

PART 1 - PUBLIC

Decision Maker: **Executive**
For pre-decision scrutiny by Environment PDS (11th January 2011) and Executive & Resources PDS (5th January 2011)

Date: 12th January 2011

Decision Type: Non-Urgent Executive Non-Key

Title: **CARBON MANAGEMENT PROGRAMME:
PROGRESS REPORT 2009/10**

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Chief Officer: Paul Dale: Deputy Chief Executive and Director Resources
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Ward: All

1. Reason for report

- 1.1. In October 2008 the Executive endorsed (ED08067 Minute 69) the Council's Carbon Management Programme 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 second annual progress report presents the Council's progress in reducing its energy consumption and carbon footprint. This report also details progress against the Council's 25% CO₂ reduction target (also see Annexe).
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2. **RECOMMENDATIONS**

That the Executive:

- 2.1 Notes the work carried out by all departments in achieving a 12.9% (4,773t) reduction in carbon emissions in 2009/10 (compared with 2008/09) and a 14.5% (5,466t) reduction in emissions against baseline (2006/07);
- 2.2 Approves continued action for the reduction in carbon emissions and energy costs, with a view to 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 2010/11 and carbon reduction plans for 2011/12.

Corporate Policy

1. Policy Status: Existing policy.
 2. BBB Priority: Quality Environment.
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Financial

1. Cost of proposal: Estimated cost £363k
 2. Ongoing costs: Recurring cost. Estimated avoided spend per annum: 2011/12 - £40k; 2012/13 - £89k; 2013/14 - £145; 2014/15 - £180k; 2015/16 - £193k
 3. Budget head/performance centre: Carbon Management Programme within Capital Programme
 4. Total current budget for this head: £285k current uncommitted balance (plus £62.5k due from Salix)
 5. Source of funding: Capital Programme (£250k) and Carbon Trust / Salix (£250k)
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Staff

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

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

1. Estimated number of users/beneficiaries (current and projected): N/A
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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 This report details progress made during 2009/10 on the Council's energy demand and carbon management programme. It also informs Members of progress made since it began in 2006/07.
- 3.2 Bromley Council worked in partnership with the Carbon Trust during 2007/08 to produce a five-year 'Strategy and Implementation Plan', which was endorsed by the Executive in October 2008 (ED08067, minute 69). The plan identified a suite of energy efficiency initiatives designed to reduce the Council's carbon emissions and mitigate increasing energy costs.
- 3.3 The Carbon Trust has worked with 538 public authorities (including 263 councils) on carbon management initiatives and continues to provide the Council with support for its programme.
- 3.4 Bromley's aim is to reduce its carbon emissions by 25% (by end 2012/13) with an ultimate aim of establishing Bromley as a low carbon Council with the potential to become carbon neutral.
- 3.5 It is interesting to note that the emissions reduction targets of public authorities working with the Carbon Trust continues to rise: the average target for the 2010/11 cohort is 33% over five years.
- 3.6 To complement the Council's planned measures, our 'Salix' invest-to-save Carbon Management Fund has provided internal loans for the installation of a number of proven energy-saving technologies across the Council estate and street lighting stock. Each loan is repaid into the ring-fenced fund through agreed energy budget savings (December 2009 IE&E report ES09102 and also January 2011 IE&E report ES10198).
- 3.7 In addition to taking action (see sections 3.18 to 3.22) to reduce energy consumption (and therefore avoid unnecessary costs), carbon emissions are monitored to assess progress (both annually and against baseline).
- 3.8 This report focuses on the Council's 2009/10 progress towards the overall reduction target of 25% by March 2013. As in previous reports, the term 'carbon' is used, for brevity, to describe 'carbon dioxide and other greenhouse gases' (measured in 'carbon dioxide equivalents', expressed in tonnes, and generally abbreviated to tCO₂e).
- 3.9 The Executive should note that the Carbon Management Programme (delivered by a cross-departmental group) has also underpinned delivery of:
- NI 185 (carbon emissions from local authority operations) and NI 186 (borough-wide carbon emissions - public sector element only)
 - The Carbon Reduction Commitment, which will require carbon allowances to be purchased, initially at £12/tCO₂e (also see Executive Report ES10189 January 2011)
 - LPSA2 'operational property' carbon reduction, local target

These targets are currently under review pending revision of the national indicator set.

