



University of Oxford
**St Edmund
Hall**

Environmental Sustainability Strategy

July 2022

Entrance to St Edmund Hall
Photo Credit: Dan Paton



Foreword

When the Governing Body asked the question “what does good look like for St Edmund Hall over the next decade?”, a strong sentiment to emerge from all sections of the college community: students, Fellows and staff, was to be recognised as one of the greenest and most environmentally sustainable colleges in Oxford.

This document sets out how we aim to achieve this ambition and transform the estate of this 800-year-old college into a sustainable and environmentally thriving site for future generations of Aularians.

Our Sustainability Sub-Committee has been working with our students and staff over the past two years to identify areas across the College estate where we can greatly reduce our impact on the natural environment, manage resources that we do impact in a sustainable way, and conserve and enhance biodiversity across all our sites.

We have been measuring our current baselines for energy and water use, waste, recycling, and biodiversity. We have also employed a team of consultants to assess the current carbon footprint of all our buildings. With this information to hand, we have now created key initiatives to achieve our stated aim of being one of the most sustainable colleges in Oxford.

This strategy details the actions we will undertake over the next decade to implement more sustainable practices in all of our operations at St Edmund Hall from reducing energy, water, waste, and our carbon footprint to enhancing biodiversity and ensuring climate conscious and responsible investments.

In 10 years’ time, our vision is that the Hall’s estate will be enhanced and conserved to mitigate against future climate change and other environmental issues, to ensure that this historic and inspiring institution is fit for purpose for another 800 years yet in a way that has minimum impact on the environment.

**Professor Baroness Willis CBE
Principal**



This document sets out how we aim to transform the estate of this 800-year-old college into a sustainable and environmentally thriving site for future generations of Aularians.



Norham St Edmund Student Accommodation
at 26 Norham Gardens

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Introduction

In our college strategy (2019–2029) we have a stated aim to be recognised as one of “*the greenest and most environmentally sustainable colleges in Oxford*” by: i) greatly reducing our impact on the natural environment, ii) managing resources that we do impact in a sustainable way, and iii) conserving and enhancing biodiversity across all of our sites.

To achieve these objectives, we will focus on the following actions:

1. **Greatly reduce our energy use** – through upgraded heating and lighting systems, improved insulation in existing buildings, adoption of Passivhaus standard for new buildings and a move towards more self-generated energy, so that by 2030 we become as close as possible to zero net energy.
2. **Reduce the amount of waste that we generate** – in terms of food, plastics, paper, water, green waste, electrical items, and white goods, including the elimination of single-use plastics and a move to paperless systems where possible.
3. **Maximise recycling of all our college waste** – in terms of food, plastics, paper, water, green waste, electrical items and white goods, to incrementally reduce the amount sent to landfill each year.
4. **Reduce our amount of water usage** – through improved water management, installing waterless systems and the recycling of water where possible in existing buildings.
5. **Increase greenness and overall biodiversity of all our college sites** – including green walls and rooftop gardens, pollination friendly planting and tree planting, to achieve net biodiversity gain.
6. **Greatly reduce our carbon footprint associated with transport to and from college (both locally and internationally)** – including use of electric vehicles, enhanced support for using sustainable transport options and carbon offsets.
7. **To implement climate conscious and climate responsible investment according to Martin School Principles**, and to invest in companies with a positive ESG (environmental, social and governance) impact.

It is recognised that whilst some of the actions listed above are inexpensive to implement and can occur in the short-term, others are longer-term ambitions and will require fundraising.

To measure progress, it is also essential that we properly understand our current baseline and use this information to provide tangible goals and clear metrics against which we can measure progress over the next 10 years.

In the following sections, each action is discussed in more detail, including the proposed suite of activities to be undertaken in the short, medium and long-term, and proposed targets to be achieved within 10 years’ time.

We want to be as close as possible to zero net energy by 2030.



The St Edmund Hall Library is housed in the 12th century church of St Peter-in-the-East

Action 1

Greatly reduce our energy use – through upgraded heating and lighting systems, improved insulation, replacement of our gas boilers with either electricity and/or hydrogen and a move towards more self-generated energy, so that by 2030 we become as close as possible to zero net energy.

