

# IMPERIAL

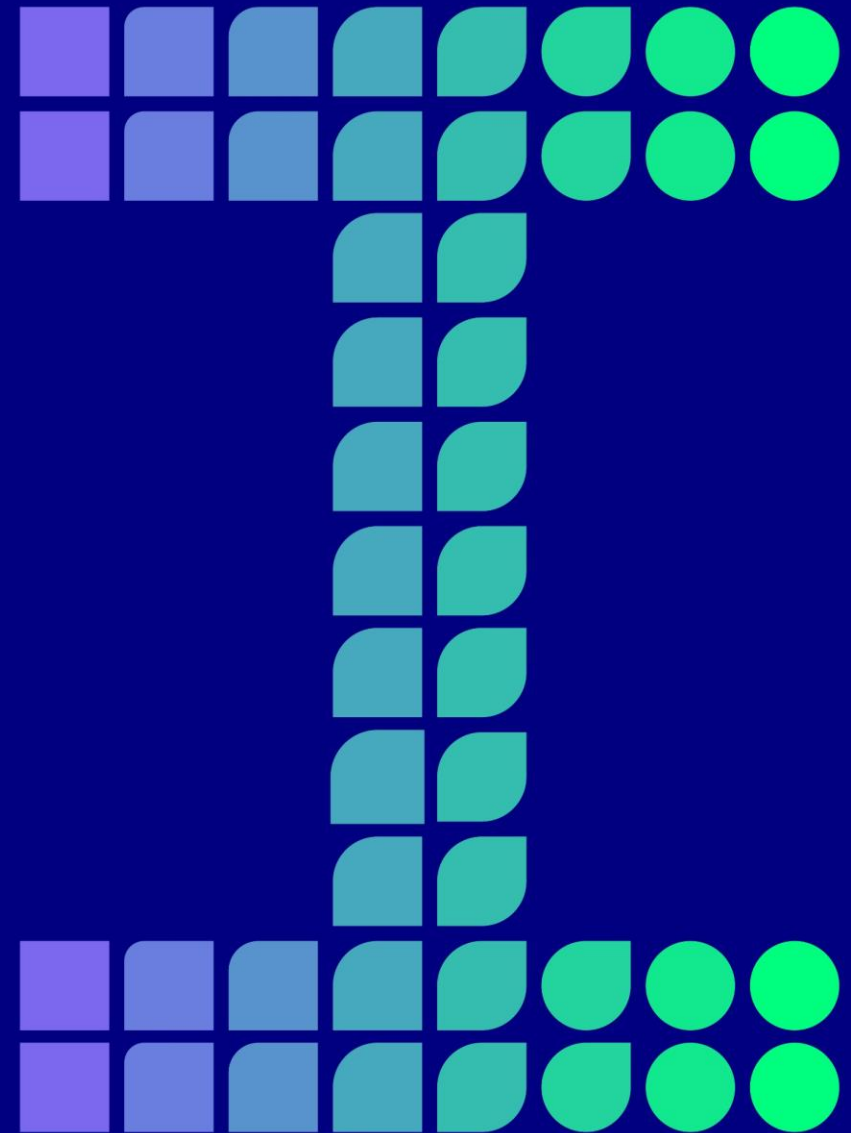
Sustainable Imperial

How can universities contribute towards sustainable futures?

Harriet Wallace

Director Sustainability

Life Cycle Network Conference - 26 March 2025



# Sustainable Imperial: a core initiative in Imperial’s strategy

## Sustainable Imperial

### Towards net zero and further Sustainable Imperial

**Our goal:** We will set a global benchmark for university sustainability, nurturing graduates who understand and advocate for climate science, supporting our researchers to investigate and respond to planetary challenges and leading by example in our activities and on our campuses.

**Now:** Few issues unite our Imperial community with such determination and urgency as our desire to address the interlinked existential challenges of climate change, biodiversity loss and pollution.

Imperial offers a wide variety of education programmes in climate-related science, finance, technologies and policy. Our research portfolio is among the strongest in the world. Through our partnerships, including the Rio Tinto Centre for Future Materials, the Tata Steel Centre for Innovation in Sustainable Design and Manufacturing and the Hitachi Centre for Decarbonisation and Natural Climate Solutions, we are using our expertise and research to accelerate a sustainable transformation for industry and society.

Imperial experts are working with governments, industry and civil society to advocate for urgent change, including Professor Jim Skea, Professor in Sustainable Energy at Imperial and the current chair of the UN’s Intergovernmental Panel on Climate Change.

**Next:** By 2025, **Sustainable Imperial** will be established as an Imperial-wide strategy to deliver evidence-based solutions, embrace new technologies, challenge conventional thinking and open new debate in our efforts to solve this growing global crisis.

The **Imperial Class of 2030** programme (page 10) will equip all our graduates with the climate science

literacy to advocate, influence and lead in the fight against climate change and its impacts. The **Imperial Institute of Extended Learning** will equip individuals and businesses with the skills and business models needed to deploy new technologies towards a net zero future.

With a focus on climate, sustainability and resilience, one of our new **Schools of Convergence Science** (page 28) will create a new portal to Imperial expertise and a research community of formidable scale to imagine and test new approaches, technologies and solutions. And we will make our climate expertise accessible to a wider community of global policy makers by providing on-campus deep-dive climate Science Policy Fellowships.

The new **Imperial Zero Index**, along with our Socially Responsible Investment Policy, will allow us to pursue an ‘engagement for change’ ethos with fossil fuel companies – only engaging where our research is strongly aligned to decarbonisation and if our partner demonstrates a credible strategic commitment to achieving net zero by 2050.