3.10 Highlights to date include:

- Installing voltage optimisation equipment at the Civic Centre and a number of Bromley Mytime sites
- Fitting equipment to lit-signs around the borough, so that they are no longer operational in hours of daylight

- Changing the behaviour of staff (e.g. encouraging lights and equipment to be switched off when appropriate) through the Environmental Champions Network.
- Improving Civic Centre operational property including insulation and glazing in East and West Wings and St Blaise.
- Improving recycling rates at the Civic Centre
- Achieving the Carbon Trust Standard in recognition of having embedded good carbon management processes across Council operations and an actual reduction in carbon
- Continually improving the Council's data quality in respect of metering

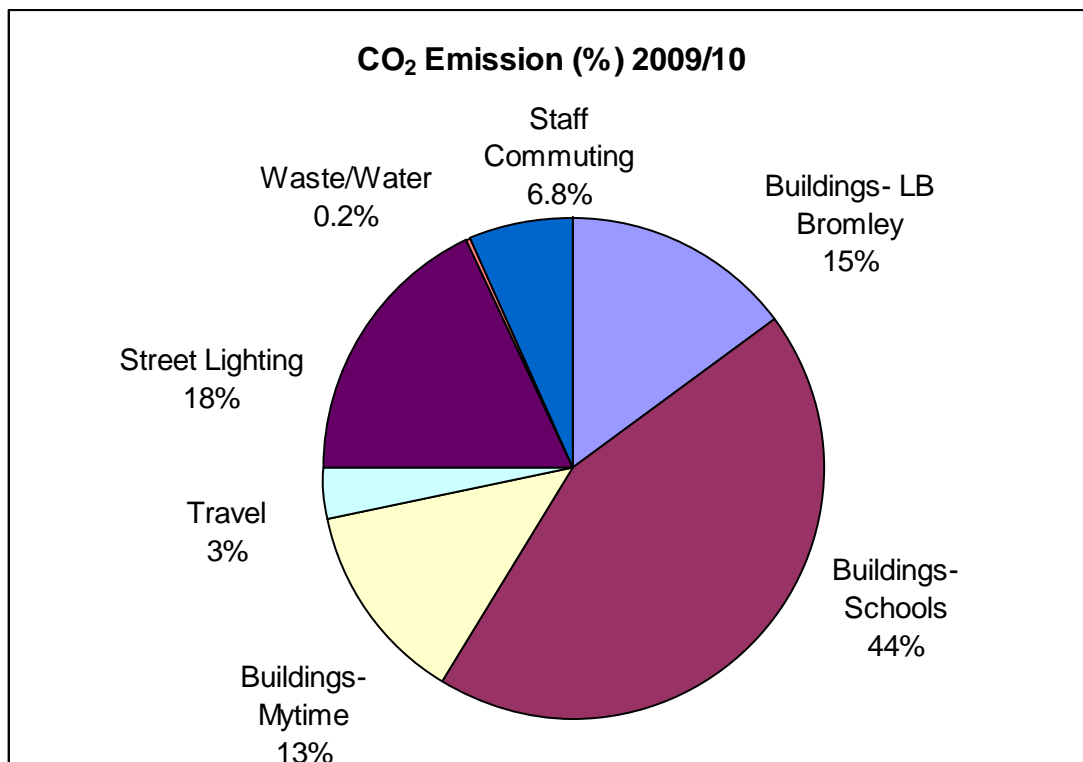
Carbon Footprint Reporting

3.11 The Council aims to reduce its carbon emissions by 25% by the end of 2012/13 (compared with 2006/07). In practice, this means reducing our carbon emissions from 37,780t (2006/07 baseline) to 28,335t CO₂e by March 2013.

3.12 Our 2009/10 carbon footprint was 32,314t CO₂e, which is a 4,773t (12.9%) reduction on 2008/09 and a 5,466t (14.5%) reduction on 2006/07 (baseline).

3.13 Bromley's footprint comes from a number of different sources: Energy used by Council, school and Bromley Mytime buildings, energy used for street lighting and also the carbon associated with fleet/business travel, commuting and (Civic Centre) water use and waste production. Figure 1 (below) shows the 2009/10 carbon emission sources. Buildings are the main carbon emitter (72% of the total), with schools (44%) being the largest contributor both overall and within the building sector. Street lighting is the next most significant carbon source at 18%.

Figure 1: 2009/10 CO₂e emissions



2009/10 Progress

- 3.14 During 2009/10, significant action was taken, through a range of projects, to reduce the Council's use of natural resources and environmental impacts. These included a mixture of technical, behavioural and policy actions (see paragraphs 3.18 to 3.22 and the Annexe).
- 3.15 Table 1 (below) shows progress (in both tonnage and percentage terms) comparing 2009/10 data with the previous year's (2008/09) data. It can be seen that the Council has reduced its overall carbon emissions by 12.9% (rounded to 13% in tables and graphs) or 4,773t. This overall reduction is the result of very good progress in the Buildings sector, offsetting relatively modest rises in emissions from other sectors. These sectoral changes are discussed in paragraphs 3.18 to 3.22.

