

# **Greenhouse Gas Emissions from Local Authority own estate and operations**

**Reporting year 2015\_16**

Oxford City Council

**Date: 1 August 2016  
Authors: Paul Spencer/Paul Robinson  
Reviewer: Jo Colwell**



## **1. Foreword – Carbon Reduction as part of Oxford City Council’s broader sustainability strategy**

Carbon reduction is a key aspect of Oxford City Council’s work around environmental sustainability and is a priority area in which the Council is ambitious and has an excellent track record of leadership and achievement.

However, this is only one strand of a broader sustainability agenda and the Council’s Sustainability Strategy sets out its activities undertaken to achieve a wide range of sustainability targets around city-wide carbon reduction, air quality, waste reduction, land quality, fuel poverty, biodiversity and flood management.

Environmental sustainability is a major corporate priority, from energy and fleet management, refuse and recycling collections, sustainable procurement, parks and open spaces, to IT and housing. It is the unifying theme in all 5 of the Council’s corporate priorities as laid out in the Corporate Plan and represents investment in resilience and future proofing of the organisation and the City.

The Council’s sustainability work is vulnerable to some key risk factors, including the impact of UK government policy, changing energy prices, competing priorities for regional development, the threats of flooding and pressure on air quality from increasing numbers of vehicles.

There are also significant opportunities within sustainability which benefit the whole organisation and its stakeholders, including generating income through government Feed in Tariffs (FiTs) and the Renewable Heat Incentives (RHI), efficiency savings and increasingly effective partnership working with key stakeholders.

## **Greenhouse Gas Emissions (GHG) from Local Authority own estate and operations covering financial year 2015\_16**

### **2. Introduction**

Oxford City Council is fully committed to reducing its CO<sub>2</sub> emissions from its buildings and operations and continues to build on activity in this area. The Council launched its first Carbon Management Strategy and Implementation Plan (“Getting Our House in Order”) in 2008/09 mapping out a route to implementing a range of measures to achieve a reduction in CO<sub>2</sub> emissions by 25% by 2011 (on a 2005 baseline) and 3% year on year thereafter. This Plan<sup>1</sup> was refreshed and updated in August 2012 with a stretched target of a 5% year on year implementation of CO<sub>2</sub> reduction measures, and an expanded scope (including supplies of electricity and gas in communal areas of council housing stock) bringing in more emissions sources that are under the Council’s control.

The areas that contribute to the bulk of the Council’s CO<sub>2</sub> emissions are from:

- Heating and electricity consumption in Council operational sites (e.g. office buildings, depots, leisure centres, car parks, sports pavilions, public conveniences and other miscellaneous sites)
- Fuels consumed in Council fleet vehicles (e.g. refuse trucks, vans and pool cars), non-road going vehicles and plant (e.g. lawnmowers, chippers, and portable heaters)
- Travel for business purposes (e.g. fuel consumed in staff-owned vehicles, pool cars and from the use of public transport to conduct Council business)
- Operational waste deposited in landfill sites (generated from Council operations)

This report provides GHG emissions data (in CO<sub>2</sub>e and CO<sub>2</sub>) for the reporting period 2015/16 (as well as includes details of emissions from the previous 3 years, 2012/13, 2013/14 and 2014/15). (CO<sub>2</sub>e gives the global warming effect of the mass of GHG in terms of what mass of carbon dioxide would produce the equivalent effect.)

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<sup>1</sup> [https://www.oxford.gov.uk/downloads/file/1901/carbon\\_management\\_plan\\_2012-17](https://www.oxford.gov.uk/downloads/file/1901/carbon_management_plan_2012-17)

A summary of 2015/16 GHG emissions included in this report are as follows (see Sections 4 and 5 below for scope of emissions coverage in this report):

<b>Total GHG emissions for period 1 April 2015 to 31 March 2016*</b>		
	<b>Tonnes of CO<sub>2</sub></b>	<b>Tonnes of CO<sub>2</sub>e</b>
<b>Year</b>	<b>2015/16</b>	<b>2015/16</b>
Scope 1	4910	4939
Scope 2	3807	3838
Scope 3	357	510
<b>Total GHG emissions</b>	<b>9074</b>	<b>9286</b>

\* see Sections 4 and 5 below for scope of emissions coverage in this report

Please see Section 7 below for a discussion of CO<sub>2</sub> emissions reductions trends over the past 4 reporting years (i.e. including the current reporting year 2015/16).

### **3. Organisation Information**

Oxford City Council is a non-metropolitan district council as defined by Section 1(4) and Schedule 1 Part II of the Local Government Act 1972. The Local Authority main contact details are: Oxford City Council, Town Hall, St Aldates, Oxford, OX1 1BX.

### **4. Reporting period**

1 April 2015 – 31 March 2016.

### **5. Approach**

We have based this report on the Government's Guidance on how to measure and report greenhouse gas emissions as outlined in communications from Department for Energy and Climate Change and The Department for Food, Environment and Rural Affairs.

<https://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses>

### **6. Organisational boundary**

The scope of this report covers all Council buildings and operations as well as water consumption and disposal.

The following emissions sources are covered:

- Electricity and gas consumed in all buildings and sites (e.g. emissions from our operational buildings and other sites office buildings, depots, leisure centres, car parks, sports pavilions, public conveniences and other miscellaneous sites).
- Fuel consumption from fleet vehicles, non-road going vehicles and plant.

- Miles or kilometres travelled in staff-owned vehicles and estimated to be travelled in public transport for business purposes.
- Water consumed in Council operational buildings and other miscellaneous sites within the scope of the Council's influence and operations.

In future years, as data quality and availability improves we propose to expand the scope to cover other emissions sources across the Council estate and operations that the Council has direct influence over (e.g. operational waste deposited in landfill sites and staff commuting).

## 7. Operational scopes

We have measured our total scope 1, 2 and significant scope 3 emissions covering the areas outlined in the organisational boundary (see above). Further details are outlined in Table 1 below.

