Woking Borough Council Greenhouse Gas Emissions Report 2016-2017

1. Introduction and Strategic Context

1.1 Woking Borough Council (WBC) was formerly required to record information on greenhouse gas (GHG) emissions from its own estate and operations and report these to the Department of Energy and Climate Change (DECC). This is no longer a statutory requirement and DECC became part of the Department for Business, Energy, and Industrial Strategy (BEIS) in July 2016.

1.2 Nonetheless, as in previous years, the Council continues to record and monitor energy use at, and resultant GHG emissions from, the following sources:

- Leisure pavilions;
- NVH-managed housing (communal heat systems and electricity for communal areas);
- Residential and community centres supplied by Thameswey CHP;
- Staff transport (business mileage); and
- Town centre and Woking Park assets

1.3 The intention of collecting this information is to better understand the environmental impact of sites or vehicles integral to the public services that Woking Borough Council provides.

1.4 By recording this data, we are able to monitor the progress of Action 35 of the Woking 2050 strategy: “continue to work with partners to improve the energy efficiency and reduce the energy consumption of Council owned buildings and housing stock.”

1.5 Additionally, the reporting process provides officers with the opportunity to collect data on renewable energy, recording photovoltaic (PV) electricity generation at Council assets. The report therefore enables us to monitor the progress of Action 36 of the Woking 2050 strategy: “continue to work with partners to increase the proportion of renewable and sustainable energy consumption of council owned buildings.”

2. Methodology

2.1 This report uses the following documents as its methodological basis:

- *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance*, Department for Environment, Food and Rural Affairs (DEFRA): June 2013
- *Government emission conversion factors for greenhouse gas company reporting*, BEIS: 2015 and 2016 factors

2.2 Energy use is recorded in kWh for gas and electricity consumption consumption and km for vehicle usage. The resultant GHG emissions are calculated using conversion factors for the relevant year and, where known, using vehicle emissions ratings. The Council records GHG emissions in kg CO2 equivalent (kg CO2e) which, in line with DEFRA guidelines, “gives the global warming effect of the mass of GHG in terms of what mass of carbon dioxide would produce the same effect.”[1]

2.3 These emissions are recorded and categorised according to scope, which DEFRA defines as follows:

“Scope 1 (Direct emissions): Emissions from activities owned or controlled by your organisation that release emissions into the atmosphere. They are direct emissions…

[1] *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance*, Department for Environment, Food and Rural Affairs (DEFRA): June 2013, p.35-6

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 classified as scope 2 emissions."[2]

2.4 WBC has used UK government emission conversion factors for all calculations, with the following exceptions:

- Thameswey-supplied residential/community sites: WBC used the Thameswey emissions factors for certain of these sites
- Town centre sites (heating, cooling and electricity): WBC used the Thameswey emissions factors for these sites
- Vehicle usage: WBC used individual vehicle emissions ratings where available

2.5 Following a review of previous annual GHG reports, officers identified a need for greater consistency in data collection methodology. Energy consumption data for previous varied markedly, leading officers to conclude that readings were likely being taken from different sources from one year to the next. Therefore a new methodology in which, wherever possible, specific meter serial numbers and site locations are specified has been adopted for the year 2016-17 onwards.

2.6 As far as possible, data for the year 2015-16 have been retrospectively reorganised according to the new methodology in order to provide an indicative baseline against which the emissions data for 2016-17 can be measured. During this process, officers identified that *Woking Borough Council's Greenhouse Gas Emissions 2015/16* report over-reported certain energy consumption data. These data have been revised and details are available in Appendix 1.

2.7 From 2017-18 onwards, it is recommended that the 2016-17 data recorded in this report be used as a baseline.

3. Caveats

3.1 Electricity and gas consumption data for New Vision Homes sites was only available for the period April 2016 to February 2017. Therefore the GHG emissions figures reflect 11 rather than 12 months.

3.2 There are GHG emissions associated with the use of a water supply. However, water usage and its associated GHG emissions are not within within the scope of this report.

