

# Education:

## an interview with the University of Essex



**I**n this regular feature, we focus on how organisations across different industries approach energy management. In this issue, we are exploring the world of education with Richard Frost, written when he was Energy Engineer at University of Essex. He is currently Energy and Carbon Manager at Queen Mary University of London.

The University of Essex opened its doors to students for the first time in 1964 and received its Royal Charter the following year. Today it is one of the UK's leading academic institutions and has an international reputation for the quality of its research and teaching. The University is ranked within the Top Ten Universities for research and achieves a high level of student satisfaction.

There are around 12,000 students and 2000 employees

representing over 120 countries. The University is split over three locations within Essex: Colchester, Loughton and Southend.

To put some perspective on our financial impact on the local economy, the university income for year 13-14 was £190,000,000. However, success comes at an environmental cost and we continue to struggle to break the dualism of growth and environmental impact.

Environmental management at the University of Essex is the

### *University of Essex Energy and Water Consumption*

Electricity	Gas	Water
kWh	kWh	Cubic Metres
21,100,000	29,000,000	250,000

formal responsibility of the Estate Management Section within my role as Energy Manager for the institution. This covers a multitude of tasks from energy procurement, project management, staff and student engagement to paying and validating bills and any other duties that an energy manager can turn their hand to.

### **What does energy management mean for the University?**

From personal perspective energy management at the university is all things to all men. As we evolve from Government funded leviathans to dynamic providers of quality education and research in a global market, protecting the bottom line has become ever more important. Of course, blowing the energy managers' trumpet, our actions and decisions play



an ever-increasing role in protecting the employer, while delivering efficiencies and saving.

As well as saving energy, there are forgotten parts to the role which are imposed upon us, the stuff which stops a knock on door from the authorities, such as DEC's and ESOS to name but a few and there is the soft part of the remit, the hearts and minds of the staff and students.

The University sector as a whole has acknowledged its sustainable responsibilities both through the curriculum and through its actions, driven by people like you and me, the energy managers. I consider myself an ambassador for institution, influencing students, staff and visitors from around the world to save energy, not just on campus, but at home, wherever that may be. It is evident energy managers within the sector can play a significant role in informing, educating and influencing stakeholders from around

the world to meet our organisations' wider sustainable objectives.

As mentioned above, the university has a diverse group of stakeholders to engage and influence. From the academic who has likely theorised climate change and its effects, to the other end of the spectrum, the undergraduate, who only has a finite time on campus before starting their careers.

When I first started coercing students to reduce their energy consumption, I found a few packs of beer were very successful in getting the message across at fresher fairs etc. It was cheap and targeted the students' innate need to be inebriated, eventually though, this was frowned upon.

Therefore, we engaged with the Students Union to run "student switch off" competitions against halls of residence, with the successors winning an ice cream party and the university enjoying a 3% reduction in energy consumption. However, these benefits have become increasingly short-lived and potentially counterproductive with the latest competition experiencing increases in consumption on last year's figures.

There are a number of reasons, including the effect tuition fees have had on student behaviour and their expectations for bigger returns for their efforts. Thus, I'm going to have to reassess the cost and reward, before continuing with this method of behaviour change.

For staff a very effective but simple tool to change behaviour has been the issuing of temperature cards, which has enabled me to manage internal temperatures from 24°C down to 21°C on the BMS, without

the usual backlash. As the cards provide the occupant with a basic temperature reading, which more often than not is well above those stated in the University energy policy, I've been able to tweak temperatures slowly back to normal levels of comfort, equating to a 1000 tonne reduction in Carbon emissions on last year's CRC return figure. It is evident, without some form of psychological contract between the energy manager and those to be influenced (*I'll give you something, but I'll expect something back in return*) getting the message across would be innately difficult.

