Environmental Sustainability

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OXFORD CITY COUNCIL

Greenhouse Gas Emissions from Local Authority own estate and operations

Reporting year 2018_19

Oxford City Council

Date: 04 September 2019
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Greenhouse Gas Emissions (GHG) from Local Authority own estate and operations covering financial year 2018/19

Foreword

Whenever the City Council passes a motion, it volunteers to give political importance to an issue. With the declaration of a climate emergency in January 2019, this council is not just saying that business as usual cannot continue — it's saying exceptional action is needed.

We are committed to becoming a zero carbon council by 2030, as well as working in close partnership with other emitters anchored in the city. This council is responsible for just 1% of all emissions in the city, so everything we do has to be in partnership. However, in the areas where we can exercise direct control, we are pulling on the levers available to us. Our net carbon emissions have reduced by over 40% over the 4 years since 2014/15.

The City Council's greenhouse gas emissions (tCO_2e) have reduced this year by 9.7% compared to last year. Some of that reduction is due in part to the ongoing dramatic decarbonisation of the national electricity grid. Our underlying energy consumption has also gone down with a 3.8% decrease in electricity and a 4.1% decrease in gas consumption (kWh). It is important to note we are now generating more than 10% of our electricity needs from PV on our own buildings. We are also purchasing all our electricity from certified renewable sources (REGO- Renewable Electricity Guarantee of Origin) to stimulate further national investment in renewable generation.

Unlike many other local councils, Oxford City Council has been insourcing and offering commercial services to local organisations. This income protects frontline priorities that deliver for the city's people, at a time when we are seeing significant funding pressures. We have seen a 1.6% increase in CO_2 from vehicle fuel as the City Council uses more gas, electricity, water and vehicle fuel in a lower carbon way to do this.

2030 will be much too late and we need to show higher ambition. In a first for the UK, the Council will be delivering a Citizens' Assembly on Climate Change to establish options for getting to net zero carbon across the council and the city. Oxford will also be home to the world's first Zero Emission Zone from 2020 and many innovative technologies, including with electric vehicle charging infrastructure, are presently being trialled. The local government sector has been leading the way in tackling climate breakdown and Oxford City Council has been in the vanguard of this collective national effort since 2008 when it started managing the carbon emissions from its own estate and operations.

Within the council's own estate and operations, many short payback opportunities have been taken already. We have been very successful in winning government Salix funding to increase the size of our revolving loan fund to £1m to meet investment costs for a range of energy efficiency measures such as installing new efficient boilers, LED lighting and controls upgrades, insulation, variable speed drives, and photovoltaic systems. This Council will continue to drive down carbon emissions and improve air quality, and work hard to deliver carbon, energy and cost efficiencies city-wide.

Councillor Tom Hayes
Board Member for Zero Carbon Oxford

1. Introduction

Oxford City 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_2 emissions by 25% by 2011 (on a 2005 baseline) and 3% year on year thereafter. The Plan was refreshed and updated in August 2012 (Carbon Reduction at the Heart of Everything we Do) with a stretched target of a 5% year on year implementation of CO_2 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.

A further refreshed and updated plan[1] covering the next 5 years (2017/18 to 2021/22) was published in March 2017 following City Executive Board approval and maps a path to continual improvement in carbon and energy management, driving down energy, fuel and water spend and their associated carbon dioxide emissions.

The council approved a motion in January 2019 declaring a climate emergency with the target to be carbon neutral by 2030. An update of the existing carbon management plan is being developed to align with this increased stretch on CO_2 emission reductions.

The areas that contribute to the bulk of the Council's CO_2 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 tCO_2e and tCO_2) for the reporting period 2018/19 (as well as including details of emissions from the previous 3 years 2015/16, 2016/17 and 2017/18). (CO_2e gives the global warming effect of the mass of GHG in terms of what mass of carbon dioxide would produce the equivalent effect.)

[1] https://www.oxford.gov.uk/downloads/download/552/carbon_management_strategy

A summary of 2018/19 GHG emissions included in this report are as follows (*see Sections 5 and 6 below for scope of emissions coverage in this report*):

Total GHG emissions for period 1 April 2018 to 31 March 2019*		
	Tonnes of CO_2	**Tonnes of CO_2e**
Year	**2018/19**	**2018/19**
Scope 1	5,098	5,140
Scope 2	2,241	2,259
Scope 3	216	342
Total GHG emissions	**7,556**	**7,741**

** see Sections 5 and 6 below for scope of emissions coverage in this report*

Please see Section 6 onwards below for a discussion of carbon emissions trends over the past 5 reporting years (including the current reporting year 2018/19).