Baseline situation:

The following section outlines the current data available on energy usage across the College. Energy data covers the academic year (October 1st to September 30th inclusive). Energy comes from two sources: gas and electricity (Figures 1 and 2). Almost all the heating across the College is via gas boilers (as at 2022) and it is this which is responsible for the vast majority of our CO₂e emissions. Our electricity is currently purchased from Scottish Power. The Queen’s Lane site has the highest energy use and CO₂e emissions. The pandemic (March 2020 onwards) has caused unusual energy usage due to the variable occupancy of the buildings.

Energy – CO₂ emissions:

The chart below (Figure 3) shows the CO₂ emissions (Kg) from college sites for 2018 – 2021. These values are indicative of our reliance on gas-fired boilers as our electricity is generated by wind-power.

Figure 1: College gas consumption 2018 – 2021

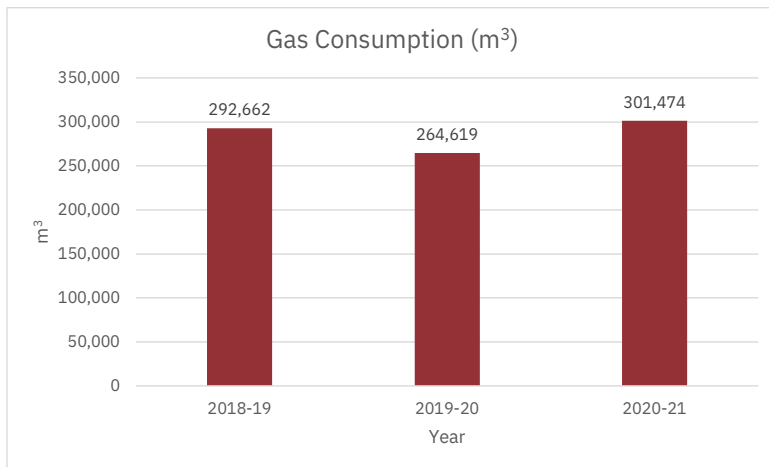
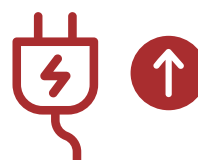
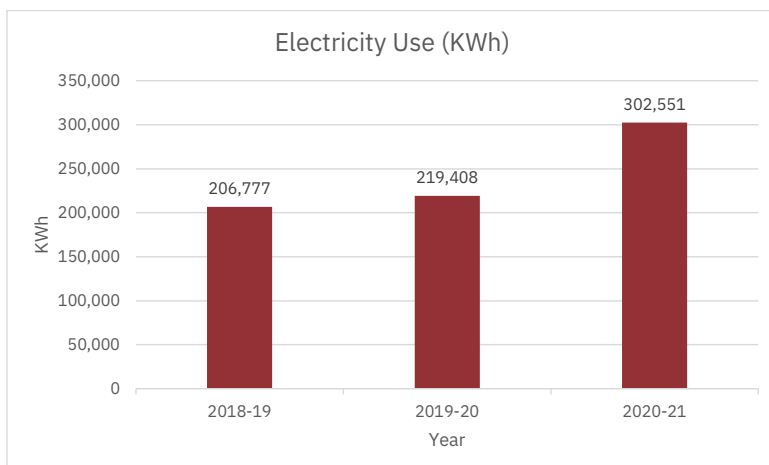


Figure 2: College electricity consumption 2018 – 2021



Proposed targets and actions to achieve energy reductions:

Much of our infrastructure is old and requires updating to improve energy efficiency, especially given that our options for generating our own energy are limited. For reference, Ofgem Typical Domestic Consumption Values for 2020 gave the average flat as using 2800 kWh/year of electricity, with lighting making up approximately 6% of that. If we assume domestic lighting is the dominant consumption mode (night-time), then the College consumes approximately 16550 kWh/year on lighting alone. As mentioned above the primary role of gas is for heating and a domestic average is 13000 kWh/year per household.

