



CLIMATE ACTION for Forest of Dean

Forest of Dean District Council Greenhouse Gas Emissions Report April 2020 to March 2021

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Key points

- The Council generated 1,871.96 t CO₂e of greenhouse gas emissions in 2020/21.
- Consumption of liquid fuel e.g. petrol and diesel, was the largest source of emissions (52.9%). The majority of this came from the Council's household waste collection vehicles.
- The next largest source of emissions was gas consumption in the Council's partner delivered leisure centres (21.3%).
- Total reported emissions rose by 45.3% in 2020/21 compared to 2019/2020. This was largely due the adoption of a more accurate method for calculating emissions from liquid fuel consumption, as well as the inclusion of previously unaccounted for well-to-tank (WTT) emissions from council gas and liquid fuel consumption.
- Some of the increase in emissions from liquid fuel consumption is a result of increased waste flows during the Covid-19 pandemic resulting in collection vehicles having to make an increased number of trips to the waste transfer centre.
- Emissions from council electricity consumption fell by 23.3%, leisure centre electricity consumption by 26.8%, and business travel by 80.9% in 2020/21. For example, electricity consumption at the Coleford Offices fell from 253,676 kWh to 185,033 kWh. Building closures and service reductions caused by the Covid-19 pandemic will have been major factors in these reductions.
- Changes in methodology and more accurate data has also resulted in total reported emissions increasing by 19.1% since 2010/11.
- Emissions from council gas consumption have fallen by 72.2% since 2010/11, business travel by 83.9%, council electricity consumption by 84.2% and leisure centre electricity consumption by 77.0%. Again, methodology changes have been a factor in some of these reductions.

Overview

This report details the greenhouse gas (GHG) emissions produced by Forest of Dean District Council in the period from the 1st April 2020 to the 31st March 2021, and compares how these have changed since 2019/20 and the baseline year of 2010/11.

In 2020/21, the Council was responsible for emitting 1,871.96 tonnes of greenhouse gases (t CO₂e). 56.5% of these were scope 1 emissions, 3% scope 2, and 40.5% scope 3. Broken down further, by far the largest source of emissions was from the consumption of liquid fuel e.g. petrol and diesel (scope 1), which made up 52.9% of the Council's total. The majority of this came from the Council's household waste collection vehicles (950.69 t CO₂e) (see page 10). The next largest source of emissions was gas consumption in the Council's partner delivered leisure centres (21.3%), followed by well-to-tank (WTT) emissions (13.6%) (both scope 3).

Well-to-tank (WTT) emissions – the upstream emissions associated with the extraction, refining and transportation of raw fuel e.g. gas or diesel, to an organisation’s site or asset, prior to their combustion.

Electricity transmission and distribution (T&D) losses emissions – the emissions associated with electricity that is lost in the transmission and distribution system used for delivering purchased electricity.

Greenhouse Gas Emissions from Council Operations and Assets April 2020 to March 2021

