

A SUSTAINABLE UNIVERSITY? A STUDY IN 2 PARTS

25 MAY – 17 JULY 2019

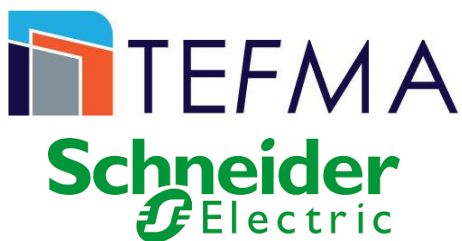
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Supported by:

Maurie Pawsey Scholarship



Ian Chubb Career Development Award



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Simple Actions Towards
Sustainability



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Greenhouse Gas Emissions

An acknowledgement also needs to be made recognising the 9.2 tCO₂e carbon emissions associated with the travel component of this study trip, consisting of approximately 6.2 tCO₂e for air travel¹, 1.1 tCO₂e for petrol², 0.3 tCO₂e for train trips³ and 1.6 tCO₂e for international accommodation¹. Emissions minimisation achieved by combining several trips into one that also allowed a more in-depth approach to be undertaken.

As the University of Tasmania is a certified carbon neutral organisation through the Australian Government's [Carbon Neutral Program](#), greenhouse gas emissions associated with air travel and accommodation will be offset with Verified Carbon Standard or Gold Standard offsets with some having the added benefit of meeting the [Climate, Community and Biodiversity Standard](#). Costs for these offsets will be covered as a University of Tasmania institutional in-kind contribution. Details of indicative offsets purchased in previous years are available at www.utas.edu.au/sustainability.



¹ UK Department for Business, Energy & Industrial Strategy conversion factors 2019 (<https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2019>)

² <http://www.carbon-calculator.org.uk/>

³ <https://www.lner.co.uk/tickets-savings/the-best-way-to-travel/carbon-calculator/>

Glossary

AASHE	Association for the Advancement of Sustainability in Higher Education
Activity based targets	Targets proportionate to another parameter such as number of students and staff, gross internal area or income. As the Higher Education sector grows, universities are increasingly assessing carbon emissions using activity-based targets to monitor efficiency gains. Typical measures used are tonnes of carbon per FTE, per square metre of gross internal area, or per \$million of income
ACTS	Australasian Campuses Towards Sustainability
APPA	North American organisation – “Leadership in Educational Facilities”; TEFMA partner
ATEM	Association for Tertiary Education Management
AUDE	Association of University Directors of Estates (UK) – primarily for publicly funded UK higher education teaching and/or research bodies; TEFMA partner
CHP	Combined Heat and Power plant (usually natural gas powered)
CIPS	Chartered Institute of Procurement and Supply
EAUC	The Alliance for Sustainability Leadership in Education (formerly Environmental Association of Universities and Colleges)
GGA	Green Gown Awards
GRI	Global Reporting Initiative
HEFCE	Higher Education Funding Council for England
ISO14001	Environmental Management System (EMS) – International Standards Organisation
ISO26001	Social Responsibility – International Standards Organisation
ISO50001	Energy management – International Standards Organisation
KPIs	Key Performance Indicators
LiFE	Learning in Future Environments Index
ISSP	International Society of Sustainability Professionals
NTU	Nottingham Trent University
NurSus	Sustainability Literacy and Competency (SLC) in nurse education by developing innovative teaching and learning approaches and materials to assist nurses in workplace practices be more sustainable.
NUS UK	National Union of Students – United Kingdom
PV	Photovoltaic = solar power electricity generation
SFC	Scottish Funding Council
SLS	Sustainable Leadership Scorecard (grew out of the AUDE Green Scorecard) – developed by ARUP, AUDE and EAUC
STARS	Sustainability Tracking, Assessment and Rating System – developed by AASHE
Sustainable Development	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission 1987; formally the World Commission on Environment and Development (WCED))
TEFMA	Tertiary Education Facility Management Association
tCO ₂ e	Tonnes of carbon dioxide equivalent (normalising emissions impact for greenhouse warming potential)
UCC	University College Cork
UGlos	University of Gloucestershire
UTAS	University of Tasmania - Sustainability
UWE	University of the West of England

Executive Summary

Sustainability is most often understood using a seminal contemporary exploration of the topic by the Brundtland Commission (1987) in the context of ‘sustainable development that meets the needs of the present without compromising the ability of future generations to meet their own needs.’ There are important distinctions between sustainability (a state that is sustainable) and sustainable development (incremental improvements and changes to achieve sustainability), but for the purposes of this report the important point is that both require holistic thinking and acting that includes environment, socio-cultural and economic elements. Thus, in many ways sustainability is also interpreted as everywhere and everything. While this is largely true, the exploration and delivery of sustainability in higher education is best done with a comprehensive focus on sectoral and institutional activities in leadership and governance, teaching and learning, research, partnerships and engagement as well as facilities and operations. As evidenced through this study trip, most successful institutions embrace the knowledge that sustainability is everybody’s responsibility so it doesn’t matter where you sit in an institution’s organisational structure, there is something you can do to help to make that institution more sustainable.

Thus, it is critical to acknowledge that to work towards being a ‘sustainable university’ necessarily includes all realms of endeavour working synergistically. This report, however, focuses in on successful sustainability delivery through leadership and governance as well as facilities and operations lenses. It is important to note that these two focus areas will reflect the broader context both in interaction with one another and across the other areas required to deliver sustainability. Longevity is also a hallmark of sustainability, so the ‘fragility’ of the sustainability agenda in individual institutions was also explored alongside how the staff and student ‘sustainers’ are themselves sustained.

Determining a university’s commitment to sustainability as a core institutional focus is often evident in outward manifestations such as governance and management instruments (e.g., policies, groups tasked with maintaining the focus, staffing, targets and/or indicators, reporting tools/frameworks used), ranking, rating and awards received in relevant areas and visibility of sustainability on campus. Appendices A, B, C, D and E detail these and serve as filters used to choose target institutions to visit that my ATEM and TEFMA-funded and University of Tasmania supported study trip enabled me to undertake. I conducted interactive (interview and tour-based) site visits to 14 United Kingdom and Republic of Ireland universities, undertook walk-through self-guided site tours of 11 more, and attended two conferences with in-depth conversations on presentations given by sustainability staff from 5 more UK and USA-based universities. Exemplary and innovative sector-leading approaches and initiatives were discussed with a broad range of institutions reflected in geography, context and size and are highlighted in the main body of this report as ‘Exemplars’.

Sustainability success for tertiary education institutions, particularly universities with a physical presence and commonalities in operational drivers, is often significantly influenced by the external contexts in which they operate, including government directives, incentives and disincentives, and stakeholder expectations. Appendix F notes some of these for the United Kingdom and Ireland.

Appendix G details the methodology used to determine the institutions to be visited on the study trip. This involved using a variety of filters, including assessing success in awards, rating and ranking systems, peer recommendations and viewing websites. That said, it was not possible to visit all the institutions in the UK and Ireland with noteworthy sustainability initiatives, so the fact they were not included is not meant to negate their efforts.

It is worth noting that a similar approach to determine the leading institutions in sustainability in Australasia would not be able to use the same filtering approaches. For example, for ranking there are no comprehensive proxies or assessments of performance such as the People and Planet League Table, patchy participation in the Times Higher Education Impact ranking, and nearly non-existent participation in UI GreenMetric. In our global region, we do have the Australasian Campuses Towards Sustainability's (ACTS) Green Gown Awards Australasia, but not all institutions participate in these despite successful sustainability activities. That said, some critical environmental data is collected by TEFMA annually that is useful for environmental sustainability benchmarking activities.

During my site visits (Appendix H) and conferences attendance (Appendix I), I was fortunate to have conversations with students, operational staff at all levels, academic staff focused on Education for Sustainable Development and the Sustainable Development Goals (SDGs), as well as senior management, including Chief Operating Officers, Deputy Vice-Chancellors and a Vice-Chancellor.

Supporting integration of sustainability is the focus of many sectoral organisations across all activity areas. In the United Kingdom and Republic of Ireland, sustainability in higher education is the *raison d'être* for EAUC - The Alliance for Sustainability Leadership in Education and is recognised as a core focus area for the Association of University Directors of Estates (AUDE). These are mirrored in intent in the Australasian region by Australasian Campuses Towards Sustainability (ACTS) and the Tertiary Education Facility Management Association (TEFMA) with the Association for Tertiary Education Management (ATEM) taking increasing interest. Organisational statements from these groups with respect to sustainability is included in Appendix J.

As noted, TEFMA is increasingly active in a broadening exploration of what sustainability means and how it is delivered within the context of facilities and operations, with granting of this study trip scholarship evidence of a commitment in this area.

With a specific remit to support the higher education sector to continue addressing sustainability challenges across all areas, ACTS encourages institutional membership and provides resources and support to members. ACTS' membership reach includes 100% of New Zealand universities and 77% of Australian universities, while membership from the vocational portion of tertiary education is poor. In Australia, TAFEs are in strife in most states with significant re-assessment of roles and structures resulting in staff cuts, including in sustainability, with TAFE institutional membership in ACTS fallen off almost completely. While in New Zealand, Polytechnics amalgamation from the beginning of 2019 may have fallout for sustainability staffing, but the outcome remains unclear.

To reflect the generosity of my hosts, I delivered presentations during several site visits and shared with even more organisations various University of Tasmania sustainability-related documents discussed in our conversations, including:

- Strategy for the award-winning [Sustainability Integration Program for Students \(SIPS\)](#);
- [Greenhouse Gas emissions inventories](#) supporting our carbon neutral certification (especially for coverage of scope 3 emissions, materiality and calculation methods);
- Final draft Strategic Framework for Sustainability; and,
- Detailed information on the International Green Gown Award winning [Education for Sustainability Tasmania](#) (UN-recognised Regional Centre of Expertise in Education for Sustainable Development).

Discussion

Like many areas of society, sustainability is an increasing area of interest across much of the tertiary education sector, from environmental to more often including social and financial aspects. As leaders in their communities and, collectively, globally, universities have an important role to play in demonstrating sustainability approaches and sharing lessons learned. The success of higher education sustainability agendas are naturally dependent on internal acceptance and support, which can be influenced by sectoral bodies as noted above. The most successful institutions have a clear commitment in staffing (to varying levels) and governance instruments, such as policies and committees/working groups whether formal or informal, to ensure sustainability is recognised and supported. Appendix A provides information on the staffing levels and governance arrangements of the institutions visited.

Another important aspect to consider when comparing successful institutions from different countries is that there are very different national contexts. At the highest level, factors influencing university activities include governmental ideologies or policies and the flow on effect with respect to political and financial support creating an encouraging or discouraging environment. The power of external context driving internal responses was also noted at several institutions, including Extinction Rebellion, Climate crisis, etc. In addition to international stimuli, relative to Australia there has been significant national government directives and support for sustainability initiatives across the United Kingdom and the Republic of Ireland societies, including the higher education sector (Appendix F). Although several of my peers in the UK would probably call that damning with faint praise, from an Australian institutional perspective, it would be a situation devoutly to be wished!

More recently, declarations of a climate emergency in 2019 by both countries promises to continue this focus and support. For example, the Scotland Funding Council launched a £19m Universities for the Future Programme on 8 Jul 2019 aimed at boosting investment in energy efficiency across Scotland's higher education institutions. In addition, the programme has provided £350,000 to EAUC Scotland to deliver a focused program to support sustainability within all colleges and universities in Scotland, building on two previous Universities and Colleges Climate Commitment for Scotland programs. These programs are all intended to provide tailored support to progress institutions towards a skilled and informed, whole-institutional approach to leadership around carbon and resource management, social responsibility and environmental sustainability. Funding and support often comes with directives as well. For example, in line with national targets and UN obligations, the Higher Education Funding Council for England (HEFCE) has set individual carbon reduction targets for universities. Scotland, Northern Ireland and Wales have similar approaches as does the Republic of Ireland for whole of society responses.

The national context in New Zealand is not too dissimilar to the UK and Ireland, while the Australian government does not provide the same context (other than some extant resilient approaches, the Clean Energy Finance Corporation for example) and provides few political drivers at a national level except for some support in research. Teaching and learning backing has dropped off with dissolution of the Office of Learning and Teaching in 2016 where Education for Sustainability had been getting some airplay and support (www.sustainability.edu.au). That said, some states and metropolitan regions are very supportive, such as Victoria and South Australia. For example, partnerships for major energy projects (especially Melbourne), carbon management (Adelaide) integration into transport planning and some forays into waste management. In Tasmania, the local government areas where the University of Tasmania has a presence have been instrumental partners in addressing a range of operational issues, but especially transport and waste management.

There is also the broader context beyond government activities that are both local and global in nature, including humanity's self-inflicted climate and biodiversity crises, energy supply and use, waste management and transport. These are often addressed through various pathways, including student accommodation and experience, food/catering, procurement, landscaping – operational areas where direct impact is made in response to governance and management activities.

Responding to these broader (with more people saying existential) challenges is seen by my peers and other interviewees as something in which higher education institutions need to take a lead in line with their historical roles in societies. That said, comparatively, there are also more prosaic concerns facing our HE institutions that for the more sustainability successful institutions are put into the context of these broader challenges. This is an age of funding challenges through decreased and changing government support, decreasing and changing cohorts of potential students and increased competition for those students. For example, in North America, the sector is expecting a 20% overall drop in student enrolments in the near term; this will be disproportionate, thus the sector is even more competitive and there is strong support for anything that improves efficiencies, lowers costs and entices students (including sustainability commitments and outcomes). That is, a sustainable approach is necessary to help universities survive and thrive and continue to deliver the critical society-level missions for which these institutions exist to address.

As will be evidenced in this report, there is much to be gained from looking beyond and behind the scenes of the whole host of individual university activities that together represent a broad-based approach to deliver sustainability in the higher education context. The intended audience of this report is in many ways those new to the holistic sustainability agenda in the higher and further education sector, but the intent is that enough detail and examples of specific initiatives will make it useful for my peer practitioners as well as students and academics. While I have very much tried to reflect the broad themes associated with successful institutional approaches, it would be best to use this report and the contacts and links provided to explore aspects of interest in more depth directly through websites and communications with those with whom I met.

Findings and Observations

My ATEM and TEFMA-funded and University of Tasmania supported study trip enabled me to conduct interactive (interview and tour-based) site visits to 14 United Kingdom and Republic of Ireland universities, undertake walk-through self-guided site tours of 11 more to explore 'visibility' of sustainability, and attend two conferences that included in-depth conversations following presentations given by sustainability-related staff from 5 more UK and USA-based universities. My overall focus was to explore the manifestations and fragility of sustainability in specific universities through the lens of governance/management and facilities and operations. To reiterate, this limited lens approach does not discount the critical role that teaching and learning, research, and partnerships play in a university truly focussed on sustainability, all of which will be touched on throughout the report where they intersect with the two main focus areas.

While the following sections cover specific topic areas, some general observations arose throughout my site visits that give some overall context, including:

- Increasing expectations from students, staff and communities that universities need to practice what they preach and teach and research, including supporting innovation and assuming leadership roles.
- Sustainability is an adaptive challenge.
- Social Responsibility is an emerging issue increasingly seen as part of the broadened understanding that 'sustainability' is indeed multi-faceted with a few universities bringing this together with environmental sustainability as a focus but as distinct ideas (University of Edinburgh stands out and itself states that this is new in the sector with a Department of Sustainability and Social Responsibility).
- Broad agreement that a step change/paradigm shift is needed rather than 'just doing less bad.'
- Relationship to place and mission affects the 'care' factor and possibilities for success.
- While there is an acknowledgement that sometimes care and connectedness can be instrumentalised through treating the forging of new personal relationships as part of a broader strategy to build a movement and win power especially at this time of urgency, my peers genuinely are of the ilk to find care and connectedness valuable in and of themselves. A part of personal sustainability if you will.
- Be the leader you wish you had!
- Traits, styles, skills and knowledge are all important for sustainability professionals to achieve outcomes, includes not self-aggrandising as the agenda matters more.
- 'Context + 'me' = action to take', where context is critical for leadership; context from internal (governance structures, culture, institutional mission) and external influences.
- Access 'appropriate power' – student survey results, employability, student experience.
- Avoid 'ecoanxiety' – present information to get sense of urgency but give hope; lots of mental health cases in student cohort.
- Most successful institutions get students directly involved, as well as staff participating in the actions and activities; also ensure responsibility and accountability really is with individual areas/departments.
- There is tremendous value in embedded words within an institutional strategy to allow sustainability (or any other effort really) to be supported and actioned and thus successful universities have ensured this is included in their governance and leading management documents and statements.

- Given the urgency of a need to change the way things are done across so much of what we do, a shift in focus is required. For example, it is time for the ‘business as usual’ proponents to prepare business cases for not changing as opposed to sustainability proponents needing to constantly justify their initiatives, which just creates an unconscious bias that sustainability will cost more, be harder, etc, which reinforces the notion that ‘sustainability’ is something extra, new, on the side, not integral, or a nice to have.
- Focus is on employer engagement and employability – senior staff interviewed found this hard to quantify but a consistent message from business that sustainability knowledge and skills are valued and that leading businesses have a competitive advantage and contributes to social license.
- Don’t think about Gen X, Y, etc, just want Generators – those that get stuff done!
- There is a certain ‘fragility’ of the sustainability agenda in individual institutions that reflect:
 - Broader government policy changes negatively impacting some while benefitting others (e.g., removing capping of student places caused a significant enrolment drop at the University of Bradford over a number of year leading to institutional cutbacks, including eroding the improvements to sustainability that had been achieved by Ecoversity (noting a large part of them are still in place), but leading to improved prospects at Manchester-based, Leeds and York universities).
 - Considering what could happen in many universities without the relative sustainability-supportive subnational government approaches from funding to policy.
 - Leadership prioritisation (competing for focus and resources); some sense that some management has a ‘been there done that’ mentality (clearly not in the leading institutions though), while others have senior management support (e.g., Aston University’s Vice-Chancellor was on a national climate change committee and the Chief Operating Officer was on the EAUC Board so understand value and provide resources; the VC has asked all areas to identify a sustainability lead).
 - Over reliance on the drive of one person or small group, means it is critical that a deputy staff member be ready to step up that has the networks, knows the SWOT and how to move things forward in the organisation.
 - How successful the embedding of sustainability thinking and approaches over time across the entire university community have been to get through the tough times (watch what happens at Bradford, the ‘original’ Ecoversity and significant award winner (see picture), with change in leadership and focus).
 - The need to navigate turbulence and avoid backsliding by focussing on unique human stories within the institution.
 - As a leader, always focussing on knowing your legacy goals.
 - Ensure that sustainability is part of the brand, ensure the ‘team’ is inexpensive; know yourself and people, have patience, play the long game and be strategic.
 - If it works for you, see it all as a long game to be played to achieve outcomes – understand that you might lose some rounds/hands to win the game.



Governance and Management

There are any number of ways that universities have established a governance and management approach to deliver sustainability outcomes. Most often the original impetus for sustainability came from an environmental management need with the governance mechanisms (policies, strategies, etc.) and staffing starting from that need, which included government directives that universities needed to have transport and carbon management plans. Institutions that have grown from this or started with a broader based approach to sustainability and recognised the triple bottom line or integrated nature of sustainability are the true sector leaders. The most successful seek out overlap areas and use holistic frameworks and approaches to track, assess and report on outcomes without losing sight of delivering across all areas of sustainability and applying focus and resourcing as needed. These institutions are consistently ranked or rated highly in sustainability metrics and thus were the ones shortlisted for this study tour. Appendix A presents governance and management approaches used by each of the institutions visited as well as example committee/groups terms of reference for Universities of the West of England, Worcester, St Andrews, and Aston.

The University of the West of England shared some reflections on their governance approach:

- Staff participation can be difficult to energise
- Has broad scope with expertise, is both advisory and directive (authoritative)
- Consensus approach
- Formalised with senior executives
- Passion-based not just competence/expertise
- Self-selected membership
- Sustainability must challenge the business as usual approach and short-termism
- Requires climate adaptation of buildings/climate models
- Mental wealth (not just health)
- Focus on changing language, inclusive of environment, climate crisis, saving money

Other universities have specific outcomes envisioned in the short term that guide their governance approach. An example is an aim to improve the People and Planet League Table results, so the group's terms of reference is based on that and a framework has resulted from the ranking needs. Some institutions have committees/groups that are more formal that report through the hierarchy all the way to their university boards/councils (i.e., governing body).

Sector resources for Governance and Management

EAUC's online sustainability exchange provides free access to useful governance and management references, including:

- [Sustainability Governance at Higher Education Institutions](#) Free University of Berlin and the University of Vechta
- [Sustainability: Key to long-term institutional success \(guide for governors\)](#)
- [Making the Business Case for Sustainability](#)
- [Value of Sustainability Committees in Higher Education](#) – includes five effectiveness factors:
 - Representative
 - Awareness
 - Senior Management engaged
 - Strategy and actions clear
 - Two-way communications channel

Sustainability Frameworks (for strategies, rating and reporting)

There are several established sectoral approaches to support comprehensive sustainability agendas used within the universities I visited and that are reflected across the sector more broadly. The following sections provide an overview of the framework and exemplar institutions of those visited using the approach. Appendix B identifies the approaches used by each of the institutions visited.

Learning in Future Environments (LiFE) Index

The [LiFE Index](#) is a comprehensive framework developed by practitioners in the UK, Australia, and New Zealand. This international framework positions sustainability strategically in an organisation and develops a common language – from leadership and governance through to partnerships and engagement, facilities and operations, and learning, teaching and research. Use has dropped off with newer systems (one evolving from LiFE, see SLS below), but some still using LiFE as basis for strategies.



EXEMPLAR: Nottingham Trent University – LiFE Gold certified (highest level)

Sustainability Leadership Scorecard (SLS)

The [SLS](#) is UK-initiated and launched in 2018 by EAUC and AUDE, developed by ARUP with support from the then funding body, HEFCE, as a whole-institution tool. SLS is based on the four LiFE Index foundations so institutions can track progress, celebrate success and improve on weakness. SLS is interactive, collaborative, and SDG aligned, drawing information from HESA EMR university data and many sector tools. Allows institutions to submit sustainability performance across areas of leadership, health and wellbeing, procurement, research, student engagement and adaptation. One visited university sees SLS occupying the space between ISO14001 (see EcoCampus below) and Responsible Futures (below).



EXEMPLARS:

- University of Worcester
- University of St Andrews uses SLS as core of reporting and for gap analysis as a forewarning for focus areas; ensures management takes sustainability seriously as part of core mission.

