

Greenhouse Gas Emissions: 2013/14 Performance Report

London Borough of Bromley:
Carbon Management Programme 2
(2013/14 – 2017/18)

DCLG Single Data List:
GHG Emissions from Local Authority own
Estate and Operations
(formerly NI 185)

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GREENHOUSE GAS EMISSIONS 2013/14 PERFORMANCE REPORT

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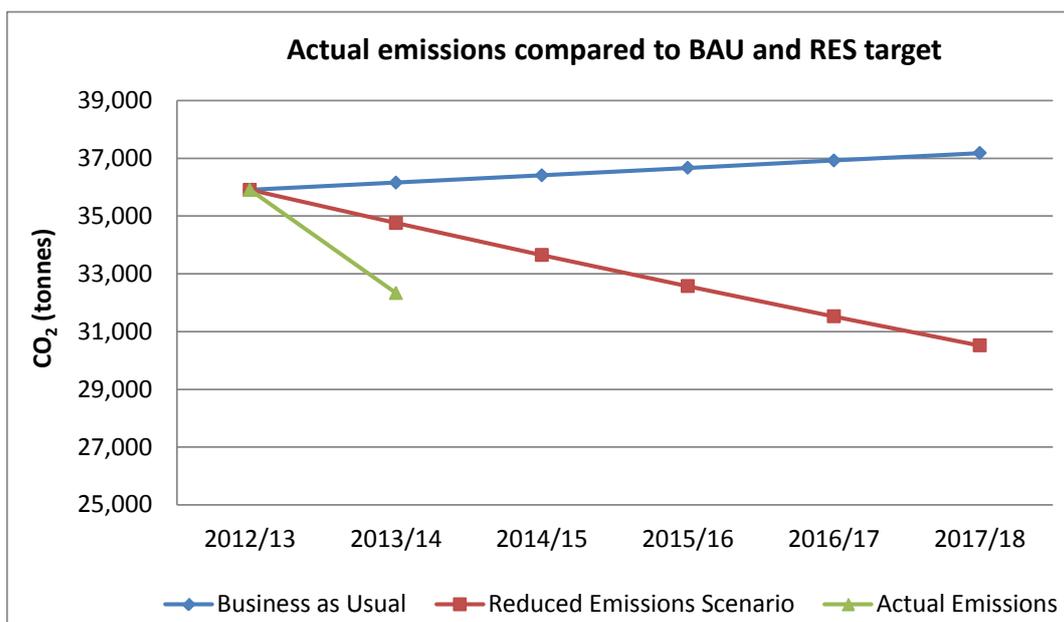
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1. Reporting Bromley's 2013/14 GHG Emissions

- 1.1. In 2007/08 LB Bromley worked in partnership with the Carbon Trust to develop a 'Carbon Management Programme' (CMP) to reduce energy use, emissions and costs. This activity led directly to a decision (ED08067, Minute 69) to reduce the Council's own carbon dioxide emissions by 25% over five years ('Reduced Emissions Scenario').
- 1.2. 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' (CO₂e) figure - a common metric for measuring the effect of six different Greenhouse Gases.
- 1.3. 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'). This report, which is also uploaded to the [LB Bromley](#) and [DECC](#) websites, fulfils this reporting requirement.
- 1.4. The CMP's first phase (CMP1) ran from 2008/09 – 2012/13 and resulted in a 14% reduction (5,275 tCO₂e) in the Council's GHG emissions (weather corrected data shows that the reduction would have been 22% (8,311 tCO₂e) if 2012/13's weather had not been significantly colder than average).
- 1.5. A second five-year phase (CMP2) has now commenced (2013/14 – 2017/18), with an ambition to drive down emissions and costs by a further 15% (5,386 tCO₂e) against the new 2012/13 baseline (35,907 tCO₂e), so that the Council only emits 27,502 tCO₂e by the end of 2017/18.
- 1.6. Because a larger number of sites, energy and water meters, and activities are recorded under this second five-year phase, and different government-issued carbon factors are used, it is not possible to directly compare performance between CMP1 and CMP2. These changes required CMP1 2012/13 data to be recalculated to provide a new baseline for CMP2 (see Table 3).
- 1.7. Figure 1 shows that in 2013/14 the Council's emissions were 32,355 tCO₂e, a decrease of 3,572 tCO₂e (10%) compared with 2012/13 (an element of this will be attributable to the milder weather in 2013/14 compared with 2012/13).

