Report for Resolution

Report to	Executive 8 April 2009	9
Report of	Director of Transformation	
Subject	Norwich City Council Carbon Management Plan	

Purpose

To seek approval for the Carbon Management Plan (CMP) which sets out a range of projects to deliver the Council's 6% annual reduction in its carbon footprint.

Recommendations

To approve the Carbon Management Plan, for submission to the Carbon Reduction Trust, and as the basis for an application for SALIX match funding for a range of environmental initiatives to reduce our carbon footprint and reduce energy costs.

Financial Consequences

Full delivery of the Carbon Management Programme will lead to the City Council meeting its 30% carbon reduction target, which should in turn deliver significant efficiency savings. The Plan encompasses a range of environmental initiatives and projects. The Executive has previously authorised £200,000 from the "Invest to save" fund to be earmarked for the projects delivery, and this will be used to lever an additional SALIX finance energy efficiency loan of £200,00.

Risk Assessment

The non delivery of the CMP would result in a lost opportunity to save significant efficiency savings from energy and service efficiency measures over the 5 years of the programme. In addition non delivery of the CMP may result in a reputational risk to the authority by failing to achieve our Carbon reduction target of 30%.

Strategic Priority and Outcome/Service Priorities

This initiative fits with a number of City Council objectives:

- it will help contribute to the LSP vision "To make Norwich a world-class city in which to live, work, learn and visit"
- the Sustainable Community Strategy also sets a strategic objective for Norwich to become a low-carbon city, to minimise our use of global resources and to become a model city for the management of the natural and historic environments
- this is also mirrored in the City Council's Corporate Plan 2008 - 2010 by "putting environmental sustainability, culture and creativity at the heart of everything we do"
- in addition the implementation of the LACM Plan is one of the 53 corporate objectives as well as an objective within the Environmental Strategy 2008 -10.

Executive Member: Councillor Morrey - Sustainable City Development

Contact Officers

Richard Willson (Environmental Strategy Manager) 01603 212312

Paul Spencer (Director of Transformation) 01603 212238

Background Documents

Norwich City Council Carbon Management Plan 2008 - 2012

Report

Norwich City Council Carbon Management Plan 2008 - 2010

1. This document, the **Norwich City Council Carbon Management Plan (CMP)**, sets out our strategy for reducing carbon emissions by 30% by 2012, from a baseline of 2006/07. Our carbon footprint for the year 2006/07 was made up of emissions from council buildings, travel/ fuel use, lighting, water consumption and non-domestic waste to landfill. Total emissions for the year have been calculated at **11,000** tonnes of CO_2 equivalent (tCO_2e).

2. The Carbon Management Plan (CMP) sets out a five year strategy to reduce the Carbon emissions produced by the authority in the delivery of our services. We recognise that in order to achieve a 30% reduction in emissions we will need to invest in a range of carbon management initiatives, which will need both capital resources for the implementation of technical measures, and revenue resources (including personnel) to develop the enabling measures. The City Council has now agreed to make additional resources available, and has also agreed to seek external investment in order to achieve our emissions reduction target. The actions within the CMP will be delivered by teams and individuals across the whole council, but will be led primarily by the Environmental Strategy Team and Asset and City Management.

3. The CMP for Norwich City Council cannot be seen as a stand-alone document where energy and resource use issues are tackled in isolation, but needs to be seen within the bigger picture as its helps to achieve a number of strategic objectives for the city council.

4. Executive is asked to approve the CMP. This will then be used to seek match funding from the SALIX funding pot, which will then provide a total fund of £400,000 to spend on a range of environmental initiatives. The fund will be managed by the Local Authority Carbon Management Board (LACM) which is chaired by Councillor Brian Morrey.

Foreword for executive

Norwich City Council is strongly committed to improving its performance on environmental management. This Council Carbon Management Plan (CMP) sets out our strategy for reducing carbon emissions by 30% by 2012, from a baseline of 2006/07.

Our carbon footprint for the baseline year 2006/07 was made up of emissions from council buildings, travel/ fuel use, lighting, water consumption and non-domestic waste to landfill. Total emissions for the year have been calculated at 11,000 tonnes of CO2 equivalent (tCO2e).

The CMP sets out a five year strategy to reduce this. We recognise that in order to achieve a 30% reduction in emissions we will need to invest in a range of carbon management initiatives, which will need both capital resources for the implementation of technical measures, and revenue resources (including personnel) to develop the enabling measures. The City Council has now agreed to make additional resources available, and has also agreed to seek external investment from SALIX finance, in order to achieve our emissions reduction target.

The CMP is due for completion in March 2009. It is intended that the CMP will be signed off by Executive/CMT before implementation. The actions within the CMP will be delivered by teams and individuals across the whole council, but will be led primarily by the Environmental Strategy Team and Asset and City Management. Figures used within this document are correct for publication however these can change due to fluctuation in fuel prices and energy use.

Presently the CMP covers the next 2 years, and identifies a range of projects which will deliver approximately 25% of our target. This shorter term focus is necessary because of the current review of local government arrangements in Norfolk, which could mean that a completely new pattern of unitary local councils will be implemented from April 2011 onwards. If this happens all plans will need to be reviewed, and there will need to be a recalculation of baseline emissions to establish a new CO_2 footprint as well as the formulation of new targets.

However, it is expected that towards the end of the current CMP actions such as potential investment in renewable electricity generation or the procurement of renewable electricity will be able to contribute to achieving our 30% reduction in CO_2. We also envisage that the local government review process could provide additional scope for carbon reductions and efficiencies to be made. For example, the potential additional management of new services and facilities will increase the existing baseline for carbon emissions, and provide new opportunities for reductions and efficiencies.

Finally I would like to thank the hard work of the Local Authority Carbon Management Team and LACM Board in the production of this Carbon Management Plan. Within this document, and subsequent amendments, the authority will be able to demonstrate progress towards Carbon reduction and increased efficiency of service provision.

Further questions should be directed to Richard Willson (Environmental Strategy Manager)
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Norwich City Council Carbon Management Plan

2008-2012

"Putting environmental sustainability, culture and creativity at the heart of everything we do"

Date: 18 November 2008

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Foreword from Chief Executive Laura Mc Gillivray

Energy is fundamental to the way we live our lives. Energy sources such as gas, oil and coal have helped the UK to develop from the beginnings of the Industrial Revolution to the current day economic prosperity. However recent energy price changes, better scientific knowledge regarding emissions and issues in regards to the country of origin for energy supplies have started an energy management trend within the developed world.

The way in which energy is consumed needs to change and action needs to be taken to address issues such as climate change, security of supply and the cost of energy for businesses, industry and households. In the government's Energy White Paper "Our energy our future: Creating a Low Carbon Economy", and via the Climate Change Bill, the challenge has been set to reduce carbon emissions, whilst at the same time proving affordable energy and ensuring reliable energy supply.

Norwich City Council acknowledges that it has a responsibility to help the UK achieve its commitment to reduce climate changing carbon emissions to help achieve a sustainable quality of life, for now and future generations to come. The government and other public sector bodies are in a particularly strong position to influence and develop this change. Norwich City Council is pleased to be part of the Carbon Trusts Carbon Management Programme. Since the programmes internal launch the Environmental Management Team has been increasing our awareness of energy use and waste across the council and our within our service provision.

Our authority now has its own Carbon Management Plan which will be used to achieve our 6% CO2 emission reductions target and therefore assist the council in achieving a number of strategic goals which include "**To make Norwich a world-class city in which to live, work, learn and visit"** Sustainable Community Strategy 2008-2020 The Sustainable Community Strategy sets themes with strategic objects for the City. The second theme, City of Environmental Excellence, sets the objectives for Norwich to become a **low-carbon city**, to minimise our use of global resources and to become a model city for the management of natural and historic environments. This strategic aim is also mirrored in our Corporate Plan 2008 - 2010 by **"putting environmental sustainability, culture and creativity at the heart of everything we do"** The carbon management plan will also be used to increase awareness in regards to general energy efficiency across the council. It is intended that once our own house is in order we will be able to promote best practice to other authorities, businesses and the general public.

Laura Mc Gillivray Steve Morphew

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.

Norwich City Council was selected in 2008, amidst strong competition, to take part in this ambitious programme. Norwich City Council partnered with the Carbon Trust on this programme in order to realise vast carbon and cost savings. This Carbon Management Plan commits the council to a target of reducing CO2 by 30% by 2012 and underpins potential financial savings to the council of around £4 million.

There are those that can and those that do. Local authorities can contribute significantly to reducing CO_2 emissions. The Carbon Trust is very proud to support Norwich City Council in their ongoing implementation of carbon management.

Richard Rugg
Head of Public Sector, Carbon Trust

1. Introduction:

Global climate change is recognised as the key environmental threat facing the world. Concerns over fossil fuel depletion, security of energy supplies and rising energy costs are focussing the attention of individuals, organisations and governments on the need for energy conservation and carbon emission reduction.

Over the past year Norwich City Council has been working with the Carbon Trust and 73 other authorities in a programme to calculate our carbon emissions footprint, to set targets for reducing our carbon emissions, and to formulate a plan to deliver the target. Our regional partner authority on the Local Authority Carbon Management (LACM) programme was Cambridgeshire County Council.

This document, the **Norwich City Council Carbon Management Plan (CMP)**, sets out our strategy for reducing carbon emissions by 30% by 2012, from a baseline of 2006/07. Our carbon footprint for the year 2006/07 was made up of emissions from council buildings, travel/ fuel use, lighting, water consumption and non-domestic waste to landfill. Total emissions for the year have been calculated at **11,000** tonnes of CO_2 equivalent (tCO_2e).

The CMP sets out the policy context for carbon reduction initiatives within the council. In addition it outlines our vision, strategic objectives and emission reduction targets from delivering the CMP, as well as a summary of the predicted cost and carbon emissions savings. The CMP for Norwich City Council cannot be seen as a stand-alone document where energy and resource use issues are tackled in isolation, but needs to be seen within the bigger picture as its helps to achieve a number of strategic objectives for the city council.

The Sustainable Community Strategy sets themes with strategic objectives for the City. The second theme, City of Environmental Excellence, sets the objectives for Norwich to become a low-carbon city, to minimise our use of global resources and to become a model city for the management of the natural and historic environments. The City Council's Corporate Plan 2008/10 highlights the City Council's environmental ambitions. The Corporate Plan describes how this will be achieved by "putting environmental sustainability, culture and creativity at the heart of everything we do".