Sustainability Tracking, Assessment and Rating System (STARS)

[STARS](#) is a North American-initiated, globally used, transparent (submissions online), self-reporting framework to measure sustainability performance. Useful for long-term goals for already high-achieving institutions and entry points of recognition for those just starting, it has Bronze, Silver, Gold, or Platinum rating, or a Reporter designation and is designed to:



- Provide a framework for understanding sustainability in all sectors of higher education.
- Enable comparisons over time and across institutions using a common set of measurements developed with broad participation from the global campus sustainability community.
- Create incentives for continual improvement toward sustainability.
- Facilitate information sharing on higher education sustainability practices and performance.
- Build a stronger, more diverse campus sustainability community.

EXEMPLARS:

- University College Cork – Gold rating (first outside North America)
- Colorado State University – Platinum rating; focus on getting all areas of the university, but especially the facilities management staff to understand STARS and contribute to it

Global Reporting Initiative (GRI)

The [GRI](#) helps businesses and governments worldwide understand and communicate their impact on critical sustainability issues such as climate change, human rights, governance and social well-being. This enables real action to create social, environmental and economic benefits for everyone. The GRI Sustainability Reporting Standards are developed with true multi-stakeholder contributions and rooted in the public interest. Third party independent verification of reporting.



EXEMPLARS: University of Worcester (2017/18; NQA Audited), University of Plymouth (2016)

Sustainable Development Goals (SDGs)

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and planet, now and into the future. At its heart are the 17 Sustainable Development Goals ([SDGs](#)), which are an urgent call for action for and by all countries - developed and developing - in a global partnership. The SDGs recognise that ending poverty and other deprivations must complement strategies that improve health and education, reduce inequality, and spur economic growth – all while tackling climate change and working to preserve our oceans and forests. Many universities have mapped or are working to map their activities to the SDGs and using the SDGs to organise their approach to comprehensive sustainability. Several ranking systems (discussed below) base scoring on the SDGs, which may potentially spur broader interest in SDG mapping. Increasingly, institutional sustainability reports also include SDG mapping.



EXEMPLARS:

- University of Manchester report 2019 (see also University of Leicester report) as presented at a joint EAUC Conference session on SDG mapping and reporting, with main points noted:
 - Identifies synergies and discord between operations and academic
 - Identifies potential and existing collaborations
 - See existing work in context
 - Organisational reputation potential
 - Metrics used (SDSN, Elsevier – more stringent, internal) – keyword based
 - Intend for the SDG report to replace a ‘sustainability report’,
 - Useful for the Times Higher Education Impact ranking submission and the Responsible Business Tracker
 - Setting up a microsite on their website for case studies
 - Research – publications vs outcomes vs funding
 - Ensure SDG indicators are used to categorise something (not just goal descriptions)
 - Resourcing required for effort – 1-year full time, lots of sustainability team time and marketing involvement (resource intensive)
 - Will share template (save months of time!)
 - Encourages better collection and organisation of data
 - Session discussion included where best for sustainability should ‘sit’ within an institution (in ops, central planning group, own area, etc.); context driven, University of Manchester has central office of Social Responsibility
- University of the West of England has done extensive work on mapping undergraduate and post-graduate with different faculties employing different approaches from heat maps to key word searches

EcoCampus (based on Environmental Management System ISO14001:2015)

Many institutions visited apply an Environmental Management System despite there being no legal requirement in UK for universities to have one. There is strong peer pressure for those institutions wanting to be sustainability leaders applying one, resulting in 65 UK universities (31%) using EcoCampus.



EcoCampus is a scheme that offers a flexible, phased approach to implementation for the higher and further education sector that focuses on environmental risk at two levels (strategic and operational). Participants gain recognition at each stage of the process through a series of ratings from bronze through silver, gold and platinum. The platinum rating conforms to the international environmental management standard [ISO 14001](#) with the 2015 refresh broadened beyond just preventing pollution to enhancing environmental performance.

Bespoke approaches

Many institutions also have bespoke approaches to organising, delivering, tracking and reporting on their sustainability agenda. High performers in sustainability rankings consistently take a broad-based, inclusive and interconnected approach. These broader based approaches include social responsibility, health and wellbeing alongside environmental sustainability and financial viability.

EXEMPLARS:

- Keele University's 'Root and Branch' approach is a communication and embedding strategy to ensure the whole campus community is aware of and knows how to participate in sustainability. No separate 'co-ordinating office' as believe sustainability is everyone's responsibility but has an Environment and Sustainability Steering group with representatives from all areas.
- University of Edinburgh uses international frameworks for reporting and established a Department for Social Responsibility and Sustainability to help achieve its ambitions. "The first of our kind in the UK, we are here to help staff and students who want to change our University. We work with almost every part of the University on programmes that help our neighbours, cut pollution, or ensure the wellbeing of the people who work on behalf of the University here and all over the world. We look for new ways to tackle some of the most difficult challenges our world will ever face."

'Reporting' exemplars

Several the institutions visited have been recognised for excellence through Green Gown Awards and other avenues in reporting their sustainability activities, so are very good examples to examine to consider different formats and approaches. Some even include a summary/highlight in the public benefits section of the annual whole of University report (e.g., UWE). For Welsh universities, the Wales Future Generations Act 2015 (like the SDGs) help push action in that all universities must produce annual reports, so many respond to that as opposed to having their own drivers.

EXEMPLARS: Keele University, University of Edinburgh, University of Worcester, University of Gloucestershire, Aston University, University of the West of England, Manchester Metropolitan University, and Plymouth University.

Targets and Indicators

Establishing targets and performance indicators are important elements to track success, support communication of aspirations, deliver innovation and provide leadership. Appendix D presents targets and indicators across a range of sustainability categories for institutions visited, including carbon, energy, transport, waste, biodiversity, water, procurement, built environment, leadership, governance and community. The categories of targets and indicators included reflect the focus of this paper being facilities and operations as well as governance and management. The range of target and indicator types go from aspirational to specific, from absolute to normalised, are internally determined to external framework required, and include lead and lag types.

EXEMPLARS:

- University of the West of England’s ‘breakthrough indicators’ show a determination to not lose sight of long-term reasons for addressing sustainability that can get lost in focusing on plans. UWE seeks to go beyond continuous improvement and deliver breakthrough change and innovation.’ Each thematic area of their plan has an indicator ‘pushing the envelope’.
- University of Manchester has a science-based zero carbon by 2038, that is a proportion of emissions reductions required for their institution to be consistent with the Paris Agreement to keep global temperature rise to below 1.5C.

Ranking Systems and Awards

There are several ranking systems applicable to universities either in a country, region or globally that are separate to the tracking and rating systems discussed above. Appendix E identifies the visited institutions’ outcomes in rankings in which they participate or are externally assessed.

People and Planet League table (UK only)

People & Planet’s University League is the comprehensive and independent UK-only league table ranked by environmental and ethical performance. It is compiled annually by the UK’s largest student campaigning network, People & Planet. Universities visited take this seriously, but not convinced students are looking at it.



Times Higher Education Impact Ranking (THE Impact)

The Times Higher Education University Impact Rankings state they are the only global performance tables assessing universities against the SDGs. The ranking notes it uses calibrated indicators to provide comprehensive and balanced comparisons across three broad areas:



research, outreach, and stewardship. Many universities chose to participate in the late 2018 pilot of this new ranking, some were strategic decisions while others were not aware it was happening.

Universitas Indonesia (UI) GreenMetric ranking

Paraphrasing from the website, UI GreenMetric aims to provide information on the condition and policies related to green campus and sustainability and identify leading universities worldwide. The ranking aims to draw the attention of university leaders and stakeholders to address climate change, energy and water conservation, waste recycling, and sustainable transport requiring a change of behaviour and a triple bottom line focus. There is low UK, Ireland, USA and Australasian participation. From peer discussions, this arises from methodology and transparency concerns.



Green Gown Awards

The [Green Gown Awards](#) and their complementary schemes in Australasia and Francophone universities are also a useful mechanism to highlight and explore best practice across a wide range of categories. As noted, Green Gown Award success was used as a filter in shortlisting universities to visit and to direct inquiries on specific initiatives and projects. The intent of this section is not to highlight specific successes here but cover them in specific discussions below as well as present winners and highly commended across several relevant categories (see Appendix E).



Internal sustainability awards

Some institutions also have internal sustainability awards to demonstrate value placed on sustainability and recognise those delivering on their institutional agendas.

EXEMPLAR: Keele University has the Innovation in Sustainability Awards and a celebration event. Three types of award are available – Sustainability Benchmark Award for successful completion and audit of the Benchmark Criteria; Individual Awards for staff and student contributions to sustainability on campus and in the local community; and Innovation in Sustainability Awards for sustainability projects. In keeping with their institutional sustainability theme ‘root and branch’, the awards have three levels – ‘Seed’, ‘Sapling’ and ‘Blossom’ - based on their reach and impact either on or off campus. In addition, the Keele Excellence awards now include an environmental sustainability category with a £1000 prize.

Engagement approaches

Engagement is a critical element in delivering sustainability anywhere as human behaviour is often one of the drivers for success or failure in any initiative. There are a variety of ways that universities visited deliver

engagement around sustainability, including having ‘sustainability branding’ that ties all activities together into a coherent approach (e.g., Keele University’s ‘Root and Branch’), using established systems to deliver operational sustainability outcomes (National Union of Students’ Green Impact program or derivatives thereof), focusing curriculum on social responsibility and sustainability both formally and informally (NUS’ Responsible Futures accreditation) through to ensuring a high visibility of ‘expected’ sustainability activities (across all areas of operations, teaching and learning and research particularly), participating in United Nations University-recognised Regional Centres of Expertise (RCEs) and other bespoke approaches. The messaging was simple -- start with recognising and rewarding what people are already doing, and progress through a series of activities and initiatives that show embedding sustainability in all ‘we’ do is a collective responsibility. Additionally, alongside this needs to come skills development, leadership and understanding how different people ‘engage’.



There was also some consensus that Estates needs to keep sustainability going over time with fluctuating/changing student interest, but also harness the interest when it is there. As a part of this, the idea that Estates is also a service provider that for the visited institutions are already delivering sustainability outcomes. The value then is in bringing it all together and giving students prominence in helping deliver/drive to help bring attention and get support for additional efforts.

NUS Green Impact

[Green Impact](#) brings together students and staff to green campuses, curriculums and communities. Working in hundreds of organisations across the world, this award-winning behaviour change programme empowers participants to make meaningful change on sustainability, whether starting from scratch, or think there is nothing left to do. It is based on a bespoke toolkit of actions, providing a structured framework for taking actions as small as printing double sided, to something as big as setting up your own ethical credit union. As part of an international network of thousands taking action through Green Impact, the year ends by being rewarded with a Gold, Silver or Bronze award to recognise achievements. There is value to students here too - gaining practical, work-based experience and skills that enhance their understanding of practical sustainability as well as enhancing their ability to make change in the world and support employability (though for many it would posit it is NOT their primary aim for participation).



Green Impact runs in a range of organisations across three broad categories: students' unions, universities and colleges, and in the community (all off-campus organisations).

EXEMPLARS:

- University of the West of England (UWE) and The Students' Union of UWE
- Ulster University running Green Impact for five years, involving 700+ staff and are piloting an education toolkit of actions mapped to curriculum; have changed to a project focus with identified project assistants (staff like meeting the students and vice versa); contractors are also participating voluntarily (especially cleaning and catering)

NUS Responsible Futures Accreditation

[Responsible Futures](#) (RF) is a whole-institution approach to embedding social responsibility and sustainability across the formal and informal curriculum in tertiary education. It is a supported change programme and accreditation mark that aims to put sustainability at the heart of education. RF assists in creating an enabling environment for staff and students to work together to embed social responsibility and sustainability into teaching and learning. It seeks to legitimise and mainstream education for sustainable development, ultimately helping to ensure students acquire knowledge, skills, and attributes needed to lead society to a more just and sustainable future.



RF facilitates a partnership between students' unions and their institutions via a set of criteria drawn from good practice examples. NUS helps partnerships clarify an approach by picking and developing criteria that suit them. Partnerships participate as limited-size cohorts that share resources and learn together as they proceed through accreditation, convened and supported by NUS. When ready (typically 1-3 years), partnerships are audited by a team of students, NUS trained, delivering an externally-verified audit with accreditations awarded annually and remaining valid for two years.

EXEMPLARS: University of Edinburgh, Keele University, Nottingham Trent University, University of the West of England, University of Worcester

Bespoke engagement programmes

Many institutions visited have variations on a theme from the above two NUS approaches to organising, delivering, tracking and engaging in their sustainability agendas. Success factors for all such programs involve buy-in from participants, support from local area management and tangible outcomes.



EXEMPLARS:

- [Aston University 'Go Green Champions'](#) are recruited from all areas; HR sends a list of all new staff every 2 months so they can deal direct for new recruits.
- [Nottingham Trent University 'Green Rewards'](#) replaced Green Impact to achieve broader coverage and use via an app-based approach that is customisable and provided by Jump Inc.
- [UGlos' 'Live Smart'](#) student-led project to create positive change. Students can get paid roles and rewards, create products and develop skills in innovation and collaboration.

Sustainability inductions

Another element that supports sustainability outcomes is the incorporation of sustainability into staff and student inductions, both formally and informally. These cover a variety of approaches from details of how to act sustainability, university community expectations regarding 'how we do things' through to information on institutional policies, management and approaches (see above for frameworks and engagement programs).

EXEMPLARS:

- University of Worcester, all new staff have [a mandatory induction](#) into sustainability, which includes, for example, learning about their [10 Golden Rules](#) for living sustainability.
- Cardiff Metropolitan University provides a compulsory [e-learning module](#) for new staff.
- Keele University notes all student volunteers complete inductions that include sustainability

Sustainability surveys

Sustainability surveys of staff and students are valuable way to engage and inform while also getting useful information on issues of greatest importance to the campus community. In the UK, NUS conducts regular surveys of all students on a range of issues that include sustainability. For the last nine years [NUS-UK has surveyed](#) over 50,000 students studying in the UK on their attitudes towards and expectations for sustainable development during their education. Findings consistently show that 80% of students expect institutions to act on sustainability and 60% want to learn more about it. In 2018, NUS launched an international version of the survey. With over 3000 responses from students worldwide, findings were consistent with students in the UK, noting 81% say sustainable development is something they want to learn more about. NUS will run the international survey again in early 2020 and encourage increased participation to increase the value of the results.

Many visited institutions reference NUS survey results in business cases, engagement activities and annual reports, all proving the value of sectoral bodies engagement with sustainability to help member institutions respond to student interest and demand.

EXEMPLARS:

- Aston University has done three years of sustainability surveys (through a consultant) and found that 87% of respondents know there is a sustainability team (vs 43% at beginning) and that Estates is doing well, but not visible enough in the curriculum.
- Ulster University - Surveys in collaboration with student union (comparing to NUS stats) that showed awareness of sustainability is low

Visibility on campus

In addition to formal programs for engagement activities as demonstrated throughout this report, there are the



visible signs around a campus showing the university is supportive of its sustainability agenda across the full range of activities from facilities and operations to teaching and learning, research and stakeholder partnerships. Visibility can become a 'subliminal' curriculum in that what is visible on campus helps with broader engagement. There is also value in visibility as campus users are constantly changing (especially students and visitors). In addition to that shown throughout this report, this subsection includes some images of engagement posters, artwork, and banners found on campus tours.



EXEMPLARS:

- Images from University College Cork, Nottingham Trent University, University of Worcester, and Plymouth University
- Cardiff Metropolitan University runs a monthly Farmer's Market on campus organised by the sustainability staff that has evolved into a 'Community Day'; Cardiff Council has been involved from the start.



Some signage is very engaging (image below) but could also be a missed opportunity to incorporate some sustainability messaging as seen in other areas of the same campus and other institutions.



Sustainable Development Goals (SDGs)

As noted, the SDGs are a focus for some universities to showcase their holistic approach to sustainability used as a set and/or as individual goals in engagement initiatives.

EXEMPLARS:

- Keele University - banners in main entry, run Festival on SDGs by day over 17 days in March each year
- UWE - banners in lobbies and construction projects
- University of Galway - on electric vehicles
- Nottingham Trent University - digital displays, at events, map how SDGs apply to extra-curricular (see blog ntu-sdgs.blog)
- University College Cork - engagement efforts and banners.



Living Labs / Work Integrated Learning

There are increasing ways that teaching and learning and research (core mission) are supported even more directly through a sustainability lens, including the often overlapping concepts of living labs, experiential learning and campus-based work-integrated learning. For example, facilities and operations staff get to be directly involved in delivering on core mission via involving students and academic staff in operations through projects, internships, fellowships, etc. Non-academic staff also get support to explore new ways of operating that they might not have time to in their day-to-day activities. They can also learn new skills and gain new knowledge from students.

In North America, APPA supports these through their Living Labs Initiative and including as a focus in conference proceedings. At the 2019 APPA Conference, a session from Florida State University focussed on involving students in campus operations via fellowships and internships. This was interesting as the programs provide no academic credit and little academic involvement except as occasional mentors. This is unlike other universities where academic partners are core, including at the University of Tasmania's Sustainability Integration Program for Students (SIPS).

EXEMPLARS:

- University College Cork's Living Lab Seed Fund (via a one-off EU80k Irish grant)
- University of Edinburgh's Living Lab toolkit
- University of the West of England - Living Lab initiative is practice-based learning organised through a 'Knowledge Exchange for SDG' working group
- Cardiff Metropolitan University - student auditor program with 20 students/year, academic credit not paid, focused environmental management, and training provided.
- Nottingham Trent University supports year-long placements for upper level undergraduates.
- University of Dallas – Texas runs an internship program as well EcoReps with a Green Fund used to pay interns; EcoRep projects must map to SDGs and explain how the project could be implemented in developing nations.

Whole of Building Exemplar – University College Cork Library

Several universities have taken an approach that involves a strategic focus on a high profile and highly used building to showcase sustainability engagement, improvements, and outcomes. The award-winning initiatives of the University College Cork's (UCC) main library is a fantastic example of a holistic approach partnering library and facilities staff to deliver infrastructure and operational improvements and behaviour change that 'spills out' to the rest of campus from this central area.

UCC Library's initiative was highly commended in an International Federation of Library Associations award. The initiative "Love Our Library" is supported by an active staff team from all physical areas of the library as well as from all staff levels. The same team has been working on outcomes since 2016. There are several aspects contributing to the success of this effort, including:

- Big focus on feedback — what is working what not, are things addressed when pointed out; estates for their part committed to addressing issues raised
- First focus was on energy
 - Floors set to different temperatures and students directed to move to areas that suits them rather than adjusting temperatures throughout the building
 - Natural light area only (lights off to save energy signs) – lumen levels tested to ensure code compliance
 - Estates set timing of lighting and heating, installed sensors and controls, air curtain on door and working to keep staff on board to avoid individual fans and heaters again
- Sustainability surveys of students (using a 'jam board') first used as awareness raising as much as information gathering – helped with recognition that wellbeing is a part of sustainability
- Success on energy led to focus on waste
 - Working with cleaning contractors required as 160 bins with liners
 - From September 2017, library users have been required to take all materials to a ground floor set of bins on their way out delivering a 70% recycling rate, noting:
 - considering putting a bin set on each floor again noting that they didn't start there as went to 'extreme' first to see if that would work first given it would have been hard to take more bins away again later
 - found it more environmentally and cleaner time friendly to pick the bits that were left around than emptying all the original 160 bins



- most people are very good about not leaving litter as an audit showed that there was no additional litter left around the library after bins removed than before
- focused on waste reduction as the driver and not just to make it harder on students or to save university money
- Recognise that Cleaners' time is very constrained, so need to make it easier on them, revamped the cleaner carts used – these provided by UCC, but made clear these stay in UCC ownership should contractor change. Cleaners kept track of number of bags in each waste stream before and after
- Any events held in the library must use non-disposable cutlery and crockery, installed a dishwasher for everyone to use
- Banning single use cups has been the big push in 2019 huge issue for small group of students until a survey showed the huge support for this in the general student body through the jam board survey – gave prizes away of reusable cups.



- Water fountains also got some attention
- For students, all of this is included in the 'welcome' brochure and in any presentations/talks.
- Keeping smoking away from library surrounds in same campaign style as sustainability messaging to further equate sustainability and wellbeing.
- 2019/2020 activities:
 - Considering more compost bins to add to the one in the staff room
 - Getting an electric van and charging station as their fleet vehicle
 - Induction of staff has not been needed in past as the profile of the effort was there, but in future it will be included for new staff to provide message that this is how things are done here to ensure embedding and longevity



University – Student Union Partnerships

Partnerships between a university sustainability team and the student union have been critical in the successes of some visited institutions to deliver holistic sustainability outcomes.

EXEMPLARS:

- University of the West of England has been particularly successful in establishing an ongoing partnership that is supported with the union having paid staff to keep various programs and approaches consistent over time, but also in ensuring the students are empowered through participation in sustainability decision making and working on projects that align with their interests and passion.
- Keele University – has lots of student involvement, but again it is the union staff that keep it going, including Responsible Futures and the Sustainability Benchmark Audit, which builds on the previous NUS Green Impact scheme.

External Partnerships

Partnerships with external organisations was also an element that successful universities focused on, including engaging with governments at various levels, businesses and local communities to deliver sustainability initiatives and outcomes.

EXEMPLARS:

- University of the West of England (City of Bristol and European Green Capital) – Founded in 2007, [Bristol Green Capital Partnership](#) is a unique partnership of over 850+ member organisations who have committed to working towards Bristol becoming a sustainable city with a high-quality of life for all.



- [‘The Hive’](#) – Worcestershire County Council and the University of Worcester worked together to create a new multi-million pound city centre library, history and customer centre for students and the public. The two organisations, with the support of Worcester City Council and Advantage West Midlands, created a combined facility for whole of community use. Some sustainability features include: natural ventilation, maximum use of daylight, biomass heating and river water cooling, rainwater collection and biodiverse landscape.



- [NurSus Toolkit](#) – Plymouth University; Supported through European Union funding, Dr. Janet Richardson’s NurSus brings sustainability into nursing programs and by extension, medical teaching and learning and research more generally. This could obviously be useful more broadly in research areas and teaching and learning labs. Janet can be contacted at healthandplanet@gmail.com



- Keele University's [Smart Energy Network Demonstrator](#) (supported by the European Union, UK Government, and businesses) – A European first, this world-class demonstrator facility for smart energy research and development enables testing and evaluation of new and evolving energy technologies. Working collaboratively with local partner companies, the programme provides the opportunity to assess the efficiency of these new technologies in terms of energy reduction, cost and CO2 emissions. SEND transforms the Keele University campus into an 'at scale living laboratory' to provide a unique testing site model due to the diverse range of activities and facilities within it – 3,100 students in halls of residence, 1,000 commercial users on the Science and Innovation Park, 200 'standard' domestic households, and academic activities serving 10,000 students.