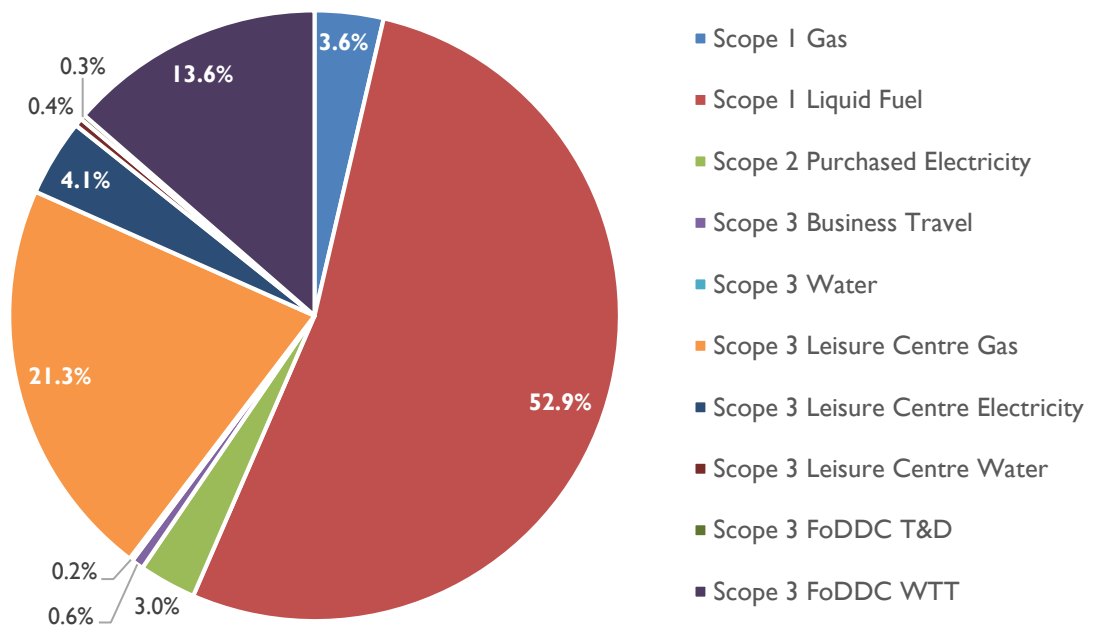


Chart 1: The proportion of the Council’s GHG emissions produced from each source in 2020/21.

Emissions rose by 45.3% when compared to those reported in the previous year 2019/2020. Whilst this appears, at first glance, to suggest emissions have increase as a result of operational changes, it is in fact largely due to changes to the methodology used to calculate emissions in 2020/21, representing greater rigour in data assessment and monitoring. Specifically, a more accurate method for measuring the Council’s direct consumption of liquid fuel has been used this year (see page 6), resulting in a 60.8% increase in reported emissions from this source. The majority of the Council’s liquid fuel consumption is by its waste collection vehicles, and along with the change in methodology, some of the increase in emissions is however attributable to additional miles covered by these vehicles in 2020/21. This is a result of increased waste flows during the Covid-19 pandemic resulting in collection vehicles having to make an increased number of trips to the waste transfer centre.

Additionally, this year’s report expanded the scope of well-to-tank (WTT) emissions that are accounted for in order to bring the Council’s reporting approach in line with national guidance and the other Publica shareholder councils (see page 6). This has resulted in an additional 246.05 t CO₂e of emissions being reported in 2020/21 that were not accounted for in previous years.

Despite the overall increase, emissions from several sources fell in 2020/21. Emissions from council electricity consumption fell by 23.3% and leisure centre electricity consumption by 26.8% (see page 7 for more detail). For example, electricity consumption at the Coleford Offices fell from 253,676 kWh to 185,033 kWh. For similar reasons, emissions from business travel also fell, by 80.9%. For example, electricity consumption at the Coleford Offices fell from 253,676 kWh to 185,033 kWh. Building closures and service reductions caused by the Covid-19 pandemic will have been major factors in these reductions.

