

## Sustainability Report 2023/24

### Executive Summary

This report provides a comprehensive overview of the sustainability initiatives and outcomes for the academic year 2023 to 2024, designated by the Vice-Chancellor's as the Year of Sustainability. In delivering this initiative over the course of the year, we expanded staff and student training within all schools, and directorates, including our governance structures, while advancing responsible procurement practices and introducing a strategic focus on space utilisation. Additionally, we began laying the groundwork for integrating sustainability into our research agenda and developing a blueprint for embedding sustainability within the curriculum. A successful audit, commissioned by the Audit and Risk Committee assessed our regulatory compliance, decarbonisation plan, and climate mitigation efforts and found us to be highly compliant.

In the “Year of Sustainability,” the university launched major initiatives to integrate sustainability into all facets of its operations and strategy. This report highlights efforts in responsible procurement, decarbonisation, waste management, biodiversity, and community engagement. The university's recognition in the People and Planet ranking (top ten for Waste and Recycling) and its nomination for the 2024 Environmental and Sustainability Award reflect significant progress in this journey.

### Emissions Progress and Reporting

The university committed to the Science-Based Targets approach, realigning its emissions reporting to track performance towards Net Zero rather than historical baselines. Notable progress includes:

- Scope 1 Emissions: Gas-related emissions dropped to 29.43 tCO<sub>2</sub>e, representing an 80% decrease from last year.
- Scope 2 Emissions: Electricity emissions reduced to zero through the integration of Renewable Energy Guarantee of Origin (REGO)-certified energy sources.

Overall Reduction: Achieved a 98% reduction from the 2009/10 baseline in Scopes 1 and 2, positioning the university well ahead of its 2030 Net Zero target.

Scope 3 tracking commenced with preliminary business travel data to establish a baseline, which will enable annual tracking and target setting. Additionally, a trial for supply chain emissions reporting is underway, with a full rollout anticipated for 2025/26. This commitment to indirect emissions data aligns with the latest Higher Education sustainability standards and regulatory guidance from the Department for Education.

For the academic year 2023/2024, the University achieved a **total of 87.77 tCO<sub>2</sub>e for all currently measured scopes**, inclusive of waste and water, of which 29.43 tCO<sub>2</sub>e were Scope 1 and 2 emissions. This is a 65% reduction on last years figure 173.2 tCO<sub>2</sub>e.

### Utilities Costs and Consumption

Annual energy expenditure dropped by 29.8% to £1,016,324, aided by price stability in gas and electricity. Water consumption, however, rose by 38% due to increased campus use, with costs reaching £62,271.

## Energy Efficiency Initiatives

- **Building Management System (BMS) Implementation:** A new IQvision BMS was installed campus-wide, providing real-time monitoring and automated energy control. The system reduced electricity use by over 30,938 kWh in September alone, saving £9,281 in costs. Projected annual savings are approximately £110,000, supporting both the sustainability and financial objectives.
- **Switch Off Campaign:** An intensive seven-week campus-wide campaign aimed at reducing energy consumption through behavioural changes among staff and students. Achievements included:
  - **18% Reduction in Energy Usage:** A clear success in the university's drive to reduce its carbon footprint through community engagement.
  - **Campaign Reach:** Over 3,000 appliances were turned off, and 51% were lights. Social media engagement exceeded 670 individuals, with 36 event participants actively involved in campaign activities.
- **LED Lighting and Sub-Metering:** Phase 2 of the LED lighting upgrade in key buildings has been completed, and sub-meter installations across service areas will allow for more detailed resource tracking. This upgrade is projected to significantly reduce energy costs and usage and ensure compliance with the Heat Network and Billing Regulations 2014.

## Waste Management

The university's Zero Waste Initiative remains on track, aiming for 95% waste diversion from landfill by 2030. The 2023/24 waste performance showed:

- **Total Waste Reduction:** Down to 119.76 tonnes, a 20% reduction from last year.
- **Recycling Rates:** 93.42% of waste was recycled.
- **Furniture Value Retention:** Diverted 3.37 tonnes of furniture from waste streams, reducing emissions by 2.07 tCO<sub>2</sub>e.

Despite these successes, there remain challenges in aligning procurement and waste management with the waste reduction targets, as procurement process choices still generate notable waste volumes. However, responsible procurement policies are being further embedded into the University to support resource loss.

## Biodiversity and Green Spaces

Efforts to enhance the expansion of green spaces and community engagement projects to enhance campus ecology continue to be well received:

- **Wildflower Meadow Project:** Now in its third year, the meadow requires selective grass management to maintain wildflower diversity. This initiative has attracted considerable interest and serves as an educational resource.
- **Wellbeing Allotment:** This community allotment, launched last year, saw over 120 attendees at its official opening. It has produced surplus crops distributed to students and runs a monthly volunteer session alongside regular staff group. Events have been held to raise awareness of sustainable food production and food security and a Student Society group has been formed for 2024/25
- **Campus Signage and Education:** New signs highlight biodiversity efforts across campus, explaining the ecological importance of areas like the Bee Buffet and Wildflower Meadow.

Plans to sustain biodiversity through soil decompaction, nutrient management, and adaptive planting underscore a commitment to ecological diversity. Future engagement will include educational sessions and targeted local community involvement to support a culture of stewardship.

### **Travel and Commuting**

The university's initial business travel assessment and Travel Survey results highlight the need to address our travel footprint. Business travel emissions exceed those from campus operations, underscoring the importance of updating travel policies. The survey also indicates potential to increase sustainable commuting options, guiding our initiatives for AY 2024/25.

- **Business Travel Emissions:** The university is six months into collecting and monitoring business travel data to establish a baseline under the Standardised Carbon Emissions Framework (SCEF) for 2024/25 reporting. This initial review reveals a significant challenge: business travel now generates significantly more CO<sub>2</sub> emissions than the total annual emissions from campus operations. This finding emphasises the need for targeted adjustments to travel policies in AY 2024/25 as the university seeks to curb emissions and progress toward Net Zero:
  - Total Miles Travelled: 429,061 miles and Total CO<sub>2</sub> Emissions: 71.01 tCO<sub>2</sub>e.
  - Air travel contributes the greatest proportion of emissions at 63 tCO<sub>2</sub>e
- **Travel Survey:** The Annual Campus Travel Survey showed a 9% decrease in participants, with the following improvements travel habits:
  - Single-Occupant Car Use: 48.65%, significantly below the regional average.
  - Sustainable Travel Options: 51% have access to sustainable travel options, but only 35.6% currently use these modes.
  - Electric and Hybrid Vehicle Use: Increased slightly, supported by staff incentives and the presence of campus charge points.

### **Responsible Procurement and Supply Chain Management**

The university has made significant advancements in responsible procurement, incorporating sustainability into key contracts such as facilities management and the new Building Management System (BMS). Carbon reduction commitments were embedded in contract specifications, ensuring alignment with Net Zero goals and procurement KPIs. Early-stage Scope 3 emissions tracking from service contracts is underway, marking progress in aligning procurement processes with environmental objectives. Suppliers are now expected to use the NetPositive Supplier Engagement tool, a framework that encourages ongoing improvements in waste and carbon management.

### **Engagement, Training, and Community Involvement**

This year, 412 individuals participated in sustainability training, with 13 students completing micro-placements that contributed over 460 hours to key projects like the "Switch Off Campaign" and green space initiatives. Additionally, "Build Your Sustainable Future" placements provided practical experience and mentorship for students in various sustainability projects. Additionally over 13 training courses were provided with sessions for individual Directorates, SLT, Senate and Students providing tailored sustainability content, with a particular emphasis on climate literacy.

