



To: The Executive Councillor for Planning, Sustainable Transport: Councillor Tim Ward  
Report by: Andrew Limb  
Relevant scrutiny committee: Environment 26/06/2012  
Scrutiny Committee  
Wards affected: All Wards

## **CAMBRIDGE CITY COUNCIL CLIMATE CHANGE STRATEGY AND CARBON MANAGEMENT PLAN**

### **Key Decision**

#### **1. Executive summary**

- 1.1 The new Climate Change Strategy and Action Plan replaces the previous strategy which covered the period 2008-12, and will set the framework for action by the Council to address climate change over the next five years.
- 1.2 The Carbon Management Plan forms part of the Strategy and details how the Council will further reduce carbon emissions from its own operations and estate over the five year life of the strategy.
- 1.3 The Climate Change Fund criteria need to be revised if the Fund is to support the projects that will deliver these reductions in emissions.
- 1.4 The Climate Change Fund Annual Status Report provides financial details of the projects supported by the Fund to date.

#### **2. Recommendations**

- 2.1 The Executive Councillor is recommended to:
  - a) Approve the draft Climate Change Strategy (Appendix A) for public consultation from May to September.
  - b) Approve the draft Carbon Management Plan (Appendix B).
  - c) Approve the revised Operational Guidelines for the Climate Change (Appendix C).
  - d) Approve the Annual Climate Change Fund Status Report (Appendix D).

### **3. Background**

- 3.1 Cambridge City Council has a long track record of taking action to help restrict climate change and manage its impact on local communities, businesses and the environment.
- 3.2 One of the Council's 8 corporate vision statements is 'a City in the forefront of low carbon living and minimising its impact on the environment from waste and pollution.' The City Council made a formal commitment to tackle climate change by signing the Nottingham Declaration on Climate Change on 22<sup>nd</sup> September 2006 and published its first Climate Change Strategy and Action Plan in 2008, which set out a vision and framework for action over a five-year period.

#### **Refreshing the Climate Change Strategy**

- 3.3 Although the City Council has achieved much in the past five years, climate change still presents very significant risks to the City of Cambridge and there remains a pressing need for action at the local level. Cambridge City Council has chosen to produce a revised Climate Change Strategy and Action Plan to set the framework for its action to address the causes and consequences of climate change between 2012 and 2016. The draft Strategy and Action Plan are attached at Appendix A.
- 3.4 The draft Strategy explains the case for action on climate change, and sets out the national and international policy context. It also explains what has been achieved under the previous strategy, and the lessons learned. There have been a number of significant developments since the City Council's first Climate Change Strategy was produced. These include:
- the introduction of binding national targets for reducing carbon emissions through the Climate Change Act 2008;
  - the introduction of the Carbon Reduction Commitment, which could potentially lead the City Council being liable for charges estimated at around £70,000 per year in future years (although the precise future of this policy instrument remains unclear and subject to change);
  - changes to planning legislation and policy to promote energy efficiency and sustainable design and construction;
  - new national initiatives to support households and non-domestic users to install energy efficiency measures (e.g. the Green Deal and Energy Company Obligation) and renewable energy sources (e.g. the Feed-In Tariff and Renewable Heat Incentive schemes);

- recommendations from the Government's Climate Change Committee that Local Authorities be given a statutory duty to cut carbon emissions; and
- the current challenging economic climate, which means that it is more important than ever to make the best use of available resources and focus on the areas where the greatest impact on climate change can be achieved.

3.5 These developments are reflected in the objectives for the Strategy, and the actions we plan to take to achieve the objectives are set out in the Action Plan. The three objectives of the Strategy are:

1. To reduce carbon emissions from the Council's estate and operations and manage the risks to its staff and property;
2. To set high standards for residents, businesses and organisations to reduce their carbon emissions and manage climate risks;
3. To work in partnership with, influence and learn from other organisations to address the causes and effects of climate change.

3.6 Objective 2 will be achieved by putting climate change at the heart of services such as Planning (not least through the development of the Council's new Local Plan), Environment & Refuse and Arts & Recreation.

3.7 Objective 3 will be achieved by continuing our leadership in partnerships with neighbouring local authorities, the city's universities, and the voluntary, community and business sectors.

### **The Carbon Management Plan**

3.8 In terms of objective 1, with fuel costs of around £1.8m in 2010/11 it is imperative that we act now to reduce these costs so that resources can be focussed on priority services for residents. Working with the Carbon Trust, officers have developed a detailed Carbon Management Plan, which sits under the Climate Change Strategy.

3.9 The Carbon Management Plan identifies an ambitious programme of 64 major projects that will help deliver Objective 1 of the Strategy. By adopting a rigorous and planned approach which focuses primarily on the areas of the Council's activity which contribute most to our carbon emissions (e.g. swimming pools, car parks, vehicle fleet, offices and sheltered and temporary housing), it is anticipated that the Plan will enable the Council to achieve the challenging target of a 20% reduction in carbon emissions from our estate and operations by the end of March 2016.

- 3.10 The Carbon Management Plan explains the financial and environmental case for action, and sets out the anticipated financial and carbon benefits of acting (as opposed to a “business as usual” model of taking no specific action). The Plan will also deliver significant financial savings, albeit potentially in the form of future cost-avoidance. Based on information that is currently available, the projects planned to date require a total investment of £2.3m over the next 5 years to deliver 99% of the aspirational 20% reduction in emissions.
- 3.11 However, we expect these projects will reduce the Council’s likely energy and fuel costs by around £340,000 each year. This means that the projects will have paid for themselves within fewer than seven years and many will deliver further savings beyond this period. These figures are subject to change and the exact costs and benefits of a number of the projects will become clearer as detailed work is carried out. The Plan explains the varying degrees of confidence and certainty around achieving the anticipated savings and emissions reductions.

### **Performance against targets in the previous strategy**

- 3.12 The City Council implemented a number of carbon reduction projects across its operations and estate between 2005/06 and 2010/11. Energy consumption, and carbon emissions at a number of sites across the estate fell during this period. However, during work to develop further projects for the Carbon Management Plan, it became clear that energy consumption and emissions in 2010/11 had been higher than previously thought. This caused us to undertake a thorough review of all the data we had been using, to get a better grip on energy consumption and emissions, and on the trend in energy usage at the various council sites.
- 3.13 We now have data which, whilst still containing data based on estimated readings for some sites, is as accurate as we are able to achieve at this time. Comparing the crude figures from all sites in 2005/06 and 2010/11, total energy consumption rose very slightly (by around 23,000kwh or 0.1%). Total emissions rose by 3.2%, but emissions per head of population (the primary measure in the Climate Change Strategy) fell by around 0.59%.
- 3.14 This differs from the figure provided to scrutiny committee (and publicly) in July 2011, when we believed we had achieved a 15% reduction in per capita emissions. The difference is primarily down to officers misreading the data from a number of buildings, particularly Parkside Pools, and omission of data for the Grand Arcade Car Park.

These errors have highlighted the need for more accurate metering and monitoring, which is in hand. For instance, we are working to install Automated Meter Reading devices on all sites where this is feasible, and to take our own visual meter readings on other sites. One of the challenges has been the way that data has been collected in a variety of ways from a variety of sites and over 600 meters.

- 3.15 Looking at overall energy use we can see that while we were reducing energy on some sites, we were consuming more on others as part of initiatives to improve services and provide better outcomes for residents, such as extended opening hours at swimming pools, increased hiring of community centres and better lighting in a number of car parks.
- 3.16 The work to get to the bottom of our energy use and carbon emissions data has uncovered a number of complexities in making these comparisons, however. It became clear that the figures for a number of sites in the baseline year were either erroneous or gave a distorting impression because the buildings were closed for refurbishment during that year and therefore not consuming gas and/or electricity at anywhere near the normal rate (whilst being fully operational in 2010/11). If one excluded those sites from the figures to give a more “like for like” comparison, the total energy consumption would be around 1,250,000kwh less in 2010/11 than in 2005/06 for the remaining sites, giving a reduction in per capita emissions of 4.84%.
- 3.17 Furthermore, the impact of fluctuations in population, and in the “conversion factors” (a calculation provided by the Department for Energy and Climate Change, which translates energy use into carbon emissions), on the headline figure have been brought home to us. The mix of electricity and gas also has a significant impact on emissions – so, although total energy consumption fell from 2009/10 to 2010/11, emissions went up as a greater proportion of the total was from electricity.
- 3.18 For all these reasons, it has become clear how complex it can be to provide meaningful comparisons across the years. We need to be more cognisant of this moving forward, and ensure that officers and members are well-sighted on the environmental implications of other service changes that might increase energy usage whilst achieving other policy objectives.
- 3.19 All of these issues emphasise the need for a structured, robust plan to address energy consumption and emissions across our estate, and this has been behind our work with the Carbon Trust to develop a Carbon Management Plan.

3.20 Moving beyond its own estate, the City Council has also delivered a range of actions to support residents to reduce their carbon emissions and challenge businesses and other organisations to take action which has contributed to a 16% reduction in per capita emissions in the City between 2005 and 2009.

### **Resourcing the Carbon Management Plan**

3.21 20 of the projects listed in the Carbon Management Plan are scheduled for delivery in 2012/13. The total cost of these projects is £549,389, which will be met from a combination of the Climate Change Fund, Housing Revenue Account (HRA), Repairs and Renewal (R&R) budgets, Efficiency Fund and other elements of the General Fund. £273,187 is currently earmarked from the Climate Change Fund to support delivery of a number of these projects, and this reflects that the Fund is being used to deliver a planned programme specific projects now<sup>1</sup>.

3.22 Projects included in the Carbon Management Plan under a value of £15,000 for 2012/13 will proceed to implementation. Project Appraisals will be worked up for all projects with capital costs of £15,000 or more and they will be approved by Asset Management Group and the Executive Councillor for Planning and Sustainable Transport. Projects with capital costs over £75,000 will be brought to scrutiny committee for Executive Councillor approval.

3.23 If significant changes are made to the value or nature of projects included in the Plan for 2012/13 as they proceed to implementation, they will be appraised against the Assessment Criteria set out in Section 4 of the revised Operational Guidelines (attached at Appendix C). Projects funded through subsequent years of the Carbon Management Plan (2013/14 – 2015/16) will also be assessed against these criteria.

### **Revised Climate Change Fund Operational Guidelines**

3.24 In order to receive funding from the Climate Change Fund, projects have to date required a payback period of less than 5 years and cost less than £100 per tonne of CO<sub>2</sub> that they save. In order for the City Council to achieve its ambitious target of a 20% reduction in its carbon emissions by March 2016, it will be necessary to support projects that do not meet these current criteria, but for which a sound business case exists.

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<sup>1</sup> These figures differ from those set out in the Budget Setting Report due to rephrasing of works that has happened since the BSR was finalised – it is expected that all the projects will still be delivered, albeit in 2013/14 for Queen Anne Terrace Car Park and the Ditchburn Place efficiency measures, rather than 2012/13

- 3.25 The Executive Councillor is recommended to approve the revised Operational Guidelines attached at Section 4 of Appendix C. These guidelines set out revised criteria for appraising and prioritising individual projects. The key changes amend the assessment criteria to:
- Weight projects which address the biggest sources of carbon emissions most heavily;
  - Weight projects which deliver the greatest financial and carbon savings most heavily;
  - Weight projects that sit higher in the energy hierarchy most heavily (i.e. those that prevent unnecessary energy use and increase energy efficiency)
  - Remove the limits on payback period and £ per tonne, whilst still prioritising the projects that perform best against these criteria.
- 3.26 Officers are reviewing the process for approving and allocating money from the Climate Change Fund in future years, to minimise the bureaucracy around delivering projects in 2012/13 and beyond, whilst at the same time ensuring that the Climate Change Fund process is consistent with the wider corporate delegation and approval processes.
- 3.27 A number of steps will be taken to ensure that the financial savings associated with these projects are realised. As part of the project appraisal process for projects funded through the Climate Change Fund, project managers will in future be required to identify the level of financial savings that will be achieved. This will enable officers to submit a revised budget item in October 2012/13 for the savings delivered by projects funded in 2012/13 by the Climate Change Fund.
- 3.28 Officers will also be asked to identify savings arising from carbon reduction projects funded through other means (e.g. the HRA and R&R funds) and submit savings bid proposals connected with each of these, so that the financial benefits of all the investments we are making in energy efficiency projects are realised, wherever possible. For projects undertaken in 2011/12, where savings have not already been submitted, we plan to identify and realize these also.
- 3.29 To date, savings associated with solar thermal panels and voltage optimisation at Ditchburn Place and Mandela House, totalling £24,000, have been submitted through the budget round. We intend to develop a process to realise the (genuine) savings arising from the remaining projects in the plan over the coming months, whilst not penalising services who implement energy saving measures if energy price inflation outstrips their budgets.

## **Annual Climate Change Fund Status Report**

3.30 The Annual Climate Change Fund Status Report provides, as required by the Guidelines, a simple overview of the financial details of the Fund since its inception including details of the funding provided to each project.

### **4. Implications**

#### **(a) Financial Implications**

The costs and savings associated with the projects identified in the Carbon Management Plan are outlined at 3.10-3.11. The actions contained in the Climate Change Strategy Action Plan under Objectives 2 and 3 will be funded through:

- Existing budgets for delivering key services, particularly for projects or actions that will deliver climate change benefits as part of wider planned developments or improvements to key services. These fall within the General Fund or the Housing Revenue Account (HRA) depending on the services involved.
- Government and other external funding sources for climate change initiatives.

#### **(b) Staffing Implications**

The Climate Change Officer in the Strategy and Partnerships Team will manage and co-ordinate the overall delivery of the Carbon Management Plan. Lead officers have been identified for projects in the Plan who have the capacity to deliver the projects within the stated timescales. The Carbon Management Team will support the Climate Change Officer. This is a corporate group that includes many of the lead officers. It previously met as the Energy Sub Group to share best practice, skills, knowledge and resources on energy management. The Environmental Strategy Group (ESG), which is chaired by the Chief Executive and relevant Heads of Service, will provide strategic direction for the delivery of the Carbon Management Plan.

Lead officers have also been identified for all the actions in the Climate Change Strategy Action Plan. These officers have the capacity to deliver the actions within the stated timescales. ESG will also provide strategic direction for the delivery of the Climate Change Strategy Action Plan.



### **(c) Equal Opportunities Implications**

An assessment of the aims and objectives of the Climate Change Strategy and the Carbon Management Plan has not identified any specific negative impacts. However, the needs of different protected characteristics will need to be considered when implementing the range of actions contained in the two documents. This is to ensure that the strategy is implemented effectively and that all people are able to benefit from the work being undertaken. Consequently further Equality Impact Assessments may be undertaken for individual projects.

It is likely that if action is not taken to address climate change that certain protected characteristics will be negatively affected to a greater extent than the population as a whole. For example, older people are more likely to suffer heat-related deaths, or people suffering fuel-poverty would be affected to a greater degree by the cost of increased energy consumption required for cooling and refrigeration.

### **(d) Environmental Implications**

The Climate Change Strategy and Action Plan and the Carbon Management Plan will have a high impact on the environment by setting out a planned approach to: reducing the Council's carbon emissions; setting high standards for residents, businesses and organisations to reduce their carbon emissions and manage climate risks; and working in partnership with, influencing and learning from other organisations to address the causes and effects of climate change.

### **(e) Consultation**

The draft Climate Change Strategy and Action Plan will be published for public consultation following Executive Councillor approval. The consultation will focus primarily on Objectives 2 and 3, as these will have the greatest impact on local communities, businesses and other local organisations. The consultation period will last for 12 weeks, during which time the Strategy and Partnerships Manager will actively consult relevant voluntary and community sector groups and key partner organisations.

The feedback received during the consultation process will be taken into account in the final draft of the Strategy, which will be submitted for Executive Councillor approval to the Environment Committee in October 2012.

We are not planning public consultation on the Carbon Management Plan, as the Plan focuses primarily on the Council's estate and internal operations.

**(f) Community Safety**

The Strategy and the Carbon Management Plan has minimal impact on Community Safety.

**5. Background papers**

**6. Appendices**

Appendix A – Draft Climate Change Strategy and Action Plan

Appendix B – Carbon Management Plan

Appendix C – Revised Operational Guidelines for the Climate Change Fund

Appendix D – Annual Climate Change Fund Status Report

**7. Inspection of papers**

To inspect the background papers or if you have a query on the report please contact:

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*“A city in the forefront of low carbon living”*

# **Cambridge City Council Climate Change Strategy 2012 – 2016**

**Consultation Draft – June 2012**

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### Foreword

The debates about whether climate change is happening and if it is caused by human activity are over. The time for action has arrived; both to manage the effects of the climate change that is already taking place, as well as to reduce the adverse impact of climate change in the future.

I am therefore delighted to introduce the second Cambridge City Council Climate Change Strategy and Action Plan. This builds on our first Strategy and Action Plan, which provided the framework for increased action over the past four years. It also furthers the commitment that we made, by signing the Nottingham Declaration on Climate Change in 2006, to develop a plan with our partners and local communities to address the causes and impacts of climate change.

Cambridge City Council has been taking action to tackle climate change for a decade and a half. For example, we began using lower emission fuels in our vehicles in 1998; we have made energy efficiency improvements to Council-owned homes which have reduced fuel bills for local tenants by more than £1,200,000; through our home energy efficiency work we have contributed to an 11% average reduction in gas consumption in the city since 2005; and we set high environmental standards for new developments in the city, including requiring renewable energy generation in new developments. But there is much more that must be done if we are to play our part in averting dangerous climate change in the future.

This Strategy sets an ambitious target of a 20% reduction in the City Council's emissions of carbon dioxide and other greenhouse gases by 2016. The five-year Carbon Management Plan which sits underneath this strategy sets out 64 innovative projects which will deliver this commitment, ranging from installation of solar thermal technology to provide a source of renewable energy for our swimming pools, to the installation of highly energy efficient lighting solutions in Council buildings and facilities.

However, we will not tackle the causes and consequences of climate change by focussing on our own emissions alone. The people who live and work in Cambridge demonstrate daily their desire to tackle climate change. Many residents travel to work by bike or foot; the proportion of household waste recycled or composted is amongst the highest in the country; and the city's universities and institutes lead the world in researching the potential solutions and adaptations to climate change.

We will set the bar high for businesses, local communities and other organisations to follow. For example, we will use our planning policies to push for the highest environmental standards in new developments. We will also deliver the services needed to support local communities and businesses to achieve these high standards, including increased opportunities for recycling, support for households and landlords to improve the energy efficiency of properties, and initiatives to encourage cycling and use of public transport. We will also work closely with our partner organisations to maximise the local impact of national funding for climate change initiatives and deliver low carbon

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infrastructure and energy efficiency improvements which will have lasting benefits for the City.

International and national action to tackle climate change is gathering pace. This strategy and action plan sets out how the steps that the City Council will take, working with local communities, businesses and partner organisations, to place it at the forefront of efforts to tackle global climate change.

**Tim Ward**

Executive Councillor for Planning and Sustainable Transport

### 1.0 Introduction – Cambridge, a city at the forefront of low carbon living

Our climate is changing. It has always changed in response to natural environmental processes, but it is now widely accepted that human activities are leading to climate change of a scale and pace that threatens our very way of life. Such a global challenge requires a global response, and the international framework for action is becoming stronger. The UK Government has initiated a broad range of policies and programmes that contribute to this response and address the causes and consequences of climate change in the UK.

Individuals, communities and organisations in localities across the world need to take action if national and global efforts to address climate change are to be successful. Cambridge City Council has played a leading role in work to tackle climate change at the local level. One of the City Council's eight corporate vision statements is: 'a city in the forefront of low carbon living and minimising its impact on the environment from waste and pollution.'

Through implementing its first Climate Change Strategy and Action Plan for 2008-2012, the City Council has already achieved a considerable amount. However, there remains much to be done if challenging international targets on reducing greenhouse gases are to be achieved. The City Council remains committed to playing a leading role in efforts at the local level. This revised Strategy and Action Plan establishes the framework for action by the City Council to address the causes and consequences of climate change over the next five years. It describes the current context, our rationale for intervention, our future objectives and the actions we plan to take in order to achieve them.

### 2.0 Context

#### How is our climate changing?

Climate change is influenced by the 'greenhouse effect'. This is a natural process which keeps the earth warmer than it would otherwise be and makes life on earth possible. Light from the sun passes through the atmosphere and warms the surface of the earth. Most of the heat escapes into space, but like the glass in a greenhouse, certain gases in our atmosphere trap the heat, preventing it from escaping back to space. Over time, human activity has led to an increase in the amount of carbon dioxide and other greenhouse gases in the atmosphere, which has increased the greenhouse effect and is causing the climate to change.

The latest climate monitoring figures from the Met Office show that global temperatures have increased by 0.75 degrees during the 100 years up to 2011<sup>1</sup>. The greatest change occurred in the period since the mid-1970s, when average global temperatures increased by more than 0.15 °C per decade. The most recent report by the Intergovernmental Panel on Climate Change (IPCC) in 2007 concluded it is more than

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<sup>1</sup> <http://www.metoffice.gov.uk/climate-change/guide/science/monitoring>

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90% likely that most of the global warming that has occurred since the mid-20th century is due to the increase in human-caused greenhouse gas concentrations.

Unless we take action now, global warming will continue. The most recent report by the Intergovernmental Panel on Climate Change (IPCC) in 2007 concluded that average global temperatures are likely to increase by 1.8-4 degrees by the year 2100 compared with 1999, and possibly as much as 6.4 degrees<sup>2</sup>.

The IPCC also concluded that we can expect to see global temperatures rise by about 0.2 degrees per decade for the next few decades regardless of what we do, because it takes the climate 30-40 years to react to the gases that we emit now.

### The impact of Climate Change on Cambridge

Predicting future changes to our climate is a complex process, and becomes even more difficult when trying to narrow those predictions to smaller areas. In 2002 the UK Climate Impacts Programme (UKCIP) produced scenarios of future climate changes for the UK in 2002. In 2009 the UK Climate Projections (UKCP) programme provided projections of how the climate will change in each region based on low, medium and high emissions scenarios. The data from these two programmes suggests that by 2080 the East of England will experience:

- An increase in average temperatures of between 2 and 4.5 degrees<sup>3</sup>.
- Average seasonal temperatures are likely to increase, with average summer temperatures increasing by 1.3 to 4.7 degrees and average winter temperatures increasing by between 2.6 to 3.7 degrees<sup>4</sup>.
- An increase in the number of 'extremely' warm days, by up to 14 days on a low emissions scenario and 30 days on a high emissions scenario<sup>3</sup>.
- Increases in rainfall overall, with mean precipitation increasing by 1% to 2%<sup>4</sup>
- Greater seasonal extremes in rainfall, with average winter rainfall increasing by between 16% and 26% and average summer rainfall decreasing by between 14% and 27%<sup>4</sup>.
- Seasonal increases in the intensity of rainfall, with around 0.25-1.25 more days of intense rainfall in winter<sup>3</sup>
- Decrease in summer and autumn soil moisture by up to 50%<sup>3</sup>.

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<sup>2</sup> Pachauri, R.K. and Reisinger, A. (Eds.), (2007), Fourth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC, Geneva, Switzerland [http://www.ipcc.ch/publications\\_and\\_data/ar4/syr/en/spms3.html](http://www.ipcc.ch/publications_and_data/ar4/syr/en/spms3.html)

<sup>3</sup> UK Climate Impacts Programme, 2002.

<sup>4</sup> UK Climate Projections programme, 2009. All figures are based on central estimates for the low and high emissions scenarios



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### Risks for Cambridge

There are three key risks for Cambridge associated with the predicted changes in climate identified above:

- increased summer temperatures and heatwaves;
- flooding; and
- water shortages and droughts.

It is essential that Cambridge City Council contributes to wider efforts to reduce greenhouse gas emissions in order to limit the scale of change to our climate and the associated impacts. However, it is also vital that we take steps to manage the risks and adapt to the changes in our climate.

#### Increased summer temperatures and heatwaves

Increased summer temperatures could lead to summer heat waves and the exceptionally hot years experienced in 2003 and 2006 could become the norm by the 2050s<sup>5</sup>. This would have devastating impacts on people, the economy and the environment. The UK Climate Change Risk Assessment<sup>6</sup> and the Government's Heatwave Plan<sup>7</sup> identifies the following potential risks from increased summer temperatures:

- An increased risk of heat-related deaths. The summer 2003 heatwave, which saw the highest ever temperature recorded in Cambridge of 36.9 degrees, caused over 2000 deaths in the UK
- Increased incidence of heat-related illnesses including heat stroke, heat exhaustion, heat rash and heat cramps
- An increased risk in the number of skin cancer cases and deaths
- An increased health risk from water, vector and food borne diseases.
- A loss of productivity for businesses due to overheating. Based on the medium or high UKCP09 scenarios, the East of England and the South East are likely to face the highest loss of staff days due to heat<sup>8</sup>.
- Increased energy consumption from cooling and refrigeration.
- Heat related damage or disruption to buildings, energy and transport networks
- Increased risk of wildfires

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<sup>5</sup> Climate UK, A Summary of Climate Change Risks for East England: to coincide with the publication of the UK Climate Change Risk Assessment (CCRA), 2012

<sup>6</sup> DEFRA, UK Climate Change Risk Assessment: Government Report, January 2012, London, The Stationery Office

<sup>7</sup> Department of Health, Heatwave Plan for England, 2007

<sup>8</sup> Climate UK, A Summary of Climate Change Risks for East England: to coincide with the publication of the UK Climate Change Risk Assessment (CCRA), 2012

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- Threat of extinction to some species which are already at the limits of their habitat ranges
- Species and habitat migration, including the invasion of non-native species, pests and diseases for which we may not be prepared

### Flooding

Increases in the amount and intensity of rainfall in the winter are predicted to increase the area of severe flood risk in Cambridge City from the River Cam. Experience of recent floods suggests that there is also a significant risk from flash flooding. The interim review of the summer 2007 floods in the Midlands and Yorkshire found that around two-thirds of the flooding resulted from rainfall exceeding the local drainage capacity rather than rivers bursting their banks.