The Carbon Trust has assisted Norwich City Council to recognise the essential role of resource efficiency in addressing the multiple challenges of climate change. Norwich City Council and our partner Cambridge County Council wished to set an example in this respect. Norwich City Council wishes to develop new policies, use new carbon reduction projects and develop organisational or cultural ways to improve service efficiency as well as reducing our carbon emissions. It is hoped that by taking this low carbon journey the authority will lead businesses and the third sector to realise the same resource efficiencies and savings.

The Council continually strives to offer community and business stewardship on environmental matters and we feel that our stakeholders will gain confidence that their local authority has planned for the future by our adoption of this document. The progress of this plan will be monitored by the cross party Climate Change Panel and an interdepartmental Carbon Management Board.

Participating councils benefit from consultant support in the form of workshops and limited dedicated support tailored around the 5 Step process. This process guides authorities through a systematic analysis of their carbon footprint, the value at stake and the opportunities available to help them manage carbon emissions in a strategic manner.

Step 1: Mobilising the organisation
This included appointment of a Carbon Management Programme Leader, identifying Councillor and Corporate Sponsors and officers who would support and deliver the programme. Additionally providers of outsourced services were informed of the existence of the Programme and their role within it.

Step 2: Set baseline, forecast and targets
Prior to the Carbon Management Programme there had been little gathering and analysis of energy consumption data. This needed to be accurately assessed to measure Norwich City council's carbon footprint. New processes and skills have been learned so that this process can be undertaken yearly. The first measure of Norwich City Council's carbon footprint will be approximate due to both the method of data collection and the use of mathematical models to estimate emissions. It is expected that data collection methods will improve over time which will result in more accurate data in the future.

Step 3: Identify and quantify options
The Carbon Management Plan lists ideas for projects that could contribute towards the target of a 30% reduction in carbon dioxide emissions by 2012. There is some attempt at quantifying costs and potential savings, but it is recognised that the financial projections will improve after the experience of the first year of implementation. Projects to reduce carbon emissions have been identified from a variety of sources – including other local authorities who are already on the Local Authority Carbon Management Programme and the Carbon Trust.

Step 4: Finalise Carbon Management Plan
It is envisaged that the Carbon Management Plan will go for approval by Executive Board.

Step 5: Implement Carbon Management Plan

The Carbon Management Plan is a 5 year programme so its implementation will be managed and monitored up until 2012 by the appropriate officers and Councillors. Some of the projects in the early years are experimental and the experience gained from them will influence choice of later projects. Norwich City Council has set a target of a 30% reduction in carbon dioxide emissions by 2012 in comparison to the 2006/07 baseline.

Fig. 1 Local Authority Carbon Management programme 5 steps.

2.0 Carbon Management Strategy

2.1 Context and drivers for Carbon Management

Climate change affects all of us - and we can all be part of the solution. Climate refers to the average weather experienced over a long period. This includes temperature, wind and rainfall patterns. The climate of the Earth is not static, and has changed many times in response to a variety of natural causes. The Earth has warmed by 0.74°C over the last hundred years. Around 0.4°C of this warming has occurred since the 1970s. The recent Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC) leaves us in no doubt that human activity is the primary driver of the observed changes in climate.

"Climate change is one of the greatest challenges facing society today – both for the international community and the UK. The debate about the causes is over: we now know that the planet has warmed largely due to human activity" Rt Hon Hilary Benn MP Adapting to Climate Change: A Framework for Action. DEFRA 2008

The main human influence on global climate is emissions of the key greenhouse gases - carbon dioxide (CO_2),methane and nitrous oxide. The accumulation of these gases in the atmosphere strengthens the greenhouse effect. At present, just over 7 billion tonnes of CO_2 is emitted globally each year through fossil fuel use, and an additional 1.6 billion tonnes are emitted by land use change, largely by deforestation. The concentrations of these gases in the atmosphere have now reached levels unprecedented for tens of thousands of years.

Climate change presents a significant challenge to the UK and to the international community. There are also enormous opportunities if we are willing to take action. Government, business and individuals all have a part to play, and all of us can benefit from rising to the challenge of climate change. The evidence from central government is overwhelming. Publications such as the Stern Review: The Economics of Climate Change produced by Treasury or Adapting to Climate Change in England: A Framework for Action published by DEFRA all highlight the need for early actions to avoid damage to our economy and our infrastructures. By taking action now and over the next few decades we will be able to adapt or protect our day to day lives and general quality of life.

With dramatically rising energy prices and reducing global energy reserves it is prudent for the Council to minimise energy use and thereby reduce carbon emissions. The Carbon Management Plan aims to reverse the councils increasing energy use and resulting carbon emissions trend and save over £4m over the lifetime of the plan.

The European Buildings Directive has come into force in the UK this year requiring many of our civic buildings (those with a floor area over 1000m²) to be graded in terms of energy performance on an A-G type scale in the same way as white electrical goods are already graded. With the lack of wide scale investment in improving the energy performance of Council buildings the Carbon Management Plan will be vital in making the necessary improvements and enabling the Council to perform well. These documents are publicly displayed and are therefore a good indicator to the public in regards to environmental performance. A further risk to the Council is the Carbon Reduction Commitment (CRC) which is under consultation and this may require the Council to join a mandatory carbon trading scheme in the near future which if implemented would penalise poor performing Councils.

The CMP includes a number of actions, which are low, or nil cost measures where building user behaviour and Council policy decisions can make significant reductions in energy use. For this reason a corporate approach by all Services and a wide range of officers have been identified for implementing the actions embodied within the Plan.

All the physical improvement measures in the Plan which will require investment have a reasonably short term pay back period with practical works, including for example roof insulation, cavity wall insulation, better control of the temperature in buildings and reducing draft/heat loss from buildings. All measures that householders would undertake in their homes to reduce their fuel bills and carbon emissions. It is important to emphasise that the Council should lead by example on this issue and demonstrate that through its activities, the Council can contribute specifically to carbon reduction. Furthermore with the costs of energy likely to continue to rise substantially, the Council needs to actively address the Carbon Management agenda.

2.2 Our low carbon vision

The Carbon Management Plan sets out the policy context for carbon reduction initiatives within the council. In addition it outlines our vision and strategic objectives and emission reduction targets from delivering the Carbon Management Action Plan, as well as a summary of the predicted cost and carbon emissions savings.

The Carbon Management Plan for Norwich City Council can not be seen as a stand-alone document where energy and resource use issues are tackled in isolation, but needs to be seen within the bigger picture as its helps to achieve a number of strategic objectives held within the City of Norwich Partnership (CNOP) Sustainable Community Strategy 2008-2020 *"make Norwich a world-class city in which to live, work, learn and visit".*

The Sustainable Community Strategy sets themes with strategic objectives for the City. The 2nd theme, City of Environmental Excellence, sets the objectives for Norwich to become a low-carbon city, to minimise our use of global resources and to become a model city for the management of the natural and historic environments.

The City Council's Corporate Plan 2008/10 highlights the City Council's environmental ambitions via the priority to deliver a strong and prosperous city. *"To improve the quality of life for residence, visitors and those who work in the city now and in the future".* The Corporate Plan describes how this will be achieved by *"putting environmental sustainability, culture and creativity at the heart of everything we do".*

In addition the CMP helps to achieve a range of aims and objectives held within the Environmental Strategy *"It is our policy to meet our national and international legislative obligations, to develop local sustainable communities, enhance the local environment, deliver environmentally-friendly services and enforce environmental legislation to help stem the depletion of finite natural resources"* (Environmental Strategy 2008-2010). These aims are:

- Increased energy efficiency in Council owned property
- Reduced disposal of waste to landfill
- Increased recycling
- Reduced consumption of paper in council activities
- Reduced consumption in fuel in council operations
- 30% reduction in total CO_2 emissions for council operations
- Protection and enhancement of habitat and biodiversity
- Enhancement of the quality of the built environment environmental considerations within Procurement Strategy

2.3 Strategic themes

The Carbon Management Plan sets out a five year strategy to build on the actions and achievements detailed in section 4. To achieve the target of a 30% reduction in emissions there is a requirement to increase the resources available for carbon management, both capital resources for the implementation of technical measures, and personnel to develop the enabling measures. By making these resources available (and by attracting external investment) Norwich City Council will achieve emissions reduction by:

2.3.1 Objectives for public buildings

- To improve the energy performance of buildings
- To engage staff by implementing environmental champions, running communication campaigns and the provision of training.
- To increase the percentage of energy sourced from renewable or efficient sources

2.3.2 Objectives for landlord lighting

- To utilise technology to drive efficiency in public lighting provision
- To improve the control of landlord lighting, to optimise the balance between emissions and community safety

2.3.3 Objectives for vehicle fleet, business travel and transport

- To reduce the total number of miles travelled
- To reduce emissions from journeys made
- To use more efficient vehicles
- To reduce alternative fuel use
- To encourage the use of more sustainable modes of transport

2.3.4 Objectives for internal transformation

- Investing in energy conservation measures which ideally have a payback period under 5 years
- Ensure effective collection and management of data for the significant sources of council carbon emissions. Production of an annual report.
- Develop an internal “ring fenced” financing mechanism for carbon management
- Developing relationships with regional, national and international partners to share best practice and deliver improved carbon reduction schemes.

2.3.5 Objectives for Procurement

The emissions associated with the manufacture of goods and services are hard to quantify. Waste produced by authority has been included within the CMP. (Paper use, recycling, and waste sent to landfill) The authority will, over the period of the programme, develop a “sustainable procurement guide” and develop a range of recording mechanisms to assess the progress of the environmental strategy. These new reporting mechanisms will allow further analysis of the council’s carbon footprint in terms of procured or contracted services.

2.3.6 Objectives for the use of water

Water data has been included within the CMP. The continuation of water reduction measures will be monitored via progress made against the “Aqua fund” managed by Asset and City Management.

2.4 Targets and objectives

The **Norwich City Council Carbon Management Plan (CMP)**, sets out our strategy for reducing carbon emissions by 30% by 2012, from a baseline of 2006/07. The targets within the CMP will be SMART – specific, measurable, achievable, realistic and time bound.

