

2020 Annual Report

Annual Management Review of University's Environmental Management System

Title:

From: Environment & Sustainability Manager

Date: June 2020

This management review will examine how successful the performance of the ISO14001:2015 has been for the University of Southampton over the past 18 months; providing Senior Management with the opportunity to steer the EMS to deliver a consistently effective output, whilst ensuring it facilitates our development of continual improvement.

The report will review performance against targets from October 2018 to September 2019 and reference is made to the EMS until May 2020 for two reasons. Firstly, to encapsulate the effect of the COVID-19 pandemic on energy performance and project planning. Secondly, this report is a combination of the EMS Annual Report, usually issued in February, as well as the Environment and Sustainability Report, usually issued in July. By combining the two, this has streamlined the reporting process and reduced the possibility of repetition.

The Service Excellence Board is assigned as the Senior Management group (as specified in the EMS procedure [UOSEMSP018](#)) whom is expected to review the compliance, performance and embeddedness of the EMS once annually, with minutes to be stored on the University's EMS SharePoint site. As this Board is not regularly meeting during the disruption caused by the pandemic, this report is also being presented to the Environment & Sustainability Steering Group for input and approval.

The outcome of this Management Review will be reported to the Environment & Sustainability Steering Group on 7th July 2020.

Audit

External recertification audit will take place w/c 20th July 2020.

Internal Audit results: Supporting document location: UOSEMSR012

The most recent internal audit was conducted on 18th and 19th May 2020 carried out by Loreus Ltd.

Audit Findings:

Non-Conformities raised - 3

Opportunities for Improvement - 6

Just to note, in previous years, 'Recommendations' were raised at internal audit instead of Non-Conformities. However, in order to align internal audit findings to ISO14001, Non-Conformities will be raised going forward. This will, therefore, increase the number raised in comparison to previous years.

EMS Changes

Following the COVID-19 pandemic, the government announced lockdown, starting on 23rd March 2020. Up until this date, the university was running at usual capacity. However, after this date, much of the university was shut down, including students returning to their homes and a significantly reduced level of activity on University campuses. The energy savings arising from this period have been interesting and the closing of buildings has been useful in highlighting areas where baseloads can be reduced further.

Pavement works are required in Valley Gardens following tree root damage. Prior to work taking place, biodiversity surveys have been needed to be carried out to avoid disturbance to local habitats.

Aspects Register - The Aspects register will now be held online on the LUS web portal <https://thecompliancepeople.co.uk/>. The Environmental Aspects Register held locally has been archived in order to streamline processes, avoid duplication and create one central EMS hub. Here, we can update the Aspects Register, raise non-conformities and track progress against targets.

Risks:

- Competition for funding to make energy / building improvements.
- Significant budget impact from the COVID-19 pandemic.
- Require increased and improved project coordination to ensure progress towards electricity, gas and water reduction targets.

Opportunities:

- Increased cross departmental working, between Mechanical Engineers, Planners, Building Managers, Academic Faculties, Energy, PMU & Sustainability Manager
- Faculties to set up energy working groups
- Increased awareness campaigns through monthly reports to site managers on electricity usage & waste & recycling breakdowns
- Opportunities to build upon behaviour change actioned in response to COVID-19 pandemic.

