

Sustainability Report 2019/20

Executive Summary

This report summarises the key environmental sustainability initiatives and outcomes from the University's activities in the academic year 2019/20.

As might be expected, the Covid-19 pandemic has significantly impacted on the University's environmental performance during the year, not least resulting in a significant drop in carbon emissions from March 2020 when most University buildings were required to close. However, this should not detract from a very positive underlying picture of ongoing improvements in energy usage and management, including the achievement of demanding environmental performance targets.

The University remains committed to delivering further ongoing improvements, not only in its carbon emissions performance, but also in its broader contribution to the environmental debate affecting our whole society. This dual commitment will be demonstrated by the University's active consideration of the environmental impact of all aspects of its operations and by the institution's continuing partnership and connectivity with key local and national bodies.

The headlines of the University's Sustainability Report 2019/20 include:

- Significantly outperforming a challenging sector target of 43% reduction in carbon emissions over the period 2015 to 2020, measured against our 2010 baseline.
- An established ongoing programme of energy performance improvements across the campus, including the adoption of energy efficient lighting and solar panel installations at University buildings.
- Substantial improvements in the monitoring and management of its water supplies.
- Placing energy efficiency at the heart of its building and refurbishment programme, including the East Building renovation and partnering with Suffolk County Council over the energy efficiency opportunities offered by construction of The Hold.
- The design and development of the Digitech Centre at Adastral Park in partnership BT, featuring the EcoLab as a design exemplar for sustainable construction and smart technology demonstrator.

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1. Introduction

The University of Suffolk continues to strengthen its commitment to sustainability within the framework of the United Nations Sustainable Development Goals (SDG's) and during 2020 reviewed and reissued its Sustainability Policy Statement to further align our strategic direction with these aspirations. Future reports and sustainability policy documents will identify and cross reference against the goals to ensure that we manage and monitor our activities within this framework.

Building on previous year's successes, we continued to tackle new challenges throughout 2019/20, not least of which was the impact of Covid on both our community and our campus. The effects of this can be seen within this report through a much reduced environmental impact.

A particular focus for this year has been on climate and biodiversity and it is hoped that this report will present both an insight into our overall operational performance and an overview of some of the more significant initiatives that have taken place over the academic year 2019/20; highlighting our achievements against our institutional environmental KPIs and wider environment and partnership sustainability activities. Reported impact outcomes encompass our campus operations, learning and teaching, research and external partnerships community engagements.

2. Carbon and Utilities

This section covers our performance over the academic year and presents those significant low carbon initiatives implemented during this period. In 2010, the Higher

Education Funding Council for England (HEFCE) set the sector a target of reducing its carbon emissions by 43% by 2020 against institutional baseline data; we are now at the end of this period and this report will also evaluate our performance against this target, whilst looking forward towards the next steps required to define and develop our future Carbon Plan to ensure our ongoing commitment to carbon reduction and utilities management. An important output of 2020/21 will be a renewing of our commitment to carbon reduction through the setting of a new target.

Energy use and low carbon impacts and policy continue to be an important factor for the University of Suffolk. Our strategic management during the last five years has sought to address the environmental and financial risks, shaped decisions about estates strategy, whilst also influencing student engagement and research focus. These will remain essential features of our strategy as the Executive and the Estates team develop our next Carbon Plan.

2.1 Emissions

In 2015 the University of Suffolk committed to reducing its energy-related carbon scope 1 & 2 emissions (ie. gas and electricity) by 43% by 2020 against its 2010 baseline of 2704t CO₂e. At the end of this period we can report that we have been successful against this institutional and sector based KPI.

Table 1 presents the target progression from 2015 to 2020. Undeniably, our performance in 2019/20 can be largely attributed to campus closure stemming from the coronavirus pandemic. This had significant implications for our energy use and CO₂ emissions. Analysis of monthly data through mid-March to July shows that the University experienced an average 53% decline in energy consumption per month, affording us some insights as to the heating consumption demand required to ‘tick over’ a predominately empty infrastructure.

