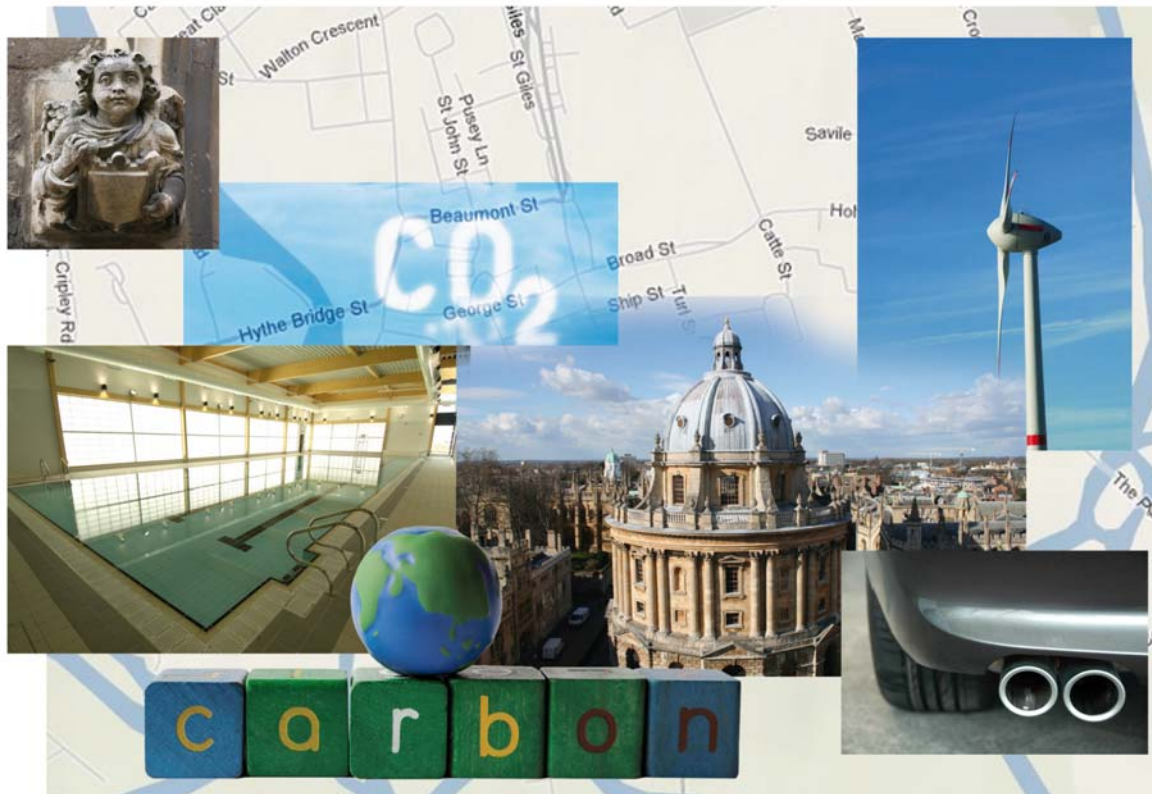


# Oxford City Council Carbon Management Programme



## Getting Our House in Order

The Carbon Management Strategy and Implementation Plan (SIP)

**Date:** 19 March 08

**Version number:** 4.5

**Owner:** Paul Spencer

**Approval:** John Copley

## Foreword from the Carbon Trust

Cutting carbon emissions as part of the fight against climate change should be a key priority for local authorities - it's all about getting your own house in order and leading by example. The UK government has identified the local authority sector as key to delivering carbon reduction across the UK inline with its Kyoto commitments and the Local Authority Carbon Management programme is designed in response to this. It assists councils in saving money on energy and putting it to good use in other areas, whilst making a positive contribution to the environment by lowering their carbon emissions.

Oxford City Council was selected in 2007, amidst strong competition, to take part in this ambitious programme. Oxford City Council partnered with the Carbon Trust on this programme in order to realise vast carbon and cost savings. This Carbon Strategy and Reduction Plan commits the council to a target of reducing CO<sub>2</sub> by 25% by 2010/11 (against the 2005/6 baseline year) and 3% year on year CO<sub>2</sub> savings and underpins potential financial savings to the council of around £1.24 million.

There are those that can and those that do. Local authorities can contribute significantly to reducing CO<sub>2</sub> emissions. The Carbon Trust is very proud to support Oxford City Council in their ongoing implementation of carbon management.



Richard Rugg  
Head of Public Sector, Carbon Trust

## Foreword from Leader of Council and Chief Executive

We welcome the launch of the Oxford City Council Carbon Management Strategy and Implementation Plan. We have committed in the Council's corporate plan to reduce our carbon dioxide emissions from our own buildings and operations by at least 25% compared to 2005/6 by March 2011 (and 3% year on year thereafter).

We will work to ensure that this objective is realised and that high standards of environmental management are adopted throughout the organisation. As well as "**getting our house in order**", we will continue to provide wider leadership to local businesses, communities and households in reducing the overall carbon footprint of Oxford City.

Signed

Signed

.....  
Councillor John Goddard, Leader of Council

.....  
Peter Sloman, Chief Executive

Date.....

Date.....

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## 1 Management summary

### 1.1 Background

Local Authorities are in a key position to lead on approaches to tackle climate change such as mitigation actions in reducing carbon emissions from their buildings and operations and adaptation actions in future proofing services, buildings and operations from extreme weather events.

Oxford City Council was selected in 2007, amidst strong competition, to take part in the prestigious Carbon Trust Local Authority Carbon Management Programme. In May 2007, we embarked on a 10-month programme of consultancy and support with the Carbon Trust following a 5-step tried and tested process to develop a long-term carbon management approach to manage carbon dioxide emissions across the Council's buildings and operations (see diagram below). The product of this process is the Oxford City Council Carbon Management Strategy and Implementation Plan (OCC SIP) outlined here which has the overarching aim of mapping a path to a lower carbon council over the next 5 years and beyond.

Prior to commencing the Carbon Management Programme, Oxford City Council had already set the challenging target of reducing carbon emissions by 25% by 2010/11 [and 3% year on year beyond 2010/11] via the Climate Change Action Plan. This Strategy and Implementation plan outlines how we can meet and potentially exceed this target with long-term political and officer commitment to the Carbon Management Programme.

### 1.2 Carbon management drivers

In October 2006, the Stern Review of the economics of climate change concluded that the cost of inaction on climate change would be far higher than the cost of tackling climate change now. The Government is therefore committed to mitigating climate change in order to protect long-term economic stability and has committed to reduce carbon dioxide emissions by 20% by 2010.

**Stern Review 2006:**  
*"the cost of inaction on climate change will be far higher than the cost of tackling climate change now."*

The UK Climate Change Programme 2006 identifies local authorities as critical to the achievement of the Government's climate change objectives. They are seen as being a key facilitator in making significant carbon dioxide reductions across the UK and are uniquely placed to act on climate change in terms of reducing emissions in its own buildings and operations and in motivating the wider community to action, based on their understanding of local priorities and drivers. This role is further emphasised in the 2006 Local Government White Paper proposing significant strengthening of local government's leadership role in tackling

#### The Five Step Local Authority Carbon Management Programme

- 1 Mobilise the organisation**  
Building the team and determining the scope
- 2 Set baseline, forecast and targets**  
Setting the baseline for the programme and its goals
- 3 Identify and quantify options**  
Identifying the risks and opportunities presented by climate change
- 4 Finalise strategy & implementation plan**  
Designing a cost-effective strategy to cut emissions and save money
- 5 Implement the plan**  
Complete with budgets, targets and success metrics

The draft Climate Change Bill published in March 07 (and aiming for Royal Assent later in 2008) aims to set a statutory target of at least 60% by 2050 for the UK. In all climate and energy policy documents published by the Government, energy efficiency and increased use of renewable energy are seen as central to achieving carbon reduction emissions aims.

climate change reflected in the new Comprehensive Area Assessments and Local Area Agreements (LAA2 targets etc).

### 1.3 The Vision

As well as the compelling global consensus and supporting evidence that we need to act now to tackle climate change, rising energy prices and diminishing conventional energy resources also mean it is imperative that we improve energy efficiency and reduce our reliance on fossil-derived energy across Oxford City Council.

**The Vision:** We, at Oxford City Council, want to demonstrate leadership in the area of climate change action, and “**get our house in order**” by reducing our own direct and indirect carbon dioxide emissions as efficiently and effectively as possible.

Oxford citizens expect sound environment and resource management by the Council and the Carbon Management Strategy and Implementation Plan will help us to make our vision a reality and lead by example to the private sector and communities that we serve.

The vision will be realised through:

- adopting carbon management as a key corporate priority engraining carbon management best practice across all operations.
- using the £400k Salix/Carbon Reduction Investment budget funds secured in Jan 2008 to implement a range of energy efficiency/low carbon technologies across the council over the coming years. (The Salix fund is made up of £200k from OCC and £200K from Salix for a ring-fenced recycled fund. The total fund of £400K is owned and managed by OCC and topped up each year from budget neutral loan repayments made back into the scheme from energy savings made.)
- allocating central budget funds beyond those already secured for Salix finance for carbon management activities that push the boundaries of achievement and help create an exemplar low carbon council.
- introducing policies and standards to reduce carbon dioxide emissions within key areas such as buildings, fleet, waste disposal, procurement and business travel.
- generating or encouraging development of decentralised energy infrastructure (including community-scale and onsite renewables) that will reduce our reliance on traditional energy sources.

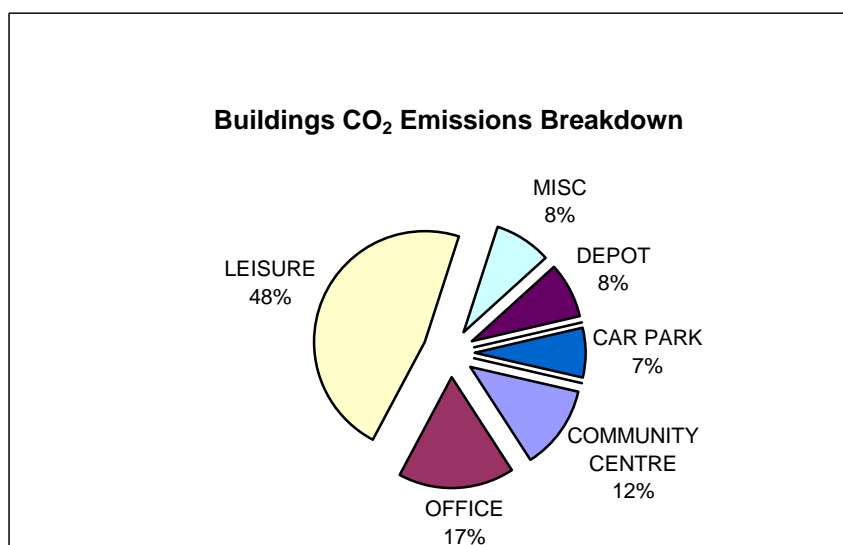
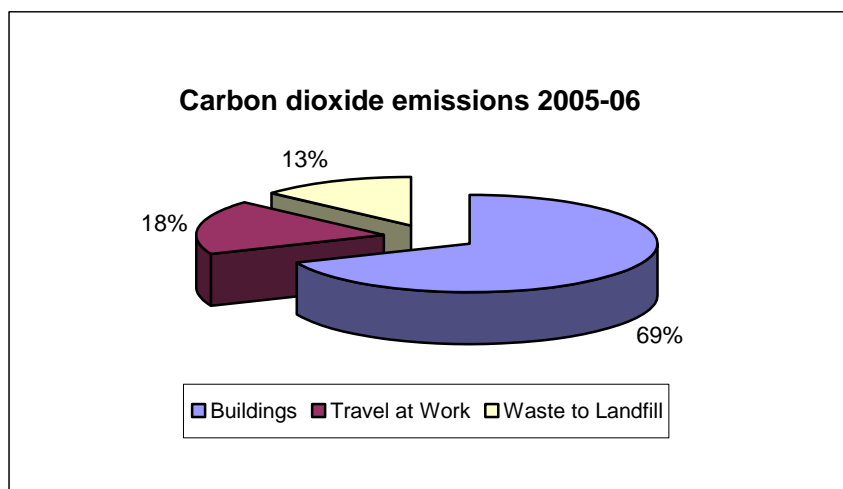
### 1.4 Emissions baseline

Carbon emissions (expressed as tonnes of carbon dioxide, CO<sub>2</sub>) from Council buildings and operations in 2005/6 have been estimated to be **9829** tonnes. The following table and charts presents a breakdown of the sector emissions and associated costs. Within Buildings – leisure accounts for almost 50% of building emissions. It has been estimated that 9800tonnes of CO<sub>2</sub> could fill over 350million party balloons!

**9800tonnes of CO<sub>2</sub> could fill over 350million party balloons!**



Emissions source	Emissions (tonnes CO <sub>2</sub> )	Associated Costs (£000s)
Energy use in buildings	6731	1167
Travel at Work - Fleet (refuse trucks, etc) - Grey Fleet (private vehicles)	1783	701
Council generated waste to landfill	1315	tbc
<b>TOTAL</b>	<b>9829</b>	<b>1868</b>



Putting our existing CO<sub>2</sub> emissions baseline (ca **9,829tCO<sub>2</sub>** on 2005/6 figures) into context, approximate emissions estimates for council housing stock (based on average SAP ratings on around

8,000 units – not relating to 2005/6 baseline year) total around 30,000tCO<sub>2</sub>. Emissions associated with municipal waste collected and sent to landfill come to around 17,000 tonnes CO<sub>2</sub>. Overall emissions associated with these key areas for Oxford City Council therefore total around 57,000 tCO<sub>2</sub>.

Putting this in to a wider context for Oxford City as a whole (covering OCC’s administrative boundary), total CO<sub>2</sub> emissions for domestic, commercial and industrial sectors – based on Defra top down national statistics for 2005 - total around 1 million tonnes CO<sub>2</sub>.

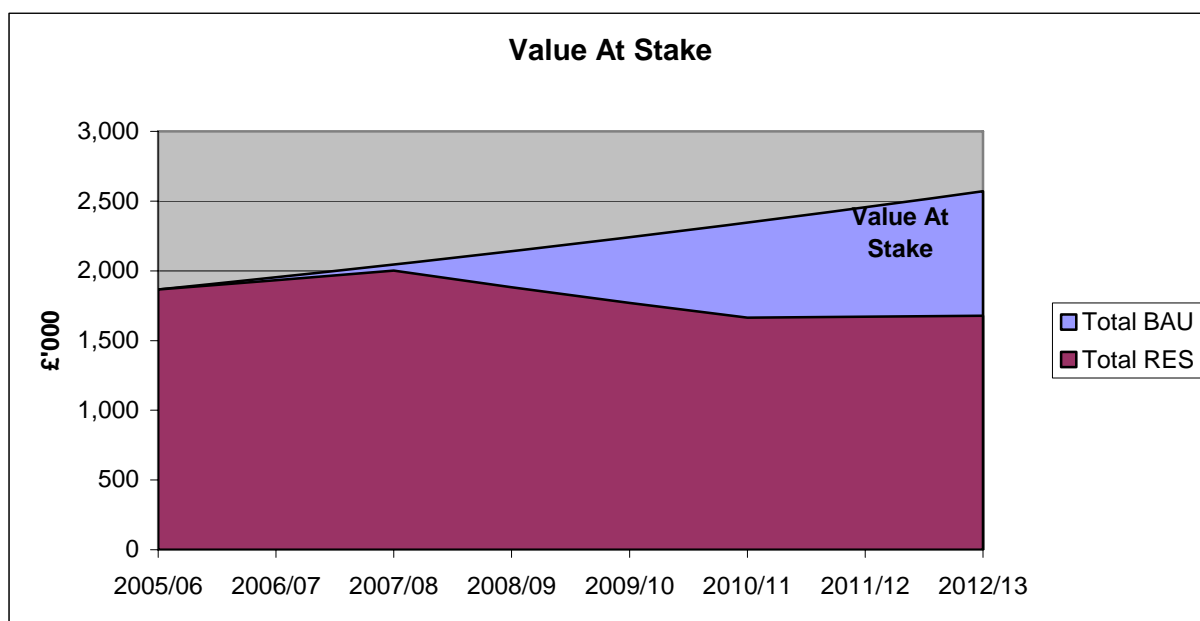
### 1.5 Value at Stake

To give an indication of the potential financial and carbon savings possible from implementation of a robust Carbon Management programme at OCC it is useful to calculate the overall “Value at Stake (VAS)” involved. The VAS is the aggregated difference between the predicted energy spend for the council under a Business as Usual scenario (i.e no significant carbon management approaches) and the energy spend in the Reduced Emissions Scenario (i.e implementation of a carbon management programme). BAU scenario figures are based on a number of central government derived assumptions such as projections of energy price rises, climate change levy impacts etc.