We will make huge investments to transform our campuses and working practices. The university’s **Decarbonisation Plan** is a comprehensive roadmap to reach net zero for Scope 1 and 2 emissions by 2040 at the latest. Alongside this our **Sustainable Procurement Policy** will enable us to minimise our Scope 3 emissions in collaboration with our suppliers.

**Sustainable Imperial** is a remarkable opportunity for the university to live its commitment to environmental sustainability and responsible climate governance within, and far beyond, our campus.

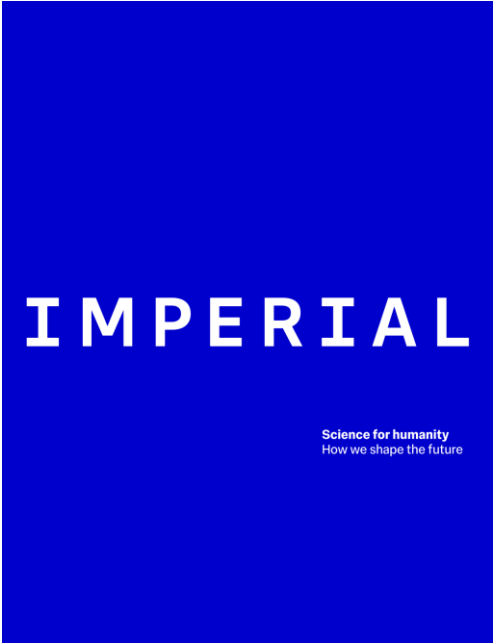
Our goal:

We will set a global benchmark for university sustainability, nurturing graduates who understand and advocate for climate science, supporting our researchers to investigate and respond to planetary challenges and leading by example in our activities and on our campuses.

[imperial.ac.uk/strategy](https://imperial.ac.uk/strategy)



Right: Dr Cristina Banks-Leite, Senior Lecturer in the Faculty of Natural Sciences at Silwood Park, Imperial’s eco-campus.





# Why are we doing this?



**Research**



**Reputation**



**Recruitment**



**Funders**



**Feedback**



**Future**

May 2024: Imperial signed the **Concordat for the Environmental Sustainability of Research and Innovation Practice**



Concordat ask	Imperial’s position
1. Leadership and system change (embedding sustainability in strategies, policies, and actions)	Sustainability is in Imperial’s <b>strategy</b> , we have sustainability <b>policies</b> , a sustainability <b>committee</b> and sustainability in Board and Operations Committee <b>papers</b> .
2. Sustainable infrastructure (old and new buildings, digital infrastructure, laboratories, and large equipment)	We have a <b>decarbonisation plan</b> for existing campuses, and <b>a building guide for new builds</b> . We are rolling out lab <b>efficiency schemes</b> .  Imperial signed a <a href="#">joint collaboration</a> with Lenovo and Intel to deliver more sustainable <b>High Performance Computing</b> as part of our central Research Computing Service and has an <b>ICT sustainability work programme</b> .
3. Sustainable procurement	Sustainable Procurement Policy being implemented.
4. Emissions from business and academic travel	Sustainable Business Travel Policy being implemented, using a “climate conscious travel” approach.
5. Collaborations and partnerships	The <b>Imperial Zero Index</b> framework is to be published and rolled out this year.
6. Environmental impact and reporting data (annual reporting using standardised frameworks)	Annual carbon emissions reporting using the new sector <b>Standardised Carbon Emissions Framework</b> , alongside the Annual Financial Report.

