

READING BOROUGH COUNCIL

REPORT BY DIRECTOR OF ENVIRONMENT AND NEIGHBOURHOOD SERVICES

TO:	STRATEGIC ENVIRONMENT, PLANNING AND TRANSPORT COMMITTEE		
DATE:	NOVEMBER 2017	AGENDA ITEM:	13
TITLE:	ANNUAL CARBON FOOTPRINT REPORT, 2016/17		
LEAD COUNCILLOR:	CLLR PAGE	PORTFOLIO:	Strategic Environment, Planning and Transport
SERVICE:	SUSTAINABILITY	WARDS:	BOROUGHWIDE
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1. PURPOSE OF REPORT AND EXECUTIVE SUMMARY

- 1.1 In 2008 the Council published its first Climate Change Strategy in which it committed to reduce its emissions of greenhouse gases by 50% by 2020 and zero carbon by 2050. The Reading Climate Change Partnership's strategy '*Reading means business on Climate Change*' reinforces this commitment.
- 1.2 Reading Borough Council's 'Carbon Plan, 2015-2020', was approved in 2015, which set out actions to meet the organisation's target to reduce carbon emissions by 50% against the 2008/9 baseline. In addition a renewable energy target was set to generate renewable energy equivalent to 15% of total energy consumed, by 2020.
- 1.3 This report shows that the Council has continued to make reductions of carbon emissions and almost reached the 2020 target in 2016/17, with a 13.1% reduction in corporate emissions against the previous year's levels (2015/16). When taking into account the gross emissions of the wider influence of the Council, the footprint decreased by 11.5 %. The full report can be found in Appendix 1.
- 3.1 The 2016/17 carbon footprint for the Council's corporate activities is 45 % lower than the baseline emissions in 2008/09, well ahead of target and on track to meet it early. The total renewably generated energy in 2016/17 was equivalent to 5% of the total energy use of the council, or 7.1% of energy used in buildings, which continues to move towards the challenging 2020 renewable energy target of 15%. In addition, Reading Transport Ltd continues to invest in its bus fleet to reduce the impact on the environment and improve its efficiency.
- 1.4 Looking forward, on-going and new initiatives will support further reductions; these include completing the second and final year of the major street lighting upgrade programme, continued Salix investment in energy efficient technology through building improvement programmes, new procurement of water, a coordinated energy awareness and training programme and sustained improvements in data capture and analysis.
- 1.5 It is estimated that the avoided energy costs to the Council from the reduced energy consumption since 2008 are £5.8m (excluding standing charges and other contract

charges), compared to if no action had been taken. In 2016/17 the avoided costs are estimated to be around £1m (excluding standing charges and other contract charges).

- 1.6 Appendix 1 to this report provides the full Reading Borough Council: Greenhouse Gas (GHG) Protocol Report 2016-17. This is a technical document which is required to meet the Government's expectations for performance recording.

2. RECOMMENDED ACTION

- 2.1 The Committee notes the continued reduction of carbon emission for 2016/17, with the Council's corporate activities 45 % lower than the baseline emissions in 2008/09, 8.5% ahead of target and the Council's wider activities (including schools and managed services) being 28.8 % lower than the baseline emissions in 2008/09
- 2.3 The Committee notes that total renewably generated energy in 2016/17 was equivalent to 5.0% of the total energy use of the council, or 7.1% of energy used in buildings. In addition the Committee recognises that the 2020 renewable energy target continues to be challenging following the significant changes to the 'Feed in Tariff' incentive scheme made by government in 2015/16.
- 2.4 The Committee continues to support the ongoing investment in low carbon technologies and initiatives to reduce energy costs and the carbon footprint of Council operations, such as continued Salix investment and an awareness raising and training programme through the Carbon Plan.

3. POLICY CONTEXT

The current position:

- 3.1 In 2008 in the UK, following the adoption of the Climate Change Act 2008, the first climate change legislation anywhere in the world, the Council launched its climate change strategy, '*Stepping Forward for Climate Change*'. A key commitment in this document was to reduce its carbon footprint by 50% by 2020. This has been superseded by the Reading Climate Change Strategy 2013-20, '*Reading Means Business on Climate Change*' a collaborative strategy with business, community and public sector which invites other organisations to join in a shared ambition to reduce their emissions by 7% per annum. Reading Borough Council's 'Carbon Plan, 2015-2020', was approved in 2015, with a target to reduce the organisation's carbon emissions by 50% against the 2008/9 baseline and generate renewable energy equivalent to 15% of total energy consumed, by 2020.