Table 1: Annual Change (2009/10 compared with 2008/09)

Sector	2008/09 (tCO ₂ e)	2009/10 (tCO ₂ e)	Tonnage change	Percentage change
Buildings	28,329	23,186	-5,143	-18%
Fleet & Business Travel	971	1,042	+71	+7%
Street Lighting	5,729	5,841	+112	+2%
Waste/ Water	56	56	0	0%
Commuting	2,002	2,189	+187	+9%
TOTAL	37,087	32,314	-4,773	-13%

- 3.16 Table 2 (below) shows progress (in both tonnage and percentage terms) comparing 2009/10 data with the baseline year (2006/07). It can be seen that, overall, the Council has reduced its carbon emissions by 14.5% (rounded to 14% in tables and graphs). These figures demonstrate significant progress since the start of the Carbon Management Programme in the Buildings and Waste/Water sectors, modest progress in the Commuting sector and slight increases in the Fleet & Business Travel and Street Lighting sectors. In tonnage terms, the Council has reduced its carbon emissions by 5,466 tonnes against baseline (2006/07), with the vast majority of this progress being in the buildings sector (5,424t).

Table 2: Change against Baseline (2009/10 compared with baseline year 2006/07)

Sector	2006/07 (tCO ₂ e)	2009/10 (tCO ₂ e)	Tonnage change	Percentage change
Buildings	28,610	23,186	-5,424	-19%
Fleet & Business Travel	1,001	1,042	+41	+4%
Street Lighting	5,791	5,841	+50	+1%
Waste/ Water	104	56	-48	-46%
Commuting	2,274	2,189	-85	-4%
TOTAL	37,780	32,314	-5,466	-14%

- 3.17 Bromley is now fourteen percentage points towards its 25% reduction target and ahead of target for the first time. The following paragraphs describe progress in reducing carbon emissions in each sector. For more detailed information on data acquisition and progress, please see the annexed Carbon Footprint Report.
- 3.18 Buildings Sector:

Annual progress: CO₂e emissions from buildings decreased by 5,143t (18%) from 28,329t (2008/09) to 23,186t (2009/10). This significant reduction was achieved through a number of initiatives including:

- Centralised kitchen programme completion
- Property Planned Maintenance Programme 2009/10

- St. Blaise thermal refurbishment (window replacements, cavity wall and roof insulation)
- Continued implementation of projects from School audits
- Mytime energy efficiency projects
- Continuing behavioural change initiatives through the Environmental Champions' Network
- Roof insulation and window replacement programme at Civic Centre
- Solar Hot Water installation

Further buildings projects are detailed in the Annexe to this report.

This year, with prospect of financial penalties for poor data management under the Carbon Reduction Commitment, we have been able to get more accurate data from schools which had previously been less than cooperative. In the past we have had to benchmark some schools' consumption based on Gross Internal Areas (this is in line with best-practice guidance but is not a perfect science especially for larger buildings). The actual consumption figures have proved to be more modest. This is most pronounced in a fall of nearly one third in carbon emissions associated with gas use in the secondary school sector (see Annexe).

Building sector progress against baseline: Overall, emissions have decreased by 5,424t (19%) from 28,610t (2006/07) to 23,186t (2009/10).

3.19 Street Lighting Sector:

Annual progress: CO₂ emissions from street lighting increased by 112t (2%) from 5,729t (2008/09) to 5,841t (2009/10). This has been despite a number of initiatives including:

- Dimming trials
- Lit-sign conversion project (sensors fitted to 2x8 watt lit-signs - now only lit when dark)

This increase is thought to be from three main sources:

- The negative carbon impact of lighting new traffic schemes
- LBB's commitment to upgrading old (orange) sodium lighting with better quality, but higher consuming, white light.
- An EdF audit prompted a further review of the assets recorded in the Confirm system. This identified that there were more illuminated signs in our inventory than previously registered.

Although this increase is in line with government projections (the aforementioned drive for better lighting will increase emissions for this sector) we are hopeful that the trend can be reversed in coming years.

Progress against baseline: Emissions have increased by 50t (1%) from 5,791t (2006/07) to 5,841t (2009/10).

3.20 Commuting Sector:

Annual progress: The latest Staff Travel Survey showed that carbon emissions associated with staff commuting increased by 187t (9%) from 2,002t (2008/09) to 2,189t (2009/10).