### **Research Funding and High-Impact Projects**

The Suffolk Sustainability Institute secured high-value funding for projects with both regional and international impact. Notable high-impact projects include:

- Safe Suffolk Renters: £175,000 project focused on housing and health in the private rented sector, providing research-backed support for housing policies aimed at reducing environmental impact.
- H2BECCS (Hydrogen and Bioenergy Carbon Capture and Storage): £70,000 grant from the Department for Energy Security and Net Zero (DESNZ) to explore hydrogen fuels' potential, advancing carbon capture technologies crucial to sustainable energy transitions.
- UK Space Agency Optical Communication Lab: A major £2.45 million project establishing a lab at Adastral Park to develop advanced sustainability-focused technologies, with an emphasis on energy efficiency and data solutions.
- ARISE: Resilient Coastal Communities and Seas: £215,000 funding from the UK Research and Innovation (UKRI) to develop resilience strategies for coastal communities, addressing climate impacts like flooding and erosion.

The institute's projects align with university goals of knowledge transfer, innovation, and policy influence in areas critical to sustainable community development and environmental management.

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## 1. Introduction

In the 2023–2024 academic year, designated by the Vice-Chancellor as the Year of Sustainability, the university focused on strengthening governance and developing Institutional engagement to further embed sustainability throughout its operations and strategy.

Key achievements included a 98% reduction in Scope 1 and Scope 2 emissions from the 2009/10 baseline, securing a top ten ranking in the People and Planet index for Waste and Recycling, and advancing initiatives in responsible procurement, biodiversity enhancement, and community engagement. These accomplishments and those presented in this report reflect the university's progress this year in advancing our sustainability goals and meeting our commitments.

## 2. Governance

To enhance its governance framework, the university's governing body has established an internal Task and Finish Group to evaluate its role in supporting the implementation of sustainability, to ensure both compliance and stretch. Through a structured review process, the group identified opportunities to strengthen its strategic oversight, ensure governance practice is reflective of best practice and our Institutional objectives, whilst further driving sustainability as a core institutional priority.

This initiative marks a significant advancement in our institutional commitment to embedding sustainability as a foundational principle across governance, strategy, and academic delivery. As a leading institution, we recognise the imperative to exemplify how universities can act as catalysts for addressing complex global challenges, such as the climate crisis, through actionable and accountable frameworks. Our governance architecture is dedicated to creating a resilient and future-focused institution, capable of equipping our internal and civic community with the intellectual tools and innovative frameworks necessary to navigate an increasingly uncertain world.

## 3. Carbon and Utilities

In January 2023, the Royal Anniversary Trust released "Accelerating towards Net Zero," a pivotal report offering a comprehensive roadmap to significantly reduce carbon emissions within the tertiary education sector. The report introduced the Standardised Carbon Emissions Framework (SCEF), a critical tool aimed at enabling Higher Education (HE) and Further Education (FE) institutions to accurately measure, report, and manage their carbon emissions in line with best practices. This framework, aligned with the GHG Protocol, positioned the sector towards adopting a Science-Based Target approach, and set the stage for universities, including ours, to standardise carbon emissions reporting as we worked toward decarbonisation against our baselines.

Over the past 12 months, we have seen considerable sector-wide progress. The Department for Education's (DfE) mandate for universities and colleges to begin to collect data to report new baseline carbon emissions by 2024 remains in place, and institutions are gearing up to meet this requirement by adopting the SCEF as the sector's standard. This standardisation has allowed for greater accuracy and comparability in reporting, helping institutions better target emissions reductions across Scope 1, Scope 2, and Scope 3 emissions.

However, as we look ahead, our university is evolving its approach. Rather than solely tracking progress against our decarbonisation baseline, we are now shifting how we report our performance within the context of Net Zero for our total carbon, as identified through our institutional objective to **achieve carbon neutrality for scope 1 and 2 emissions by 2030, with a net zero target for remaining Scope 3 emissions by 2050.**

This report introduces a new methodology for emissions reporting and metrics, aligning more closely with our overarching goal of achieving Net Zero, rather than the previous focus on baseline-based decarbonisation. This shift represents a strategic realignment within the sector, moving from the reduction of carbon emissions against historic baselines to achieving comprehensive Net Zero outcomes. However, for newly introduced Scope 3 metrics, we will be establishing baselines to support targeted annual step changes in decarbonisation, ensuring a structured approach to reducing emissions in these key areas.

#### New Reporting Developments for 2024:

- *Business Travel Data:* For the first time, we are incorporating six months of business travel data into our emissions reporting as part of our broader effort to establish a comprehensive baseline for Scope 3 emissions in this area. Given that transportation is one of the most significant contributors to climate change, primarily due to the greenhouse gases associated with it, business travel represents a key area for targeted action. This preliminary data will serve as the basis for more detailed and refined reporting moving forward, enabling us to enhance our understanding of its impact and support informed decision-making.
- *Track and Measure:* The shift toward Net Zero also means refining how we track and measure emissions. Our new reporting approach will introduce metrics that not only track reductions from previous baselines but also reflect the future-facing targets necessary to reach Net Zero. This will involve expanding our data capture mechanisms and aligning our methodologies with the latest guidance provided by the SCEF and other sector-wide initiatives.
- *HESA EMR:* Close monitoring and implementation of Department for Education (DfE) and Jisc guidance will remain central to our reporting strategy. The Estates Management Record (EMR) continues to serve as our primary tool for emissions reporting, and ongoing discussions around reporting mechanism with the Environmental Association for Universities and Colleges (EAUC) will further improve our ability to align with the SCEF and meet national targets.
- *Supply Chain Emissions:* In response to the new requirements, we have also commenced a trial implementation of Scope 3 supply chain reporting arrangements specifically focusing on emissions associated with our service contract providers within estates. Addressing supply chain emissions and establishing a baseline will be a significant piece of work to roll out over the AY 25/26.

By accurately reporting on Scope 3 emissions at this earlier stage, we will gain valuable insights into Social, Environmental, Governance (ESG) elements of our procurement decisions and service contracts, which will enhance accountability across our supply chain. This initiative is being undertaken in collaboration with the Finance Directorate and utilises NetPositive Futures framework. NetPositive Futures originated from a collaborative effort among educational institutions aimed at developing a standardised approach to assessing (ESG) within the sector and is supported by the Higher Education Procurement Association (HEPA), with an emphasis on the critical role of responsible procurement in advancing institutional goals and regulatory compliance.

As we advance, these new reporting developments underscore our commitment to achieving the sector-wide goal of Net Zero and recognise the critical importance of accuracy in our reporting and

metrics. By enhancing the reporting precision of our approach, we are confident that these efforts will strengthen our carbon management practices and solidify our significant progress in sustainability in tertiary education.

### 3.1 Emissions and Decarbonisation

During the Academic Year 2023/24 several pivotal actions were taken in support of the Carbon Climate Action Plan: 2022–2027. A significant milestone of which, was the installation of a campus-wide Building Management System (BMS), designed to optimise energy use and enhance operational efficiency across all facilities. Additional approvals were secured through the Estates Strategy Group for both a feasibility study to replace the aging waterfront chillers with energy-efficient Air Source Heat Pumps and the installation of submeters across a number of service areas, enabling more precise monitoring and management of building energy loads and decarbonisation.

To bolster these initiatives, carbon literacy training was provided to key members of the estates team, equipping them with the expertise to lead decarbonisation efforts on campus. This training was broadcast during Q2 through a cascade model designed to reach additional staff and students from various disciplines, cultivating a broad-based institutional understanding of climate action strategies. Foundational knowledge exchange that played a crucial role in ensuring the effectiveness of the "Switch Off" campaign and aimed at reducing energy usage and encouraging active engagement in sustainability across the campus community.