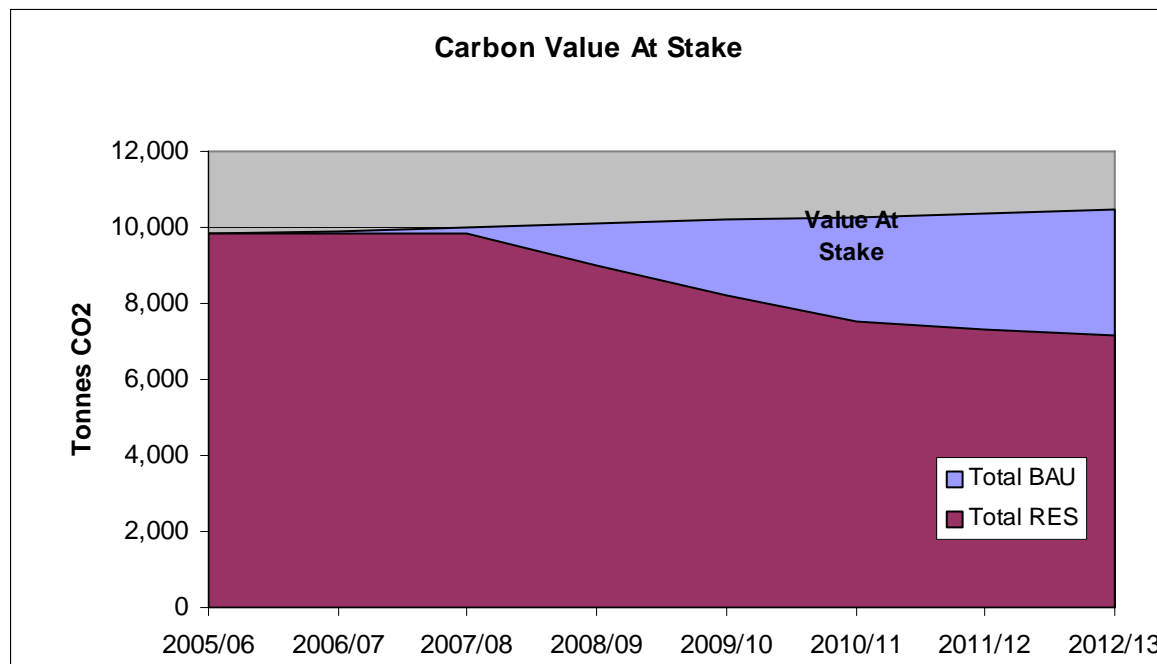
**Value at Stake: £3.43m**  
by the financial year  
2012/13 assuming we  
meet our carbon  
reduction targets with  
the VAS in that year of  
**£893 000 per year**

The VAS does not take into account costs required to implement carbon management initiatives but overall these would be expected to payback within 5 years of installation/implementation. The Carbon Value at stake is also calculated which is the equivalent calculation in tonnes of CO<sub>2</sub> in line with our carbon reduction targets.

The total VAS for Oxford City Council by the financial year 2012/13 is **£3.43m** assuming we meet our carbon reduction targets with the VAS in that year of **£893 000 per year**. (see charts below for further information)







By adopting this Strategy and Implementation Plan, Oxford City Council has the opportunity to limit its energy costs and reduce its CO<sub>2</sub> emissions. Failure to take action will result in an increase in energy costs and carbon emissions at least as much as those as detailed in the above charts.

### 1.6 Summary of costs and carbon savings

The table below shows estimated annual monetary and carbon savings for each year of implementation of the carbon management strategy and implementation plan. Additional projects may arise and contribute to carbon savings as the carbon management programme evolves and becomes engrained in OCC practice. Savings are shown over a five-year period to 2012/13, the carbon management plan will extend year on year beyond this point.

<b>Total Estimated Capital Expenditure</b>							<b>£866,000</b>
<b>Estimated Annual Cost Savings</b>							
	<b>2008/09 savings</b>	<b>2009/10 savings</b>	<b>2010/11 savings</b>	<b>2011/12 savings</b>	<b>2012/13 savings</b>	<b>Total Savings</b>	
Annual savings (£)	177,713	225,233	270,419	274,879	287,005	£1,235,249	
<b>Estimated Annual Carbon Reductions</b>							
	<b>2008/09 savings</b>	<b>2009/10 savings</b>	<b>2010/11 savings</b>	<b>2011/12 savings</b>	<b>2012/13 savings</b>		
Tonnes CO <sub>2</sub>	1,653	2,859	3,140	3,346	3,427	14,426	

## 1.7 Financing the implementation plan

We anticipate a capital investment requirement of £866,000 that could save 3427tonnes of carbon dioxide and £287,005 savings per annum by 2012/13. This document sets out 20 carbon reduction initiatives that will be implemented over the next 5 years (with more potentially emerging as the Programme develops) and ensure that we realise the full carbon emissions reduction potential possible at OCC.

At the time of writing we have secured a £400,000 carbon reduction investment fund (Salix), however at least £430,000 in funding and sustained and committed human resources are required to realise the full carbon savings potential possible. It is estimated that the Salix revolving loan fund will meet around £600k of capital expenditure over the 5 year implementation period covering the bulk of the buildings related projects – leaving an estimated £431K shortfall on capital expenditure and operating costs from 09/10 to 2012/13 (ca £108K required per year over this period to cover this shortfall).

This shortfall is mostly for non-building related, softer projects, such as implementing sustained staff awareness campaigns, evolving the sustainable travel plan, fleet emission reduction projects and internal recycling schemes, on the one hand. On the other, it will enable more ambitious schemes to progress, which would not be achievable via Salix (e.g onsite renewable and very low carbon energy installations, larger more infrastructural energy efficiency projects). For the latter, external, possibly matched funding would be sought.

## 1.8 Implementing the Programme

This Strategy and Implementation Plan will be owned by the Carbon Management Team (CMT). The annual actions detailed in the SIP (and as the Carbon Management Programme evolves) will be agreed by the CMT and approved annually by the Executive Board (EB).

The programme of work will be led by John Copley, Head of Environmental Development (and the Leader of Council/Chief Executive) supported by Paul Spencer, Climate Change Officer (*Carbon Programme Manager*) on a day-to-day basis.

A detailed governance, ownership and management structure is detailed in Section 8 of this strategy document.

## 1.9 Monitoring and reporting

Monitoring reports on progress with the overall carbon management programme as well as progress on individual projects as outlined in the Individual Actions section (Appendix A) will be required on differing timescales and at different levels.

The following provides a high-level overview of reporting processes:

Executive Board – Interim report to EB in November each year with an update on progress with the Carbon Management Strategy and Implementation plan to factor in to following year's budgeting process. This short high-level summary report will cover projects underway, technologies installed, expected and actual energy/financial savings, problems/roadblocks to progress etc.

The Carbon Management Strategy and Implementation Plan will be reviewed and updated annually by the Carbon Management Team and Carbon Management Board to assess progress on targets and status of implementation. An annual report will be presented to the Executive Board in June each year.

Progress on individual projects (as listed in the Individual Actions: Appendix A) will be reported to the Carbon Programme Team every two months at Carbon Management Team meetings by individual Project owners.

## 2 Introduction

Local Authorities are in a key position to lead on approaches to tackle climate change such as mitigation actions in reducing carbon emissions from their buildings and operations and adaptation actions in future proofing services, buildings and operations from extreme weather events.

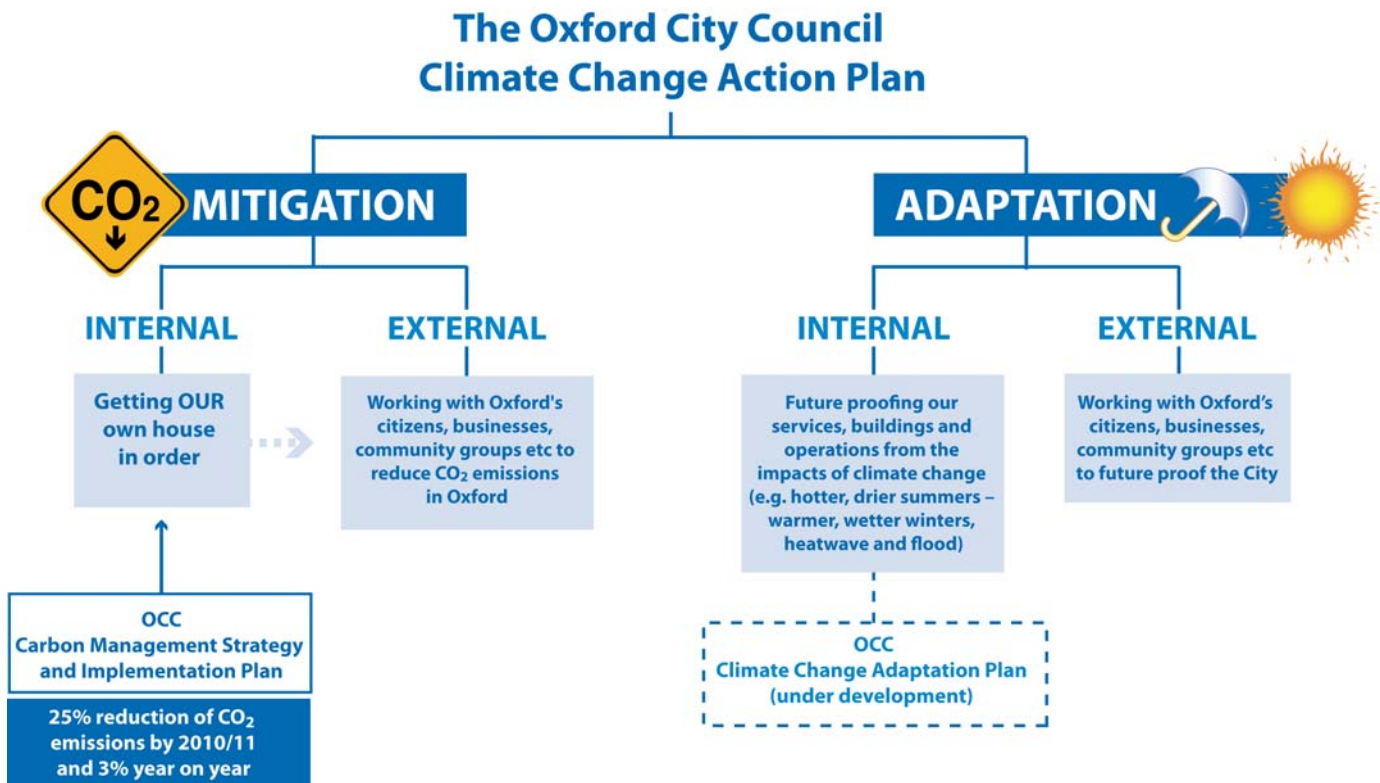
Towards this aim, Oxford City Council (OCC) has placed climate change as one of its core priorities as outlined in its Corporate Plan (2008-2011) stating that it will “tackle climate change and promote environmental resource management”. There is also strong cross-party agreement within OCC of the urgent need to tackle and be better prepared for climate change as demonstrated by its commitment to such initiatives as the Nottingham Declaration and the Big Ask (Friends of the Earth campaign), and the development of the OCC Climate Change Action Plan.

**This Strategy focuses on mitigation actions that will map a path to a lower carbon council over the next 5 years and beyond.**

The overarching aim of the Oxford City Council Carbon Management Strategy and Implementation Plan (OCC SIP) outlined here focuses on mitigation actions that will map a path to a lower carbon council over the next 5 years and beyond. This will:

- evolve the current practices of the council, taking a whole-organisation approach, such that carbon management is adopted as a key objective for Oxford City Council;
- adopt targets for the measurable reduction of carbon emissions, and to deliver these reductions.

The following flowchart gives an idea of where OCC SIP will sit in Oxford City Council's overall approach to climate change.



## 3 Carbon Management strategy

### 3.1 Context and drivers

In October 2006, the Stern Review of the economics of climate change concluded that the cost of inaction on climate change would be far higher than the cost of tackling climate change now. The Government is therefore committed to mitigating climate change in order to protect long-term economic stability and has committed to reduce carbon dioxide emissions by 20% by 2010.

The draft Climate Change Bill published in March 07 (and aiming for Royal Assent later in 2008) aims to set a statutory target of at least 60% by 2050 for the UK. In all climate and energy policy documents published by the Government, energy efficiency and increased use of renewable energy are seen as central to achieving carbon reduction emissions aims.

**Stern Review 2006:**

*“the cost of inaction on climate change will be far higher than the cost of tackling climate change now.”*

The UK Climate Change Programme 2006 identifies local authorities as critical to the achievement of the Government’s climate change objectives.

They are seen as being a key facilitator in making significant carbon dioxide reductions across the UK and are uniquely placed to act on climate change in terms of reducing emissions in its own buildings and operations and in motivating the wider community to action, based on their understanding of local priorities and drivers. This role is further emphasised in the 2006 Local Government White Paper proposing significant strengthening of local government’s leadership role in tackling climate change reflected in the new Comprehensive Area Assessments and Local Area Agreements (LAA2 targets etc).

There is also a range of international and national climate change and sustainable energy related drivers and specific legislation that will impact on local authorities including:

- **At an International level:** The Kyoto Protocol, EU Energy Performance of Buildings Directive, EU Emissions Trading Scheme, Directive on Promotion of Electricity and Energy Services, Directive on Energy End-use and Energy Services, Directive on Promotion of Combined Heat and Power etc.
- **At a National level:** UK Climate Change Programme (including the Climate Change Bill); Energy White paper; Energy review, Microgeneration Strategy; Home Energy Conservation Act, Sustainable Energy Act, Climate Change and Sustainable Energy Act, Decent Homes Standard, Planning White Paper etc
- **At a Local level:** LAA2/Oxfordshire Sustainable Community Strategy; Oxford Sustainable Community Strategy (strong climate change element); Oxford City Council Climate Change Action Plan etc

As well as the compelling global consensus and supporting evidence that we need to act now to tackle climate change, rising energy prices and diminishing conventional energy resources also mean it is imperative that we improve energy efficiency and reduce our reliance on fossil-derived energy across Oxford City Council.

### 3.2 The Vision

We, at Oxford City Council, want to demonstrate leadership in the area of climate change action, and “**get our house in order**” by reducing our own direct and indirect carbon dioxide emissions as efficiently and effectively as possible.

Oxford citizens expect sound environment and resource management by the Council and the Carbon Management Strategy and Implementation Plan will help us to make our vision a reality and lead by example to the private sector and communities that we serve.

The vision will be realised through:

- adopting carbon management as a key corporate priority engraining carbon management best practice across all operations.
- using the £400k Salix/Carbon Reduction Investment budget funds secured in Jan 2008 to implement a range of energy efficiency/low carbon technologies across the council over the coming years. (The Salix fund is made up of £200k from OCC and £200K from Salix for a ring-fenced recycled fund. The total fund of £400K is owned and managed by OCC and topped up each year from budget neutral loan repayments made back into the scheme from energy savings made.)
- allocating central budget funds beyond those already secured for Salix finance for carbon management activities that push the boundaries of achievement and help create an exemplar low carbon council.
- introducing policies and standards to reduce carbon dioxide emissions within key areas such as buildings, fleet, waste disposal, procurement and business travel.
- generating or encouraging development of decentralised energy infrastructure (including community-scale and onsite renewables) that will reduce our reliance on traditional energy sources.

### 3.3 Strategy

Oxford City Council wants to become an exemplar low carbon council and push the boundaries of carbon management best practice. It wants to set an example of what is possible with the political and corporate commitment to change and lead by example across the city and region. Specifically OCC wants to reduce carbon dioxide emissions associated from its buildings and operations by at least 25% by the end of 2010/11 (from 2005-06 levels) and 3% year on year beyond this financial year.

**OCC Target:** *Reduce council CO<sub>2</sub> emissions by at least 25% by 2010/11 (against the 2005/6 baseline) and 3% year on year savings beyond 2010.*

By implementation of a robust carbon management approach within OCC we will more effectively manage and significantly reduce carbon dioxide emissions arising from day-to-day operations across the Council (e.g. from the energy used to heat and light buildings, fuel used for our fleet vehicles, water consumed, waste sent to landfill, and the carbon emissions associated with our suppliers and products we procure).

