



GUILD FORD
B O R O U G H

Greenhouse Gas (GHG) Emissions Report 2014-15

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Purpose of the report

This report presents a summary of the greenhouse gas emissions (GHG) resulting from the operations of Guildford Borough Council during 2014-15. It fulfils the requirements of the Department for Communities and Local Government (DCLG) and Department of Energy and Climate Change (DECC) for local authorities to report on greenhouse gas emissions.

Background

Guildford Borough Council is a local council 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 but includes two of the poorest areas in Surrey. The population is equally split between urban and countryside areas. Guildford Borough Council's main areas of responsibility include council tax, housing, parks, sports, arts, planning, environmental health, waste and recycling collection and street cleaning.

This report uses the 2015 GHG conversion factors provided by the Department for Environment, Food and Rural Affairs (DEFRA). Data was re-baselined in our 2013-14 report to take account of new emission conversion methodologies, as requested in the Government's environmental reporting guidelines. Including the re-baselining, each year's emissions factors have been applied.

Guildford Borough Council committed to an ambitious Carbon Management Programme 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. The Carbon Management Programme has driven significant energy saving and energy generation activity since its development, but at the same time the Council has undertaken new initiatives, services and building uses, all of which have led to additional demand for energy.

Reporting period and scope

The reporting period is 1 April 2014 to 31 March 2015. The scope of the emissions reported here are those generated by the operations of Guildford Borough Council. It includes scope 1 and 2 emissions and an increasing proportion of our scope 3 emissions.

Approach and methodology

Guildford Borough Council is subject to the Carbon Reduction Commitment Energy Efficiency Scheme (CRC) and in 2014-15 we surrendered 8,228 carbon allowances to cover our CRC emissions.

The GHG data in this report is reported in conjunction with CRC emissions, but this report includes the fuel types, domestic emissions and transport emissions which are excluded from CRC. The methodology used is in accordance with the "Environmental Reporting Guidelines" June 2013². All factors have come from DEFRA'S conversion factors³.

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.

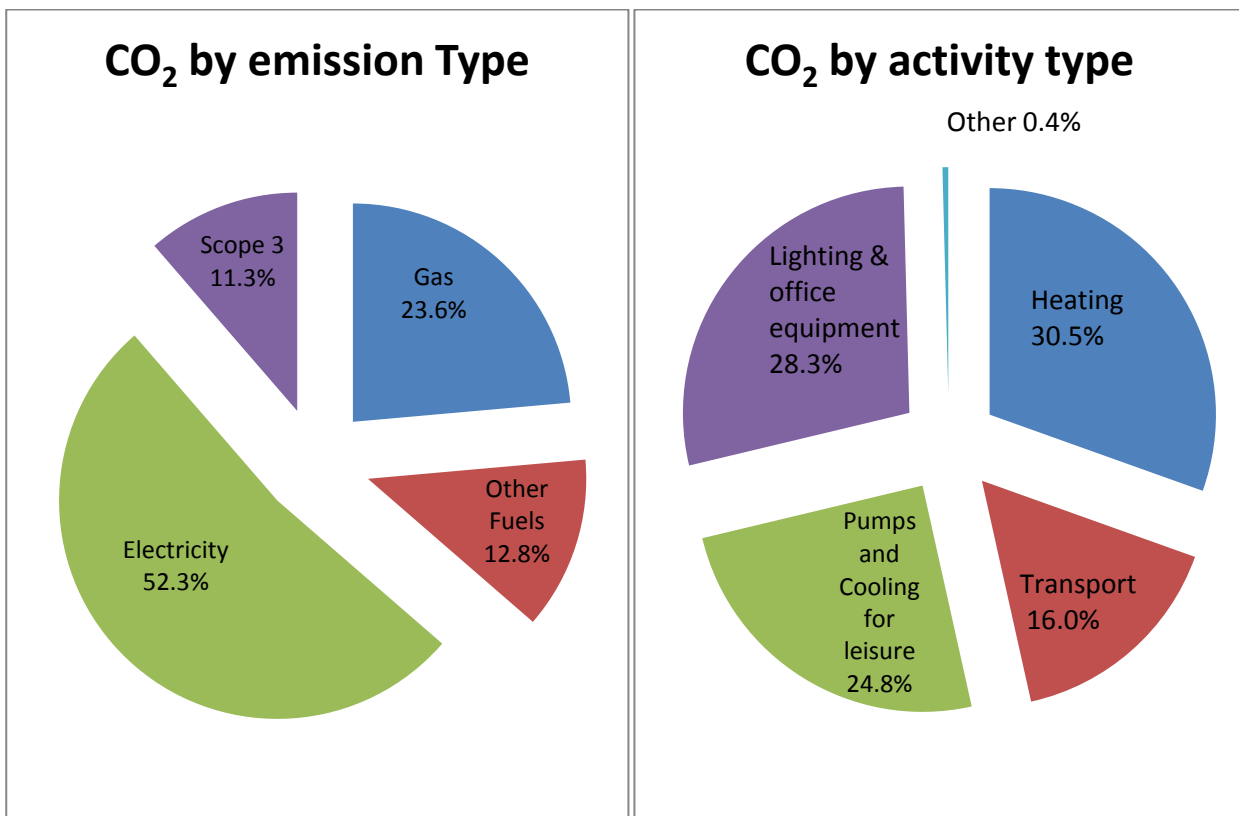
This report covers all scope 1 and scope 2 emissions. As part of our ongoing improvement in energy monitoring and reduction, we are constantly updating our Scope 3 emissions and improving the information on the sources we include.

Summary of Greenhouse gas emissions for Guildford Borough Council

During 2014-15 our direct operational (Scope 1 and 2) emissions have reduced from 14,184 tonnes CO₂ to 11,469 tonnes CO₂ since the baseline year 2008-9, a 19.1% reduction. The full data table which includes scope 3 emissions is presented at the end of this report.

