

Greenhouse gas emissions from the estate and operational activities of Surrey County Council

Reporting period: 2017/18

**Contact: Bronwen Chinien, Environment and Sustainability Principal Officer
Published: August 2018**



SURREY

1. Introduction

1.1 Purpose of report

This report satisfies the requirement of local authorities to measure and report their greenhouse gas emissions, as set out by the Department for Communities and Local Government on the Single Data List.

1.2 Quality assurance statement

The Internal Auditor has reviewed the information contained within this report and the accompanying narrative. The Internal Auditor has conducted an assessment of the reasonableness of the data being reported and the key controls over the capture of this data.

The Internal Auditor also took account of the findings of the work of an external audit of SCC's responsibilities under the Carbon Reduction Commitment (CRC) scheme.

Any minor errors in the report that were identified have been corrected.

The Internal Auditor notes the report's authors have indicated where the data used in this report may not be fully complete and on this basis, the Auditor does not need to draw the readers' attention to any significant matters within the report. Minor recommendations have been made to the authors on improving the quality of disclosure in similar future reports.

1.3 Company information

Surrey County Council is the upper-tier authority for Surrey. Alongside the County Council, there are 11 district and borough authorities. Surrey is the most densely populated of all the South East shire counties, but at the same time 80% of the area is designated green belt. Surrey County Council's main areas of responsibility are social care, public health, education, libraries, fire and rescue services, transport and highways, Trading Standards and waste disposal.

1.4 Reporting period

1st April 2017 to 31st March 2018

1.5 Approach and methodology

The methodology followed is in accordance with the central government guidance on measuring and reporting greenhouse gas emissions (GHG)¹. We use the standard UK conversion factors for the relevant reporting period, i.e. 2017² in units of tonnes of carbon dioxide (CO₂) equivalent (CO₂^e). Carbon dioxide is the main, but not the only greenhouse gas emitted by council operations. Burning fossil fuels also releases other gases, including methane (CH₄) and nitrous oxide (N₂O) and air conditioning units leak hydro fluorocarbons. All these are greenhouse gases.

The reporting guidance identifies the main types of emission sources in three categories known as 'scopes'. These are defined as:

¹ [Environmental Reporting Guidance: Including Mandatory GHG Reporting Guidance 2013. We follow the methodology except that we present 'weather corrected' results for a more like for like comparison with the past. However, our headline result in table 4.1 is not 'weather corrected'.](#)

² [DEFRA Carbon Factors](#)

- Scope 1: direct emissions from fuel combustion, such as boilers for heating buildings, transport fuel used by owned or directly leased vehicles and ‘fugitive emissions’³.
- Scope 2: indirect emissions from the consumption of purchased electricity i.e. from power stations, and heat generated off site i.e. district heating.
- Scope 3: indirect emissions from the transmissions and distribution of electricity and from many other activities, including products and outsourced services which are bought on behalf of the council. For most organisations, these are the largest area of emissions, but are acknowledged as the most difficult to measure.

Reporting of scope 1 and 2 emissions is recommended as ‘essential’ by the guidance. Scope 3 reporting is discretionary, but desirable.

2. Scope of reporting

2.1 Scope definition

Our scope of reporting is based on our financial boundary i.e. ‘things we spend money on’. We then consider which of the three emissions scopes the activities fall under and the time involved in data collection. Our scope of reporting for 2017/18 is given in Table 1. We report on the majority of our Scope 1 and 2 areas (taking account of time efficiency,) and a minority of Scope 3 emissions.

We compared this scope with other Authorities and whilst there are many variations between different authorities, our reporting is in line with the core scope of other authorities.

³ Some equipment, such as fridges and air conditioning units, not only use energy, but also contain chemicals which are greenhouse gases such as hydrofluorocarbons. A degree of leakage “fugitive emissions” is inevitable, but good equipment maintenance can reduce this problem.