A combination of better raw data (both in quality and quantity) and comparison of datasets have enabled the identification of some historic errors.

The change in statistical significance can be seen most dramatically in rail travel:

- 2008: 3 of 471 of responders (1%) selected rail as their commute transport
- 2010: 94 of 1,004 of responders (9%) selected rail as their commute transport

It is highly unlikely that the increase is due to a large-scale modal change but rather that 2008 survey sample was not representative of rail users.

Progress against baseline: Emissions have decreased by 85t (4%) from 2,274t (2006/07) to 2,189t (2009/10).

3.21 Fleet & Business Travel Sector:

Annual progress: Carbon from this sector increased by 71t (7%) compared with 2008/09.

Fleet emissions increased by 80t (18%). This is likely to be due to the increased number of fleet vehicles, the continuing replacement of LPG vehicles with diesel vehicles, and the fact that Day Centre closures have increased the amount of miles Adult & Community Services has travelled.

Business Travel (use of private cars on Council business) emissions decreased by 9t (1.5%). Increased fuel prices and the need to protect budgets contributed to staff driving less and planning their work more effectively (e.g. combining visits etc). The three pool cars also mean fewer people are using their own cars for business travel.

Fleet & Business Travel sector progress against baseline: Carbon emissions increased by 4% (41t) compared with 2006/07 baseline data.

- Fleet emissions increased by 100t (22%) from 347t (2006/07) to 447t (2009/10).
- Business Travel emissions decreased by 59t (9%) from 654t (2006/07) to 595t (2009/10).

3.22 Water & Waste Sector:

Annual progress: Carbon from this sector has not change significantly since 2008/09, remaining at 56t.

Carbon emissions associated with Civic Centre waste management were stable; in 2009/10, 73% of Civic Centre waste was recycled compared with 72% in 2008/09.

Carbon emissions associated with Civic Centre water management were also stable at 2.5t.

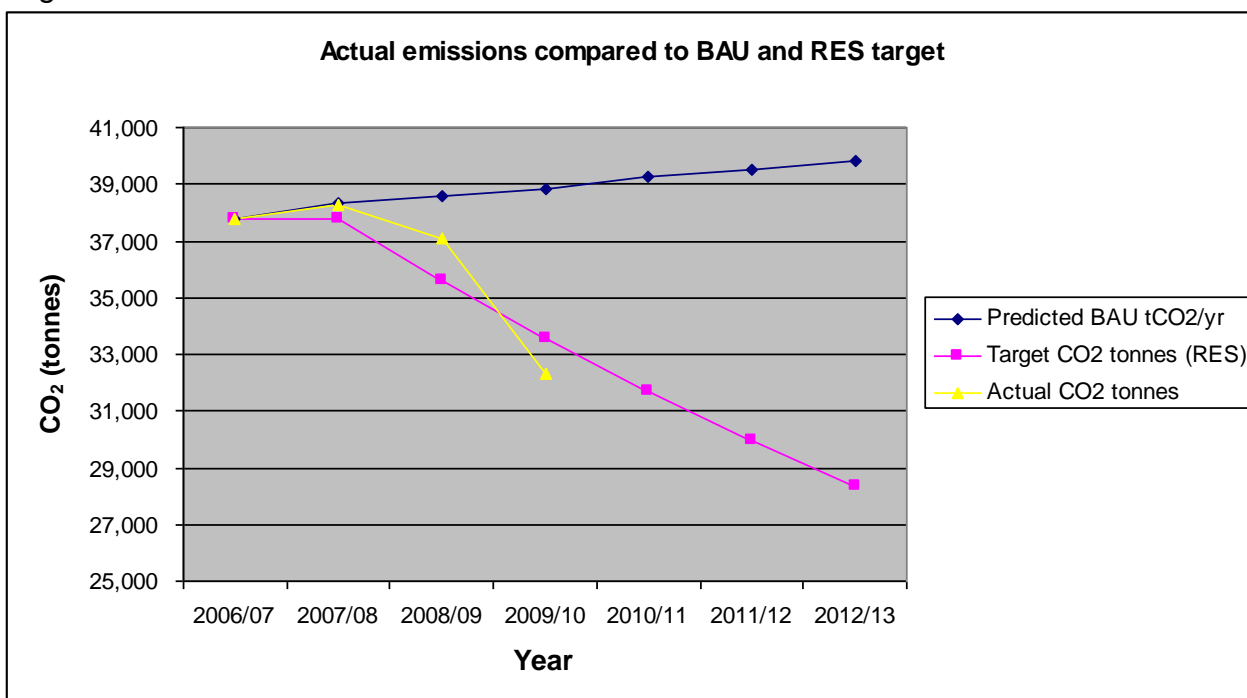
Water & Waste sector progress against baseline: Carbon emissions decreased by 46% (48t) compared with 2006/07:

- Waste emissions decreased by 43t (45%) from 97t (2006/07) to 54t (2009/10).
- Water emissions decreased by 5t (65%) from 7t (2006/07) to 2.5t (2009/10).

