Sustainability Sub-Strategy: 2016-19
2018-2019 Update

Introduction

1. The Sustainability Sub-Strategy is a sub-strategy of the Estates and Equipment Supporting Strategy, and thus is designed to support our core values and aims. Staff and students striving for excellence in research and education require and deserve sustainable campuses that are comfortable, beautiful and inspiring places to work and live.

2. The Sustainability Sub-Strategy received approval from Council on 28th November 2016. This paper covers progress since then and future sustainability plans for the University.

Overview

3. The University continues to focus its response to the environmental agenda on its direct and indirect impact on carbon emissions. The University aims to meet a target of reducing by 2020 total carbon emissions (in the form of carbon dioxide equivalent) by 43% from a 2005 emissions baseline. The UK government's Climate Change Act (2008) mandates the UK to reduce its national carbon emissions by 80% by 2050. An amendment to the Act was announced on 12 June 2019[1] with a more ambitious target of net zero emissions by 2050. Our estimations for reaching this target are set out in the Beyond 2019 section, below (paragraphs 59-63). Significant investment will be required.

4. There are two aims of the Sustainability Sub-Strategy (SSS):

   4.1 To identify policies and actions that will reduce the impact of the University on the natural environment whilst at the same time reducing its cost-base;

   4.2 To identify policies and actions that will improve the living, learning and working environments for all the University's students and staff.

5. Progress on the nine objectives to the SSS have been evaluated, with highlights and issues discussed below:

   5.1 To optimise energy management to reduce net carbon emissions;

   5.2 To reduce waste production and maximise waste recycled;

   5.3 To support sustainable forms of transport;

   5.4 To maximise the quality of the grounds, biodiversity and landscapes within the University estate;

   5.5 To use information technology sustainably.

   5.6 To embed sustainability into procurement processes;

   5.7 To reduce water use;

   5.8 To maximise the amount of food offered at catering outlets derived from sustainable and local sources;

   5.9 To maximise engagement of staff and students in sustainability issues through the Green Impact and Student Switch Off projects.

Objective 1: To optimise energy management to reduce net carbon emissions

6. Since UK financial year 2016, University CO_2 emissions reported to the Government's Carbon Reduction Commitment have fallen by more than 4,000 tonnes from 15,571 tCO_2 to 11,467 tCO_2.[2]

[1] https://www.bbc.co.uk/news/science-environment-48596775

[2] The University derives its CO_2 emissions calculations from Defra carbon intensity metrics relating to kWh of gas and electricity.

7. Good progress has been made on carbon reduction across the campuses in support of the University sustainability sub-strategy and achieving the targeted reduction in total carbon emissions by 43% by 2020 (from 2005 emissions baseline). A reduction of 33% from 17,210 tCO_2 to 11,467 tCO_2 has been delivered to date, leaving 1,657 tCO_2 to reach our target of 9,810 tCO_2. [1]

8. Current scoped projects are predicted to bring 500 tonnes of carbon savings, including a planned PV project delivering a carbon saving of 270 tonnes for a cost of £850k, generating utility savings of approximately £90k per annum (pay-back period of 9-10 years). Further projects currently being scoped are anticipated to achieve a further circa 500 tonnes of savings. The remaining carbon reduction of 700 tonnes is anticipated to come from decarbonisation of the grid. In addition, other allocations within the Capital Investment Plan (CIP) will incorporate sustainability elements within them to support our sustainability aspirations.

9. Many of the projects included in the previous update are still applicable, with works continuing. To date, activity that has contributed to our reduction in emissions are as follows:

    9.1 Sustainability Engagement: working with staff and students emphasising the importance of energy conservation and providing stakeholders with the skills and knowledge to reduce their demand for energy. Further detail on this is included under Objective 9.

    9.2 Building Management Systems: infrastructure has been installed that allows improved building management, allowing greater control of heating and lighting ensuring that energy is not wasted.

    9.3 Equipment upgrades that improve efficiency that are part of business as usual for the Maintenance and Capital Development teams. These include upgrades to energy-efficient boilers, thermostatic radiator valves and upgrading lighting to LED which typically use 75% less energy than previously. LED lighting is now installed as standard in new buildings.

    9.4 Increased supply of renewable electricity into the national grid has improved our carbon reduction performance, which will continue into the future.

    9.5 The University continues with its programme of installing solar PV panels on roofs, which is standard on all new buildings; the new North Teaching Centre 2 will benefit from PV panels.

        9.5.1 Solar PV panels are already installed at the Knowledge Gateway at Parkside 1 and 2 and Innovation Centre and on main campus at the Essex Business School, Network Centre, Albert Sloman Library, Kimmy Eldridge Building, multi-deck car park, Corbett Theatre (Loughton), STEM building and the Essex Sport Arena.

        9.5.2 Additional PV will be installed at nine locations at Colchester (both academic and accommodation buildings) during the 2019 calendar year, due for completion before the start of the 2019-20 academic year. At a total cost of £830,000, it is predicted that the panels will deliver a £91,000 saving per year in energy costs and reduce our CO_2 emissions by 276 tonnes annually. Once complete, it is expected the total amount of energy generated from solar PV on site will be 5.6% of our total electricity consumption. By generating more of our own electricity, we reduce our utilities bills which increases our ability to invest in research and education excellence. We would also be less reliant on the grid and its unpredictable price increases and associated carbon tax (and again, any increases).

10. The University's energy broker alongside the Sustainability and Central Procurement teams, have negotiated an electricity contract that will see 100% of our electricity from the grid derived from renewable sources from October 2019 for three years.

11. In early 2019 15 new energy-efficient ultra-low temperature freezers in the Biological Sciences department were installed, replacing older equipment. These are estimated to deliver a reduction of 63 tCO_2 per year, and reduce energy demand by up to 74%. At a total cost of £111,964, it is predicted that the payback will be 8 years.

12. The University has made efficiency gains in relation to carbon emissions and costs per student and per unit of gross internal area (Table 1).