- University of St Andrews Transition towns initiative – helped produce the [Transition Guide for Universities](#), engaging first year students since 2008 as a student initiative, students as the grit in the oyster that produce pearls ☺, support social enterprises (food co-op, bike pool and maintenance services, end of term collections generating through some re-sale and donations with students self-valuing items 50,000 pounds in 2018; skill share program (repair-based, making, food growing) and shared economy models (tool share).



- University of Gloucestershire and Interface PL - '[Radical Sustainability](#)', including a student competition and business masterclass attended by >25 companies with expert input from Interface to help senior personnel drive sustainability forward in their organisations.
- Nottingham Trent University has tied into the focus of surrounding city/civic leaders on a green agenda (before legal requirements started).

United Nations-recognised Regional Centres of Expertise

A few institutions visited are, in varying degrees, involved with a regional United Nations University-recognised Regional Centre of Expertise in Education for Sustainable Development ([UN RCEs](#)).

RCEs bring together institutions from a variety of sectors at the regional/local level to jointly promote ESD. They build innovative platforms to share information and experiences and to promote dialogue among regional/local stakeholders through partnerships for sustainable development.

They create a local/regional knowledge base to support ESD actors and promote four major goals of ESD in a resource-effective manner. All RCEs must involve at least one higher level education institution in their core membership and involvement



EXEMPLARS:

- University of Edinburgh hosts [Learning for Sustainability Scotland](#) (an RCE)
- Universities of Gloucestershire (RCE Severn) uses their LIFT: Learning Innovation for Tomorrow initiative in external engagement work in sustainability through RCE Severn and to engage with students through opportunities to tie into employability and skilling
- University of Dallas – Texas - establishing an RCE (North Texas) with UT Arlington as co-coordinators; establishing a board with five working committees (very formalised)

Facilities and Operations

Most universities have sustainability staff or functions incorporated into their operational areas, but there are many ways these are constituted, how they deliver value, and the inherent and outward manifestations of sustainability in this core aspect of university management. Several institutions include sustainability in their mission statements and publicly display these (see images).

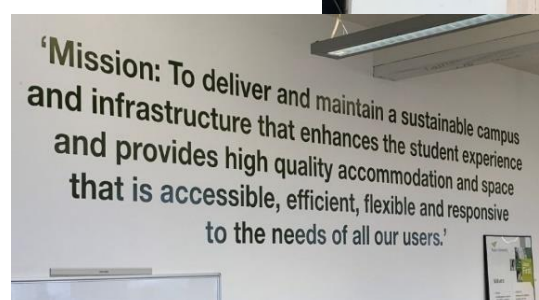


This section focuses on the areas that are commonly the responsibility of the 'Estates' or facilities and operations area of universities, from carbon management and energy, transport, waste, built and natural environments through to campuses and facilities as engagement tools themselves (campus trails, food, signage) as well as funding mechanisms and procurement.

Many universities use national (and international) benchmarking to set targets, monitor performance, and influence sectoral peers especially regarding estates/facilities and operations. This benchmarking is possible in large part due to data collection by national bodies (governmental or sectoral) that then make this information available to the sector. In Australasia, this role is played by the Tertiary Education Facilities Management Association (TEFMA) in a voluntary scheme that is heavily supported by the sector given the value to the sector and individual organisations. In early 2019, the UK's Office for Students (OfS) announced plans to make voluntary the currently mandatory collecting of universities' estate management records, which includes reporting on their carbon emissions. This has been derided by many individual universities and sectoral organisations as a backward step when the information collected and shared has never been more critical to assess and drive change.



A statement from the OfS says it is "committed to being a low burden regulator" and currently "does not have a regulatory need for the data within the estates management record. It is not an OfS requirement for providers to have carbon management plans. However, in our terms and conditions for funding in 2019-20, we state that providers should use capital funding in ways that will improve environmental sustainability, such as



reducing carbon emissions." Encouragingly, the EAUC is responding in absence of governmental support by calling a Climate Crisis Summit in October 2019 that will bring together "all of the leading sector agencies to develop our own framework and our own targets for universities and colleges".

Carbon

In 2010, the HEFCE required universities to commit to reducing scope 1 and 2 emissions and to measure their scope 3 emissions. This was mirrored in the other UK jurisdictions for the most part. Thus, for nearly a decade, the sector has been actively engaged in carbon management planning to deliver reductions with special focus on energy and ground transport in the first instance, but quickly encompassing waste and other emission sources.



Various institutions have made carbon neutral commitments (usually for scopes 1 and 2 with a few scope 3 sources included) and/or have installed various renewable energy sources behind the meter (such as solar, wind and biomass) or set up combined heat and power plants using transition fuels like natural gas, although for the latter with an admission that this has not always been economical and has locked in carbon emissions.

In early 2019, the UK government announced that it would be Net Zero by 2050. This has far reaching implications for all aspects of their economy and society. According to Carbon Credentials, an EAUC conference sponsor, these implications include:

- 95% of electricity supply is renewable
- 4x current power capacity (electric)
- 90% of residential buildings use low carbon heating
- 100% of non-residential buildings use low carbon heating
- 50% reduction in emissions below 2008 levels in shipping
- 20% reduction in beef, lamb and dairy consumption
- 30,000 hectares afforestation per year
- ~175 Mt CO₂ captured and stored

EXEMPLARS: Some institutions have already been stepping up and leading in more radical shifts to lower carbon emissions, including focusing on air travel of university academics and other staff (University of Edinburgh), generating more of their own renewable energy (see below) and ensuring there is a truly holistic approach across their institutions (NTU's Carbon Elephant Project) and in partnership with their local communities (UWE/Bristol). UWE – battery-based grounds equipment (significant decrease in petrol use) and have devolved carbon reduction targets to Deans (have to report, 3%/yr decrease). University of Manchester has a zero carbon by 2038 science-based targets consistent with Paris Agreement. The University of Gloucestershire's new zero emissions [BREEAM excellent certified](#) business school uses 4 air source heat pumps for all its heating, eliminating the use of fossil fuels on site.

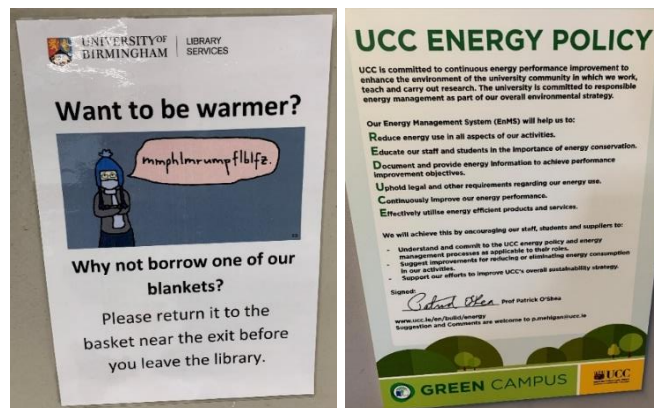
EAUC Conference "Greater Manchester Carbon Target" session notes:

- Professor Kevin Anderson - beware 'net' statements – moves issues to the next generation; need a science-based radical shift, don't lock into the incremental longer-term approach, too late for that. Need to have a carbon budget approach (Manchester will need a 15% annual cut); implies and requires rationing – what are measures of success (equity dimension)
- By 2028, only zero carbon buildings, none will get planning permission if not, so skilling the workforce matters, lots of jobs to come in this space (need 5000 people to retrofit bldgs in Greater Manchester); transport a huge contributor, so to address need segregated cycleways everywhere, end of trip facilities, etc.

Energy

Energy is a major focus at nearly all the visited institutions, both from external factors (as discussed above) and internal drivers. Generally, there is a holistic focus at all institutions on energy efficiency and lower carbon energy supplies. Part of this is engagement around energy use as well.

Onsite low emissions (CHP - combined heat and power; lower than coal) and/or renewable (wind and photovoltaic) sources as behind the meter installations are common and seen as a risk management, carbon reduction and cost control strategy. Importance of knowing costs, payback periods and overall return on investment is noted. Also, recognition that grid limitations are hampering renewables growth.



Energy Efficiency

EXEMPLARS:

- University College Cork – (see above whole of building example) displays energy policy and encourages students to seek out a study area/floor that has suitable temperatures for them, rather than heating or cooling the whole building to one temperature
- University of Birmingham - signs in library offering blankets for those feeling cold
- University of Gloucestershire - integrates timetabling and air conditioning
- Aston University - use Wi-Fi signals to determine occupancy as quicker response times (20 sec vs 20 min for CO2 sensors) and lumen and motion sensors with short setting times; used SALIX funding (interest free loans for matching funds, projects with 5-year payback not including maintenance savings) with savings used to repay the loans
- University of Edinburgh - ~£1m/year on energy efficiency with <5-year ROI; some portion of this is ring-fenced for smaller projects that just happen don't need to be reviewed (e.g., lighting); 154 'Energy Coordinators' (60% in labs) across the university
- University of St Andrews – assessing using lights (LED ballasts) and piggybacked Wi-Fi as occupancy sensors
- Ulster University - The Student Energy Project (TSEP) run with Accommodation Services – national engagement program for students in residences with 52% of students registered
- University College Cork – 'Saver Saves' scheme – started with 4-5 buildings (mostly equate to a school as main occupants), gave schools funding to implement energy savings projects nominated by that school using information from Estates on energy use
- University of the West of England - central heating upgrade (700-1000 tCO2e/yr reduction)

Onsite renewable energy

EXEMPLARS:

- University of the West of England - >1700 PV panels with 200 tCO2e/year reduction
- Nottingham Trent University – have PV panels and pursued wind turbines for one campus but unsuccessful due to complaints about rural views, even went to the high court
- University of St Andrews has - plans 6 x 2 MW wind turbines on the University Farm at Kenly, saving 19,000 Tonnes of carbon per year

- Ulster University - 2 wind turbines for 3GWh and 8 PV arrays for 100MWh together generating 17% of behind the meter energy needs (see images)



Other renewable energy arrangements

EXEMPLARS:

- University of Bradford - three biomass boilers with some issues, including fuel storage, servicing, reliability, and requires backups
- University of St Andrews - new £25m biomass energy centre using only wood from sustainable local sources, built on the site of a former paper mill and pumps hot water from the plant four miles underground to heat and cool laboratories and student residences
- Nottingham Trent University - biomass boilers has issues, Russian fuel source, flues in city unpopular, maintenance issues; anaerobic digester had too many trucks; buy GreenPower

Lower carbon energy (relative to coal!)

EXEMPLARS:

- Nottingham Trent University - CHP plant and ground source heat pumps (have had commissioning issues)
- University of Edinburgh – CHP, noting it has previously helped on reducing emissions, but with the decarbonisation of the Scottish grid this is no longer the case so are looking at future options
- University of Birmingham CHP based on natural gas boilers.

Significant signage for these (images to right), including multistorey high versions on the sides of the CHP plant itself and viewing windows to digital displays.



Laboratories

Sustainability in laboratories is being addressed more specifically with introduction of a UK-based Lab Efficiency Action Framework (LEAF) with an initial cohort of 12-15 universities. LEAF is based on Green Impact with a focused list of specific actions and is being developed by a working group led by University College London (UCL) and Kings College. The possibility that a system involving audits and accreditation is under exploration as a product from the LEAF approach.

EXEMPLAR:

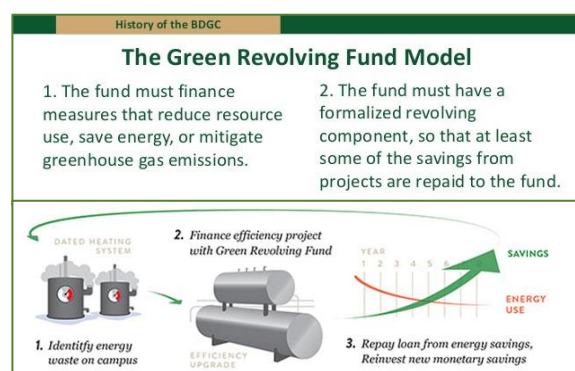
- The University of Edinburgh is participating in LEAF as it had been doing the Green Impact lab portion for a few years that led to a bespoke Sustainability Labs program (a 3-year plan) that involved audits and spot checks. The system involved ongoing matching and linking back to Green Impact. Some of the focus areas include:
 - Lab plastics reduction
 - Carbon footprint
 - Chemical replacement program
 - Ventilation and cold storage and chemical storage, including an internship working out cold storage issues, defrost schedules, systemising storage, archiving storage freezer farm (consolidation) with 600+ ultralow freezers
 - Reassessing standard practice to create new best practice guide

Sustainable Campus Funds

A few universities have implemented a 'sustainability fund' or similar nomenclature wherein a strategic allocation of funding is provided for staff or student nominated sustainability improvements. There are any number of arrangements to this, from only funding initiatives that deliver savings that are then reinvested into further initiatives through to set allocations each year provided for any initiative.

EXEMPLARS:

- University of Edinburgh focuses on their Climate Strategy and through their Sustainable Campus Fund worth £4.75m with £2.3m allocated since 2016 for energy or other cost saving activities from efficiency to renewables
- University College Cork 'Saver Saves' scheme started with 4-5 buildings (mostly equate to a school as main occupants), gave schools \$ to implement energy savings projects nominated by that school (Estates gave information on high energy use areas, so informed decisions) recognising that what works will be different in different areas; then moved on to the Library (found an interested and motivated group overall). 280 electric meters (and 6 water) supports Energy Management Platform



Transport

Sustainable transport remains a focus across all universities with very high visibility on campuses – from bikes, buses and trains, to electrified fleets. Several institutions conduct regular sustainable travel surveys and examine resource allocations to improve sustainable transport mode uptake. For example, University of Edinburgh are considering removing some direct shuttles between campuses to reallocate resourcing to a bike scheme, more bike hubs and subsidised public transport.

Bikes

Bikes are treated as integral to all sustainable transport efforts at the visited institutions, including some including electric bikes, but no visible provision of power points for charging personal bikes noticed.

Bikes being accommodated for, but also managed:

- Bike Hubs, lockers, secure facilities
- Signage encouraging a positive bicycle culture
- Signs where parking not allowed (no free-for-all)
- Ramps on stairs
- Bike theft seems to be a persistent problem given the warning signs at the majority of campuses
- Repair stations with pumps, water stations
- Constrained environments on older campuses can lead to high conflict areas be it between cars and bikes, bikes and pedestrians or all three (see images)

EXEMPLARS:

- University of St Andrews - staff scheme with 19 e-bikes at 5 return-to-base stations; provide training (>130 staff) and kit (hi vis, helmet); app operated so tech dependent; costs £7k/year maintenance inclusive; must become cost neutral to continue
- University of Exeter - electric bike hire stations
- University College Cork - shared staff bikes
- Nottingham Trent University - cycle hire scheme and more bicycle parking than cars
- University of the West of England - bike lease and loan scheme (e-bikes)
- University of Worcester - Woo Bike Share, 50 pedal and 50 electric bikes, but struggling with uptake due to declining bike culture
- Cardiff Metropolitan University - campus maps as banners on bike hubs that include other bike parking locations (and bus stops)





Public Transport

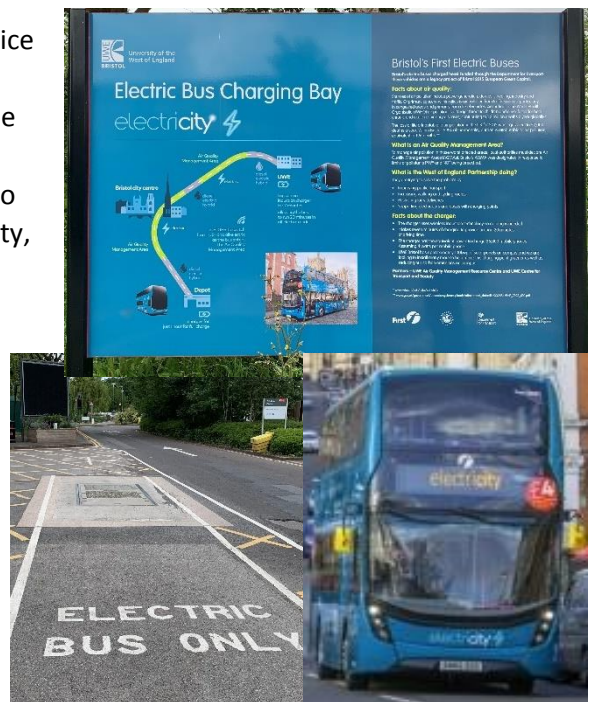
Branded buses are common as were dedicated routes and real time service information.

Nottingham Trent University was fortunate in lobbying for and successful in enticing light rail through the campus.



Electric bus (UWE)

Bus operator First West of England has two innovative electric buses for service in Bristol in partnership with Department for Transport, Bristol City Council and University of the West of England (UWE). The state-of-the-art low emission buses use Geo-Fencing GPS technology to run on pure electric mode in areas of low air quality, producing zero emissions. In areas of better air quality, a small diesel engine is used that charges the electric engine. There are currently five buses trialling the new technology in the UK, two in Bristol and three in London. Engineers and scientists are assessing bus performance and their environmental impact. The buses also charge wirelessly by a special plate in the ground at the University of the UWE's Frenchay Campus (the terminus of their route).



Vehicle Fleet (electrification) and car charging

Electrification of fleets and provision for electric car charging for commuters was common in small but growing numbers. Ulster University and University College Cork have policies (Appendix C) to govern charger use given the increasing demand and recognition of operational issues in managing these in future as people are already not willing to move their cars once charged and treat the car park as their own dedicated spot; hence the need for policy regarding this and other issues. Also, of note is that branding and sustainability messaging is important and a visual reference point that electric vehicles are on their way more ubiquitously.

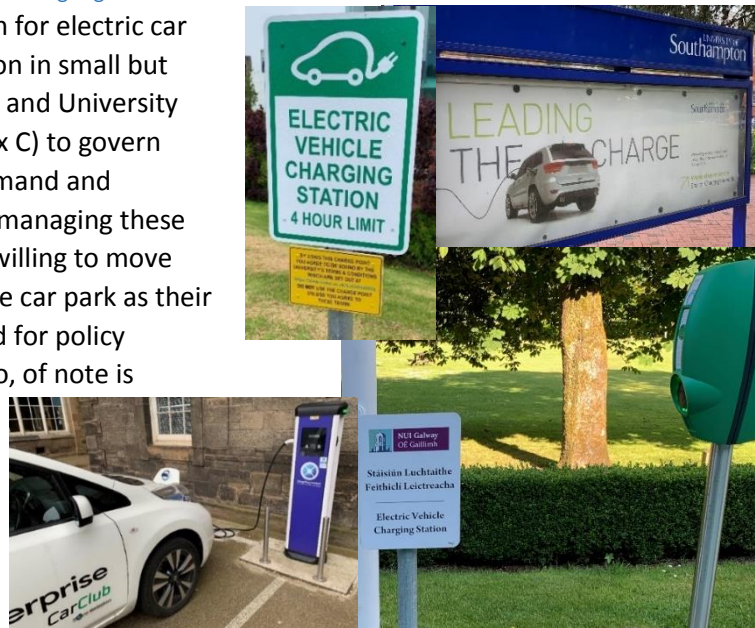




TABLE 1: Sample of institutions visited with number of electric vehicles in fleet and charging stations

Institution	# Electric cars in fleet	Charging stations
Keele University	3 vans; 20% of fleet (2017)	9 for fleet, residents and public
Nottingham Trent University	2 (maintenance and information services teams)	2 at Brackenhurst campus adjacent to the landscape services yard and four at South Gate main staff car park for all staff to use.
Ulster University	None, van is coming soon	6 chargers on campus and 16 more installed in new Belfast carpark
University College Cork	1	16 EV spots (more coming)
University of Bradford	n/a	4 fast charge - 2 at City Campus; 2 at Management & Law faculty; electric vehicle parking permit needed, fob activates charger. Free to permit users but limited to 3 hours at a time
University of Edinburgh	30% of estates fleet now zero emissions	>33 across the city campus and hub of 10 at the King's Buildings. Plans for more at BioQuarter and Easter Bush. Available for public use and University vehicles.
University of St Andrews	10 in Enterprise hire fleet (2 vans / 8 sedans)	16 in various locations
University of the West of England	4 electric and hybrid pool cars	12 free electric charging points at Frenchay Campus with plans for more at Bower Ashton Campus and Glenside Campus
University of Worcester	2 vans, conversion to electric at vehicle renewal	6; 4 public access and 2 for fleet
University of Strathclyde	5 EVs and van to come; 2 are pool vehicles	9 charge points (part of national network), 100+ EV users

Car and Ride share

Many universities offer car and ride share services, either in house or as part of a wider community scheme. Recent innovations include a focus on electric vehicles (see above section).

EXEMPLAR:

- Cardiff Metropolitan University supports car sharing for all students and staff through [SharetoCardiffMet](#) in partnership with Cardiff Council. Staff are entitled to dedicated car sharing parking spaces and can share with employees from CMU or other Cardiff organisations registered in the scheme. CMU currently has a total of 788 members and 36 active groups registered with the car share scheme.



Parking Management

Innovative car parking permit restrictions at Cardiff Metropolitan University includes a restriction for staff based at the Llandaff campus and living within a nominal 2-mile radius of campus. A permit will not be issued to any individual whose 'base' campus is Llandaff and who lives within the boundary stated (by post code). Confirmation of base campus and home address is provided by Human Resources in accordance with the Data Protection Policy. These staff are encouraged to use a bus, active transport or carpool. This change does not apply to disabled and temporary disabled users who can obtain a standard parking permit.

Air Travel

Increasingly, air travel is becoming a focus for institutions due to the significant greenhouse gas emissions coming from this travel mode. As many universities are reliant on air travel in the current academic paradigm, this is an area to watch in relation to innovation in everything from how academics and professional staff interact across the world to advances in fuel technology and aircraft design.

EXEMPLARS:

- The University of Edinburgh is a leader in this space having established the [Roundtable of Sustainable Academic Travel](#) in 2018, involving over 80 universities, to consider the current situation and future approaches. Universities world-wide are encouraged to join.
- University of St Andrews monitors staff business travel emissions through liaison with travel providers and staff travel expense claims and these are reported in the Public Sector Climate Change Duties Report for the Scottish Government.

