

GREENHOUSE GAS EMISSIONS REPORT

Greenhouse Gas Emissions from Council Owned Estates and Operations

April 2019 to March 2020

Executive Summary

This report has calculated the total greenhouse gas emissions produced by Forest of Dean District Council in the period from the 1st April 2019 to the 31st March 2020. This report has identified and categorised emissions-releasing activities into three groups known as scopes 1, 2 and 3. For 2019/20 52% of emissions are reported to be from Scope 1, 6% from Scope 2 and 42% from Scope 3. Broken down further, the largest proportion of 2019/20 emissions comes from council owned vehicles (scope 1) at 47% of total emissions. This is followed by emissions from gas consumption at partner leisure centres (scope 3) at 27%. This pattern follows that of previous years. A full breakdown of emissions can be seen on page 3.

This is the ninth 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. However it is important to note that in some instances exact data has not been available and estimates have been used. For instance, 2019/20 reported mileage of UBICO vehicles was not available and so mileage was estimated using 2018/19 figures and the previous annual reduction rate (2.5%). Where estimates have been used they are clearly identified throughout the report.

It is also important to note that since 2018/19 direct well-to-tank emissions and emissions from the electricity generation and losses experienced in the grid have been included to provide a fuller picture of the emissions associated with the council's direct electricity consumption (scope 2 emissions). Emissions due to waste collection vehicles, originally reported in Scope 3, are now reported in Scope 1 due to waste collection vehicles coming into Council ownership. This year also saw the introduction of a new reporting method for business travel, again to provide a more accurate picture of emissions. More details are on page 6.

With this in mind, total emissions for 2019/20 are reported to be 1,292.89 tonnes of CO₂e, a decrease of 18% since 2010/11. The largest decrease compared to 2010/11 has come from Scope 2 emissions (direct electricity consumption) at 78%. Scope 2 emissions have consistently decreased since 2010/11 and decreased 25% since last year alone. Scope 3 emissions (including business travel and leisure centre energy consumption) have decreased by 50% since 2010/11 and by 6% compared to last year.

Scope 1 emissions (including emissions from council gas consumption and council owned vehicles) have increased since 2010/11 by 225% however; this is due to emissions from waste collection vehicles now being reported in Scope 1 (as detailed above). Scope 1 emissions have also increased since last year (2018/19) by 12%, however this is likely due to the improvement of collection rounds and subsequent introduction of additional recycling collection routes. Emissions from pool cars, although a smaller proportion of scope 1 emissions, have decreased by 14% since last year likely due to the Council switching a diesel pool car to a self-charging hybrid and providing improved digital infrastructure to support video conferencing.

Introduction

This report has calculated the total greenhouse gas emissions produced by Forest of Dean District Council in the period from the 1st April 2019 to the 31st March 2020. 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 ninth 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 (BEIS, 2019)

Summary table of comparisons

Tonnes of CO ₂	2010/11	2016/17	2018/19	2019/20	% change since 2010/11	Comparison *
Scope 1 Emissions	303.17	139.36	609.89	682.33	An increase in emissions of 225%	↑
Scope 2 Emissions	359.95	136.87	98.57	73.98	A decrease in emissions of 79%	↓
Scope 3 Emissions	908.98	1,074.34	568.62	531.91	A decrease in emissions of 50%	↓
Total CO₂ Equivalent Emissions	1,572.10	1,350.57	1,277.08	1,288.22	A decrease in total CO ₂ equivalent emissions of 18%	↓

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

= Approximately equal (0-10% difference)