Table 1. Measures of carbon efficiencies per unit built area and per student, 2005-2018[3]

Measure	2005-06	2012-13	2013-14	2014-15	2015-16	2016-17	2016-17 (Academic)	2017-18	2017-18 (Academic)
Carbon emissions (t CO_2e per year)	17,210	18,851	17,305	16,578	15,571	14,556	13,014[4]	11,467	10,896[5]
Gross internal area (m^2)	181,186	224,134	228,500	236,605	238,805	240,000	240,000	252,176	252,176
Student headcount	7,311	13,783	13,471	14,135	14,205	15,228	15,228	15,528	15,528
Carbon emissions per unit area (t CO_2e per m^2)	0.095	0.084	0.075	0.070	0.065	0.060	0.054	0.045	0.043
Carbon emission per student (t CO_2e per FTE)	2.35	1.37	1.28	1.17	1.10	0.96	0.85	0.74	0.70

Objective 2: To reduce waste production and maximise waste recycled

13. The University currently produces an average of 89 tonnes of waste per month. An average of 26 tonnes of waste is separated for recycling on campus; the average monthly recycling segregation rate is 30%. An additional 49 tonnes (approximately) of recyclable material is removed from the waste stream at the contractor's Materials Recovery Facility (MRF). Any remaining waste is used as Refuse Derived Fuel (RDF) at an 'energy from waste' plant.

14. While recyclable material is recovered by the waste contractor, it is more cost effective for the University for recyclables to be separated into the correct bins on campus by staff and students. We pay a fee per bin when it is emptied – for recycling this is between £5-7.00, depending on the size of the bin (in litres) the waste stream (paper, cardboard, mixed recycling), and any logistical constraints. For general waste, the charge for collection between £10.80 and £82.40 (again depending on size), but an additional disposal fee of £124.50 per tonne is charged for the disposal of the waste.

15. In terms of recycling the UK figure for domestic recycling in 2017 was 45.7%, and Colchester Borough has achieved 55% in 2017-18, placing it third in England. We accept that a 30% rate is not sufficient at the University, and recognise that more needs to be done. Working with the new Soft FM Services team, we expect to devise a new approach that will improve infrastructure and make recycling easier, particularly in accommodation. Already under way is a project to improve bin labelling in accommodation which will be rolled out this summer.

16. Total waste production continues to decline, falling in recent years from 1,757 tonnes in 2009-10 to 1,215 tonnes in 2014-15, 1,176 tonnes in 2016-17 and 1,074 tonnes in 2017-18, an overall decline of 39% over 9 years. When assessing the entire waste management chain from rubbish in bins, through to our contractors processing the University's waste and recycling, less than 1% of waste ends up in landfill. UK Government statistics for 2016 show that landfill still accounted for 24% of waste treated, and we therefore sit well below this.

17. The University, the Students' Union and British Heart Foundation (BHF) continue to work together on an annual *Pack for Good* programme that seeks to reduce waste when students vacate their accommodation in the summer. Students living in residences are able to donate goods to BHF at the end of Summer Term. The graduation period of 2017-18 surpassed the collections of previous years, with 3,643 bags of donations collected, the equivalent of 29 tonnes being diverted from the waste stream. The BHF estimate the value in the region of £51,000, which goes towards a variety of BHF supported good causes; a donation of 10 bags pays a day's wages for a Heart Nurse, 100 bags provides the funding for a heart scientist for 7 days and 1,000 bags helps 40 young heart

[3] CRC reporting year given until 2016-17 for CO_2 tonnage, which corresponds with financial year. Figures for the University academic year are provided for context.
[4] Estimated based on an average of the total emissions for the time period covered, across two financial years.
[5] Estimated based on average for total emissions in relevant financial year, and an estimate for the second half as CRC report not due until July 2019.

patients to gain independence, new skills and confidence whilst meeting other young heart patients.

18. Projects have been under way to reduce the amount of waste generated on our campuses, with single-use items in focus: canned water is now sold in Essex Food outlets and the SU Store, as an alternative to plastic bottles; Essex Food have distributed over 3,000 reusable hot drinks cups and continue to give a 10p discount for their use, to reduce the quantity of single-use cups required; Essex Food now uses a majority of compostable and biodegradable takeaway packaging alternatives to plastics, despite their higher cost, and the Sustainability team distributed 1,000 reusable bottles to students and staff to reduce the need to buy drinking water. To go further in these areas policies such as a ban on the sale of bottled drinking water and the introduction of a 'latte levy' on single use cups (i.e. it costs more for a takeaway, rather than a discount for bringing your own) would help to change people's perceptions of waste. Further work will be necessary so that single-use plastics are avoided at events, and a consistent message is achieved. We will look to devise a policy alongside events teams that will be in place during the AY 2019-20.
19. The Estates Maintenance teams strive to repair and reuse where possible, demonstrated with great effect in the refurbishment of Bertrand Russell Tower, with hundreds of items salvaged including toilets, radiators, boiler parts, showers and kitchen sinks which can be repurposed for future projects. We are exploring ways to formalise reuse, that fit within existing practices, which would allow us to monitor quantities of items being shared (such as desk drawers, noticeboards, stationery items etc.)
20. Between January 2018 and April 2019, Central Stores recycled in the region of 2,100 printer toners/cartridges for recycling. They also collect batteries for recycling, and it is estimated that in the last 16 months, 6,000 batteries have been recycled, diverting them from landfill. All printer cartridges used in the new MFD devices will be recycled. More work can be done to raise awareness of these recycling options, particularly with students; closer working with the Students' Union would facilitate this.

