

ANGUS COUNCIL

STRATEGIC POLICY COMMITTEE - 6 MAY 2008

SUBJECT: CARBON MANAGEMENT PROGRAMME

JOINT REPORT BY DIRECTOR OF INFRASTRUCTURE SERVICES AND DIRECTOR OF CORPORATE SERVICES

Abstract: This report brings forward a Carbon Management Strategy and Implementation Plan aimed at reducing Carbon Dioxide (CO₂) emissions and energy costs for the Council.

1 RECOMMENDATION

It is recommended that the Committee:-

1. agree the Carbon Management Strategy and Implementation Plan as set out in Appendix 1.

2 INTRODUCTION

- 2.1 The Strategic Policy Committee on 20 March 2007 agreed to join the Carbon Trust's Carbon Management Programme (CMP). A group comprising representatives from a number of Departments and Divisions was formed to identify opportunities for reducing emissions resulting from Council activities and use of buildings and, at the same time reducing energy use and costs. Baseline information was collated to estimate annual carbon dioxide (CO₂) emissions from identified services. Figures for 2006-07 show that emissions from Council buildings, office waste, fleet and business mileage and street lighting totalled 26,714 tonnes of CO₂. A target CO₂ reduction of 15% on the current annual emissions rate is proposed for 2012.
- 2.2 By following the Carbon Trust's programme and by utilising the tools and resources made available by the Carbon Trust the CMP group were able to identify a long list of opportunities to reduce emissions. This list of potential projects was then investigated in more detail to assess those projects which will provide maximum emission reduction in a relatively short time scale and at lowest cost. This priority list forms the basis of the CMP Strategy and Implementation Plan (SIP) (see appendix 1) and includes low or no cost projects and some requiring moderate investment to secure ongoing financial savings and emission reductions. All the projects will require staff input to some degree but all have the potential to generate year on year cost savings. The projects in the CMP SIP have a combined cost of £1,397,039 and would generate savings in the region of £2,115,974 and 14,766 tonnes of CO₂ over the period of the plan. Thereafter there will be ongoing cost and CO₂ savings. It should be noted that all the projects identified relate to buildings. Transport emissions will be addressed through the recently approved Travel Plan.
- 2.3 Addressing CO₂ emissions reduction will help the Council to address the increasing number of charging measures introduced by the Government based on emissions e.g. the Climate Change Levy and the forthcoming Climate Reduction Commitment (CRC). As details of this new scheme have not been finalised they are not included in

any CMP calculations. However, any savings made under the Carbon Management Programme will also create extra savings by reducing the charges the Council would have to pay under CRC. Rising fuel prices also make energy efficiency measures all the more imperative.

3 FINANCIAL IMPLICATIONS

- 3.1 The cost implications for each of the projects are identified in Appendix A of the CMP Strategy and Implementation Plan (Table 2 of section 4 refers).
- 3.2 Projects 1, 3, 5, 7 are low or no cost projects and will be funded from within existing budgets, Spend to Save resources or Central Energy Efficiency Fund (CEEF) monies.
- 3.3 Projects 2,4,8,9 involve moderate investment but will give significant financial and well as CO₂ savings and will be funded from within existing budgets, Spend to Save or CEEF monies.
- 3.4 Project 6 Biomass involves significant investment on boilers for new builds or where replacement is required anyway and will be taken forward subject to capital resources being identified within the Council's Financial Plan. Significant investment in biomass boilers has already been made by the Council.

4 HUMAN RIGHTS IMPLICATIONS

- 4.1 There are no human rights implications arising from this report.

5 CONSULTATION

- 5.1 The Chief Executive, Director of Corporate Services , Head of Finance, Head of Law & Administration and Director of Education has been consulted during the preparation of this report.

6 CONCLUSION

- 6.1 The proposed Carbon Management Programme Action Plan has the potential to reduce annual emissions of CO₂ by at least 15% by 2012. A range of projects to achieve the reduction are included in the Strategy and Implementation Plan attached at Appendix 1. Some projects incur no or low financial cost, whilst others require investment in order to reap ongoing financial savings as well as CO₂ emission reductions.

NOTE

No background papers, as defined by Section 50D of the Local Government (Scotland) Act 1973, (other than any containing confidential or exempt information) were relied on to any material extent in preparing the above Report.

