

Decision Maker: Executive

Date: 1 February 2012

Decision Type: Non-Urgent Executive Non-Key

Title: CARBON MANAGEMENT PROGRAMME:
PROGRESS REPORT 2010/2011

Contact Officer: Alastair Baillie, Environmental Development Manager
Tel: 020 8313 4915 E-mail: alastair.baillie@bromley.gov.uk

Chief Officer: Nigel Davies: Director of Environmental Services
Mark Bowen: Director of Resources

Ward: All

1. Reason for report

- 1.1 In October 2008, the Executive endorsed the Council's Carbon Management Programme (CMP) and the establishment of a ring-fenced Carbon Management Fund as making good business sense and a positive environmental contribution.
 - 1.2 The Executive requested that annual carbon management reports should be submitted. This third annual progress report presents the Council's progress in reducing both its energy consumption and carbon footprint.
-

2. RECOMMENDATIONS

That the Executive:

- 2.1 Notes the work carried out by all departments in achieving a 14% reduction (5,135t) against the baseline (2006/2007).
- 2.2 Approves continued action to reduce carbon emissions and energy costs, with the aim of achieving the council's carbon reduction target of 25% by March 2013.
- 2.3 Receives a further annual progress report in one year's time, detailing progress in 2011/12.

Corporate Policy

1. Policy Status: Existing policy.
 2. BBB Priority: Quality Environment. Excellent Council
-

Financial

1. Cost of proposal: N/A
 2. Ongoing costs: N/A.
 3. Budget head/performance centre: Civic Centre and Street Lighting Energy budgets
 4. Total current budget for this head: £384k and £1.3m
 5. Source of funding: Existing revenue budgets for 2011/12
-

Staff

1. Number of staff (current and additional): 1 FTE
 2. If from existing staff resources, number of staff hours:
-

Legal

1. Legal Requirement: No statutory requirement or Government guidance.
 2. Call-in: Call-in is applicable
-

Customer Impact

1. Estimated number of users/beneficiaries (current and projected): N/A
-

Ward Councillor Views

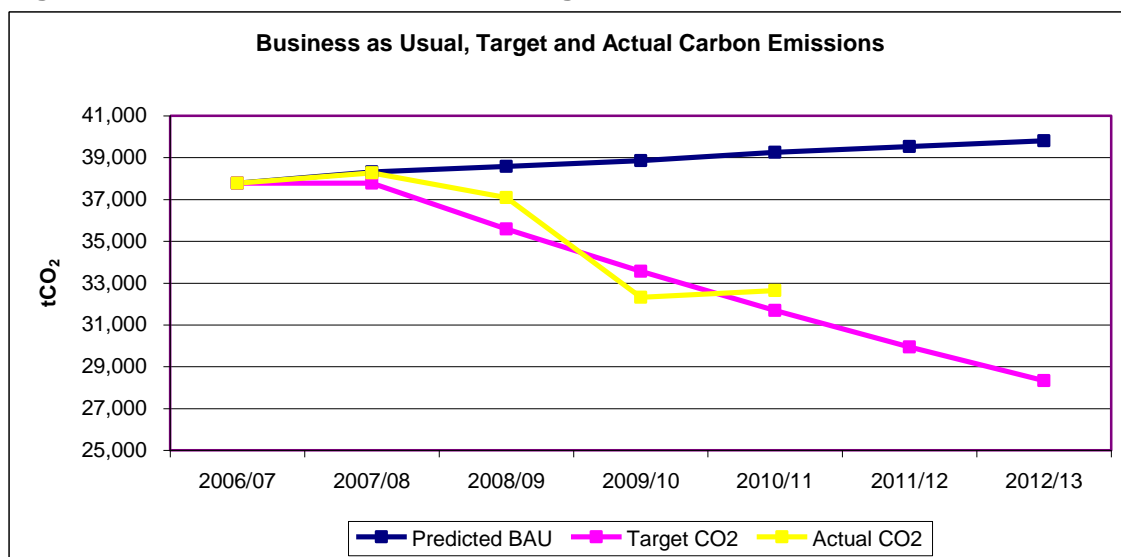
1. Have Ward Councillors been asked for comments? N/A.
2. Summary of Ward Councillors comments: N/A