Table 1: Full scope and declaration of reported emissions areas

Council activity giving rise to significant carbon emissions	Scope category	Reported in 2017/18
Premises*energy consumption (oil, gas, electricity)	1, 2, 3	Yes
Premises* fugitive emissions (air conditioning leaks)	1	Yes
Premises* water consumption (carbon footprint of water)	3	No
Premises* maintenance supply chain	3	No
Waste from premises recycled or sent to landfill	3	No
Staff business travel	3	Yes
Purchase of administrative goods (IT, stationery etc)	3	No
IT systems maintenance vehicles	1	Yes
Residential and day care - outsourced services	3	No
Transport of clients: adults, social care and children inc SEN	1, 3	Scope 1 only
Children with disabilities agency placements	3	No
Fire and Rescue vehicles	1	Yes
Waste recycled, composted or sent to landfill	3	No
Premises emissions from waste management sites	3	No
Waste vehicles for food waste	3	No
Community Highways officer vehicles	1	Yes
Highways maintenance	3	No
Street lighting, traffic lights, signs and bollards	2	Yes
Public transport subsidised network contracts	3	No
Bridge strengthening works	3	No

* Our premises include all community, voluntary controlled and foundation schools (those included in our maintenance programme), offices, libraries, day care centres, fire stations, youth centres and Adult and Community Learning Centres. Surrey Choices, Local Authority Trading Company, delivering day services and community support, is included within the Council's activities.

2.2 Non-reported areas

All significant scope 1 and 2 emissions have been reported, except:

- a small number of buildings' fuel and electricity consumption, where we pay for utilities at a standard rate and do not know the amount of consumption
- fugitive emissions from fridges, because we do not have a complete register of this equipment across all buildings.

3. Targets for emissions reduction

3.1 Targets in Carbon and Energy Policy 2015 to 2019⁴

Surrey County Council set a target to reduce carbon emissions from our buildings, street lighting, fleet vehicles and staff business travel, by 10% over a five year period, our baseline being 2013/14.

⁴ Carbon and Energy Policy 2015 to 2019

4. Results

4.1 Headline result for 2017/18

The total net GHG emissions from our own operations in 2017/18 were 41,828 tonnes CO₂^e.

Table 2: Breakdown of greenhouse gas emissions

Reporting period 2017/18	Units	Amount consumed	Greenhouse gas emissions (tonnes CO ₂ ^e)
Scope 1			
Oil boilers ¹	kwh	2,140,845	591
Gas boilers ¹	kwh	74,526,497	13,725
Wood boilers	tonnes	67	0
Diesel	litres	358,416	932
Petrol	litres	3,492	8
Fugitive emissions ²	kg charge	159,357	159
Scope 2			
Premises electricity	kwh	35,033,580	12,316
Street lighting and other highways electricity	kwh	27,091,075	9,524
Scope 3			
Staff and member business travel ³	miles ³	8,700,649	2,531
T&D of premises electricity ⁴	kwh	35,033,580	1,152
T&D of streetlighting and other highways electricity ⁴	kwh	27,091,075	890
Total gross emissions			41,828
Carbon Offsets ⁵	kwh	n/a	n/a
Green tariff ⁶	kwh	n/a	n/a
Total net emissions			41,828
Intensity measurements⁷			
Tonnes of CO ₂ ^e per resident of Surrey			0.046

Data explanations (footnote references)

- Oil and Gas:** Not weather corrected compared to 2013/14 baseline year. See Table 3 for weather corrected result.
- Fugitive Emissions:** Emissions resulting for greenhouse gas emissions from air conditioning units are calculated on basis of an average 3% leakage rate.
- Business travel:** staff and members' car and motorcycle journeys including staff owned and car club vehicles. Train and bus travel not included.
- Transmission & Distribution of electricity:** the carbon footprint of electricity consumption is split between Scope 2 and Scope 3, with the proportion of energy losses that occur in delivering the electricity from power plant to the organisations that purchase it being reported as scope 3 rather than scope 2.
- Carbon offsets:** We have reported on the contribution of on-site renewable energy generation that we consider as carbon offsets through our export of renewable energy to the national grid.
- Green tariff:** n/a
- Intensity measurement:** We are required to define a result using an 'intensity measurement', which is a ratio of GHG impact per unit of activity or other business metric. We have selected CO₂e emissions per resident.

4.2 Results, by scope of emissions and correcting for weather

After weather correction, net emissions were 41,034 tonnes CO₂^e.

This equates to a 25% (13,886 tonnes) decrease in emissions compared to a baseline year of 2013/14. This comparison takes into account major influencing factors which are the loss of schools from the estate due to academy conversions and the impact of annual weather variations. 2017/18 was 7.2% colder than the baseline year, therefore weather adjusted consumption and emissions are lower than the actual result.

