



THE CAMBRIDGE *green*  
CHALLENGE



University of Cambridge  
**Environmental  
Sustainability  
Report 2018/19**

# Introduction

**Welcome to our Environmental Sustainability Report 2018/19. This report covers the period 1 August 2018 to 31 July 2019. In the pages that follow, we outline the work going on across the University to reduce our negative environmental impacts and create a sustainable University.**

There have been some real highlights this year, notably the fact that we are the first University to announce a Science Based Target to achieve zero carbon. It's also been a year of progressing some of our larger scale projects – some of which you can read more about in this report.

This year has also seen the narrative and awareness of climate change undergo a significant shift. With Greta Thunberg and David Attenborough making headlines and really resonating with people, we have seen a marked increase in the number of staff and students who want to get involved in sustainability. This has been incredibly encouraging and something we are eager to harness further.

The projects in this report represent the huge array of activities at the University of Cambridge. We hope these inform and inspire you to create a world leading sustainable institution.



## Foreword

**I am pleased to see environmental sustainability increasingly embedded across the University. It is particularly encouraging to notice staff and students being inspired to develop their own initiatives.**

Our commitment to environmental sustainability has been strengthened this year with the introduction of our Science Based Target. I am proud that Cambridge is the first University to take this step.

I am also delighted to have launched Cambridge Zero, our University's bold response to global climate change, which will harness our research and policy expertise to develop solutions to one of the world's most urgent challenges.

There is much more work to be done – we can always do more, and do better. I am confident, however, that the creativity and commitment of our staff and students means we will continue to deliver positive change.

**Professor Stephen J Toope, Vice-Chancellor**

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## Materiality

Material environmental sustainability issues are those that are of most importance and significance to our stakeholders. When we developed our Environmental Sustainability Policy back in 2014, materiality was a key consideration. We engaged with our staff and students – our largest stakeholder

group – to identify the issues that matter most to them. From this, we identified nine environmental sustainability impact areas as material. These nine areas form the focus of our Environmental Sustainability Policy and Strategy, and we report our progress against each of these on an annual basis.

# Progress to date



We have achieved our target



We are making good progress

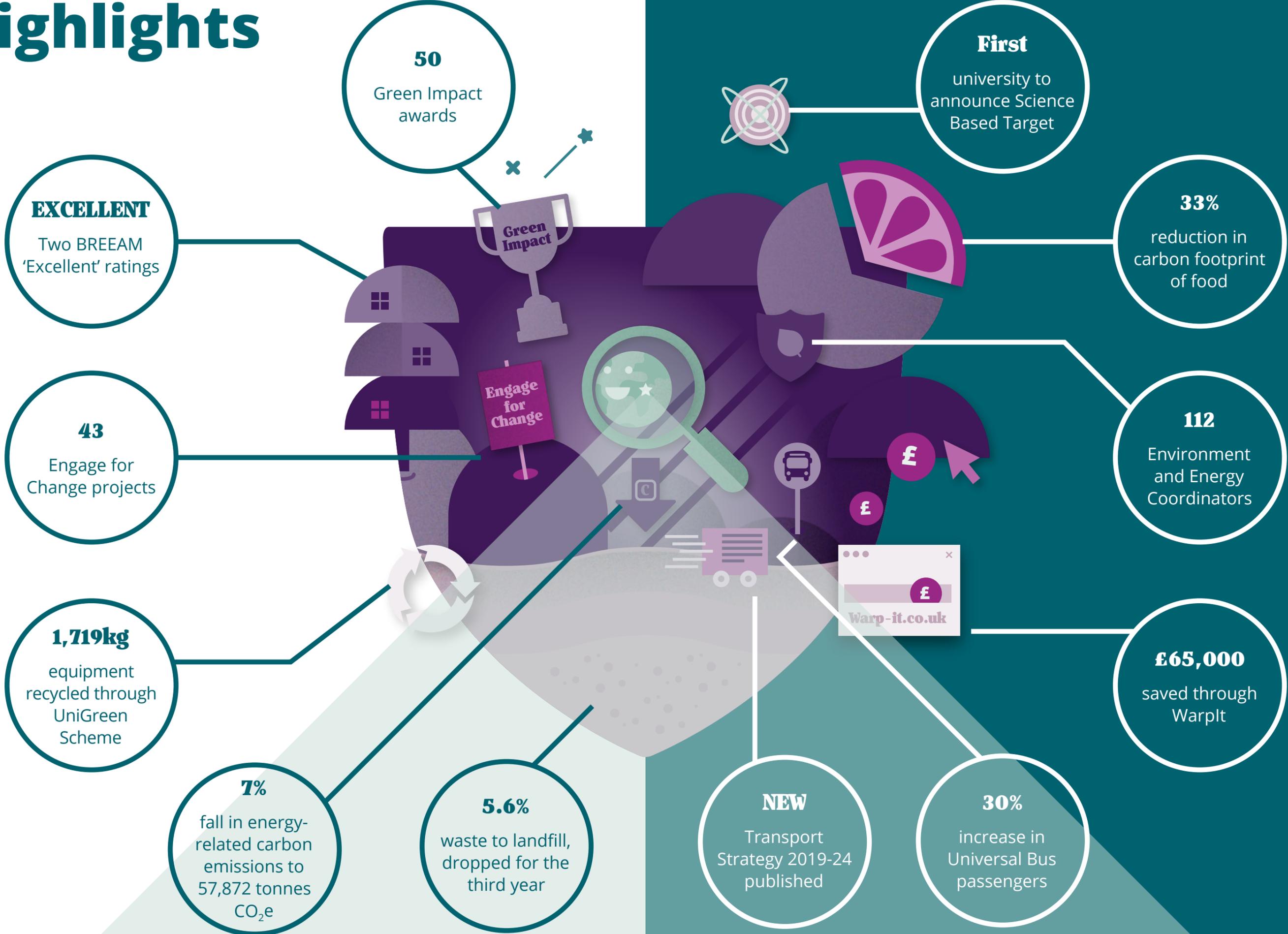


We can do better and have a plan

Impact area	Target	Position	Current Progress
<b>Energy and Carbon</b>	To reduce total scope 1 and 2 carbon emissions to absolute zero by 2048, with an aspiration to achieve this by 2038		Our scope 1 and 2 emissions fell again in 2018/19, by 7% against the previous year. We have adopted a new Science Based Target for carbon reduction and our 2018/19 emissions are on track with the reduction pathway we need to follow to achieve our target.
<b>Water</b>	To reduce water consumption by 20% by 2020/21 against a 2005/06 baseline		Our water consumption continues to increase and was 3.6% higher in 2018/19 than during the previous year.
<b>Biodiversity and ecosystems</b>	In the expert opinion of the Ecological Advisory Panel, that no construction, refurbishment or maintenance work on the estate has a net negative impact on biodiversity and that, where possible, the impact is net positive		Consultants were instructed to develop the University's first Biodiversity Action Plan. Over at the University Library Remote Storage Facility trees, hedges and meadows have significantly improved biodiversity on the site in Ely.
<b>Waste</b>	To send zero non-hazardous waste to landfill by 2020/21		For the third consecutive year, disposal to landfill has dropped, with the latest total of 258 tonnes the lowest on record for the University, making up just 5.6% of the University's total waste disposals. The majority of waste sent to landfill is from construction projects; most of our operational waste is now diverted from landfill.
<b>Waste</b>	To achieve continuous year-on-year reductions in waste arising per FTE staff and student		Waste arisings per head are the lowest on record at 0.15 tonnes. While efforts have focused on waste reduction and internal reuse of operational waste, the main factor in the change is year-on-year variations in construction waste outputs.

<b>Waste</b>	To recycle at least 95% of total waste produced at the University by 2016/17		Recycling rates have fallen again following a drop in the previous year, to 54% overall. While recycling of construction waste has increased slightly, recycling rates for operational waste have dropped significantly, to just 31%. This is predominantly driven by prevailing national and global influences on the waste market, which have affected the viability of recycling for the University's main operational waste contractor.
<b>Sustainable procurement</b>	That central University procurement frameworks are more attractive financially, more environmentally friendly and faster than other routes and, therefore, more institutions use them		Sustainability criteria are included in the tenders for central procurement frameworks as and when they come up for renewal. Following a University-wide review of our procurement policies, practices and behaviours undertaken in 2019 we have committed to obtaining the international standard in sustainable procurement, ISO20400.
<b>Sustainable procurement</b>	To achieve at least level 4 'Enhance' across all themes of the Sustainable Procurement Flexible Framework by December 2015		We are no longer reporting against the Flexible Framework as we are changing our approach to work towards gaining the international standard in sustainable procurement, ISO20400.
<b>Sustainable procurement</b>	For institutions to consider sustainability criteria within their procurement activity		Some institutions are including sustainability criteria within their tender assessment and selection processes. The use of ISO20400 to guide our sustainable procurement policies and practices will support improvements in this area.
<b>Sustainable construction and refurbishment</b>	To establish and implement a standard for sustainable construction at the University of Cambridge that is context specific and is considered a leading approach in comparison to our peers		Version 3.1 of the Design & Standards Brief was implemented and includes improved standards for sustainable travel, biodiversity and commissioning of energy and water meters. The next revision is being developed and will reflect the need for projects to support the University's Science Based Target for carbon reduction.
<b>Sustainable construction and refurbishment</b>	By 2020/21, for 95% of certified buildings (by floor area) to have a minimum Display Energy Certificate rating of 'D'		52% of our buildings have a DEC rating of 'D' or above. Review of this KPI indicates that it does not provide a useful assessment of the performance of research buildings' versus comparative benchmarks.
<b>Travel and transport</b>	At least 75% of staff to be regularly commuting to work by sustainable modes of travel by 2016/17		In 2018/19, levels of sustainable travel reduced slightly to 69% (from 70%). In 2019, we adopted a new Transport Strategy, which sets out the work we will do over the next five years to improve sustainable, affordable and convenient ways to travel.
<b>Travel and transport</b>	To reduce per capita carbon emissions from business flights by 25% against 2014/15 levels by 2024/25		Our data on flights is not exact but indicates that per capita emissions from flights in 2018/19 were comparable with the previous year.