### 3.4 Objectives and targets

This Carbon Management Strategy and Implementation Plan is the product of a 10-month intensive programme of work with free advice and consultancy from the Carbon Trust. The Strategy and Implementation Plan defines the steps that Oxford City Council will take to significantly reduce its carbon emissions over the next five financial years (2008/9 to 2012/13) with the intention to continue to evolve and develop our carbon management programme beyond this timeframe. The full work programme to achieve our ambitious carbon dioxide emissions targets begins here.

We believe that the Strategy and Implementation Plan will ensure that we achieve the following objectives:

- Reduce Council CO<sub>2</sub> emissions by at least 25% by 2010/11 (against the 2005/6 baseline) [and 3% year on year savings going beyond 2010].
- Determine and implement an accurate and robust CO<sub>2</sub> emissions accounting system that can be used year on year to assess progress.
- Secure resource deployment (financial and people) to achieve effective carbon reduction throughout the Council.
- Raise awareness of climate change amongst staff, elected members and our public/partners and help to involve them in carbon management actions.
- Embed carbon management and climate change best practice into corporate policy and management practice (including the budgetary process) across Oxford City Council.



## 4 Emissions baseline and projections

### 4.1 Scope

Carbon dioxide emissions baseline data has been sought for financial year 2005/6. The emissions boundary has been limited to areas that demonstrate significant carbon emissions and have sufficient data available; are in the direct influence/control of OCC and can realise financial benefits as a direct result of carbon reduction initiatives.

The following sources of emissions have been addressed:

- All Council (operational) Buildings (existing and new) – including swimming pools, sports facilities, community centres, car parks, pavilions, public conveniences etc
- Vehicles/Fleet
- Staff travel/Travel at Work (i.e. business travel/staff cars used for travel [grey fleet] etc)
- Waste disposal to landfill (Council generated)

As the Carbon Management Programme evolves we also want to determine more accurate baselines for and include emissions from:

- Oxford City Council Housing stock
- Procurement/supply chain (Carbon footprint of suppliers)
- “Travel to Work” (i.e. commuting)

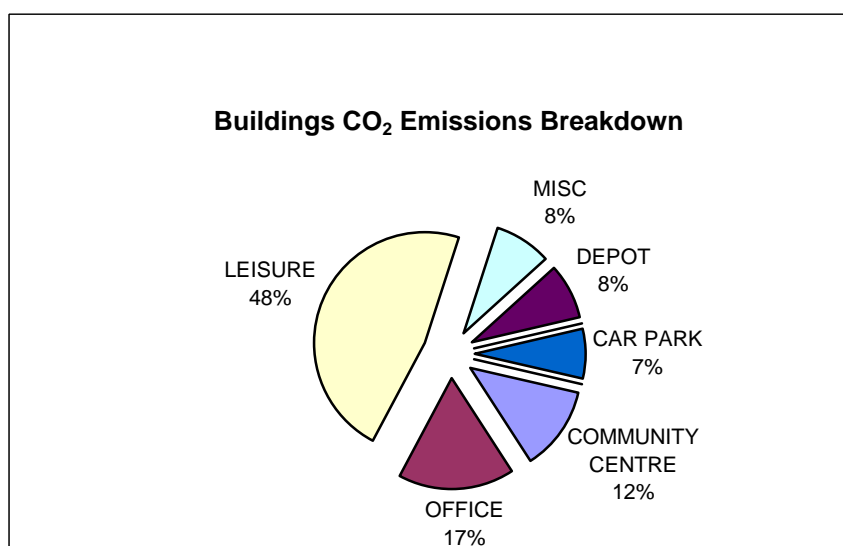
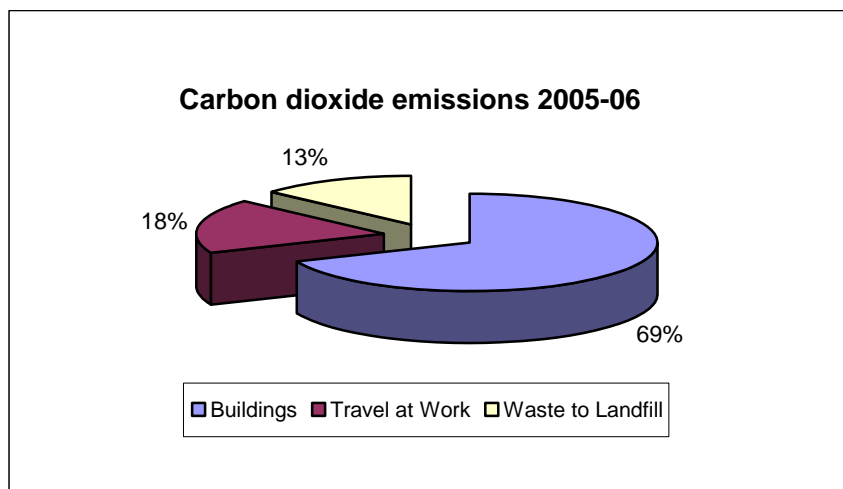
Emissions savings made from “Green” electricity purchasing will **not** be accounted for in the emissions baseline – unless the Renewable Obligation Certificates can be retired by OCC - in accordance with advice from LACMP consultants.

### 4.2 Baseline

Carbon emissions (expressed as tonnes of carbon dioxide, CO<sub>2</sub>) from Council buildings and operations in 2005/6 have been estimated to be **9829** tonnes. The following table and charts presents a breakdown of the sector emissions and associated costs. Within Buildings – leisure accounts for almost 50% of building emissions. It has been estimated that 9800tonnes of CO<sub>2</sub> could fill over 350million party balloons!

**OCC emissions:  
9800tonnes of CO<sub>2</sub>  
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Emissions source	Emissions (tonnes CO <sub>2</sub> )	Associated Costs (£000s)
Energy use in buildings	6731	1167
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Emissions associated with municipal waste collected and sent to landfill come to around 17,000 tonnes CO<sub>2</sub>. Overall emissions associated with these key areas for Oxford City Council therefore total around 57,000 tCO<sub>2</sub>.

Putting this in to a wider context for Oxford City as a whole (covering OCC’s administrative boundary), total CO<sub>2</sub> emissions for domestic, commercial and industrial sectors – based on Defra top down national statistics for 2005 - total around 1 million tonnes CO<sub>2</sub>.

#### 4.2.1 Data sources and assumptions

Overall data quality and availability for the baseline year is poor to average and a number of assumptions have had to be made. Significant improvements are required in this area that should form a key part of the early stages of development of the Carbon Management Programme (See Appendix A – Project 20: “CO<sub>2</sub> data collection/AMR/Smart Metering”).

### Buildings

Although data is fair for the majority of large energy consuming buildings for this baseline year, overall data quality and availability for the entire portfolio of buildings is poor. Consumption data that has been listed in the energy accounting software package (Systemlink Energy Manager) is not complete/up-to-date and consists of a considerable amount of estimate readings. Assumptions have had to be made for the majority of parks pavilions, community centres and public conveniences based on Carbon Trust benchmarks. Development of a more robust energy consumption database (Systemlink - Energy Manager) and data collection regime has been the focus of work with newly appointed (Sep 07) external energy consultants (Mouchel) aiding OCC with its energy management function. This will lead to improvements in quality and robustness of consumption data for the portfolio. Smart meters have been installed at four large consuming sites with plans to extend to other large sites so overall data quality will improve considerably.

### Travel at Work

**Fleet vehicles:** Data held at city works is fairly comprehensive with good data on consumption, vehicle type, engine size, mileage etc from which reasonably accurate emissions data is available. Fleet CO<sub>2</sub> consumption data for the baseline was extracted from an independent emissions study carried out by AEAT Technology for City Works in August 06 for the baseline period.

**Other vehicles (private vehicles/grey fleet etc):** Data quality for this area was poor and difficult to access accurately. Mileage and hence estimates of CO<sub>2</sub> emissions data was derived from mileage claim data via finance dept – however this was an unnecessarily manually intensive process as financial data is the only data held in easily accessible form. Overall the mileage emissions data could be streamlined significantly to improve data quality. It is proposed that this whole process be reviewed and improved via the Carbon Management programme in future.

### Council generated waste collected

Waste data derived from our own buildings and operations (i.e. not municipal waste) is poor and improvements necessary to more accurately quantify annual reductions in this regard. Assumptions had to be made based on the number of bin-lifts and volume of bins rather than a precise tonnage. Again it is proposed that this whole process be reviewed and improved via the Carbon Management programme in future. There is some recycling data for some sites available for paper recycling held on the OCC Corvu performance monitoring system.

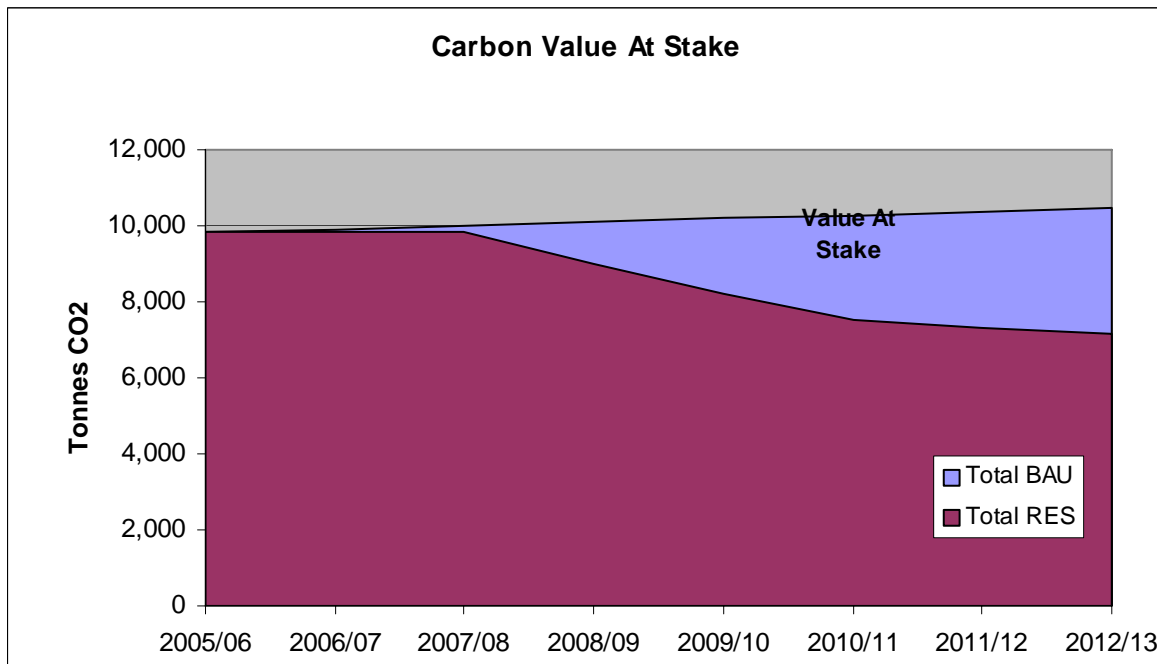
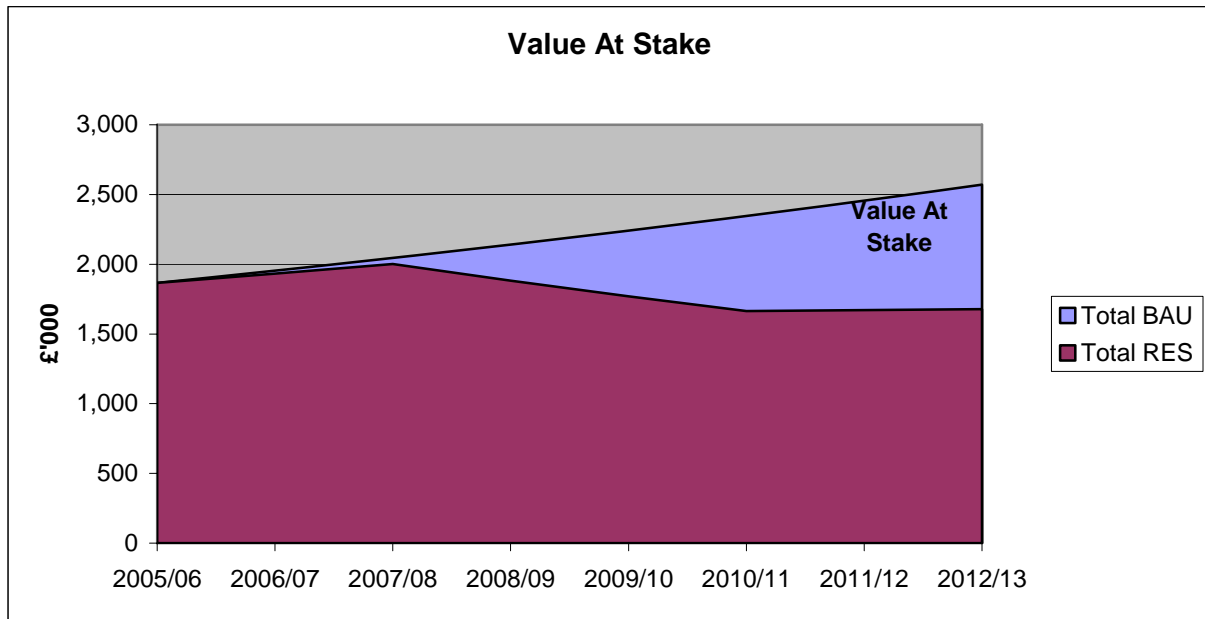
## 4.3 Projections

To give an indication of the potential financial and carbon savings possible from implementation of a robust Carbon Management programme at OCC it is useful to calculate the overall “Value at Stake (VAS)” involved. The VAS is the aggregated difference between the predicted energy spend for the council under a Business as Usual scenario (i.e no significant carbon management approaches) and the energy spend in the Reduced Emissions Scenario (i.e implementation of a carbon management programme). BAU scenario figures are based on a number of central government derived assumptions such as projections of energy price rises, climate change levy impacts etc.

**Value at Stake: £3.43m**  
by the financial year  
2012/13 assuming we  
meet our carbon  
reduction targets with  
the VAS in that year of  
**£893 000 per year**

The VAS does not take into account costs required to implement carbon management initiatives but overall these would be expected to payback within 5 years of installation/implementation. The Carbon Value at stake is also calculated which is the equivalent calculation in tonnes of CO<sub>2</sub> in line with our carbon reduction targets.

The total VAS for Oxford City Council by the financial year 2012/13 is **£3.43m** assuming we meet our carbon reduction targets with the VAS in that year of **£893 000 per year**. (see charts below for further information)



By adopting this Strategy and Implementation Plan, Oxford City Council has the opportunity to limit its energy costs and reduce its CO<sub>2</sub> emissions. Failure to take action will result in an increase in energy costs and carbon emissions at least as much as those as detailed in the above charts.

#### 4.4 Past actions and achievements

Various climate change related activities have been pursued in recent years which have informed the development of this strategy. Key actions that have been undertaken to date include:

- Adoption of the OCC Climate Change Action Plan (Executive Board - Feb 06) – which set the 25% carbon dioxide emission reduction target for OCC buildings and operations and lead to appointment of more staff resource to drive forward CCAP (Climate Change Officer Oct 06). Creation of the OCC Climate Change Action Team to implement headline objectives of CCAP. Adoption of the Big Ask carbon reduction target of 3% year on year reductions (EB- Nov 06).
- Production of an award winning guide for sustainable living aimed at Oxford citizens (and also OCC staff) - Oxford is My World and associated web pages – <http://www.oxfordismyworld.org>
- Organising and hosting a major Climate Change event (June 07) – Climate Change Oxford – What you can do now!
- Energy Management in Buildings – development of Systemlink – Energy manager database over the past 5 years.
- Implementation of AMR/Smart meter systems on 4 large energy-consuming buildings (Nov 06).
- Introduction of an Energy & Resource Management function at OCC (Sep 07 onwards) – using a combination of internal expertise and external energy consultants.
- Switch off campaign in Leisure to reduce unnecessary energy consumption (Dec 06 onwards).
- Proactive purchase of greener electricity contracts for the Council's portfolio of buildings – purchase via LASER buying consortium for improved financial efficiencies.
- Adoption of a Staff travel plan (EB - Sept 2004) and related measures to encourage more eco-friendly transport (e.g home working (Citrix access); staff bike mileage allowance, salary sacrifice scheme for purchasing bicycles for work commuting (Sept 07), provision of showers and changing facilities (St Aldates Chambers)
- **Procurement:** Proactive engagement of our procurement team with the UK Sustainable Procurement Task Force and aspiration to raise sustainable procurement standards significantly across the Council (e.g recent tender for locally sourced biodiesel supply – Silver Fuels Group tender – Dec 07). Oxford City Council were Commended at the LGC and HSJ Sustainable Procurement Awards in 2007. The Council received this commendation for their work with Small and Medium Enterprises and for actively promoting public procurement opportunities locally. One of the events (Meet the Buyer) resulted in an estimated additional £500,000 of business generated in Oxfordshire.
- **Fleet:** Proactive use of lower carbon vehicles across OCC fleet – e.g LPG, Electric and biodiesel powered vehicles
- **Waste (from council operations):** Internal recycling scheme and quantification of paper recycling rates internally over past 5 years (recent data held on Corvu – Jane Lubbock) – successful municipal waste recycling scheme doubling recycling rates in Oxford within a year (06/07 onwards).
- **Waste (municipal):** We are working to improve our municipal waste recycling programme and reduce waste sent to landfill. Great strides are being made with recycling rates increasing significantly year on year. Compared with 2005/06 we have now doubled the amount recycled to 40%.
- **Council Housing:** Nearly all of our 8 000 housing stock have cavity wall and loft insulation installed. The remaining stock is due to be insulated shortly. The average SAP rating for a Council-owned dwelling was 70, putting Oxford in the best quartile for this indicator nationally (2006/7 data).
- **Home Energy Conservation Act** – Oxford City Council is on track to exceed the target 30% improvement in home energy efficiency between 1995 and 2010.
- **Fuel Poverty** – Oxford City Council has been active in tackling fuel poverty in the City since 1986 and has a track record of success. For example in 06/07, the spend in Oxford on upgrading energy efficiency for vulnerable households was about £750k (made up from awards from GOSE, internal

grants budget, maximizing local take-up of national grant schemes and harnessing the obligations of utility companies for the benefit of the vulnerable in Oxford).