Over the next 10 years we aim to undertake the actions outlined below to produce a year-on-year reduction in energy usage across our current buildings and achieve the following **targets and actions**:

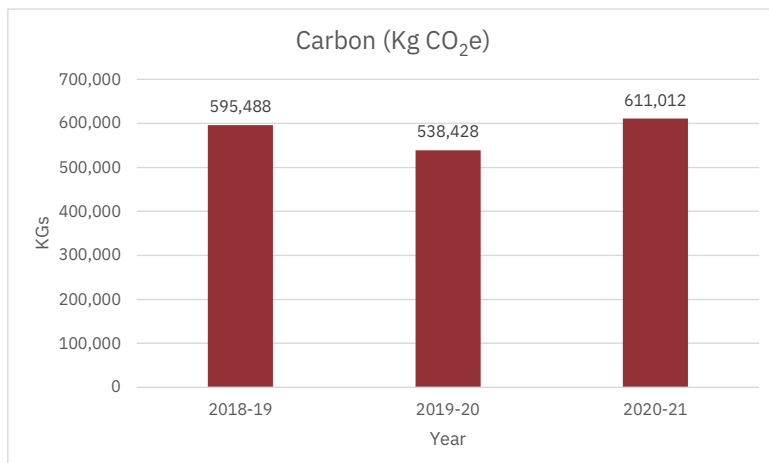
- Ensure that all new buildings are built to Passivhaus standards
- Reduce electricity usage by 8250 kWh/year ~3 households, halving lighting costs by implementing a set of light-saving initiatives
- Reduce gas consumption by 10% (33500 kWh/year ~3 households) through reducing heat usage, loss and implementing new heating methods
- Install smart radiator valves allowing both room temperature control and monitoring of use in all college rooms, reducing wasted energy
- Improve insulation on all college properties
- Implement heat recovery from waste-water systems where possible
- Consider gas boilers replacements when economically feasible, e.g. coming to end-of-life transfer to systems that are powered by green energy (electric, hydrogen)
- Install solar heating or electrical generation panels on all suitable roofs
- By 2030 we become as close as possible to zero net energy.

Initiatives underway:

- Change over to LED lights
- Passive Infrared lighting (PIR) Lighting
- Improving natural lighting to reduce the need for electric lighting supplement
- Improve insulation in 49 – 56 High Street
- Heat recovery from waste-water system in 49 – 56 High Street
- New build to be constructed at Norham to Passivhaus standards including renewable energy production
- Ecosync cloud-based radiator control system linked to room booking system
- As boilers come to end of life, transfer to systems that are powered by green energy (electric, hydrogen)
- Refurbishment of the Front Quad (FQ) to improve energy use and reduce heat loss from historic buildings
- Refurbishment of Kelly and Emden buildings to improve energy use and loss
- Installation of solar PV panels on all suitable roofs
- Insulation of windows, roof/floor space in all college properties.
- All appliances that are purchased for college should be A+++ rated.

Progress on these initiatives will be reported annually to College via the Sustainability Sub-Committee.

Figure 3: College Carbon dioxide emissions 2018 – 2021



**Renovation of Student Accommodation
(Besse Building):**

In 2021, the Hall completed the refurbishment of 49-56 High Street (Besse Building), one of the main student accommodation blocks at the College.

We made significant efforts to improve the sustainable credentials of the building including installing double glazing to the rear and substantially increasing the amounts of insulation in the building. New technology was installed that recovers heat from the wastewater produced by the en-suite showers and this reduces the hot water demand by approximately 25%.



Photo credit: Dan Paton



Photo credit: Dan Paton



**New Water Heat Recovery System
leading to the en-suite showers in
the Besse Building**



Photo credit: Visualisation by Picture Plane

Norham St Edmund Development:

The Hall will transform the existing student accommodation at 17 and 19 Norham Gardens into a mixture of new build and refurbished accommodation which will be built to the highest sustainability standards and will be Passivhaus accredited. On completion in 2025, it will house 126 students, allowing all students to live in college housing for the first time.