Waste and Resource Management

Waste and resource management is often one of the most basic elements of a university achieving positive outcomes in sustainability. Again, effective waste management is very much dependent on context, commitment, approaches and tools used. There is opportunity in innovation especially in relation to embodying circular economy principles in which the goal is to minimise inputs used from raw materials in favour of cycling materials back around for re-use and recycling. Part of this is minimising waste generated in the first place by minimising packaging, changing packaging types, and engaging with people through education and communication efforts. Some general observations from the study trip include:

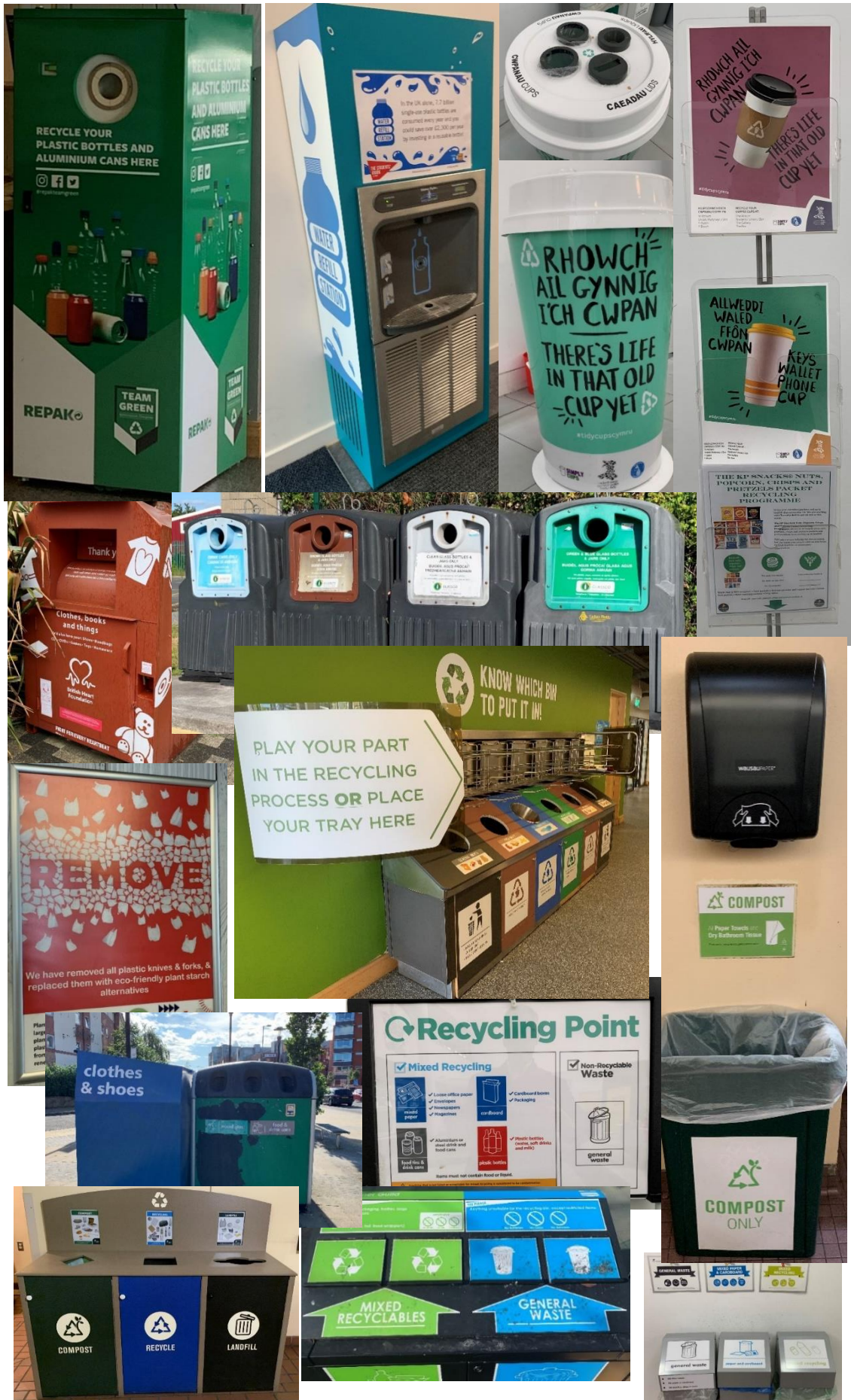
- Bin signage words, images, and colours varied between institutions and within an institution
- Prevalence of donation bins alongside recycling bins (especially near residential areas)
- Not all institutions have waste staff as part of the sustainability team, but there is collaboration with estates staff (e.g., Nottingham Trent University, University of Edinburgh)
- Data collection and auditing is an important part of making change
- Some zero waste to landfill success means what is not recycled is used in waste-to-energy plants
- Water stations help reduce number of water bottles sold and discarded, as does provision of re-useable containers in cafes.
- Some examples of smart bins – self compacting and notify for collection when full to avoid emptying only partially filled bins
- Great use of the Warp It Re-use scheme (thanks Daniel O'Connor)



EXEMPLARS:

- University of California - Berkeley - [zero waste](#) strategy / outcomes
- University of the West of England - waste hierarchy 'hate waste' campaign
- University of Gloucestershire - keep IT equipment for 6-8 years (twice industry average)
- Aston University- achieve a plastic-free certification from 'Surfers against sewage'
- Nottingham Trent University- all take-away coffee cups used on campus now recyclable (vs compostable)
- University College Cork – uses humour on signage
- University of Edinburgh – have 'Circular economy strategy'
 - Compactors in central locations
 - 1 bin set (general & mixed recyclables) per 15 office staff
 - 5 years ago, removed under desk bins – focus on efficiency for cleaning staff and increase recycling
 - No landfilling – all goes as refuse derived fuel for energy-from-waste incineration
 - Collect all coffee grounds for pharmaceutical company Revive Eco that uses as a spoil conditioner
 - Focus on student clean-outs at university-managed accommodation; store at end of semester and have a 'Free Shop' at the start of the year
 - Waste audits incorporated into waste contract to support annual audits







Mixed messaging continues...
same café, same counter →

Waste auditing



Helping the Cleaners do it right.



Natural Environment (Biodiversity and Landscaping)

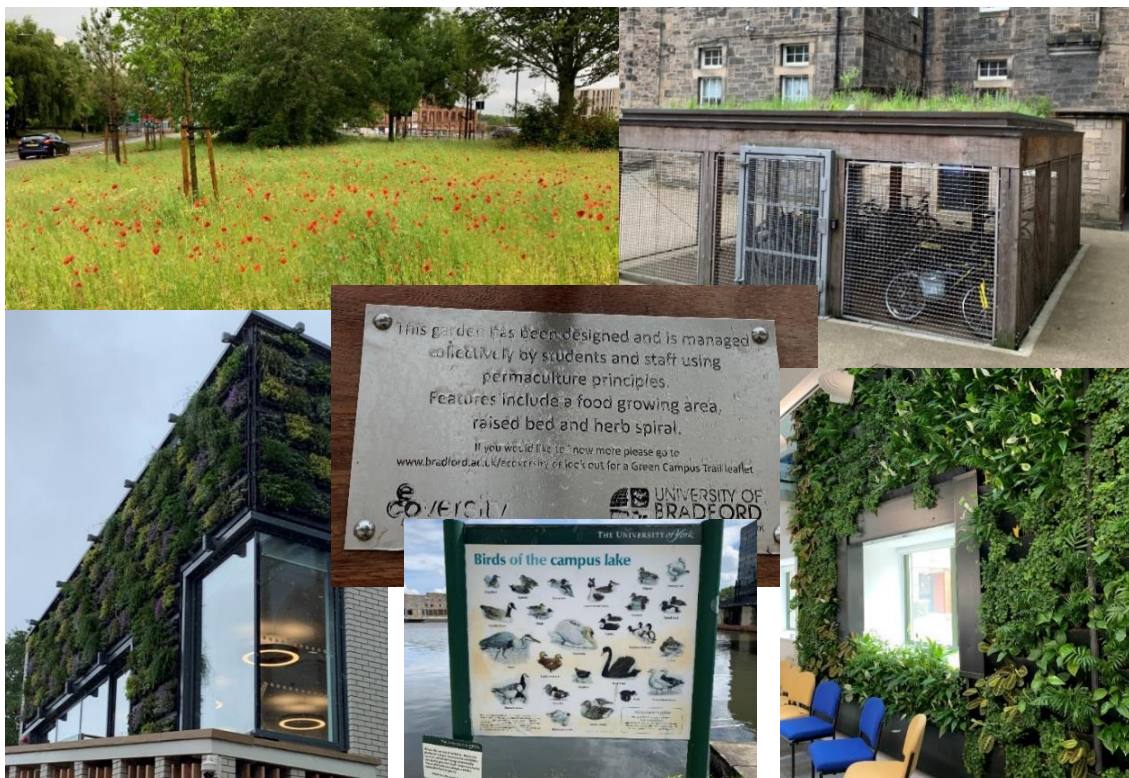
The natural environment on campus is moving very much beyond a focus on manicured lawns and trimmed hedges to increased consideration for biodiversity (especially bees), including wildflowers, rare and threatened species and encouraging bees and other native fauna. Many referred to this change as a 'rewilding' of portions of campus. Other approaches are to find a local connection and focus on that in landscape plans. Green roofs and green walls both internal and external are also in evidence on campuses as well as bringing more plants inside buildings.



Green roofs and green walls both internal and external are also in evidence on campuses as well as bringing more plants inside buildings. [Green Flag Award](#) certification is an international scheme for landscape plans, assesses quality of green spaces and public places. Alongside this are increased use of campuses for food growing and education, see following section on food culture.

EXEMPLARS:

- University College Cork – first in Europe to get Green Flag certification; areas of wildflowers that are very popular for photos and tours, but as the beds are relatively new, some uncertainty in how they will be viewed in the 'off' season so some management of expectations will be required
- Nottingham Trent University - set up a dye garden to grow plants used in textiles colouring and newest campus has significant informational signage (see campus trails below)
- Keele University Green Team – encourages gardening activities, clean-ups, and weed removal, all tie into wellbeing weeks to create and de-stress community
- Manchester Metropolitan University – newest campus area has significant informational signage for natural environment portions of the campus trail (see below)
- University of Dallas – Texas is Bee Campus USA certified





UNIVERSITY of BRADFORD

Campus Bees

This is our main apiary, home of our campus bees. You can get trained to be one of our volunteer beekeepers and help look after these lovely creatures who pollinate our edible campus. To find out more contact bees@bradford.ac.uk

HERE ARE SOME GREAT FACTS ABOUT BEES TO WHET YOUR APPETITE

Bees are the only insects that make food that people can EAT	Our honey contains all of the substances needed to sustain life (vitamins, minerals, proteins and vitamins)	Calling honey can help you smarter! (It's been shown to improve memory and concentration)	One bee will only make 1/12 of a teaspoon of honey in its entire life
Bees have the strongest stomachs. One bee can eat and regurgitate another back for nectar	Many plants are in need of bees in order to be pollinated which is why they provide nectar for us to eat	Our colony makes an average of 70kg of honey	Our colony could pollinate 20,000m ² of fruit trees
1/3 of all the pollinators we eat to live are bees	A bee's wings beat 11,400 times a minute	Bees have only one sense of smell that is stronger than any other animal	45kg of honey is made from 100kg of nectar

LOVED AND VALUED



Boots Library

Café
Roof Garden

NOTTINGHAM TRENT UNIVERSITY



Nottingham Trent University's Clifton Nature Trail

Balancing ponds

These ponds are a key feature of the Clifton Nature Trail. They are designed to provide a habitat for a wide range of wildlife, including birds, insects, and plants. The ponds are also used for waterlogging, which helps to improve the soil and reduce the risk of flooding.

NOTTINGHAM TRENT UNIVERSITY



Food Culture

The importance of food and food growing is well-established at many of the leading universities visited. Food is used to promote health and wellbeing, community, volunteerism, supporting local economies as well as education and research. Fairtrade is a focus for many universities.

EXEMPLARS (see as well Appendix D Targets and Indicators):

- University of Bradford – food gardens all over campus, including vegetables and herbs through to flowers and other bee friendly landscaping and an apiary (see natural environment section above)
- University of Gloucestershire - Sustainable Catering
 - 49 actions and targets in [policy document](#)
- University College Cork –
 - notes growing support for vegan/vegetarian, so exploring meat free days each week across all cafes
 - locally sourced is highlighted across whole walls with catering company KGS having their own farm only 5km away to produce food used in main café that is delivered daily; Important to them that it is an Irish owned company
- University of Southampton - cutting out red meat with burgers <67% meat for example, Zero Palm Oil commitment; consider environmental impacts (especially deforestation)
- Keele University – great information in cafes on sustainable eating, local production and sourcing of food served (see also targets in Appendix D).
- Nottingham Trent University - food share allotments at student residences, staffing support, give away produce
- University of St Andrews – has 14 edible campus gardens and 2 community orchards in one of the largest campus-based food growing schemes in the country
- Plymouth University – has indicators for creating a sustainable food culture.





Built Environment

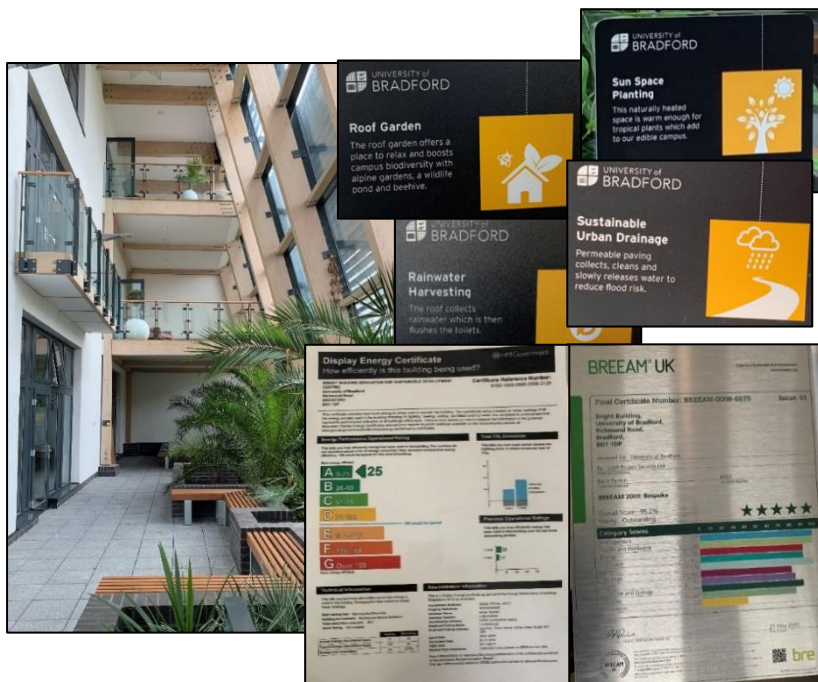
The built environment has a significant impact on the sustainability outcomes of any organisation, so like many sectors higher education institutions have been keen (and required) to deliver high performing buildings across a range of criteria. [BREEAM](#) (Building Research Establishment Environmental Assessment Method), first published by the Building Research Establishment (BRE) in 1990, is the world's longest established method of assessing, rating, and certifying the sustainability of buildings. Many visited institutions have committed to delivering BREEAM certified new developments and major refurbishments. Others have used SKE HE designed by the industry for the industry to meet the requirements of higher education interior fit-outs and refurbishments, including labs and lecture theatres. While others have developed their own bespoke design criteria and applying performance-based requirements (e.g., post occupancy evaluation (UWE)).

Smart Buildings and Digital Transformation was a focus at the APPA conference noting that facilities management must see beyond the value for energy efficiency to student and staff productivity as these are two orders of magnitude higher value. Also, as technologies in IT are converging with that in facilities management, the need for a common language is critical so that the two approaches can share same network and - meaning facilities folks must provide the language or change to match.

EXEMPLARS:

- Nottingham Trent University
 - have had issues with new builds delivering bad performance, so design specifications are focused on performance and Energy Performance Contracts
 - Delivered the “Pavilion’ building in 2015
 - carbon negative energy performance certificate rating of A+
 - 96kW solar panels, building emission rate of -3.94 kgCO₂/m². In other words, it’s a carbon negative building
 - optimises energy performance using PassivHaus principles
 - Low energy, air-tight design maximises operational efficiency – for example, revolving doors minimise annual heat loss
 - 95% of waste from the project was recycled
 - Automated louvers (shutters) provide natural ventilation, while floods of daylight throughout the building enable reactive LED lighting that responds to external light levels
- University of Bradford
 - 3 different BREEAM ‘outstandings’ with 100m of each other
 - Sustainability specifications were required and ambitious for new and refurbishment works, but due to institutional budget cuts have been wound back
 - “The Bright” building:
 - Rated as most sustainable building in the UK when opened, BREEAM (outstanding) and PassivHaus
 - A year overdue and over budget
 - 250kW of solar, multiple arrays
 - No gas
 - Used hempcrete (450mm thick), better for warmer climate for drying, put in during the wettest summer ever, kept absorbing water so had to dry it with a heater (negative impacts!); can get pre-cast hempcrete panels now
 - Minimise mechanical ventilation, but air source heat pumps used for chill
 - Not fully occupied so modelling not accurate for comparisons yet
 - Balance user needs with operational (users want some control)
- University of Edinburgh – determined that design guides are too detailed so are developing performance-based approaches
- Aston University
 - Used BREEAM 2012-2015 but found that a new high laboratory-use building ended up being very poor performer despite certification.
 - Now use own internal specifications document for new and refurbishments and spend a lot of time to regularly update these; found it is 3-5% capital costs increase, but commitment to this.
 - Use SKA HE (Free Tool) for <£1m projects with sustainability team auditing the projects. SKA Gold review for some of their projects are available online for detailed information.

Nottingham Trent University's 'Pavilion' building was rated as the most sustainable building in the UK when it opened →



← Bradford University's 'The Bright' building is not only constructed to be high performing, it is a fantastic example of an engaging and informative building that highlights all the elements that make it exceptional through a clear engagement focus (see signage examples in images)

Keele University has a demonstration hub building and area that is being re-imagined now that its 'innovative' building elements have become more commonplace →



There is discussion at other institutions on the value of 'sustainability hubs' with a current research project on their success or not underway at the University of Worcester.

Campus 'Trails'

Another important element of visibility of sustainability involves tours, maps, or information available online or physical signage (directional and informational). Some are focused on natural environment aspects (see above, University of York Tree Trail, Nottingham Trent University), others within a single building (see Bradford's 'The Bright' above) and others cover off on a range of sustainability-related features. A few of the campuses visited had very good examples.



EXEMPLAR: Birley Campus of Manchester Metropolitan University Sustainability Trail.

Birley Campus Sustainability Trail

The Birley Campus Sustainability Trail is open for **everyone** to visit, relax, play and enjoy.

Welcome to Birley Campus, Manchester Metropolitan University (MMU) have Community Campus. It's home to the Faculties of Education and Health, Psychology and Social Care, and to students living in halls of residence. MMU aims to be a University with a positive environmental impact. By integrating environmental sustainability into every aspect of design, Birley Campus is playing a major part in achieving MMU's ambition of 'Zero Carbon, Zero Waste and Zero Water' and Maximum Biodiversity.

Zero Carbon: Using design and technology to optimise the use of electricity and gas, and reduce carbon footprint.

Zero Waste: Maximum recycling and Zero Waste to landfill.

Zero Water: Collecting, extracting and reusing water to meet our needs.

Sensory Garden

This Sensory Garden has all kinds of edible and aromatic herbs and botanical style planting. It's great for learning and research as well as providing somewhere to explore and relax.

It's a garden with a purpose - much of the produce grown here can be used in the freshly prepared meals served at Birley Kitchen. This includes a whole array of better-known herbs and plants such as chives, fennel, bay, lavender, oregano, rosemary and thyme.

Community Orchard

The Birley Community Orchard is made up of 19 varieties of apple, pear, cherry and plum trees.

The area is a haven for wildlife, providing valuable habitats and is a great place to explore and unwind. All the fruit trees were grown and maintained in Hulme Community Garden Centre before being planted at Birley Campus. The trees have been selected because of their suitability to the local climate and beautiful cropping characteristics.

This orchard is the perfect place to learn about food production and fruit tree maintenance, as well as being a place to enjoy, relax and experience the changing seasons.

80% of England's orchards have disappeared since the 1950s.

Orchards are wildlife hot spots - rich in biodiversity, providing unique and valuable habitats.

Zero Water

Water is a precious resource, even in Manchester! Here at Birley Campus, we have a range of water supply, collection and sustainable drainage systems that are used to reduce the University's water consumption.

All of our water systems and processes help to reduce the risk of flooding to the surrounding urban area. We reuse grey water for non-drinking uses such as flushing toilets, and our boreholes provide all the tap water and aims to eliminate mains water consumption. Rainwater is used for toilet flushing and excess rainwater is collected and soaks back into the ground to replenish the water table.

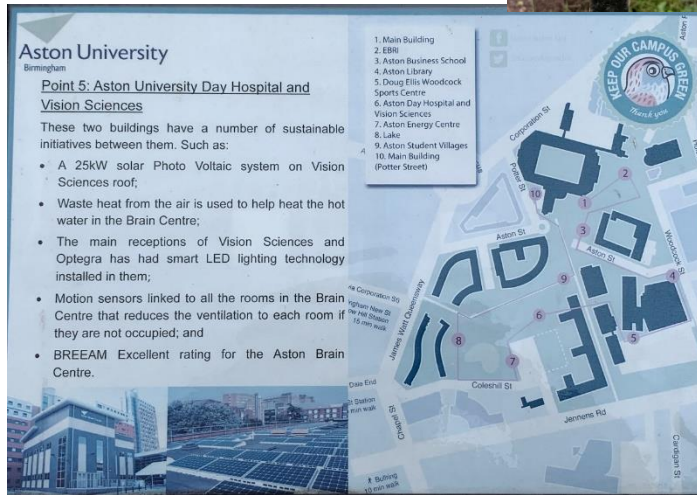
Waste Grey water is used to flush toilets before passing to the sewer system (black water).

Grey water recycling Waste water from sinks in an urinal water has



OTHER EXEMPLARS:

- University of York Campus Tree Trail
- Aston University sustainability trail
- University College Cork wellbeing trail with health and sustainability focus.



Procurement

A number of visited universities use the [UK Government Sustainable Procurement Flexible Framework](#), a self-assessment mechanism that allows organisations to measure and monitor their progress on sustainable procurement over time by systematically working through different themes from levels one to five. [Fairtrade](#) is also a major focus and is almost an expected element so almost doesn't get a specific mention (e.g., University of Edinburgh has been Fairtrade for 15 years). The [Chartered Institute of Procurement and Supply \(CIPS\)](#) also provide information and frameworks used by visited institutions.

EXEMPLARS:

- University of the West of England – Fairtrade certified, uses Net Positive tool CIPS; eradicating palm oil and plastic in the supply chain
- Ulster University - procurement office using Flexible Framework (rated to Level 4) to meet the requirements of ISO14001 (Environmental Management System)
- Cardiff Metropolitan University - have rules for what can't be ordered (e.g., regarding printers and cartridges)

Ethical investing

Divestment and positive investing maintains its priority for many, but to some extent while supported, this issue is outside the remit of most of my peers' roles. That said, there has been recent movement by several leading universities to divest and is included in many sustainability reports. Many of the rating/reporting systems discussed above also include ethical investment in scoring.

