cleaning operatives' exposure to chemicals.

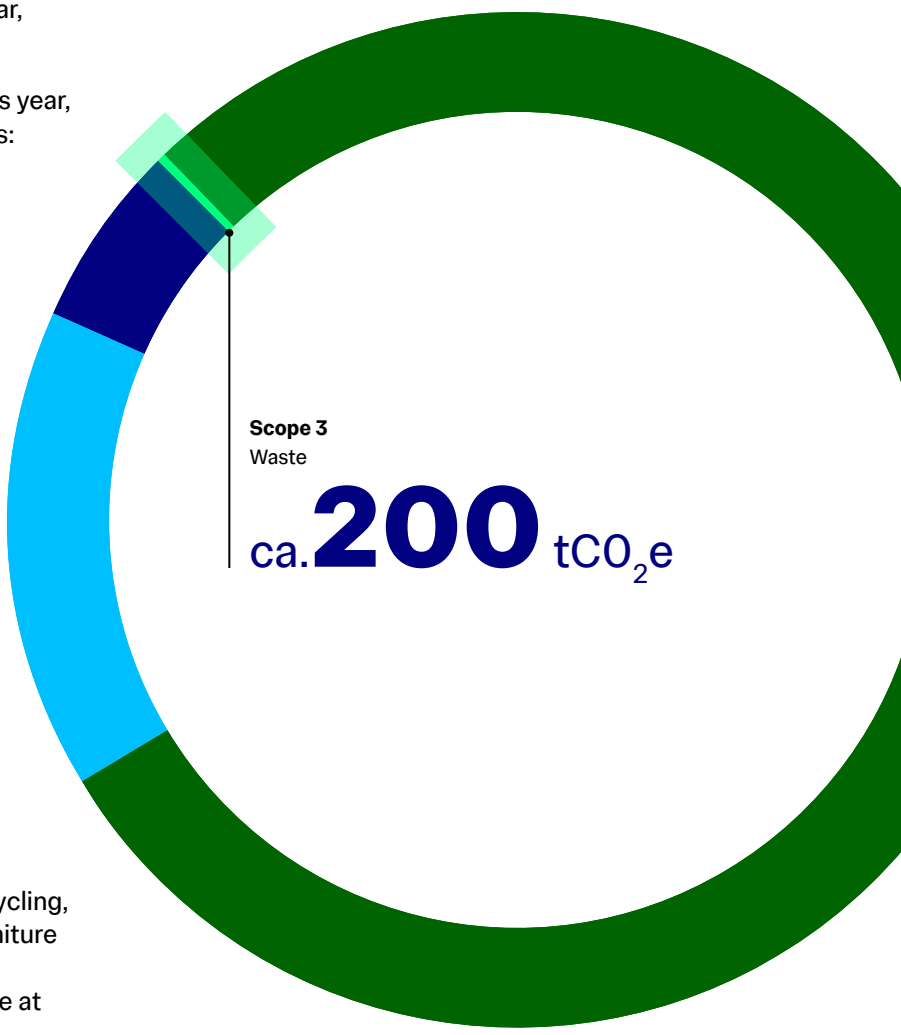
Warp-It gets the best value out of waste resources from large organisations, by finding owners for items that would otherwise have to be disposed of. Imperial's stats from Warp-It to date are:

- 140,383kg CO_2 saved
- 61 cars off the road
- 38,187kg waste avoided
- 192 tree equivalent saved
- £295,036 total savings.

The minor works team are supporting reuse, recycling, and carbon reductions within their projects. Furniture and fittings are regularly repurposed and reused between campuses. For example, Stadium House at

Figure 10: 2022-23 emissions including waste and recycling

Scope 1 37,000 tCO_2e
Scope 2 14,000 tCO_2e
Scope 3 190,000 tCO_2e
Total emissions 240,000 tCO_2e



White City was the new home for around 55 furniture items from Sherfield Building, South Kensington. When furniture is beyond use, components are recycled by approved contractors.

Key takeaways from the all-staff survey were calls for:

1. visible upstream waste reduction
2. better recycling / segregation information and practice

Our commitments:

- Reduce annual total waste sent to landfill.
- Reduce annual emissions from waste-related activity.
- Increase annual percentage of waste recycled & reused.
- All major waste streams recycled and working towards 70% recycling rate by 2030.

SMART target 2025 – 2026

- New waste infrastructure in place to deliver improved recycling rates.
- On target with investments underway.

