

GUILDHE CLIMATE CRISIS REPORT

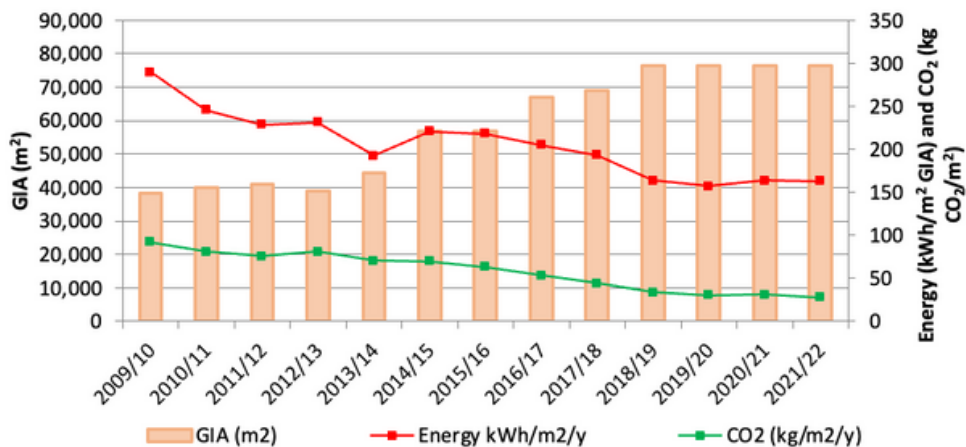
CASE STUDY: CAMPUS MANAGEMENT

Bath Spa University

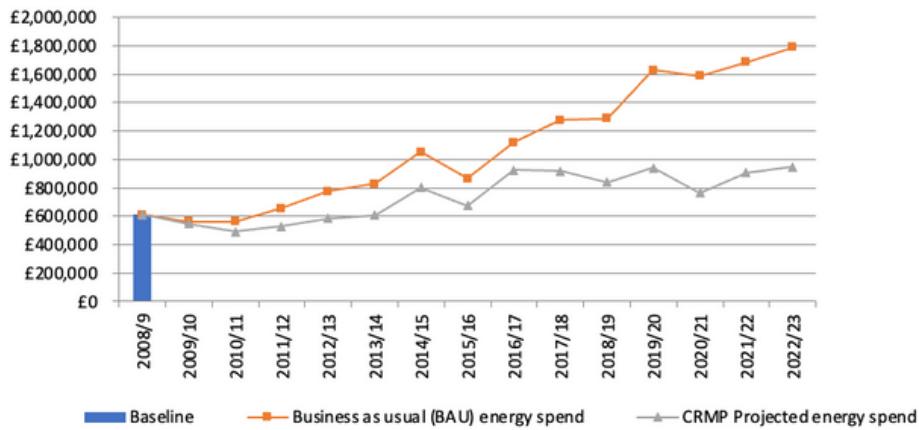
During 2010 we published our first Carbon Reduction Management Plan, which set out how we would reduce our Scope 1 and 2 emissions by 50% (from 4,000 tonnes) over the following 10 years to 2020. Despite increasing the size of our estate by around 50%, increasing operations of our existing estate by around 20% and inviting another 1,000 students to live in university accommodation, we have now just about reached this target.

We've achieved this through a combination of standard energy saving measures like upgrading insulation, improving draught proofing and installing more efficient plant and lighting. However, in addition, we've carried out an Energy Performance Contract on our main campus, installed two biomass-fired district heating networks, upgraded all our BEMS controls protocols and implemented innovative control strategies on our existing air conditioning systems.

From a Scope 1 and 2 carbon and energy efficiency perspective, we have outperformed all expectations and are now 45% more energy efficient (kWh/m²/y) and around 70% more carbon efficient than we were in 2010 (chart below).



Implementation of our initial carbon reduction programme had a cost of around £4M. Cost savings from energy saved will provide a simple payback during 2023, making the entire programme cost-neutral to the organisation (chart below).



We have since published our second Carbon Reduction Management Plan, which sets out our pathway to net zero emissions by 2030. This includes some Scope 3 sources but excludes procurement and construction at this time. The primary focus for this phase is the decarbonisation of our heating systems, which we are currently scoping.

Waste

In 2014 we implemented a new waste and recycling scheme across all our campuses and residences. Our goals were to maximise recycling and food waste recovery for anaerobic digestion, minimise waste to landfill, reduce operating costs for the University, eliminate health and safety issues associated with sharps and black bags, and to generally make the campus a nicer place by reducing litter.

We trialled a new, bagless, three-stream process on one of our residential blocks for six weeks. The trial achieved a doubling of recycling from 34% to 68% and gave us essential feedback to help design a new system.

Our new system was based on the following principles:

- Simple – three stream process: Recycling, Food and Non-recycling
- Consistent – the same three choices with the same colour schemes and the same messaging in every location
- Bagless – All bins and our in-house waste management processes would be designed to work without bags
- All waste and recycling would be centralised and compacted to minimise waste transport on and off site

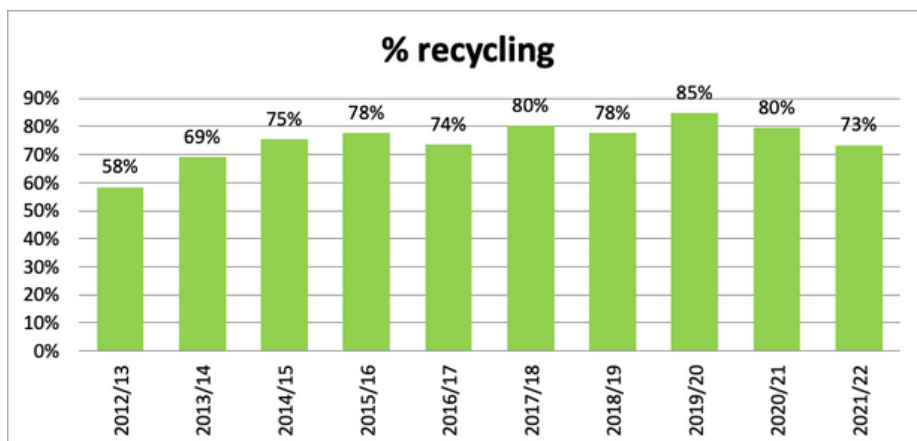
We worked with a local bin manufacturer to design bins that would meet our needs and procured large compactors to consolidate both mixed recycling and residual waste (example in Figure 1).

To develop a business case, we carried out a five year cost forecast for the “business as usual” process, taking into account all waste-associated costs, including BSU staff time for waste management. We did the same process for the new system, including around £250k implementation costs. The analysis demonstrated a £200k overall cost reduction over the five year period.

Recycling rates certainly improved as a result of the new system and have been in the high 70-80% region since (chart below). In addition, we have had much less site litter and no incidences of injury through sharps penetration of black bags. However, a recent analysis of our residual waste stream has demonstrated that we can do much better. Watch this space!



Figure 1. Example of three-stream bin for academic areas. The bin has an internal three-cassette system, which eliminates the use of bags (except for standard food waste liner) and enables rapid swap-out by our waste team.



[Read the full GuildHE Report: Tackling the Climate Crisis: A View From Smaller and Specialist Universities and Colleges](#)