3. COMMENTARY

Background

- 3.1 In 2007/2008, Bromley worked in partnership with the Carbon Trust to produce a five year strategy and implementation plan, which was endorsed by the Executive in October 2008 (ED08067, minute 69). The Executive requested that annual reports should be submitted and this report details 2010/2011 progress.
- 3.2 At its 11 January 2011 meeting, the Executive endorsed:
- continued action for the reduction in carbon emissions and energy costs
 - a further annual progress report to be received in Jan 2012
 - the establishment of environmental champions at all council sites
 - the establishment of an Environment PDS Highways Asset Working Group to consider matters concerning street lighting, street signage and energy efficiency.
- 3.3 Since 2006, the Carbon Trust’s Carbon Management Programme (CMP) has been rolled out to 472 public sector bodies. The typical reduction target has risen from 16% in 2006 to 28% in 2011 highlighting the increasingly strong link between environmental and financial efficiency. London Boroughs which have signed up to the programme include: Bexley, Croydon, Hammersmith and Fulham, Hillingdon, Wandsworth and Kensington and Chelsea. Other public sector organisations include: The Home Office, HM Treasury and various NHS trusts.
- 3.4 In 2007/2008, LB Bromley set an ambition to reduce emissions by 25% over five years by 2012/2013 (against a 2006/07 baseline). The graph below plots: ‘business as usual’ (blue line), our 25% carbon reduction target (pink line) and actual progress (yellow line).

Figure 1: Annual Carbon Reduction Progress



- 3.5 In 2010/11, our ambition was to have been 15 percentage points towards our 25% target. In practice we achieved a 14 percentage point reduction (5,135t) and have to make a further reduction of 11 percentage points (4,310t) over the next two years to achieve our final target.
- 3.6 Since we reported in January 2011, Central Government has accepted the Committee on Climate Change’s fourth carbon budget, which sets a 50% reduction target (on 1990 levels) by 2027 for the country as a whole. The Committee on Climate Change (CCC) has been tasked by DECC to advise on what councils should be doing to tackle climate change. The CCC’s advice will form part of permissive guidance from DCLG to councils (to be issued in April 2012). At a regional level, the Mayor of London has introduced carbon reduction targets of up

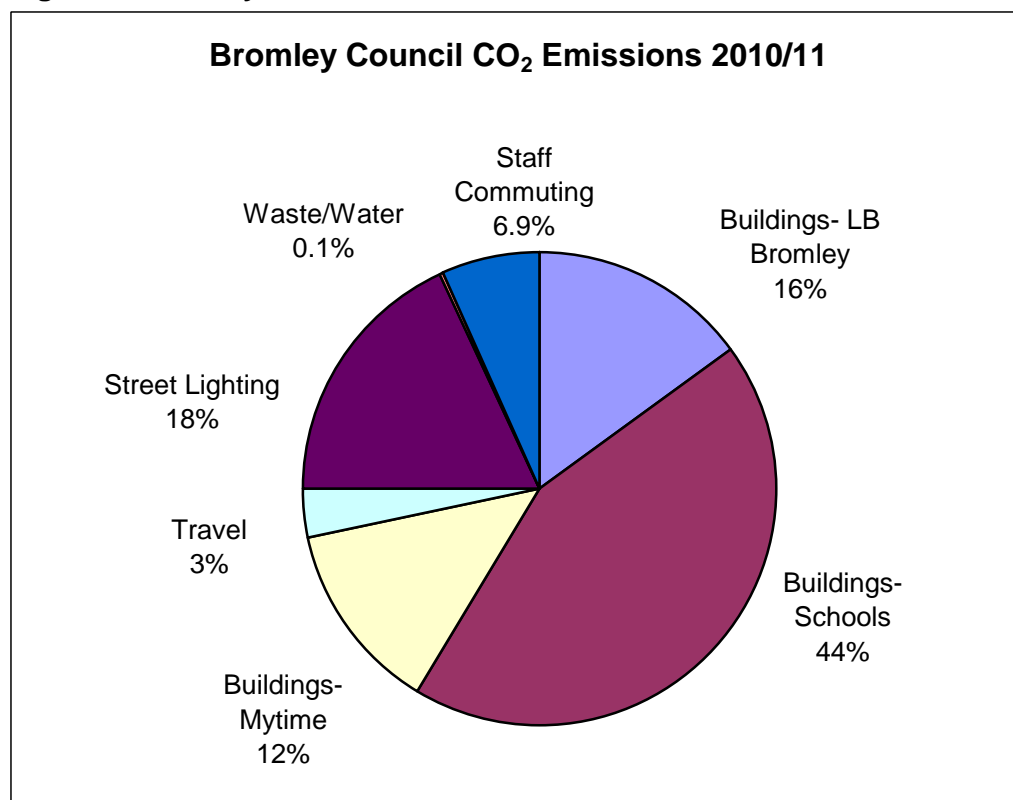
to 80% by 2050 for London ([The Mayor's Climate Change Mitigation and Energy Strategy: October 2011](#)).