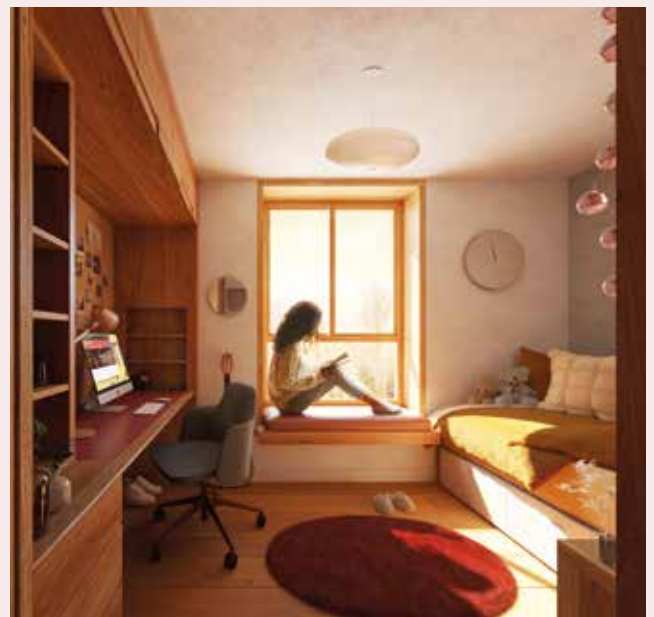


Photo credit: Visualisation by Wright & Wright

Actions 2 & 3

Reduce the amount of waste that we generate – in terms of food, plastics, paper, water, green waste, electrical items, and white goods, including the elimination of single-use plastics and a move to paperless systems where possible.

Maximise recycling of all our college waste – in terms of food, plastics, paper, water, green waste, electrical items and white goods, to incrementally reduce the amount sent to landfill each year.

Baseline situation:

Plastics and aluminium: Although a total picture of college use of plastic and aluminium over an academic year is difficult to obtain, a snapshot of usage is apparent in the number of plastic bottles and aluminium canned drinks sold from the Wolfson Hall canteen each year (Figure 4). During the academic year 2018–19 approximately 5900 plastic bottles of water and aluminium canned drinks were sold from this one outlet of the college. In 2019–20 we stopped the sale of plastic bottles of water in the Wolfson Hall and the Buttery and installed water dispensers on site.

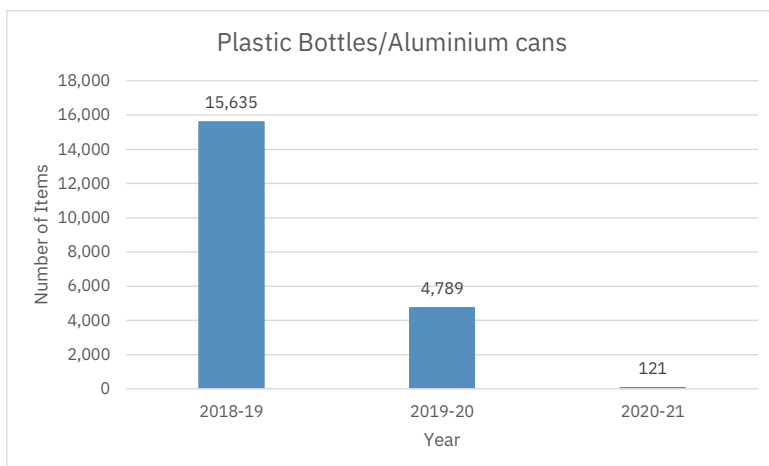
Paper: This is purchased via the Bursary, with orders based on need. We are actively pursuing a move to a paperless office and this has already resulted in a reduction of paper consumption from 11,250Kg in 2018–19 to 5,175Kg in 2020–21, a reduction of 46%.

Waste: food, kitchen, packaging: Food production is reportedly responsible for one-quarter of the world’s greenhouse gas emissions (<https://ourworldindata.org/food-ghg-emissions>).

One of the largest areas of daily waste in the College is via the processing of food for the College community which includes general waste (single use plastics, metal cans etc.) food waste and waste from the servery. There is also waste from parcels and packaging. For example, during term, on average the Lodge handles approximately 950 packages a month that are delivered to the student community.

The College waste is handled by Oxford City Council’s Oxford Direct Services (ODS). ODS sends no waste to landfill, they are investing in technology and innovation to improve management information for clients, on board bin weighing for improved data to clients, and provide advice on waste management. Data on waste quantities will be reported on from 2022.

Figure 4: Numbers of plastic bottles and aluminium cans sold in college, 2018 – 2021



Proposed actions to reduce waste:

Over the next 10 years we aim to undertake the actions outlined below to see a year-on-year reduction in plastic, paper, food and mixed waste across all college sites and to achieve the following **targets:**

- Reduce paper waste by 90%
- Eliminate the use of single use plastic across the site
- Reduce mixed waste through enhanced recycling, aiming for <10% of college waste going to landfill
- Reduce food waste by 40%
- All remaining food waste converted to energy biomass
- Recycle all non-repairable college electrical items.