Objectives & Monitoring

Performance against targets - October 2018 – September 2019

<u>Objective</u>	<u>Monitoring</u>
Biodiversity: Maintain & where possible enhance habitats for the benefit of people & wildlife	<p>Biodiversity Action Plan in use by Biodiversity Group, monitoring progress and promoting continual improvement.</p> <ul style="list-style-type: none"> - Biohedge planted four years ago is now large enough to hold nesting birds - In collaboration with the organisation 'British Hedgehogs' for assisting in becoming a 'hedgehog-friendly campus'. Steps will need to be taken to promote hedgehog care across the estate in order to achieve bronze accreditation. - Bioblitz was held 7th-8th June 2019, looking at local ecology and mapping natural history found through Hampshire Biodiversity Information Centre. Bioblitz 2020 has been in collaboration with the Science & Engineering Event SOTSEF – promoting biodiversity actions at home - In September 2019, the university was awarded £500 from Kew Gardens to install time lapse cameras in Valley Gardens and around the estate. These have been successful in photographing a range of mammals, such as foxes, badgers, deer and hedgehogs.
Carbon: Reduce carbon emissions by 20% from 2005/2006 baseline by 2020 - October 18 – September 19	<p>Carbon Savings have been addressed in the Carbon Management Plan Annual Report, written in March 2020.</p> <p>See detailed energy and carbon data below.</p>
Education for Sustainable Development: Sustainability course content; using the campus as a resource for learning	<ul style="list-style-type: none"> - Intern placement within waste and recycling team (March 2020) - Links between Transport Research Group and University operations/Travel Plan - Academic and student representation on operational working groups (Biodiversity Working Group, Energy Working Group)
Engagement: Engage students & staff and the community on the principals of sustainability	<ul style="list-style-type: none"> - Development of Strategic Communications Plan to make messaging more concise and user friendly - Use of communications portals such as Sussed and Staff Matters to promote sustainability stories to staff - Use of electronic screens around site to engage students in energy savings and shut down events - Since the COVID-19 outbreak, newsletters have been circulated within the Estates and Facilities team, sharing stories and communications
Environment Management System: Continual Improvement and Enhanced performance	<p>The EMS External Audit is due in July 2020 for recertification in August 2020. However, due to COVID-19, this will be a desk-based audited, with a follow-up site-based audit within six months.</p> <p>In April 2020, a desk-based internal audit was conducted by Loreus, who highlighted 3 Non-Conformities and 6 Opportunities for Improvement.</p>

<p>Pollution prevention & legal compliance: Minimise emissions to air, land & water Ensure we operate within our Compliance Obligations</p>	<p>Environmental Incidences are logged on the Register of Environmental Incidents UOSEMSR004.</p> <p>Since Jan 2019 there have been four environmental incidences: 2 x water contamination 1 x oil storage 1 x chemical spill</p> <p>Corrective action was taken and lessons learned</p>		
<p>Procurement: Manage our supply chain by considering the economic, ethical & environmental impacts & whole-life costs of purchasing decisions</p>	<p>The Procurement Sustainability Working Group has been established and have now succeeded in drafting their Terms of Reference to drive continual improvement in the department. This will enable the team to raise the profile of sustainable procurement within the University by challenging current processes, sharing best practise and demonstrating that sustainable approaches result in savings and added value. The team are working with the Flexible Framework, which demonstrates best practice for ways of working, grading levels 1-5. Current working practices have been shown to be at Level 3, which is recommended for ISO14001 standard. The team are now working towards levels 4 and 5. They have also produced a Corporate and Social Responsibility in Procurement Report, outlining their aims and commitments to sustainability.</p>		
<p>Sustainable Buildings: Design, build & refurbish our estate in an environmentally responsible & resource-efficient way</p>	<p>The Sustainable Buildings Working Group met throughout 2019, considering the University's ambition towards sustainable buildings. There was discussion on adopting Passivhaus as the certificated method for ensuring the energy management principles of the buildings are best practise. Further work is needed for formalise the approach and update the Sustainable Buildings Policy.</p>		
<p>Travel: Improve transport options available to staff, students & visitors to reduce car travel</p>	<p>The Travel Plan for 2015-2020 has successfully be delivered, with a focus to now release the Travel Plan for 2020-2030. Target for student car usage has been met and has reduced from 10% to 3%. Progress has made for reducing staff car usage, currently at 37.5% against a 46.5% baseline and 30% target.</p>		
<p>Waste: Manage our waste according to the waste hierarchy – prevent, reuse, recycle, recover, dispose October 18 – September 19</p>	<p>Recycling KPIs:</p> <p>65% from all resource streams</p> <p>60% by bin weight - Campuses</p> <p>50% by bin weight - Halls</p> <p>85% from all refurb projects</p> <p>85% from all new builds</p>	<p>2009/10 Baseline:</p> <p>46%</p> <p>49%</p> <p>34%</p> <p>92%</p> <p>98%</p>	<p>2018/19:</p> <p>49%</p> <p>59%</p> <p>40%</p> <p>94%</p>
<p>Water: Reduce by 30% from 2009/2010 baseline by 2020 October 18 – September 19</p>	<p>Water consumption and reduction is reviewed in the Carbon Management Plan Annual Report, written in March 2020. There have been good savings, falling slightly short of the target. Does not take into account the growing size of the university since the baseline was set.</p> <p>25% savings in water consumption from 2009/10 baseline.</p> <p>136 tonnes of carbon saved through water-saving projects.</p>		