Table 1: Carbon Reduction: University of Suffolk Sector Baseline KPI

	2015/16		2016/17		2017/18		2018/19		2019/20	
	Target	Actual	Target	Actual	Target	Actual	Target	Actual	Target	Actual
Reduction in carbon emissions Scope 1&2 (tCO ₂ e)	2,030	2,032	1,894	1,896	1757	1,151	1,622	1,145	1,541	940.27
Reduction from 2009/10 baseline: 2,704 tCO ₂ e	25%	25%	30%	30%	35%	42%	40%	57%	43%	65.23%

However, an estimate of our ‘unaffected’ energy consumption (factoring in consumption to March 2020, previous year’s emissions trends and the energy efficiency measures implemented on campus) suggests that even without the impact of Covid, the University was likely to have achieved cumulative carbon reduction between 54% and 57%, significantly outperforming the 43% KPI target.

Our performance during the year can be further defined in terms of emissions per GIA/m³ and per staff/student FTE, with comparisons against previous years' data presented in Table 2. Between 2016 and 2020 this shows a 22.68 kg CO₂e reduction per m² of GIA across the estate, and a decline of 199.43 kg/person for total staff/student FTE.

Table 2: Emissions per GIA and FTE

Emission Definition	2016/17	2017/18	2018/19	2019/20
Emissions per m ³ of GIA	57.41 kg CO ₂ e	56.30 kg CO ₂ e	42.98 kg CO ₂ e	34.73 kg CO ₂ e
Emissions per FTE staff & Students	472.50 kg CO ₂ e	456.76 kg Co ₂ e	329.24 kg CO ₂ e	273.07 kgCO ₂ e

For external reporting purposes, annual carbon emissions are expressed by applying BEIS Government Conversion Factors for greenhouse gas (GHG). For the University of Suffolk, this produces total emissions of **964.8 tCO₂e**. The conversions applied for Scope 1, 2 and 3 (water and waste) emissions are shown in Table 3 below.

Table 3: University of Suffolk Emissions 2019/20

	KgCO₂e	tCO₂e
Scope 1		
Gas	313209.02	313.209
Scope 2		
Electricity	627067.46	627.067
Scope 3		
Water Con	6905.8	6.905
Water Sew	9930.4	9.93
Waste	7669.6	7.67
	964782.28	964.781

2.2. Utilities Costs and Consumption

The impact of campus closure due to Covid are observable in utilities costs and consumption for the year. Overall energy and water costs, after adjustments, were £557,612 in 2019/20, a decrease of 20.1% from the previous year. Our electricity costs were down 17%, gas costs down 34.6%, whilst water costs fell by 4%. Again these figures are a reflection of campus closure. Reductions for water were less significant as whilst

we changed to more accurate billing through the year, overall water consumption increased.

Our energy contracts continue to be managed by Vertas as part of a procurement consortium with Suffolk County Council. Overall combined consumption figures for gas and electricity were 4,156,927 kWh for 2019/20, a decrease of 21.07% on the previous year. Electricity consumption was down 21.8%, gas consumption down by 19.9%, with water consumption up by 12.7%. Water consumption data will be discussed in more detail later in Section 5 of this report.

3. Display Energy Certificates

Display Energy Certificates (DECs) are designed to show the energy performance of public and University buildings (Table 4). They use a scale that runs from 'A' to 'G' - 'A' being the most efficient and 'G' being the least. Although there is no specific target set for the proportion of rated University buildings, there is a sector expectation to obtain an average DEC rating of D or better. The DEC Assessment is not due until March 2021 and therefore, due to timing of this report the ratings and certificates remain the same as 2018/19.

DEC assessments are an invaluable tool for helping us understand the efficiency of our buildings and the effectiveness of energy efficiency measures. Performance improvements this year are observable within the Arts Building due to the roll out of LED lighting and infrastructure maintenance and upgrades. A small improvement has also been registered in James Hehir Building, placing the building on the boundary of the E/D rating (which moves up to category to D at 100), again following LED lighting installation in the stairwell and monitoring of the PIR lighting system.

Table 4: *Display Energy Certificates Performance and Comparison*

Building	DEC rating 2019/20	DEC rating 2018/19	Floor area (m ²)
Arts	B	C	3727
Atrium	B	B	11293
James Hehir	E (101)	E (118)	3649
Waterfront	C	C	10680

The nature of the usage of the University's 'newer' buildings (Waterfront and James Hehir) including server rooms, cafes etc, does present challenges in bringing these to the efficiency standard established in the fully refurbished Arts and Atrium buildings. However, opportunities for improvement are being exploited, including upgrading lighting and commissioning a building energy load profile study. This should identify

further enhancements in energy performance within the constraints of the current usage and the necessary server room requirements.