Initiatives underway:

- Stop use of disposable cups in coffee machines
- Stop selling plastic bottles of water and drinks
- Use reusable glass bottles for water on dining tables
- ODS waste services engaged. ODS send 0% waste to landfill
- Use ODS waste services management information to drive down overall waste and increase separation for recycling
- Installation of Winnow waste monitoring system to reduce food waste from kitchens and diners and to educate consumers
- Separate out food waste from kitchen waste to send to the Oxfordshire anaerobic digestion plant. The facility processes over 50,000 tonnes of solid and liquid wastes a year from across the county, generating 2.1MW of electricity and producing an excellent bio-fertiliser.



Waste recycling facilities at Queen’s Lane site.



St Edmund Hall no longer sells plastic water bottles in the Servedy or bar.

Fresher students receive reusable water bottles on their arrival in College, provided by the St Edmund Hall Association (SEHA).

Two water fountains were installed at the Queen’s Lane site in 2019.

Refillable glass bottles and a water filtration machine were purchased to meet conferencing, dining and meeting needs in 2019.



Food waste is hard to measure and hard to manage. The Hall has installed a Winnow food waste system which makes it quick and easy to record exactly how much food is being wasted through smart technology attached to our kitchen food waste bin.

Action 4

Reduce our amount of water usage – through improved water management, installing waterless systems and the recycling of water where possible.

Baseline situation:

Our greatest water use across the site is in our outside properties (Figure 5). This, however, may not be a true reflection of the baseline situation. The pandemic meant that most usage was seen at Norham Gardens being where the majority of the student population have been residing. In short, the figures for this period are slightly out of line with what we would expect to see in a “normal” year. It is anticipated that that Queen’s Lane usage will increase.

Proposed actions to achieve reduction in water use:

Over the next 10 years we aim to undertake the actions outlined below to achieve the following target.

Target:

Over the next 10 years establish a year-on-year reduction in water usage in all current buildings and gardens.

Initiatives underway:

- Installation of water saving shower heads
- Continue to accurately record all water consumption
- Waterless urinals and dual flush toilet cisterns to be installed at Queen’s Lane
- Water butts in gardens
- Use of grey water recycling
- Reduction of water use, e.g. for laundering

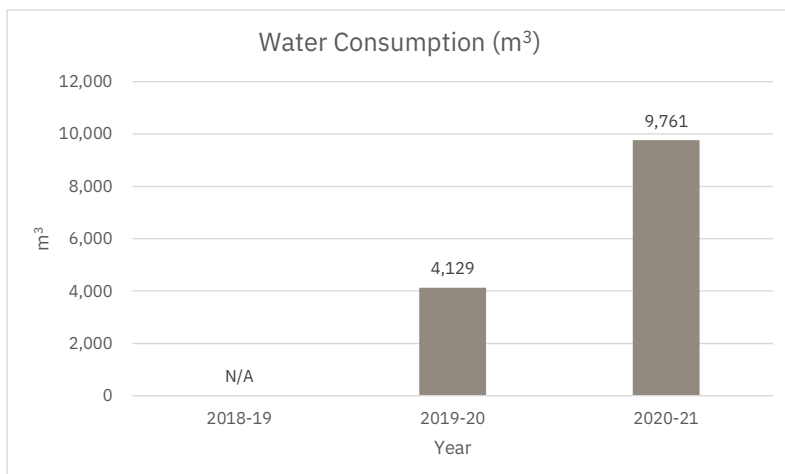
- New buildings to install water saving measures at design phase
- Continue to install water saving devices in existing facilities.

Water use data will be reported annually to College via the Sustainability Sub-Committee.



Water Butts at Norham Gardens help to reduce water waste by collecting rainwater which can reused to water plants.

Figure 5: College water consumption (m³) 2019 – 2021





William R. Miller Building provides
55 en-suite student rooms

Action 5

Increase greenness and overall biodiversity of all our college sites – including green walls and rooftop gardens, pollination-friendly planting and tree planting in order to achieve net biodiversity gain.

The Hall took part in a baseline audit of its biodiversity on the Queen's Lane and Norham Gardens sites in Trinity term 2021. Students, staff and Fellows participated in the audit, which involved measuring the different landcover types, trees, birds, insects and earthworms.

The College's Forum Garden has recently been renovated to include a number of biodiversity enhancements, including the introduction of tree and plant species that will attract a range of birds and insects.