The key impacts of any flooding would be:

- Public health and safety risks for residents
- Long-term physical and mental health impacts for residents
- Damage to buildings and infrastructure
- Disruption of the local economy through lost work days, disruption of transport and supplies and insurance and repair costs
- Habitat changes and restoration costs

### Water shortages and droughts

Our water supply is determined by the level of rainfall which feeds our rivers and recharges groundwater levels. The UKCP09 data outlined above suggests that in future the East of England will experience greater seasonal extremes in rainfall, with wetter winters and drier summers. Coupled with higher summer temperatures, which increase evaporation rates and water use by vegetation, the level of available water resources could decrease even more.

The risk of water shortages and droughts can therefore be expected to increase as the climate changes. This would have varying degrees of impact on water users, including:

- The need for water rationing
- Hosepipe bans
- Disruption of water-reliant businesses
- Closure of water-reliant recreational activities
- Reduced water quality standards
- Species and habitat stress
- Deterioration of river and wetland ecology

There are a range of responses that could be adopted by water users, including the installation of more water efficient fixtures and fittings in properties

### International and national action on climate change

Man-made climate change is a global challenge which requires a global response. The United Nations has played a central role in co-ordinating international efforts to slow the pace of climate change and manage the risks associated with it. The international framework for action is built upon:

- The **UN Framework Convention on Climate Change (UNFCCC)**, which sets the overall framework for international efforts to tackle climate change. The Convention was adopted at the Rio Summit in 1992 and 195 countries have now signed up to it. The goal of the convention is to stabilise greenhouse gas concentrations at a level that would prevent dangerous man-made interference in the climate system. The Convention placed the onus on industrialised nations, as the major source of emissions, and directs funding to developing countries to address climate change.
- The **Kyoto Protocol**, which was adopted in 1997 and came into force in 2005. It set binding targets for 37 industrialised countries and the European Union for reducing greenhouse gas emissions by 5.2 per cent against 1990 levels over the five-year period 2008-2012. The European Union agreed to reduce its emissions by a total of 8%, and the UK's share of this corresponds to a legally binding target for the UK to reduce its emissions by 12.5% below 1990 levels

As the scientific consensus around the causes of climate change has grown, the international framework for action on climate change has become stronger. This Strategy and Action Plan aims to help stimulate action by individuals, communities and organisations in Cambridge which will contribute to these international efforts. The key developments that have occurred since the 2008-2012 Strategy was developed have included:

- The **Cancun Agreements** in 2010, which set out commitments to enhance international action and co-operation on the management of climate change risks, particularly in developing countries. National governments also agreed in 2010 that emissions need to be reduced so that global temperature increases are limited to less than 2 degrees.
- The **UN Climate Change Conference in Durban** in 2011, which delivered a breakthrough in the international community's response to climate change, with a decision by national governments to adopt a universal legal agreement on climate change as soon as possible, and no later than 2015.

In response to greater agreement at the international level, increased scientific consensus and greater public recognition of the need for action, the UK Government has introduced a significant amount of new national legislation, policies and initiatives to address climate change since the adoption of our Strategy for 2008-2012. This refreshed strategy reflects and responds to the key changes, including:

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- The **Climate Change Act 2008** establishes a long-term framework for tackling climate change. It introduces a unilateral, binding national target to reduce carbon emissions by at least 80% below 1990 levels by 2050, with an interim target of a 34% reduction by 2020. The Act required Parliament to agree four five-year carbon budgets which set the level of emissions reductions needed to achieve these overall targets. The Act also introduces a number of measures to promote the management of climate change risks, including a requirement for the Government to conduct a national Climate Change Risk Assessment and establish a national adaptation programme, and a requirement for public bodies and utilities to report on the steps they are taking to address climate change risks to their work.
- The **Carbon Plan**, published in December 2011 sets out Government's Plan for achieving the emissions targets set in the first four carbon budgets. It identifies the emissions reductions that will be needed in five key areas of the economy (homes and buildings, transport, industry, electricity and agriculture, land use, forestry and waste) and how these can be achieved.
- Changes to planning policy to support action to address climate change. The **Planning Act 2008** introduced a duty on Local Development Frameworks to include policies that make a contribution to both climate change mitigation and adaptation. **The Planning and Energy Act 2008** enables local authorities to set energy requirements for energy use and energy efficiency in Development Plans. Building on the existing Code for Sustainable Homes, which sets a national standard for sustainable design and construction of houses, the **Zero Carbon Homes Policy** will come into effect in 2016 which will require all carbon emissions from energy use in new homes to be eliminated. Public buildings will be required to be zero carbon by 2018; all other non-residential buildings will be required to be zero carbon by 2019.
- The **Energy Act 2008** introduced a number of measures to encourage renewable energy generation by households and non-domestic users (including the public and private sectors). This included the **Feed In Tariff** scheme, and the **Renewable Heat Incentive**, which will provide financial support for renewable heat sources.
- The **Energy Act 2011** introduced a number of new measures to stimulate energy efficiency measures for homes and businesses. The **Green Deal** will support improvements to the energy efficiency of homes and non-domestic properties, funded by a charge on energy bills rather than upfront charges to the consumer. The **Energy Company Obligation** will take over from existing obligations (such as the Carbon Emissions Reduction Target) which expire at the end of 2012 and will require energy companies to target support in greatest need, including vulnerable people on low incomes and hard-to-treat housing.
- The **UK Climate Change Risk Assessment (CCRA)**, published in 2012, sets out the potential impacts of climate change at a national level. DEFRA commissioned Regional Climate Change Partnerships to produce a summary of regional climate change risks, which was produced by Sustainability East for the East of England region. The **National Adaptation Programme (NAP)**, which the Government plans to publish in 2013, will set out proposals and policies for how the Government, private sector and others should respond to the risks identified in the CCRA.

### 3.0 A Climate Change Strategy for Cambridge

#### Purpose

The purpose of this Climate Change Strategy and the associated Action Plan is to establish the framework for the City Council's action to address the causes and consequences of climate change over the next five years. It will help deliver Cambridge City Council's vision of 'a City in the forefront of low carbon living and minimising its impact on the environment from waste and pollution.'

The Strategy is a cross-cutting document which will influence the delivery of key services and the development and implementation of other key strategies and policies, such as the Local Plan, Waste Strategy, Housing Strategy, Accommodation Strategy and Portfolio and Operational Plans.

#### The Case for Action

Taking action on climate change continues to be a key priority for Cambridge City Council. We believe that doing nothing is not an option and that it is essential for the City Council to take action now to address climate change for the following reasons:

1. **Limiting the local impact of climate change** - As outlined in section 2.0, the predicted impacts of climate change pose major risks to the safety, prosperity and environment of people and organisations in Cambridge. There is a need to take action now to manage the climate change risks that we cannot avoid, whilst at the same time reducing our greenhouse gas emissions to avert even more dangerous climate change in the decades beyond.
2. **Global fairness** – Climate change requires co-ordinated action around the world, and Cambridge needs to make its fair contribution towards international efforts. People in Cambridge currently produce almost twice as much carbon dioxide per person as the global average and several times more than the average person in many developing countries. Although the effects will be felt strongly in the UK, many developing countries will experience the worst impacts of climate change.
3. **Cost-effectiveness** – The Stern Review illustrated how the costs to the global economy rise as the climate changes and that early action to limit the extent of climate change is ultimately cheaper than waiting to manage the impacts of climate change when they become more severe.
4. **A sustainable economy** – The future costs of doing 'business as usual' will increase as the cost of energy rises and the cost of climate change impacts is felt. A more sustainable economy needs to be developed in order to ensure that the local and national economies remain strong and competitive. The global need for action on climate change will create increasing business opportunities in the development of sustainable technologies and processes.

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5. **Quality of life** – Strong action to address climate change can also improve other aspects of life for Cambridge residents. For example, improving the energy efficiency of homes can reduce fuel bills and make them more comfortable to live in. Similarly, increasing walking, cycling and use of public transport can reduce traffic congestion, increase air quality and improve our health.

### Action to date

Cambridge City Council has been leading the way on climate change for over 15 years. We made a formal commitment by signing the Nottingham Declaration on Climate Change on 22<sup>nd</sup> September 2006. The City Council published its first five-year Climate Change Strategy and Action Plan in 2008, which set out a clear vision and framework for increased action and placed the Council and the City of Cambridge at the forefront of efforts to address climate change.

Through implementing the approach set out in the previous Strategy and the key measures contained in the Action Plan, the City Council has already made a contribution to international and national efforts to tackle the causes of climate change and manage the risks to communities, the local economy and the natural environment.

The strategy identified three roles for the City Council:

**(i) Council management** – *actions to reduce carbon dioxide emissions and manage climate change risks associated with management of the Council's own buildings and functions.*

We have implemented a number of carbon reduction projects across our operations and our estate, including using our dedicated Climate Change Fund to trial innovative approaches. These included the installation of a more efficient fan system in the Grand Arcade Car Park Annex and voltage optimisation technology in the Guildhall. Collectively, the 16 projects funded between 2008 and 2011 have delivered estimated savings of £48,000 and 243 tonnes of CO<sub>2</sub> per year.

**(ii) Service delivery** - *incorporation of carbon reduction and climate change risk management actions within the services delivered by Cambridge City Council.*

We have set high standard for residents, businesses and other organisations to follow, not least through our planning policies, and where necessary we have taken action to enforce these standards.

This approach has contributed to a 16% reduction in CO<sub>2</sub> emissions per capita from the City of Cambridge as a whole between 2005-2009 (a 9% reduction in absolute terms – the per capita figure reflects the city's rising population).

Some of the key measures and projects that we have implemented over the past five years have included:

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- **Setting the bar high through our UK-leading planning and housing policies for the growth of the City.** We have required all new affordable housing on the growth sites to be built to at least Level 4 of the Code for Sustainable Homes and proposals for market housing on the growth sites are required to meet Code Level 3 as a minimum, rising to Code Level 4 after a certain number of units have been delivered. Even higher standards have been set at some sites. For example, as part of the Skanska development on the Clay Farm site, all of the new homes will be delivered at Code Level 4, while the North West Cambridge Area Action Plan (AAP), which was adopted in October 2008, sets a UK-leading policy requiring the majority of this 3,000 home development to be delivered at Code Level 5.
- **Working with developers to demonstrate the benefits of sustainable construction of new homes.** For example, a Code Level 5 concept house will be built at the Skanska development on the Clay Farm site to aid the developer in meeting higher standards on future sites. At the Trumpington Meadows site an Enhanced Sustainability Show Home constructed to Code Level 5 will enable new home-owners to enhance the specification of their properties by, for example, increasing the amount of renewable energy provision or the installation of rainwater harvesting.
- **Promoting exemplar redevelopment and ‘retrofit’ schemes.** For example, the City Council was involved in the redevelopment of the Simons House (now Richard Newcombe Court) Sheltered Housing Scheme, which has achieved Code Level 5. The scheme includes an extensive array of photovoltaic panels, communal biomass heating, grey water recycling for flushing toilets and a greenhouse to enable residents to grow their own food. The City Council also piloted the installation of innovative energy efficiency solutions at a Council-owned property in Byron Square as part of the Technology Strategy Board ‘Retrofit for the Future’ project. The energy rating of the property has risen from C to A as a result of the installation photovoltaic and solar thermal panels, triple glazed windows, full LED lighting, flue gas heat recovery, waste water heat recovery, whole house ventilation, and external wall insulation.
- **Using planning policies to drive the installation and take-up of renewable energy sources.** Since 2006 we have required all major new development to meet at least 10% of their energy requirements through the use of renewable energy. We have increased these requirements for a number of flagship developments. For example, 15% of the energy required by the Station Area redevelopment will have to come from renewable energy sources, this requirement has been increased to 15% for each phase of the development. In North West Cambridge, the Area Action Plan includes a requirement for decentralised renewable and low carbon energy generation, with an additional requirement for 20% renewable energy provision for the non-residential element of the site if a renewably fuelled decentralized energy solution is not viable.
- **Delivering and supporting a range of initiatives to reduce car use and promote alternative, sustainable forms of transport.** For example, we have: installed electric vehicle charging points at Grafton East Car park and Queen Anne Terrace

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car park; supported improvements to local bus services, including bus shelters and real time information, with operators and partners; worked jointly with the County Council to implement an agreed programme of improvements to cycling facilities in Cambridge and where possible secured cycle parking facilities in new developments through the planning process.

- **Launching a voluntary landlord accreditation scheme** in 2007 to improve the physical condition and management standards of privately rented homes. As part of the scheme we have provided financial support to the landlords of 50 properties to carry out energy efficiency improvements and meet a minimum energy standard.
- **Carrying out community engagement activities to promote energy efficiency and low carbon living** and increase our understanding of the specific issues facing the City of Cambridge, including the Pilot Action Zone project in 2007 which targeted over 200 properties within Cherry Hinton; the Comfort Zone project in January 2009; which covered 584 properties within the Arbury and West Chesterton wards, and a successful series of four seasonal events in Queen Edith's ward in 2010 and 2011 which brought together local residents, community groups, schools and service providers and resulted in an increased number of referrals.
- **Investing through the Decent Homes programme and other routes in Council-owned homes** between 2007/08 and 2010/11, we have installed energy efficiency measures which have prevented more than 6450 tonnes of CO<sub>2</sub> emissions, saved more 29 million kWh of energy and reduced fuel bills for local tenants by more than £1,200,000.
- **Increasing the energy efficiency of sheltered housing schemes.** For example, motion sensor lighting controls at the Ditchburn Place and School Court Sheltered Housing schemes have reduced lighting electricity costs by more than 90%.

### **(iii) Partnership and influencing** – *working together with other organisations and partnerships.*

We have worked closely in partnership with the voluntary and community sector, businesses and other public sector organisations to maximise our collective impact on the causes and effects of climate change. Examples include:

- **Providing over £360,000 funding to local voluntary and community groups since 2008 through our Sustainable City Project Grants programme** for work that tackles the causes and consequences of climate change, reduces waste and protects the local environment. Over 90 projects have been supported, ranging from wildlife ponds and community allotments to home energy education and tackling businesses on wasted heat. Two of the grant recipients have achieved national recognition for their innovative ideas and replicable projects. Cambridge Carbon Footprint's 'Carbon Conversations' was judged one of the 20 best climate change solutions at the 2009 Manchester International Festival, and are now delivered across the UK.
- **The Cambridge Close the Door Campaign** has received support from MPs, climate scientists and the Women's Institute for its simple message to retailers both



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large and small. As a result of its persuasive, science-based technique, one of the largest coffee shop chains, Costa Coffee, is to bring in a 'close the door' policy across all of its outlets.

- **Working in partnership with neighbouring local authorities and other organisations within Cambridgeshire to promote sustainable transport and recycling** and manage the impact of climate change on the local environment. These include the Cambridgeshire Travel for Work Partnership, Cambridgeshire & Peterborough Biodiversity Partnership and Recycling in Cambridgeshire & Peterborough (RECAP). RECAP has set an ambitious target to recycle or compost 50-55% of household waste by 2015 and was awarded Green Flag status in 2009 in recognition of exceptional performance and innovation.
- **Engaging in the Home Energy Liaison Group**, which aims to raise awareness of climate change mitigation initiatives and research, particularly in relation to refurbishment of housing stock and other buildings and deliver initiatives. The Group includes construction industry representatives, the University of Cambridge, Cambridge Regional College, and voluntary groups such as Cambridge Carbon Footprint and Transition Cambridge.
- **Working with local voluntary and community groups** such as Cambridge Carbon Footprint to develop and deliver events and projects focussing low carbon living including the 'Open Eco Homes', the 'Low Carbon Living' event, and the 'Climate Friendly Homes' energy survey project.

We have also taken action to manage the risks associated with climate change and to help the natural environment adapt to a changing climate. For example:

- **Taking action to increase the urban forest cover.** Trees help cities adapt to a changing climate by providing cooling, capturing pollution, intercepting and infiltrating rainfall and helping to guard against the fragmentation of wildlife habitats. We have measured the extent of tree canopy cover across Cambridge City and are currently exploring ways to protect the existing level of cover and to increase stock in wards and land uses where canopy levels are low; for example directly through planting programmes, or indirectly via guidance or the planning process.
- **Working in partnership we have restored and enhanced local wildlife sites and watercourses across the City**, assisting species and habitats to adapt to a changing climate and extreme events. New Local Nature Reserves such as Cherry Hinton Chalk Pits and Coldham's Common have been designated and management plans adopted to ensure favourable ecological conditions.
- **Creating extensive green corridors within the growth areas** of the City such as at Clay Farm and Trumpington Meadows which are designed to protect existing habitat networks and create new wetland and grassland habitats linking the City with the surrounding countryside.

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### Lessons learnt

We have learnt a number of lessons from the experience of implementing our first Climate Change Strategy, which have informed the approach that will adopt to tackling the causes and managing the impacts of climate change over the next five years. These have included:

- The Climate Change Fund has given us the flexibility to trial a range of innovative approaches and technologies. These projects have helped limit or reduce our carbon emissions in the sites where implemented, and we plan to roll out the most successful and replicable of them (such as voltage optimisation and LED lighting) across other Council sites during the next five years. However, we believe that by adopting a more strategic approach in future through the Carbon Management Plan which accompanies this Strategy, and identifying and resourcing specific projects, we will be able to achieve a significant reduction in our emissions by 2016.
- This more strategic and planned approach will also enable us to focus our efforts on the areas of our operations and estate which contribute most to our emissions, including our swimming pools, car parks, vehicle fleet, offices and sheltered and temporary housing. By targeting projects at these areas we will be able to maximise the impact of the resources we have available to tackle climate change and achieve a step-change in our emissions reductions.
- In order to effectively measure the impact of our projects and ensure that they are reducing our emissions, it is vital that we have effective monitoring systems in place. To this end, we are working to ensure we have effective metering of electricity and gas across our estate.
- As the level of technology and standards of sustainable construction continue to advance, it will be important to ensure that we adapt our planning policies to ensure that we secure the highest possible sustainability standards in the design and construction of new homes and buildings. We will use our developing Local Plan to set ambitious standards reflecting the aspirations in the Quality Charter.

### Aims and Objectives for future action

The need for the Council to respond to climate change has not changed since we produced our first Strategy in 2008; if anything, there is an even more pressing need for action at the local level. The overall aims of our work on Climate Change remain to:

1. Take action that contributes to national and international efforts to avert dangerous climate change by limiting temperature increases.
2. To ensure that the climate changes risks facing Cambridge are appropriately planned and managed

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However, a number of significant changes and developments have taken place over the past five years, some of which have been outlined in Section 3 of this document. As a result, the focus of the objectives for this Strategy, and the actions that will deliver these objectives, is slightly different from those set by the preceding Strategy, particularly the more programmed approach to reducing our own emissions.

### **Objective 1: To reduce carbon emissions from the Council's estate and operations and manage the risks to its staff and property**

While the Council has reduced its carbon footprint over the past five years (on a kilogrammes per head of population basis), we are committed to making greater reductions in carbon emissions from our estate and operations by 2016. Working with the support of the Carbon Trust, the Council has developed a detailed Carbon Management Plan, which sits under this Strategy and will guide delivery of this objective.

The Carbon Management Plan identifies an ambitious programme of 64 projects that we plan to deliver over the next five years, ranging from installation of solar thermal technology to provide a renewable energy for council properties, to the installation of more energy efficient lighting solutions in Council buildings and facilities.

By adopting a rigorous and planned approach which focuses primarily on the areas of the Council's activity which contribute most to our carbon emissions (e.g. swimming pools, car parks, vehicle fleet, offices and sheltered and temporary housing), we are aiming to achieve a challenging target of a 20% reduction in carbon emissions from our estate and operations by the end of March 2016.

The broad areas of intervention are listed in Action 1 in the Action Plan at the end of this Strategy, but more detail on the specific projects, and the wider organisational and cultural changes we will be making alongside these projects, can be found in the Carbon Management Plan itself.

It is equally important that the Council ensures that it effectively manages the risks to its staff, property and activities so that we can continue to deliver efficient and effective services for residents and businesses in Cambridge. Actions 2-8 in the Action Plan set out the key steps that we will take to ensure that we adapt as effectively as possible to the key risks of increased temperatures, flooding and water shortages identified in Section 3 above.

### **Objective 2 - To set high standards for residents, businesses and organisations to reduce their carbon emissions and manage climate risks**

While the City Council can make a valuable contribution to wider efforts to tackle climate change by minimising carbon emissions from our operations and our estate, we recognise the Council also has a vital leadership role to play in setting high standards and supporting and working with local residents, businesses and other organisations to

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make the changes needed to reduce their carbon footprint and manage the risks posed by climate change.

The Council will use its regulatory functions to set high standards for businesses and residents on reducing their emissions and managing climate change risks. For example, the Issues and Options report for the developing Cambridge Local Plan published in May 2011 includes a dedicated Chapter on Sustainable Development, Climate Change, Water and Flooding<sup>9</sup>. This includes a range of proposals to tackle climate change through the planning process, including setting higher sustainability standards for new developments in the Cambridge Local Plan, including at least Level 4 of the Code for Sustainable Homes for residential developments, and BREEAM certification<sup>10</sup> at 'very good' or 'excellent' level or Zero Carbon Buildings standards for non-residential developments. We will seek to embody the principles set out in the Quality Charter. We will also explore the inclusion of climate change infrastructure requirements in the development of our approach to the Community Infrastructure Levy. We will seek to reduce the need to travel, and to minimize the carbon impact of travel, promoting cycling, walking and public transport.

We will achieve this partly through the way in which we deliver services, including by:

- providing specific services that will assist residents and businesses to reduce their contribution to climate change. For example we will deliver a range of initiatives to increase recycling rates across the City and will increase take up of subsidies available through the Carbon Emissions Reduction Target (CERT) scheme for loft and cavity wall insulation by providing grant funding to cover the £150 contribution that residents would otherwise have to make.
- helping residents to make informed choices about their carbon footprint, for example through a range of communication and engagement activities and by publishing and promoting Energy Performance Certificates for Council properties.
- making improvements to key services which will assist service users to reduce their carbon emissions, such as exploring new technology which will reduce the emissions of drivers using our car parks and improving the energy efficiency of Council-owned homes which will reduce the emissions of our tenants.
- ensuring that climate change impacts are a key consideration when we are designing and developing new services.

Where appropriate we will take action to ensure that businesses and residents meet these high standards. For example, we will take action to ensure that businesses and residents meet any climate change requirements that are a formal part of a planning permission or Section 106 agreement.

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<sup>9</sup> Cambridge City Council, (2012), Cambridge Local Plan towards 2031: Issues and Options report, Chapter 6: Sustainable Development, Climate Change, Water and Flooding

<sup>10</sup> BREEAM is an internationally recognised assessment method for sustainable building design, construction and operation

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### **Objective 3 - To work in partnership with, influence and learn from other organisations to address the causes and effects of climate change**

Cambridge City Council has led the way at the local level on climate change issues and set an example for others to follow nationally. However, it must be recognised that the economic climate facing the City Council and local residents and businesses is much more challenging than it was five years ago. At the same time, as outlined in Section 3.0, the Government has introduced a greater range of national initiatives and incentives for action on climate change over the past five years.

The City Council is committed to working with other organisations in Cambridge and beyond to identify opportunities for collaboration and maximise the impact of available funding and resources. For example, through:

- Working closely with the voluntary and community sector, including providing financial support for community-led projects which address the causes and manage the impact of climate change.
- Working with Cambridgeshire County Council and other neighbouring district councils to ensure that climate change issues are addressed as part of joint policies and plans, such as the Cambridge Area Transport Strategy, County-wide planning advice on surface water flood-risk and emergency planning through the Cambridgeshire Resilience Forum.
- Working with Government, neighbouring local authorities, the voluntary sector and business through partnerships such as the Low Carbon Hub and the Cambridgeshire Renewables Infrastructure Framework to deliver low carbon infrastructure and low carbon living, potentially including district heating.
- Working with the University of Cambridge, the private sector and other stakeholders in the Cambridge Retrofit project to explore a model for financing and delivering energy efficiency improvements to existing properties in Cambridge over the next 30 years.
- Exploring and exploiting innovative funding arrangements, such as the Carbon Offset Fund/Community Energy Fund, Community Infrastructure Levy, Green Bank and Green Deal.