Objective 3: To support sustainable forms of transport

21. A review of transport infrastructure to, from and through the Colchester campus was undertaken in late 2018, in partnership with consultants AECOM, to identify potential for improvements based on usage, design and feedback from the University community. Short-, medium- and long-term recommendations have been made by the AECOM, reviewed by the University and plans are now being developed for 5 priority areas, with an aspiration for improvements to be delivered during the forthcoming financial year.
22. The University's engagement with the Colchester Travel Plan Club continues, with support provided for activities and events hosted by the Sustainability team.
23. A discount for annual First Bus passes for local bus travel has been maintained, with students and staff able to buy a pass for £170, a substantial saving on the usual price of £525 for a Colchester Zone 1 pass. Discussions are in progress for passes for Southend, with a deal to be agreed with First Bus ahead of the 2019-20 academic year.
24. Six additional electric vehicle charging points have been installed in the North Towers car park, bringing the total number of charging points on campus to 12. Current provision is not yet used to full capacity, allowing room for growth in the number of EVs in need of charging. Additional cabling has been wired in under podia at Colchester, for University vehicles to be charged. The actual charging points are due for installation in the 2019-20 academic year.
25. All new University-owned fleet vehicles adhere to a maximum of 100g CO_2/Km for cars and 120g CO_2/Km for light vans, as stipulated in the fleet vehicle policy, and thus are either low- or no-missions. Soft FM Services/Accommodation has two electric vans for portering, the Postal Services team have recently ordered an EV, and Essex Food is in the process of procuring an electric refrigerated van for their campus-based deliveries. For vehicles used predominantly on campus EVs are encouraged, but for longer journeys they are not yet practical.

Objective 4: To maximise the quality of the grounds, biodiversity and landscapes

26. In 2018 the University maintained its prestigious Green Flag Award for the quality of the grounds at Wivenhoe Park. We are awaiting the 2019 results of the award. In addition, Wivenhoe Park was named one of the nation's favourite parks following a public vote, being placed top ten in the Green Flag Award People's Choice vote covering more than 1,500 parks and green spaces. Essex was the only University in the top 10.

27. The University continues to develop its External Estate Master Plan, enhancing open spaces across our 3 campuses. Projects are in progress to improve outside spaces around accommodation for students, making them more accessible and inviting to enjoy: North Houses have additional planting, seating and improved cycle storage; South Courts have been upgraded with planting and renewed pathways; planters at Southend's University Square are in the process of being improved, with additional outdoor seating being created and lake improvements have been made at Loughton. Lighting at the lower lake was upgraded to improve both security and accessibility of the area; these run LED on sensors which ensure efficiency of use. Colchester campus boundary works have been completed, with over 120 new trees and 1,000 shrubs planted.

28. The water in the lakes at Wivenhoe Park is of very high quality, and is home to an abundance of fish species and attracts a variety of water fowl species in the spring. Water testing was last carried out on all three lakes at Colchester in May 2019. The lower and middle lakes are of the highest quality, in part due to fountains which help to circulate the water, while the top lake is being aerated to improve the quality. While this testing is completed for environmental and safety purposes, we advise that people should not enter the lakes.

29. The Grounds team have been leading guided walks around the campus during Sustainability events and Open Days, which have proved highly popular. Staff, students and visitors are invited to learn about the history of Wivenhoe Park and its magnificent trees, and are encouraged to explore and enjoy the parkland further.

30. Sustainability is central to the Grounds team's work: 98% of fertiliser used on the Sports Pitches is organic, with aspiration to reach 100%. Where practical, they are switching to electric (battery-operated) machinery.

Objective 5: To use information technology sustainably

31. Efficiency in energy and resource use continues to be a priority for Innovation and Technology Solutions (ITS). Practice detailed in last year's update remains accurate, such as purchase of equipment that is highly rated for energy consumption, sleep timeout for professional services equipment, powering down of teaching space equipment outside of teaching hours and services that promote online and collaborative working and learning. PCs are being upgraded to the Windows 10 operating systems, which also has improved power efficiency compared to Windows 7.

32. A new centralised printing service has now been introduced at all three campuses of the University. This project aims to rationalise the number of printers managed by ITS down from over 1,200 to just 177 multi-function devices (MFDs). Users can securely release and collect their printing from any of the networked devices, which reduces waste (avoiding unwanted printing) and improves security. The printers will automatically print double-sided and in mono, unless the user specifically selects different options, saving resources. The 177 Canon devices are now operational and staff can voluntarily elect to retire their desktop printer to ITS if no longer required and 200 had done so by mid-June 2019. The University will no longer cover the cost of toner/paper for individual devices, pushing staff to adopt the new centralised service. Other than a small number of specialist requirements (approximately 40), the target for decommissioning all remaining 960 printers is the end of July 2020.

33. To date, the 150 desktop devices voluntarily decommissioned by staff and 50 MFDs have been processed by an authorised WEEE[6] company, thus generating revenue for the University. Canon has estimated that once older devices have been removed the new fleet will offer a 71% reduction in power consumption compared with the previous system. Printers removed from offices will either be redeployed where necessary (a small number of some offices still require separate

[6] WEEE: authorised under the Waste Electrical and Electronic Equipment Directive (European Community Directive 2012/19/EU)

machines due to lack of space in the corridors or specialist printing requirements), or recycled if no longer serviceable. The paper used in the MFD machines is made using 100% post-consumer recycled waste at an efficiently run factory in Germany. The supplier of the MFDs, Canon, is an expert in imaging and we anticipate that in the long-term, they will also provide support in progressing electronic document sharing in order to further reduce demand for printed documents.

34. Zoom video-conferencing is being rolled out to reduce the need for travel to meetings, as well as supporting agile working. Creation of 'Zoom rooms' equipped with AV for larger meetings has begun; across all three campuses there are 8 spaces activated, with 10 to be installed in 2019 and a further 8 in 2020. The software is installed on all centrally-funded desktops, and individual users can borrow kits with a camera/headset from the AVS helpdesk.

35. Box cloud storage is being rolled out to users, making documents accessible from any device using their University of Essex login. This further reduces the need for printed documents, and supports agile and collaborative working.

Objective 6: To embed sustainability into procurement processes

36. The Central Procurement Unit and the Sustainability team have been working closely in the past 18 months as sustainability has become embedded within projects, with environmental questions now included in all tenders. CPU liaises with the Sustainability Engagement Officer to help to refine the questions, and review submissions from prospective suppliers. Sustainability is a fundamental aspect of the procurement of products and services and this collaborative working brings great benefits in our environmental objectives.