3.23 Figure 2 (below) shows two scenarios and the actual reported level of carbon emissions:

- Business-as-usual (BAU) scenario, shows how emissions would continue to rise in the absence of sustained action (Carbon Trust model)
- Reduced emissions scenario (RES), is a straight line projection showing the 25% carbon reduction plan and
- Actual level of reported carbon emissions.

Figure 2: Two scenarios and actual carbon emissions



3.24 Figure 2 shows that, in 2009/10, the Council significantly reduced its total annual emissions compared with the BAU scenario: we have avoided emitting 4,773t of carbon. With this year's progress, we are actually ahead of our RES target by 1,248t.

3.25 It should be noted that emissions rose slightly (as predicted in the BAU scenario) in 2007/08. This was because 2007/08 was the preparatory year during which only limited energy saving/carbon reduction projects were actually implemented. Naturally this made the first year (2008/09) target more difficult to achieve. Emissions in 2008/09 did decline as projects began to be implemented (but not as quickly as projected) but 2009/10 shows the best reduction to date. Indeed, indeed, we are now ahead of target. This is in part attributable to improved data from the secondary school sector (see para. 3.18) but is also the product of a number of carbon management initiatives bearing fruit. Table 3 (below) summarises the above graph as figures.

Table 3: Summary of progress towards target

Year		BAU (tCO ₂ e)	RES (tCO ₂ e)	Actual emissions (tCO ₂ e)	Annual change in actual emissions	Progress towards 25% target
2006/07	Baseline	37,780	37,780	37,780	-	-
2007/08	Preparatory Year	38,314	37,780	38,264	Increase: 1.25% (484t)	Increase: 1.25% (484t)
2008/09	1 st Year	38,581	35,590	37,087	Decrease: 3% (1,177t)	Decrease: 2% (693t)
2009/10	2 nd Year	38,849	33,562	32,314	Decrease: 13% (4,773t)	Decrease: 14% (5,466t)
2010/11	3 rd Year	39,251	31,685			
2011/12	4 th Year	39,525	29,946			
2012/13	5 th Year	39,801	28,335			

3.26 2007/08 (preparatory year) emissions increased slightly due to delays in commencing the programme, more robust data acquisition methods (less reliance on estimated data), new street lighting developments, and changes in operational property profile.

3.27 2008/09 (our first reporting year) emissions decreased slightly (3% against 2007/08 and 2% against baseline) but not as quickly as projected in the RES. This is due to:

- the abandonment of the Civic Centre draught-proofing and Central Library voltage optimisation projects (due to changes in asset management priorities).
- weather-related heating demand being greater than in either of the past two years (measures taken to improve the thermal performance of buildings are having a positive effect but this was masked, in this reporting year, by increased weather-related demand)

3.28 2009/10 (our second reporting year) emissions decreased significantly (13% against 2008/09 and 14% against baseline) and more quickly than projected in the RES. This is mainly due to:

- more accurate emissions data from the Secondary school sector (see paragraph 3.18)
- an 8% reduction in emissions from the Council's own operational property
- a 7% reduction in emissions from Primary school gas consumption
- a 34% reduction in emissions from Mytime gas consumption

It is interesting to note that as part of the "10:10 Campaign", many Local Authorities and all central government departments pledged to cut their emissions by 10% in 2010. Although this is a calendar year figure, and we report on financial years, our 13% decrease on 08/09 figures makes it highly likely that LB Bromley would have exceeded that campaign's target.

Future projects

- 3.29 A number of projects are underway and planned for future years, which will further reduce our emissions and help to progress the Council towards its 25% reduction target. The data associated with these projects are provisional estimates and it should be noted that identified projects may change (due to, say, cost changes, resource availability, changing priorities etc.) or be replaced by new projects, as this is a living plan. The uncertainty over the Council's asset management strategy, particularly regarding the future of the Civic Centre site, may have a bearing.
- 3.30 The Carbon Management Programme Board and the Carbon Management Group will continue to meet throughout 2010/11 to identify and progress new carbon reduction projects, as well as minimising risks which could impact on delivery of the target.
- 3.31 Certain actions taken to reduce emissions will be funded from the Council's Carbon Management Fund, which is an invest-to-save pot designed to provide internal loans for the installation of proven energy saving technologies. These initiatives will be reported to IE&E sub-committee on 19 January 2011 (ES10198). Table 4 (below) shows potential third tranche Salix projects. These projects, which won't all necessarily start in 2010/11 but will be progressed as resources allow, will save a projected 783t of carbon.