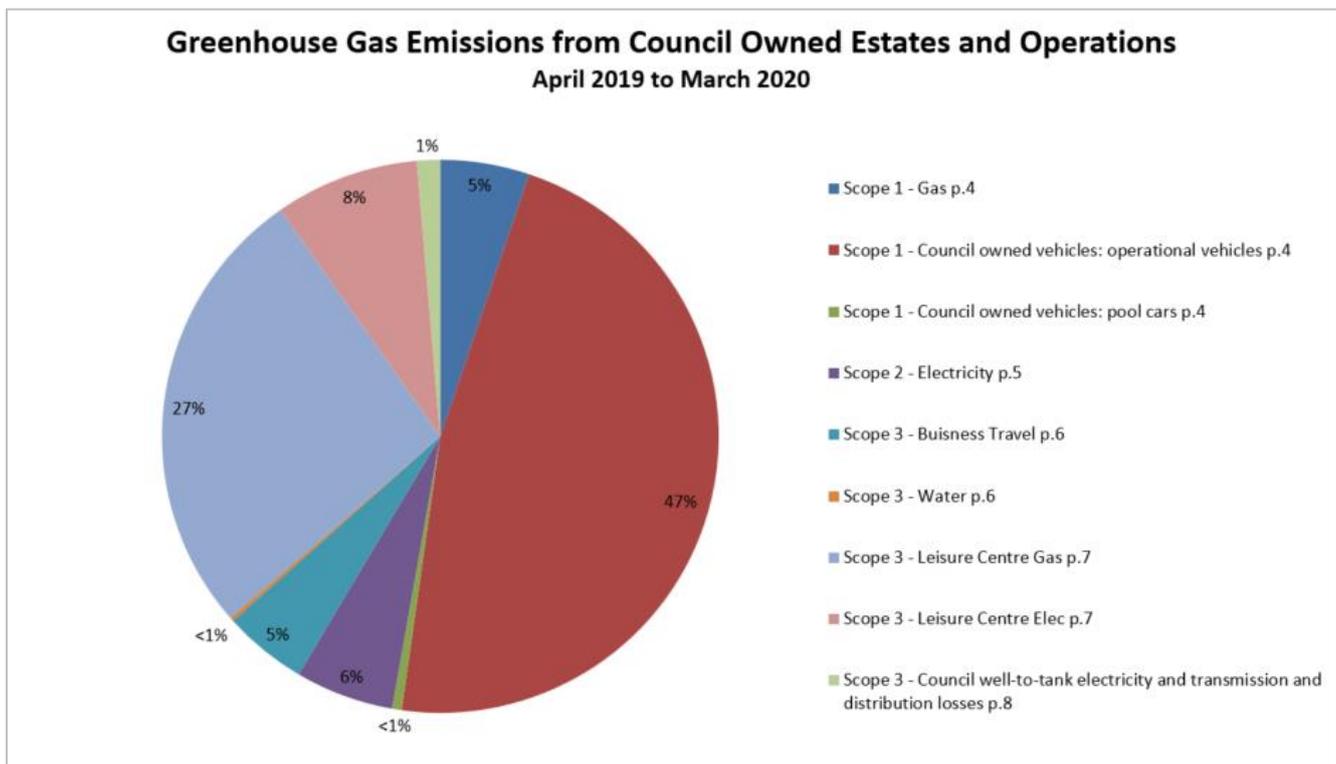
↑ Increase since 2010/11 (10-25% increase)

↓ 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.



Source	KWH's used
Coleford Offices Gas	363,810
Natural Gas conversion factor for Direct GHG (kg CO _{2e} per kWh based on gross CV value (BEIS, 2019))	0.18385
Direct GHG emissions from Natural Gas (kg)	66,886

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 (miles)	x	kg CO _{2e} per unit (conversion factor)	kg CO _{2e}	Notes
Diesel van (Class II), 1.3 to 1.74 tonne	61,168	x	0.3131	19,152	Includes estimated UBICO mileage based on 2018/19 figures and previous annual % reduction
Diesel van (Class III), 1.74 to 3.5 tonnes	53,430	x	0.44703	23,885	
Diesel dual purpose 4x4 (Estimated based on 6 miles per day per vehicle)	6,000	x	0.32602	1,956	
HGV (diesel), rigid (>3.5 - 7.5 tonnes), average laden	91,083	x	0.78924	71,886	
HGV (diesel), rigid (>7.5 tonnes-17 tonnes), average laden	156,087	x	0.96385	150,444	
HGV (diesel), rigid (>17 tonnes), average laden	215,610	x	1.58108	340,897	
Total for operational vehicle	583,378			608,220	

Council owned vehicles: pool cars

Conversion factor for passenger road transport				Total Direct GHG
Size of vehicle	Total units travelled (miles)	x	kg CO _{2e} per unit (conversion factor)	kg CO _{2e}
Small diesel car, up to 1.7 litre or under	26523	x	0.22868	6,065
Diesel van (Class II), 1.3 to 1.74 tonne	4438	x	0.3131	1,390
Hybrid car	115	x	0.1693	19
Total for pool cars	31,076			7,226

Total miles from Council owned vehicles	614,454
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Direct GHG emissions from all Council owned vehicles (kg)	615,446
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SCOPE 2	Total CO₂e (kg)	73,975
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Source	KWH's used
Coleford Offices Electricity	253,676
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	35,740
Total Electricity Consumption	289,416
Conversion factor for National Grid supplied electricity GHG emissions kg CO₂e per kWh (BEIS/DEFRA 2019)	0.2556
Direct GHG emissions from Electricity generation (kg)	73,975

NOTE: During this reporting year the Council installed around 80 solar PV panels on the Foxglove Gardens development. The estimated annual generation is 23,160 kWh, with a suggested annual GHG emission saving in the region of 5,920kg.

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
Average petrol (unknown engine size)	110,936	x	0.29103	32,286	See * below.
Average diesel (unknown engine size)	96,599	x	0.27901	26,952	
Average hybrid (unknown engine size)	300	x	0.18464	55	
Unknown	13,069	x	0.28502	3,725	
Total for private car business travel	220,904			63,018	

*Mileage cited here includes total mileage claims from FoDDC retained staff and total mileage claims from Publica staff (classed as employees working for a minimum of two councils) as a proportional split to give an 'estimated accountable mileage' to each Council. Business Support services claims from Publica employees are divided four ways (25% split) for each Council. Non-Business Support Services claims do not include CBC and therefore use a historical 28:50:22 proportional divide for WODC:CDC:FoDDC.

