London Borough of Bromley

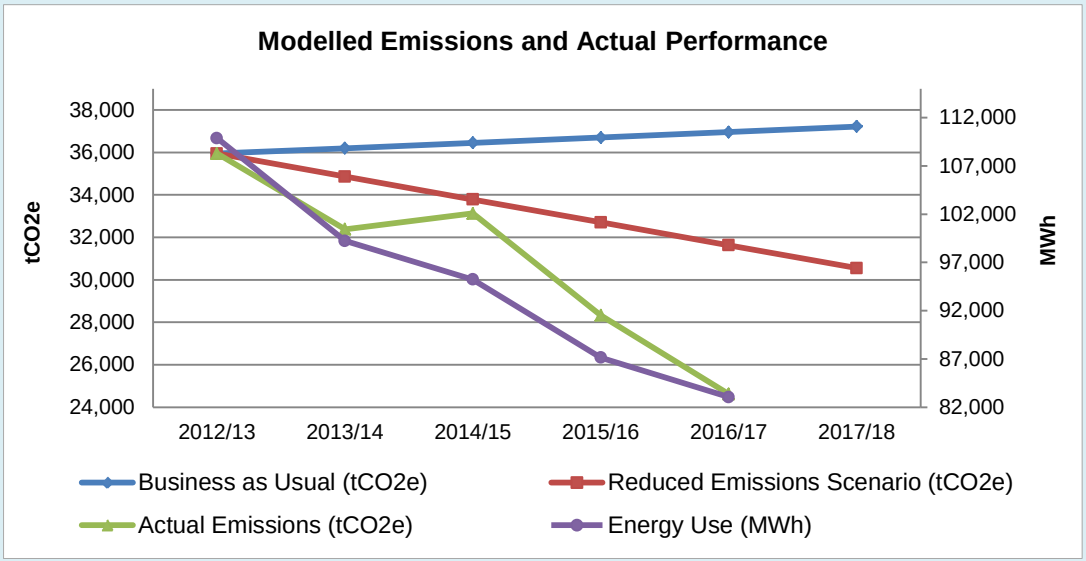
Greenhouse Gas Emissions: 2016/17 Performance Report

Carbon Management Programme 2 (2013/14 – 2017/18) – Year 4

September 2017
Carbon Management Team

Performance Summary

- Bromley's first Carbon Management Programme (CMP1) operated from 2008/09 to 2012/13 and resulted in a 14% reduction in the Council's Greenhouse Gas (GHG) emissions.
- A second five-year programme (CMP2) is now in effect, with the ambition to drive down emissions by a further 15% from 2013/14 to 2017/18 (relative to a recalculated 2012/13 baseline).
- CMP2 not only plays an important role in helping reduce the Council's energy consumption and carbon emissions but also helps achieve significant cost savings – money that can be better used supporting frontline services.
- In terms of 2016/17 performance, total emissions decreased by 13.1% compared with the previous year, and 32% against the 2012/13 baseline.



- Energy use, which accounts for over 90% of measured impacts, decreased by 4.7% relative to 2015/16 and 24.4% compared with the 2012/13 baseline.
- The reasons for this good performance include positive actions such as the SALIX and Street Lighting Invest-to-Save programmes (but also changes due to carbon factors and weather).
- As it stands Bromley Council has already achieved its 5 year carbon reduction target and the task now is to ensure that emissions do not rise over the remaining year of the CMP2 programme.
- The Council's Salix invest-to-save programme mitigates cost pressures and energy bills are at least £392k lower each year as a result of this strategic investment programme.
- The boxes below summarise the key changes in 2016/17 performance, both year-on-year and against baseline. Both energy use and the price of energy fell in 2016/17, consequently helping to reduce the Council's energy expenditure.

Greenhouse Gas Emissions		
-13.1%	**24,618 tCO_2e**	-32%
Annual Change		Against Baseline

Energy Use		
-4.7%	**83,048 MWh**	-24.4%
Annual Change		Against Baseline

Energy Expenditure		
-1.9%	**2,369 £m**	-10%
Annual Change		Against Baseline

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1. Introduction

Greenhouse gas emissions from human activity are the highest in history and there's clear empirical evidence concerning our impact on the Earth's climate systems. The atmosphere and oceans have warmed, snow and ice cover has diminished, and sea levels are rising. Climate change has the potential to generate widespread impacts on human and natural systems – e.g. through extreme weather events – and this presents a range of environmental, social and economic challenges. As a result, and over two decades (and especially following the 1997 Kyoto Climate Change Conference – which led to the 2016 Paris Agreement), policy and practical responses have been put in place at international, national, regional and local levels to help mitigate these impacts.

The Intergovernmental Panel on Climate Change's definitive 5th Assessment Report (2014) highlighted that "time is running out if the world wants to avoid potentially catastrophic climate change".

December 2015 saw a historic global climate agreement struck at the Paris COP21 climate change conference. The agreement takes a significant step forward in reducing global carbon emissions. For the first time 195 countries, including the world's largest emitters, committed to act on climate change (to limit global average temperature rise to below 2°C) and be held accountable.

The UK Government recognises the importance of taking action to combat climate change and the Climate Change Act 2008 was the first national legislation to set legally binding targets to reduce GHG emissions (80% by 2050 compared with a 1990 baseline). To help achieve this target, there have been a series of 5-year carbon budgets and in June 2016 government agreed its 5th Carbon Budget, which is designed to limit the UK's greenhouse gas emissions to 57% of 1990 levels by 2032.

Given that the climate is changing, it is important to consider what adaptive measures need to be implemented and in 2013, the government adopted a National Adaptation Programme designed to improve the country's resilience to climate change. The Government has stated that if global emissions are not reduced, average summer temperatures in south east England will rise by:

- over 2˚C by the 2040s (hotter than the 2003 heatwave connected to 2,000 extra UK deaths)
- up to nearly 4˚C by the 2080s

Extreme weather events will increase in frequency and intensity as a result of rising temperatures, and this will lead to:

- heavier rainfall – increasing the risk of flooding
- higher sea levels – leading coastal flooding
- more, and longer lasting, heat waves

Events such as these will impact the borough and the services it provides to residents, which is one reason the Council is taking action both to mitigate its own climate impacts (by reducing energy use and therefore GHG emissions) and adapt to our changing climate.

