



Department
of Energy &
Climate Change

CARBON AND ENERGY SAVING CASE STUDY

RE:FIT Programme

August 2014

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Introduction

Since the creation of DECC on 3 October 2008, we have been engaged in an ambitious and wide-reaching programme to reduce energy consumption on our estate and improve our overall sustainability. By 2013/14 we had cut our energy use by 42% and carbon emissions from our estate by 38 % since DECC was established in 2008. Carbon emissions per full time employee have also been slashed from 1.93 t/CO₂ to 0.6 t/CO₂. Information on how we achieved this can be found [here](#)

The Challenges

Although we are very proud of our achievements, this success has presented its own challenges. As our HQ building has become more and more energy efficient, it has become increasingly difficult to identify cost effective and technically feasible energy and carbon saving measures that can be retro- fitted into the building. In addition, DECC's estate has expanded with the occupation of additional space in Kings Building, central London, from November 2013. In this environment it is very hard to continue to achieve absolute energy and carbon reductions

The Solution

We used the Mayor of London's RE:FIT programme which provides a framework for the public sector to retrofit existing buildings with energy saving measures. It has been designed especially for the public sector providing several advantages:

- a faster, streamlined procurement process and support in managing this; and
- a savings guarantee from contractors.

We used the partnership approach to run a mini competition amongst the Energy Services Companies (ESCOs) on the framework and, based on our selection criteria, chose an ESCO to implement a range of energy saving measures at our two main London buildings, 3 Whitehall Place and 55 Whitehall. The proposed measures are guaranteed to save 303,596 kWh per annum, which is around 14% of the energy use of these buildings. They should also save around 159 tonnes of carbon per annum. More information can be found on the [RE:FIT](#) website.

The Energy Saving Measures

The measures agreed fall into two categories

1. Building Management System modifications and upgrade

These include reducing the minimum speed settings for supply and extract fans whilst maintaining planned airflow and temperatures and installing a variable speed drive for boiler house ventilation fan.



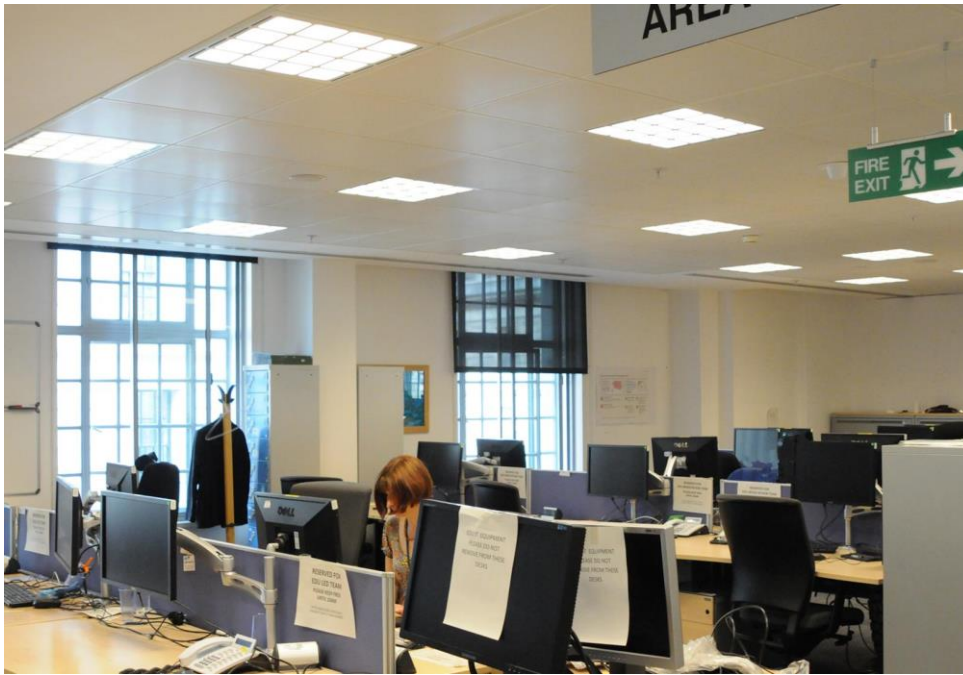
2. LED lighting upgrade

Replacement of modular T5 fittings with LED technology in the office areas of 3 Whitehall Place. Energy savings were optimised by a new localised control system which not only automatically turns lights off in an unoccupied room but also dims them on in response to the levels of daylight.



