



**Tunbridge Wells Borough Council**  
**Greenhouse gas emissions report 2013-14**

## 1.0 Summary

This report presents an account of the greenhouse gas emissions associated with the activities of Tunbridge Wells Borough Council. It draws on data that the council is already collating and monitoring as part of its carbon management programme. The data reported here relates to the reporting period 1<sup>st</sup> April 2013 to 31<sup>st</sup> March 2014.

The report has been compiled in response to the request from the Department of Energy and Climate Change (DECC) to publish the greenhouse gas (GHG) emissions from our own estate and operations. Publishing an annual greenhouse gas emissions report aims to improve the sharing of information and embed accountability for local authorities' own carbon emissions at a local level.

In this report we have included direct emissions from gas and fuel consumption in council owned and operated buildings and vehicles (classified as scope 1), and indirect emissions from the consumption of purchased electricity (scope 2). Fugitive emissions, from air conditioning and refrigeration leaks are not reported. Wherever possible, we have also reported our scope 3 indirect emissions, relating to business travel.

The data presented shows an overall reduction in greenhouse gas emissions from the baseline (2009/10) of 4.2 per cent.

Overall emissions have decreased from the previous year, with the most significant reduction in scope 2 emissions associated with electricity consumption. Business mileage related emissions are below the baseline level but have increased from the previous year.

Progress has been made in 2013/14 on a number of major projects which have incorporated energy efficiency and renewable energy technologies. These are expected to deliver energy and cost savings from 2014/15 onwards.

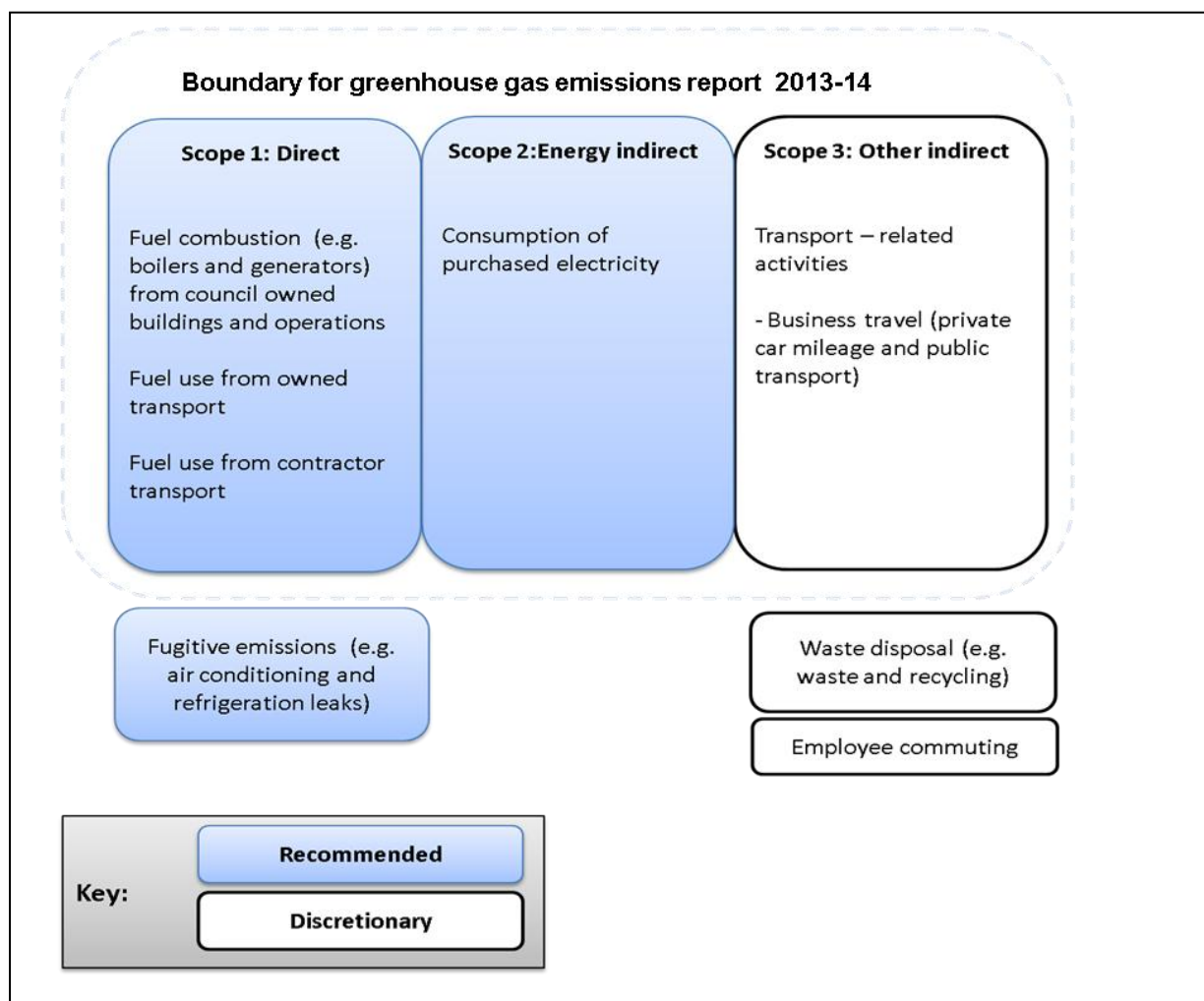
## 2.0 Greenhouse gas emissions from our estate and operations