But this challenge also presents an opportunity for achieving greater energy efficiency and financial savings. The economic benefits are clear – by using less energy and fewer resources we become more efficient as an organisation, allowing us to realise cost savings – money that can be better spent supporting frontline services.

The Council's Carbon Management Programme (CMP) plays an important role in helping achieve these objectives. In these challenging financial times our focus is on delivering projects offering the greatest financial savings. Failing to take action to control resource use and overheads presents a real risk both to the Council's finances and reputation. Equally, scrutinising energy use and taking effective action can identify opportunities for even greater improvement and efficiency savings.

This CMP focuses on activities that the Council can directly influence, such as energy use in buildings, street lighting, transportation fuel use and internal waste generation, to reduce impacts and costs.

Benefits of Carbon Management Programme

- Generating significant financial savings, especially as energy and fuel prices continue to increase
- Reducing tax bills, such as the Climate Change Levy, freeing revenue for front line services
- Improving the energy efficiency of our buildings, resulting in improved working conditions
- Reducing Greenhouse Gas emissions and other environmental impacts
- Reducing risk of penalties for legislative non-compliance
- Demonstrating the Council's action to reduce costs and environmental impacts to the public
- Establishing best management practice in integrating environmental and financial efficiencies
- Helping the Council to be more resource efficient in challenging economic times

2. Reporting Bromley's GHG Emissions

In 2007/08 LB Bromley worked in partnership with the Carbon Trust to develop a 'Carbon Management Programme' (CMP1) to reduce energy use, emissions and costs. This activity led directly to a decision to reduce the Council's own carbon dioxide emissions by 25% over five years.

Bromley's approach is to monitor and report on greenhouse gas (GHG) emissions associated with the following areas/activities: buildings; fleet and business travel; street lighting; water consumption; waste production; paper use; and commuting. This data is expressed as a 'carbon equivalent' (CO_2e) figure - a common metric used for quantifying impacts of Greenhouse Gases relative to one unit of CO_2.

In March 2011, DCLG issued its 'Single Data List' of reporting requirements. This included a mandatory requirement for local authorities to report on greenhouse gas emissions from their own estates and operations (formerly known as 'National Indicator 185').

CMP1 operated from 2008/09 – 2012/13 and resulted in a 14% reduction (5,275 tCO2e) in the Council's GHG emissions. CMP2 has now commenced (2013/14 – 2017/18), with an ambition to drive down emissions and costs by a further 15% against the revised 2012/13 baseline (35,941 tCO_2e), so that the Council intends to only emit 30,550 tCO_2e by the end of 2017/18.

Bromley Council has already implemented many successful policy and technical initiatives and CMP2 builds on that success (see Appendix: Invest to Save Projects).

As CMP2's scope includes a larger number of sites, activities and energy/water meters, and also uses different GHG conversion factors (see box below), it is not possible to directly compare performance between CMP1 and CMP2. CMP1 2012/13 data was, therefore, recalculated to provide a revised CMP2 baseline (35,941 tCO_2e), against which CMP2's progress will be monitored annually.

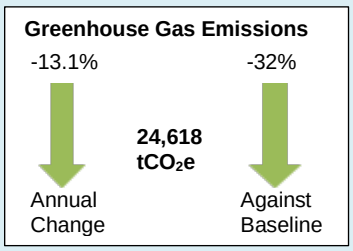
Note: due to improved data collection, gas consumption and associated emissions, figures have been recalculated for previous CMP2 years.

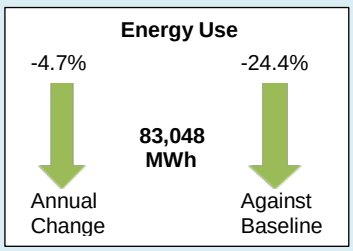
This report (2016/17) is the penultimate year of CMP2. Next year (2017/18) will be the final year of CMP2 and the baseline year for CMP3.

Future plans for CMP3 (2018/19 – 2022/23) include assessing the carbon impacts of Council spend. CMP1 and CMP2 have traditionally focussed on reducing scope 1 and 2 emissions, and we have therefore made a big environmental difference to a relatively small amount of spend. However, by far our biggest impacts are the ~£200m Bromley Council spends each year on procurement. This will present new challenges in quantifying scope 3 emissions, setting reduction targets and supplier engagement. Funding for CMP3 projects may include carbon offsetting S106 agreements.

Greenhouse Gas Conversion Factors

Different GHG conversion factors are used each year to convert fuel use, energy consumption, waste and water into tonnes of carbon dioxide equivalent (tCO_2e).





Energy use i.e. electricity, gas & heating oil (which makes up over 90% of the Council's measured impacts) is converted into CO_2e using GHG conversion factors established by DEFRA. These factors are updated annually reflecting changes such as how electricity is generated from a national mix of gas, coal, nuclear and renewables.

The reduction in LBB's 2016/17 GHG emissions was largely down to lower energy use but was also partly due to lower emission factors in 2016/17 compared with 2015/16.