# Highlights



# Carbon and energy

**This year our carbon emissions from energy use continued to fall to 57,872 tonnes CO<sub>2</sub>e – that’s a 7% drop against the previous year.**

We remain a high energy user, largely as a result of our large non-residential estate (which is still growing) and energy-intensive research. However, we are committed to reducing our energy usage and have many initiatives and policies in place to reduce our energy-related carbon emissions. The most significant of these – our Science Based Target – was launched this year.

## Implementing a Science Based Target

In July 2019, Cambridge became the first university in the world to announce a Science Based Target for carbon reduction.

By doing so, we have committed to reducing our energy-related carbon emissions to absolute zero by 2048, with a steep 75% decrease on 2015 emissions by 2030. By setting a Science Based Target, we know that the University of Cambridge is making its fair share contribution to the levels of carbon reduction needed to limit global temperature rise to below 1.5°C. Not only have we set an ambitious target, we are also aiming to reach it a decade early and want to share what we’ve learnt with others.

Immediate actions to reach this target include exploring opportunities to reduce gas used for heating our estate, and a programme of energy efficiency improvements. Although this target initially applies to the academic portion of the University – the departments carrying our teaching and research, or administrative functions that support this – it will be extended to the wider University estate over the next two to three years.

**Read more about our Science Based Target.**

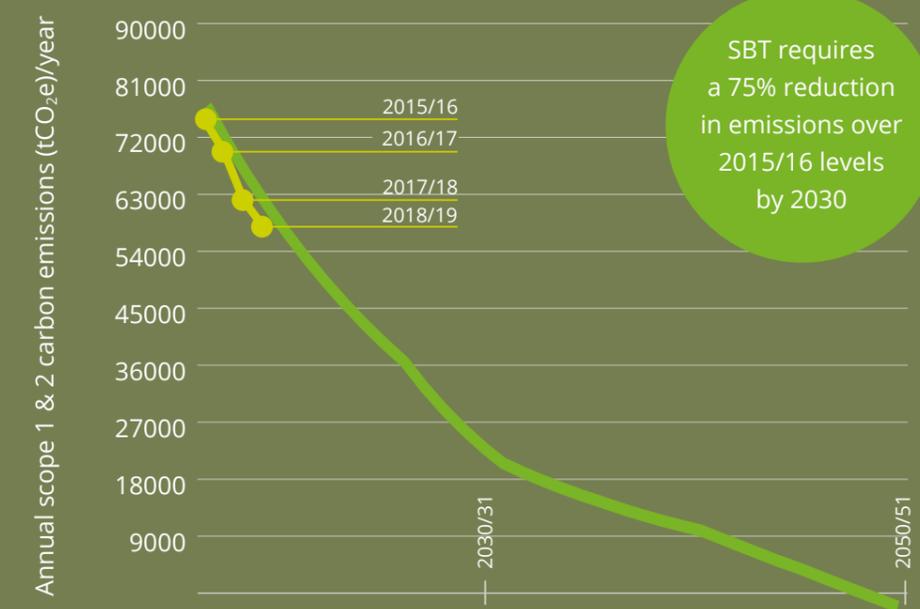
“Scientists have made it clear that we need to take urgent action to prevent potentially catastrophic climate change. As a world-leading University, we need to not only take responsibility for our own carbon emissions, but also to demonstrate to others what is achievable.”

**Professor Ian Leslie, Senior Adviser to the Vice-Chancellor with special responsibility for Environmental Sustainability**

1.5°C

## Emissions vs. Science Based Target

Total scope 1 & 2 and carbon emissions (tCO<sub>2</sub>e)/year against our Science Based Target



## Purchasing power

In this reporting period, we carried out the work needed to put in place a new Purchase Power Agreement, which was formally signed in September 2019. This means that the University of Cambridge joined 19 other UK universities, including Newcastle, Exeter, Aberystwyth, in a renewable energy deal to buy energy directly from British wind farms. The Power Purchase Agreement (PPA) means we can collectively purchase £50 million of certified renewable energy over a 10-year period. It also marks the first time in UK history that a PPA has been established as a collaboration between public sector energy users.

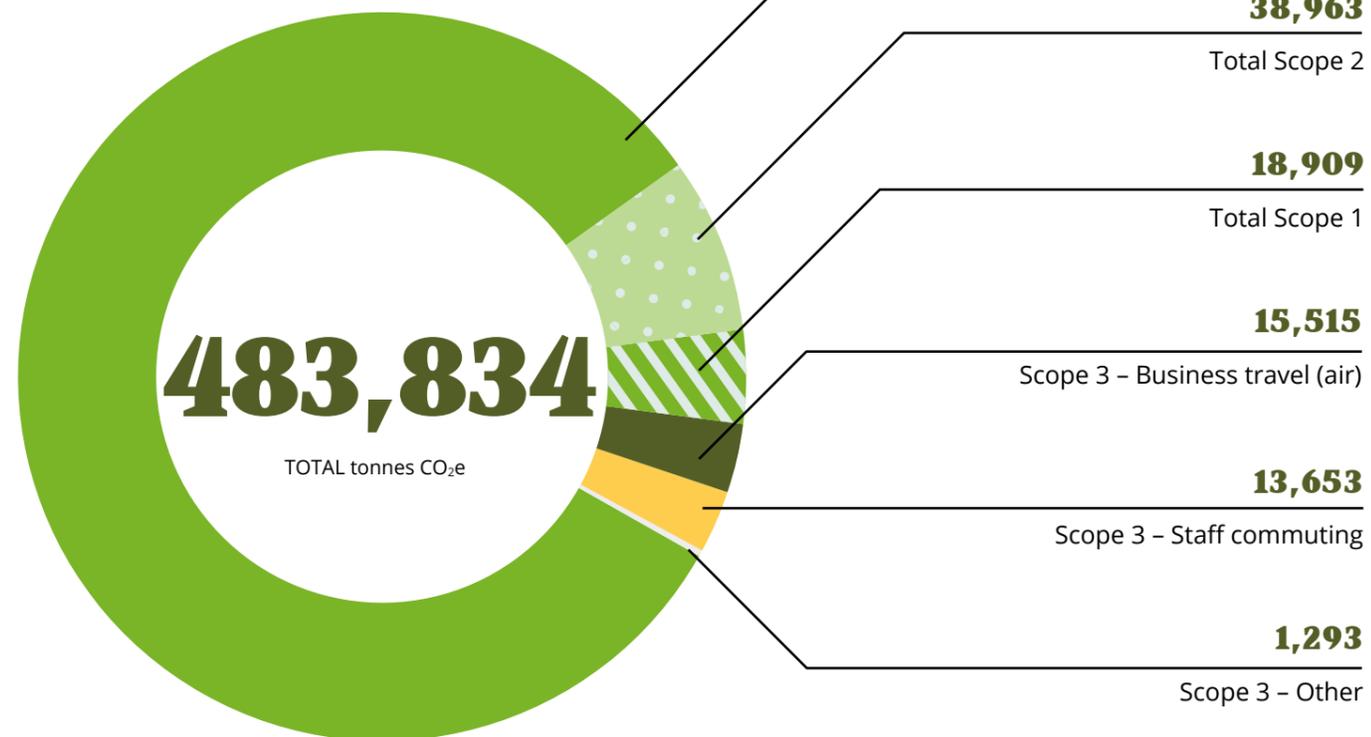
**Find out more about our Power Purchase Agreement.**

## Scope 3 emissions

Our Science Based Target applies only to our energy-related (scope 1 and 2) carbon emissions. Our intention is to develop Science Based Targets for our scope 3 emissions as well. Before we can do this we need to establish better data across our different scope 3 emission sources. This year, we have focussed on making further improvements to our data on emissions from flights, and have for the first time reported our estimated supply chain emissions. We have calculated our supply chain emissions using a free tool available through the Greenhouse Gas Protocol website, which converts levels of expenditure into tonnes of carbon. This is a simplistic calculation method, so these figures provide an indication of the magnitude of our total supply chain emissions, rather than reflecting the impact of specific purchased goods and services.

## Emissions by scope

Figures shown in tonnes CO<sub>2</sub>e per year



## Green Labs

Our Green Labs programme expanded this year, allowing us to provide additional support to lab users and managers alongside funding and equipment replacement activities. Green Labs encapsulates many elements; there are lots of different labs across the University working in all kinds of ways. We spent time getting to know the individual needs and operations of each in order to provide a better service. As a result, we are now offering support and advice on a whole range of issues such as waste, recycling, chemicals, water and the more efficient use of facilities and buildings.

