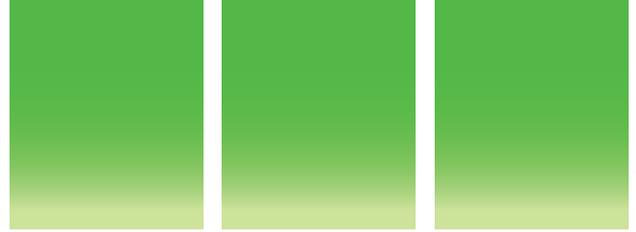




Carbon Report 2014



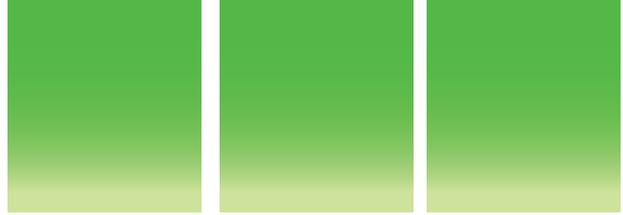


Executive Summary

Carbon dioxide management has been overseen by the Carbon Management Group over the last 5-6 years. Over that time it identified 4 key emitters; schools, corporate buildings, street lighting, and the Strategic Environment Contract (SEC). It has been primarily concerned with emitters that the Council has some control over or where the Council has a leadership responsibility, i.e. the schools.

Since 2009/10, emissions have been reduced by 5%, with schools, corporate buildings and the Strategic Environment Contract all reducing their emissions. All of these areas now operate under targeted strategies, and street lighting has a phased strategy in place now delivering reductions. Schools and the SEC are now in the process of refreshing their targets.





Introduction

Climate change is the greatest long-term challenge facing the world today, and will affect all residents, both public and private businesses, and visitors to the borough.

There are 2 ways in which society is responding to climate change:

- by adapting; that is, ensuring our systems are resilient against the weather extremes predicted,
- and by mitigating; that is, reducing the impact of climate change by reducing the emissions of carbon dioxide.

In addition to addressing climate change, there are very good practical reasons for reducing carbon emissions. Carbon dioxide emissions are directly related to our energy usage through the use of fossil fuels, the burning of which emits high levels of carbon, and the price of energy is predicted to increase over time.

Our current dependency on largely imported fossil fuels also leaves us vulnerable to fuel price fluctuations and uncertainty over fuel security. Unnecessary use of energy is a cost we can avoid.



In 2008, UK parliament passed the Climate Change Act, which set legally binding national emission reduction targets for greenhouse gas emissions, including carbon dioxide, of 34% by 2020 and 80% by 2050. Solihull Council's work on reducing emissions is contributing to meeting these targets.

To meet its obligations, Solihull Council has adopted both a Climate Change Strategy and a Sustainability Strategy, which support the mitigation of climate change.

Annually, a greenhouse gas report is published. The publication of the data is voluntary, but has been requested by the Department of Energy and Climate Change and will be collated by the government department to publish annually all the emissions from local authorities who have chosen to report the data.

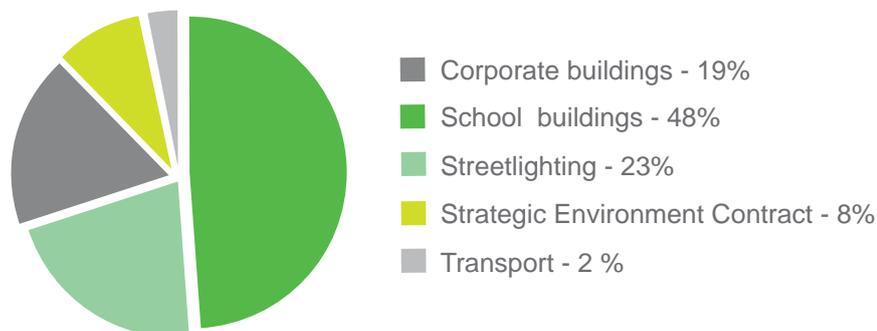


Total
emissions
30,434
tonnes

Overview of Carbon Dioxide Emissions

In 2013/14 Solihull Council emitted 30,000 tonnes of carbon dioxide.