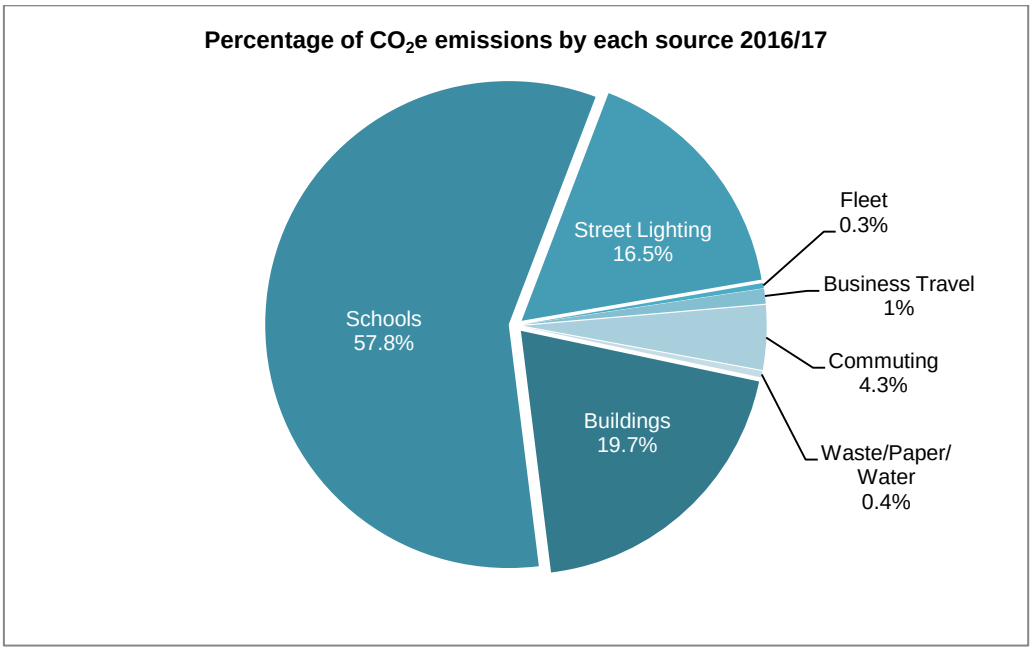
3. Scope of Activities

Bromley's CMP2 scope takes a number of different sites / activities into account, including:

- Buildings: energy (gas / electricity / heating oil) used by the Council and schools (academies and maintained schools)
- Street Lighting: electricity associated with street lights, lit signs, bollards, and crossing beacons
- Commuting: journeys to/from work by rail, bus travel, car and motorbike
- Fleet and Business travel: transport used on Council business
- Civic Centre waste production (landfill and incinerated waste)
- Water consumption (certain LB Bromley operational buildings)
- Paper consumption (Civic Centre)

Fugitive emissions (e.g. refrigeration or air conditioning gases) were excluded due to lack of available data.

The chart below shows the percentage contribution made by each source to the Council's GHG emissions for 2016/17. Buildings remain the Council's largest component (77.5%), with schools (Academies and Maintained) being the largest contributor (57.8%) both overall and within the buildings sector. Street Lighting is the next most significant source (16.5%) followed by Commuting (4.3%).



As illustrated in the table below, a greater number of sites, energy and water meters, and activities are recorded in CMP2 compared with CMP1, providing a more complete picture of LB Bromley's environmental impacts. The Council's use of the online energy management system 'SystemsLink' allows a greater number of sites and meters (e.g. water consumption) to be monitored and managed.

Number of monitored meters

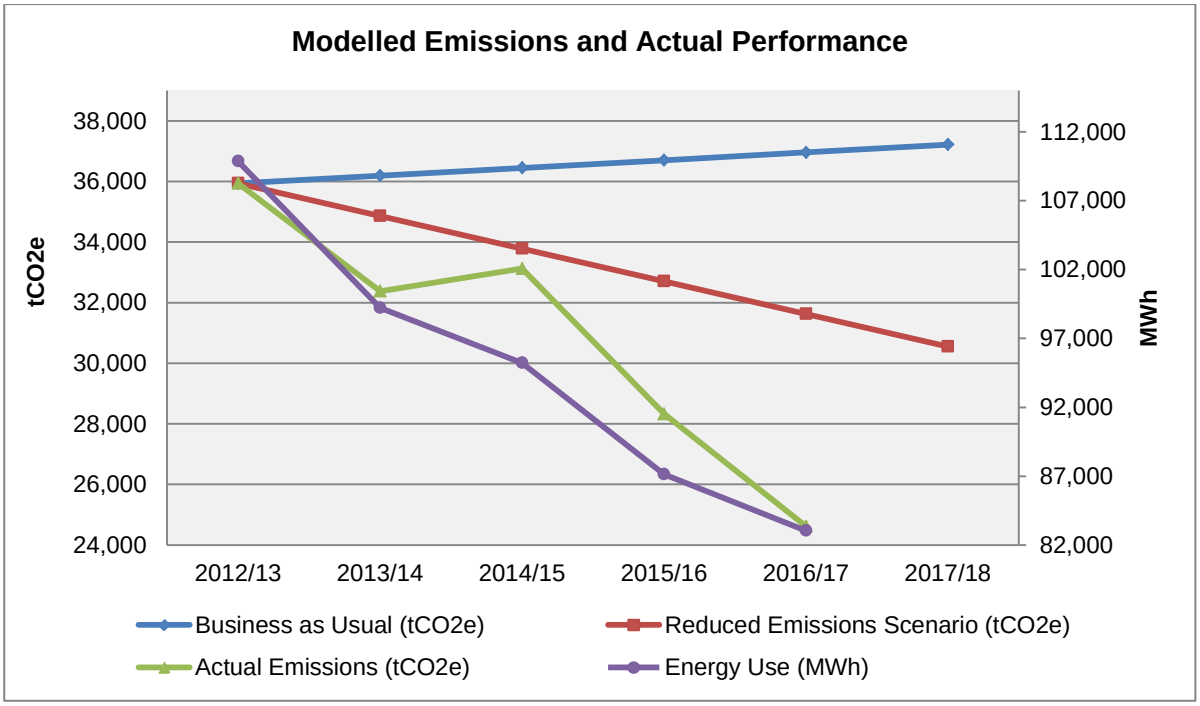
	CMP1	Baseline	CMP2			
	2012/13	2012/13	2013/14	2014/15	2015/16	2016/17
Electricity sites	142	212	209	192	190	190
Electricity meters	244	329	325	315	306	306
Gas sites	124	155	155	153	146	142
Gas meters	210	253	252	250	251	243
Water sites	1	59	52	48	48	47
Water meters	2	64	52	48	48	47

4. Performance Assessment

In 2016/17 emissions were 24,618 tCO_2e - a decrease of 3,709 tCO_2e (13.1%) compared with 2015/16, and 11,323 tCO_2e (32%) against the 2012/13 baseline.