Performance against targets - October 2018 - September 2019

<u>Energy and Carbon Reduction Targets</u> KPI = 20% Reduction	Result	Reason
Tonnes of CO ₂ generated from Scope 1&2 emissions	Baseline: 31,983 tonnes of CO ₂ 2018/19 Actual: 31,163 Target: <25,586 tonnes of CO ₂	Target has not been met, but there has been a 3% saving against the prior year 2017/18. The largest impact on carbon emissions during 2018/19 was from the operational issues of the CHP. This figure does not take into account the growing size of the university since the baseline was set.
Electricity Usage in kWh	Baseline: 35,868,000 kWh 2018/19 Actual: 39,361,736 Target: 28,694,400 kWh	This target has not been met against the baseline, although there have still been electricity savings across the estate. The largest electricity reductions were seen in student accommodation due to a continuous replacement to LED lighting. Ten main student accommodation sites saw reductions totalling about 600,000 kWh. This figure does not take into account the growing size of the university since the baseline was set.
Gas Usage in kWh	Baseline: 86,838,000 kWh 2018/19 Actual: 75,010,595 Target: 69,470,400 kWh	Although this target has not been met, savings can be seen against the baseline and there has been a 20% reduction against 2017/18. This was due to the refurbishment of boiler room at Aubrey House, completed September 2018. This figure does not take into account the growing size of the university since the baseline was set.
Kg of CO ₂ / £ turnover	Baseline: 0.103kg/£ 2018/19 Actual: 0.079kg/£ Target: 0.08kg CO ₂ /£	Against the baseline, there has been a 23% reduction in carbon emissions, showing a more realistic view of improvements made across the estate in carbon savings.
Tonnes of CO ₂ / FTE student & staff	Baseline: 1.37 tonnes CO ₂ 2018/19 Actual: 1.14 Target: 1.096 tonnes/FTE	CO ₂ savings have been achieved through energy and gas savings and given the increasing number of students and staff, this has resulted in savings per person. There has been a 17% reduction against the baseline figure.

Tonnes of CO₂ / Halls of Residence Occupant	Baseline: 2.02 tonnes CO ₂ 2018/19 Actual: 1.26 Target: 1.61 tonnes/occupant	Since the baseline was set, there has been a great carbon saving of 38% when reviewing CO ₂ per halls occupant.
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Communication

Communication continues to be an important part of promoting the good work of the EMS. There is continued use of social media to promote key awareness days, sustainability events, good news stories and advice to staff and students. The social media channels used are Twitter and Facebook, looking forward with the potential to use Instagram also in order to improve outreach to the student population.

There have been sustainability-based articles and updates in the Staff Matters magazine, as well as Sussed articles and website updates, with articles addressing issues such as sustainable travel and biodiversity. This is in order to engage staff in sustainability issues and encouraging others to contribute to the university goals. In September 2019, a sustainability stand was at the university Freshers Fair. This was a successful and engaging event, with students making suggestions for improving sustainability in Halls of Residences and across the campus.