3.2

- In 2008, the Council implemented a government backed scheme called SALIX, which provides a revolving investment fund to invest-to-save in low carbon technologies that reduce the carbon emissions of the authority and the costs associated with energy. By the end of 2016/17 the Council had invested almost £1.3m, in over 92 single or multi-technology projects, for example, the LED floodlights at Palmer Park were part-funded by Salix. These LED lamps are predicted to use over 60% less electricity than the old lamps. Monitoring of the site shows that the lighting is meeting these predictions. There are currently a further 17 Salix projects in progress or development.
- In 2012, the Council invested in its first substantial solar panel project, installing 46 systems comprising over 2,500 panels on 40 council, community and school

buildings. The scheme provides renewable electricity to power the buildings and generates income from the Feed in Tariff scheme, which pays for each unit of electricity generated. In 2016/17 the systems generated 416,961 kWh of electricity, the equivalent to powering 117 houses.

- In 2013, a project to install photovoltaic solar panels onto over 450 Council houses was instigated. Tenants benefit from free electricity from the panels and the Council receive payment from the Feed in Tariff and export of electricity to the National Grid. The programme was completed in 2015, on 457 properties. In 2016 the solar PV on these properties generated 1,006 MWh.
- Over the last five years, significant improvement has been made with automatic metering and data quality. Over 80% of electricity meters and 50% of gas meters are now upgraded to Automatic Read Meters (AMR), providing more accurate data and improved billing. Using this data we have significantly improved our understanding of energy used within RBC buildings, which has helped with targeting energy efficiency measures.
- In 2014/15 the Council relocated to a newly refurbished Civic Offices building. Investments were made in energy efficiency, including LED lighting and controls, energy efficient boilers, refurbishments of Air Handling Units and motors. In addition the Council has installed its largest single solar panel system, to date, on the roof of the newly refurbished building. Following the second full year of occupation, 2016/17, the energy used in the refurbished Civic Offices reduced again by a further 5%, using 62% less grid energy than the old Civic Offices, with the carbon footprint reduced by 66%. Work continues to find further energy and water efficiencies within the building to make additional savings.
- In 2016/17 council staff responded to supplier warnings of higher energy costs at peak electricity demand periods in the winter months, known as TRIAD warnings. By reducing or shifting electricity demand in response to these warnings the council avoided costs of over £13k.
- Improvements in insulation have been made in some sheltered housing properties, including cavity wall and loft insulation. These have seen reductions in gas consumption for heating during winter months.
- In 2016 Reading Community Energy Society was launched. An Energy4All cooperative, it raised share capital from a community share offer and installed 186kWp of solar panels on 10 Council and community buildings.

3.2 The Government's latest strategy aimed at delivering the fifth carbon budget and air quality objectives is called the Clean Growth Strategy. It focuses amongst other things on innovation in renewable energy, smart energy systems and low carbon transport. It seeks to link air quality and low carbon growth and will be relevant to how the Council approaches its low carbon and air quality investments going forwards.

3.3 In 2016/17 there has been a 13.1 % reduction in corporate emissions against our 2015/16 levels. When taking into account the gross emissions of the wider influence of the Council, the footprint decreased by 11.5 %. The full report can be found in Appendix 1.

3.4 The 2016/17 carbon footprint for the Council's corporate activities is now 45% lower than the baseline emissions in 2008/09, 8.5% ahead of the target, which is significant progress to meet the 50% reduction target by 2020.

3.5 The total renewably generated energy in 2016/17 was equivalent to 5.0% of the total energy use of the council, or 7.1% of energy used in buildings.

3.6 The 2016/17 carbon footprint for the Council's wider activities (including schools and managed services) is 28.8% lower than the baseline emissions in 2008/09. This excludes emissions from Reading Transport Ltd buses and other vehicles.