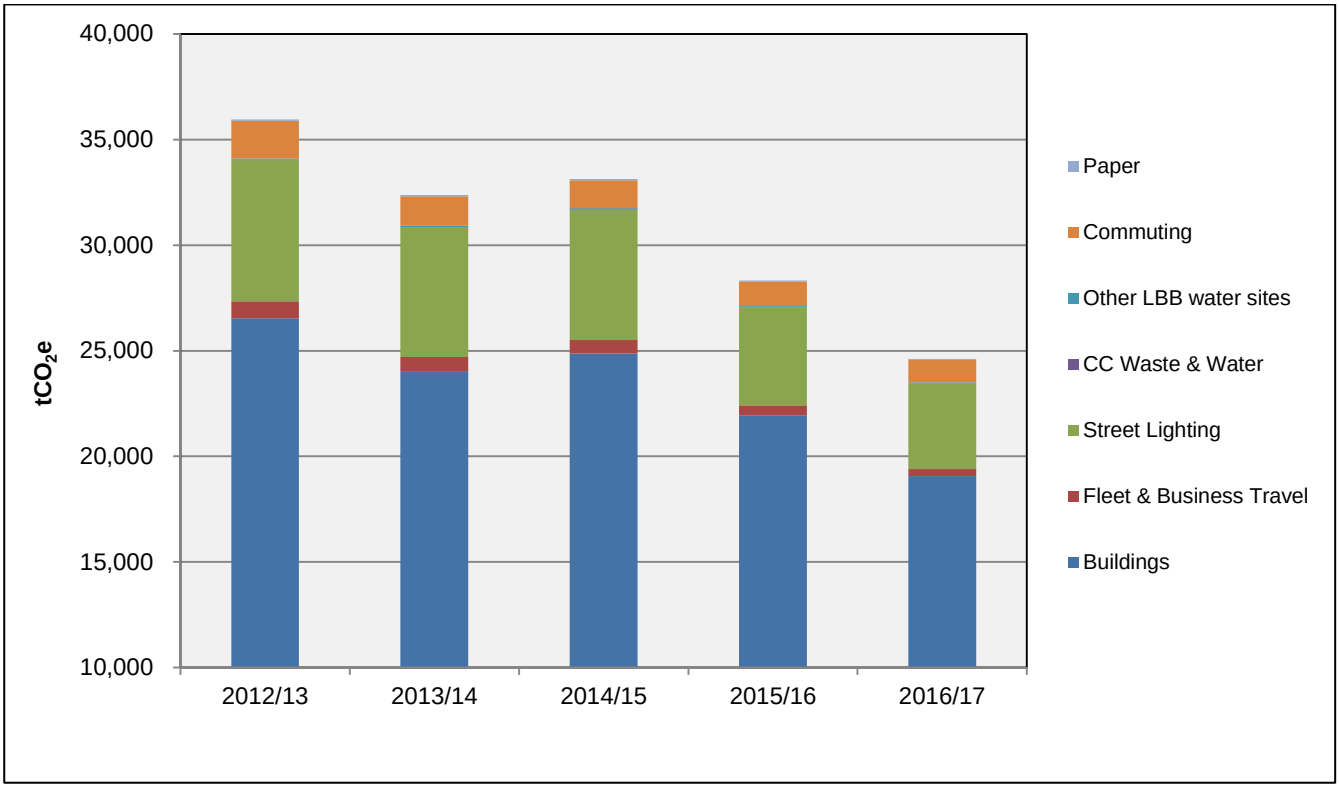
The graph below shows our progress to date alongside two modelled scenarios: 'Business as Usual'- where no action is taken to reduce GHG emissions (resulting in emissions rising to more than 37,000 tCO_2e over five years) and a 'Reduced Emissions Scenario'- where emissions are actively reduced by 3% per annum to 30,550 tCO_2e by 2017/18.

During 2016/17, energy use fell significantly compared with both baseline (24.4%) and 2015/16 (4.7%).



Compared with the 2012/13 baseline, gas consumption has reduced by 20%. However, this reduction is not entirely due to energy efficiency measures. The winter of 2012/13 was particularly cold, therefore requiring more gas to heat buildings compared with the following four winters which were relatively mild. So, even if no new energy efficiency measures had been installed, a reduction in gas consumption, and hence GHG emissions, would still have happened due to the milder winters.

CMP2 Emissions by Source - Chart



The above chart shows emissions performance by source, in tCO_2e terms. 2016/17 emissions have fallen significantly by 32% against baseline, and 13.1% compared with 2015/16 emissions. Most notably:

- Buildings emissions (incl. schools) have fallen by 28% against baseline and 13% year-on-year
- Street Lighting emissions have fallen by 39% against baseline and 12% compared with last year
- Council owned fleet emissions decreased by 52% compared to 2015/16
- Employee commuting emissions saw a 10% reduction in 2016/17