- 3.7 LB Bromley is also required to submit carbon information to Department for Energy and Climate Change (DECC) as part of the revised 'Single Set' Indicator regime. Rather than create a new dataset, LB Bromley chose to report the information appended to this Executive report. This information was published on DECC's [website](#) in July 2011 and is therefore available to the public.
- 3.8 The Carbon Management Programme helps to control energy costs as well as carbon emissions. It will also help to reduce exposure to the Carbon Reduction Commitment (CRC) scheme, as we are required to purchase allowances for our emissions. This is a significant cost (£12/t in 2011/12) and is set to increase (see CRC Executive Report ES12005).
- 3.9 Some key actions taken to reduce our carbon emissions include:
 - Voltage optimisation at Civic Centre
 - Environmental Champions Network
 - Street Lighting initiatives

Carbon Footprint Reporting

- 3.10 In 2010/2011, LB Bromley's CMP footprint was 32,645t CO₂. Figure 2, below, shows the different sectors that comprise Bromley's carbon footprint.

Figure 2: Bromley Council CO₂ Emissions



- 3.11 Energy use in buildings comprises 72% of our carbon emissions. Schools are the largest contributor, being responsible for 44% of total emissions, followed by Street Lighting at 18%.

3.12 Table 1 shows progress since the base year (2006/07). Overall, carbon emissions have fallen by 14% (5,135t) with significant progress being made in the Buildings sector.

Table 1: Progress against Baseline

Sector	2006/07 (tCO ₂ e)	2010/11 (tCO ₂ e)	Tonnage Change	% Change
Buildings	28,610	23,648	-4962	-17%
<i>(Buildings – Council)</i>	5,688	5,150	-538	-9%
<i>(Buildings – Schools)</i>	17,216	14,487	-2729	-16%
<i>(Buildings – Mytime)</i>	5,706	4,011	-1695	-30%
Fleet/Business Travel	1,001	991	-10	-1%
Street Lighting	5,791	5,769	-22	0%
Waste/ Water	104	48	-56	-54%
Commuting	2,274	2,189	-85	-4%
TOTAL	37,780	32,645	-5135	-14%

'Carbon dioxide' may be termed 'carbon', 'CO₂e' or 'emissions' for brevity (and expressed in tonnes as t)

3.13 Table 2 shows annual progress between 2009/10 and 2010/11. Overall, there has been a 1% (331t) increase in emissions. This is largely attributable to the [colder than average winter](#) experienced in 2010/11, which increased demand for gas heating, particularly in schools.

Table 2: Annual Progress

Sector	2009/10 (tCO ₂ e)	2010/2011 (tCO ₂ e)	Annual Change	% Change
Buildings	23,186	23,648	462	2%
<i>(Buildings – Council)</i>	4,887	5150	263	5%
<i>(Buildings – Schools)</i>	14,025	14,487	462	3%
<i>(Buildings – Mytime)</i>	4,274	4,011	-263	-6%
Fleet/Business Travel	1,042	991	-51	-5%
Street Lighting	5,841	5,769	-72	-1%
Waste/ Water	56	48	-8	-14%
Commuting	2,189	2,189	0	0%
TOTAL	32,314	32,645	331	1%

3.14 In 2009/10, Bromley was 1,248t ahead of target for the year. In 2010/11 Bromley was 960t behind target. To reach our 2012/13 target (28,335t), Bromley needs to achieve an 11.2% reduction (4,310t) on the baseline figure (37,780t) over the next two years.

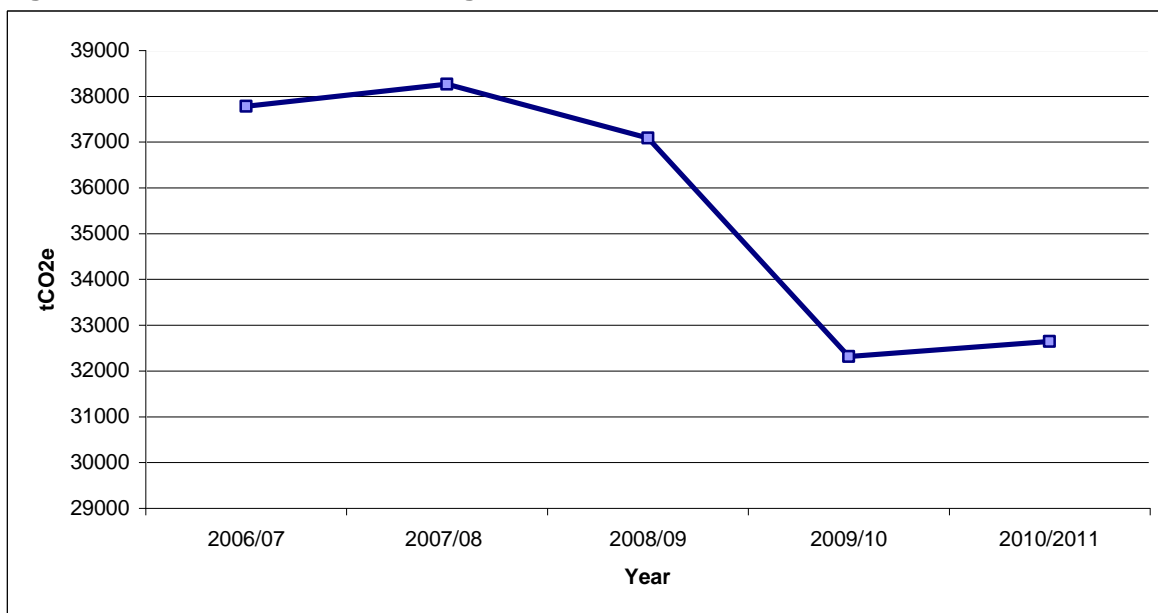
3.15 In the following paragraphs, progress and barriers faced in each sector are discussed.