While we have developed a considerable amount of experience in relation to the climate change agenda which we share freely with other organisations, the Council also recognises that we need to continue to learn from organisations with expertise at a local, national and international level. To this end, we will continue to share knowledge with the University of Cambridge and Anglia Ruskin University and voluntary and community sector groups; learn from other local authorities who have piloted innovative approaches successfully; and welcome overseas delegations that wish to exchange experiences.

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### Resources

The actions identified in the Action Plan will be funded through a mixture of sources:

- Existing budgets for delivering key services, particularly for projects or actions that will deliver climate change benefits as part of wider planned developments or improvements to services. These fall within the City Council's General Fund or Housing Revenue Account depending on the services involved.
- The City Council's Repair and Renewals (R&R) budget, which makes provision for maintenance and replacement of assets.
- The City Council's Climate Change Fund, which is a dedicated fund for supporting initiatives that deliver both carbon and financial savings.
- Government and other external funding sources for climate change initiatives.

While some of the actions and initiatives set out in the Action Plan will require additional resources, many of the proposed projects will also deliver significant financial savings for the Council. For example, the 64 projects included in the Carbon Management Plan are expected to require an investment of £2.3m over the next 5 years (of which around £1.7m has already been planned).

Based on information that is currently available, it is anticipated that the implementation of these projects will reduce the Council's energy and fuel costs by around £340,000 each year. This means that the projects will have paid for themselves in fewer than 7 years and many will deliver further savings beyond this period. We aim to develop effective reporting mechanisms to ensure that these savings are captured as part of the Council's budget process and contribute to the delivery of our wider savings targets for the coming years.

### Targets

In the previous strategy for 2008-2012, the City Council aimed to reduce carbon dioxide emissions from its activities by 11% from 60.9 kilos per resident in 2005/06 to 54.2 kilos per resident by 2010/11. Our current data tells us that the City Council in fact reduced its carbon emissions between 2005/06 and 2010/11 by around 0.59%. However, total energy consumption at sites owned by the Council rose very slightly (by around 23,000kwh or 0.1%) in this period and total emissions from the City Council's activities rose by 3.2%.

Cambridge City Council has not reduced carbon dioxide emissions from its activities since 2005/6 by the amount hoped for for a number of reasons, including:

- While the City Council reduced energy use at some sites through projects funded through our Climate Change Fund and other initiatives, we consumed more energy on others as part of initiatives to improve services and provide better

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outcomes for residents, such as extended opening hours at swimming pools, increased hiring of community centres and installing better lighting in a number of car parks.

- The mix of electricity and gas used by the Council has changed during this period, so although total energy consumption fell from 2009/10 to 2010/11 for instance, emissions went up, as a greater proportion of the total energy used was from electricity.
- A number of factors in the 2005/6 baseline data referred to in the previous strategy have made it more complex to make direct comparisons. The baseline included figures for a number of sites which we were either erroneous, or gave a distorting impression because the buildings were closed for refurbishment during that year and therefore not consuming gas and/or electricity at anywhere near the normal rate (whilst being fully operational in 2010/11). If one excluded those sites from the figures to give a more “like for like” comparison, the total energy consumption would be around 1,250,000kwh less in 2010/11 than in 2005/06 for the remaining sites, giving a reduction in per capita emissions of 4.84%.

We have adopted a robust, structured approach to reducing our future energy consumption and carbon emissions through the development of the detailed Carbon Management Plan that sits under this Strategy. By delivering the 64 projects in this plan, we anticipate reducing our carbon emissions by a much greater amount over the next five years than we have achieved since 2005/6. Our aspiration is to reduce carbon emissions from our estate and operations by 20% by the end of March 2016.

The targets set in the previous strategy regarding the carbon footprint of the City of Cambridge as a whole have been met. In the previous strategy, we said that by working with local communities, businesses and partner organisations we would aim to reduce the city's carbon dioxide emissions from 6.2 tonnes per person in 2005 to 5.5 tonnes per person by 2010 (11% cut). The most up-to-date data available from the Department for Energy and Climate Change (DECC)<sup>11</sup> suggests that per capita emissions in the City between 2005 and 2009 by 16% from 6.9 tonnes to 5.8 tonnes. Total carbon emissions for the City of Cambridge, including those from homes and businesses, reduced by 9% between 2005 and 2009 from 768,600 tonnes to 706,100 tonnes. If this trend were to continue, we would anticipate the total carbon emissions for the City to reduce to 622,000 tonnes and per capita emissions to reduce to 4.6 tonnes by the end of 2016.

Domestic energy efficiency in Cambridge has also improved significantly during the period covered. There was an 11% reduction in average domestic gas consumption and a 9% reduction in average domestic electricity consumption in the City between 2005-2010. This is equivalent to an average reduction in CO<sub>2</sub> emissions per household of

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<sup>11</sup> Department of Energy and Climate Change, (2011), Carbon Dioxide Emissions within the scope of influence of local authorities 2005-2009, [http://www.decc.gov.uk/en/content/cms/statistics/local\\_auth/co2\\_las/co2\\_las.aspx](http://www.decc.gov.uk/en/content/cms/statistics/local_auth/co2_las/co2_las.aspx)

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approximately 800 kg over 5 years. Despite a 5% increase in the total number of electricity and gas meters in Cambridge between 2005 and 2010, total domestic gas consumption in the City fell by 13% and total domestic electricity consumption fell by 6%. This is equivalent to a total reduction in CO<sub>2</sub> emissions of approximately 24,000 tonnes over 5 years.

### **Performance Management**

The Council recognises that it will be important to monitor the delivery of the actions contained in the Action Plan. At an officer level, six-monthly update reports on progress against the key actions will be provided to the Council's Environmental Strategy Group. At an elected Member level, annual reports on progress against the key actions will be made to the Executive Councillor at the Environment Scrutiny Committee of the Council.

We will regularly monitor our energy and fuel use and report performance against the CO<sub>2</sub> reduction target set by the Carbon Management Plan to the Environmental Strategy Group. We have published details of Greenhouse Gas emissions on an annual basis for a number of years and reported this to relevant Council Committees. We will continue to report this information, along with performance against our CO<sub>2</sub> reduction target, annually to the Executive Councillor at the Environment Scrutiny Committee.

In addition to monitoring our CO<sub>2</sub> emissions, during 2012 the Council will also be developing a system to monitor our water usage and waste production more effectively.

Regular reports will also be provided to the officers' Environmental Strategy Group highlighting progress being made by individual carbon reduction projects in the Carbon Management Plan, using a Red/Amber/Green reporting system and in particular flagging up any projects with delivery issues/ concerns.

Progress against individual projects and the programme as a whole will be reported to our Strategy and Resources Scrutiny Committee on an annual basis.

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### Appendix A – Action Plan

No.	Action	Completion date	Service	Lead Officer
<b>Objective 1 - To reduce the Council's CO2 emissions by 20% against the 2010/11 baseline and manage the risks to its staff property and functions form climate change.</b>				
<b>Reducing CO<sub>2</sub> emissions and addressing the causes of climate change</b>				
1	Reduce the Council's carbon footprint through measures identified in the Carbon Management Plan, including: a) Installation of solar thermal technology in council properties b) Roll out of voltage optimisation technology across 10 council sites c) Installation of more efficient lighting in council buildings and car parks, including lighting controls, LED lighting, motion control sensors d) Installation of efficient heating, ventilation and air conditioning systems, including condensing boilers, optimum start controls, timers on boilers and heating sequencing. e) Improvements to the energy efficiency of fleet vehicles and implementing the findings of the route optimisation exercise for refuse vehicles f) Improvements to the Council's contract management processes to ensure that contractors deliver sustainability requirements of contracts	2012/13-2015/16	a) Arts and Recreation/Estates and Facilities b) Corporate Strategy/Arts and Recreation c) Specialist Services/Estates and Facilities d) Estates and Facilities e) Refuse and Environment f) Debbie Quincey	a) Ian Ross/Sam Griggs b) Clare Palferman and Sally Pidgeon/Ian Ross c) Sean Cleary (car parks)/Jim Stocker (Council buildings) d) Jim Stocker e) Dave Cox/Chloe Hipwood f) Debbie Quincey
<b>Managing climate change risks</b>				
2	Through the Office Accommodation Strategy ensure that: a) temperatures in existing council buildings are controlled b) if Council staff are relocated to new office buildings, risks to staff from higher temperatures and flooding are mitigated as part of building design	2012-2014	Human Resources/Estates and Facilities/Planning	Paul Parry/Jim Stocker/Simon Bunn
3	Explore opportunities for using developer contributions to install sustainable drainage measures in Council-owned open spaces; where such projects are mutually beneficial and increase the amenity or biodiversity value of the open space.	Ongoing	Planning/ Streets and Open Spaces	Simon Bunn/Alistair Wilson
4	Ensure that where possible sustainable drainage measures and permeable surfaces are installed as part of refurbishment of Council property or construction of any new buildlings	Ongoing	Planning	Simon Bunn
5	Replace shrubs in City Council owned and managed open spaces with drought resistant species when they come to the end of their natural life	Ongoing	Streets and Open Spaces	Alistair Wilson
6	Explore opportunities to include maintenance of trees and other green infrastructure once developments have finished within the scope of planning obligations.	Ongoing	Streets and Open Spaces	Matthew Magrath

## CONSULTATION DRAFT – June 2012

No.	Action	Completion date	Service	Lead Officer
7	Consider potential challenges to native wildlife associated with climate change as part of review of Nature Conservation Strategy and adjust related management plans for Local Nature Reserves and other city green spaces to be adjusted accordingly.	2016	Streets & Open Spaces	Guy Belcher
8	Ensure that planting of trees and other urban greening measures are included as part of the refurbishment of Council property where appropriate.	Ongoing	Streets and Open Spaces	Matthew Magrath
<b>Objective 2 - To set leading edge standards for residents, businesses and organisations to reduce their carbon emissions and manage climate risks.</b>				
<b>Reducing CO<sub>2</sub> emissions and addressing the causes of climate change</b>				
9	Improve the energy efficiency of Council-owned homes and reduce the energy consumption of tenants through ongoing improvement work to: a) meet the Decent Homes Standard. b) increase the SAP rating of properties. c) deliver the Fuel Poverty Reduction Plan	Ongoing - revised annual targets to be developed through Home Energy Strategy	Estates and Facilities	Sam Griggs
10	Inform residents of the energy efficiency of properties through publishing Energy Performance Certificates for Council properties	Ongoing - revised annual targets to be developed through Home Energy Strategy	Estates and Facilities	Sam Griggs
11	Encourage and support private landlords, housing associations, homeowners, private tenants to improve the energy efficiency of properties by: a) identifying homes that would benefit from further insulation through the Heatseekers initiative b) increase take-up of the national increase take up of subsidies available through the Carbon Emissions Reduction Target (CERT) scheme for loft and cavity wall insulation by providing grant funding to cover the £150 contribution that residents would otherwise have to make. c) providing grants to landlords applying to the landlord accreditation scheme to bring properties up to D standard d) maximising opportunities available through the Green Deal	a) March 2013 b) April-Dec 2012 c) March 2013 d) From Autumn 2012 onwards	Refuse and Environment	a) Justin Smith b) Justin Smith c) Emma Barker d) Justin Smith
12	Conduct engagement, communications and awareness raising campaigns with residents businesses on: a) energy efficiency issues across all housing tenures b) recycling and waste reduction and prevention, through signposting businesses to	b) 2013/14 a), c) and d) Ongoing;	a) Estates and Facilities/ Refuse and Environment	a) Sam Griggs/Justin Smith b) Jen Robertson c) Clare Rankin

## CONSULTATION DRAFT – June 2012

No.	Action	Completion date	Service	Lead Officer
	advice and information and conducting door-knocking campaigns and events with assistance from volunteer Recycling Champions thereby increasing valuable face to face contact with residents c) cycling and walking opportunities d) wider sustainability issues		b) Refuse and Environment c) Streets and Open Spaces d) Corporate Strategy	d) Helen Brookes
13	Explore opportunities to further increase participation in recycling schemes (including incentive schemes and real-time IT systems in refuse vehicles) and implement appropriate systems in order to help meet our target of recycling 50-55% of our waste by 2015-16.	2015/16	Refuse and Environment	Jen Robertson/ Michael Parsons
14	Explore opportunities to increase the types of material that can be recycled.	2014/15	Refuse and Environment	Jen Robertson
15	Setting high sustainability standards the design and construction of new developments through identifying opportunities in the development of the Cambridge Local Plan to ensure that: a) meets recognised sustainability standards, including at least Level 4 of the Code for Sustainable Homes for residential developments or BREEAM or Zero Carbon Buildings for non-residential developments b) further promotes waste minimisation and recycling, including the minimisation of construction waste c) meets at least the level 4 water efficiency standards of the Code for Sustainable Homes d) addresses high temperature, subsidence and high wind risks	Spring 2014	Planning	Emma Davies
16	Ensure that all new affordable housing is constructed to at least Level 4 of the Code for Sustainable Homes	Ongoing	Strategic Housing	Alan Carter
17	Continuing to set high standards for renewable energy provision and actively engaging with developers to secure renewable energy as part of planning agreements for major new developments.	Ongoing	Planning	Emma Davies
18	Ensure that developments comply with climate change-related conditions of their planning consent or Section 106 agreements	Ongoing	Planning	Patsy Dell
19	Identify opportunities in the development of the Cambridge Local Plan to minimise traffic generation and promote public transport, cycling and walking	Spring 2014	Planning	Matthew Bowles
20	Implement a four year programme of improvements to the quality of existing bus shelters and install new bus shelters	2014/15	Planning	Andrew Preston

## CONSULTATION DRAFT – June 2012

No.	Action	Completion date	Service	Lead Officer
21	Explore options for installing new technology in Council car parks which will deliver climate change benefits, including: a) installing ticket-less and cash-less systems in car parks, which will reduce emissions from queuing cars b) encouraging the take-up of charging points for electric vehicles in Council car parks c) using specialist mechanical cleaning techniques in car parks, which will reduce the build up of carbon dust	2013/14	Specialist Services	Paul Necus
22	Explore the potential for emissions-based charging for non-season ticket holders in the Grand Arcade car park	2014/15	Specialist Services	Paul Necus
23	Explore opportunities to implement "green lease" clauses and use a model form of Memorandum of Understanding between the landlord and tenant. These set out additional provisions whereby the landlord and tenant undertake specific responsibilities/obligations with regards to the sustainable operation of property including energy efficiency measures.	Ongoing	Property Services	Philip Doggett
<b>Managing climate change risks</b>				
24	Consult on the inclusion of a specific policy on climate change adaptation measures in the revised Local Plan, including: <ul style="list-style-type: none"> <li>• maximising opportunities for natural ventilation strategies through innovative building design and construction.</li> <li>• reducing the impacts of higher temperatures through the use of 'cool' building materials.</li> <li>• reducing flood risk and aiding urban cooling through water sensitive urban design and landscaping features.</li> <li>• Considering setting a tree canopy cover requirement for new developments.</li> <li>• Aiding urban cooling by protecting, enhancing and expanding green spaces.</li> </ul>	April 2013	Planning Policy	Sara Saunders
25	Encourage private developers to install sustainable drainage measures and permeable surfaces as part of new developments	Ongoing	Planning	Simon Bunn
26	Provide advice to residents, businesses and other organisations on how tree planting can help the City adapt to a changing climate	Ongoing	Streets and Open Spaces	Matthew Macgrath
<b>Objective 3 - To work in partnership with, influence and learn from other organisations to address the causes and effects of climate change</b>				
<b>Reducing CO<sub>2</sub> emissions and addressing the causes of climate change</b>				

## CONSULTATION DRAFT – June 2012

No.	Action	Completion date	Service	Lead Officer
27	Build the capacity of voluntary and community groups to undertake activities which address climate change and sustainability issues, for example through: a) providing an annual Sustainable City Grants programme b) providing cycling and walking promotion grants c) supporting and facilitating bids for external funding	Ongoing	a) and c) Community Development/ Corporate Strategy b) Streets and Open Spaces	a) and c) Jackie Hanson/Helen Brookes b) Clare Rankin
28	Working with central Government, neighbouring local authorities, the voluntary sector, businesses and communities through the Cambridgeshire Renewables Infrastructure Framework (CRIF) to deliver low carbon infrastructure. This will include exploring and exploiting innovative funding arrangements, potentially including the Carbon Offset Fund/Community Energy Fund, Community Infrastructure Levy and Green Bank.	2016	Planning/Corporate Strategy	Emma Davies/Andrew Limb
29	Work with partner organisations including the University of Cambridge, Anglia Ruskin University and the private sector to develop options for a commercially viable district heating scheme	2012/13	Environment Department	Simon Payne/Emma Davies
30	Work with neighbouring authorities and other stakeholders to explore the potential for low carbon living in Cambridgeshire through the Low Carbon Hub	2016	Corporate Strategy	Andrew Limb
31	Work with the University of Cambridge, the private sector and other stakeholders in the Cambridge Retrofit project to explore a model for financing and delivering energy efficiency improvements to existing properties in Cambridge over the next 30 years	2013	Refuse and Environment	Jo Dicks
32	Work with partners to provide a new joint use Community Centre at Clay Farm to serve the Southern Fringe development. The Centre will provide community room, a health centre and library facilities and will be built to BREEAM excellent standards as a minimum.	2015	Corporate project lead by Strategic Housing	Alan Carter
33	Ensure that the sale of City Council land at Clay Farm includes conditions that any development on the site should be of quality design and a sustainability exemplar. This will be achieved through a Development Agreement, with the City Council providing 50% Affordable Housing.	2012	Corporate project lead by Strategic Housing	Alan Carter/Sabrina Walston
34	Explore the potential for the delivery of exemplar sustainable design and construction schemes as part of any future disposals of City Council land, balancing this against other objectives for our land.	Ongoing as land disposals come up for consideration	Property Services	Head of Property
35	Explore with partner organisations the potential for procuring a joint energy contract with associated sustainability criteria	2012/13	Estates and Facilities/ Procurement	Jim Stocker/Debbie Quincey
36	Continue to support the development of measures which deliver carbon reductions as part of the Cambridge Area Transport Strategy	2013	Planning	Matthew Bowles

## CONSULTATION DRAFT – June 2012

No.	Action	Completion date	Service	Lead Officer
37	Work jointly with the County Council to implement an agreed programme of improvements to cycling facilities in Cambridge	2014	Planning	Clare Rankin
38	Work with bus operators and partners to support improvements to local bus services, including through targeted subsidies and higher emissions standards	Rolling improvements across the timescale of the strategy	Planning	Matthew Bowles
39	Work with the County Council to explore opportunities to create on-street spaces for car clubs in Cambridge	Ongoing	Planning	Matthew Bowles
<b>Managing climate change risks</b>				
40	Work with partners in the Cambridgeshire Flood Risk management partnership to manage climate change-related flood risks	Ongoing	Planning	Simon Bunn
41	Contribute to County-wide planning advice on minimising surface water flood risk and incorporate this into planning policy	Spring 2014	Planning	Simon Bunn
42	Work with members of the Cambridgeshire Resilience Forum to ensure that plans are in place to adapt to climate change risks (including severe weather, increased temperatures and flooding)	Ongoing	Human Resources	Paul Parry
43	Working with neighbouring authorities, landowners and wildlife organisations to protect, enhance and restore a network of healthy wildlife habitats. This will involve appropriate land management, advice to outside groups and maximising improvements through the planning process.	Ongoing	Streets and Open Spaces	Guy Belcher
44	Explore the capacity of voluntary and community group to undertake climate change adaptation projects with respect to tree planting	Ongoing	Streets and Open Spaces	Matthew Macgrath



*“A city in the forefront of low carbon living”*

# **Cambridge City Council Carbon Management Plan 2011 - 2016**

June 2012

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## **Foreword from the Executive Councillor for Planning and Sustainable Transport and the Chief Executive**

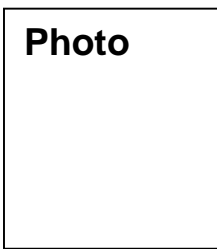
At the heart of Cambridge City Council's vision is for the city to be "at the forefront of low carbon living". We have been working for a number of years to achieve this. Back in 2008, we adopted our first Climate Change Strategy and Action Plan. This year we have refreshed our Climate Change Strategy and have reinvigorated our approach to reducing carbon emissions from our own estate and operations, by developing this detailed five-year Carbon Management Plan.

As a Council, it is imperative that we recognise that for our operations to be sustainable we need to reduce energy use wherever possible, as well as use energy more efficiently. This is imperative in order for us to play a leadership role in reducing our impact on the environment. It also makes good financial sense.

Government has already started charging other large energy users by applying a carbon tax (the "Carbon Reduction Commitment") on every tonne of carbon dioxide they emit. Although Cambridge City Council has not been within the remit of this scheme to date, it is important that we act and invest now to minimise the likelihood and impact of any such charges in the future, as well as any future increases in energy prices, by taking action now. This is why we have set ourselves an ambitious target of reducing carbon emissions from our estate and operations by 20%, by the end of March 2016.

Our revised Climate Change Strategy, coupled with this Carbon Management Plan, provide us with a road map showing how we can take and lead action at the local level to help address one of the greatest global challenges facing us today. We are therefore proud to present this Carbon Management Plan to the people of Cambridge.

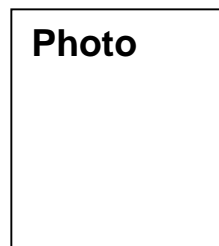
**Photo**



*Signature*

**Councillor Tim Ward**  
Executive Councillor for Planning and Sustainable Transport

**Photo**



*Signature*

**Antoinette Jackson,**  
Chief Executive

June 2012.



## Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for all public sector organisations. Carbon management is about realising efficiency savings, transparency, accountability and leading by example. The UK government has identified the public sector as key to delivering carbon reduction across the UK in line with its Climate Change Act commitments, and the Carbon Trust is pleased to have partnered with Cambridge City Council on our 2011/12 Public Sector Carbon Management Programme to help it meet this challenge.

This carbon management plan will help Cambridge City Council to save money on wasted energy and put it to better use in other areas, while making a positive contribution to the environment by lowering carbon emissions. It commits Cambridge City Council to a target of reducing CO<sub>2</sub> by 20% by 2016 and underpins potential cumulative financial savings / cost avoidance to the organisation of around £1.5m by that date.

Public sector organisations can contribute significantly to reducing CO<sub>2</sub> emissions and improving efficiency. The Carbon Trust is therefore very proud to support Cambridge City Council in their on-going implementation of carbon management.

A handwritten signature in blue ink, appearing to read "T. Pryce", on a light blue background.

Tim Pryce  
Head of Carbon Management  
Carbon Trust

## **Executive Summary**

As a local authority, we recognise that we have a role and responsibility to take positive action and provide strong leadership on averting the dangerous effects<sup>1</sup> of climate change. We also, as a publicly funded organisation, have a duty to manage our resources in an efficient and responsible way.

Both of these responsibilities underline the need for us to ensure we are doing all we can to reduce our own carbon emissions, as this goes hand-in-hand with saving energy and saving money.

### ***Reducing Carbon = Saving Energy = Saving Money.***

In 2008, alongside the adoption of our Climate Change Strategy, we established a Climate Change Fund, the purpose of which is to support delivery of projects that will reduce the Council's energy use, costs and emissions. To date, these projects have helped to reduce our energy consumption to an extent estimated to have reduced fuel costs by around £80,000 per year, and achieved ongoing carbon reductions of around 295 tonnes of CO<sub>2</sub> per year.

However, we recognise that there is scope to achieve much more and it is for this reason that we have developed and adopted this Carbon Management Plan. It provides a strategic and planned approach to reducing our carbon emissions over the next 4 years and beyond. This Plan supports delivery of the broader aims, objectives and targets of our new Climate Change Strategy 2012/2016.