The new LED lighting is shown (on the left hand side) alongside the old T5 fluorescent fittings in the photo above taken during the course of the refit.

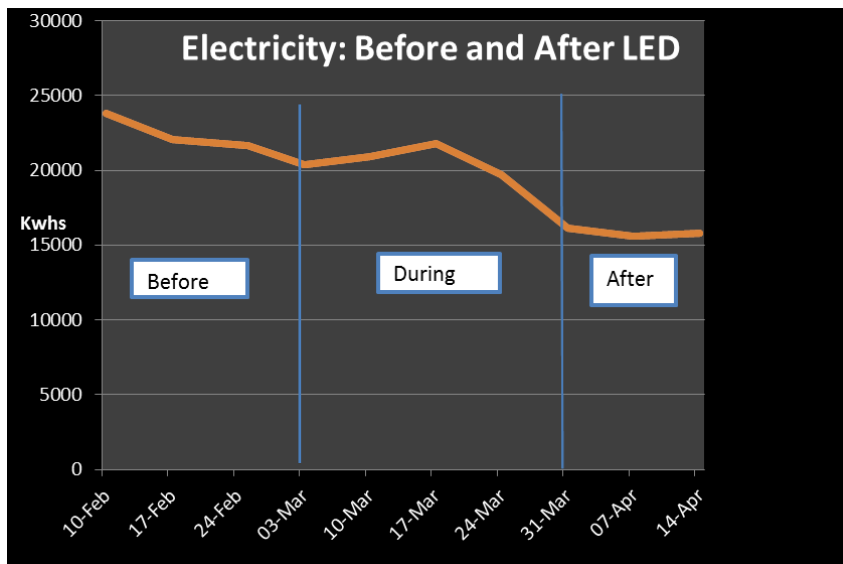
All the above measure were installed in March 2014 and were completed to schedule.



The new LED lighting after the installation

Results

So far so good! Although it is early days, initial results are encouraging. The graph below shows overall electricity use at 3 Whitehall Place in the weeks leading up to, during, and after the installation, showing a fall of almost 30%. We are working with our contractor to establish robust measurement and verification data to provide proof of actual energy savings.



Project Summary

Cost*	Annual energy savings (kWh)	Annual carbon saving (t/CO2)	Annual energy savings (£)**	Total annual savings (inc. maintenance) (£)
£428,436	303,596	159	30,409	36,833

* Cost of fittings and installation excluding VAT, measurement & verification and Investment Grade Proposal

**Including energy price inflation of 5%

The DECC Estate

3 Whitehall Place, London

Our HQ building, DECC took on this building in early 2009. Most of the department's staff are based here, so this building is responsible for the majority of our energy consumption and emissions.



The building dates back to the 1950s, but was completely refurbished in 2004/5 (before DECC's creation), with only the facade remaining, so the building is mostly quite modern.

55 Whitehall, London

This building is next door to 3 Whitehall Place. DECC moved in during the second quarter of 2011. The listed status of this building poses challenges for sustainability measures, as there are limits to the changes we can make, but we have still made significant savings.



Both 3 Whitehall Place and 55 Whitehall are in a conservation area, which poses problems for any projects which affect the outside of the buildings.

Kings Building, London

We acquired space in this building in November 2013. DECC occupy only part of this building but we do not manage it.



Atholl House, Aberdeen

DECC occupy part of this building, but do not manage it. This makes it difficult to achieve or measure savings directly, but we do work with the building managers to make improvements where we can.



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