Buildings

3.16 In 2010/11, emissions from buildings were 23,648t. Although this is an increase on 2009/10 (462t), it is still a marked improvement on the baseline year (28,610t).

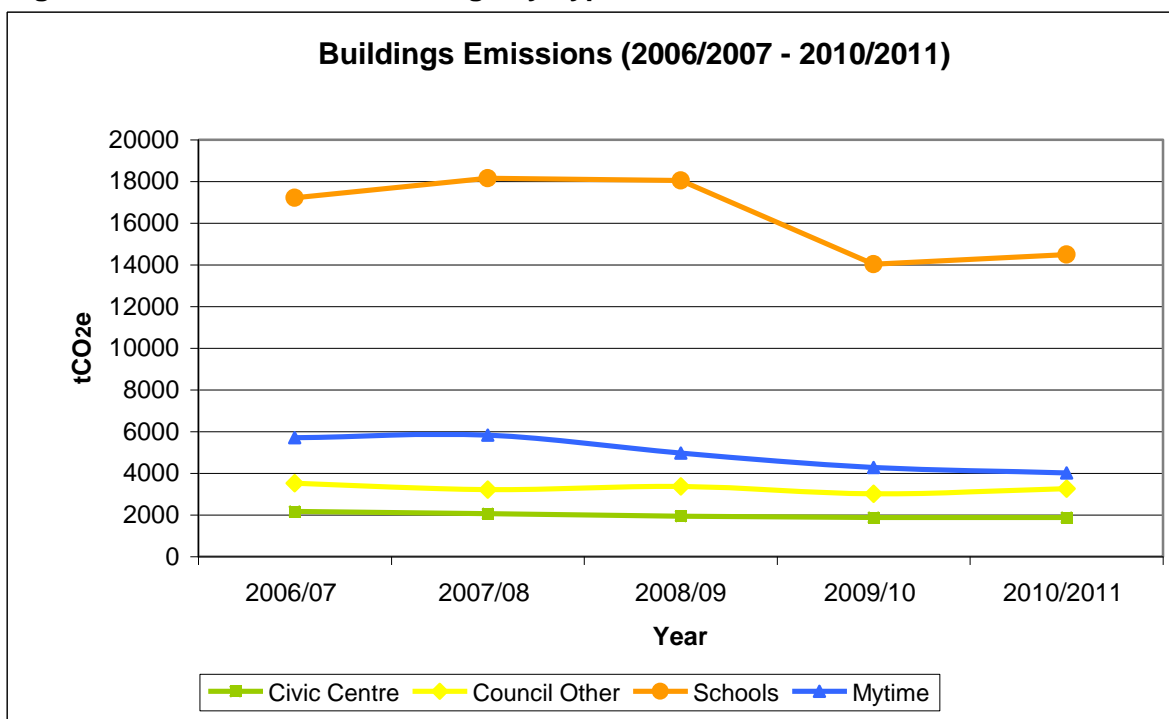
3.17 Figure 3 shows the emissions from buildings since the baseline year. The fall in emissions between 2007/08 and 2009/10 is partially attributable to the reduction in gas consumption in schools and action on energy use by Bromley Mytime. The small increase between 2009/10 and 2010/11 highlights increased gas consumption as a result of the cold winter.

Figure 3: Emissions from Buildings 2006/07-2010/11



3.18 Figure 4 shows emissions from different buildings types from baseline year until 2010/11.

Figure 4: Emissions from Buildings by Type 2006/07-2010/11



Schools

3.19 Emissions from schools rose by 462t between 2009/10 and 2010/11. However, this should be seen in the context of the 4,024t reduction between 2008/09 and 2009/10. Most of the increase in 2010/11 schools’ emissions is attributable to an increase of 362t gas emissions (largely attributable to the cold winter). There were 2,099 degree days¹ in 2010/11 – this is significantly higher than both the previous year and the 20-year average (1,821). Degree days are a simplified representation of outside air-temperature data (the colder the weather, the greater the number of degree days).

