

Overview

Buckinghamshire County Council (BCC) has a target to reduce carbon emissions by 10 per cent by 2017* to deliver improvements to its key public buildings. The project demonstrates the Council's commitment to energy efficiency and achieving value for money for the public sector.

BCC has used the National Re:fit Programme to deliver an ambitious programme for energy efficiency across its estates. This flagship project launches the delivery of the Buckinghamshire Energy Strategy. While the Council has already made strong progress towards its carbon targets, Re:fit has allowed it to achieve economies of scale and bring improved efficiency to its smallest buildings under a guaranteed savings programme.

The Council's Re:fit project includes 18 corporate buildings but additional phases of retrofit works are now planned, with the Council rolling out the programme to maintained schools and the remainder of its corporate buildings.

Project:	Buckinghamshire County Council (21 corporate buildings)	
Savings:	£84,622 energy spend reduction per annum Energy savings of 1,013,528 kWh	688 tonnes of CO ₂ per annum saved
Value:	£799,270	Simple payback of nine years
Timescale:	Installation to be completed in 2016	



The project encompasses a large number of buildings with a wide range of uses, including the civic offices (above), car parks, libraries, art gallery, schools and offices.

Project detail

Following support by the National Re:fit team, a mini-competition was run and Engie was appointed as the preferred service provider in June 2015.

Engie completed Investment Grade Proposals for the first phase of 18 selected buildings at the end of summer 2015 and installation is planned for spring 2016.

Local Partnerships' team assisted throughout the process, providing a review of technical and commercial documentation to help gain approval to install the selected measures

"Local Partnerships' professional support has helped Buckinghamshire County Council through the project's internal approval stages to deliver a tailored approach. It has provided technical expertise to review the differing approaches offered for energy reduction and to select the most appropriate ESCo for the Council."

Rachel Toresen-Owuor, Energy Manager

*2011-12 baseline in the BCC Carbon Management Plan

Summary of Energy Conservation Measures (ECMs)

Building Energy Management Systems (BEMS) and remote optimisation

A 5.4 per cent energy saving, equating to £6,420 per year and 90 tonnes of carbon will be achieved via optimising and remotely managing controls, Building Management System (BMS) upgrades and optimisation and further monitoring.

Boiler replacement

Dated boilers and hot-water systems are being replaced at one of the sites, an adult education centre, yielding savings of £8746 per year and 44.7 tonnes of carbon. The payback for this ECM is just 5.1 years.

Solar PV

Roof-mounted solar panels have been installed on 10 buildings, saving 146 tonnes of carbon and £60,000 of the total energy bill (11.5 per cent). The payback is 9.5 years.

Lighting upgrade

An LED upgrade of five sites will yield 5.8 per cent of the total savings, ie 198 tonnes of carbon and £46,492 worth of electricity savings per year. The payback is just 8.9 years.

Pool pump control

A new control panel and variable speed drive will ensure savings of £1,402 and 6.7 tonnes of carbon per annum by optimising the functioning of one school's pool pump. The payback is just 4 years.

Pool heat pump

Replacing a dehumidification pump at one school will save BCC 14.9 tonnes of carbon and £3,465 per year, giving the school the opportunity to also increase heat-recovery savings.

Time clocks

Installing time clocks in electrical "point-of-use" water heaters is an effective way to reduce energy, with a number of these units expected to save £3,581 and 26.2 tonnes of carbon per year.

Voltage optimisation

A 200-amp VO unit has been installed at one school to achieve a 2.4 per cent reduction on the total carbon footprint of this group of buildings (9.5 tonnes) and saving the school around £1,986 per year.

Fridge/freezer motor control

Fixed-speed motor controllers have been fitted to refrigeration compressors and will save BCC 1.2 tonnes of carbon for just £610. The payback of this ECM is 2.5 years.

Energy efficiency and financial savings through Re:fit

Re:fit is a procurement framework and support service available to all public sector organisations in the UK. Since 2009 it has been helping organisations to deliver "spend-to-save" environmental retrofit projects that both improve their buildings and, importantly, make substantial guaranteed financial savings.

For further information

For more information about the National Re:fit Programme, contact robert.mckinnon@local.gov.uk or phone 07920 702 297.