The aggregate of scope 1 and 2 emissions is the best comparison possible to measure our progress in reducing our greenhouse gas emissions. A 19.1% reduction is disappointing in relation to our interim 34% target, but this doesn't take into account the growth in activities of the Council since the baseline period. Analysis in the next section of this report takes these additional activities into account and presents the overall reduction in the light of a reasonable estimation of the growth in the baseline.

The graphs below shows our current split of total GHG emissions by fuel type and by activity type.



Analysis and trends in 2014-15 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 data table at the end of this report. 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.

Guildford Borough Council has a carbon management programme which enables us to manage our emissions and drive energy saving initiatives.

Analysis of our data shows that our scope 1 and 2 emissions have reduced by 19.1% since the 2008-9 baseline period. Further analysis shows that our baseline would have grown by 5% as a result of significant new activities undertaken since 2008-9. These include:-

1. Winter use of the Lido has increased its consumption by 24%.
2. More agencies working in the Millmead site, some working 24 hours, has increased Millmead consumption by an estimated 4%.
3. Installing new cremators and mercury abatement technology has increased the baseline of crematorium consumption by an estimated 4%.

Against this new baseline our energy efficiency and energy reduction measures have, in effect, resulted in a reduction in our greenhouse gas emissions of 24%. Our analysis shows the following technologies and initiatives have contributed to this saving:-

1. Variable speed motor drives saved 27% of Spectrum's electricity consumption.
2. New LED lighting saved Bedford Road car park 40% of its electricity consumption.
3. The installation of solar panels has saved 7% of the electricity consumption at St Martin's Court and 6% at Dray Court.
4. New efficient gas boilers saved 18% of the gas consumption at the Lido.

Many other smaller projects have contributed to our overall carbon reduction achievement, and we have a pipeline of projects to continue the progress already made.

During 2014-15 we mapped the whole borough to identify those locations suitable for renewable energy development, and those where constraints exist. The [renewables mapping report](#) was published at the beginning of 2015 and will now be used to direct our renewable energy developments in support of our 2019-20 carbon reduction target.

During 2015-16 our Carbon Management Programme will be refreshed to plot the path, through energy efficiency and renewable energy developments, to our 2019-20 carbon reduction target.

Full Data table for Greenhouse gas emissions for Guildford Borough Council 2014-15

Emissions	Tonnes CO ₂ ^e		
	Reporting Year	Previous Year	Baseline Year
	Apr 2014 – Mar 2015	Apr 2013 – Mar 2014	Apr 2008 – Mar 2009
Scope 1 - Direct Emissions	4706	5018	5829
Natural Gas	3053	3340	4161
Transport Fuels (operational)	1653	1678	1668
Biomass	<1	< 1	0
Refrigerant	<1	< 1	Not Available
Scope 2 – Electricity Emissions	6763	6771	8355
Total Scope 1 & 2 Emissions	11,469	11,789	14,184
Scope 3 – Indirect Emissions	1469	1551	1510
Gas – transmission emissions	410	448	363
Fuels – transmission emissions	364.8	370	319
Electricity – transmission	591	592	602
Biomass - transmission	<1	1	Not Installed
Water	52.4	58	115
Business Travel by car	47	67	111
Business Travel by Train	1.88	< 1	Not Available
Business Travel by Underground	<1	< 1	Not Available
Waste from Council operations	8.5	13	Not Available
Recycling from Council operations	2.8	Not Available	Not Available
Total Gross Emissions	12,949	13,340	15,694
Carbon offset			
Hydro generated and exported	56	87	118
Total Net Emissions	12,893	13,253	15,576
Renewable/CHP CO₂ avoided			
Generated & consumed (CHP)	93	207	375
Biomass CO ₂ offset	2.8	6	0
Generated & consumed (PV)	37	40	Not fitted
Degree Days at 15.5 °C (an indicator of heat demand)	1885.7	1941.9	2016.8
Conversion Factors used above			
Electricity (per kWh)	0.49426	0.49426	0.5430
Gas (per kWh)	0.184973	0.184973	0.2060
Diesel (per litre)	2.6024	2.6024	2.5835

Notes on emissions

Scope 1 emissions include 100% of our gas, diesel, unleaded petrol, kerosene and gas oil consumption, for heating and transport vehicles operated by the Council. Refrigerant is included in our data collection but no equipment requiring refrigerant has required topping up in this reporting period.

Scope 2 emissions consist of 100% of our electricity consumption. This is mainly used for lighting, heating, pumps. Emissions from electricity are the same as the last reporting year.

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

Scope 3 emissions 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 Spectrum, the Lido and the Ash Manor Fitness Centre all of which are contracted out to be run by Freedom Leisure 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 trains and private cars for business activities. It does not include commuting from home to work by employees. Factors used have relied on the fuel type and engine size for cars. 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. Waste has been split by waste and recycling this year. This, however, omits three sites getting one collection of sacks of recycling per week, separate cardboard collections from eight sites and two sites having waste collected in sacks, for which no data is available. Un-recycled waste is passed to Surrey County Council for disposal.

All conversion factors used have been sourced through official 2015 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 between 2011 and 2013. This has improved the quality of 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.

References

¹ <http://www.neighbourhood.statistics.gov.uk/dissemination/LeadTableView.do?a=3&b=6275113&c=guildford&d=13&e=61&g=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/>

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>

The Renewables mapping report can be found at:-
<http://www.guildford.gov.uk/article/14418/Guildford-Renewable-Energy-Mapping-Study>

Sustainability in Guildford homepage:-

www.guildford.gov.uk/sustainability