**Find out more about our Green Labs programme.**



## At a glance

- Target**  
To reduce total scope 1 and 2 carbon emissions to absolute zero by 2048, with an aspiration to achieve this by 2038.
- Progress 2018/19**  
7% fall this year and we're on track to achieve our new Science Based Target for carbon reduction.

## Future plans

- Undertake feasibility study into removing natural gas across the University estate.
- Explore feasibility of developing large-scale renewables on University-owned land.
- Grow Green Labs outreach with workshops, increased online presence and peer support.
- Further improve our understanding and data on our scope 3 carbon emissions.
- Develop Science Based Targets for the wider University estate.

# Recycling and waste

**In 2018/19, the University reduced waste sent to landfill for the third consecutive year to 258 tonnes – just 5.6% of the University’s total waste disposals (includes waste generated by our staff and students, and waste generated by construction projects).**

Alongside this, the total waste generated by staff and students fell, to 0.15 tonnes per head. However, we only managed to recycle 54% of our waste, significantly below our target of 95% by 2020.

The widespread impacts of China and other countries continuing to ban imports of waste have meant challenges for the University’s waste management contractors in recycling our waste. We also recognise that the UK’s reliance on shipping waste abroad to be recycled isn’t appropriate and sustainable, and while we can’t resolve this issue alone, it remains a priority to work with our contractors to find better solutions for managing our waste. However, in the meantime the situation has made us look more closely at what we could reduce and reuse ourselves, and the successful WarplIt and UniGreenScheme initiatives are testament to this.

## Waste Management Strategy

Our new Waste Management Strategy was developed in collaboration with University staff and approved towards the end of this reporting period in June 2019. The Strategy sets out a series of priorities and actions for the University in managing and reducing its waste outputs, including a greater focus on internal reuse, more efforts to provide University departments with information on their waste-related performance, and closer working with University contractors and suppliers. We will now report annually on progress against the Strategy.

**Read our Waste Management Strategy.**

**Don't bottle it**

The University Catering Service banned single-use plastic bottles, preventing 50,000 of them from entering our waste stream every year.

## Making a Green Impact

In 2018/19 our Green Impact teams helped to ensure that University institutions were making a real difference to our waste and recycling efforts:

**Find out what our Green Impact teams have been up to and how you can get involved.**

**27**

teams re-use envelopes for internal use

**9**

switched to recycled or sustainably-sourced paper

**24**

have duplex printing as the default option

**27**

switched from bottle to tap water for meetings

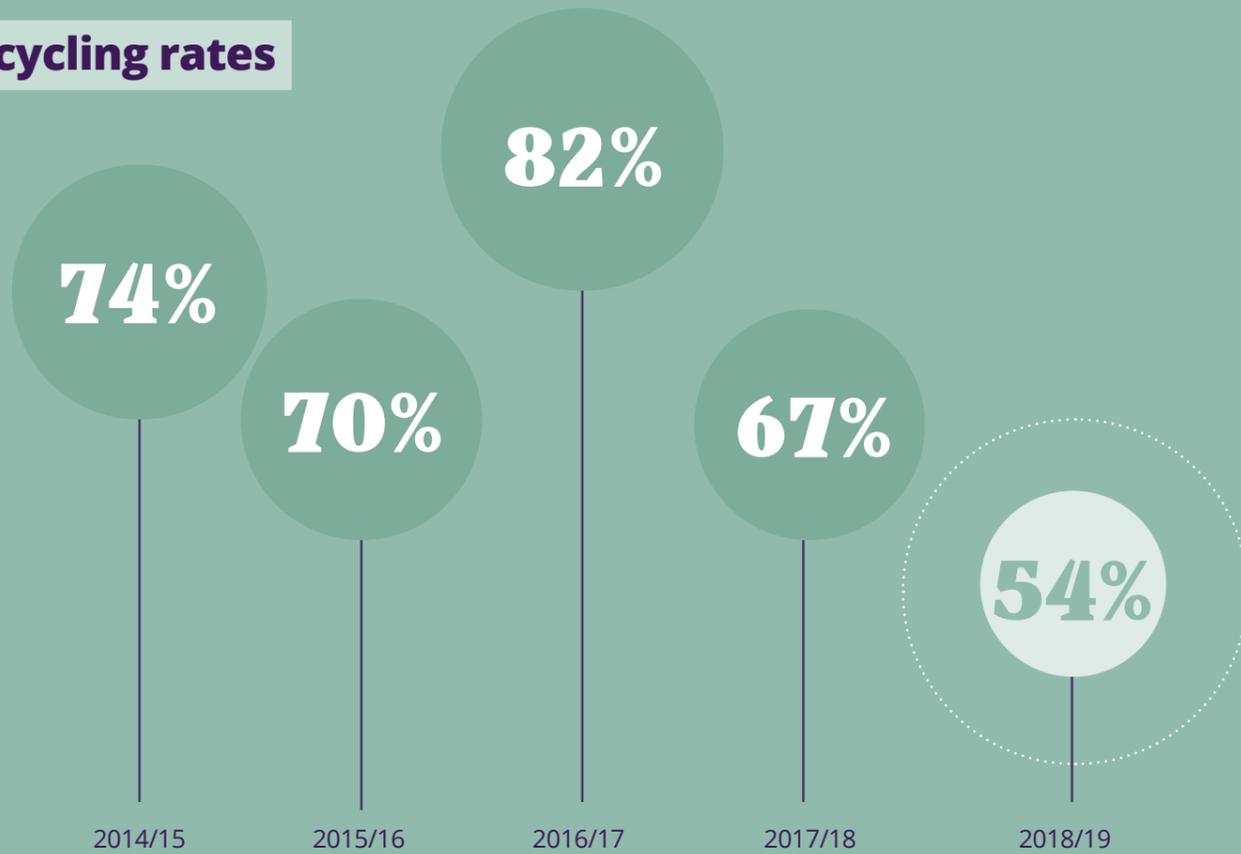
**25**

now provide reusable cups and/or have banned disposable cups

“With a backdrop of upheaval to global waste markets, and consequent impacts on rates of recycling across the UK, this year we focused much more on internal practices that we could more easily control. Our new Waste Management Strategy encourages more internal reuse, and we’ve seen a huge increase in both the numbers of people using WarplIt and the amount of items being shared.”

**Peter Lumb, Environmental Coordinator**

## Recycling rates



## Focusing on reuse

This year, we focused on increasing our internal reuse of items. There is always something to pass on, from lab and IT equipment to unwanted furniture – and there is often another department, school or university that could make great use of them.

Warplt is an online marketplace where we redistribute items across the University, giving perfectly good equipment and furniture a new lease of life and saving on waste disposal costs. And if anything isn't wanted internally, a new feature of Warplt allows suitable items to be passed onto local charities.

Alongside this, the UniGreenScheme went from strength to strength. UniGreenScheme collects, stores and sells surplus equipment for universities, and a share of the profits is given back to the departments that have donated the items. As well as donating unwanted items, we have also been able to buy second-hand equipment, which saves money and prevents unnecessary manufacturing.

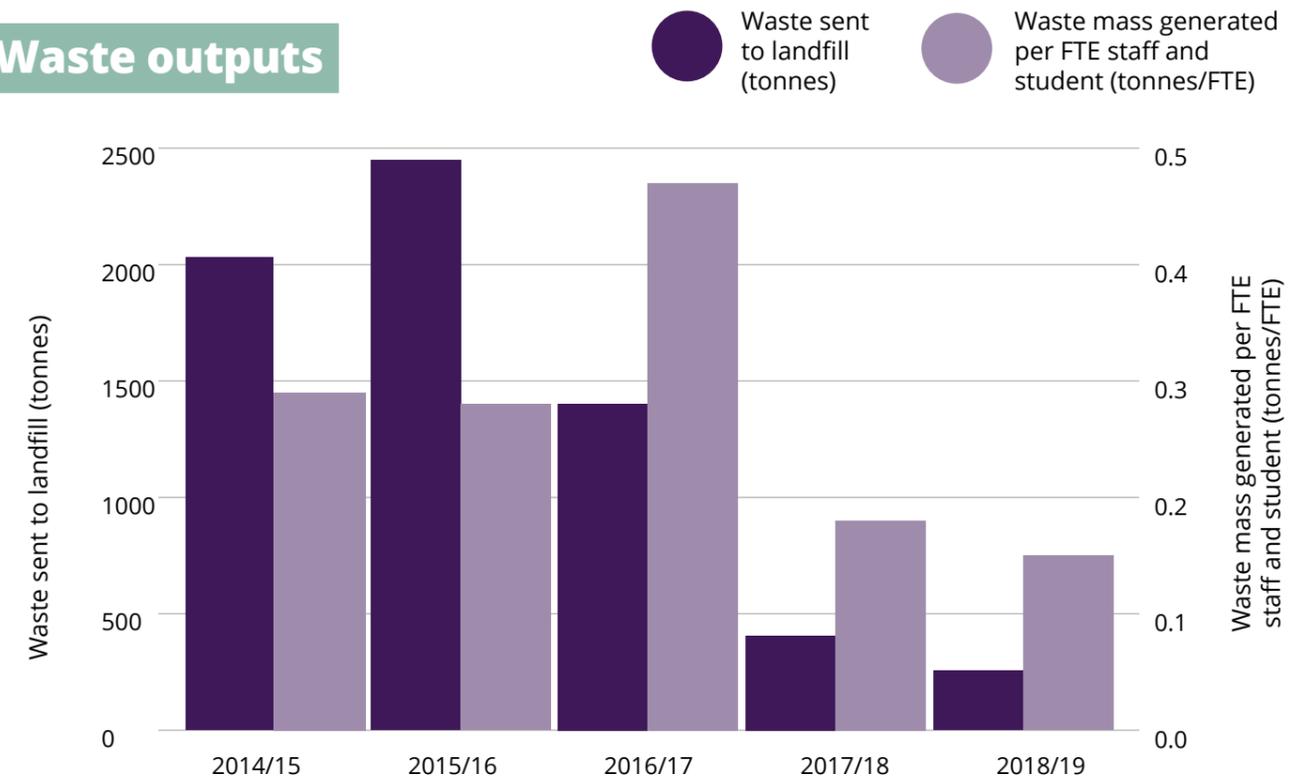
**415 staff** joined the University's Warplt portal in 2018/19