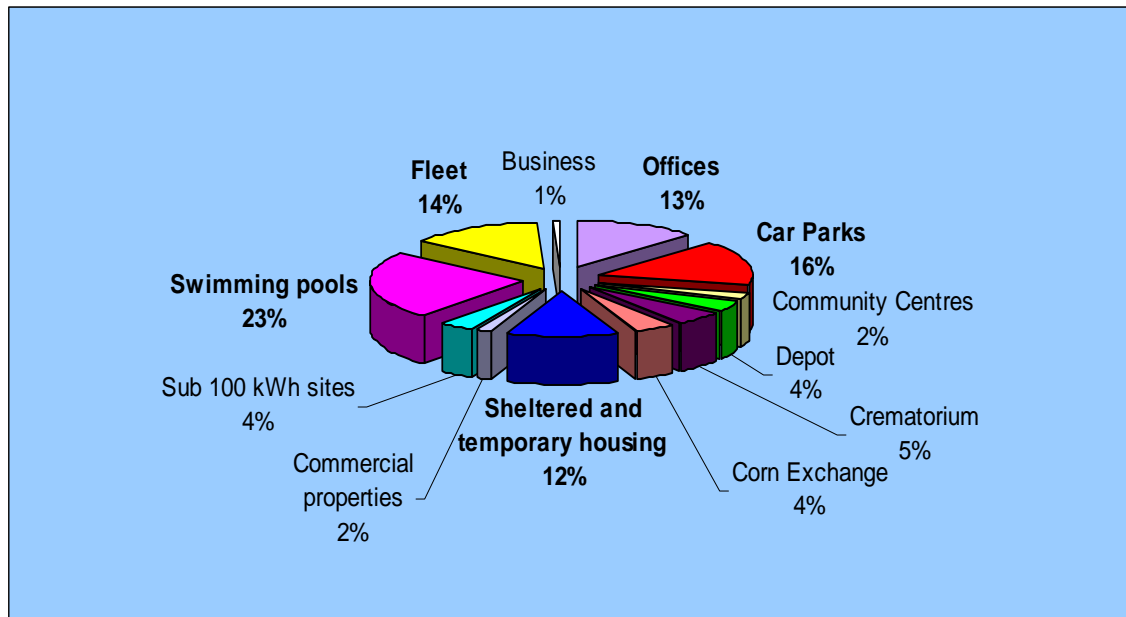
In order to stretch ourselves as an organisation, we have set an ambitious target to **reduce carbon emissions from our estate and operations by 20%, by the end of March 2016** (the Climate Change Committee is recommending that local authorities be given a target to achieve this level of carbon reduction by 2020). We will measure our performance in achieving this target against our baseline position in 2010/11, when we were responsible for 9,672 tonnes of carbon, at a cost of around £1.8m. The majority of our carbon emissions and associated costs arise from the energy that we use in our buildings (see Figure 1) and it is for this reason that many of the carbon reduction projects listed in this Plan focus on directly reducing our gas and electricity use.

We have calculated that if we achieve our target between 2010/11 and 2015/16 we will, prevent an estimated 6,336 tonnes of carbon and avoid expenditure of around £1.5 million. These are high-level estimates, subject to a number of factors which may affect our actual achievements, and yet they highlight that there is a strong environmental and financial case for proactively reducing our carbon emissions. Furthermore, the figures demonstrate that 'doing nothing' on energy use is not a viable option for the organisation, particularly at a time of rapidly increasing energy and fuel costs.

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<sup>1</sup> Most scientists and politicians have defined a global temperature increase of 2 degrees centigrade as 'dangerous', in that it will lead to severe impacts that could endanger animal and human life.

**Figure 1: Cambridge City Council's Carbon Emissions by Source, 2010/11**



We have to date identified over 60 individual carbon reduction projects, and a series of corporate change initiatives, that we plan to deliver by March 2016 in pursuit of our target. Our carbon reduction projects include:

- Improvements to the heating and lighting systems on a number of our sites;
- Major efficiency improvements to our swimming pools and car parks, which are the two largest sources of our emissions;
- Roll-out across a number of sites of voltage optimisation technology, which we have already successfully piloted in the Guildhall.

We expect these projects to cost around £2.3m to implement and, once fully implemented, to deliver annual savings of around £340,000 per year, which means they should have paid for themselves in fewer than 7 years. To date, we have allocated around £1.7m in support of these projects. We will make financial provision for the remaining projects as part of our annual budget setting process.

Our preliminary calculations indicate that, once fully implemented, the projects will have reduced our annual carbon emissions by an estimated 1,900 tonnes of carbon, representing just under a 20% reduction against our baseline. In other words, we have already identified sufficient projects to achieve 99% of our carbon reduction target. The list of carbon reduction projects that we have identified in this Plan so far is not definitive, nor is it set in stone and we will continue to work to identify additional and/or alternative projects that can help us to further reduce our future costs and emissions.

One of the key challenges for the organisation over the next 4 years will be maintaining momentum to ensure all of the carbon reduction projects identified in this Plan are delivered. The Council's Environmental Strategy Group, Chaired

by the Chief Executive, is responsible for driving the programme of work outlined in this Plan forward and through to completion. We will review and report our progress in delivering the carbon reduction projects and achieving our 20% target on an annual basis.

This Plan is a working document, which we will continue to revise and update as necessary on annual basis. As we move towards and through implementation of the Plan, we will carry out further work to refine the cost and savings projections given in this document and, for this reason, it is highly probable that some of the headline figures presented in this report will change over time.

## 1: Introduction

This Carbon Management Plan sets out a programme of action to reduce carbon emissions from our own estate and operations. It is an integral part of a wide programme of work that we will implement over the next 4 years in order to achieve the aims and objectives of our Climate Change Strategy 2012-2016. This Plan effectively forms the delivery plan for objective 1 of our Climate Change Strategy, as indicated below:

### Climate Change Strategy Aims:

- To contribute towards national and international efforts to avert dangerous climate change by limiting temperature increases;
- To ensure that the Climate Change risks to Cambridge are appropriately managed.



### Climate Change Strategy Objectives:

- Council management - To reduce the Council's CO<sub>2</sub> emissions by 20% against the 2010/11 baseline and manage the risks to its staff property and functions from climate change;
- Service delivery – To set high standards for residents and organisations to reduce their carbon emissions and manage climate risks;
- Partnership – To work in partnership with and influence other organisations to address the causes and effects of climate change.



This document explains:

- The 'case for action' for reducing emissions from our own operations and estate;
- Our current carbon emissions;
- A programme of proposed projects and actions to reduce our emissions;
- How much this will cost and save; and
- The governance arrangements to keep the programme on track.

### Our low carbon vision and target

One of Cambridge City Council's eight corporate vision statements is 'A city in the forefront of low carbon living and minimising its impact on the environment from waste and pollution'.

As a local authority, we recognise the role and responsibility that we hold for providing strong leadership on low carbon living and therefore we will strive to consider the causes and consequences of climate change as part of everything that we do as an organisation.

**We will work to reduce carbon emissions from our estate and operations by 20%, against a 2010/11 baseline of 9,672 tonnes CO<sub>2</sub>, by the end of March 2016.**

This equates to reducing our emissions by 1,934 tonnes of CO<sub>2</sub> over the next four years.

### **Our drivers and priorities for reducing our carbon emissions**

Our organisational drivers for taking action to address climate change are outlined in our Climate Change Strategy 2012-2016. In summary, they are as follows:

- Limiting the local impact of climate change;
- Global fairness;
- Cost-effectiveness;
- A sustainable economy;
- Quality of life.

When it comes to reducing emissions from our own operations and estate, our priorities are as follows:

- We want to build on the commitments and progress we have already made: Through our Climate Change Fund we have trialled and implemented a series of carbon reduction projects across our estate. We now want to capitalise on the lessons we have learned through this and move towards a more strategic and planned approach to carbon reduction. This Plan clearly shows what we want to achieve over the medium term and provides a 'road map' to help us achieve this;
- We want to manage our resources responsibly: As a publicly funded organisation, we need to manage our resources efficiently and responsibly and we believe this starts with effective energy management. By reducing our energy costs, we will better be able to resource front line service delivery;
- We want to reduce our exposure to risk: energy costs have been rising sharply in recent years. We want to protect ourselves against further increases so that these don't undermine our ability to maintain the breadth and quality of services that we deliver to the City of Cambridge. We also need to protect ourselves against the risk of financial penalties associated with energy use, such as through the Carbon Reduction Commitment or other instruments;
- Lastly, but by no means least, we want to encourage others to take positive action against climate change. This Plan shows what can be achieved – we hope it provides an example of good practice for others to follow.

## The Context for our Carbon Management Programme

The Climate Change Strategy 2012-2016 outlines the Council's key achievements to date with regards to climate change. It also outlines the policy context relevant to this Plan; and what performance management arrangements the Council is putting in place to monitor whether the Strategy's aims, targets and actions (including those listed in this Plan) are achieved.

This Plan has been developed through participation in the Carbon Trust's Public Sector Carbon Management Programme, which has provided an invaluable framework for developing a strategic approach to carbon reduction. It has guided us, and will continue to guide us, through a series of key stages to effective carbon management, as illustrated below:



## 2: Our Baseline and Projected Carbon Emissions

Our carbon baseline is a record of our carbon emissions in a chosen year. Our carbon reduction target has been specified as a percentage against this baseline figure. Our year-on-year performance in reducing our carbon emissions will also be measured as a percentage against our baseline.

This section presents our baseline; includes a forward projection of our carbon emissions and associated costs; and shows what level of carbon and financial savings we will achieve by meeting our 20% carbon reduction target. An overview of which of our activities and operations we have included when calculating our baseline emissions figure; and how we have calculated our baseline is given in Appendix 1.

### Our Baseline

Using the 'Baseline Tool' provided by the Carbon Trust, we have calculated that:

**Our total carbon emissions in 2010/11 were 9,672 tonnes of CO<sub>2</sub>e and our energy and fuel costs around £1.8 million.**

As can be seen from the table below, the majority of these emissions and costs arise from the energy we use in our buildings:

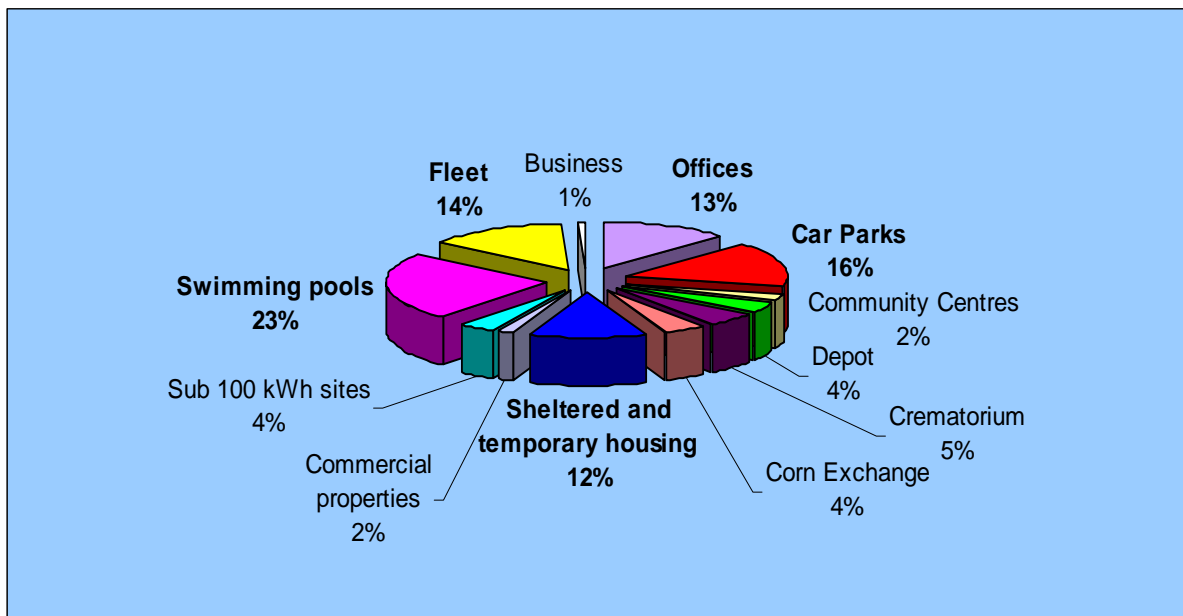


**Table 1: Breakdown of our Carbon Emissions and Energy Costs**

	<b>CO2e (tonnes)</b>	<b>%</b>	<b>Approximate Cost (£)</b>
Buildings (energy use)	8,147	84.2%	1.2m
Transport (fuel use and business travel)	1,397	14.4%	0.6m
Other (fugitive emissions)	128	1.3%	Negligible
<b>TOTAL</b>	<b>9,672</b>		<b>£1.8m</b>

A more detailed breakdown of our emissions is provided by the pie chart below, which shows our emissions by the different types of buildings that we own and occupy:

**Figure 1: Breakdown of our Carbon Emissions by Source**



### Projections and Value at Stake

Based on the data that we have provided, the Baseline Tool has also calculated:

- The Council's energy and fuel costs in 2010/11 (£1.8m);
- How our carbon emissions and energy costs are likely to increase between 2010/11 and 2015/16 under the 'business as usual' scenario – see the text box below for an explanation of what this means;
- How we can expect the Council's carbon emissions and energy costs to decrease if the Council adopts the 'Reduced Emissions Scenario' (see the text box below).

### **The Business As Usual Scenario vs. the Reduced Emissions Scenario**

The Business As Usual (BAU) scenario shows the calculated growth in carbon emissions and related costs that we would experience within the organisation if we *do nothing* to reduce our energy and fuel consumption from 2010/11 levels. The BAU scenario includes assumptions on how our consumption might increase and also what increases in energy tariffs we are likely to experience.

The Reduced Emissions Scenario (RES) shows what our yearly carbon emissions would be if we *achieve our 20% carbon reduction target* by 2015/16, and also what our yearly energy costs would be.

By comparing the Council's 'business as usual' costs and emissions with its 'reduced emissions scenario' costs and emissions, the Baseline Tool is also able to calculate what is known as the Council's Value At Stake (VAS).

Put simply, the VAS is *the difference* between what our costs and emissions will be under the business as usual scenario, and what they would be under the reduced emissions scenario.

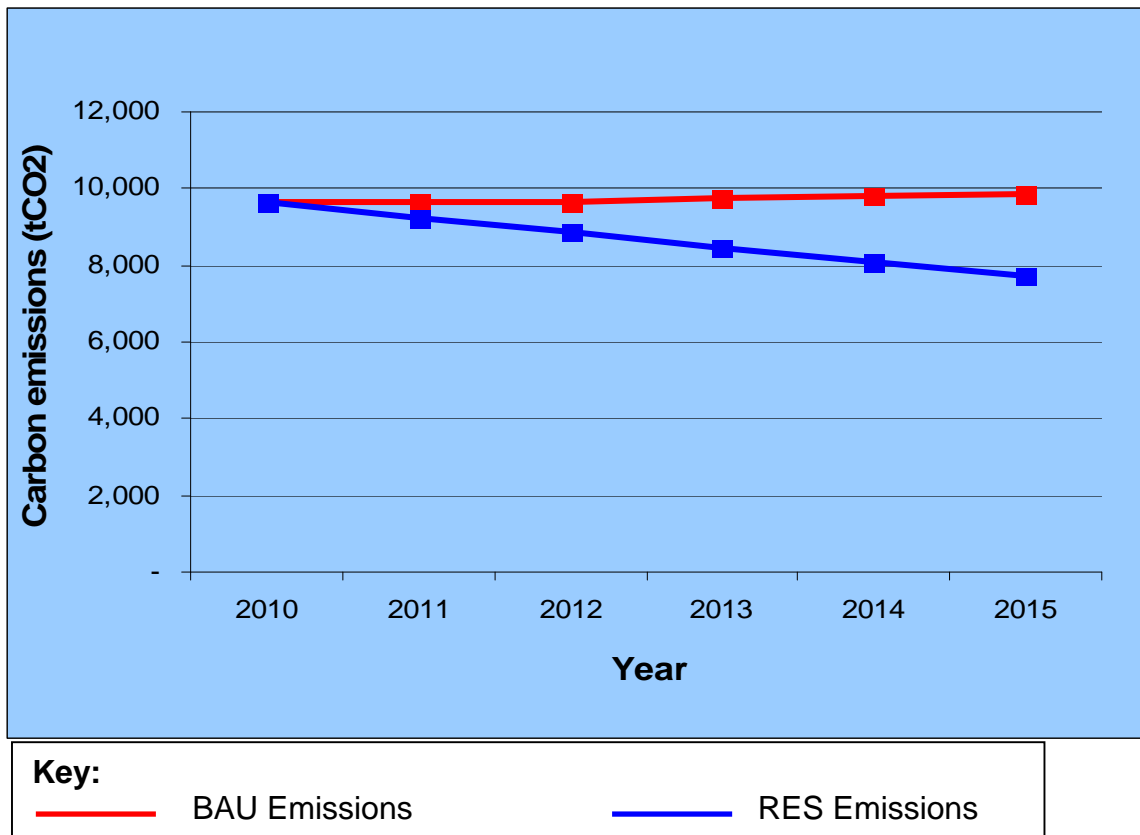
**Between 2010/11 and 2015/16, by implementing this plan (and assuming all other factors remain as anticipated) the Council will prevent an estimated 6,336 tonnes of CO<sub>2</sub>e emissions and avoid expenditure of nearly £1.5 million by achieving its 20% carbon reduction target.**

Our cost avoidance figure has been calculated on the assumption that Cambridge City Council will not be required to participate in Phase 2 of the Carbon Reduction Commitment (CRC) Scheme. Should the Council fall into Phase 2 of the CRC (as from 2013/14), our financial VAS will be around £36,000 higher.

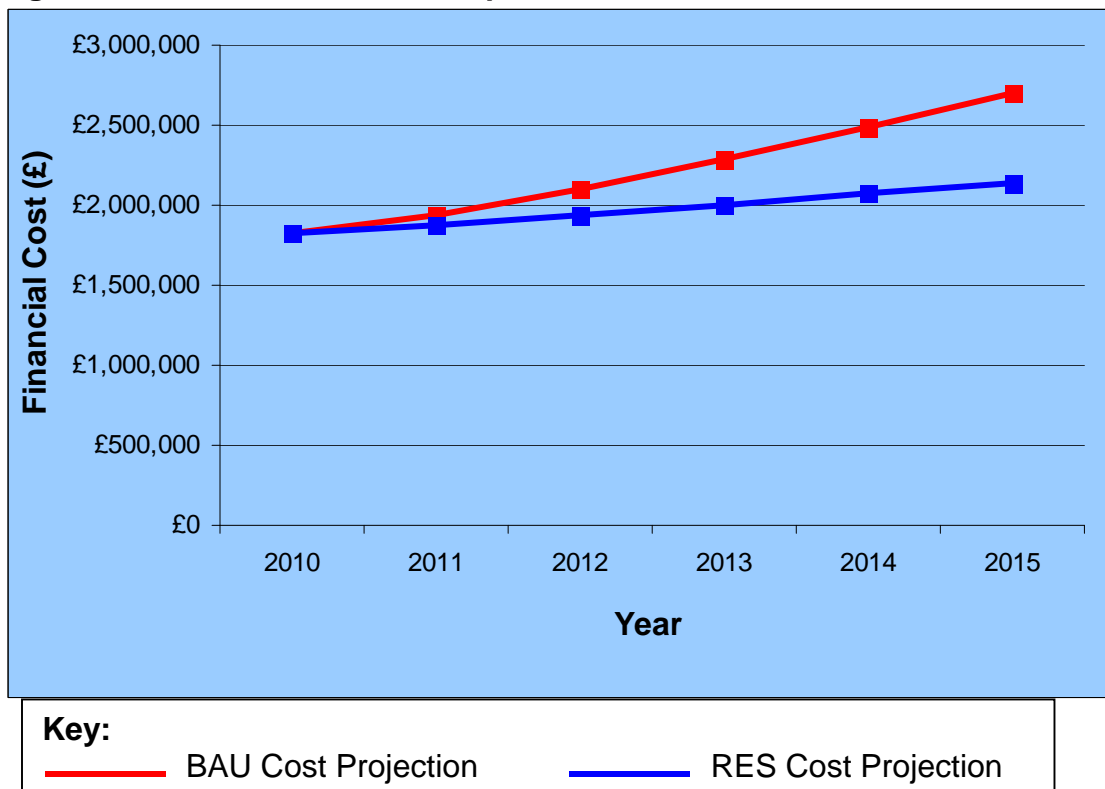
The £1.5 million figure is an approximation of the financial cost of doing nothing to reduce our carbon emissions. We can *avoid* this cost by adopting this Plan and achieving our carbon reduction target.

The baseline tool has calculated the VAS on a year-on-year basis, for each year between 2010/11 and 2015/16. The diagrams below show the Council's year-on-year and cumulative VAS, as calculated by the Baseline Tool.

**Figure 2: Carbon Emissions – Comparison Between Our BAU and RES Emissions**



**Figure 3: Financial Costs – Comparison Between Our BAU and RES Costs**



### **Limitations and Assumptions**

We have calculated our baseline using the most recent available energy and fuel use data. For most sites, and for our fleet and business mileage, these data are for 2010/11. However, there are a couple of sites (2 of our sheltered housing sites) for which we do not hold reliable electricity usage data for 2010/11 and, for these sites, we have used figures for electricity use in 2009/10 instead.

To the best of our knowledge, the data we have used to calculate our baseline accurately reflects our energy usage, but it should be noted that, for a number of sites, usage is based on estimated billing. (Over the past year, we have been undertaking work to install automatic meter reading (AMR) electricity meters on all of our main sites, in order to improve the accuracy of our energy usage data. We are also planning to do the same for gas, subject to certain considerations – see the Change Management Action Plan at Appendix 5).

It should be noted that the carbon and financial VAS estimates given above provide only a high-level analysis of the level of cost avoidance we can achieve through this Plan. ***They do not represent detailed or accurate savings projections***; for example, the financial VAS figure does not take account of the capital cost of the carbon reduction projects that we will need to implement in order to achieve our 20% target. More robust savings figures are provided in Section 3, which outlines the specific carbon reduction projects that we are planning to implement by 2015/16.

In calculating our VAS figures, we have applied a number of assumptions regarding how our energy use and costs will change over time – see Appendix 1. The effect of these assumptions can be seen in Figure 3, which shows that even under the RES, our total energy and fuel costs will be on a slight upward trend (due to an assumed annual increase in our unit energy and fuel prices).

### 3: Carbon Management Projects

**To date, we have identified projects that will collectively deliver savings of 1,917 tonnes of CO<sub>2</sub> per year; equating to 99% of our 20% aspirational carbon reduction target.**

Appendix 2 outlines how we have identified these projects.

The project costs and savings projections given in this section and Section 4 have been calculated with reference to several sources of information, including use of the Carbon Management Project Register (CMPR) tool provided by the Carbon Trust (see Appendix 2).

As part of this work, we have applied a number of assumptions, for example regarding how unit energy and fuel prices will increase year-on-year (see Appendix 1 for a full list of the assumptions applied).

It should be noted that these costs and savings projections are *estimates* and may differ to those achieved as we move forward to project implementation. As indicated throughout this section, we currently have a higher level of confidence in some of the estimates than others, due to variations in the reliability and accuracy of the source data.

#### **A note about the savings projections**

It should be noted that, although we use the term 'savings projections', the figures presented here and in Section 4 do not necessarily represent the actual level of financial savings that will be realised through implementation of this Plan. Rather, the figures indicate the amount of energy expenditure that we can avoid in future years by implementing this Plan. Our *cost avoidance* and *actual savings* will not be the same because, although we are taking steps to reduce our energy use, the prices that we pay for each unit of energy and fuel that we use are expected to increase year-on-year.

Furthermore, the Council is not a static organisation; it is always having to adapt in response to changes in national and local priorities and the needs of residents. This may mean that our energy use could actually increase in some areas, for example, if we needed or chose to provide increased opening hours for certain services and/or buildings.

#### **Previous Projects – 2008/09 – 2010/11**

As mentioned in Section 1, since establishing our Climate Change Fund in 2008, we have already delivered a range of carbon reduction projects across our estate. The table below outlines carbon reduction projects delivered *between 2008 and March 2011*, and shows the year-on-year cost and carbon savings that they are expected to deliver. (Since March 2011, we have implemented further projects with support from the Fund, which have further increased our annual savings. These projects are included in Table 3A).

**Table 2: Projects Implemented with Support from Our Climate Change Fund, 2008 – March 2011**

<b>Project</b>	<b>Total Project Cost (£)</b>	<b>Annual Cost Savings (£/yr)</b>	<b>Annual Carbon Savings (tonnes of CO<sub>2</sub>/yr)</b>
Pilot of electric bin lifts	34,700	3,823	3
Chesterton Road toilet modernisation	3,000	62	0
Corn Exchange Christmas lighting lamps	600	242	1
Energy audit of pools and leisure centres	3,745	NA	NA
Grand Arcade Annex car park fan system	21,700	5,413	68
Public conveniences and Park Street car park energy survey	2,725	NA	NA
Community Centres energy audit	2,995	NA	NA
Corn Exchange LED bar lights	2,760	1,213	8
Replacement boiler at Barnwell House	6,300	451	4
Guildhall voltage optimisation trial	17,960	3,754	20
<b>Total</b>	<b>£96,485</b>	<b>£14,958</b>	<b>104</b>

**Existing Projects: April 2011 – March 2012**

For 2011/12, the first year of our Carbon Management Plan, a number of carbon reduction projects were already in the pipeline. Details of these projects are given in Table A of Appendix 3. They include a series of energy efficiency improvements across a number of different sites, including offices, a sheltered housing site, one car park, and one of our swimming pools. All projects are now fully implemented.

These projects have cost around £821,000 to implement and, once fully implemented, we expect them to deliver ongoing annual savings of around £55,000<sup>2</sup> and 284 tonnes of CO<sub>2</sub> per year (just under 15% of our target). We have a medium-high level of confidence in these cost and savings projections.

**Planned and Funded Projects: April 2012 – March 2013**

Table B of Appendix 3 outlines the projects that we have scheduled for delivery during 2012/13. We have prioritised a series of improvements to our swimming pools, as these account for a significant proportion of our energy costs and emissions (see Figure 1). We also propose to implement some fleet initiatives; heating and lighting improvements on a number of sites; voltage optimisation; and a solar hot water system.

<sup>2</sup> Includes £12,300 of income generated through the Clean Energy Cash Back Scheme.

