Maidstone Borough Council

GREENHOUSE GAS EMISSIONS REPORT

2013-14

MAIDSTONE
Borough Council

1.0 Summary

This report has been compiled in response to the request of the Department of Energy and Climate Change (DECC) to publish information about the Greenhouse Gas (GHG) emissions for Maidstone Borough Council's estate and operations.

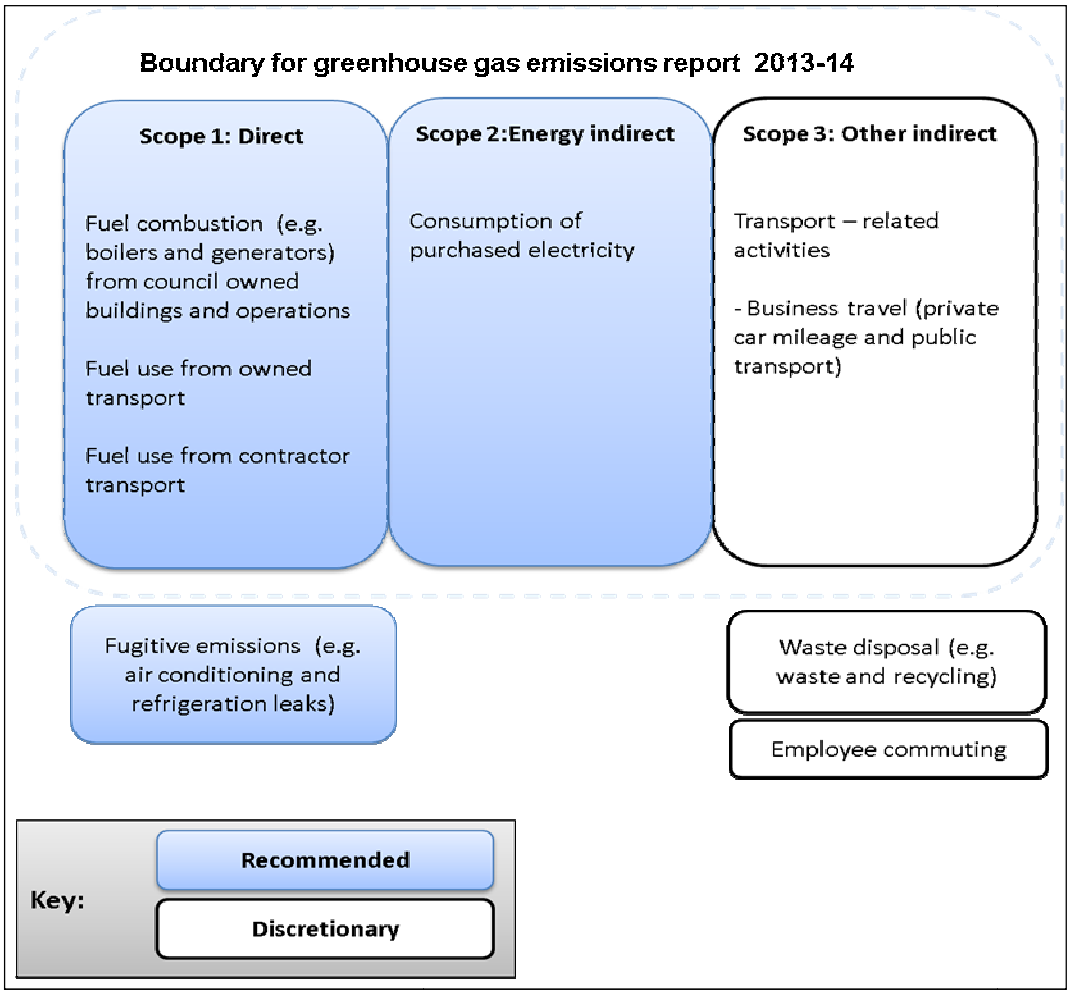
The report uses data collated by MBC as part of its Carbon Management Programme, and covers the period of 1st April 2013 to 31st March 2014.