- **Planning** -- Oxford City Council is operating a 20% on-site energy generation requirement from renewables or other very low carbon sources of energy for all developments of 10 or more dwellings, or 2000sqm or above.
- **Oxford Solar Initiative** – This is an externally funded initiative to encourage the installation of solar hot water and PV systems in Oxford. Over 200 solar energy systems have been installed since inception in 2006. A resulting map of solar installations and information/advice leaflet won a SE Renewable Energy Award. In addition the project resulted in a very well received permitted development planning advice leaflet on solar for householders.



## 5 Carbon Management Implementation Plan

The following table highlights individual actions and projects assessed to date that will be undertaken and contribute to the carbon reduction target. Additional projects, as yet unidentified or quantified, will be added as the Programme progresses. Estimated capital and operating costs and project owners are also included. For a detailed breakdown of initial carbon reduction opportunities identified see Individual Actions: Appendix A.

### 5.1 Shortlisted actions and emission reduction opportunities

Project/Action	CapEx (5 years)	Operating costs (5 years)	Funding identified/ Source	tCO <sub>2</sub> per year identified 2012/13	% of target 2012/13 (2850tCO <sub>2</sub> per year)	Project Owner(s)
1. Voltage optimisation	£190,000	£0	Salix	<b>575</b>	19.9	Paul Spencer/Keith Austin/Keith Reynolds
2. Liquid Pool covers	£1,200	£43,200	Salix	<b>198</b>	6.8	Paul Spencer/Keith Austin
3. Motorised Pool Covers	£33,800	£0	Salix	<b>56</b>	1.9	Paul Spencer/Keith Austin
4. Variable speed drives	£34,000	£0	Salix	<b>199</b>	6.9	Paul Spencer/Keith A/Keith Reynolds
5. Staff awareness/Energy champions network	£0	£50,000	to be found	<b>500</b>	17.3	Laura Thompson/Charlie Morris Marsham/Mark Saunders
6. Business systems: PC hibernation (implemented 07/08 - scope for further tbc)	£0	£0	Dept budget	<b>22</b>	0.8	Daniel Hennessy
7. Business systems: Server virtualisation (implemented 07/08 - scope for further tbc)	£0	£0	Dept budget/Salix	<b>66</b>	2.3	Daniel Hennessy
8. Procurement: Low energy vending machines (implemented 07/08 - scope for further tbc)	£0	£0	dept budget	<b>14</b>	0.5	Jane Lubbock
9. Internal recycling scheme	£2,000	£25,000	to be found	<b>325</b>	11.2	Colin Bailey/Jane Lubbock
10. Retrofit lighting	£46,000	£0	Salix	<b>72</b>	2.5	Paul Spencer/Keith Reynolds/Keith Austin
11. Lighting controls	£4,000	£0	Salix	<b>30</b>	1.0	Paul Spencer/Keith Reynolds/Keith Austin
12. Cavity Wall insulation	£5,000	£0	Salix	<b>10</b>	0.3	Paul Robinson/Keith

						Reynolds
13. Reduce fleet CO <sub>2</sub> emissions		£65,000	to be found	<b>370</b>	12.8	Paul Einon/Phil Dunsdon
14. Energy (& Water) M&T	£0	£200,000	EM budget*	<b>200</b>	6.9	Paul Spencer/Paul Robinson/Sarah Fogden
15. Energy management best practice	£25,000	£50,000	EM budget*	<b>135</b>	4.7	Paul Spencer/Paul Robinson/Keith Austin/Keith Reynolds
16. Sustainable Travel Plan	£25,000	£25,000	to be found	<b>86</b>	3.0	Sue Shutter/Sarah Fogden/Emma Burson
17. Community Scale renewable energy	£50,000		to be found	<b>200</b>	6.9	Paul Spencer/Paul Robinson
18. Onsite renewable energy	£250,000		to be found	<b>125</b>	4.3	Paul Robinson/Chris Pyle
19. Oxford low carbon building standard	£200,000		to be found	<b>250</b>	8.8	John Bellenger/Chris Pyle
20. CO <sub>2</sub> data collection/Smart metering	tbc			tbc	0.0	Paul Robinson/Paul Spencer
<b>tbc:</b> Business Systems: Multifunctional devices					0.0	Daniel Hennessy
<b>tbc:</b> Business Systems: Data Centre relocation					0.0	Daniel Hennessy
<b>tbc:</b> Sustainable Procurement **					0.0	Jane Lubbock/Nicky Atkin
<b>Totals</b>	<b>£866,000</b>	<b>£458,200</b>		<b>3433</b>	<b>113.3</b>	

Total estimated costs  
over 5 years 07/08 to  
12/13

**£1,324,200**

\* assuming at least £80K per year energy management function maintained over 5 years

\*\* work already underway via procurement team – investigate closer tie-in with Carbon Management Programme and develop emissions quantification process

## 5.2 Implementation plan summary

The following table shows the current list of projects included in the plan and the implementation period for each project (grey boxes). Several projects require further investigation (list as “tbc”) and others may be added as the carbon management programme evolves.

Project/Action	2008/9	2009/10	2010/11	2011/12	2012/13
1. Voltage optimisation					
2. Liquid Pool covers					
3. Motorised Pool Covers					
4. Variable speed drives					
5. Staff awareness – champions network					
6. Business systems: PC hibernation (1 <sup>st</sup> phase)	2007/08				
7. Business systems: Server virtualisation (1 <sup>st</sup> phase)	2007/08				
8. Procurement: Low energy vending machines (1 <sup>st</sup> phase)	2007/08				
9. Internal recycling scheme					
10. Retrofit lighting		+			
11. Lighting controls		+			
12. Cavity Wall insulation		+			
13. Reduce fleet CO <sub>2</sub> emissions					
14. Energy (& Water) M&T					
15. Energy management best practice					
16. Sustainable Travel Plan					
17. Community scale renewables	Feasibility project				
18. On-site Renewable Energy					
19. Oxford Low Carbon Building Standard					
20. CO <sub>2</sub> data collection/AMR/Smart metering	Savings tbc				
tbc: Business Systems: Multifunctional devices	Feasibility project				
tbc: Business Systems: Data Centre relocation	Feasibility project				
tbc: Sustainable Procurement programme					

+ more to be identified as energy surveys continue

## 6 Implementation Plan financing

The estimated costs and benefits (financial savings and CO<sub>2</sub> emissions reductions) arising from actions identified to date in the SIP are summarised in the table below. Over the next five years, projects in the SIP could yield gross **savings of around £1.24million** and carbon savings that will meet our 2010/11 target (25% reduction against 2005/6 baseline) and exceed the 3% year on year target to 2012/13. This will require estimated **capital expenditure of around £866,000**.

### 6.1 Summary of predicted costs and savings

The table below shows estimated annual monetary and carbon savings for each year of implementation of the carbon management strategy and implementation plan. Additional projects may arise and contribute to carbon savings as the carbon management programme evolves and becomes engrained in OCC practice. Savings are shown over a five-year period to 2012/13, the carbon management plan will extend year on year beyond this point.

<b>Total Estimated Capital Expenditure</b>							<b>£866,000</b>
<b>Estimated Annual Cost Savings</b>							
	<b>2008/09 savings</b>	<b>2009/10 savings</b>	<b>2010/11 savings</b>	<b>2011/12 savings</b>	<b>2012/13 savings</b>	<b>Total Savings</b>	
Annual savings (£)	177,713	225,233	270,419	274,879	287,005	£1,235,249	
<b>Estimated Annual Carbon Reductions</b>							
	<b>2008/09 savings</b>	<b>2009/10 savings</b>	<b>2010/11 savings</b>	<b>2011/12 savings</b>	<b>2012/13 savings</b>		
Tonnes CO <sub>2</sub>	1,653	2,859	3,140	3,346	3,427	14,426	

Assuming the Salix fund mechanism and the Energy and Resource Management function budget are maintained, it should be possible to meet the 2010/11 target (25% reduction on 2005/6 baseline year) set in the Oxford City Council Climate Change Action Plan. However senior level management and political commitment must be maintained to realise the potential savings identified. It is estimated that the Salix fund mechanisms over the period to 2010/11 will cover the bulk of capital investment for buildings-related carbon reduction solutions and the Energy and Resource Management function will continue to highlight opportunities for carbon and energy cost savings, and enable opportunities identified to become reality.

**Senior level management and political commitment must be maintained to realise the potential savings identified**

Going beyond 2010/11 – to meet our ongoing 3% year on year target - extra funding will be required as carbon savings become harder to achieve (“low hanging fruit” being addressed in the main in the first three years of the plan). For example, budget bids will be required for more ambitious higher capital cost projects such as onsite renewable and very low carbon energy generation. These types of project (though possible to supplement via Prudential Borrowing and external grant funding mechanisms) will require further investigation to be carried out during the course of the implementation period to determine what is possible and achievable. See table in Section 5.1 above for a break down of indicative costs identified so far.

The extent to which actions can be implemented will depend upon securing funding for measures and sufficient staff resources to deliver them. The Salix funding mechanism currently in place needs to have continued high-level support from senior management and be ring-fenced and secured year on year to achieve many of the carbon savings measures proposed. Continued commitment to an energy and resource management function and corresponding budget is also essential.

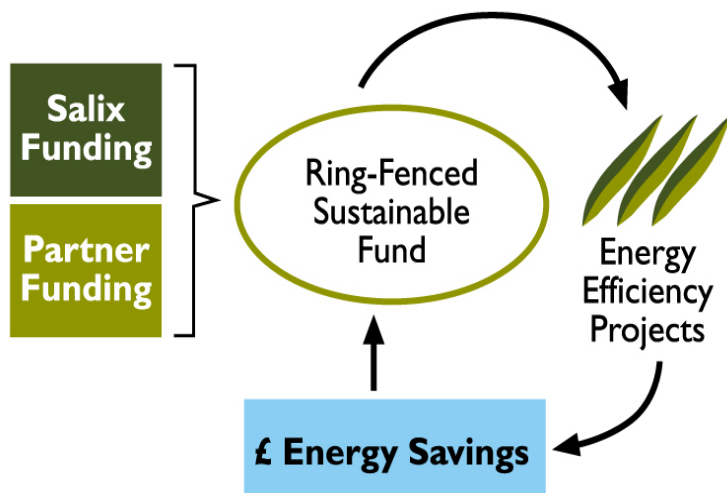
### 6.1.1 Sources of funding

Existing and potential sources of funding are summarised below, including any risks associated with them.

#### 6.1.1.1 Existing funds

**Energy Management function budget:** currently £80K per year until 2009/10. Requires continued budgetary commitment beyond this period (potentially even increased to realise more savings).

**Carbon reduction investment budget:** Salix fund - £200k from OCC - £200K from Salix/Carbon Trust – ring-fenced recycled fund – total fund of £400K which is topped up each year from loan repayments made back into the scheme. Funds are effectively loaned to sites for energy savings measures and loans are then repaid by site/business unit from reductions in energy expenditure. Max payback is 5 years. Requires signing of individual loan agreement form for each installation – risks could include reluctance of business units to sign up to carbon reduction projects delaying implementation of technologies. Only eligible for technologies on the Salix approved list and that satisfy lifetime carbon costs and payback criteria. Labour intensive administration process could put strain on existing resources. (Salix Fund is managed by Paul Spencer and Paul Robinson.)



A basic diagram outlining the Salix funding mechanism is depicted above.

#### 6.1.1.2 Funding gaps

It is estimated that the Salix revolving loan fund will meet around £600k of capital expenditure over the 5 year implementation period covering the bulk of the buildings related projects – leaving an estimated £431K shortfall on cap ex and operating costs from 09/10 to 2012/13 (ca £108K required per year over the period to cover this shortfall).

This shortfall is mostly for non-building related, softer projects, such as implementing sustained staff awareness campaigns, evolving the sustainable travel plan, fleet emission reduction projects and internal recycling schemes, on the one hand. On the other, it will enable more ambitious schemes to progress which would not be achievable via Salix (e.g onsite renewable and very low carbon energy

installations, larger more infrastructural energy efficiency projects). For the latter, external, possibly matched funding would be sought. This is described below.

#### 6.1.1.3 Potential funds

**Capital programme:** annually funded works programme – many existing works clearly produce energy savings (e.g heating systems renewal, window replacements). Could top-slicing of asset renewal budgets be considered to fund future energy projects not covered via Salix fund? (see Oxford Low Carbon Standard opportunity description in Appendix A for background on types of project that could come under this funding).

**Invest to save scheme:** prudential borrowing schemes to cover more ambitious schemes not achievable via Salix (e.g. onsite renewable energy installations, larger more infrastructural energy efficiency projects). A sum of £800,000 has recently (February 08) been identified for Invest to Save projects across OCC over the next 3 years. Part of the work of the Carbon management programme will be to stimulate business unit management to put forward energy efficiency related bids.

#### External grant funding:

- Partnerships for Renewables (currently exploring community-scale wind turbines on OCC-owned land at no cost to council; lead technology is currently wind – there could be other renewable energy technologies coming on stream e.g. Biomass).
- Low Carbon Buildings Programme (up to 50% off the cost of Solar PV installation – OCH currently about to take advantage of this funding for communal lighting in social housing block.)
- Other climate change/energy efficiency related funds that may arise as the Climate change bill and other new legislation comes in to force.



## 7 Stakeholder management and communications

Effective communications and ensuring cooperation of key stakeholders will be fundamental not only in securing approval and endorsement for the SIP, but in ensuring that carbon management becomes part of the Local Authority's culture and day-to-day business.

### 7.1 Stakeholder management

There is a large range of stakeholders at OCC who need to be engaged and to engage with the Carbon Management Programme to ensure its success and that we achieve our projected savings on energy costs and carbon.

The following summarises the various groups that will need to be addressed in developing and engraining carbon management best practice at OCC:

- **Councillors:** Leader, Portfolio Holder for Climate Change, Executive Board, Environment Scrutiny, Full Council
- **Senior Managers:** Chief Executive, Executive Directors, Heads of Service. Team leaders
- **Contractors and consultants:** Energy and Resource management consultants, Procurement clients, contractors associated with building, maintenance and refurbishment design etc
- **Partnerships:** E.g. Oxford Strategic Partnership, Oxfordshire Partnership, Oxfordshire Climate Change Partnership, Nottingham Declaration, local schools, businesses and colleges etc
- **Staff:** All service units
- **General public**
- **Media:** Oxford Mail, Oxford Times, BBC Oxford (TV and Radio), FoxFM, National papers/TV etc

### 7.2 Communications Plan

#### 7.2.1 Key objectives

Key objectives of the communication plan will be to:

- Raise and maintain awareness of the importance of establishing the carbon management programme at OCC
- Evolve the current practices, taking a whole-organisation approach, such that carbon management is adopted as a key objective for Oxford City Council
- Report on progress in achieving cost and carbon saving targets and objectives

- Provide practical advice and guidance for key stakeholders so that they can engage with the programme
- Establish two-way communications so that stakeholder ideas and initiatives (e.g. relevant to their areas of work) can be considered and captured under the carbon management programme
- Inspire citizens, businesses, schools, etc outside of the Council to take action on carbon management in their own homes and buildings.