**1,719kg** of equipment recycled through UniGreenScheme

**£65,000** saved through the Warplt portal in 2018/19 – more than the previous three years combined



## Waste outputs



## At a glance

**Target**  
Zero non-hazardous waste to landfill by 2020/21.

**Progress**  
Waste to landfill dropped for the third year, making up just 5.6% of total waste disposals.

**Target**  
Continuous year-on-year waste reductions per FTE staff and student.

**Progress**  
Waste per head is the lowest on record at 0.15 tonnes.

**Target**  
To recycle at least 95% of total waste produced at the University by 2016/17.

**Progress**  
Recycling rates dropped again to 54%, mainly down to national and global influences on the waste market.

## Future plans

The re-tender of the University's main waste contract presents a big opportunity to improve the management and treatment of the University's waste.

Continue focus on promoting internal reuse, trialling a new PPE recycling scheme, and providing University departments and buildings with in-depth information on their monthly waste outputs so they can better understand their performance.

# Biodiversity

Having established the University's Biodiversity Baseline and produced a summary report, we have been working to develop our Biodiversity Action Plan.

We've also had support from the Living Lab as it has focussed on sustainable food and biodiversity work, and from the Ecological Advisory Panel (EAP), an expert working group reporting to the University's Environmental Sustainability Strategy Committee.

## Biodiversity Action Plan

Through consultation with stakeholders from across the University and externally we have been creating our Biodiversity Action Plan. Our Plan will cover the University's operational and rural estate, which includes the University Farm, the offsite store at Ely, Lord's Bridge, the Madingley Estate and various areas of farmland. An innovative and robust plan, it takes into account the heritage and expertise of the University, as well as the need to ensure biodiversity is considered in both new and existing developments.

Read our Biodiversity Baseline Summary Report.

"We're taking an ecosystem approach to protecting and promoting biodiversity on the University estate, from liaising with grounds maintenance staff to reduce the use of pesticides, to ensuring habitat creation and biodiversity are considered as part of planning and design. We're also looking at actions at those sites with specific biodiversity value."

Amy Munro-Faure, Living Laboratory for Sustainability Coordinator



### Safe passage for ducklings

A simple but super effective ramp at the Hauser Forum pond ensures ducklings can get in and out safely.

4m x 50m  
wildflower meadows

## Greenwich House



At Greenwich House, one of the University's main administrative buildings, there has been a real focus on improving natural habitats and enhancing biodiversity. A new wildflower meadow, less frequent mowing, bee-friendly planting and extra log piles are just some of the interventions to encourage flora and fauna on site. Bird and bat boxes have been installed, and one of the bat boxes is home to a pipistrelle bat. Early anecdotal observations suggest an increase in butterflies, bees and badgers. Alongside these gains, there has been an improvement in staff well-being, with 68% of staff reporting improved well-being in a recent survey.

These are just some of our Greenwich House statistics.

2

bird boxes

12

bat boxes

6

swift boxes

2

more log piles

68%

of staff reported improved well-being since the planting of the wildflower meadows

6

refuge areas installed

## At a glance



### Targets

In the expert opinion of the Ecological Advisory Panel, that no construction, refurbishment or maintenance work on the estate has a net negative impact on biodiversity and that, where possible, the impact is net positive.



### Progress 2018/19

Consultants were instructed to develop the University's first Biodiversity Action Plan.

## Future plans

Finalise the University's first Biodiversity Action Plan.

Develop appropriate monitoring and targets for the Biodiversity Action Plan.

Create a digital map of the University's biodiversity.

# Sustainable food

The award-winning University Catering Service leads our work on sustainable food and has been implementing our Sustainable Food Policy with great results.

**The four areas of focus are:**

1. Reduce the consumption of meat, in particular ruminant meat
2. Improve and increase the availability of plant-based options
3. Remove unsustainable fish from the menu
4. Reduce food waste

## Our Sustainable Food Journey

As we believe we were the first University to look at cutting ruminant meat from our menus, the Sustainable Food Policy had put us at the forefront of action on food sustainability. This year, our report on the University's sustainable food journey outlined exactly what has been happening across catering services since the Policy was implemented, along with the whole host of positive impacts it has brought about.

Read our Sustainable Food Journey.

**14%**

of hot drinks bought used reusable cups

**46%**

of main meals sold were vegetarian

No fish used from the Marine Conservation Society's 'fish to avoid' list

### Winners!

In 2018, University Catering Service won the Sustainability Award from The Universities Caterers Organisation (TUCO)



"The University Catering Service has lowered its land footprint by over a quarter and its carbon footprint by over one-third – while simultaneously increasing sales and profit."

Andrew Balmford, Professor of Conservation Science



"We had to change the culture of an entire organisation from being meat driven to being plant-based. It was an entire cultural shift."

Nick White, Head of University Catering Service

**33%**

reduction in carbon footprint of food

**142**

tonnes redirected away from landfill to anaerobic digestion (since August 2017)

**500**

tonnes of CO<sub>2</sub>e saved – that's the equivalent of driving 1.2 million miles

# Sustainable procurement

Over the course of 2018/19, our Strategic Procurement Review allowed us to better understand the carbon impacts of our supply chain and, as a result, we made the decision to focus on those with the highest carbon impacts. We're also aiming to achieve accreditation to ISO20400.

## What we buy... and how

A University-wide Strategic Procurement Review was carried out to better understand how we buy our goods, works and services. This included systems and technology, people and organisations and processes and practices. Once we know how and why people buy what they do, we can start to work out how to do this better, from a commercial and sustainability perspective.

[Read more about our Strategic Procurement Review.](#)



**Gold standard**  
A year on from migrating our capital projects supply chain to Constructionline, all our suppliers are now achieving the Gold standard.

## At a glance

 **Target**  
That central University procurement frameworks are more attractive financially, more environmentally friendly and faster than other routes and, therefore, more institutions use them.

 **Progress 2018/19**  
Sustainability criteria included in the tenders for central procurement frameworks.

 **Target**  
For institutions to consider sustainability criteria within their procurement activity.

 **Progress 2018/19**  
Following a University-wide review, we committed to obtaining ISO20400. This will also guide our sustainable procurement policies/practices to support improvements.

**Constructionline**  
Constructionline is the largest pre-qualification database in the UK – collecting, assessing and monitoring standard company information, including environmental management credentials.

  
“We want to take responsibility for what we buy and how we buy it. And we want to take responsibility for the impacts arising from those decisions. Once we understand these impacts we can take steps to reduce them, and optimise the benefits from our supply chain to help the community.”  
**Helen Wain, Head of Group Procurement**

## Future plans

Use the outcomes of the Strategic Procurement Review to determine ways to further embed sustainability into our practices  
Achieve accreditation to ISO20400

# Travel and transport

**This year saw our new Transport Strategy 2019-24 published, a crucial policy to guide our transport investments and activities over the coming years.**

There was an overall decrease in staff using sustainable modes of transport – down to 69% from 70%. The reasons for the increase in driving alone are not fully understood but contributory factors could include the ongoing effect of people living further away from the workplace and more University buildings moving to outside of the city centre. Limitations in public transport and cycle networks continue to make sustainable travel more difficult. However, our Transport Strategy identifies a range of measures to increase and improve sustainable, affordable and convenient ways to travel.

## Transport Strategy

In this year, our new Transport Strategy was approved and launched. It's a positive expression of our ongoing commitment to providing sustainable travel options to, from and around our estate. Cambridge is a busy city, with poor air quality, so encouraging people to walk, cycle and use public transport – and providing the means to do so safely and efficiently – is our priority.

### The Strategy's objectives are to:

Facilitate convenient and predictable travel to and between University sites for all staff, students and visitors

Minimise the University's environmental footprint from transport and improve air quality in Cambridge

Make a positive contribution to the wellbeing of staff and students and the quality of place, protecting and enhancing Cambridge's historic and attractive environment

Contribute to the development of the University estate and working practices in the University to reduce transport demand and reliance on motorised modes

Exploit emerging and future technologies effectively and make best use of world-class research within the University

**Read our Transport Strategy 2019-24.**

**Real time travel info**

In July 2019, SmartPanels started to appear in key buildings showing live travel information to help people plan their journeys to and from sites. The screens can display live bus and train times as well as news, travel and weather reports developed by Smart Cambridge.

**Find out more about the SmartPanels.**

## Fairer parking

In this reporting period, our Parking Policy Manager reviewed the existing car parking policy. The next step is to consult with staff on how to improve our parking policy and make it fairer for those who need it most.

