

READING BOROUGH COUNCIL

REPORT BY DIRECTOR OF ENVIRONMENT AND NEIGHBOURHOOD SERVICES

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| TO: | STRATEGIC ENVIRONMENT, PLANNING AND TRANSPORT COMMITTEE | | |
| DATE: | 23 NOVEMBER 2016 | AGENDA ITEM: | 10 |
| TITLE: | ANNUAL CARBON FOOTPRINT REPORT, 2015/16 | | |
| LEAD COUNCILLOR: | CLLR PAGE | PORTFOLIO: | STRATEGIC ENVIRONMENT, PLANNING & TRANSPORT |
| SERVICE: | SUSTAINABILITY | WARDS: | BOROUGHWIDE |
| LEAD OFFICER: | Kirstin Coley | TEL: | x72291 |
| JOB TITLE: | Energy Management Officer | E-MAIL: | Kirstin.coley@reading.gov.uk |

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 green house gases by 4% per annum and by 50% in total by 2020. The Reading Climate Change Partnership's strategy '*Reading means business on Climate Change*' furthers this commitment.
- 1.2 Reading Borough Council's 'Carbon Plan, 2015-2020', was approved last year, which reinforced 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, with a 10.8% reduction in corporate emissions against the previous year's levels (2014/15). When taking into account the gross emissions of the wider influence of the Council, the footprint decreased by 9.5 %. The full report can be found in Appendix 1.
- 3.1 The 2015/16 carbon footprint for the Council's corporate activities is 36.9 % lower than the baseline emissions in 2008/09, 5.2 % ahead of target, which is significant progress to meet the 50% reduction target by 2020. The total renewably generated energy in 2015/16 was equivalent to 3.7% of the total energy use of the council, or 5.9% of energy used in buildings, which continues to move towards the challenging 2020 renewable energy target of 15%. In addition, Reading Transport Ltd's bus fleet continues to serve more passengers, with carbon emissions per passenger per kilometre reduced by a third since the introduction of Compressed Natural Gas vehicles.
- 1.4 Looking forward, on-going and new initiatives will support further reductions; these include a major street lighting upgrade, continued Salix investment through a Building Energy Efficiency 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 £5.5m, compared to if no action had been taken. In 2015/16 the avoided costs are estimated to be approximately £900,000.
- 1.6 Appendix 1 to this report provides the full Reading Borough Council: Greenhouse Gas (GHG) Protocol Report 2015-16. 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 2015/16, of over 10.8 % for the corporate emissions and 9.5 % for the emissions from the wider influence of the Council, against the previous year (2014/15).
- 2.2 The Committee notes that the 2015/16 carbon footprint for the Council's corporate activities is 36.9 % lower than the baseline emissions in 2008/09, 5.2% ahead of target, with the Council's wider activities (including schools and managed services) being 19.5 % lower than the baseline emissions in 2008/09.
- 2.3 The Committee notes that total renewably generated energy in 2015/16 was equivalent to 3.7% of the total energy use of the council, or 5.9% of energy used in buildings. In addition the Committee recognises that the 2020 renewable energy target has become more challenging in the wake of 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.

3. POLICY CONTEXT

The current position:

- 1.7 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 last year, 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 Over the course of the last eight years, the Council has steadily reduced its own emissions in order to both lead by example and to reduce exposure to rising energy costs. The following details the activity to reduce carbon emissions over this period.
 - In 2008, the Council implemented a government backed scheme called SALIX, SALIX is 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 2015/16 the Council had invested just over £1.2m, in 94 individual projects. There are currently a further 14 projects in progress.