This council will reduce the CO2 emissions form it's activities by 30% from the 2007 baseline, by December 2012.

The direct costs of the programme and the projected returns on investment and emissions reductions over the next 5 years can be seen in the table below:

Total Estimated Capital Expenditure (£K)			*£400,000 Carbon reduction fund*			
Total Annual Cost Savings						
	08/09 savings	*09/10 savings*	*10/11 savings*	*11/12 savings*	*12/13 savings*	*5 year Total*
Annual savings (£K)		***230,867***	***485,042***	***764,678***	***1,072,129***	***1,409,963***
Total Annual Carbon Reductions (tCO_2e)						
	08/09 savings	*09/10 savings*	*10/11 savings*	*11/12 savings*	*12/13 savings*	*5 year Total*
***Carbon Reduction* (tCO_2e)**		750,779	699,088	650,955	606,137	*564,405*

3 Emissions Baseline and Projections

3.0 Scope

The public sector is in a key position to lead on efforts to reduce CO_2 emissions by setting a behavioral and strategic example to the private sector and the communities they serve. The way in which the local authority delivers its functions can achieve CO_2 emissions reductions. Measurement against this indicator requires each local authority to calculate its CO_2 emissions from analysis of the energy and fuel use in their relevant buildings and transport, including where these services have been outsourced.

The scope of NI 185 is described as follows:

"NI 185 is to include all CO2 emissions from the delivery of local authority functions. In terms of the meaning of the word in legislation "function" covers both the duties and powers of an authority. It covers all an authority's own operations and outsourced services. Even if the services are being provided by an external body (e.g. a private company) they remain the function of the authority".

There is no exhaustive list of the powers and duties of an authority in legislation, as the term function is taken to understand what that means for the relevant authorities. However, social housing provided by the authority or a third party is not included within the scope of the indicator. Employee commuting is also not included.

Norwich City Council define the scope of NI185 as:

- emissions from council buildings, including CityCare
- emissions from business travel excluding staff travel
- emissions from fleet
- emissions from water use
- emissions from landlord lighting

Buildings that are owned by the council but are operated by third parties have been excluded from the baseline. Many of these facilities will be communicated to via the council in respects to lowering fuel bills and reducing carbon emissions. In addition the council has collected data on a range of other environmental indicators as part of our environmental strategy 2008-2010. These data sets complement other information sources such as council owned housing SAP ratings and information in regards to Per Capita emissions NI186

Procurement

The emissions associated with the manufacture of the non-recycled office paper used by the authority have been included in the baseline. Though purchasing data is available for a range of consumables and equipment (e.g. stationery, PC's, photocopiers etc.), the carbon impacts of their supply chains are less well understood, and they have not been included within the baseline.

Waste Disposal

Good quality data is not available for waste tonnage disposed of to landfill. Tonnage of recycled waste is available. Waste data included in the baseline consists of an estimate of waste to landfill plus skip (general) waste to landfill.

Water Consumption

Good quality data is available for the volume of water consumed. Although emissions from this source are small they have been included in the baseline as consumption data is readily available and the appropriate emissions factor is known.

3.2 Baseline

	Total	Buildings and street lights	Transport	Waste and Water
Baseline CO_2 emissions (tonnes)	10,905	8,107	2,433	365
Baseline Cost (£)	£2,807,871	£1,730,826	£1,007,046	£

Table 3.1 – Summary table of emissions for baseline year 2006

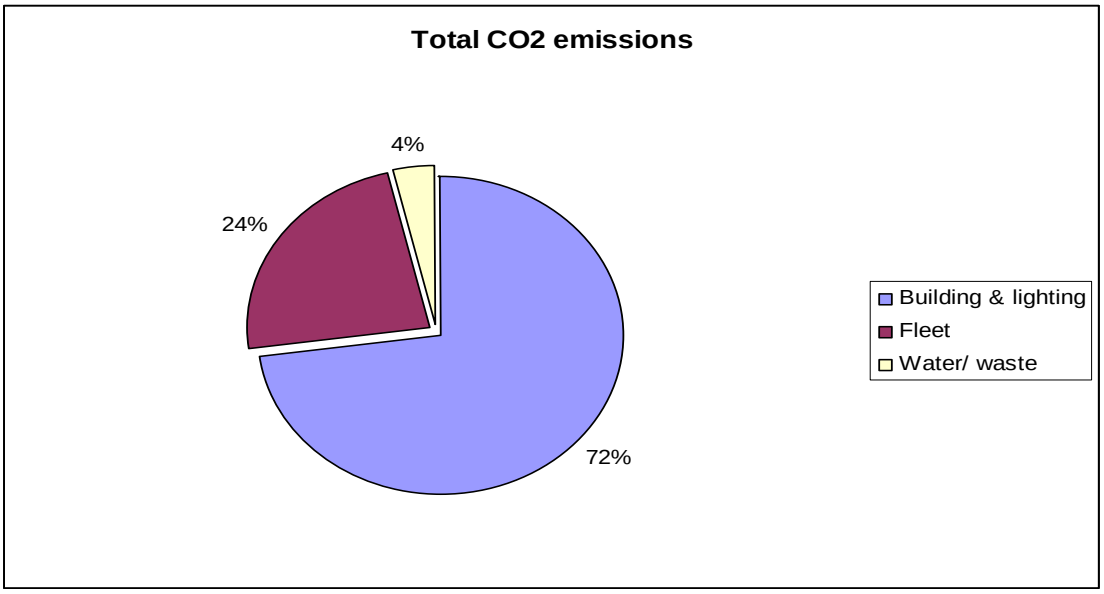
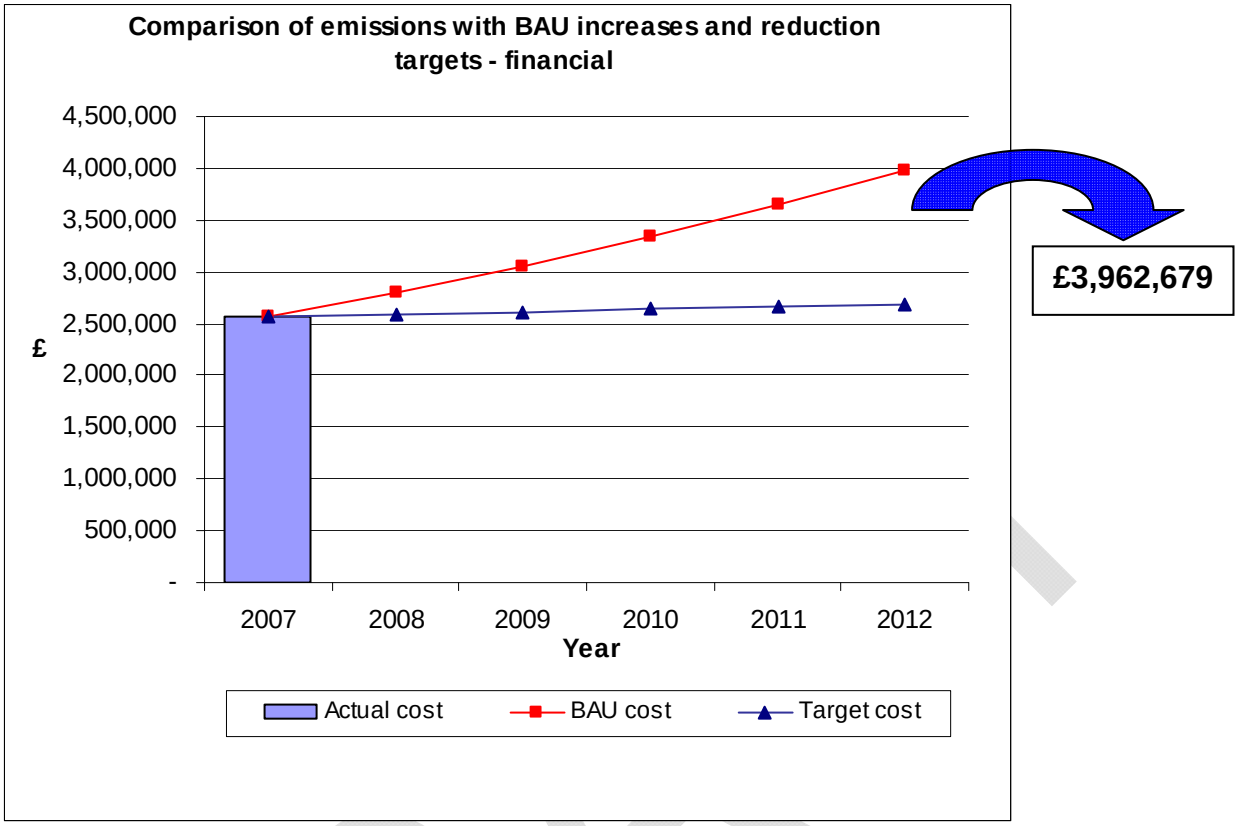


Figure 3.1 Summary of emissions for baseline year 2007

3.3 Projections and Value at Stake



Cumulative value at stake - The cost of not doing the programme

The data indicates that the BAU (Business As Usual) costs for electricity and gas, which is not recharged to consumers, will be approximately £2,688,000 per year by 2012. If target costs are reached (6% reduction per year until 2012) the value at stake between the target cost and BAU cost over the 5 year period is **£3,962,679** : BAU cost 8.4%

4 Carbon Management Projects

4.1Existing projects

The following table summarises the emissions reduction opportunities identified. The list is not exhaustive and this part of the document (and the accompanying annexes) will be continually revised and updated to take account of new opportunities and challenges. Further detail on the emissions reduction opportunities can be found in Appendix A.