P&T/PC/KW
25 April 2008

Eric S. Lawson
Director of Infrastructure Services

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Appendix 1

**Local Authority
Carbon Management Programme**

ANGUS COUNCIL

Strategy and Implementation Plan (SIP)

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Management Summary

The signing of the Scottish Climate Change Declaration in February 2007 committed the Council to, amongst other things, reducing greenhouse gas emissions from its operations. Participation in the Carbon Trust's Carbon Management Programme (CMP) was seen as one step towards achieving the commitment. The need to reduce the use of dwindling supplies of fossil fuels, increasing energy prices and the introduction of government emission charging measures give added imperative.

A CMP group was formed, comprising representatives from a range of services and led by the Head of Planning & Transport, to identify emission sources and emission reduction opportunities.

This document sets out the position of Angus Council and shows the implications of doing nothing and the potential savings in terms of both finance and CO₂ emissions which could be achieved if the plan is followed.

Using 2006/7 as the baseline year the Council's target is to reduce its carbon emissions by 15% by 2012.

The group developed a range of actions to meet that target. Some are short term and low or no cost; others require modest investment to secure ongoing emission reductions and financial savings. The projects proposed in Appendix A have the potential to generate CO₂ emission savings of 14,766 tonnes over the plan period and cost savings in the region of £2,116,000.

In addition to the financial and environmental benefits of engaging in Carbon Management, it will indicate the Council's leadership in responding to climate change and put the Council in a good position for impending new regulatory requirements such as the Carbon Reduction Commitment.

INTRODUCTION

- 1.1 On 6 February 2007, Angus Council's Provost and Chief Executive signed the Scottish Climate Change Declaration acknowledging that climate change is occurring and human activities are having a significant negative and potentially dangerous influence. Amongst other commitments in the Declaration, the Council agreed to:

"Produce and publicly declare a plan, with targets and time-scales, to achieve a significant reduction in greenhouse gas emissions from our own operations. This will include our energy use and sourcing, travel and transportation, waste production and disposal, estate management, procurement of goods and services, and improved staff awareness."

- 1.2 In order to help us achieve this commitment, Angus Council applied to become part of the Carbon Trust's Local Authority Carbon Management Programme. The Council was successful in its application to join the programme and work began with the carbon trust with an introductory seminar in Edinburgh in May 2007. After attending this event, the project leaders got a team together to help draw up the project plan, identify opportunities where the council could reduce its use of energy thereby reducing its carbon dioxide emissions. A Management Board was also set up to oversee the work of the carbon management team and they regularly receive "highlight reports". The work of the Carbon Management Team is overseen by the project sponsor, in this case George Chree, Head of Planning & Transport in Infrastructure Services.

- 1.3 The Carbon Management Project Team decided to include within the scope of this project the carbon emissions emanating from the following:

- Council Buildings (non housing)
- Swimming Pools and sports facilities
- Schools
- The Council's Fleet Vehicles
- Staff business travel
- Procurement
- Waste disposal

- 1.4 The first stage was to establish a baseline of the amount of energy used and the CO₂ emissions produced by the Council in the period 2006/7. The next stage was to report these findings to the Project Team and identify opportunities where the Council could reduce these impacts. In order to do this a workshop meeting of the Carbon Management Project Team took place which identified 23 opportunities.

- 1.5 The Project Team then went on to produce a Project Plan which was “signed off” by the Project Sponsor on 31 July 2007 and submitted to the Carbon Trust. This Plan outlined how the Team was going to set about producing a Strategy and Implementation Plan (SIP) for managing the Council’s carbon emissions.
- 1.6 The team then considered a range of reduction opportunities which have been refined and prioritised to form this draft plan which covers the period 2007/8 to 2011/12.