### 7.2.2 Communications plan 2008/9

The headline areas and actions that will be addressed via the communications plan will consist of the following:

- Establishment of communications team covering the Carbon Management Strategy and Implementation Plan – creation of detailed communications plan (April 2008)
- High profile event to launch the Carbon Management Strategy and Implementation Plan (June/July 2008, Town Hall)
- Monthly information campaign carrying key messages and aims of the Carbon management programme via a range of communications channels (e.g. Intranet, Team Brief, Payslips, seminars/workshops, “powerdown” weekends, print etc) (May 2008 onwards)
- Series of events/seminars for staff and elected members to be decided and developed. For example:
  - Quarterly briefings (reports/presentations) to elected members
  - Carbon management surgeries – bring forward your carbon savings ideas etc
  - Regular progress reports to Chief Exec/WBM
  - Annual progress reports to EB/full council
  - Carbon Management opportunities workshop events to encourage further input from staff on carbon management opportunities (re-run of format from Sept 07 event held in town hall)
- **Develop a Carbon Management brand at OCC:** An overall branding for the carbon management programme at OCC will be established under the general heading of “Getting our House in Order” – design of a brand/icon and key strap-lines to be developed that will be used on all communications associated with the programme (e.g. compare with the Future First campaign at County). This would also be used on all energy/carbon related communications messages sent out by the media team or initiated by other departments (e.g. fleet biofuels PR to link to the Carbon Management Programme)

All minutes/actions, events, details and publications will be placed on the intranet under the Climate Change icon on the top frame (which will also contain information on other climate change related programmes – e.g. climate change adaptation, external outreach work such as Oxford Is My World etc). Carbon Management specific information will be listed under “Policies and Procedures”. Digested content for all carbon management programme work will be placed on the Public website under Climate Change.

### 7.2.3 Resources

A communications team will be established working in partnership with the media and communications team (lead by Internal Communications Officer – currently Annette Cunningham) to implement the communications plan. The communications team will report on progress/issues to the Carbon Management Group at the CMG meetings. Financial resources to be decided but will most likely come

from a range of sources including the energy management budget as well as cross-departmental budgets.

#### **7.2.4 Monitoring the communications process**

A range of methods will be applied to gauge the success of the carbon management programme communications campaign and assessing whether awareness and messages are getting through to relevant stakeholder groups

This will include:

- Annual carbon/energy awareness surveys to all staff and members (to establish understanding of the carbon management programme and its aims/objectives – tied in with incentives/competitions run via the staff awareness/energy champions network project)
- Achievement of 12 information campaigns per year (placing of posters, emails to all staff/members with energy/carbon programme related messages, info in payslips etc)
- Annual event on climate change per year (to include overview of carbon management programme – open to public, businesses etc)
- Placing of articles in each issue of Oxford accents
- Placing of articles in each issue of Your Oxford
- 4-6 press releases related to the carbon management programme per year

## 8 SIP governance, ownership and management

This section describes how the Strategy and Implementation Plan will be governed, owned and managed in order to realise OCC's full carbon emissions reduction potential.

### 8.1 Main roles and responsibilities

There are three proposed tiers of management of the Carbon Management Programme.

The **OCC Executive Board** will provide formal endorsement of the programme in Council policy and will receive annual reports on progress from the Carbon Management Team.

The **Carbon Management Board (CMB)** will ensure overall success and delivery of the Carbon Management Strategy and Implementation Plan, approve large projects, monitor all projects and their impact on expected outcomes, and unblock/resolve any problems with delivery of the SIP. The CMB will meet every two months in the leader's/Chief Executive's office – scheduled to occur a week after CMT meetings (see below). The CMB will ensure that proper corporate functioning takes place.

The **Carbon Management Team (CMT)** will be the core team responsible for implementing the building blocks of the SIP and bringing forward additional viable carbon reduction opportunities as they arise. CMT will implement, embed and enable projects in the SIP and monitor delivery of outcomes. It will meet every two months in a central council location with ad-hoc meetings arranged as necessary to advance ongoing projects as they happen. Every department of the Council will have its part to play in achieving successful delivery of the SIP and will have a nominated representative on the CMT (see table below in Section 8.1.2).

The programme will be managed overall by the **Carbon Programme Manager** (Paul Spencer - Climate Change Officer). Paul Spencer will be responsible for coordinating day-to-day implementation of carbon reduction related projects, and overall management of the SIP from April 2008. This will also include managing the Carbon Reduction Investment fund (Salix/Prudential borrowing) and monitoring progress of the programme against agreed targets. Paul Robinson will oversee implementation of the SIP with specific responsibility for all renewable energy projects and ad-hoc specialist projects that arise as the Programme develops.

A detailed breakdown of proposed tiers of management are detailed below:

#### 8.1.1 Carbon Management Board (CMB)

The Carbon management Programme board will be made up of the following:

- Chief Executive: Peter Sloman; (or/plus a new Executive Director tbc)
- Leader of Council: Cllr John Goddard;
- Chief Finance Officer: Sarah Fogden;
- Carbon Programme Group (Senior Management Sponsor): John Copley
- Carbon Programme Manager: Paul Spencer
- Wider Sustainable Energy and Environmental Agenda: Paul Robinson

### 8.1.2 Carbon Management Team (CMT)

The Carbon Management Team will be the core team responsible for implementing the building blocks of the SIP and bringing forward additional viable carbon reduction opportunities as they arise. If any team members should leave the Council then a suitable replacement will be appointed to replace the team member.

Role in Carbon Management Team	Name and position in the LA	Contact details
Senior Management Sponsor	John Copley Head of Environmental Development	01865 252386 <a href="mailto:jcopley@oxford.gov.uk">jcopley@oxford.gov.uk</a>
Councillor Sponsors	<p>ClIr John Goddard, Leader of Council</p> <p>ClIr Caroline Van Zyl Sustainable Environment, Climate Change portfolio holder</p>	<p>01865 438961 <a href="mailto:cllrjgoddard@oxford.gov.uk">cllrjgoddard@oxford.gov.uk</a></p> <p>01865 308392 <a href="mailto:cllrcvanzyl@oxford.gov.uk">cllrcvanzyl@oxford.gov.uk</a></p>
Councillor Core Team members	<p>ClIr Richard Huzzey Member of Environmental Scrutiny Committee</p> <p>ClIr Matt Sellwood Climate Change Action Team</p> <p>ClIr Susanna Pressel Member of Environmental Scrutiny Committee</p> <p>ClIr Jean Fooks Cleaner City portfolio holder</p>	<p>07949 291595 <a href="mailto:cllrrhuzzey@oxford.gov.uk">cllrrhuzzey@oxford.gov.uk</a></p> <p>01865 252414 <a href="mailto:cllrmsellwood@oxford.gov.uk">cllrmsellwood@oxford.gov.uk</a></p> <p>01865 554001 <a href="mailto:cllrspressel@oxford.gov.uk">cllrspressel@oxford.gov.uk</a></p> <p>01865 310351 <a href="mailto:cllrjfooks@oxford.gov.uk">cllrjfooks@oxford.gov.uk</a></p>
Carbon Programme Manager	Paul Spencer Climate Change Officer	01865 252238 <a href="mailto:pspencer@oxford.gov.uk">pspencer@oxford.gov.uk</a>
Finance Champion	Sarah Fogden Chief Finance Officer	01865 252708 <a href="mailto:sfogden@oxford.gov.uk">sfogden@oxford.gov.uk</a>

<b>Role in Carbon Management Team</b>	<b>Name and position in the LA</b>	<b>Contact details</b>
Core Team members	Paul Robinson Sustainable Energy Officer	01865 252541 <a href="mailto:probinson@oxford.gov.uk">probinson@oxford.gov.uk</a>
	John Bellenger Section Manager, Built Environment	01865 252775 <a href="mailto:jbellenger@oxford.gov.uk">jbellenger@oxford.gov.uk</a>
	Daniel Hennessy Interim Business Manager, Business Systems	01865 252284 <a href="mailto:dhennessy@oxford.gov.uk">dhennessy@oxford.gov.uk</a>
	Phil Dunsdon City Works (Operations Group Manager)	01865 252958 <a href="mailto:pdunsdon@oxford.gov.uk">pdunsdon@oxford.gov.uk</a>
	Colin Bailey City Works (Head of City Works)	01865 252901 <a href="mailto:cbailey@oxford.gov.uk">cbailey@oxford.gov.uk</a>
	Annette Cunningham, Internal Communications Officer	01865 252162 <a href="mailto:acunningham@oxford.gov.uk">acunningham@oxford.gov.uk</a>
	Jane Lubbock, Business Manager, Facilities Management	01865 252218 <a href="mailto:jlubbock@oxford.gov.uk">jlubbock@oxford.gov.uk</a>
	Mark Saunders, Manager, Ice Rink (covering Leisure Centres)	01865 467005 <a href="mailto:msaunders@oxford.gov.uk">msaunders@oxford.gov.uk</a>
	Chris Pyle, Policy and Asset Manager, Oxford City Homes	01865 253611 <a href="mailto:cpyle@oxford.gov.uk">cpyle@oxford.gov.uk</a>
	Emma Burson, (Capital Projects), Chief Management Accountant	01865 252571 <a href="mailto:eburson@oxford.gov.uk">eburson@oxford.gov.uk</a>
	Sue Shutter, Human Resources	01865 252547 <a href="mailto:sshutter@oxford.gov.uk">sshutter@oxford.gov.uk</a>
	Legal department representative	Tbc
	James Edwards, Community Housing and Development	01865 252449 <a href="mailto:jedwards@oxford.gov.uk">jedwards@oxford.gov.uk</a>
	City Development representative	Tbc
	Customer services representative	Tbc
	Chief Executive's office representative	Tbc

### 8.1.3 Carbon Management Implementation Plan: Delivery Responsibility Table

The following table lists key personnel (Carbon Managers) and departments responsible for overall delivery of carbon management activity areas. Should a carbon manager leave the Council a suitable replacement from the same department responsible will be appointed to ensure on going delivery of the Carbon Management Programme.

<b>Activity</b>	<b>Carbon Manager(s)</b>	<b>Department responsible</b>
<i>Carbon Management Implementation Plan</i>	<i>Paul Spencer/Paul Robinson,</i>	<i>Environmental Development</i>
<i>Financing of Carbon Management Activities</i>	<i>Paul Spencer/Paul Robinson,</i>	<i>Environmental Development</i>
<i>Carbon Management in Buildings</i>	<i>Paul Spencer/Paul Robinson,</i>	<i>Environmental Development</i>
<i>Carbon Management in Transport (Fleet Vehicles)</i>	<i>Phil Dunsdon/Paul Einon</i>	<i>City Works</i>
<i>Carbon Management in Transport (Grey Fleet/private vehicles )</i>	<i>Sue Shutter</i>	<i>Human Resources</i>
<i>Onsite renewables/low carbon technologies</i>	<i>Paul Robinson/Paul Spencer</i>	<i>Environmental Development</i>
<i>Procurement</i>	<i>Jane Lubbock</i>	<i>Procurement/Facilities Management</i>
<i>Communications and community relations</i>	<i>Annette Cunningham</i>	<i>Media and Communications</i>
<i>Carbon Management in Waste</i>	<i>Colin Bailey</i>	<i>City Works</i>
<i>Carbon Management in Council Housing stock</i>	<i>Chris Pyle</i>	<i>Oxford City Homes</i>

### 8.2 Policies and procedure alignment

If carbon management is to be firmly embedded in the workings of Oxford City Council then there is a need to align policies and procedures relating to HR, Procurement, Business Systems and Travel to this end.

#### HR

Carbon management related issues need to be clearly reflected in job descriptions of carbon management team members (annual appraisals/work plans) and all staff (generic statement in Job description “have a responsibility to minimise/reduce energy consumption and waste sent to landfill etc”).

**Carbon management related issues need to be clearly reflected in job descriptions of carbon management team members and all staff.**

#### Procurement

The carbon emissions of any products or services being procured needs to be a priority consideration in purchasing decisions.

#### Travel

Oxford CC already has some healthy policies to promote more sustainable forms of travel:



- Cycle-to-work salary sacrifice scheme to allow purchase of bicycles for commuting purposes
- Cycling mileage allowance at 22p/mile
- Bus season ticket salary sacrifice scheme
- Bus passes for travel at work

However the carbon emissions associated with “grey fleet” use of private cars on OCC business is still significant (at least 172 tonnes CO<sub>2</sub>/y) and new incentives and policies need to be developed to address this (e.g. home working).

### **Business Systems**

OCC is making significant in-roads already to reduce the carbon emissions associated with IT equipment and operation. For example, purchasing the best energy specifications available from Dell, investigating rationalisation of printing functions at OCC, fitting printers with timers, PC auto shutdown out of office hours, virtual servers, investigation into virtual desktops etc. Recycled paper use in printers. Screen shutdown for periods of inactivity. Remote access to e-mails/files etc enables home working. Enabling paperless meetings – electronic links to meeting rooms (and investigating installation of wireless capabilities).

### **Executive Board**

It has been agreed at senior management level that reports going to the Executive Board of the Council are assessed for carbon emission implications. This carbon check mechanism will be carried out by the council’s Environmental Development department.

### **Environmental Management Systems**

Oxford City Council will undertake an evaluation of Environmental Management Systems (such as EMAS, ISO14001 etc) during the course of the carbon management implementation period (2008/9 to 2012/13) to ensure appropriate high standards and independent audit procedures apply to the wider environmental agenda within OCC.

### **Asset Management**

OCC is reviewing its office accommodation with a view to making more efficient use of space and sharing facilities with other Oxfordshire local authorities. The full carbon impacts of any office moves or relocations will be considered and opportunities seized to develop exemplar low carbon local government office facilities.

## **8.3 Risks and issues management**

Existing council processes as well as new ones created through the Carbon Management Programme will be used to predict / identify risks and issues at a programme level, identify the means of managing and resolving these, ensure that actions are taken, and regularly review their status.

Major problems with progress of the Carbon Management Strategy and Implementation Plan will be brought to the attention of the Carbon Management Board to help unblock or mitigate the situation. Key senior personnel at OCC sit on this Board so is the best arena through which to address major problems whether related to personnel, technologies or finances.

Minor problems will be dealt with by the Carbon Management Team and recorded in minutes of meetings/e-mail exchanges. Any that escalate or take longer than one meeting to resolve will be progressed up to the CMB.

The following summarises key risks, reporting mechanisms and escalation routes for issues arising within the carbon management programme.

## **Buildings**

### *Main risks:*

- Salix money not spent in time risking granting of future funding
- Budget holders/buildings managers don't agree to project and to sign up to salix loan payments
- Investment does not yield expected savings
- Budget holders default on repayments

### *Risk mitigation*

Each programme of work will be monitored on a monthly basis and minuted in meetings between OCC and Mouchel (energy consultants) – this will cover financial payments to Salix fund, energy performance etc

### *Escalation route*

*Carbon Management in Buildings*/Energy management function (OCC and Mouchel) – report to Carbon Management Board – Report to Weekly Business meeting/Executive Board

## **Travel**

### *Main risks:*

- Investment does not yield expected savings
- Negative reactions from staff

### *Risk mitigation*

Travel at Work: Regular monitoring of mileage claims/modes of transport (Finance/Human resources) report to Carbon Management Team – reports to CMG

Fleet vehicles: Fuel consumption (and fuel type - % of fleet on 30% or higher biodiesel blend) and mileage records – reports to CMG

### *Escalation Route*

Carbon management Team – report to Carbon Management Board – Report to Weekly Business meeting/Executive Board

## **Waste**

### *Main risks:*

- Investment does not yield expected savings

### *Risk mitigation*

Monthly monitoring of waste collected from OCC operations

### *Escalation Route*

Carbon Management in Waste – report to Carbon Management Team – report to CMB - Report to Weekly Business meeting/Executive Board

## **8.4 Benefits management**

The success of Carbon reduction projects will be measured at regular intervals upon implementation to assess progress. For example, meter readings will be assessed each week after immediate implementation of a technological fix (e.g pool covers and Variable speed drives at Swimming pools, Voltage optimisation technologies at office buildings, lighting retrofits etc) for the first two months and then monthly following that period.



Energy and carbon savings will be logged and reported to relevant stakeholders (e.g buildings manager, project team, etc). Staff will be informed on a regular basis of overall energy performance through the energy champions/staff awareness network across the council broken down by building/business unit where possible. This will be coordinated via powerdown campaigns – where non-essential equipment is switched-off at the weekend – meter readings taken before and afterwards to get real-time feedback on success of each campaign.

