Overview

Hull City Council is committed to reducing its energy use and costs. It has a strategy to reduce its carbon emissions by 34 per cent by 2020.

Under the National Re:fit programme, the Council is delivering a phased retrofit of improvements across 10 of its buildings. This will save 20 per cent on energy costs across the buildings, equivalent to 846 tonnes of CO_2 per annum and the energy bill reduced by more than £190,000 per year. The project's planned investment is £1 million, with an agreed payback period of seven years.

The Council, supported by Local Partnerships, ran a mini-competition under the Re:fit programme and Mitie was identified as preferred bidder in February 2015. The technical-design phase was developed during 2016 and installation is planned to commence summer 2017.

One of the buildings to be retrofitted is the The Guildhall, the council's headquarters. At this building, a number of prestigious events and dinners are held throughout the year and the building is also used for civil weddings.

Project:	**The Guildhall**	
Savings:	£37,241 energy spend reduction per annum (26%) Energy savings of 15% (gas) and 33% (electricity) per annum	170.1 tonnes of CO_2 per annum saved (22%)
Value:	£246,026 investment of retrofit works	Simple payback of 6.6 years
Timescale:	Installation to commence summer 2017	

"This Re:fit project is helping Hull Council in its ongoing commitment to achieve real savings with reduced energy consumption and CO_2 emissions. Local Partnerships' professional support helped deliver a tailored approach, which is a tried and tested solution. It also provided the technical expertise to help review the differing approaches for energy reduction and help select the most appropriate for the Council."

Martin Budd, Environment and Climate Change Strategic Advisor, Hull City Council

Summary of Energy Conservation Measures (ECMs)

Lighting
There is an amount of inefficient lighting within this building, which is typified by lots of small offices with a small number of luminaries in them. Though improvements have happened in the past within the larger-spaced areas, within these offices the light sources consist of various types of old, inefficient T8 switch-start fluorescent fittings. In most circumstances, they will be replaced on a one-for-one basis with a more efficient LED equivalent. This will save £25,022 per annum.

Boiler optimisation
The proposed solution will save natural gas by avoiding dry cycling of the boilers. Dry cycling occurs when the boilers operate to compensate for the heat lost mainly through radiation rather than to satisfy the building's heat load. The solution uses two non-invasive digital temperature sensors to measure and calculate the temperature profile of each boiler and has the functionality and compatibility to be integrated with existing control systems. This will save £4,383 per annum.

Window seals
The building has a number of draught-driven complaints. To counteract this, a window-seal solution will be retrofitted with the application of the Quattro Seal product. This provides faster warm-up times and longer heat retention with an increase in comfort levels, while reducing noise levels. The improved heat retention will improve the effectiveness of the boiler system and there should also be less use of stand-alone electric heaters during the winter months. The seal is applied to the internal frame of the window and is recognised by English Heritage for listed buildings. Once applied, the window will continue to operate as before. This will save £4,377 per annum.

Refrigeration controls
Sava-control optimisers are pieces of equipment that can be fitted to an AC induction motor. They reduce the amount of energy used by reducing the power when the motor is under part load but still maintain the same speed, offering substantial savings, while enabling instant power availability should full load be required. These new devices will be installed on the large fridges and freezers in the kitchen areas. This will save £1,159 per annum.

Insulation
Exposed uninsulated pipework can generate high surface temperatures. This wastes energy and cost, via wasted utilities, and can have detrimental maintenance effects on other plant equipment (shortening the design life of electronic components). This is also a health and safety risk if touched and, dependant on the application, a range of valve jackets and pipework insulation will be retrofitted to exposed plant. This will save £553 per annum.

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