Figure 1: Actual Emissions, Business as Usual and Reduced Emissions Scenarios



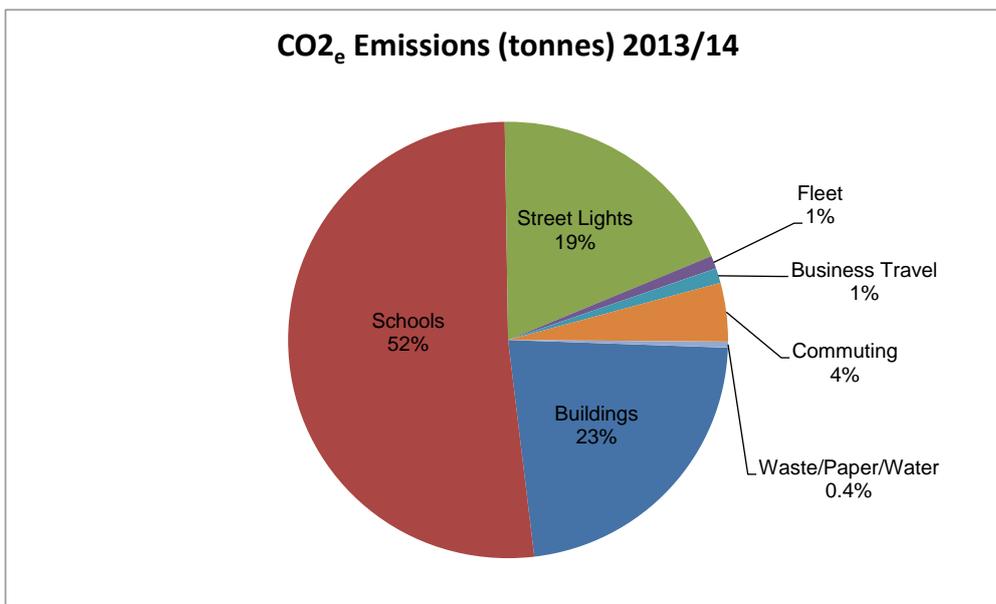
2. Scope of Activity

2.1. Bromley's GHG emissions come from a number of different sites / activities 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
- Water consumption (certain LBB operational buildings)
- Paper consumption (Civic Centre)

2.2. Figure 2 shows all recorded sources of GHG emissions for 2013/14. It can be seen that buildings remain the Council's largest component (75%), with schools (Academies and Maintained schools) being the largest contributor (52%) both overall and within the buildings sector. Street Lighting is the next most significant source (19%) of Council GHG emissions.

Figure 2: Bromley Emissions by Scope of Activity 2013/14



2.3. As illustrated in Table 1, a greater number of sites, energy and water meters, and activities are now being recorded under CMP2, which provides a more complete picture of LBB's environmental impacts. This increase in scope is largely possible due to LBB's use of the online energy management system 'SystemsLink'.

Table 1: Number of monitored meters

	CMP1	CMP2		Increase between CMP2 & CMP1
	2012/13	2012/13	2013/14	
No. of electricity sites	142	212	209	70
No. of electricity meters	244	329	325	85
No. of gas sites	124	155	155	31
No. of gas meters	210	253	252	43
No. of water sites	1	59	52	58
No. of water meters	2	64	52	62