2. 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 1DS.

3. Reporting period

1 April 2018 – 31 March 2019.

4. 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 The Department for Food, Environment and Rural Affairs.
https://www.gov.uk/measuring-and-reporting-environmental-impacts-guidance-for-businesses

5. 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, staff commuting and procurement).

6. 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

<table>
<tr><th>Scope One</th><th>Scope Two</th><th>Scope Three</th><th>Not included</th></tr>
<tr><td>Fuel used to heat our buildings (e.g. natural gas, gas oil, kerosene and liquid petroleum gas)</td><td rowspan="4">Purchased electricity for our buildings and other electricity consuming sites (e.g. offices, leisure centres, depots, car park and public conveniences).</td><td rowspan="2">electricity (transmissions and distribution factors)</td><td>Perfluorocarbons (PFC), hydrofluorocarbons (HFC) and sulphur hexafluoride (SF_6)</td></tr>
<tr><td rowspan="2">Fuel used in council vehicle fleet and also to power non-road going vehicles and plant such as lawn-mowers and, chippers.</td><td>Staff commuting</td></tr>
<tr><td>Business mileage by car</td><td>Emissions from Council operational waste deposited in landfill sites</td></tr>
<tr><td rowspan="2">Fuel used in waste collection vehicle fleet</td><td>Business mileage by public transport (bus and train)</td><td>Emissions from Leased commercial properties or housing stock where tenants are paying energy/water bills.</td></tr>
<tr><td>Water consumed (supply and treatment)</td><td>Total indirect emissions: e.g. due to upstream emissions from production and delivery of fuel to power stations or transport fuel stations.</td></tr>
<tr><td></td><td>Half-hourly metered and non-half-hourly metered electricity supplies (ie Meter profile classes 01-08, HH and Unmetered Supplies)</td><td></td><td></td></tr>
</table>

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

A summary of total GHG emissions for the current reporting year (2018/19) is outlined in Table 2 below. Headline figures over the last five years (including the current reporting year) are detailed in Table 3 and the stacked bar chart (Chart 1). A more detailed breakdown of Total GHG emissions and sources for the previous three years can be found in Appendix 1.

Table 2: Total GHG emissions for the period 1 April 2018 to 31 March 2019

2018/19	Total Units	tCO2	tCO2e
Scope 1			
Gas consumption (kWh)	16,350,720	3,002	3,008
Gas Oil (litres)	31,519	86	94
Kerosene (litres)	4,000	10	10
LPG (litres)	0	0	0
Diesel (litres) - average biodiesel blend	756,083	1,958	1,986
Petrol (litres) –(average biofuel blend)	19,153	42	42
	Total Scope 1	**5,098**	**5,140**
Scope 2			
Purchased Electricity (kWh)	7,979,685	2,241	2,259
Scope 3			
Electricity - Transmission and distribution	7,979,685	191	193
Average petrol car (miles) - unknown fuel	75,515	22	22
Passenger travel – train, national rail (km)	70,068	3	3
Passenger travel – average local bus (km)	5,356	1	1
Water supply(m3)	118,033		41
Water treatment(m3)	118,033		84
	Total Scope 3	**216**	**342**
	Totals	**7,556**	**7,741**

Heating degree days (to base 15.5^{o}C) for the Thames Valley Region for the 2018/19 reporting period were 1878.