# Where are we now on our carbon footprint?

Figure 2: Imperial's total carbon emissions for 2023-24

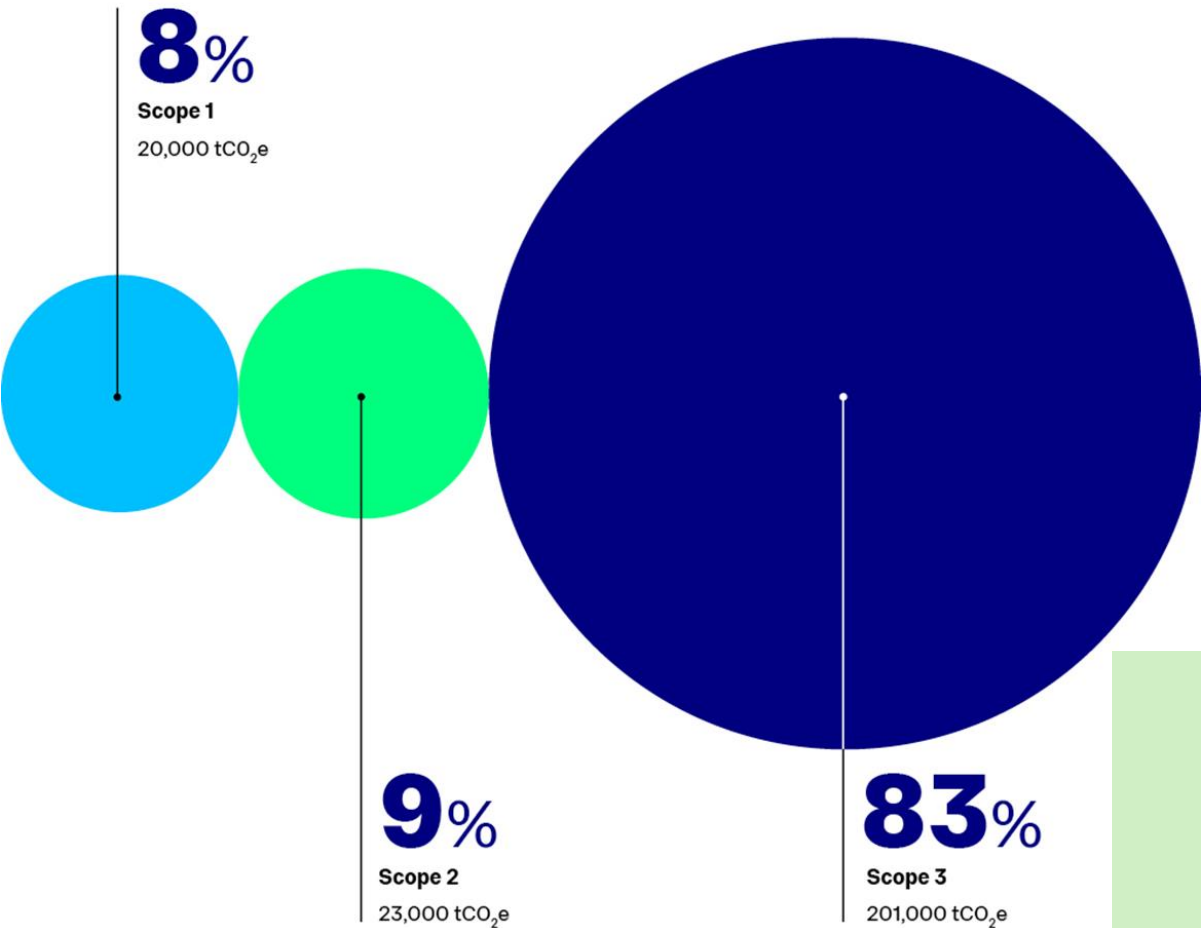
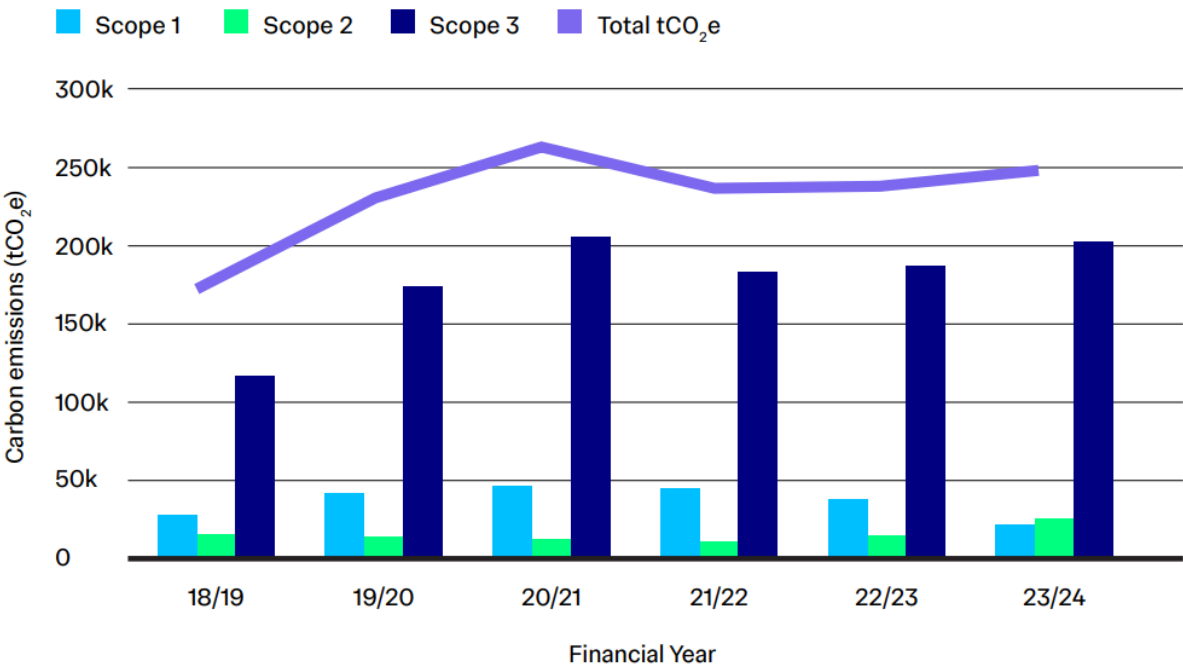


Figure 3: Imperial's total scope 1, 2 and 3 carbon emissions year on year



## Commitments:

Net Zero campuses (Scope 1 & 2) by 2040

Minimise Scope 3




# Net Zero Campuses (Scope 1 & 2) by 2040

In three phases


Phase 1 – Enabling (2025 – 2030)

~ 25% reduction in scope 1 & 2

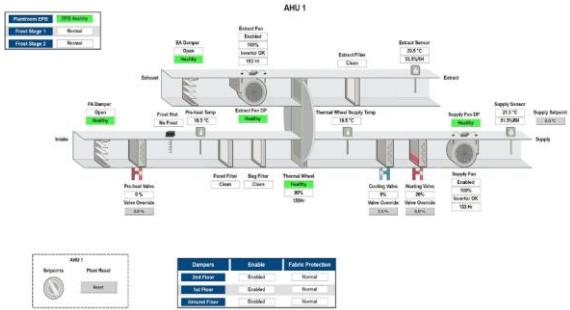
LED LIGHTS



SOLAR PV




BUILDING CONTROLS




Phase 2 – Hybrid (2030 – 2035)

~ 33% reduction in scope 1 & 2

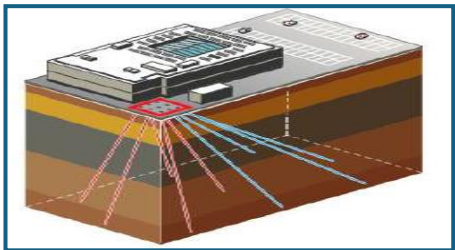
UPGRADED FABRIC



NET ZERO DESIGN




GROUND SOURCE HEAT



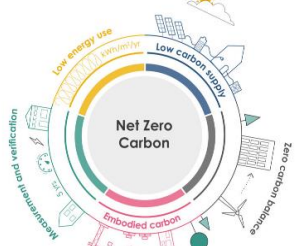
Phase 3 - Net Zero (2035 – 2040)

~ 42% reduction in scope 1 & 2


UPGRADED FABRIC



NET ZERO DESIGN



AIR SOURCE HEAT



# Imperial's approach to sustainable procurement

In 2024, we published the sustainable procurement policy, strategy and guidance for all university related procurement

- The **policy is live** and should be consulted for all procurement activities.
- A **sustainability weighting** has been added to tenders:
  - 20% for all major contracts
  - 10% for smaller suppliers
- The central procurement team now has a dedicated **Sustainable Procurement Manager** to support with embedding the policy.