3. Performance Assessment

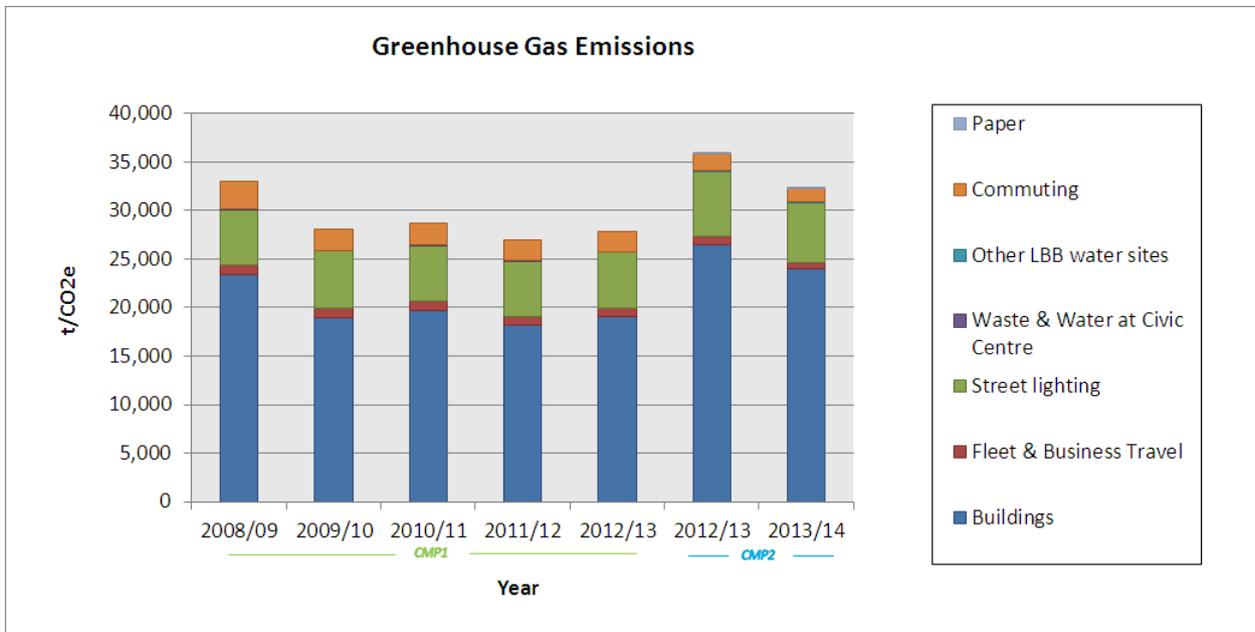
3.1. Table 2 shows annual progress (in tonnage and percentage terms) comparing 2013/14 data with 2012/13 (baseline) performance. Apart from emissions collectively associated with Waste/Water/Paper, emissions from all other activities have significantly (10%) reduced.

Table 2: Annual Change (2012/13 compared with 2013/14)

Scope of Activity	2012/13 Baseline (tCO ₂ e)	2013/14 Year One (tCO ₂ e)	Tonnage change	Percentage change
Buildings (Schools)	18,762	16,706	-2,056	-11%
Street Lighting	6,683	6,132	-552	-8%
Buildings (LBB)	7,742	7,290	-452	-6%
Staff Commuting	1,794	1,402	-392	-22%
Business Travel	388	356	-32	-8%
Fleet	414	310	-104	-25%
Waste/Water/Paper	124	139	15	12%
TOTAL	35,907	32,335	-3,572	-10%

- 3.2. Figure 3 shows performance, in tonnage terms, since the CMP1 baseline year (2006/07). However, CMP1 and CMP2 emissions cannot be directly compared because more sites, meters and activities are recorded under CMP2, resulting in an increase in emissions (compared with CMP1).
- 3.3. A better comparison is to consider 2013/14 data against the new 2012/13 baseline and this shows a significant decrease in energy use and hence emissions of 3,572t CO₂e (10%) during the year.

Figure 3: Carbon Emissions by Activity since CMP1 baseline (2006/07)