Continual Improvement

There has been a drive to reduce single-use plastics on campus, encouraging visitors to catering outlets to bring reusable mugs, with usage being monitored by the catering team. There has been a reduction in single-use catering items, such as sugar and condiments. There has been a focus on sustainability at The Plant Pot restaurant also, offering a zero-meat menu and selling zero waste dry food items. Looking at energy projects, there have been LED lighting upgrades across the campuses, replacing failed lighting stock with LED replacements where possible. There has been a large refurbishment project in B.29, making the building more efficient and reducing energy usage. Water savings have been achieved through the replacement of taps and showers in sports facilities to low flow in order to make consumption savings.

An initiative has been identified for carbon offsetting with the current food waste that is being sent to an anaerobic digester. This food waste produces energy, which is used by the National Grid. Using a conversion factor, we can calculate how much energy is being generated through our food waste. Between April 2019 and March 2020, a total of 265 tonnes of food waste was disposed of, which equates to a saving of 27,970 kg CO₂e and 7,636 kg of carbon. This can be used as a monthly carbon saving without any further investment needed.

Effects of COVID-19 outbreak on period March-May 2020

On 23rd March 2020, the UK was sent into lockdown following the outbreak of COVID-19. This changed the use of buildings as students were sent home from campus and staff left campus to work from home. Although some buildings were powered down, some were also required to remain in use due to COVID-19 testing, laboratory work and the requirement for equipment to be kept switched on to keep research samples safe. Lighting and equipment was switched off where possible and the energy in buildings has been monitored.

Overall, up to 30th April, there has been an 85% reduction in average grid demand since COVID-19 outbreak and an average power demand reduction of 32%. During this period, there were 15 days where no power was drawn from the grid and CHP output was higher than consumption. We have been given a unique opportunity to review high baseloads in buildings to see where energy savings can be made going forward.

Priority projects post COVID-19

These projects have been extracted from a longer list, which was drawn up by the Energy Team for the Ten Year Plan. They have been highlighted as a priority due to their low cost, high carbon savings and immediate maintenance savings. All projects are £500,000 or lower, most projects listed are less than £150,000. By focusing on lower-cost projects with high carbon savings will enable carbon-savings to continue during a period of financial uncertainty.

Project List	Project cost	Est. Payback (Yrs)	Change in Maintenance Cost £/YR	Total CO2 saved over life	Description	Summary of benefits
Promote home working	£0	-	-	-	Changing use of buildings and encouraging working from home has the potential for huge electricity savings.	No cost Savings in electricity, heating and water Increase ability to achieve consumption targets Carbon saving
Accessible pipework, plant room, boilers etc. insulation	£36,000	3	£0	1,752	Heat being emitted is controlled to avoid rooms being heated unnecessarily.	Relatively low cost Good carbon savings Short payback period
Repair underfloor heating B53	£20,000	6	-£1,000	114	Reduce fire risk related to electric heaters, better energy efficiency and greater comfort to occupants.	Low cost project Instant maintenance savings
Install Regulator Valves	£42,000	5	£0	1,220	Better control over heating systems. Improved comfort for staff and students.	Relatively low cost Good carbon savings
Water Savings: Low Flow Showerheads - Halls	£44,022	1	£0	62	Improved student experience and reputation for the university.	Low cost Very short payback period Helps achieve water-saving targets
Remove instances of heating and cooling operating simultaneously	£120,250	3	£0	3,625	Improved student experience and staff productivity.	Great carbon savings Short payback period
Replace Heater Batteries on AHUs	£120,000	5	£0	3,520	Many are running at too high DeltaT. Replace to reduce return water temperatures on DH	Great carbon savings Short payback period
Wide Lane Diesel Pitch Light Replacement	£148,500	10	-£1,800	680	Reduction environmental risk with reduced diesel onsite and replaced with LED lighting.	Instant maintenance savings Reduced environmental risk High cost project
Remove instances of heating and cooling operating simultaneously and improve return water temperatures by installing better heat emitters	£500,000	7	£0	6,392	Improving the return water temperature will aid in improving the efficiency of the CHP. Practical as part of large refurbishment project.	High cost but very high carbon savings