CMP2 Emissions by Source - Data

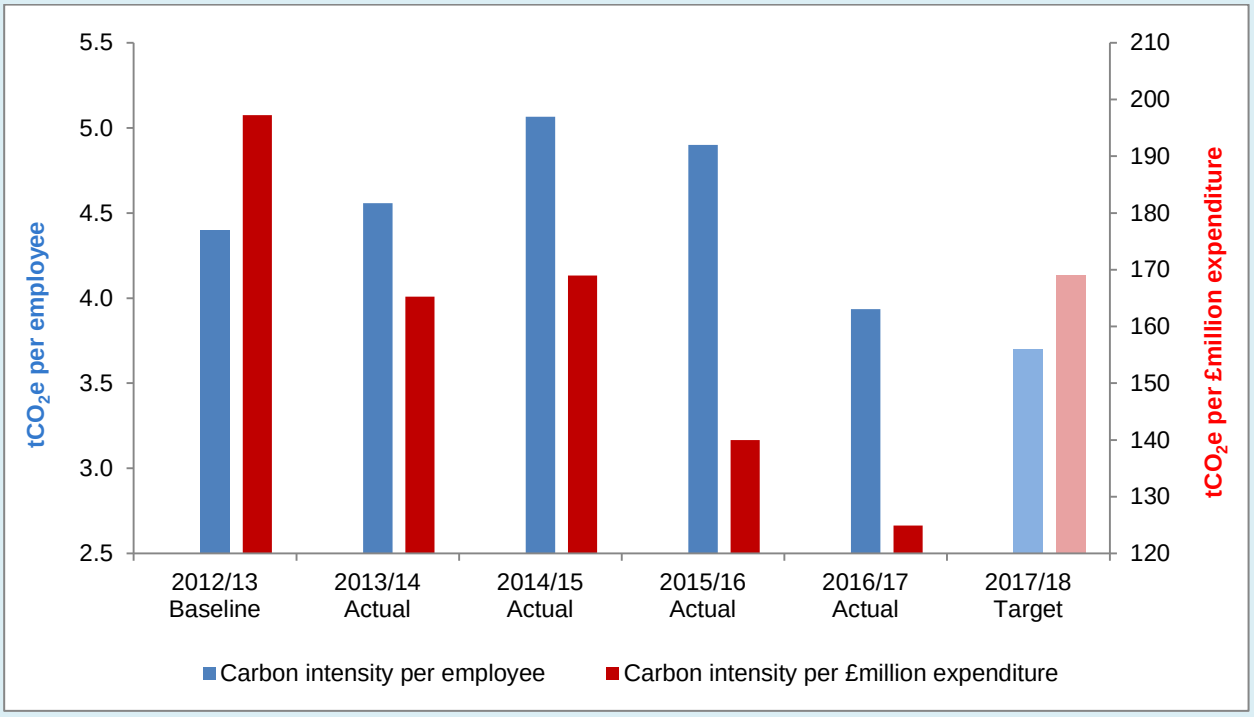
Scope of Activity	2012/13 Baseline (tCO_2e)	2013/14 Year One (tCO_2e)	2014/15 Year Two (tCO_2e)	2015/16 Year Three (tCO_2e)	2016/17 Year Four (tCO_2e)	Annual tonnage change	Annual percentage change	Change Against Baseline
Buildings (Schools)	18,461	16,592	17,025	14,985	14,223	-762	-5%	-23%
Street Lighting	6,683	6,132	6,178	4,624	4,058	-566	-12%	-39%
Buildings (LBB)	8,078	7,447	7,842	6,962	4,848	-2,114	-30%	-40%
Staff Commuting	1,794	1,402	1,324	1,167	1,055	-112	-10%	-41%
Business Travel	388	356	316	288	245	-43	-15%	-37%
Fleet	414	310	318	178	85	-93	-52%	-79%
Waste/Water/Paper	123	139	120	123	104	-19	-15%	-15%
TOTAL	**35,941**	**32,378**	**33,123**	**28,327**	**24,618**	**-3,709**	**-13.1%**	**-32%**

Carbon Intensity Measures

Carbon intensity provides a measure of how efficiently emissions are generated by an organisation relative to chosen metrics. Two metrics are considered here to show our carbon intensity:

- expenditure (tonnes CO_2e per £million net expenditure, excluding schools), with a low figure indicating carbon efficiency from a financial point of view;
- employees (tonnes CO_2e per full-time employee, excluding schools and street lighting), again with a low figure indicating carbon efficiency from a staffing point of view.

CMP2 Carbon Intensity per employee & per £million expenditure



Carbon intensity per employee has improved by 20% compared with 2015/16, and 11% against baseline, largely due to the fact that energy consumption and operational building stock has decreased.
Carbon intensity relative to expenditure fell by 37% against baseline and 11% in comparison with 2015/16; this means that fewer emissions are being produced per £1m the Council spends. The table below shows a breakdown of key Council data and future targets in relation to its carbon intensity (intensity targets were set in line with CMP2 targets, i.e. a 3% annual reduction against baseline).

	CMP2					
	2012/13 Baseline	2013/14 Actual	2014/15 Actual	2015/16 Actual	2016/17 Actual	2017/18 Target
Net Portfolio Expenditure (£million)	182,212,000	195,892,000	195,474,000	189,603,000	197,052,000	-
Number of employees (FTE)	2,408	2,118	1,958	1,771	1,610	-
Total tCO_2e	35,941	32,378	33,123	28,327	24,618	<30,864
tCO_2e per £million expenditure	197	165	169	149	125	<169
tCO2e per employee	4.4	4.6	5.1	4.9	3.9	3.7

5. Buildings Emissions

Background: Buildings account for 77.5% of the Council's 2016/17 footprint and comprise operational property (e.g. Civic Centre, depots and libraries), and schools. Schools comprise the largest element of Bromley's overall emissions (58%), with operational property comprising the additional 19.5%. However the Council is limited in its ability to directly control schools' energy consumption; in practice the Council is attempting to achieve its 15% reduction target from activities relating to just 42% of its footprint – effectively doubling the scale of the challenge.