4. Carbon and Climate Initiatives

Lighting upgrades continue to be deployed across the estate with the Library, James Hehir stairwell and part of the Arts Building now complete. Automatic sensor controls and LED will continue to be rolled out as new areas are subject to refurbishment. Reduction in lamp procurement is now observable due to the additional longer life and lower maintenance cost of LED in comparison with standard lamps. Additionally, these works have improved the visual appearance of the areas upgraded, enhancing teaching and learning environments. Payback from the LED lighting Waterfront project in 2018 has almost been realised, although this still remains our most carbon intensive building.

The SCCP Solar Panels on the Atrium roof have realised a carbon saving of 20.3tCO₂e, offsetting the Scope 3 carbon emissions from our water consumption and sewerage, whilst contributing to the overall DEC performance of the Atrium building.

Project management is currently underway for the installation of a University owned Solar PV System on the library roof, estimated to contribute to a reduction of approximately 12.7tCO₂e per annum.

Works to remove the inefficient gas boiler opposite the Arts Building are now complete, although we will require a few more months' of building usage before we can evaluate energy efficiencies with any assurances. The Arts Building heating system now runs off new air conditioning units which transform 1kW of incoming power to 3.1 kW of heat. Each unit is equipped with sensor technology that monitors room occupancy and adjusts the temperature accordingly. Library heating is obtained from three new condenser boilers connected to internal and external sensors, these similarly control internal heating requirements as occupancy and outside air temperature fluctuate.

Double-glazed argon-filled window replacements in the library were fitted between June and September 2020, which will realise additional energy efficiencies in 2020/21. Coupled with the thermal benefits of the newly refurbished roof, temperature increases in the Library are now evident and exceed thermal comfort. A contractor will be commissioned to recalculate heat retention due to these primary elements and radiators removed, or thermostats replaced.

Project management for the Hold battery storage facility is nearing the completion of its first milestone and it is anticipated that groundworks will commence in November 2020. This advanced storage technology has the potential to meet the new stresses of increased use of electric heat pumps, electric vehicles and micro generation on our aging transmission and distribution networks, operating more cost-effectively than would be possible through traditional methods of grid reinforcement and fossil-fuel powered system balancing capacity. This facility will realise benefits to both Suffolk County Council and the University throughout the building's life cycle, with reduced carbon emissions

and utility costs apportionment; whilst providing research and curriculum opportunities and a potential revenue of £6.5k pa.

4.1 Travel Plan

The Travel Plan for 2019 – 2024 was completed in 2019/20 in collaboration with Estates and the Student Union, with an accompanying rolling Action Plan to progress implementation. Assistance was additionally given to the SCC Heritage Team between January and April 2020 to support them in the production of their Transport Plan for the Hold.

4.2 Electric Vehicle (EV) Charging

Electric vehicle charging forms an important part of our Travel Plan as we move towards national decarbonisation, future scenarios regarding technology change, modal shift and the evolving travel requirements of the University population. In addition to providing charging points, through data capture we will be able to create a Living Lab that facilitates the evaluation of flexibility in energy demand as the carbon-intensive transport sector seeks to move towards 'net zero'.

University Car Park

Installation began on the University Car Park (Long Street) to install 4 chargers, one of which is allocated to disabled drivers. These were funded through Capital Growth and OLEV funding.

These units form an actionable part of our Travel Plan 2019 – 2024, with modal shifts in sustainable travel targeted to ensure improved scope 3 CO² and local air quality emissions. Data capture software will enable us to monitor usage and measure uptake, further informing additional EV installation requirements over time. The Sustainability Manager has been mentoring a 3rd year Politics and History micro placement student throughout 2020, who will continue to work with Estates in developing the EV Charging User Operational Procedure.

Digitech Centre

In partnership with BT, further EV charging units will be installed in the Autumn of 2020 at the Digitech Centre at Adastral Park, currently under development.