Degree-day data shows how hot or cold the weather has been as a single index number for a particular region and period of time. The greater the value, the colder it’s been and the more energy (usually gas) will have been used for heating. This tool can be used to weather-correct gas consumption data and ensure footprint commentaries reflect the past year’s weather.

3.20 Schools are key to achieving our carbon target but the Council has little direct control. And now the conversion of maintained to academy schools may make this more difficult still. On average, nationally, academy schools are more carbon intensive per pupil than maintained secondary schools, which are themselves more carbon intensive than maintained primary schools. Working with schools remains a significant and growing challenge and initiatives carried out to reduce schools' emissions include:

- Bromley Sustainable Schools Forum
- Planned Maintenance Programme with an energy efficiency focus
- Access to data to enable improved monitoring and targeting

Council Operational Buildings

3.21 Operational property is responsible for 16% of Bromley's CMP carbon emissions. Emissions at the Civic Centre fell steadily until 2010/11, when there was a small increase of 7t. Despite this overall increase associated with our operational property, gas consumption at the Civic Centre fell by 9.6% as a result of insulation works.

3.22 Emissions from other council buildings (libraries, day centres, depots, cemeteries and parks) increased by 256t during 2010/11.

3.23 Energy efficiency measures carried during 2010/11 include:

- New windows, wall and roof insulation and upgraded boilers at Civic Centre
- Continued development of Environmental Champions' Network

3.24 It is anticipated that these measures, coupled with the refurbishment of the North Block, the proposed consolidation of other Civic Centre buildings and new invest-to-save projects, will lead to further emission reductions by 2012/13.

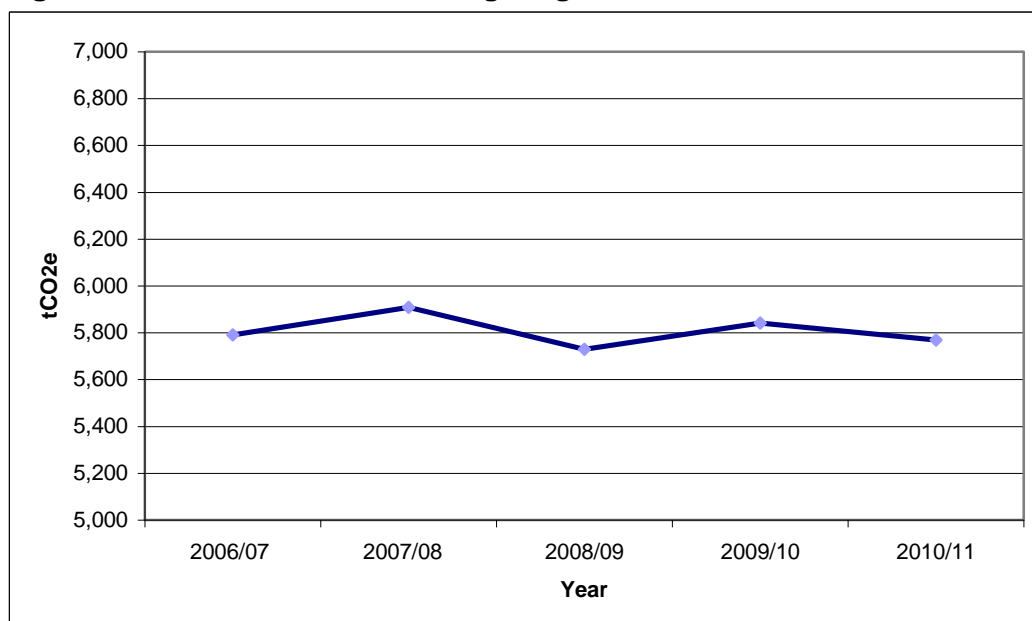
Bromley Mytime Buildings

3.25 Mytime buildings are responsible for 12% of total CMP emissions, down from 15% in the base year. Mytime emissions fell by 263t between 09/10 and 10/11 and have fallen 1,695t since the baseline year. This is due to the installation of smart meters, pool covers and LED lighting.