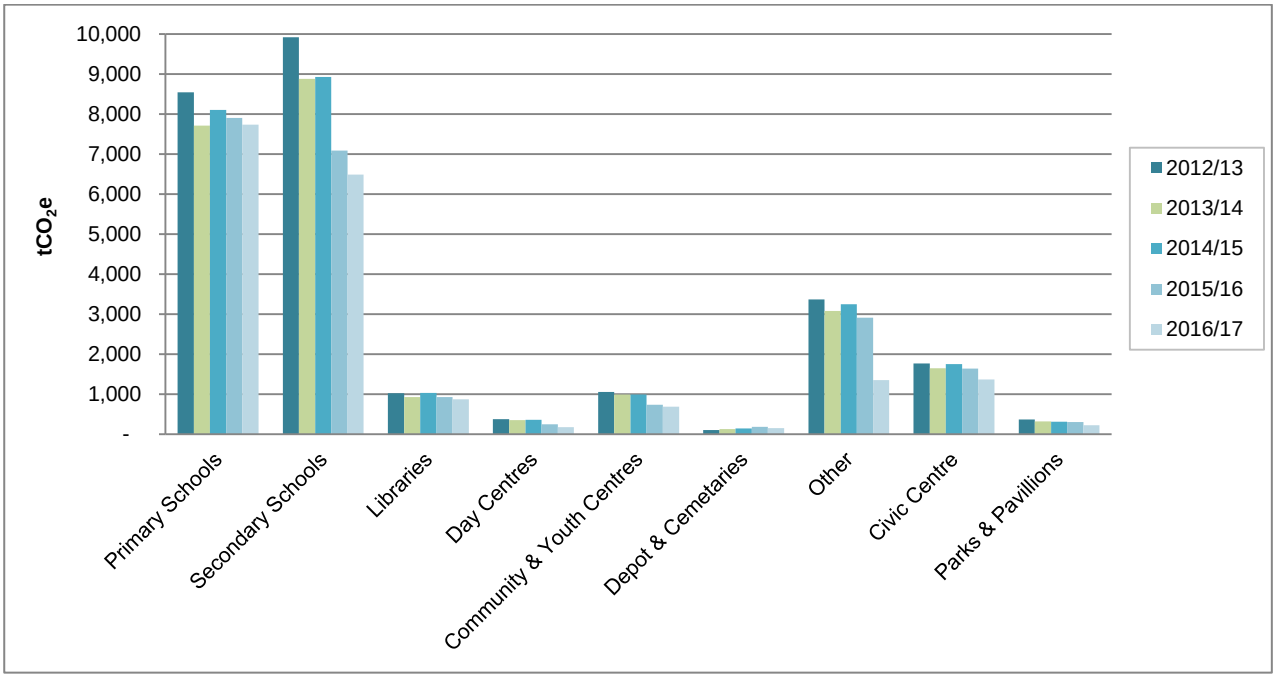
Data: Gas and oil are used for space-heating and hot water. Electricity is used for lighting, cooling, and electrical equipment. Gas, electricity and heating-oil consumption data were provided by the energy suppliers and LASER Bureau Service (the Council's energy data and procurement service) and this data was converted into CO_2e emissions using DEFRA's GHG conversion factors.

Commentary: Buildings' emissions (including schools), have fallen by 28% against baseline. Compared with 2015/16, emissions decreased by 13%, effectively saving nearly 3,000 tonnes of greenhouse gasses. Part of this reduction will have been attributable to there being fewer staff in employment and therefore less electricity use.

Future Opportunities: Building energy efficiency measures and initiatives which have been commissioned, or are being considered, include:

- Civic Centre Stockwell Building LED Lighting Upgrade
- Renewable energy installation (e.g. rooftop solar PV)
- Central Library energy efficiency measures

CMP2 Emissions by Building Type



6. Street Lighting Emissions

Background: Street lighting is the second largest component of Bromley's carbon footprint (after buildings). LB Bromley owns and maintains a range of street lighting and illuminated street furniture including over 27,000 street-lights, some 3,000 lit-signs, 1,600 illuminated bollards, and another 900 items of illuminated street furniture.

Data: Electricity consumption figures from street lighting and street furniture were collected from the energy supplier and converted into CO_2e emissions. Street Lighting energy use is now metered and the data is captured on our energy management system.

Commentary: Emissions from street lighting decreased by 566 tCO_2e from 4,624 tCO_2e (2015/16) to 4,058 tCO_2e (2016/17). This significant saving was achieved through the completion of the following energy efficiency works:

- 1,570 SON lamps replaced with LED lanterns (570 Salix project / 1,000 SEELS project)
- Since 2013/14, 12,886 street lamps have been replaced with dimmable LED lanterns under the Street Lighting Invest-to-Save programme (this is in addition to the Salix/SEELS project).
- All centre island posts no longer lit 24 hours a day
- Crossing bollards no longer lit 24 hours a day

Future Opportunities: Street Lighting Projects that could continue to provide financial, energy and emissions related savings include:

- Replacing 150w SON lanterns with LED equivalents
- Replacing lit signs with reflective signs
- Variety of lower wattage residential street lighting improvements

7. Commuting Emissions

Background: Commuting is the third largest component of the Council's emissions after buildings and street lighting. The commuting footprint covers how Council staff (most of whom are based at the Civic Centre site) travel to work.

Data: Data is extrapolated from the biennial Staff Travel Survey, which gives information on the mode of transport (i.e. car, bus and train) and distance travelled from a sample of staff. This data is then converted into carbon by assigning each mode of transport with the relevant GHG conversion factor and multiplying the mileage. This data is adjusted on a pro-rata basis to reflect the carbon impact of the entire Council workforce. The survey is conducted every two years (to minimise survey fatigue); this data is based on the May 2016 staff survey results.

Commentary: Absolute emissions from staff commuting reduced by 112 tCO_2e (10%) from 1,167 tCO_2e (2015/16) to 1,055 tCO_2e (2016/17). The reduction was largely due to a 9% reduction in staff numbers.

Future Opportunities: The Council will continue to encourage staff to reduce their commuting footprint through:

- Offering free cycle training and maintenance courses to all staff
- Promoting a 'Cycle to Work' scheme, including tax-free bike purchasing initiatives
- Increasing cycle storage on the Civic Centre
- Advertising 'Dr Bike' servicing sessions and bike-marking events throughout the year
- Making pool push and electric bikes available to all staff
- Promoting a new 'Car-Sharing' scheme for all Council staff

These initiatives may also help to decrease emissions from business travel (e.g. if a bicycle is used for commuting, it may also be used for business travel).