#### 3.1.1 Emissions Performance

For Scopes 1 and 2, all emissions data has been calculated using the extant set of DEFRA Greenhouse Gas Conversion factors. The following data presents our performance over the reportable academic year:

- For the academic year 2023/2024, the University achieved a **total of 87.77 tCO<sub>2</sub><sup>e</sup> for all currently measured scopes**, inclusive of waste and water, of which 29.43 tCO<sub>2</sub><sup>e</sup> were Scope 1 and 2 emissions. This is a 65% reduction on last year figure 173.2 tCO<sub>2</sub><sup>e</sup>.
- The annual quantity of scope 1 emissions in tonnes of total carbon dioxide equivalent from the use of gas during the reporting period was 29.43 tCO<sub>2</sub><sup>e</sup> a **decrease in 80%** from 153.65 tCO<sub>2</sub><sup>e</sup> last reporting year.
- The annual quantity of scope 2 emissions in tonnes of total carbon dioxide equivalent from the use of electricity during the reporting period **was Zero** down from 10.7 tCO<sub>2</sub><sup>e</sup> last reporting year.

As part of our commitment to transparency in environmental reporting and alignment with DEFRA guidelines and the GHG Protocol, we are now capturing and reporting on Scope 3 emissions associated with the transmission and distribution of gas and electricity to our site. Although reporting on these indirect emissions is not strictly required under current regulations, it aligns with best practices and evolving standards in sustainability reporting. Scope 3 emissions from transmission and distribution account for energy losses occurring as electricity travels through the power grid and gas moves through the distribution network, with factors such as line resistance and pipeline inefficiencies contributing to these losses. By voluntarily capturing and reporting this data, we are demonstrating our adherence to industry-leading practices and are committed to providing a more comprehensive view of our carbon footprint as part of our pathway to net zero.

- The annual quantity of scope 3 emissions associated with transmission and distribution is 49.04 tCO<sub>2</sub><sup>e</sup>



The total for Scope 1 and 2 emissions amounted 29.43 tCO<sub>2</sub>e. A decrease of 82% on last years emissions and a 98% reduction against our 2009/10 baseline of 2,704 tCO<sub>2</sub>e.

**To reach net zero from the current emissions level of 29.43 tCO<sub>2</sub>e, an additional reduction of approximately 1.09% is required from our original starting point. We are on track to reach net zero in scope 1 and 2 ahead of 2030.**

As part of our drive towards decarbonisation of scope 1 and 2 emissions by 2030, step change targets for the academic year 2023/24 sought to ensure:

- Target 1: Reduction in carbon emissions for scope 1 & 2 by 70% against the 2009/10 baseload. **The University has realised a 98% reduction against the baseline.**
- Target 2: Operational emission of GHG per m<sup>3</sup> of gross internal area is no greater than 21 kgCO<sub>2</sub>. The calculated operational emission is **2.5 kgCO<sub>2</sub>e/m<sup>3</sup> a 46% decrease on last years performance**
- Target 3: Emissions per FTE Staff and Student Ipswich Campus no greater than 160 kgCO<sub>2</sub>. The calculated emissions per head are **30.18 kgCO<sub>2</sub>e.**

The University has realised its emission targets for the year and remains ahead of the step change requirements. Image 1 below demonstrates comparative data with previous years.

**Image 1: Emissions per GIA and FTE**

Emission Definition	2019/20	2020/21	2021/22	2022/23	2023/24
<b>Emissions per m3 of GIA</b>	34.73 Kg CO <sub>2</sub> e	22.08 Kg CO <sub>2</sub> e	23.70 Kg CO <sub>2</sub> e	5.22 Kg CO <sub>2</sub> e	2.5 Kg CO <sub>2</sub> e
<b>Emissions per staff and Students</b>	273.07 Kg CO <sub>2</sub> e	154.76 Kg CO <sub>2</sub> e	175.2 Kg CO <sub>2</sub> e	40.08 Kg CO <sub>2</sub> e	30.18 Kg CO <sub>2</sub> e

### 3.1.2 Heating and Cooling

The electrification of our estate, alongside the installation of air source heat pumps and point-of-use hot water systems, has significantly advanced our decarbonisation strategy, leading to a marked reduction in our carbon footprint and improved energy efficiency across our facilities. However, we continue to face challenges with the residual gas heating and hot water systems in the Waterfront and James Hehir buildings, which are pivotal for achieving complete decarbonisation of our Scope 1 and 2 emissions.

Addressing these challenges necessitates substantial capital investment and retrofitting efforts. We remain in ongoing discussions with SCC regarding the feasibility of a district heating network in Ipswich, which aims to establish a network of heat highways and green grids to facilitate our long-term decarbonisation objectives. While this initiative is still in the conceptual phase and has not yet progressed to implementation, it represents a crucial opportunity for future-proofing our estate and enhancing heat resilience across both new and existing facilities.

In the immediate term, our focus is on mitigating critical infrastructure issues. The chillers in the Waterfront building are currently in a state of disrepair, having experienced the failure of two units this year. Ongoing chiller replacement consultancy is evaluating the viability of integrating air source heat pumps as an alternative to conventional like-for-like replacements, an approach that could significantly expedite the decarbonisation of the Waterfront building. This initiative was already outlined in our Climate Action Plan, but the current situation has brought it forward in priority. Should this upgrade prove feasible within the existing constraints of the building's layout and the heating and cooling distribution systems, it would enable us to eliminate gas dependency in the Waterfront building, thereby leaving only the James Hehir building and a minor portion of the Arts building reliant on gas for heating. This strategic pivot aligns seamlessly with our overarching decarbonisation strategy, facilitating meaningful reductions in our Scope 1 and 2 emissions across our estate.

### **3.2 Utilities Costs and Consumption**

The price inflation that dominated most of 2022/23 saw the beginning of the academic year experiencing a greater cost stability where we saw notably lower prices for gas and electricity, with a winter peak of electricity at 0.33p/kWh, and a summer variation of 0.31p/kWh. For gas the year opened with the continuance of a price insulation of 4.1 p/kWh fixed under 3 year contract. This contract expired mid 2024 with new price now set at 7.4 p/kWh. Once more the campus building portfolio has increased with the new dentistry facilities in the James Hehir building increasing campus footfall and energy demand.

Spend on utilities, including water was £1,016,324 in 2023/24, a 29.8% decrease from £1,448,686 the previous year. The mild winter led to lower heating requirements, while the cooler summer reduced the demand for air conditioning. These conditions, coupled with more favourable energy prices, and energy efficiency measures, contributed to an overall decrease in energy consumption and therefore cost.

#### **3.2.1 Electricity and Gas Consumption**

The overall combined contracted utilities consumption figures less tenanted buildings and spaces for gas and electricity 2023/24 was 4,459,021 kWh 2022/23, an increase in energy consumption of 14.9% from last year's usage.

Of which:

- 2,685,443 kWh electricity was supplied from EDF off-site OFGEM certified renewable energy guarantee of origin (REGO);
  - 1,668,876 kWh was gas;
- And
- an additional 104,702 kWh of electricity was generated from on-site solar PV array renewables, a 50% increase in on site generation from 2022/23.

#### **3.2.2 Water Consumption**

Our water consumption over the academic year was 34,035 m<sup>3</sup>, costing £62,271 and resulting in a total carbon equivalent of 6,424 kg CO<sub>2</sub>e. A 38% increase in water consumption across campus, apportion of the cost increase can be attributed to the opening of the Dentistry and the Mix bar in the James Hehir building and represents.