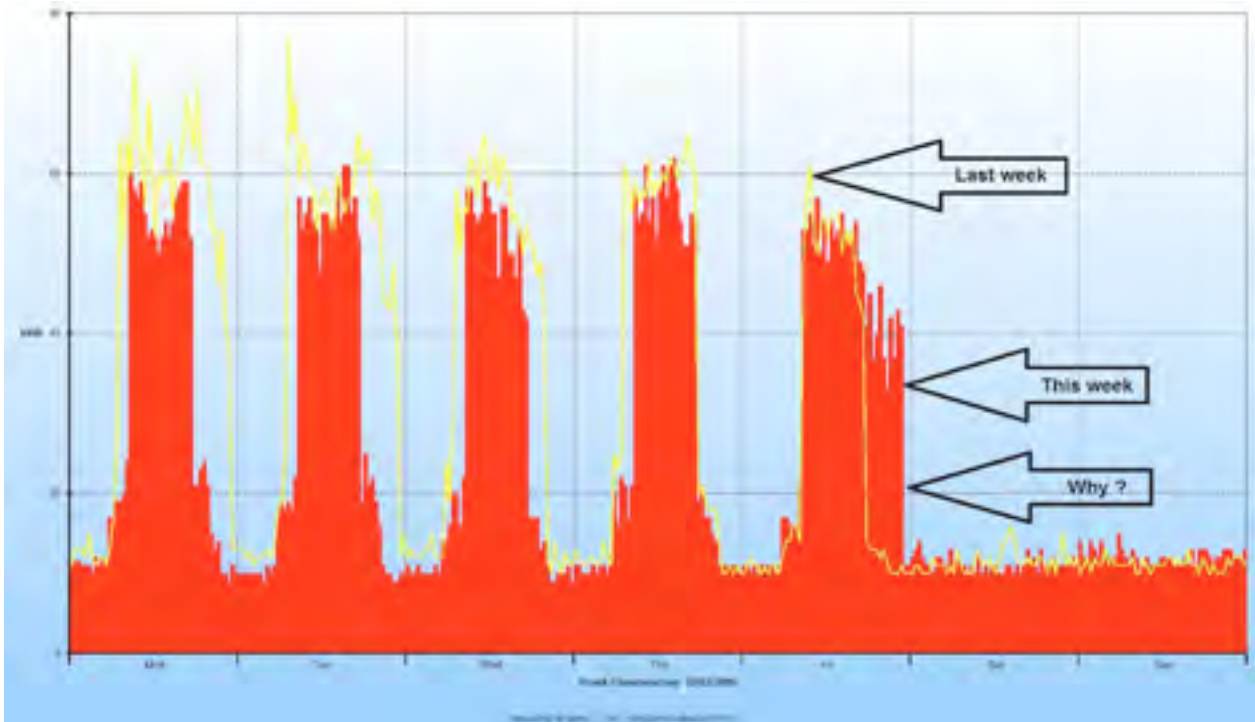
### How does the University deal with energy management?

Like most universities I had to develop a carbon management plan to receive capital funding from government. This had to have a clear objective of reducing carbon emissions by 34% before 2020. Of course the responsibility and the methods to achieve the reduction fell into the lap of each institution's energy manager, including myself.

What has compounded the challenge has been the growth in the estate since the reporting baseline year of 2005. Early on I identified the need for good automatic meter reading otherwise I was trying to control the uncontrollable. This exercise is still ongoing but has been invaluable in identifying and managing energy use and reconciling the operation of the Building Management System as in **Error! Reference source not found.** and of course building up the evidence to resource and review energy management projects.

Once I had built enough information up it was evident our existing and very old BMS had become a glorified time clock and funding has been made available to replace it on an ongoing basis (year 3 of an initial 5-year programme, £900K spend to date). Funding has come both internally and from Salix (interest-free capital to the public sector), which has been a lifeline for the HE sector in delivering energy management projects.

AMR Data weekly electrical consumption comparison



**What areas of the University's everyday business are most challenging in terms of energy management?**

With the business need to increase student numbers, most universities have seen growth in their estates over the last decade and Essex has been no different, with effectively a new build project handed over year on year. Of course any new build has its teething problems, but what has compounded the issue is the very thing driving sustainable performance, BREEAM. I have effectively become a gate keeper for misguided design teams, who have the luxury of walking away from their decisions. It would be fair to say some have slipped the net and I find myself coming across over complicated buildings, which are difficult and expensive to maintain in the pursuit of carbon reduction. Firstly there is the challenge to influence the key stakeholders secondly to understand all the differing build types and finally the interaction of all the building services and the latest fad to make

it greener than the previous building. Hopefully BIM might provide the answer for us all and provide useful information and interaction with our BMS systems to enable efficient control of buildings quicker than before? When I initially started my energy management career over 15 years ago, the role was quite focused, however over time it has evolved to meet the plethora of compliance and regulations which have come along since then. If I'm open and honest, I've fallen into the trap of being

spread too thin over recent years, which has detracted from the purest side of the Energy Management role. The continuous challenge for me and probably for all of us is to balance all the conflicting interests with the minimum of resource. Despite the challenge, I genuinely see my role as a privilege, as my actions in delivering energy management across the three campuses has hopefully influence the graduates, from over 100 different countries, which pass through the doors of Essex each year.