Ref	Project	Lead	Cost			Annual Saving		Pay back	% of Target	Year
			Cap'l	Rev'ue	Res'ce	Fin	CO_2			
X1	PC Monitor Switch to LED	JA	N/A	N/A	N/A	30640	125.4	5.5	1.18	2007
X2	Printer Removal	JA	N/A	N/A	N/A	3066	13.2	N/A	0.12	2008
X3	One Small Step Campaign	RW	2,000	0	0	13500	19	N/A	0.18	2008
X4	PIR water release in washrooms & Aqua fund	CM	N/A	N/A	N/A	-	-	-	0.005	2008
X5	Window Replacement	CM	1.5 m	-	-	4390	40.8	N/A	0.38	2008
X6	Blue Motion Polo	AB	N/A	N/A	N/A	N/A	16.34	N/A	0.15	2008
X7	Replacement Waste Fleet	AA	N/A	N/A	N/A	N/A	43	N/A	0.40	2008
X8	Water cooler removal	CM	N/A	N/A	N/A	490	0.5	N/A	0.005	2008
X9	Condensing Boilers at the guild hall	CM	N/A	N/A	N/A	1650	8	N/A	0.010	2007
X10	City Hall Recycling	AP	N/A	N/A	N/A	N/A	118	N/A	1.11	2007/8

NB: N/A on Capital costs due to contract refresh on services. (Steria)

4.2Planned / funded projects

LA6NOR

Ref	Project	Lead	Cost			Annual Saving		Pay back	% of Target	Year
			Cap'l	Rev'ue	Res'ce	Fin	CO_2			
001	City Hall Voltage Optimization	CM	35K	0	0	>16K	80>	2.0	0.75	2009
002	Car park lighting controls for St Giles	CM	2.5K	0	0	>3K	10.39	0.08	0.01	2009
003	Removal and replacement of fan heaters in city hall	AP	2K	0	0	7500	32.2	0.3	0.3	2009
004	Replacement of laundry equipment with gas	CM	15K	0	0	7000	32	1.6	0.30	2009
005	PC Auto Swith Off	JA	26000	-	-	>18	80.6	1.4	0.76	2009
006	Sub Metering	CM	6K	0	0					
007	Plant room jackets and pipe insulation	CM	2K	0	0	1200	11.1	1.7	0.1	2009
008	ST Giels Multi-story VO	CM	35K	0	0	6,530		3.83	TBC	2010
009	The Norman Centre Cavity Wall Insulation	CM	2000	0	0	1599				2009
010	Environmental Champions	RW	400	-	-	20000	106		1.0	2009
011	Server Optimisation *	Steria	-	-	-	-	30>	-	0.28	2008 - 2010
012	Sustainable Procurement Guide	RW	-	-	-		15>		0.15	2009
013	Retro light fitting project phase 1	CM	-	-	-	6000	12.9	2.0	0.12	2009

* Contract refresh

4.3 Near term projects

Ref	Project	Lead	Cost			Annual Saving		Pay back	% of Target	**Year**
			Cap'l	Rev'ue	Res'ce	Fin	CO_2			
014	Swanton Road Voltage Optimisation	CM	35000			10826	46.5	3.2	0.45	2010
015	St Giles MSCP Voltage Optimisation	CM	35000			4800	21	5.1	0.20	2010
016	LED Christmas Tree lighting improvements	CM	5200			1800	6.3	2.8	0.05	2010
017	PIR – Landlord lighting	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
018	BMS OPTIMISATION –	CM	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
019	Retro light fitting project phase 2	CM	-	-	-	6000	12.9	2.0	0.12	2010
020	EMS Adoption	RW	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
021	AC replacement/Review	RW	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
022	Swimming pool cover (Gas) savings	RW	3.5K	2	-	20000	185	0.1	1.75	2010
023	Swimming pool cover (electric) savings	RW	0	0	0	6250	26	0.1	0.25	2010
024	Heating pipe insulation	CM	4000			500	7.8	2.4	0.07	2010
025	Refresh green travel plan	RW	TBC	TBC	TBC	TBC	TBC	TBC	TBC	TBC
026	Riverside pool Voltage Optimisation	CM	35000	0	0	13,000	71	2.7	0.7	2010

4.4 Medium to long term projects

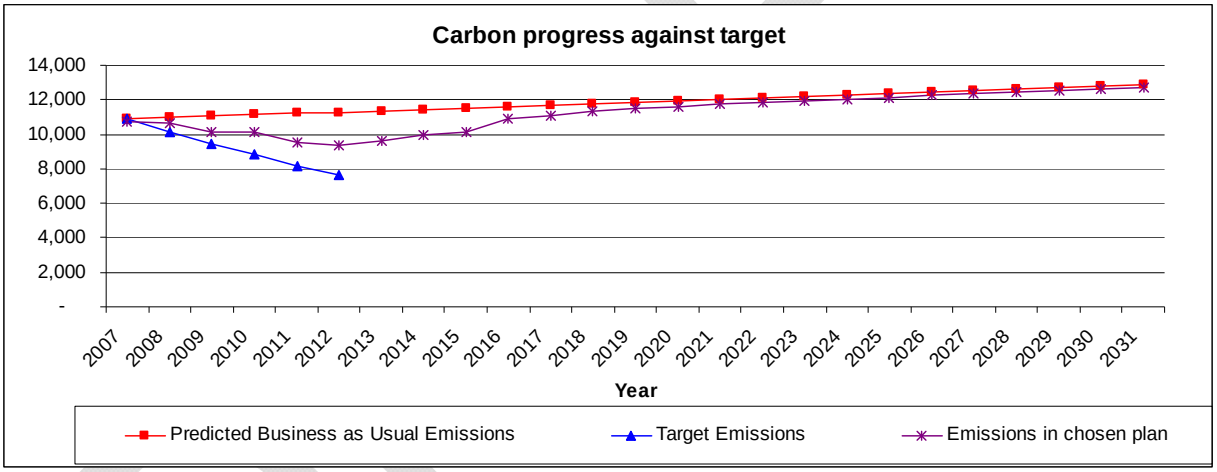
Ref	Project	Lead	Cost			Annual Saving		Pay back	% of Target	Year
			Cap'l	Rev'ue	Res'ce	Fin	CO_2			
027	St Andrews Blackfriars VO	CM	30000			3,539		7.06	TBC	2012
028	The Norman Centre	CM	30000			4071		6.14	TBC	2012
029	The Guildhall VO	CM	30000			1395		-	TBC	2012
030	Staff Canteen City Hall VO	CM	30000			1396		-	TBC	2012
031	Public Toilets at Market Place VO	CM	30000			1368		-	TBC	2012
032	Waste Fleet Routing	AA	TBC			TBC		TBC	TBC	2012
033	Refresh green travel plan	RW	0			984	2	TBC	TBC	2012
034	Community Centres improvements	RW	TBC			3250	5	TBC	TBC	2012
035	Sustainable Procurement Guide	RW	TBC			TBC	TBC	TBC	TBC	2012
036	City Hall Cycle Shed PIR	CM	TBC			300	05	TBC	TBC	2012
037	Driver training at CityCare	RW/ SM	2000			8730	20	TBC	TBC	2012
038	Landlord lighting trial for major works	RW	TBC			2500	3	2	TBC	2012
039	Market Recycling	RW/AB	TBC			TBC	TBC	TBC	TBC	2012
040	Replace external floodlighting with low energy variants	RW	TBC			TBC	54	TBC	TBC	2012
041	Install Solar heaters for Hot water system at city hall	CM	TBC			1563	7	1.45	TBC	2012
042	CityCare site insulation and pipe valves	RW	TBC			2000	18	2.69	TBC	2012
043	Devonshire Street District Heating System pipe insulation + BMS/ other upgrades - 10%	TBC	TBC			20000	185	1.5	TBC	2012
044	Citycare replacement insulation	RW	TBC			2233	40	2.69	TBC	2012
045	Mile Cross DHS BMS, and general improvements	TBC	TBC			16000	148	1.25	TBC	2012
046	Lefroy Road Landlord lighting low energy improvements	TBC	TBC			5000	21	2	TBC	2012
047	Suffolk Square lighting improvements	TBC	TBC			2500	11	3.2	TBC	2012
048	Mary Chapman court heating improvements	TBC	TBC			5500	51	2.73	TBC	2012

049	Black Horse Opening	TBC	TBC			3000	28	1.67	TBC	2012
050	Sheltered housing "energy campaign"	TBC	TBC			7500	32	<1	TBC	2012
051	Green Energy Policy @ 5%	AB	TBC			0	683	N/A	TBC	2012
052	Market light upgrade	CD/CM	TBC			1250	5	1.2	TBC	2012
053	Micro generation PV	CD/CM	TBC			37500	161	TBC	TBC	2012
054	Micro generation Solar Thermal	CD/CM	TBC			6000	55	TBC	TBC	2012
055	Micro generation Ground Source Heat Pumps	TBC	TBC			6000	55	TBC	TBC	2012
056	Solar Roof-light tubes	CD/CM	TBC			1252	5	TBC	TBC	2012
057	Bio fuel heating for district heating systems trail	TBC	TBC			12000	111	TBC	TBC	2012

8

NOTE: 4.4 Does not represent a full list of project ideas for implementation within the Carbon Management Plan – However it demonstrates the range, diversity and potential payback of a variety of technology types and/ or service alterations

4.5 Projected achievement towards target



The Carbon Management Plan lists ideas for projects that could contribute towards the target of a 30% reduction in carbon dioxide emissions by 2012. There is some attempt at quantifying costs and potential savings, but it is recognised that the financial projections will improve after the experience of the first year of implementation. Presently each project has been quantified on the minimum projected savings.