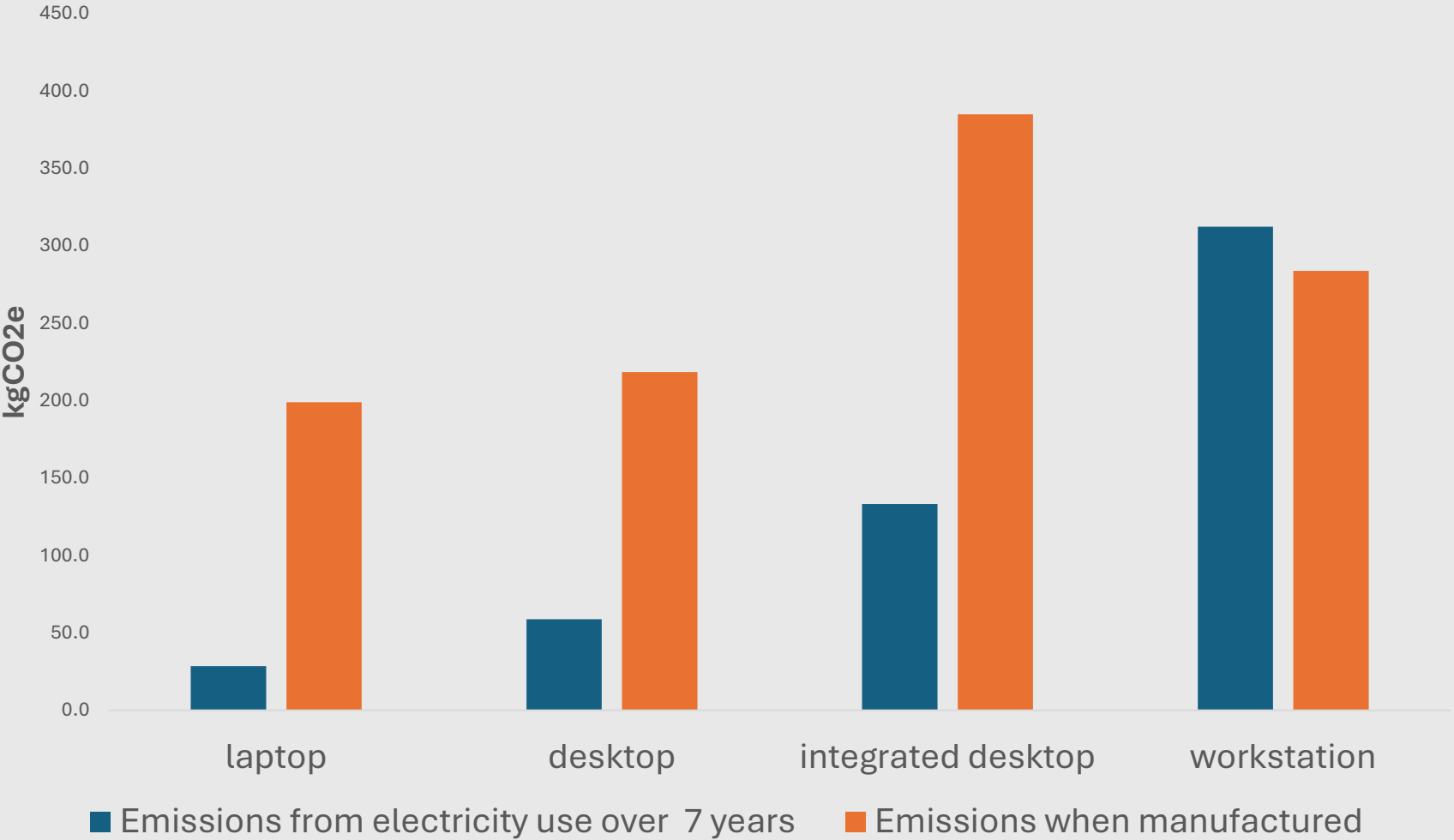
## Key actions for 2025:

- Directly **survey all our major suppliers** to gather their sustainability data and initiatives.
- Collaborate with **NETPositive Futures**, using their Net-Zero Supplier Tool to gather detailed supplier data.
- Set a refreshed set of **procurement sustainability targets**.



# In practice: Using Life Cycle Assessment in our ICT strategy

1) Reduce emissions from purchases of equipment and 2) reducing emissions from hardware use





# In practice: Reducing Embodied Carbon in Campus Construction

Embodied Carbon A-C (kgCO <sub>2</sub> e)		
Baseline	Minimum Standard	Aspirational Standard
108,5m	78,3m	65,6m

This is equivalent to the annual carbon emissions of approximately **10,000 UK households**, with average UK household emits about **8.1 tonnes of CO<sub>2</sub> per year**.