- 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 2015/16 the systems generated 409,971 kWh of electricity, the equivalent to powering 125 houses.
 - In 2013, a project to install photovoltaic solar panels onto over 400 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. The total annual energy generation is predicted to be 1,070 MWh. In 2015/16 the solar pv on these properties generated 374,510 kWh from systems installed part-way through the year. The first full year of generation will be realised in 2016/17.
 - Over the last four 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). This upgrade in meters provides 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 first full year of occupation, 2015/16, the refurbished Civic Offices used 57% less energy than the old Civic Offices, with the carbon footprint reduced by 62%. Work continues to find further energy and water efficiencies within the building to make further savings.
 - In 2015/16 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 around £10k.
 - 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.
- 3.3 In 2015/16 there has been a 10.8 % reduction in corporate emissions against our 2014/15 levels. When taking into account the gross emissions of the wider influence of the Council, the footprint decreased by 9.5 %. The full report can be found in Appendix 1.
- 3.4 The 2015/16 carbon footprint for the Council's corporate activities is now 36.9% lower than the baseline emissions in 2008/09, 5.2% ahead of the target, which is significant progress to meet the 50% reduction target by 2020.
- 3.5 The total renewably generated energy in 2015/16 was equivalent to 3.7% of the total energy use of the council, or 5.9% of energy used in buildings.
- 3.6 The 2015/16 carbon footprint for the Council's wider activities (including schools and managed services) is 19.5% 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 is currently being implemented, which began in April 2016. The upgrade programme is a two year programme, and is scheduled to be completed in March 2018. Significant energy savings and carbon emissions reductions should be realised from this programme.
- 3.9 Further SALIX investment is planned through property development programmes in a more cohesive fashion, through a Building Energy Efficiency Programme (BEEP). The programme 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. Where possible work will coincide with other projects and plans including the recent decision (Policy Committee July 2016) to relocate the registry office to the town hall and other associated rationalisation works.
- 3.10 The commercial water market will be de-regulated from April 2017. The council is taking action to be prepared for this change, to enable the organisation to be in the best position to take advantage of this opportunity.
- 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 Additional renewable energy generation will be realised in 2016/17, arising from the completion of the solar housing project and biomass heat generation at Cedar Court. 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 propitious opportunities. As the carbon footprint reduces, the percentage of the council's energy that is from renewables will increase, as it will be 15% of a smaller figure.
- 3.13 Reading Buses (Reading Transport Ltd - RTL) continues to invest in their bus fleet, replacing around 10% of the vehicles each year. As the oldest vehicles leave the fleet the new ones offer better fuel consumption and lower emissions, even where there is a like-for-like replacement. A further 16 Euro VI double deck buses entered service this year (eight had already been deployed last year) which all replaced Euro IV vehicles in the fleet. In addition to the latest low emission engines, these new vehicles are substantially lighter than their predecessors. Vehicles entering service this year will include a further six Euro VI double deck buses that, with enhanced specification and weight reduction, meet Low Carbon Emission Bus Standards (30% lower emissions than equivalent Euro III vehicle) and also the first five Compressed Natural Gas (CNG) powered double deck buses in the UK. The latter will take advantage of the substantial previous investment in gas fuelling infrastructure at the Great Knollys Street depot. Redeployment of the existing single deck CNG buses onto longer routes has marginally increased the carbon footprint of those vehicles but overall the fleet performance has improved since the last snapshot. This on-going substantial investment in the bus fleet has helped to improve the air quality of the Borough.

4. THE CARBON FOOTPRINT

- 4.1 The Council's carbon emissions for its controlled (corporate) operations in 2015/16 was 12,485 tCO₂, down 10.8 % (1,512 tCO₂) against 2014/15 emissions. Renewably generated electricity, exported to the grid, or sold to third parties almost doubled, accounting for 3.7 % of total energy consumed.
- 4.2 The absolute carbon emissions of the organisation's wider activities, including emissions from schools and managed services, were 22,628 tCO₂ (excluding fuel use from Reading Buses) for 2015/16, down 9.5 % compared to 2014/5 figures.
- 4.3 The GHG carbon footprint figures for 2015/16 are illustrated in Table 1 below, compared against 2014/15 data.

| YEAR | 2014/15 | 2015/16 |
|--|------------------|------------------|
| | tCO ₂ | tCO ₂ |
| SCOPE 1 - Corporate | | |
| | 4,740 | 4,609 |
| SCOPE 2 - Corporate | | |
| | 8,283 | 7,054 |
| SCOPE 3 | | |
| <i>CORPORATE</i> | 974 | 822 |
| <i>SCHOOLS</i> | 8,005 | 7,487 |
| <i>MANAGED ASSETS/SERVICES</i> | 2,998 | 2,656 |
| GROSS EMISSIONS - Scope 1, 2, 3 - CORPORATE | 13,996 | 12,485 |
| GROSS EMISSIONS - ALL | 25,000 | 22,628 |
| | | |
| ELECTRICITY EXPORTED/SOLD TO GRID/OTHERS | 186 | 368 |
| NET EMISSIONS - Scope 1, 2, 3 - CORPORATE | 13,810 | 12,117 |
| NET EMISSIONS - ALL | 24,814 | 22,260 |
| | | |

Table 1: Reading Borough Council GHG Emissions 2014/15, 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 31.7% by 2015/16, 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 30% since 2008/9.

