Local Authority Carbon Management Programme

The Case for Action

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1 INTRODUCTION

1.1 Background to the project

The City Council made the decision to sign up to the Nottingham Declaration on Climate Change in November 2001. This includes the commitment to reduce greenhouse gas emissions from our own operations. The Carbon Management Programme provides the structure and support to fulfil this commitment.

The Carbon Management Programme is a 5-step process. This report is the output of step 2, which measures the baseline emissions and develops the case for action. The programme is as follows:

Step 1:	Project Planning	Completed end of July 2005
Step 2:	Case for Action	Completed, for Cabinet approval
Step 3:	Options Evaluation	To identify and evaluate possible carbon reduction opportunities, due for completion by end of December
Step 4:	Strategy and Implementation Plan	Development of strategy and detailed work on action plan, due at Cabinet in February
Step 5:	Implementation and Review	Ongoing, from approval of strategy and implementation plan

1.2 Overview of the organisation and its structure

Winchester City Council is a district council covering an area of 250 square miles. It employs 514 staff, operating from 6 offices in the town centre. Annual energy budgets are approximately £310,000 for buildings and £130,000 for transport.

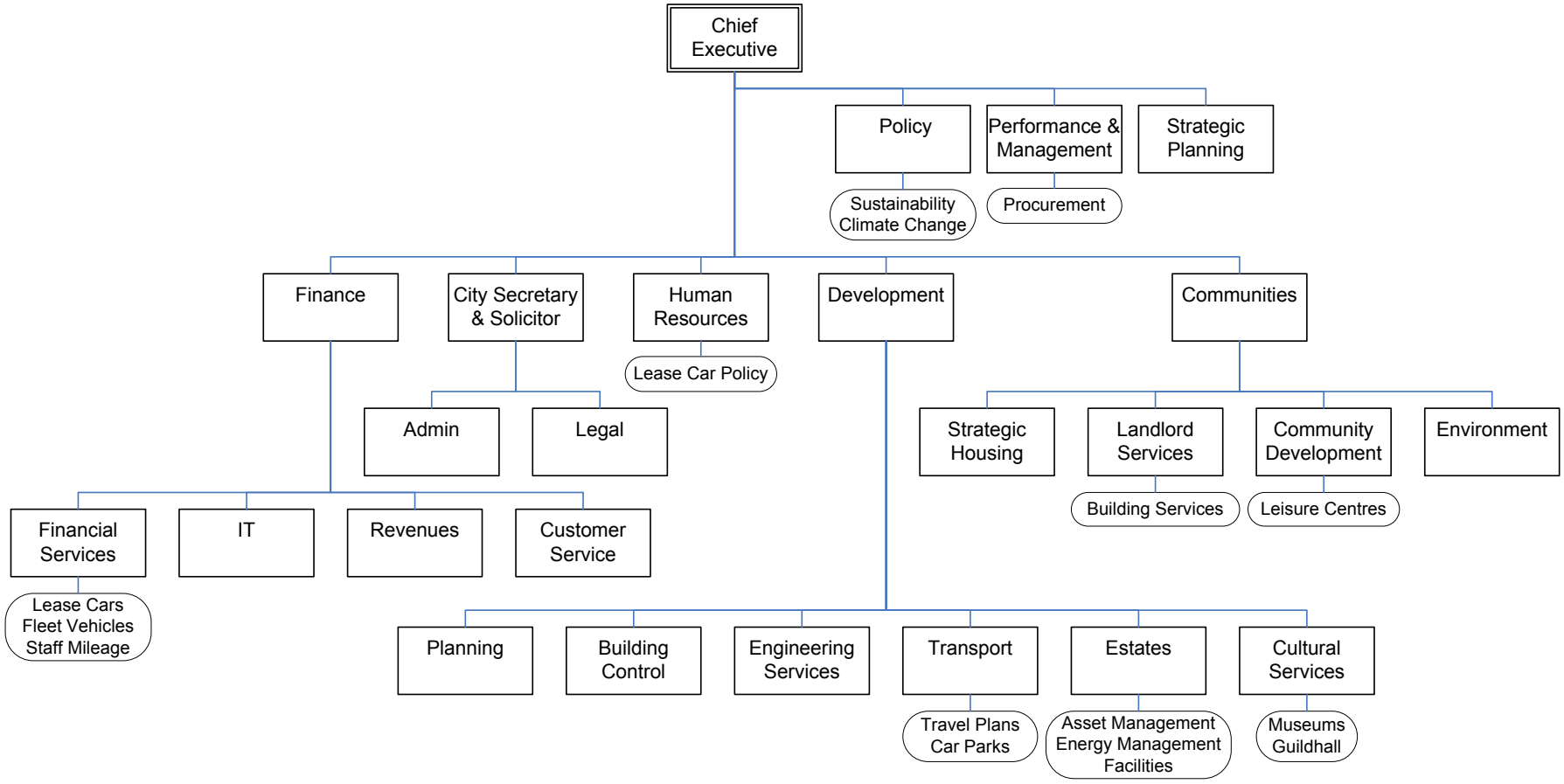
Responsibilities for energy and carbon management are split across the authority. These are shown on the organisational structure diagram in figure 1.

