



Energy Efficiency Achievement of the Year 2009

## **Towards a Low Carbon Kent - making a world of difference to energy saving!**

**Author:** Steve Baggs, Deputy Energy Manager, the Energy Management Team, Laser

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Laser is A Division of KCC Commercial Services

Cover image: Solar panels at the Skinners School, Kent

**Contents**

**Contents ..... 3**

**Background ..... 5**

**The big task - surveying all eligible KCC buildings to meet DEC requirements..... 5**

**KCC’s estate of 700 KCC buildings includes 600 schools ..... 5**

**BRE Accredited Assessors - Linking the Advisory Reports with KCC Energy Loan Fund ..... 5**

**£1million pound energy loan fund..... 6**

**Energy Efficiency Courses for schools and office staff..... 6**

**£500,000 external grant funding for renewable energy projects ..... 7**

**Carbon Trust Standard Certification – independent verification of carbon saving! ..... 7**

**Educational Work on energy in schools..... 7**

**Halo impact ..... 7**

**Innovative Educational Projects..... 8**

**KCC Green Guardians Network – Fairtrade sweets for energy savers ..... 8**

**Team Awards ..... 8**

**Social Projects to eradicate fuel poverty ..... 9**

**The Future is Low Carbon! ..... 9**



## **Background**

The Energy Management Team (TEMT), comprising 5 people, is part of LASER, the energy buying unit within Commercial Services, Kent County Council. It provides services for Kent County Council and for LASER's 120 public body clients, including London Boroughs, other county councils and services such as Kent & Medway Fire and Rescue and Kent Police. Kent County Council's estate comprises 700 buildings, of which 600 are schools currently accounting for 80% of the carbon emissions for all of KCC's buildings. We evidence below how, in the context of this estate, we have achieved significant reductions in energy consumption, how these have been achieved, in which areas, by which drivers and what our future plans are for further reductions in energy consumption.

### **First steps - surveying all eligible KCC buildings to meet DEC requirements**

TEMT knew it would be a difficult task when they decided to take on surveying “in-house” the new Display Energy Certificate requirements for public buildings. The Energy Performance in Buildings Directive (EPBD) requires public buildings over a 1000m<sup>2</sup> to have an A-G energy rating based on the carbon emissions of the energy use. It also requires each building to have an Advisory Report which provides the occupiers with a way to improve the energy efficiency of their building and hence the energy rating.

### **KCC's estate of 700 KCC buildings includes 600 schools**

Kent County Council has 700 buildings that fall into this category and therefore extra resources were needed to cope with surveying such a large number. The Energy Team decided to employ two new energy surveyors to help carry out the new work. They and the Deputy Energy Manager, undertook training to become fully-accredited to the high standards required of the accreditation body, the Building Research Establishment (BRE). TEMT benchmarked the cost of undertaking this work through external consultants prior to deciding to carry it out themselves thereby achieving cost savings of £70,000.

### **BRE Accredited Assessors - Linking the Advisory Reports with KCC Energy Loan Fund**

TEMT wanted to make sure that the service provided was of the highest quality and would produce a meaningful end result for the users of the building. The team decided it would use the Advisory Reports generated by the surveys to identify measures that could be carried out at the individual building level using the KCC/Salix Energy Loan Fund.

KCC was a pilot for the Carbon Trust LAEF scheme and spent its first tranche of match-funded money very quickly - £300,000 was spent on energy efficiency measures, mostly with schools.

## £1million pound energy loan fund

KCC subsequently decided to increase the size of its own loan fund to £1 million and leveraged in a further £240,000 from Salix Finance. So far, under the Loan Fund, 53 energy efficiency projects have been completed saving 1103 tonnes of carbon dioxide and financial savings of £187,387 annually.

The technologies installed include:

- Lighting upgrades and automatic lighting controls
- Cavity wall and loft insulation
- Draught proofing
- Valve wraps and heating pipe work insulation
- Voltage reduction equipment
- Installation of heating zoning controls
- Boiler controls and education in how to use them
- Water efficiency measures like urinal controls and push taps
- Building Energy Management Systems (BEMS)

One of the largest projects was a £125,000 Road Tunnel lighting project in Ramsgate where the older inefficient lighting was changed to low energy lighting types with high frequency electronic ballast.

Subsequently, the Chestfield Tunnel had a feasibility study, which showed that it would benefit from new lighting controls and upgrade.

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*“Since March 2008 this has reduced carbon emissions by 40%. It has been so successful that other lighting tunnel projects have been identified as future projects.”*

- **Andy Morgan**, Head of Energy Management

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## Energy Efficiency Courses for schools and office staff

The Team provides energy efficiency training for non-teaching staff such as building managers and financial officers. So far 150 people have attended the one-day course and the feedback has been very positive. The course includes:

- Energy Consumption, Costs in Premises & Environmental Impact
- Reading Meters, Using data to detect energy / water waste
- Energy benchmarking
- Good Housekeeping
- Electricity & fossil fuels
- Water Management & benchmarks
- Issues in KCC Premises

## **£500,000 external grant funding for renewable energy projects**

Meanwhile the KCC energy team provided grants and assistance for 10 schools' renewable energy projects and succeeded in obtaining grants for them of over £500,000. The projects included seven solar photovoltaic panels installations, two biomass projects, one solar thermal panels installation for a school swimming pool and several other potential projects including wind energy and ground source heat pumps.