The report includes direct emissions from gas and fuel consumption in MBC owned and operated buildings and vehicles (classified as Scope 1) indirect emissions from the consumption of purchased electricity (classified as Scope 2) and indirect emissions related to business travel, which are classified as scope 3.

The Council has set itself a target to reduce emissions of CO_2 by 20% by 2014/15 from a level of 5840 tonnes CO_2e in the baseline year of 2008/09. The data presented in this report show that the level of CO_2e emitted in 2013/14 was 4791 tonnes, a reduction of 18.4% from baseline. The largest reduction has occurred in Scope 1.

The total amount of CO_2 emissions saved since the baseline year is now 3239 tonnes. The target for cumulative CO_2 reduction over the life of the plan was 5295 tonnes, which assumed that there would have been an increase of 0.7% in demand, had no action been taken.

2.0 Greenhouse Gas Emissions from our Estate and Operations



2.1 GHG Emissions Summary

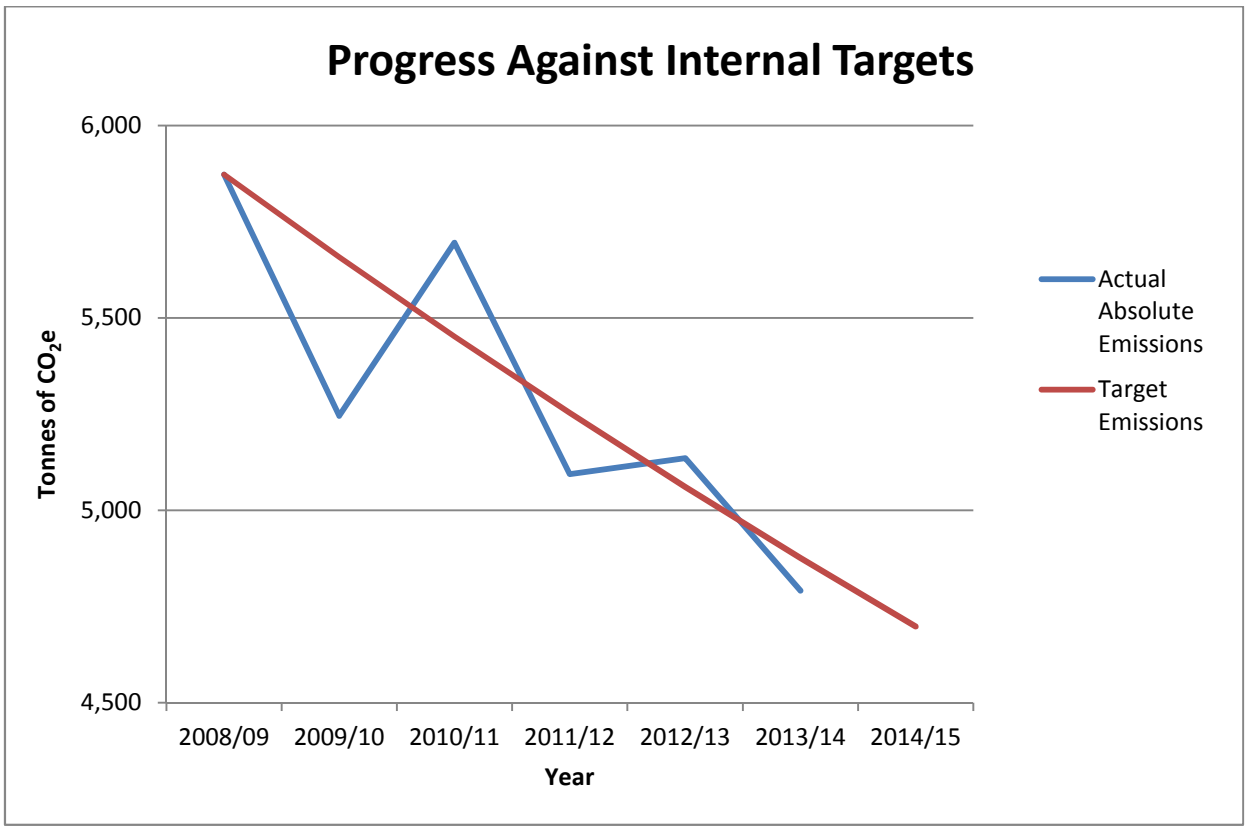
Table 1 shows a summary of the Greenhouse Gas emissions for the estate and operations of Maidstone Borough Council for the reporting period 1st April 2013 to 31st March 2014.