1.3 Current relevant policies

The Sustainability Strategy, agreed by Cabinet in December 2004, includes ambitions for more energy efficient buildings, the use of renewable energy, and more sustainable ways of travelling. The Carbon Management Programme is seen as an integral part of this work. It also builds on and reinforces the Energy Management work that has been progressing in Estates for a number of years.

This work also relates to the Corporate Strategy, acting on the value ‘acts in a sustainable way and encourages others to do likewise’ and linking to the priority ‘Green Agenda: to minimise pollution and to make efficient use of resources’.

Figure 1: Organisational Structure, including Carbon Management responsibilities



2 CARBON MANAGEMENT DRIVERS

There are a number of benefits that the Carbon Management Programme will bring:

Gershon efficiency/Cost savings
Measures to increase energy efficiency will also reduce energy costs, which is particularly important for the future given the predicted increases in gas and electricity prices.

Community Leadership
The early focus of the programme is the carbon emissions that the council is most directly responsible for. By reducing emissions from our activities we can provide an example to others, enabling us to act as community leaders and fulfil the aims of the Corporate Strategy.

Climate Change Response
The issue of climate change is growing in importance and is a focus for action in national and regional strategies. There is an increasing expectation for Councils to take action on this issue and the Carbon Management Programme forms the first part of the Council's response to Climate Change.

EU Energy Performance of Buildings Directive
Under this directive, buildings over 1000m^2 with public access must carry an energy label, and all leased buildings require energy certification at change of tenancy. The energy performance of our buildings will therefore be more visible by all users.

Healthy and Comfortable Working Environment
Carbon Management initiatives can include better insulation, ventilation and other energy efficiency measures that will create a better working environment and improved productivity.

3 EMISSIONS BASELINE AND FORECAST

3.1 Methodology and Timeframe

The emissions baseline has been collected using the Carbon Trust's spreadsheet, as this was deemed to be the best way of collating data from the various sources and already set up to produce the information required.

The emissions baseline has been measured over the year 2004/05. The Strategy and Implementation Plan will look at a five year period in detail, but with a view of the picture in 10 years time.

Some national and international targets are looking at 2015, making the 10year timeframe useful in checking our contribution to these. However, it is recognised that this timeframe will contain uncertainties for forecasting, hence the importance of including a 5 year timeframe.

3.2 Source boundaries

The initial scope was kept as broad as possible, in order to obtain a clearer picture of the largest contributors so we can decide on the best areas on which to focus attention, and whether to plan the work in phases.

The sources used for the data in this report has been limited to direct emissions from the Council. This has been because those sources are those for which we can easily obtain data. Further work can however be done in the future to obtain information from other sources.

3.3 Material emission sources

Baseline data has been collected on:

- Operational Buildings – Council Offices, Guildhall, Mayor's Residence, Museums
- Car Parks owned by the council
- Public conveniences
- Leisure centres
- Corporate vehicles – vans for the parking attendants, dog wardens, neighbourhood wardens, the courier and a pool car for planning officers.
- Business travel
- Staff commuting

Although we had included Council housing stock in our initial scope, data collection has proved difficult, and is therefore not included in the figures below. It is likely that the emissions from this source far outweigh those quoted below, although our control over them is lower.

The council also owns and rents around 100 commercial properties. Again, a lack of data has excluded them from the baseline. Our control here is also limited, with tenants responsible for maintenance and therefore energy efficiency improvements to the buildings.

3.4 Issues

The process of collecting the baseline data has itself raised a number of issues to be addressed through the programme.

Some of the data has proved difficult and time-consuming to obtain, and is estimated in some cases. Work needs to continue to address data gaps and ensure a robust, efficient process for future data collection.