We expect these projects to cost around £550,000 to implement. Collectively, these projects are expected to deliver annual savings of around £152,000 and 815 tonnes of CO<sub>2</sub> (around 42% of our target).

We have a medium level of confidence in these cost and savings projections. We will work to refine the figures for all 2012/13 projects as we move forward to implementation.

### **Planned Projects Requiring Funding**

Table C in Appendix 3 outlines other carbon reduction projects that the Council plans to implement but for which financial provision has yet to be made. Some of these projects require further feasibility work by the Council. Following further assessment, projects that present a strong business case will be scheduled for delivery between 2013/14 and 2015/16. The Council will make financial provision for each project as part of the budget setting process for the relevant year.

At present, we expect these projects to cost around £674,000 to implement, and to deliver annual savings of around £106,000 and 585 tonnes of CO<sub>2</sub> (around 31% of our target). We currently have a medium-low level of confidence in these cost and savings projections.

The figures that we have included for the upgrade to LED lighting in some of our car parks require further work, as currently they do not reflect the costs and savings of introducing lighting motion sensors alongside the LEDs, which we would currently anticipate doing in order to maximise financial and carbon savings. It is likely therefore that the cost and savings figures for these project are underestimates at this stage.

### **Potential Future Projects**

Table D in Appendix 3 outlines further carbon reduction measures that we are considering, but for which there is currently a degree of uncertainty, for example in terms of their feasibility, funding status or savings potential. We will continue to investigate and assess the potential and business case for these projects. Where there is a strong case for progressing with any of these projects, we will schedule them in for delivery during the lifetime of the Plan and seek to make financial provision for them through our annual budget setting process.

We currently expect these projects to cost around £301,000 to implement, and to deliver annual savings of around £34,000 and 233 tonnes of CO<sub>2</sub> (just under 12% of our target). We currently have a low level of confidence in these figures.

### **Ongoing Work**

The list of carbon reduction projects that we have identified in this Plan is not definitive, nor is it set in stone. We will continue to assess, prioritise and schedule individual projects on a case-by-case basis, as we work up project appraisals as part of our approval process.

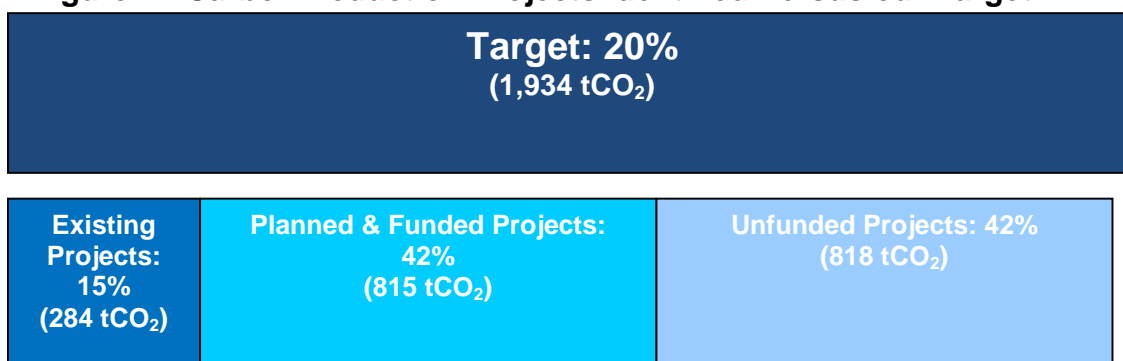
We will also continue to identify other potential projects, not listed here, by holding regular opportunities workshops with our Carbon Management Team; and to seek to learn from other local authorities and other similar organisations and borrow or adapt their learning where appropriate. Where this identifies other projects that will deliver better cost reduction and carbon savings, we will consider reprioritising some of the projects listed here. We will update this Plan on an annual basis to reflect any such changes.

We will also carry out further work to refine the cost and savings projections for all of our proposed projects.

### Projected Achievement Towards Our Target

If all of the projects listed in this Plan were delivered then, once fully implemented, they would achieve annual carbon savings of 1,917 tonnes. This represents around 99% of our carbon reduction target (See Figure 4 below).

**Figure 4: Carbon Reduction Projects Identified Versus our Target**



However, in practice, it is not likely that all of the projects we have listed here will be implemented. For example, for two of our car parks (Queen Anne Terrace and Park Street) we have proposed the installation of voltage optimisation *and* upgrading the existing lights to an LED system with lighting controls. In practice, we would be unlikely to implement voltage optimisation and LEDs; it would be 'either/or', depending on which project presented the strongest business case and proved to be the most suitable for each site.

Furthermore, as noted above, there is currently some uncertainty about the 'potential future projects' listed in Table 3D. Should none of these projects go ahead, then our performance against our reduction target would reduce to 87% (1,684 tCO<sub>2</sub>).

Figure 5 below compares our projected BAU emissions (the red line) with:

- Our target emissions – shown by the blue line; and
- How our emissions will be reduced through implementation of the projects listed in this Plan (shown by the green line).



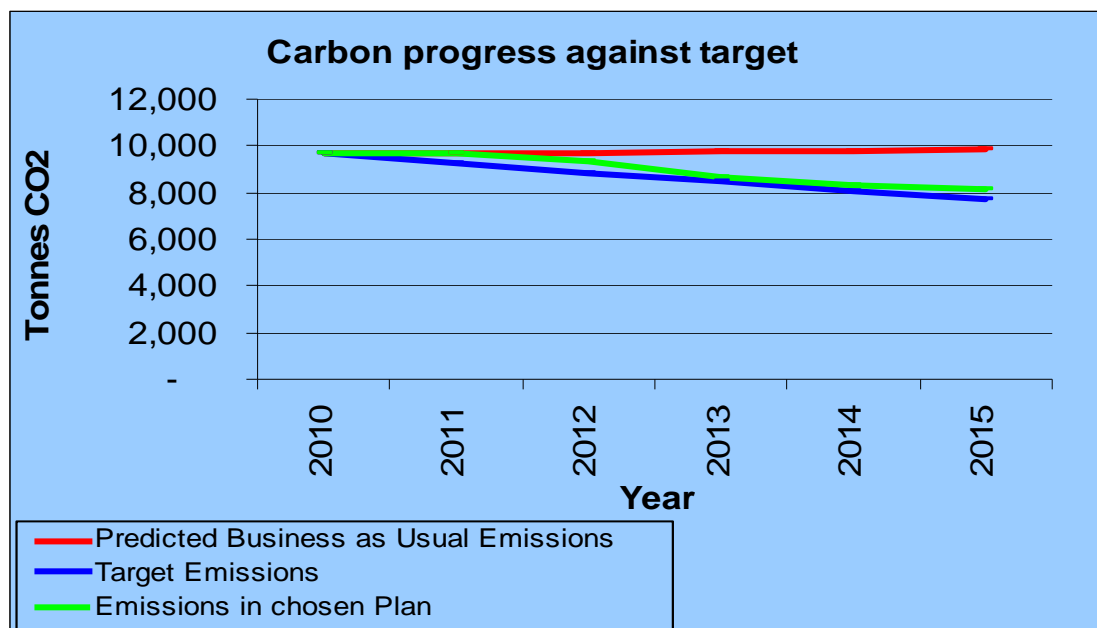
In this diagram, the green line takes into account the effect of various factors, which may influence the actual carbon savings that are achieved in practice, for example:

- The effect of BAU forces – for example, if after year 3 no additional projects were implemented, then the emissions would start to trend back along the BAU line;
- The impact of project lifetime – for example, if a project with a short project lifetime finishes before the end of the programme (and is not maintained or repeated), the trend would show a stepwise increase in emissions;
- A degradation factor. This assumes that over the life of a project its carbon saving impact will decrease, for example due to loss of focus or momentum, project failure, or a reduction in the efficiency of the technology/equipment.

By including these effects we are trying to model some of the real life factors that may impact on our ability to meet our target. Because of these additional factors the plot does not directly agree with a simply summed list of the carbon saving impact of the projects we have identified.

Through ongoing work, we will seek to identify additional/ alternative projects that will help to make up any shortfall in our performance against our target.

**Figure 5: Progress Against our Carbon Reduction Target**



#### 4: Carbon Management Plan Financing

**We have calculated that it will cost around £2,350,000 to implement all of the projects identified in this Plan. We estimate that, once fully implemented, the projects will deliver annual savings of £347,605<sup>3</sup>. This would give an overall payback period for all the projects listed in this Plan of fewer than 7 years.**

In other words, in fewer than 7 years, the carbon reduction projects that we have identified will have paid for themselves. Furthermore, the projects with a project lifetime longer than 7 years will continue to deliver cost and carbon savings for several more years to come.

We have already allocated over £1,750,000 in support of delivery of this Plan. This leaves approximately £600,000 yet to be allocated. More is said about current and future sources of funding below.

#### Financial Costs and Sources of Funding

Table 3 provides a breakdown of our project costs by year, and shows how much financial provision we have made in support of these projects so far. The table shows that all projects due for delivery during the first year of our Carbon Management Plan (2011/12) have been fully funded. This funding is primarily provided through our Housing Revenue Account (HRA), Climate Change Fund and individual service budgets, including Repair and Renewal (R&R) allowances.

**Table 3: Breakdown of Allocated and Unallocated Funding**

	2011/12	2012/13	2013/14	2014/15	2015/16
<b>Total Project Implementation Costs (£)</b>	<b>£821,215</b>	<b>£549,389</b>	<b>£456,136</b>	<b>£175,356</b>	<b>£344,050</b>
<b>Allocated Funding</b>					
<b>Climate Change Fund</b>	<b>£156,600</b>	<b>£273,187</b>	<b>£244,378</b>	-	-
<b>R&amp;R Budgets (General Fund)</b>	<b>£45,545</b>	<b>£55,202</b>	-	-	-
<b>Other General Fund</b>	<b>£20,470</b>	<b>£205,000</b>	-	-	-
<b>HRA</b>	<b>£593,600</b>	<b>£16,000</b>	<b>£148,947</b>	-	-
<b>External</b>	<b>£5,000</b>	<b>£0</b>	-	-	-
<b>Total Allocated</b>	<b>£821,215</b>	<b>£549,389</b>	<b>£393,325</b>	-	-
<b>Unallocated Funding</b>					
<b>Total Unallocated</b>	-	-	<b>£62,811</b>	<b>£175,356</b>	<b>£344,050</b>

<sup>3</sup> £321,731 of this total saving comes directly from reduced energy bills; the remaining £25,875 is income generated through projects that qualify for a tariff through the Clean Energy Cash Back Scheme.

For projects scheduled for delivery in 2012/13, we had initially made financial provision of around £930,000. Very recently, some of these projects have, for various reasons, had to be rescheduled for delivery in subsequent years. We will propose to over the 'surplus' funding from 2012/13 to support projects in 2013/14.

We have yet to make any financial provision for projects that are scheduled for delivery during 2014/15 and 2015/16. We will seek to do as part of our annual budget setting process. We expect the Climate Change Fund to remain the primary mechanism for funding future projects, with match-funding coming from individual service budgets, including from repairs & renewal budgets where appropriate. If necessary, we will also consider the need and potential to secure funding from external sources.

We are committed to delivering all of the projects identified in this Plan but, naturally, our confidence in our ability to achieve this reduces further into the future, due to unforeseen factors such as changes to organisational capacity and budgets.

#### **Benefits / Savings – Quantified and Unquantified**

Table 4 below outlines the annual cost and CO<sub>2</sub> savings that could be realised if the Council successfully implements all of the projects identified within this Plan. The figures in this table are calculated on the basis that projects delivered in 2011/12 will not deliver a full year's worth of saving until 2012/13; and projects delivered in 2012/13 will not deliver a full year's worth of savings until 2013/14; and so on. The table also takes account of the *cumulative effect* of projects, eg: projects delivered in 2011/12 (and with a lifetime of at least 5 years) will continue to deliver savings throughout all subsequent years of the Plan. The full savings achieved by all projects will not be realised until all 2015/16 projects have been fully implemented.

It should be noted that, in practice, it is possible that not all projects will go ahead (see Section 4), in which case the savings we achieve will be lower than indicated below. Through ongoing work, we will revise and refine these savings estimates.

**Table 4: Annual Cost and Carbon Savings (Cumulative, By Year)**

	2012/13	2013/14	2014/15	2015/16	As of 1 <sup>st</sup> April 2016*
<b>Annual Cost Savings</b>	£55,358	£207,748	£261,748	£323,659	£347,605
<b>Annual CO<sub>2</sub> Savings (tonnes)</b>	284	1,099	1,455	1,756	1,917
<b>% of Carbon Reduction Target Achieved</b>	15%	57%	75%	91%	99%

\* Once all projects have been fully implemented. Savings will decrease overtime, according to lifetime of implemented measures (unless measures are replaced/ renewed).

We are exploring steps to ensure that the financial savings realised through implementation of this Plan are reflected in relevant service budgets in the future.

In addition to the financial and carbon savings that we expect our projects to deliver, there are a number of unquantifiable benefits to be gained through successful implementation of this Plan. We see the main ones to be:

- Reputational – successful implementation of this Plan would demonstrate that the Council is serious about the climate change commitments it has set out in its corporate vision and Climate Change Strategy 2012-2016;
- Improved organisational efficiency – through improved energy management, we will avoid spending money where we don't need to;
- Greater resilience against market forces – better energy management will also protect us against further rises in energy and fuel costs;
- Credibility – by successfully reducing our energy use, costs and emissions, the Council can provide strong leadership on climate change and carbon management.

## **5: Change Management Action Plan**

This section outlines a number of changes that we are seeking to implement across the Council, as we see necessary to support realisation of our 20% carbon reduction target. The 'direction of travel' and specific actions that we outline here will, we believe, help to:

- Ensure the carbon reduction projects outlined in this Plan are successfully implemented, and their achievements effectively measured and communicated; and
- Deliver further, ongoing energy and carbon savings above and beyond those achieved through our carbon reduction projects, by fostering a working culture where carbon reduction is a core consideration as part of everything that we do as an organisation. This will help to ensure that efforts to reduce carbon carry on long after all the carbon reduction projects have been implemented.

As the starting point for writing this section, we completed the self-assessment Carbon Management Matrix provided by the Carbon Trust – see Appendix 4.

The following sections summarise:

- Our current, self-assigned score out of 5 (with 5 being excellent and 1 being poor) against each element of the Carbon Management Matrix;
- A brief rationale for why we have scored ourselves at the current level;
- What we would like our score to be against each element by the end of the lifetime of this Plan (again, out of 1-5).

The table in Appendix 5 outlines what specific actions we will take forward to help achieve our target score in each area.

### **Corporate Strategy – Embedding Carbon Reduction Across the Organisation**

Current score: 4

Key actions to date:

- The Council has had a climate change strategy since 2008;
- Climate change strategy includes top level carbon reduction targets;
- Carbon reduction is core to corporate vision.

Target score: 5

Key area for improvement:

- More regular and transparent progress reporting (to senior management and Councillors).

### **Programme Management**

This is covered in Section 6.

### **Responsibility – Being Clear that Saving Carbon is Everyone's Job**

Current score: 4

Key actions to date:

- Climate Change Fund available since 2008. Provides extra funding to support integration of carbon reduction into project and service delivery;

- Officers with responsibility for building management receive regular updates on energy use in their buildings/ areas of responsibility;
- Carbon management/ reduction has been built into the job descriptions for key posts;
- Have added carbon implications section in to our project appraisal forms, Committee Reports and Budget Proposals forms.

Target score: 5

Key area for improvement:

- Strengthen links between actions set out in the Carbon Management Plan and relevant Operational Plans and personal objectives.

### **Data Management**

Current score: 4

Key actions to date:

- Electricity AMR meters installed across over most major Council sites;
- Developed comprehensive database of energy usage figures, which has helped to identify and resolve any gaps or anomalies in usage figures;
- Work in partnership with the Energy Information Centre, who check a sample of the Council's bills every month to flag up any potential billing errors or anomalies, and contact our energy suppliers directly to resolve any issues on behalf of the Council;
- Compile annual reports on the Council's carbon emissions;
- In 2011, produced Council's first Greenhouse Gas Report in accordance with new Government requirements;
- Corporate CO<sub>2</sub> emissions included in basket of corporate performance indicators; reported to Strategic Leadership Team on regular basis.

Target score: 5

Key area for improvement:

- Further develop and improve robustness and accuracy of energy monitoring processes and procedures, through installation of further AMRs where possible/cost effective; and initiate annual visual meter readings at key sites.

### **Communication and Training – Ensuring Everyone is Aware**

Current score: 3

Key actions to date:

- Sustainability and carbon reduction session included Corporate Induction training;
- Climate Change Champions network;
- Staff engagement activities eg: annual Switch Off! campaigns;
- Communicate with staff via internal staff e-magazine on key environmental initiatives;
- Delivered driver training, to promote more fuel-efficient driving.

Target score: 4

Key area for improvement:

- Develop and implement a corporate communications campaign that embraces, supports and mainstreams the Carbon Management Plan.

### **Finance and Investment**

This is covered in Section 4.

### **Engagement of Our Stakeholders – Leading by Example**

(This is not shown on the Embedding Matrix)

Current score: 2

Key actions to date:

- Adopted green procurement policies for certain product groups;
- Suppliers'/ contractors' environmental performance considered as part of procurement process;
- Energy management responsibilities specified in current swimming pools contract.

Target score: 4

Key area for improvement:

- Improve the Council's contract management processes to ensure that contractors support Council's carbon reduction target (the Public Services (Social Value) Act 2012 potentially provides further scope for this).

### **Policy Alignment – Saving CO<sub>2</sub> Across Our Operations**

Current score: 2

Key actions to date:

- Adopted Employee Travel Plan in 2008;
- Environmental Strategy Group assigned responsibility for addressing strategic environmental issues (see Section 6).

Target score: 4

While the City Council has been genuinely leading edge in terms of policies such as our planning framework, this is an area where we feel we have further work to do in terms of embedding carbon management across the whole organisation. Priority actions will be to assess carbon opportunities/ implications as part of any rationalisation of, or changes to our property portfolio and office accommodation; and to ensure that carbon management is embedded into key corporate policies as they are developed or revised.

## 6: Programme Management of our Carbon Management Plan

Figure 6 below shows who is responsible for ensuring that our Carbon Management Plan is successfully implemented and our carbon reduction target realised. It shows that:

- **Leadership** for the Plan is provided by the Environmental Strategy Group, who are acting up as the **Carbon Management Board** for the duration of the programme;
- Day-to-day **management and coordination** of the programme is provided by the **Climate Change Officer**;
- The **Carbon Management Team** will support the Climate Change Officer in **delivery of the projects** included in our Plan.

### The Carbon Management Board – Strategic leadership and oversight

The Environmental Strategy Group (ESG) is fulfilling the role of our Carbon Management Board. ESG is a pre-existing group, which has provided strategic leadership on corporate environmental issues for over 10 years (the role, remit and membership of the Group has changed during this time). The Group currently has responsibility for providing strategic leadership and oversight on a number of corporate environmental issues, including the carbon management programme.

The terms of reference and membership of the Environmental Strategy Group are given in Appendix 6. The Group is Chaired by the Council's Chief Executive.

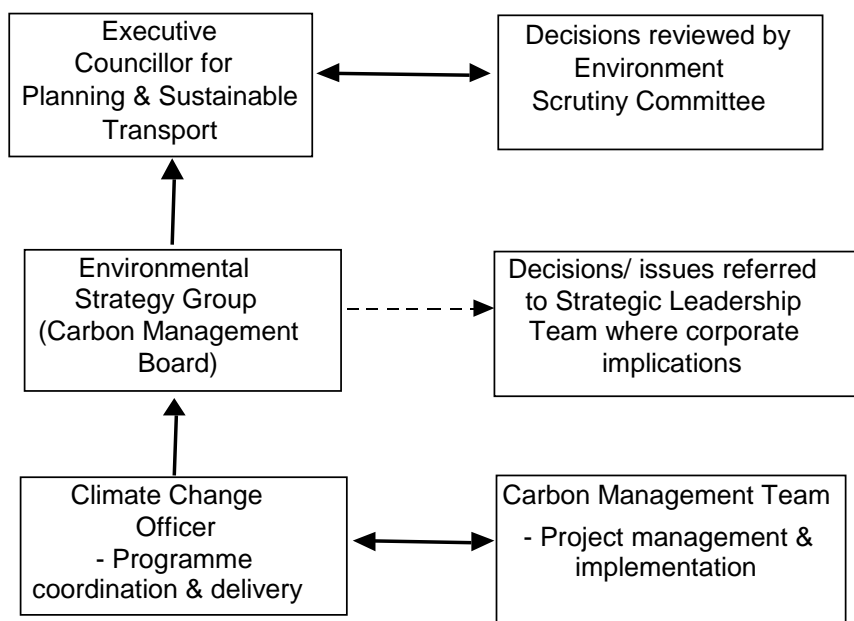
Typically, ESG meet at least once a quarter, although throughout the carbon management programme they may meet more frequently, on an 'as needed' basis. At each meeting, the Climate Change Officer provides the Group with an update report on the carbon management programme, including:

- With the aid of a 'Red/ Amber / Green' status report, progress on current or 'live' carbon reduction projects and in particular flagging up any delivery issues or problems that can be resolved through high-level intervention;
- Overall progress towards achieving the Council's carbon reduction target;
- Significant risks to the programme, for example a lack of capacity or funding;
- An ongoing assessment of the level of priority and funding provision that needs to be allocated to different streams of work throughout the remainder of the carbon management programme;
- Any other issues flagged up by the Carbon Management Team, which the Board needs to be aware of or can help to resolve.

The Chief Executive is also Chair of the Council's Strategic Leadership Team; she updates them as needed on the work of ESG, including their role as the Carbon Management Board.



**Figure 6: Our Carbon Management Governance Structure**



**The Carbon Management Team – Delivering the projects**

The role of our Carbon Management Team is filled by a pre-existing officer group (formerly known as the ESG Energy Sub-Group) comprised of the key officers responsible for identifying, planning and delivering energy efficiency projects.

This group has been working for a number of years to share corporate best practice, skills, knowledge and resources relating to energy management. As such, the group is ideally suited to support the Carbon Management Board in implementation of the Carbon Management Plan.

The terms of reference and membership of the Team are given in Appendix 6.

The Team meet as a whole at least once a quarter. Certain ‘core’ members of the Team may meet more frequently, as called for by specific aspects of the Programme or individual projects.

As part of the regular update reports that are presented to the Carbon Management Board, the Climate Change Officer captures the work and progress of the Team and, where necessary, flags up any issues that require high-level intervention.

**Succession Planning for Key Roles**

Inevitably, the membership of ESG (the Carbon Management Board) and/or Carbon Management Team will change over time, for example as individual members leave the organisation or as their core roles and responsibilities change.

If an individual member of either ESG or the Carbon Management Team steps down, then ESG will be responsible for identifying a suitable replacement officer.

As Chair of ESG and as the 'Programme Sponsor', the Chief Executive plays a key role in ensuring that implementation of the Carbon Management Plan remains a priority for the organisation. We have nominated the Head of Corporate Strategy as our Deputy Programme Sponsor. Any changes in roles would be managed to ensure continuity of ownership and leadership of the Programme.

The Climate Change Officer plays the leading role in coordinating and managing the Carbon Management Programme overall. The Climate Change Officer post is currently held by two people, on a job-share basis. Should either post-holder need, for whatever reason, to step down from the programme, the other post-holder will step in to provide programme coordination and management.

For both the Programme Sponsor and Programme Leader, and their respective deputies, their roles and responsibilities with regards to the Carbon Management Programme will be included in their personal objectives for the duration of the Programme. Members of the Carbon Management Team, particularly those that will be responsible for delivering major projects, will also be asked to include these responsibilities in their personal objectives.

### **Progress Reporting – Routine and Annual**

The Climate Change Officer, with support from the Carbon Management Team, will continue to provide Environmental Strategy Group with regular progress reports on implementation of the Plan, capturing the issues set out in the 'Carbon Management Board' section above.

Progress against individual projects and the programme as a whole will be reported to our Environment Scrutiny Committee on an annual basis (in the June / July cycle). This will form part of the performance management arrangements put in place to ensure that the aims, targets and actions set out by our Climate Change Strategy 2012-2016 are being achieved. With reference to the Carbon Management Plan, the report will include an update on:

- Total expenditure on projects to date, and breakdown of funding sources;
- Anticipated financial and carbon savings of projects delivered to date;
- Total financial savings realised to date;
- Any recommendations to the Committee regarding future projects and financial provision for these projects.

We will also include updates on the programme in:

- Regular updates to staff, as part of our staff engagement work;
- Our annual Greenhouse Gas Report, which will be made available to the public through the Council's website.

## Appendix 1: Establishing Our Baseline

### Scope

Before we could calculate our carbon emissions, we needed to define the *scope* of our baseline. Put simply, this involved ‘drawing a line’ around those Council buildings, assets and activities that we needed to include when measuring our baseline emissions. By way of summary, we have included emissions arising from:

- Gas and electricity used in buildings that we own or occupy;
- Fuel used in vehicles that we own and operate;
- Business mileage – car or motorbike transport undertaken by staff and Councillors as part of their working duties;
- Air conditioning units on our buildings.