**1,898**

people subscribed to our travel newsletter

**31%**

staff drive (single occupancy vehicle)

**168**

hours of free bike maintenance

**550**

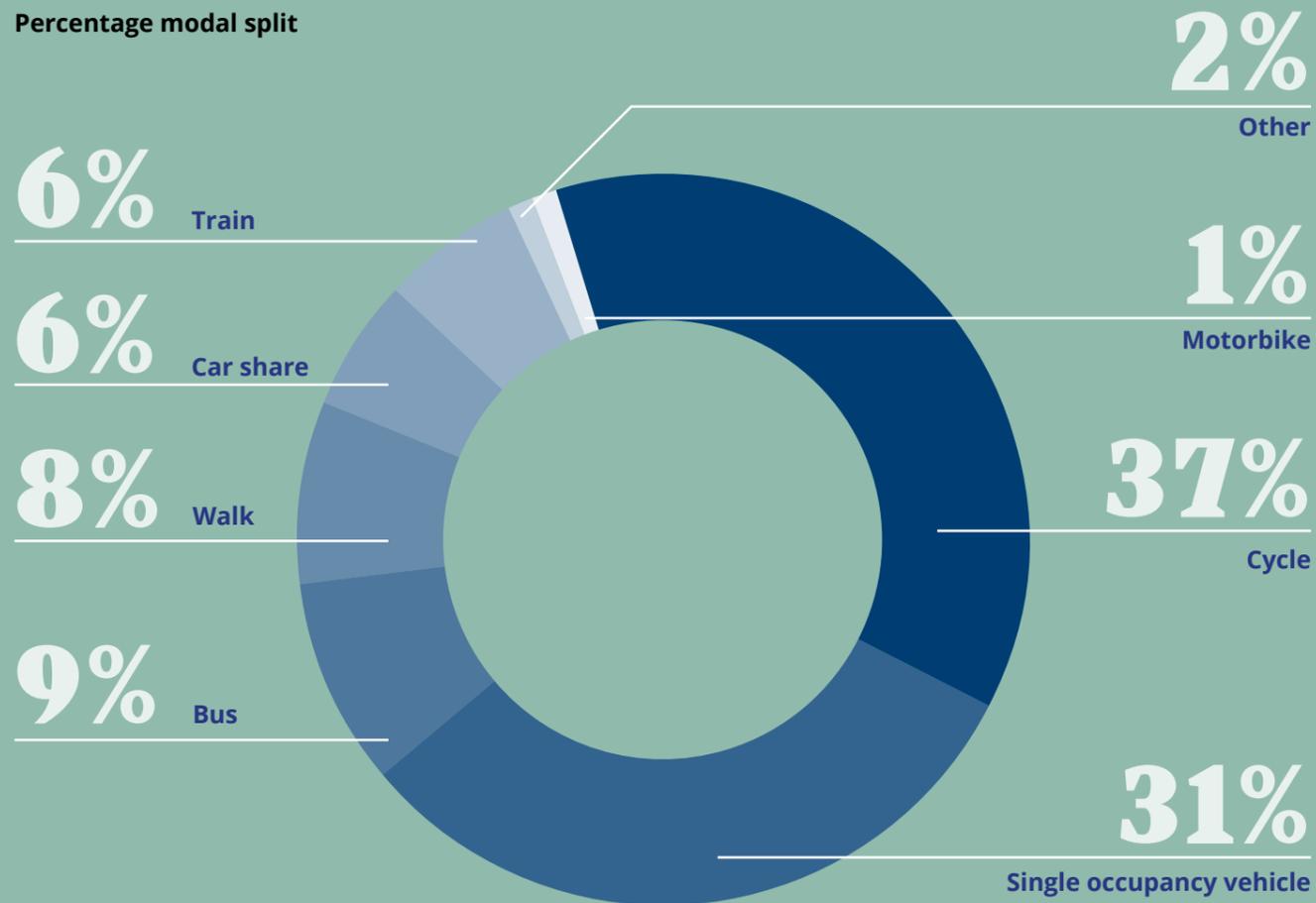
Dr Bike attendees

**69%**

of staff use sustainable modes of travel

## Staff commute

Percentage modal split



“This year was exciting with the launch of the Transport Strategy outlining our commitments to sustainable travel at the University. As a big employer in the city, it is important we are taking steps and working with others to help address local transport issues. It’s also been great to see so many members of staff getting involved in our initiatives such as Dr Bike sessions, which help staff to keep their bikes in a safe condition all year round.”

Sara Aziz, Transport Coordinator



## Universal Bus

Since the launch of the Universal bus service, passenger numbers have been steadily increasing. This year, extra journeys and longer hours of service were introduced and in total there were 693,441 passengers – a 30% increase on the previous year.

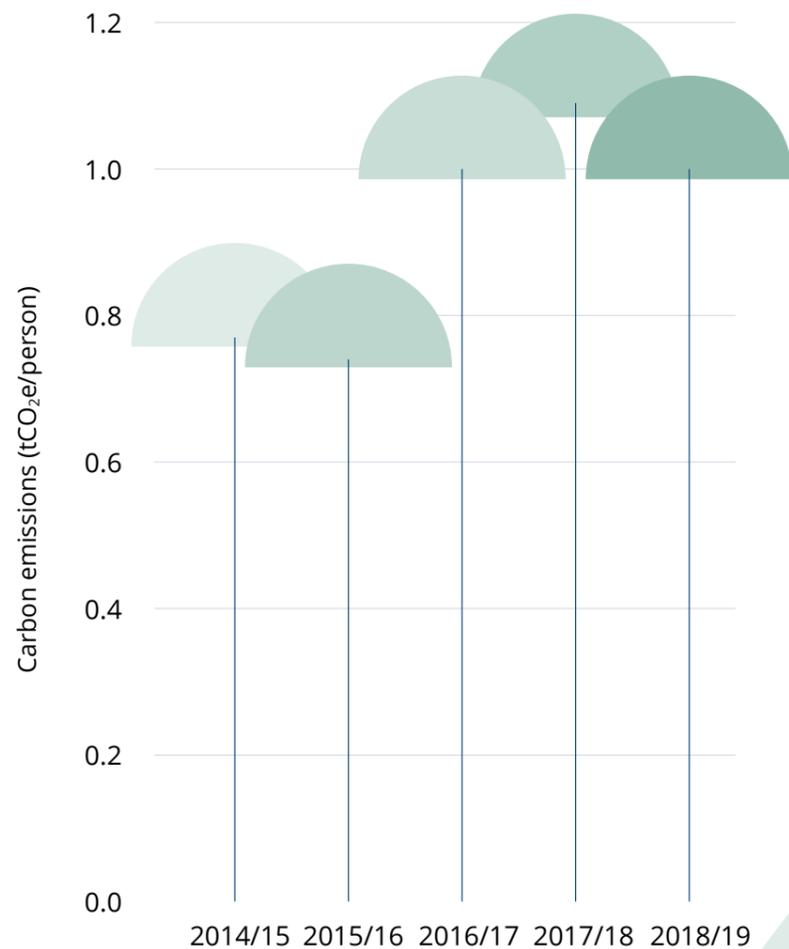
## Business travel

Our Transport Strategy addresses staff and student travel to, from and at work, but does not deal with business travel (or travel for work). This is addressed in our Carbon Reduction Strategy, adopted in 2018. The Strategy identifies two priority areas in relation to business travel. One is around improving our data on the carbon impact of our business travel, the other is around providing staff and students with more information and options so that they can adopt more environmentally sustainable working practices and travel choices.

Our focus this year has been on improving our data on flights. Over the coming year, we need to continue these efforts, and start developing specific guidance for staff and students around flights.

## Flight emissions

Per capita carbon emissions (tCO<sub>2</sub>e)



## At a glance

**Target**  
At least 75% of staff to regularly commute by sustainable modes by 2016/17.

**Progress 2018/19**  
Sustainable travel fell slightly to 69%, but our new Transport Strategy sets out ways to improve over the next five years.

**Target**  
To reduce per capita carbon emissions from business flights by 25% against 2014/15 levels by 2024/25.

**Progress 2018/19**  
Emissions from flights were comparable with the previous year.

## Future plans

Significantly increase the number and location of Dr Bike cycle sessions.

Install more live SmartPanel travel information screens across the estate.

Develop guidance around flights for our staff and students.

Consultation and review of existing bus service in preparation for a new contract in 2021.

Review existing car parking policy through focus groups with staff.

Review cycle infrastructure on site and work to prioritise improvements in facilities across the University.

# Sustainable construction and refurbishment

This year has seen the ongoing construction – and opening – of new buildings on our estate. The Chemistry of Health Building and the University Library Offsite Store both achieved BREEAM ‘Excellent’ ratings for their environmental sustainability performance.