**Table 1: Operational scopes**

Scope One	Scope Two	Scope Three	Not included	
Fuel used to heat our buildings (e.g. natural gas, gas oil, kerosene and liquid petroleum gas)	Purchased electricity for our buildings and other electricity consuming sites (e.g. offices, leisure centres, depots, car park and public conveniences).	electricity (transmissions and distribution factors)	Perfluorocarbons (PFC), hydrofluorocarbons (HFC) and sulphur hexafluoride (SF <sub>6</sub> )	
Fuel used in council vehicle fleet and also to power non-road going vehicles and plant such as lawnmowers and, chippers.			Staff commuting	
Fuel used in waste collection vehicle fleet			Business mileage by car	Emissions from Council operational waste deposited in landfill sites
			Business mileage by public transport (bus and train)	Emissions from Leased commercial properties or housing stock where tenants are paying energy/water bills.
		Water consumed (supply and treatment)	<b>Total indirect emissions:</b> e.g. due to upstream emissions from production and delivery of fuel to power stations or transport fuel stations.	
	Half-hourly metered and non-half-hourly metered electricity supplies (ie Meter profile classes 01-08, HH and Unmetered Supplies)		Avoided emissions from on-site renewable energy have not been included to date	

Where possible we will work towards including the excluded emissions in future years.

A summary of GHG emissions for the past 4 years including the current reporting year (2015/16) is outlined in the following tables:

**Table 2:** Total GHG emissions for the period 1<sup>st</sup> April 2012 to 31 March 2013

2012/13	Total Units	tCO2	tCO2e
<b>Scope 1</b>			
Gas consumption (kWh)	17,130,181	3,166	3173
Gas Oil (litres)	29,041	80	88
Kerosene (litres)	4,000	0	10
LPG (litres)	15,892	24	24
Diesel (litres) - average biodiesel blend	679,841	1,743	1756
Petrol (litres) - average biofuel blend	54,431	122	122
<b>Total Scope 1</b>		<b>5,135</b>	<b>5,173</b>
<b>Scope 2</b>			
Purchased Electricity (kWh)	8,997,442	<b>4,112</b>	<b>4,139</b>
<b>Scope 3</b>			
Electricity - Transmission and distribution	8,997,442	325	327
Average petrol car (miles) - unknown fuel	183,770	57	58
Passenger travel – train, national rail (km) <sup>#</sup>	130,004	7	8
Passenger travel – average local bus (km) <sup>#</sup>	49,402	5	6
Water supply(m <sup>3</sup> )	115,052	n/a	40
Water treatment(m <sup>3</sup> )	115,052	n/a	82
<b>Total Scope 3</b>		<b>395</b>	<b>519</b>
<b>Totals</b>		<b>9,642</b>	<b>9,831</b>

\* Defra emissions factors guidance - dated June 2012 used

<https://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses>

# estimated derived from financial data

a – Defra Emissions Conversion factor tool used (2012 data)

<http://www.ukconversionfactorscarbonsmart.co.uk/>

Heating degree days (to base 15.5°C) for the Thames Valley Region for the 2012/13 reporting period were 2498.

**Table 3:** Total GHG emissions for period 1 April 2013 to 31 March 2014

2013/14	Total Units	tCO <sub>2</sub>	tCO <sub>2</sub> e
<b>Scope 1</b>			
Gas consumption (kWh)	15,237,185	2,798	2,804
Gas Oil (litres)	45,060	123	132
Kerosene (litres)	4,000	10	10
LPG (litres)	1,174	2	2
Diesel (litres) - average biodiesel blend	693,108	1,789	1,803
Petrol (litres) –(average biofuel blend)	28,804	64	64
<b>Total Scope 1</b>		<b>4,785</b>	<b>4,815</b>
<b>Scope 2</b>			
Purchased Electricity (kWh)	9,384,005	<b>4,151</b>	<b>4,180</b>
<b>Scope 3</b>			
Electricity - Transmission and distribution	9,384,005	355	357
Average petrol car (miles) - unknown fuel	167,979	51	51
Passenger travel – train, national rail (km) <sup>#</sup>	83,658	4	4
Passenger travel – average local bus (km) <sup>#</sup>	5,424	1	1
Water supply(m <sup>3</sup> )	126,333	n/a	43
Water treatment(m <sup>3</sup> )	126,333	n/a	90
<b>Total Scope 3</b>		<b>411</b>	<b>547</b>
<b>Totals</b>		<b>9,348</b>	<b>9,542</b>

\* Defra emissions factors guidance - dated June 2013 used

<https://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses>

# estimated derived from financial data

a – Defra Emissions Conversion factor tool used (2013 data)

<http://www.ukconversionfactorscarbonsmart.co.uk/>

Heating degree days (to base 15.5°C) for the Thames Valley Region for the 2013/14 reporting period were 2002.

**Table 4:** Total GHG emissions for the period 1 April 2014 to 31 March 2015

2014/15	Total Units	tCO <sub>2</sub>	tCO <sub>2</sub> e
<b>Scope 1</b>			
Gas consumption (kWh)	14,160,656	2,613	2,619
Gas Oil (litres)	36,178	99	106
Kerosene (litres)	4,000	10	10
LPG (litres)	0	0	0
Diesel (litres) - average biodiesel blend	697,152	1,800	1,814
Petrol (litres) –(average biofuel blend)	21,243	46	47
<b>Total Scope 1</b>		<b>4,568</b>	<b>4,596</b>
<b>Scope 2</b>			
Purchased Electricity (kWh)	9,173,950	4,497	4,534
<b>Scope 3</b>			
Electricity - Transmission and distribution	9,173,950	393	396
Average petrol car (miles) - unknown fuel	144,121	44	44
Passenger travel – train, national rail (km)	88,186	4	4
Passenger travel – average local bus (km)	7,889	1	1
Water supply(m <sup>3</sup> )	120,984	n/a	42
Water treatment(m <sup>3</sup> )	120,984	n/a	86
<b>Total Scope 3</b>		<b>442</b>	<b>573</b>
<b>Totals</b>		<b>9,507</b>	<b>9,704</b>

\* Defra emissions factors guidance - dated June 2014 used

<https://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses>

# estimated derived from financial data

a – Defra Emissions Conversion factor tool used (2014 data)

<http://www.ukconversionfactorscarbonsmart.co.uk/>

Heating degree days (to base 15.5°C) for the Thames Valley Region for the 2014/15 reporting period were 1870.