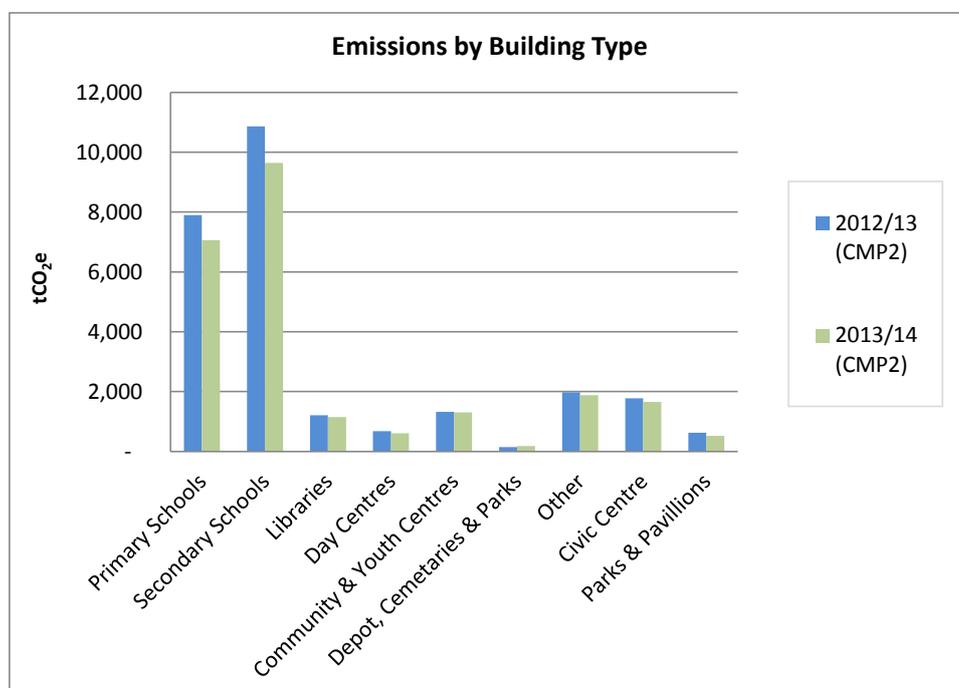
4. Buildings Emissions

4.1. Background: Buildings account for 75% of the Council's 2013/14 footprint and comprise operational property (e.g. Civic Centre, depots and libraries), and schools. Schools comprise the largest element of Bromley's overall emissions (52%), with Council operational property comprising 23%.

4.2. Data acquisition: 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 the LASER Bureau Service (the Council's energy management and procurement service) and this data was converted into CO₂e emissions (using DEFRA's 2013 CO₂e conversion factors¹).

4.3. Commentary: Emissions from buildings decreased by 2,508t (10%) from 26,504t (2012/13) to 23,996 (2013/14). The 10% reduction can be partly attributed to reduced gas consumption (for heating purposes) due to the mild 2013/14 winter compared with the much colder winter of 2012/13.

Figure 4: Carbon Emissions from Buildings



4.4. Building energy efficiency measures/initiatives include:

- Relocation of staff to make better use of office space (Civic Centre)
- North Block lighting (Civic Centre)
- Voltage optimisation (Civic Centre)
- Evaporative cooling of server room (Civic Centre)
- Minor upgrades of BMS system (Civic Centre)
- Variable speed driver and pump at The Walnuts
- Bromley Sustainable School Forum
- Improved data management

¹ Carbon conversion factors: Energy use (electricity, gas, heating oil, or vehicle fuel) is converted into CO₂e using DEFRA's greenhouse gas conversion factors. These factors convert energy (e.g. kWh) into CO₂e (kg): energy used being multiplied by the relevant conversion factor. Factors vary between energy types and reflect their global warming potential. Factors are updated annually reflecting change: e.g. how electricity is generated (national mix of gas, coal, nuclear and renewables) and affects our carbon performance statistics.

5. Street Lighting Emissions

- 5.1. 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.
- 5.2. Data acquisition: Electricity consumption figures from street lighting and street furniture were collected from the energy supplier and converted into CO₂e emissions. It should be noted that in 2013/14 street lighting was an 'unmetered supply' and, therefore, the data was extrapolated from an inventory (e.g. number and condition) and hours of operation.
- 5.3. Commentary: CO₂e emissions from street lighting decreased by 552 tCO₂e (8%) from 6,683 tCO₂e (2012/13) to 6,132 tCO₂e (2013/14). This decrease was due to the conversion of:
- 1,570 SON lamps replaced with LED lanterns (570 Salix project / 1,000 SEELS project)
 - 3,634 lighting columns were replaced during 2013/14 for lanterns fitted with dimmable LEDs (Invest-to-save project)
 - all centre island posts so they are no longer lit 24 hours a day
 - MI26 lanterns to electronic control gear
 - crossing bollards, so they are no longer lit 24 hours a day

