Case Studies
Department for Environment, Food & Rural Affairs
Nobel House

Overview

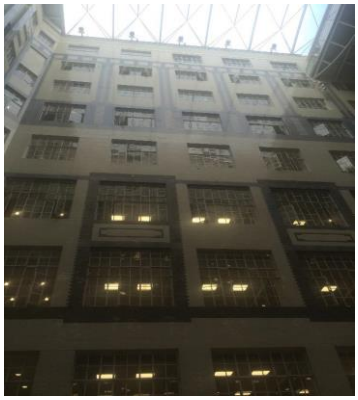
In line with the Government's Greening Government Commitments (GGC), the Department for Environment, Food & Rural Affairs (Defra) is aiming to achieve savings, reduce carbon emissions and improve the operational performance of its sites.

Defra has responsibility for policy and regulations on environmental, food and rural issues and as a result its estate includes a mix of around 150 offices and laboratories located across the country. Re:fit's first phase included a series of offices, laboratories and research facilities dealing with a range of fields from fisheries to livestock.

Across central government, Defra has a reputation of leading the way in terms of sustainability. Since 2006 Defra has implemented a programme to reduce the environmental impact of its estate. Building on the strength of its sustainability and environmental credentials, the Re:fit programme offered a unique opportunity to help provide further cost and carbon efficiencies across the Defra estate.

Defra, supported by Local Partnerships, ran a mini-competition under the Re:fit programme in August 2015. Following appointment of a provider, initial feasibility studies were completed for a pilot phase of 14 selected sites in March 2016. One of the buildings identified for improvements is Defra's London headquarters, a large office building characterised by two full-height atria located in the east and west aspects of the building, as per the picture, with popular on-site catering.

Project:	**Nobel House – Defra HQ in London**	
Savings:	£37,134 energy spend reduction per annum (excl VAT) Energy savings of 190,764kWh	80.84 tonnes of CO_2 per annum saved
Value:	£428,045 investment (excl VAT)	Simple payback of 11.5 years
Timescale:	Installation to commence summer 2017	



Defra is now in the detailed design phase, finalising Investment Grade Proposals (IGPs) before contract sign off, with a view to starting works in summer 2017. Following on from the pilot phase, Defra is now working with Breathe Energy to roll out the programme and has undertaken initial feasibility studies at an additional 20 sites owned by the Environment Agency.

"From the outset LP provided Defra with the necessary information to allow the department to make an informed decision about using the framework. LP with their expertise assisted Defra to navigate the process and re-considered the timescales initially set out by the Department. LP's role is been of advisers to ensure Defra make the most of the framework but gave the team sufficient room to made their own decisions and set the pace for the Project."

Carolina Butler, Senior Programme and Project Manager, Defra

Summary of Energy Conservation Measures (ECMs)

The Nobel House project envisages a number of energy-efficiency and renewable-energy measures, which are listed below.

Lighting retrofit and redesign
The replacement of CFL, PL and incandescent lamps with new LED downlights and surface-mounted fixtures in the basement – general areas (corridors, storage and plant rooms) and basement offices – plus the introduction of PIR controls throughout the basement area. This will save in excess of £8,000 a year and 20 tonnes of carbon annually.

Building Energy Management System (BEMS) optimisation
The particular mix of BEMS works to be implemented at Nobel House include rescheduling the established "time of day" for the site by determining what the true operational schedules of each department are, introducing BEMS control-status reporting and energy-management software, adjusting temperature control settings and set point, plus hydronic-loop optimisation. This will guarantee savings of more than £10,000 a year and 49 tonnes of carbon annually.

Building Management System (BMS) upgrade
Introducing a new Supervisor PC and software, replacement of all temperature sensors including immersion, duct and space sensors, Tridium BMS controller upgrade, software creation and commissioning of BMS controls, plus BMS demonstration and training.

Demand side response
Participation will be enabled by enhancing controls of existing standby generator, connecting an adjacent generator to Nobel House, plus applying to the distribution network operator (DNO) for the necessary licences and installing all the necessary equipment, devices, meters and monitoring equipment. This will create a saving/revenue of around £18,000

Solar PV
Two roof-mounted solar PV arrays of 20kWp each are to be fitted to the two flat roofs available. This will create savings/revenue of around £36,000 a year, with nearly 15 tonnes of carbon saved annually.

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.