## **Carbon Trust Standard Certification – independent verification of carbon saving!**

Kent County Council has recently been awarded the Carbon Trust Standard certification, proving it has genuinely taken action on climate change by reducing its carbon footprint. The total footprint reduction was 6% compared to the previous two years. We can now use the logo and gain early action benefits regarding the Carbon Reduction Commitment (CRC).

## **Educational Work on energy in schools**

The Energy Management Team encourages schools to use the Systemslink energy database where schools can download information about their energy use and produce reports for staff and pupils. Systemslink holds data from energy bills as well as smart meters, and schools can enter meter readings which are then sent to suppliers.

The whole DEC process will encourage more schools to access this service and so far we have 250 schools using this database. The educational benefits of all this information cannot be underestimated and we know that schools are using it as a resource in their school curriculums.

## **Halo impact**

Furthermore, schools with renewable energy systems are using them as educational tools to explain the issues around the environment such as climate change. Many have taken a step further - The Skinners School has developed projects with its 'Feeder primary schools' and its teachers are holding classes which explain about renewable energy and energy efficiency and how to obtain grants to install such technologies. TEMT has been instrumental in helping schools to build these links and has provided help and guidance on developing the projects and the availability of grants.

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*“The KCC Energy Team have provided an excellent service, they have given us some very useful advice in terms of reducing our energy bills. We have carried out an education programme to turn off electric equipment and we have installed a 10kwp solar photovoltaic array. The grant information and the project management support has been invaluable.”*

**Mark Moody**, Science Teacher,  
The Skinners School, Kent.

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## **Innovative Educational Projects**

**Question:** How Low Can You Go?    **Answer:** 80% if you try!

TEMT and eco schools officers have developed educational projects with a number of schools within Kent. One of the most popular events is the “How Low Can you Go” Day which is held annually on the longest day, 21st June. Schools are given monitors to record their energy use and are encouraged to reduce their energy consumption by as much as possible. This year, some schools reduced their electricity use by 80%. Some rural schools even had children riding into school on horseback instead of their usual car journey. But in most cases it was acknowledged that energy is simply wasted and a lot of electrical equipment gets left on unnecessarily.

## **KCC Green Guardians Network – Fairtrade sweets for energy savers**

With the help of the Green Guardian network, TEMT have encouraged KCC staff to turn off computers and electrical equipment through the “switch IT off” campaign. Good behaviour was rewarded with a fairtrade sweet and the results were excellent. Initially switch off rates were around 60% but after the campaign this went up to 95%, an excellent result.

The Green Guardians are volunteers who have committed to improving the environment in their respective buildings through taking positive action like recycling, composting, saving energy and encouraging staff to look at alternative transport options.

TEMT has since worked with the Green Guardian network providing energy reports for individual buildings across the KCC Estate.

## **Team Awards**

TEMT - Andy Morgan, Steve Baggs and Rosie Crickmere received the Team Gold Award at the KCC Chief Executive's Department Quality Service Awards 2008.

The person nominating said: "they provided the Corporate Environmental Performance Group with an outstanding service. Despite very heavy workloads they are committed to improving the energy efficiency and renewable technology with a wide audience of KCC employees and schools by attending events, assisting in the organisation of training courses and proactively seeking extra external funding for projects – e.g. renewable energy in schools (biomass, PV panels) and funding for a large tunnel lighting project." The team ensures that they are up to date with forthcoming requirements and current best practice, liaising with other authorities and energy companies. They are utterly professional, reliable and can be relied upon to support new initiatives that will improve KCC's energy and water efficiency."

## Social Projects to eradicate fuel poverty

Recently TEMT have been involved in the distribution of Powerdown equipment from the energy supplier 'Eon'. Many of the teams within KCC deal with those on low incomes and/or severe disabilities. In many cases they are 'fuel poor' and having such devices helps to reduce bills. Both our Adult Services and Communities Teams have been given the devices to distribute to fuel poor clients. Many schools have also used the devices and educationally it has been a real success in getting householders to do something to reduce their energy consumption at home. There are also plans to run fuel poverty seminars for staff and their clients with the Kent Energy Centre.

## The Future is Low Carbon!

The plan is now to increase the number of energy saving projects through the energy loan fund and there are another 30 projects in the pipeline. There are also another 10 renewable energy projects planned for the coming year. The Carbon Reduction Commitment (CRC) where local authorities will trade carbon, and the national reporting requirements under NI185 and NI186 will mean further carbon crunching for KCC. The Building Schools for the Future Programme also provides a chance to make schools more energy efficient from the design stage. The passive school concept using the heat of the pupils and equipment with super insulation will be the next step to reduce carbon emissions. KCC is making sure that it is ready for all these new challenges.

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*“Overall the decision to take responsibility to provide Display Energy Certificates in-house was a difficult one, but one that has raised awareness of the real energy reductions possible across the KCC estate. It has also helped to increase the number of energy efficiency and low carbon technologies being installed in KCC schools and buildings. But the additional educational, environmental and economic benefits have been well worth the extra effort”*

David Taylor, General Manager Laser

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