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	642.4	x	1.052	676	Based on daily averages.
Public Toilets (8 locations)	1978.3	x	1.052	2,081	Based on daily averages.
Cemeteries	120.45	x	1.052	127	Based on daily averages.
Total water	2,741.15			2,884	

Electricity		
Source	kWh's used	Notes
Lydney Leisure Centre Electricity	163,287	Includes some estimated usage
Cinderford Leisure Centre Electricity	113,690	
Newent Leisure Centre Electricity	2,524	
Sedbury Leisure Centre Electricity	43,352	Estimated usage
Heywood Leisure Centre Electricity	83,240	Estimated usage
Total partner delivered electricity consumption (kWh)	406,093	
Conversion factor for National Grid supplied electricity total direct GHG emissions kg CO₂e per kWh (BEIS/DEFRA 2019)	0.2556	
Direct GHG emissions from partner delivered Electricity (kg)	103,797	

Gas		
Source	kWh's used	Notes
Lydney Leisure Centre Gas	846,551	
Cinderford Leisure Centre Gas	527,499	
Newent Leisure Centre Gas	116,660	
Sedbury Leisure Centre Gas	94,101	Estimated usage
Heywood Leisure Centre Gas	290,282	Estimated usage
Total partner delivered gas consumption (kWh)	1,875,093	
Natural Gas conversion factor for Direct GHG (kg CO₂e per kWh based on gross CV value (BEIS/DEFRA 2019)	0.18385	
Direct GHG emissions from Natural Gas (Kg)	344,736	

Electricity Transmission and Distribution	KWH's used
Coleford Offices Electricity	253,676
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	35,740
Total Electricity Consumption	289,416
Conversion factor for UK electricity T&D GHG emissions kg CO₂e per kWh (BEIS/DEFRA 2019)	0.02170
Direct GHG emissions from Electricity transmission and distribution (kg)	6,280

WTT- UK electricity(generation)	KWH's used
Coleford Offices Electricity	253,676
Other (Public Toilets managed by the Council (8 Locations), cemeteries)	35,740
Total Electricity Consumption	289,416
Conversion factor for WTT UK electricity generation GHG emissions kg CO₂e per kWh (BEIS/DEFRA 2019)	0.03565
Direct GHG emissions from Electricity transmission and distribution (kg)	10,318

WTT- UK electricity (T&D)	KWH's used
Coleford Offices Electricity	253,676

Other (Public Toilets managed by the Council (8 Locations), cemeteries)	35,740
Total Electricity Consumption	289,416
Conversion factor for WTT UK electricity T&D GHG emissions kg CO ₂ e per kWh (BEIS/DEFRA 2019)	0.00303
Direct GHG emissions from Electricity transmission and distribution (kg)	877

COMPARISON AGAINST BASE YEAR FIGURES			October 2020
	2010/2011	2019/2020	Comparison*
Scope 1 Emissions			
Total Gas Consumption (kWh)	1,333,363	363,810	
Direct GHG Emissions from Natural Gas (kg)	244,805	66,886	↓
<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	616,302	
Direct GHG emissions from Council owned vehicles (kg)	58,368	616,174	↑
<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>			
<i>(iii) Includes estimated UBICO mileage based on 2018/19 figures and previous annual % reduction.</i>			
Total CO₂e (kg) for Scope 1 Emissions	303,173	609,894	↑
Scope 2 Emissions			
Total electricity consumption (kWh)	686,124	289,416	
Direct GHG emissions from electricity (kg)	359,954	73,975	↓
<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>			
<i>(iii) In 2019/20 Council installed ~80 solar PV panels on the Foxglove Gardens development. Estimated annual generation is 23,160 kWh, with ~ annual GHG emission saving in the region of 5,920kg.</i>			
Total CO₂e (kg) for Scope 2 Emissions	359,954	73,975	↓
Scope 3 Emissions			
Total miles travelled from business travel	229,923	220,904	
Direct GHG emissions from business travel	74,604	63,018	↓
<i>(i) New method of reporting business mileage in 2019/20, see page 5</i>			
<i>(ii) Video conferencing and promotion of pool cars has reduced the amount of private vehicle mileage.</i>			
Direct GHG emissions from mains water	3,338	2,884	=
Total partner delivered electricity consumption (kWh)	655,036	406,093	
Direct GHG emissions from partner delivered electricity (kg)	343,645	103,797	↓
<i>(i) Includes some estimated consumption taken from partner recharges.</i>			
Total partner delivered gas consumption (kWh)	510,891	1,875,093	
Direct GHG emissions from natural gas (kg)	93,799	344,736	↑
<i>(i) Includes some 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	531,910	↓

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