8. Fleet & Business Travel Emissions

Background: The fleet is defined as vehicles directly managed by the Council but not vehicles used by the Council's contractors (e.g. *Veolia* for Waste Services). Business Travel is exclusively defined as the use of (staff) private cars for Council business.

Data: Business Travel data is derived from reimbursed car mileage claims collected by Human Resources. Figures are converted into CO_2e emissions. It should be noted that mileage is not always claimed by officers, so there will be a degree of under-reporting. Fleet emissions are calculated from fuel (litres) used by Council vehicles.

Commentary: Overall, emissions from this sector have decreased by 136 tCO_2e (29%) since 2015/16 and by 472 tCO_2e (59%) compared with 2012/13 baseline.

Fleet emissions decreased by 93 tCO_2e (52%) since 2015/16, largely due to the outsourcing of services and the consequential reduction of LBB fleet. Additionally, the Council's fleet of gritter trucks were rarely used due to the mild winter. Compared with the 2012/13 baseline, emissions have fallen by 329 tCO_2e (79%).

Business Travel emissions have decreased by 43 tCO_2e (15%) since 2015/16 and by 143 tCO_2e (37%) since 2012/13 baseline. Increased fuel prices, fewer staff numbers and the need to reduce budgets contributed to staff driving less and planning their work more effectively (e.g. combining visits etc.).

Future Opportunities: The Council will continue to:

- Restructure its fleet to improve vehicle use (e.g. moving to smaller vans or reducing numbers), and selecting fuel efficient vehicles where possible
- Maintain two pool cars, meaning fewer staff will use their own cars for business travel

9. Water, Waste & Paper Emissions

Background: The emissions associated with waste production and paper use at the Civic Centre together with water consumption (across 47 sites) is the smallest component of our carbon footprint.

Data: The tonnage of waste is divided according to the disposal route (i.e. landfill or incineration) and then converted into a carbon figure. Note that recycled waste (80% of Civic Centre waste) is excluded from our calculations. Metered water consumption data is converted directly into CO_2e emissions. The reams of paper used is converted into tonnes and then into a carbon emissions figure.

Commentary: Total emissions from this sector decreased by 15 tCO_2e (2.6%) compared with 2015/16. Carbon emissions associated with Civic Centre waste management (landfill and incineration) has remained at the same level as 2015/16 (8.3 tCO_2e) - an 11% reduction against the 2012/13 baseline.

During CMP1 water emissions were previously only recorded for Civic Centre use, but data is now being captured for 47 sites. In 2016/17 water consumption emissions were 47 tCO_2e; an 31% decrease against 2015/16, due to more accurate billing.

Carbon emissions associated with paper use increased by 2 tCO_2e (4%) against 2015/16 and decreased by 5 tCO_2e (9%) against 2012/13 baseline.

Future Opportunities: the Council will continue to record water consumption data on its energy management system in order to identify:

- Demand management opportunities
- Possible billing errors
- Leaks
- Metering issues
- Abatement opportunities.

10. Carbon Management Programme: Progress to Date

The Carbon Management Programme (CMP) is the main initiative specifically designed to reduce the Council's direct environmental impacts and costs. The CMP's first phase (CMP1) ran from 2008/09 – 2012/13 and resulted in a 14% reduction (5,275 tCO_2e) in the Council's GHG emissions. A second five-year phase (CMP2) has now commenced, with an ambition to drive down emissions and costs by a further 15% from 2013/14 to 2017/18. The table below summarises performance for the first four years of CMP2. It is not possible to directly compare performance between the phases for the following reasons:

- A greater number of sites, energy and water meters, and activities are recorded under CMP2
- Different GHG conversion factors are now used to measure energy consumption and resource use in carbon dioxide equivalent terms
- Electricity emissions are now sub-divided into 'generation' and 'transmission/distribution' losses

These changes required CMP1 2012/13 data to be recalculated to provide a new baseline for CMP2. A better assessment is to compare 2016/17 performance with the CMP2 (2012/13) baseline. This shows that in 2016/17 emissions fell by 11,323 tCO_2e (32%) compared with 2012/13.

2016/17 Progress: compared with 2015/16 and against the 2012/13 baseline

	CMP2 2012/13 – 2017/18					Annual Progress		Progress Against Baseline	
Sector	2012/13 (tCO_2e)	2013/14 (tCO_2e)	2014/15 (tCO_2e)	2015/16 (tCO_2e)	2016/17 (tCO_2e)	2015/16 - 2016/17 (tCO_2e)		2012/13 - 2016/17 (tCO_2e)	
	Baseline Year	First Year	Second Year	Third Year	Fourth Year	Tonnage Change	Percentage Change	Tonnage Change	Percentage Change
Buildings	26,539	24,039	24,867	21,947	19,071	-2,876	-13%	-7,468	-28%
Buildings – Council	8,078	7,447	7,842	6,962	4,848	-2,114	-30%	-3,230	-40%
Buildings – Schools	18,461	16,592	17,025	14,985	14,223	-762	-5%	-4,238	-23%
Buildings – Mytime	-	-	-	-	-	-	-	-	-
Fleet / Business Travel	801	666	634	466	330	-136	-29%	-471	-59%
Street Lighting	6,683	6,132	6,178	4,624	4,058	-566	-12%	-2,625	-39%
Waste/Water/Paper	124	139	120	123	104	-19	-15%	-20	-16%
Commuting	1,794	1,402	1,324	1,167	1,055	-112	-10%	-739	-41%
TOTAL	**35,941**	**32,378**	**33,123**	**28,327**	**24,618**	**-3,709**	**-13%**	**-11,323**	**-32%**

11. Local Authority Emissions: Own Estate & Operations

Producing a GHG report forms part of the DCLG single data list, which sets out all of the data requirements that central government requires of local government. BEIS mandates that Local Authorities should measure and report their GHG emissions by following UK guidance which is aligned with international guidance on GHG reporting – the GHG Protocol. Activities are grouped into three different categories ('scopes'):

- Scope 1 (Direct emissions): activities owned or controlled by the organisation that release emissions straight into the atmosphere
- Scope 2 (Energy indirect): emissions released into the atmosphere associated with the consumption of purchased electricity/heat/steam/cooling
- Scope 3 (Other indirect): emissions that are a consequence of your actions, occurring at sources not owned or controlled by the organisation

Reporting Scope 1 and Scope 2 emissions is recommended, but reporting Scope 3 emissions is discretionary. The organisational boundary of the GHG Report is something for each Local Authority to decide – see section 3 of this report for Bromley's scope.