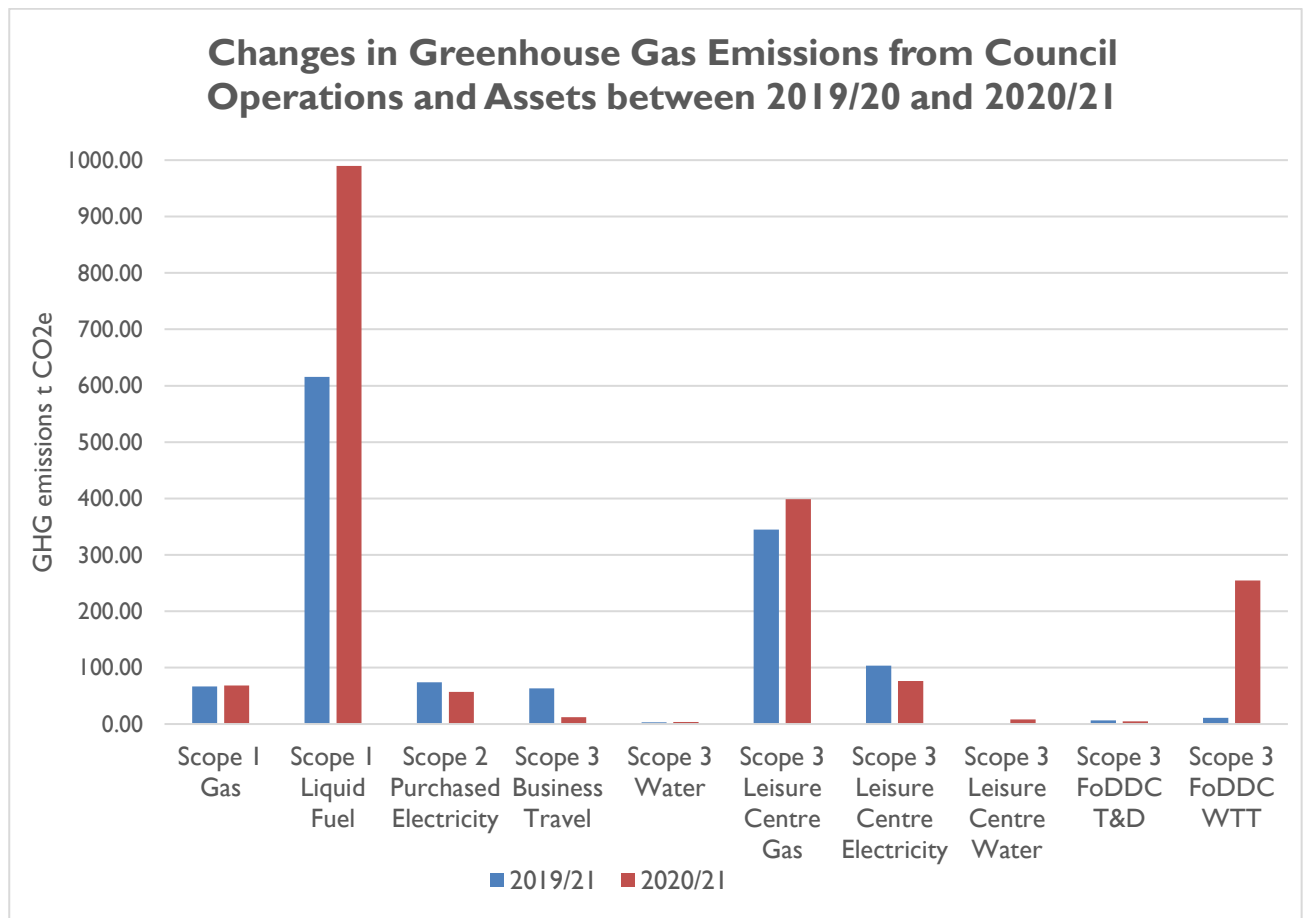


Chart 2: A comparison, by source, of the Council’s GHG emissions in 2020/21 with 2019/20.

Note: emissions from some sources appear as zero on the chart due to emissions being relatively minimal. See page 6 for a description of the differences in methodologies used in each year.

The Council first started reporting its GHG emissions in 2010/11, which is used as the baseline year in this report. A comparison has been undertaken against figures from the baseline year, however changes in the methodology regarding how emissions are reported during the period 2010/11 to 2020/21 have resulted in large increases and decreases to emission reported from various sources.

With this in mind, total emissions have increased by 19.1% since 2010/11. The largest increase was from liquid fuel consumption (1595.6%) and leisure centre gas consumption (325%), however both these increases are largely due to changes in methodology (see page 6). Emissions from council gas consumption have fallen by 72.2%, business travel by 83.9%, council electricity consumption by 84.2% and leisure centre electricity consumption by 77.0% (see page 8 for more detail). Again, methodology changes have been a factor in some of these reductions. Reductions electricity consumption have been helped by increases in the proportion of national grid supplied electricity coming from renewable energy generation. Office electricity consumption has also been reduced through the installation of low energy halogen lighting, sensor controlled lighting and management of vacant office space.

Methodology

Emissions produced by the Council are categorised into three groups, known as scopes. These scopes are defined below, and are in line with the UK Government's guidance on reporting emissions.

Scope 1 emissions (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 emissions (indirect emissions from energy consumption) – 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 an organisation's activities, but which occur at sources they do not own or control.

Scope 3 emissions (other indirect emissions) – emissions that are a consequence of an organisation's actions, which occur at sources which they 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.