**Table 5:** Total GHG emissions for the period 1 April 2015 to 31 March 2016

2015/16	Total Units	tCO <sub>2</sub>	tCO <sub>2</sub> e
<b>Scope 1</b>			
Gas consumption (kWh)	15,971,143	2940	2946
Gas Oil (litres)	35,366	99	106
Kerosene (litres)	4,000	10	10
LPG (litres)	0	0	0
Diesel (litres) - average biodiesel blend	709,109	1,817	1,832
Petrol (litres) –(average biofuel blend)	20,148	44	44
<b>Total Scope 1</b>		<b>4,910</b>	<b>4,939</b>
<b>Scope 2</b>			
Purchased Electricity (kWh)	8,303,027	<b>3,807</b>	<b>3,838</b>
<b>Scope 3</b>			
Electricity - Transmission and distribution	8,303,027	314	317
Average petrol car (miles) - unknown fuel	127,785	38	38
Passenger travel – train, national rail (km) <sup>#</sup>	84,989	4	4
Passenger travel – average local bus (km) <sup>#</sup>	7,550	1	1
Water supply(m <sup>3</sup> )	143,015	n/a	49
Water treatment(m <sup>3</sup> )	143,015	n/a	101
<b>Total Scope 3</b>		<b>357</b>	<b>510</b>
<b>Totals</b>		<b>9,074</b>	<b>9,286</b>

\* Defra emissions factors guidance - dated June 2013 used

<https://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses>

# estimated derived from financial data

a – Defra Emissions Conversion factor tool used (2015 data)

<http://www.ukconversionfactorscarbonsmart.co.uk/>

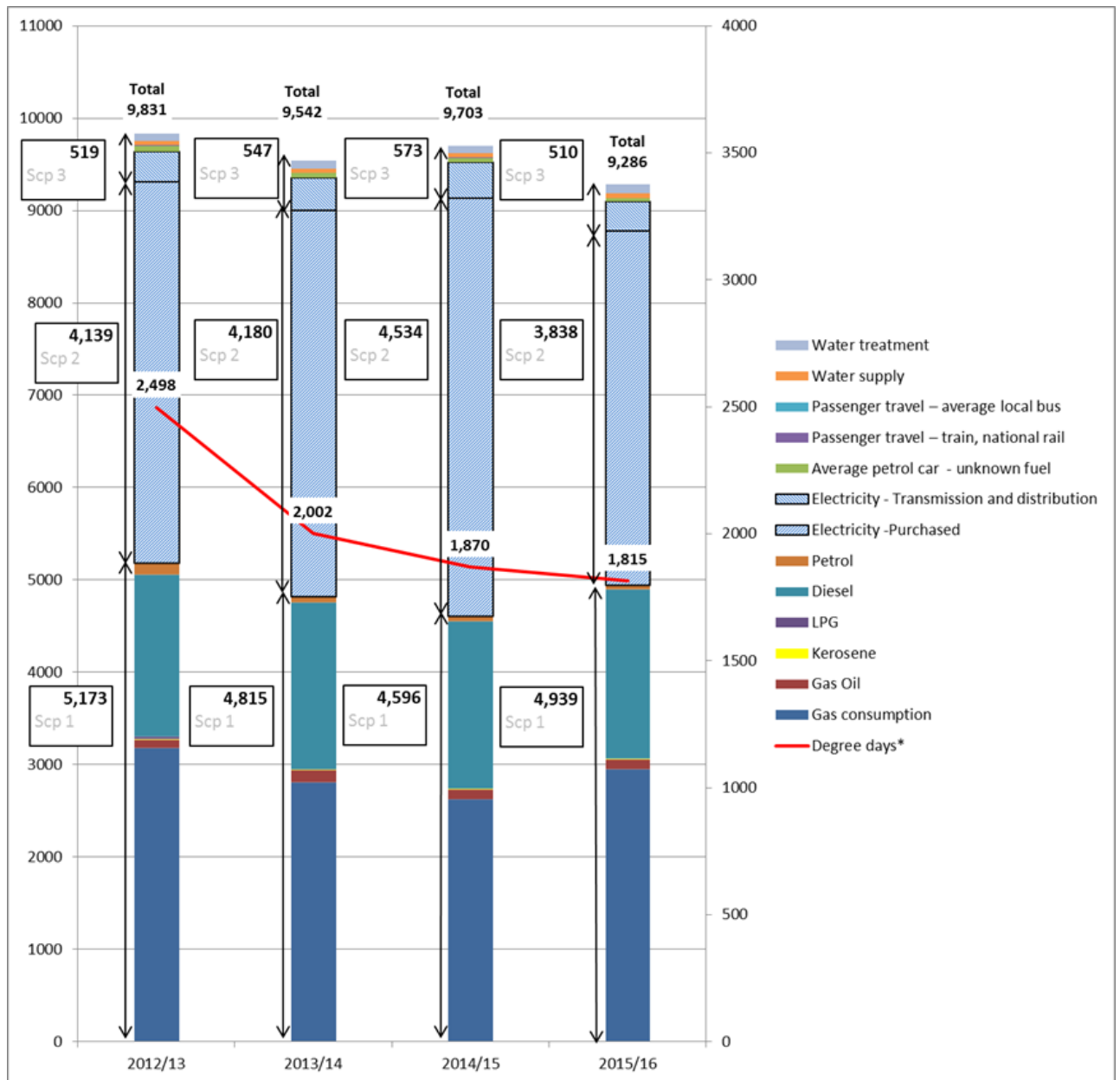
Heating degree days (to base 15.5°C) for the Thames Valley Region for the 2015/16 reporting period were 1815.