The Guildhall and City Offices are supplied from shared meters. Sub-meters were installed a number of years ago, but are not currently being read or used to allocate the cost. A system of regular meter reading is being put into place to address this.

It is already apparent that there is a lack of officer time available to put into the programme. One of the success factors for this programme is therefore to ensure it is properly integrated into Council business and time is allocated from relevant officers.

3.5 Baseline data and emissions

The baseline data has been compiled and converted in tonnes of CO2 using the standard conversion factors quoted by DEFRA. Appendix 1 shows the detailed consumption and emissions figures. Carbon Dioxide emissions in 2004/05 from the above sources totalled 3176 tonnes. Total emissions split by type are shown in figure 2, with the building emissions sub-divisions in figure 3.

Figure 2: CO_2 Emissions split by type

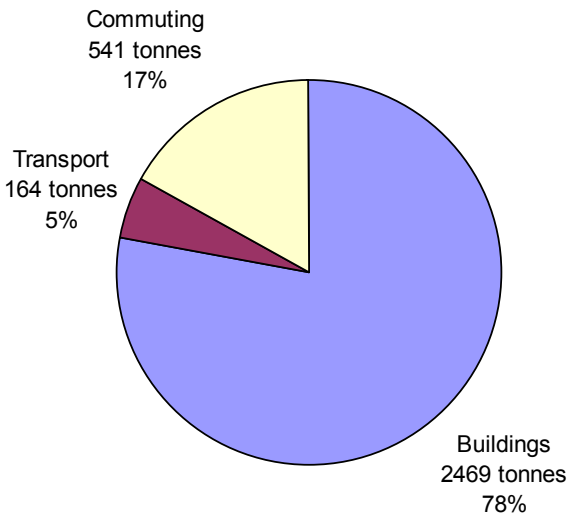
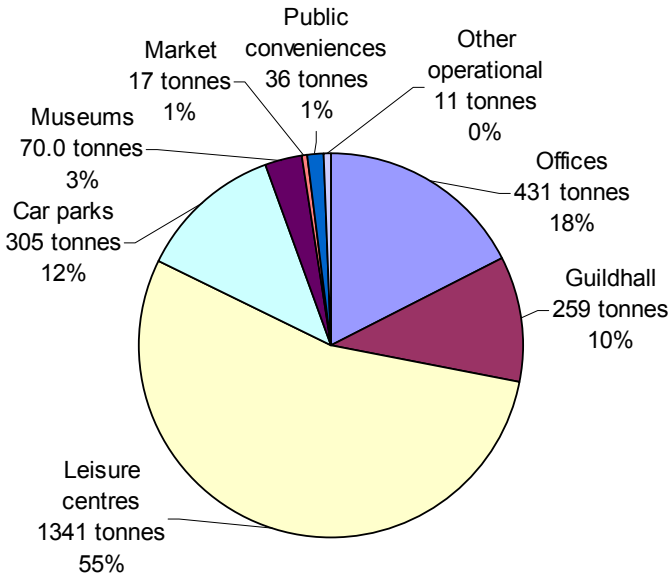


Figure 3: Buildings CO_2 Emissions



The graphs clearly show that buildings are contributing the most CO_2 emissions and of those, the leisure centres account for the greatest proportion. However, it is clear that there is also opportunity for emissions reduction in transport, commuting, in offices, the guildhall and the car parks. It is proposed that these form the focus of the first phase of the programme.

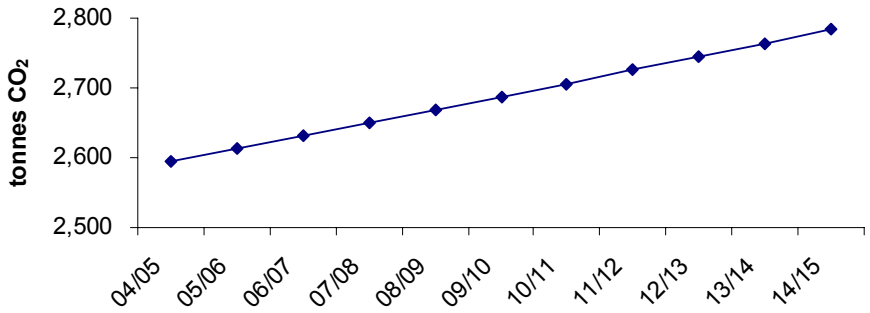
With regard to River Park Leisure Centre it should be noted that works to reduce CO_2 emissions will commence during the proposed refurbishment in 2006. Part of these works will be to upgrade the main heating plant to better integrate combined heat and power (CHP) source equipment to lower CO_2 emissions.