We have referenced heating degree day figures (to base 15.5 ^{o}C) 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 an 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 3: Summary of annual GHG emissions (tCO2e) for period 1 Apr 2014 to 31 March 2019

	14/15 tCO2e	15/16 tCO2e	16/17 tCO2e	17/18 tCO2e	18/19 tCO2e
Gas consumption (kWh)	2,619	2,946	3,112	3,140	3,008
Gas Oil (litres)	106	106	96	92	94
Kerosene (litres)	10	10	10	10	10
LPG (litres)	0	0	0	0	0
Diesel (litres) - average biodiesel blend	1,814	1,832	1838	1,943	1,986
Petrol (litres) – (average biofuel blend)	47	44	47	43	42
Totals Scope 1	**4,596**	**4,939**	**5,103**	**5,228**	**5,140**
Purchased, grid Electricity (kWh) – **Scope 2**	**4,534**	**3,838**	**3,347**	**2,916**	**2,259**
Electricity - Transmission and distribution	396	317	303	273	193
Average petrol car (miles) - unknown fuel	44	38	44	41	22
Passenger travel – train, national rail (km)	4	4	4	3	3
Passenger travel – average local bus (km)	1	1	1	1	1
Water supply(m^3)	42	49	50	36	41
Water treatment(m^3)	86	101	103	74	84
Totals Scope 3	**573**	**510**	**505**	**428**	**342**
Totals	**9,703**	**9,286**	**8,955**	**8,572**	**7,741**
Heating degree days (base 15.5°C)	1,870	1,815	1,995	2,118	1,878

The above data from Table 3 is further detailed in the stacked bar chart below to show the overall trends in absolute emissions at the appropriate annual conversion factors supplied:

