

Report to	Sustainable development panel	Item
	13 September 2017	
Report of	Director of regeneration and development	7
Subject	Carbon Footprint Report	

Purpose

This report informs members of the outcomes of the annual carbon footprint exercise.

Recommendation

To note the progress being made on the delivery of the council's Carbon Management Programme

Corporate and service priorities

The report helps to meet the corporate priority Value for money services and the service plan priority percentage reduction in CO₂ emissions from local authority operations.

Financial implications

None.

Ward/s: All wards

Cabinet member: Councillor Maguire – Environmental strategy

Contact officers

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Background documents

None

Report

1. In 2008/09 the council produced its first Carbon Management Plan and set a target to achieve a 30% reduction in carbon emissions by 2013-14 (using a 2006/07 baseline). In total over the 5 year period a reduction of 24% (29% when weather corrected) was achieved using previous conversion factors. Following the production of the council's second Carbon Management Plan this target has been re-set to achieve a total reduction of 40% in carbon emissions over the next 5 years (from the 2006/07 baseline)
2. All local authorities were required to annually report their carbon emissions to the Department of Energy and Climate Change. By using a carbon conversion factor emissions from vehicle use (litres/km) and gas and electricity (kWh) use can be directly compared and the amount of carbon emissions reported as CO₂kg emitted.
3. There have been requests in previous years that officers present the council's energy consumption (kWh, litres/km) alongside the carbon emissions figures (kgCO₂^e). Therefore, both sets of figures have been provided in this report on the understanding that although these figures are related they are not directly comparable due to the use of carbon conversion factors which are influenced by factors at a national level.
4. In order to minimise the effect of spikes in data in any year we have compared this year's figures to a 4 year average figure. This makes comparison over time fairer as it seeks to smooth any sharp increases or decreases in any given year which can happen when one year is directly compared with another and does not allow the scope for a trend over time.
5. Over the period 1 April 2016 to 31 March 2017 the council reduced its carbon dioxide emissions by 1.57%, or 111,175 kg of CO₂^e, or over 111 tonnes. In addition, in October 2016 the council changed electricity provider to an OFGEM certified Green Tariff. In effect this means that the electricity the council uses in its own assets is certified to come from a renewable source and therefore does not count towards the council's carbon footprint. When this significant reduction in CO₂ is factored in, it means that in the year 2016/17 Norwich City Council has reduced its carbon footprint by 14.6% on the previous year, or 1,031,718 kg of CO₂^e. (This is approximately the equivalent of the amount of CO₂ created if you were to drive an average car to drive to the moon and back 5 times!)
6. This brings the total reduction, against a 2007 baseline, to 54.1% and exceeds the 40% carbon emissions reduction target set in the council's 2015-2019 environmental strategy.
7. Table A gives an overview of the figures for the 2016-17 period. The data is split out in Scopes as dictated by the DECC/DEFRA carbon footprint requirements and detailed below: The third column of Table A shows the amount of energy use either in kWh, litres of fuel used or km travelled. The fourth column shows this year's figures as a percentage increase or decrease against a 4 year average from 2012-16 in order to allow for one off anomalies in reporting. The fifth column shows the amount of carbon emissions produced by each factor of each scope in the 2016-17 period. Finally, the sixth column shows this year's figures as a percentage increase or decrease against a 4 year average from 2012-16.

Definition of Scopes 1-3

8. Scope 1 emissions: Process emissions (owned buildings), Data obtained from utility bills (kWh) Process emissions (contractor-operated buildings) Data obtained from contractor's energy records (kWh) Fuel use (owned vehicles) Data obtained from fuel invoices (litres).
9. Scope 2 emissions: Electricity emissions (own buildings, Data obtained from utility bills (kWh). Electricity emissions (contractor-operated buildings). Data obtained from contractor's energy records (kWh)
10. Scope 3 emissions: Business travel (grey fleet and contractor) Data taken from officer and member business mileage claim forms (km) Data taken from contractor business mileage records (km) Public transport Data taken from officer and member business mileage claim forms (km) Data for train journeys taken from rail account invoices (km) Fuel use in contractor vehicles, Data obtained from contractor fuel records (litres).