Future works to further reduce emissions will require other factors to be considered especially towards the fabric of the building. At an appropriate time when replacing key elements such as roofs, insulation can be upgraded to reduce heat loss and reduce energy consumption further.

3.6 CO_2 Emissions Forecast

Assuming an annual growth in emissions of 0.7%, as put forward by the DTI, our carbon emissions will be 2,800 tonnes per year by 2015. This is only a rough estimate, but data collection in future years will give us the trend from which we can make more accurate forecasts.

Figure 4: Business as usual CO_2 emissions forecast



4 CARBON MANAGEMENT STATUS

Our current position with regard to Carbon Management has been assessed using the Carbon Trust matrix. Responses from Senior Managers across the authority were collated to provide the picture as shown in Table 1 below. Boxes in grey are the levels we believe to be at present, with other relevant information in the appropriate boxes. This reflects that we are at the early stages of work on the issue of Climate Change.

Carbon management has not been a specific focus for work before now. However, a number of initiatives have resulted in positive benefits. These include the introduction of lower parking charges for low CO_2 emission vehicles, expansion of park and ride, emissions reductions of Winchester buses, energy efficiency advice and promotion to households, solar powered parking meters and office energy efficiency work, including awareness campaigns.

When asked about the main barriers to implementing carbon reduction opportunities, the managers cited the lack of awareness and understanding of the issues and potential solutions, along with a lack of leadership/prioritisation, a lack of policy and a lack of finance.

It is anticipated that the Carbon Management Programme will enable the council to address these issues.

Table 1: Current status of carbon management activity

	Policy	Organisation	Information and Data	Communication and Training	Finance	Monitoring and Evaluation
Level 5. Advanced Action	Action Plan will follow production of Climate Change Policy.	Climate Change accountabilities are defined at Member and Director Level (through sustainability).				
Level 4. Moderate Action	Climate Change Policy/Strategy due to be produced by December 06.	Actions relevant to Climate Change are within responsibilities of relevant people in different department, but Climate Change is not formally included.				
Level 3. Some Action	Climate Change issue and actions appear in Community Strategy, Sustainability Strategy, Local Plan and Asset Management Plan, but is not yet fully integrated into all relevant plans.	Climate Change is formally included within the responsibilities of the Sustainability Officer.	As a result of the Carbon Management Programme, CO_2 emissions data has been compiled for some sources for a baseline year.	Communication and training on carbon and energy related matters is beginning in relation to the Carbon Management Programme.		
Level 2. Little Action	Climate Change issue appears as an aspiration in non-policy documents.		Prior to the Carbon Management Programme CO_2 emissions data was only compiled in the context of energy management for the Asset Management Plan.	Communication and Training has been limited to specific groups within the Council, particularly the Estates team in relation to energy management work.	Some internal financing on an ad hoc basis for carbon and energy efficiency related projects, particularly through HECA and Sustainable Transport work.	Ad hoc reviews of specific aspects of carbon or energy issues.
Level 1. No Action						

5 VALUE-AT-STAKE

As part of the case for action, the Carbon Trust asks that we include a 'Value at Stake' analysis. Using the baseline information, this shows the difference in cost over time between doing nothing (a business-as-usual approach) and taking an active approach to Carbon Management as part of a systematic CO_2 emissions reduction programme.

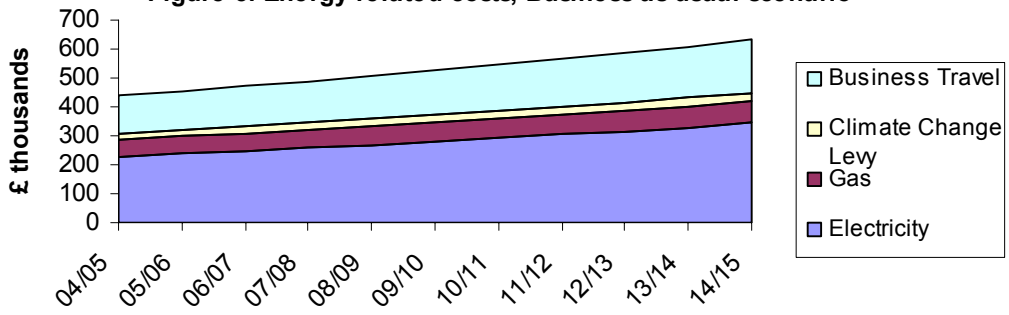
5.1 Energy, CO_2 and other assumptions

As we are projecting costs into the future, the calculations rely on a number of assumptions, about energy prices, inflation, changes to the Climate Change Levy, likely increases in energy consumption in the business as usual scenario, and likely reductions for the reduced emissions scenario. Where possible, these assumptions have been based on figures provided by the Carbon Trust, ESD consultants and the DTI. Details of the assumptions made are listed in Appendix 2, along with cost figures for the business as usual and reduced emissions scenarios.

