



GREENHOUSE GAS EMISSIONS REPORT

Greenhouse Gas Emissions from Council Owned Estates and Operations

April 2018 to March 2019

Introduction

This report has calculated the total greenhouse gas emissions produced by Forest of Dean District Council in the period from the 1st April 2018 to the 31st March 2019. This report has identified and categorised emissions-releasing activities into three groups known as scopes. The three scopes are defined below, as set out in government guidance on reporting greenhouse gas emissions.

Scope 1 (Direct emissions): Activities owned or controlled by the organisation that release emissions straight into the atmosphere. These are direct emissions. Examples of Scope 1 emissions include emissions from combustion in owned or controlled boilers, furnaces and vehicles.

Scope 2 (Energy indirect): Emissions being released into the atmosphere associated with the 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, or purchased materials or fuels.

This is the eighth year of reporting the Council emissions using this methodology and formula. A direct comparison has therefore been undertaken using baseline figures (2010/11) to evaluate areas where the emissions appear to have been reduced or increased.

Where the assessment has used estimates of energy usage these are identified. This is particularly noticeable in energy use at Leisure Centres where supply and costs are delivered by a partner organisation and the Council is not the main bill payer. As the Council is not the direct operator, the energy usage has been deemed to fall into Scope 3. To improve reporting in the coming years the Council will continue to work with partners to improve the collection of data in the areas where estimates have been used.

Emissions are reported in Carbon Dioxide gas equivalent and measured in kilograms, except in the summary table on the next page. The conversion factors used are those available from the Department for Energy and Climate Change (Condensed Set for 2019, published June 2019).

The following guidance has been used:

Environmental reporting guidelines: including Streamlined Energy and Carbon Reporting requirements (DEFRA, 2013, updated March 2019)

GHG Conversion Factors for Company Reporting (DECC, 2019)

Summary table of comparisons

Tonnes of CO ₂	2010/11	2016/17	2018/19	% change since 2010/11	Comparison *
Scope 1 Emissions	303.17	139.36	609.89	An increase in emissions of 201%	↑
Scope 2 Emissions	359.95	136.87	98.57	A decrease in emissions of 73%	↓
Scope 3 Emissions	908.98	1,074.34	568.62	A decrease in emissions of 37%	↓
Total CO₂ Equivalent Emissions	1,572.10	1,350.57	1,277.08	A decrease in total CO ₂ equivalent emissions of 19%	↓

* Gives a symbol indicating what the change in the figures has been since 2010/11.

= Approximately equal (0-10% difference)

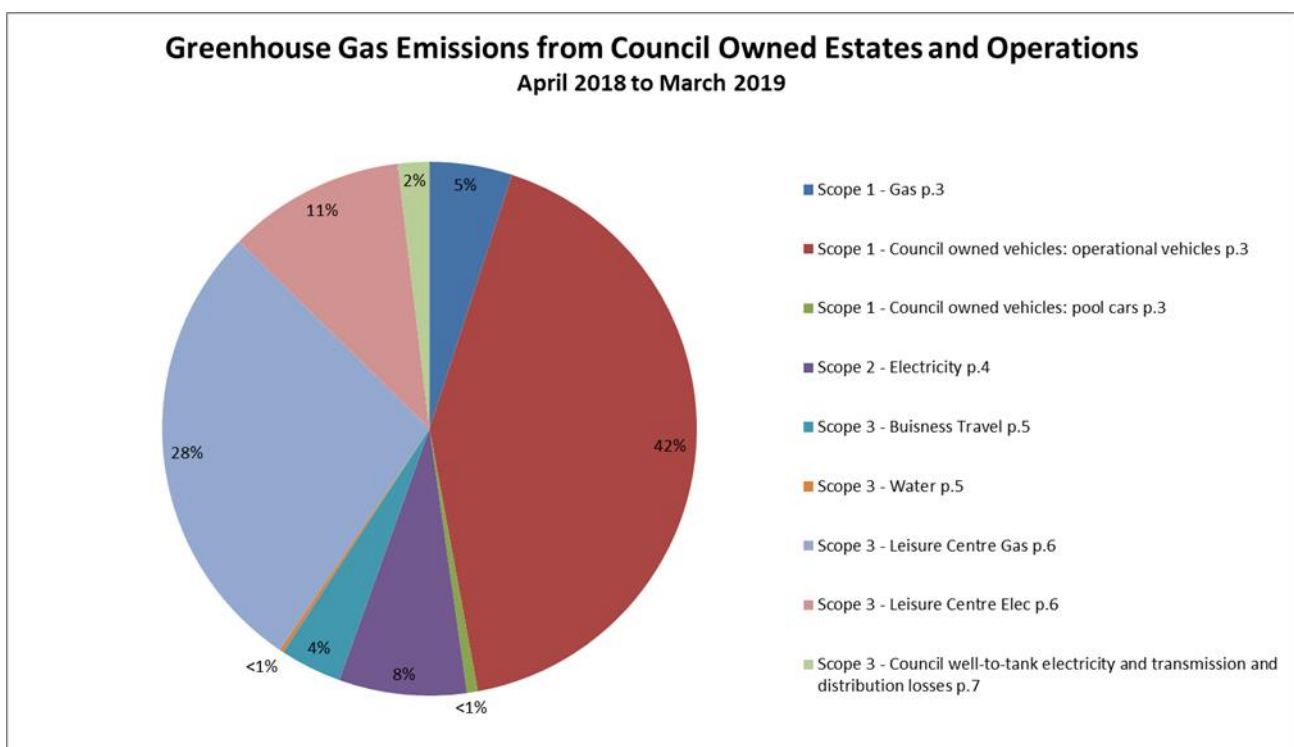
↑ Increase since 2010/11 (10-25% increase)