Table 1: Greenhouse Gas Emissions Data for the period 1st April 2013 to 31st March 2014

Maidstone Borough Council – Carbon Emissions							
GHG Emissions for 1st April 2013 to 31st March 2014							
	Tonnes CO_2e						
	2013/14	% Change from Baseline	2012/13	2011/12	2010/11	2009/10	2008/09 Baseline Year
Scope 1	2776	19.8	2923	2747	3290	2867	3463
Scope2	1372	18.4	1556	1694	1690	1703	1682
Scope3	643	11.7	657	653	715	675	728
Outside of Scope (not included in gross emissions)	107		314	99	34	9	7
Total Gross Emissions	4791	18.4	5136	5094	5695	5245	5872
Carbon Offset /Green Tariff	0		0	0	0	0	0
Total Net Emissions	4791	18.4	5136	5094	5695	5245	5872
Intensity Measure (Tonnes of CO_2e per employee)	9.6		10.4	10.1	10.5	9.1	10.1

2.2 Changes in Emissions

MBC's net Total GHG emissions in 2013/14 were 4791 tonnes CO_2e which represents a decrease of 6.7% on 2012/13 and an 18.4% reduction on the 2008/09 baseline year



2.2.1 Greenhouse Gas Reduction Activities

Maidstone Borough Council's Greenhouse Gas reduction activities have been undertaken in accordance with MBC's Carbon Management Plan produced in 2009. The stated aim of the Carbon Management Plan was to reduce MBC's carbon footprint by 3% per year, and to achieve a 20% reduction on the 2008/09 baseline year by 2015. The plan contained 44 actions or projects aimed at reducing CO_2 emissions, most of which were intended to be carried out in the short to medium term, with the remainder being more aspirational or speculative.

The majority of the actions have been completed, and of those which have not been completed, most have been investigated and found not to be presently cost-effective, or otherwise not viable for some reason. Some of these may be revisited in the future.

Some of the most significant actions included demolition of the King Street Multi Storey Car Park and renewal of the waste collection contract to a new service using split bodied vehicles. There has also been an ongoing programme of improvements at the Mote Park Leisure Centre, which has included:-

- A quarterly review of the strategy programming on all environmental controls of the Building Management System in order to optimise consumption.

- Staff training on programming of variable speed drives for Air Handling Units (AHUs) and a review of each unit's programme with a view to reducing electrical consumption without compromising quality of service.

- AHU3 (Leisure Pool) upgraded controls from a standalone unit and integrated into the Building Energy Management System giving a more cohesive approach to balancing air movement plant and reducing waste.

- Installation of pool covers over main fitness pool and 2x Teaching pools.

- Installation of LED lighting through large majority of the centre.

2.2.2 Weather corrections

One of the major reasons for the change in emission totals year on year is the weather. If the weather is especially cold, more heating will be required, which can mask the effect of the improvements which would have been achieved.

A correction can be applied which makes possible better comparisons between periods of different temperature. The correction uses the concept of heating degree days.

The concept of degree days is based on the assumption that when the temperature reaches 15.5°C, a building will not require any supplementary heating. If the temperature falls to 14.5 °C on a given day, there is one degree day for that day. If the temperature falls to 13.5 °C for a day, then there are two degree days for that day. If the temperature remains at 13.5 °C for a week, then there are 14 degree days for that week. For a given year, the number of degree days can be compared with a reference period, usually a long term average, and a correction factor can be calculated as

Weather correction factor = degree days (reference period)/degree days (reporting period)

Table 2 below shows the number of degree days each year from the baseline year to 2014-15.