6. Commuting Emissions

- 6.1. Background: Commuting is the third largest component of the Council's emissions (after buildings and street lighting). The commuting footprint covers how Council staff travel to work (most of whom are based at the Civic Centre site).
- 6.2. Data acquisition: 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 official CO₂e conversion factor and multiplying the mileage. This is factored up to reflect the carbon impact of the entire Council workforce. The survey is conducted every two years (to minimise survey fatigue) and, therefore, this data is based on the June 2014 staff survey results.
- 6.3. Commentary: Absolute emissions from staff commuting reduced by 392 tCO₂e (22%) from 1,794 tCO₂e (2012/13) to 1,402 tCO₂e (2013/14). The reduction was partly due to a 12% reduction in staff numbers.
- 6.4. However, a more insightful indicator is to compare the average commuting emissions produced per Full Time Employee (FTE). This also reduced from 0.75 tCO₂e/FTE (2012/13) to 0.66 tCO₂e/FTE (2013/14), suggesting more employees walking, cycling, and using public transport to/from work.
- 6.5. A number of initiatives were carried out including:
- Increased cycle locker storage on the Civic Centre site by 55% (28 lockers on site)
 - Revised travel plan content on the intranet
 - Held 'Walk to Work' and 'Cycle to Work' events
 - Free cycling training and maintenance courses advertised to all staff
 - 'Dr Bike' bike marking and cycling information events held throughout the year
 - Pool/electric bikes made available to 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).

7. Fleet & Business Travel Emissions

- 7.1. 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.
- 7.2. Data acquisition: Business Travel data is derived from reimbursed car mileage claims collected by Human Resources. Figures are converted into CO₂e 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.
- 7.3. Commentary: Emissions from this sector decreased by 135 tCO₂e (17%) compared with 2012/13.

Fleet emissions decreased by 104 tCO₂e (25%). Carbon reduction initiatives include:

- Continued provision of electric bicycles for staff
- Fleet replacements, improving fuel economy
- Fleet restructuring to improve vehicle use (e.g. moving to smaller vans or reducing numbers)
- Continued driver training to improve fuel efficiency

Business Travel emissions decreased by 32 tCO₂e (8%). 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). Initiatives include:

- Use of three pool cars meaning fewer people use their own cars for business travel.
- Exploring the use of Car Clubs to reduce grey fleet mileage

8. Water, Waste & Paper Emissions

- 8.1. Background: The emissions associated with waste production and paper use at the Civic Centre site, together with water consumption (across 52 sites) is the smallest component to our carbon footprint.
- 8.2. Data acquisition: The tonnage of waste is divided according to the disposal route and then into a carbon figure. Metered water consumption data is converted directly into CO₂e emissions. The number of paper reams is converted into tonnes and then into a carbon emissions figure.
- 8.3. Commentary: Carbon from this sector increased by 15t (13%) compared with 2012/13. Carbon emissions associated with Civic Centre waste management decreased by 7.8% (0.7t), whilst carbon emissions associated with water consumption increased by 19% (11.3t). Carbon emissions associated with paper use increased by 10% (5.3t).

Waste emissions from the Civic Centre have fallen steadily since 2009/10. While the tonnage recycled has remained broadly constant, the recycling rate has risen from 72% to 80% (because total waste has fallen). Incinerated waste tonnages have remained broadly static and the percentage of waste to landfill has fallen from 17% to 9%. This achievement is due to a number of ongoing initiatives including a dedicated website, in-house recycling and on-site compost bins.

Water emissions were previously only recorded for water consumption at the Civic Centre but data is now captured for many more sites. In 2012/13, baseline data was recorded at 59 sites (excluding schools) accounting for 60.2 tCO₂e. In 2013/14, due to site closures such as public toilets, data was recorded at only 52 sites, accounting for 71.3 tCO₂e. Despite a small reduction in the number of sites using water, consumption increased (18%) in 2013/14. Therefore, the Council now records water consumption data on its energy management system to identify demand management opportunities, possible billing errors, leaks, metering issues, and abatement opportunities.