37. A project to reduce and rationalise stationery use has been implemented, and as a consequence as a whole, the University is using less, choosing more own-brand (Office Depot) items, and those produced from sustainable sources. In 2018, 31.84% of products bought from Office Depot were classed as 'environmental products'. Based on spend this has the potential to be as high as 41.83%. The managed print project has impacted our stationery contract and increased the amount of recycled paper purchased and Procurement will work with Office Depot to enable environmentally friendly products to be highlighted on the ordering portal. The stationery contract will be re-procured by April 2020 and the successful supplier will be set a key performance indicator to increase environmental spend.

38. Work is under way to create a furniture framework which will seek to put in place a single furniture supplier for standard office furniture, a single furniture supplier for specialist ergonomic furniture and for bespoke projects implemented by Space Planning/Capital Development the University will identify three suitable suppliers to select from (to generate competitive quotes for each project). This will create consistency in the items of furniture on our campuses, and ensure that what we purchase is manufactured in accordance with high environmental standards. As part of this project, suppliers would have to demonstrate how the furniture is designed and manufactured with sustainability in mind, (e.g. made from recycled and/or recyclable materials and easily dismantled at end of life), as well as an option to have old furniture collected and recycled from campuses when items are being upgraded. This will also contribute to our waste and recycling figures. Following a supplier day in February 2019, it was clear that we could ask for higher environmental accreditation from suppliers, and the weighting of the sustainability questions in the tender was increased. A procurement process will be undertaken to select the most suitable suppliers, with the furniture framework estimated to be live from November 2019.

39. As mentioned in point 8, CPU worked with our the Sustainability section and energy broker, UPG, to agree an electricity contract that would provide us with 100% renewable electricity (predominantly from biomass) for three years, which commences in October 2019. A favourable price was locked in, and consequently it is forecast that the University could save £116,000 per annum on its electricity (based on current usage figures); if consumption falls further, this will result in even greater savings.

Objective 7: To reduce water use

40. Estates maintenance have been installing dual-flush syphons on toilets throughout the campus, which means a half flush can be used when required, thus saving water. These also have parts

which can easily be replaced individually, meaning more efficient maintenance. Units are replaced as older ones fail, or as refurbishment works are carried out.

41. A programme of replacing bottle-fed water coolers with mains-fed machines is almost complete, providing staff and students with fresh, filtered water, to reduce the need for individuals to buy plastic bottled water. The rental cost for water coolers at the University in 2017-18 was £8,642, with individual departments funding these.

42. 50 bottled-fed water coolers have been replaced with plumbed-in units. Where there have been practical obstacles with water supply (accessibility/suitability of pipework), departments have been permitted to retain a bottle-fed water cooler until a solution can be achieved. At present, three remain: one in the Rab Butler building for REO, one in Greenwood House health centre and one in the Estates buildings workshop. Solutions will be investigated during July 2019 with the aim for the complete removal for the start of AY 2019-20.

43. Temporary bottle-fed water coolers are still hired in for some events, as a point of duty of care: for Graduation Week, six are hired for use in the LTB and ICLH, both for staff on duty and visitors; for Registration and the Careers Fair, one machine is hired for each. Event Essex hire 3-5 in over the summer for conferences and language schools, particularly as there has been a rise in demand since people have become more likely to bring their own refillable bottle. The locations of these temporary water coolers will be reviewed during summer of 2019, to determine whether plumbed-in fountains can be installed instead ready for the start of AY 2019-20.

44. Water consumption at the University for 2017-18 was 195,409m^3, down from 232,354m^3 used in the previous year. This has been predominantly achieved as a result of leak detection and repair work, consolidation of pipework, and more efficient equipment. At present there is no specific target around water reduction; however, this is deemed a key area for future work alongside other utilities, and targets will be set for 2020-21.

Objective 8: To maximise the amount of food offered at catering outlets derived from sustainable and local sources

45. Essex Food continues to provide the University community with a balanced, affordable range of food options. Local sourcing of produce has increasingly become a focus. Products are typically sourced within 100 miles, with many much closer. At present no specific targets are in place, but this will be reviewed alongside Essex Food for the next strategy period; defining what 'local' means in terms of distance is required.

46. The range of vegetarian and vegan options at all outlets has expanded, in line with growing popularity in these diets. Where meat and fish are served, all meet required standards; Marine Stewardship Council certification for fish, and Red Tractor for meat. Supplier Young's is developing its commitments to responsible sourcing, through its own *Fish For Life* programme.

47. Essex Food has continued its relationship with Union Coffee, who won the Queen's Award for Sustainable Enterprise 2017 for their Direct Trade[7] programme: coffee sold is sourced directly from plantations from around the world, paying them directly so they receive much higher rates than Fairtrade. Union Coffee is sold in Bytes Café (STEM building) and Crumbs (Square 3).

48. Bytes Café opened in the new STEM building, and focuses on locally-sourced refreshments. Pastries come from Blackberry Bakery, based in Stanway, and fruit juices from Cotchel Farm in Great Oakley, just 11 miles from the Colchester campus. Buna Drinks, based at the Knowledge Gateway, also supplies LemonAid and ChariTea soft drinks made using organic ingredients and supports fair trade. Each drink bought supports charitable foundations which contribute to social projects in the regions where ingredients are grown[8].

49. In 2018, the Ethics Food[9] campaign was launched, to highlight that Essex Food cares about customers' health and wellbeing, our planet and customer feedback. Mystery shoppers have been providing feedback on outlets, and focus groups have been held to gather customers' opinions on areas including packaging, vegan and vegetarian options and food labelling.