Table 1A details which emission sources we have included in our baseline, and which we have excluded and why. Our emission sources are grouped as either Scope 1, Scope 2 or Scope 3 emissions, which is consistent with Government guidance on how to measure and report greenhouse gas emissions<sup>4</sup>.

### Baseline Year

For the purposes of this Carbon Management Plan, we have chosen 2010/11 as our baseline year<sup>5</sup>.

### Date and Methodology

We have calculated our baseline carbon emissions using:

- a) Data on our energy use, fuel use, business travel and fugitive emissions, and associated costs, during the financial year 2010/11 (1 April 2010 – 31 March 2011). This is data that we hold in house and that we have been using for a number of years to monitor our carbon emissions; *and*
- b) The 2010/11 emission factors provided by Government departments Defra and DECC, which convert energy use, fuel use etc into tonnes of carbon dioxide or carbon dioxide equivalent (CO<sub>2</sub>e)<sup>6</sup> (see <http://archive.defra.gov.uk/environment/business/reporting/conversion-factors.htm>).

We have entered this data into the ‘Baseline Tool’ provided by the Carbon Trust under their carbon management programme.

In both the Baseline Tool and the CMPR, we have applied the following assumptions:

- Price paid by the Council in 2010/11 for electricity: £0.08/ kWh
- Price paid by the Council in 2010/11 for gas: £0.03/ kWh

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<sup>4</sup> See <http://www.defra.gov.uk/publications/2011/03/26/ghg-guidance-pb13309/>

<sup>5</sup> The 2010/11 baseline figure replaces our previous 2005/6 baseline, originally established under the Cambridge Climate Change Strategy & Action Plan 2008-2012.

<sup>6</sup> Carbon dioxide equivalent, or CO<sub>2</sub>e, takes account of emissions of 6 greenhouse gases including carbon dioxide, methane and nitrous oxide.

- Price paid by the Council in 2010/11 for diesel: £1.03/ litre
- Price paid by the Council in 2010/11 for petrol: £0.99/ litre
- Price paid by the Council in 2010/11 for gas oil (machinery): £0.52/ litre
- Price paid for business mileage in 2010/11: £0.28/ km
- Price paid by the Council in 2010/11 for refrigerants: £1.00/kg
- We have followed the assumption made within the Baseline Tool that, under the BAU scenario, the Council's consumption of energy and fuel will increase by 0.7% per year for each year between 2010/11 and 2015/16
- We have followed the assumption made within the Baseline Tool that our energy (gas and electricity) tariff will increase by 5.8% per year for each year between 2010/11 and 2015/16. This assumption is based on energy cost projections provided by the Department for Energy and Climate Change<sup>7</sup>
- Based on increases in our fuel (diesel, petrol and gas oil) costs in recent years, we have assumed that our fuel costs will increase by 12% per year for each year between 2010/11-2015/16
- Inflation rate: 3.5%.

**Table 1A: Emissions Included in Our Baseline**

<b>Source of Emissions</b>	<b>Emissions included in our baseline?</b>	<b>Explanation for specific emissions excluded from our baseline</b>
<b>Scope 1 (Direct Emissions)</b>		
Gas consumption: in buildings we fully own, occupy and control	Yes	This includes our office buildings, community centres, car parks, sheltered housing, temporary housing, Corn Exchange, Mill Road Depot and crematorium (our swimming pools are included as Scope 3 emissions).
Gas consumption: in buildings we own and lease out to others	Partially	We have only been able to calculate emissions arising from energy used in the communal areas of some of the buildings that we lease out (energy used in communal areas is provided and paid for by the Council). We do not have access to data on energy used by our tenants.
Gas consumption: in buildings we lease in from others	Yes	
Other fuel consumption (in owned transport)	Yes	

<sup>7</sup> See

[http://www.decc.gov.uk/en/content/cms/about/ec\\_social\\_res/analytic\\_projs/analytic\\_projs.aspx](http://www.decc.gov.uk/en/content/cms/about/ec_social_res/analytic_projs/analytic_projs.aspx)

<b>Source of Emissions</b>	<b>Emissions included in our baseline?</b>	<b>Explanation for specific emissions excluded from our baseline</b>
Process emissions	No	Not relevant
Fugitive emissions from air conditioning units	Yes	
<b>Scope 2 (Indirect Energy Emissions)</b>		
Purchased electricity: in buildings we fully own, occupy and control	Yes	This includes our office buildings, community centres, car parks, sheltered housing, temporary housing, Corn Exchange, Mill Road Depot and crematorium (our swimming pools are included as Scope 3 emissions).
Purchased electricity: in buildings we own and lease out to others	Partially	We have only been able to calculate emissions arising from energy used in the communal areas of some of the buildings that we lease out (energy used in communal areas is provided and paid for by the Council). We do not have access to data on energy used by our tenants.
Purchased electricity: in buildings we lease in from others	Yes	
<b>Scope 3 (Other Indirect Emissions)</b>		
Purchased materials and fuels	No	Excluded due to time/ cost of data collection.
Business travel (car and motorbike)	Yes	Air transport excluded due to lack of available transport
Commuter travel	No	Excluded due to time/ cost of data collection.
Waste disposal	No	Excluded due to time/ cost of data collection.
Water usage	No	Excluded due to time/ cost of data collection.
Outsourced activities	For management of leisure sites & swimming pools only <sup>1</sup>	For other outsourced activities, we do not have control over the operation/ activity in question or access to relevant data.

<sup>1</sup> We share management & maintenance responsibility for our leisure sites & swimming pools with the appointed contractor.

## **Appendix 2: Approach to Identifying, Quantifying and Prioritising Projects**

We have identified carbon reduction projects to include in this Plan as follows:

- We have included projects that were already in the process of being implemented, or already planned for implementation during the lifetime of the Plan;
- We have sought to replicate and further roll-out projects that we have already implemented and which have proven to be successful in reducing our energy use and carbon;
- We held an 'opportunities workshop' with members of our Carbon Management Team, facilitated by the Carbon Trust, to generate ideas on further carbon reduction projects. At the workshop, we carried out an initial 'Ease-Effect' assessment of each project, to identify those that were most likely to provide the biggest carbon savings for the least cost and effort;
- Following the workshop, the project ideas were moderated further, based on an assessment of: how widely applicable each project would be across the Council's estate; to what extent the projects have already been implemented across different Council sites and, where they have been implemented before, how successful they had been in reducing costs and emissions;
- We used the RAP Tool and referred to several technical guides provided by the Carbon Trust to identify other projects, additional to those suggested by the Carbon Management Team, that might be applicable across the Council's estate.

This process generated a list of over 80 projects. We then began to quantify the costs and savings associated with each project, to highlight those that were likely to deliver the greatest financial and carbon savings. We have referenced several sources of information to complete the quantification process:

- We have referenced actual implementation costs and suppliers' quotes wherever these have been available;
- We have referred back to the costs and savings associated with similar projects that we have already implemented;
- We have asked members of our Carbon Management Team, who already have extensive experience of implementing carbon reduction projects, to estimate the likely costs and savings;
- We have used the RAP Tool and referenced several technical guides provided by the Carbon Trust;
- Finally, we have input the implementation costs and energy savings associated with each project into the Carbon Management Project Register (CMPR) tool provided by the Carbon Trust.

On the basis of the information we have provided, the CMPR has calculated several metrics that reflect the cost effectiveness and efficiency of each carbon reduction project. We have used this information, alongside with a series of 'prioritisation criteria' that we have developed (see Table 2A), to schedule individual projects for delivery throughout each year of the Carbon Management

Plan. As part of this prioritisation exercise, we have reduced the list of carbon reduction projects from the initial 80 or so to 65.

**Table 2A: Criteria Referenced to Prioritise Carbon Reduction Projects**

1. Where the project/ intervention sits within the 'energy hierarchy' (which stipulates that priority should be given to projects that prevent unnecessary energy use and increase energy efficiency).
2. Whether the project meets the eligibility criteria for the Climate Change Fund, namely to: <ul style="list-style-type: none"> <li>• Achieve a payback period of less than 5 years; and</li> <li>• Reduce carbon at a cost of less than £100 per tonne of CO2 saved over the lifetime of the project.</li> </ul>
1. The level of capital investment required to deliver the project: <ul style="list-style-type: none"> <li>• Low – less than £30,000;</li> <li>• Medium - £30,000 - £100,000;</li> <li>• High – More than £100,000.</li> </ul>
2. The expected annual savings associated with the project: <ul style="list-style-type: none"> <li>• Low – Less than £1,000 per year;</li> <li>• Medium - £1,000 - £10,000 per year;</li> <li>• High – More than £10,000 per year.</li> </ul>
5. The contribution that the project makes to the Council's aspirational carbon reduction target (20% against 2010/11 levels) and, in particular, the effect the project would have on the biggest sources of carbon emissions across the Council's estate. The biggest single sources of carbon are: <ul style="list-style-type: none"> <li>• Pools (23%);</li> <li>• Car parks (16%);</li> <li>• Fleet (14%);</li> <li>• Offices (13%);</li> <li>• Sheltered and temporary housing (12%);</li> </ul> Subject to how they 'score' against the other prioritisation criteria, projects that will reduce emissions from these sources should be given priority.
6. Whether the project is a 'quick win' and at no/low cost ('no cost' projects have been given priority).
7. Whether the project is already scheduled or time-limited, for example as with the tendering for the new pools management contract and with fleet replacement.
8. Whether the project is already committed to/ underway.
9. Whether funding has already been allocated to the project (eg: through the Climate Change Fund) or is available from existing budgets (eg: the R&R fund).
10. How innovative the project is and the level of risk potentially associated with it. Projects that are perceived to be 'high risk' or potentially contentious have been given a lower priority.

### Appendix 3: Our Carbon Reduction Projects

Table 3A: 2011/12 Projects

Ref	Project	Lead Officer	Total Implementation Cost	Annual Savings (yr 1)		Pay back (yrs)	Cost per tonne of CO2 (£)	% of Target	Project Status
				£ (Gross)	tCO <sub>2</sub>				
1	Community Centre Energy Efficiency Improvements	Jackie Hanson	£10,000	£1,100	7.3	9.1	76	0.4%	Implemented
2	Pools Energy Efficiency Improvements – Parkside Pools changing areas	Ian Ross	£40,000	£5,895	40.2	6.8	66	2.1%	Implemented
3	Grand Arcade Annex Car Park LED Lights	Sean Cleary	£120,470	£21,327	145.4	5.6	118	7.5%	Implemented
4	Brandon Court Energy Efficiency Measures	Will Barfield	£440,000	£6,540	41.6	Does not payback	529	2.2%	Implemented
5	Brandon Court – PV cells	Will Barfield	£130,000	£12,029 <sup>8</sup>	13.8	10.8	376	0.7%	Implemented
7	Crematorium Heat Recovery Project	Paul Necus	£23,145	£3,645	22.5	6.3	51	1.2%	Implemented
8	Install electric bin lift on replacement refuse vehicle	Dave Cox	£5,000	£1,322	3.0	3.8	241	0.2%	Implemented
9	Replace boiler at Llandaff Chambers	Jim Stocker	£29,000	£1,200	7.4	Does not payback	261	0.4%	Implemented
63	Solar PV installation at New Street Hostel	Sam Griggs	£23,600	£2,300 <sup>9</sup>	2.7	10.3	346	0.1%	Implemented
<b>Totals</b>			<b>£821,215</b>	<b>£55,358</b>	<b>283.9</b>			<b>14.8%</b>	

<sup>8</sup> £2,029 from energy savings; £10,000 as income from Clean Energy Cash Back Scheme

<sup>9</sup> £2,300 as income through Clean Energy Cash Back Scheme.



**Table 3B: Planned and Funded Projects – 2012/13**

R e F	Project	Lead Officer	Total Implementation Cost	Annual Savings (yr 1)		Pay back (yrs)	Cost per tonne of CO2 (£)	% of Target	Proposed Funding Source
				£ (Gross)	tCO <sub>2</sub>				
6	Install lighting sensors at Stanton House and Whitefriars	Sam Griggs	£12,000	£1,600	10.9	7.5	110	0.6%	HRA
10	Implement RHI technologies – Non-housing properties	Ian Ross	£140,000	£15,004 <sup>10</sup>	32.3	9.3	217	1.7%	General Fund
12	Abbey Energy Efficiency Improvements (VSD and BeMS)	Ian Ross	£46,000	£20,250	137.3	2.3	22	7.1%	Climate Change Fund
13	Pools Energy Efficiency Improvements – Cherry Hinton	Ian Ross	£20,000	£3,550	23.7	5.6	84	1.2%	Climate Change Fund
14	Pools Energy Efficiency Improvements – Jesus Green and Kings Hedges	Ian Ross	£23,300	£3,950	26.4	5.9	88	1.4%	Climate Change Fund
15	Pool covers for Abbey and Parkside and consequent changes to heating system	Ian Ross	£42,600	£22,200	137.1	1.9	31	7.1%	Climate Change Fund
16	Parkside Energy Efficiency Improvements (VSD and BeMS)	Ian Ross	£44,100	£20,000	136.3	2.2	22	7.0%	Climate Change Fund
17	Voltage Optimisation Roll out – Mandela House	Clare Palferman/ Sally Pidgeon	£18,737	£4,527	30.9	4.1	40	1.6%	Climate Change Fund

<sup>10</sup> £5,229 from energy savings; £9,775 as income generated through the Clean Energy Cash Back Scheme

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18	Voltage Optimisation Roll out – Mill Road	Clare Palferman/ Sally Pidgeon	£13,947	£2,592	17.7	5.4	53	0.9%	Climate Change Fund
21	East Road Garages Lighting Controls	Will Beavitt	£4,000	£1,120	7.6	3.6	52	0.4%	HRA
22	Corn Exchange – Upgrade to LED House lighting	Chris Norton	£39,652	£4,592	31.3	8.6	63	1.6%	R&R/Climate Change Fund
23	Corn Exchange - Heating Controls in foyer	Chris Norton	£2,000	£300	1.9	6.7	108	0.1%	R&R
24	Mill Road Depot – upgrade to condensing boilers	Jim Stocker	£45,000	£5,329	32.9	8.4	91	1.7%	R&R/ Climate Change Fund
25	Mill Road Depot – Heating optimum start controls	Jim Stocker	£3,000	£2,265	14	1.3	21	0.7%	Climate Change Fund
26	Mill Road Depot – pipework inspection & insulation	Jim Stocker	£1,000	£233	1.4	4.3	35	0.1%	Climate Change Fund
27	Route optimisation for refuse trucks (HGVs)	Chloe Hipwood	£15,000	£28,009	62.9	0.5	48	3.3%	Efficiency Fund
28	Install stop/start technology on 5 replacement light commercial vehicles	Dave Cox	£1,000	£893	2	1.1	100	0.1%	R&R
31	Voltage Optimisation Roll Out – Queen Anne Terrace	Sean Cleary	£10,356	£3,099	21.1	3.3	33	1.1%	Climate Change Fund
33	Voltage Optimisation Roll Out - Parkside Pools	Ian Ross	£17,697	£3,200	21.8	5.5	54	1.1%	Climate Change Fund
59	Metered electric supply on Cambridge Market	Emma Thornton	£50,000	£9,677	66	5.2	38	3.4%	General Fund
<b>Totals</b>			<b>£549,389</b>	<b>£152,390</b>	<b>815.5</b>			<b>42.2%</b>	

**Table 3C: Planned Projects Requiring Funding**

Ref	Project	Lead	Total Implementation Cost	Annual Savings (yr 1)		Cost per tonne of CO2 (£)	Pay back (yrs)	% of Target	Proposed Implementation Year
				£ (Gross)	tCO <sub>2</sub>				
11	Voltage Optimisation Roll Out – Grafton East Car Park	Sean Cleary	£19,000	£2,160	14.7	8.8	86	0.8%	2013/14
19	Voltage Optimisation Roll out – Ditchburn Place	Clare Palferman/ Sally Pidgeon	£13,947	£2,199	15.0	62	6.3	0.8%	2013/14
20	Ditchburn Place Refurbishment – energy efficiency improvements	Robert Hollingsworth	£75,000	£4,320	27.9	134	17.4	1.4%	2013/14
30	Upgrade to LEDs & lighting controls in Grafton West Car Park <sup>11</sup>	Sean Cleary	£35,000	£4,272	29.1	Does not payback	172	1.5%	2013/14
32	Voltage Optimisation Roll Out - Abbey Pool	Ian Ross	£27,669	£6,770	46.1	40	4.1	2.4%	2013/14
34	Voltage Optimisation Roll Out - Kings Hedges Learner Pool	Ian Ross	£13,947	£2,646	18.0	52	5.3	0.9%	2013/14
35	Voltage Optimisation Roll Out - Jesus Green Outdoor Pool	Ian Ross	£8,496	£1,366	9.3	61	6.2	0.5%	2013/14
36	Voltage Optimisation Roll Out - Corn Exchange	Chris Norton	£18,677	£3,316	22.6	55	5.6	1.2%	2013/14
37	Mandela House - free cooling - controls for existing fans	Jim Stocker	£600	£190	1.3	46	3.2	0.1%	2013/14
38	Mandela House - Draught proofing on first floor	Jim Stocker	£4,000	£262	1.6	124	15.3	0.1%	2013/14
39	Mandela House - upgrade to condensing boiler	Jim Stocker	£60,000	£2,464	15.2	263	Does not payback	0.8%	2013/14

<sup>11</sup> Costs and savings figures presented here do not include motion sensors; requires further work to determine full costs and savings of this project.

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41	Introduce motion control sensors for lighting in external garages at Hanover Court & Princess Court	Will Beavitt	£8,000	£2,240	15.3	52	3.6	0.8%	2013/14
57	Lighting upgrades - Mandela House	Jim Stocker	£8,400	£2,376	16.2	47	3.5	0.8%	2013/14
58	Lighting upgrades - The Guildhall Third Floor	Jim Stocker	£2,400	£728	5.0	44	3.3	0.3%	2013/14
62	Implement RHI technologies – Housing property (Ditchburn Place)	Robert Hollingsworth	£60,000	£3,800 <sup>12</sup>	16.7	180	15.8	0.9%	2013/14
50	Offices - Staff Awareness Campaign	Helen Brookes	£1,000	£10,200	67.6	3	0.1	3.5%	2014/15
51	Pools - Awareness Raising Campaign	Helen Brookes	£1,000	£4,500	29.3	7	0.2	1.5%	2014/15
52	Community Centres - Awareness Raising Campaign	Helen Brookes	£1,000	£2,000	12.9	16	0.5	0.7%	2014/15
53	Corn Exchange - Awareness Raising Campaign	Helen Brookes	£1,000	£1,170	7.7	26	0.9	0.4%	2014/15
54	Introduce driver incentive scheme, to encourage more efficient driving	Dave Cox	£1,000	£25,420	57.1	18	0.0	3%	2014/15
29	Upgrade to LEDs & lighting controls in Queen Anne Terrace car park <sup>13</sup>	Sean Cleary	£175,000	£16,403	111.8	224	Does not payback	5.8%	2015/16
43	Community Centres – Upgrade to condensing boilers	Jim Stocker	£120,000	£2,700	16.7	480	Does not payback	0.9%	2015/16
55	Lighting Upgrades – Mill Road garage	Jim Stocker	£11,250	£1,840	12.5	82	6.1	0.6%	2015/16
56	Lighting Upgrades – Mill Road offices	Jim Stocker	£7,900	£2,304	15.7	46	3.4	0.8%	2015/16
<b>Totals</b>			<b>£674,286</b>	<b>£105,646</b>	<b>585.3</b>			<b>30.5%</b>	

<sup>12</sup> As income generated through the Clean Energy Cash Back Scheme. Energy cost savings will be passed onto tenants.

<sup>13</sup> Costs and savings figures presented here do not include motion sensors; requires further work to determine full costs and savings of this project.

Table 3D: Future Potential Projects

Ref	Project	Lead	Total Implementation Cost	Annual Savings (yr 1)		Cost per tonne of CO2 (£)	Pay back (yrs)	% of Target	Proposed Implementation Year
				£ (Gross)	tCO <sub>2</sub>				
60	Mandela House - pipework inspection/insulation	Jim Stocker	£1,000	£108	0.7	75	9.3	0.0%	2013/14
61	Upgrade to LEDs & lighting controls in Park Street car park <sup>14</sup>	Sean Cleary	£100,000	£14,784	100.8	142	6.8	5.2%	2013/14
40	Replacement of CHP plant at Parkside Pools, with possible connection to Cambridge City District Heating scheme	Ian Ross	£160,000	£16,000	109	98	10	5.6%	2014/15
42	Voltage Optimisation Roll Out - Park Street	Sean Cleary	£10,356	£2,621	17.9	39	4.0	0.9%	2014/15
44	North Area Housing Office - free cooling - controls for existing fans	Jim Stocker	£400	£21	0.1	275	does not payback	0.0%	2015/16
45	North Area Housing Office - secondary glazing	Jim Stocker	£2,500	£124	0.8	163	does not payback	0.0%	2015/16
46	North Area Housing Office – upgrade to condensing boiler	Jim Stocker	£22,000	£292	1.8	814	Does not payback	0.1%	2015/16
47	North Area Housing Office - Heating optimum start controls	Jim Stocker	£3,000	£124	0.8	392	does not payback	0.0%	2015/16
48	North Area Housing Office – Heating Sequencing	Jim Stocker	£1,000	£124	0.8	131	8.1	0.0%	2015/16
49	North Area Housing Office - pipework inspection/insulation	Jim Stocker	£1,000	£13	0.1	634	does not payback	0.0%	2015/16
<b>Totals</b>			<b>£301,256</b>	<b>£34,211</b>	<b>232.8</b>			<b>11.8%</b>	

<sup>14</sup> Costs and savings figures presented here do not include motion sensors; requires further work to determine full costs and savings of this project.