## Case Study

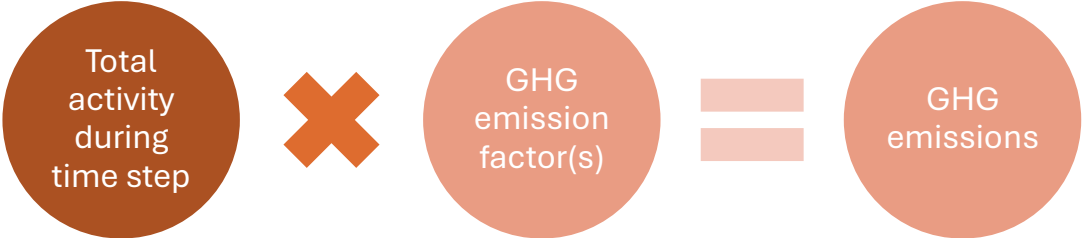
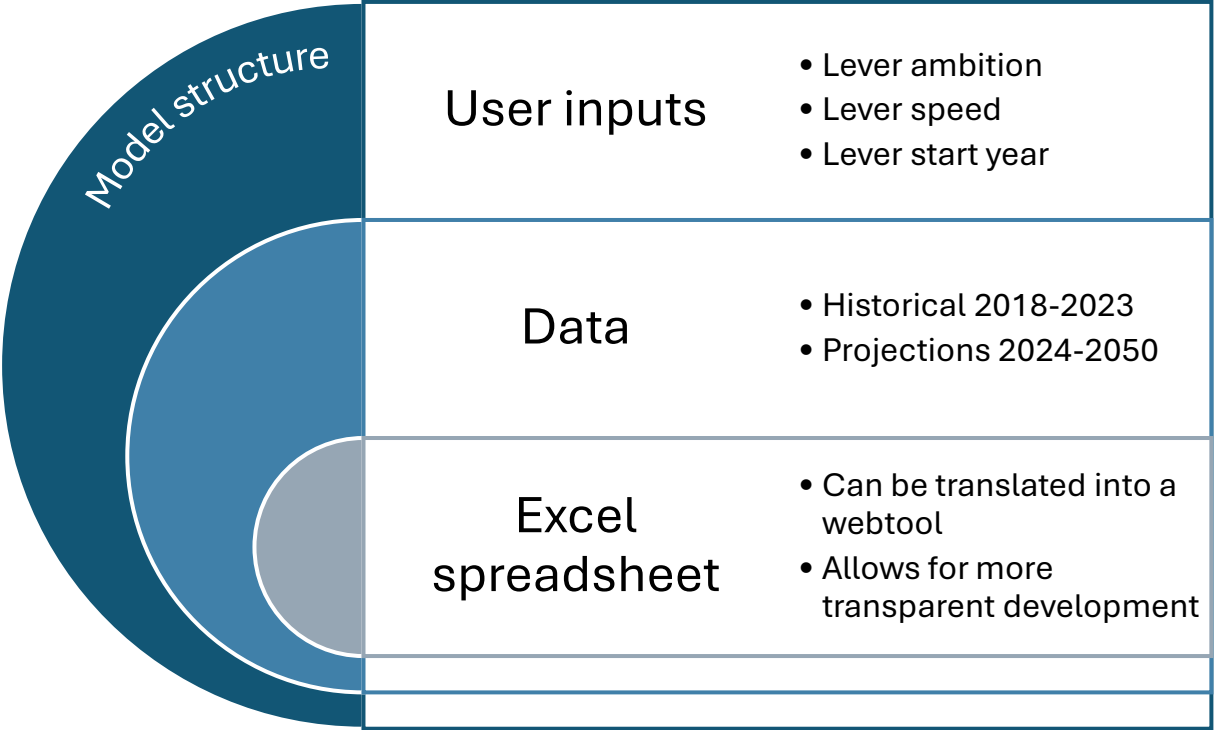
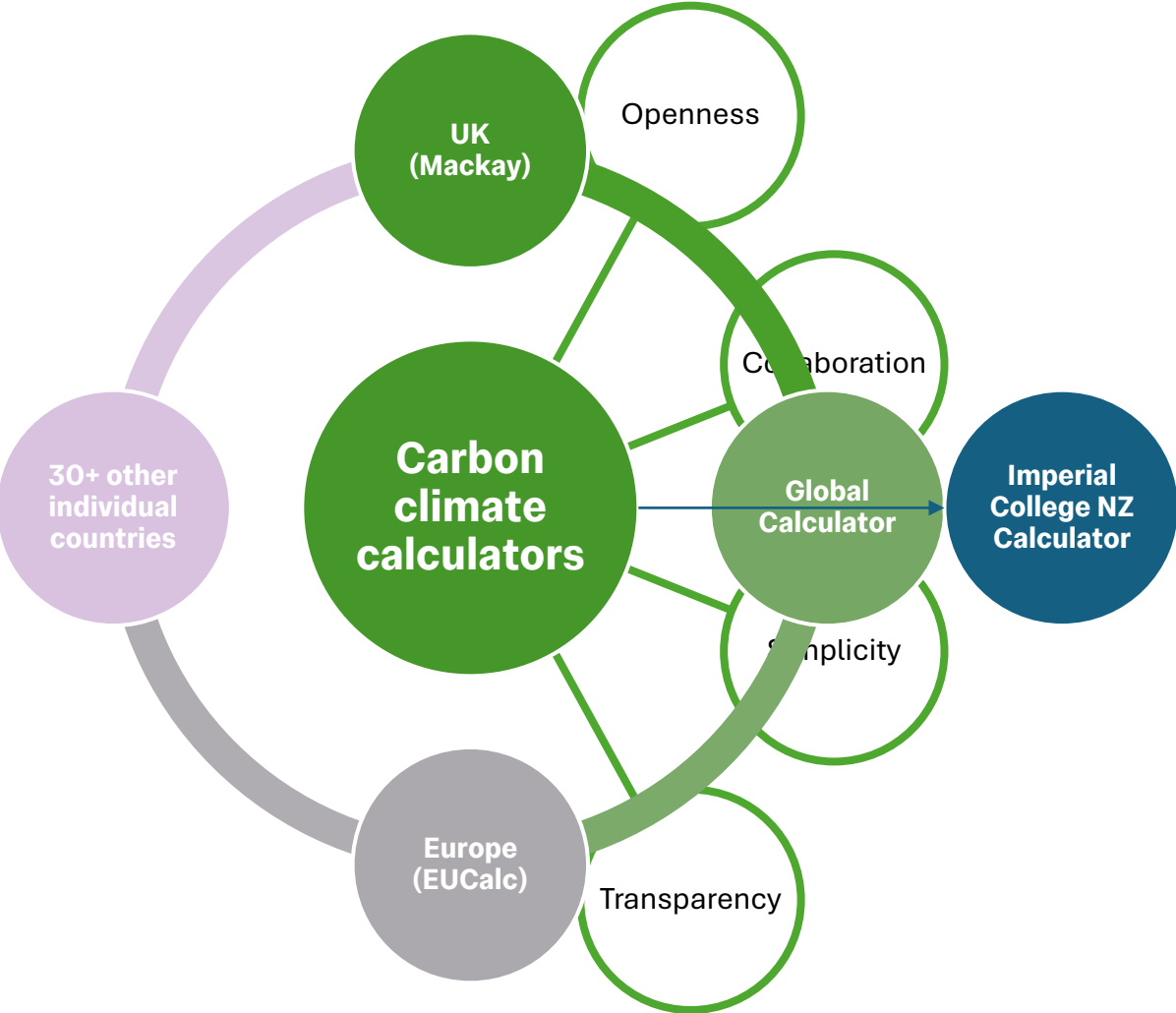
The proposed buildings under the Westway, the baseline is set at 2.1m kgCO<sub>2</sub>e, with an aspirational target of **955.5k kgCO<sub>2</sub>e**.

