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# Finalist's case study

## Queen's University Belfast Carbon Reduction

### The Queen's University Belfast Energy Team

#### About the project

##### Summary

The Queen's University Belfast Energy Team consists of four people that are a part of the wider Estates Directorate.

Their key objective is to reduce energy usage and carbon emissions across the University, meeting or surpassing those identified within the University's Carbon Management Plan. This objective is supported at the highest level of the University.

The approach they have adopted engages stakeholders both internal and external to the University to deliver effective and long lasting solutions. Within the University they have fostered the "living laboratory" concept whereby many of the adopted solutions are also used to support the delivery of high quality research and education

##### Project partners

The QUB Energy Team consists of four people that are a part of the wider Estates Directorate:

Bill Annesley, Senior Estates Manager

Anthony Schmidt, Estates Manager (Energy)

Alan Hughes, Energy Officer

Lee Bore, Data Analyst

In addition, all of the University's 3,700 staff have access to their department's energy consumption information via a web application and over 300 Students have participated in tours of the University's CHP plants and are able to access performance data via a special web link to the University's BMS system.

#### The results

##### The problem

Reduce energy usage and carbon emissions across the University.

##### The approach

The Energy team has been strategic in its approach. They have reviewed an exhaustive list of energy saving options available and selected solutions that best suit the campus and its users. Data collected from around



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1,000 meters informs what they do leading to a greater understanding of the energy consumption patterns on site.

They deliver changes with in-house Mechanical and Electrical Engineers, allowing them to find and solve problems, but most importantly implement solutions in a timely and cost effective way.

They are innovative because they work out not only which initiatives have the shortest payback period yielding the best ROI in terms of both energy and carbon savings, but also strategies which can add further value. For example the Energy Team will have four out of a planned five Combined Heat and Power plants (CHPs) running by the end of 2016. These will not only absorb the growth in energy demand and potential carbon emissions resulting from planned expansion, but by working with external organisations, such as Belfast City Council, excess heat will be utilised in the greenhouses at the Botanical Gardens.

They communicate the information they collect to the whole campus to influence stakeholders, drive behavioural change and make improvements. They engage with academics and students and use real life data to enhance the student experience. For example data from the BMS is used as an education tool, thereby enriching the learning outcomes through enhanced curriculum delivery. This has been achieved on a number of courses reducing the need for additional capital investment in teaching facilities.

This stakeholder approach has led to numerous benefits and the ideas adopted are highly applicable to other universities.

## Our goals

Meet or surpass the targets identified within the University's Carbon Management Plan. This objective is supported at the highest level of the University.

## Obstacles and solutions

Obstacles	Solutions
Funding	Ring fenced green fund
Skills	Energy Management is a specialist area. Recruit staff with the required skill set and invest in their training and development
Generating interest and achieving added value	Carbon reduction doesn't just have to be back of house – it can have a real impact on the student experience. The living lab approach results in greater student involvement and helps promote carbon reduction achievements.

## Performance and results

The Energy Team have made significant savings for the University, these include:

Annual carbon savings of 6,000 tCO<sub>2</sub> together with annual financial savings of £948k from CHP projects and £466k from smaller projects.]



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## The future

### Lessons learned

1. It is essential to have a team with the correct skill sets available in house: - strategic, technical and analytical
2. Knowledge about how the estate operates and its utilities related infrastructure is crucial
3. Focus on projects that can subsequently be evaluated and learn from your mistakes and successes

### What has it meant to your institution to be a Green Gown Award finalist?

Being selected as a finalist in the Green Gown Awards is recognition of the impact that the Energy Team is making across the University.”

### Further information

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<http://www.qub.ac.uk/>

<http://www.qub.ac.uk/sites/CarbonManagementatQueens/>