5.2 Business as usual scenario

If we do nothing to manage our carbon emissions, rising emissions and rising cost combine to create the picture as shown in figure 5.

Figure 5: Energy related costs, Business as usual scenario

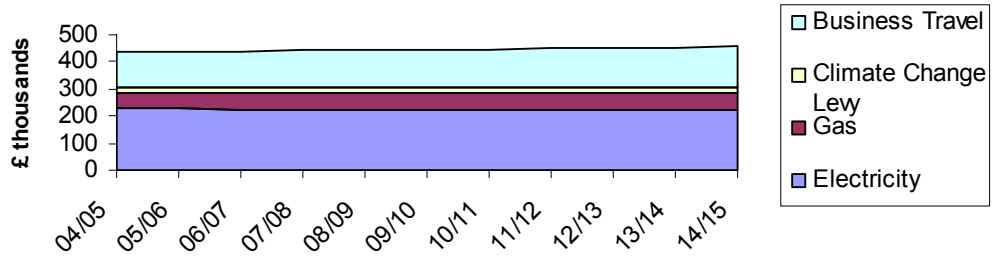


5.3 Reduced CO_2 emissions scenario

The reduced emissions scenario shows an indicative target emissions reduction. At this stage in the process, a precise target reduction cannot be calculated as the detailed assessment and planning of abatement opportunities takes place in the next step.

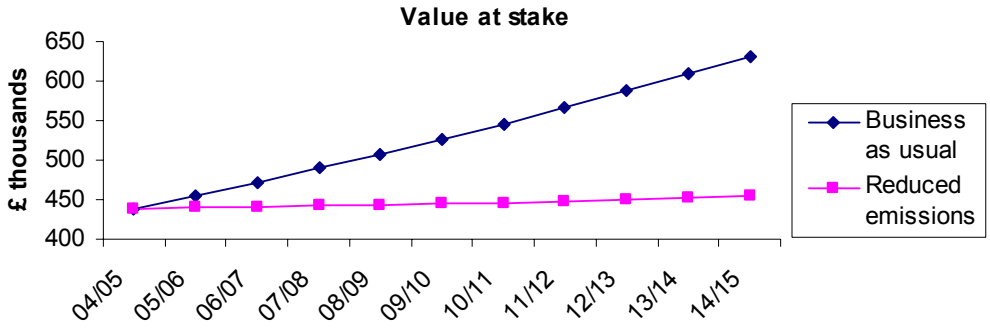
However, using estimates based on benchmark data for comparable buildings, and the possibilities for reducing transport emissions, gives the scenario as shown in figure 6.

Figure 6: Energy related costs, Reduced emissions scenario



5.4 Value-at-Stake

The Value-at-Stake is the difference between the Business as Usual and Reduced Emissions scenarios: the potential value to be obtained through adopting a Carbon Management approach. According to these calculations, the total savings in energy and carbon related costs in 2009/10 will be £82,000 per year, and by 2014/15 will be £176,000. The Value-at-Stake to 2015 (aggregated savings), totals £928,000 thousand.



Future projections are, of course, only estimation. However, these two scenarios clearly show the potential for cost savings through reducing our carbon dioxide emissions.

6 STRATEGIC OBJECTIVES

To guide work in the next step of this programme, a set of strategic objectives is needed. These should also link back to the Sustainability Strategy.

As stated within the Sustainability Strategy, the council has the following vision:

> *Our vision is of a Winchester City Council where sustainability is understood, valued and pursued by everyone.*
>
> *In all that we do, positive benefits, to the environment, to society and to the economy, are achieved and adverse impacts minimised.*
>
> *The culture of sustainability within the Council is obvious in the fabric of our buildings, the way our staff and members work, the materials we use and the way we travel.*
>
> *Through this, Winchester City Council provides an example to others of the way we can work, and live, more sustainably.*

In working towards this, the proposed strategic objectives for the Carbon Management Programme are as follows. These have been developed from discussions and work so far on developing the baseline.