We have referenced heating degree days figures for each reporting year as a rough indication of the severity of the heating season. This is not a precise assessment on a building per building basis accounting for heating loads, building fabric and other factors that may influence heating related consumption but solely used as rough indicator of general heating demand. A lower degree day number indicates a less severe heating requirement and may have an influence on quantity of gas used.

**Table 6:** Summary of annual GHG emissions (tCO<sub>2</sub>e) for period 1 Apr 2012 to 31 Mar 2016

	12/13 tCO <sub>2</sub> e	13/14 tCO <sub>2</sub> e	14/15 tCO <sub>2</sub> e	15/16 tCO <sub>2</sub> e
Gas consumption (kWh)	3,173	2,804	2,619	2,946
Gas Oil (litres)	88	132	106	106
Kerosene (litres)	10	10	10	10
LPG (litres)	24	2	0	0
Diesel (litres) - average biodiesel blend	1,756	1,803	1,814	1,832
Petrol (litres) – (average biofuel blend)	122	64	47	44
<b>Totals Scope 1</b>	<b>5,173</b>	<b>4,815</b>	<b>4,596</b>	<b>4,939</b>
Purchased Electricity (kWh)	<b>4,139</b>	<b>4,180</b>	<b>4,534</b>	<b>3,838</b>
Electricity - Transmission and distribution	327	357	396	317
Average petrol car (miles) - unknown fuel	58	51	44	38
Passenger travel – train, national rail (km)	8	4	4	4
Passenger travel – average local bus (km)	6	1	1	1
Water supply(m <sup>3</sup> )	40	43	42	49
Water treatment(m <sup>3</sup> )	82	90	86	101
<b>Totals Scope 3</b>	<b>519</b>	<b>547</b>	<b>573</b>	<b>510</b>
<b>Totals</b>	<b>9,831</b>	<b>9,542</b>	<b>9,703</b>	<b>9286</b>
Degree days*	2498	2002	1870	1815

The above data from Table 6 is further detailed in the stacked bar chart below to show the overall trends in absolute emissions at the appropriate annual conversion factors supplied:



**Chart 1: Stacked bar chart showing GHG emissions (tCO<sub>2</sub>e) from all three scopes for the past four reporting years covering the expanded scope of emissions.**

## 8. Base Year

Our base year for this GHG reporting process is 2014/15 (the previous reporting year) as this is aligned with our year on year target outlined in our Carbon Management Plan approved in August 2012 (“Carbon Reduction at the Heart of Everything we Do”).

## 9. Targets

In the existing Carbon Management Plan (CMP), the Council CO<sub>2</sub> reduction target for 2015/16 was to put measures in place calculated to reduce CO<sub>2</sub> emissions by a minimum of 5% compared with the previous year (equivalent to **454tCO<sub>2</sub>**) which was

exceeded. The impact of measures implemented in 2015/16 are not expected to be fully represented in the carbon emissions data for the 2015/16 reporting year - as they were implemented at periods throughout the reporting year so would not have had a full year's impact.

**Governance and targets:** Tim Sadler, Director, Community Services has overall accountability and Jo Colwell, Environmental Sustainability Manager is responsible for the achievement of the target. Councillor John Tanner (City Executive Board Member for A Clean and Green Oxford), is responsible for this work area. Internal assurance and governance for the Carbon Management Programme and related work area is provided through the Board on which the aforementioned officers are Board members. Cross party elected member steer is via the Carbon and Natural Resources Members Board, chaired by the portfolio holder.

In terms of progress in year on year reduction in absolute emissions our total GHG emissions in 2015/16 (scopes 1, 2, and 3 as outlined in Sections 4 and 5 above) were **4.6%** (CO<sub>2</sub>) and **4.3%** (CO<sub>2</sub>e) less than in the previous year 2014/15.

In terms of estate-wide electricity and gas consumption, a 9.5% reduction in electricity consumption and a 12.5% increase in gas consumption have been observed.

Further analysis of GHG reduction performance is outlined in the following section against significant intensity measurements.

## **10. Intensity measurements**

This section provides more detail on underlying trends in GHG emission data against significant intensity measurements related to areas of activity at the Council.

### **a. Leisure centre visits**

Leisure centres account for over 40% of building related GHG emissions and therefore activity in these buildings can have an impact on overall energy and water consumption if not managed effectively.

Leisure centre related CO<sub>2</sub> e emissions decreased (by 5.3%) in 2015/16 compared to the previous year. Applying an intensity measurement against visitor numbers also shows a ca5% reduction in kgCO<sub>2</sub>e per visit compared to the previous year.

The following table summarises these trends over the last three years. The one notable issue can be seen with the impact of operating an outdoor swimming pool (Hinksey Outdoor Pool) over a much longer period during the year – which along with a water leak (now resolved) – has led to a steady increase in gas consumption and associated carbon emissions in recent years. An in-depth feasibility study is currently underway to explore the option of replacing the existing gas boilers at this site with lower carbon technologies. Investigations are well advanced to review the potential for installing a water sourced heat pump supplied by the nearby lake next to the pool. There is also the possible added benefit of the heat pumps continuing to provide heat out of the swimming pool season through a local district heat network.