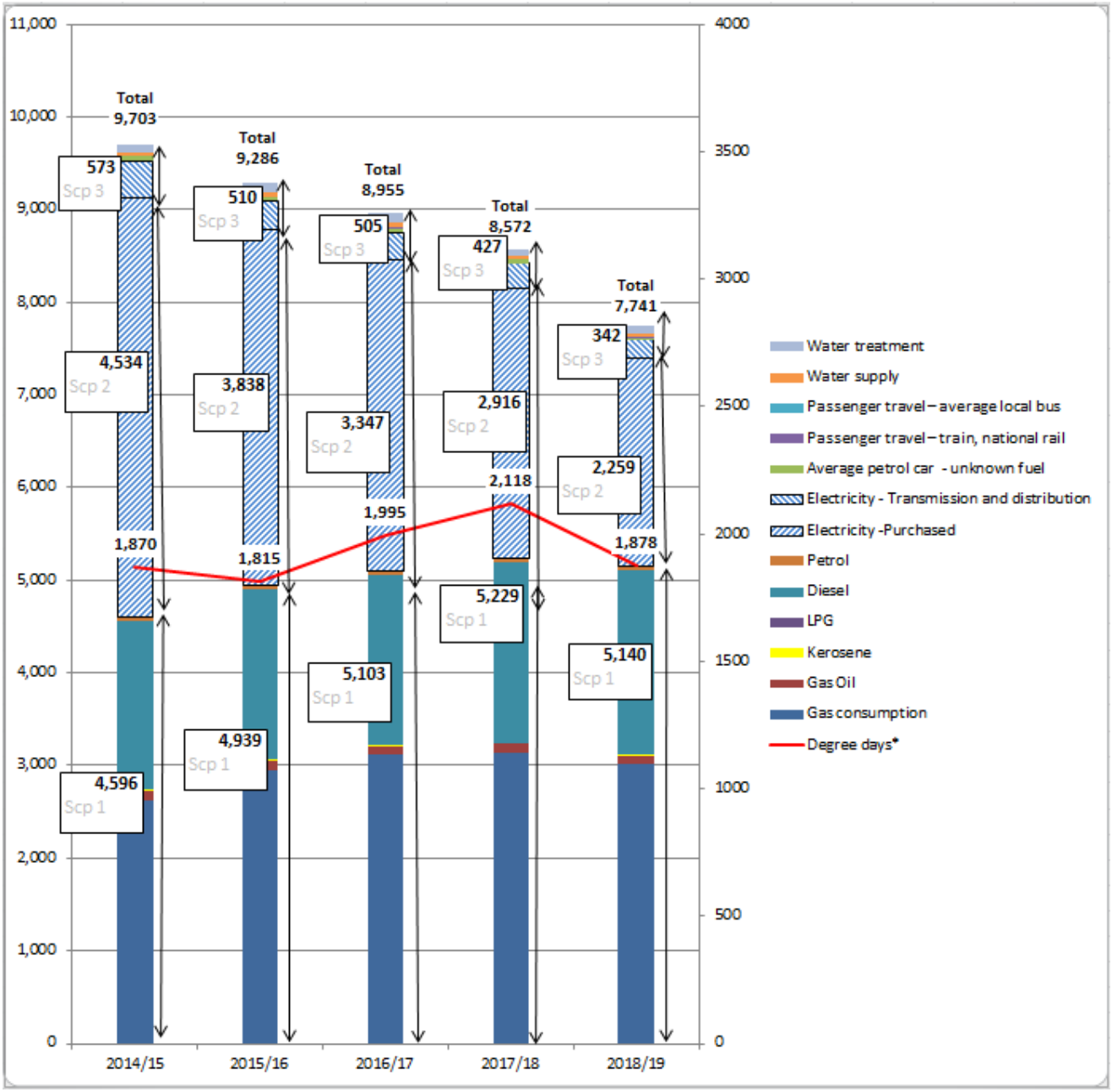

Chart 1: Stacked bar chart showing GHG emissions (tCO2e) from all three scopes for the past five reporting years (2014/15 to 2018/19).

7. Base Year

Our base year for this GHG reporting process is 2017/18 (the previous reporting year) as this is aligned with our 5% year on year target, outlined in our Carbon Management Plan 3 approved in February 2017 ("Continual improvement in carbon and cost reduction").

8. Targets

In the Carbon Management Plan covering the reporting period for this report, the Council CO_2 reduction target for 2018/19 was to put measures in place calculated to

reduce CO_2 emissions by a minimum of 5% compared with the previous year (equivalent to 429t CO_2) which was exceeded. A range of energy conservation measures were implemented in 2018/19 and tracked during the reporting year delivering a total calculated reduction of 446tCO2/year. Measures implemented included:

- Installation of innovative microCHP fuel cell installations in two sheltered housing sites to provide electricity and heat to the buildings: 4tCO_2
- LED lighting upgrades at: tower blocks, offices and Park&Ride sites: 30tCO_2
- Monitoring & targeting savings (targeting and correcting excess consumption issues arising): 22tCO_2
- Implementation of new pool covers in swimming pools: 89tCO_2
- Solar PV installations in council owned buildings: 111tCO_2
- Insulation measures: 61tCO_2
- Heating controls (Wireless TRV installation) in office: 2tCO_2

The impact of measures implemented in 2018/19 are not expected to be fully represented in the carbon emissions data for the 2018/19 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, Executive Director, Community Services has overall accountability and Jo Colwell, Environmental Sustainability Manager is responsible for the achievement of the target. Councillor Tom Hayes City Cabinet Member for a Zero Carbon Oxford is also responsible for this work area. Internal assurance and governance for the Carbon Management Programme and related work area is provided through engagement with the aforementioned officers.

In terms of progress in year on year reduction in absolute emissions our total GHG emissions in 2018/19 (scopes 1, 2, and 3 as outlined in Sections 5 and 6 above) were less than in the previous year 2017/18 by 10.1**%** (CO_2) and 9.7**%**(CO_2e).

Over the 4 year period 2014/15 to 2018/19 our CO_2 emissions have decreased by 20.2% in absolute terms.

In terms of estate-wide electricity and gas consumption, **a 3.8% decrease in electricity consumption** and **a 4.1% decrease in gas consumption** has been achieved. A 11.3% decrease in degree days was observed in 2018/19 compared to the previous year which may have led to some reduced demand on gas and heating related consumption in buildings. Further analysis of GHG reduction performance is outlined in the following section against significant intensity measurements.

9. 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_2e emissions decreased by 11.6% in 2018/19 compared to the previous year. Some of this CO_2 reduction is accounted for by the reduction in electricity carbon intensity, however electricity consumption also reduced by 3.5%

and gas consumption by 1.8%. Applying an intensity measurement against visitor numbers also shows a 32.1% decrease in $kgCO_2e$ per visit compared to the previous year. This metric is aided by a significant increase (30.32%) in visitor numbers compared to the previous reporting year.

The following table summarises these trends over the last three years.