In addition to the installation of 8 charging units, collaborative work initiated in April 2020 with Trusted Renewables and Connected Kerb, seeks to create an innovative circular economy, EV infrastructure project, with test bed and research capacity.

The project will test and further develop software integration for the energy sector, data security and governance; focused on a highly scalable/replicable EV car parking solution which is fast and cheap to implement. In addition to accelerating a low carbon transport transition, the project will integrate advanced EV charging infrastructure with a Digital Energy Platform (DEP), Smart Power Systems' energy storage and smart solar panels, linked via cloud-based Distributed Ledger Technology (DLT).

4.3 East Building

Following approval to proceed, work has commenced on the East Building refurbishment, with re-roofing substantially completed by July 2020.

Additionally, energy efficiency improvements to be implemented in the project will include:

- LED lighting throughout;
- replacement argon filled double glazing, which present a substantial aspect of the building façade;
- mechanical heating and electrical services tenders are currently being sought which will further inform potential benefits.

The permanent nature of the University estate allows for longer-term investment horizons, but also presents the challenges of legacy buildings. Bringing back the East Building into commission highlights the principal challenge between growth of the estate and emissions reduction. This important improvement to our estate and enhancement of student experience is essential to the growth of the University; but will have a direct impact on our utilities costs and carbon emissions. The GIA for the East building is currently 4356m², utilising the 2018/19 emission per m³ of 42.98 kgCO₂e, we can therefore hypothesise an uplift of an additional 187,220 kg CO₂e per annum.

The relationship between capital cost and whole life cost will be explored, ensuring that operational cost benefits are linked where possible to the capital costs of renewable infrastructure. Installation costs are currently being explored for the inclusion of further solar PV on the East Building roof and potential funding streams sought.

4.4 DigiTech Hub: Eco Demonstrator

During 2019/2020 the design stage of the development of the EcoLab at the Digitech Hub Adastral reached completion, with planning submitted early August 2020. This project comes as part of a larger collaboration between the University, Studio Manifest and BT through which a digital skills and innovation hub is currently being constructed within Oberon House. The EcoLab is intended as a design exemplar for sustainable construction; a compact two story, two bedroomed house, will be used as a 'living laboratory' and smart technology demonstrator by the University and its partners. Sustainability in terms of infrastructure and operation lies at the centre of this initiative, with low to no carbon outputs central to the project.

4.5 Suffolk Climate Change Partnership

The University is an ongoing member of the Suffolk Climate Change Partnership and since 2019 has been supporting the Partnership and its membership in the development of the Suffolk County Council (SCC), Climate Emergency Plan to deliver carbon neutrality by 2030.

Phase 1 of this work was part of a wider process which sought to develop and engage stakeholders on the Climate Emergency Plan. In September 2019 overview discussions were held with the University and the County Council's Cabinet Member for Environment and Public Protection and in March 2020 the University hosted a Stakeholder Workshop, delivered by Ricardo Energy to assist in the capture of further feedback.

SCC have now developed the evidence base required to define broad actions to meet net zero carbon emission and air quality co-benefits. The University will further support Phase 2 of the Plan development, which will focus on community engagements. Providing advice and input for 6 virtual engagement workshops. The Community Action and Schemes workshop is of particular focus for the University, with proposed student engagement in the Autumn of 2020.

4.6 Greenest County Carbon Charter

Sustainability Estates continues to support the Greenest County Carbon Charter Awards as an assessor on the Awarding Panel and evaluated 8 new successful organisations during 2019/20.

5 Water

An in-depth review of water usage and billing was conducted in December 2020 to investigate unpredictable water billing from the supplier. This revealed billing had been occurring against estimated supply for a number of years, with infrequent reading verifications from Anglia Water.

A subsequent survey of the site's water network was undertaken, leading to the implementation of a number of management and infrastructure solutions, including automatic metre readers allowing constant monitoring of water use and assisting with managing water usage.

6. Waste

Activities relating to waste management are reported directly into Estates Meetings on a regular basis, with annual returns made to HESA through the EMR. The main principles behind the Estates waste management strategy are based on the Waste Hierarchy and the circular economy. In order to ensure this, Estates is increasing its focus on substantially reducing waste generation through prevention, reduction, reuse and recycling. This is a key challenge for the University as a whole and we still have considerable work to do in communicating this message beyond Estates.