Forward look to 2024:

The team will:

- Review all waste and recycling posters and redesign in a more user-friendly way. Separate posters will be produced for residences, catering outlets, and offices to try and increase recycling rates and reduce the amount of waste disposed as general waste.
- Improve recycling through new, more easily identifiable indoor and outdoor bins across campuses.
- Review all communication and user guides relating to Warp-It to try and increase the amount of reuse at Imperial, particularly furniture.
- Review SMART targets in 2024, to implement measurable reductions using the 2022–23 waste data.

28%

of responses in the all-staff survey included waste

Biodiversity

2022–23 achievements:

Silwood Reactor Site Land Remediation: The minor works team returned the brownfield site to grass, which was once the site of the nuclear reactor on Silwood Park Campus. This allows space to be used by students, bringing biodiversity improvements and benefits in respect of rainwater attenuation on the site.

Silwood Reactor Site Land Remediation: The minor works team returned the brownfield site to grass, which was once the site of the nuclear reactor on Silwood Park Campus. This allows space to be used by students, bringing biodiversity improvements and benefits in respect of rainwater attenuation on the site.

Our commitments:

- Increase area of roof, walls, and spaces with improved biodiversity.
- Increase number and variety of wildlife species recorded on our campuses.
- Increase number of trees and drought resistant plants on campuses.

Our target for 2025–26 is to have a Biodiversity Action Plan implemented with our partners and progress verified independently. The Action Plan is currently running behind schedule but due to be developed in 2024.

Forward look towards 2024:

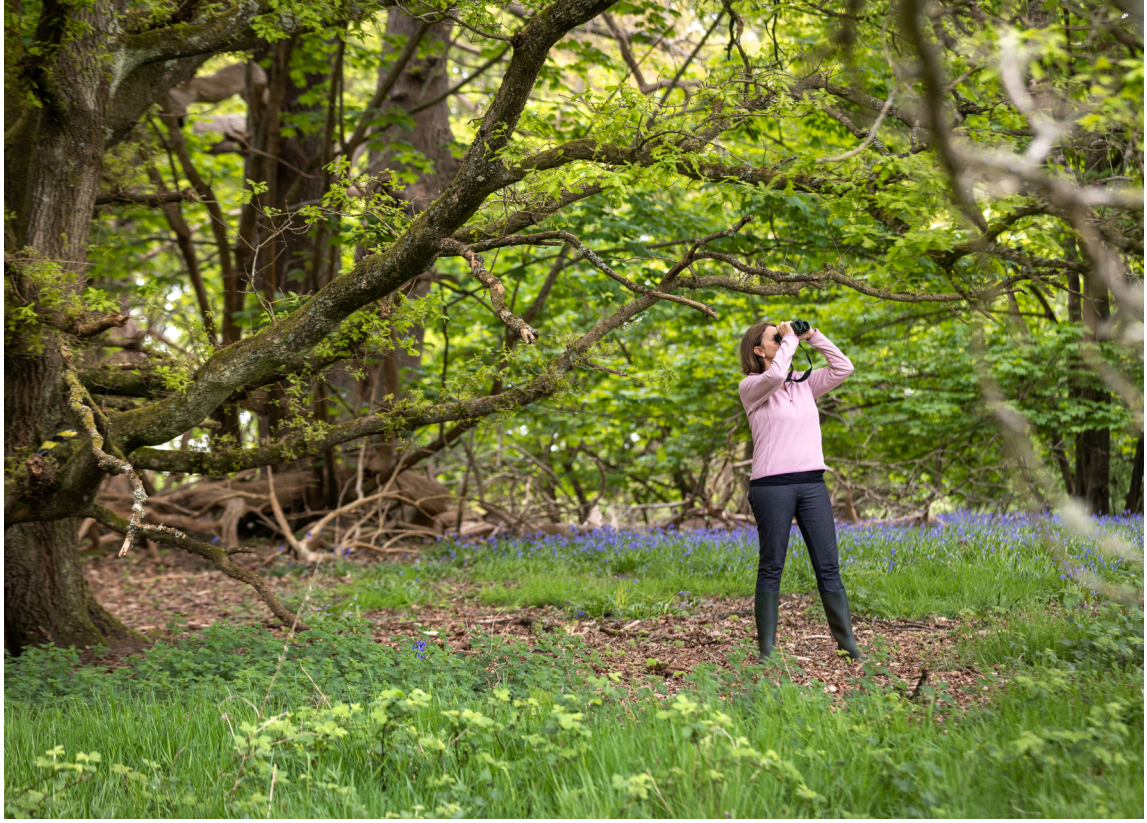
Building on the baseline biodiversity audit, conducted as a student project for all campuses, this year the team will:

- Develop SMART targets to achieve our biodiversity commitments.
- Develop a costed action plan to deliver our biodiversity commitments.
- Identify potential spaces for planting, using pollinator-friendly species.
- Go to tender for the grounds contractor.