The sources of emissions are:



Carbon Management Board

The Carbon Management Group is chaired by Phil Mayhew, Director of Business Transformation. Within the group are those leading on the carbon reductions in each area, with support from Finance, Procurement and support from the Sustainability Team within Policy and Spatial Planning. The group meets quarterly to monitor progress and review potential carbon saving projects and monitor compliance issues i.e. the Carbon Reduction Commitment.

Carbon Reduction Commitment Energy Efficiency Scheme

The CRC Energy Efficiency Scheme, or CRC Scheme, is a mandatory reporting and pricing scheme to improve energy efficiency and cut emissions in large public and private organisations, which are together responsible for around 10% of the UK's greenhouse gas emissions. Participants include supermarkets, water companies, banks, local authorities and all central government departments.

Solihull Council has a legal obligation to comply with the CRC Scheme. An annual submission of the emissions from corporate buildings and the borough's street lighting is required, and permits to emit must be purchased. In 2013/14 the permits to emit cost approximately £300,000.



Schools
emissions

14,367
tonnes

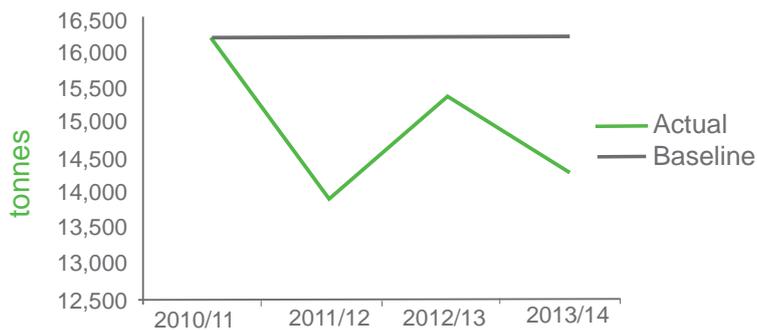
Corporate
building
emissions

5,606
tonnes

Buildings

Schools and corporate buildings account for around 70% of the Council's carbon emissions.

Emissions from schools



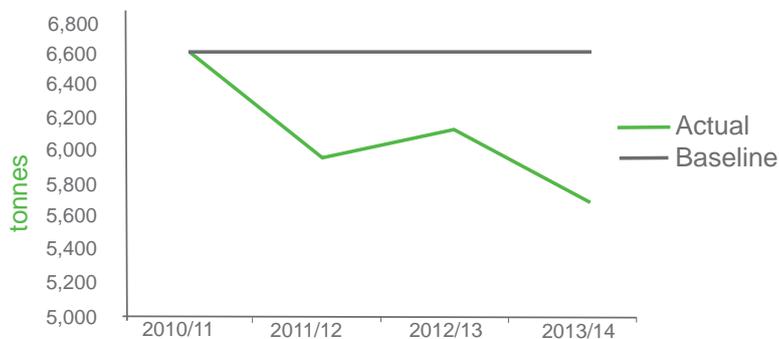
Carbon dioxide emissions from schools have been reducing from the baseline year of 2010/11, showing a 12% reduction.

Energy is used intensively in these buildings, with gas mainly used for heating and oil being used rarely in older schools. Gas is also used in some kitchens at schools, the alternative being electricity.

Electricity is used in a variety of ways; mainly for lighting, the running of ICT, and heating and air conditioning. It is also used in motors, pumps and control systems.

In the Council House, approximately 60% of electricity is used in the Data Centre, which provides services across the Council and the borough's schools. Half of this electricity is used for cooling the Data Centre.

Emissions from corporate buildings



Carbon dioxide emissions from corporate buildings have also been reducing from the baseline year of 2010/11, showing a 15% reduction in emissions.