## 8.5 Reporting and evaluation

### 8.5.1 Reporting

Monitoring reports on progress with the overall carbon management programme as well as progress on individual projects as outlined in the Individual Actions section (Appendix A) will be required on differing timescales and at different levels.

The following provides a high-level overview of reporting processes:

Executive Board – Interim report to EB in November each year with an update on progress with the Carbon Management Strategy and Implementation plan to factor in to following year's budgeting process. This short high-level summary report will cover projects underway, technologies installed, expected and actual energy/financial savings, problems/roadblocks to progress etc.

The Carbon Management Strategy and Implementation Plan will be reviewed and updated annually by the Carbon Management Team and Carbon Management Board to assess progress on targets and status of implementation. An annual report will be presented to the Executive Board in June each year.

Progress on individual projects (as listed in the Individual Actions: Appendix A) will be reported to the Carbon Programme Team every two months at Carbon Management Team meetings by individual Project owners.

### 8.5.2 Evaluation

Project owners will provide high-level quantitative benefit data to the Carbon Programme Manager on a monthly basis as appropriate providing financial and carbon monitoring information. This will be reported to the Carbon Programme Board at the bi-monthly meetings (as appropriate) and annually to the Executive Board.

#### 8.5.2.1 Indicators, data sources and contacts for quantitative monitoring

##### **Overarching indicator**

25% reduction in Council's CO<sub>2</sub> emissions by 2010/11 and 3% year on year thereafter

##### *Data source*

Cumulative calculation based on data below

##### *Key contact*

Paul Spencer, Carbon Programme Manager

##### **Buildings Indicator 1**

Reduction in energy and water use from all operational sites and buildings outlined in the baseline scope.

##### *Data source*

Database of energy consumption of all sites/smart metering data

**Buildings Indicator 2**

Increase in energy from on-site renewable energy technologies

*Data source*

Monitoring equipment at point of energy source

*Key contact*

Paul Spencer/Paul Robinson

**Travel at Work indicator**

Reduction in CO<sub>2</sub> from fleet vehicles

*Data source*

Fleet vehicles/Other Vehicles (private vehicles/grey fleet) annual fuel and mileage records - to be developed

*Key Contact*

Paul Einon/Dave Cookson – fleet vehicles

Finance/HR (Emma Burson/Sue Shutter tbc)– private vehicles/grey fleet

**Waste indicator**

Decrease in waste produced from operational sites

*Data source*

To be developed/waste disposal invoices from across sites if possible

*Key contact:* Phil Dundson/tbc

## Appendix A: Individual actions

The following is a list of carbon reduction opportunities identified to date that will form the initial phase of initiatives feeding in to the Carbon Management Programme. Further carbon reduction opportunities are expected to be identified as the Programme evolves and develops.

<b>Project / Action 1: Voltage Optimisation</b>	
<i>Description and notes</i>	<i>Installation of voltage optimisation (e.g Power perfector) equipment, on sites that are viable, to reduce incoming voltage to an adequate level to allow equipment to operate properly thus reducing metered electricity consumption.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £50K in year 1; £50K in Year 2 and £30K per year for the subsequent 3 years as suitable buildings are identified (tbc)</i></li> <li>• <i>Operational costs: None anticipated</i></li> <li>• <i>Annual Cost savings: £24.6K in year 1; £52K in Year 2 (ie £24.6K + £27.4K) rising to £90K per annum in year 5 (tbc)</i></li> <li>• <b>157tCO<sub>2</sub> in Year 1, 332tCO<sub>2</sub> in year 2 (i.e 157tCO<sub>2</sub> + 175.1t CO<sub>2</sub>) rising to 575tCO<sub>2</sub> in year 5</b></li> <li>• <i>ca 1.9 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and building managers/maintenance managers (Keith Austin – Leisure ; Keith Reynolds – Estates)</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Ownership by Carbon Management Team</i></li> <li>• <i>Paul Spencer/Keith Austin/Keith Reynolds</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Actual savings will depend on voltage distribution in local electricity distribution network and will vary by site – above figures based on 8 sites identified and assessed to date for Year 1 (Ice Rink, Town Hall and Blackbird Leys Leisure) and Year 2 (Temple Cowley Pools, Barton Pool, Ferry Sports Centre, Cowley Marsh Depot and Ramsay House) – with estimated year on year investment at other large consuming sites</i></li> <li>• <i>Main means of risk mitigation: measuring incoming supply voltage at each site over a two week period (already done for six sites) to more precisely identify anticipated savings</i></li> </ul>



<i>Performance / success measure</i>	<i>Energy usage monitored by AMR or Half-hourly meter readings at most sites in first phase – plan to extend to more sites year on year where possible – manual readings to be taken where metering not viable.</i>
<i>Timing</i>	<i>Initial phase of installation during 2007/8 and continuing through to at least year 5 of the implementation phase. Possible continuation should more sites be identified</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel – Quotations from Power perfector following site visits Salix/Carbon trust information (rule of thumb measures)</i>



<b>Project / Action 2: Liquid Pool Covers</b>	
<i>Description and notes</i>	<i>Installation of liquid pool covers at 2 leisure centres (Temple Cowley Baths and Hinksey Outdoor pool) to reduce evaporation (and hence heat) losses from pool water and reduce demand for HVAC systems at indoor pool.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• Capital costs: £1176</li> <li>• Operational costs: £8640 each year for dosing liquid</li> <li>• Total cost year 1: £9816 and then £8640 each year thereafter</li> <li>• Cost savings: £29175 per year (based on CT rule of thumb 25% savings on energy)</li> <li>• Ca <b>198t</b>CO<sub>2</sub> per year (based on 8.5pkWh savings; 0.43kgCO<sub>2</sub> per kWh elec; 2.3pkWh savings; 0.185kgCO<sub>2</sub> per kWh gas)</li> <li>• Ca 0.4 years</li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</li> <li>• Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</li> <li>• Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and leisure maintenance manager (Keith Austin – Leisure)</li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• Ownership by Carbon Management Team</li> <li>• Installation, maintenance and operation - Leisure maintenance manager (Keith Austin)/ Leisure operations manager (Steve Holt)</li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• Actual savings will require full staff commitment to adding liquid cover to dosing kit as part of weekly/monthly work schedule – business manager leisure to enforce</li> <li>• Regular (weekly) monitoring of equipment to assess that it is functioning properly (Keith Austin/Centre managers)</li> <li>• Main means of risk mitigation: staff training given on use of technology and reasons why it is being implemented to reduce carbon emissions from leisure (also realising financial savings)</li> </ul>
<i>Performance / success measure</i>	<i>Electricity, Gas and Water usage monitored by AMR at Temple Cowley pools – weekly manual readings to be taken at Hinksey Outdoor pool from May to End of September (over the course of the season of operation)</i>
<i>Timing</i>	<i>Installation 2007/8</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel Quotations from Heatsaver following site visits Salix/Carbon trust information (rule of thumb measures)</i>

<b>Project / Action 3: Motorised Pool Covers</b>	
<i>Description and notes</i>	<i>Installation of motorised pool covers at 3 leisure centres (Barton Pool, Ferry Sports Centre and Blackbird Leys Pool) to reduce evaporation (and hence heat) losses from pool water and reduce demand on HVAC systems.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £33.8K</i></li> <li>• <i>Operational costs: None anticipated</i></li> <li>• <i>Gross Cost savings: £8.76K per year (conservative est)</i></li> <li>• <i>Emissions savings: 56tCO2 per year</i></li> <li>• <i>Simple payback: ca 3.9 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Capital installation work to be overseen/coordinated by Keith Austin – Leisure Maintenance manager</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>○ <i>Ownership by Carbon Management Team</i></li> <li>○ <i>Installation, maintenance and operation - Leisure maintenance manager (Keith Austin)/ Leisure operations manager (Steve Holt)</i></li> </ul>
<i>Ensuring success</i>	<p><u><i>Principle Risks</i></u></p> <ul style="list-style-type: none"> <li>• <i>Low efficient option chosen - savings not realised within timescales.</i></li> <li>• <i>Current Plant and control systems not able to maximize full saving potential</i></li> </ul> <p><u><i>Main Means of Risk Mitigation</i></u></p> <ul style="list-style-type: none"> <li>• <i>Ensure correct specification drawn up</i></li> <li>• <i>Proof of Contractors previous work and site savings realised</i></li> <li>• <i>Use of Leisure Maintenance manager to ensure robust selection process and value for money specification along with checking current plant can be integrated into working efficiently with Pool Covers</i></li> <li>• <i>Level of technical complexity – relatively easy to implement measure</i></li> </ul>



<i>Performance / success measure</i>	<i>Energy usage monitored by AMR or Half-hourly meter readings at Ferry Sports Centre — manual readings to be taken where metering not viable.</i>
<i>Timing</i>	<i>Initial phase of installation during 2007/2008 – Barton Pool cover successfully installed October 07.</i>
<i>Sources of information and guidance</i>	<p><i>Energy survey reports from Mouchel – Quotations from three pool cover suppliers following site visits</i>  <i>Salix/Carbon trust information (rule of thumb measures)</i>  <i>Sports and Leisure sector overview - CTV006</i></p> <p><i>Good Practice Guide 228- Water-related Energy Savings</i></p> <p><i>Good Practice Case Study- Installation of Pool Covers at the Queens University Physical Education Centre Belfast</i></p> <p><i>Good Practice Guide GPG390- Saving Energy In Leisure</i></p>

<b>Project / Action 4: Variable Speed Drives</b>	
<i>Description and notes</i>	<i>Installation of Variable Speed Drives on air handling units, circulation pumps and cooling towers across OCC buildings to optimise and reduce energy consumption of plant.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £34K</i></li> <li>• <i>Operational costs: None anticipated</i></li> <li>• <i>Annual Cost savings: £26.9K</i></li> <li>• <b>199tCO<sub>2</sub> per year</b></li> <li>• <i>ca 1.3 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and building managers/maintenance managers (Keith Austin – Leisure ; Keith Reynolds – Estates)</i></li> </ul>
<i>Ownership and accountability</i>	<p><i>Ownership by Carbon Management Team</i></p> <p><i>For Leisure buildings - Leisure Operations manager (Steve Holt) and Leisure Maintenance Manager (Keith Austin)</i></p> <p><i>For Other buildings – Buildings operations manager (Jane Lubbock) – Estates team (John Bellenger and Keith Reynolds)</i></p>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Above figures based on 7 sites identified and assessed to date (Ice Rink, Town Hall, Blackbird Leys Pool, Temple Cowley Pools, Barton Pool, Ferry Sports Centre, and Hinksey Pool) – with estimated year on year investment at other large consuming sites</i></li> <li>• <i>Main means of risk mitigation: measuring incoming supply voltage at each site over a two week period (already done for six sites) to more precisely identify anticipated savings</i></li> </ul>
<i>Performance / success measure</i>	<i>Energy usage monitored by AMR or Half-hourly meter readings at most sites in first phase – plan to extend to more sites year on year where possible – manual readings to be taken where metering not viable.</i>
<i>Timing</i>	<i>Main phase of installation during 2007/8 and 2008/9. Possible continuation should more sites be identified</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel – Quotations from Power perfector following site visits Salix/Carbon trust information (rule of thumb measures)</i>

<b>Project / Action 5: Energy Awareness and Champions Network</b>	
<i>Description and notes</i>	<i>Establishment of regular staff energy awareness campaigns –(Switch it Off/Power down) – establishment of network of Carbon champions to ensure campaigns are supported and carbon related savings carried out across OCC buildings and operations</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: none anticipated</i></li> <li>• <i>Operational costs: tbc but expected to be £10000 each year for robust communications campaigns, incentives, training etc</i></li> <li>• <i>Cost savings: ca £84000 savings in first full year of the programme - based on potential for up to 7.5% reduction in energy costs (depending on market prices) based on middle point of Carbon Trust rule of thumb 5-10% savings with staff awareness/and champions network</i></li> <li>• <i>Ca 500tCO2 per year (based on 7.5% reduction 8.5pkWh savings; 0.43kgCO2 per kWh elec; 2.3pkWh savings; 0.185kgCO2 per kWh gas)</i></li> <li>• <i>Payback: Ca 0.2 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Energy management budget (revenue budget) – Departmental budgets</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Project launch Team : Mark Saunders, Laura Thompson and Charlie Morris-Marsham</i></li> <li>• <i>Media and communications support to get across key messages</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Ownership by Carbon Management Team</i></li> <li>• <i>Project launch Team : Mark Saunders, Laura Thompson and Charlie Morris-Marsham</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Actual savings will require full staff commitment to engaging with programme of energy/carbon savings campaigns</i></li> <li>• <i>Regular monitoring of consumption before and after campaigns</i></li> <li>• <i>Main means of risk mitigation: full endorsement and support from Chief Exec/Leader – communication of need to take seriously to all business units – competitions and incentives</i></li> <li>• <i>staff training given on energy/carbon awareness and why it is important to all take responsibility for reducing carbon emissions from our buildings and operations</i></li> </ul>



<i>Performance / success measure</i>	<i>Electricity, Gas and Water usage monitored by AMR at key sites – backed up with manual readings/HH readings where available</i>
<i>Timing</i>	<p><i>Launch phase 2007/8</i></p> <p><i>develop communications plan and key messages/objectives – roll out across council (Intranet, payslips, noticeboards, Your Oxford, Accents, Team brief, Team meetings etc</i></p> <p><i>Recruit carbon champions network to enable achievement of key aims</i></p> <p><i>Regular updates on energy savings messages, reporting on consumption savings achieved per business unit/building etc</i></p>
<i>Sources of information and guidance</i>	<p><i>Salix/Carbon trust information (rule of thumb measures)</i></p> <p><i>Carbon Trust Communications guidance – CTG001 “Creating an Awareness Campaign”</i></p> <p><i>LACMP network</i></p> <p><i>EST and other groups</i></p>

<b>Project / Action 6: Business Systems: PC Hibernation</b>	
<i>Description and notes</i>	<i>Hibernate all council PCs at 7pm each evening.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• £0-10k, depending upon solution</li> <li>• 50,000 kwh paTBC (ca 22 tonnes CO<sub>2</sub>)</li> <li>• £5k pa, TBC</li> <li>• Up to 2 years TBC</li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• Funding from capital budget for desktop replacement 2007/8</li> <li>• Management: Planned work within the Desktop refresh project</li> <li>• Core funding already available</li> </ul>
<i>Ownership and accountability</i>	<i>Business Systems (Dave Buckett, Iain Ross, Daniel Hennessy)</i>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• Known key success factors                             <ul style="list-style-type: none"> <li>○ Determining an optimum solution (costs vs Management)</li> <li>○ Gain accurate data on the size of the opportunity (many people already switch off their PCs) we could be dealing with a very small problem / opportunity</li> <li>○ Gain staff buy-in, need to avoid delivery of a poorly implemented solution</li> </ul> </li> <li>• Principal risks:                             <ul style="list-style-type: none"> <li>○ Perceived problem is much greater than the actual opportunity and savings are minimal</li> <li>○ The solution is poorly implemented and fails to gain staff support. Pressure is brought to reverse its implementation</li> </ul> </li> <li>• Main means of risk mitigation                             <ul style="list-style-type: none"> <li>○ Ensure staff understand the mechanics of the solution to be implemented and buy-in (deal openly with genuine concerns)</li> <li>○ Implement a solution that offers central control and flexibility to adapt to varying needs (cost may be a constraint)</li> </ul> </li> </ul>
	•
<i>Performance / success measure</i>	<i>Solution successfully implemented resulting all but a small number of critical PCs being left switched on after 7pm each evening</i>
<i>Timing</i>	<i>First phase implemented 07/08 – scope for further installation/additional solutions tbc</i>
<i>Sources of information and guidance</i>	<i>Internal ICT team Organisations that have a working solution (eg Staffs CC) Dell Web</i>