[7] Union Coffee Direct Trade: https://www.unionroasted.com/union_direct_trade.html

[8] ChariTea and LemonAid: https://lemon-aid.de/en/about-us/

[9] Ethics Food: https://www.essex.ac.uk/information/food-and-drink/ethics-food

Objective 9: To maximise engagement of staff and students in sustainability issues through the Green Impact and Student Switch Off projects.

50. Engagement has developed substantially since the initial implementation of the Sustainability Sub-Strategy in 2016. Utilising a wider range of communications methods aimed at staff and students, the environmental awareness of the community is growing. Initiatives such as *Reduce, Recycle Protect* and *Little Choices Big Changes* have allowed us to develop focused campaigns which highlight what the University is already doing, and the actions individuals can take.

51. Sustainability now features prominently on the University's website, within just two clicks from the homepage. This makes clear to website visitors that the University is committed to its responsibilities around sustainability. Further development of these pages will expand the information available to staff, students and visitors.

52. The Green Impact programme continues to be a popular and successful tool to engage staff and students in sustainability. In 2017-18, 34 teams participated, completing a total of 983 actions which are collectively estimated to have saved 12 tCO_2e. Seven student volunteers assessed teams' activity at the end of the year. In 2018-19 30 teams participated, with six students taking part as auditors. The programme was rationalised for this academic year to ease pressure on teams and make the award more achievable, but still saw a total of 950 actions completed. As a result, this year has seen the highest number of Gold award-winning teams (12). This year, three teams undertook Gold Projects which they devised themselves, and focused on their operations: Event Essex developed their work on sustainable events and hospitality; Wivenhoe House Hotel began 'Plastic Patrol', reducing single-use plastics, particularly in housekeeping, and SPAH/ISC created a Click crowdfunding campaign to raise money for the 2019 Summer School in Sustainable Practice (see below). Although we have seen a slight reduction in the number of teams participating, the level of commitment from those taking part is commendable. Feedback from those who have not participated this year has been the need to focus on student experience, internal restructures or a lack of sufficient willing team members. As a minimum we expect to maintain 30 active teams going forward. We continue to review the options for staff engagement; for example, introducing a compulsory induction module would help to broaden awareness overall, while affirming the University's commitment to sustainability.

53. In 2018 the University repeated the Summer School in Sustainable Practice (launched in 2017), with students attending classes overseen by Jane Hindley from SPAH. A total of 26 students from a range of courses gained insights into the latest academic thinking on sustainability, carried out field work at the Essex Wildlife Trust and Bennison Farm (a local community-supported agriculture project), and undertook practical environmental projects on a range of issues including promoting sustainable fashion, lobbying the SU for greater environmental representation, supporting local sustainable travel initiatives and monitoring air quality. The summer school will run again in June 2019 and remains free at present.

54. For 2018-19 the decision was taken not to run the annual Student Switch Off competition; energy metering data had become unreliable and the 2017-18 competition relied on measuring engagement through competition entries, and indicated that value for money was not being achieved. Instead, the budget has been put towards more direct activities, including communications and marketing materials, consumables (e.g. reusable water bottles and cups, biodegradable pens), and the Festival of Sustainability, a bigger sustainability week than previously held. Quantifying the success of these measures can be challenging, but we have used figures such as competition entries, signs ups to email newsletters (to both staff and students) and growth in social media engagement to monitor their impact. Effective operation of energy metering will allow us in future to measure success of specific campaigns, particularly in student accommodation.

55. The Festival of Sustainability was held in March 2019, focused on raising awareness of how students can reduce their own environmental impact, information on what the University is already doing, and to generally make students aware of the Sustainability team. Activities and information stalls over the 5 days were popular with students and in particular interactive sessions such as decorating reusable tote bags and the *How Bad Are Bananas* carbon footprint game (players are shown pairs of items have they have to guess which has the higher carbon footprint) were successful in sparking conversations. Essex Food also attended and promoted their compostable/biodegradable packaging, and invited suppliers to highlight local and ethical sourcing. Overall the week proved an excellent learning opportunity for the Sustainability team, establishing what will work well in the future to further develop engagement strategies.

56. In 2017 the University was ranked 124 out of 154 in the People & Planet University League, which scores universities' performance relating to environmental and social responsibility issues. A comprehensive review of our performance was undertaken by an intern – an Essex graduate – to understand how this ranking could be improved. Actions were implemented in order to amplify the work already being carried out by the University, with the target of increasing our position. People & Planet released a summary of their initial review in April 2019, although the rankings are yet to be announced. Based on the review undertaken by our intern, we are confident that our position will be markedly improved for the 2018-19 results.

57. In 2018 a pilot of a new module in Community Engagement (CS300) was launched by Jane Hindley in the Interdisciplinary Studies Centre. Students were partnered with a University or external team and tasked with designing and leading their own projects. One of these groups focused on the reduction of plastic waste on campus. The five students launched a campaign to tackle plastic waste, encouraging fellow students to carry a refillable water bottle, and undertook surveys and promotional events to understand student perceptions of plastic waste. Following this pilot, the course was offered again in 2019, where students took a broader look at recycling on campus, and student perceptions. Again, using surveys and events they completed their project with great success. The module has had excellent feedback, as a practical learning experience that has given the students experience of teamwork and presentation skills, in addition to individual reflective learning essays.

Sustainability Sub-Strategy: Plan of Action 2016-2019

58. Since the creation of the Sustainability and Grounds team in 2017, following the restructure of Estates and Campus Services, continued progress has been made against the objectives. This work creates the basis for substantial future development around engagement and carbon reduction. 2019 marks the final year of the current Sustainability Sub-Strategy, thus a new plan will be devised for 2020 onwards.