Table A - Data by scope:

Scope	Detail	2016-17 energy use	Inc/ dec on 4 year average (2012- 15)	2016-17 carbon emissions (kgCO₂)	Inc/ dec on 4 year average (2012-15)
1	Gas council owned buildings	13,951,106 (kWh)	Decrease (10.2%)	2,567,004 (kgCO ₂)	Decrease (11.2%)
	Gas contractors	100,880 (kWh)	Decrease (4.8%)	18,564 (kgCO ₂)	Decrease (5.1%)
	Fuel council managed vehicles	13,163 (litres)	Decrease 8.3%	7481 (kgCO ₂)	Decrease (84%)
	Total Scope 1 emissions (kgCO ₂)			2,593,049	
2	Electricity council owned buildings	5,742,922 (kWh)	Decrease (22.5%)	2,366,371 (kgCO ₂)	Decrease (34.3%)
	Electricity contractors	234,179 (kWh)	Decrease (17.2%)	96,525 (kgCO ₂)	Decrease (31.4%)
	Total Scope 2 emissions (kgCO ₂)			2,462,896	
3	Grey fleet (km)	47,159 (km)	Decrease (4.2%)	14,617 (kgCO ₂)	Decrease (49%)
	Public transport (km)	28,632 (km)	Decrease (44%)	2,821 (kgCO ₂)	Decrease (62%)
	Contractors data (km)	9,369,944 (km)	Increase (31.3%)	1,879,866 (kgCO ₂)	Increase (-42.6%)
	Total Scope 3 emissions (kgCO ₂)			1,897,304	
	Total emissions – All Scopes (kgCO ₂)			6,953,249	