Looking forward:

- 3.7 Whilst the completion of schemes already mentioned has led to reductions in carbon emissions, further activities are being implemented or planned to further reduce the Council's energy costs and carbon emissions in future years.
- 3.8 In 2013, the Council invested in an initial street-lighting upgrade, comprising 1,300 LED lamps. LED (Light Emitting Diode) technology is capable of reducing energy use from the lamps by over 70%. A full street lighting upgrade to LED technology was started in April 2016, in collaboration with two other neighbouring authorities. The upgrade programme is due to be completed in March 2018. Significant energy savings and carbon emissions reductions should be realised from this programme. In the first four months of 2017/18 energy consumption by street lighting was reduced by 30%, compared to the same period before the upgrade programme started.
- 3.9 Further SALIX investment is being developed through other property development programmes, such as the Office Accommodation Strategy, the Condition/Compliance programme, and the community hubs programme. The approach will bring capital Salix funding to support building improvements through the most energy efficient technology where possible, and to investigate the opportunities for further energy saving measures whilst building work is taking place. Work is already planned to upgrade insulation, change lighting to LEDs and improve boilers in various facilities across the council estate, for example supporting the works planned at the Town Hall and South Reading Youth and Community Centre.
- 3.10 The commercial water market was de-regulated in April 2017. The council is now working to procure water commercially for the first time, and exploring the options for gaining the best value for money and opportunities for savings.
- 3.11 Work continues to improve the council's energy data capture. Improvements in accuracy and precision of data will aid our understanding of the organisation's energy use and help in targeting work to improve the efficiency of its use and to make reductions through the efficient operation of assets.
- 3.12 The renewables target, '15% of total energy used', remains challenging, particularly following the change of incentive schemes for renewable energy by the government in 2015/16. Business cases for investment in renewable technology are currently less compelling, although opportunities will continue to be investigated to identify the most promising opportunities. Low carbon and renewable technologies such as heat pumps, Combined Heat and Power (CHP) and solar P.V. in combination with battery storage are being considered.
- 3.13 A coordinated awareness raising programme is currently being developed to work towards all staff being aware of energy and carbon, and how their actions can influence its use. An initial training session for sheltered housing staff was run early in 2017/18. Further training sessions and communications are planned and scheduled.
- 3.14 Reading Buses (Reading Transport Ltd) has continued to follow its previously reported fleet replacement strategy, aiming to renew approximately 10% of the front line vehicles each year. As older vehicles leave the fleet they are replaced with units offering better fuel consumption and lower emissions. Six Euro VI diesel buses entered service in September 2016, with enhanced specifications and significant weight reductions that enabled them to meet Low Carbon Emission Bus (LCEB) standards - a minimum 30% reduction in CO₂ compared to equivalent Euro IV vehicles. Later in the year the company also launched the first five CNG powered double deck buses in the UK, operating on the Tilehurst Road service, Royal Blue 33. These vehicles are Euro VI equivalent and also purchase fuel from a supplier who inject equivalent volumes of

sustainably sourced biomethane into the gas network. Gas is compressed on site at the Great Knollys Street depot. The biomethane purchased by the company is produced by anaerobic digestion, primarily from farm waste, and is certified as sustainable by the supplier, Gas Bus Alliance, through the independent Green Gas Trading Scheme.

- 3.15 The introduction of these double deck CNG buses brought the number of gas powered vehicles in fleet to 45. This exceeds the design capacity of the original gas station and work is now underway, supported by DfT LCEB grant, to increase the gas compression and storage facilities at the depot during the course of this year. This will enable the planned introduction of a further seventeen gas double deckers that have been ordered for delivery late 2017 (due to enter service in early 2018). These buses will be deployed on the flagship Purple 17 route and will result in another fifteen ten-year old Euro IV buses leaving the fleet.
- 3.16 Overall, fleet performance continues to improve with this substantial level of investment year-on-year. The average age of front line buses remains around five years.

4. THE CARBON FOOTPRINT

- 4.1 The Council's carbon emissions for its controlled (corporate) operations in 2016/17 was 10,845 tCO₂, down 13.1 % (1,640 tCO₂) against 2015/16 emissions. Renewably generated electricity, exported to the grid, or sold to third parties almost doubled, equivalent to 5 % of total energy consumed.
- 4.2 The absolute carbon emissions of the organisation's wider activities, including emissions from schools and managed services, were 20,018 tCO₂ (excluding fuel use from Reading Buses) for 2016/17, down 11.5 % compared to 2015/6 figures.