#### 4. Display Energy Certificates (DECs)

A Display Energy Certificate (DEC) is a mandatory compliance document for public buildings with a usable floor area exceeding 250 m<sup>2</sup>. This certification process is integral to ensuring accountable energy practice and assesses a building's energy efficiency by analysing its carbon dioxide (CO<sub>2</sub>) emissions over the preceding year. The evaluation methodology utilizes actual energy consumption data to derive a numerical score that reflects the building's operational performance, alongside an operational rating that ranges from A (indicating minimal emissions and optimal efficiency) to G (indicating maximal emissions and poor performance). In practice, public buildings typically achieve an average score of approximately 100, which corresponds to an operational rating of D. While specific targets for the percentage of university buildings meeting this standard have not been established, higher education institutions generally strive for a DEC rating of D or above. This ambition reflects a proactive commitment to energy management and sustainability within the sector. Our certificates are displayed in the entrance to each building and published on the Energy Performance Certificate Register, which is managed by the UK government's Department for Business, Energy & Industrial Strategy (BEIS).

DEC evaluations are based on energy performance over a full calendar year, encompassing the usage data from January 1, 2023, through December 31, 2024. When comparing the latest results to those from previous years, the trend in energy consumption remains consistent, with the James Hehir building continuing to underperform, but demonstrating noticeable improvements following the Switch Off Campaign. The decrease in the DEC rating for the Atrium building from an A to a B (see Image 2) has occurred due to the delineation of building boundaries, as the newly established Health and Wellbeing building now has its own separate DEC following a year of operation. This change has resulted in the library being included within the Atrium's energy performance assessment. Currently, the library is in poor energy-efficient condition, characterised by inadequate insulation and non-LED lighting. These deficiencies are reflected in the new DEC rating, underscoring the need for targeted improvements in energy management and infrastructure within the library.

**Image 2:** *Display Energy Certificates*

Building	DEC Rating 2021/22	DEC Rating 2022/23	DEC Rating 2023/24	Floor Area (m <sup>2</sup> )
Arts	C (74)	C (75)	C (64)	3727
Atrium	A (16)	A (13)	B (31)	11293
James Hehir	D (91)	D (92)	D (85)	3649
Waterfront	B (37)	B (47)	B (50)	10680
Health & Wellbeing Building			B (32)	4356

During the 2023/24 period, the LED lamping programme for the Atrium and Arts building was completed, which is anticipated to result in a decrease in both electricity consumption and associated costs in the next reporting year. However, it is important to note that footfall in the Atrium has increased due to the successful operation of the Coffee Cat Café, leading to higher building traffic. This increase in occupancy may offset some of the anticipated energy savings, necessitating ongoing monitoring of energy performance in relation to visitor numbers.

## 5. Energy Efficiency Initiatives

This year progress has continued to be made in identifying energy efficiency gains and the potential to increase value from the estate. We have also dealt with several compliance challenges which have expediated aspects of the Carbon Plan.

### 5.1 LED Lighting Phase 2 Completion

The completion of Phase 2 of the LED lighting installation in the Atrium marks a further critical step in the university's energy efficiency program. This transition reduces energy consumption and carbon emissions while improving the quality of lighting in the space. The Eco Design Directive 2019/2020, mandates the gradual phase-out of certain energy-inefficient products, including incandescent and fluorescent light bulbs. By banning the manufacture and import of these products, the directive encourages the transition to more energy-efficient alternatives like LED lighting. As the demand for LED fixtures increases due to this regulatory shift, procurement costs have risen. However, the benefits of LEDs, such as lower energy bills, reduced maintenance, and longer lifespans, and the dwindling stock of alternate lighting make this transition essential rather than optional.

### 5.2 Building Management System

The procurement of the new IQvision Building Management System (BMS) marked a significant advancement in the University Carbon Action Plan. Collaborating closely with Carbon Numbers and Digital colleagues, a secure network was enabled to facilitate seamless communication between buildings. This integration represents the first stage of a broader smart campus upgrade, setting the foundation for enhanced energy management and resource optimisation. IQvision offers numerous benefits, including real-time monitoring of energy consumption, automated control of building systems, and improved data analytics capabilities. These features enable the university to make informed decisions regarding energy use, leading to increased efficiency and reduced costs. Furthermore, as additional equipment is slated for integration into the BMS during the 2024/25 academic year, the university will continue to enhance its ability to monitor and manage energy consumption effectively, contributing to its overarching sustainability goals.

The new Building Management System (BMS) went live across campus at the beginning of July, and initial strides starting with the Waterfront building have been made towards optimisation. Following comprehensive training on the online system at the end of July, the sustainability team have begun implementing changes and have made a series of adjustments to the existing operating times. Data collected from September 1<sup>st</sup> – 30th illustrates the positive impact of these operational changes.

While it is important to note that not all reductions can be solely attributed to the changes made, the adjustments to operational times have greatly decreased energy usage and smoothed consumption levels during the week. Below are the detailed consumption figures for each supply at the Waterfront building for September:

**Image 4:** Consumption Pre & Post Adjustment

Supply 1	Supply 2
September 23: 79,488 kWh	September 23: 4,460 kWh
September 24: 48,816 kWh	September 24: 4,194 kWh
Reduction: 30,672 kWh	Reduction: 266 kWh
<b>Total Reduction: 30,938 kWh</b>	

With an average cost of 0.30 pence per kWh, the total reduction from the adjustments translates to a cost saving of £9,281.40 for the month of September. If this pattern of reduced consumption continues throughout the year, it is projected that the campus could achieve savings of approximately £110,000 in the first year of BMS operation.

### **5.3. Sub Meter**

In continuance of Phase 2 of the University Carbon Reduction Plan awarded the tender to install advanced electricity and gas sub meter equipment across the campus. The data available will provide a deeper understanding of resource consumption across both owned and leasehold buildings. This project will meet the University's requirement to comply fully with the Heat Network and Billing Regulations 2014, to which we are currently non-compliant; greater transparency of energy consumption by location to support fair billing and further support the implementation of our data driven efficiency strategy.

### **5.4 Waterfront Chillers**

Since the end of 2020, the chiller units serving the Waterfront building faced an increasing frequency of service calls, particularly noted since 2022. Multiple catastrophic failures of compressors, which are integral to the operation of each chiller unit, highlighted the urgent need for action. With each unit containing six compressors, the situation became critical, with one chiller operational for the past 9 to 12 months, while the other was deemed beyond economic repair.

To address these challenges, the university commissioned an independent Mechanical and Electrical Consultant to assess the chiller units. The assessment concluded that the units were at the end of their economic life, making parts increasingly difficult and costly to source. Furthermore, maintaining the refrigerant systems had become financially unviable, leading to concerns about the remaining chiller's capacity to meet building demands, particularly during peak summer months. Unfortunately, this assessment proved prescient, as the remaining chiller unit subsequently failed completely.

During 2023/2024, the university took the decision to tender for a consultant to conduct a comprehensive evaluation of options for replacing the chiller units. This investigation will consider the building's operational demands, the original design of its mechanical and electrical systems, and provide recommendations for suitable replacements. A critical aspect of this evaluation will be to assess the viability of air source heat pumps as a sustainable alternative to the current systems. The consultant's scope also includes an assessment aimed at reducing reliance on gas, thereby aligning with the university's sustainability strategy and ensuring that the building can operate efficiently and effectively in the future. It is anticipated that the secondary phase of the work will be initiated during Q2 of the academic year 2024/25.

