



GUILD F O R D
B O R O U G H

Greenhouse Gas (GHG) Emissions Report 2013-14

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Purpose of the report

This report presents a summary of the greenhouse gas emissions (GHGs) resulting from the operations of Guildford Borough Council during 2013-14. It fulfils the requirements of the Department of Communities and Local Government, DCLG and Department of Energy and Climate Change (DECC) for local authorities to report on GHGs.

Background

Guildford Borough Council is part of a two-tier authority in the county of Surrey. Surrey County Council is the County authority and Guildford is one of 11 district and borough councils. The area of the borough is 27,093 hectares with a population of 137,183 residents¹. It is a prosperous borough with the population equally split between urban and countryside areas. Guildford Borough Council's main areas of responsibility are council tax, housing, parks, sports, arts, planning, environmental health, waste and recycling collection and street cleaning.

This report uses new GHG conversion factors provided by the Department for Environment, Food and Rural Affairs (DEFRA). A change in DEFRA reporting guidelines has led to the re-baselining of our data including our baseline year 2008/09. Previously quoted emissions have therefore changed and the new official factors will be applied on a year by year basis.

Reporting period and scope

The reporting period is 1 April 2013 to 31 March 2014.

The scope of the emissions reported here are those generated by the operations of Guildford Borough Council.

Approach and methodology

Guildford Borough Council is subject to the Carbon Reduction Commitment Energy Efficiency Scheme (CRC) and in 2013-14 we purchased 8,379 carbon allowances to cover our CRC emissions. This CRC data has been externally audited.

The GHG data in this report is based on the audited CRC emissions, in addition to the fuels and domestic emissions which are excluded from CRC. The methodology used is in accordance with the "Environmental Reporting Guidelines" June 2013².

The main types of emissions sources in three categories known as 'scopes'. These are defined as:

Scope 1 (Direct emissions): Emissions from activities owned or controlled by your organisation that release emissions into the atmosphere. They are direct emissions. Examples of scope 1 emissions include emissions from combustion in owned or controlled boilers, furnaces, vehicles; emissions from chemical production in owned or controlled process equipment.

Scope 2 (Energy indirect): Emissions released into the atmosphere associated with your consumption of purchased electricity, heat, steam and cooling. These are indirect emissions that are a consequence of your organisation's activities but which occur at sources you do not own or control.

Scope 3 (Other indirect): Emissions that are a consequence of your actions, which occur at sources which you do not own or control and which are not classed as scope 2 emissions. Examples of scope 3 emissions are business travel by means not owned or controlled by your organisation, waste disposal which is not owned or controlled, or purchased materials or fuels.

This report covers all scope 1 and scope 2 emissions. As part of our ongoing improvement in energy monitoring and reduction, we have re-baselined and added biomass emissions and refrigerant to scope 1. Scope 3 emissions were not previously collected but we are now adding these to our data monitoring. As part of the re-baselining exercise transmission emissions for electricity and other fuels have also been added to scope 3 emissions along with water, waste and business travel.

Emissions	Tonnes CO ₂ ^e		
	Reporting Year	Previous Year	Baseline Year
	Apr 2013 – Mar 2014	Apr 2012 – Mar 2013	Apr 2008 – Mar 2009
Scope 1 - Direct Emissions	5018	5064	5829
Natural Gas	3340	3363	4161
Transport Fuels (operational)	1678	1701	1668
Biomass	< 1	< 1	0
Refrigerant	< 1	Not Available	Not Available
Scope 2 – Electricity Emissions	6771	6219	8355
Scope 3 – Indirect Emissions	1549	1322	1510
Gas – transmission emissions	448	348	363
Fuels – transmission emissions	370	379	319
Electricity – transmission	592	532	602
Biomass - transmission	1	0	Not Installed
Water	58	63	115
Business Travel by car	67	Not Available	111
Business Travel by Train	< 1	Not Available	Not Available
Business Travel by Underground	< 1	Not Available	Not Available
Waste from Council operations	13	Not Available	Not Available
Total Gross Emissions	13,338	12,605	15,694
Carbon offsets			
Hydro generated and exported	87	79	118
Total Net Emissions	13,251	12,526	15,576
Renewable/CHP CO₂ avoided			
Generated & consumed (CHP)	207	186	375
Biomass CO ₂ offset	6	5	0
Generated & consumed (PV)	40	9	Not fitted
Degree Days at 15.5 °C (an indicator of heat demand)	1941.9	2329.5	2016.8