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9. Carbon Management Programme: Progress to Date

- 9.1. 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 tCO₂e) 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.
- 9.2. Table 3 summarises performance for the whole of CMP1 and the first year of CMP2 (2013/14). 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 carbon factors are now used to measure energy consumption and resource use in carbon terms
 - Electricity emissions are now sub-divided into 'generation' and 'transmission/distribution' losses
- 9.3. These changes required CMP1 2012/13 data to be recalculated to provide a new baseline for CMP2.
- 9.4. A better assessment is to compare 2013/14 performance with the CMP2 (2012/13) baseline. This shows that in 2013/14, emissions fell by 3,572t CO₂e (10%) compared with 2012/13. The Council's 'carbon intensity' (the amount of carbon emitted relative to Council expenditure) decreased by 16% during 2013/14 – showing the Council is becoming more efficient in its use of resources and reducing its environmental impacts.

Table 3: 2013/14 Progress against 2012/13 baseline (and historic reference to CMP1 reporting years)

Sector	CMP1 2008/09 – 2012/13							CMP2 2012/13 – 2017/18		Annual Progress	
	2006/07 (tCO ₂ e)	2007/08 (tCO ₂ e)	2008/09 (tCO ₂ e)	2009/10 (tCO ₂ e)	2010/11 (tCO ₂ e)	2011/12 (tCO ₂ e)	2012/13 (tCO ₂ e)	2012/13 (tCO ₂ e)	2013/14 (tCO ₂ e)	2012/13 (tCO ₂ e)	2013/14 (tCO ₂ e)
	Baseline Year	Preparatory Year	First Year	Second Year	Third Year	Fourth Year	Fifth Year	Baseline Year	First Year	Tonnage Change	Percentage Change
Buildings	28,610	29,260	28,329	23,186	23,648	22,448	23,811	26,504	23,996	-2,508	-10%
<i>Buildings – Council</i>	5,688	5,275	5,317	4,887	5,150	4,462	4,408	7,742	7,290	-453	-6%
<i>Buildings – Schools</i>	17,216	18,160	18,049	14,025	14,486	13,695	14,684	18,762	16,706	-2,056	-11%
<i>Buildings – Mytime</i>	5,706	5,825	4,963	4,274	4,011	4,291	4,719	-	-	-	-
Fleet / Business Travel	1,001	997	971	1,042	991	917	827	802	666	-136	-17%
Street Lighting	5,791	5,908	5,729	5,841	5,769	5,699	5,790	6,683	6,132	-551	-8%
Waste/Water/Paper	104	97	56	56	48	50	48	124	139	15	13%
Commuting	2,274	2,002	2,002	2,189	2,189	2,029	2,029	1,794	1,402	-392	-22%
TOTAL	37,780	38,264	37,087	32,314	32,645	31,143	32,505	35,907	32,335	-3,572	-10%

10. Emissions from Local Authority own Estate and Operations

10.1. 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. DECC 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

10.2. Reporting Scope 1 and Scope 2 emissions is recommended, but Scope 3 emissions reporting is discretionary. The organisational boundary of the GHG Report is something for each Local Authority to decide.

10.3. Table 4 (below) splits LB Bromley's (CMP2) 2012/13 and 2013/14 GHG emissions data (see Table 2) according to scope:

Table 4: 'Emissions from local authority own estate and operations' (Former NI 185)

	GHG emissions: 2012/13 tCO₂e	GHG emissions: 2013/14 tCO₂e
Scope 1		
Fossil Fuel consumption (Gas and Oil)	12,976	11,186
Owned transport ('Green Fleet')	413	310
Total scope 1	13,389	11,496
Scope 2		
Purchased electricity (inc. Street Lighting)	18732	17,450
Total scope 2	18,732	17,450
Scope 3		
Business travel ('Grey Fleet')	388	356
Employee commuting	1,794	1,402
Electricity (transmission & distribution losses)	1,480	1,492
Waste (Civic Centre only)	9	8
Water	60	71
Paper	54	59
Total significant scope 3	3,786	3,389
TOTAL (all scopes)	35,907	32,335