4.3 The GHG carbon footprint figures for 2016/17 are illustrated in Table 1 below, compared against 2015/16 data.

YEAR	2015/16	2016/17
	tCO ₂	tCO ₂
SCOPE 1 - Corporate		
	4,609	4,348
SCOPE 2 - Corporate		
	7,054	5,776
SCOPE 3		
<i>CORPORATE</i>	822	721
<i>SCHOOLS</i>	7,487	6,944
<i>MANAGED ASSETS/SERVICES</i>	2,656	2,229
GROSS EMISSIONS - Scope 1, 2, 3 - CORPORATE	12,485	10,845
GROSS EMISSIONS - ALL	22,628	20,018
ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS	368	610
NET EMISSIONS - Scope 1, 2, 3 - CORPORATE	12,117	10,235
NET EMISSIONS - ALL	22,260	19,409

Table 1: Reading Borough Council GHG Emissions 2016/17, compared to 2015/16 figures.

4.4 The carbon reductions targets set out in Reading's Climate Change Strategy 2008-2013, and the subsequent Reading's Climate Change Strategy 2013-2020, amount to 36.5% by 2016/17, against the 2008/09 baseline. Figure 1a, below, illustrates the Council's corporate emissions reductions compared against the annual reduction targets, and figure 1b shows the Council's wider carbon footprint (Figure 1 b). The graphs show that, to date, the work on carbon reduction corporately for the Council is ahead of the reduction target. The emissions from the wider activity of the Council (including schools and managed services) also have reduced compared to baseline levels. It should be noted that the pupil numbers in Reading's schools have seen a significant increase, of 32% since 2008/9. The carbon emissions per pupil across Reading have decreased by almost 10% between 2015/16 and 2016/17, going from 0.36tCO₂/pupil to 0.32tCO₂/pupil.