85%
of meters are
automatically
read

Managing Energy

In order to manage and monitor electrical energy use, Property Services have undertaken to install an Automatic Meter Reading (AMR) system at all meters. AMR allows meters to be read remotely providing half-hourly data. Profiles of the previous day's consumption can then be accessed online by all building managers, for both corporate buildings and schools.

AMR has been essential in driving out inefficiencies, but has also been invaluable in providing accurate data for the Carbon Reduction Commitment.

Using AMR to Identify Waste

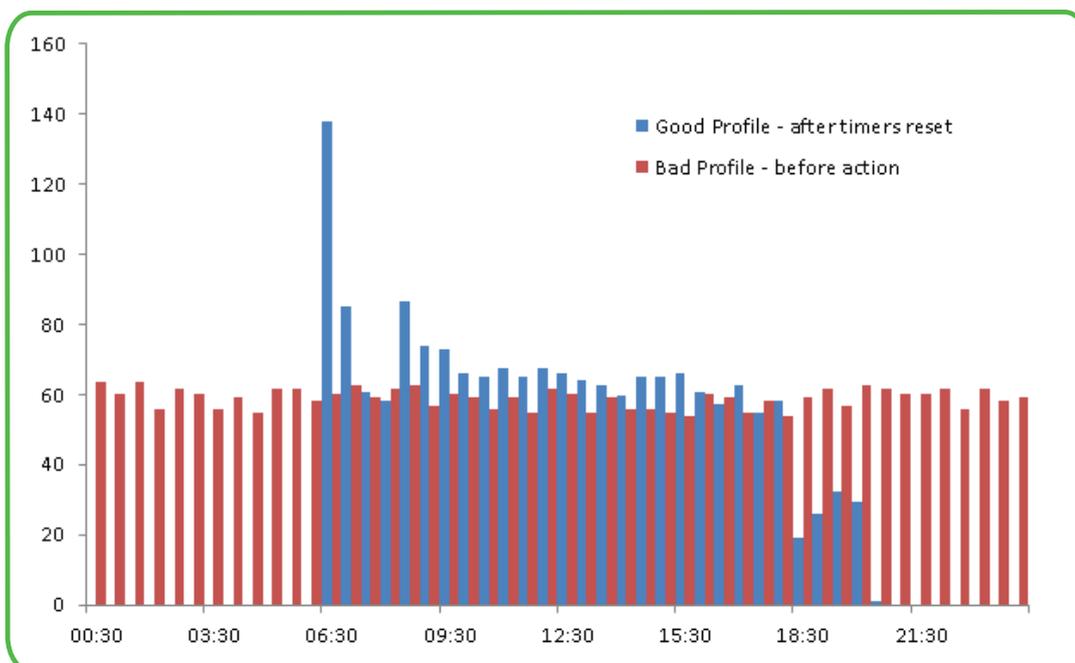
The graph 'Bad Profile' shows an Automatic Meter Reading profile of a site showing a steady consumption of gas throughout the day, i.e. a flat line showing 60kWh being consumed.

So what could be consuming gas all day?

The only consumer of gas at this site that could be responsible for the consumption was the heating boilers. On inspection, it was found that the boiler timers were set to be on all the time. Sensible operating times were identified and the timers set to accommodate.

The 'Good Profile' graph shows the new levels of gas consumption. Now, when the building is not in use, the heating is off.

This change resulted in a 52% reduction in gas consumption per day. This can be used for electricity too.



Schools
emissions

14,367
tonnes

Achieved

12%
reduction by
2014

Schools

Council maintained schools and mainstream academies account for 48% of the Council's carbon emissions. Solihull Council is working in partnership with all schools across the borough through the Low Carbon Schools Service (LCSS). Set up with the support of the Carbon Trust's schools programme, the LCSS is led by the School Asset Support team, working closely with the Council's Sustainable Development team and supported by Property Services. The programme continues to be co-sponsored by the Director for Business Learning & Achievement Division.