Keele University	Commitment to increasingly focus investments in companies with a positive environmental and/or societal impact, specifically in areas of clean energy and technology. Investments will be in line with strategic aims and environmental, social and ethical values. Made a commitment to divest from fossil fuel extraction companies, and to continual divestment from companies which do not meet environmental and social values, including arms companies.
University College Cork	Divested from fossil fuels 'a number of years ago' and signed the UN PRI in July 2018 and to report annually on investment portfolio (notes other universities have signed the UNPRI, including Edinburgh, Harvard, Montreal, Northwestern, Ottawa, St Andrews); 70% of Trust is invested in 'positive sustainability investments' including forestry, ethical global equity, Irish energy efficiency and renewable energy funds.
University of Edinburgh	Committed to full divestment by 2021 in published targets, signed UN PRI in 2013; already divested from coal and tar sands, reducing direct exposure to fossil fuels by 90% since 2008, publish PRI reports online and scored straight As in latest PRI report and named part of the PRI Leaders' Group ; are exploring a course on responsible investment management in Business school.
University of Gloucestershire	Divested May 2018: decided "... to fully divest from fossil fuel extraction companies with immediate effect. It follows a review of the university's Ethical Investment Policy, concerns of staff and students and a decision to support the Student Union campaign to divest from fossil fuels. The university plans to reinvest the sale proceeds in companies that score highly within Environmental, Social, Governance (ESG) assessment. These are the three primary factors in measuring the sustainability and ethical impact of an investment company. This sector will automatically include companies that have a clean energy focus and is an area that the University are already engaged in."

Conclusion

As is evident throughout this report, there is significant effort happening across the tertiary education sector with respect to advancing a sustainability agenda through the efforts of sectoral bodies and individual universities in the UK, Ireland and North America, whether driven and supported by national and local governments or from within the sector itself. There are many innovative approaches taken by sector leading institutions who are very willing to share to their experiences, tools and information in a collaborative manner. I am very grateful to all my peers that were willing to share these directly with me before, during and after my site visits. To you all I owe a sincere thank you and I hope that this report is as useful to all of you in some way as it has been to me and my Australasian colleagues. I trust that I faithfully captured our conversations and have highlighted your efforts to the benefit of our peers across Australasia and beyond.

APPENDIX A – Governance and Management

INSTITUTION	Policy	Lead	Group Name	ToR?	Chair / Sponsor
Aston University	Env and Sust 2017	Energy, Environment and Sustainability Manager	Sustainability Action Working Group	Yes	Rotating
Cardiff Metropolitan University	Env and Sust 2019	Environmental Performance Manager	Environmental Performance Group	under dev't	Pro Vice Chancellor (Sustainability, Wellbeing and Health)
Keele University^	Env Sust 2019	Shared: Environmental Manager / Sustainability Projects Officer	Environment & Sustainability Working Group	unsure	Deputy VC & Provost; University Strategic Lead for Environment and Sustainability
Nottingham Trent University	Env. 2018	Sustainable Development Manager	Joint Executive Sustainable Development Forum	Yes	Academic appointees / Chief Operating Officer is Executive Team Sponsor
Plymouth University	Env. 2018	Sustainability Manager	Sustainability Advisory Group	unsure	Chair and Executive Champion: Executive Dean for Science and Engineering
University College Cork	Env. 2016?	Energy & Utilities Manager / Sustainability Officer	Sustainability Forum	No	Deputy President and the Director of Buildings and Estates
University of Bradford	n/a	No central role	Ecocampus Board – focused on Property Services impacts only	No	N/A
University of Edinburgh	Variety	Director of Social Responsibility and Sustainability / Estates (Waste Manager, Head Energy and Utilities Management)	Social Responsibility & Sustainability Committee	a remit	Senior Vice-Principal
University of Gloucestershire	Variety	Director of Sustainability	Sustainability Committee	unsure	Director of Sustainability
University of Southampton	Env and Sust 2017	Sustainability Manager	Environment & Sustainability Leadership Group	unsure	Sustainability Champion (a member of University Executive is appointed)
University of St Andrews	Sust Dev't 2012	Sustainability Manager	Sustainability Development Working Group (SDWG)	No	Chief Operating Officer (Quaestor and Factor)
University of the West of England	Env Sust 2017 (annual review)	Assistant Vice Chancellor (Sustainability)	Sustainability Board	Yes	Assistant Vice Chancellor (Sustainability)
University of Ulster	Env Sust 2016	Sustainability Manager	Environmental Sustainability Steering Group (ESSG)	Yes	PVC for Global Engagement
University of Worcester	Sust 2018	Director of Sustainability	Sustainability Strategy Group (not a formal committee)	Yes	ESD Academic Lead (Institute of Science & Environment Deputy Head)

*Not classified primarily as academic / teaching and learning / research / community and welfare (wellbeing) / student experience

Example Terms of Reference – University of the West of England

Sustainability Board

Purpose

To enhance the sustainability practices and developments of the university in all its educational and operational endeavours and thereby to enhance the reputation of the university and its attractiveness to current and future students and staff as a place of study or employment.

To consider contemporary and emergent sustainability risks, opportunities and challenges and to advise the University on appropriate actions.

Terms of Reference

- To support the achievement of Strategy 2020 objectives
- To guide, support and develop the University's integrated approach to embedding sustainability in all its endeavours
- To devise and oversee implementation of the Sustainability Plan.
- To advise the Vice Chancellor, Academic Board and the Board of Governors on progress with the plan and matters pertaining to risk and reputation.
- To share good practice and promote continuous improvement.
- To assure the requirements of ISO 14001 certification are met.
- To assure the requirements of Responsible Futures accreditation are met and to support the implementation of the Principles of Responsible Management Education (PRME).
- To advise on the sustainability implications of current and future policies and practices.
- To advise on the continuing appropriateness of the Ethical Investment Policy.
- To establish appropriate procedures to ensure effective communications within the university on issues discussed and decisions taken by the board.

Membership

- Assistant Vice Chancellor, Environment and Sustainability, Chair.
- Director of Estates and Facilities
- Pro Vice Chancellor Research and Enterprise, Directorate Sponsor
- An additional member of the Directorate nominated by the Vice Chancellor
- President of the Students' Union
- A Vice President nominated by the Students' Union
- An Associate Dean nominated by the Associate Deans responsible for Learning and Teaching
- An Associate Dean nominated by the Associate Deans responsible for Partnerships.

Clerk to the Board

- PA to the Assistant Vice Chancellor, Environment and Sustainability

In Attendance and Reporting to the Board

- Sustainability Plan Theme Leaders
- Sustainability Officer, Students' Union
- Green Team Coordinator, Students' Union
- Trades' Union Representatives
- Such others as may be required from time to time to discharge the Terms of Reference

Quoracy

One half of the membership

Meeting Frequency

A minimum of 4 times per year

Reporting Relationships

Reports to:

- Directorate
- Academic Board
- Board of Governors Finance, Estates and IT Committee

Reporting Bodies

- Sustainability Operations Group
- Healthy University Group
- Knowledge Exchange for Sustainability Education Group

Signed Prof James Longhurst
Asst Vice Chancellor for Environment and Sustainability
And Chair of Sustainability board
Dated 20 December 2017

Example Terms of Reference – University of Worcester

Sustainability Strategy Group

Terms of Reference

1. To advise and make recommendations to the senior executive on all aspects of sustainability and the promotion of social responsibility within the University;
2. To promote the continual improvement of the University's social and environmental performance beyond compliance towards sustainability;
3. To assist in ensuring the integration of environmental and sustainable principles into operational procedures and in promoting best practice at every level of the University's activities, including the use (and disposal) of materials, energy management, estate management, procurement, transport and teaching and research;
4. To monitor environmental performance indicators to help assess current and future levels of environmental performance;
5. To assist in setting objectives and targets to prevent pollution and mitigate the University's significant environmental impacts, including developing and monitoring carbon footprint, reduction targets and formulating strategies to minimise impacts;
6. To assist officers of the University in maintaining awareness of any relevant legislation and to advise the University on legislative compliance as necessary;
7. To monitor the implementation of the Sustainability Policy and Sustainability Strategy and report as appropriate;
8. To promote the engagement of the University's curriculum and research with issues relating to sustainability and social responsibility;
9. To assist staff to embed Education for Sustainable Development (ESD) within the teaching, learning and student experience at the University;
10. To monitor the management of the University's Environmental Management System (ISO14001:2015-EcoCampus);
11. To assist the University in working with the local community where appropriate to promote good practice in sustainability and social responsibility.

Sustainability Strategy Group reports to:

- The University Vice Chancellors Executive Board
- Audit Committee of the Board of Governors (ISO14001:2015- EcoCampus)
- Annual Sustainability Report and Review of Sustainability Strategy the Board of Governors

Specific reports on curriculum are reported to:

- The Learning and Teaching and Student Experience Committee

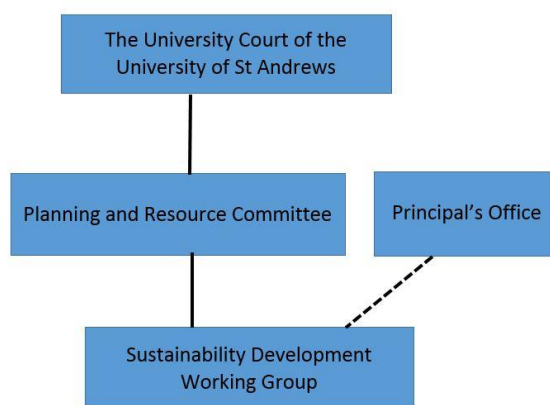
The notes of the Sustainability Strategy Group, agenda's and all papers are made available to all staff on the university all staff shared drive. Significant documents are also available on the sustainability area of the university web site.

Sustainability Strategy Group Membership List

- Pro Vice Chancellor (Students), as Sponsor
- Academic Lead for Sustainability, as Chair
- The Director of Sustainability, as Secretary
- The Director of Organisational Learning
- Director of Quality and Educational Development or nominee
- The Director of Estates and Facilities or nominee
- Purchasing Manager
- Principal Accountant or nominee
- Assistant Director Security & operations or nominee
- A nominee of Communications and Participation
- A nominee of the Research School
- A nominee of the HR department
- Energy Officer
- Sustainability Coordinator
- A nominee of the Student Union – President
- A nominee of Student Union – part time Sustainability Officer
- One Elected support staff representatives (for a 3/4 year period)
- Three Elected academic staff representatives (for a 3/4 year period) (One representative from each College)
- 2 union reps, UCU and Unison – can be elected staff representatives
- Two co-optees
- Academic Support Unit administrator - notes

Example Terms of Reference – University of St Andrews

Sustainability Development Working Group (SDWG)	Quaestor and Factor	Chair of SDWG and overall responsibility for climate change action and sustainability issues
	Director of Residential and Business Services	Responsible for climate change action and sustainability issues within Residential and Business Services
	Director Corporate Communications	Responsible for communications of climate change action and sustainability issues
	Director of Procurement	Responsible for sustainable procurement
	Sustainability Manager based in Estates	To promote climate change action and sustainable development and provide expert advice and support across the University
	Transition University of St Andrews Project Manager	To promote climate change action through practical activities and events suggested by community members
Environmental Facilitators	Academics	Responsible for climate change action and sustainability issues in research and teaching
	Trained staff across all schools and service units	Promoting and facilitating climate change action and sustainability issues within their school or unit.



Example Terms of Reference – Aston University

Sustainable Aston Working Group Terms of Reference and Roles

ROLE

To play a leading role in the development and implementation of Aston’s Sustainability Strategy. Members are to play an active role in championing and implementing the strategy within their Schools and departments.

MEMBERSHIP

The membership will comprise at least: two members from each School and the Estates & Capital Developments department; two representatives from the student body; one co-opted member from the University unions, a member of the Business Partnership Unit and a member of the University Executive. Support departments will also be represented and other members may be invited to join the group if the majority of members are in agreement.

The Chair and Vice-Chair will be rotated to represent all the schools (and potentially support departments) and will hold the post for one year.

FUNCTIONS


SAWG is unusual in that it reports directly to the University Executive through the Executive representative. The function of SAWG is to:

- champion the implementation of Aston’s Sustainability Policy and Carbon Management Plan, both at a strategic level and actively within all areas;
- monitor Aston’s progress against set targets and objectives;
- promote initiatives and programmes to enhance sustainability within both the University and the wider community
- enhance sustainability in all aspects of research activity;
- strive for the incorporation of sustainability within all taught programmes;
- implement the sustainability agenda within the University Strategy “Aston 2012” and “Aston 2020” going forward.

APPENDIX B – Framework, Reporting and RCE membership

INSTITUTION	Sustainability Leadership Scorecard (SLS)	Sustainability, Tracking, Assessment and Rating System (STARS)	Reporting / Framework***	UN-recognised RCE Member
<u>Interactive visits</u>				
Aston University, England	Yes	-	Own	N
Cardiff Metropolitan University, Wales	-	-	GRI (2015)	Wales
Keele University, England	-	-	Own (based on LiFE categories)	N
Nottingham Trent University, England	Piloted	-	LiFE (Silver)	Midlands
Plymouth University, England	-	-	GRI (2016) / LiFE Silver / EMS	N
Ulster University, Northern Ireland	Yes	-	SLS / EMS	N
University College Cork, Ireland	Yes	Gold	STARS	N
University of Bradford, England	-	-	Submit UI GreenMetric / EMS (EcoCampus)	Yorkshire & Humberside
University of Edinburgh, Scotland	Examined internally	-	Informed by various	Scotland
University of Gloucestershire, England	-	-	Strategy goals and EMS	Severn
University of Southampton, England	-	-	N	N
University of St Andrews, Scotland	Yes	-	N	Scotland
University of the West of England, England	Yes	-	EMS	N
University of Worcester, England	Yes	-	GRI / EMS- EcoCampus	N
<u>Walk-Through visits (exploring visibility)</u>				
Manchester Metropolitan University, England	Yes	-	not assessed	Greater Manchester
Marjon University, England	-	-	not assessed	N
University of Birmingham, England	-	-	not assessed	?
University of Cardiff, Wales	-	-	not assessed	Wales
University of Colorado/Colorado State U., Denver, USA	-	-/silver	not assessed	N
University of Exeter, England	-	-	not assessed	N
University of Galway, Republic of Ireland	-	-	not assessed	N
University of Manchester, England	Yes	-	not assessed	Greater Manchester
University of Nottingham, England	Yes	-	not assessed	N
University of Strathclyde, Scotland	Yes	-	not assessed	N
University of York, England	Yes	-	not assessed	N
<p><i>* Reporting / Frameworks</i> <i>EMS = Environmental Management System</i> <i>GRI = Global Reporting Initiative</i> <i>LiFE = Learning in Future Environments Index</i> <i>SLS = Sustainability Leadership Scorecard (EAUC)</i> <i>STARS = Sustainability Tracking, Assessment and Reporting System (AASHE)</i> <i>** United Nations-recognised Regional Centre of Expertise in Education for Sustainable Development</i></p>				

APPENDIX C – Electric car charging/parking policy example

	UCC Plug in Electric Vehicle (PEV) Charging Policy	Version 01
		Issue date: TBC

UCC PEV Charging Policy

Purpose of the Policy:

This document sets out the policy for the use of the Plug in Electric Vehicle (PEV) charging stations at UCC.

Location of PEV charging stations.

PEV charging stations are located at the following UCC car parks:


Car Park	No of charge points	Charge point size
Main Campus, adjacent to the Electrical Engineering building	4	7 kW rated charger, type 2 connection.
WGB, Western Road	2	11 kW rated charger, type 2 connection
ERI building, Lee Road	2	3 kW rated charger, type 2 connection.
Beaufort Ringaskiddy	2	11 kW rated charger, type 2 connection
Enterprise car park, North Mall campus.	2	7 kW rated charger, type 2 connection.

Eligibility for using the PEV charging spaces:

- All persons using the PEV charging space must already be entitled to access a car space at the UCC staff parks.
- UCC is not in a position to accommodate access to the PEV charging stations to members of the public, students or visitors.

Obligations on persons using the PEV charging stations.

- PEV charging stations are available on a first come, first serve basis for all persons eligible to access UCC staff car parks and that use a PEV.
- Users of the PEV charging facilities must sign up to the EV charging community messaging service where users can communicate with other users and indicate when charging spaces are full, free and so on, to maximise the use of the spaces for all.- please email p.mehigan@ucc.ie to subscribe to the group.
- Charging stations are for charging of PEV's only and must not be used for parking.
- In the interest of fairness to all, users of the PEV charging stations must remove their car once the charging process is complete.
- Charging timers are not permitted when using the PEV charging facilities.

	UCC Plug in Electric Vehicle (PEV) Charging Policy	Version 01
		Issue date: TBC

- Users of the charging spaces and facilities do so at their own risk and UCC do not accept responsibility for any damage caused during the PEV charging process.
- Users should note that at certain times the charging stations might be heavily used or out of order and that throughout the course of the day or week they might not be able to access the charging equipment. There are a number of on street charging stations across the city that can be used if needed.
- Users are expected to report any damage to the PEV charging infrastructure to the Building & Estates Office Helpdesk (021 4902480 or BEReception@ucc.ie.)
- Users must adhere to the overall conditions of use for the UCC car parking areas which can be found at <https://www.ucc.ie/en/discover/visit/parking/>

Obligations on the UCC B&E office.

- The B&E office will be responsible for the upkeep, service, repair and replacement of the PEV charging stations.
- The B&E office will communicate to users when access to the charging stations will be closed off, i.e. to facilitate works within the areas, during special events and occasions etc. in a timely manner.
- While the UCC B&E office will ensure that the PEV charging equipment is in working order, it cannot be guaranteed that the systems will have 100% availability for use.
- UCC General Services are not responsible for managing or patrolling the use of the PEV spaces. It is expected that the community of UCC PEV users will, as a matter of courtesy to other PEV users, adhere to this policy.
- The B&E office will keep under the review the number and locations of the PEV charging stations as well as this policy to ensure the PEV facilities and usage policy meets the needs of the PEV users, other car park users and the University.

Usage fees for the use of the PEV charging stations.

- While the Buildings & Estates office have supported and funded the roll out of charging points across the estate, the office and the University are not in a position to fund the roll out of further PEV charging stations as well as the ongoing repairs and energy consumption associated with the PEV charging stations.
- A fee structure will be rolled out in the short to medium term future.
- Monies collected through this mechanism will be used to cover the electrical costs, maintenance costs while also supporting the addition of future charging stations.

APPENDIX D – Targets and Indicators

Table 1 – Carbon, Energy, Waste and Transport

INSTITUTION	Greenhouse Gas Emissions	Energy	Waste	Transport
Aston University	<ul style="list-style-type: none"> Reduce our scope 1 and 2 carbon emissions from energy consumption by 48% by 2020 from a 2005/6 baseline 	<ul style="list-style-type: none"> Reduce electricity consumption by 25% by 2020 from a 2008/9 baseline. Reduce gas consumption by 23% by 2020 from a 2010/11 baseline. Reduce heat consumption by 23% from a 2009/10 baseline. Ensure all R22 F Gas is removed from all HVAC equipment by August 2020/21. Ensure combustion efficiency of all fossil fuel boilers are a minimum of 90% by 2025/26. 	<ul style="list-style-type: none"> To reduce our total waste production to 45kg per FTE staff and student by 2020/21. To achieve on site recycling rates of 50% in our main waste yard by 2020/21. 	<ul style="list-style-type: none"> Reduce car parking permit numbers by 5% by 2020 Increase staff sustainable transport usage by 3% by 2020 Increase student sustainable transport usage by 2% by 2020 Staff cycling levels at or above 8% and student levels at or above 6% by 2020 Walking percentage to increase to 10% by 2020
Cardiff Metropolitan University	<ul style="list-style-type: none"> Reduce absolute carbon emissions from energy by 15% by 2017/18, compared to the 2012/13 baseline. This is equal to a 3% reduction in energy related CO2e emissions per annum 	<ul style="list-style-type: none"> Maximise energy efficiency, use of renewable resources and use of low carbon technology 	<ul style="list-style-type: none"> Maintain zero waste to landfill and work towards Welsh Government target of recycling 70% of our waste by 2025. 	<ul style="list-style-type: none"> Reduce single occupancy car journeys to campuses and the dependency on vehicles to support its activity
Keele University	<ul style="list-style-type: none"> To have achieved 34% reduction in absolute Carbon emissions against the 1990 baseline by 2020 	<ul style="list-style-type: none"> 70% of Keele’s energy needs generated on campus by 2020 	<ul style="list-style-type: none"> 80% of waste recycled by August 2017, and practices implemented to reduce waste at source and improve re-use Less than 10% waste to landfill or incinerated by 2020 	<ul style="list-style-type: none"> By 2017 implement at least 3 major initiatives to reduce carbon emissions through travel, and to have identified 2020 targets and major schemes that are required to deliver those targets By 2020 have reduced the number of cars coming onto campus by a 33%
Nottingham Trent University	<ul style="list-style-type: none"> Overall absolute reduction in CO2e scopes 1 & 2 by 48% by 2020/21 on 2005/6 baseline A 5% overall reduction in all* CO2e scope 3 by 2020/21 on 2011/12 baseline (*excluding supply chain emissions due to uncertainty in calculations) Benchmark tCO2e for student travel by the end of 2018/19. Reduce Carbon emissions by 29% per FTE staff and student by 2020/21 	<ul style="list-style-type: none"> See carbon 	<ul style="list-style-type: none"> 50% onsite segregation for scheduled collections during 2018/19. 99% diversion from landfill during 2018/19. (include construction waste, exclude hazardous waste) 10% on-site segregation of minor works waste by 2018/19 	<ul style="list-style-type: none"> 73% non-car modal share during 2018/19. Increase the number of cyclists in Nottingham (through Ucycle bike hire scheme and the Push Forward workshop facility, and hosting Nottingham City Council docks

INSTITUTION	Greenhouse Gas Emissions	Energy	Waste	Transport
	<ul style="list-style-type: none"> • Ultra-Low Emissions Vehicles for each campus (including dedicated parking and chargers) • Projects with 7-year paybacks are considered with Phase 1 identifying 2000 tCO2e avoidance • See as well, Built Environment requirements for carbon reduction 			
Plymouth University	<ul style="list-style-type: none"> • 80% reduction in CO2e (from scope 1 and 2) by 2050 from 1990 levels with interim target as UK government budget years, including a 43% reduction in CO2e by 2020 • To reduce gCO2e per mile of business travel to below 0.28gCO2e per mile by 2020 from a 2014–15 baseline • Monitor student and staff commuting emissions (kgCO2e/staff and kgCO2e/student) from a 2012–13 baseline (312 kgCO2e/ person); 254 in 2016/17 • Annually monitor supply chain emissions based on spend data, against the baseline year 2015–16 (56kgCO2e/m2), excluding construction, utilities and business travel 	<ul style="list-style-type: none"> • To reduce electricity and gas consumption in line with our carbon emissions reduction target 	<ul style="list-style-type: none"> • Recycle 70% of waste by 2020, an increase from 47% in 2011–12 • Reduce waste generated to 20kg or less per student, a reduction from 23kg per student in 2011–12 (went up to 32kg/student in 2017/18) 	<ul style="list-style-type: none"> • To reduce gCO2e per mile of business travel to below 0.28gCO2e per mile by 2020, and monitor student and staff commuting. • reduce the need for business travel through video conferencing • monitor student and staff commuting emissions • Conduct a travel survey every two years
University College Cork National University of Ireland [indicators; some targets]	<ul style="list-style-type: none"> • Greenhouse gas emitted (kg CO2 equivalent staff/student FTE) [0.215 MtCO2e/m²] • Number and effectiveness of awareness raising campaigns in relation to energy, carbon footprint and water [10] • Detail other opportunities/awards for achievement / leadership / engagement in relation to energy, carbon and water management initiatives 	<ul style="list-style-type: none"> • Energy consumption (kWh per student FTE) [40% reduction (2008 baseline)] • Proportion of energy from certified renewable sources and onsite renewables (%) [15%] • Number and effectiveness of awareness raising campaigns in relation to energy [10] carbon footprint and water [25%] • Detail other opportunities / awards for achievement / leadership / engagement in relation to energy, carbon and water management initiatives 	<ul style="list-style-type: none"> • Quantities of total waste and individual categories of waste generated (kg per staff FTE and kg per student FTE) [0.05 tonnes/person] • Waste recycling rates (%) [70%] • Number and type of audits and actions arising [All SEUs audited] • Initiatives/workshops/training in relation to behavioural change (proportions of staff/students reached) [100%] • Detail other opportunities/awards for achievement/leadership/engagement in relation to waste management initiatives. 	<ul style="list-style-type: none"> • Proportion of staff/students choosing sustainable travel modes [85%/50%] • Proportion of staff/students cycling to college [15%/10%] • Number of bicycle racks [1000] • Number of park and ride patrons [Assess need for further routes] • Number of Electric Vehicles chargers installed [In line with national best practice] • Accessibility of, and linkages between other campus areas and main campus [Extend Sli na Slainte walkway to western Campus] • Number and effectiveness of awareness campaigns on sustainable transport options and impacts [2/year] • Detail other opportunities/awards for achievement/leadership/engagement in relation to sustainable transport initiatives.