Guildford Borough Council committed to an ambitious Carbon Management Plan in 2009 with a 43% carbon dioxide emissions reduction target by 2020 and with an interim target of 34% by 2015. Both targets are measured against the 2008-09 financial year as a baseline.

Summary of Greenhouse gas emissions for Guildford Borough Council

Scope 1 emissions include 100 per cent of our gas, diesel, unleaded petrol and heating oil consumption, for heating and transport vehicles operated by the Council. Refrigerant from air conditioning units has now been added to our data collection but none have required topping up in this reporting period.

Scope 2 emissions consist of 100 per cent of our electricity consumption. This is mainly used for lighting, heating, pumps. Emissions from electricity are low for 2012-13 as the official CO₂ conversion factor fell from 0.49472 in 2012 to 0.44548 in 2013 then rose again to 0.49426 for the current reporting year.

Business travel is included in scope 3 except that under the direct control of the council which is included in transport fuels in scope 1.

Scope 1 and 2 data includes emissions from both Spectrum leisure centre and the public Lido, both significant users of electricity and gas.

Additional scope 3 emissions this year include all metered water supplies, business travel by public transport and car, fuels, gas, waste and transmission emissions from the supply of electricity gas, transport fuels and biomass. Water use excludes water used at Spectrum, our flagship sports centre, and our public Lido which are now contracted out to be run by Freedom Leisure, a charity who arrange water supply directly. It also excludes those sites charged on a rateable value basis which are small, have little impact and for which data is not available.

Business travel is the use of private cars for business. Factors used have relied on the fuel type and engine size. For fuels, gas, biomass and electricity, standard factors have been used. Rail travel has relied on a distance calculator and an average 7 mile tube journey. For waste, we have used weekly average bin collections and average bin weights. For recycling, we recycle 52% of waste collected, our current overall Borough recycling percentage. Unrecycled waste is passed to Surrey County Council for disposal.

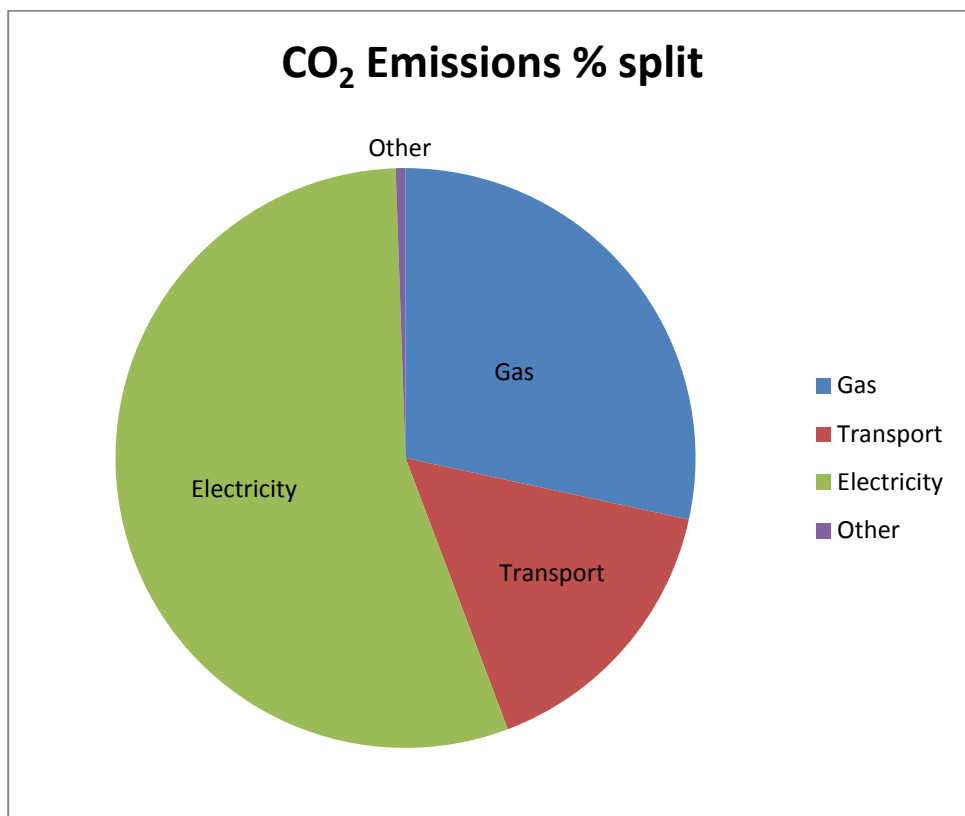
Scope 3 emissions have increased due to a transmission factor for gas, appearing much higher than last quoted in official guidance, 0.01914 in 2011 and 0.02483 in 2014.