Table 4: Potential New 'Salix' Carbon Management Fund Projects

Project Description	Estimated Costs (£)	Estimated CO ₂ Savings (t/pa)	Estimated AVOIDED Spend (£/pa)	Estimated Payback (years)
Voltage Optimisation: Walnuts Offices	4,468	5	1,180	4.47
Voltage Optimisation: EDC Princes Plain	4,468	5	1,217	4.47
Voltage Optimisation: Anerley Town Hall	4,468	5	1,084	4.47
Overhaul of Civic Centre heating system	90,000	300	46,500	1.94
Oil-gas conversion: Beckenham Library	45,000	10	9,000	5
Electric-gas hot water conversion: Beckenham Library	30,000	10	10,000	3
Server room evaporative cooling (to replace air conditioning)	23,000	172	25,229	0.9
Heat recovery to Great Hall ventilation	11,000	27	3,332	3.3
VSD controls Civic North block burners and pumps	17,000	44	6,432	2.6
Lowering return temperature to Boilers North Block	1,300	9.4	1,180	1.1
Reducing flow rates of heating pumps to North Block	4,800	27	4,044	1.2
Areas of Civic Centre replace electric heating with gas	6,900	27	4,440	1.55
Civic Centre lighting upgrades	44,500	71	10,400	4.3
'Nightwatchman' smart IT management software	tbc	tbc	tbc	tbc
Fit electronic gear to MI26 Lanterns	76,169	71	16,943	4.5
Totals	363,073	783	140,981	3.06

3.32 Table 5 (below) sets out some of the proposed non-Carbon Management Fund projects (which may be done for a variety of purposes) and are generally met from existing or external budgets.

Table 5: Potential Non-Carbon Management Fund projects for 2010/11

Project Description
• Major refurbishment of North Block
• Implementation non-compliant Carbon Management Fund projects identified in the Civic Centre site survey
• Flexible working initiatives (e.g. improved staff-to-desk ratio, starting in St.Blaise)
• Civic Centre Site rationalisation (loss of X and Y blocks)
• Expansion of the LED office lighting trial
• Conduct energy surveys of Libraries and implement 'quick wins'
• Government's Automatic Meter Reading roll-out
• Property Planned Maintenance Programme 2010/11
• Continuing behaviour change initiatives through the Environmental Champions Network
• Continued implementation of projects from School audits
• Greater imperative for schools to reduce emissions under the Carbon Reduction Commitment scheme (if the schools-element of the scheme cost is to be met by schools)
• Mytime external audits of their ISO 14001 Environmental Management System
• Mytime energy efficiency initiatives (more pool covers [liquid and solid], installation of smart meters, lighting surveys)
• Walnuts boiler plant replacement
• Extension of street lighting dimming project
• Conversion of mechanical to electronic start-up gear on appropriate street lamps

• Retroreflecting street sign replacements
• Retroreflecting bollard replacements
• Expansion of biodiesel capacity at Central Depot
• Staff parking permit rationalisation (encouraging non-essential users to use public transport)
• Introduction of team Oyster cards

3.33 It should be noted that while all these carbon savings will benefit the Council's emissions reduction target, some of the associated avoided spend will benefit schools and Mytime rather than the Council.

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 Undertaking this work will place the Council in an improved position with regard to the Carbon Reduction Commitment: see Executive Reports ES09101 (December 2009) and ES10189 (January 2011).

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 over the coming years.

5.2 The term 'avoided spend' has been used throughout this report rather than 'saving'. This is because the financial benefit of energy efficiency will appear in one of two ways, depending on a number of variables:

- If overall energy costs have risen due to, for example; increased site activity / service provision or opening hours, increased energy prices or poor weather, then energy efficiency measures help to mitigate these negative factors and avoid the true increase in energy costs that would have been incurred without undertaking them.
- However, if the reduction in energy consumption from efficiency measures outweighs negative factors such as those named above, or those variables remain stable, then a true saving can be seen.

The rest of Section 5 elaborates on this further in the context of LBB's recent performance:

5.3 This report shows that carbon emissions have been reduced by 4,773t in 2009/10. Members should be aware that this includes carbon savings associated with transport fuel and water use – not just operational property and street lighting. The carbon savings in this report also include energy used by schools and Bromley Mytime and so not all the avoided spend will accrue to LB Bromley.