### **5.5 Switch off Campaign**

In early spring, the university launched a 7-week Switch Off Campaign aimed at raising climate change awareness, reducing energy consumption, and lowering carbon emissions. This initiative engaged both students and staff in auditing energy usage and promoting energy-efficient practices. Significant training was provided to empower a group of Building Champion, mentored and led by Estates Sustainability. By encouraging simple yet impactful actions, such as switching off lights and turning off non-essential equipment, the campaign aimed to establish a culture of resource accountability.

The results of the Switch Off Campaign were significant, showcasing both the potential for immediate impact and the complexities of changing behaviours. Energy consumption across the campus

decreased by 18% compared to the previous year's baseline, reflecting the collective effort of the campus community: whilst simultaneously highlighting the scope of the wastage.

Over the course of the campaign:

- building champions turned off 3,057, with 51% of these being lights, 25% computers, and 16% monitors.
- The Arts building recorded the highest number of lights left on, with 639 instances, highlighting specific areas where awareness and behaviour modification are essential.
- 679 individuals engaged with the campaign on social media,
- 36 participants supported events and activities, indicating a strong community response and enthusiasm for the campaign.

However, while these results are commendable, they also reveal the challenges associated with sustaining behavioural change over time. The initial surge in participation giving way to a decline as the campaign concluded. This can be attributed to various factors: convenience plays a significant role, with our campus community reverting to habitual behaviours that require less effort. The findings suggest that awareness alone is not enough; it must be accompanied by ongoing support and reinforcement to create lasting change. The number of appliances that required to be turned off demonstrates the potential for grassroots initiatives to drive action, but also highlight the need for continuous education and engagement to maintain momentum. To ensure that energy-saving practices become ingrained in everyday behaviour, strategies will be developed to focus on integrating these actions into the culture of the university community. Ultimately, while the Switch Off Campaign achieved remarkable outcomes, it serves as a reminder of the continuous efforts required to embed sustainability into institutional practices and everyday lives.

## 6. Travel and Transport

### 6.1 Business Travel

The university is now six months into collecting and monitoring business travel data as part of establishing a comprehensive baseline under the Standardised Carbon Emissions Framework (SCEF). This initial review offers a first look at our travel footprint and highlights a critical challenge: **business travel now produces more CO<sub>2</sub> emissions than the total annual emissions from campus operations.** This insight underscores the need for specific attention to our travel policies over AY 2024/25, as we seek effective strategies to curb emissions and align with our Net Zero goals. Image 5 provides a summary of key metrics, with Total Miles Travelled: 429,061 miles and Total CO<sub>2</sub> Emissions: 71.01 tCO<sub>2</sub>e (tons of CO<sub>2</sub> equivalent).

**Image 5: Business Travel Data April to Sept 2024**

Mode of Transport	Miles	tCO <sub>2</sub> e
Car	19809.56	5.05266
Taxi	929.4	0.13813
Bus	812.92	0.0368

Rail	49886.06	2.61016
Underground	147.2	0.0041
Flight	357476.74	63.1699
<b>Total</b>	<b>429061.88</b>	<b>71.01175</b>












With air travel contributing the largest portion of CO<sub>2</sub> emissions, the university’s carbon footprint from travel could be significantly reduced by introducing alternatives modes of travel or offsetting strategies for flights. Rail usage is well utilised and low in CO<sub>2</sub> emissions per mile, whilst car travel is predominant for shorter trips, suggesting opportunities for increasing reliance on public transport, carpooling, or transitioning to electric vehicles. This data offers a useful baseline for SCEF reporting, indicating that air travel emissions are the primary area to address in future sustainability policies aimed at reducing the university’s travel-related carbon footprint.

## 6.2 Campus Travel Survey:

This year the survey ran from 15th May to 21<sup>st</sup> of June 2022, a total of 222 respondents were logged resulting in a small decrease of 9% on last year. Whilst there were not any significant changes in the modes of transport used when comparing the current year's results to those of previous years a positive that can be taken is that there were several small shifts towards the use the use of more sustainable means of transport such as bus, train, and walking.

72.52% of respondents still have a petrol or diesel vehicle available for their commute to work, which is below the county average 79.6%, although only 48.65% drive by car as a single occupant, significantly below the County average. This represents a significant modal shift, as more than 50% of respondents now opt for alternate, sustainable modes of travel when commuting to the university. It is important to note that these figures only provide a snapshot of commuter behaviour at best. Increasing the number of survey respondents, perhaps by extending the time frame, would enable us to obtain a more precise and comprehensive understanding of the evolving travel landscape.












**Image 6:** Most Frequent Travel Modes

Which of these modes of transport do you currently use for the longest part of your journey to travel to the location where you work?				
Answer Choices			Response Percent	Response Total
1	Bus		8.11%	18
2	Car driver - single occupant (whole journey)		48.65%	108
3	Car driver with a passenger/car share (any part of the journey)		4.95%	11
4	Car passenger		3.15%	7
5	Cycle/electric cycle		2.70%	6
6	Motorcycle/moped/motor scooter		0.00%	0
7	Park and ride		0.00%	0
8	Train		7.66%	17
9	Walk/wheel		24.77%	55
10	N/a - currently working at home		0.00%	0
11	None of the above		0.00%	0

When considering which modes of travel are reasonably available the data also shows that 95% of respondents have reasonable access to sustainable modes of transport, but only 51% choose to use those modes. This continues to underscore the significance of regional accessibility, considering the widespread availability and cost-effectiveness of train and bus infrastructure in Suffolk, Norfolk, and Essex


Extending our reach and ensuring equality of campus accessibility remain key priorities and finding ways to make behavioural change. With current staff discounts and safer cycle routes also presented as important push factors for increasing uptake in sustainable travel. Interestingly 34.68% confirmed that walking was reasonably available for their commute to work and a healthy 24.77% used this option for the longest part of their commute.

**Image 7:** Commute Options

Which of the following is reasonably available for your commute to work? Please tick all that apply.				
Answer Choices			Response Percent	Response Total
1	Petrol or diesel vehicle		72.52%	161
2	Electric vehicle		4.05%	9
3	Hybrid vehicle		4.05%	9
4	Conventional bicycle		13.06%	29
5	Electric bicycle		1.80%	4
6	Motor cycle/moped/motor scooter		1.35%	3
7	Bus that runs at times to fit in with my work hours		22.97%	51
8	Walk/wheel		34.68%	77
9	Train that runs at times to fit with my work hours		17.12%	38
10	None of these		0.00%	0
11	N/a - currently working from home		0.45%	1

The proportion of respondents owning an electric or hybrid vehicle has seen a slight increase since last year, likely supported by the staff salary sacrifice scheme and the availability of charge points. The main reason for not owning one continues to be the purchase/lease price with running costs and charge point availability at their place of residence being the other main challenges.

**Image 8:** Car Type

As you currently use a petrol/diesel vehicle, please tell us why you do not yet drive an electric car.				
Answer Choices			Response Percent	Response Total
1	The car might run out of charge during my journey		15.94%	22



2	I'm not sure where to charge an electric car at home (I live in a flat/terraced house or have no parking)		19.57%	27
3	I'm not sure where to charge an electric car at work or away from home		13.04%	18
4	The purchase/lease price is too high for me at the moment		81.16%	112
5	I'm unsure of the running costs (e.g. maintenance, charging costs, insurance)		26.09%	36
6	I don't feel confident in driving an electric car		8.70%	12
7	I also use an electric or hybrid vehicle		0.72%	1
8	None of the above		11.59%	16

The data also revealed that 45% of respondents have 5 miles or less for their daily commute. With 35.58% of respondents using sustainable means of travel suggesting that those within 5 miles broadly use sustainable means of transport with the remaining 55% traveling 5 miles or more likely making up the 48.65% using the car and a further 8.1% car sharing or passenger.