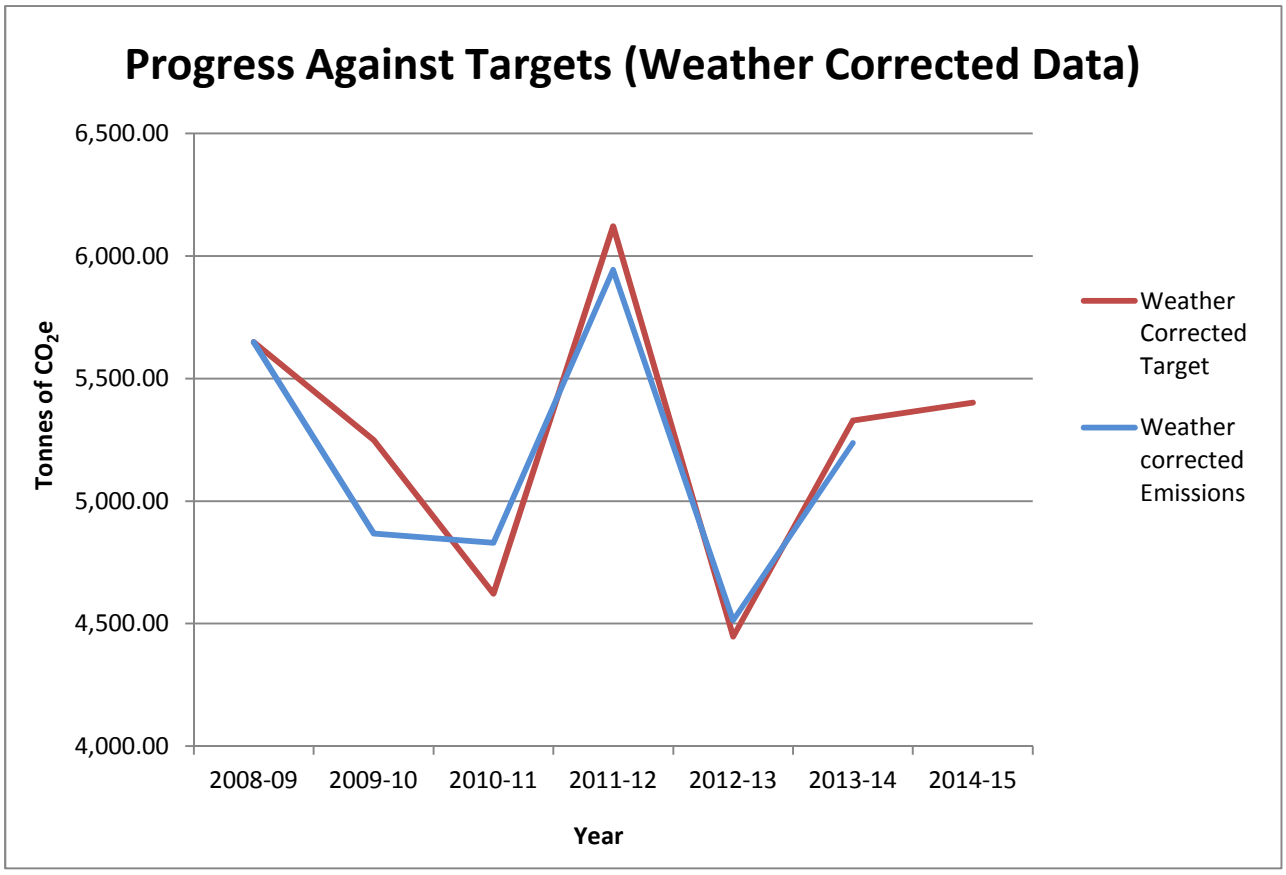
It can be seen that the number of degree days in 2013/14 was 1873, and the twenty year average was 2048. The number of degree days in 2012/13 was 2329. Therefore, 2013/14 was milder than average, and significantly milder than the previous year, which was colder than average. Using the twenty year average as the reference period, the weather correction factor for 2013/14 would be calculated by

Weather correction factor = 2048/1873 = 1.093

Table 2 shows the weather correction factors for all years from 2008-09 to 2014-15

Table 2 Number of Degree Days and Weather Correction Factors for 2008/09 to 2014/15