INSTITUTION	Greenhouse Gas Emissions	Energy	Waste	Transport
University of Bradford	<ul style="list-style-type: none"> 50% reduction target by 2020 	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> Zero waste to landfill 	<ul style="list-style-type: none"> Not specified
University of Edinburgh	<ul style="list-style-type: none"> Reduce carbon emissions per £ million turnover by 50% from a 2007/08 baseline Return carbon emissions to 2007/08 baseline year levels by 2025 Become a net zero carbon university by 2040 	<ul style="list-style-type: none"> Sustainable Campus Fund financial savings of £514,000 (by end of July 2018) Sustainable Campus Fund tCO₂e savings 2813 tCO₂e (by end of July 2018) 	<ul style="list-style-type: none"> Maintain percentage diverted from landfill at 99%. Academic estate: <ul style="list-style-type: none"> 10% reduction in waste arising per capita (FTE staff and students) from a baseline of 73 kg in 2016/17 to 66 kg. Increase reuse rate to 10% against a 2016/17 baseline of 5% Increase recycling/composting rate to 80% against a 2016/17 baseline of 52% Reduce food waste by 40% to 36 tonnes in 2022/23 (against a baseline of 60 tonnes in 2016/17) Accommodation: <ul style="list-style-type: none"> 10% reduction in waste arising per student from a baseline of 66 kg in 2016/17 to 59 kg. Reuse at least 90% of furniture and equipment resulting from accommodation refurbishments. Increase recycling rate to 80% against a 2016/17 baseline of 41%. Reduce food waste by 40% to 34 tonnes in 2022/23 (against a baseline of 57 tonnes in 2016/17) 	<p>Targets to be achieved by 2021:</p> <ul style="list-style-type: none"> 1. Increase proportion of staff travelling on foot to University to 30% (25% in 2016) and students to 60% (57% in 2016). 2. Increase the proportion of students and staff cycling to University to 15% (from 13% in 2016) (to match Edinburgh Council Local Transport Strategy Target.) 3. Through negotiation with Lothian Buses, seek to introduce several student ticketing options better suited and priced to the needs of our students. 4. Public transport provision to and between University sites regarded as good to excellent by 75% of our student and staff users as measured in our bi-annual travel survey. 5. Reduce car driving to 29% or less at each University campus. (excluding Easter Bush) (to match Edinburgh Council Local Transport Strategy Target) 6. Increase the proportion of parking permit holders using an electric vehicle from 0.4% in 2016-17 to 2%. 7. Increase the proportion of electric vehicles in the University fleet from 4% in 2016-17 to 30%.
University of Gloucestershire	<ul style="list-style-type: none"> Reduce scope 1 and 2 carbon emissions by 46% by 2021/22 from a 2005/06 baseline Set activity-based targets for tonnes of carbon per square metre of GIA, per FTE, and per £1m of income, at the first annual review of the CMP These goals will help the University meet previously identified sector targets, achieve proposed Government HE and public sector targets for 2020 and 2030, and set course to achieve the national 	<ul style="list-style-type: none"> Increase the amount of electricity generated from renewable sources to at least 90,000kWh by 2021/22 and investigate options for energy storage. Continue to support the increased provision of renewable energy over the grid by maintaining its commitment to purchase electricity from 100% renewable sources. 	<ul style="list-style-type: none"> 25% reduction in waste arisings relative to 2004/05 levels in line with UK Government targets by 2019/20 Reduce amount of hazardous waste generated, year on year, and ensure legal compliance on disposal 81% reduction in waste going to landfill relative to 2004/05 levels in line with UK Government targets by 2019/20 	<ul style="list-style-type: none"> Undertake an annual travel survey for the duration of the STP for staff and students. Increase the proportion of students travelling by bicycle by 5% (compared to the results of the year 1 survey in October 2017) each year on a year-by-year basis until year 5. Reduce staff Single Occupancy Vehicle (SOV) travel mode share by 6% in year 5, with an interim target of 3% after two years (compared to the results of the year 1 survey in October 2017).

INSTITUTION	Greenhouse Gas Emissions	Energy	Waste	Transport
	<p>target of reducing carbon emissions by 80% by 2050 against a 1990 baseline</p> <ul style="list-style-type: none"> • Scope 3 Areas of activity - Baseline (tCO2e) / Baseline yr / Reduction target / Target yr <ul style="list-style-type: none"> ○ Waste production and disposal – 188 / 2005-06 / 75% / 2019-20 ○ Water use and treatment – 52 / 2010-11 / 20% / 2019-20 ○ Business travel – 98 / 2011-12 / 15% / 2019-20 ○ Staff commuting – 931 / 2011- 12 / 15% / 2019-20 ○ Student commuting- 4,184 / 2010-11 / 15% / 2019-20 ○ Student travel-home to university – 2,051 / 2010-11 / 15% / 2019-20 ○ Procurement – 8,257 / 2010-11 / 12% / 2019-20 		<ul style="list-style-type: none"> • Increase recycling to 75% of waste arisings in line with UK Government targets by 2019/20 • Good practice statement: Transferring 90% of our non-recyclable waste to an energy recovery plant where it is combusted to produce around 65 MWh of electricity every year 	<ul style="list-style-type: none"> • Seek to discourage future growth in student SOV travel mode share. • Review and develop parking management policy by the end of academic year 2017/18. • Report annually on travel contributions to the University's carbon footprint and reduce carbon emissions by 2% annually for five years. • Publish a sustainable travel engagement and communications plan by the start of academic year 2017/18. • Review approaches to business travel by the end of academic year 2017/18, to support reductions in SOV usage and carbon intensity of travel and identify suitable measures and policies to achieve these targets.
University of Southampton	<ul style="list-style-type: none"> • Reduce absolute carbon emissions from gas and electricity by 20% by 2020 on a 2005/06 baseline • To reduce carbon emissions from energy consumption per staff & student (tonnes / FTE) by 20% by 2020 on a 2005/6 baseline • To reduce carbon emissions from energy consumption per £ turnover (kg/£) by 20% by 2020 on a 2005/6 baseline • To reduce carbon emissions from energy consumption per student occupancy by 20% by 2020 on a 2005/6 baseline • 30% reduction in absolute carbon emissions from water consumption by 2020 on a 2009/10 baseline 	<ul style="list-style-type: none"> • To achieve a 20% reduction in electricity use (kWh) by 2020 based on a 2005/06 baseline • To reduce gas consumption (kWh) by 20% by 2020 based on a 2005/06 baseline 	<p>By 2016/17:</p> <ul style="list-style-type: none"> • To recycle at least 65% of all resource streams (by weight) • To recycle at least 60% of 'bin weight' and food waste' resource (by weight) from academic sites and at least 50% from halls' sites • To reuse/recycle at least 85% of refurbishment project construction and demolition waste (% of the annual total amount of waste produced) • To reuse/recycle at least 85% of new build project construction and demolition waste (% of the annual total amount of waste produced) 	<ul style="list-style-type: none"> • To reduce single occupancy car journeys to 30% (mode share) by 2020
University of St Andrews	<ul style="list-style-type: none"> • Carbon neutral for our energy use • Gross carbon footprint - tonnes CO2e: <ul style="list-style-type: none"> ○ 2018/19 = 21,907 ○ 2019/20 = 21,055 ○ 2020/21 = 19,717 • Staff business travel emissions monitored through liaison with travel providers and staff travel expense claims and reported in 	<ul style="list-style-type: none"> • Commitment that £350-400k of funding is available each year for energy reduction investments; these energy savings are reinvested back into the Salix 'pot' to enable continued improvement 	<ul style="list-style-type: none"> • Fully comply with the terms of the Zero Waste (Scotland) Regulations which require us to segregate and manage recovery of our food waste • 100% of food waste is recycled at an anaerobic digestion plant, and all our green waste is composted • Move towards zero waste to landfill 	<ul style="list-style-type: none"> • Maintain Go E-Bikes scheme - a shared bike rental scheme which provides access to a fleet of electric bikes from fixed bases for University staff for work journeys and commuting, thus reducing travel by car. • Expand the E-Car Club offering

INSTITUTION	Greenhouse Gas Emissions	Energy	Waste	Transport
	the Public Sector Climate Change Duties Report for Scottish Government			
University of the West of England	<ul style="list-style-type: none"> • Since 2011 HEFCE capital allocations have been linked to scope 1 and 2 carbon reduction, and UWE has been set a target by HEFCE of 22.5% absolute tCO₂ reduction by 2020/21 (2005 base). • Absolute reduction from 2005/6 – 2020/21; 1.5% annual reduction with 2016 interim target: 16.5% total reduction equating to 22.5% total reduction by 2020/21 • Relative reduction from 2001/2 - 2020/21: 2016 interim target: 38% relative reduction and 50% relative reduction (based on kg CO₂ per m² and average weather) • Breakthrough Indicators: <ul style="list-style-type: none"> ○ Each Faculty and Service operates to a carbon budget ○ On track for a carbon neutral campus by 2040 	<ul style="list-style-type: none"> • By 2040, for UWE campuses to be “off-grid capable”, using onsite generation, demand control technologies and battery storage. • Or where this is not possible, for that campus to be net carbon neutral across a year (Aug-July) based on scope 1 & 2 emissions. • 10% of the University’s electricity to be generated from renewables • 5% of the University’s gas to be generated from renewables 	<ul style="list-style-type: none"> • 80% Recycling rate (excluding construction) by end 2019/2020 academic year • 15% reduction in solid waste (excluding construction) by end 2019/20 academic year • 80% Construction waste recovery by end 2019/2020 academic year • Zero reportable environmental incidents • Towards a circular economy: <ul style="list-style-type: none"> ○ by returning our discarded items and materials into economic use, ○ by specifying for the inclusion of secondary materials where appropriate ○ by specifying for ease of recycling and reuse at the end-of-life ○ by educating our students to be ready and able to partake in a circular economy when they enter employment. • Breakthrough Indicator: UWE Bristol to be wholly integrated in a circular economy where discarded materials are kept within the economic cycle in such a way which maximises their value 	<ul style="list-style-type: none"> • By 2020 achieve 27% single occupancy car journey (daily commute) • To create low emission zones on all large campus sites. • Increase use of ULEVs in fleet to over 50% • Breakthrough Indicator: 80% of all daily commute journeys are made by sustainable modes of travel
University of Ulster	<ul style="list-style-type: none"> • 29% reduction by 2021 on 2006 baseline (scopes 1&2 only) 	<ul style="list-style-type: none"> • 5% reduction by 2020 on 2014 	<ul style="list-style-type: none"> • 38% reduction by 2021 on 2010 	<ul style="list-style-type: none"> • 25% reduction on business car travel miles by 2020 on 2010 and 20% reduction on air travel CO₂ emissions by 2021 on 2013

INSTITUTION	Greenhouse Gas Emissions	Energy	Waste	Transport
University of Worcester	<ul style="list-style-type: none"> • 5% p.a. reduction in carbon emissions in Scopes 1, 2 & 3, against a 2008-09 baseline, from 2010 to 2015 • 3% p.a. reduction against the 2008-09 baseline from 2015 to 2020 • Scope 3 emissions baseline year varies as the envelop has increased • Reduce fugitive F Gas emission by 25% annually from a baseline 2013-14 of 18.25 tCO₂e. 	<p>Consumption targets:</p> <ul style="list-style-type: none"> • 6% reduction in kWh gas consumption from 2015-2016 • 6% reduction in total kWh electricity consumption from 2015-2016 • Increase renewable energy generation to 2% of total consumption by 2020 	<ul style="list-style-type: none"> • Reduce waste collection weight by 3% per annum from baseline 2015-6 from 2017-2020; Increase weight of charity donations by 5% per annum. Baseline data set 2012/13 	<ul style="list-style-type: none"> • 25% reduction absolute tCO₂e emissions from staff and students' commuting to University daily by 2020 from a baseline 2010/11 of 6,843 tCO₂e • 5% reduction in the tCO₂e emissions from travel between students' homes and the University by 2020 from a baseline 2010/11 of 2,891 tCO₂e • 20% reduction in the percentage of staff travelling by car alone to work by 2020- i.e. a reduction from 55% in 2012 to 44% by 2020 • 20% reduction in the percentage of students travelling alone by car to the University by 2018 - i.e. a reduction from 24% in 2011 to 19% by 2020 • 10% reduction in the percentage of students travelling alone by car between their home address to term time address by 2020 <p>Fleet and Business Travel targets</p> <ul style="list-style-type: none"> • 5% reduction in the tCO₂e emissions from business travel by 2020 from a baseline 2011/12 of 225.3 tCO₂e • 5% reduction in the tCO₂e emissions from fleet vehicles by 2020 from a baseline 2008/9 of 36.9 tCO₂e

Table 2 – Biodiversity, Water, Procurement, Built Environment, Leadership / Community / Other

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
Aston University	<ul style="list-style-type: none"> To deliver the targets detailed in the Biodiversity Action Plan (BAP) by 2019 	<ul style="list-style-type: none"> To achieve a 20% reduction in water usage by 2030 from 2008/9 baseline per FTE staff and students. 	<ul style="list-style-type: none"> Map the supply chain of 1 key high-risk supplier by 2017 Embed use of Net Positive Tool within the procurement process by 2017. University Catering will work towards the Food Action Plan by 2017 	<ul style="list-style-type: none"> All new build projects must be designed in line with the Sustainable Construction Specification. Refurbishment projects over £1 million must achieve SKA HE Gold. 	<ul style="list-style-type: none"> To deliver the actions set out in the Engagement Strategy by 2020. To work towards achieving Responsible Futures accreditation by 2020.
Cardiff Metropolitan University	<ul style="list-style-type: none"> Audit the ecology and biodiversity of the estate and develop action plan to enhance performance and mitigate impact Maintain knotweed eradication program 	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> Maintain Fair Trade certification 	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> Healthy University strategy - an integrated approach to community engagement, health and well-being and environmental sustainability
Keele University	<ul style="list-style-type: none"> 2017: Biodiversity Working Group is established & consulted on all relevant dev't and estate mgmt decisions 2017: Biodiversity Action Plan developed and being undertaken for both lakes and woodlands, and for central campus mgmt 2020: Active staff and student conservation volunteer group with 100+ volunteers working with the grounds team; active 		<ul style="list-style-type: none"> Use the Flexible Framework for self-assessment to measure and monitor progress on sustainable procurement- Level 4 (achieved in July 2017) To map out how we can reduce our environment and social impact through sustainable catering By 2020, bottled water sales on campus reduced to <10% of 2014 levels and access to tap water in all areas 		<p>Community, Wellbeing, Equality & Diversity</p> <ul style="list-style-type: none"> 2017: Inclusion of a clear statement on sustainability in the Dignity and Respect Framework; to include sustainability events as part of the advertised Health and Wellbeing programme. 2017: To establish an explicit communication channel, for example an annual Sustainability Forum, with the entire campus community, including campus residents. 2020: Keele is an accredited 'Living-Wage' employer <p>Governance</p> <ul style="list-style-type: none"> 2017: A mapping exercise is undertaken to identify existing sustainability expertise in the institution to create a sustainability expertise database, which could be used as an internal and external resource 2017: All University-level steering groups have a sustainability representative (drawn from the sustainability expertise database) as a member 2020: All University decisions taken at its main governance committees (UEC/Senate/Council) explicitly

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
	<p>curriculum links from different disciplines</p>		<ul style="list-style-type: none"> By 2020, 5% of food consumed on campus produced on campus 		<p>address sustainability as part of the assessment process, and that this be actively monitored</p> <p>Training</p> <ul style="list-style-type: none"> 2017: To develop an online training module for sustainability that is available to all staff, and for the training module to be a required element of new staff induction 2020: For 90% of existing staff to have undertaken training related to sustainability provided either internally or externally <p>Communication</p> <ul style="list-style-type: none"> 2020: To improve accessibility to new sustainability policies and strategies by introducing a wider range of formats of communication such as videos and social media
<p>Nottingham Trent University</p>	<ul style="list-style-type: none"> Maintain Green Flag awards for Brackenhurst and Clifton in 2018/19. Work towards Green Flag Award for City Campus for 2020. Continue specific initiatives such as afforestation projects, bee hives, falcon nesting, nature trails 	<ul style="list-style-type: none"> Complete a water consumption audit (2017-18) on the 5 highest water consumption per floor area buildings by July 2019 All new builds have low water consumption technologies for BREEAM credit. 	<ul style="list-style-type: none"> Maintain Flexible Framework level 4. Work towards achieving level 5 in 2019/20 50% reduction in the amount of single use plastic used in NTU catering outlets by 2018/19. 	<ul style="list-style-type: none"> Achieve at least BREEAM Excellent for all new builds and BREEAM Very Good for major building refurbishments. Zero major or minor incidents in 2018/19 (construction nuisance, spills, leaks, etc.) New buildings to achieve Energy Performance Certificate (EPC) rating of at least A New buildings to achieve Display Energy Certificate (DEC) of at least A within 3 years Major building refurbishments to achieve at least one full DEC rating grade improvement When designing new buildings, consider the use of PassivHaus certified construction 	<ul style="list-style-type: none"> Deliver environmental inductions to new staff members, offered termly Run Green Impact annually Run a series of sustainability events and participate in annual University-wide events (Open Day, Welcome events, etc.)
<p>Plymouth University</p>	<ul style="list-style-type: none"> To maintain the level of green space on campus compared with 2011 levels Increase number of animal/plant species on campus compared with 2011 levels 	<ul style="list-style-type: none"> Reduce annual water consumption to below 3.0m³/student by 2020 from 7.3m³ in 2005–06 	<ul style="list-style-type: none"> Deliver a sustainable food culture that supports local, sustainable and Fairtrade produce and suppliers – monitored through achievement of Sustainable 	<ul style="list-style-type: none"> All refurbishment projects are required to achieve the SKA Gold standard (an environmental assessment tool for sustainable fitout) All new construction projects are required to meet our new set of sustainability requirements, considering materials use, life cycle analysis and energy use. 	<p>To create a sustainable food culture on campus by:</p> <ul style="list-style-type: none"> maintaining Sustainable Restaurant Association (SRA) accreditation reducing the use of disposables by introducing a discount for reusable coffee cups reducing the sale of bottled water on campus and reducing the use of bottles for hospitality by 2018 increasing the proportion of organic food purchased

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
	<ul style="list-style-type: none"> Increase level of marine ecology in the reservoir compared with 2011 levels. 		<ul style="list-style-type: none"> Restaurant Association (SRA) standard, with 2014 baseline 		<ul style="list-style-type: none"> striving to continue using local suppliers and food from the British Isles wherever possible
University College Cork National University of Ireland [indicators; some targets]	<ul style="list-style-type: none"> Proportion and amount of open spaces on campus (% and m2 per staff/student FTE) [Extend Sli na Slainte to Western Campus Proportion of campus covered in vegetation Proportion of ‘wild’ and/or semi natural areas on campus Proportion of non-retentive surfaces [Assess Green Infrastructure inclusion in all new builds] Proportion of campus mapped for biodiversity, with numbers of key habitats/species [All] Number and effectiveness of natural resource awareness campaigns and initiatives [2/year] Number of projects / partnerships with local authorities and community groups [1/year] Detail other opportunities / awards for 	<ul style="list-style-type: none"> Water consumption (m3 per staff/student FTE) [25%] Quantity of water reused (m3 per staff/student FTE) [5%] Number and effectiveness of awareness raising campaigns in relation to energy, carbon footprint and water [10] Detail other opportunities / awards for achievement / leadership / engagement in relation to energy, carbon and water management initiatives 	<ul style="list-style-type: none"> Development of sustainable / green procurement policy and process [Achieved] Development of guidance document(s) on green procurement for suppliers / providers [By 2020] Number of contracts awarded to suppliers of “green” products and services [8] Number of contractors / suppliers / providers who have achieved environmental or sustainability related awards / standards / certifications [8] Detail other opportunities / awards for achievement / leadership / engagement in relation to sustainable procurement initiatives. 		Sustainability Citizenship [target] <ul style="list-style-type: none"> Number of students and/or staff involved in Green Campus initiatives [At least one from each dept., function, society and club] Campus awareness of UCC sustainability initiatives [100%] Number of student organisations/societies on-campus relating to sustainability [10] Number of staff organisations/societies on-campus relating to sustainability [At least one focused; all incorporating SDGs into activities where practical] Number of students and staff involved in such sustainability relevant organisations [At least one from each dept., function, society and club] Number of students and staff involved in off-campus organisations that engage in sustainability relevant activities [100% of students and staff have participated in at least one event] Overall participation in sustainability initiatives, activities and societies as % of staff and student FTE figures Green flag status [Maintain] Status in the Green metrics and/or other green / sustainability rankings measures [Maintain STARS Gold] Food, Health and Wellbeing <ul style="list-style-type: none"> Proportion of staff and students engaged in regular exercise [70%] Health surveys of students and staff [In line with national and international standards] Availability of sustainable food choices in campus food outlets [Assess] Proportion of students and staff actively selecting local sustainable food (food surveys) [Assess] Detail food growing initiatives on-campus [Maintain garden and identify opportunities for staff window boxes]

