

Overview

Cambridgeshire County Council (CCC), under an EU-funded scheme, has used the National Re:fit Programme to make guaranteed energy-efficiency savings and improve the condition of its schools across the county.

The Council's Re:fit schools project is part of a wider CCC initiative designed not only to increase energy efficiency and improve the condition of its schools and corporate buildings, but also to reduce CO₂ emissions. The estimated potential of this scheme is to deliver 1.2 million tonnes of CO₂ savings over the lifetime of the project.

The schools project started with more than 40 interested schools. Nine of these were included in a pilot delivered in 2015. The remaining schools completed their technical assessments during 2015, with works being delivered during 2016.

Project:	Sir Harry Smith Community College – 10 buildings	
Savings:	£50,700 energy spend reduction per annum 37% savings on energy cost per annum *Savings were delivered 9 months after installation	201* tonnes of CO ₂ per annum saved 26% reduction
Value:	£640,000	Simple payback of 13 years
Timescale:	Installation completed in spring 2016	



Following the analysis carried out for CCC by the National Re:fit team, a mini-competition was run and Bouygues was appointed as the preferred service provider in August 2014.

Sir Harry Smith Community College (SHSCC) was one of the first schools to participate in the programme and benefit from guaranteed energy savings. Following receipt of an Investment Grade Proposal (IGP), detailing potential measures and savings, a number of Energy Conservation Measures (ECMs) were installed across its 10 buildings starting in summer 2015.

Local Partnerships' team assisted throughout the process and completed an analysis of the college's IGP to advise on the selected measures.

An off-balance-sheet solution was created for the academy schools, such as SHSCC, to benefit from this programme. As UK academies are unable to borrow money to invest in energy-efficiency measures, the Council has worked with Bouygues to develop an innovative Managed Service Arrangement (MSA) to provide energy performance contracting services for academies. Advice from KPMG and support from the UK Education Funding Agency have allowed academies to use an operating lease to benefit from the Re:fit programme.

Summary of Energy Conservation Measures (ECMs)

Solar PV array

A comprehensive engineering investigation concluded that installing a 90kWp system (a total of 360 modules) was the best fit for the site. This solution will generate a financial benefit of £14,350 per year, saving 33 tonnes of carbon annually.

Biomass boiler system

The installation of a Herz Firematic 500kWt woodchip-fired biomass boiler system as the lead heating plant will reduce the demand on the other heating-plant components and deliver significant gas-consumption savings. This will result in a financial benefit of nearly £22,000 per annum and a carbon saving of 96 tonnes per year.

Condensing boilers

The selected solution replaced two of the existing five boilers with a new high-efficiency Broag condensing boiler. This is being used to support the biomass boiler installation and will contribute more than 15 tonnes of carbon and £2,565 to the overall savings.

Lighting upgrade

A mixed approach was used at the college because existing T5 luminaires did not allow a strong business case for total LED replacement. A combination of better lighting controls and use of LED lighting in corridors will yield in excess of £4,000 a year and provide around 22 tonnes of carbon savings per annum.

HVAC systems insulation

Installation of a tailor-made 420g/m² silicon-coated glass cloth covered with 50mm of duct-wrap, mineral-fibre insulation infill, fire-resistant Velcro straps and draw cords will save the college around £1,400 annually. This will translate into a further 8.6 tonnes of carbon saved per annum.

Building automation

Installation of a Building Energy Management System, including a controls interface, touchscreens and graphics programming as well as hot water controls, will save the college in excess of £6,300 per year along with around 37 tonnes of carbon.

"The school has achieved our aims: replacing the heating systems, generating our own power, being more efficient users of energy and financing the works in a manageable way."

John King, Head of Governors, Sir Harry Smith Community College



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.