It is now in its fourth year, and its objective is to reduce total carbon emissions from our schools. The programme sets out to deliver savings from low-cost and no-cost solutions, with simple, energy saving action such as draft-proofing, behavioural change work and better management of heating.



Carbon reductions are being achieved through:

- Provision of dedicated on-site support.
- Providing 'Invest to Save' funding to support carbon reduction opportunities.

Each year, the service team has been providing support to approximately twenty schools and continues to liaise and provide assistance to participating schools from previous years to maintain momentum and share best practice.

The service aims to build capacity, skills and provide the tools to enable schools to take more control on a number of measures including lighting, ICT, electrical equipment, heating and out-of-hours use.

The LCSS also capitalises on educational opportunities and the chance to engage the whole school and the local community with actions around energy saving and carbon reduction. An example of how schools are adopting a whole-school approach to meeting this challenge is outlined in the case study below.

Case Study

Sharmans Cross Junior School has taken an active role in reducing the amount of electricity they use and is committed to making the school more sustainable. The Eco-Committee, involving both staff and pupils, conducted surveys and found equipment unnecessarily left switched on or on standby.

They decided to run a 'switch off' campaign, focussing on encouraging teachers and pupils to switch off lighting and general equipment when it is not needed, e.g. not leaving lights on when the classroom was lit by natural light, using a light meter to make the assessment.

The schools used AMR graphs in lessons to identify actual areas of energy wastage, and presented back to the Eco-Committee. The involvement in the LCSS and the Eco-Committee's actions lead to a reduction of 25% on energy consumption over the year, and a 1 tonne reduction in emissions, saving £6795.



Streetlighting
emissions

6855
tonnes

Street Lighting

The Council's Street Lighting team are responsible for the design, maintenance and operation of approximately 23,500 street lights, 2,600 illuminated signs and 1,700 illuminated bollards across the borough. In terms of carbon emissions, in 2013/14 street lighting assets were responsible for 6855 tonnes of carbon emitted; that's around 23% of the council's total carbon emissions.

In 2012 a review of street lighting was undertaken and a strategy for the period 2012-2022 was published. The published strategy recognises a need to modernise the Borough's street lighting stock, as well as reducing carbon emissions and introducing cost-saving measures.



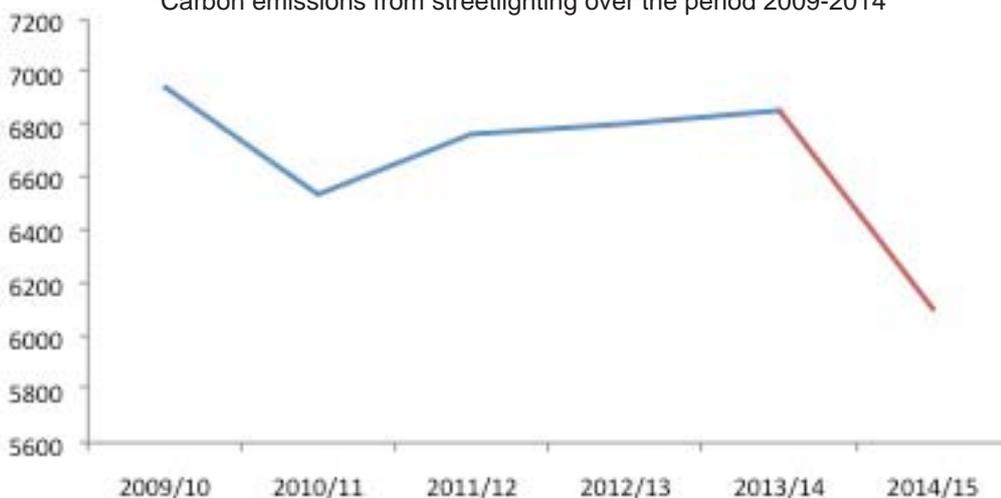
the new, energy efficient LED (light emitting diode) lamps'

Following publication of the strategy, a business case was produced for a programme to replace all Mercury Blended Filament Units (MBFUs) within the Borough with LED (light-emitting diode) units. This programme, which is being delivered in partnership with Balfour Beatty, will see a quarter of the Borough's street lights replaced.