All conversion factors used have been sourced through official 2014 carbon factors³. Carbon offsets relate to electricity produced on site and exported to the grid rather than consumed on site, most notably our hydro-electric plant at Millmead.

All our main sites are half-hourly metered using HH (Half Hourly) or AMR (Automated Meter Reading) meters. They were installed starting in the summer of 2011 and finished in February 2013. This has improved the quality of the data collected over the last two years. The remainder is primarily energy used for communal areas in social housing for which we rely on invoice data.

Ignoring new reporting groups and therefore concentrating on a direct comparison, we have achieved a 17% reduction from the baseline year. This is in part due to reductions in emission factors and the warmer winter, but energy efficiency project savings are now delivering significant savings also.

The graph below shows our current split of total GHG emissions by use.



Trends in 2013-14 greenhouse gas emissions

Guildford Borough Council is increasing its generation of electricity from renewable sources, some of which we consume ourselves, and some of which we export to the grid. We have accounted for the power exported to the grid by showing it as an offset in the table. Power that is both generated and consumed by us is reflected in a reduced CO₂^e figure associated with electricity in the table above. The calculations for the carbon offsets have been generated from the factors relating to the energy they replace, quoted in the conversion factors for the corresponding year.

Emissions for the period 2013-14 have risen as a result of the higher official emission conversion factors for electricity. Where we have gained in energy efficiency we have lost in respect of the higher carbon intensity in the electricity fuel mix which is outside of our control.

Guildford Borough Council's Carbon Management Programme

We have been implementing energy efficiency measures under this programme since 2008. The programme is ongoing but progress to date includes:-

- combined heat and power
- solar photovoltaic (PV) electricity generation
- biomass heating systems
- variable speed drive (VSD) motors
- LED lighting
- car park lighting efficiency upgrades
- building management system (BMS) controls on many heating, ventilation and air conditioning (HVAC) systems
- voltage optimisation
- valve cover insulation
- equipment controls and timers
- gas boiler replacement programme
- radiator and emersion thermostatic and timer controls
- motion sensor controls
- automatic meter readers (AMRs) and energy monitoring system
- server virtualisation

We estimate these measures have saved a total of 1,430 tonnes CO₂ during this reporting period 2013-14.

For energy efficiency in the community please see our Home Energy conservation (HECA) report at <http://www.guildford.gov.uk/article/11199/Home-Energy-Conservation-HECA-reports>

¹ <http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=6275113&c=guildford&d=13&e=61&q=6468425&i=1001x1003x1032x1004&m=0&r=1&s=1405085328409&enc=1&dsFamilyId=2491&nsjs=true&nsck=false&nssvg=false&nswid=1676>

² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206392/pb13944-env-reporting-guidance.pdf

³ <http://www.ukconversionfactorscarbonsmart.co.uk/>