Emissions are reported in either tonnes or kilograms of carbon dioxide equivalent (CO₂e). The conversion factors used are those available from the Department for Business, Energy & Industrial Strategy ([Conversion Factors 2020 - full set for advanced users](#), published June 2020).

Where calculations rely on estimates rather than exact data usage, these are identified. This is particularly noticeable for energy consumption at council leisure centres where leisure services are delivered by a third party partner organisation with responsibility for paying the energy bills. To improve reporting in future years the Council will continue to work with partners to improve the collection of data in areas where estimates have been used.

Each year the Council reviews the methodology it uses to calculate its GHG emissions in order to ensure, where appropriate, it is in line with government guidance, international standards, and sector best practice. This helps ensure that its reporting is as accurate as possible and all appropriate sources of emissions are accounted for. The methodology used in this year's report is largely the same as used in 2019/20, however several improvements and additional inclusions have been incorporated, as set out on the next page.

Changes to methodology since 2019/20

- a. Emissions from the Council's direct consumption of liquid fuel e.g. petrol and diesel, have been calculated using litres of fuel consumed, rather than annual vehicle mileage, as has been the case in previous years. The former is considered a significantly more accurate method, as the latter relies on national average fuel consumption per mile, which does not account for factors such as local topography or exact vehicle loads.
- b. The method used to calculate emissions arising from business travel has been expanded to also include journeys taken by public transport or taxi.
- c. Emissions resulting from leisure centre water consumption are now included, whereas only those from leisure centre gas and electricity consumption were reported in previous years. This brings the Council's reporting approach in line with the other Publica shareholder councils.
- d. Well-to-tank (WTT) emissions attributed to the Council's direct consumption of gas and liquid fuel are now included, whereas previously only those from electricity consumption were reported. This brings the Council's reporting approach in line with national guidance and the other Publica shareholder councils.

There have also been several other major changes in the way emissions are calculated since the baseline year 2010/11, as set out below.

Other major changes to methodology since baseline year 2010/11

- a. Since 2018/19, household waste collection has been under Council ownership so emissions from liquid fuel consumption are now reported under scope 1 rather than scope 3. Additional recycled waste collection rounds have also been introduced.
- b. The Council now operates a fleet of pool cars (scope 1).
- c. Since 2014, Lydney Leisure Centre has been operated by a third party partner so emissions from gas and electricity consumption are now reported under scope 3 rather than scope 1 and 2 respectively.
- d. Since 2018/19, a more accurate methodology has been used to calculate emissions from business travel. It now includes total mileage claims from FoDDC retained staff and from Publica staff (classed as employees working for a minimum of two councils) as a proportional split in order 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 use a historical 28:50:22 proportional divide for WODC:CDC:FoDDC.

The following guidance has been used in the production of this report:

[Streamlined Energy and Carbon Reporting Guidance](#) (DEFRA, 2013, updated March 2019)

[Greenhouse gas reporting: conversion factors 2020](#) (BEIS, 2020)

[Technical Guidance for Calculating Scope 3 Emissions](#) (Greenhouse Gas Protocol)

Comparison with previous year (2019/20)

Source	2019/20 (t CO ₂ e)	2020/21 (t CO ₂ e)	% change	Notes
Scope 1 Gas	66.89	68.12	1.9% increase	
Scope 1 Liquid Fuel	615.45	989.67	60.8% increase	More accurate methodology used in 2020/21 (see page 6). Increase in household waste collection vehicle mileage due to increased waste flows during Covid-19 pandemic (page 3)
Total scope 1	682.33	1,057.79	55% increase	See above
Scope 2 Electricity	73.98	56.72	23.3% decrease	Largely due to Covid-19 building closure
Total scope 2	73.98	56.72	23.3% decrease	See above
Scope 3 Business Travel	63.02	11.99	80.9% decrease	Largely due to Covid-19 lockdown
Scope 3 Water	2.88	3.45	19.5% increase	
Scope 3 Leisure Centre Gas	344.74	398.66	15.6% increase	
Scope 3 Leisure Centre Electricity	103.80	76.03	26.8% decrease	Largely due to Covid-19 service closures
Scope 3 Leisure Centre Water	N/A	7.90	N/A	Not reported in 2019/20
Scope 3 Electricity T&D	6.28	4.88	22.3% decrease	Largely due to Covid-19 building closure
Scope 3 WTT	11.20	254.55	2173.8% increase	Scope expanded for 2020/21 (see page 6)
Total Scope 3	531.91	757.45	42.4% increase	See above
Total emissions	1,288.22	1,871.96	45.3% increase	

See Appendix A for a full year-by-year comparison.

