

Carbon Reduction Plan

Supplier name: Imperial College London

Publication date: March 2024

Commitment to achieving Net Zero

Imperial College London is committed to achieving Net Zero emissions (scopes 1 and 2) by 2040, minimising Scope 3 emissions where possible.

Baseline Emissions Footprint

Baseline emissions are a record of the greenhouse gases that have been produced in the past and were produced prior to the introduction of any strategies to reduce emissions. Baseline emissions are the reference point against which emissions reduction can be measured.

Baseline Year: 2018-19 academic year

Additional Details relating to the Baseline Emissions calculations:

Imperial College London's Scope 1 and 2 CO₂e emissions relate to the building operations and calculated from a combination of billed energy consumption, meters and budget figure or estimated based on previous usage data. The Higher Education Statistics Agency (HESA) methodology for the annual Estates Management Record (EMR) is used as the basis for this data collection. Department for Energy Security and Net Zero's CO₂e figures are used to convert energy use into CO₂ emissions.

Baseline Scope 3 emissions were calculated using the conversion factors based on Procurement spend categories. Emissions are calculated from total spend in line with the methodology set out by HESA. Emission sources are broken down and categorised to allow intra-sector comparison with peers and other organisations in the sector.

We are bringing our methodology in line with the sector methodology set out by the Environmental Association for Universities and Colleges (EAUC) which is based on the GHG Protocol Reporting Framework.

Baseline year emissions:

EMISSIONS	TOTAL (tCO ₂ e)
Scope 1	39,794 tCO ₂ e (scope 1 utilities) + Ca.21 tCO ₂ e (fleet emissions)
Scope 2	15,454

Scope 3 (Included Sources)	163,041
Total Emissions	218,289 TOTAL (tCO₂e)

Current Emissions Reporting

Reporting Year: 2022-23 academic year	
EMISSIONS	TOTAL (tCO₂e)
Scope 1	36,775 tCO ₂ e (utilities) + 16.95 tCO ₂ e (fleet emissions)
Scope 2	14,192 tCO ₂ e
Scope 3 (Included Sources)	187,722 tCO ₂ e (79%) Of which: <ul style="list-style-type: none"> - Business travel: 25,468 tCO₂e (10%). - Employee commuting: 1904 tCO₂e (0.80%) - Waste generated in operations: 198 tCO₂e (0.083%) - Upstream and downstream transportation and distribution: These two categories are reported implicitly within our scope 3 emission data. We do not yet have the data to break this out from the wider emissions from purchased goods and services. We expect this to be a small part of our emissions compared to the larger impacts of producing the goods we buy.
Total Emissions	238,706 TOTAL (tCO₂e)

Emissions reduction targets

In order to continue our progress to achieving Net Zero, we have adopted the following carbon reduction targets.

We project to achieve carbon net zero by 2040 for Scopes 1 and 2 emissions as well as reducing our Scope 3 emissions as much as possible.

We aim to reduce total Scope 1 and 2 carbon emissions arising from energy consumption by 15% by 2025–26 against the baseline year 2018–19. To support this, we are currently developing a carbon budget model to set evidence-based targets and lay out our pathway to net zero.

Carbon Reduction Projects

Completed Carbon Reduction Initiatives

The following environmental management measures and projects have been completed or implemented since the 2018-19 baseline.

Between 2021-22 and 2022-23 reporting, we have introduced a new methodology, which has resulted in a decrease in our calculated emissions for 2021-22. The addition of four new categories added Ca.62,000 tCO₂e to Imperial's emissions. However, our refined methodology for analysing emissions from procurement resulted in a decrease of Ca.30,000 tCO₂e. We also saw a decrease of Ca.58,000 tCO₂e within Scope 3: Fuel and Energy for two reasons: while refining our methodology, we found we had previously been double reporting some Scope 1 and 2 emissions within Scope 3 in this section, and for 2022-23 we switched from a spend-based analysis to a more accurate consumption-based analysis outlined in Scope 3: Fuel and Energy.

Between 2021-22 and 2022-23, we saw a decrease in emissions for Scope 1: Natural Gas and Scope 3: Procurement and Supply, while there was an increase in emissions for Scope 2: Purchased Electricity and Scope 3: Business Travel.

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 CO₂ per annum.

Next phase:

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

Sustainable Food and Drink Policy

In 2022 we published our Sustainable Food and Drink Policy. The policy, led by the university's in-house catering team, will guide the menus we develop, how we procure our food and equipment and how we increase awareness on how what we eat impacts the environment. It includes commitments to:

- Phase out beef products from Imperial menus by 30% per year, ultimately removing them entirely by 2025-26. We have achieved a 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).
- Only serve fish that is Marine Stewardship Council (MSC) Certified.
- Prioritise local, seasonal produce across-the-board.
- Introduce a revised reusable cup scheme to reduce single-use cups across campus.
- Increase the educational materials available in outlets on sustainable food and drink choices.
- Develop community spaces to support student and staff involvement in sustainable food projects.