This report has been compiled with reference to the guidelines published by the Department for Environment, Food and Rural Affairs (Defra) for greenhouse gas emissions reporting<sup>1</sup>. Greenhouse gas emissions from the council’s activities are reported under one of three different ‘scopes’, defined by the GHG protocol depending on their source (see Appendix 1 for definitions).

It is recommended that organisations should aim to report 100% of emissions classified within scopes 1 and 2 (see Figure 1). For this reporting period, only the so-called ‘fugitive emissions’ have not been reported within scope 1. These are likely to account for less than 0.5% of overall scope 1 and 2 emissions. Reporting those emissions sources defined as ‘scope 3’ is discretionary and a decision can be taken as to whether individual emissions sources are significant for the organisation concerned. Where the data is available we have measured and reported our scope 1, 2 and 3 emissions. The datasets we have reported on are illustrated in Figure 1 (below).

Explanatory notes to accompany this report are provided in Appendix 1.

**Figure 1: Main types of greenhouse gas emissions sources reported under each scope**



<sup>1</sup> Environmental Reporting Guidelines, June 2013  
[www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses#reporting-greenhouse-gas-emissions](http://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses#reporting-greenhouse-gas-emissions) .

## 2.1 GHG emissions summary

Table 1 below shows a summary of the greenhouse gas emissions from our own estate and operations for the reporting period 1<sup>st</sup> April 2013-31<sup>st</sup> March 2014. These are reported in tonnes of carbon dioxide equivalents (CO<sub>2</sub>e). The baseline year is 2009/10; this is consistent with the baseline year of our carbon management programme. The current reporting period is shown alongside figures for previous years.

**Table 1: Greenhouse gas emissions data for period 1<sup>st</sup> April 2013 – 31 March 2014.**

	Tonnes CO <sub>2</sub> e					% change from baseline
	2013/14	2012/13	2011/12	2010/11	Base year 2009/10	
<b>Scope 1</b>	2,555	2,566	2,406	2,616	2,508	+ 1.9%
<b>Scope 2</b>	3,149	3,208	3,132	3,322	3,435	-8.3%
<b>Scope 3</b>	343	322	341	361	366	-6.3%
<b>Total gross emissions</b>	6,046	6,096	5,879	6,299	6,309	-4.2%
<b>Green tariff</b>	-	-	-	-	-	
<b>Total annual net emissions</b>	6,046*	6,096	5,879	6,299	6,309	-4.2%
<b>Intensity measure 'Tonnes of CO<sub>2</sub>e per employee'</b>	19.9	16.4	15.6	15.9	15.6	+ 27.6%

\*Discrepancy in total due to rounding.

## 2.2 Changes in emissions

The figures in table 1 show that total net emissions in 2013/14 represent a 4.2 per cent decrease from the baseline in 2009/10.

Scope 1 emissions are comprised of emissions from gas consumption in buildings, vehicle fuel use and the burning of diesel fuel in generators; collectively these have increased in the order of 1.9 per cent from the base year due to an increase in fleet diesel consumption over the reporting period. These figures refer to changes in gross energy consumption and emissions and have not been adjusted to take account of the change in heat demand experienced due to annual weather variations (e.g. prolonged cold periods).

To assist in the interpretation of this data a factor may be applied to account for the effects of weather conditions on energy consumption. Degree days give a measure of how hot or cold the weather has been over a month compared to a base temperature (above which supplementary heating is not usually required). The colder the weather in a given month, the higher the degree day value. The degree days for one year can then be compared with a twenty year average for the region to make an adjustment to energy consumption data.

In 2013/14 there were 1873 degree days, compared to 2329 in 2012/13 (and 2053 days for the twenty year average in south east), indicating that the period for which our buildings required heating was less than average and significantly less than the previous year. Estimating the effects of

weather on gas consumption, suggests that emissions increased by 5.9 per cent between the baseline year and 2013/14 for this component of energy use (see Appendix 1, Note 8).