- Reduce carbon emissions from our buildings and schools through both the use of technology and behaviour change.

- Identify opportunities for making carbon savings in future contracts and procedures, including sourcing energy requirements from renewable sources where possible.

- Reduce carbon emissions from commuting and business travel, by promoting walking, cycling, public transport and car sharing; by investigating ways of reducing the need to travel; and taking account of carbon emissions in future vehicle contracts.

- Continuously improve the Carbon Management Programme by further developing monitoring systems to capture robust and accurate emissions data, and widening the scope to cover indirect and contract emissions.

- Learn from other organisations experience of carbon management and from our own experiences as we progress through the programme.

- Inspire staff and member participation and integrate the Carbon Management Programme into mainstream council activities, council policy and the performance management system.

- Lead the community to understand and act to protect the environment by raising awareness of the Carbon Management Programme and our successes.

APPENDIX 1: BASELINE DATA AND EMISSIONS CALCULATION (2004/05)

Source	Fuel	Energy Consumption	Units	Conversion Factor	CO_2 Emissions	Units
Offices	Electricity	659,584	kWh	0.00043	284	tonnes
	Renewable Electricity	220,680	kWh	0	0	tonnes
	Gas	775,653	kWh	0.00019	147	tonnes
Guildhall	Electricity	564,328	kWh	0.00043	243	tonnes
	Gas	83,244	kWh	0.00019	16	tonnes
Museums	Electricity	90,856	kWh	0.00043	39	tonnes
	Gas	162,881	kWh	0.00019	31	tonnes
Leisure Centres	Electricity	1,865,413	kWh	0.00043	802	tonnes
	Renewable Electricity	109,372	kWh	0	0	tonnes
	Gas	2,834,286	kWh	0.00019	539	tonnes
Car Parks	Electricity	709,286	kWh	0.00043	305	tonnes
	Renewable Electricity	424,595	kWh	0	0	tonnes
Market	Electricity	40,009	kWh	0.00043	17	tonnes
Public Conveniences	Electricity	83,721	kWh	0.00043	36	tonnes
Other Operational	Electricity	24,556	kWh	0.00043	11	tonnes
Corporate Vehicles	Diesel	10,000	miles	0.00031	3	tonnes
	LPG	99,000	miles	0.00027	27	tonnes
Business Travel (Car)	Petrol	339,987	miles	Various, related to engine size	99	tonnes
	Diesel	124,439	miles		33	tonnes
Business Travel (Rail)	Diesel	47,171	miles	0.00006	3	tonnes
Commuting	Any	3,140,100	miles	various	541	tonnes
Total					3176	tonnes

APPENDIX 2: VALUE AT STAKE - ASSUMPTIONS AND CALCULATIONS

Assumptions

Year-on-year price rises:

- Electricity 3.5% (figure from ESD)
- Gas 1.6% (figure from ESD)
- Transport 2.5%
- Climate Change Levy 2% (figure from Carbon Trust)

Business as usual year-on-year consumption changes:

- 0.7% for gas, electricity (based on DTI figure of 0.7% per annum CO_2 emission rises)
- 1% for transport

Reduced emission year-on-year consumption changes:

- 3% reduction in overall electricity consumption (estimate derived from benchmark building data)
- 2% switch from 'brown' electricity to electricity from renewable sources
- 1% reduction in gas consumption (estimate derived from benchmark building data)
- 1% reduction in transport miles

Energy related costs (£'000) Business as usual scenario

	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Electricity	227	237	247	257	268	279	291	304	316	330	344
Gas	59	60	62	63	65	66	68	69	71	72	74
Climate Change Levy	23	23	24	25	25	26	27	27	28	29	30
Business Travel	130	135	140	144	150	155	160	166	172	178	184
Total	439	455	472	490	508	526	546	566	587	609	632

Energy related costs (£'000): Reduced emissions scenario

	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15
Electricity	227	226	225	224	224	223	223	223	223	223	224
Gas	59	59	60	60	60	61	61	61	62	62	63
Climate Change Levy	23	22	22	21	21	21	20	20	19	19	19
Business Travel	130	132	134	136	138	140	142	144	146	149	151
Total	439	440	441	442	443	445	446	448	451	453	456

Value at Stake (£'000)

	04/05	05/06	06/07	07/08	08/09	09/10	10/11	11/12	12/13	13/14	14/15	Total
Value at stake	0	16	31	48	65	82	100	118	137	156	176	928