By scope, on a like for like basis accounting from weather correction vs 2013/14, the changes were:

- Scope 1 emissions decreased by 19.0%
- Scope 2 emissions decreased by 29.9%
- Scope 3 emissions decreased by 20.1%
- Overall, all scopes decreased by 25%

Table 3: Summary of greenhouse gas emissions for Surrey County Council

Emissions scope	tonnes CO ₂ ^e		
	2013/14 Actual	2017/18 Actual	2017/18 Weather corrected
Scope 1: Purchased fuel	18,046	15,415	14,620
Scope 2 Purchased electricity	31,159	21,841	21,841
Scope 3: Indirect emissions	5,721	4,573	4,573
Total gross emissions	54,927	41,828	41,034
Carbon offsets	-7	n/a	n/a
Green tariff	0	0	0
Total net emissions	54,920	41,828	41,034
Emission per resident of Surrey	0.054	0.046	0.046

4.3 Commentary

The changes compared to the baseline year (2013/14) are due to a number of factors. Some factors are within our control and others not:

4.3.4 Carbon emissions factors

The UK electricity factor changes from year to year as the fuel mix consumed for power generation and the proportion of net imported electricity changes. Generally there is a trend towards reduced emissions per unit of electricity. This significantly and positively influences emissions for the council and all other organisations.

4.3.1 Buildings portfolio

Some changes in the Council's buildings portfolio are already accounted for, such as schools converting to Academy status. However, it is not feasible to account for all changes, which on a cumulative basis, may have an impact.

The Council shares office space with boroughs and district councils. Emissions from SCC operations occurring in partner buildings are not taken into account in our reporting, and are instead generally included in the reporting of other authorities. Similarly partners located in county council offices are not adjusted for in our report.

The council is undergoing a programme of care home closures. Upon the completion of this programme, an appropriate adjustment will be made, but until then the reduced usage is appearing as a reduction in energy consumption.

Changes in location of staff, relative to the users of their services can also influence business mileage and personal, in addition to other factors.

4.3.3. Fluctuation in demands on services

Changes in opening hours of schools and other council buildings influence demand. Whilst there are clear benefits to the public, the energy demand can increase and needs to be managed e.g. installation and use of zoning in heating systems.

5. Energy and Carbon management activities

During 2017-18, the following energy and carbon saving projects were undertaken.

- New LED lighting has been replaced or retrofitted, heating controls have been improved and Building Management Systems (BMS) have been upgraded. Check metering is being installed into large corporate sites to provide better monitoring of energy usage.
- Sites are now benefiting from new BMS controls at Quadrant Court as well as Surrey History Centre whilst a project at the Secondary Data Centre is currently underway. Check metering systems have been approved for installation at County Hall and Consort House.
- Combined Heat and Power units have been fitted at a Fire Station and residential home. CHPs provide on-site electricity generation and heat and

therefore avoid the inefficiency of transmission and distribution energy losses⁵.

- The Orbis Energy Team have continued to support schools in energy management by undertaking energy audits for sites engaged with the Ashden LESS CO2 programme and further assist schools with undertaking LED lighting projects from the Government funded Salix finance option from inception to completion. The team also works with schools to raise energy awareness within their buildings, promote energy champions and run campaigns. When requested, the team support and advise the projects team on suitable energy efficient options for building services.

In 2018/19 and beyond, as set out in Carbon & Energy Plan 2015-19, we will continue to:

- promote energy efficiency awareness to staff
- improve energy efficiency of our operations through efficient building operation and where possible through essential maintenance works
- consider financing options involving zero financial borrowing
- continue to review and implement policies/initiatives to support the reduction in cost and carbon emissions from business mileage.
- support schools in energy management

Report author: James Greene, Planning Officer, Highways, Environment and Infrastructure Directorate

Approved by: Bronwen Chinien, Principal Environment and Sustainability Officer, Highways, Environment and Infrastructure Directorate

Contributors: Dion D'Silva, Ollie Catchpole, Kenneth Giles, Glen Bolton, Nick Layton, Richard Peplow, Rory Coulter, Adrian Powici

Audited by: Richard Abigail

⁵ The contribution of this project to reduced carbon emissions will be accounted for in next year's report, by only reporting Scope 2 (but note Scope 3) emissions for CHP generated electricity.