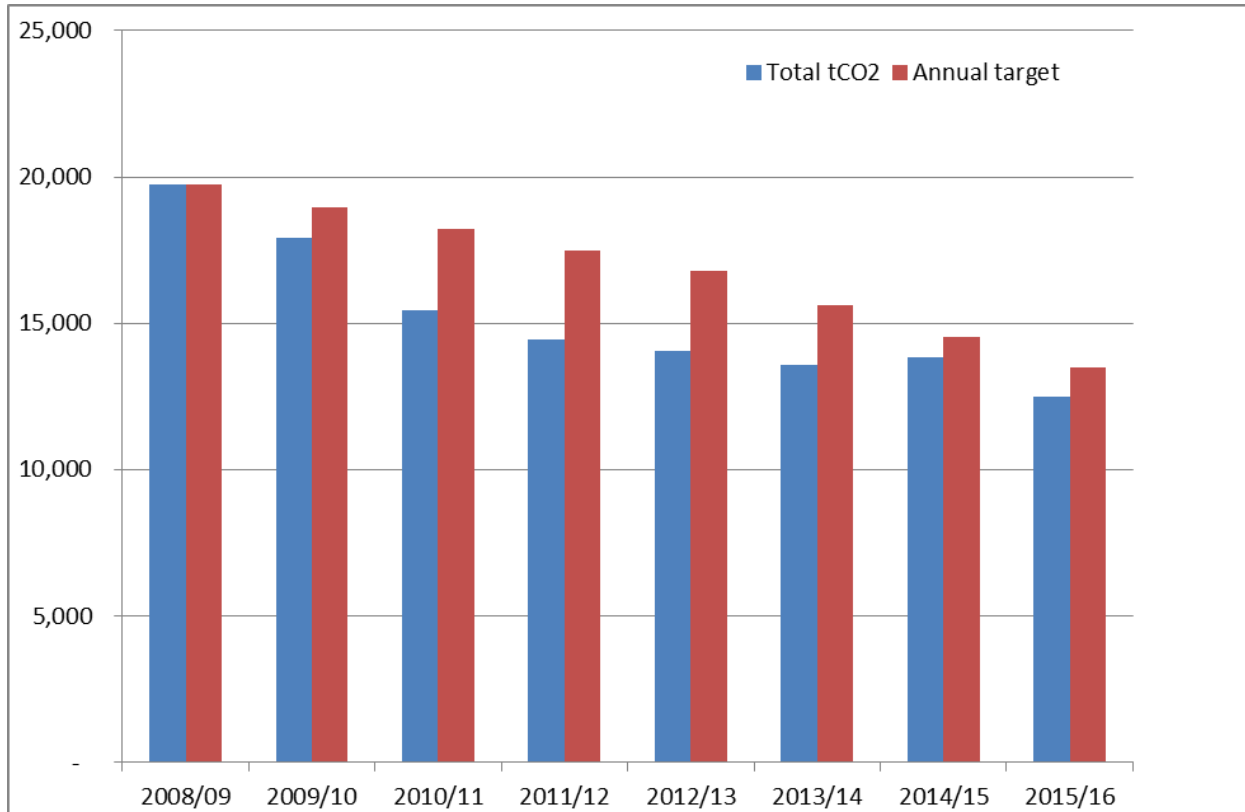


Figure 1 a): Reading Borough Council's corporate GHG emission performance against annual 4% target from the Baseline year (2008/9) through to 2015/16