4. Energy consumption and analysis

4.1 The table overleaf, *Figure 1*, details energy consumption in the years 2015-16 and 2016-17.

[2] *Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance*, Department for Environment, Food and Rural Affairs (DEFRA): June 2013, p.36

Figure 1: Annual energy consumption by source

Type of energy consumption	**2015/16**	**2016/17**	**Difference**	**Percentage change (%)**
Leisure pavilions - gas consumption (kWh)	140,000	136,707	-3,293	-2.35
Leisure pavilions - electricity consumption (kWh)	259,018	237,639	-21,379	-8.25
Residential sites and community sites - gas consumption (kWh)	14,217,299	11,262,794	-2,954,505	-20.78
Residential and community sites - electricity consumption (kWh)	810,393	1,601,481	791,088	97.62
Town centre sites - gas consumption (kWh)	3,994,039.00	4,101,045	107,006	2.68
Town centre sites - electricity consumption (kWh)	3,686,875	3,520,836	-166,039	-4.50
Woking park sites - gas consumption (kWh)	16,787,418	13,026,909	-3,760,509	-22.40
Woking park sites - electricty import (kWh)	1,530,658	1,545,103	14,445	0.94
Vehicles (km)	126,415	133,531	7,116	5.63

4.1 Broadly, the table shows a decrease in energy consumption between 2015-16 and 2016-17. However, there are several exceptions.

4.2 The primary exception is consumption of electricity at residential and community sites, which has increased by 97.62% over this period. It should also be noted that electricity consumption data for the New Vision Homes sites was only available from April 2016 to February 2017 and therefore the percentage increase does not take account of March 2017 consumption. However, the increase may not in practice be as significant as it appears as a greater number of sites have been included in this year's report; in 2015-16, we reported on electricity consumption at 115 residentials sites, whereas in 2016-17, we reported on 186. Nonetheless, the average increase in electricity consumption per site did increase from 7,047 kWh to 8,610 kWh.

4.3 Heating and cooling consumption at town centre sites has also increased marginally between 2015-16 and 2016-17, largely attributable to increased heating consumption at the Civic Offices. However, the overall increase equates to 2.68% and can therefore be considered relatively minor.

4.4 The most significant decrease is in gas consumption at Woking Park sites, i.e. gas consumed by the CHP, which has fallen by 22.4% between 2015-16 and 2016-17. However, it should be noted that the Woking Park gas consumption reported in 2015-16 was somewhat anomalous; by comparison, the reported figure for 2014-15 was 9,821,483, against which the 2015-16 figure would be a 70.93% increase and the 2016-17 figure would be a 32.64% increase.

4.5 A similarly significant reduction in gas consumption was observed at residential sites, which fell by 20.78%. However, this figure should be treated as indicative, as data for the New Vision Homes sites was only available from April 2016 to February 2017. Therefore the trend data does not take account of gas consumption in March 2017.