Overview

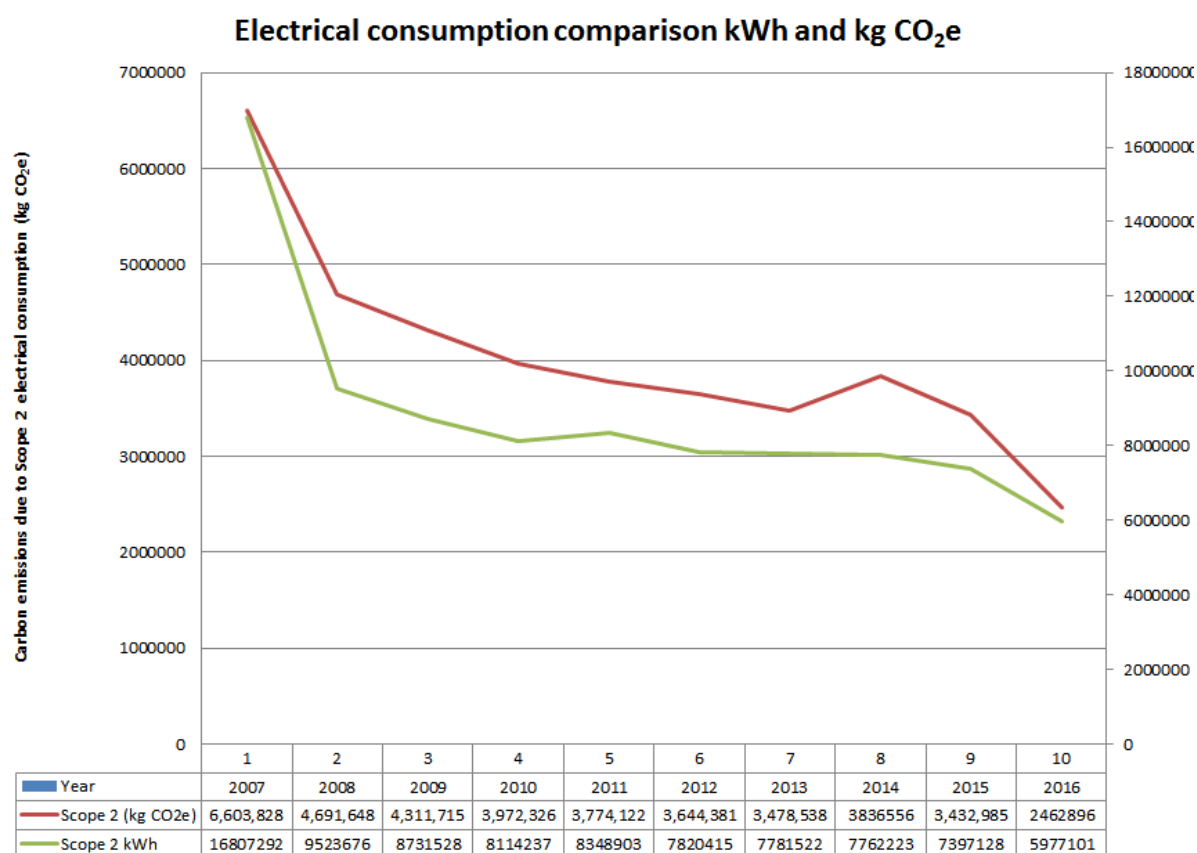
11. Overall there has been a 10.2% decrease in gas use across council owned assets when compared with the average of the previous 4 years. The trend is for a year on year reduction since 2007.
12. In the period 2016-17 there was an overall reduction in gas use by contractors of 4.8% against an average of the previous 4 years. We continue to work with contractors to monitor their energy use, but we do not monitor their data for them and rely upon contractors to provide accurate data.
13. There was a decrease of 8.3% on the fuel used by staff through the council owned fleet against the previous 4 year average figure. The environmental strategy team is currently working closely with the transformation team to monitor use of the council's fleet and it is anticipated the outcome of this work will be to reduce the size of the council's pool fleet and/or introduce more hybrid vehicles. For local journeys, as an alternative to pool car and taxi use, the team introduced pool bikes in 2012 and most recently an electric bike has been added to the bike fleet.
14. There was a decrease of electricity consumption in kWh of 22.5% across the council's portfolio of properties compared to the four year average figure. However, when we consider the carbon reduction figure (kg CO₂) for the same period this shows a saving of 34.3% against a three year average. This is due to the carbon conversion factor which we are required by DECC/DEFRA to use when reporting the annual carbon footprint of the council. The following 'carbon conversion factor' section gives more details on this.
15. Officers continue to work with NPS to look for further opportunities to reduce this figure further. We have implemented a wide range of electricity saving projects across our portfolio since 2008 and it is becoming more challenging to find new opportunities. However, 3 variable speed drives have just been installed at Riverside leisure centre, and officers are investigating the replacement of lighting with LED lighting at car parks and churchyards. LED upgrades are being installed at Riverside swimming pool and City Hall. In addition we are looking to install VSD's in several sheltered housing schemes this year, as well as City Hall. Finally a number of social housing trials of LED Landlord Lighting are planned.
16. This year has seen a decrease of 17.2% in electricity use by our contractors against a 4 year average. Our figures have been impacted in the past by a lack of consistency in reporting and this may be the reason for decreases this year. Equally the contractors we work with are not always the same each year and the sizes of the contracts also fluctuate depending on demand from the council.

Carbon conversion factor:

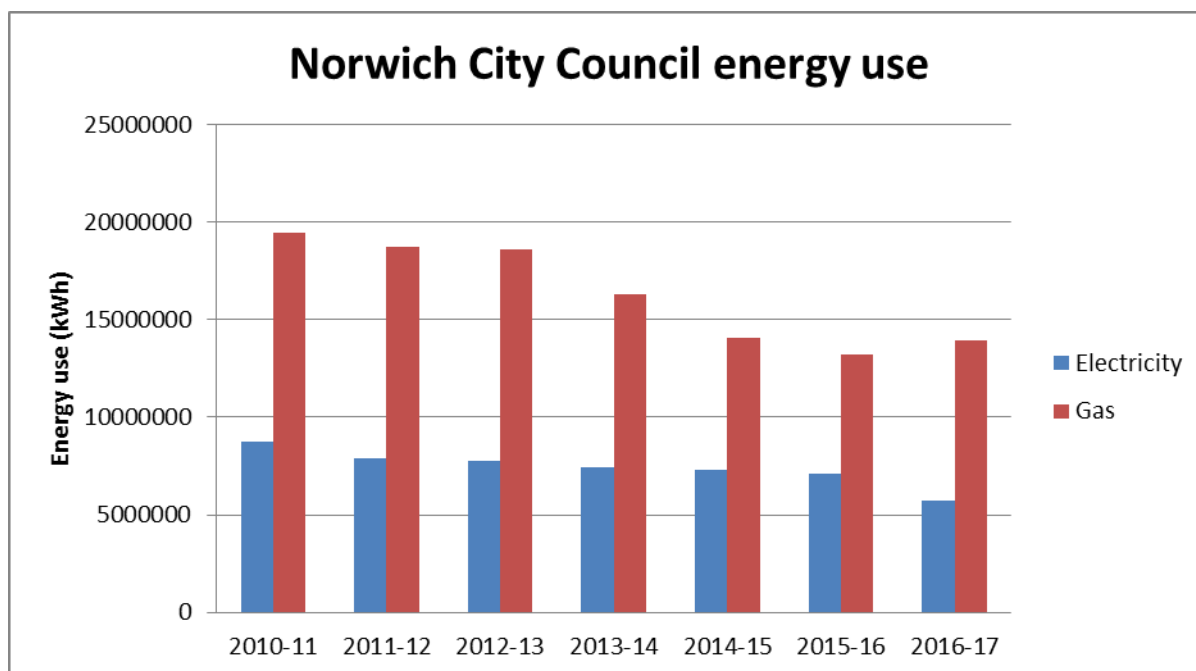
17. The carbon conversion factor allows litres of fuel used, km travelled and kWh of energy burned to be compared to one another by measuring the carbon emissions produced during each activity. Carbon emissions are measured in kg of CO₂. In 2014 DECC/ DEFRA updated their kgCO₂ conversion factor. Instead of using a 5 year rolling average figure for electricity reporting they now use a 1 year average figure. The reason for the change was to make reporting easier for those companies who report energy use on a frequent basis.

18. This factor is outside of the council's control, but does affect our annual carbon emissions figure quite profoundly. The council's efforts to reduce the energy use through the introduction of energy efficient technologies and behaviour change will either, a) compound any changes in the national grid energy mix which assist with 'greening the grid', thereby further reducing emissions, or b) help to counterbalance changes in the national energy mix which may lead to an increase in carbon emissions at a grid level. We may be 'winners' some years and 'losers' in other years. In order to provide a more accurate picture for members it is intended continue to provide the energy use data e.g. kWh, litres fuel consumed, km travelled alongside the carbon emissions data.
19. The Department of Energy and Climate Change has since been abolished and responsibility for energy monitoring at a national level has fallen to the newly formed Department of Business, Energy and Industrial Strategy (DBEIS).

Graph 1 – Electricity consumption kWh vs kg CO₂e over time:

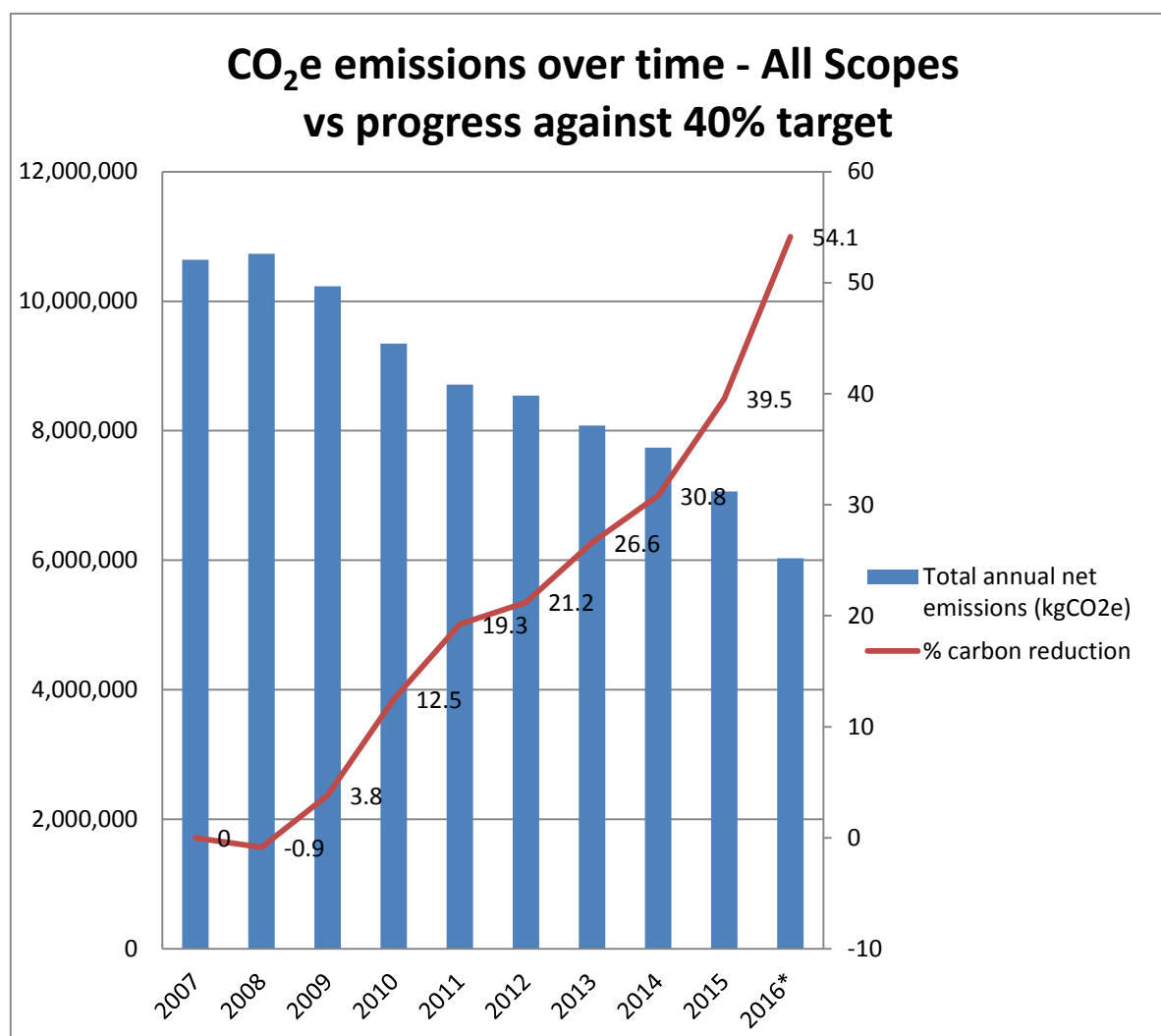


Graph 2 – Norwich City Council gas and electricity (kWh) consumption over time:



20. The team have worked with our Asset Management partners, NPS, over a number of years to implement a variety of energy saving technologies across our wide and varied assets. Often these have been at least part-funded by Salix funding, an interest free loan scheme for energy reduction projects.
21. Graph 3, below, shows a clear trend over time to lowering the council's carbon dioxide emissions, as we move closer to and then beyond achieving the 40% carbon emissions reduction target.

Graph 3 – Emissions levels over time – all scopes:



*Graph 3 includes the additional impact of the electricity green tariff in the year 2016/17.

Public Reporting

22. The council has published a summary of this report on its website.

Norwich City Council Carbon Footprint report:

[www.norwich.gov.uk/downloads/file/4058/carbon footprint report 2016-17](http://www.norwich.gov.uk/downloads/file/4058/carbon_footprint_report_2016-17)