5 Carbon Management Plan Financing

5.1 Assumptions

- Assumption 1: The BAU scenario is 8.4% pa
- Assumption 2: The BAU demand is 0.7% pa
- Assumption 3: Payback years are calculated via SALIX and Carbon Trust calculation tools.
- Assumption 4: Total emissions are calculated via DEFRA NI185 calculation tool
- Assumption 5: All projects will require a feasibility study using actual meter readings

5.2 Benefits / savings – quantified and un-quantified

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Annual cost saving	37500	112,500	225,000	337,500	450,000	562,500
Annual CO_2 saving	270	810	1620	2430	3240	4050
% of target achieved	2	6	12	18	24	30

Unquantified benefits:
Resource efficiency savings, increased life of goods, reduced disposal costs etc

5.3 Additional resources

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Transformation	14 H / WK	14 H / WK	14 H / WK	14 H / WK	14 H / WK	14 H / WK
Asset and city management	7 H/WK	7 H/WK	7 H/WK	7 H/WK	7 H/WK	7 H/WK
Finance	1 Day/M	1 Day/M	1 Day/M	1 Day/M	1 Day/M	1 Day/M

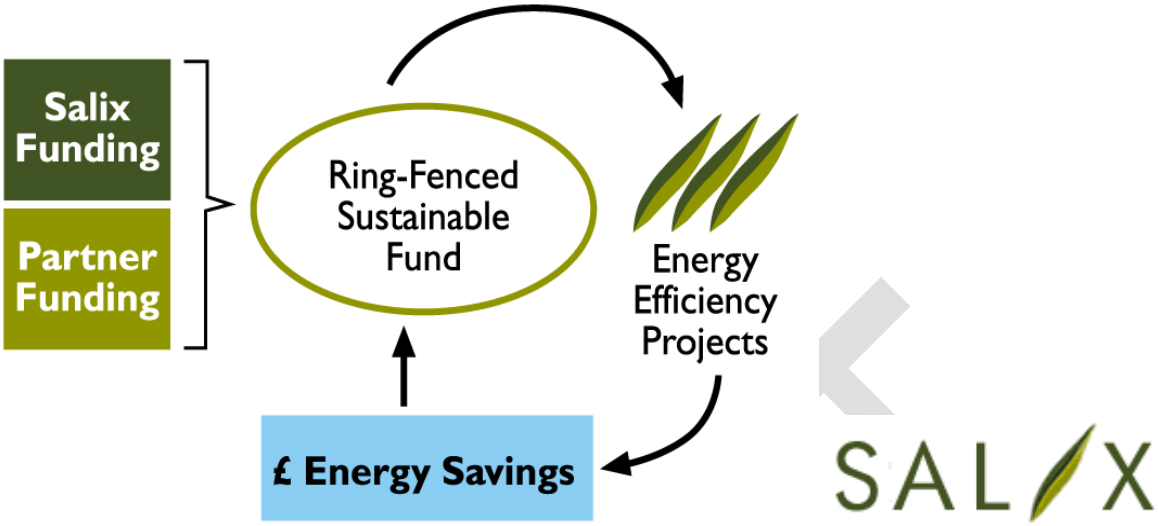
The LACM Programme can easily fail or not deliver if sufficient resources to deliver the projects are not identified. Additional resources will be required from the departments identified above. The additional resources will be delivering, monitoring and implementing projects. These might take the form as attending meetings, creating project plans or monitoring results.

5.4 Financial costs and sources of funding

Figures in £ 1000's	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Annual costs:						
Total annual capital cost	200,000	200,000	0	0	0	0
Total annual revenue cost	TBC	TBC	TBC	TBC	TBC	TBC
Total costs	TBC	TBC	TBC	TBC	TBC	TBC
Committed funding:						
Committed annual capital	200,000	200,000	0	0	0	0
Committed annual revenue	TBC	TBC	TBC	TBC	TBC	TBC
Total funded	TBC	TBC	TBC	TBC	TBC	TBC
Unallocated funding						
TBC	TBC	TBC	TBC	TBC	TBC	TBC
Unallocated annual revenue	TBC	TBC	TBC	TBC	TBC	TBC
Total unfunded	TBC	TBC	TBC	TBC	TBC	TBC

£200,000 City Council Invest to safe fund completed
£200,000 SALIX loan 0% interest meeting completed with finance and legal. Approval now provided to apply for £200,000 to create the LACM fund totalling £400,000
(Once funding is established the £400,000 pot will be recycled up to 5 times)

5.4 Financial costs and sources of funding



The total Spend to save investment will be match funded pound for pound by an interest free loan from SALIX Finance to create a Carbon Reduction Fund. This fund is expected to return all investment over the length of the programme.

Key benefits

The Norwich City Council Carbon Management Plan (CMP), sets out our strategy for reducing carbon emissions by 30% by 2012, from a baseline of 2006/07. The targets within the CMP will be SMART – specific, measurable, achievable, realistic and time bound. The data indicates that the BAU (Business As Usual) costs for electricity and gas, which is not recharged to consumers, will be approximately £4,351,820 per year by 2012. If target reductions are reached (6% reduction per year until 2012) the value at stake i.e. the difference between the target cost and BAU cost over the 5 year period totals £3,962,679: (BAU cost 8.4%) In addition to the vast financial benefits the implementation of this project will enable the authority to assist in national carbon reduction and promote our environmental aspirations to the general public.

Risks

Failing to reach our corporate objective of a 30% reduction in CO2 will be a lost opportunity to save 3.9 million pounds over the period of the programme. All projects within the programme will have a payback of less than 7.5 years. The first year of the programme will identify projects that have less than a two year payback. The CMP targets the best payback results first.

The project has a low operational risk of failure.

The critical success factors for the Carbon Management Plan is the implementation of a range of projects to realise our 6% per year efficiency savings. This savings will be monitored by the Environmental Strategy Manager via remote monitoring systems and/ or utility bills.

A 6% annual reduction is a relatively tough target. In order to meet our 6% per year target the City Council will therefore need to start a wide range of different carbon reduction initiatives. Whilst some will have relatively short payback periods, some need to be started soon but will not payback from some longer periods. We estimate that in order to meet our 30% target (over 5 years) we will need to invest a total of between £350,000 - £400,000 which would need to be met 50% from the Council and 50% from the SALIX funding pot. This funding pot is likely to be invested 3 to 4 times over the project to realise the identified savings.

Because of the longer term nature of some carbon reduction projects, the SALIX funding pot allows for a 7.5 year payback period. Unfortunately the City Council's Invest to Save pot requires payback within 2 years. This means that the Invest to Save pot cannot be used to provide all of the investment needed to deliver the 30% target. It is therefore proposed that the Invest to Save funding be used to match fund those initiatives that will payback within 2 years, but alternative Council funding will need to be identified to meet those initiatives with a longer payback period.

6 Corporate Strategy – embedding CO_2 saving across your organisation

Delivering the Local Authority Carbon Management Programme (LACM6) is a key component of the Environmental Strategy 2008 - 2010. Drawn up with the Carbon Trust, the LACM6 has many different and detailed components and focuses on mitigation measures that will improve the energy efficiency of the council's existing building stock as well as embedding measures to ensure effective project management. Reducing the carbon footprint of the council goes beyond the buildings and into increasing the awareness of council staff and contractors/ service providers.

In addition the LACM6 will collect baseline statistics about the energy we use and compile information about how making changes to the council's building stock and vehicle use are improving the situation. This is an essential starting point in terms of measuring our progress towards NI185 which is a national indicator which covers CO_2 reduction from local authority operations.

To provide scrutiny and accountability a members Climate Change Panel has been established to identify and monitor the progress set out within the action plan of the Environmental Strategy 2008 – 2010 and the Carbon Management Plan . The Climate Change Panel is a cross-party body chaired by a cabinet member responsible for the sustainable city development portfolio. The environmental strategy manager supports the board as their lead officer. The board will take a strategic lead on all corporate climate change issues. Its role is therefore broader than climate change activity, but its main purpose is to scrutinise energy usage and consider how this could be made more efficient as well as other projects that aid in the reduction of the council's carbon footprint or other related NI's.

In addition to the above the council has included the delivery of the LACM as part of the Corporate Plan 2008 – 2010 as well as the delivery of the Environmental Strategy 2008 – 2010. The city council has therefore started to include the Environmental Strategy as part of its own service plans which aims to ensure environmental considerations within all directorates.

Finally the City Council is signed the Nottingham Declaration on Climate Change. The Nottingham Declaration on Climate Change requires local authorities to work with the community in developing an action plan to tackle climate change at a local level.

By signing the declaration, the Nottinghamshire County Council committed itself to move towards environmental sustainability by cutting carbon emissions. At the same time, it pledged to work through its local strategic partnerships to develop a joint energy strategy and approach.

6.1 Programme Management – bringing it all together effectively

Please refer to LACM programme board and LACM team. The table below sets out how the LACM6 will be delivered and monitored via the Environmental Strategy 2008 – 2010. In addition there will be regular reports on progress to CMT, Team leaders and staff.

Who is responsible for this strategy implementation?

Environmental strategy team

- Ensure this strategy is impolemented corporately and in each service.
- Quarterly Audits and annual review of progress of this strategy and its effectiveness.

Operational service managers

- Delivery of the Action Plan.
- Promotion of environmental sustainability within their respective services.
- Take appropriate action where adverse impact is identified; and identify any training needs.

Elected members

- Quarterly reporting of implementation of the action plan to both elected and scrutiny member.

Chief executive and directors

- Hold responsibility for environmental management within the council.
- Set annual objectives on environmental sustainability.
- Provide corporate support to heads of service, to help the heads effectively manage change in their service areas.

Corporate management team

- Ensure that environmental sustainability becomes integrated within the council and build a commitment to cultural change.

Delivery flow and ownership diagram from the Environmental Strategy 2008-2010

6.2 Responsibility – being clear that saving CO_2 is everyone's job

By using a structured approach to the delivery of the Environmental Strategy 2008 – 2010 and the Carbon Management Plan the Council has made clear the services responsible for achieving our 30% carbon reduction target. Regular reporting mechanisms have been established to monitor progress against set targets. In addition the authority will produce guidance for purchasing, news letters via the inner city and general communications via the one small step. (Please refer to attached communications plan) Where appropriate specific actions have been included within the departmental service plans.

6.3 Data Management – measuring the difference, measuring the benefit

Environmental Strategy Manager together with Asset and City Management will deliver the returns for the NI185 indicator. These results are collected on an annual basis and will be published in July. These results will provide an overall direction of travel. It will be expected that each project, where possible, will be monitored via a range of equipment to ensure that the calculated energy savings are being delivered. This is a requirement of the Salix invest to save fund. If energy prices fall or rise the Environmental Strategy Manager will undertake the appropriate corrections to establish the real savings.

6.4 Communication and Training – ensuring everyone is aware

Over the life of the CMP the council will be running a range of communication media. Presently the authority has started the "One Small Step" campaign by funds released via the Climate Change Panel. This programme plans to encourage energy saving values general attitude changes to reduce consumption. Work has already begun on the one small step campaign with the design of posters, energy management stickers and the creation of the internal web page. The remainder of the funds will be used for incentives and prizes to change the hearts and minds of staff. The areas in which the project will address are: **Switch Off, Shut Down, Think before you print, Use your mug, Recycle, Take the stairs, Walk or cycle.**

Project ideas include the following: The provision of sweets to staff who turn off the PC monitors to instil and reward good practice, free hot drink vouchers left on bicycles in the cycle shed, the provision of incentives to staff using the stairs or who have turned lights off within their office during the day. The provision of locally sourced fruit within the kitchen areas for staff who turn off lights, dishwashers etc. Other ideas include a prizes for printer use reduction and free hot drinks to staff who bring their own mug to the restaurant.