	2016/17		2017/18		2018/19	
	Visits	kgCO2e/ visit	Visits	kgCO2e/ visit	Visits	kgCO2e/ visit
Barton Leisure Centre	113,966	2.78	96,476	3.34	118,818	2.38
Ferry Leisure Centre	498,469	1.01	306,570	1.88	417,493	0.85
Hinksey Outdoor Pool	56,830	10.43	58,987	9.68	79,294	6.45
Leys Pools and Leisure Centre	537,045	1.84	403,730	1.92	522,364	1.51
Oxford Ice Rink	161,661	3.61	164,004	3.52	204,038	2.31
Totals	**1,367,971**	**-**	**1,029,767**		**1,342,007**	
total kgCO2e per visit in Leisure Centres		**2.18**		**2.74**		**1.86**
Visits: % change on previous year	**-5.09%**		**-24.72%**		**30.32%**	
kgCO2e/visit: % change		**-0.40%**		**25.7%**		**-32.1%**

Table 4: Leisure visits over 3 years and carbon emissions/visit comparison

b. Commercial operations - increasing trading activity

Oxford City Council's commercial operations have been showing a steady increase year on year as it transforms into a Local Authority Trading Company (LATCo). The kind of additional services being offered centre on commercial waste collection, private and HGV vehicle MOT testing and, servicing ground maintenance and building maintenance.

Table 5 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. All of this activity results in extra vehicle movements and increased office and workshop energy and water use, producing an upward pressure on our carbon emissions.

Table 5: External revenue generation from Council services offered to other organisations from 2013/14 to 2015/16

	Total internal revenue (excluding Statutory works)	Total external trading revenue *	Total trading type works	% external trading revenue contribution
2013/14	£26,493,000	£5,432,000	£31,925,000	17.01%
2014/15	£29,177,000	£6,493,000	£35,670,000	18.20%
2015/16	£27,846,000	£7,035,000	£34,881,000	20.17%
2016/17	Data not available	Data not available	Data not available	Data not available
2017/18	Data not available	Data not available	Data not available	Data not available
2018/19	Data not available	Data not available	Data not available	Data not available

**** Direct services operations on non-Council work streams paid for externally such as commercial trade waste collection, gas and electrical works, vehicle maintenance etc***

Increases in GHG emissions related to this activity have been limited by gradual upgrading of fleet to modern lower emission (including electric), 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 6 outlines changes in the make-up of the vehicle fleet in the last five years. Twenty-two electric vehicles have been added to the fleet in recent times with plans to expand this base significantly in future years. As well as significantly reducing whole life costs of vehicle fleets this will also contribute towards assisting with the Council's aspirations for implementing a world first Zero Emission Zone in Oxford city centre and towards meeting its carbon neutral target by 2030.

Table 6: Vehicle fleet numbers over the last five years

	2014/15	2015/16	2016/17	2017/18	2018/19
Vehicle Types	**No of vehicles**	**No of vehicles**	**No of vehicles**	**No of vehicles**	**No of vehicles**
Car and Car derived vans	64	83	79	71	69
Electric vehicles				14	22
Misc light/heavy plant and ride on machinery	319	451	532	570	474
Trucks and tippers up to 3500kg GVW	66	73	72	65	56
Vans up to 3500kg GVW	80	99	92	111	93
Vans, trucks and tippers between 3501 and 7500kg GVW	18	13	20	10	10
Vans, trucks and tippers between 7501 and 18000kg GVW	9	8	11	8	5
Refuse Collection Vehicles	26	28	32	36	29
Sweepers	15	17	18	17	12
Tractors, shovels and light loaders	19	11	7	6	7
Trailers	46	51	46	50	37
Totals	**662**	**834**	**909**	**958**	**814**

10. 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. In 2018/19 the council's total installed Solar PV capacity exceeded 1MW. This equates to solar providing the equivalent of over 10% of the Council's total electricity from renewable energy installations, representing a carbon emissions reduction of about 250tCO2. Further Solar PV installations are planned in 2019/20 and beyond.

11. Purchase of renewable energy

The council has been purchasing 100% green electricity across its portfolio for the past two years from renewable energy guarantee of origin (REGO) sourced supplies. This equates to around 2400tCO2 per year reduction in CO2 emissions from the council's estate and operations. This is not however claimed in full as a carbon reduction against its annual reduction target but demonstrates council support for the development of overall renewable energy capacity across the UK's energy mix. Priority is given to investment in onsite generation capacity within the Council's own estate. The following table (Table 7) however highlights the net emissions impact

from green energy purchasing (REGO certified supplies) in the context of total CO_2e emissions