Scope 2 emissions, associated with purchased electricity consumption are 8.3 per cent below baseline levels and show a 1.8 per cent reduction from the previous year.

The scope 3 emissions reported here are associated with UK electricity transmission and distribution losses (c.80% of scope 3 emissions) and business travel using private vehicles and public transport (rail travel). Scope 3 emissions show a 6.3 per cent reduction from the 09/10 baseline. In 2013/14, private car mileage for business travel had decreased by 22 per cent from the baseline year, although this is an increase of 8.5 per cent from its lowest level in 2012/13.

Employee numbers have fallen between the baseline year and current reporting period and as a result of this tonnes of CO<sub>2</sub>e per employee have risen by 27.6 per cent.

### **2.2.1 Greenhouse gas reduction activities**

The reduction in scope 2 emissions (from purchased electricity) shows a positive downward trend against the baseline and previous year. A number of projects with energy efficiency benefits have been implemented during 2013/14.

A new LED lighting scheme has been implemented at Tunbridge Wells Sports Centre. The new lighting replaces that in the tennis centre and is the first scheme of its kind in the south east. This has been shown in its first few months of operation to deliver electricity savings of over 30 per cent for the tennis centre building. The new lighting uses higher efficiency LED lamps and daylight and occupancy controls.

Electricity consumption at the Town Hall has fallen by nearly 5 per cent in the past year and is currently close to 2009/10 levels. Part of this reduction can be attributed to IT upgrades; among them the replacement of 16 old servers by 5 new models.

Gas consumption has reduced this year at some significant sites. The replacement of cremators at the Kent and Sussex Crematorium has been completed. The four old cremators have been replaced with two new cremators, which are expected to operate more efficiently. The works have included the incorporation of heat recovery technology, which will enable waste heat to be utilised in the main crematorium building.

Construction of the new Hawkenbury Pavilion has been completed and has incorporated a biomass boiler for its heating and hot water system. The biomass boiler is sized at 75 kW, runs using wood pellet fuel and is sufficient to supply all the heating needs of the building. It is eligible to receive payments for the energy it generates through the Renewable Heat Incentive and an Ofgem application is currently being prepared for this.

These projects will deliver their first full year savings in 2014/15.

### **2.3 Future greenhouse gas reduction activities**

The council's carbon management plan sets out a five year plan (2010-2015) to deliver a 25 per cent reduction in carbon emissions from our estate and operations by 2015. This equates to a reduction of 1,625 tonnes of CO<sub>2</sub> from the 2009/10 baseline.

A number of projects are planned for implementation during the final year of the current plan. These are expected to deliver energy efficiency savings, although meeting the overall target remains a considerable challenge.

The replacement of lighting in Royal Victoria Place car park with LED lighting has commenced in July 2014. Other car parks are also being investigated for the potential for similar schemes.

A solar photovoltaic installation has been approved by cabinet for the Tunbridge Wells Sports Centre. Upon gaining the necessary approvals the system is proposed for the tennis centre roof, it will be 100kWp in size and capable of supplying approximately 30 per cent of the building's electricity needs.

The current carbon management plan and project register will come to an end in March 2015 and therefore there will be work this year to refresh its content.

### 3.0 Statement of greenhouse gas emissions 2013-14

To compile this report we have measured our scope 1, 2 and, where data is available, significant scope 3 emissions. Table 2 below shows a breakdown of greenhouse gas emissions against their main sources. All conversion factors are standard Defra greenhouse gas conversion factors, 2013<sup>2</sup>.

**Table 2: Greenhouse gas emissions data reported against main source.**

		Tonnes CO <sub>2</sub> equivalent	Comments / exclusions
<b>Scope 1</b>			
Fuel combustion	Gas consumption	1,415	Energy - gross CV conversion factor.
	Diesel fuel	91	Diesel generator used for Christmas ice rink.
Owned and controlled transport		1,048	Includes fleet vehicles operated by contractors.
Fugitive emissions		-	Emissions from air conditioning and refrigeration units are excluded. These account for less than 0.5% of total scope 1 emissions.
<b>Total scope 1</b>		<b>2,554</b>	Discrepancy due to rounding.
<b>Scope 2</b>			
Purchased electricity		3,149	
<b>Total scope 2</b>		<b>3,149</b>	
<b>Significant scope 3</b>			
Business travel		74	Includes car mileage and rail travel. Rail travel is assumed to account for 100% of travel by public transport.
UK electricity transmission and distribution		269	
<b>Total significant scope 3</b>		<b>343</b>	

### 4.0 Further information

For further information please contact:

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<sup>2</sup> [www.ukconversionfactorscarbonsmart.co.uk/](http://www.ukconversionfactorscarbonsmart.co.uk/)

## Appendix 1: Explanatory notes

### 1. Greenhouse gases

Greenhouse gas (GHG) emissions figures are reported in tonnes of carbon dioxide equivalents (CO<sub>2</sub>e) and include all the greenhouse gases covered by the Kyoto Protocol<sup>3</sup> – carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF<sub>6</sub>) - as recommended by Defra/DECC.