↓ Decrease since 2010/11 (10-25% decrease)

↑ Large increase since 2010/11 (> 25% increase)

↓ Large decrease since 2010/11 (> 25% decrease)

NOTE: Increase in Scope 1 emissions is largely due to waste collection vehicles coming into Council ownership, shifting the associated emissions from Scope 3 to Scope 1.



SCOPE 1

Total CO₂e
(kg)

609,894

July 2019

Source	KWH's used
Coleford Offices Gas	346,773
Natural Gas conversion factor for Direct GHG (kg CO ₂ e per kWh based on gross CV value (BEIS, 2018)	0.18396
Direct GHG emissions from Natural Gas (kg)	63,792

Council owned vehicles: operational vehicles (waste collection, Street Wardens, Grounds Maintenance, Pest Control etc. Does not include machinery such as diggers and ride on mowers)

Conversion factor for operational vehicles				Total Direct GHG
Size of vehicle	Total units travelled (km)	x	kg CO ₂ e per unit (conversion factor)	kg CO ₂ e
Diesel van (Class II), 1.3 to 1.74 tonne	68,270	x	0.23471	16,024
Diesel van (Class III), 1.74 to 3.5 tonnes	156,970	x	0.27491	43,153
HGV (diesel) Rigid (>3.5 - 7.5 tonnes) average laden	112,201	x	0.4968	55,741
HGV (diesel) Rigid (>7.5 tonnes-17 tonnes) average laden	368,032	x	0.60661	223,252
HGV (diesel) Rigid (>17 tonnes) average laden	203,015	x	0.96034	194,963
Dual purpose 4 x 4	21,485	x	0.21194	4,554
Total for operational vehicles	947,576			537,687

Council owned vehicles: pool cars

Conversion factor for passenger road transport				Total Direct GHG
Size of vehicle	Total units travelled (km)	x	kg CO ₂ e per unit (conversion factor)	kg CO ₂ e
Small diesel car, up to 1.7 litre or under	57,901	x	0.14533	8,415
Total for pool cars	57,901			8,415

Total km from Council owned vehicles

1,005,477

Direct GHG emissions from all Council owned vehicles (kg)

546,102

SCOPE 2	Total CO₂e (kg)	98,566
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Source	KWH's used	Notes
Coleford Offices Electricity	292,925	
Council Car Parks	23,655	<i>There are 2 accounts for unmetered supply for 2 car parks. The energy use in other car parks is an estimate. Calculated from the number of light fittings, wattage and estimated hours of operation.</i>
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	31,623	
Total Electricity Consumption	348,203	
Conversion factor for National Grid supplied electricity GHG emissions kg CO₂e per kWh (BEIS 2018)	0.28307	
Direct GHG emissions from Electricity (kg)	98,566	

SCOPE 3

Total CO₂e
(kg)

568,616

July 2019

Business Travel (passenger vehicles only, Does not include other forms of transport such as bus or rail)

Passenger Road Transport Conversion Factors				Total Direct GHG	
Type of car	Total units travelled (Miles)	x	kg CO ₂ e per unit (conversion factor)	kg CO ₂ e	Notes
Small petrol car, up to 1.4 litres	19,166	x	0.24736	4,741	Estimated mileage based on 2016/17 figures.
Medium petrol car, from 1.4 – 2.0 litre	29,404	x	0.30945	9,099	
Large petrol cars, over 2.0 litre	6,053	x	0.45536	2,756	
Small diesel car, up to 1.7 litre	13,359	x	0.22868	3,055	
Medium diesel car, from 1.7 to 2.0 litre	84,744	x	0.27459	23,270	
Large diesel car, over 2.0 litre	14,781	x	0.33713	4,983	
Total for private car business travel	167,507			47,904	

Mains water – supply and treatment

Mains water conversion Factor: Cost (£)					
				Total Direct GHG	
Location	Supply m ³	x	kg CO ₂ e per m ³ (conversion factor)	kg CO ₂ e	Notes
Coleford offices	306.6	x	1.052	323	
Public Toilets (8 locations)	2379.8	x	1.052	2,504	
Cemeteries	251.85	x	1.052	265	
Total water	2938			3,092	

Electricity

Source	kWh's used	Notes
Lydney Leisure Centre dry side Electricity	159,065	Estimated usage