Comparison with baseline year (2010/11)

Source	2010/11 (t CO ₂ e)	2020/21 (t CO ₂ e)	% change	Notes
Scope 1 Gas	244.81	68.12	72.2% decrease	Emissions from Lydney swimming pool now reported under scope 3
Scope 1 Liquid Fuel	58.37	989.67	1595.6% increase	Emissions from waste collection vehicle previously reported under scope 3. More recycling collection rounds. More accurate methodology used in 2020/21 (see page 6).
Total scope 1	303.17	1,057.79	248.9% increase	See above
Scope 2 Electricity	359.95	56.72	84.2% decrease	Emissions from Lydney swimming pool now reported under scope 3. Office closures due to the Covid-19 pandemic in 2020/21.
Total scope 2	359.95	56.72	84.2% decrease	See above
Scope 3 Business Travel	74.60	11.99	83.9% decrease	Large reduction in 2020/21 due to Covid-19 lockdown
Scope 3 Water	3.34	3.45	3.25% increase	
Scope 3 Leisure Centre Gas	93.80	398.66	325% increase	Emissions from Lydney swimming pool previously reported under scope 1. Service closures due to the Covid-19 pandemic in 2020/21.
Scope 3 Leisure Centre Electricity	343.65	76.03	77.9% decrease	Service closures due to the Covid-19 pandemic in 2020/21
Scope 3 Leisure Centre Water	N/A	7.90	N/A	Not reported in 2010/11
Third party owned household waste collection vehicles fuel	393.60	N/A	N/A	Brought into Council ownership and now reported under scope 1

Source	2010/11 (t CO ₂ e)	2020/21 (t CO ₂ e)	% change	Notes
Scope 3 Electricity T&D	N/A	4.88	N/A	Office closures due to the Covid-19 pandemic in 2020/21.
Scope 3 WTT	N/A	254.55	N/A	Not reported in 2010/11
Total Scope 3	908.98	757.45	16.7% decrease	
Total emissions	1,572.10	1,871.96	19.1% increase	Mainly due to changes in methodology (see page 6)

See Appendix A for a full year-by-year comparison.

Scope 1 emissions

TOTAL SCOPE 1 EMISSIONS = 1,057,788 kg CO₂e

Gas

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Coleford Offices	370,482	x	0.18387	=	68,121	
Total	370,482				68,121	

Liquid Fuel

This section includes emissions from pool cars as well as operational vehicles used for waste collection, street cleaning, street wardens, grounds maintenance, pest control etc. It does not include machinery such as diggers and ride on lawnmowers.

Source	Total consumption (litres)		Conversion factor (kg CO ₂ e/litre)		Direct GHG emissions (kg CO ₂ e)	Notes
Pool vehicles (diesel)	866	x	2.54603	=	2,204	Consumption estimated from total fuel spend

Source	Total consumption (litres)		Conversion factor (kg CO ₂ e/litre)		Direct GHG emissions (kg CO ₂ e)	Notes
						using 2020/21 UK average fuel price (pence per litre)
Street warden vehicles (diesel)	2,014	x	2.54603	=	5,128	Consumption estimated from total fuel spend using 2020/21 UK average fuel price (pence per litre)
Cemetery vehicles (diesel)	902	x	2.54603	=	2,298	Consumption estimated from total fuel spend using 2020/21 UK average fuel price (pence per litre)
Ubico vehicles (diesel)	11,274	x	2.54603	=	28,703	
Ubico vehicles (petrol)	299	x	2.16802	=	647	
Waste collection vehicles (all diesel)	373,400	x	2.54603	=	950,688	
Total	388,754				989,667	

Scope 2 emissions

TOTAL SCOPE 2 EMISSIONS = 56,721 kg CO₂e

Purchased electricity

Electricity used in the Council's buildings is currently drawn from the national grid via a REGO backed green tariff, rather than what some in the industry refer to as a 'true green' renewable supply. Whilst REGO backed tariffs are generally accepted as being a better option than 'brown' energy tariffs, in order to maintain transparency around its emissions impact, the Council currently uses a location-based rather than market-based approach to calculating electricity emissions, and

consequently uses average UK-wide electricity grid emissions factors to do this. Click [here](#) for more information on different types of green energy tariffs.