Table 7: Leisure visits over 3 years and carbon, and carbon/visit comparison

	2013/14		2014/15		2015/16	
	Visits	kgCO2e /visit	Visits	kgCO2e/ visit	Visits	kgCO2e/ visit
Barton Leisure Centre	118,955	3.15	122,196	2.86	126,012	2.78
Blackbird Leys Swimming Pool*	27,624	5.3	19,243	5.21	0	0
Ferry Leisure Centre	505,248	1.11	550,783	1.11	619,562	1.01
Hinksey Outdoor Pool	69,391	6.28	60,372	6.74	62,357	10.43
Leys Pools and Leisure Centre	169,892	2.12	408,171	1.39	439,921	1.84
Oxford Ice Rink	170,289	4.17	175,204	4.18	193,441	3.61
Temple Cowley Pool*	142,268	5.01	111,169	4.93	0	0
<b>Totals</b>	<b>1,203,667</b>	<b>-</b>	<b>1,447,138</b>	<b>-</b>	<b>1,441,293</b>	<b>-</b>
total kgCO2e per visit in Leisure Centres		<b>2.74</b>		<b>2.29</b>		<b>2.18</b>
Visits: % change on previous year	<b>0.50%</b>		<b>9.30%</b>			<b>-0.40%</b>
kgCO2/visit: % change		<b>2.62%</b>		<b>-16.36%</b>		<b>-4.87%</b>

**b. Municipal waste collection: increased activity**

There has been an increase in waste collection (and commercial trading) activities by the Council's Direct services operations team over the past three years.

Increases in GHG emissions related to this activity have been limited by gradual upgrading of fleet to modern lower emission, more fuel efficient vehicles as well as rolling out advanced driver training to educate drivers on techniques to conserve fuel consumed in vehicles. Regular eco-driver training and investment in vehicle telemetry, giving on-board engine management systems/alerts, are assisting this work.

Table 8 below details waste collection tonnages over the past three years – with a steady increase in collection being observed. In terms of fleet vehicle related GHG emissions, a slight increase of 0.76% in absolute emissions (tCO2e) has been observed in 2015/16 compared to the previous year against a backdrop of a 2.3% increase in waste collection tonnage.

Assessing performance against activity levels (Table 9), a 1.47% reduction in kgCO2e per tonne of waste collected was achieved giving an indication that increased fuel economy measures are having a positive impact on performance. We will continue to track this metric in future reporting years.

Table 8: Domestic and Trade waste collection figures (Oxford City Council)

Year	Domestic		Trade		Total waste collected in tonnes	Increased activity
	Total Residual	Total Recycling	Total Residual	Total Recycling		
2013/14	24,995.39	20,123.79	6,019.34	3,826.48	<b>54,965.00</b>	n/a
2014/15	24,641.12	21,199.15	6,426.52	4,369.91	<b>56,636.70</b>	3.0%
2015/16	24,575.22	21,703.79	7,451.01	4,195.67	<b>57,925.69</b>	2.3%

Table 9: Vehicle related CO<sub>2</sub> emissions against waste collected

	Fleet fuel kgCO <sub>2</sub> e	Total waste collected in tonnes	kgCO <sub>2</sub> e/tonne waste collected	% reduction in carbon/tonne waste collected
2013/14	2,001,000	54,965	36.40	n/a
2014/15	1,967,000	56,637	34.73	-4.60%
2015/16	1,982,000	57,926	34.22	-1.47%

There has also been an increase in recycling operations over the period, reducing the amount of food waste going to landfill and the subsequent GHG methane as it decomposes under the ground.

The food waste is taken on alternative weeks to either a nearby composting facility or anaerobic digestion (AD) plant (at Cassington, Oxfordshire) where methane produced in a controlled process is used to generate electricity with the residue applied to farm land. Obviously increased separated recycling is a very positive environmental benefit compared to landfill, but it does mean vehicle movements and hence carbon emissions from our activities (and recorded in our reporting here) can increase as a result. (The net benefit on overall carbon emissions by collecting more food waste – avoiding landfill - and taking to AD plant is significant.)

Table 10: Breakdown of domestic waste collected showing increasing organic (food + garden waste) volumes

Year	Domestic		
	Total Residual	Total Recycling	% increase recycling
<b>2013/14</b>	24,995.39	20,123.79	-0.7%
<i>...of which dry recycling</i>	-	13,517.18	-1.9%
<i>...of which organic</i>	-	6,606.61	+2.0%
<b>2014/15</b>	24,641.12	21,199.15	+5.3%
<i>...of which dry recycling</i>	-	13,828.39	+2.3%
<i>...of which organic</i>	-	7,370.75	+11.6%
<b>2015/16</b>	24,575.22	21,703.79	+2.38%
<i>...of which dry recycling</i>	-	13,487.37	-2.46%
<i>...of which organic</i>	-	8,216.42	+11.47%

### c. Commercial trading activity increases

The council is bucking the national trend for the public sector to outsource service delivery and instead is offering its services to other organisations in the area. This has led to increases in external revenue generation which is supporting front line services.

The kind of services offered centre on commercial waste collection, private and HGV vehicle MOT testing and, servicing ground maintenance and building maintenance. All of this activity results in extra vehicle purchasing, movements and increased office and workshop energy and water use, producing an upward pressure on our carbon emissions.

Table 11 below outlines changes in the make-up of the vehicle fleet in the last two years with a 26% increase in the number of vehicles used to conduct council operations. In spite of increased operational activity, continuing driver training and purchase of energy efficient vehicles is assisting with ensuring that fuel consumption and the associated GHG emissions are kept under control. This is reflected in the fact that fuel consumption related emissions (tCO<sub>2</sub>e) have increased only marginally (0.76%) during 2015/16 compared to the previous reporting year.

Table 12 outlines the latest available data on external revenue generation from Council services provided to other organisations showing a steady increase in commercial activity in recent years. This has an upward pressure on Council-wide energy and fuel consumption and related emissions with increased operating hours and vehicle movements.