Baseline situation:

Full results from the 2021 audit can be found online but the headline features include:

- i. vegetation in the College grounds currently stores an estimated ~25 tonnes of carbon (which equates to around 92.4 tonnes CO₂e)
- ii. the QL and NSE sites support 58 trees (30 different species)
- iii. the College grounds provide habitat for 18 different species of bird, of which 15 are classified as of conservation concern
- iv. over 500 insects were captured during a 3-day interval, including 126 bees and insects known to be important for pollination and pest control
- v. earthworm numbers appear to be currently low within the College grounds.

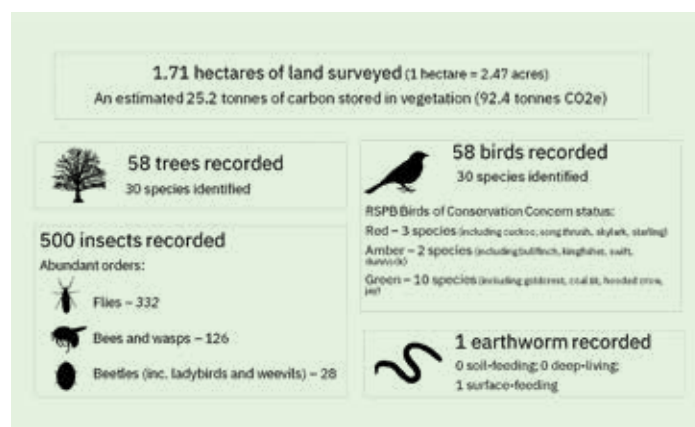
Target:

Over the next 10 years we aim to see a year-on-year increase in biodiversity and overall greenness of college sites.

Initiatives Underway:

- Increase investment in green walls and other vertical planting to cover (currently 39m²)
- Engage in planting of pollination-friendly species
- Choose drought-resistant plants over those requiring regular watering
- Attract birds to certain areas through creation of appropriate habitats via plant choice and garden management
- Biodiversity increase is being embedded in the design of new student residential buildings and gardens
- Establish Norham Gardens climate showcase gardens after completion of new residences
- Manage grassy areas to allow wildflowers to naturalise
- Planting pollination-friendly species
- Hot-bin composting from college waste at Norham Gardens sites.

Results of Biodiversity Baseline 2021



Future Green Walls:

The Hall aims to increase its biodiversity by 10% and to help meet this goal we want to install more living walls on 40% of our concrete walls. In addition to the environmental benefit, they also greatly enhance our health and well-being. Our first living wall is just the beginning of our journey to 'green the Hall' both in physical appearance and in its environmental impact.

The images are an artist's impression of green walls on the student accommodation buildings on the Queen's Lane site





The Living Wall at St Edmund Hall

Action 6

Greatly reduce our carbon footprint associated with transport to and from college (both locally and internationally) – including use of electric vehicles, enhanced support for using sustainable transport options and carbon offsets.

Baseline situation:

The environmental impact of transport is significant as a major use of energy, burning most of the world's petroleum and creating CO₂ emissions. We have very little college parking and the majority of fellows and staff already either use public transport, walk, or cycle to work. The College vehicle is diesel, but it has an annual mileage of under 2,500 miles.

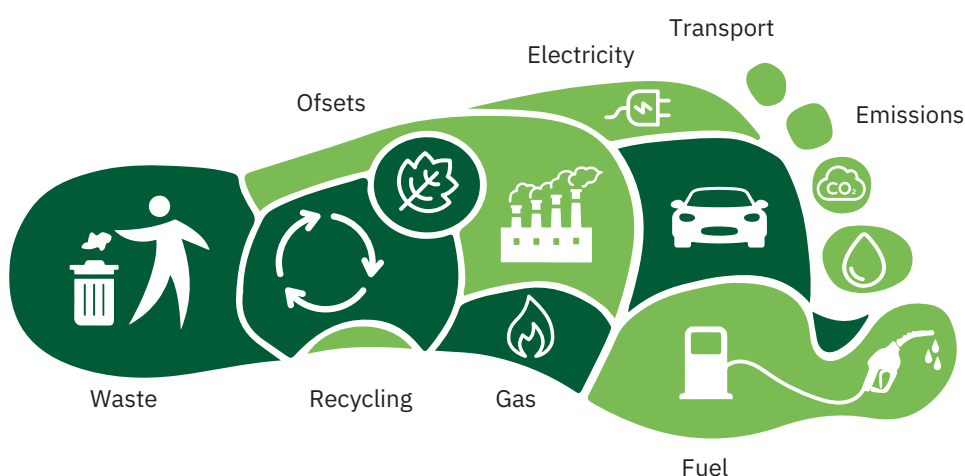
The majority of travel by academic staff and students is University related and as such will be reported through the University's sustainability monitoring. See the University Sustainability policy for more information. Most college-only travel is staff travelling to and from work, college outreach activities, development activities, public relations.