Staff comments on green space asked for:

- “less active concreting of green space”
- “encourage composting, more plants around campuses to encourage wildlife”
- “green roof spaces”

(from all-staff survey summer 2023)



Woodland at Imperial's Silwood Park Campus

Case study: Our campuses in our education and research

Overseas field courses can have clear benefits – like observing wildlife in ecosystems with minimal disturbance – but they also carry a carbon footprint cost. The Ecology Field Skills undergraduate course, designed by Dr Emma Ransome from the Department of Life Science, makes use of the UK's diverse ecosystems to teach second-year Biological Sciences students about ecology, our impact and introduces them to practitioners at the forefront improving carbon sequestration and biodiversity though ecosystem restoration.

The students travel to our Silwood Park Campus (only 25 miles from central London) to learn about terrestrial ecosystems and how to manage these ecosystems responsibly to increase carbon capture.

Dr Bonnie Waring said "Silwood Park Campus has some of the world's largest field experiments for understanding the impacts of pollution and climate change, and a unique lab-to-field capacity that make it perfect for this course."

In the module, students then travel to the UK's first National Marine Park near Plymouth and an international perspective is shown through a range of video interviews and seminars with scientists and practitioners from different countries. Nell Pates, a recent graduate said, "This module showed us that you don't need to go far to do meaningful and relevant ecology projects."

Beekeeping at Silwood Park

Water

2022–23 achievements:

This year, we have completed a water reduction programme in partnership with ADSM, an organisation that helps others to use water in an environmentally sustainable way. We are currently on target with focused interventions underway.

Our commitments:

- Reduce total water consumption by 5% compared to baseline year 2022–23 by August 2026.
- Reduce annual water consumption per person.
- Install water control devices.

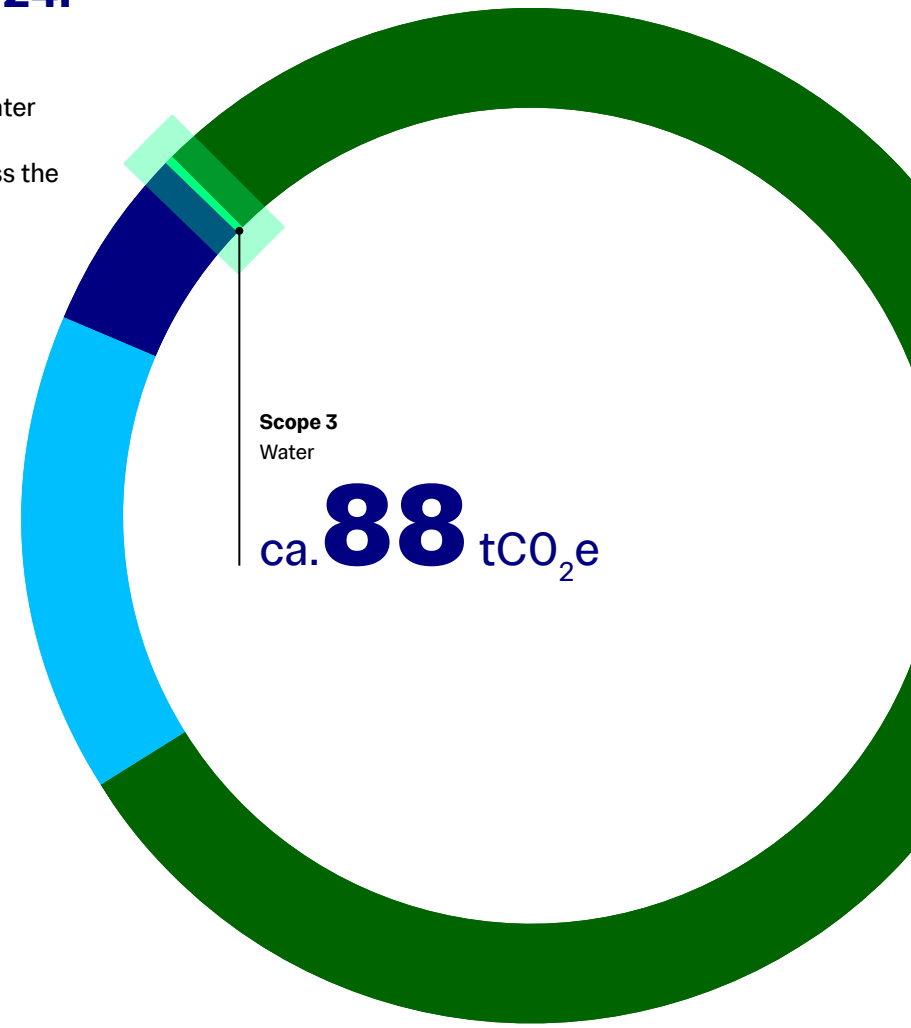
Forward look towards 2024:

Over the next year, the Estates team will:

- Determine and agree the way forward for water reduction programme.
- Establish SMART targets for water use across the Imperial Estate.

Figure 11: 2022-23 emissions including water

Scope 1 37,000 tCO_2e
Scope 2 14,000 tCO_2e
Scope 3 190,000 tCO_2e
Total emissions 240,000 tCO_2e



Engagement

2022–23 achievements

Our annual Sustainability Week took place from 20–24 February 2023. Organised by the Central Sustainability team, the Global Challenge Institutes and Imperial College Union, this year's Sustainability Week centred on the themes of Climate, Energy and Waste, Biodiversity, Water and Air.

Our White City Campus is designed to keep our environment healthy and clean

Over five days, staff and students heard from researchers about their work on the transition to zero pollution, had the chance to find out what Imperial is doing to reduce its own environmental impacts and get involved in exciting workshops and interactive events.

Highlights included panel discussions on climate justice, careers in sustainability, and the ecological crisis, a gardening session in the Environmental Society's Secret Garden, a Sustainability Fair and a workshop led by student societies exploring effective solutions to the climate emergency.

Sustainability Unconference

In September 2023, Imperial hosted its first Sustainability Unconference, focused on Sustainable Education and Sustainable Campuses. It was an interactive, participant-led exchange of innovative ideas, learning, and networking, to help us shape the way we teach and work at Imperial.

- 50 staff and student attendees came prepared to discuss sustainable education and campuses.
- 22 engaging pitches were made by our attendees on the topics they thought we should cover on the day.
- 13 breakout sessions took place throughout the day.

Discussion topics included: nature-based solutions, are the sustainable development goals holding us back, reducing and recycling single-use plastics in labs for research, nudge-theory for behaviour change and Imperial's finances for the greater good.

Sustainable Halls campaign

This year, the Sustainable Halls campaign, run by Students Organising Sustainability-UK (SOS-UK), engaged our students on environmental and social sustainability, introducing life-long sustainable living habits reducing energy usage in our halls of residence.

The campaign built students' foundation of sustainability knowledge and carbon literacy, focusing on enhancing their skills and experience, mobilising them to lead on sustainability initiatives.

Throughout the year, engagement activities communicated practical advice to achieve quantifiable energy, waste, and water reductions.

For 2022–23, Imperial achieved:

- 491 students engaged in the campaign (15.5% of residents).
- 51 students entered our climate quizzes.
- 283 participated in our online competitions, masterclasses, and webinars.
- 155 engaged in our campus visits.

SPOTLIGHT

Faculty of Medicine's Sustainability Working Group

The Sustainability Working Group (SWG) is a student-led group created in 2022 after an MRC Centre for Environment and Health's Sustainability Workshop. Its members are students and staff from the Researcher's Society with a drive for change and passion for sustainability.

The first action taken by the SWG was to generate a comprehensive and thorough report analysing the barriers and opportunities for sustainable changes within the MRC Centre and more broadly, the university, to make informed recommendations. More specifically, the report aims to: (i) better understand current practices; (ii) identify barriers and challenges to sustainable alternatives, (iii) identify opportunities, and (iv) make clear and diverse recommendations of both feasible and effective alternatives.

Our commitments:

- Increase the number of staff and students attending sustainability training and events.
- Staff and student perception of Imperial's sustainability practices and plan to increase in satisfaction.
- Impact of staff and students actively participating in sustainability networks and initiatives to create more environmentally friendly campuses.