Street Lighting

3.26 Street lighting emissions were 5,769t in 2010/11 - representing 18% of total emissions.

Figure 5: Emissions from Street Lighting

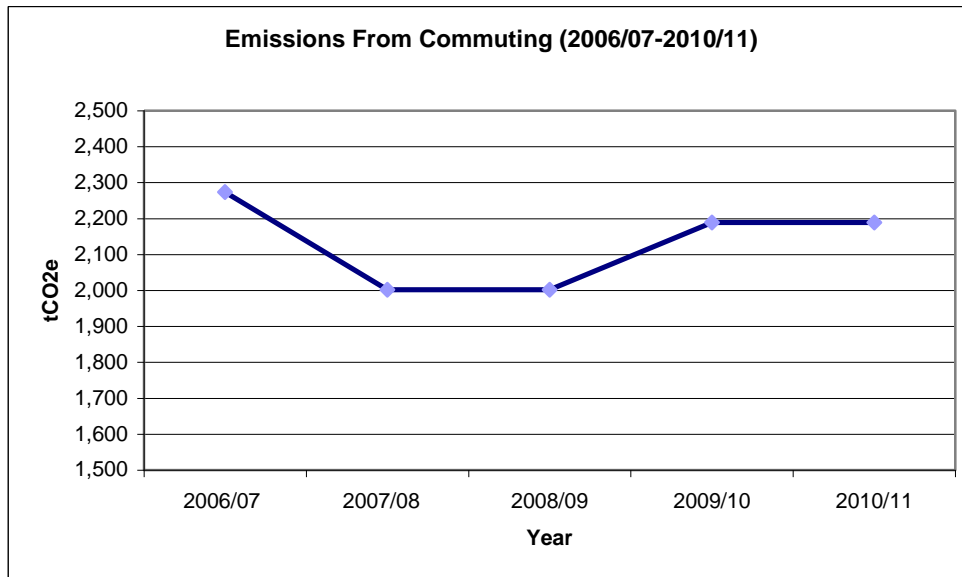


- 3.27 There was a 72t fall between 2009/10 and 2010/11 but only a 22t fall since the baseline year.
- 3.28 Measures undertaken during 2010/11 include an upgrade to MI26 Lanterns and a project converting lit bollards so they are only on in hours of darkness. It is anticipated that these changes and other proposed initiatives will enable street lighting emissions to continue on a downward trajectory.

Commuting

- 3.29 Emissions from commuting were 2,189t, and represented 7% of total emissions in 2010/11. Figure 6 shows emissions since the baseline year.

Figure 6: Emissions from Commuting

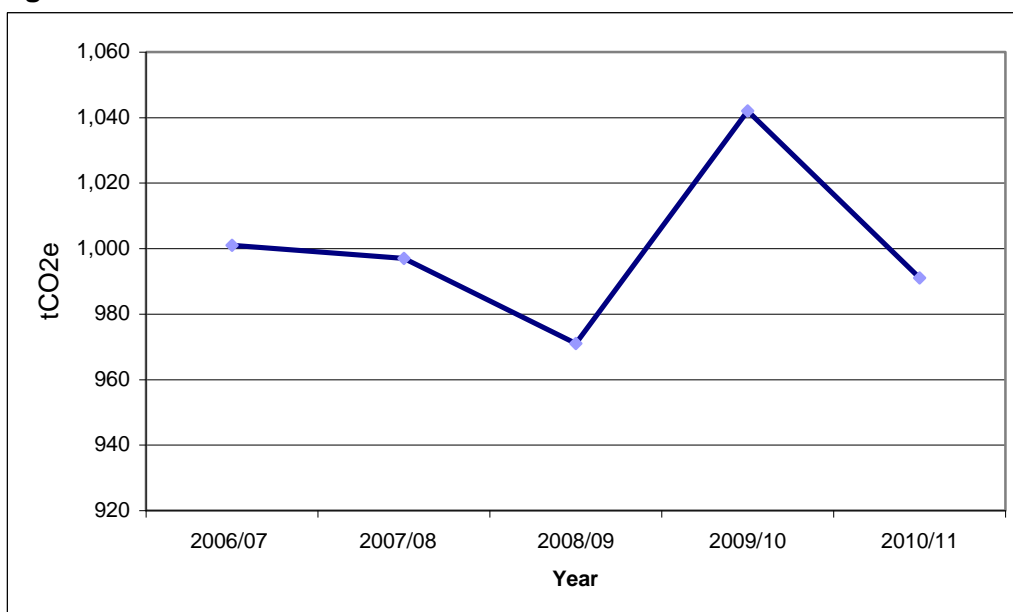


- 3.30 Emissions from commuting are calculated on a biennial basis and 2010/11 data is based on the 2009/10 staff survey results. Overall, emissions from commuting have decreased by 85t since the baseline year.
- 3.31 In 2010/11, the council embarked on a range of initiatives to reduce commuting emissions:
- Electrically assisted bikes available for staff and cycle storage facilities
 - New showering facilities for staff to encourage cycling and introduction of cycle pods
- 3.32 It is hoped that these initiatives will encourage more sustainable methods commuting and enable further emissions reductions.

Fleet and Business Travel

- 3.33 Emissions from business and fleet travel came to a total of 991t and represented 3% of the total footprint. Figure 7 shows the emissions trend for this sector since the baseline year. Business travel accounted for 549t of these emissions and fleet vehicles accounted for 441t.