In addition the this work a number of article about environmental issues will be produced in accordance to the aims and ambitions of the Environmental Strategy 2008 – 2010

6.5 Finance and Investment – the money to match the commitment

This factor of embedding Carbon Management is covered in section five of this Plan.

6.6 Policy Alignment – saving CO_2 across your operations

Our authority now has its own Carbon Management Plan which will be used to achieve our 6% CO2 emission reductions target and therefore assist the council in achieving a number strategic goals which include ***"To make Norwich a world-class city in which to live, work, learn and visit"*** Sustainable Community Strategy 2008-2020 The Sustainable Community Strategy sets themes with strategic objects for the City. The 2nd theme, City of Environmental Excellence, sets the objectives for Norwich to become a *low-carbon city*, to minimise our use of global resources and to become a model city for the management of the natural and historic environments. This strategic aims is also mirrored in our Corporate Plan 2008 - 2010 by *"putting environmental sustainability, culture and creativity at the heart of everything we do"* The carbon management plan will also be used to increase awareness in regards to general energy efficiency across the council. It is intended that once our own house is in order we will be able to promote best practice to other authorities, businesses and the public.

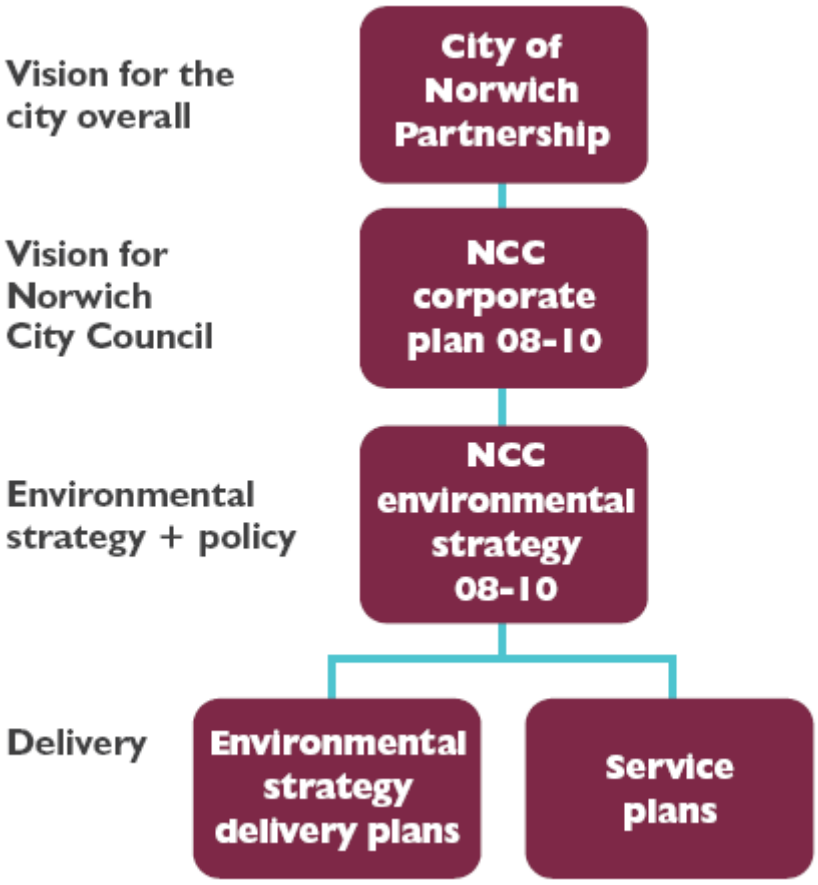
Sustainable Community Strategy

The City of Norwich Partnership through its Sustainable Community Strategy sets out a proposed vision for Norwich, *"To make Norwich a world class place to live, work, learn and visit"*
The partnership has identified six themes and strategic objectives to help it deliver this vision. One of these is to create a 'City of Environmental Excellence', under which three strategic objectives have been identified:

- To become a low-carbon city
- To minimise our use of finite global resources
- To become a model city for the management of the natural and built environment

In addition the CMP helps to achieve a range of aims and objectives held within the Environmental Strategy *"It is our policy to meet our national and international legislative obligations, to develop local sustainable communities, enhance the local environment, deliver environmentally-friendly services and enforce environmental legislation to help stem the depletion of finite natural resources".* Environmental Strategy 2008-2010.

See environmental policy (Section 2.2)



Thematic Delivery framework for Environmental Strategy 2008 - 2010

Programme Management of the CM Programme

7.1 The Programme Board – strategic ownership and oversight

Membership of the LACM Programme Board:

Project Sponsor (PS): a strategic, hands on role. The PS sets the scope and targets for the Programme and then monitors progress and removes obstacles as chair of the Programme Board. The programme will cut across organisational boundaries, so the PS will also need to actively engage peers across the organisation to build involvement in Carbon Management
The Project Sponsor is Paul Spencer Director of Transformation

Councillor Sponsor (CS): championing Carbon Management within the Council, engaging with the Leader of the Council to raise the profile of the Programme
The Councillor Sponsor is Cllr Brian Morrey. Executive member for Sustainable City Development & Chair of the Climate Change Panel.

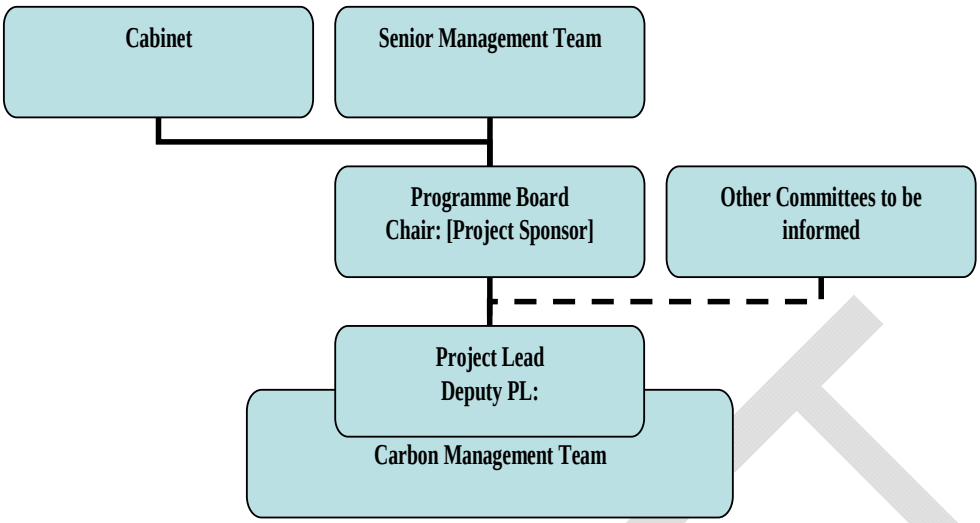
Finance Champion (FC): a senior finance point of contact for the Project Leader and Project Sponsor(s) in progressing Carbon Management. They will help in assessing / championing the invest to save principle and exploring the role of external sources of funding, such as Salix.
Mark Smith: Finance Control Manager

Co-sponsors to cover the main areas of the organisation carrying out CM work

- ***Chris Dady – Head of Asset and City Management***
- ***Anton Bull – Head of procurement and Contract Management***
- ***Jane Allen – Service Improvement Manager***
- ***Adrian Akester – Head of Citizen Services***
- ***Graham Nelson – Head of Planning and Regeneration Services***
- ***Martin Harwood – Capital Programme Manager***

NB: Additional Board members maybe invited to attend if required to add specialist advice

The Project Lead will chair meetings of the CM Team to review progress on activities and projects, identifying any blockages that need to be raised with the Programme Board. The Project Lead will meet at least monthly with The Project Sponsor to discuss progress. The Programme Board will meet every two months.



This is a diagram of the LACM structure. The structure allows the Carbon Management Team to take ideas and actions to the programme board via the project lead. The structure allows other interested parties, such as the climate change panel, to feed in the LACM programme and to the programme board. Cabinet/executive also have the ability to feed into the LACM process

7.2 The Carbon Management Team – delivering the projects

Project Leader: Richard Willson - Environmental Strategy Manager
Deputy Leader: *Carol Marney* – Facilities and Building Maintenance Manager
Name and role of Co-sponsors to cover the main areas of the organisation carrying out CM work

- *Katie Bayliss - Internal communications*
- *Sue Clarke - Green Travel Planning/Fleet management/ Procurement & Service Improvement*
- *Chris Rayner - Housing Property Manager*
- *Jane Rogers - Steria UK Contract*
- *Abbi Brook – Private Sector Housing: Home energy Officer*
- *Mark Smith – Finance control Manager City Care Contract*
- *Simon Meek – Green Spaces Manager*
- *Mike Burrall – Planning Team Leader*
- *Julia Elmes – National Graduate Management Trainee*
- *City Care – Stephen Moy*
- *Paul Twin - Steria computer services*

7.3 Succession planning for key roles

Where possible the CMP defines jobs roles rather than people. It is therefore expected that if staff leave the roles and responsibilities required by the CMP will be deliverd by their successor.

7.4 Ongoing stakeholder management

A yearly environmental statement will be produced to communicate progress to stakeholders. As previously discused regular reports will be made available to CMT, Climate Change Panel, and the project board of the CMP. A yearly update on progress will also be made to executive.

7.5 Annual progress review

In January 2007 this Council resolved unanimously to: *"develop and support strategies within the Council for the reduction of carbon emissions by an increasing percentage per year up to a target of 6% reduction per year as soon as possible; this should be assessed and reported to full Council annually as part of the budget cycle and to the Climate Change Panel on a regular basis for monitoring."*

"Carbon Management will become a continual practice in Norwich City Council to mitigate the impact of escalating utility bills and to control carbon emissions from the future growth of energy consumption" Brain Morrey – Portfolio Holder Sustainable Development

7.6 Equalities

In the implementation of our CMP consideration was given to the impact of certain energy efficiency measures on people with disabilities. (Including promotional materials) Modifications will be made as a result of any issues identified. The majority of the work is internally focussed, particularly around energy efficiency measures in buildings. Where particular needs have been identified actions or adaptations will be made.