The table below sets out LB Bromley's (CMP2) 2012/13 baseline, 2013/14, 2014/15, 2015/16 and 2016/17 GHG emissions data according to scope:

Emissions from local authority own estate and operations (Former NI 185)

	GHG emissions 2012/13 tCO_2e	GHG emissions 2013/14 tCO_2e	GHG emissions 2014/15 tCO_2e	GHG emissions 2015/16 tCO_2e	GHG emissions 2016/17 tCO_2e
Scope 1					
Fossil Fuel consumption (Gas and Oil)	13,011	11,229	10,815	9,992	9,881
Owned transport (Green fleet)	413	310	318	178	85
Process emissions	not calculated	not calculated	not calculated	not calculated	not calculated
Fugitive emissions	not calculated	not calculated	not calculated	not calculated	not calculated
Total scope 1	**13,424**	**11,540**	**11,134**	**10,171**	**9,966**
Scope 2					
Purchased electricity (inc. Street Lighting)	18,732	17,450	18,603	15,314	12,149
Total scope 2	**18,732**	**17,450**	**18,603**	**15,314**	**12,149**
Scope 3					
Business travel (Grey fleet)	388	356	316	288	245
Employee commuting	1,794	1,402	1,324	1,167	1,055
Electricity (T&D losses)	1,480	1,492	1,627	1,264	1,099
Waste (Civic Centre)	9	8	8	8	8
Water	60	71	61	68	47
Paper	54	59	51	47	49
Product in use	not calculated	not calculated	not calculated	not calculated	not calculated
Total significant scope 3	**3,785**	**3,388**	**3,386**	**2,842**	**2,503**
TOTAL	**35,941**	**32,378**	**33,123**	**28,327**	**24,618**

Appendix: Invest to Save Projects

To mobilise the invest-to-save CMP initiatives, an internal ring-fenced Carbon Management Fund (CMF) was created in 2008, comprising:

- £250,000 Salix interest-free conditional grant
- £250,000 of match-funded council investment

The CMF essentially doubles the Council's available carbon management capital and significantly increases the amount available for investment over the term of the programme, since savings are repaid into the fund for reinvestment until fully paid back. The Council's £250k capital is fully protected as each loan is repaid to the internal fund from savings made to energy budgets, reflecting the reduced energy consumption and costs. In this way, the Council's Fund is continually replenished for re-investment in new projects. Almost £1m has been invested in energy saving projects leading to annual financial savings of more than £275k and annual carbon savings of more than 1,300t CO_2e.

Project Status	Project Title	Project Type	Loan £	Project Start Date	Project Fully Paid Back on	Annual Savings		Lifetime savings		Payback
						CO_2 Tonnes	£ Saved	CO_2 Tonnes	£ Saved**	Years
Pipeline*	Civic Centre - Stockwell building LED	LED Lighting	-	-	-	-	-	-	-	-
	Street Lighting Phase II LED	Street Lighting	-	-	-	-	-	-	-	-
Subtotal										
Commissioned	Multi Storey Car Parks - LED Lighting Upgrade	LED Lighting	205,587	01/02/16	01/02/20	279.1	55,775	4,186.1	836,619	3.7
	SON Replacement & Dimming LED	Street lighting	303,069	01/01/13	01/08/17	276.4	65,848	5,527.0	1,316,958	4.6
Subtotal			**508,656**			**555.4**	**121,622.5**	**9,713.1**	**2,153,577**	
Fully Paid	Voltage Optimisation Civic Centre	Voltage Management	89,827	09/02/09	09/01/12	141.7	30,691	2,085.8	451,777	2.9
	Retrofit lit signs with PECUs	Street lighting	43,482	01/10/09	01/05/11	123.8	26,865	1,275.1	276,706	1.6
	Retrofit PECUs to lit signs phase 2	Street lighting	49,385	01/11/10	01/04/14	94.8	14,434	1,251.1	190,526	3.4
	Centre Island Posts - Fit Photoelectric Cell Units	Street lighting	17,920	01/01/11	01/07/13	47.4	7,197	421.2	63,984	2.5
	PECU Controlling Crossing Bollards	Street lighting	19,928	01/02/12	01/11/13	52.8	11,631	469.8	103,396	1.7
	Server room - evaporative cooling	Cooling	29,843	01/04/12	01/03/14	142.2	21,192	1,944.9	289,909	1.4
	Beckenham Library - heat control and insulation	Multiple project	6,386	01/04/14	30/03/15	5.8	1,275	84.4	18,621	5.0
	Civic Centre canteen LED lighting upgrade	LED Lighting	9,495	01/04/15	30/03/16	11.1	2,064	166.5	30,966	4.6
	North Block Lighting (full)	Lighting - Upgrades	83,920	01/12/11	30/03/16	77.3	17,001	1,047.9	230,606	4.9
	Fitting electronic gear to MI26 lanterns	Street lighting	93,436	01/11/11	30/03/16	87.2	20,784	1,150.6	274,351	4.5
	Civic Centre underground staff car park	LED Lighting	4,630	26/03/16	31/03/16	7.5	1,502	75.0	15,020	3.1
Subtotal			**448,252**			**791.5**	**154,636**	**9,972.2**	**1,945,861**	
Report Total (excl. Pipeline)			**956,908**			**1,347**	**276,258**	**19,685**	**4,099,438**	