### Appendix 4: Carbon Trust Self-Assessment Carbon Management Matrix

Red line shows current scores; Green line shows target scores

Now	4	2	4	4	3	3	2
In 5 yrs	5	5	5	5	4	4	4
Greatest Challenge							x
	CORPORATE STRATEGY	PROGRAMME MANAGEMENT	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	POLICY ALIGNMENT
<b>Mature</b> 5	<ul style="list-style-type: none"> <li>Top level target allocated across organisation</li> <li>CO<sub>2</sub> reduction targets in Directorate Business Plans</li> <li>Action plans in place to embed strategy. Progress routinely reviewed</li> </ul>	<ul style="list-style-type: none"> <li>Cabinet / SMT review progress against targets on quarterly basis</li> <li>Regular diagnostic reports provided to Directorates</li> <li>Progress against target published externally</li> </ul>	<ul style="list-style-type: none"> <li>CM integrated in responsibilities of senior managers</li> <li>CM part of all contracts / Ts &amp; Cs</li> <li>Central CO<sub>2</sub> reduction advice available</li> <li>Green Champions leading local action groups</li> </ul>	<ul style="list-style-type: none"> <li>Regular collation of CO<sub>2</sub> emissions for all sources</li> <li>Data externally verified</li> <li>Monitoring &amp; Targeting in place for:                             <ul style="list-style-type: none"> <li>buildings</li> <li>street lighting</li> <li>transport/travel</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>All staff given formalised CO<sub>2</sub>:                             <ul style="list-style-type: none"> <li>induction and training</li> <li>communications</li> </ul> </li> <li>Joint CM communications with key partners</li> <li>Staff awareness tested through surveys</li> </ul>	<ul style="list-style-type: none"> <li>Finance committed for 2+ yrs of Programme</li> <li>External funding being routinely obtained</li> <li>Ring-fenced fund for carbon reduction initiatives</li> </ul>	<ul style="list-style-type: none"> <li>CO<sub>2</sub> friendly operating procedure in place</li> <li>Central team provide advice and review, when requested</li> <li>Barriers to CO<sub>2</sub> reduction routinely considered and removed</li> </ul>
4	<ul style="list-style-type: none"> <li>CO<sub>2</sub> reduction commitment in Corporate Strategy</li> <li>Top level targets set for CO<sub>2</sub> reduction</li> <li>Climate Change Strategy reviewed annually</li> </ul>	<ul style="list-style-type: none"> <li>Sponsor reviews progress and removes blockages through regular Programme Boards</li> <li>Progress against targets routinely reported to Senior Mgt Team</li> </ul>	<ul style="list-style-type: none"> <li>CM integrated in to responsibilities of department heads</li> <li>Cabinet / SMT regularly updated</li> <li>Staff engaged through Green Champion network</li> </ul>	<ul style="list-style-type: none"> <li>Annual collation of CO<sub>2</sub> emissions for:                             <ul style="list-style-type: none"> <li>buildings</li> <li>street lighting</li> <li>transport/travel</li> </ul> </li> <li>Data internally reviewed</li> </ul>	<ul style="list-style-type: none"> <li>All staff given CO<sub>2</sub> reduction:                             <ul style="list-style-type: none"> <li>induction</li> <li>communications</li> </ul> </li> <li>CM matters ~ communicated to external community</li> </ul>	<ul style="list-style-type: none"> <li>Co-ordinated financing for CO<sub>2</sub> reduction projects via Programme Board</li> <li>Funding principles and processes agreed</li> <li>Finances committed 1 year ahead</li> <li>Some external financing</li> </ul>	<ul style="list-style-type: none"> <li>Comprehensive review of policies complete</li> <li>Lower level policies reviewed locally</li> <li>Unpopular changes being considered</li> </ul>
3	<ul style="list-style-type: none"> <li>Vision for CO<sub>2</sub> reduction clearly stated and published</li> <li>Climate Change Strategy endorsed by Cabinet and publicised with staff</li> </ul>	<ul style="list-style-type: none"> <li>Core team regularly review CM progress:                             <ul style="list-style-type: none"> <li>actions</li> <li>profile &amp; targets</li> </ul> </li> <li>new opportunities</li> </ul>	<ul style="list-style-type: none"> <li>An individual provides full time focus for CO<sub>2</sub> reduction</li> <li>Key individuals have accountability for carbon reduction</li> <li>Senior Sponsor actively engaged</li> </ul>	<ul style="list-style-type: none"> <li>Collation of CO<sub>2</sub> emissions for limited scope i.e. buildings only</li> </ul>	<ul style="list-style-type: none"> <li>Environmental / energy group(s) given ad hoc:                             <ul style="list-style-type: none"> <li>training</li> <li>communications</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>A view of the cost of CO<sub>2</sub> reduction is developing, but finance remains ad-hoc</li> <li>Some centralised resource allocated</li> <li>Finance representation on CM Team</li> </ul>	<ul style="list-style-type: none"> <li>All high level and some mid level policies reviewed, irregularly</li> <li>Substantial changes made, showing CO<sub>2</sub> savings</li> </ul>
2	<ul style="list-style-type: none"> <li>Draft Climate Change Policy</li> <li>Climate Change references in other strategies</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc reviews of CM actions progress</li> </ul>	<ul style="list-style-type: none"> <li>CO<sub>2</sub> reduction a part-time responsibility of a few department champions</li> </ul>	<ul style="list-style-type: none"> <li>No CO<sub>2</sub> emissions data compiled</li> <li>Energy data compiled on a regular basis</li> </ul>	<ul style="list-style-type: none"> <li>Regular awareness campaigns</li> <li>Staff given CM information on ad-hoc basis</li> </ul>	<ul style="list-style-type: none"> <li>Ad hoc financing for CO<sub>2</sub> reduction projects</li> </ul>	<ul style="list-style-type: none"> <li>Partial review of key, high level policies</li> <li>Some financial quick wins made</li> </ul>
<b>Start</b> 1	<ul style="list-style-type: none"> <li>No policy</li> <li>No Climate Change reference</li> </ul>	<ul style="list-style-type: none"> <li>No CM monitoring</li> </ul>	<ul style="list-style-type: none"> <li>No recognised CO<sub>2</sub> reduction responsibility</li> </ul>	<ul style="list-style-type: none"> <li>No CO<sub>2</sub> emissions data compiled</li> <li>Estimated billing</li> </ul>	<ul style="list-style-type: none"> <li>No communication or training</li> </ul>	<ul style="list-style-type: none"> <li>No specific funding for CO<sub>2</sub> reduction projects</li> </ul>	<ul style="list-style-type: none"> <li>No alignment of policies for CO<sub>2</sub> reduction</li> </ul>

**Appendix 5: Carbon Management Action Plan**

Ref	Change Action	Owner	When complete
<b>Corporate Strategy</b>			
CS1	Renew climate change strategy, with revised baseline and top level carbon reduction target (consistent with those set out in Carbon Management Plan)	David Kidston	September 2012
CS2	Develop template for reporting to Environmental Strategy Group and Councillors on progress against actions in Carbon Management Plan	Sustainability Team	July 2012
CS3	Review and report progress against actions set out in Climate Change Strategy and Carbon Management Plan on an annual basis	Sustainability Team	July each year
<b>Responsibility</b>			
R1	Provide briefings for Councillors on why/ how to consider carbon implications of decisions they are responsible for taking	Project Leads	Ongoing
R2	Individual carbon reduction projects identified in the Plan are included in the personal objectives/ work programmes of the designated lead officers; major projects are referenced in relevant Operational Plan	Project Leads	Ongoing
R3	Give Facilities Managers more responsibility in regard to monitoring and reducing energy use and develop energy responsibility at site level.	Jim Stocker	March 2013
R4	Ensure BMS (where they exist) are utilised properly and that responsibility for management is clear; provide training where necessary	Jim Stocker	March 2013
R5	Consider having a recognition scheme to acknowledge teams/ departments that have done interesting or innovative projects to reduce emissions.	ESG	March 2013
56	Consider having carbon reduction actions/ responsibilities included in all job descriptions/ objectives	ESG	March 2013
<b>Data Management</b>			
MR1	Install Gas AMR meters across Council sites	Jim Stocker	October 2012
MR2	Compile a database of all council electricity and gas meters and ensure each meter has a member of staff allocated to it to ensure it is read. Provide training where necessary.	Jim Stocker	November 2012

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MR3	Where necessary, install additional meters/ sub-meters to ensure that the energy and carbon savings delivered by specific projects can be accurately monitored and reported.	Project Leads	Ongoing
MR4	Record information on any projects/ initiatives that are likely to significantly increase Council's emissions	Lead officers and Sustainability Team	Ongoing
<b>Communication &amp; Training</b>			
CT1	Develop and implement a corporate communications campaign designed specially for the Carbon Management Plan. Reinvigorate our approach to staff engagement, possibly through use of the Carbon Trust's Empower Tool; re-launch of the Climate Change Champions network; and initiative to monitor staff attitudes to carbon reduction.	Sustainability Team and Corporate Marketing	Write communications plan by September 2012. Implementation ongoing.
CT2	Introduce driver incentive scheme, to encourage more efficient driving	David Cox, Fleet Manager	March 2014
CT3	Educate staff and tenants of sheltered housing sites about how they can help to reduce carbon emissions (through regular briefings and bespoke training sessions)	Chas Page, Maintenance Officer (Sheltered Housing)	Ongoing
<b>Stakeholder Engagement</b>			
SE1	Explore opportunities to secure improved energy and carbon management through tendering for new pools management contract.	Ian Ross	March 2013
SE2	Improve the Council's contract management processes to ensure that contractors deliver sustainability requirements of contracts (focus on major contracts, e.g. IT, swimming pools, fleet tyres, engines, fuel).	Debbie Quincey	Ongoing
SE3	If using contractors to read meters and monitor energy use, audit them to ensure they are doing so correctly	Project leads	Ongoing
<b>Policy Alignment</b>			
PA1	Build carbon considerations into new ICT Strategy	James	April 2012



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		Nightingale	
PA2	As part of Accommodation Strategy: <ul style="list-style-type: none"> <li>Assess carbon opportunities/ implications of rationalisation of Council's estate;</li> <li>Encourage and support more flexible and home working;</li> <li>Review need for air conditioning units across Council sites;</li> <li>Develop policy for use of free-standing electric heaters in offices.</li> </ul>	Jim Stocker and Frances Barratt	March 2013
PA3	Develop timetable showing when key/ core policies with potential carbon implications are due for review/ renewal – for consideration by Environmental Strategy Group	-Sustainability Team -ESG	July 2012
PA4	Highlight key corporate issues/ projects with potential carbon implications, for inclusion in forward plan for Environmental Strategy Group (Carbon Management Board)	Sustainability Team & Project Lead officers	Ongoing
PA5	Review working practices in relation to cremation activities in order to identify the most energy efficient way to manage operations	Paul Necus, Head of Specialist Services	March 2013
PA6	Participate in the Burial and Cremation Education Trust (BCET) Carbon Footprint scheme	Paul Necus, Head of Specialist Services	March 2013
PA7	Assess opportunities to rationalise Council's refuse fleet, following introduction of route optimisation technology (in 2012/13)	Jas Lally, Head of Refuse and Environment	Ongoing
PA8	Explore options to develop/ provide a more sustainable and permanent energy supply to the Folk Festival (reduce/ remove generators)	Elaine Midgely	April 2012 onwards
PA9	Review management practices for open spaces and Council grounds – identify opportunities to reduce fuel use	Alistair Wilson	April onwards

## **Appendix 6: Terms of Reference and Membership of Our Environmental Strategy Group and Carbon Management Team**

### **Environmental Strategy Group (ESG)**

With specific reference to the carbon management programme, the terms of reference of this group are to:

- Champion and **provide leadership** on carbon management;
- Set and review **strategic** direction and targets;
- **Own the scope** of the carbon management programme and **prioritise** carbon reduction projects;
- **Link** carbon management with other high level initiatives and programmes;
- **Monitor** progress towards agreed objectives and targets;
- **Remove obstacles** to successful completion of the Carbon Management Plan and individual projects;
- Champion plans for **financial provision** for carbon management projects;
- Ensure there is a corporate framework/ structure to link the strategic level to the delivery level and **ensure delivery** of the Carbon Management Plan.

At the time of writing (May 2012), membership of ESG is as follows:

- Antoinette Jackson, Chief Executive – ESG Chair and Programme Sponsor for the Carbon Management Programme;
- Andrew Limb, Head of Corporate Strategy;
- David Kidston, Strategy & Partnerships Manager;
- David Horspool, Director of Resources; Financial lead for the Programme;
- Alan Carter, Head of Strategic Housing;
- Bob Hadfield, Head of Estates and Facilities;
- Ian Ross, Recreation Service Manager;
- Jas Lally, Head of Refuse and Environment;
- Jim Stocker, Technical Services Manager;
- Paul Necus, Head of Specialist Services;
- Clare Palferman, Climate Change Officer, Deputy Project Lead;
- Sally Pidgeon, Climate Change Officer, and Project Lead.

### **Carbon Management Team**

The terms of reference for our Carbon Management Team are as follows:

- To deliver and manage projects identified in the Carbon Management Plan;
- On an ongoing basis, to identify additional technical and non-technical measures that will reduce the Council's energy use, costs and emissions even further;
- To assist the Climate Change Officer with technical aspects of the Programme, such as establishing our baseline emissions; identifying and quantifying carbon reduction projects; and monitoring the Council's performance in terms of energy use and carbon reduction;
- To assist the Climate Change Officer in making the Board aware of any key risks to the programme, such as a lack of capacity or funding;
- To work alongside the Climate Change Officer in developing the business case for individual carbon reduction projects and helping the Board to make sufficient financial provision for the Programme.

Current membership (as of May 2012) of the Carbon Management Team is as follows:

- Clare Palferman, Climate Change Officer and Chair for the Team;
- Sally Pidgeon, Climate Change Officer;
- Jim Stocker, Technical Services Manager;
- Ian Ross, Recreation Service Manager;
- David Cox, Fleet Manager;
- Peter Birch, Fleet Coordinator;
- James Nightingale, Head of ICT;
- John Bridgwater, Procurement Officer;
- Debbie Quincey, Strategic Procurement Adviser;
- Emma Davies, Senior Sustainability Officer (Construction & Design);
- Julie Edwards, Administration and Projects Coordinator, Car Parks;
- Douglas Streater, Car Parks Projects Coordinator;
- Tracy Lawrence, Bereavement Services Manager;
- Sam Griggs, Home Energy Officer;
- Justin Smith, Home Energy Officer (Private Sector Housing);
- Yvonne O'Donnell, Environmental Health Manager;
- Caius Nesvadba, Depot Operative;
- Andrew Muggeridge, Building Surveyor;
- Stephen Gaskin, Corporate HQSE Adviser.

**Appendix 7: Project Definitions for Major Projects**

<b>Project Name</b>	Upgrade to LED Lighting & Lighting Controls in Car Parks																															
<b>Project Lead</b>	Sean Cleary																															
<b>Service/ Department</b>	Specialist Services/ Environment																															
<b>Description</b>	Installation of LED lighting and lighting controls in four of our car parks.																															
<b>Aims &amp; Objectives</b>	<p>Financial savings: £56,786                      Overall payback period: 7.6 years                      CO<sub>2</sub> emissions reduction: 387.1 tonnes of CO<sub>2</sub> per annum                      % of target: 20%.                      Figures have been calculated by an external consultant.                      More works needs to be done to take account of the costs/ savings of installing light and movement sensors. With the introduction of lighting controls, the project is expected to achieve a better payback.</p>																															
<b>Costs &amp; Funding</b>	<table border="1"> <tr> <td>Total Project Cost</td> <td colspan="2">£430,470</td> </tr> <tr> <td colspan="3">Cost Funded from:</td> </tr> <tr> <td>Funding:</td> <td>Amount:</td> <td>Details:</td> </tr> <tr> <td>Reserves</td> <td>£</td> <td></td> </tr> <tr> <td>Repairs &amp; Renewals</td> <td>£20,470</td> <td></td> </tr> <tr> <td>Other CCC budgets</td> <td>£410,000</td> <td>Climate Change Fund</td> </tr> <tr> <td>External</td> <td>£</td> <td></td> </tr> <tr> <td colspan="3">Ongoing Revenue Cost</td> </tr> <tr> <td>Year 1</td> <td></td> <td></td> </tr> <tr> <td>Ongoing</td> <td></td> <td></td> </tr> </table>		Total Project Cost	£430,470		Cost Funded from:			Funding:	Amount:	Details:	Reserves	£		Repairs & Renewals	£20,470		Other CCC budgets	£410,000	Climate Change Fund	External	£		Ongoing Revenue Cost			Year 1			Ongoing		
Total Project Cost	£430,470																															
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Funding:	Amount:	Details:																														
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Other CCC budgets	£410,000	Climate Change Fund																														
External	£																															
Ongoing Revenue Cost																																
Year 1																																
Ongoing																																

<b>Staff Required to Deliver the Project</b>	Need cooperation and support from the following officers: Paul Necus, Sean Clearly, Julie Edwards, Clare Palferman and Sally Pidgeon.
<b>Key Risks</b>	We are not yet in a position to fully assess the business case for these projects. More work will be done around light and motion sensors to see what savings these are likely to bring. Projects will only proceed where there is the business case to do so.
<b>Measuring Success</b>	Additional meters will be installed to monitor the energy use at each site.
<b>Target Dates &amp; Key Milestones</b>	Start date: one project was completed in 2011/12; two projects are scheduled for 2013/14, and one for 2015/16.
<b>Approval Route &amp; Dates</b>	Projects over £15,000 will need to be approved by Asset Management Group and executive councillor.
<b>Individual project reference(s)</b>	See CMPR projects numbers 3; 29; 30; 61 File path N:/Strategy & Partnerships/ Sustainable City/ SUS110ClimChag/ 114 Council (internal projects)/ Public Sector Carbon Management Programme/ CMPR CT checked version FINAL MAY2012

<b>Project Name</b>	Swimming pool energy efficiency improvements		
<b>Project Lead</b>	Ian Ross		
<b>Section/ Department</b>	Arts & Recreation/ Customer & Community Services		
<b>Description</b>	Implementation of a range of energy saving measures across our swimming pool sites, including variable speed drives (VSD), pool covers, Building Energy Management Systems (BeMS), lighting upgrades and controls.		
<b>Aims &amp; Objectives</b>	Financial savings: £75,845 Overall payback period: 2.8 years CO <sub>2</sub> emissions reduction: 501 tCO <sub>2</sub> / year % of target: 25.9% Figures calculated using estimates from suppliers and officer estimates.		
<b>Costs &amp; Funding</b>	Total Project Cost		£ 216,000
	Cost Funded from:		
	Funding:	Amount:	Details:
	Reserves	£	
	Repairs & Renewals	£	
	Other CCC budgets	£211,000	Climate Change Fund
	External	£5,000	SLM contribution
	Ongoing Revenue Cost		
	Year 1		
	Ongoing		

<b>Staff Required to Deliver the Project</b>	<p>The Recreation Services Manager, Ian Ross will be integral to the delivery of these projects.</p> <p>A procurement process is already underway and Ian Ross has confirmed that there is capacity to deliver all projects in 2012/13.</p>
<b>Key Risks</b>	<p>The key risk to these projects is if incorrect or inappropriate equipment is installed.</p> <p>Using an energy consultant to recommend what types of equipment we should be installing has reduced this risk.</p>
<b>Measuring Success</b>	<p>Ian Ross will report on progress quarterly to the Carbon Management Board.</p> <p>All pool projects will have been implemented by the end of March 2013 and energy will be monitored quarterly to ensure equipment is working properly and energy is being reduced.</p>
<b>Target Dates &amp; Key Milestones</b>	<p>Start date: one project has already been implemented and the other projects are scheduled for 2012/13.</p> <p>Completion date: End of March 2013</p>
<b>Approval Route &amp; Dates</b>	<p>Projects over £15,000 will need to be approved by Asset Management Group (AMG). Some projects have already been approved by AMG.</p> <p>Projects over £75,000 will need to be approved by the Executive Councillor at Strategy and Resource Committee.</p>
<b>Individual project reference(s)</b>	<p>See CMPR projects numbers 2; 12; 13; 14; 15; 16</p> <p>File path N:/Strategy &amp; Partnerships/ Sustainable City/ SUS110ClimChag/ 114 Council (internal projects)/ Public Sector Carbon Management Programme/ CMPR CT checked version FINAL MAY2012</p>



<b>Project Name</b>	Roll Out of Voltage Optimisation																			
<b>Project Lead</b>	Clare Palferman/ Sally Pidgeon																			
<b>Section / Department</b>	Strategy & Partnerships/ Corporate Strategy Delivered by Estates & Facilities/ Resources																			
<b>Description</b>	Implementation of VO equipment at 11 Council sites – Mandela House, Mill Road Depot, Abbey Pool, Parkside Pool, King Hedges Learner Pool, Jesus Green Pool, Ditchburn Place, Corn Exchange, Queen Anne Terrace Car Park, Grafton East Car Park and Park Street Car Park.																			
<b>Aims &amp; Objectives</b>	Financial savings: £34,496 Payback period: 5 years CO <sub>2</sub> emissions reduction: 235.1 tCO <sub>2</sub> / year % of target: 12.2% Figures calculated by CMPR using energy savings estimates provided by supplier (Powerperfector). Need to fit voltage loggers and then revise figures for each site.																			
<b>Costs &amp; Funding</b>	<table border="1"> <tr> <td>Total Project Cost</td> <td>£172,829</td> </tr> <tr> <td colspan="2">Cost Funded from:</td> </tr> <tr> <td>Funding:</td> <td>Amount: Details:</td> </tr> <tr> <td>Reserves</td> <td>£13,950 Housing Revenue Account (HRA) Budget bid (C2991).</td> </tr> <tr> <td>Repairs &amp; Renewals</td> <td>£</td> </tr> <tr> <td>Other CCC budgets</td> <td>£158,879 Climate Change Fund</td> </tr> <tr> <td colspan="2">Ongoing Revenue Cost</td> </tr> <tr> <td>Year 1</td> <td></td> </tr> <tr> <td>Ongoing</td> <td></td> </tr> </table>		Total Project Cost	£172,829	Cost Funded from:		Funding:	Amount: Details:	Reserves	£13,950 Housing Revenue Account (HRA) Budget bid (C2991).	Repairs & Renewals	£	Other CCC budgets	£158,879 Climate Change Fund	Ongoing Revenue Cost		Year 1		Ongoing	
Total Project Cost	£172,829																			
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Repairs & Renewals	£																			
Other CCC budgets	£158,879 Climate Change Fund																			
Ongoing Revenue Cost																				
Year 1																				
Ongoing																				

<b>Staff Required to Deliver the Project</b>	<p>Need cooperation and support from the following officers:</p> <ul style="list-style-type: none"> <li>- Sean Cleary (car parks)</li> <li>- Ian Ross (swimming pools)</li> <li>- Jim Stocker (offices)</li> <li>- Chris Norton (Corn Exchange)</li> <li>- Will Barfield/ Sam Griggs (Ditchburn Place)</li> </ul>
<b>Key Risks</b>	<p>We need to ensure that if other energy efficiency measures (like LED lights or Variable Speed Drives) are being installed at sites, that VO is still required at that particular site.</p> <p>This risk will be mitigated by installing other energy efficiency measures first and then re-assessing the savings that can be delivered by installing VO and ensuring that there is still a business case to proceed.</p>
<b>Measuring Success</b>	<p>Percentage decrease in electricity consumption on sites where the technology has been fitted (figures provided by powerperfactor).</p>
<b>Target Dates &amp; Key Milestones</b>	<p>4 sites scheduled for 2012/13; 6 for 2013/14; 1 for 2014/15.</p>
<b>Approval Route &amp; Dates</b>	<p>For sites costing less than £15,000 the Carbon Management Board will approval the project. For sites costing more than £15,000, Asset Management Group and executive councillor approval will be required.</p>
<b>Individual project reference(s)</b>	<p>See CMPR projects numbers 11; 17; 18; 19; 31; 32; 33; 34; 35; 36 and 42. File path N:/Strategy &amp; Partnerships/ Sustainable City/ SUS110ClimChag/ 114 Council (internal projects)/ Public Sector Carbon Management Programme/ CMPR CT checked version FINAL MAY2012</p>

<b>Project Name</b>	Implementation RHI Technologies on housing and non-housing properties.	
<b>Project Lead</b>	Ian Ross (non housing) and Sam Griggs (housing)	
<b>Section/ Department</b>	Arts and Recreation (non housing) and Repairs and Maintenance (housing)	
<b>Description</b>	Installation of solar thermal systems on Council owned properties (currently 1 housing and 1 non-housing – subject to site assessment) as part of the national Renewable Heat Incentive (RHI).	
<b>Aims &amp; Objectives</b>	<p>Financial savings: £18,800/ year (including savings on energy bills and revenue generated through RHI tariff).                  Payback period: 10.6 years taking into account annual tariff income as well as annual energy savings                  CO<sub>2</sub> emissions reduction: 48 tCO<sub>2</sub> / year                  % of target: 2.6%</p> <p>Figures based on a desk study. Onsite assessments will be carried out to confirm site suitability, capital costs and savings. Tenants in the housing property will also benefit from reduced energy bills.</p>	
<b>Costs &amp; Funding</b>	Total Project Cost	
		£200,000
	Cost Funded from:	
	Funding:	Amount: Details:
	Reserves	£140,000 General Fund (budget proposal C2966).
	Other CCC budgets	£60,000 Housing Revenue Account (HRA) (budget proposal C2965).
	Ongoing Revenue Cost	
Year 1		
Ongoing		

<p><b>Staff Required to Deliver the Project</b></p>	<p>The staff involved with delivering this project include:                  Andrew Limb - Champion                  Clare Palferman - Co-ordination and project management                  Bob Hadfield - Procurement                  David Kidston - Budget Management                  Ian Ross - Project and contract management and delivery                  Sam Griggs - Installation and monitoring advice                  Planning - Planning permission and advice.</p> <p>Staff are aware of the timeframe for delivery and have confirmed capacity is available to deliver the project.</p>
<p><b>Key Risks</b></p>	<p>The main risk to this project is that the Department for Energy and Climate Change (DECC) may review the RHI scheme and reduce the tariff rate before the systems are registered, which will potentially make the scheme less cost effective.</p> <p>To mitigate this risk, officers are seeking early project approval so that installation can start as soon as possible. Contracts for supply and installation will also be flexible with a 'call off' system so that systems will not be installed if the tariff is reduced.</p>
<p><b>Measuring Success</b></p>	<p>Success will be evaluated in August 2012 when the solar thermal systems have been installed and are registered with ofgem.</p> <p>Performance will be measured on an annual basis to check systems are working properly in order to make energy bill savings.</p>
<p><b>Target Dates &amp; Key Milestones</b></p>	<p>Start date: March 2012                  Completion date: March 2014</p>
<p><b>Approval Route &amp; Dates</b></p>	<p>A project appraisal report has been submitted for approval at Strategy and Resource Committee on the 20 March 2012.</p>
<p><b>Individual project reference(s)</b></p>	<p>See CMPR project number 10 and 62                  File path N:/Strategy &amp; Partnerships/ Sustainable City/ SUS110ClimChag/ 114 Council (internal projects)/ Public Sector Carbon Management Programme/ CMPR CT checked version FINAL MAY2012</p>

# **Cambridge City Council Climate Change Fund Operational Guidelines**

## **1 INTRODUCTION**

This document describes the procedures to be followed to ensure the management of the Climate Change Fund is transparent, effective, and complies with existing Cambridge City Council policies and procedures.

These guidelines were updated in March 2012 to ensure that the Climate Change Fund is 'fit for purpose' to support delivery of the Carbon Management Plan 2011-2016.

## **2 CLIMATE CHANGE FUND BACKGROUND AND PURPOSE**

In 2008, Cambridge City Council established a Climate Change Fund to help deliver schemes or activities that would contribute to the achievement of its corporate climate change objectives, through both carbon reduction and climate change risk management.

Between 2008 and June 2012, around £385,000 of funding was allocated from the Fund in support of 11 carbon reduction projects and 5 climate change risk management projects. Collectively, these projects will generate estimated annual savings of £122,000 and 568 tonnes of CO<sub>2</sub> per year.

The Fund has allowed us to pilot a number of carbon reduction technologies and initiatives across our operations and estate. We now want to build on what we have learned and roll out more widely those technologies and initiatives that have been successful in reducing our energy use, costs and emissions.

We will use the Climate Change Fund to assist with this. Its purpose is to provide top-up funding to supplement existing budgets, including Repair and Renewal (R&R) allowances, to support delivery of projects that will help to reduce our carbon emissions and costs, and achieve ongoing financial savings.