Table 7: Renewable energy purchase and tCO_2e emissions

tCO2e	2014/15	2015/16	2016/17	2017/18	2018/19	% reduction since 2014/15
Total gross emissions	9,703	9,286	8,955	8,572	7,741	20.2%
Renewable energy purchase (REGO)	-	-	-	1,922	1,997	
Total net emissions	**9,703**	**9,286**	**8,955**	**6,650**	**5,744**	**40.8%**

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% reduction on total energy/carbon compared to a Building Regulations compliant base case. This requirement influences new Council buildings as well as those built by other developers in the city. Within the new Local Plan submission it is proposed to raise this requirement even further to a 40% on site renewable energy or low carbon technology requirement above current Building Regulations for regulated energy.

13. External Assurance Statement

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

Team members managing the energy/carbon related programmes at the Council include a Certified Energy Manager and Certified Measurement & Verification Professional, BREEAM Accredited Professionals, BREEAM-in-Use Assessor, Public Building Energy Assessor, professionals with 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.

Appendix 1: Total GHG emissions for the last three reporting years (2015/16, 2016/17 and 2017/18)

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

2015/16	Total Units	tCO2	tCO2e
Scope 1			
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
	Total Scope 1	***4,910***	**4,939**
Scope 2			
Purchased Electricity (kWh)	8,303,027	**3,807**	**3,838**
Scope 3			
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)[#]	84,989	4	4
Passenger travel – average local bus (km)[#]	7,550	1	1
Water supply(m^3)	143,015	n/a	49
Water treatment(m^3)	143,015	n/a	101
	Total Scope 3	***357***	**510**
	Totals	**9,074**	**9,286**

* Defra emissions factors guidance - dated June 2015 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**.

Table b: Total GHG emissions for the period 1 April 2016 to 31 March 2017

2016/17	Total Units	tCO2	tCO2e
Scope 1			
Gas consumption (kWh)	16,915,814	3,107	3,112
Gas Oil (litres)	32,412	88	96
Kerosene (litres)	4,000	10	10
LPG (litres)	0	0	0
Diesel (litres) - average biodiesel blend	703,669	1,823	1,838
Petrol (litres) –(average biofuel blend)	21,345	47	47
	Total Scope 1	***5,074***	**5,103**
Scope 2			
Purchased Electricity (kWh)	8,123,213	3,327	3,347
Scope 3			
Electricity - Transmission and distribution	8,123,213	301	303
Average petrol car (miles) - unknown fuel	147,119	44	44
Passenger travel – train, national rail (km)#	81,889	4	4
Passenger travel – average local bus (km)#	8,048	1	1
Water supply(m3)	145,136	0	50
Water treatment(m3)	145,136	0	103
	Total Scope 3	***350***	**505**
	Totals	**8,751**	**8,955**

* Defra emissions factors guidance – last updated June 2016 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 (2016 data) http://www.ukconversionfactorscarbonsmart.co.uk/

Heating degree days (to base 15.5^{o}C) for the Thames Valley Region for the 2016/17 reporting period were **1995**.

Table c: Total GHG emissions for the period 1 April 2017 to 31 March 2018

2017/18	Total Units	tCO2	tCO2e
Scope 1			
Gas consumption (kWh)	17,050,077	3,134	3,140
Gas Oil (litres)	31,284	85	92
Kerosene (litres)	4,000	10	10
LPG (litres)	0	0	0
Diesel (litres) - average biodiesel blend	747,373	1,927	1,943
Petrol (litres) –(average biofuel blend)	19,571	43	43
	Total Scope 1	***5,199***	**5,228**
Scope 2			
Purchased Electricity (kWh)	8,294,434	2,894	2,916
Scope 3			
Electricity - Transmission and distribution	8,294,434	270	273
Average petrol car (miles) - unknown fuel	141,074	41	41
Passenger travel – train, national rail (km)	62,049	3	3
Passenger travel – average local bus (km)	6,627	1	1
Water supply(m3)	104,266	0	36
Water treatment(m3)	104,266	0	74
	Total Scope 3	***315***	**428**
	Totals	**8,408**	**8,572**

* Defra emissions factors guidance – last updated June 2017 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 (2017 data) http://www.ukconversionfactorscarbonsmart.co.uk/

Heating degree days (to base 15.5^{o}C) for the Thames Valley Region for the 2017/18 reporting period were **1878**.