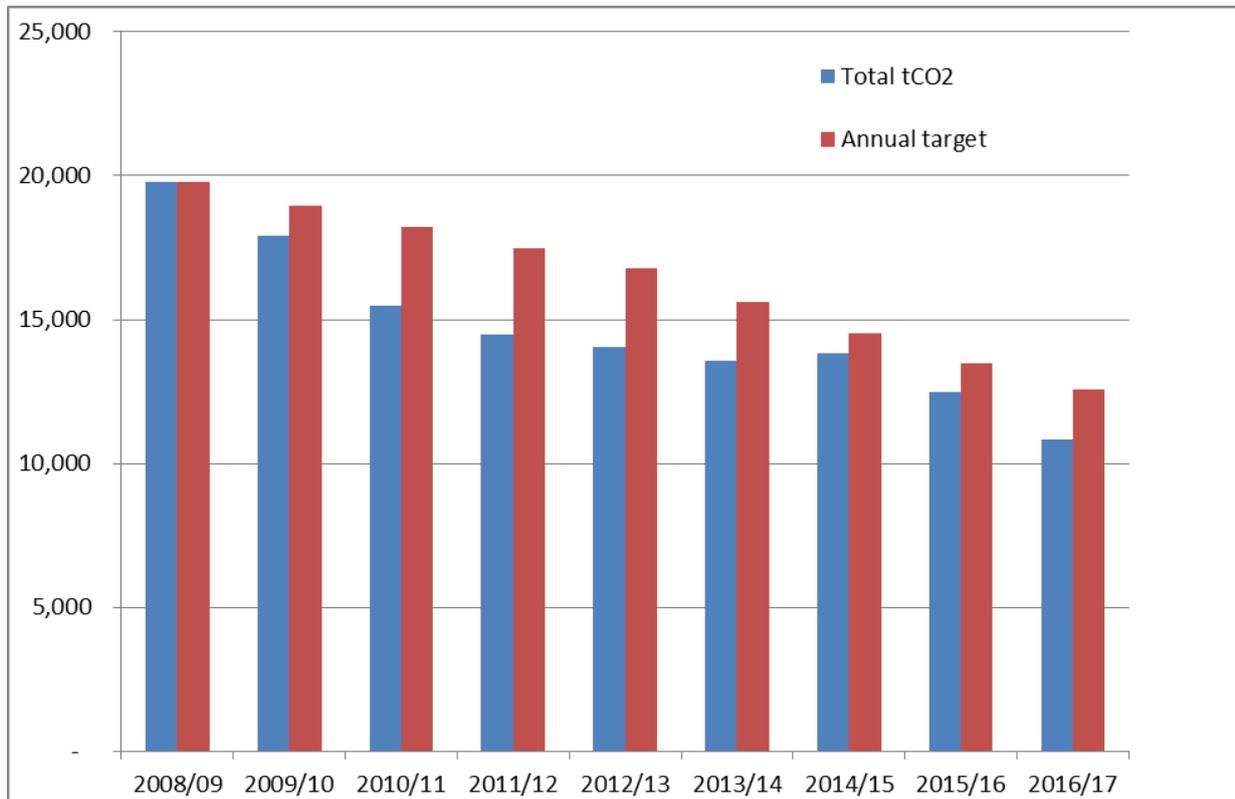


Figure 1 a): Reading Borough Council's corporate GHG emission performance against annual 4% target from the Baseline year (2008/9) through to 2016/17

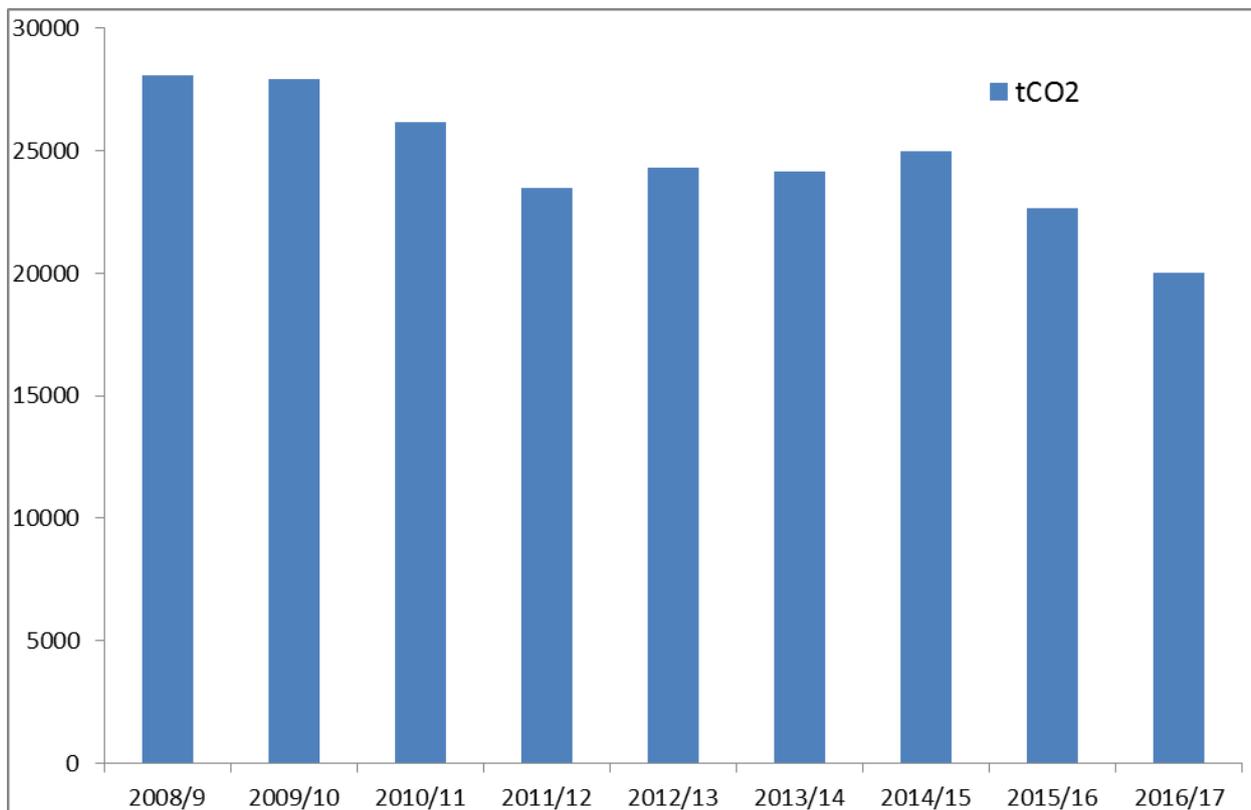


Figure 1 b): Reading Borough Council's wider GHG emission performance, from the Baseline year (2008/9) through to 2016/17 (including schools and managed services)

- 4.5 Table 2 below provides the annual corporate carbon footprint figures, compared against the target. The 2016/17 carbon footprint is 45 % lower than the 2008/09 baseline, a significant achievement, being 8.5 % ahead of the target emissions. These emissions reductions provide a sound foundation for further emissions reductions to meet the 2020 reduction target of 50 %.
- 4.6 The 2016/17 carbon footprint for the Council's wider activities (including schools and managed services) is 28.7 % lower than the baseline emissions in 2008/09, as illustrated in Table 2.

