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# S-Lab News: No. 13, July 2011

**Information on events and activities by HEEPI's S-Lab (Safe, Successful and Sustainable Labs) Project**

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## New Funds for Lab Energy Efficiency

HEFCE has allocated a further 10 million pounds to the Revolving Green Fund (RGF) for both small scale projects and larger, 'exemplary retrofits'. The Fund provides interest free loans for projects which reduce carbon emissions and meet financial eligibility criteria and is managed by HEFCE. An S-Lab briefing paper has more details of the first phase of the scheme, and how it can be used to support laboratory measures.

## Green IT for Science

The lab audits described opposite highlighted the scale of IT-related energy consumption in many labs - 17% of total energy at the Cambridge Chemistry Lab for example, partly due to a number of high performance computing (HPC) facilities. Presentations at a recent Bristol workshop co-organised by our SusteIT initiative - including one by Ann

## Lab Events

Effective and Energy Efficient Cold Storage, Manchester, 31 Aug
A free half-day workshop to examine how best to reduce energy use associated with cold storage of biological samples

Green IT for Science, Cambridge, 7 Sep (see left)
A free 1-day workshop on growing IT use in STEM subjects

Labs 21 conference, Providence. USA 19-22 Sep
An annual conference providing a comprehensive overview on improving sustainability in labs

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## Where Does Lab Energy Go?

Results from five detailed laboratory energy audits - some of the most detailed ever carried out, and summarised in a report, short briefing paper and guide to doing a successful lab audit - show that around 60% of use is associated with ventilation in chemistry labs, and 45% in life sciences. Moving a cubic metre annually costs between 1800 - 4600 pounds sterling, and a single fume cupboard costs between 900 - 1500 pounds sterling a year in energy terms. Equipment and small power uses around 25% in life sciences and 15% in chemistry with cold storage generally being the largest single use category in the former. The equipment data has been used to produce a suggested priorisation of actions in a parallel report on equipment procurement. A general rule of thumb is anything that is heating or cooling, is on 24/7, or has a 3-phase power supply is likely to be a significant energy consumer. Smaller items of equipment that are numerous and on for long periods (such as heater stirrers) can also add up in energy terms.

The audits were undertaken at five university labs at Cambridge (Chemistry Building), Edinburgh (Cancer Research Centre), Liverpool (Biosciences Building); Manchester (Chemistry extension) and York (Department of Biology). Nigel Lenegan of the consultancy Carbon & Energy Reduction Solutions did the detailed work at Liverpool, Manchester and York, data from a previous audit by the consultants KJ Tait at Cambridge was reanalysed, and Tom McGrath, a mature engineering student and David Somervell (pictured), Sustainability Adviser, conducted an in-house audit at Edinburgh. David comments that "The audit has created a better understanding of energy consumption patterns, and demonstrated

Trefethen from the University of Oxford e-Research Centre - highlighted that this is likely to increase further in future, requiring radical action on energy efficiency. The measures that can be adopted will be highlighted in a free workshop in the University of Cambridge's Department of Engineering - which has installed a state of the art server room - on September 7th. It should be of interest to all Departmental Computing Officers.

### Research Councils Seek Efficiency

The recently published Ensuring Excellence report from Research Councils UK (RCUK) introduces a 50% funding limit for laboratory equipment costing between 10,000 pounds and the OJEC limit of 121,588 pounds and introduces an efficiency rating scheme to drive down indirect costs. The equipment measure is explicitly intended to encourage more equipment sharing, which the S-Lab lab audits and discussion at events demonstrate that there is scope for. A recent example was a technician asked to buy a new growth chamber when there were four unused ones in another research group's laboratory. RCUK will also reduce indirect costs by 0% to 5% depending on the institution's efficiency grouping (which is partly related to its efficiency in resource use). The new measures are a response to the Wakeham Report.

A recent Guardian article also profiled the Medical Research Council's support for equipment sharing, including its PET brain scanner facility at Imperial College, and four high-throughput gene sequencing centres in Oxford, Cambridge, Liverpool and Edinburgh. Similarly chemistry departments in Scotland operate an east-coast consortium dominated by Edinburgh and St Andrews, and a west coast collaboration centring on Strathclyde and Glasgow for sharing equipment.

### Equipment Reuse and Sharing

RCUK's objectives will be helped by Kit-Catalogue, an open source, online laboratory equipment catalogue developed at Loughborough University. Its aim is to reduce the costly duplication and double-purchasing of equipment within HE institutions, and instead promote the reuse of equipment across

the benefits from the night switch off of most of the ventilation systems, which few people were aware of before. It has also identified more improvement opportunities such as modifying ventilation setback times as well as highlighting the high energy consumption of steam autoclave and inefficiencies in the steam boiler as future priorities."

The process guide describes the many benefits of building a more thorough understanding of laboratory energy consumption, which includes developing relationships between laboratory users and estates. It identifies a three stage auditing process, and has advice on the most relevant documentation and methods of estimating consumption in different categories when sub-metered data is not available.

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## The Chocolate Safety Culture

A lab at Biogen Idec, a leading US biotechnology company, has used Lindt truffles and other incentives to greatly improve compliance with lab rules on coats, food items, footware, gloves and safety glasses. Random inspections occur two or three times weekly and staff who are in compliance have a chocolate left on their desk. Staff also start each month with three tokens for a prize draw but lose a token for each instance of non-compliance. Senior Laboratory Manager Sandra Walker writes that "The overall cost of compliance is $700 in cash awards and $2,400 in chocolate per year. The savings in injuries? Priceless."

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## Carbon Tax Threatens Research?

A Guardian article suggests that the financial impact of the Government's new carbon tax (formerly known as the CRC) on research facilities is so great that they are lobbying for exemptions. While this may or may not be justified, it's certainly the case that the impact of energy prices and taxes will increase in all labs - and, as the S-Lab audits have shown, that there's much that can be done to reduce them.

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campus. Furthermore, the system can be opened up to the public, allowing companies and other third parties to hire out equipment that might otherwise be lying idle. The project is funded under the JISC Green ICT programme and is looking for interested HE institutions to contribute to the development specification and potentially trial the software over the summer. To contact them visit: kit-catalogue.lboro.ac.uk.

## About S-Lab

This newsletter is from the S-Lab initiative, which is supported by the UK higher education funding bodies, especially HEFCE. Its aim is to publicise the outputs of our own activities, and also to provide brief updates on other developments within the field. It is a partner of the US Labs 21 programme, and a member of the Global Sustainable Laboratory Community established by the International Institute for Sustainable Laboratories (I2SL). See www.goodcampus.org for more details on our work including copies of previous newsletters. You can unsubscribe by clicking on the link at the bottom of this page.

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