

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, supported by Local Partnerships, ran a mini-competition under the Re:fit programme and Cofely was identified as preferred bidder in February 2015. Cofely completed Investment Grade Proposals for the first phase of 21 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.

One of the buildings identified for improvements in spring 2016 is the Millbrook Combined School, a combined school and nursery, located to the west of High Wycombe, for children between the ages of three and 11 years.

Project:	Millbrook Combined School	
Savings:	£13,373 energy spend reduction per annum (22.6%) Energy savings of 138,065kWh (9.5%)	Around 57.4 tonnes of CO ₂ per annum saved
Value:	£118,464 investment of retrofit works	Simple payback of 8.9 years
Timescale:	Installation commencing in spring 2016	



“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 service provider for the Council.”

Rachel Toresen-Owuor, Energy Manager

*2011-12 baseline in the BCC Carbon Management Plan

Summary of Energy Conservation Measures (ECMs)

The Millbrook Combined School's project encompasses a number of energy-efficiency measures. These are listed below.

Building Management System (BMS) upgrade optimisation and monitoring

Issues were identified with the setup of the existing systems and strategy scripts. BMS will ensure the building is set up to operate at optimum energy efficiency and that these optimum conditions persist throughout the payback period. BMS upgrades are identified at the existing boiler house and swimming pool outstations.

Cofely will monitor ongoing energy performance through its Remote Intelligence Bureau. This ECM is a great way to ensure that buildings operate as efficiently as possible throughout their lifetime and that any issues are identified and actioned quickly.

Building Energy Management Systems (BEMS) and remote optimisation

Replacement of ineffective BEMS, optimisation of existing systems and use of remote management controls will provide a full and clear understanding of the building's operation.

Pool pump control

The installation and commission of variable speed drives and a control panel will reduce speed and related energy consumption of the pool pumps overnight and during periods of low occupancy.

Pool heat pump

The existing unit is aged and is not working correctly. A new pool heat pump will be installed to replace the existing Calorex dehumidification heat pump.

Voltage Optimisation

The installation of a 200amp iVolt Voltage Optimisation unit. The solution provides an intelligent microprocessor with controlled variable reduction, which automatically adjusts voltage to ensure that the output voltage is always fixed at 220v plus or minus 1.5 per cent.

Fridge/freezer motor controls

The installation of fixed-speed motor controllers is specially designed to reduce the electrical consumption of refrigeration and air-condition compressors.

Time clocks

Installing time clocks in electrical "point-of-use" water heaters is an effective way to reduce energy and a number of these units will be installed across the site. This will save energy by reducing electricity used to overcome standing losses when the buildings are unoccupied.

Solar PV and PV monitoring

The roof-mounted solar PV solution involves a 29.75kWp-sized system, which will provide 25,555kWh annual output. This solution is using 80 per cent of the site's roof space.

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.