Target to achieve reduction in our carbon footprint associated with college travel:

Over the next 10 years we aim to see a year-on-year reduction in our carbon footprint associated with college business.

Initiatives:

- Develop and implement an international travel policy that incorporates a travel hierarchy for all domestic and international travel as follows:
 - avoid travel
 - reduce travel demand to and from college
 - travel without flying
 - fly when there are no suitable alternatives
- Offset emissions for all essential international air travel
- Purchase of electric van at end of life of current van, estimated 2026
- Limit local transport emissions by reducing the need for travel, encouraging walking, cycling and use of public transport
- Continue with schemes for interest free loans on season tickets for buses and trains and the salary sacrifice cycle purchase scheme.



Tamesis Guesthouse, Iffley Road,
operates as a hotel July–September



Action 7

To implement climate conscious and climate responsible investment according to Martin School Principles, and to invest in companies with a positive ESG (environmental, social and governance) impact.

Baseline situation:

The College's investments portfolio at June 2019 included holdings in the following Funds: OUEM, two FTSE tracker funds, the Charities Property Fund, Colchester Bond Fund, JP Morgan Emerging Markets Fund, and the MFG Global Fund. In June 2019, the College published an Investment Strategy on its website that noted its commitment to an ESG strategy for its investment.

Initiatives completed:

- Implemented a detailed investment policy to include strict ESG commitments and climate conscious investment
- Divested from all funds which do not comply with our commitment to ESG criteria
- Ensured investment management services for the funds include a full and transparent ESG screening
- Appointed Rathbone Greenbank (RG) to provide Investment Management Services for the portfolio, excl. the OUEM holding, that will include a full ESG screening policy and implementation of the requirements flowing from the College's investment policy
- Created a detailed Investment Policy that stipulates the ESG investment criteria by which RG will invest. This includes not investing in any fossil fuel exploration and extraction companies. It also includes aligning with the Oxford Martin Principles for Investment and engaging with companies and policymakers to encourage actions consistent with transitioning to a low-carbon economy.
- Continual monitoring of the commitment of OUEM to ESG policies to ensure that they are aligned with the College's principles. OUEM has confirmed that they will implement the three resolutions passed by Council of the University (2020) focusing on climate change and the University's investments.

Frontiers in ESG Symposium 8–9 September 2022

This is an exciting new endeavour organised by St Edmund Hall and the Saïd Business School, University of Oxford. It aims to bring together academia, corporates, NGOs, financial institutions and other business, to advance our collective understanding of key issues and knowledge gaps around ESG (Environmental, Social and Governance) measurement, its implementation and opportunities.

www.seh.ox.ac.uk/esg-symposium



Summary of 10-year Vision for the College

To give shape to what success might look like in 10 years, we have summarised a set of possible outcomes in the coloured chart below.

A ten-year vision: St Edmund Hall to be recognised as one of the greenest and most environmentally sustainable colleges in Oxford, including:

- a zero-energy establishment
- self-generated energy from a combination of rooftop solar panels, geothermal heat, air and/or water-sourced heat pumps and biodigesters
- greatly reduced energy use through improved lighting, heating systems and insulation
- eliminated use of single-use plastics
- increased visible greenness in all college sites, e.g., green walls and rooftop gardens

ENERGY USAGE

- Our first passivhaus student residences built and occupied
- College has stopped wasting energy through poor insulation
- College generates its own renewable energy
- Smart control for all college heating



BIODIVERSITY

- Biodiversity on college sites has increased by 10%
- Green walls installed on 40% of concrete walls
- Wildflower areas within Queen's Lane and Norham Gardens sites



WATER USAGE

- Grey water harvesting in new buildings
- Increased water recycling
- Reduced water usage



WASTE AND RECYCLING

- All food waste goes to produce energy
- College has ceased using single use plastics
- Near zero waste goes to landfill