5.4 That said, the carbon savings set out in this report which relate to operational property and street lighting will have helped to protect the Council from additional spend and this will help to ease revenue budget pressures.

5.5 Electricity prices remain around 18% higher than they were in 2007/08 at an average of 10p/kWh. Action to reduce consumption has limited the impact of these price rises and helped protect the Council from having to meet additional energy costs.

- 5.6 It should be noted that the majority of the carbon savings made from the operational property stock were from gas, which is less than a third of the price of electricity.
- 5.7 It should also be noted that the amount billed is not always consistent with the amount of energy consumed. This disparity is largely caused by the lag between estimated reads and actual reads. The national roll-out of advanced meters planned by the government will help to eliminate this issue, as will any metering reading programme the Council initiates.
- 5.8 Taking the Council's Operational Property as an example, the reduction in gas consumption approximately equates to avoided spend of £30,135 compared with 2008/09.
- 5.9 This should be balanced against the fact that street lighting electricity consumption grew from 2008/09, despite a number of initiatives (which would have avoided additional spend). See 3.19 (above) and particularly Annexe 5.3.1 for details on this change in consumption.

Carbon Management Fund (Salix) projects

- 5.10 Certain actions taken to reduce emissions will be funded from the Council's aforementioned Carbon Management Fund. This is an invest-to-save pot is designed to provide internal loans for the installation of proven energy saving technologies. This fund was established by the Executive with 50% contribution from Salix and 50% contribution from LBB's Capital Programme. The specific projects funded in this way are detailed in an annual report to IE&E Sub Committee (Dec. 2009 report ES09102 and also Jan. 2011 report ES10198). Table 6 (below) shows the projects undertaken to date, including the projected savings (once the fund has been fully paid back).
- 5.11 Carbon Management Funded projects being technical rather than behavioural are quantifiable and can show avoided spend. It should be stressed that they are quantifiable as *individual projects*, since on a large site (such as the Civic Centre) there are many factors at play which can affect the site's overall consumption. Whilst the projects themselves assume a fixed price in the internal loan agreement, the actual energy consumption and therefore spend-avoidance may vary due to, for example, weather, usage and energy price fluctuation (this can have either a positive or negative impact). Irrespective of these variable factors, the benefits of such projects will always be positive when compared to the do-nothing business-as-usual option.
- 5.12 Carbon Management Fund (CMF) projects represent a win-win financial situation for the Council, regardless of whether future energy prices rise or fall. Price-sensitivity analysis demonstrates that a fall in energy prices means that although the project savings will be slightly reduced, there will be an overall financial benefit to the Council as energy bills will be lower (outweighing the reduced project savings). Conversely, analysis demonstrates that an increase in energy prices means that the projects will save even more than originally projected, thus helping to mitigate the financial impact of any future energy price increases.

Table 6: Avoided Spend from existing CMF projects (projected once fully paid back into fund)

SCHEME	2010/11	2011/12	2012/13	2013/14	2014/15
Tranches 1 & 2	£	£	£	£	£
Convert street-signage from 24hrs to dusk-to-dawn switching	0	23,673	26,862	26,862	26,862
Voltage optimisation (Civic Centre)	0	15,835	40,123	40,123	40,123
1st tranche project avoided spend	0	39,508	66,985	66,985	66,985
Cumulative 1st tranche project avoided spend	0	39,508	106,494	173,479	240,464
Convert street-signage from 24hrs to dusk-to-dawn switching Phase 2	0	0	2,337	14,434	14,434
Convert central island columns /	0	0	5,470	7,197	7,197

bollards to dusk-to-dawn switching					
2nd tranche project avoided spend	0	0	7,807	21,631	21,631
Cumulative 2nd tranche project avoided spend	0	0	7,807	29,438	51,069
Cumulative total (tranche 1 and 2) CMF project avoided spend	0	39,508	114,301	202,917	291,533

5.13 Table 7 shows potential new Carbon Management Funded projects, including provisional avoided spend (once the project has been fully repaid). The estimated investment cost of these projects is £363,073 – see table 4). It should be noted that not all of these projects are fully quantified and so figures are indicative only (and payback dates will reflect project start dates). Once an internal loan agreement has been signed, they then become fixed.