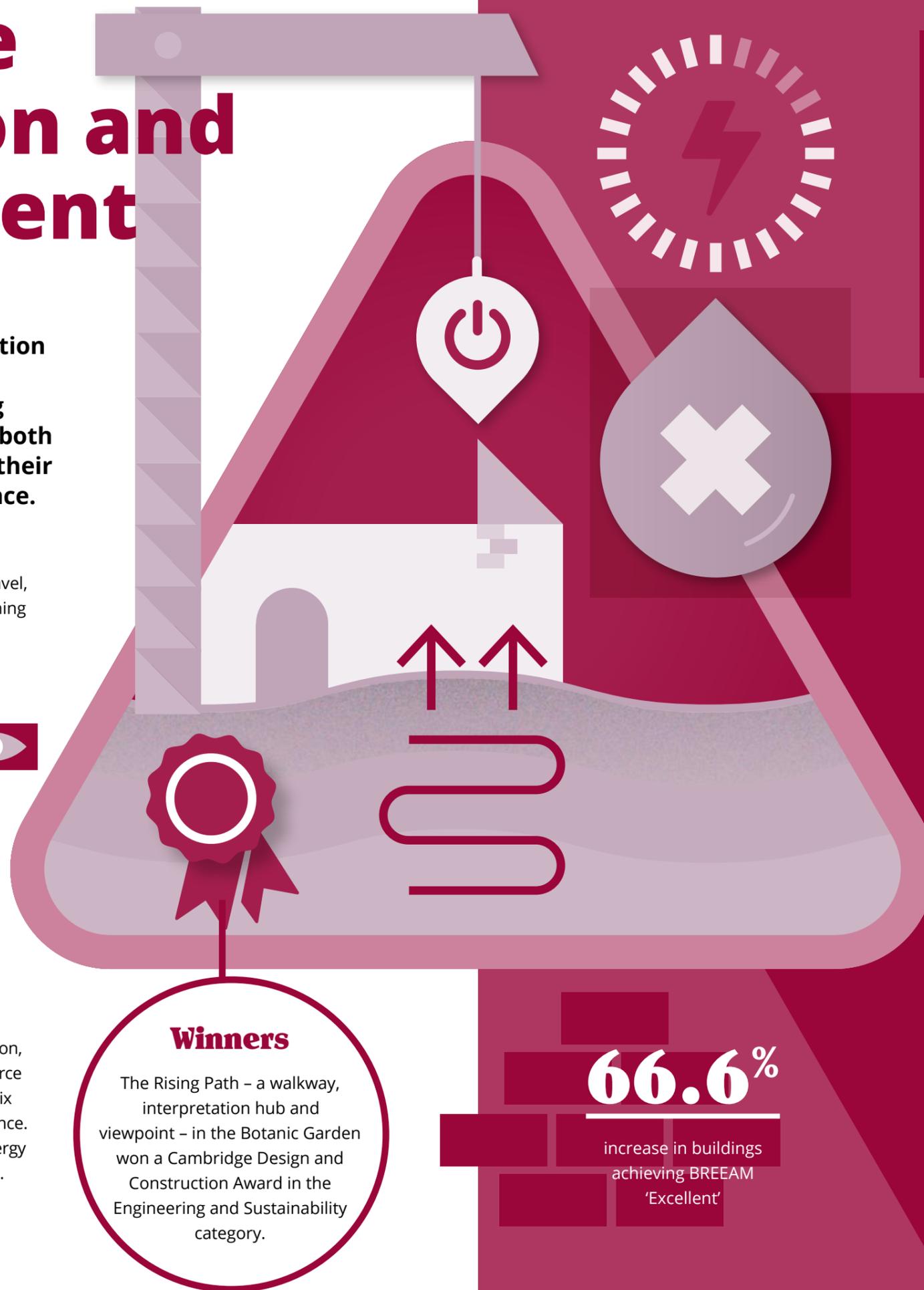
We also implemented version 3.1 of the Design & Standards Brief, which includes improved standards for sustainable travel, biodiversity, embodied carbon assessment, and commissioning of energy and water meters.

## Civil Engineering Building

The new Civil Engineering Building was completed in May 2019. Key to its design was the Energy Cost Metric, developed by the late Professor Sir David MacKay. Using this, we were able to prioritise measures with the lowest whole life cycle energy. This energy-focused approach informed key choices at the design stage, meaning the energy to manufacture and deliver construction materials was considered, as well as the energy consumed during the actual construction, use and deconstruction.

A key feature of the new building is that it has no gas connection, instead having all of its space heating provided by ground source heat pumps. Borehole temperature monitors are just one of six sensor packages installed to measure the building’s performance. Data from these will be used to improve understanding of energy and structural performance so we can improve future designs.

**Find out more about the Civil Engineering Building.**



**Winners**  
The Rising Path – a walkway, interpretation hub and viewpoint – in the Botanic Garden won a Cambridge Design and Construction Award in the Engineering and Sustainability category.



**Sustainability in design**  
Work started on the new Cavendish Laboratory in early 2019, with sustainability integrated into the design. The 33,000sqm building will house a number of Physics research groups, laboratories, offices, lecture theatres and seminar rooms, as well as the ‘Cavendish Collection’ exhibition. The decision was made to have no gas connection to remove the reliance on fossil fuels. This means that all heating and cooling will be delivered by air and ground source heat pumps. This heating and cooling is set to be shared with neighbouring facilities as part of a shared energy system.

## At a glance

**Target**  
To establish and implement a standard for sustainable construction at the University of Cambridge that is context specific and is considered a leading approach in comparison to our peers.

**Progress 2018/19**  
Version 3.1 of the Design & Standards Brief implemented with improved standards for sustainable travel, biodiversity and commissioning of energy and water meters.

**Target**  
By 2020/21, for 95% of certified buildings (by floor area) to have a minimum Display Energy Certificate rating of ‘D’.

**Progress 2018/19**  
52% of our buildings have a DEC rating of ‘D’ or above. Review of this KPI indicates that it does not provide a useful assessment of the performance of research buildings’ versus comparative benchmarks.

## Future plans

Revise Design & Standards Brief to reflect the need for projects to support our Science Based Target for carbon emissions reduction.

# Water

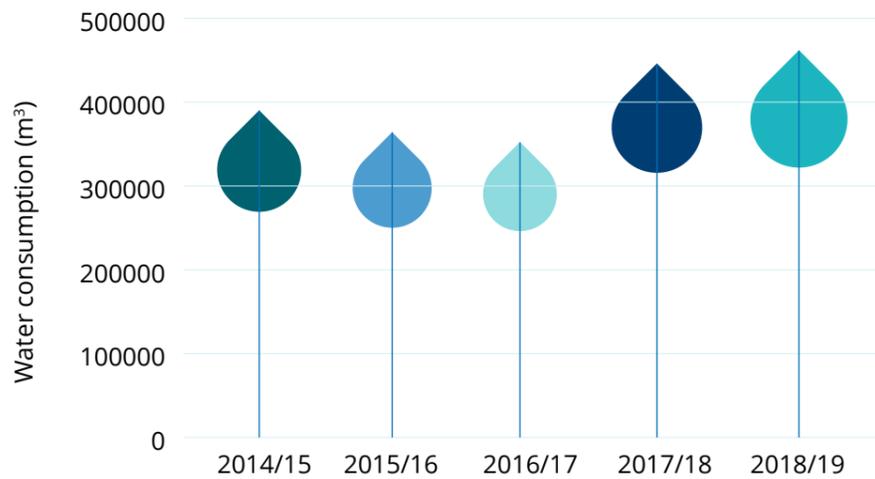
Our water consumption continues to increase and was 3.6% higher in 2018/19 than during the previous year. This is an area where we clearly need to do more. While we have gained a better understanding of some of the drivers for our water use, our work to develop a water management plan has been delayed due to other priorities.

## Water use in labs

In 2019, a labs water internship looked at how water is currently used in laboratories in the University. Using data from a survey, metering, interviews and site visits, a number of recommended actions have been outlined to reduce the water consumption across the estate. The recommendations were both practical and strategic. The practical included more extensive metering and saving water through purchasing better equipment. The strategic included improving engagement and earlier involvement in the planning and tender stages for new and replacement water purification and provision systems.

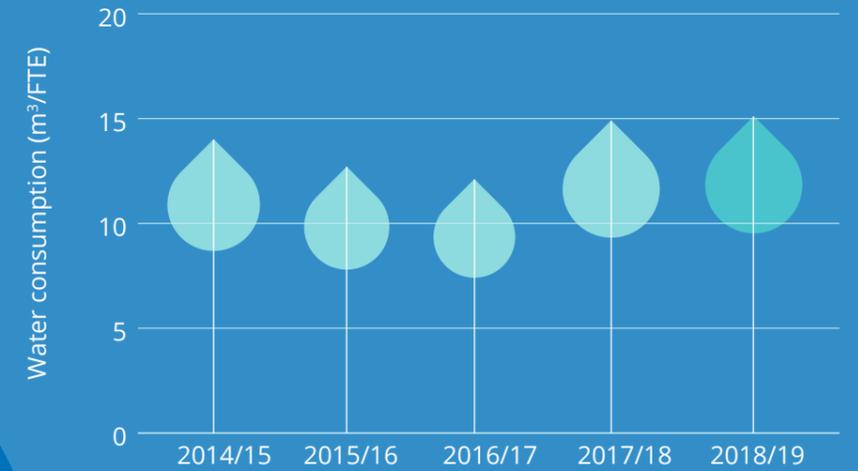
## Total water use

Total water consumption (m<sup>3</sup>)



## Water use per Full Time Equivalent

Total water consumption per FTE staff and student (m<sup>3</sup>/FTE)



## At a glance

**Target**  
To reduce water consumption by 20% by 2020/21 against a 2005/06 baseline.

**Progress 2018/19**  
Our water consumption continues to increase and was 3.6% higher in 2018/19 than during the previous year.

## Future plans

Build on findings from the internship to develop a water management plan.

# Partnership and engagement

Staff and students all have a part to play in reducing our environmental impact. The Cambridge Green Challenge brings together a whole range of sustainability programmes and opportunities for everyone to get involved with during their time at the University of Cambridge.