Year	Degree Days	Twenty Year Average	Weather Correction Factor
2008/09	2130	2048	0.962
2009/10	2206	2048	0.928
2010/11	2414	2048	0.848
2011/12	1751	2048	1.167
2012/13	2329	2048	0.879
2013/14	1873	2048	1.093
2014/15	1781	2048	1.150



2.3 Future Greenhouse Gas Reduction Activities

The majority of actions in the Carbon Management Plan have been completed, and the Plan is due to be completed in 2015, when a new Plan will be introduced. The Council is proposing to produce a Low Emission Strategy aimed primarily at tackling air quality issues within the Borough, however, it is thought likely that this will also be the vehicle for managing GHG emissions in future. Thus a new Carbon Management Plan is planned for development in 2015 as part of the proposed Low Emission Strategy.

One of the main activities to be included in the new plan will be the introduction of more photovoltaic panels onto the rooves of a number of the MBC's buildings. Other measures are still to be agreed, but are likely to include a consideration of other ways to reduce MBC's vehicle fleet emissions.

3.0 Statement of Greenhouse Gas Emissions 2013-14

		Tonnes CO_2e	**Tonnes CO_2e (weather corrected)**
Scope 1	Gas Consumption	1270	1388
	Transport	1506	1646
Total Scope1		**2776**	**3034**
Scope 2	Purchased Electricity	1372	1500
Total Scope 2		**1372**	**1500**
Scope 3	Water	11.9	13
	Business Mileage	71.7	78.4
	Transportation of Purchased Fuels	441.7	482.8
	Extraction, Production and Transportation	117.3	128.2
Total Scope 3		**642.6**	**702.4**
Grand Total		**4790.6**	**5236.4**

Appendix 1: Explanatory notes

1: Greenhouse Gases.

Greenhouse gas (GHG) emissions are reported in tonnes of carbon dioxide equivalent (CO_2e). All of the greenhouse gases covered by the Kyoto Protocol are included, namely carbon dioxide (CO_2), methane CH_4, nitrous oxide (N_2O) perfluorocarbons (PFCs) hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF_6)

Different gases have different abilities to trap heat in the atmosphere, otherwise known as their global warming potential. In order to present greenhouse gas emissions as a simple single number, the global warming potentials of the other gases are used to calculate the mass of CO_2 which would trap the same amount of heat, which is known as its CO_2 equivalent.

The CO_2 equivalents for all the gases are totalled up to give a single CO_2 equivalent (CO_2e). The most significant gases in the Council's operations are carbon dioxide, methane and nitrous oxides from the burning of fossil fuels.

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 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). Transmission and distribution losses associated with purchased electricity are also included under this scope.

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).

Scope 3 emissions currently include business travel by private car and rail travel.

4: Current exclusions

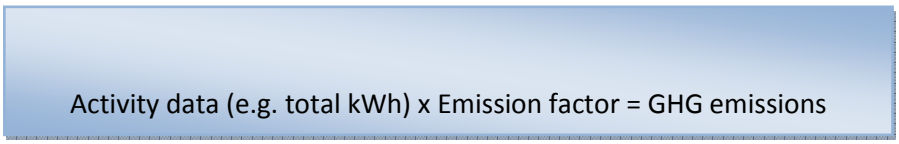
Emissions from the following sources have not been reported:

- Fugitive emissions (e.g. air conditioning and refrigeration leaks) (Scope 1)
- Waste disposal (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 to the cost of data collection. These are not considered to be material as they will account for less than 0.5% of total scope 1 and 2 emissions. Work is ongoing to include business travel by all modes, 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 stationary and transport sources are then calculated by converting this activity data using documented conversion factors.



The conversion factors that relate to 'Total kg CO_2e' are those used to calculate greenhouse gas emissions for this report.

6: Baseline Year

Greenhouse gases have been reported with reference to a baseline year, which makes it easier to compare emissions over time. The baseline year is 2008/09 which is consistent with the Carbon Management Plan 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 for the base year, where there is a discovery of significant or collectively significant errors, or as required by updates to emissions factors.