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Council Offices	185,033	x	0.23314	=	43,139	
Other (public toilets, cemeteries, car park lighting etc.)	58,257	x	0.23314	=	13,582	
Total	243,290				56,721	

Scope 3 emissions

TOTAL SCOPE 3 EMISSIONS = 757,449 kg CO₂e

Business travel

This section includes emissions from business travel by council staff and councillors via private and public transport.

Private transport

Source	Total distance travelled (miles)		Conversion factor (kg CO ₂ e/mile)		Direct GHG emissions (kg CO ₂ e)	Notes
Private (diesel)	19,283	x	0.27108	=	5,227	
Private (petrol)	23,923	x	0.28052	=	6,711	
Private (unknown)	84	x	0.27584	=	23	
Total	43,290				11,961	

Public transport

Source	Total distance travelled (km)		Conversion factor (kg CO ₂ e/km)		Direct GHG emissions (kg CO ₂ e)	Notes
Rail	493	x	0.03694	=	18	
Bus	67	x	0.1195	=	8	
Taxi	6	x	0.14549	=	1	
Total	566				27	

Water supply and treatment

Source	Total consumption (m ³)		Conversion factor (kg CO ₂ e/m ³)		Direct GHG emissions (kg CO ₂ e)	Notes
Council Offices	678	x	1.052	=	713	
Other (public toilets, cemeteries, etc.)	2,598	x	1.052	=	2,733	
Total	3,276				3,447	

Leisure centre gas

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Lydney Leisure Centre	545,605	x	0.18387	=	100,320	
Cinderford Leisure Centre	1,159,112	x	0.18387	=	213,126	
Newent Leisure Centre	79,057	x	0.18387	=	14,536	

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Sedbury Leisure Centre	94,101	x	0.18387	=	17,302	Unable to obtain data. Consumption estimated based on previous year.
Heywood Leisure Centre (Forest Fitness)	290,282	x	0.18387	=	53,374	Unable to obtain data. Consumption estimated based on previous year.
Total	2,168,156				398,659	

Leisure centre purchased electricity

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Lydney Leisure Centre	113,677	x	0.23314	=	26,503	
Cinderford Leisure Centre	83,322	x	0.23314	=	19,426	
Newent Leisure Centre	2,511	x	0.23314	=	585	
Sedbury Leisure Centre	43,352	x	0.23314	=	10,107	Unable to obtain data. Consumption estimated based on previous year.
Heywood Leisure Centre (Forest Fitness)	83,240	x	0.23314	=	19,407	Unable to obtain data. Consumption estimated based on previous year.
Total	326,103				76,028	

Leisure centre water supply and treatment

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Lydney Leisure Centre	2,419	x	1.052	=	2,545	
Cinderford Leisure Centre	2,870	x	1.052	=	3,019	
Newent Leisure Centre	2,218	x	1.052	=	2,333	
Sedbury Leisure Centre		x		=		Unable to obtain data. Unable to estimate as first year collected.
Heywood Leisure Centre (Forest Fitness)		x		=		Unable to obtain data. Unable to estimate as first year collected.
Total	7,507				7,897	

FoDDC purchased electricity transmission and distribution (T&D)

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Council Offices	185,033	x	0.02005	=	3,710	
Other (public toilets, cemeteries, car park lighting etc.)	58,257	x	0.02005	=	1,168	
Total	243,290				4,878	

FoDDC well-to-tank (WTT) emissions

Gas WTT

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Coleford Offices	370,482	x	0.02391	=	8,858	
Total	370,482				8,858	