To gain a better understanding of where the greatest opportunities for cost and carbon savings exist across our operations and estate, in 2011 the Council participated in the Carbon Trust Carbon Management Programme.

Through this process, we have developed our Carbon Management Plan 2011-2016, which identifies over 60 individual carbon reduction projects. The Plan sets out the Council's ambition to reduce carbon emissions from its estate by 20% (against 2010/11 levels) by March 2016.

### 3 AIMS & ACTIVITIES

Investments made from the Climate Change Fund are to support projects and activities that will help the Council to reduce its energy costs and achieve its carbon reduction target by addressing:

1. Energy & fuel efficiency.
2. Sustainable transport – including fleet and business mileage.
3. Waste minimisation.
4. Management of climate change risks (e.g. higher temperatures, flooding and water shortages).

Table 1 indicates the types of projects and activities that are eligible for support from the Climate Change Fund.

**Table 1: Climate Change Fund Eligible & Ineligible Activities**

<b>Activity/ Project</b>	<b>Eligible for CC Funding?</b>
Infrastructure & equipment	<b>Yes</b>
Feasibility studies & research	<b>Yes</b>
Staff awareness raising, education & awards.	<b>Yes</b>
Ongoing revenue costs e.g. salaries	<b>No</b>
Activities with adverse environmental, equal opportunities, health & safety or other significant impacts.	<b>No</b>
Projects on or affecting Council-owned and managed housing properties. Improvements to housing properties must be funded from the Housing Revenue Account.	<b>No</b>
Projects or activities that can be fully funded through existing budgets, such as Repair and Renewal (R&R) allowances or individual service budgets.	<b>No</b>

### 4 CRITERIA FOR APPRAISING AND PRIORITISING INDIVIDUAL PROJECTS

The Climate Change Officer will be responsible for appraising projects seeking Climate Change Funding with reference to a range of criteria, as set out below. These criteria will influence how much Climate Change Funding an individual project is eligible for.

The same criteria will be used by the Climate Change Officer and Environmental Strategy Group for the purposes of prioritising and scheduling individual projects listed in the Carbon Management Plan.

#### a) Eligibility

Applications must correspond with the purpose, aims and eligible activities for Climate Change Funding described in sections 2 & 3.

b) Project Cost (£)

The level of capital investment required to deliver the project will be categorised as follows:

- Low – less than £30,000;
- Medium - £30,000 - £100,000;
- High – More than £100,000.

In order to ensure that the costs of administering the Climate Change Fund do not outweigh the benefits it will deliver, applications will not be accepted below £500. Activities with costs lower than this threshold may be packaged together to create larger projects (e.g. instead of fitting timer switches in 1 room, develop a project to fit them in a whole building, department, or across the Council).

The maximum amount of Climate Change Funding that an individual project is eligible for will be determined with reference to its potential to deliver carbon savings; estimated financial savings and payback; as well as the availability of alternative funding sources.

c) Annual Financial Savings (£)

The expected annual savings associated with the project will be categorised as follows:

- Low – Less than £1,000 per year;
- Medium - £1,000 - £10,000 per year;
- High – More than £10,000 per year

d) Carbon Savings Against Target (tonnes CO<sub>2</sub>)

The contribution that the project makes to the Council's 30% carbon reduction target and, in particular, the effect the project would have on the biggest sources of carbon emissions across the Council's estate. The biggest single sources of carbon are:

- Pools (24%);
- Car parks (17%);
- Fleet (13%);
- Offices (13%);
- Sheltered and temporary housing (11%).

Subject to how they 'score' against the other assessment criteria, projects that will reduce emissions from these sources will be given priority.

e) Cost Effectiveness (Cost per tonne of CO<sub>2</sub>)

All projects (apart from feasibility studies) will need to be able to provide quantified evidence of their potential to reduce the carbon dioxide (CO<sub>2</sub>) emissions from Cambridge City Council's operations and estate.

The cost effectiveness of individual projects will be calculated by dividing the project implementation cost by how many tonnes of CO<sub>2</sub> are saved over the lifetime of the project (£/tCO<sub>2</sub>LT).

f) Financial payback (Years)

Applications for Climate Change Funding (apart from feasibility studies) will need to be able to deliver ongoing financial savings for Cambridge City Council through a reduction in energy and/or fuel use.

The financial payback will be calculated by dividing the project implementation cost by the annual financial savings delivered by the project through reduced energy and/or fuel costs.

g) Risk

How innovative the project is and the level of risk potentially associated with it. Projects that are perceived to be 'high risk' or potentially contentious will be given a lower priority, unless they represent a one-off opportunity to deliver significant cost and carbon savings.

h) Additionality

Investments made from the Climate Change Fund are intended to deliver benefits from new activity, which are additional to those that would occur anyway. It is not intended to fund existing activities. Applications for Climate Change Funding must demonstrate that they are for new activity and not replacing funding for existing activity.

The Fund cannot be used in place of R&R allowances or individual service budgets but can provide 'top up' funding to these budgets, where this is needed to deliver an energy efficient solution.

i) Energy Hierarchy

Consideration will be given to where the project sits within the 'energy hierarchy', which stipulates that priority should be given to projects that prevent unnecessary energy use and increase energy efficiency.

## **5 DELEGATION AND APPROVAL PROCESS**

In accordance with the Council's delegation and approval processes outlined in Part 3 Section 9.3 of the Council Constitution, approval of investments to be made from the Climate Change Fund will differ depending on the amount of funding requested and whether it is capital or revenue. These different methods of approving investments are summarised in Figure 1.

Projects Costing £15,000 or Less

All projects under and up to the value of £15,000 must fill in Climate Change Fund Application Form and will be approved by Environment Strategy Group.

Projects Costing More Than £15,000

All projects over £15,000 need to fill in a Climate Change Fund Addendum form as well as complete a Project Appraisal & Procurement Proforma form. These projects will then need to be approved in the first instance by Environment Strategy Group.



Projects over £15,000 must also be reviewed by Asset Management Group (AMG). Applicants must also ensure that the requirements of any other relevant officer groups are met, for example ICT Steering Group to review projects affecting the Council's ICT activities.

For projects over £15,000, once they have been approved by AMG, they then need to be approved by the relevant Executive Councillors, and those above £75,000 will, in addition, need to be reviewed by Scrutiny Committee.

Details of projects with a value between £15,000 and £75,000 recommended for approval by the Executive Councillor for Strategy & Climate Change will be circulated to members of Strategy and Resources Scrutiny Committee by the Climate Change Officer. This will enable information about activities supported by the Climate Change Fund to be provided to Councillors without the need for decisions to be called in for every Strategy and Resources Scrutiny Committee meeting.

Projects that are 100% funded by the Climate Change Fund, or where all the sources of funding are within the Strategy and Climate Change Portfolio, need to be considered by the Strategy and Resources Scrutiny Committee and approved by the Executive Councillor for Strategy & Climate Change. Projects that are part-funded by budgets from separate portfolios will also need to be considered by the relevant Scrutiny Committee and approved by the relevant Executive Councillor.

## **6 ROLES & RESPONSIBILITIES**

### **a) Project Manager/ Lead Officer**

- I. As appropriate/ necessary, ensure all relevant officers and Members have been adequately briefed and consulted regarding projects seeking support from the Fund.
- II. Explore all other possible funding sources for their project before seeking support from the Fund.
- III. Complete all sections of the application form and (where applicable) Project Appraisal form.
- IV. As part of their application, provide robust figures on the costs and levels of savings (financial and carbon) associated with their project proposal, and outline the key assumptions that have been applied when calculating these costs/ savings. Guidance is available from the Climate Change Officer.
- V. As part of their application, outline how the financial savings delivered by the project (once implemented) will be monitored/ measured – for example, through the use of a sub-meter; or estimated from utility bill readings. Guidance is available from the Climate Change Officer.
- VI. Provide details of which cost center/ budget financial savings achieved by the project will be recovered from.
- VII. Ensure projects are taken to, and approved by, Asset Management Group, Executive Councillors and others as appropriate in a timely fashion, to ensure project implementation is prompt and complies with all Council legal, financial and constitutional requirements.

- VIII. Ensure the project is fully implemented within 12 months of receiving Climate Change Funding. In exceptional circumstances, a longer delivery timescale may be acceptable; should this be likely/required, the Project Manager must make this explicit when seeking support from the Climate Change Fund.
- IX. Once the project has been implemented, provide ongoing project management and support. As part of this, take steps to monitor the financial and carbon savings that have been delivered by the project in practice.
- X. Identify and estimate any ongoing costs associated with the project and make provision for these from their R&R allowance, individual service budgets and/or other funding source(s), as appropriate.
- XI. Where necessary, recalculate and (in consultation with Finance) adjust the R&R contributions that they need to make to cover future equipment maintenance, repair or replacement costs associated with the project;
- XII. Keep the Climate Change Officer up to date at all times on the status and progress of the project.
- XIII. Complete and submit a project evaluation form at an agreed date after project delivery (see Section 7).

**b) Climate Change Officer**

- I. Provide guidance and support to the project manager/lead officer when developing project proposals that require funding from the Climate Change Fund.
- II. Appraise projects seeking Climate Change Funding against the Assessment Criteria given in section 4.
- III. Present applications for review by Environment Strategy Group.
- IV. Circulate details of applications for Climate Change Funding with values above £15,000 recommended for approval by the Executive Councillor for Strategy & Climate Change to members of Strategy and Resources Scrutiny Committee.
- V. Management of the Climate Change Fund budget.
- VI. Maintain a register of projects supported by the Climate Change Fund, including their implementation costs; expected savings; and actual savings delivered.
- VII. Prepare quarterly reports for the Environment Strategy Group regarding the position of the Climate Change Fund.
- VIII. Prepare annual reports for the Strategy and Resources Scrutiny Committee regarding the position of the Climate Change Fund.

**c) Environment Strategy Group (Carbon Management Board)**

- I. Review and support the Climate Change Officer in prioritising projects seeking Climate Change Funding, with reference to the Assessment Criteria given in section 4.
- II. Approve applications for Climate Change Funding up to £15,000;
- III. Recommend for approval to the Executive Councillor for Strategy & Climate Change applications for Climate Change Funding with values above £15,000.
- IV. Review quarterly reports from the Climate Change Officer regarding the position of the Climate Change Fund and use these to help monitor progress towards the carbon reduction target established in the Carbon Management Plan.
- V. Remove obstacles to successful completion of projects supported by the Climate Change Fund.
- VI. Champion plans for further investment into the Climate Change Fund, to ensure there is sufficient financial provision to support delivery of the Carbon Management Plan.

**d) Director of Resources**

As with all capital expenditure in Cambridge City Council, approve all capital applications for Climate Change Funding.

**e) Asset Management Group**

Review applications with a total value above £15,000 requiring a Capital Project Appraisal & Procurement Report.

**f) Executive Councillor for Strategy & Climate Change**

Approve applications for Climate Change Funding with values above £15,000.

**g) Strategy & Resources Scrutiny Committee**

Review applications for Climate Change Funding with values above £75,000. Receive annual reports from the Climate Change Officer regarding the position of the Climate Change Fund and progress towards the carbon reduction target established in the Carbon Management Plan.

## **7 EVALUATION AND REPORTING OF PROJECTS**

**a) Project Evaluation**

Cambridge City Council needs to be able to accurately monitor and recoup the financial and CO2 savings delivered by projects supported by the Climate Change Fund. The project lead for each project will therefore be responsible for completing a Climate Change Fund Evaluation Form at an agreed date after project delivery. Project lead officers are required to complete the project evaluation using the template provided on the Sustainability page of the intranet. Completed evaluations must be submitted to the Climate Change Officer.

Project leads must also respond to any request from the Climate Change Officer for information regarding the expenditure and progress of their project, for example to meet reporting requirements for Scrutiny Committees or financial planning purposes.

**b) Project Register**

The Climate Change Officer will be responsible for maintaining a register containing the status and details of projects supported by the Climate Change Fund.

**c) Reporting**

The status of projects supported by the Climate Change Fund will be reported by the Climate Change Officer to Environment Strategy Group at quarterly meetings.

The financial position of the Climate Change Fund will be included within Cambridge City Council financial reporting during the main budget planning stages such as the Medium-Term Strategy (September) and Budget-Setting Report (January). Total expenditure and achievements of the Climate Change Fund will be reported to Strategy and Resources Scrutiny Committee on an annual basis.

## **8 FINANCIAL MANAGEMENT & CONSTITUTIONAL COMPLIANCE**

The Climate Change Fund constitutes an earmarked fund, which may be used for either capital or revenue expenditure. Management of the fund must comply with the same Financial Regulations contained within the Council Constitution that apply to all expenditure within Cambridge City Council (see [Finance Regulation and Procedure Rules \(Extract from the Constitution\)](#)).

The Climate Change Fund will be held in an earmarked fund and any residual balance will therefore be carried forward to subsequent financial years without the need for Executive Councillor or Committee approval.

The Council's Climate Change Officer will be responsible for managing the Climate Change Fund budget in accordance with the decisions of the Environment Strategy Group, Executive Councillor for Strategy & Climate Change and Strategy and Resources Scrutiny Committee and Council Financial Regulations.

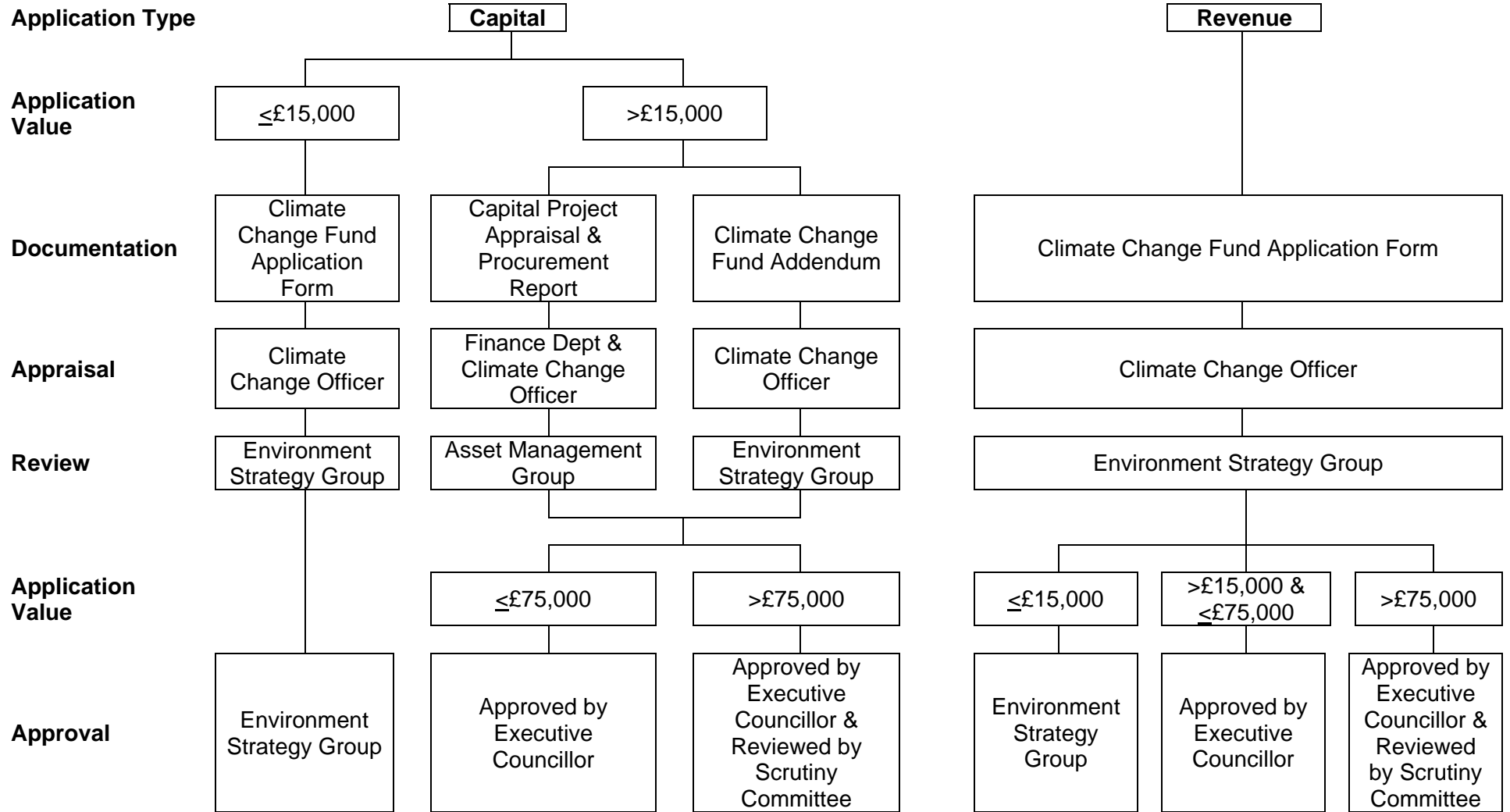
Officers responsible for managing projects supported by the Climate Change Fund will be responsible for managing the finances of their projects. Preferably this will involve officers managing a separate budget for Climate Change Funds to be vired into. This will be scheduled for close to when the money is about to be spent to avoid loss of any Climate Change Funds due to project delay or under spend coinciding with end of financial year. Where virement to a separate project budget is not possible, alternative arrangements will be agreed in consultation with the Council's Finance Department.

### **HELP AND FURTHER INFORMATION**

Further information regarding the Climate Change Fund may be sought from:

- Sally Pidgeon, Climate Change Officer  
[sally.pidgeon@cambridge.gov.uk](mailto:sally.pidgeon@cambridge.gov.uk), 01223 457174
- Clare Palferman, Climate Change Officer,  
[clare.palferman@cambridge.gov.uk](mailto:clare.palferman@cambridge.gov.uk), 01223 457174
- The Sustainability pages of the intranet: <http://intranet/sustainability>

**Figure 1: Approval Process for Climate Change Funding**





# CLIMATE CHANGE FUND ANNUAL STATUS REPORT

## Summary

This report constitutes the fourth Climate Change Fund annual status report, documenting performance of the fund up to June 2012.

### 1. Background

In 2009 and 2010, Environment Scrutiny Committee received the Climate Change annual status report. In 2011, due to a change of Executive Councillor, Strategy and Resources Scrutiny Committee received the report. Following a change of Executive Councillor in May 2012, Environment Scrutiny Committee will now receive the report.

To date, a total of £813,820 has been invested in the Climate Change Fund. An initial investment into the Fund of £250,000 was agreed in 2008. A further £250,000 was approved as part of the November 2010 Medium Term Strategy (MTS) and £184,770 was approved by Council on 7<sup>th</sup> April 2011. Council then approved an additional £129,050 on 23<sup>rd</sup> February 2012.

Projects funded to date through the Climate Change Fund have received a total of £385,111. The remaining balance of the Fund has been earmarked to support the delivery of projects identified in the Carbon Management Plan, which is presented to Environment Scrutiny Committee for approval in June 2012.

### 2. Financial Status

Table 1 shows the financial status of the Climate Change Fund in June 2012, indicating that a total of 22 investments, totalling £385,111, have been made since the fund was set up.

**Table 1: Climate Change Fund Financial Status, June 2012**

£'(All figures s)	2008/09	2009/10	2010/11	2011/12	2012/13
<b>Investment into Fund</b>	<b>(250,000)</b>		<b>(250,000)</b>	<b>(184,770)</b>	<b>(129,050)</b>
<b>Cumulative funding available by year</b>	<b>(250,000)</b>	<b>(243,900)</b>	<b>(457,465)</b>	<b>(567,915)</b>	<b>(525,319)</b>
<b>Projects approved to date:</b>					
Pilot of Electric Bin Lifts	2,100				
Chesterton Road Toilet Modernisation	900				
Corn Exchange Christmas Lighting Lamps	600				
Arbury Court WC Rainwater Harvesting	2,500				
Romsey Rec Rainwater Harvesting		2,500			

£'(All figures s)	2008/09	2009/10	2010/11	2011/12	2012/13
Energy Audit of Pools & Leisure Centres		3,750			
Grand Arcade Annex Car Park Fan system		21,700			
Public Conveniences & Park St Car Park Energy Survey		2,730			
Watercourses Flood Risk Survey			4,510		
Community Centres Energy Audits		2,995			
Corn Exchange LED lighting		2,760			
LED Lighting at the Grand Arcade Annex Car Park				100,000	
Mill Road water efficiency (1)			36,000		
Mill Road water efficiency (2)			11,700		
Replacement boiler - Barnwell House			3,150		
Guildhall Voltage optimisation			17,960		
Market Stall LED lighting			1,000	12,030	
Market Stall LED lighting - Bal Rtn to Fund				(12,030)	
Tree Canopy Study				10,870	4,130
Community Centres energy efficiency measures				9,800	
Heat recovery at the Crematorium				11,600	
Water and energy saving measures in changing rooms at Parkside Pool				35,000	
LED audit of multi-storey car park lighting				5,420	2,380
Refund from PowerPerfector - Voltage Optimisation Target Failure Payout				(1,044)	
Variable Speed Drives (VSD) and BMS at Parkside Pool.					44,100
Variable Speed Drives (VSD) and BMS at Abbey Pool.					46,000
<b>Total spend by year</b>	6,100	36,435	74,320	171,646	96,610
<b>Cumulative spend to date</b>	6,100	42,535	116,855	288,501	385,111
<b>Balance remaining (carried forward)</b>	<b>(243,900)</b>	<b>(207,465)</b>	<b>(383,145)</b>	<b>(396,269)</b>	<b>(428,709)</b>

### 3. Projects Funded to Date

It is the responsibility of the Climate Change Officer to maintain a register containing the status and details of projects supported by the Climate Change Fund. Table 2 provides key details from this projects register regarding investments made up to June 2012. This indicates that the 22 projects supported by the Climate Change Fund:

- have received a total of £385,111
- generate annual savings of £121,936



- will pay back the sum invested within 3.2 years
- save a total of 568 tonnes of carbon dioxide per year
- represent good value for money costing an average of £53 per tonne of carbon dioxide saved over the lifetime of the equipment, within the target value of £100 per tonne of carbon dioxide (established with Council and Carbon Trust data)
- have supported projects with a total value of £497,568, representing an average match-funding rate of 18%, primarily with internal Council budgets.

**Table 2: Climate Change Fund Projects Register, June 2012**

Project title	CCF Bid £	Savings £/yr	Simple Payback (yrs)	Savings tCO2/yr	£/tCO2LT	Total project cost	Match funding
Pilot of Electric Bin Lifts	£2,100	3,823	0.5	3	120	34,700	94%
Chesteron Road Toilet Modernisation	£900	62	14.5	0	83	3,000	74%
Corn Exchange Christmas Lighting Lamps	£600	242	2.5	1	28	600	0%
Arbury Court WC Rainwater Harvesting	£2,500	879	2.8		0	5,000	50%
Energy Audit of Pools & Leisure Centres	£3,750	0	N/A	N/A	N/A	3,745	0%
Grand Arcade Annex Car Park fan system	£21,700	5,413	4.0	68	21	21,700	0%
Public Conveniences and Park Street Car Park Energy Survey	£2,730	0	N/A	N/A	N/A	2,725	0%
Grand Arcade Annex Car Park LED Lighting	£100,000	33,503	3.0	139	102	120,470	17%
Watercourses Flood Risk Survey	£4,510	0	N/A	N/A	N/A	6,000	0%
Community Centres energy audits	£2,995	0	N/A	N/A	N/A	2,995	0%
Corn Exchange LED Bar Lights	£2,760	1,213	2.3	8	36	2,760	0%
Mill Rd Water Efficiency	£47,700	18,350	2.6	0		47,700	0%

Romsey Rec Green Roof - AMENDMENT	£2,500	0	N/A	N/A	N/A	5,912	58%
Replacement boiler at Barnwell House	£3,150	451	7.0	4	47	6,300	50%
Guildhall voltage optimisation trial	£16,916	3,754	4.5	20	56	16,916	0%
Market Stall LED Lighting	£1,000	0	0.0	0	0	1,000	0%
Assessment of Tree Canopy Cover in Cambridge City	£15,000	N/A	N/A	N/A	N/A	15,000	0%
Community Centres energy efficiency measures	£10,000	2,273	4.4	13	44	10,000	0%
Crematorium Heat Recovery Project	£11,600	2,629	8.8	23	42	23,145	50%
PSP Changing Rooms	£35,000	9,095	3.8	16	170	40,000	14%
LED audit of multi-storey car park lighting	£7,800	N/A	N/A	N/A	N/A	7,800	0%
Variable Speed Drives (VSD) and BMS at Parkside Pool.	£44,100	20,000	2.2	136	22	44,100	0%
Variable Speed Drives (VSD) and BMS at Abbey Pool.	£46,000	20,250	2.3	137	22	46,000	0%
<b>TOTALS</b>	<b>£385,311</b>	<b>121,936</b>	<b>3.2</b>	<b>568</b>		<b>467,568</b>	
<b>AVERAGES</b>	<b>£16,753</b>	<b>4,299</b>		<b>38</b>	<b>£53</b>	<b>20,329</b>	<b>18%</b>