By specifying **mass timber buildings**, where the primary structural material is timber, we can achieve embodied carbon performance of **535.8k kgCO<sub>2</sub>e** which is below the aspirational target.



# Developing the Imperial Net-Zero Calculator

Using organizational data and insights



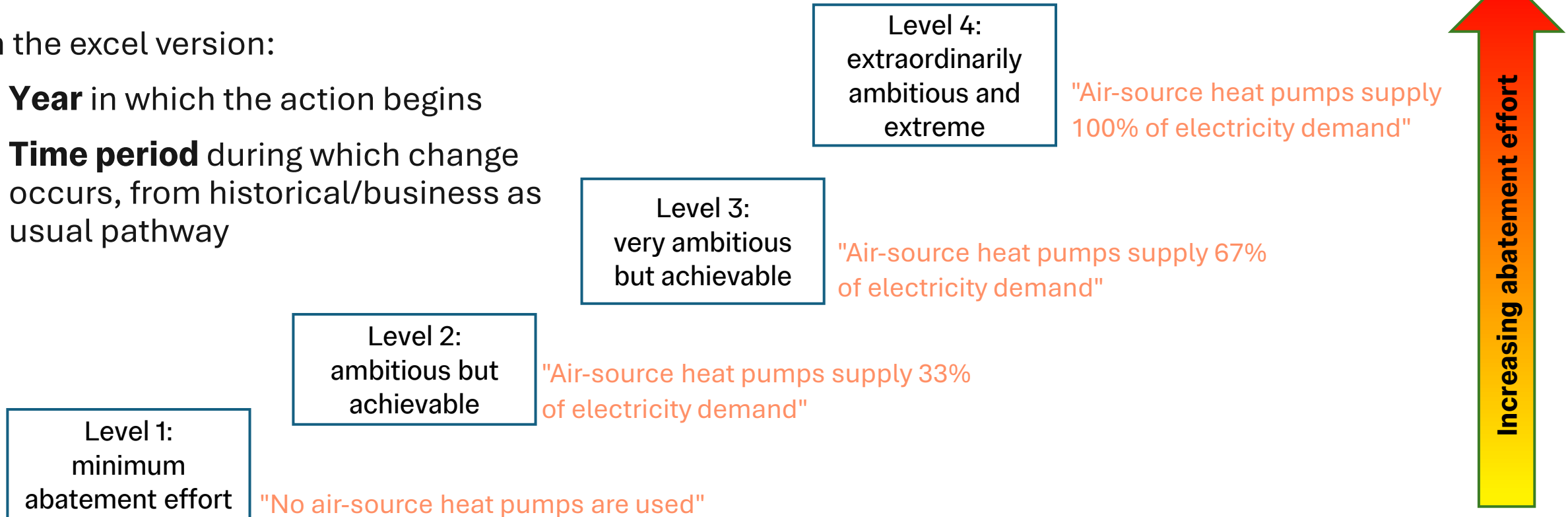
# Imperial's carbon calculator – modelling decarbonisation pathways

## Levers and Ambition Levels

- Each **lever (technological or behavioural intervention)** has four options – **levels 1 to 4** – which the user selects.
- Represents full range of what is possible for each action up to 2040

In the excel version:

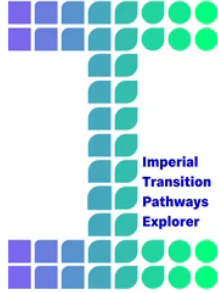
- **Year** in which the action begins
- **Time period** during which change occurs, from historical/business as usual pathway



# Imperial Transition Pathways Explorer

IMPERIAL [Transition Pathways Explorer](#)

# IMPERIAL



## What is the Imperial Transition Pathways Explorer?

Imperial College London has launched a first-of-its kind open-source analytical tool to identify different pathways to net zero. You can use the Explorer to explore the outcomes of decarbonisation activities, at different levels of ambition, to help plan the most impactful carbon mitigation roadmap.