Progress against targets:

- **Sustainability Week**
  We continue to host annual Sustainability Weeks to engage our staff and student community in sustainability initiatives and amplify Imperial research.

- **Sustainable Halls campaign**
  We currently do not set engagement targets for the Sustainable Halls campaign but are performing well in the national league. This is being reviewed when the new Sustainability Initiatives Coordinator joins in autumn term 2023.

- **Climate literacy staff training**
  A successful pilot course for staff climate literacy training took place in November 2023, and an online version will be trialed in December with a smaller cohort. We aim to run more sessions in the spring term 2024.

- **Staff mandatory sustainability induction course**
  The course content for the climate literacy course will help shape proposals for a staff sustainability induction module.

Forward look to 2024:

Alongside delivering Sustainability Week 2024 and running SOS-UK's Sustainable Halls campaign for another year, we are planning to provide further opportunities for staff and students to get involved in sustainability initiatives, through training, local competitions, and events to share best practice, enable peer-to-peer learning and tackle larger-scale challenges.

Climate literacy staff course pilot

We have developed Imperial's first climate literacy staff training course to trial run in the autumn term, building on the Grantham Institute's evening classes on climate science. The course includes background to climate science, climate change and mental health, mobilising individual action as well as what Imperial is doing and how staff can get personally involved to make change. The positive feedback received from our first participants will help shape the course for full roll out. We plan to evolve the course content further in time, to be included in staff inductions.

Green Impact

In the spring term 2024, we will be launching the Green Impact scheme designed to support environmentally and socially sustainable practice across Imperial.

Students Union, South Kensington Campus

Imperial College Union (ICU)

2022–23 achievements

Principles of Socially Responsible Engagement Policy

Over the past year, ICU developed a socially responsible policy to recognise the responsibility held towards the community, to society and the environment. The policy outlines the principles upon which all third-party relationships with ICU should be considered.

The principles require all partners with ICU to demonstrate interest in social responsibility, with explicit highlights on integrity, human rights, and the environment.

The policy came into effect from 1 August 2023, and marks the first step towards creating a shared, strategic approach for ICU's engagements.

Environmental society help students go green with arranging a free bike surgery

London Student Sustainability Conference 2023

The fifth annual London Student Sustainability Conference was a coordinated effort between ten London-based universities. Niamh McAuley (ICU Deputy President – Finance and Services, 2022–23) represented Imperial on the conference steering committee, contributing to the creative and logistical direction of the conference, and led training workshops for conference volunteers.

The conference was held at King's College London on 20 February 2023, coinciding with Imperial's Sustainability Week. The conference saw students share their innovative climate and sustainability work with over 200 like-minded peers and professionals. The conference received 16 applications from Imperial students, of which seven were selected to present at the conference.

Activities planned for 2024

Green Careers Fair

The first ever Green Careers Fair was held at Imperial on 26 January 2023, planned and organised by students from across Climate Entrepreneurs Club, Engineers without Borders, Environmental Society, and Imperial Climate Action. This event was supported by Imperial Zero Pollution and the Grantham Institute.

The fair brought together companies from across the sustainability industry to showcase the range of career opportunities available to our students. More than 250 students registered for the fair, with many others attending on the day.

Continuing from the success of last year, this year's Green Careers Fair will take place in February 2024.

London Student Sustainability Conference 2024

The sixth annual London Student Sustainability Conference will be hosted at Imperial's South Kensington Campus in February 2024.

ICU is taking a lead on the hosting responsibilities in conjunction with Mike Tennant and Anne Houston from Imperial and the Grantham Institute. We expect to recruit keen and passionate students to lead in the planning and delivery of the conference at Imperial.

Environment and Sustainability Forums

In 2022, ICU created a new space to encourage discussions around sustainability, open to all students at Imperial. Three forums took place, delving into general initiatives, climate finance, and ICU & College strategies on sustainability. These were led by Niamh McAuley (ICU Deputy President – Finance & Services, 2022–23).

This year, ICU plans to make forum sessions monthly with established themes to target a variety of topics across sustainability, such as green skills and careers and plant-based food and diets. Student leaders will take an active role to improve and adapt the forums to ensure they are building connections and constructive conversations.

Officer Trustee Team objectives for 2024

The ICU Officer Trustee Team for 2023–24 have established a collective objective focused on embedding a proactive approach towards environmental sustainability across all aspects of Union and College life. Each Officer Trustee has set a specific goal under their remits. These goals are expected to be integrated with the Union's plans and operations to ensure progress and continuity beyond the Officer Trustees' term in 2023–24.