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
	achievement / leadership/engagement in relation to sustainability and natural resources management.				<ul style="list-style-type: none"> • Detail integration and awareness raising projects, research and initiatives between key actors in food, health, well-being and sustainability [Develop 2 flagship joint projects] • Student and staff involvement in relevant societies/organisations on and off campus [Assess] • Detail other opportunities/awards for achievement / leadership / engagement in relation to food, health and well-being in sustainability relevant areas.
University of Bradford	<ul style="list-style-type: none"> • Not specified 	<ul style="list-style-type: none"> • Not specified 	<ul style="list-style-type: none"> • Not specified 	<ul style="list-style-type: none"> • Not specified 	<ul style="list-style-type: none"> • Not specified
University of Edinburgh	<ul style="list-style-type: none"> • Finalising biodiversity strategy and policy • Also see Built Environment 	<ul style="list-style-type: none"> • Review drinking water provision across campus sites and identified opportunities to install new drinking water points 	<ul style="list-style-type: none"> • Support improvement and innovation in supply chain waste to contribute to Scottish and global circular economy ambitions 	<ul style="list-style-type: none"> • Promote resource efficiency via the effective management and reduction of construction waste with targets specified, monitored and reported in site specific management plans • Bespoke standards based on best practice (previously BREEAM Excellent for New Build and Very Good for Refurbishment), including all BREEAM waste credits) • 60% of energy demand provided by on-site renewable energy sources • Reduction of energy consumption by 30% • 31-45 kgCO₂/m²/year • 5 (m³/h)/m² at 50 Pa • Reduce predicted CO₂ emissions by 30% applying energy efficient design principles and utilising low / zero carbon technologies • Cost consultant to adopt a building life of 100 yrs for major buildings / 60 years others and factor in fuel cost rises double inflation • Mechanical ventilation only to be used if absolutely required by equipment; passive ventilation expected for office accommodation – with over-heating controlled by shading NOT by chilling. • Reduce predicted water use by installing water efficient plant, appliances and fittings • 50% of construction site waste diverted from landfill 	<ul style="list-style-type: none"> • 15% of staff participating in and 100% of staff reached by Sustainability Awards • Complete transition out of fossil fuel investments by 2021 • Includes goals around widening participation, equality and diversity, and community engagement

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
				<ul style="list-style-type: none"> • Reduce construction and demolition waste to landfill • Provide for recycling during occupation • Secure cycle store, showers, drying lockers • Public transport info displayed prominently • Allow temperatures of 25°C+ on less than 10 working days/yr • Provide capacity for building to operate successfully under the demanding future conditions • Design and specify to ensure a Minimum Recycled Content of at least 20% by value • Reduce embodied lifetime environmental impact of all materials by selecting based on environmental preference, e.g. recycled content, low maintenance • Ensure that unavoidable building related emissions are kept to a minimum • Ensure that risk of accidental pollution is kept to a minimum • Enhance the ecology and biodiversity of the site by protecting existing assets • Introduce appropriate new habitats and/or species • Ensure that new design has no greater run-off from the site than before • Attenuate run-off from the site using natural drainage systems 	
University of Gloucestershire	<ul style="list-style-type: none"> • EMS requirement to have biodiversity or ecology plans for each site 	<ul style="list-style-type: none"> • Reduce water consumption by 30% by 2019/20 • University has comparison KPI for water consumption in m³/FTE (student and staff combined) to TRAC group and sector. 	<ul style="list-style-type: none"> • The University's procurement strategy for the next three years which is developed along eight aspirational strategic aims; and is aligned to the University's mission, vision, values and objectives. (see strategy here) 	<ul style="list-style-type: none"> • BREEAM excellent is targeted as the minimum standard for development work 	<p>Ethical Investment</p> <ul style="list-style-type: none"> • Commit to sustainable and ethical investments in management of the Endowment Funds, and University's ethical restrictions will be applied using EIRIS (global ethical investment screening company), as follows: • Tobacco – Any companies involved in producing and distributing tobacco products where revenues exceed 10% of global earnings and any companies involved in manufacture of cigarettes and other tobacco products. • Armaments – Companies producing weapons and weapon systems, including cluster munitions and anti-personnel landmines. Companies whose main business

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
					<p>includes the supply of strategic components (such as weapons guidance systems) and services also excluded.</p> <ul style="list-style-type: none"> • Human Rights & Labour standards – Companies whose policies, practices and record on human rights and labour standards fall below the recognised standard as identified by EIRIS. • Oil & Mining Companies – No direct investment in Companies who engage in extraction of Fossil Fuels. <p>Sustainable Catering</p> <ul style="list-style-type: none"> • 49 actions and targets available in the policy document
University of Southampton	<ul style="list-style-type: none"> • Commit to following the habitat management principles and methods set out in the Environmental Association of Universities and Colleges (EAUC) Biodiversity on Campus Practical Guide 	<ul style="list-style-type: none"> • To reduce water consumption (m3) by 30% by 2020 from a 2009/10 baseline 	<ul style="list-style-type: none"> • By 2016/17 use Defra's Flexible Framework self-assessment tool to assess current position of Estates & Facilities Procurement. Set a target level for each of the 5 framework areas and develop an action plan to reach target level. [Completed February 2017] • By 2017/18 analyse procurement expenditure on a category basis in order to identify key sustainability impacts. [Work commenced] • By 2017/18 monitor the number of procurements including sustainability. [Ongoing] • By 2017/18 all procurement team have completed training in sustainable procurement principles. [Ongoing] 	<ul style="list-style-type: none"> • Requirement to build to BREEAM Excellent or Very Good 	<ul style="list-style-type: none"> • By 2016/17 Re-certify Environmental Management System to ISO 14001:2015 [Achieved July 2017] • By 2016/17 Review and update the University's Sustainability Policy [Achieved May 2017] • By 2017/18 Maintaining a certified Environmental Management System External ISO 14001:2015 [surveillance audit due Oct 2018]

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
			<ul style="list-style-type: none"> By 2017/18 good sustainable procurement examples are shared internally and via external procurement networks. [Ongoing] 		
University of St Andrews	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> All new building projects achieve BREEAM excellent green building certification 	<ul style="list-style-type: none"> Transition University of St Andrews (Transition UStA) is part of the University that supports students, staff and local residents in projects and actions to reduce carbon footprints by practical sustainable activities. Edible Campus maintains 14 growing spaces and 2 community orchards in one of the largest campus-based food growing schemes in the country.
University of the West of England	<ul style="list-style-type: none"> By 2020: <ul style="list-style-type: none"> Total length of native hedgerows achieve annual net increase of 25 meters Increase in diversity of fauna identified in annual BioBlitz Increase extent of nectar rich planting by 10% annually Increase extent of artificial habitat creation by 10% annually Increase extent of wildflower meadows by 10% annually Increase diversity of recorded birdsong on campus 	<ul style="list-style-type: none"> 10% absolute reduction in supplied water use by end 2019/2020 20% relative reduction per student FTE in supplied water use by end 2019/2020 Breakthrough Indicator: all Master Planning maximises the opportunity for sustainable urban drainage system management of water, including full adoption of rainwater harvesting, grey water 	<ul style="list-style-type: none"> By 2020 to have achieved a 30% absolute reduction in the carbon footprint of the UWE Bristol supply chain (excluding construction) Breakthrough Indicator: An established trust in a transparent sustainable and socially responsible UWE Bristol supply chain. 	<ul style="list-style-type: none"> Towards and beyond 2020: <ul style="list-style-type: none"> deliver at least one new zero carbon building. report on the embodied carbon of all major projects incorporate more SUDs and create a climate resilient campus see Water All new buildings and significant refurbishment projects to be assessed against BREEAM standard and costs and benefits of acquiring Excellence status to be explicitly considered Completed projects to exceed by 5% Building Regulations Part L2A targets for carbon emissions New buildings to perform to within 20% of energy efficiency of design prediction by utilising a soft landings champion and an independent commissioning agent 5% space utilisation improvement by 2020 Breakthrough Indicator: By 2020, at least one new building on the Frenchay campus <ul style="list-style-type: none"> To be designed to zero carbon To report on the embodied carbon of construction 	<ul style="list-style-type: none"> For UWE to be recognised as a provider of sustainable Hospitality Services within the city region and beyond. By 2025, 100% students, staff and contractors informed on climate change impacts on their personal lives, and their impact on climate change; and for them to be able to make informed decisions on a healthy and sustainable lifestyle. By 2030, operate a robust University facility in the event of severe weather and long-term changes to the climate. UWE Bristol to be recognised as a leader and innovators in sustainability engagement within the University and by the local community and beyond. A university renowned for and proud of its commitment to promoting health and wellbeing with clear impacts on student and staff health, wellbeing and experience. Enhance social engagement and create a supportive culture of belonging and feeling connected and decrease the need for wellbeing services. By 2020 all students exposed to the concepts of ESD 90% satisfaction result with opportunities offered for engagement in sustainability issues in Student Satisfaction Survey Breakthrough Indicators: <ul style="list-style-type: none"> Student driven priority setting and reporting for sustainability

INSTITUTION	Biodiversity	Water	Procurement	Built Environment	Leadership / Governance / Community
	<ul style="list-style-type: none"> All significant landscape projects to achieve CEEQUAL Very Good pre-assessment rating An increased level Biodiversity across all campuses and a high level of engagement for students and staff with biodiversity Breakthrough Indicator: Estate managed as integrated ecological system See Water 	systems and habitat creation.			<ul style="list-style-type: none"> Sustainable development formal and informal learning opportunities available for all students and staff In the context of their discipline all students will have the opportunity to explore and put into practice sustainable development concepts
University of Ulster	<ul style="list-style-type: none"> Not specified 	<ul style="list-style-type: none"> 20% reduction by 2021 on 2010 	<ul style="list-style-type: none"> ISO 14001 certification All major expenditure to have a Sustainability Impact Analysis Level 1 Flexible Framework 2016, target Level 4 by 2019 (at Level 3 in 2018) 	<ul style="list-style-type: none"> All new construction projects built to BREEAM Excellent standard 	<ul style="list-style-type: none"> 44% increase in Green Impact Award Bronze 40% increase in Green Impact Award Silver
University of Worcester	<ul style="list-style-type: none"> Map St John's Campus in detail for land use by August 2020 	<ul style="list-style-type: none"> 2.5% p.a. reduction in water GHGe emissions from consumption against a 2012-13 baseline from 2014 to 2020 	<ul style="list-style-type: none"> Reduce the carbon emissions attributed to contracts the University can influence by 5% from 2011-12 baseline by 2020 	<ul style="list-style-type: none"> All new build projects should be designed to achieve a DEC B rating or above Design refurbishment projects to achieve a DEC rating of C as a minimum, but aim for B Improvements to Edward Elgar building and plant results in a DEC rating of C by 2020 All university owned buildings to achieve a C rating or above by September 2020 60% of the University's estate to achieve at least a B rating by September 2020 	<ul style="list-style-type: none"> Achieve level 3 standard of Worcestershire Works Well by August 2020 Increase student participation in Student Switch Off by 10% on 2017/18 levels Increase number of Green Impact teams to 22 in 2018-19 across all sites Increase the student awareness of the University's sustainability activities from (baseline year 2016-17 47%) to 65% by 2020 Increase student sustainability actions from 2016-17 baseline year of 64 % to 75% by 2020

APPENDIX E – Rankings and Awards

Ranking, Rating and Awards	People and Planet League Table ¹				Green Gown Awards ²							UI GreenMetric ³					Times Higher Education (THE) Impact Ranking	
	2018-19	2017	2016	2015	2019 Finalists (by award category)	2018 (Finalist unless noted otherwise)	2017	2016	2015	2014	2013	2012	2018	2017	2016	2015		2014
Interactive visits																		
Aston University, England	9	5	6	?	* Research with Impact – Institution * Sustainability Inst of the Year * Total Reporting * Leadership Team of the Year	* Research (sea water greenhouses) WINNER	* Continuous Improvement / Inst. Change	* Employability HC	-	-	-	* Construction HC * Effectiv & Effic in Estates	-	-	-	-	-	-
Cardiff Metropolitan University, Wales	68	8	4	?	* Campus Health, Food and Drink * Student Engagement * Total Reporting	* Student engagement	-	-	-	-	-	-	-	-	-	-	-	-
Keele University, England	18	31	15	?	* Research with Impact – Student * Sustainability Champion: Student * Sustainability Champion: Staff	* Enterprise (waste!) WINNER * Leadership Team WINNER * Student Engagement (move-outs)	-	* Carbon Management * Learning & Skills HC	-	* Continuous Improv't / Inst. Change HC	-	-	13	17	7	88	69	57
Nottingham Trent University, England	3	3	1	4	* Student Engagement * Leadership Team of the Year	* Student engagement (SDG visualisation) * Institution of the Year	* Employability WINNER	* Built Env "Pavilion" bldg * Facilities & Svcs * Food & Drink HC	-	-	* Learning & Skills WINNER	* Learning and Skills HC * ICT	5	5	9	15	3	-
Plymouth University, England	15	14	12	1	-	* Staff (Paul Murray) * Learning & Skills finalist (greening nursing)	-	* Reporting WINNER	-	* Learning & Skills WINNER * Employability WINNER * Food WINNER	* Learning & Skills HC	-	-	-	-	13	-	
University College Cork National University of Ireland	n/a	n/a	n/a	n/a	n/a	n/a	-	-	-	-	-	-	9	9	12	4	2	21
University of Bradford, England	24	34	19	23	-	-	-	* Built Env - HC	* Student Engagement HC	* Facilities & Svcs WINNER	* Construction WINNER * Carbon Mgmt HC	14	4	17	8	6	-	
University of Edinburgh, Scotland	38	36	34	44	* Benefitting Society * Campus Health, Food and Drink * Money for Good * Next Generation Learning & Skills * Research with Impact – Institution * Total Reporting	* Institution of the Year WINNER * Leadership Team HC	* Continuous Improvement / Inst. Change	* Facilities & Svcs	* Facilities & Svcs (labs) WINNER	* Construction HC	-	-	-	-	-	-	-	
University of Gloucestershire, England	1	2	8	6	* Research with Impact – Institution * Sustainability Inst of the Year * Total Reporting	* Leadership Team HC * Reporting finalist	* Facilities & Svcs (Procurement) HC	-	-	* Continuous Improvement / Inst. Change HC	* Carbon Mgmt HC * Learning & Skills HC	-	-	-	-	-	-	
University of Southampton, England	94	?	?	?	-	-	* Student Eng HC	-	-	-	-	* Student Eng HC	-	-	-	-	-	12
University of St. Andrews, Scotland	73	96	62	79	* Tomorrow's Employees	* Future Campus finalist (woodchip biomass plant)	-	-	* Student Engagement HC	-	-	-	-	-	-	-	-	
University of the West of England, England	39	25	?	?	* Campus of the Future (Beeline) * Money for Good * Total Reporting * Research with Impact – Student * Sustainability Champion: Staff	* Society (Bristol 1 city plan) * Research (water, air pollution & student carbon modelling) * Tomorrow's employees (SDG mapping) * Student Engagement - UWE Student Union WINNER	* Continuous Improv't / Inst. Change WINNER * Student Engagement WINNER * UWE Student Union HC * Community HC	* Built Env HC WINNERS: Learning & Skills; Cont Improv; Student Engage't; Leadership. Student Union UWE - Student Engage't HC	-	-	-	-	-	-	-	-	-	
University of Ulster, Northern Ireland	57	51	55	88	-	-	-	-	-	-	-	-	-	-	-	-	-	
University of Worcester, England	5	4	5	?	* Campus of the Future (bldg refurb) * Sustainability Inst of the Year * Total Reporting	* Institution of the Year * Society (cross Atlantic) * Reporting	* Reporting	* Reporting	-	* Facilities & Svcs WINNER	-	* Effectiv & Effic in Estates HC	-	-	-	-	-	33
Walk-Through visits (exploring visibility)																		
Manchester Metropolitan University, England	2	1	?	?	* Tomorrow's Employees	* Institution of the Year * Reporting WINNER	-	* Reporting HC	-	* Student Engagement WINNER	-	* Continuous Improvement / Inst. Change WINNER	-	-	62	-	-	-
Marjon University, England	144	146	?	?	-	-	-	-	-	-	-	-	-	-	-	-	-	
University of Birmingham, England	89	?	?	?	-	-	* Facilities & Svcs WINNER	-	-	-	-	-	-	-	-	-	-	
University of Cardiff, Wales	46	8	4	?	-	-	-	-	-	-	-	-	-	-	-	-	-	
University of Colorado/Colorado State U., Denver, USA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	101-200
University of Exeter, England	36	18	?	?	-	-	* Employability - HC	-	-	-	-	-	-	-	-	-	-	
University of Galway, Republic of Ireland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
University of Manchester, England	59	?	?	?	* Benefitting Society (Sci. Comms) * Total Reporting	-	* Learning & Skills WINNER	-	-	-	-	* Learning and Skills WINNER	-	-	-	-	-	3
University of Nottingham, England	75	64	70	42	* Money for Good	* Society - highly commended	-	* Continuous Improv't / Inst. Change	* Employability WINNER * Carbon Mgmt HC * Facilities & Svcs HC	* Learning & Skills HC	-	* Learning & Skills HC * Social	2	2	2	1	1	-
University of Strathclyde, Scotland	118	?	?	?	* Benefitting Society (Climate Ready Clyde) * Student Engagement	-	-	-	-	* Continuous Improv't / Inst. Change WINNER	-	-	-	-	-	-	-	50
University of York, England	79	?	?	?	-	-	-	-	-	-	-	-	-	171	101	208	220	26
¹ Focus on top performers in ESD, Energy, Carbon, Waste/ Recyc'g; may not indicate highest ranks overall; 154 institutions ² Predominantly Green Gown Award categories directly related to management and/or facilities (estates) and operations included. HC = highly commended																		

*Green Gown Awards may not contain all category winners and highly commended pre-2017; please check the EAUC website for full listings.

APPENDIX F – Context and Drivers

The following is sourced in large part from [University of Gloucestershire Carbon Management Plan 2018-2022](#), which is England-specific in some areas. Additional comment and specifics provided for the rest of the United Kingdom and the Republic of Ireland after the enumerated section.

Noting that it is implicit within this focus on carbon management that the approach is necessarily broad in application as so many of a university's activities have an impact on carbon emissions (e.g., energy, waste, transport, water) and the interrelation that exists with other outcomes, including biodiversity, health and wellbeing, student experience, etc.

2.1 This CMP has been developed in response to a range of drivers, both internal and external. These are outlined in this section, taking account of their significance and the potential benefits for the University of progressing its carbon management objectives.

2.2 Strategic

2.2.1 Global developments

Climate scientists worldwide are increasingly clear about global warming resulting from greenhouse gas emissions caused by human activity and its impact on the earth's climate system. The global average temperature has risen by 0.85° Celsius and global sea level has risen by 19cm since the late 19th century. This has also resulted in acidification of the oceans, declining glaciers and sea ice, changes to weather patterns, and disruption to habitats. The first international effort to tackle climate change was the 1992 Kyoto Protocol in which 37 industrialised countries set a target to reduce their emissions by an average of 5% below 1990 levels for the period 2008 to 2012.

2.2.2 Paris Agreement 2015

In 2015, 195 countries agreed stretching carbon reduction targets to ensure that global temperatures do not rise by more than 2° Celsius above pre-industrial levels, and to pursue efforts to limit the rise to no more than 1.5° Celsius. 2°C was chosen as the maximum acceptable rise as, above this, the risks and impacts of climate change such as dramatically higher seas, changes in weather patterns, food and water crises, become unacceptable - bringing new levels of disruption and conflict for societies.

2.2.3 UK Climate Change Act 2008

This Act was the first legislation in the world to set legally binding carbon reduction targets through a series of five-year carbon budgets. It requires a reduction of 80% of carbon emissions by 2050, and by 34% by 2020, both against a 1990 baseline. These carbon budgets have been set and run until 2032; the first budget has been achieved and the second and third budgets are on track to be achieved. Concerted work is now needed to achieve the required 51% reduction in carbon emissions by 2025 against a 1990 baseline as specified in the fourth budget.

2.2.4 UK Industrial Strategy

In 2016 the Government published the Industrial Strategy, setting out a long-term plan to boost the productivity of the UK through five foundation approaches: ideas, people, infrastructure, business environment, and places - working with industry, academia and the civil society. Clean growth is one of the first four Grand Challenges, which encompasses the development, manufacture and use of low carbon technologies, systems and services, as well as growing GDP while cutting carbon emissions.

2.2.5 UK Clean Growth Strategy 2017

To support the Industrial Strategy, the Government published its Clean Growth Strategy in 2017, setting out proposals around business and industrial efficiency and ensuring the public sector demonstrates leadership. Recognising that the public sector has reduced emissions by 40% since 1990, further reductions are sought by setting a voluntary carbon reduction target for the public and higher education sectors of 30% by 2020/21 against a 2009/10 baseline. Guidance published by the Department for Business, Energy and Industrial Strategy (BEIS) in April 2018 proposed that public sector organisations should voluntarily report their annual carbon emissions and invited them to sign up to the Emissions Reduction Pledge 2020. For participating universities, it is proposed that emissions data will be collected via the established Estates Management Record process starting in Spring 2019.

In 2020 the Government will review progress against the target with a view to setting a more ambitious potentially mandatory target, such as 50% by 2030 (against the same 2009/10 baseline).

2.3 Regulatory

2.3.1 EU Energy Performance of Buildings Directive (EPBD)

This wide-ranging directive (in force since 2006) sets out to promote improvement of the energy performance of buildings through cost effective measures and to promote the convergence of building standards across the EU. Energy performance certification is required for all new buildings and when existing buildings are rented out or sold on, known as EPCs. There is also a requirement for all public buildings with a floor area over 250m² to show a display energy certificate (DEC) in a prominent position within the building.