**Image 9:** Travel Distance

What distance do you travel to the location you work at most often?				
Answer Choices			Response Percent	Response Total
1	Less than 1 mile		10.60%	23
2	1 to less than 3 miles		20.28%	44
3	3 to less than 5 miles		14.75%	32
4	5 to less than 10 miles		11.98%	26
5	10 to less than 20 miles		15.21%	33
6	Over 20 miles		25.81%	56
7	N/a - work from home		1.38%	3

## 7. Waste

Our Sustainability Policy sets out our strategic aspiration for waste management and the Waste Action Plan, along with the Draft institutional Procurement Policy outlines the steps we will take to achieve it.

The University manages waste in accordance with the waste hierarchy, which begins with a circular economy approach that seeks to eliminate all waste from arising. Despite the temporary loss of our Waste and Travel Coordinator for most of the academic year. The University of Suffolk is continued to work towards its vision of becoming a zero-waste campus, defined as less than 5% waste going to landfill by 2030. Although we were unable to realise any specific new initiatives, we were able to consolidate and build upon improving our performance against our 2021 baseline data for all waste streams seeking to:

- Reduce by 30% tons of total waste produced by 2027 against 2021 baseline.

- Reduce by 60% tons of total waste produced by 2030 against 2021 baseline.
- Zero waste diverting 95% of waste away from landfill and incineration.

### 7.1 Waste Metrics

Image 10 offers an in-depth look at waste metrics from the academic year. Despite a drop in total tonnage, the overall waste volume remains a significant issue, highlighting ongoing challenges for procurement processes and asset planning.

**Image 10: AY 2023/24 Waste Performance**

	2019/20	2021/22	2022/23	2023/24
	<i>Actual</i>	<i>Actual</i>	<i>Actual</i>	<i>Actual</i>
<b>All Waste in tonnes</b>	153t	149.7	148.2 t	<b>119.76 t</b>
<b>Reduction from 2019 baseline: 153.7t</b>	0%	2.1%	3.1%	
<b>Carbon emissions Scope 3 (tCO<sub>2</sub> e)</b>	-	22 tCO <sub>2</sub> e	8.2 tCO <sub>2</sub> e	<b>3.78 tCO<sub>2</sub>e</b>
<b>Recycling Figures</b>	90%	90.1%	94.7%	<b>93.42</b>

Total waste mass for AY22/23 decreased from 148.20 tonnes of total waste to 119.76 tonnes, of which 93.42% was recycled and 4.8% sent to landfill. Total waste arisings produced 3.78t CO<sub>2</sub>e carbon emissions. An additional 3.37t of furniture was diverted fully from the waste stream, through our value retention programme saving 2.07 tCO<sub>2</sub>e.

### 7.2 Procurement

The university has made significant strides in integrating sustainability into its procurement processes. By prioritizing responsible procurement practices, we are ensuring that both environmental and social value considerations are central to our operations. The following measures have been implemented to advance these goals:

- **Responsible Procurement:** Responsible procurement for sustainability and social value was embedded into both the soft and hard FM contract tender process, in addition to the BMS and sub metering specifications with requirements for carbon reduction commitments and evidenced action planning for carbon and waste in line with both the organisation’s and our KPIs.
- **Sustainability Management:** All estates service providers are now required to work towards sustainability management through the NetPositive Supplier Engagement tool and to develop and implement Sustainability Action Plans as part of contract management a core element of which are there waste management arrangements and adherence to the Waste Hierarchy requirements.

## 8. Campus Biodiversity

This year marked the completion of our first Biodiversity Plan, with significant progress achieved across the estate. Beyond boosting ecosystem health and increasing local species diversity, this plan highlights biodiversity as a vital pillar of sustainability, one that uniquely invites individuals into broader discussions about sustainable practices. The initiative has also positively impacted the health and well-being of our campus community, where engagement has been especially strong.

The following projects have been instigated this year to great success:

### **8.1 Campus Signage**

We have installed four information boards at key locations across campus, each offering insights into the diverse wildlife and specially planted areas. These signs are located at the Wildflower Meadow, Bee Buffet (emphasizing our bee conservation efforts), and the Physic and Wildlife Garden.

This signage plays a vital role in enhancing biodiversity literacy among our community, helping people understand the ecological value of these spaces. By providing context, the signs encourage appreciation for habitats that might appear "scruffy" or unmanaged out of season, clarifying that these areas are intentionally designed to support local wildlife and sustain greater biodiversity. Through this initiative, we aim to build a deeper connection with our environment and inspire a sense of stewardship on campus.

### **8.2 Wildflower Meadow**

In the third year of our Wildflower Meadow project, we entered a pivotal phase of its development. This autumn, we overseeded selected areas while allowing other sections to establish naturally through self-seeding, a strategy designed to bolster biodiversity and uphold the meadow's ecological integrity. However, as the meadow has matured, an increase in grass dominance has emerged, indicating a need for focused maintenance in the upcoming academic year. This has underscored the importance of adaptive management in our urban meadow, particularly on what has been a densely compacted brownfield site for centuries—providing invaluable insights into urban meadow restoration. Our plans for the meadow always attract a considerable amount of internal and local community interest, in 2024/25 we plan to:

- To address the increase in grass cover and encourage wildflower diversity, we will implement selective grass management techniques, such as targeted cutting or spot treatment. These approaches will reduce competition from aggressive grass species, giving native wildflowers the opportunity to thrive and establish a more balanced ecosystem.
- As the site's compacted soil continues to challenge plant diversity, we plan to undertake limited soil decompaction in targeted areas. Additionally, careful nutrient management, including organic matter reduction, will be employed to create a more favourable environment for wildflowers and discourage further grass dominance.
- We will enhance our monitoring schedule to track species composition and overall meadow health across seasons. Based on these observations, we'll adapt our planting strategy, introducing native, low-maintenance wildflower species that can sustain a more stable and resilient meadow community.

Key to our success will be the expansion of our community and student involvement, we will integrate educational sessions about urban meadow maintenance and biodiversity. Engaging stakeholders in this way will raise awareness about the ecological functions of meadows and help build a collective sense of stewardship.

### **8.3 Wellbeing Allotment**

The Wellbeing Allotment, a recent and thriving addition to our campus, has seen remarkable growth and success this year with over 120 people attending its official launch this in September. Established by the Estates Sustainability last academic year, the project now includes an active staff allotment group, with plans to launch a Student Society in AY 2024/25.

Monthly volunteer sessions have seen a steady increase in participation, provide an inclusive space for staff and students to engage with sustainable practices, build community connections, and support personal well-being. The allotment has become a versatile resource for the campus, hosting mental health sessions, one-on-one teaching engagements, sustainable food events, and numerous community tours. This year, the allotment produced an abundant crop yield, with surplus produce shared through the student union to benefit the student community. This effort not only supports healthy eating on campus but also promotes a deeper awareness of sustainable food production and food security.

In line with our commitment to circular economy principles, the allotment benefits from the compost created through our onsite campus food waste composting system. This closed-loop composting practice transforms organic waste into valuable compost, enriching the allotment soil and reducing campus waste. The Wellbeing Allotment continues to stand as a model of sustainability in action, enhancing the campus community's understanding of food systems, ecology, and well-being.

