

IMPACT ON THE ENVIRONMENT

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Winner

University of Oxford, Carbon Management Programme

The university's Carbon Management Programme delivers its 2011 Carbon Management Strategy which provides an overarching approach to carbon reduction while engaging staff and students and providing learnings for the higher education sector and beyond.

The university has set a target to reduce carbon emissions by 33 per cent by the end of 2020 against a 2005/6 baseline. With analysis of carbon emissions from various parts of the estate, the university implemented a range of projects relating to renewable energy, building fabric, building management, power usage and encouraging behavioural change.

The university has invested £3.5 million in its carbon reduction programme with a further £6m allocated, and more than 205 projects have so far included installing solar photo voltaic systems, lighting upgrades, BMS optimisation, building system upgrades and roof insulation.

The result has been a saving of 6,256 tonnes of carbon and £1.5m of annual energy costs at the university on projects delivered since 2011. The projects reduced the cost of energy and carbon taxes and also contributed towards funding applications where laboratories can show a high level of environmental control. The experience gained, and lessons learned are fed back to the capital projects team to be taken into account with the design of new buildings.

Best Practice Learning Points

- Analysis of what proportion of carbon emissions was coming from what part of the university estate enabled projects to be prioritised and grouped to maximise project costs and efficiencies.
- A new procurement user group and new service contracts were obtained to upgrade or replace laboratory equipment, which accounted for a large part of carbon emissions.
- A wide range of activities such as workshops on carbon management, "Switch-Off" campaigns and sustainability awards ensure the learning and experience achieved through the projects and the programme is continued internally and promoted externally.
- Access to energy performance data via measures such as workshops and monitoring software have contributed to engagement and behavioural change.
- Carbon emissions have reduced annually despite expansion of the university estate thanks to the programme and its projects.

About

Energy and carbon management is part of the University of Oxford's Environmental Sustainability Policy where key areas such as carbon reduction, transport and biodiversity have strategies and implementation plans reported on internally to a sustainability steering group.

The university has set a target to reduce scope one and two carbon emissions by 33 per cent by the end of 2020 against a 2005/6 baseline.

The university identified where and how much emissions were coming from in the estate enabling projects to be prioritised. For example, it was found that more than three quarters of carbon emissions come from scientific research buildings. Potential projects were put into categories to maximise purchasing and create other efficiencies.

The Carbon Management Programme delivers the Carbon Management strategy, set up in 2011, and so far, projects have included solar photo voltaic systems, lighting upgrades, building management system optimisation, building systems upgrades and roof insulation.

The work was split into various categories. The renewable energy category saw nearly 2,000 PV panels installed via a framework contract with the management team of each building engaged individually to cope with the different requirements for each project.

Roof insulation was installed at the grade II listed Exam Schools, built between 1876 and 1882, after looking at how building fabric contributed to carbon emissions.

As part of the attention to building systems, installation of LED lighting at the University Museum of Natural History, the Pitt Rivers Museum and the Ashmolean Museum reduced cooling requirements and removed UV, protecting displayed artefacts.

Workshops, monitoring software that gives building users access to energy performance data, along with other direct engagement materials such as reminders on stickers, have contributed to engagement and behavioural change. The university also created a Carbon Innovation Programme in 2015 to get staff and students to collaborate to identify new opportunities to reduce carbon emissions.

A new procurement user group was set up to get new service contracts to upgrade or replace laboratory equipment, which accounts for a large part of carbon emissions. Training for undergraduates, inductions and equipment guides also encourage better practice in labs.

In total more than 205 projects have been completed, each requiring a different approach and methodology of measurement.

The university also carries out a wide range of activities to ensure that the FM team is able to promote the internally and externally the learning and experience achieved through the projects and the programme. These include regular workshops on carbon management for building and facilities managers, a "Switch-Off Campaign" which annually encourages students to think about their energy use, and the Sustainability Showcase awards evening.

The university has so far saved an estimated 6,256 tonnes of CO₂ and £1.5m of annual energy costs since it introduced its Carbon Management Strategy in 2011.

The measures taken as part of implementing the programme have all helped to improve user experience, reduce carbon taxes and energy costs and contribute towards funding applications. Lessons learned are taken into account when designing new buildings for the university.

Initiatives to reduce Carbon emissions have contributed to an annual reduction despite the university estate expanding between 3 per cent and five per cent every year with emissions now 16 per cent below the baseline for the most recent reporting year.

The PV panels are projected to reduce the annual energy costs of the combined estate by more than £50,000 and its carbon emissions by 265 tonnes a year. Around 1,800 square metres of roof insulation saves around 23 tonnes of carbon a year. More than 1,500 tonnes of annual carbon savings have been identified by optimising building systems across a range of facilities, such as libraries, museums and laboratories. Spending more than £2m on upgrading lighting has saved 3,000 tonnes of carbon annually. Upgrading and replacement of ultra-low temperature freezers and glass dryers will create 3,700 tonnes of carbon savings.

At the Manor Road Building, which is occupied by the Social Science Library and four teaching and research departments, was a target for reducing power usage. Changing air handling time clocks and removing unnecessary de-humidification saved around £16,000 and 93 tonnes of carbon a year.

The university has invested £3.5m in its carbon reduction programme with a further £6m allocated. In 2015/16 the university generated 54 times more on-site energy than in 2005/6.

The judges said...

The age of the assets and the sheer scale of the University of Oxford make this entry representative of an exceptional initiative in delivering a cohesive energy programme. The presentation brought to life the sheer scale of the task at hand. While focussed on the University's Carbon Reduction Programme it quickly became evident that this was just one of a range of environmental initiatives being implemented. Engagement and buy-in from both the academic and student bodies has been key to the initiative's success.