Table 11: Increase in vehicle fleet numbers

	2014/15	2015/16	
Vehicle Types	No of vehicles	No of vehicles	Change
Car and Car derived vans	64	83	29.7%
Misc light/heavy plant and ride on machinery	319	451	41.4%
Trucks and tippers up to 3500kg GVW	66	73	10.6%
Vans up to 3500kg GVW	80	99	23.8%
Vans, trucks and tippers between 3501 and 7500kg GVW	18	13	-27.8%
Vans, trucks and tippers between 7501 and 18000kg GVW	9	8	-11.1%
Refuse Collection Vehicles	26	28	7.7%
Sweepers	15	17	13.3%
Tractors, shovels and light loaders	19	11	-42.1%
Trailers	46	51	10.9%
<b>Totals</b>	<b>662</b>	<b>834</b>	<b>26.0%</b>

Table 12: External revenue generation from Council services offered to other organisations from 2012/13 to 2014/15

	<b>Total Direct Services budget</b>	<b>Total external revenue from Council services*</b>	<b>% external revenue contribution</b>
2012/13	£29,000,000	£4,500,000	15.50%
2013/14	£29,000,000	£5,300,000	18.30%
2014/15	£33,000,000	£6,200,000	18.80%
<i>* Direct services operations on non-Council work streams paid for externally such as commercial trade waste collection, gas and electrical works, vehicle maintenance etc</i>			

## 11. Renewable energy installations

Oxford City Council has continued to implement renewable energy installations to generate on-site electricity and reduce its use of grid-sourced electricity. A summary of current installed capacity and the context against overall electricity consumption/CO<sub>2e</sub> emissions is outlined below:

### **Oxford City Council Solar Photovoltaic (PV) installed annual generation figures 2015/16:**

- Commercial sites (i.e. where OCC pays energy bills): 461,600 kWh/year (an increase of 33% on the previous year)
- Domestic Sites (i.e. where tenants pay energy bills and benefit from free solar electricity): 292,604 kWh/year (an increase of 186% on the previous year)

Total: **754,204 kWh/year** (i.e. over three-quarters of a million kWh of additional grid electricity would have been consumed without the PV that OCC has installed. (equivalent to ca377tCO<sub>2e</sub>/year avoided)

To put these figures into context against electricity and CO<sub>2e</sub> figures the PV makes the following contribution:

- % contribution to OCC electricity consumption (Commercial PV only): 5.3%
- % contribution to OCC electricity consumption (all PV): 8.7%
- % contribution to OCC CO<sub>2e</sub> emissions (commercial PV only): 2.4%
- % contribution to OCC CO<sub>2e</sub> emission (all PV): 4.0%

## 12. Sustainable Buildings

The Council continues to invest in the upgrade of its estate with a programme of refurbishments and new build projects. Where possible energy efficiency solutions that go beyond minimum building regulation requirements (and other sustainability measures) are implemented. The Council's own planning requirement for the city for larger developments insists on a Natural Resource Impact Assessment and 20% on-site renewable - or very low carbon - energy generation. This requirement influences new Council buildings as well as those built by others in the city.



For example, the Council recently constructed a brand new community centre in Rose Hill which features a 63kWp Solar PV installation using high efficiency panels combined with an 8kWh capacity battery storage system, Electric vehicle charging points and LED lighting and controls throughout. Insulation levels have significantly exceeded minimum building regulations to reduce heating demand of the building.

An innovative domestic Solar PV and battery storage project in the Rose Hill area is also informing future development of approaches to balancing grid supply/demand and maximising the use of Solar electricity e.g. at night-time when demand is higher.

A major refurbishment of 5 tower blocks will include low U-value insulated cladding and LED lighting throughout. One tower block is also in consideration for installation of a large solar façade on one south facing wall.

### **13. External Assurance Statement**

Having received the assurance that our energy/carbon management practices are up to Best Practice levels in previous years (e.g. attaining British Standards Institute Energy Reduction Verification kitemark to June 2012 and ISO 140001 accreditation in June 2016), we have focussed on building capacity of key staff e.g. through undergoing training in energy management and professional accreditations.

Team members include a Certified Energy Manager and Certified Measurement & Verification Professional, BREEAM Accredited Professionals, BREEAM-in-Use Assessor, Public Building Energy Assessor, Energy Institute qualifications and membership (eg TEMOL and MEI status) and membership of the Association of Energy Engineers (AEE) with one team member being a regular Board member for the UK Chapter of the AEE.

Energy and water data is validated and managed via a market leading Energy bureau database package (Team Sigma) with again the team developing expertise in this area in-house.

### **14. Additional information on the Council's wider Environmental Sustainability activities**

Appendix A outlines Oxford City Council's recent activities against a broad set of sustainability targets around city-wide carbon reduction, air quality, waste reduction, land quality, biodiversity, fuel poverty and flood management.

## Appendix A: Oxford City Council Environmental Sustainability activities report 2015/16

### 1. City-wide partnerships

The Council is making excellent progress against internal carbon reduction targets, but is only responsible for 1% of the city's total CO<sub>2</sub> emissions. In order to achieve ambitious city-wide targets to reduce emissions by 40% by 2020, the Council is leading on several pioneering partnership projects:

- **Low Carbon Oxford** - The Council leads on coordinating the [Low Carbon Oxford](#) network – a collaborative partnership of over 40 organisations that are responsible for the majority of Oxford's CO<sub>2</sub> emissions and which have committed to reduce their emissions by 3% each year. The Council leads a programme of networking events for partners to share best practice and also delivers strategic and exploratory projects to challenge our members to keep pushing themselves for sustainable operations. In 2015 analysis and stakeholder engagement took place for the 'Route Map to 2020'. The Route Map is a 'sustainable energy action plan' for Oxford, meeting the city council's commitments under the Covenant of Mayors initiative. It sets out the actions that have been taken and are intended and predicts that if we can stick to the plan we can meet our 40% reduction target by 2020. In 2015/16 we also began an exploratory piece of work on resource use within the city. Working with consultants and key LCO pathfinders at the University of Oxford and Linacre College we have established a framework methodology for assessing the city's material uses and risk profile associated with these. Expected to be published later in 2016 the 'Material Oxford' report will present our findings and call to action to our members to look for sustainability, and risk management, opportunities in their supply chain. Our annual public engagement project, LCO Week, is reported on below as is our Green the Arts project. Further details are on the [Low Carbon Oxford website](#).
- **OxFutures** - The Council programme manages a partnership project between Oxford City Council, Oxfordshire County Council and the social enterprise Low Carbon Hub (LCH) to mobilise large-scale investment to develop renewable energy and energy efficiency projects across the city and county. The programme was kick-started by a grant from [Intelligent Energy Europe](#) with a target to leverage investment of around £18 million into local energy projects by November 2016. So far the project has leveraged around £4million of investment including £150k of investment in energy efficiency on social housing in Barton.
- **Greening the Arts**: As part of the Low Carbon Oxford programme Oxford City was the first UK council to integrate environmental reporting into its arts funding in the pioneering [Greening the Arts](#) project. It commissioned sustainability experts from charity Julie's Bicycle to work with its cultural partners (venues, organisations and events) to help them become as sustainable as possible and submit environmental policies, action plans and annual emissions reports as part of their on-going funding agreement with the Council. Cultural partners have embraced this and many have seen significant reductions in their paper use, audience travel and building energy use.
- **Heat Networks**: Following a master-planning exercise for heat networks in Oxford, funded by the Heat Networks Development Unit (HNDU) in DECC, the Council is working with The University of Oxford, Oxford Brookes University and a number of industrial partners to look into heat networks