Appendix A: Carbon Management Matrix - Embedding

	CORPORATE STRATEGY	PROGRAMME MANAGEMENT	RESPONSIBILITY	DATA MANAGEMENT	COMMUNICATION & TRAINING	FINANCE & INVESTMENT	POLICY ALIGNMENT *
BEST 5	• Top level target allocated across organisation • CO_2 reduction targets in Directorate Business Plans	• Cabinet / SMT review progress against targets on quarterly basis • Quarterly diagnostic reports provided to Directorates • Progress against target published externally	• CM integrated in responsibilities of senior managers • CM part of all job descriptions • Central CO_2 reduction advice available • Green Champions leading local action group	• Quarterly collation of CO_2 emissions for all sources • Data externally verified • M&T in place for: o buildings o street lighting o waste	• All staff given formalised CO_2 reduction: o induction and training o communications • Joint CM communications with key partners • Staff awareness tested through surveys	• Finance committed for 2+yrs of Programme • External funding being routinely obtained • Ring-fenced fund for carbon reduction initiatives	• CO_2 friendly operating procedure in place • Central team provide advice and review, when requested • Barriers to CO_2 reduction routinely considered and removed
4	• CO_2 reduction commitment in Corporate Strategy • Top level targets set for CO_2 reduction • Climate Change Strategy reviewed annually	• Sponsor reviews progress and removes blockages through regular Programme Boards • Progress against targets routinely reported to Senior Mgt Team	• CM integrated in to responsibilities of department heads • Cabinet / SMT regularly updated • Staff engaged though Green Champion network	• Annual collation of CO_2 emissions for: o buildings o street lighting o transport o waste • Data internally reviewed	• All staff given CO_2 reduction: o induction o communications o CM matters communicated to external community	• Coordinated financing for CO_2 reduction projects via Programme Board • Finances committed 1yr ahead • Some external financing	• Comprehensive review of policies complete • Lower level policies reviewed locally • Unpopular changes being considered
3	• CO_2 reduction vision clearly stated and published • Climate Change Strategy endorsed by Cabinet and publicised with staff	• Core team regularly review CM progress: o actions o profile & targets o new opportunities	• An individual provides full time focus for CO_2 reduction and coordination across the organisation • Senior Sponsor actively engaged	• Collation of CO_2 emissions for limited scope i.e. buildings only	• Environmental / energy group(s) given ad hoc: o training o communications	• A view of the cost of CO_2 reduction is developing, but finance remains ad-hoc • Some centralised resource allocated • Finance representation on CM Team	• All high level and some mid level policies reviewed, irregularly • Substantial changes made, showing CO_2 savings
2	• Draft Climate Change Policy • Climate Change references in other strategies	• Ad hoc reviews of CM actions progress	• CO_2 reduction a part-time responsibility of a few department champions	• No CO_2 emissions data compiled • Energy data compiled on a regular basis	• Regular awareness campaigns • Staff given CM information on ad-hoc basis	• Ad hoc financing for CO_2 reduction projects	• Partial review of key, high level policies • Some financial quick wins made
1	• No policy • No Climate Change reference	• No CM monitoring	• No recognised CO_2 reduction responsibility	• No CO_2 emissions data compiled • Estimated billing	• No communication or training	• No specific funding for CO_2 reduction projects	• No alignment of policies for CO_2 reduction

- Major operational policies and procedures, e.g. Capital Projects, Procurement, HR, Business Travel
- Red = 2008 Green = 2009

LACM Project list Planned / Funded projects

Project Ref:	***City Hall Voltage Optimization*** ***LA6NOR001***
Owner	*Director of Transformation & Environmental Strategy Manager*
Department	*Asset and city management* *Chis Dady (Head of asset and city management)*
Description	*The declared electricity supply in the United Kingdom is now, as a result of European Harmonisation, 230V with a tolerance of +10% to -6%. This means that effective voltage can be anywhere between 216V and 253V depending on local conditions. Most electrical equipment manufactured for Europe and the UK is rated at 220V and operates more efficiently at this level.* *Operating electrical equipment at higher than optimum voltages leads to significantly higher energy consumption. Equipment like lighting and motors consume more power at higher voltages. "A 230V linear appliance used on a 240V supply will take 4.3% more current and will consume almost 9% more energy."*
Benefits	• *Financial savings: £ 16,000 - £ 20,000 per year* • *Payback period: 1.7 to 2.2 years* • *CO_2 Emissions reduction: 73 – 92.4 tonnes of CO2/Yr* • *0.75% of 30% target*
Funding	• *Project cost: £35,000* • *Operational costs: None* • *50/50 Spend to save and Salix* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Funding from Salix*
Measuring Success	• *Before and After monitoring of electricity use*
Timing	• *Milestones / key dates e.g.* • *Start 2009* • *Complete 2009*
Notes	Currently checking with Steria for implications (if any) of proposal on their Service delivery. Potential need to provide emergency electricity supply to avoid risks to service delivery.

LACM Project list Planned / Funded projects

Project: Reference:	***St Giles Car Park car park lighting controls project. LA6NOR002***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	Installation of Lighting controller to automatically switch off deck lighting as directed by Car Parks client
Benefits	• *Financial savings: £ 3,021.00 per year* • *Payback period: 0.8 years* • *CO_2 Emissions reduction: 10.39 tonnes of CO2/Yr* • *0.01%*
Funding	• *Project cost: £2,500* • *Operational costs: None* • *50/50 Spend to save and Salix* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Funding from Salix*
Measuring Success	• *Before and After monitoring of electricity use*
Timing	• *Milestones / key dates e.g.* • *start date: 2009* • *completion date: 2009*
Notes	Project designed awaiting quotation from Contractor

LACM Project list Planned / Funded projects

Project: Reference:	***City Hall and St Giles heater replacement LA6NOR003***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	Removal and replacement of fan heaters within City Hall and St Giles House. Promotional jumpers to also be provided.
Benefits	• *Financial savings: £ 2,000 per year* • *Payback period: 0.3 years* • *CO_2 Emissions reduction: 32.2 tonnes of CO2/Yr* • *0.3%*
Funding	• *Project cost: £2,000* • *Operational costs: None* • *100% Spend to save* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Co-ordinated "One Small Step media communications"*
Measuring Success	• *Before and After monitoring of electricity use*
Timing	• *Milestones / key dates e.g.* • *start date: 2009* • *completion date: 2009*
Notes	Project to be co-ordinated as part of the winter one small step campaign.

LACM Project list Planned / Funded projects

Project: Reference:	***City Hall and St Giles heater replacement*** ***LA6NOR004***
Owner	*Director of Transformation & Environmental Strategy Manager*
Department	*Procurement*
Description	*Norwich City Council manages a number of sheltered housing units where the residence require efficient and user friendly washing facilities. These facilities are well used and are a welcome form of independence for the users however may need to be contract cleaned for operational hygiene. The project aims to change the drying facilities from electric to gas to unlock energy efficiencies. The technology commonly used and can provide quick payback periods for the authority.*
Benefits	• *Financial savings: £ 7000 pa* • *Payback period: Possible contract refresh or 1.5 years from a £7000 investment.* • *CO_2 Emissions reduction: 32 tonnes of CO2* • *0.3 % of a 6% CO_2 reduction target*
Funding	• *7,000-10,000 investment depending on equipment and contractual arrangements* • *Operational costs, Annual maintenance depending on contract* • *Source of funding: internal contact refresh or spend to save Salix Investment* • *Funding decision will be set by the Carbon Management Board esp. Procurement. Decision to be made in 2009. Implementation in 2009. Salix investment if required to be authorised by the Carbon Management Board.*
Resources	• *Potential training by housing facility staff and operational cost from servicing and installation/ gas compliance chencks.* • *Potential upgrade form new service agreement*
Ensuring Success	• *Environmental Strategy Manager to provide details to the head of procurement for consideration within new purchasing procedures. Carbon Management Boards to finance any potential increase in service costs.* • *Principal risks: technical failure is low. Financial failure low. Lack of experienced contractors in Norfolk to service units*
Measuring Success	• *Annual monitoring via NI185 data gathering process* • *Evaluation via Salix monitoring tool or annual bills*
Timing	• *Milestones / key dates e.g.* • *start date: 2009* • *completion date: 2009*
Notes	*Notes to be provided by the LACM board on projected savings and implementation issues*

LACM Project list Planned / Funded projects

Project: Reference:	***PC Auto Shut down*** ***LA6 NOR 005***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	*Steria / Corporate Resources*
Description	*Using 1E Nightwatchman Steria will have the ability to switch off all computers within the authority to save energy. The 1E Nightwatchman will also allow steria to switch on to install and update our computer services when required.* "NightWatchman utilizes the power management capabilities of your computer and combines this with an effective scheduling system in a single, easy-to-use package. Using NightWatchman you can define company-wide power saving policies, scheduled power-downs and automatic document saving."
Benefits	• *Financial savings: £ 18,000* • *Payback period: 1.4 years* • *CO_2 Emissions reduction: 80.6 tonnes of CO2 per year* • *0.76% of 30% target*
Funding	• *£26,000* • *Steria contact to run operational costs* • *Invest to save fund and Salix loan .* • *Carbon Management Board to confirm that project meets council spend to save requirements*
Resources	• *Steria to project manage new software*
Ensuring Success	• *Project is within the Environmental Strategy 2008-2010* • *Finance available via either Salix fund or spend to save*
Measuring Success	• *Sub metering of city hall and monitoring software developed by IEl* • *Aug 2009*
Timing	• *Milestones / key dates e.g.* o *start date: Oct 2008* o *completion date: Feb 2009)*
Notes	NightWatchman® is the leading software solution for remotely powering down computers within a network, with over 2.5 million licences deployed worldwide. It saves data, closes applications safely and then powers down PCs to save energy and costs.