The programme commenced in May 2014 and is expected to see the replacement of approximately 3,500 units during 2014/15. The remaining 2,700 units are programmed for replacement between 2015 and 2021.

The new LED lamps provide a better quality of light, with improved definition and less light pollution. They have been designed specifically for the road they are located on, according to current British standards. On average, it is expected that each unit that is replaced will save approximately 57 watts of energy, equating to annual energy savings of approximately £120,000 and annual carbon savings of 750 tonnes.

Carbon emissions from streetlighting over the period 2009-2014



Waste
Collection
emissions
2,227
tonnes

Achieved
5%
by 2013/14

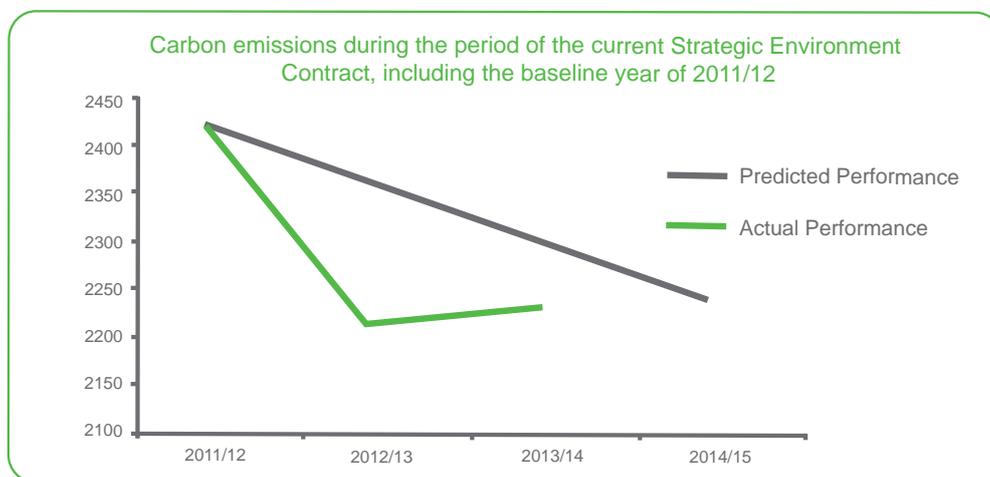
Waste Collection

The Waste & Recycling Team, together with Streetcare Officers, manages the Strategic Environment Contract (SEC) which covers the collection of recycling, garden and general waste collections across the borough as well as providing street cleansing and grounds maintenance.

The Waste Collection Services utilise the weekly equivalent of 27 collection vehicles to service the borough, which are operated by the Council's partner Amey.

The emissions from these vehicles, and others, such as sweepers, vans, grass cutting equipment and company cars, are reported quarterly. The total emissions for 2013/14 were 2,227 tonnes of carbon.

During the past 3 years a number of initiatives have been introduced to the SEC. These have contributed to the achievement of a reduction in fuel use and, consequentially, carbon emissions in the region of 7.5%.



Key Actions

Coventry Re-fuelling Agreement

Amey entered into an agreement with Coventry City Council from April 2013 which allows the Solihull refuse collection vehicles to refuel from the pumps at the Coventry depot after they have deposited their waste at the Coventry incinerator, which is adjacent. This change not only provides both organisations with unit price advantage (Coventry have been able to obtain a lower rate per litre as they are purchasing more litres per month), but it also means that the Amey vehicles do not have to make additional journeys or incur extra mileage in travelling to refuel, which in turn has produced a further small fuel saving.