Figure 7: Emissions from Fleet and Business Travel

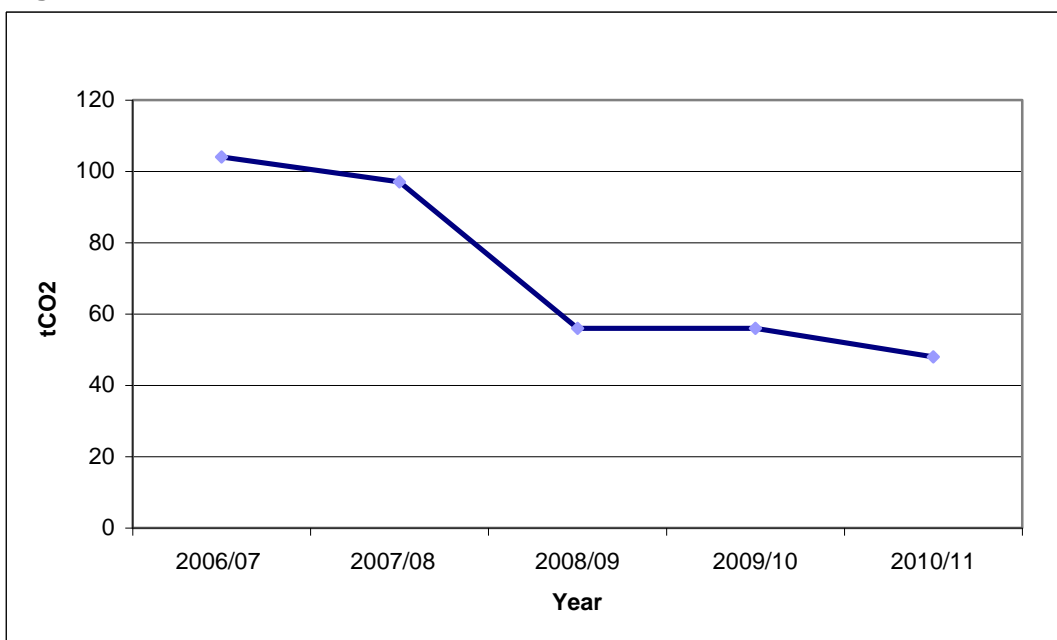


3.34 Emissions in this sector decreased by 51t compared with 2009/10. Business travel, with a reduction of 46t, was responsible for the majority of this decrease. This reduction may be attributed to increased fuel prices and the provision of three pool cars for business travel.

Water and Waste

3.35 Emissions from the water and waste sector fell to 48t in 2010/11 and represent only 0.15% of total emissions. Figure 8 below shows the emissions trend for this sector since the baseline year. Waste accounts for 44t and water for just 4t.

Figure 8: Emissions from Water and Waste



3.36 Since the baseline year, emissions for this sector have fallen by 56%. This can be attributed to the recycling and composting initiatives in Council buildings. The drop in water consumption can be ascribed to meter charges, improved leakage controls, and conservation measures.

Future Projects

- 3.37 There are a range of projects in the pipeline which will enable further emissions reduction and assist the Council in achieving its 25% reduction target. Some of these projects funded by the Salix Invest-to-Save fund and others by Property or Highways budgets.

Table 3: Planned projects

Potential Carbon Saving Projects in 2011/2012
• North Block refurbishment (including lighting, windows, insulation)
• Flexible working initiatives
• Rationalisation of Civic Centre
• Expansion of the LED office lighting trial
• Extension of street lighting dimming project
• Walnuts boiler replacement
• Replacement of server room air conditioning with evaporative cooling technology
• Installation of Centralised Management System for street lighting
• Upgrade of SON (high pressure sodium) street lighting

4. POLICY IMPLICATIONS

- 4.1 The Quality Environment section of the Council's Building a Better Bromley 2020 Vision states that 'we are also determined to work together in reducing energy consumption' and 'reducing energy use' is also identified as an issue to be tackled and how we will judge success.
- 4.2 The completion of this work will place the Council in an improved position with regard to compliance with the Carbon Reduction Commitment scheme: see Executive report ES12005.

5. FINANCIAL IMPLICATIONS

- 5.1 The Council can't control energy prices but we can and must attempt to control consumption. The Carbon Management Programme is crucial to protecting the Council from increasing energy costs and this programme will help to protect budgets.
- 5.2 The term 'avoided spend' is used in this report rather than 'saving'. This is because the financial benefit of energy efficiency may be observed in two ways:
- If energy costs rise (due to increased service provision, opening hours, increased prices or cold weather), then energy efficiency measures will help to offset these factors (i.e. costs will be lower than would have been the case)
 - If the energy efficiency measures outweigh the cost pressures (such as price increases or cold weather) then a true saving may be made.
- 5.3 The carbon savings in this report include energy used by schools and Bromley Mytime, and commuting by staff, and so not all the avoided spend will accrue to LB Bromley.
- 5.4 However carbon savings relating to operational property and street lighting will directly help LB Bromley to avoid unnecessary energy spend and ease revenue budget pressures.
- 5.5 In the following sections, we use the Civic Centre (which comprises 52% of operational property emissions and is the location for the majority of energy efficiency projects) and Street Lighting to show the links between avoided consumption, carbon and energy costs.