## Sustainability Leadership

In the summer of 2019 we ran a training session for 40 of our Environment and Energy Coordinators and Green Impact team members. The Sustainability Leadership session, delivered by Penny Walker, specialist sustainability facilitator, focused on supporting participants in being effective change-makers, influencing stakeholders, and planning sustainability changes. This is key to their role in encouraging others to take environmental aspects into consideration in their respective departments.

Find out more and volunteer as an Environment and Energy Coordinator.

"We've seen a massive upsurge in interest from students. It coincided with the Fridays for Future and Climate Strike movements and we really noticed a huge increase in students proactively coming to us and saying 'we want to do something'."

Peter Lumb, Environmental Coordinator



## Future plans

Provide more training sessions for our Environment and Energy Coordinator (EEC) network, helping to give this important group the skills, knowledge and confidence to facilitate sustainability action at a local level.

**50**

Green Impact awards were presented to teams around the University – a 9% increase on the year before and more than in any other year

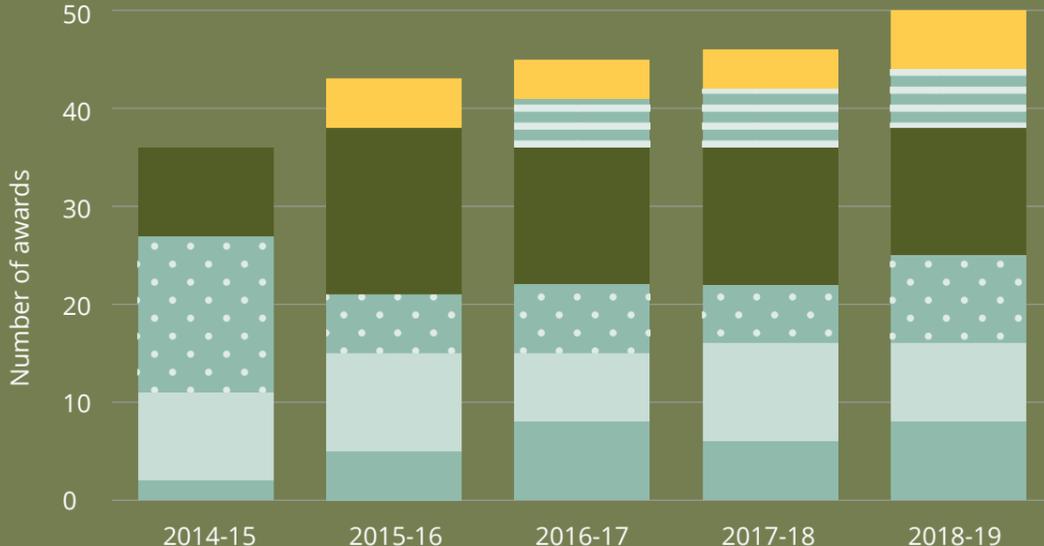
**2,300**

sustainability-related actions completed by the Green Impact teams

**112**

staff are members of the Environment and Energy Coordinators network – a 14% increase on last year

## Green Impact awards



# Teaching and research

There are a wealth of opportunities to integrate sustainability issues into everyone's lives at the University of Cambridge, from world-leading research and formal teaching to extra-curricular activities that enrich our staff and students' experiences. This year saw our new Engage for Change programme become an instant hit, while the Living Lab went from strength to strength.

## World-changing research

We are committed to the excellence and diversity of research that can make real changes to global society. Our research on sustainability spans a number of Schools and incorporates expertise from many fields. During 2018/19, this has included:

A team from the University of Cambridge and Universitat Politècnica de Catalunya identified an eco-friendly solid alternative to inefficient and polluting gases used in most refrigerators and air conditioners.

Cambridge Conservation Initiative (CCI) – made up of the University and nine conservation organisations – launched a

programme to restore priority landscapes across Europe.

Opening of a new centre – the Centre for Doctoral Training in Application of Artificial Intelligence to the study of Environmental Risks (AI4ER) – to develop artificial intelligence techniques to help address some of the biggest threats facing the planet.

A research team from the Faculty of Architecture exhibited their proposals for timber skyscrapers as an alternative to carbon-intensive concrete at the Royal Society's Summer Science Exhibition.

**Read about the research happening across the University in Sustainable Earth.**

zero

Cambridge Zero

Developed during this reporting period, Cambridge Zero is the University's ambitious new environment and climate change initiative. By harnessing the huge range of research and policy expertise within the University, Cambridge Zero will develop climate change solutions that work for our lives, our society and our economy.

Find out how we're advancing a zero-carbon world with Cambridge Zero.

## Engage for Change

2018/19 marked our first full year of supporting Engage for Change. The student coaching programme is run by Cambridge Hub and supported by the University's Environment and Energy section. Students are recruited every term and have six weeks to design and deliver their own environmental project. Key to the programme is supporting peer learning. Students work together to identify what works, and what doesn't, to improve their projects. More than 40 students took part this year, running 43 diverse projects right across the University, from modelling predicted food waste trends through to lobbying Colleges to provide free Mooncups for female students.

Find out more about our Engage for Change programme and how you could get involved.

Winners!

Engage for Change was Highly Commended at the Green Gown Awards.

6

weeks

+

40

students

=

43

projects in 2018/19



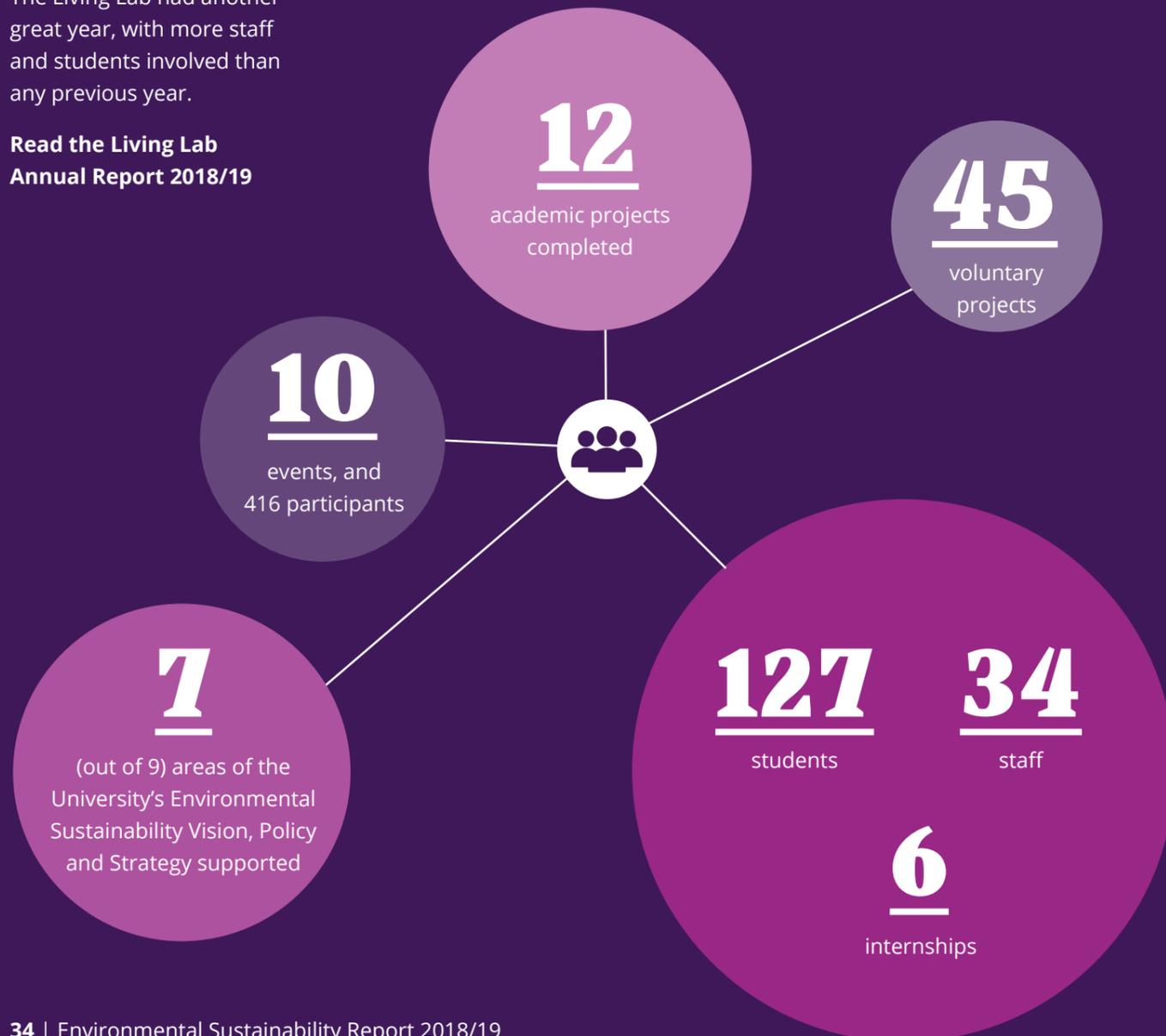
"If we are to avert a climate disaster, we must sharply reduce our emissions. Cambridge Zero is not just about developing greener fuels, technologies and materials, it will address every aspect of a zero carbon future and the impact it will have on our lives, work, society and economy."

Dr Emily Shuckburgh, Director of Cambridge Zero

## Living Lab

The Living Lab had another great year, with more staff and students involved than any previous year.