<b>Project / Action 7: Business Systems: Server Virtualisation</b>	
<i>Description and notes</i>	<i>OCC to deploy all new servers and upgrades to existing systems via the Virtual VMWare environment (i.e. standalone servers only purchased if VMWare solution shown to be unsuitable .</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: tbc,</i></li> <li>• <i>Energy/Cost savings: ca 150,000 kwh pa/£12.75K based on 33% reduction in machine room electricity consumption (during first phase of implementation – effectively reducing ca 120 servers to 80(?) – 8.5pkWh – more savings possible as move to wider roll out of VMWARE</i></li> <li>• <i>Carbon savings: (first phase) TBC but estimated of ca 66 tonnes CO<sub>2</sub> pa</i></li> <li>• <i>TBC</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding within the capital budget for desktop replacement 2007/8</i></li> <li>• <i>Future VMWare installation could be funded via Salix funding mechanism</i></li> <li>• <i>Core funding already available</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Ownership by Carbon Management Team</i></li> <li>• <i>Business Systems manager (Daniel Hennessy) Project Manager (Iain Ross)</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Known key success factors</i> <ul style="list-style-type: none"> <li>○ <i>Determining an optimum solution (costs vs Management)</i></li> <li>○ <i>Gain accurate data on the size of the opportunity</i></li> </ul> </li> <li>• <i>Principal risks:</i> <ul style="list-style-type: none"> <li>○ <i>The solution is poorly implemented and system performance compromised</i></li> </ul> </li> <li>• <i>Main means of risk mitigation</i> <ul style="list-style-type: none"> <li>○ <i>Ensure staff understand the mechanics of the solution to be implemented and buy-in (deal openly with genuine concerns)</i></li> <li>○ <i>Implement a solution that offers central control and flexibility to adapt to varying needs (cost may be a constraint)</i></li> </ul> </li> </ul>
<i>Performance / success measure</i>	<i>Solution successfully implemented resulting in all but a small number of critical PCs being left switched on after 7pm each evening</i>
<i>Timing</i>	<i>First phase of VMWare installations completed November 2007. More installations being considered by Business Systems tbc</i>
<i>Sources of information and guidance</i>	<i>Internal ICT team Organisations that have a working solution Dell Web</i>

<b>Project / Action 8: Procurement: Low energy vendings machines (inc Corporate vending machine contract + energy saving timers on water coolers)</b>	
<i>Description and notes</i>	<i>Replacement of up to 50 machines at various locations + timers put on water coolers in office buildings</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• Nil financial investment with the new contract with Coffeepoint includes the replacement of the council's vending machines by them on a no rental fee basis. The Council receives a percentage of profit from sales.</li> <li>• Ca £250 - Cost of timers from 2006/7 budget</li> <li>• The new machines will be more energy efficient. Timers on water coolers will reduce period of the day when the machine uses electricity.</li> <li>• In excess of £2000 per year in reduced energy bills. (<b>ca 10 tonnes of CO<sub>2</sub> saved</b>)</li> <li>• 1 year to cover the cost of timers. These were purchased in 2006/7</li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• Staff from Facilities and Leisure in managing a complicated tender process. Staff in both sections now co ordinating the implementation of the contract.</li> <li>• Staff in both units will monitor the contract. The Caretaking manager will ensure the timers are operational on all water coolers in the central offices.</li> <li>• Decision to award contract given by Executive Board in July 2007</li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• The officers responsible for rolling out the new vending machines are: Mark Saunders, Viv Hichens</li> <li>• The officer responsible for water cooler timers is Bob Taylor</li> </ul> <p>The new contract has been communicated to leisure staff by Mark Saunders.</p> <p>Overall project ownership: Jane Lubbock</p>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• Up to 50 new vending machines in place. The bulk of these were installed at the end of July 2007</li> <li>• Electricity bills for 4<sup>th</sup> quarter of 2007 shows a reduction in usage for the same qtr in 2006</li> <li>• Principal risks: contractual issues arising</li> <li>• Main means of risk mitigation regular meetings with supplier and clear and documented Pis that are monitored with the Coffeepoint.</li> </ul>
<i>Performance / success measure</i>	<p>Electricity bills for leisure centres</p> <p>Income to Leisure centres from contract</p>
<i>Timing</i>	<i>In place by 3<sup>d</sup> qtr of 2007 – further planned improvements/solutions tbc</i>
<i>Sources of information and guidance</i>	<i>Council procurement Strategy, Sustainable Procurement guides</i>

<b>Project / Action 9: Internal recycling scheme across all operational sites</b>	
<i>Description and notes</i>	<i>Consolidation and enhancement of existing internal recycling scheme to reduce amount of council generated waste sent to landfill. Consistent and prominent communications and materials (recycling points) across all OCC operations.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £2000 for year one</i></li> <li>• <i>Operational costs: £5000 year one/£5000 year two</i></li> <li>• <i>Net cost savings of £7k based on a total reduction of 726tonnes of council operational waste being recycled rather than sent to landfill (25% of baseline total of 2904tonnes waste currently sent to landfill)</i></li> <li>• <i>Carbon Savings: 325 tonnesCO2 by 2010/11 (based on reducing operational waste to landfill by 25% in line with overarching target)</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Capital budget – will be sought from carbon management fund (non-payback) – departmental budget contributions?</i></li> <li>• <i>Human resources: City Works/Facilities management officers tbc</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Colin Bailey/Jane Lubbock City Works/Facilities Management heads - key to success of implementation – mirror recycling rates of commercial waste programme in Oxford City</i></li> <li>• <i>Carbon Management Team</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>A corporate waste policy would dictate how all sites should be operating waste disposal operations</i></li> <li>• <i>Incorporation of OCC waste recycling into OCC commercial waste recycling scheme planned for roll out</i></li> <li>• <i>Clear, consistent and prominent materials and information on recycling at all sites across OCC – regular communication across all depts (link in with Carbon Champions networks/staff awareness campaigns)</i></li> </ul>
<i>Performance/success measure</i>	<i>Reduced volume of operational waste to landfill year on year</i>
<i>Timing</i>	<i>Roll out 08/09 in line with Commercial waste recycling development</i>
<i>Sources of information and guidance</i>	<i>WRAP Oxon County SIP</i>

<b>Project / Action 10: Retrofit lighting</b>	
<i>Description and notes</i>	<i>Retrofitting of fluorescent lighting with high frequency ballasts and T5 tubes resulting in electrical savings.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £46K in 08/09; additional costs over subsequent years TBC as suitable buildings are identified</i></li> <li>• <i>Operational costs: None anticipated although likely to be some failure of lamps. Lamp change costs should decrease (reduced lamp purchase and labour costs)</i></li> <li>• <i>Annual Cost savings: £11K in 08/09; subsequent years (tbc)</i></li> <li>• <b>72tCO2 in 08/09</b></li> <li>• <i>ca 4 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and building managers/maintenance managers (Keith Austin – Leisure ; Keith Reynolds – Estates)</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Carbon Management Team</i></li> <li>• <i>Relevant buildings maintenance managers – Keith Reynolds, Keith Austin (Leisure)</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Actual savings will vary by site – above figures based on 4 sites identified to date for installation in 08/09 (Town Hall, Horspath Depot, Cowley Marsh Depot and Ramsay House) – estimated year on year investment at other large consuming sites tbc</i></li> <li>• <i>Main means of risk mitigation: ensuring no double counting with Voltage optimisation installation – findings of VO to be assessed first prior to retrofit lighting in VO installed buildings hence delayed timing of 08/09</i></li> </ul>
<i>Performance / success measure</i>	<i>Energy usage monitored by AMR or Half-hourly meter readings at most sites in first phase – plan to extend to more sites year on year where possible – manual readings to be taken where metering not viable.</i>
<i>Timing</i>	<i>Initial phase of installation during 2008/9 and continuing through to at least year 5 of the implementation phase. Possible continuation should more sites be identified</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel – project tracker database Existing quotation at Cowley Marsh Depot Salix/Carbon trust information (rule of thumb measures)</i>

<b>Project / Action 11: Localised lighting controls</b>	
<i>Description and notes</i>	<i>Installations of movement and daylight level sensors that will automatically switch lights off when a space is unoccupied or natural light levels are sufficient.</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £4K in 08/09; additional costs over subsequent years TBC as suitable locations are identified</i></li> <li>• <i>Operational costs: None anticipated</i></li> <li>• <i>Annual Cost savings: £4.81K in 08/09; subsequent years (tbc)</i></li> <li>• <b>30tCO2 in 08/09</b></li> <li>• <i>ca 0.8 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and building managers/maintenance managers (Keith Austin – Leisure ; Keith Reynolds – Estates)</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Carbon Management Team</i></li> <li>• <i>Relevant buildings maintenance managers – Keith Reynolds, Keith Austin (Leisure sites)</i></li> <li>• <i>Regular progress reports (energy consultants) to be used to document service delivery and results</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Actual savings will vary by site – above figures based on site identified to date for installation in 08/09 (e.g Ferry Squash Courts) – estimated year on year investment at other sites tbc</i></li> <li>• <i>Main means of risk mitigation: discuss and explain proposals with staff prior to installation and take on board suggestions and concerns. Communicate planned changes to all staff and why being implemented (via CMP comms routes like intranet, staff awareness campaigns, Team brief etc)</i></li> </ul>
<i>Performance / success measure</i>	<i>Energy usage monitored by AMR or Half-hourly meter readings at most sites in first phase – plan to extend to more sites year on year where possible – manual readings to be taken where metering not viable.</i>
<i>Timing</i>	<i>Initial phase of installation during 2008/9 and continuing through to at least year 5 of the implementation phase. Possible continuation should more sites be identified</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel – project tracker database Salix/Carbon trust information (rule of thumb measures) Carbon Trust Best Practice Guide – GPG160 – electric lighting controls a guide for designers, installers and users.</i>

<b>Project / Action 12: Cavity Wall Insulation</b>	
<i>Description and notes</i>	<i>Installation of cavity wall insulation at all establishments where cavity walls are present and currently unfilled..</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £5K in 07/08; additional costs over subsequent years TBC as suitable locations are identified</i></li> <li>• <i>Operational costs: None anticipated</i></li> <li>• <i>Annual Cost savings: £1.1K in 07/08; subsequent years (tbc)</i></li> <li>• <b>10tCO2 in 07/08</b></li> <li>• <i>ca 4.5 years</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and building managers/maintenance managers (Keith Austin – Leisure ; Keith Reynolds – Estates)</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Carbon Management Team</i></li> <li>• <i>Relevant buildings maintenance managers – Keith Reynolds, Keith Austin (Leisure sites)</i></li> <li>• <i>Regular progress reports (energy consultants) to be used to document service delivery and results</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Principle risks: none major foreseen – some operational disruption during installation.</i></li> <li>• <i>Main means of risk mitigation: discuss and explain proposals with key staff prior to installation and take on board suggestions and concerns.</i></li> </ul>
<i>Performance / success measure</i>	<i>Reduced heating energy costs – predominantly gas savings expected – manual reading of gas meters in sites where CWI installed.</i>
<i>Timing</i>	<i>Initial phase of installation during 2008/9 and continuing through to at least year 5 of the implementation phase. Possible continuation should more sites be identified</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel – project tracker database Salix/Carbon trust information (rule of thumb measures)</i>



<b>Project / Action 13: Reduce fleet CO<sub>2</sub> emissions</b>	
<i>Description and notes</i>	<i>Reduce CO<sub>2</sub> emissions associated with fleet vehicles by switch to alternative fuels, increasing vehicle fuel efficiency and reducing vehicle mileage.</i>
<i>Quantified costs and benefits</i>	<p>Current CO<sub>2</sub> emissions from fleet are estimated to be <b>1650tonnes</b> from –currently- 283 vehicles: 129 Diesel; 148 LPG; 3 Electric; 1 U/L</p> <p>Carbon reduction will result from:</p> <ol style="list-style-type: none"> <li><b>Switch to 30% biofuels:</b> all fleet vehicles to switch to at least 30% biodiesel blend sourced from local rape-seed crop or waste vegetable oil (Silver Fuels group). First phase of switch taking place 2007/8 with 37 vehicles switching from standard diesel to 30% biodiesel (comprising all makes that the manufacturers have allowed to switch whilst retaining vehicle warranty). One brand new Mercedes hook lift truck to be purchased that will run on 100% biodiesel.)</li> </ol> <p>Assuming a carbon content factor for mineral diesel of 0.087 compared to 0.025 for biodiesel, (ie carbon content of biodiesel is 0.025/0.087 – approx 2/7<sup>th</sup> - that of mineral diesel), this will result in an estimated <b>260 tonnes</b> carbon reduction, cost neutral.</p> <ol style="list-style-type: none"> <li><b>Increased fuel efficiency through eco-driver training programme</b> – for example the Safer and Fuel Efficient Driver (SAFED) course estimates up to 5% reduction in fuel use. If we use 3% as a conservative estimate, this would equate to about <b>42 tonnes</b> saving in CO<sub>2</sub> emissions. Course costs are about £150 per driver (no. drivers in OCC needing training? Say 100, means cost is £15k. Savings in reduced fuel cost, assuming £0.80 per litre, are £13k/y.</li> <li><b>Reduced mileage</b> – sharing of vehicles, using vehicles only when absolutely required (public transport if no equipment to carry or other limiting logistical issues present), route planning improvements, doubling up etc. Vehicle tracking/route planning software? An estimated 5-10% could be saved, resulting in – taking the lower end – a <b>68tCO<sub>2</sub></b> reduction. Savings about £21k/y in reduced fuel cost. <ul style="list-style-type: none"> <li>Total Financial savings from 1,2,3 = £34k/y</li> </ul> </li> </ol> <p>Total carbon reduction = <b>370tCO<sub>2</sub></b></p>
<i>Resources</i>	<ul style="list-style-type: none"> <li><b>Funding:</b> None required to switch existing fleet to 30% blend - Capital budget City Works where required for new or replacement vehicles. Driver training course costs, costs of route planning exercise/software??.City Works budget/Invest to save?</li> <li><b>Management:</b> City Works (Phil Dunsdon/Paul Einon/Dave Cookson)</li> </ul>
<i>Ownership and accountability</i>	Project delivery Phil Dunsdon/Paul Einon (City Works fleet management team)



<i>accountability</i>	<i>Carbon management Team (overseeing delivery of carbon saving reductions via the Carbon Management Strategy and Implementation Plan)</i>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Known key success factors: Reduced transport emissions, reduced fuel consumption</i></li> <li>• <i>Principal risks: Manufacturers' refuse to maintain supply of vehicle warranties to vehicles switched to biodiesel, staff fail to adopt fuel efficiency/reduced mileage measures</i></li> </ul>
<i>Performance / success measure</i>	<i>Reduction in annual fleet emissions and reduction in overall fuel costs. A robust and consistent monitoring system will need to be set up to accurately measure progress with regards fleet vehicles                  Personal targets on fuel consumption/mileage travelled?</i>
<i>Timing</i>	<i>First phase of 30% biodiesel switch being rolled out 2007/08 – gradual switch of all fleet to at least 30% biodiesel                  Fleet management team to develop fuel efficiency/reduced mileage programmes for roll out 09/10 tbc</i>
<i>Sources of information and guidance</i>	<a href="http://www.safed.org.uk">www.safed.org.uk</a>

<b>Project / Action 14: Energy (and Water) M&amp;T</b>	
<i>Description and notes</i>	<p><i>Establishment of a full Monitoring and Targeting function at OCC tracking energy and water consumption across all buildings and operations including:</i></p> <ul style="list-style-type: none"> <li>• <i>Identification of portfolio and sites for which we have responsibility for utility payments</i></li> <li>• <i>Centralised utility procurement contracts (move towards e-billing)</i></li> <li>• <i>Invoice validation and payment</i></li> <li>• <i>Monitoring</i></li> <li>• <i>Targeting</i></li> </ul>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: none anticipated</i></li> <li>• <i>Operational costs: ca £40K per year</i></li> <li>• <i>Cost savings: ca £34000 savings in first full year of the programme - based on potential for up to 3% reduction in energy costs (depending on market prices) based on conservative estimate of rule of thumb savings – plus anticipated savings from streamlined billing process (ca£28 saved per paper invoice switched to e-invoice)</i></li> <li>• <i>Ca 200tCO2 per year (based on 3% reduction on buildings energy - 8.5pkWh savings; 0.43kgCO2 per kWh elec; 2.3pkWh savings; 0.185kgCO2 per kWh gas)</i></li> <li>• <i>Payback: N/A – year on year cost and savings (cost neutral or better as improved internal efficiencies)</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Energy management budget (revenue budget)</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Finance – Penny Gardner/Sarah Fogden – all business units responsible for energy budgets</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Carbon Management Team</i></li> <li>• <i>Finance – Sarah Fogden – cost centre managers responsible for energy budgets</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Regime of manual meter reading needs to be implemented to negate build up of estimate readings – and improve quality/verify consumption data present in M&amp;T database</i></li> <li>• <i>Main means of risk mitigation: full endorsement and support from Chief Exec/Leader – communication of need to take seriously to all business units</i></li> <li>• <i>staff training given on energy/carbon awareness and why it is importance to introduce a meter reading regime</i></li> </ul>