across the city. It is currently investigating the feasibility of distributed heat networks around the city centre University science area, Cowley (around the MINI Plant) and the Headington hospital area.

- Low Carbon Oxford Week (LCO Week): The Council leads on organising the annual [LCO Week](#) festival. LCO Week uses culture, creativity and community to inspire local people to take action against climate change. The festival also showcases the actions organisations in and around the city have undertaken to improve their sustainability. It aims to put Oxford firmly on the map as a leading low carbon city. In 2015, it collaborated with 60 partner organisations to offer over 100 events across Oxford and in 2016 became even bigger and engaged over 40,000 people at its many varied events, including the Big Green Day Out in Oxford city centre (27,000 attendees). Watch a short film about the most recent LCO Week (June 2016) on the official website - [www.lcoweek.org](http://www.lcoweek.org)

## **2. Domestic energy efficiency and fuel poverty**

Whilst the perception of Oxford might be of a generally healthy, relatively wealthy part of the country, the city has pockets of significant deprivation with 17 super output areas being in the 25% most deprived in the country. An estimated 6840 Oxford households were in fuel poverty in 2014, according to the latest definition.

Previously the Council has made strong progress towards addressing these issues in its own estate by employing an Energy Efficiency Projects Officer to work jointly with Housing to implement projects to benefit vulnerable Council housing tenants. The officer continues to progress work in this area. Further support to social housing tenants has been offered by recruiting two Energy Advice Officers, carrying out home visits to properties and referring those with serious financial or debt concerns to a designated Citizens' Advice Bureau officer.

Using a combination of the Energy Company Obligation and capital funding, the Council has completed 50 external wall insulations, 95 cavity wall insulations and 35 solar PV installations on its housing stock over the last two years. This includes 59 properties in Rose Hill that also have Maslow battery storage systems installed as part of an innovative government funded research project (Project [ERIC](#)), led by Bioregional.

A loft insulation top up programme is also being rolled out across Council houses, aiming to offer a minimum standard of 270mm to all tenants. All tenants currently on electric heating where it is feasible to upgrade have been offered gas central heating - this programme is being rolled out over two years, accessing available ECO funding. The tower blocks refurbishment incorporates a requirement to exceed the thermal requirements of the Building Regulations by 25% through external insulation.

With a higher than average number of privately rented properties in the city, Environmental Health teams are now checking and improving those rated F and G (and therefore at risk of Excess Cold) utilising Housing Health and Safety Rating System (HHSRS assessments or HMO Licensing). The Council also offered thermal imaging surveys on properties to help target areas of energy waste followed by advice and information to landlords in Oxford on how improvements in energy efficiency can be made. In total, 23 properties were surveyed and thermally imaged in 2014, 36 properties in 2015 and 20 in 2016.. From 1 August 2016, Ebico Charitable Trust has funded the Council to offer basic energy efficiency measures such as LED lighting, loft insulation and thermostatic radiator valves to landlords.

For home owners, the Council's Home Improvement Agency continues to offer Winter Warmth grants to vulnerable tenants and last year brought in additional funding to offer free boilers to qualifying residents. In total, 20 measures, primarily replacement boilers, were installed. This work continues, bringing in additional funding where possible.

Administered by NEF and supported by a number of teams in the Council, Better Housing Better Health (BHBH) aims to improve energy efficiency of properties whilst also offering financial advice. Grants of £2,500 are available for energy efficiency measures for homeowners with a respiratory illness or cardiovascular disease. The Single Occupancy Housing team offer free surveys to identify potential risks to health for homeowners and private tenants with a respiratory illness or cardiovascular disease. Match funding for homeowners is found by the Home Improvement Agency enabling more work to be carried out for these target customers. Benefits checks, fuel debt mediation and assistance with switching energy tariff or supplier is offered from a dedicated BHBH Citizens Advice caseworker

### **3. Water saving**

Reducing water consumption is a relatively new priority for Oxford City Council where an internal target of reducing water use by 3% year on year was introduced in 2013.

Since then the Council has installed water smart metering (AMR) to all its main offices and four out of five of its leisure centres, which helps it to identify possible savings from excess water use. The Council has included water saving measures such as grey water recycling and percussion taps in its park pavilion refurbishment programme and has also installed water sensors on urinals and point of use water heaters in place of boilers.

### **4. Air Quality**

Air quality is a particular issue of concern in Oxford and the City Council's Low Emissions Strategy sets out the connection between carbon and air quality.

Oxford, in common with many urban areas throughout the United Kingdom, is subject to poor air quality, particularly close to areas with high levels of road traffic. In Oxford, nitrogen dioxide is the pollutant of most concern. Air quality in Oxford has seen significant improvements but there is far more that needs to be done.

The City Council has developed an Air Quality Action Plan (AQAP) for Oxford which identifies measures the City Council needs to address and includes measures that we can influence, or work in partnership with others to deliver.