## 9. Engagement

Over several years, the University of Suffolk has developed strong external collaborations, and this is a guiding principle for our sustainability work. Our engagements and events bring together students, academics, technologists, and non-academic stakeholders in the public, private and third sector. This engagement enables us to undertake knowledge exchange, impactful research, drive innovation and enterprise, and influence policy.

### 9.1 Metrics

A total of 412 participants, 269 staff, 97 students, and 46 external guests participated in 13 training events covering various topics like climate literacy and waste management. These sessions aimed to embed sustainability deeper into Institutional awareness, exchange knowledge and understanding and enhance campus operations and processes.

### 9.2 Student Micro placement Interns

The sustainability team was pleased to collaborate with two groups of micro-placement students this year, engaging a total of 13 participants across various projects. In total, five micro-placement students contributed over 460 hours of contact time, assisting in the implementation of a diverse range of initiatives. Their involvement included support for the Switch Off Campaign, event coordination, promotional filmmaking, and the efforts of our Magnificent 7 philanthropy-funded students.

Additionally, the Build Your Sustainable Future Micro-Placement initiative was introduced as a one-off opportunity in celebration of the Year of Sustainability. These placements consisted of 40 hours each, providing students with additional mentoring and support from the Sustainability Team. The CEE Team delivered two one-hour sessions: a Pre-Placement Workshop focusing on navigating a professional workspace and an Evaluation and Reflection Workshop at the conclusion of the placements, which enabled students to identify and articulate the skills they developed. Of the seven Build Your Sustainable Future Micro Placements, four were integrated into projects that addressed broader university challenges related to travel, habitats, and BECE management, effectively spreading key sustainability messages across the campus. Furthermore, three positions were dedicated to piloting an innovative approach proposed by students evaluating the accessibility and awareness of

green spaces on campus. They developed a comprehensive communications and campaign package aimed at increasing student engagement. The outcomes of these initiatives not only enriched the student experience but also made meaningful contributions to the university's sustainability Action Plans.

### **9.3 Tour of Brickmakers Wood**

An afternoon tour of Brickmakers Wood created a good opportunity for 30 members of staff to see first-hand some of the great work being undertaken by our campus resident charity Eden Rose Coppice Trust. Throughout the year ERC has continued to work with course leaders in providing curriculum opportunities across a range of degrees. The woodland has also played host to an additional number of staff meetings and team building events.

### **9.4 The Make a Difference Social Enterprise Boot Camp:**

Provision of support and advice to bootcamp attendees in collaboration with the Business Engagement and Entrepreneurship Team.

### **9.5 Awards and Nominations**

The university is proud to be recognised for its commitment to sustainability and environmental stewardship. This year, our efforts toward achieving net zero and waste reduction are reflected in the following accomplishments:

- People and Planet - top ten in the University Sector for Waste and Recycling 2023/24
- East Anglia Daily Times shortlisted for the Environmental and Sustainability Award 2024

### **9.6 Policy and Public Sector Engagement**

Sustainability estates continues to support and lead on a number of county and wider sector working groups. Key collaborations are as follows:

- Suffolk Climate Change and Energy Board Member
- Co-Chair of the SCC Climate collaborative Action working group
- Chair of the Climate Education sub -group
- Higher Education Procurement Association – RPG CEW (Circular Economy and Waste / Packaging Reduction) Sub-Group
- Chamber of Commerce – LSIP Working Group - Climate Adaptation Net Zero
- Transport East Strategy Hub member

### **9.7 SCC Suffolk's Youth Climate Conference**

As a collaborative partner in the Suffolk Climate Change Partnership, the university contributed to the actionable outcomes outlined in the Suffolk Climate Emergency Plan by supporting and showcasing its initiatives at Suffolk's Youth Climate Conference. This conference allowed young individuals to share their perspectives on issues that will significantly influence their future.

## **10. Suffolk Sustainability Institute**

Under the directorship of Professor Darryl Newport, the Institute has built a solid stable core around its key research themes. We have attracted several key researchers and continue to build a formidable team from within to lead on our future growth. The team are working collaboratively on several key regional and national projects and since the re-inclusion in Horizon have been invited to partnership opportunities in Europe. The Institute continues to provide additional research, and consultancy; supporting innovation and enabling knowledge transfer and skills development for business,

community and policymakers, within Suffolk and through its UK-wide established networks, building a knowledge base that has clear benefit to all its current and future partners.

### 10.1 Areas of Specific Research Interest

The SSI (Suffolk Sustainability Institute) is currently supported by two Research Fellows (in post from Feb 2022), a Research Associate (in post from August 2023), a Research Administrator (in post from October 2022) and a Research Project Administrator (from August 2024 to March 2025). The Institute currently has four PhD students using a range of funding processes, one of whom has recently defended their thesis at viva voce. Research is focused interest on specific themes:

- **Sustainable Healthy Communities:** The focus of the SHC theme is the health of the community, how individuals, organisations and the built environment contribute to this. This aligns with ongoing work with the Dunhill Medical Trust, University College London and the Centre for Alternative Technology.
- **Green Infrastructure:** Interactions between the built environment and the natural environment. This includes the proposal (in development) with Suffolk County Council on impact of highways management on biodiversity, wider developing research themes with lecturers on anthropogenic impact on biodiversity, water and air quality. The SSI is working closely with the Church of England on developing a Net Zero programme for their organisation.
- **Natural Systems:** air, water, land and life in our region and beyond includes collaboration with local authorities, community including citizen science groups, and other stakeholders. Development of research on understanding and management of air quality in Suffolk.
- **Smart House at Adastral Park:** Developing use of facilities at the Smart House to enable research projects with collaborators with other universities (including Herriot Watt, Manchester, Edinburgh) business (including BT, Sustainable Drainage Solutions, Aardra Systems, Connected Energy) and further development of sensor and data systems.

### 10.2 Conferences and events including International SEEDS (Sustainable Ecological Engineering Design for Society) Conference

- Presented at the SEEDS Conference at Leeds Beckett University on 'Outputs of the Almshouse Resilient Communities'
- Keynote presented at the Almshouse Association annual conference
- Presented at South East New Energy (SENE) conference focused on Helping Communities Deliver Net Zero Housing
- Winners SEEDS 2024 Chair's Award
- Hosted the Landlords Conference 2024 allied to the Safe Suffolk Renters project
- Successfully delivered at University of Suffolk the International SEEDS conference 2023 at which over 70 papers were presented over a three-day programme.
- Organised and ran one Challenge Labs focused on Air Quality and online event supporting the Suffolk Air Quality Network both included active multi-organisational participation and ongoing community involvement.
- Participated in BT's National Sustainability Festival, including keynote and panellists for Symposium for Institute of Engineering and Technology
- Keynote presented at Close Look Distant View Symposium
- Presented at Eastern Region Colleges Net Zero Conference