Read the Living Lab Annual Report 2018/19



# Working together for sustainability



**Joanna Chamberlain**

Head of Environment and Energy, University of Cambridge

It's a fascinating and energising time to be working in sustainability. With increasing global scrutiny of the impacts of climate change, now more than ever we have both a challenge and an opportunity to lead the way and deliver on our commitments.

Thank you to our staff and students, who have been incredible in their response with both their ideas and their positivity. We want to use that groundswell of renewed enthusiasm.

Our estate continues to grow and the University carries out a lot of energy-intensive research. In order to meet our targets we'll need to continue to drive engagement and work to embed sustainability into everything we do. We have a fantastic team but sustainability at the University of Cambridge relies not just on our team but on all of us – staff and students – to recognise our role and play our part in delivering our vision."

## Rise to the Cambridge Green Challenge

The Cambridge Green Challenge is our way of building a sustainable University, and you can get involved in lots of different ways:

**Become an ambassador for environmental issues as an Environment and Energy Coordinator.**

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

**Test out your research on the University estate through a Living Lab project.**

**Download posters, stickers and all the resources you need to spread the sustainable message.**

**Gamify your sustainable solutions and enter The Carbon Challenge.**

**Keep up to date with the latest sustainable news and events with our Greenlines newsletter.**

# Sustainability stories

**There are stories of sustainability across the University of Cambridge, staff and students getting involved in a whole array of projects to improve our environmental impact. Here are just a few of those who have taken part...**

"For me, being involved in Green Impact is an opportunity to be part of a forward looking group of people with the wherewithal to collectively make a difference to the environment and ultimately to the planet, which is collectively accomplished by both the workbook and team projects. My personal highlight for the Green Impact project was getting involved in the Waste Audit (aka Dumpster Diving). This was great fun to be doing something so out of my comfort zone with others who felt likewise and some with previous experience to take the lead and make the whole process safe, meaningful and enjoyable."

**Vanessa Skinner,  
University Counselling Service**

"I have felt proud to be part of a dedicated team working to reduce environmental impact. I have been struck by members of the University who have supported us and willingly collected pens and crisp packets for our pen recycling project and crisp recycling scheme."

**Deborah Powter,  
University Counselling Service**

"It's really a programme that keeps on giving, mostly in terms of intangible things like attitude and mindset and how you approach relationships with others – all things that you don't really get trained in specifically in a usual job but that are invaluable skills to cultivate as a working professional."

**Izzy, Engage for  
Change Participant**

"Leading our Green Impact work project on waste management and reduction has provided me the opportunity to link the work we are doing on materials in the Centre for Policy and Industrial Transformation with CISL's own waste footprint. It has been great to see so many staff at all levels get engaged with the project – from getting stuck in to do quite smelly waste audits to coming up with their own creative ideas for how to reduce our impact, such as how we could replace single use non-recyclable items with reusable alternatives. The project has also engaged staff in considering their own personal impact and choices, which I hope has had a lasting impact."

**Beverley Cornaby, Cambridge Institute  
for Sustainability Leadership**

"Geography, as an environmental subject, in my opinion should be heavily involved and at the top of green initiatives. I saw the Green Impact as an opportunity for the Geography Science Laboratories to get involved and as a way to promote good green practices within my labs and department. Also, being at the University of Cambridge we are also always striving to be the best in whatever endeavour we apply ourselves to... in this instance Green Impact."

**Dr Chris Rolfe, Senior Chief Research  
Technician, Department of Geography**

"I think we have a responsibility to make sure that we are doing science in the least environmentally damaging way possible, and to think really carefully about how and why we are using the resources that we do. Joining Green Impact is a great way to start engaging with really important issues, and to get to know exciting passionate people. I think for scientists, it's so important to have a connection to the larger societal context in which their research is conducted, and the environment is an important part of this."

**Sarah Foster, PhD Student,  
Department of Physiology,  
Development and Neuroscience**

"I'm really glad that I took the chance to become an EEC. It's great being part of a network of committed individuals from around the University and there have been some really useful training opportunities too. I would recommend it to anyone!"

**Mike Horscroft, University  
Information Service**



**Our 2019 Green  
Impact winners -  
just some of the many  
people who have worked  
with us to deliver our  
sustainability vision  
this year**

"Being part of the EEC network has meant that I've been able to implement energy saving processes into the faculty and being able to see these small changes make a difference is so rewarding! It has also allowed me to utilise my passion for the environment and combine it with my day job."

**April McIntyre, Faculty of Modern  
and Medieval Languages and Linguistics**

"Being an EEC is great as it gives you the opportunity to create environmental awareness within your own department but also gets you involved in University-wide initiatives."

**Lieneke Makaske,  
Department of Oncology**

"Altogether, I've had a fantastic summer working in Environment and Energy and would thoroughly recommend it to any students looking for experience in the field of environmental sustainability!"

**Robyn Topper,  
Transport Intern**

## Governance

**The Environmental Sustainability Strategy Committee (ESSC) provides strategic oversight of the delivery of our environmental sustainability commitments. The ESSC reports directly to the University Council and General Board.**

The Committee is chaired by the Senior Adviser to the Vice-Chancellor with special responsibility for Information System Strategy and Environmental Sustainability, and its membership includes staff and student representatives from across the University.

Work to deliver against the University's commitments on environmental sustainability is led and coordinated by the Environment and Energy section (E&E) within the Estates Division. However, as this report shows, staff and students from across the University are making hugely important contributions to sustainability. They are actively promoting sustainability, considering how to integrate it into their work and research and increasingly empowered to propose improvements, activities and initiatives to help the University of Cambridge become environmentally sustainable.



## Key Performance Indicators

	2018/19	2017/18	2016/17	2015/16	2014/15
Total Scope 1 and 2 carbon emissions (energy and fuel use) (tCO <sub>2</sub> e)	57,872	62,014*	69,734*	74,828*	80,882*
Carbon emissions from water use (tonnes)	456	437*	345*	357*	383
Total Scope 1 and 2 carbon emissions per FTE staff and student (tonnes/FTE)	1.9	2.1*	2.4*	2.6*	2.9
Carbon emissions from water use per FTE staff and student (tonnes/FTE)	0.015	0.015	0.012*	0.012*	0.014
Total Scope 1 and 2 carbon emissions per total income (tonnes/£1000)	0.053	0.062*	0.076*	0.081*	0.096*
Carbon emissions from water use per total income (tonnes/£1000)	0.0004	0.0004*	0.0004	0.0004	0.0005
Percentage of energy generated from onsite renewable or low carbon sources (%)	0.38	0.25	0.41^	0.40^	0.25
Total water consumption (m <sup>3</sup> )	461,578	445,578*	352,084*	363,983*	390,099
Total water consumption per FTE staff and student (m <sup>3</sup> /FTE)	15.1	14.9*	12.1*	12.7*	14.0
Percentage of new buildings and major refurbishments confirmed by the Ecological Advisory Panel as having no net negative impact on biodiversity (%)	As part of the creation of a Biodiversity Action Plan, the EAP have developed plans for monitoring biodiversity including a Cambridge Biodiversity Metric. This is a modified version of the DEFRA Biodiversity Metric and will be used to monitor biodiversity moving forwards.				
Waste mass generated per FTE staff and student (tonnes/FTE)	0.15	0.18	0.47*	0.28*	0.29
Waste sent to landfill (tonnes)	257	409	1,402*	2,448	2,030
Percentage of waste generated that is recycled or composted (construction and non-construction waste) (%)	54	67	82*	70	74
The percentage of new buildings that are certified at least BREEAM Excellent or equivalent (%)	66.6% (2 of 3)	50% (1 of 2)	50% (2 of 4)	50% (1 of 2)	50% (2 of 4)
The percentage of buildings that have a minimum Display Energy Certificate (DEC) rating of 'D' (%)	52	45	58	46	42
External awards for sustainable construction/design	1 award	2 awards^	1 award	no records	no records
Percentage modal split for commuting by staff single occupancy car journey (%)	31	30	26	25	24
Percentage modal split for commuting by staff car share (%)	6	6	10	8	8
Percentage modal split for commuting by staff bus (%)	9	7	7	7	8
Percentage modal split for commuting by staff train (%)	6	6	6	6	6
Percentage modal split for commuting by staff cycle (%)	37	39	42	42	42
Percentage modal split for commuting by staff walk (%)	8	9	8	10	10
Percentage modal split for commuting by staff motorbike (%)	1	1	1	1	1
Percentage modal split for commuting by staff other (%)	1	2	1	1	1
Per capita carbon emissions from flights (tCO <sub>2</sub> e/person)	1.00	1.09	1.00	0.74	0.77
Number of prizes won by Green Impact teams	50	46	45	43	37
Number of members of the Environment and Energy Coordinator Network	112	98	100	103	97

\*We have worked with PricewaterhouseCoopers to start the process of gaining limited assurance over our sustainability data. As part of this process we discovered some errors in how we had calculated some of our KPIs in previous years. We have therefore made adjustments to previous years' figures so we can improve consistency and comparability between years as well as accuracy.

^ These figures were incorrectly reported in our 2018 report and has been corrected in this report

## Get involved

Everyone has a role to play in reducing our environmental impact and creating a sustainable University. Collectively all of our actions add up to make a big impact. Find out more and get involved.

 /CUenvironment

 @CambridgeSust

[environment.admin.cam.ac.uk](http://environment.admin.cam.ac.uk)



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