Oxford's AQAP recognises that the City Council cannot act in isolation in order to deliver a comprehensive package of measures without engagement and delivery from a wide set of stakeholders.

The following are actions that Oxford City Council has taken to improve air quality in the city, many of which also contributes to carbon reduction:

- Declared the whole of the city an Air Quality Management Area for nitrogen dioxide.

- Developed an Air Quality Action Plan and Low Emission Strategy for the city.
- Introduced the first extensive Low Emission Zone (LEZ) outside of London. This won the prize for Local Authority Air Quality Initiative of the Year at the National Air Quality Awards 2015.
- Launched the Oxfordshire Air Quality website to make historic and real time air quality data more readily accessible to members of the public.
- Increased the number of diffusion tube monitoring locations in the city by nearly 50% from January 2015.
- Launched Oxford Park and Pedal which has seen over 100 cycle parking spaces introduced at two of our park and ride sites.
- Ran the Test Drive the Future event to introduce the public to a range of electric vehicles (EVs) and the financial and environmental benefits of going electric. The event provided an opportunity to test drive vehicles, and outlined the options for driving an electric car 'pay as you go' through one of Oxford's car clubs.
- Engaged with the Oxfordshire Health Improvement Board to ensure that air quality is considered in the context of the Joint Strategic Needs Assessment.
- Commissioned a study into options for a Delivery and Servicing Plan for the Council's city centre premises. Consideration and implementation of the options is now underway.
- We have continued to seek opportunities to work in partnership with our neighbouring District Councils through participation in the Oxfordshire Air Quality Group.
- Presented on our experiences of implementing our Low Emission Zone to inform Defra's consideration of the most appropriate mechanism for establishing newly proposed Clean Air Zones.

## 5. Waste Reduction

The Council recognises waste as a resource with value and aims to reduce the amount of waste generated, encourage the re-use of products rather than throwing away and encourages recycling and composting of waste as far as possible. The Council's approach to waste and recycling is laid out in its Waste and recycling strategy.

In 2014/15, the Council introduced food waste recycling to 16,000 flat sites across the city. Food collected goes to the Cassington Anaerobic Digestion Plant where it is used to generate clean, green electricity to power local homes. The City Council's popular ReFashion event continued as part of Oxford Fashion Week this year and attracted over 700 people who donated over one third of a tonne of clothing for reuse and recycling. The Council has worked with Oxford Brookes University and the University of Oxford on a highly successful Student Moving Out campaign which led to a record high in donations to the British Heart Foundation charity.

As a result of these and other initiatives, the recycling rate in Oxford continues to increase against a nationwide trend of falling/stagnating rates. Oxford City's Current recycling rate is just over 46%; the 3rd highest recycling rate of any city in the UK.

## 6. Supply Chain and Procurement

Oxford City Council's Procurement Strategy outlines a variety of measures taken to ensure sustainability within our supply chain, including: insisting on Forest

Stewardship Council (FSC) certified wood; purchasing only 100% recycled paper; requiring involvement of at least one local supplier for all request for quotations below £100k; specifying an appropriate Building Research Establishment Environmental Assessment Method (BREEAM) for any new build or refurbishment project to ensure that its buildings are designed to the most appropriate sustainable standard.

Looking ahead, there are opportunities for the Council to further consider the carbon footprint of our supply chain, which, according to an Oxfordshire County Council assessment, could account for potentially twice the carbon emissions associated with our own estate and operations. The Council will also investigate the options for using the procurement process to require lower emission standards from freight operators.

## **7. Biodiversity**

In 2014/15 the Council drafted and ran a public consultation on its first Corporate Biodiversity Action Plan (BAP), providing an overview of how we fulfil duties as set out in the Natural Environment and Rural Communities (NERC) Act 2006. It outlines our achievements, goals and future actions relating to biodiversity in our role as landowner and manager, regulator and policy maker, and advocate and facilitator.

The Council has started to undertake various measures for the benefit of biodiversity and the wider environment, such as replacing labour intensive, thirsty bedding plants with low maintenance, perennial plants in many of our parks and landscaped areas and reducing close mown grass which has resulted in tall grass habitats which are beneficial for invertebrates. These measures not only benefit biodiversity but also are providing a cost and efficiency savings to the council.

The Council has also worked with the Berkshire, Buckinghamshire and Oxfordshire Wildlife Trust (BBOWT) on a long-standing project in the Ley Valley to restore a rare habitat in the heart of the city and partnered with BBOWT to deliver the Wild Oxford project.

For further information please visit the [City Council's biodiversity webpage](#).

## **8. Land Quality**

In 2014/15 the Council published the Land Quality Strategy for Oxford, describing its aims and objectives for land quality and sustainable remediation of land containing contaminates. It also partnered with other districts in Oxfordshire to produce a guidance document for developers which sets out the local requirements for contaminated land management.

Collaboration between Planning and the Environmental Quality Team has resulted in land quality issues being addressed at the planning application stage. This has made it easier for developers to carry out proper land quality assessments and has allowed the City Council to ensure adequate protection measures have been implemented and to promote sustainable solutions in the re-development of contaminated land.

This year the Council also undertook a strategic inspection to identify any contaminated land within Oxford, including a systematic review of historic land use maps to identify landfill and other former industrial sites. The sites were prioritised and are managed by the use of Geographic Information Systems (GIS). Any land

identified as contaminated is made public in the Public Register of Contaminated Land. Currently, there are no known contaminated land sites in Oxford.

For further information, please visit the [Land Quality pages](#) on the Oxford City Council website

## **9. Flooding and climate change adaptation**

In 2014/15 the Council improved Property-Level Flood Protection (PLP) for 39 houses which had flooded in 2013-2014 through administering Government grants for businesses and homes. It also completed the Osney Island PLP scheme – providing protection for 31 houses.

Oxford City Council is also working in partnership with Environment Agency to:

- Support and deliver the EA-led OxfordFlood Alleviation Scheme; and
- Lead the delivery of the Marston and Northway Flood Alleviation Scheme.