CARBON FOOTPRINT

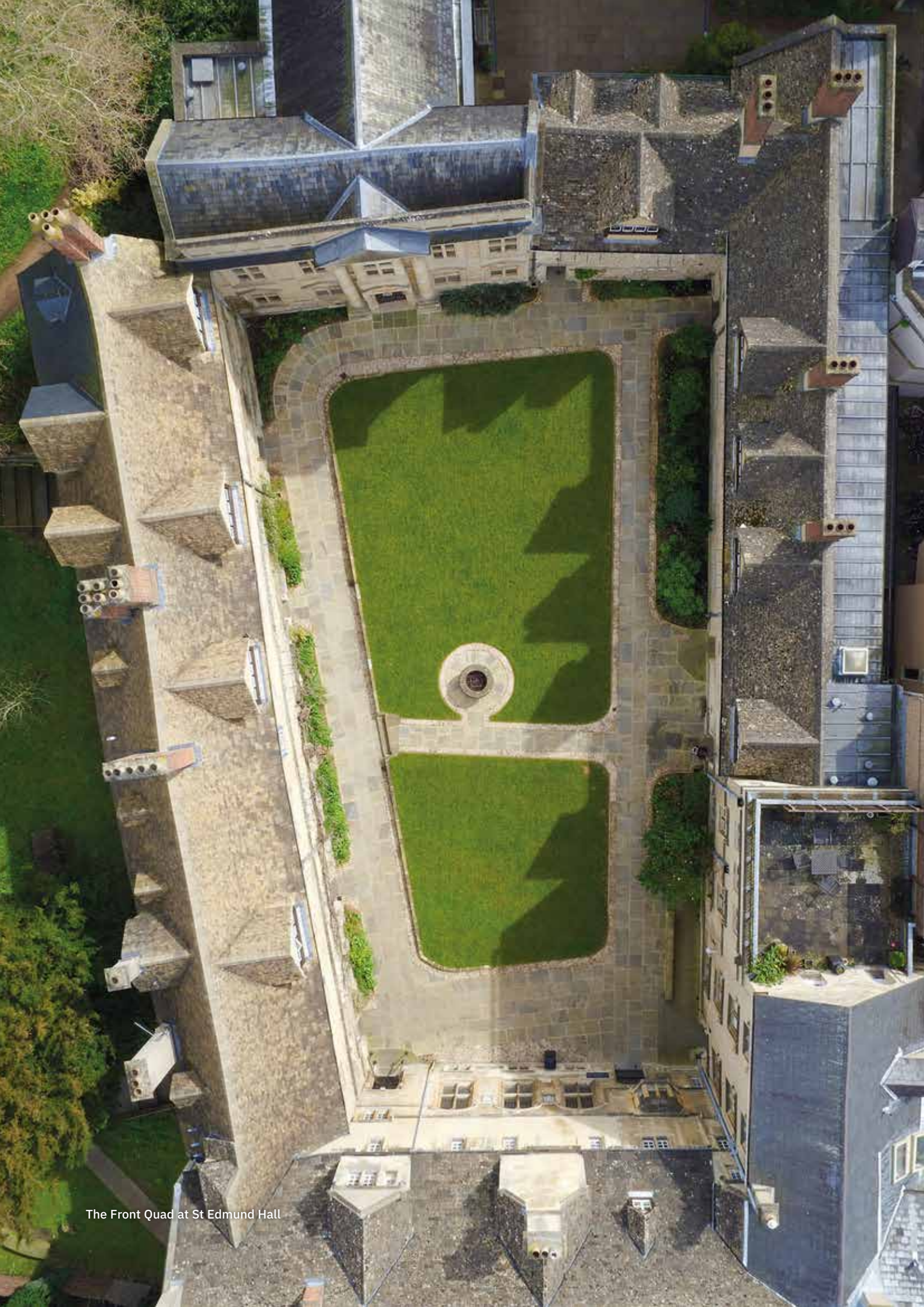
- Increase in staff using salary sacrifice cycle purchase scheme, free loans for season tickets for buses and trains
- College uses an electric vehicle for maintenance functions
- International students have access to college accommodation in vacations
- Reduced carbon usage for international travel
- Introduction of carbon offset "tax" for all essential air travel



INVESTMENTS

- Implement climate conscious and climate responsible investment according to Martin School Principles, and invest in companies with a positive ESG (environmental, social and governance) impact
- Divest from funds which do not meet our climate conscious or ESG criteria
- Draft and implement a detailed investment policy with ESG principles
- Continue to monitor the commitment of OUEM to ESG policies





The Front Quad at St Edmund Hall

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