LACM Project list Planned / Funded projects

Project: Reference:	***Sub Metering*** ***LA6 NOR 006***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	*To sub meter buildings such as city hall to establish reliable data on energy consumption by floor or by zone. This data will provide efficiency savings via better monitoring control of the zoned areas.*
Benefits	• *Financial savings: £ TBC* • *Payback period: TBCs* • *CO_2 Emissions reduction: TBC tonnes of CO2 per year* • *TBC % of 30% target*
Funding	• *£6,000 – 16,000* • *Invest to save fund and Salix loan .* • *Carbon Management Board to confirm that project meets council spend to save requirements*
Resources	• *City and asset management to support project and monitor buildings via the new monitoring system*
Ensuring Success	• *Project is within the Environmental Strategy 2008-2010* • *Finance available via either Salix fund or spend to save*
Measuring Success	• *Sub metering of city hall and monitoring software developed by IEl*
Timing	• *Milestones / key dates e.g.* o *start date: 2009* o *completion date: 2009*
Notes	*All buildings have some form of electrical or heating services. A Building Management System or Sub metering can provide efficient operations via 24/7 monitoring which provided an increased understanding of the buildings operations requirements. Sub metering will also allow for other project to be monitored and will assist in the "One Small Step" campaigns/ environmental champion work by allowing different floors or zones to complete against each other.*

LACM Project list Planned / Funded projects

Project: Reference:	***Plant room jackets and pipework insulation*** ***LA6 NOR 007***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	*To insulate exposed pipework within the plant room*
Benefits	• *Financial savings: £ 1200* • *Payback period: 1.7* • *CO_2 Emissions reduction:11.1 tonnes of CO2 per year* • *TBC 0.1% of 30% target*
Funding	• *£2,000 – 4,,000* • *Invest to save fund and Salix loan .* • *Carbon Management Board to confirm that project meets council spend to save requirements*
Resources	• *City and asset management to support project*
Ensuring Success	• *Finance available via either Salix fund or spend to save*
Measuring Success	• *Sub metering of city hall and monitoring software developed by IEl* • *NI185 data gathering*
Timing	• *Milestones / key dates e.g.* o *start date: 2009* o *completion date: 2009*
Notes	*Survey will need to be completed*

LACM Project list Planned / Funded projects

Project: Reference:	***St Giles MSCP – Voltage Optimisation*** ***LA6NOR008***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	The declared electricity supply in the United Kingdom is now, as a result of European Harmonisation, 230V with a tolerance of +10% to -6%. This means that effective voltage can be anywhere between 216V and 253V depending on local conditions. Most electrical equipment manufactured for Europe and the UK is rated at 220V and operates more efficiently at this level. Operating electrical equipment at higher than optimum voltages leads to significantly higher energy consumption. Equipment like lighting and motors consume more power at higher voltages. "A 230V linear appliance used on a 240V supply will take 4.3% more current and will consume almost 9% more energy."
Benefits	• *Financial savings: £ 6530 per year* • *Payback period: 3.83 years* • *CO_2 Emissions reduction: 21 tonnes of CO2/Yr* • *0.19 % of 30% Target*
Funding	• *Project cost: £ 35,000* • *Operational costs: None* • *50/50 Spend to save and Salix – Non Compliant* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Funding from Salix - Non Compliant*
Measuring Success	• *Before and After monitoring of electricity use*
Timing	• *Milestones / key dates e.g.* o *start date: 2009* o *completion date: 2009*
Notes	*Above projections based on similar project predictions, site survey and quotations required.*

LACM Project list Planned / Funded projects

Project: **Reference:**	***The Norman Centre Cavity Wall Insulation*** ***LA6NOR009***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	Cavity Wall Insulation & other insulation works for the Norman Centre
Benefits	• *Financial savings: £1599 per year* • *Payback period: TBC years* • *CO_2 Emissions reduction: TBC tonnes of CO2/Yr* • *TBC % of 30% Target*
Funding	• *Project cost: £2000* • *Operational costs: None* • *50/50 Spend to save and Salix – Compliant* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Funding from Salix - Non Compliant*
Measuring Success	• *Before and After monitoring of gas use*
Timing	• *Milestones / key dates e.g.* o *start date: 2010* o *completion date: 2010*
Notes	*Above projections based on similar project predictions, site survey and quotations required.*

LACM Project list Planned / Funded projects

Project: Reference:	***One Small Step Campaign and Environmental Champions LA6NOR004***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	*Transformation*
Description	By getting our staff to think about the little things at work, we hope to encourage them to involve this thinking in their home life too, offering simple practical advice to help everyone 'do their bit' – each taking small steps to make a big difference collectively.
Benefits	• *Financial savings: £ 20,000* • *Payback period: 0.8 years* • *CO_2 Emissions reduction: 106 tonnes of CO2 per year* • *1 % of target*
Funding	• *Project cost, £2000* • *Operational costs £400* • *Source of funding: internal.* • *Authorised by climate change panel*
Resources	• *Additional resource: Communications and print design* • *Project delivered within current resources*
Ensuring Success	• *A continued cultural change within the authority* • *Principal risks: technical, financial (eg what happens if the project is insufficiently resourced), etc.*
Measuring Success	• *Number of projects completed*
Timing	• *Milestones / key dates e.g.* o *start date: Aug 2008* o *completion date Ongoing*
Notes	

LACM Project list Planned / Funded projects

Project: Reference:	***Server Optimisation*** ***LA6NOR011***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	*Steria / Corporate Resources*
Description	Organizations must extract maximum value and efficiencies from existing IT investments. In terms of servers, it is no longer enough to simply guarantee server availability; organisations must manage server performance and costs, and be flexible enough in IT resource allocation to meet the dynamic demands of business across the enterprise. This can provide associated energy savings.
Benefits	• *Financial savings: £ Contract upgrades* • *Payback period: N/A* • *CO_2 Emissions reduction: 30 tonnes of CO2 per year* • *0.28 % of target*
Funding	• *Project cost, £0* • *Operational costs £0* • *Source of funding: n/a.*
Resources	• *Project is part of existing contact upgrade*
Ensuring Success	• *A continued cultural change within the authority and IT services*
Measuring Success	• *Number of projects completed*
Timing	• *Milestones / key dates e.g.* o *start date: Aug 2008* o *completion date Ongoing*
Notes	

LACM Project list Planned / Funded projects

Project: Reference:	***Sustainable Procurement Guide*** ***LA6NOR012***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	*Director of Transformation & Environmental Strategy Manager* *Procurement*
Description	Organisations must extract maximum value and efficiencies from purchasing decisions. The sustainable procurement guide will provide information in regards to undertaking sustainability decisions whilst purchasing goods or services. Often the financial elements of a project will take first priority, however via training and guidance it would be expected that CO_2 savings will be made
Benefits	• *Financial savings: £ TBC* • *Payback period: N/A* • *CO_2 Emissions reduction: 15> tonnes of CO2 per year* • *0.15 % of target*
Funding	• *Project cost, £0* • *Operational costs £0* • *Source of funding: n/a.*
Resources	• *Environmental Strategy and procurement to identify new ways of working and to produce guidance*
Ensuring Success	• *A continued cultural change within the authority* • *Completion of guidance*
Measuring Success	• *Monitoring and spot checking of purchasing*
Timing	• *Milestones / key dates e.g.* o *start date: Aug 2009* o *completion date Ongoing*
Notes	*City Council do have a sustainability policy, environmental policy and limited guidance. Goods and services are also procured via ESPO who also have a "green guide" to purchasing.*

LACM Project list Planned / Funded projects

Project: Reference:	***Retro Lightfittings with daylight sensors and energy efficient bulbs Phase 1 LA6NOR013***
Owner (person)	*Director of Transformation & Environmental Strategy Manager*
Department	***Asset and city management*** *Chis Dady (Head of asset and city management)*
Description	Retrofitting lighting within City Hall with daylight controls to automatically dim or turn off lights when daylight levels adequate for office working
Benefits	• *Financial savings: £ 6000* • *Payback period: 2.0* • *CO_2 Emissions reduction: 12.9 tonnes of CO2 per year* • *0.12 % of target*
Funding	• *Project cost, £6000* • *Operational costs £0* • *Source of funding: n/a.*
Resources	• *Funding available for lighting upgrades. LACM6 to provide additional finance for daylight controls*
Ensuring Success	*Survey required*
Measuring Success	*Monitoring via NI185 and City hall electrical data*
Timing	• *Milestones / key dates e.g.* o *start date: Aug 2009* o *completion date Ongoing*
Notes	*Survey required. Possible issues with staff may require one small step promotions. Possible H&S issues as well as diversity issues*

Project: Reference:	***Community Centre Corridor and W.C lighting controls (PIR) LA6NOR0X***
Owner (person)	*Chis Daddy (Head of asset and city management)*
Department	*Asset and city management*
Description	*Utilise smart luminaires when replacing old luminaires within City Hall to provide daylight linking and presence detection.*
Benefits	• *Financial savings: £ 1,883.00* • *Payback period: 8.8 Years Average* • *CO_2 Emissions reduction: 3.9 tonnes of CO2/Yr* • *% of target – the percentage of your CO2 saving target will this project annually contribute*
Funding	• *Project cost: £10,000.00* • *Operational costs: None* • *50/50 Spend to save and Salix –Non Compliant* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Funding from Salix - Non Compliant*
Measuring Success	• *Before and After monitoring of electricity use*
Timing	• *Milestones / key dates e.g.* o *start date: 2009* o *completion date: 2009*
Notes	*Some sites better than others with quicker payback periods. Some lighting will need to be outside PIR control for safety reasons and Centre managers may not wish corridor lighting controlled in this manner as it creates wrong atmosphere!*

Project: **Reference:**	***Floodlit Games Areas*** ***LA6NOR0X***
Owner (person)	*Chis Daddy (Head of asset and city management)*
Department	*Asset and city management*
Description	*Installation of local timer buttons for use by games area users to enable lighting to be switched on by users.* *Will reduce lighting being on at times when no one using games area.*
Benefits	• *Financial savings: £ 2505.00 per year* • *Payback period: 5.6 Years* • *CO_2 Emissions reduction: 10.8 tonnes of CO2/Yr* • *% of target – the percentage of your CO2 saving target will this project annually contribute*
Funding	• *Project cost: £14,000.00* • *Operational costs: None* • *50/50 Spend to save and Salix –Non Compliant* • *LACM Project board approval required*
Resources	• *Asset and city management to co-ordinate*
Ensuring Success	• *Funding from Salix - Non Compliant*
Measuring Success	• *Before and After monitoring of electricity use*
Timing	• *Milestones / key dates e.g.* o *start date: 2009* o *completion date: 2009*
Notes	*Risk that push button arrangements abused/vandalised*