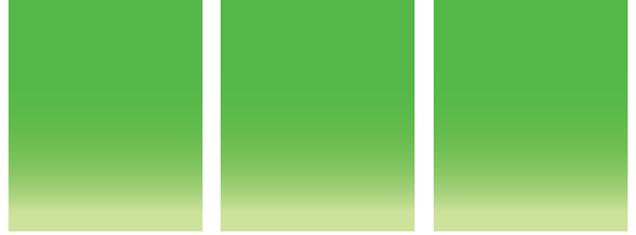
Collection Vehicles

During the latter part of 2011, Packer plate pressure reduction valves were fitted to 18 vehicles (primarily the refuse and green waste fleet). The valves reduce the amount of energy needed to scoop waste from the rear hopper and push this into the main body of the vehicle, in turn reducing the demand for power from the engine. An average fuel saving of 4% was predicted.

Service Efficiency Savings

Following a service review, a number of efficiency measures were introduced to the Streetcare and Grounds Maintenance service during April 2012. As a result, 5 transit vans were removed from the vehicle fleet, meaning the number of vehicles being operated under the contract and fuel use has been reduced.





Corporate Vehicles

The corporate vehicles are managed by a Corporate Transport Manager within the Property Services team.

While emissions from these vehicles only constitute a small proportion of the total, there have been a number of cost effective measures that have been implemented to reduce carbon emissions and reduce costs.

Key Actions

Vehicle Tracking

Solihull Council started tracking corporate vehicles in early 2013, and ran a four-vehicle pilot in the Public Health department. After favourable results a proposal was put forward to expand the tool to the entire Council fleet, and a vehicle tracker was fitted to all new vehicles upon arrival. From July 2013 onwards, retro fitting has also been applied to all SMBC owned vehicles

The trackers encourage drivers to stay on route, reduce speed and turn off the vehicle's engine when idle. They also enable departments to immediately locate a vehicle remotely, to allow more efficient redeployment if necessary.

Using the vehicle trackers to tackle speeding, idling time and non-essential journeys, and in conjunction with the fitting of 60mph speed limiters in each vehicle, Solihull Council has seen results of a 50 tonne reduction in carbon emissions and a financial saving of £20,000 per year.

Solihull Council Hybrid Car

The Council now has a new Toyota Prius based at a care home within Adult Social Services, used to take service users on high mileage journeys, such as to a holiday destination, but also used a lot locally. The use of the hybrid has led to a 50% reduction in carbon emissions, reducing them from approximately 4 tonnes to 2 tonnes, and achieving a saving of £1000.

Lightfoot

Lightfoot is a driver assistance tool that aims to improve driving style via audio and visual aids by alerting drivers if their car is being driven harshly, as this will result in higher than necessary fuel consumption.

The initial pilot of Lightfoot with Solihull Council vehicles demonstrated a 17% reduction in fuel use over the period. If a 10% reduction across the fleet was achieved, this would reduce emissions by 30 tonnes and £16,000.



Corporate
buildings
emissions

5606
tonnes

Achieved

15%

reduction by
2014

Corporate Buildings

Solihull Council spends over £1 million on energy each year heating and lighting its corporate buildings, accounting for 19% of Council carbon emissions.

Solihull's corporate estate includes a range of buildings such as offices, libraries, depots, training centres, youth centres, and parks. There are approximately 80 buildings in total.

The Property Services team is responsible for managing energy usage in corporate buildings. They provide both the data required to manage the energy use in buildings and the technical expertise to support low carbon solutions to enhance the ways the Council makes use of its assets.

As part of the Carbon Management Programme, the team were tasked with putting together a programme to further reduce carbon emissions. The Corporate Carbon Programme emerged following the success Property Services had had with the LCSS, and building on their extensive experience.

The Corporate Carbon Programme sets out to work with corporate sites to reduce emissions and energy costs. The programme provides training, workshops and guidance documents to help corporate buildings take quick, easy, low-cost measures on carbon savings, concentrating on changing behaviour.