### 10.3 Contributions to peer-reviewed papers, book chapters, conference proceedings, other publications

- **Comparative Assessment of Insulation Materials for Improving Indoor Air Quality in Building Retrofit.** Environmental Science & Sustainable Development; Vol. 9 No. 2 2024 | Journal article  
DOI: [10.21625/essd.v9i2](https://doi.org/10.21625/essd.v9i2) Part of ISSN [2357-0849](https://doi.org/10.21625/essd.v9i2) Contributors: Narayanan, V; Hashemi, A; Elsharkawy, H; Newport, D; Basaly, L.
- **Evaluating thermal comfort and overheating risks in a social housing prototype: As-built vs Retrofit Scenarios.** Environmental Science & Sustainable Development; Vol. 9 No. 2 2024 | Journal article  
DOI: [10.21625/essd.v9i2.1073](https://doi.org/10.21625/essd.v9i2.1073) Part of ISSN [2357-0849](https://doi.org/10.21625/essd.v9i2) Contributors: Basaly, L; Hashemi, A; Elsharkawy, H; Newport, D; Badawy, N.
- **Almshouse Resilient Communities (ARC) for the Future project.** United St Saviours Charity | Online resource Contributors: Callahan, E., Murtagh, N., Pannell, J. & Pooley, A. (2024) The Knowledge Hub on Resilience in Almshouse Communities. <https://www.ustsc.org.uk/arc-for-the-future>
- **Bridging the Global North and South for Sustainable Environmental Governance: Equitable Resource Sharing, Citizen Science, Technology Transfer and Cultural Synergy.** SEEDS 2024 | Conference Proceedings. Contributors: Egbegbedia, U.; Ndonon, P.
- **Does distribution and type of aid affect internal migration following a cyclone? Evidence from Bangladesh** DOI: [10.2139/ssrn.4468245](https://doi.org/10.2139/ssrn.4468245)EID: 2-s2.0-85161107163 Part of ISSN: [15565068](https://doi.org/10.2139/ssrn.4468245) CONTRIBUTORS: Mustafa, S.; Newport, D.; Rigg, C.; Islam, Md.S.
- **Impact of the Covid-19 pandemic on microplastic abundance along the River Thames** Marine Pollution Bulletin 2023 | Journal article DOI: [10.1016/j.marpolbul.2023.114763](https://doi.org/10.1016/j.marpolbul.2023.114763) EID: 2-s2.0-85148763036 Part of ISSN: [18793363 0025326X](https://doi.org/10.1016/j.marpolbul.2023.114763) CONTRIBUTORS: Devereux, R.; Ayati, B.; Westhead, E.K.; Jayaratne, R.; Newport, D.
- **“The great source” microplastic abundance and characteristics along the river Thames** Marine Pollution Bulletin 2023 | Journal article DOI: [10.1016/j.marpolbul.2023.114965](https://doi.org/10.1016/j.marpolbul.2023.114965) EID: 2-s2.0-85153505966 Part of ISSN: [18793363 0025326X](https://doi.org/10.1016/j.marpolbul.2023.114965) CONTRIBUTORS: Devereux, R.; Ayati, B.; Westhead, E.K.; Jayaratne, R.; Newport, D.
- **Post-cyclonic migration in coastal areas: An assessment of who, where why migrates, and barriers to migration** International Journal of Disaster Risk Reduction 2023-04 | Journal article DOI: [10.1016/j.ijdrr.2023.103726](https://doi.org/10.1016/j.ijdrr.2023.103726) Part of ISSN: [2212-4209](https://doi.org/10.1016/j.ijdrr.2023.103726) Contributors: Mustafa, S; Newport, D; Rigg, C.
- **Community resilience; people, place, and practice** SEEDS 2023 | Conference proceedings Contributors: Pooley, A; Murtagh, N; Callahan, E; Pannell, J; Benzimra, A.

### 10.4 Grant Funding and Applications

#### Current Funding:

- Safe Suffolk Renters (£175,000) housing and health in the private rented sector
- Almshouse Resilient Communities, in collaborations with UCL (University College London) funded by Dunhill Medical Trust (£300,000)
- H2BECCS, social value in development of hydrogen fuels, DESNZ (£70,000)
- ESSNET (Essex Net Zero Task Force) Stage 1 UKRI (United Kingdom Research and Innovation) (£5,000); Stage 2 application in progress at interview stage (£250,000)
- UK Space Agency Optical Communication Lab (£2.45M)
- ARISE: Resilient Coastal Communities and Seas, collaboration with Eastern ARC, UKRI, (£215,000)

- Local Government Association NZIP (Net Zero Innovation Portfolio) with West Suffolk Council (£12,000)
- CRF challenge fund project with Natural Building Systems (£5,000)
- MRC (Medical Research Council) in collaboration with UEL (University of East London), Kingston University and UoS for Indoor Air Quality Monitoring on newly retro fitted residences (£15,000)
- Smart House building management system funded by LISF (£70,000)
- Essex Pioneering Places Research in collaboration with University of Essex, Essex County Council and others funded by Innovate UK (£4,800)
- Collaborative Climate Pathways including 16 short films of climate walks in Ipswich funded by UKRI Higher Education Innovation Funding (HEIF) (£12,000)

*Applications submitted:*

- Expanding understanding in valuing Nature-based Solutions (Nbs) in collaboration with UEL (£1.6 million ESRC (Economic and Social Research Council) grant application)
- Vertical Farming Solutions, BBSRC (Biotechnology and Biological Sciences Research Council) collaboration with Suffolk New College (£200,000)
- Local Industrial Decarbonisation Programme collaboration with NALEP (£50,000)
- Horizon Europe construction of 3 smart house at various locations

*Applications in preparation:*

- Developing application to ESRC for Secondary Data Analysis regarding impacts of sewage overflows on gastrointestinal disease prevalence.
- Exploring application with Groundwork EAST to Natural England for Citizen Science Hub
- Developing application to ESRC for Building Resilience in Healthy Ageing

### **10.5 Internal engagement projects/initiatives**

- Collaborating with IHW re potential future bids to develop external links with Andrew Urquhart (NHS (North Essex and Suffolk)) and Philip Shelton (AHSN)
- Working with colleagues within the School of Technology, Business and Arts (computing) on student projects for Digitech Smart House.
- Research presented at R&KE UoS conference in June 2023
- Biodiversity with School of Allied Health Sciences: Dr Mark Bowler

### **10.6 External Businesses and Partners**

- Developing further research collaboration with Sizewell C and have proposed several PhD opportunities led by our new Honorary Fellow, Dr Peter Bryant, Head of Environment, Decommissioning and Radiation Safety at Sizewell C
- Wide ranging engagement with local authorities, participation on air quality including funded project on Air Quality and Planning Policy with West Suffolk Council
- Developing collaboration with local/regional hemp and bio-based material producers and product developers

### **10.7 Outreach and Community**

Staff are members of:

- Sustainability trustee of John Milton Academic Trust
- Trustee of local almshouse charity



- Youth Outreach as STEM Ambassador including ESA “Mission Zero” environmental monitoring code to space and BT’s British Science Week materials
- Members of Greener Ipswich
- Contributing to the Suffolk Climate Emergency Plan main and sub theme groups
- Member of Suffolk Air Quality Group and Suffolk Air Quality Network

### **10.8 Engagement Activities Curriculum - HEI/FE**

- Work is underway with colleagues in School of TBA to develop undergraduate and postgraduate curriculum for engineering/architecture/built environment
- Development and organisation of annual Data Hackathon for computing and data students (Feb 24)

### **10.9 SMART house emerging case studies and research projects**

Work in Smart House continues to include development as research and educational facility. Projects are being broadly developed by:

- Three undergraduate and two post-graduate dissertation projects
- BT independent projects
- Liaison with BT and other partners
- Liaison with multiple technology providers
- Collaboration with local authorities
- Preliminary discussion with international PhD project
- Internet-of-things sensors; data gathered is shared nationally and internationally.

Natural Building Systems (NBS) project continues to develop with further opportunities for investment and research, in collaboration with NBS Ltd. To observe the fabrication, build and installation of an innovative zero-carbon test building, utilising biobased insulation materials and modern methods of construction at the BT Adastral Park in Ipswich as part of the University of Suffolk Sustainability Institute. Funded by New Anglia LEP (Local Enterprise Partnerships) through the UK Government’s Community Renewal Fund, the project aims to demonstrate the feasibility of this manufactured construction and assembly solution together with the potential for buildings to act as net carbon sinks.