Coleford Leisure Centre Electricity	75,598	Estimated usage
Newent Leisure Centre Electricity	122,538	Estimated usage
Sedbury Leisure Centre Electricity	43,352	Estimated usage
Heywood Leisure Centre Electricity	83,240	Estimated usage
Total partner delivered electricity consumption (kWh)	483,793	
Conversion factor for National Grid supplied electricity total direct GHG emissions kg CO₂e per kWh (BEIS 2018)	0.28307	
Direct GHG emissions from partner delivered Electricity (kg)	136,947	

Gas		
Source	kWh's used	Notes
Lydney Leisure Centre dry side Gas	948,613	Estimated usage
Coleford Leisure Centre Gas	15,981	Estimated usage
Newent Leisure Centre Gas	588,433	Estimated usage
Sedbury Leisure Centre Gas	94,101	Estimated usage
Heywood Leisure Centre Gas	290,282	Estimated usage
Total partner delivered gas consumption (kWh)	1,937,410	
Natural Gas conversion factor for Direct GHG (kg CO₂e per kWh based on gross CV value (BEIS 2018)	0.18396	
Direct GHG emissions from Natural Gas (Kg)	356,406	

Electricity Transmission and Distribution	KWH's used
Coleford Offices Electricity	292,925
Council Car Parks	23,655
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	31,623
Total Electricity Consumption	348,203
Conversion factor for UK electricity T&D GHG emissions kg CO₂e per kWh (BEIS 2018)	0.02413
Direct GHG emissions from Electricity transmission and distribution (kg)	8,402

WTT- UK electricity(generation)	KWH's used
Coleford Offices Electricity	292,925
Council Car Parks	23,655
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	31,623
Total Electricity Consumption	348,203
Conversion factor for WTT UK electricity generation GHG emissions kg CO₂e per kWh (BEIS 2018)	0.04198
Direct GHG emissions from Electricity transmission and distribution (kg)	14,618

WTT- UK electricity (T&D)	KWH's used
Coleford Offices Electricity	292,925
Council Car Parks	23,655
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	31,623
Total Electricity Consumption	348,203
Conversion factor for WTT UK electricity T&D GHG emissions kg CO₂e per kWh (BEIS 2018)	0.00358
Direct GHG emissions from Electricity transmission and distribution (kg)	1,247

COMPARISON AGAINST BASE YEAR FIGURES			July 2019
	2010/2011	2018/2019	Comparison*
Scope 1 Emissions			
Total Gas Consumption (kWh)	1,333,363	346,773	
Direct GHG Emissions from Natural Gas (kg)	244,805	63,792	↓
<i>(i) Lydney Swimming Pool is now operated by third party partner who is responsible for energy supply (now reported in Scope 3).</i>			
<i>(ii) General office requirements reduced.</i>			
Total km from Council owned vehicles	345,306	1,005,477	
Direct GHG emissions from Council owned vehicles (kg)	58,368	546,102	↑
<i>(i) The Council now operates a fleet of three diesel pool cars and waste collection vehicles are now contractually owned by the council.</i>			
<i>(ii) New bulking facility and improved collection rounds have allowed additional recycling collection rounds to be introduced.</i>			
Total CO₂e (kg) for Scope 1 Emissions	303,173	609,894	↑
Scope 2 Emissions			
Total electricity consumption (kWh)	686,124	348,203	
Direct GHG emissions from electricity (kg)	359,954	89,001	↓
<i>(i) Office electric consumption reduced through installation of low energy halogen lighting, sensor controlled lighting and management of vacant office space</i>			
<i>(ii) Lydney Swimming Pool is now operated by third party partner who is responsible for energy supply (now reported in Scope 3).</i>			
Total CO₂e (kg) for Scope 2 Emissions	359,954	89,001	↓
Scope 3 Emissions			
Total miles travelled from business travel	229,923	167,507	
Direct GHG emissions from business travel	74,604	47,904	↓
<i>(i) Estimated mileage based on 2016/17 figures.</i>			
<i>(ii) Staff reductions, greater use of fuel efficient pool cars and video conferencing has reduced the amount of private vehicle mileage.</i>			
Direct GHG emissions from mains water	3,338	3,092	=
Total partner delivered electricity consumption (kWh)	655,036	483,793	
Direct GHG emissions from partner delivered electricity (kg)	343,645	136,947	↓
<i>(i) Estimated consumption taken from partner recharges.</i>			
Total partner delivered gas consumption (kWh)	510,891	1,937,410	
Direct GHG emissions from natural gas (kg)	93,799	356,406	↑
<i>(i) Estimated consumption taken from partner recharges.</i>			
<i>(ii) Includes consumption for Lydney Swimming Pool, operated by third party partner since 2014.</i>			
Direct GHG emissions from electricity consumption transmission and distribution losses (kg)	Unknown	8,402	
Direct GHG emissions from extraction, refining and transportation of primary fuels before their use in electricity generation (i.e. well-to-tank emissions)	Unknown	15,865	
<i>(i) From 2018/19 direct well-to-tank emissions and emissions from the electricity generation and losses experienced in the grid included to provide a fuller picture of the emissions associated with the council's direct electricity consumption (scope 2 emissions).</i>			
Total CO₂e (kg) for Scope 3 Emissions	908,982	568,616	↓

* Gives a simple symbol indicating what the change in the figures has been since 2010/11 (see summary page 2).