The Imperial Transition Pathways Explorer model is a down-sized version of multiple national calculators (e.g. UK Mackay calculator) and international European and Global Calculators used by governments in the UK and around the world.

## How does the Explorer work?

The model allows the user to explore the impacts of choosing a range of technological and behavioural options for decarbonisation at different levels of ambition for mitigation and implementation:

- from level 1 ('business as usual') which continues historical trends
- to level 4 which is the most ambitious we can imagine being possible

## Using the Explorer

You can use the menu at the top left-hand of the page to set the four levels of ambition against all categories and the graphs will update automatically.

Alternatively, you can expand all the different options on the left-hand side, such as travel or buildings, adjust individual levers to a set level of ambition, and press "submit" to create your own modelled pathway. This allows users to see the range of net zero pathways, the annual level of emissions (to meet Imperial's net zero estate by 2040 goal) and cumulative emissions between 2018 and 2050.

The breakdown of each category through the tabs at the top of the page allow you to see more detailed graphs. Wait for graphs to be updated once level of ambitions have been set.

The Explorer automatically is set at level 1 ambition level across all categories.

[Go to the explorer](#)



Try it yourself here!



[bit.ly/imperial-explorer](https://bit.ly/imperial-explorer)



# What does the Imperial carbon calculator show us?

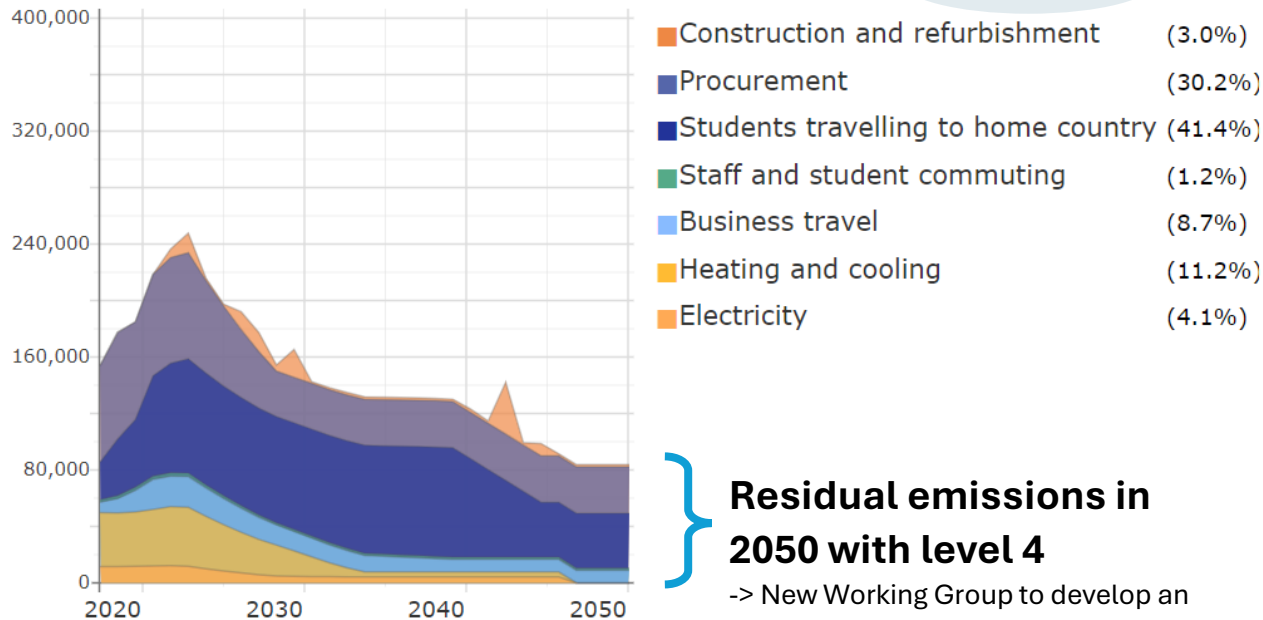
## High versus Low ambition pathways

- **Very High ambition (Level 4)** takes **Scope 1&2 emissions to near-zero** : we decarbonise campus energy, reduce the