<i>Performance / success measure</i>	<i>Electricity, Gas and Water usage monitored by AMR at key sites – backed up with manual readings/HH readings where available</i>
<i>Timing</i>	<p><i>Currently underdevelopment 07/08 – full launch phase 2008/9</i></p> <p><i>develop communications plan and key messages/objectives – roll out across council (Intranet, payslips, noticeboards, Your Oxford, Accents, Team brief, Team meetings etc</i></p> <p><i>Recruit carbon champions network to enable achievement of key aims</i></p> <p><i>Regular updates on energy savings messages, reporting on consumption savings achieved per business unit/building etc</i></p>
<i>Sources of information and guidance</i>	<p><i>Salix/Carbon trust information (rule of thumb measures)</i></p> <p><i>Mouchel work proposals</i></p> <p><i>Carbon Trust Communications guidance – CTG001 “Creating an Awareness Campaign”</i></p> <p><i>LACMP network</i></p> <p><i>EST and other groups</i></p>

<b>Project / Action 15: Energy and Water Management best practice</b>	
<i>Description and notes</i>	<i>No cost/low cost savings covering areas not captured by M&amp;T and staff awareness. For example, BEMS best practice, insulation of boiler valves/piping, urinal controls, timeswitches on certain appliances, grey water use etc)</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £5k per year</i></li> <li>• <i>Operational costs: £10K per year</i></li> <li>• <i>Cost savings: ca £22500 savings per year - based on 2% reduction in energy costs (depending on market prices) based on conservative estimate of rule of thumb savings</i></li> <li>• <i>Ca 135tCO2 per year (based on 2% reduction on buildings energy - 8.5pkWh savings; 0.43kgCO2 per kWh elec; 2.3pkWh savings; 0.185kgCO2 per kWh gas)</i></li> <li>• <i>Payback: 0.7 year</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Energy management budget (revenue budget)</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</i></li> <li>• <i>Mouchel energy management consultancy/energy audits</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Carbon Management Team</i></li> <li>• <i>Buildings maintenance managers/engineers (Keith Reynolds/Keith Austin)</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Regular walk around surveys of building to ensure that savings measures implemented are effective</i></li> <li>• <i>Main means of risk mitigation: full endorsement and support from Chief Exec/Leader – communication of need to take seriously to all business units</i></li> <li>• <i>staff training given on energy/carbon awareness and why it is importance to introduce a meter reading regime</i></li> </ul>
<i>Performance / success measure</i>	<i>Electricity, Gas and Water usage monitored by AMR at key sites – backed up with manual readings/HH readings where available</i>
<i>Timing</i>	<p><i>Currently underdevelopment 2007/08 – full launch phase 2008/9</i></p> <p><i>develop communications plan and key messages/objectives – roll out across council (Intranet, payslips, noticeboards, Your Oxford, Accents, Team brief, Team meetings etc</i></p> <p><i>Recruit carbon champions network to assist with achievement of key aims</i></p> <p><i>Regular updates on energy savings messages, reporting on consumption savings achieved per business unit/building etc</i></p>
<i>Sources of information and guidance</i>	<p><i>Salix/Carbon trust information (rule of thumb measures)</i></p> <p><i>Mouchel work proposals</i></p> <p><i>LACMP network</i></p> <p><i>EST and other groups</i></p>

<b>Project / Action 16: Sustainable Travel plan</b>	
<i>Description and notes</i>	<p><i>Consolidate and expand on existing Green Travel plan - set up and improve communication to staff about sustainable travel options including use of salary-sacrifice bike scheme, bike (walking?) mileage claims, install better cycle facilities, etc.</i></p> <p><i>Revise corporate travel policy and introduce personal targets to reduced number of miles driven by staff in private vehicles (grey fleet). Introduce lower standard mileage claim rate for all vehicles regardless of engine size.</i></p> <p><i>Introduce improved mileage claim data system to capture CO2 emissions (not just financial elements) in electronic form</i></p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• <i>Capital costs: £5k per year</i></li> <li>• <i>Operational costs: £5K per year</i></li> <li>• <i>Cost savings: ca £145K based on 50% reduction in mileage claim costs over implementation phase (5 years)</i></li> <li>• <i>Ca 86tCO2 (based on 50% reduction on current baseline of 172tCO2) tbc</i></li> <li>• <i>Payback: tbc</i></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: capital budget – refurbishment of shower facilities etc</i></li> <li>• <i>Human Resources: to be overseen by Carbon management Programme Project Team leaders– Paul Spencer and Paul Robinson</i></li> <li>• <i>Corporate travel officer/HR officer/Finance officers</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Ownership by Human Resource manager and Finance officer (Sue Shutter/Sarah Fogden/Emma Burson tbc)</i></li> <li>• <i>Carbon Management Team</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>Full audit of current “travel at work” usage patterns/mileage claim systems</i></li> <li>• <i>HR to develop appraisal forms to assist in reducing mileage</i></li> <li>• <i>Incentive/award scheme developed</i></li> <li>• <i>Main means of risk mitigation: full endorsement and support from Chief Exec/Leader – communication of need to take seriously to all business units</i></li> <li>• <i>staff training given on energy/carbon awareness and why it is importance to reduce use of grey fleet and cycle/walk more (health/financial benefits)</i></li> </ul>

<i>Performance / success measure</i>	<i>Improved mileage claim system to capture accurate mileage and related CO2 emissions data – also to reflect key individual's mileage reductions</i>
<i>Timing</i>	<p><i>Aim for roll out 2009/10</i></p> <p><i>develop communications plan and key messages/objectives – roll out across council (Intranet, payslips, noticeboards, Your Oxford, Accents, Team brief, Team meetings etc</i></p> <p><i>Recruit travel officer?</i></p> <p><i>Recruit carbon champions network to assist with achievement of key aims</i></p> <p><i>Regular updates on mileage savings messages, reporting on savings achieved per business unit/building etc</i></p>
<i>Sources of information and guidance</i>	<p><i>Salix/Carbon trust information (rule of thumb measures)</i></p> <p><i>LACMP network</i></p> <p><i>EST and other groups</i></p>

<b>Project / Action 17: Community Scale Renewable and Low Carbon Energy Generation</b>	
<i>Description and notes</i>	<p>Seek opportunities for OCC to enable, facilitate, invest in, provide land for, form partnerships, or otherwise make Community Scale Renewable and Lower Carbon Energy generation a reality within and around Oxford. Approaches which might fall under this heading are larger wind turbines on OCC owned land, CHP and district heating schemes (fired by gas and/or biomass), anaerobic digestion of food waste.</p> <p>Specific example being explored at the moment: Working with Carbon Trust Enterprises Ltd's Partnership for Renewables wind potential study of OCC owned land. Four very promising sites found for up to 6 2.3MW turbines. More detailed site, planning and wind monitoring investigation needed – this to be addressed in next stage if 25 lease option agreements can be signed between PfR and OCC.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• Capital costs: none to OCC</li> <li>• Operational costs: None to OCC</li> <li>• Total cost year 1: none to OCC (except potential loss of income/capital from other development opportunities for sites</li> <li>• Cost savings: Income for OCC from rental of land that turbines are sited on. £4.5m over 25 year life of project for 6 turbines from rental income alone</li> <li>• Up to <b>13500tCO<sub>2</sub></b> per year for 6 turbines based on potential for 5238MWh per year electricity generation per turbine assuming OCC can retire ROCs or use electricity generated to supply private wire/local load. Aim for at least <b>200tCO<sub>2</sub></b> reduction by 2012/13 (ie Year 5 of plan)</li> <li>• Payback 0 years</li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• Funding: PfR take on all technical and financial risk. OCC get rental for land. Cost to OCC is any lost future income/capital from development of site.</li> <li>• Human Resources: PfR take on the technical work. OCC side overseen by Paul Spencer and Paul Robinson. Input required by Legal, Asset Management, decisions on report recommendations by EB, Full Council as appropriate</li> <li>• Identification of suitable locations and capital installation work by PfR. 3+25yr lease option on site needed between OCC and PfR to allow PfR to take the risk on several hundred £k investment required for detailed site investigation, wind monitoring, planning process etc.</li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• Ownership by Carbon Management Team</li> <li>• Installation, maintenance and operation – PfR will arrange</li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• Ensuring that relevant assessments of land-use, legal and financial risks and issues are undertaken by City officers</li> <li>• Continued political support for large scale renewable energy projects</li> <li>• Other investigations will be made as opportunities arise: - for example local Anaerobic Digestion of food waste for heat and</li> </ul>





	<p><i>power.</i>                  - for example biomass district heating gas CHP network for West End development</p>
<i>Performance / success measure</i>	<i>Installation of wind turbines or other low carbon energy generating plant becoming operational</i>
<i>Timing</i>	<i>3-5 years (aim for first successes 2010/11)</i>
<i>Sources of information and guidance</i>	<i>Reports on wind energy opportunities on OCC owned land from PfR                  Worked example of estimated lease income and supply savings based on 1MW demand per turbine</i>

<b>Project / Action 18: On-site Renewable and Low Carbon Energy Generation</b>	
<p><i>Description and notes</i></p>	<p>Seek opportunities for OCC to incorporate renewable and low carbon energy generation in OCC's operational buildings and sites. Technologies which are appropriate are biomass boilers, solar hot water, PV.</p> <p><i>It should be noted that renewable technologies can be long pay back but they have associated non-financial benefits in demonstrating OCC commitment to tackling climate change locally, raising awareness of sustainable energy issues and offering community leadership in the field of energy and resource management. Biomass boilers can compare very well with conventional boilers on whole life costing.</i></p> <p><i>Specific examples of current activity:</i></p> <ul style="list-style-type: none"> <li>- <i>Hinksey Pool solar heating of pool water</i></li> <li>- <i>PV on sheltered accommodation blocks</i></li> <li>- <i>PV on depots</i></li> <li>- <i>Biomass boilers in sheltered accommodation</i></li> <li>- <i>Biomass in depots</i></li> <li>- <i>Solar hot water on sheltered blocks/hard-to-treat</i></li> </ul>
<p><i>Quantified costs and benefits</i></p>	<p><i>Hinksey Pool solar heating of pool water:</i></p> <ul style="list-style-type: none"> <li>• <i>Capital costs: £45k</i></li> <li>• <i>Operational costs: none anticipated</i></li> <li>• <i>Total cost year 1:</i></li> <li>• <i>Example of cost savings 22 tCO<sub>2</sub> for solar pool heating – Aim for 125tCO<sub>2</sub> by 2012/13 (Year 5)</i></li> <li>• <i>20 years</i></li> </ul>
<p><i>Resources</i></p>	<ul style="list-style-type: none"> <li>• <i>Funding: Capital budget / Prudential borrowing invest-to-save where Salix not possible</i></li> <li>• <i>Identification of suitable locations and capital installation work by Paul Robinson, Paul Spencer, John Bellenger, Leisure, etc.</i></li> </ul>
<p><i>Ownership and accountability</i></p>	<ul style="list-style-type: none"> <li>• <i>Ownership by Carbon Management Team</i></li> <li>• <i>Installation, maintenance and operation – dependent on site in question – Chris Pyle covering OCH installations</i></li> </ul>
<p><i>Ensuring success</i></p>	<ul style="list-style-type: none"> <li>• <i>Risks: high capital cost is a barrier to renewables, though they are better represented by whole life costing analysis. There may be financial support through the Low Carbon Buildings Programme. Very cost effective deployment of renewables may qualify for funding from the OCC/Salix fund.</i></li> <li>• <i>Get support and involvement of partner organisations such as TVEnergy</i></li> </ul> <p><i>Further oppo will be sought with the help of other OCC depts</i></p>
<p><i>Timing</i></p>	<ul style="list-style-type: none"> <li>• <i>Aim for established installation programme by 2011/12</i></li> </ul>

<b>Project / Action 19: Oxford Low Carbon Building Standard</b>	
<i>Description and notes</i>	<p>OCC to undertake to comply with an Oxford Low Carbon Building Standard with new build and major refurbishment projects.</p> <p>Compliance with the proposed Oxford Low Carbon Building Standard requires any major OCC projects to achieve <b>either</b>:</p> <ul style="list-style-type: none"> <li>- 20% of energy requirements from on-site renewable or very low carbon sources of energy (in line with the requirement of Planning's Natural Resource Impact Assessment),</li> </ul> <p><b>or</b></p> <ul style="list-style-type: none"> <li>- an energy requirement 20% below that which the building would have if built to current building regulations</li> </ul>
<i>Quantified costs and benefits</i>	<p><b>Costs:</b></p> <ul style="list-style-type: none"> <li>• <i>It is estimated that the on-cost of meeting the Oxford Building Standard will be about 5%. Payback within roughly 10 y.</i></li> </ul> <p><i>Benefits will be about 20% less carbon emissions per site concerned – tbc Aim for <b>250tCO<sub>2</sub></b> by 2012/13</i></p>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• <i>Funding: Projects need to build in 5% on cost, or measures implemented during refurbishment may qualify for funding from the OCC/Salix fund.</i></li> <li>• <i>Human Resources: Identification of suitable locations and capital installation work by Paul Robinson, Paul Spencer, John Bellenger, Leisure, OCH, City Works etc.</i></li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• <i>Ownership by Carbon Management Team</i></li> <li>• <i>Installation, maintenance and operation – Estates/Built environment (John Bellenger)/OCH (Chris Pyle)</i></li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• <i>All relevant/staff officers commit to the scheme – new build/refurb projects captured at an early stage and low carbon/renewables elements investigated</i></li> <li>• <i>Ensure all involved parties understand the requirement to employ “Whole Life Appraisal” to design decisions and to look for most appropriate designs to achieve best value from available resources</i></li> <li>• <i>Risks: some standard not achievable at all locations;</i></li> <li>• <i>consultant and contractor engagement and capability could affect achievement</i></li> <li>• <i>Further opportunities will be sought with the help of other OCC depts:</i></li> </ul>



<i>Performance / success measure</i>	<i>Monitoring energy use as part of the energy management function</i>
<i>Timing</i>	<i>Standards applied to all projects whose design commences after 1/4/09. Extra capital costs likely to be incurred from 2009/10.</i>
<i>Sources of information and guidance</i>	<i>TVEnergy – survey reports, advice, support        Energy Savings Trust        Carbon Trust, Energy Savings Trust        Building research Establishment publication IP4/05 – Costing sustainability: how much does it cost to achieve BREEAM and Eco-homes ratings?</i>

<b>Project / Action 20: CO<sub>2</sub> data collection/AMR/Smart metering</b>	
<i>Description and notes</i>	<i>Establishment of robust CO<sub>2</sub> data collection system covering buildings, travel and waste. For example, Installation of automated meter reading equipment on all large consuming sites to react to abnormal elec, gas and water consumption patterns (and also collect in-house consumption data which will improve quality of data and provide verification against utility company billing); establishment of more detailed mileage claim system, fuel consumption data, OCC operational waste collected and sent to landfill etc</i>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> <li>• AMR - Capital costs: £20K in year 1; £20K in Year 2 and £20K per year for the subsequent 3 years as suitable buildings are identified (tbc)</li> <li>• Operational costs: None anticipated</li> <li>• Annual Cost savings: (tbc)</li> <li>• <b>Carbon savings tbc (overall support to Energy Management function and data quality)</b></li> </ul>
<i>Resources</i>	<ul style="list-style-type: none"> <li>• Funding: Carbon reduction investment budget (revenue budget) – combined with Salix</li> <li>• Human Resources: to be overseen by Carbon management Programme Project Team leaders (who also have responsibility for the energy management function) – Paul Spencer and Paul Robinson</li> <li>• Identification of suitable locations and capital installation work to be overseen by the above in conjunction with Mouchel (energy consultants) and building managers/maintenance managers (Keith Austin – Leisure ; Keith Reynolds – Estates)</li> <li>• HR/City Works/Facilities Management</li> </ul>
<i>Ownership and accountability</i>	<ul style="list-style-type: none"> <li>• Ownership by Carbon Management Team</li> <li>• All building managers to carry out metering checks to verify smart data etc</li> </ul>
<i>Ensuring success</i>	<ul style="list-style-type: none"> <li>• year on year investment at other large consuming sites</li> <li>• Main means of risk mitigation:</li> </ul>
<i>Performance / success measure</i>	<i>Energy usage monitored by AMR or Half-hourly meter readings at most sites in first phase – plan to extend to more sites year on year where possible – manual readings to be taken where metering not viable.</i>
<i>Timing</i>	<i>Initial phase of installation during 2007/8 and continuing through to at least year 5 of the implementation phase. Possible continuation should more sites be identified</i>
<i>Sources of information and guidance</i>	<i>Energy survey reports from Mouchel – Quotations from Power perceptor following site visits Salix/Carbon trust information (rule of thumb measures)</i>