Sustainable Travel Policy

In 2023 we developed a sustainable business travel policy, focusing on reducing air travel because that is where our largest environmental impacts lie within business travel. This policy applies to all employees of the university and all students who choose to, or are required to, undertake travel as part of their learning or research.

Our measure of progress will be a reduction in carbon emissions from air travel by 25% by 2026 against the baseline year 2017–18 (tonnes of CO₂e per person per year).

In the future we hope to implement further measures such as:

All new buildings and major refurbishments (over £5 million) to be Building Research Establishment Environmental Assessment Method (BREEAM) rated or other certificates from 23-24 onwards

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 Dept of Infectious Disease element of the build, which is on track to meet BREEAM Very Good target.

Some of the BMS 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 Sheffield Building. This project will include removal of existing gas catering equipment and replacement with electric versions. Where possible, existing building infrastructure will be retained and upgraded where required.

Sustainable Procurement Policy

We have nearly finalised our refreshed sustainable procurement policy, strategy, and toolkit. This will include strengthening the sustainability asks of suppliers in our procurement process and weightings in procurement decisions, doing a deep dive into major categories such as construction and laboratory purchasing to reduce our carbon impact, and improving our

reporting on scope 3 so that it more accurately reflects our footprint and guides us on where to focus next.

White City Campus – South site

The sustainability strategy has been developed for the south site of Imperial's White City Campus and is being implemented in the upcoming Infrastructure Development Plan (IDP), is aligned with the targets and aspirations of Imperial's overarching Sustainability Strategy.

It specifically responds to the objective in that strategy to "develop a roadmap towards a carbon neutral south site of our White City Campus". The strategy addresses both the carbon and sustainability impacts of the IDP works themselves, and the longer-term impacts of the buildings that will be constructed on the site.

This includes, but not limited to:

Operational carbon impact

The energy strategy for the site is to achieve zero fossil fuels following a final decision in 2022 to remove the gas main from the design proposals. An earlier decision to incorporate diverse high-voltage (HV) electrical supplies on to the site provides sufficient supply resilience to ensure that standby generators are not required. The electrical distribution capacity for the site has been tested to ensure that this infrastructure strategy does not reduce flexibility in terms of building uses, including high-energy intensity research labs.

Sustainable materials

The environmental impact, and in particular the carbon footprint of the construction of the IDP works, has been a major focus during the design process. The construction of a new retaining wall bordering the Central Line, and the "Basement Box" which provides a below ground vehicle route from east to west, are particularly material intensive. Through works to optimise both the design and the material specifications, the carbon impact overall of the IDP works has been reduced by 28 per cent from concept through to detailed design.

Active travel

The White City south masterplan is focused on active travel (walking and cycling) – this is reflected in both the revised junction with Wood Lane and throughout the public realm. An aim regarding the creation of the "Basement Box" is to deliver a pedestrian-prioritised public realm. Cycle routes run around the perimeter of the site and extensive cycle storage is also provided. There is no car parking delivered as part of the IDP works, and an electric charging point is provided for a future electric bus linking other College campuses with White City.

Existing estate and retrofit work

We are developing multi-year programme plans for investment and retrofit. Our older buildings need significant improvements to their insulation and ventilation, heating and cooling systems and building management systems. We also need to transform our energy infrastructure over time to allow a move from using our current gas-fired combined heat and power (CHP) and boiler plant to renewable energy sources. This will enable decarbonisation of our campuses to meet our net zero goals.

Declaration and Sign Off

This Carbon Reduction Plan has been completed in accordance with PPN 06/21 and associated guidance and reporting standard for Carbon Reduction Plans.

Emissions have been reported and recorded in accordance with the published reporting standard for Carbon Reduction Plans and the GHG Reporting Protocol corporate standard¹ and uses the appropriate Government emission conversion factors for greenhouse gas company reporting².

Scope 1 and Scope 2 emissions have been reported in accordance with SECR requirements, and the required subset of Scope 3 emissions have been reported in accordance with the published reporting standard for Carbon Reduction Plans and the Corporate Value Chain (Scope 3) Standard³.

This Carbon Reduction Plan has been reviewed and signed off by the board of directors (or equivalent management body).

Signed on behalf of the Supplier:

Professor Nigel Brandon.....

Dean of the Faculty of Engineering, Chair of the Sustainability Strategy Committee

Date: 19 March 2024

¹<https://ghgprotocol.org/corporate-standard>

²<https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting>

³<https://ghgprotocol.org/standards/scope-3-standard>