Total waste mass has decreased from 153.790t in 2018/19 to 106.937t in 2019/20, with campus buildings closure during lockdown having a positive impact on these figures. Our recycling rate remains at 90% in line with last years achievement. However, due to the removal of obsolete stockpiles from the East Building ahead of refurbishment, the figures are not as low as are expected to be achieved in future.

Comparisons against sector performance will not be possible until data sets are returned and analysed by either HESA, or the Office for Students in May 2021.

Waste Management Practices

The University already achieves a high diversion from landfill rate. During this year less than 8% was sent on to energy recovery facilities, with the remainder recycled. Other wastes such as clinical and laboratory wastes are collected via our licensed contractors for further treatment. Contractors are specifically chosen for their ability to recycle, or re-use materials within our more complex waste streams.

Reducing, reusing, and recycling our waste generates significant environmental and economic benefits. The Facilities team performs many of the day-to-day handling and removal services as well as the contract management for the primary recycling and waste companies. Working with the Sustainability Manager, Estates has been able to make many improvements to our smaller waste streams. The keeping of records and collection of data has improved considerably and we are now in a better position to understand waste characterisations and quantities across the Campus, thereby improving our program of diversion from landfill.

Therefore whilst our recycling rate is significantly above the HE sector average, it is essential that we ensure consumption and use of resource patterns are strategically addressed moving forward if we are to decrease our annual total waste mass figure. The strategic waste management focus for AY 2020 to 2021 is to reduce waste generation at source and target procurement opportunities with University Schools and Professional Service Teams.

7. Campus Biodiversity

As part of its Sustainability Policy, the University of Suffolk is committed to ensuring that sustainability and biodiversity opportunities are identified and implemented when considering land use, development, and construction practices in the way in which the Campus and University Estate is managed. The University Biodiversity Plan 2019 – 2024 was completed in December 2019, with a rolling Biodiversity Action Plan underpinning it. It sets out the broader Estate objectives and identifies a wide range of Management Programs and initiatives for implementation to drive forward our strategic aims. This Action Plan will be reviewed on an annual basis.

Since 2016 the University Estates department has driven the University's commitment to embedding sustainability across the organisation through the creation of onsite Campus Living Laboratories. So far we have developed three main Ecological Living Labs for biodiversity, with a fourth in the pipeline at the Adastral Park, Digitech Hub:

- Brickmakers Wood
- James Hehir: Living Roof – Living Lab
- Campus Amenity Spaces
- Digitech Hub: Eco Demonstrator: Lowland Heath garden

Much of the work this year will focus on a number of amenity spaces identified within the Biodiversity Plan. The Plan includes the creation of wildlife areas and extending the ecological corridor from Brickmakers Wood onto the campus, and the installation of swift nesting boxes and a call system on the Atrium roof.

8. External Engagement

Despite Covid restrictions, a reasonable level of engagement with both internal and external stakeholders and prospective partners was possible during the reporting period. Highlights of which include:

- The International Sustainable Ecological Engineering Design for Society Conference: 150 attendees,
- A workshop for 8 attendees was delivered in Sustainable Food Systems to farming and sustainability group representatives,
- Two Sustainable Development Goals awareness training afternoons delivered for a total of 36 attendees with Rural Enterprise East,
- Bespoke and industry specific training has been provided to the Wildlife, Ecology and Conservation Science undergraduate degree on the Field Studies Module,
- Bid application support through the Steering Committee of the Eden Rose Community Social Enterprise, to assist the charity in its' social wellbeing and academic partnership endeavours,
- Two micro-placement students and one 6 month overseas intern mentoring,
- Fair trade Event with the SU Film Society: 29 attendees,
- Chairing of three EAUC southern regional meetings,
- Wild Anglia partner, in defining the scope for Prioritising the Natural Economy.
- We have now joined the EU funded 'Eastern New Energy which will help to build a stronger Local Energy/Low Carbon Economy in the East of England providing support to a range of local activities that can develop the growth of a stronger local energy/low carbon system and market in the East of England region.'

The University continues to be actively represented and a key contributor working within the regional Sustainable Development arena.