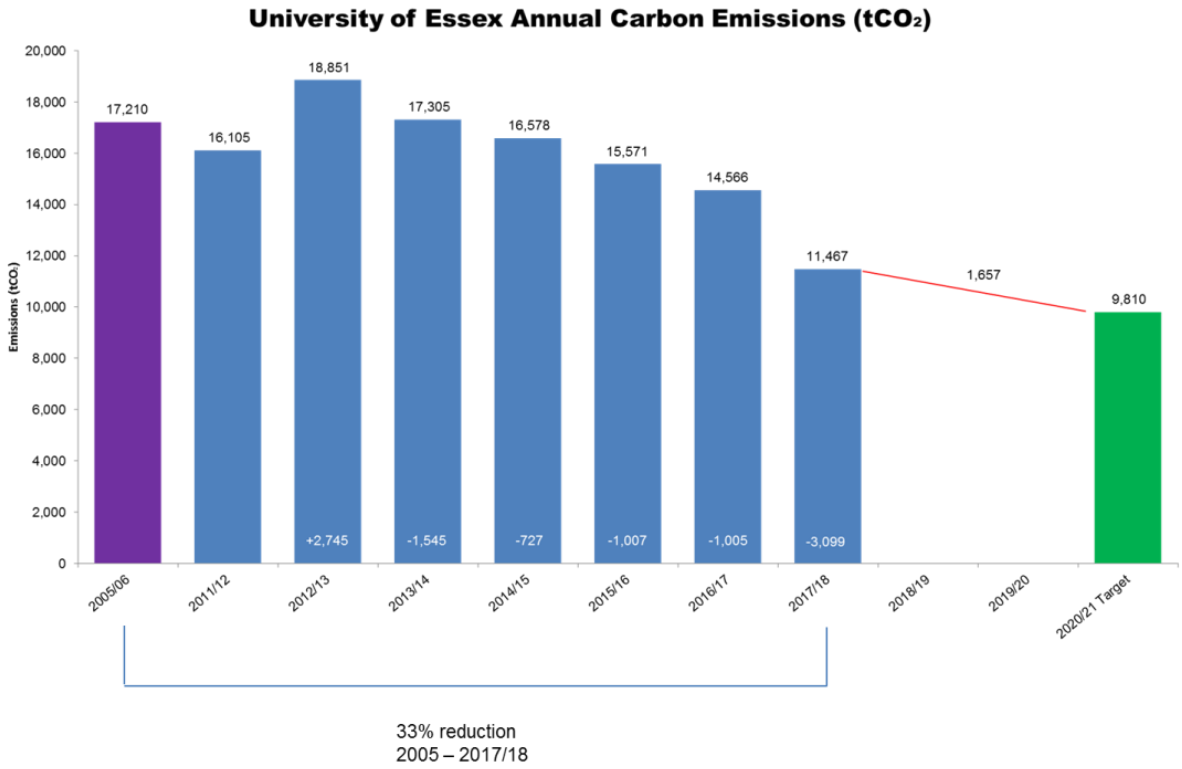
59. The Plan of Action section contains Specific, Measurable, Attainable, Relevant and Time-bound actions for implementing sustainability across our campuses and beyond. The action plan details progress on each action. As we are coming to the end of this Strategy period, the objectives will be assessed for future progress and the practicality of what was set out in 2016 will be reviewed.

60. Objectives have been chosen that either i) reduce our impact on the environment, locally and globally or ii) improve our environment, locally and globally.

Beyond 2019

61. A restructure within the Sustainability and Grounds team has been implemented creating new roles that allow further work around sustainability and carbon reduction to take place. All but two of the positions have been filled.

62. The University's current key priority is to reduce CO_2 emissions in line with its 43% target from 17,210 to 9,810 tonnes. This is important as it is closely linked with the University's financial success and its ability to deploy resources to teaching and research excellence. The graph below shows the University's emissions pathway to its 43% target. The University has already achieved a 33% reduction, which is an encouraging figure despite its growth. A further reduction of 1,657 tCO_2 by 2020-21 is required to reach the target. Although the target is challenging, acknowledging further growth in students, staff and estate, we are confident it is likely, through a combination of carbon reduction projects, routine maintenance work and the decarbonisation of the grid.



63. Looking beyond the 2020/21 targets, most projections suggest that future energy prices are going to rise yearly and it is widely assumed that in the UK there will be the political and social drivers for carbon targets to come down to net zero in the period to 2030-35. The UK government's Climate Change Act (2008) mandates the UK to reduce its national carbon emissions by 80% by 2050 and the recent amendment to the Act setting a more ambitious target of net zero emissions by 2050. Planned and forecasted increases to the Climate Change Levy (CCL) will continue to make carbon reduction a priority. The Levy is designed to penalise the use of polluting fuels and incentivise renewable and cleaner energy and is ultimately a tax by the government that sits outside any fixed term utilities contracts.

64. Assuming the 43% reduction in carbon target by 2020-21 is met, any future targets should be based on reducing our carbon from the remaining 9,810 tonnes we produce. For the University to potentially progress towards carbon neutrality would require significant investment in building improvements, on/off-site renewable energy technologies and major behavioural change.

65. The University's has committed £2 million from the CIP for small to medium carbon reduction projects for 2018-2025. In addition there is access to a further £0.5 million for the period from current Salix funding arrangements. While this commitment is positive, it will achieve reductions in carbon of hundreds of tonnes not thousands.

66. With current approved funding streams through to 2025 we are likely to achieve a reduction of between 5-6% from our 2020-21 baseline (9,810 tonnes). For the University to reach beyond this, it is likely additional large scale projects would be required. A PV solar farm could be a possible route similar to West Suffolk council who bought a 17.5 acre solar farm in 2017 that generates 12,400kw, reduces carbon by around 3,000 tonnes at a cost of £14.5m. An alternative route might be a wind turbine/s similar to the one Lancaster University installed in 2012. It generates 2,300kw, reduces carbon by 2,000 tonnes and would likely cost between £3-5 million.

67. For the University to set meaningful targets for carbon reduction beyond 2020-2021, significant work is required to understand the complexities and challenges the University faces. Any new targets should be made with the understanding of the people and capital resource required to deliver them. Firm carbon reduction targets along with viable funding routes will be developed alongside broader Sustainability aspirations during 2019 with the aim of firm plans being in place for the start of 2020.