		2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17
CORPORATE	Total tCO ₂	19,761	17,919	15,475	14,487	14,056	13,584	13,997	12,485	10,845
	Annual target	19,761	18,971	18,212	17,484	16,784	15,609	14,516	13,500	12,556
SCHOOLS	Total tCO ₂	5,216*	7,203	7,877	6,882	7,651	7,778	8,005	7,487	6,944
MANAGED SERVICES	Total tCO ₂	3,125	2,806	2,838	2,128	2,580	2,777	2,959	2,656	2,229
TOTAL	Total tCO ₂	28,102	27,928	26,190	23,497	24,287	24,139	24,961	22,628	20,018

Table 2: Annual RBC corporate, schools and managed services carbon emissions.
Note: early data from the schools sector was variable in quality and coverage. Data provided was the best available at the time.*

- 4.7 Since 2012/13 Reading Buses have been operating Compressed Natural Gas (CNG) fuelled buses. Redeployment of the existing single deck CNG buses onto longer routes in the last few years has led to slight variation in the carbon footprint of the fleet per kilometer, but overall the fleet performance has improved over the last four years.

	2012/13		2013/14		2015/16		2016/17	
FLEET	tCO ₂	kg CO ₂ /km						
DIESEL	7,971		6,889		9,203		7,952	
CNG	451		1,706		2,610		2,599	
TOTAL	8,422	1.1194	8,595	1.1081	11,813	1.2305	10,551	1.1104

Table 3: Reading Buses fuel use since the introduction of CNG fuelled vehicles in 2012/13

5. CONTRIBUTION TO STRATEGIC AIMS

- 5.1 The work on carbon reduction directly contributes to the Council's strategic aim to 'Develop Reading as a Green City with a sustainable environment and economy at the heart of the Thames Valley'.
- 5.2 This work also contributes to the sustainable development of Reading, helping to reduce our impact on the environment and reduce costs now, to support Reading for the future.

6. COMMUNITY ENGAGEMENT AND INFORMATION

- 6.1 As required by the government Department for Energy and Climate Change (DECC) the Reading Borough Council Greenhouse Gas (GHG) Report: 2016-17 is published on the Reading Borough Council website.

7. EQUALITY IMPACT ASSESSMENT

- 7.1 An Equality Impact Assessment (EIA) is not required for the Carbon Footprint report.

8. LEGAL IMPLICATIONS

- 8.1 Nationally, legal obligations in respect of climate change are incorporated into legislation through a range of regulations set out under the Climate Change Act 2008. The Reading Climate Change Strategy does not set out any specific binding actions in relation to these regulations but offers a multi-organisation framework which constitutes the proposals for the Borough to assist in meeting the national carbon budgets.
- 8.2 As a local authority, Reading Borough Council is required to report annual carbon footprint figures to the Department of Energy and Climate Change (DECC). This reporting is done through a return to government and publication of the carbon footprint report on the Council's website.

9. FINANCIAL IMPLICATIONS

- 9.1 The Council's actions in relation to carbon reduction form a key element of the financial savings programme of the Council. Annual energy bills amount to around £2m. The cost of energy is predicted to rise beyond inflation and therefore it is important to maintain investment and operational control on energy and fuel to enable significant reductions in energy consumption. Prices have increased by around 20% in 2017/18 against 16/17. The reduced energy consumption of the council is estimated to have avoided costs of around £1m in 2016/17 compared to if no action had been taken. The avoided costs between 2008/9 and 2016/17 totals around £5.8m (excluding costs such as standing charges and other contract charges).

10. BACKGROUND PAPERS

Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting, June 2013, Department for Environment, Food and Rural Affairs

Reading's Climate Change Strategy 2008-2013. Stepping forward for Climate Change

Reading's Climate Change Strategy 2013-2020; *Reading Means Business on Climate Change*

Reading Borough Council: Carbon Plan, 2015-2020

Reading's Local Authority Carbon Management Plan (LACM) 2007

Sustainable Community Strategy, 2011. Levers for change.