Table 7: Avoided Spend from new CMF projects (projected once fully paid back into fund)

SCHEME* Tranche 3	2011/12 £	2012/13 £	2013/14 £	2014/15 £	2015/16 £	2016/17 £
Voltage Optimisation: Walnuts Offices	0	0	0	0	744	1,180
Voltage Optimisation: EDC Princes Plain	0	0	0	0	907	1,217
Voltage Optimisation: Anerley Town Hall	0	0	0	0	320	1,084
Overhaul of Civic Centre heating system	0	0	22,375	46,500	46,500	46,500
Oil-gas conversion: Beckenham Library	0	0	0	0	0	3,750
Electric-gas hot water conversion: Beckenham Library	0	0	0	4,167	10,000	10,000
Server room evaporative cooling (to replace air con.)	0	12,741	25,229	25,229	25,229	25,229
Heat recovery to Great Hall ventilation	0	0	0	384	3,332	3,332
VSD controls Civic North block burners and pumps	0	0	0	4,976	6,432	6,432
Lowering return temperature to Boilers North Block	0	372	1,180	1,180	1,180	1,180
Reducing flow rates of heating pumps to North Block	0	929	4,044	4,044	4,044	4,044
Areas of Civic Centre replace electric heating with gas	0	0	3,830	4,440	4,440	4,440
Civic Centre lighting upgrades	0	0	0	0	1,433	10,400
'Nightwatchman' smart IT management software	tbc	tbc	tbc	tbc	tbc	tbc
Fit electronic gear to MI26 Lanterns	0	0	0	0	0	15,606
Provisional 3rd tranche project avoided spend	0	14,042	56,658	90,920	104,561	134,394
Cumulative 3rd tranche project avoided spend	0	14,042	70,700	161,620	266,181	400,574

* Assumption that all projects are implemented by 1 November 2011 (i.e. 5 months of repayments into CMF in 2011/12)

5.14 All avoided spend in the table above, once fund repayments are completed, will benefit the Council.

Non-carbon management funded projects

- 5.15 Executive report ES09100 set out a list of 2008/09 non-carbon management funded projects and their associated indicative savings, including:
- Centralised kitchen programme completion
 - Property Planned Maintenance Programme 2009/10
 - St. Blaise thermal refurbishment (window replacements, cavity wall and roof insulation)
 - Continued implementation of projects from School audits
 - Mytime energy efficiency projects
 - Continuing behavioural change initiatives through the Environmental Champions' Network
 - Roof insulation and window replacement programme at Civic Centre
- 5.16 Action has been taken on all of the above projects. It is impossible to ascribe a saving directly to any individual project since they formed part of planned programmes of works. They were not subject to the same degree of rigour in quantifying their energy saving potential as Carbon Management Fund projects but collectively they will have contributed to avoided energy spend.
- 5.17 The potential savings from the 2010/11 Non-Carbon Management Fund projects (Table 5) will vary widely because of a range of factors such as occupancy rates, behaviour, weather, prices and asset management programmes. Therefore they cannot be quantified in absolute terms. As noted in 3.30, while all carbon savings will benefit the Council's reduction target, some of the associated energy cost savings will benefit schools and Mytime rather than the Council.
- 5.18 Table 8 summarises the overall financial benefit to the Council from taking action (on Carbon Management Funded projects) to reduce emissions and therefore avoid unnecessary spending on energy. This financial benefit will manifest itself either in actual budget savings (if all variables remain unchanged) or as avoided costs against what energy consumption and corresponding energy bills would have been had they been not installed.

Table 8: Summary Table: Carbon Management Funded Projects: Avoided Spend

SCHEME	2011/12	2012/13	2013/14	2014/15	2015/16
All Tranches	£	£	£	£	£
1 st Tranche Carbon Management Fund (2008/09) projects	39,508	66,985	66,985	66,985	66,985
2 nd Tranche Carbon Management Fund (2009/10) projects	0	7,807	21,631	21,631	21,631
3 rd Tranche Carbon Management Fund (2010/11) <u>proposed</u> projects	0	14,042	56,658	90,920	104,561
Total Avoided Spend per annum	39,508	88,834	145,274	179,536	193,177
Cumulative Avoided Spend	39,508	128,343	273,617	453,153	646,330

- 5.19 The Carbon Reduction Commitment scheme (also see Executive Reports ES09101 and ES10189) places an additional significant financial liability on avoidable carbon, reinforcing the need for continued focus on the energy demand management measures set out in this report.

Non-Applicable Sections:	Legal Implications Personnel Implications
Background Documents: (Access via Contact Officer)	<ul style="list-style-type: none"> • ED08067 Carbon Management Programme (Executive Report, October 2008) • ES09100 Carbon Management Programme (Executive Report, October 2009) • ES09101 Carbon Reduction Commitment (Executive Report, December 2009) and ES10189 Carbon Reduction Commitment (Executive Report, January 2011)