Responsibilities and oversight

68. Responsibility for the Sustainability Sub-Strategy is as follows:

    68.1 Strategy Owners: Deputy Vice-Chancellor and Registrar and Secretary.

    68.2 Strategy Manager: Head of Sustainability and Grounds

    68.3 Approval: USG and Council.

    68.4 Monitoring: University Steering Group will monitor this Sustainability Sub-Strategy via the Sustainability Engagement Group.

69. Review: This is the second annual review of the Sustainability Sub-Strategy. The action plan below shows the success indicators from the Sustainability Sub-Strategy. 2019 marks the final year of the current Sustainability Sub-Strategy, thus a new plan will be devised for 2020 onwards. Clear objectives will still be a crucial part of the programme of work for Sustainability, although the review period will be an opportunity to assess the most suitable success measures, targets and commitments for the coming years.

Recommendation

70. USG are requested to note the findings in the Sustainability Sub-Strategy annual update.

Rob Davey, Head of Sustainability and Grounds

Daisy Malt, Sustainability Engagement Officer

27 June 2019

Action Plan: 2016-19

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
Energy and Carbon emissions The University will use the energy necessary to heat and power our three campuses as efficiently as possible and reduce the amount of energy derived from fossil fuels.					
1. To optimise energy management to reduce net carbon emissions	1. Heat and power usage will fall annually.	August 2017	O1	Energy Manager	1. Achieved. kWh consumption from gas & electricity have fallen every year since 2012.
	2. The University will generate 15% of its energy from renewable sources.	August 2018 *August 2019*			2. Ongoing. The University is preparing for installation of additional solar PV panels in 2019 (taking us to 5.6% generation), while electricity from the grid will be 100% renewable from October 2019.
	3. The costs associated with energy usage fall annually.	August 2017			3. Market fluctuations have seen the price of energy change markedly over the last 3 years. CPU successfully agreed a price for October 2019 to September 2022 when the market was favourable.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
	4. CO_2e emissions will be 12,500t CO_2 and on course to fall by 43% on 2005 levels by 2020.	August 2018	O1	Carbon Change Advisor	4. Ongoing. Emissions for 17/18 were 11,467 tCO_2. The current trajectory is positive towards meeting this commitment.
	5. Emissions per FTE student and per m^2 will be among the top quartile for higher education institutions.	August 2018			5. Achieved. University 22nd/125 for emissions intensity. Emissions per student continue to fall and remain below 1 tonne.
	6. New buildings will be constructed to exceed the energy performance requirements of Building Regulations (Part L) and be informed by BREEAM Excellent and LEED energy certification	August 2017			6. Achieved. All new buildings exceed Part L and are informed by high environmental standards. All buildings adhere to BREEAM Good as a minimum.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
Waste Management The University will manage consumable resources in accordance with the waste hierarchy with priority given to waste reduction, opportunities to reuse materials then recycling and recovery of energy.					
2. To reduce waste production and maximise waste recycled	1. The University will recycle over 80% of its waste materials. This will be achieved through both on and off campus waste separation processes. The University will increase the amount of waste segregated for recycling on campus to 50% (peak) and an average monthly to 40%).	August 2019	O2	Domestic Services Manager	1. Achieved. The University separated 39% (peak figure) of its waste for recycling on campus. The remaining 61% of waste is sent to MRF (material recovery facility) of which 88% is recycled. The remaining 12% produces RDF (refuse derived fuel) off campuses.
	2. Less than 5% of waste will be sent to landfill.	August 2017			2. Achieved. <1% of University waste sent to landfill.
	3. Waste arising will be in the lowest quartile for higher education institutions.	August 2017			3. Data not available currently.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
Transport The University will encourage sustainable transport through provision and promotion of infrastructure and incentives.					
3. To support sustainable forms of transport	1. The University will increase promotion and provision of alternatives to car use, ensuring improved access, cycle maintenance, cycle security, cycle training with routine evaluation of impact undertaken.	August 2017	O3	Transport Policy Manager	1. On-going. The University continues to promote sustainable options to staff, students and visitors. A review of transport infrastructure and travel was undertaken in 2018/19 with recommendations being reviewed.
	2. The University will Improve washing and shower facilities with priority given to women's facilities.	August 2017			2. Achieved. Upgrades to shower facilities in November 2017.
	3. The University will increase provision of electric vehicle infrastructure with access to charging points at all University car parks.	August 2017			3. Achieved. Six new charging points were installed in the North Towers car park, increasing provision to twelve. Plans are under way to install charging points under podia for University-owned EVs.
	4. Consideration will be given of transport infrastructure provided in conjunction with our local authorities in Colchester, Southend and Loughton. *1. For cars purchased or leased the environmental impact should not exceed 100g CO2/Km (tax band A).* *2. For light vans the environmental impact should not exceed 120g CO2/Km (tax band B).*	August 2018 *August 2018* *August 2018*			4.1; 4.2 Achieved. The Fleet Vehicle Policy requires that all new vehicles University purchased must adhere to these emissions requirements, which encourage the use of low- to no-emissions choices.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
Biodiversity The University will maintain and enhance its urban and parkland landscapes through monitoring and protecting the species found within them. The University recognises its Colchester, Southend and Loughton campuses are fantastic assets and will use them to champion sustainability by providing well managed access to its landscapes for its students, staff and the wider community.					
4. To maximise the quality of the grounds, biodiversity and landscapes	1. The University will undertake annual monitoring of its landscapes and report on changes.	August 2017	O4	Grounds Manager	1. Achieved. Yearly Tree survey undertaken. Maintaining the Green Flag Award requires stringent monitoring of the estate.
	2. Additional installations of bio-diversity enhancing infrastructure including bird feeders, insect boxes, apiaries.	August 2017			2. Achieved. Additional planting and maintenance of wildflower areas to attract bees and other insects; bird boxes are cleaned annually and replaced where necessary. Since 2018 21 new boxes have been installed, and 4 replaced.
	3. The University will derive benefits from its grounds that contribute to the health and well-being of its staff, students and visitors and develop a suite of infrastructure improvements allowing for increased access and enjoyment of its grounds.	August 2018			3. Achieved. Additional enhancements to Colchester lower lake, improvements to lake at Loughton and improvements areas outside Colchester accommodation to make it more inviting and accessible, to allow students to enjoy the outside spaces.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
IT Services The University recognises that IT contributes significantly to our carbon footprint. The University will seek to purchase the most energy efficient equipment, use it efficiently and foster sustainability through IT equipment and apps.					
5. To use information technology sustainably	1. The University will monitor & record energy use from the PCs, Laptops and Printers it owns or leases. 2. The University will procure the most energy efficient IT equipment. 3. The University will encourage the use of sustainable IT resources in education and research; with automatic power down after lectures, and Moodle & Lynda providing alternatives to printed handouts and travelling to training.	December 2016 December 2016 December 2016	O5	Director of IT Services	1. The University does not currently have the equipment necessary for this work. Focus remains on purchase of energy-efficient equipment. 2. Achieved. 3. Achieved.
Procurement The University will purchase goods and services in accordance with the highest environmental standards, engaging with our supply chain so that no harm to our students and staff is attributable to the products we buy and that minimal resources are utilised in their manufacture, transport and disposal.					
6. To embed sustainability into procurement processes	1. The University will monitor and publish its emissions derived from its supply chain on an annual basis. 2. The University will monitor and publish actions its suppliers have undertaken to reduce the environmental impact of its supply chain.	August 2017 August 2017	O6	Deputy Director of Finance (Procurement)	1. The University estimates its scope 3 emissions to be 23,000 tCO_2. The methodology only provides an estimate of emissions based on University revenue. 2. Partly achieved. In tenders suppliers must provide environmental policy information, but these are not explicitly shared more widely.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
	3. The University will divert its investments into a Sustainable and Responsible Investment Vehicle eliminating investments in tobacco, arms and fossil fuel industries.	January 2017			3. Achieved. The University no longer invests in these industries.
	4. *The University will include questions on bidders' environmental and sustainability policies as part of its procurement processes.*	*January 2018*			4. Achieved. Questions are included as standard.
	5. *The University will include questions on Modern Slavery in its procurement processes to ensure that no members of the supply chain are being exploited.*	*August 2018*			5. Achieved. Questions are included as standard.
Water The University will manage its water so that the absolute minimum is used; where possible derive water from grey water sources and use rain water for landscaping activities. The University will take care to process water to the highest environmental standards and avoid polluting the local water courses which are vital habitats and of substantial amenity value.					
7. To reduce water use	1. The University will achieve annual reductions in its water use.	August 2017	O7	Energy Manager	1. Achieved. Water reductions from leak detection and repair & installations of water efficient equipment.
	2. Water use will be in the lowest quartile for higher education institutions.	August 2017			2. Sector benchmarking not currently available.
	3. The University will install infrastructure to utilise grey water and rainwater.	August 2018			3. Ongoing. Rainwater is used to water the gardens in EBS.
	4. The University will take care to process water to the highest environmental standards and avoid polluting the local water courses which are vital habitats and of substantial amenity value.	August 2017			4. Achieved. Water samples taken from all 3 main University lakes on a quarterly basis and water quality good.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
Food The University will serve healthy food prepared with the minimum harm to nature. The University will champion ethical production, alternatives to meat, local ingredients and avoid foods derived from endangered species.					
8. To maximise the amount of food offered at catering outlets derived from sustainable and local sources	1. The University will maintain its Fairtrade accreditation status.	October 2016	O8	Catering Operations Manager	1. The University does not hold Fairtrade accreditation. The University works with a range of suppliers who offer standards higher than Fairtrade.
	3. The University will avoid foods derived from endangered species by using Marine Stewardship Council certified fish.	October 2016			2. Achieved. Only MSC certified fish sold on Campus.
	4. The University will ensure that 100% of its meat is Red Tractor assured.	October 2016			3. Achieved. Only Red Tractor Meat sold on campus.
	5. The University will source its meat from local suppliers.	October 2016			4. Achieved. Meat sourced locally.
	6. The University will source 100% of its eggs from free range sources.	October 2016			5. Achieved. 100% free range eggs sold on campus.
	7. The University will promote meat-free alternatives across its catering outlets.	October 2016			6. Achieved. Extensive range of meat-free options on campus, and expanding.
	8. The University will provide and promote opportunities for food grown on our campuses.	October 2016			7. Achieved. Campus farm relocated with new infrastructure, managed by Green Thumbs society.
	9. The University will use 100% recyclable or compostable food packaging.	August 2017			8. The majority of takeaway packaging is compostable or biodegradable.