- 5.6 In the October 2008 report (ED08067) a scenario was projected showing what would happen if no action was taken (Business as Usual) and what would happen if we achieved our carbon reduction ambition. The difference between the two was known as the 'value at stake' and represented 'avoided spend'.
- 5.7 Table 4 shows avoided consumption and spend for the Civic Centre and Street Lighting by quantifying the difference between what was predicted would happen if we took no action (Business as Usual) with what actually happened each year.
- Avoided consumption is the difference between our 2006/07 forecast of increased energy use ('Business as Usual' assumed a 0.7% increase in operational property and 0.75% increase in street lighting consumption) and what our energy consumption actually was each year
 - Avoided spend was calculated by applying actual energy unit prices paid each year to this 'avoided consumption'.
- 5.8 Since the start of the Carbon Management Programme (2006/07), the Council has avoided more than 6 million kWh of consumption and avoided revenue spend in excess of £220k.

Table 4: Avoided Consumption and Spend

	2007/08	2008/09	2009/10	2010/11	Total Avoided
Civic Centre Avoided Consumption (kWh)	907,230	1,142,971	1,584,957	1,750,261	5,385,419
Civic Centre Avoided Spend	£8,512	£37,792	£42,543	£48,644	£137,491
Street Lighting Avoided Consumption (kWh)	-170,256	349,099	138,793	460,091	777,727
Street Lighting Avoided Spend	-£12,040	£45,000	£13,511	£36,142	£82,613
Total Avoided Consumption (kWh)	736,974	1,492,070	1,723,750	2,210,352	6,163,146
Total Avoided Spend	-£3,528	£82,792	£56,054	£84,786	£220,104

- 5.9 Detailed reasons for the annual changes in energy consumption (e.g. weather, behaviour, technology, property maintenance) are appended to each annual CMP Executive Report. The following bullet points highlight some of the more significant price and consumption factors to have affected annual performance in terms of avoided consumption and spend.
- Civic Centre: 2007/08 performance was rather modest as activity was mainly focussed on preparing the Strategy & Implementation Plan but the Environmental Champions Network was launched to help change behaviour. 2008/09 initiatives included server virtualisation, solar hot water pre-heater, Ann Springman boiler replacement and Voltage Optimisation. The step change improvement between 2007/08 and 2008/09 can be ascribed to a combination of this reduced consumption and an electricity price increase (which magnifies avoided spend). 2009/10 included significant improvements to St Blaise and East and West wings, such as new windows and roofs. In 2010/11 gas consumption fell for a third year, in part a result of the installation of a high efficiency boiler in the main boiler room.

- Street Lighting: 2007/08 was the CMP preparatory year when carbon management plans were being developed and street lighting consumption actually rose by 2% (1.25% higher than the forecast) leading to an increase, rather than reduction, in consumption. In 2008/09 street signs were changed so they were no longer illuminated 24hrs a day, there was an inventory rationalisation, and zebra beacons were converted to lower wattage LEDs. The step change between 2007/08 and 2008/09 is due to these initiatives which helped to protect the Council against a 70% electricity price increase. In 2009/10 and 2010/11 other initiatives such as more lit sign conversions and part-night dimming have contributed to further avoided spend.

5.10 In addition to energy costs, the Council is also liable for allowance purchase costs under the Carbon Reduction Commitment. Under 'Business as Usual', the CRC liability for operational property for 2010/2011 (if the tax was payable) would have been £70,176. Action to reduce energy consumption means that the tax would only be paid for 5,150t rather than 5,848t: a projected liability of £61,800 and avoided tax of £8,376.

6. LEGAL IMPLICATIONS

- 6.1 Although the completion of the Carbon Management Programme is not a legislative requirement, there is a requirement to report on our carbon emissions.
- 6.2 National Indicator 185 has been superseded by a single comprehensive data list requirement entitled 'Sharing information on Greenhouse Gas Emissions from Local Authority own estate and operations'. This is a mandatory reporting requirement and our 2009/10 and 2010/11 data was reported to the DECC in July 2011 (and is appended to this report). This will be an annual reporting requirement.
- 6.3 Furthermore, the Carbon Management Programme is essential to the successful completion of the CRC, which is a legislative requirement.

Non-Applicable Sections:	Personnel Implications
Background Documents: (Access via Contact Officer)	ED08067 Carbon Management Programme (Executive Report, October 2008) ES09100 Carbon Management Programme (Executive Report, October 2009) ES10188 Carbon Management Programme (Executive Report, January 2011)