



HE CASE STUDY - ST ANDREWS UNIVERSITY

Introduction to St Andrews University

St Andrews University is a leading Scottish University with a student population of seven thousand, a staff of two thousand, and a built estate of 238,000 square meters. The University's Sustainable Development vision is "to be recognised locally and internationally as a world-class institution that leads by example, fully integrating sustainable development into all that we do".

Taught subjects include sciences, languages, arts and sustainable development, and it is one of the top ten UK Universities for research. The Sunday Times University Guide ranks St Andrews top in Scotland and runner-up in their UK University of the Year Award. St Andrews has come top in Scotland and among the top five UK institutions in the 2007 guides produced by The Guardian, The Times and the online Good University Guide. It was recently hailed the joint top sustainable Scottish University by the national student People and Planet organisation.

Joining the scheme

With an annual energy bill of £3.1 million and carbon footprint of over 16,000 tonnes of CO₂ St Andrews was eager to benefit from the Salix scheme, which it joined in December 2006.

The University's Sustainable Development Strategy and associated environmental policies commit it to a reduction of resource use. The Salix fund enables the University to more easily fund energy reduction projects. The match-funding model was thought to be an efficient way to achieve this aim. Setting up a ring-fenced carbon reduction fund, and the requirement to spend a proportion every six months has revolutionised the amount of energy efficiency projects undertaken. All long term maintenance, improvement and building work projects are scrutinised to enhance the energy efficiency aspects of the work.

Projects undertaken

With Salix Funding of £524K, and a total of £1,068K to be spent over a two year period, St Andrews has the largest fund value of all the pilot universities. In the first six months of the scheme they have undertaken 34 projects with a total value of £181K giving annual energy savings of £58K.

	No of projects	Project value £K	Annual Energy savings £K	Annual CO ₂ savings	Lifetime CO ₂ savings
St Andrews	34	£181K	£58K	433 T	3,297 T

The Quaestor (Finance Director) was enthusiastic for the scheme and keen to obtain as large a fund as possible, as he could see the economic validity of the Salix business model. The final application was made on the basis of what the University's Estates Department thought was achievable to project manage within the resources available.

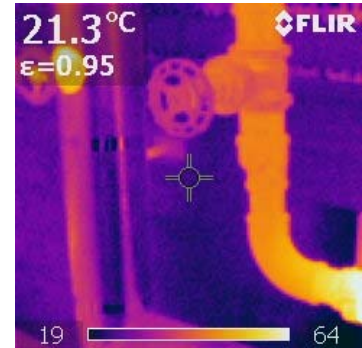
Technology focus

During these six months of the scheme the technology focus has been in the following areas:

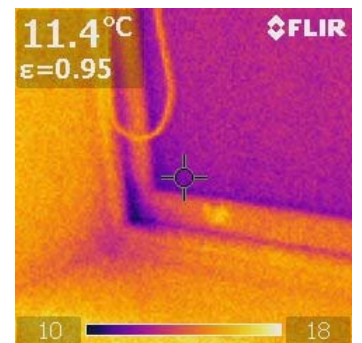
i. Roof insulation, pipe insulation & window draught-proofing

With the initial tranche of money, emphasis was put on basic energy savings. A project to ensure that all roof cavities had adequate insulation was started (most attics had little insulation), concentrating on the easiest access lofts first.

Uninsulated heating pipes have been insulated improving the efficiency of heating systems - shown by this thermographic image of an uninsulated pipe next to an insulated one.



Quattroseal silicon seals around windows was seen as the most cost effective method of draught proofing. A program was started to look at every window in the University, starting off with the Halls of Residence. The worst of the Residences were prioritised, with rattling sliding sash windows causing many years of student complaints for draughts - shown in this image of a cold spot in the corner of a draughty window. Feedback from the initial installations is positive and all Residences are being surveyed for suitability. Academic buildings have now been targeted, again starting at the known problem areas. The company calculates paybacks based on their BRE research and experience. A conservative "float" was added to these figures to allow for less savings being realised.



ii. Refrigeration Motor controls

Nearly all the refrigeration equipment in the University had poor efficiency. A program of installation of Savawatt refrigeration motor controls was started with the residences kitchen and student fridges, giving a 15% energy saving. This was successful, so all scientific fridges (including the -80C freezers) were targeted. No problems were encountered, and now every suitable fridge or freezer in the University has been modified. Finally all air conditioning units which do not have R22 (to be phased out) or inverter control (already energy efficient) have been modified.

iii. Lighting

A program of lighting replacement has been started. This includes mostly replacement of T12 lighting with T5 technology (eg. in sports halls). Due to the longer paybacks, lighting control improvements will follow later. The University is now trialing exterior LED floodlights (130W instead of 500W), and where run hours permit, replacement of all 50W halogen spotlights with 12W LED units.

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Payback calculations have been on the basis of old power (including losses) - new power x runhours per year.

Scheme performance

With a dedicated and focused team in place, St Andrews has met all their milestones with Salix and delivered the highest number of projects in the quickest possible time. The Project Management Tool and the process that goes along with it has been very manageable, and support from SALIX staff has been excellent.

St Andrews University's view of the scheme

Since joining the scheme in December 2006, St Andrews sees the following benefits from the scheme:

Our partnership with the Carbon Trust has produced consultants' reports on many aspects of the Estate, and the Salix fund allows us to act on the recommendations made, rather than having reports sitting on shelves.

The Salix fund means that energy aspects are now considered, enhanced and financed in every new build, upgrade and refurbishment that occurs in Estates. The fund has facilitated improved awareness amongst Project Managers, Building Managers, and Maintenance staff, as they have all realised the full benefit of this funding to deliver energy savings.

Move to full programme

With the success of St Andrews and other universities on the pilot, Salix are now rolling out a full programme to other Higher Education bodies. Any interested parties can contact Salix using the details below.

St Andrews is happy to be contacted and the main contact is: David Stutchfield, Energy Officer, ds51@st-andrews.ac.uk, or telephone 01334 463976.

Salix is happy to be contacted is: Paul Smyth, CRM - Higher Education
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