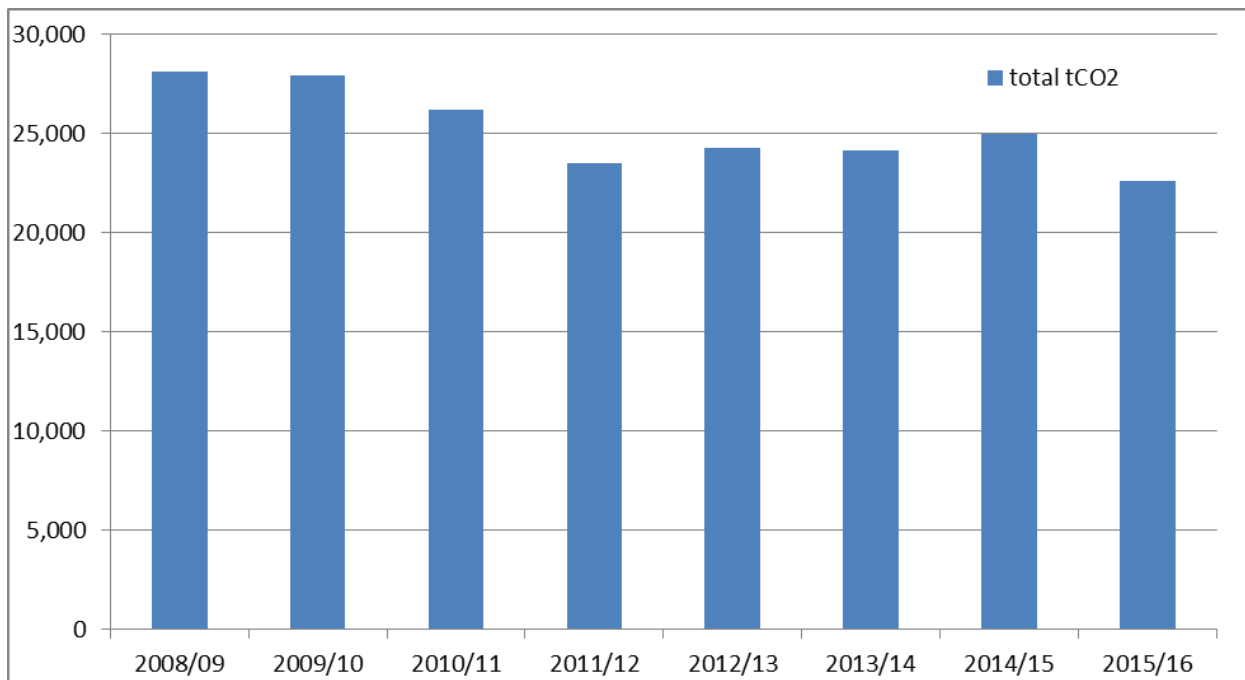


Figure 1 b): Reading Borough Council's wider GHG emission performance, from the Baseline year (2008/9) through to 2015/16 (including schools and managed services)

4.5 Table 2 below provides the annual corporate carbon footprint figures, compared against the target. The 2015/16 carbon footprint is 36.9 % lower than the 2008/09 baseline, a significant achievement, being 5.2 % 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 2015/16 carbon footprint for the Council’s wider activities (including schools and managed services) is 19.5 % 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 |
|------------------|------------------------|---------|---------|---------|---------|---------|---------|---------|---------|
| CORPORATE | Total tCO ₂ | 19,761 | 17,919 | 15,475 | 14,487 | 14,056 | 13,584 | 13,997 | 12,485 |
| | Annual target | 19,761 | 18,971 | 18,212 | 17,484 | 16,784 | 15,609 | 14,516 | 13,500 |
| SCHOOLS | Total tCO ₂ | 5,216* | 7,203 | 7,877 | 6,882 | 7,651 | 7,778 | 8,005 | 7,487 |
| MANAGED SERVICES | Total tCO ₂ | 3,125 | 2,806 | 2,838 | 2,128 | 2,580 | 2,777 | 2,959 | 2,656 |
| TOTAL | Total tCO ₂ | 28,102 | 27,928 | 26,190 | 23,497 | 24,287 | 24,139 | 24,961 | 22,628 |

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. Diesel is a more carbon intensive fuel than CNG, as illustrated by the carbon emissions per kilometre in 2015/16, which was over five times more carbon intensive than CNG. The total carbon intensity of Reading Buses vehicle fleet per passenger per kilometre has reduced by a third since the introduction of CNG fuelled vehicles in 2012/13. Redeployment of the existing single deck CNG buses onto longer routes in the last year has marginally increased the carbon footprint of those (CNG fuelled) vehicles, but overall the fleet performance has improved by 34% over the last three years when taking account of km’s travelled and passenger numbers.

| FLEET | 2012/13 | | | 2013/14 | | | | 2015/16 | | | |
|--------|------------------|------------------------|--------------------------|------------------|------------------------|---------------------------|----------------------|------------------|------------------------|---------------------------|----------------------|
| | tCO ₂ | kg CO ₂ /km | kg CO ₂ /pass | tCO ₂ | kg CO ₂ /km | kg CO ₂ /pass. | % reduction/Pass./km | tCO ₂ | kg CO ₂ /km | kg CO ₂ /pass. | % reduction/Pass./km |
| DIESEL | 7,971 | 1.116 | | 6,889 | 1.108 | | | 8,215 | 1.066 | | |
| CNG | 79 | 0.208 | | 299 | 0.194 | | | 444 | 0.202 | | |
| TOTAL | 8,050 | 1.070 | 0.417 | 7,188 | 0.927 | 0.343 | 20% | 8,659 | 0.875 | 0.362 | 34% |

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: 2015-16 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 obliged 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, in spite of fluctuations, and therefore it is important to maintain investment and operational control on energy and fuel to enable significant reductions in energy consumption. The reduced energy consumption of the council is estimated to have avoided costs of around £900,000 in 2015/16 compared to if no action had been taken. The avoided costs between 2008/9 and 2015/16 total around £5.5m (excluding non-consumption based costs, such as standing 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