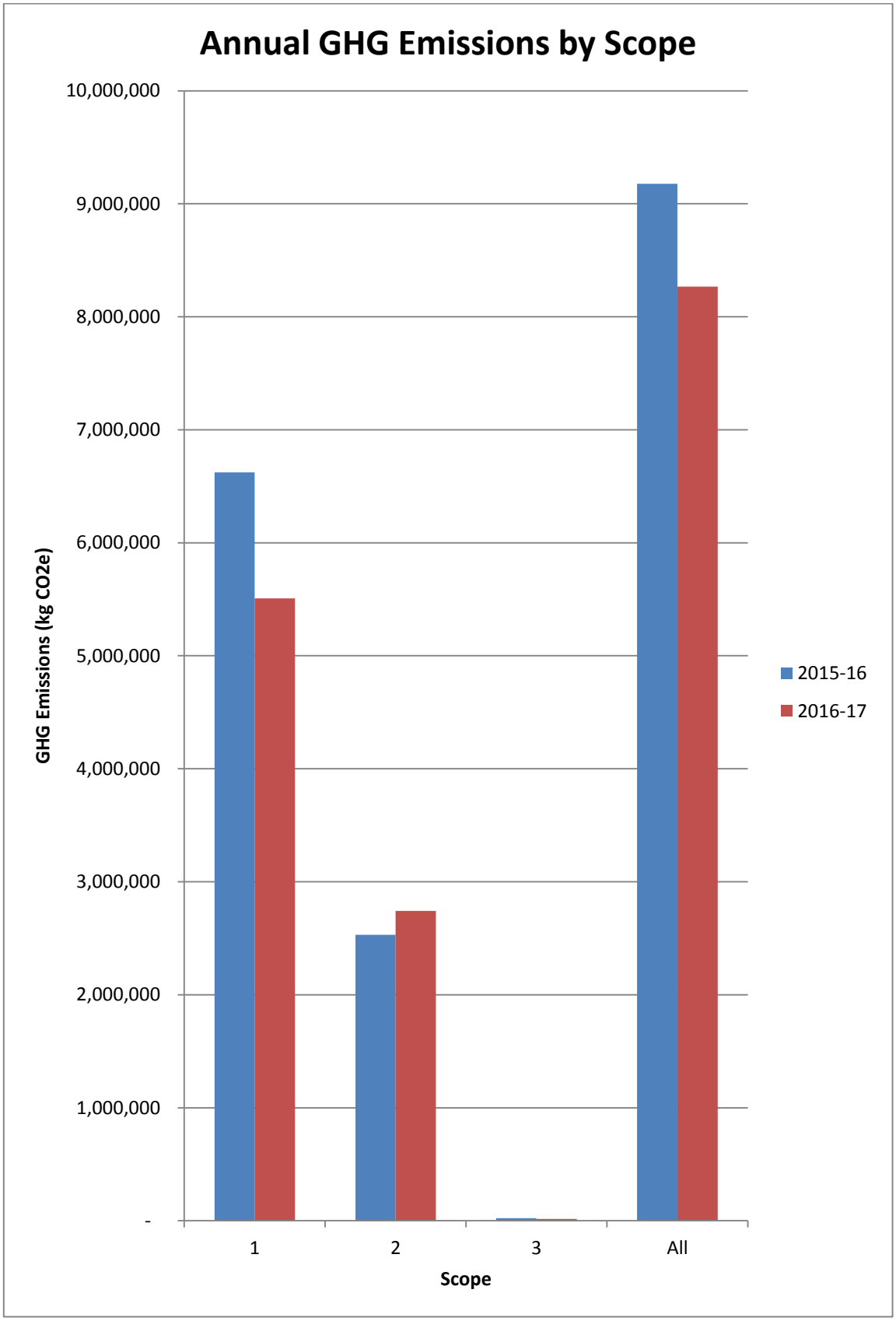
5. GHG emissions and analysis

5.1 The table and graph overleaf, *Figures 2 and 3*, record annual GHG emissions by scope.

Figure 2: Annual GHG emissions by scope

Scope	2015/16 GHG emissions (kg CO2e)	2016/17 GHG emissions (kg CO2e)	Difference (kg CO2e)	Percentage change (%)
1	6,623,925	5,508,727	-1,115,198	-16.84
2	2,530,201	2,742,914	212,713	7.76
3	22,419	15,715	-6,705	-42.67
All	9,176,545	8,267,356	-909,190	-11.00

Figure 3: Annual GHG emissions by scope



5.2 Scope 1 emissions have decreased by 16.84%. This is due to the decreased gas consumption detailed in 4.5 and 4.6. However, as noted, this decrease should be treated with caution as the recorded gas consumption at the Woking Park sites was unusually high in 15/16, and the residential gas consumption data for 2016-17 is partially incomplete.

5.3 Scope 2 emissions have increased by 7.76%. However, in large part, this is attributable to the increase in reported residential electricity use which, as noted, includes significantly more sites for 2016-17 than for 2015-16.

5.4 Scope 3 emissions have decreased by 42.67%, despite total business travel increasing from 126,415km to 133,531km. However the methodology used to calculate these emissions differs for these years; for 2016-17, vehicle-specific emissions rates have been used, whereas for 2015-16, where these aren't necessarily available, standard carbon conversion factors have been used. Therefore the decrease in Scope 3 emissions should be treated as indicative.

6. Renewable energy: PV electricity generation

6.1 The below table, Figure 4, records electricity generated by PV panels on WBC assets:

Figure 4: PV electricity generation by site

Type of site	**PV electricity generated in 2016-17 (kWh)**
Residential sites	224,455
Town centre sites	52,112
Total	276,566

6.2 It is recommended that from 2017-18 onwards, this data be used as a baseline against which the progress of Woking 2050 Action 26 can be assessed.

7. Conclusion

7.1 On the basis of the data collected for this report, WBC's greenhouse gas emissions (Scopes 1-3) have decreased by 11.00% between 2015-16 and 2016-17. Of course, this decrease can only be taken as indicative due to the partial incompletion of the residential sites data and the greater number of sites reported on this year. Nonetheless, the decrease is significant enough to conclude that the Council is making progress on reducing its energy consumption and associated GHG emissions.