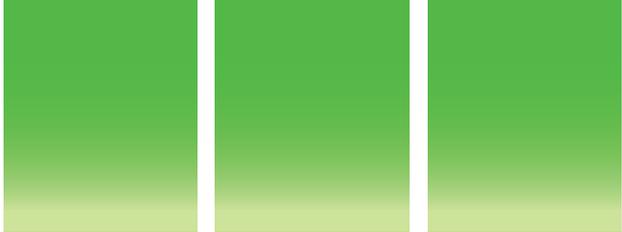
In the pilot phase (2013/14), five corporate buildings were selected. The programme took the sites from an initial energy survey identifying fast-track opportunities for delivering low- or no-cost projects; for instance behaviour change, or better heating management. The expectation from delivering these measures in the sites was that a 10% reduction in carbon emissions could be easily realised.

In October 2014 the programme was rolled out to the rest of the Council's corporate buildings, which are currently in the initial stages of the programme.

Case study

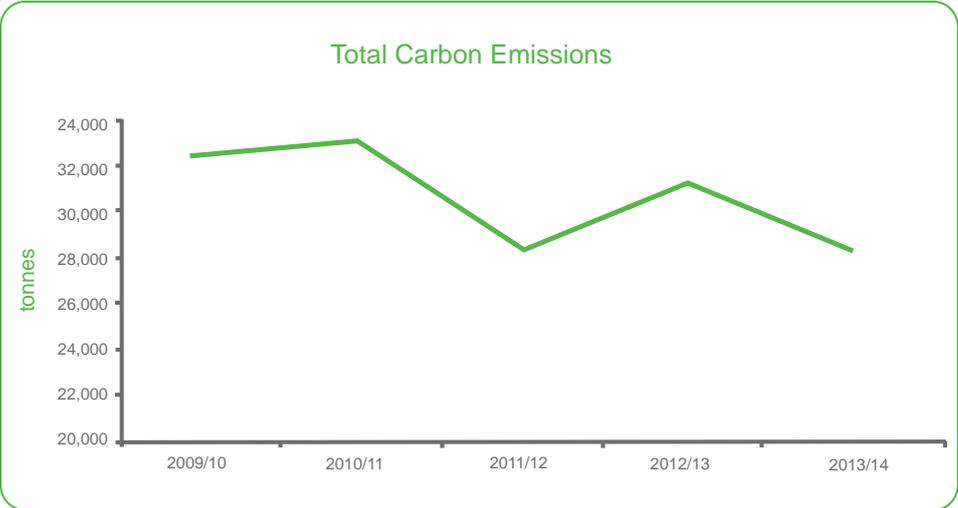
At the Moat Lane Central Depot, staff were engaged in an energy awareness presentation and informed on how to change behaviours to reduce their energy consumption at work. Staff were tasked with ensuring their equipment and lights were switched off when not needed. They were emailed a monthly energy update to keep them informed about the building's performance levels. In addition to this, the site installed timers on electric heaters, occupancy control on internal lights, and conducted an out-of-hours energy survey to identify wastage. Over a 12-month period the building saved 18% on its electricity consumption. This equates to approximately £5,152.





Overview and Future

As can be seen from the previous sections, progress is being made in the individual areas and total carbon emissions have reached a reduction of 5% over the last 5 years.



In the future the current programmes will be refreshed, with new targets due to be set by the Strategic Environment Contract in 2015.

The current target set for the schools was based on the pilot of the Low Carbon Schools Service. However moving forward it is difficult to set a 'target', and work is ongoing to refresh the approach and rally the schools to reduce emissions and set their own targets. Support will remain within the teams working on the LCSS.

In addition, the Corporate Carbon Programme is being rolled out across corporate properties, and the redesign and refurbishment of the Council House and Phase 2 of the street lighting strategy are also anticipated to help Solihull achieve further reductions.



For more information about Solihull's carbon management initiatives,
please email sustainabledevelopment@solihull.gov.uk,
or telephone on 0121 704 8000.