Liquid Fuel WTT

Source	Total consumption (litres)		Conversion factor (kg CO ₂ e/litre)		Direct GHG emissions (kg CO ₂ e)	Notes
Pool vehicles (diesel)	866	x	0.61015	=	528	Consumption estimated from total fuel spend using 2020/21 UK average fuel price (pence per litre)
Street warden vehicles (diesel)	2,014	x	0.61015	=	1,229	Consumption estimated from total fuel spend using 2020/21 UK average fuel price (pence per litre)
Cemetery vehicles (diesel)	902	x	0.61015	=	551	Consumption estimated from total fuel spend using 2020/21 UK average fuel price (pence per litre)
Ubico vehicles (diesel)	11,274	x	0.61015	=	6,879	
Ubico vehicles (petrol)	299	x	0.59344	=	177	

Source	Total consumption (litres)		Conversion factor (kg CO ₂ e/litre)		Direct GHG emissions (kg CO ₂ e)	Notes
Biffa vehicles (all diesel)	373,400	x	0.61015	=	227,830	
Total	370,482				237,194	

Purchased electricity WTT

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Council Offices	185,033	x	0.03217	=	5,953	
Other (public toilets, cemeteries, car park lighting etc.)	58,257	x	0.03217	=	1,874	
Total	243,290				7,827	

Purchased electricity T&D WTT

Source	Total consumption (kWh)		Conversion factor (kg CO ₂ e/kWh)		Direct GHG emissions (kg CO ₂ e)	Notes
Council Offices T&D	185,033	x	0.00277	=	513	
Other (public toilets, cemeteries, car park lighting etc.) T&D	58,257	x	0.00277	=	161	
Total	243,290				674	

Appendix A

FoDDC GHG emissions between 2010/11 and 2020/21.

Scope	Source	CO2e (kg)										% change		
		2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	from 2019/20	from 2010/11
One	Gas	244,805	243,938	288,770	255,182	239,631		63,904		63,792	66,886	68,121	1.85	-72.17
	Liquid Fuel	58,368	56,679	56,915	57,407	53,647		75,461		546,102	615,446	989,667	60.80	1595.57
	Total scope 1	303,173	300,617	345,685	312,589	293,278	-	139,365	-	609,894	682,332	1,057,788	55.03	248.91
Two	Electricity	359,954	354,979	330,977	287,506	259,857		136,870		89,001	73,975	56,721	-23.32	-84.24
	Total scope 2	359,954	354,979	330,977	287,506	259,857	-	136,870	-	89,001	73,975	56,721	-23.32	-84.24
Three	WTT Gas	-	-	-	-	-	-	-	-	-	-	8,858	-	-
	WTT Liquid fuel	-	-	-	-	-	-	-	-	-	-	237,194	-	-
	T&D Electricity	-	-	-	-	-	-	-	-	8,402	6,280	4,878	-22.33	-
	WTT Electricity	-	-	-	-	-	-	-	-	15,865	10,318	7,827	-24.15	-
	T&D WTT Electricity	-	-	-	-	-	-	-	-	-	877	674	-23.16	-
	Business Travel	74,604	70,167	48,455	48,063	50,097		49,961		47,904	63,018	11,988	-80.98	-83.93
	Water	3,338	1,649	2,935	2,288	2,632		4,997		3,092	2,884	3,447	19.51	3.25
	Leisure Centre Gas	93,799	202,381	344,086	323,117	121,154		356,483		356,406	344,736	398,659	15.64	325.01
	Leisure Centre Electricity	343,645	393,372	220,468	224,003	175,108		199,347		136,947	103,797	76,028	-26.75	-77.88
	Leisure Centre Water	-	-	-	-	-	-	-	-	-	-	7,897	-	-
	Household waste collection	393,595	489,032	565,166	510,929	501,253		463,550		-	-	-	-	-
	Total scope 3	908,981	1,156,601	1,181,110	1,108,400	850,244	-	1,074,338	-	568,616	531,910	757,449	42.40	-16.67
	Total emissions	1,572,108	1,812,197	1,857,772	1,708,495	1,403,379	-	1,350,573	-	1,267,511	1,288,217	1,871,957	45.31	19.07