Strategic objective (O)	Success Indicators *Revised indicators in italics*	Timescale *Revised timescale in italics*	Cross reference to Sustainability Sub Strategy	Lead	June 2019 Update
Engagement The University will inspire its stakeholders to engage in positive environmental behaviours taking skills and enthusiasm gained in each of our three campuses beyond the University to make a positive contribution to the global environmental challenge.					
9. To maximise engagement of staff and students in sustainability issues through the Green Impact project.	1. The University will host the UK's leading Student Switch Off programme, measured by student engagement.	August 2017	O9	Carbon Change Advisor	1. An alternative approach to Student Switch off was introduced offering better value for money.
	2. Staff in every department will participate in the University's Green Impact programme.	August 2017			2. On-going. The University has 36 registered Green Impact teams.
	3. The University will be recognised as a community leader in sustainability in the local media and through securing awards for environmental performance.	August 2017			3. Achieved. The University won the Green Flag Awards for its Grounds, and People's Choice top 10.
	4. Staff and students involved in sustainability research will be recognised as contributing to the University's excellence in education.	August 2017			4. Not achieved since last update. We continue to have discussions with key stakeholders.
	5. Education for sustainability will be provided to all staff and students as part of their induction to life on our three campuses.	August 2017			5. In progress. Summer School in Sustainable Practice available to students.