Camille Boutrolle (Union President, 2023–24)

Lobbying Imperial for full divestment from fossil fuel industry companies and quarterly updates on Imperial's investment portfolio.

Andreea Cojocea (Deputy President – Welfare, 2023–24)

Investigating climate anxiety and its effect on our students.

Christian Cooper (Deputy President – Clubs & Societies, 2023–24)

Working with students to develop a long-lasting framework to promote sustainable practices within clubs and societies.

Yi Yang (Deputy President – Education, 2023–24)

Refining learning outcomes across Imperial modules to equip our students to be competitive in sustainability-related industries.

Stephanie Yeung (Deputy President – Finance & Services, 2023–24)

Developing and delivering the Union Sustainability Plan.

Union Sustainability Plan

The Union Sustainability Plan is set to be launched in 2023–24 and is intended to be refreshed annually to update on progress and next steps. It will outline a systematic approach towards sustainability for ICU. The foreseeable key areas of focus for the Union Sustainability Plan include:

ICU carbon emissions and baseline

We will be working with Imperial Zero Pollution and SOS-UK to measure and audit the current carbon emissions from ICU to establish a baseline, which will inform on next steps to reducing emissions.

Student activities and engagement

We are planning to create sustainability frameworks around student-led activities, and to also engage and equip our students to become leaders on sustainability through training, workshops, events etc.

College-ICU collaboration

We strive to continue working with the university to further initiatives around sustainability. This includes discussions on education for sustainability, divestment, emissions reduction, and other key topics.

The sixth annual Student Sustainability Conference will be held at the South Kensington Campus

Imperial Zero Pollution updates

The Imperial Zero Pollution programme's vision is to realise a sustainable, zero pollution future. As one of the world's top universities, we have the power to make that a reality.

Imperial Zero Pollution: Our Education

We are educating the next generation of scientists, engineers, clinicians, and economists, empowering them with the skills they need to work towards a more sustainable world and how we teach matters.

This year, we set up an Education for Sustainability group working with staff and students across Imperial to help integrate sustainability, as broadly described by the Sustainable Development Goals, into teaching and extra-curricular activities.

This includes Sustainability Literacy (teaching core skills and competences) and the Application of Science to Sustainability (opportunities in the curriculum and extra-curricular in teaching and learning).

Imperial Zero Pollution: Our Research

The Transition to Zero Pollution (TZP) initiative published three thought pieces and briefing papers in 2022–23 to raise the profile of TZP and of research at Imperial in these areas. Further activity of bringing together cross-disciplinary colleagues to solve grand challenges in sustainability has encouraged collaboration and develop proposals.

There have been many research projects related to TZP funded over the past year, including the launch of Hitachi and Imperial Centre for Decarbonisation and Natural Climate Solutions in January 2023 and the Rio Tinto Centre for Future Materials, to develop sustainable routes to materials for a green future.

Working with zero pollution researchers, Imperial has developed public engagement opportunities (Future Fridge, to stimulate conversation around whole systems thinking and the environmental and health impacts of food) and policy engagement activities (with Imperial Policy Forum and the Grantham Institute, co-organising the Environmental Audit Committee's 25th Anniversary).

Queen's Tower on our South Kensington Campus

Imperial Zero Pollution: Our Partnerships

Who we partner with and how we invest university funds matters. We use our convening power to build and facilitate partnerships across the world that drive the transition to net-zero, working with industry, business, governments, our local communities and the wider public.

Imperial is one of 22 leading cultural and educational organisations in South Kensington in the Exhibition Road Cultural Group (ERCG) working with South Kensington Zero Emissions Nature Positive (ZEN+) Programme. This is an innovative neighbourhood response to the climate and biodiversity crisis. It been awarded £120,000 from the GLA to further explore options and viability of several schemes including making use of heat from ground water in Princes Gardens.

Imperial launched several international partnerships this year. The TUM-Imperial zero pollution network launched in November 2022 and Imperial-TUM Zero Pollution Advanced Fund will help support several pioneering projects. Imperial and University of Tokyo announced a new strategic relationship for cleantech and energy research following a visit to Japan in March 2023.

Get involved

Be part of our Sustainability Champions Network.

Join a Green Impact team and make real environmental change in your department.

Keep up to date with the latest sustainability news and events across Imperial with our Sustainability Bulletin newsletter.

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