Annual Greenhouse Gas Emissions

tCO2e/yr

2018-2050 cumulative total: 4,693,000 tCO2e



**Residual emissions in 2050 with level 4**

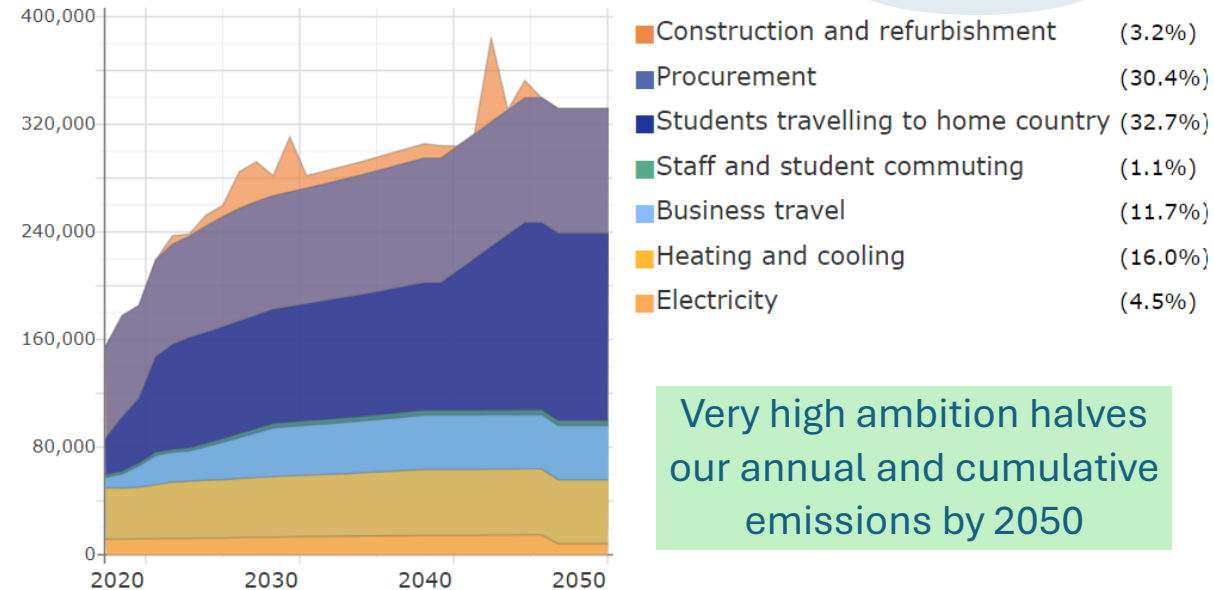
-> New Working Group to develop an approach to residual emissions

- **Low ambition (Level 1)** doubles annual emissions by 2050: we don't reduce our carbon intensity and high population growth

Annual Greenhouse Gas Emissions

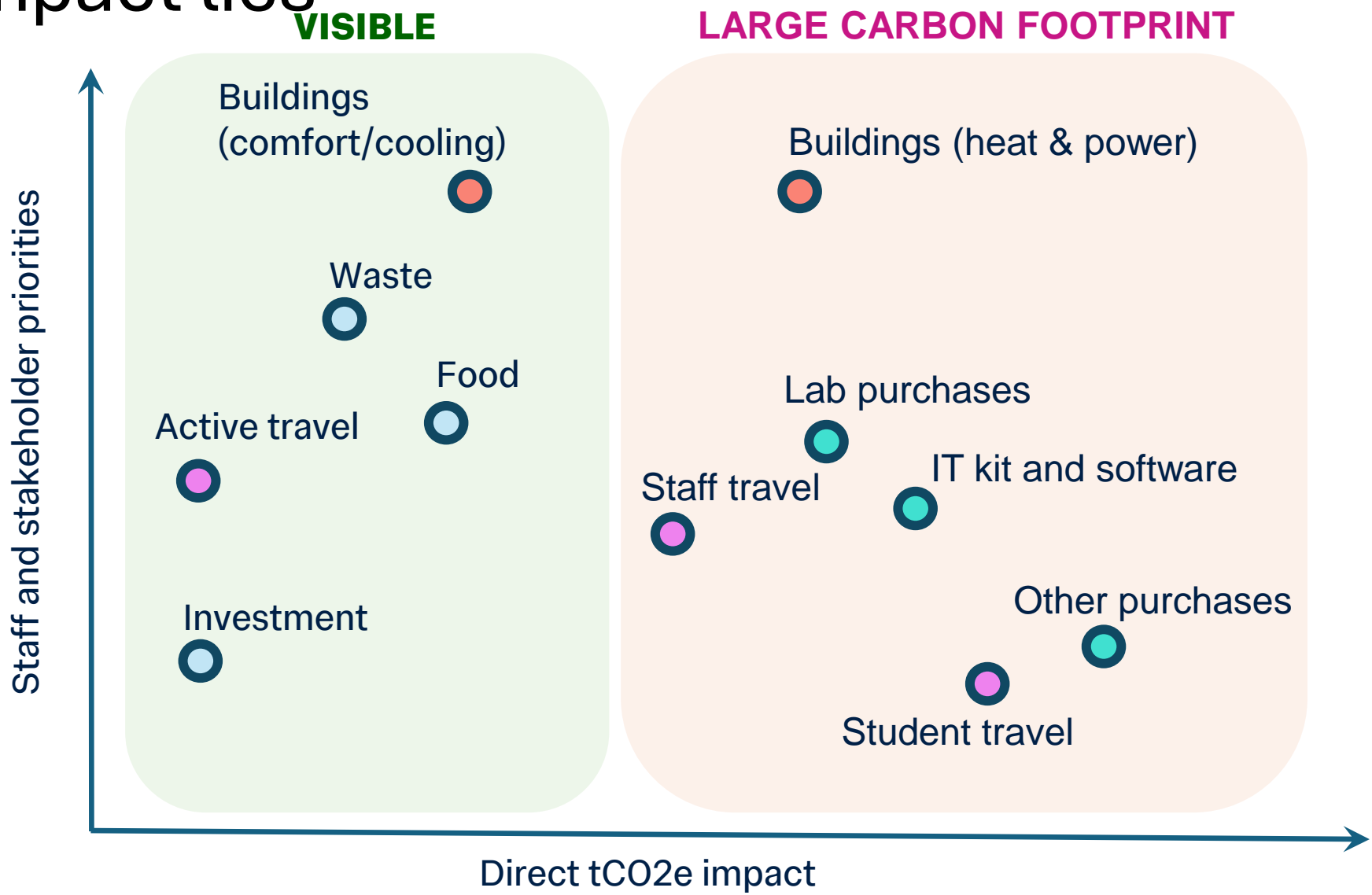
tCO2e/yr

2018-2050 cumulative total: 9,063,000 tCO2e



Very high ambition halves our annual and cumulative emissions by 2050

# What's most visible isn't where Imperial's biggest carbon impact lies



# Sustainable Imperial – our contribution to the transition