2.3.2 Building Regulations – Part L

Part L of the Building Regulations sets out requirements for energy efficiency and the effective control of buildings and associated plant. These regulations apply to both new buildings and refurbishments, controlling factors such as the insulation values of building elements, air permeability of the structure, heating efficiency of boilers, and lighting efficiency. Part L guidance is currently the major driver for the increase in energy efficiency and carbon reduction in new and refurbished buildings.

2.3.3 HE Sector Requirements

In 2010 sector guidance produced by HEFCE required each university to report its carbon emissions, set a carbon reduction target for 2020, and produce a CMP or strategy. These actions supported targets for the sector of a 43% carbon reduction by 2020 and an 83% reduction by 2050 against a 2005 baseline – with performance linked to capital funding. The newly formed Office for Students has not issued any guidance on carbon reduction targets and differs in focus and function to HEFCE. It is likely that in this context, HE sector reductions will now be taken forward via the Emissions Reduction Pledge outlined in section 2.2.5 above.

2.4 Financial

2.4.1 Climate Change Levy

Introduced in 2001, the Climate Change Levy (CCL) is a tax on electricity and gas added to the energy bills of businesses to incentivise them to reduce energy use and to use or generate energy from renewable sources. However, electricity generated from nuclear sources was subject to the CCL from the outset and, in the budget of 2015, CCL was expanded to apply to energy purchased from renewable sources. The abolition of the 2010 Carbon Reduction Commitment emissions trading scheme in 2019 means that the Government will seek to close the resulting shortfall in tax revenue by increasing CCL rates for all business energy users

whether they were required to participate in the CRC or not. From April 2019 the CCL will therefore rise by 45% for electricity and by 67% for gas. As the CCL is effectively a tax on energy from non-renewable sources, the impact of this rise can be partly mitigated by generating more energy from renewable sources.

2.4.2 Energy cost volatility

The increasing volatility of energy prices and the level of energy costs have become growing concerns to large consumers of energy. The impact of conflicts around the world on oil prices, the reliance on imported fuels from less stable countries, and the reduction in the amount of storage capacity for gas have also made energy price volatility a major concern nationally. In addition, the sustained reduction in the cost of renewable energy, its intermittency, and its impact on grid capacity planning, have led to new pressures on the distribution network, which will lead to additional costs in order to better balance supply and demand. These additional costs for the Electricity Market Reform are just the latest in several third-party costs which have driven up energy prices. Since 2011 the growth in third party costs has been responsible for most of the rise in the price of energy and is expected to account for over two thirds of energy costs by 2020.

2.4.3 Value for money

As the HE sector continues to come under scrutiny in terms of value for money, it is increasingly important that all areas of expenditure are assessed for cost saving potential. Annual energy costs for the Further and Higher Education (FHE) sector are around £400 million, resulting in carbon emissions of around 3 million tonnes per year - but with the Carbon Trust estimating that these emissions can be reduced by as much as 25% potentially. In this growing sector, student numbers have increased by a factor of five over the past thirty years, bringing increased energy consumption, particularly for research-focused institutions. The sector is under increasing pressure to provide optimum learning facilities on a limited budget, with better energy management potentially enabling funds to be diverted towards improvements to learning environments.

- ***End University of Gloucestershire extraction*** -

Scotland

Many of the same international and national contexts apply for Scotland, but like HEFCE (England), there is a subnational body in Scotland that heavily influences activity across a broad range of topics, including sustainability. For example, the Scottish Funding Council (SFC) launched of £19m Universities for the Future Programme on 8 Jul 2019, supported by Salix Finance, aimed at boosting investment in energy efficiency across Scotland's higher education institutions. The programme will provide accessible support and finance for carbon reduction throughout the sector and build capacity for funding in additional years, to benefit both students and staff.

The funding from the Universities for the Future programme, which is accessible to all universities in Scotland, will be allocated by SFC over two financial years. All universities within Scotland are invited to make use of the funding which will support several initiatives, including collaboration between public sector bodies, reduced maintenance backlogs through energy efficiency projects, and improved student experience through modernised estates. The programme supports a wide range of technologies, including building fabric improvements, efficient heating upgrades and the reduction of carbon emissions in laboratories.

This program has delivered £350,000 to EAUC Scotland to deliver a focused program to support sustainability within all colleges and universities in Scotland, building on two previous Universities and Colleges Climate Commitment for Scotland programs. These programs provide tailored support to progress institutions towards a skilled and informed, whole-institutional approach to leadership around carbon and resource management, social responsibility and environmental sustainability.

Ireland

Sustainable Energy Ireland and Sustainable Energy Authority of Ireland (co-funded from the Irish Government and the European Union (2007-2013)) have provided funding to universities through their National Development Plan to improve energy efficiency.



Wales

Wales has the Future Generations Act 2015 pushes action in an approach similar to the SDGs under which all Welsh universities must report annually on their activities and outcomes.

APPENDIX G – Methodology

Through attendance at two international conferences and university site visits, this project sought to explore international institutions' approaches to embedding sustainability into their core activities from operational areas such as facilities management through to student experience and academic involvement in operational activities. Conferences attended include the 2019 EAUC annual conference at the University of Manchester, UK and the APPA annual conference in Denver, Colorado, USA.

Site visits involved interactions with project staff through to senior management and influencers in university governance, facilities and operations (estates), student and staff engagement, community engagement, and academic areas to explore their success in making sustainability a core activity. Interactions included pre-trip communication with information gained further explored *in situ* during the trip from on-site interviews with sustainability and/or project-specific staff and participants coupled with tours.

In addition to specific projects, outcomes and approaches, enablers for success were explored, including:

- governance and policy structures
- management/institutional structures and support
- stakeholder engagement
- delivery agent(s)' personal characteristics
- community support and external drivers (local, national, international)

Universities selected for an interactive site visit were based on performance in facilities management categories, single initiative or holistic approach, in several reporting and ranking metrics as well as self-representation and activities of individual staff, including:

- PP – People and Planet League Table;
- GGA – # of Green Gown Awards since 2012;
- UI – UI GreenMetric world ranking;
- Sustainability Leadership Scorecard (UK sectoral approach);
- LiFE – Learning in Future Environments Index;
- STARS – Sustainability Tracking, Assessment and Reporting System;
- Reporting activities; and,
- Individual website reviews.

Given the desire to minimise time spent travelling between campuses, there was a degree of selection based on proximity to one another for a 'do-able' itinerary. In addition, I consciously chose institutions outside of London to focus on more regional institutions relatively speaking.

Some institutions do not pursue awards nor participate in rankings, so when possible as part of the itinerary, "walk-throughs" of other universities were included opportunistically when travelling past to the interactive sites given the short distances involved. These were self-guided tours of 1-2 hours to explore campuses for 'visibility' of sustainability in infrastructure, communications or services without seeking out additional face-to-face interviews. These institutions are included in the appendices tables as a matter of comparison to those I chose for the interactive visits.

NB: the relatively new Times Higher Education Impact ranking was piloted after my travel plans were established, but where possible, performance in this new ranking were discussed in site visits as appropriate.

The following table identifies the visited universities by interactive or walk-through and their scoring in the various metrics identified above.

APPENDIX H – Travel Itinerary with institutions and contacts

	2019	Primary visit focus:		
	ATEM	Governance and Management primary visit focus		
	TEFMA	Facilities and Operations primary visit focus		
	BOTH	All aspects of sustainability		
	WALK-THRU	For 'visibility' of sustainability on campuses		
DATE (2019)	INSTITUTION / ORGANISATION	CONTACTS	EMAIL	WEBSITE
25-May	Stephen Sterling Plymouth University	Stephen Sterling, Emeritus Professor, ESD	stephen.sterling@plymouth.ac.uk	https://www.sustainableeducation.co.uk/
27-May	Marjon University	John Bailey, Sustainability Manager	jbailey@marjon.ac.uk	https://www.marjon.ac.uk/aboutmarjon/sustainability/
28-May	Plymouth University	Paul Hardman, Manager Sustainable Earth Institute (SEI)	paul.hardman@plymouth.ac.uk	https://www.plymouth.ac.uk/students-and-family/sustainability
		Paul Warwick, Academic Lead for Sustainability Education	paul.warwick@plymouth.ac.uk	
		Samantha Price, Sustainability Manager	samantha.price@plymouth.ac.uk	
29-May	University of Exeter		A.Seaman@exeter.ac.uk	http://www.exeter.ac.uk/sustainability/
30-May	University of Southampton	Rachel A Mills, Dean Faculty of Environment and Life Sciences	Rachel.Mills@soton.ac.uk	https://www.southampton.ac.uk/susdev/index.page
		Nicola Turvey, Sustainability Manager (Estates and Facilities)	N.S.Turvey@soton.ac.uk	
		Professor Simon Kemp, ESD Lead	S.Kemp@soton.ac.uk	
31-May	University of West of England	Prof Jim Longhurst, Assistant Vice-Chancellor: Environment and Sustainability	James.Longhurst@uwe.ac.uk	https://www.uwe.ac.uk/
		Rachel Colley, Community Manager, The Students' Union at UWE	Rachel2.Colley@uwe.ac.uk	
		Vicki Harris, Communications and Engagement, Fairtrade	Vicki.Harris@uwe.ac.uk	
		Svetlana Cicmil, Principles of Responsible Management Education (PRME) Lead	Svetlana.Cicmil@uwe.ac.uk	
2-Jun	University of Cardiff	Mark Durdin	environment@cardiff.ac.uk	https://www.cardiff.ac.uk/
3-Jun	Cardiff Metropolitan University	Rachel Roberts	rroberts@cardiffmet.ac.uk	http://www.cardiffmet.ac.uk/about/sustainability/
4-Jun	EAUC UK / University of Gloucestershire	Fiona Goodwin, Director of Operations and Planning	fgoodwin@eauc.org.uk	https://www.eauc.org.uk
5-Jun	University of Gloucestershire	Dr. Alex Ryan	aryan@glos.ac.uk	https://sustainability.glos.ac.uk/

		Andy Simpson, Head of Facilities	asimpson@glos.ac.uk	
		Miriam Webb, Sustainability Engagement Manager	mwebb@glos.ac.uk	
6-Jun	University of Worcester	Katy Boom	k.boom@worc.ac.uk	https://www.worcester.ac.uk/about/sustainability/
		Dr. Heather Barrett, Principal Lecturer, ESD Lead	h.barrett@worc.ac.uk	
7-Jun	Aston University	Elizabeth (Liz) Hunt	e.e.hunt@aston.ac.uk	https://www2.aston.ac.uk/environment
		Andrew Bryers, Sustainability Manager	a.bryers@aston.ac.uk	
		Adrian Owen, Deputy Director of Estates	a.owen@aston.ac.uk	
8-Jun	University of Birmingham		sustainability@birmingham.ac.uk	https://www.birmingham.ac.uk/university/about/environment/
10-Jun	University of Nottingham		sustainability@nottingham.ac.uk	https://www.nottingham.ac.uk/sustainability
11-Jun	Nottingham Trent University	Charmaine Morrell, Sustainable Development Manager	charmaine.morrell@ntu.ac.uk	https://www4.ntu.ac.uk/sustainability
12-Jun	Nottingham Trent University	Emma Georgiou, Environmental Compliance Officer (EMS and Waste)	emma.georgiou@ntu.ac.uk	
		Joe Fallon, Senior Energy and Data Engineer	joe.fallon@ntu.ac.uk	
		Dewi Howell, Sustainable Development Projects Coordinator	dewi.howell@ntu.ac.uk	
		Lina Erlandsson – ESD Coordinator / Green Academy	lina.erlandsson@ntu.ac.uk	
	De Montfort University	Dr Andrew Reeves, Senior Lecturer, Institute of Energy and Sustainable Development (IESD)	areeves@dmu.ac.uk	http://www.dmu.ac.uk/andrewreeves
	EcoCampus PL	Alex Hobbins, Business Development Manager, Loreus PL	support@loreus.com	https://ecocampus.uk/
13-Jun	Keele University (presentation)	Huw Evans	h.a.evans@keele.ac.uk	https://www.keele.ac.uk/greenkeele/
		Zoe Robinson (academic ESD lead 0.3 FTE)	z.p.robinson@keele.ac.uk	
		Mark Ormerod, Deputy Vice-Chancellor and Provost	r.m.ormerod@keele.ac.uk	
		Ash Hulme, Head of Engineering Planning, Smart Energy Network Demonstrator	a.hulme2@keele.ac.uk	https://www.keele.ac.uk/business/businesssupport/smartenergy/
14-Jun	National Union of Students (NUS)	Charlotte Bonner (Jo Kemp Green Impact lead?)	charlotte.bonner@nus.org.uk	https://sustainability.nus.org.uk/
17-Jun	University of Bradford	Simon Duarri, Head of Facilities (leaving Nov 2019)	s.duarri@bradford.ac.uk	https://www.bradford.ac.uk/about/ecoversity
		Lyn Ha, Energy and Environmental Officer (new Oct 2019)	L.Ha@bradford.ac.uk	
		Michael Allhouse, Student Engagement Manager	m.l.allhouse@bradford.ac.uk	
		Andrew Hague, Building team	a.hague@bradford.ac.uk	
		Dr. PB Anand, Reader in Environmental Economics and Public Policy	p.b.anand@bradford.ac.uk	
		Steve Bradbury, Business Planning, EcoCampus	s.bradbury@bradford.ac.uk	
18-Jun	Manchester Metropolitan University	Dr John Hindley, Asst Director of Estates Management and Sustainability	j.hindley@mmu.ac.uk	https://www.mmu.ac.uk/environment/
18-20 Jun	EAUC Members Day and Conference			https://www.eauc.org.uk
	University of Manchester	Emma Gardner, Head of Environmental Sustainability	emma.l.gardner@manchester.ac.uk	http://www.sustainability.manchester.ac.uk/

21-Jun	National Union of Students (NUS)	Jamie Agombar, Head of Sustainability	jamie.agombar@sos-uk.org	https://sustainability.nus.org.uk/
24-Jun	University of Edinburgh (presentation)	Dave Gorman, Director of Social Responsibility and Sustainability	Dave.Gorman@ed.ac.uk	https://www.ed.ac.uk/sustainability
		Michelle Brown, Head SRS Programmes	M.H.Brown@ed.ac.uk	
		Dean Drobot, Head Energy and Utilities (Estates area)	dean.drobot@ed.ac.uk	
		Kate Fitzpatrick, Waste Manager (Estates area)	kate.fitzpatrick@ed.ac.uk	
		Rachel Barton, Project Coordinator (Office Awards)	rachael.barton@ed.ac.uk	
		Sion Pickering, Project Coordinator (Business Travel)	sion.pickering@ed.ac.uk	
	EAUC Scotland (presentation)	Rebecca Petford, EAUC Scotland Program Manager	rpetford@eauc.org.uk	https://www.eauc.org.uk/scotland/home
25-Jun	University of St Andrews	David Stutchfield, Sustainability Manager	ds51@st-andrews.ac.uk	https://www.st-andrews.ac.uk/about/sustainability/
28-Jun	University of Strathclyde	Roddy Yarr, Assistant Director (Sustainability)	sustainability@strath.ac.uk	https://www.strath.ac.uk/sustainablestrathclyde/
1-Jul	University of Ulster - Coleraine campus	Marie-Louise Gaile	ml.gaile@ulster.ac.uk	https://www.ulster.ac.uk/sustainability
		Declan McHugh, Head of Engineering Services	d.mchugh@ulster.ac.uk	
		Dr. Paddy Nixon, Vice-Chancellor and President	vice.chancellor@ulster.ac.uk	
4-Jul	National University Ireland - Galway		sustainability@nuigalway.ie	http://www.nuigalway.ie/sustainability/
5-Jul	University College Cork	Pat Mehigan, Energy and Utilities Manager	p.mehigan@ucc.ie	greenecampus@ucc.ie
		Dr. Maria Kirrane, Sustainability Officer	m.kirrane@ucc.ie	
15-Jul	APPA Conference			https://www.appa.org/sustainability-statement/
16-Jul	APPA Conference	Elizabeth Swiman, Director, Sustainable Campus, Florida State University	eswiman@admin.fsu.edu	www.sustainablecampus.fsu.edu
17-Jul	APPA Conference	Gary Cocke, Associate Director, Energy and Sustainability, University of Texas - Dallas	gary.cocke@utdallas.edu	https://www.utdallas.edu/sustainability/
		Michelle La, Zero Waste Specialist, University of California Berkeley	michellela@berkeley.edu	http://zerowaste.berkeley.edu
17-Jul	University of Colorado Denver			http://www.ucdenver.edu/Sustainability

APPENDIX I – Conference sessions attended (EAUC and APPA)

EAUC Conference (18-20 June 2019; Manchester, UK)

- Panel Session “Greater Manchester’s Carbon Target”
- Session: Building Influence
- Session: Power and Influencing
- Session: Curriculum for SDGs
- Session: SDG reporting
- Session: Getting CFO on board
- Session: Integrated Reporting
- Session: Influential Disruption
- Session: University of Strathclyde, sustainable transport

APPA Conference (15-17 July 2019; Denver, Colorado, USA)

- Conversation: University of Texas – Dallas
- Session: Engaging students in ‘real world’ energy conservation
- Session: Colorado State University (system)
- Session: University of Virginia - New Tech for ageing infrastructure - UVA Approach
- Session: ASHRAE 90.1 and developing standards and codes
- Session: Informatics and Facilities
- Session: Smart Campus and Intelligent Buildings
- Session: Zero Waste (UC Berkeley)

APPENDIX J – Supporting organisation’s statements on sustainability

Association of Tertiary Education Management (ATEM)



[NB ATEM has no statement on sustainability searchable on the website, but the programs and other professional offerings with respect to administration and management are relevant to sustainability professional practitioners, thus I have included their statement below.]

ATEM is the only professional association for administrators and managers working in tertiary education in Australasia. It is dedicated to advancing professional practice. The Association provides our members with an edge in their professional activities and gives them a voice in their areas of expertise in the wider tertiary environment.

ATEM believes that tertiary administrators and managers are people who make a vital contribution to the central aims of their institutions, and who do this by excelling in their work. ATEM promotes and believes in the worth and value of the profession of tertiary administration and management.

ATEM provides members with a professional framework within which their work can take place, supported by a Code of Conduct and ATEM Capabilities.

Tertiary Education Facilities Management Association (TEFMA)



TEFMA have developed the Sustainability Guide for members. Environmental sustainability is an emerging area and relates to a range of services undertaken by TEFMA members and has been broken into the following areas:

- Energy Management
- Carbon Management
- Water Management
- Waste Management
- Environmental Planning

Within the Members Portal a Knowledge Library has been created to allow members to share information on Environmental Sustainability in a trusted and collaborative manner.

APPA - Leadership in Educational Facilities



In July 2008, the APPA Board of Directors approved the following statement regarding sustainability and environmental stewardship. APPA is committed to supporting its members’ ability to create and maintain sustainable campus environments.

APPA does this by:

- Facilitating an open exchange of information, knowledge, and experiences regarding sustainability within education facility practices;
- Connecting members to the best available expertise, resources, and information on sustainability;

- Engaging in alliances and collaborative efforts on behalf of its members to continuously improve the ability of educational institutions to achieve a clean and sustainable learning environment;
- Encouraging school, college, and university leaders to embrace sustainability as a core campus value; and
- Employing documented sustainable practices in the conduct of APPA business.

Australasian Campuses Towards Sustainability (ACTS)



ACTS started as an email list almost 30 years ago to connect like-minded individuals concerned about how universities could become more sustainable across their operations. ACTS is a non-profit, member-based organisation that brings together people from campuses and tertiary institutions across Australia and New Zealand that has international reach.

A major aim of ACTS is to be inspirational, educational and practical – to motivate and help people, while at the same time providing guidance in how to support change towards sustainability, both for sustainability practitioners employed by the university to embed sustainability in that institution and an audience in campuses more broadly. This might include a project manager trying to understand what sustainability means for their role, a senior executive thinking more strategically about their campus, or an academic in the classroom who wants to do more in sustainability learning and skills development.

EAUC - The Alliance for Sustainability Leadership in Education



Our passion is to create a world with sustainability at its heart. That's our vision. We exist to lead and empower the post-16 education sector to make sustainability 'just good business'.

We believe

- That UK and Irish education should be a global leader in sustainability
- That educational institutions have a responsibility as anchors in their communities to be agents of change
- That education has a unique opportunity to transform lives and communities
- That education is at the heart of global sustainability
- That every student should have access to sustainability education
- That education should reflect best practice in operational sustainability
- In being flexible and adaptable to find solutions for a resilient future
- In the value of international collaboration

Our values

- **Pioneering** - driving sustainability through innovation
- **Independence** - our own unique voice
- **Collaboration** - together we go further
- **Role Model** - leading by example
- **Empowering** - supporting and inspiring our members

APPENDIX K – Author Biography

Corey Peterson is the University of Tasmania Sustainability Manager within the asset and operations management and planning function, interim President of Australasian Campuses Towards Sustainability (ACTS), and University of Tasmania Council member. Within higher education, he worked for many years in laboratory management and research support in and around Antarctica. He has shared his experiences incorporating sustainability in higher education through conference (e.g. TEMC, ACTS) presentations, cross-institutional working groups, peer-to-peer exchanges, running workshops and via websites.

As Sustainability Manager, he is a lead staff member in efforts recognised with several prestigious Green Gown Awards Australasia, an International Green Gown Award (community engagement) as well as a personal Australasian Campuses Towards Sustainability (ACTS) Award of Excellence in 2012. He also led efforts recognised with Vice Chancellor awards for Programs that Enhance Learning and Community Engagement as well as an Australian Commonwealth Office of Learning and Teaching Award for Programs that Enhance Learning.

Corey has a Bachelor's degree in Biology and Distributive Science (Environmental Studies) from Gustavus Adolphus College in Minnesota, USA. Subsequently, he completed two Masters Degrees in Environmental Science and Public Administration at the Indiana University School of Public and Environmental Affairs. He has two Diplomas from TAFE Tasmania in Information Technology (Networking and Systems Administration) and is certified in carbon management. He is also an internationally certified sustainability professional and graduate of the Australian Institute of Company Directors and the Tasmanian Leaders Program, for which he has also served as a mentor to later participants and is an active member of the alumni.

Corey is the current interim President of Australasian Campuses Towards Sustainability (ACTS) and served on the board of Sustainable Living Tasmania for 10 years with five years as President and on the boards of Future Tasmania and the United Nations Association of Australia – Tasmania.

Corey has worked in Jakarta, Indonesia as a GIS project manager, spent 16 years supporting Antarctic research both on-continent and aboard research vessels in the United States Antarctic Program and was a Network Manager at MacKillop College in Hobart for 12 years where he also led Tasmanian-first sustainability improvements.

Corey is focussed on delivering sustainability improvements within the University of Tasmania operational and teaching and learning areas and more broadly through community engagement activities, with a focus on involving staff and students directly in initiatives.