The burning of fossil fuels releases carbon dioxide, methane and nitrous oxide into the atmosphere and these are the gases that are most significant in relation to the council's operations.

### 2. Classifying greenhouse gas emissions

#### Scope 1 (Direct emissions)

Activities owned or controlled by the council that release emissions straight into the atmosphere (e.g. combustion in owned or controlled boilers, generators and vehicles).

#### Scope 2 (Energy indirect)

Emissions being released into the atmosphere associated with the consumption of purchased electricity. These are indirect emissions that are a consequence of the council's activities but which occur at sources we do not own or control.

#### Scope 3 (Other indirect)

Emissions that are a consequence of the council's actions, which occur at sources we do not own or control and which are not classed as scope 2 emissions (e.g. business travel in vehicles not owned or controlled by the council).

### 3. Inclusions

Direct GHG emissions and indirect GHG emissions (from electricity consumption) have been reported from council-owned buildings and vehicles. This includes council-owned buildings that are leased to other organisations or are under the operational control of outsourced services (e.g. leisure centres). Emissions associated with the operation of the Christmas ice rink have also been included.

Scope 3 emissions currently include business travel (by private car and national rail). The emissions associated with the transmission and distribution of UK electricity that is consumed by the Council are included within scope 3. Emissions associated with the generation of UK electricity remain in scope 2.

### 4. Current exclusions

Emissions from the following sources have not been reported here:

- Fugitive emissions (e.g. air conditioning and refrigeration leaks) (Scope 1)
- Waste disposal (Scope 3)
- Employee commuting (Scope 3)

Appropriate data is not currently available for the above emissions sources. Emissions from air conditioning and refrigeration units in office buildings were excluded due the absence of current data. These are not considered to be material as they will account for less than 0.5% of total scope 1

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<sup>3</sup> The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change: [http://unfccc.int/kyoto\\_protocol/items/2830.php](http://unfccc.int/kyoto_protocol/items/2830.php) (accessed July 2012).



and 2 emissions. Work is ongoing to include waste disposal and employee commuting in future reporting, the latter represents a significant source of scope 3 emissions.

## 5. Conversion factors

The greenhouse gas emissions associated with our activities have been calculated using documented emissions factors<sup>4</sup> and records of measured or estimated energy and fuel use.

$$\text{Activity data} \times \text{Emission factor} = \text{GHG emissions}$$

The majority of energy use and fuel data has been based on direct measurement, purchase invoices or actual mileage data. In some instances it has been necessary to make estimations through extrapolating known activity data.

## 6. Baseline GHG emissions

Reporting our greenhouse gas emissions against a base year helps us to make a comparison of emissions over time. Our base year is 2009/10; this is consistent with the base year of our carbon management programme and represents the most detailed historic record of our emissions.

To track performance over time the base year emissions may need to be recalculated to enable a meaningful comparison of current and historic emissions. The baseline emissions will be recalculated as new (additional) datasets become available, where there is a discovery of significant or collectively significant errors, or as required by updates to emissions factors.

## 7. Renewable electricity / Green tariffs

Where applicable greenhouse gas emissions associated with the purchase of renewable electricity should be included within scope 2 emissions. The majority of council properties use brown electricity (produced from non-renewable fuel sources i.e. coal and gas) and good quality combined heat and power, and therefore do not qualify as an emissions offset.

## 8. Degree days: accounting for weather effects on energy consumption

A degree day is a single number that quantifies how hot or cold the weather has been for a certain region over a month (or week). The colder the weather in a given month the higher the degree day value. This number helps us account for the effect of weather on energy consumption, for example, it allows you to take account of the weather when you compare your energy usage from one year to the next (Source: Vesma<sup>5</sup>, accessed June 2014).

	Unadjusted total tonnes CO <sub>2</sub> e		% change from baseline	Weather adjusted* total tonnes CO <sub>2</sub> e		% change from baseline
	2009/10	2013/14		2009/10	2013/14	
Emissions from gas consumption (scope 1)	1,492	1,415	- 5.2 %	1,439	1,524	+5.9%

\*The adjustment has been performed across total emissions associated with gas consumption based on an assumed 80% consumption for space heating.

<sup>4</sup> [www.ukconversionfactorscarbonsmart.co.uk/](http://www.ukconversionfactorscarbonsmart.co.uk/).

<sup>5</sup> <http://vesma.com/ddd/regular.htm>.