2 CARBON MANAGEMENT STRATEGY

2.1 Context and drivers

- 2.1.1 The signing of Scotland’s Climate Change Declaration was the main driver behind the introduction of the Carbon Management Strategy and particularly the commitment to contribute to Scotland’s 80% emissions reduction target by 2050. However, Angus Council has long since recognised the need to reduce CO₂ emissions. The initial corporate energy management strategy was approved in 1997 and was reviewed in 2001. The existing target for the reduction of carbon dioxide emissions is 12.5% by 2010 compared to the 1990 base level for non housing properties.
- 2.1.2 A Sustainable Property Strategy was approved in 2005 with the aim of reducing environmental impacts by incorporating sustainability from the initial assessment of options stage for new and major refurbishment projects. It is recognised that costs may increase but will lead to reduced operating and maintenance costs.
- 2.1.3 Current drivers for the CMP are the introduction of Single Outcome Agreements which seeks a reduction in the overall ecological footprint and the Scottish Climate Change Bill which is out for consultation at present. The introduction of the Energy Performance Certificate in Public Buildings in 2009, affects **sixty six** of the Council’s buildings, and will give an indication of the energy rating for the buildings. This may assist in prioritising work to increase energy efficiency. An initial pilot covering three buildings is currently underway.
- 2.1.4 The forthcoming Carbon Reduction Commitment will be a major driver over the coming years and require a new way of working for the Council once the full implications and mechanisms for its operation are clarified. The rising fuel costs are a further concern of the Council.

2.2 Vision

- 2.2.1 The vision of Angus, as agreed through the Community Planning process is:
- “Angus will be a place where a first class quality of life for all can be enjoyed in vibrant towns and pleasant villages set in attractive and productive countryside.”
- 2.2.2 The CMP will complement and contribute towards this overall vision by reducing our impact on the environment and show the Council is leading by example.

2.3 Objectives and targets

2.3.1 Existing targets for CO₂ reduction have already been put in place by the Council and these are shown below:-

- reduce CO₂ emissions from buildings by 6.5% by 2010 (which will help the Council to meet the emissions reduction target of 12.5% CO₂ by 2010 compared to 1990 levels),
- reduce the energy costs from buildings of Angus Council by £80,000 by 2008,

However the Carbon Management Programme aims to raise the annual CO₂ emissions reduction target to at least **15%** by the end of the year 2011-2012. This will be feasible if the following objectives are followed and the actions outlined later in the document are implemented.

- bring together existing and future Carbon Management projects into a consistently managed and coherent programme with management oversight from the Environment and Sustainable Development Corporate Working Group and the Energy Management Group.
- encourage workforce involvement in the identification of opportunities and the implementation of action,
- lead by example and raise the environmental profile of the Council locally to encourage our partners and the community to make changes to reduce carbon emissions.

2.4 Strategy

Our strategy aims to:-

- to support and build on existing policy in relation to the corporate energy management
- to raise awareness amongst staff of emissions generated by Council activities
- to reduce greenhouse gas emissions
- to focus efforts on reducing emissions from buildings

2.5 Scope

2.5.1 Initially the Carbon Management Project Team decided to include within the scope of this project the carbon emissions emanating from the following:-

- Council Buildings (non housing)
- Swimming Pools and sports facilities
- Schools
- The Council's Fleet Vehicles

- Staff business travel
- Waste disposal
- Procurement

2.5.2 After consideration by the group it was decided to incorporate the swimming pools, sports facilities and schools within the buildings category as all the energy information is held by the energy management unit. It was also decided to exclude procurement from the plan as there was no baseline information and the need for a procurement unit had been agreed but a unit had not, at that point, been established. It may be possible to incorporate procurement at a later stage in the programme. The generation of waste from council services, as opposed to waste collected from domestic and business premises, was also excluded as the information held had come from a one off government funded audit and no resources were available to replicate the audit. However, the Council is introducing a school and business recycling scheme which will be rolled out across the Angus area and will eventually incorporate the majority of council premises. Investigations into the potential to reduce the impact of the Council's fleet vehicles and staff business travel have been authorised through the Council's recently approved Travel Plan. Any actions implemented following these investigations will contribute to the council's overall carbon reduction towards the end of the plan period.

3 EMISSIONS AND PROJECTIONS BASELINE

3.1 Data for the CO₂ emissions from Council non-domestic buildings has been recorded in-house over several years and detailed information was available for total energy consumption/emissions calculations. Buildings therefore form the major plank of the Carbon Management Programme Action Plan. As considerable work has already been undertaken on Council non-domestic buildings, as evidenced by Angus Council being the first local authority to achieve the National Energy Foundation Energy Efficiency Accreditation, this limits the scope for reduction of emissions to low or no spend projects.

Using a base year of 2006/7 the CO₂ emissions generated and costs to the Council are shown below in Figure 1 and Table 1.

The current annual CO₂emissions from buildings (including schools and swimming pools), transport, street lighting and waste was calculated at 26,714 tonnes.

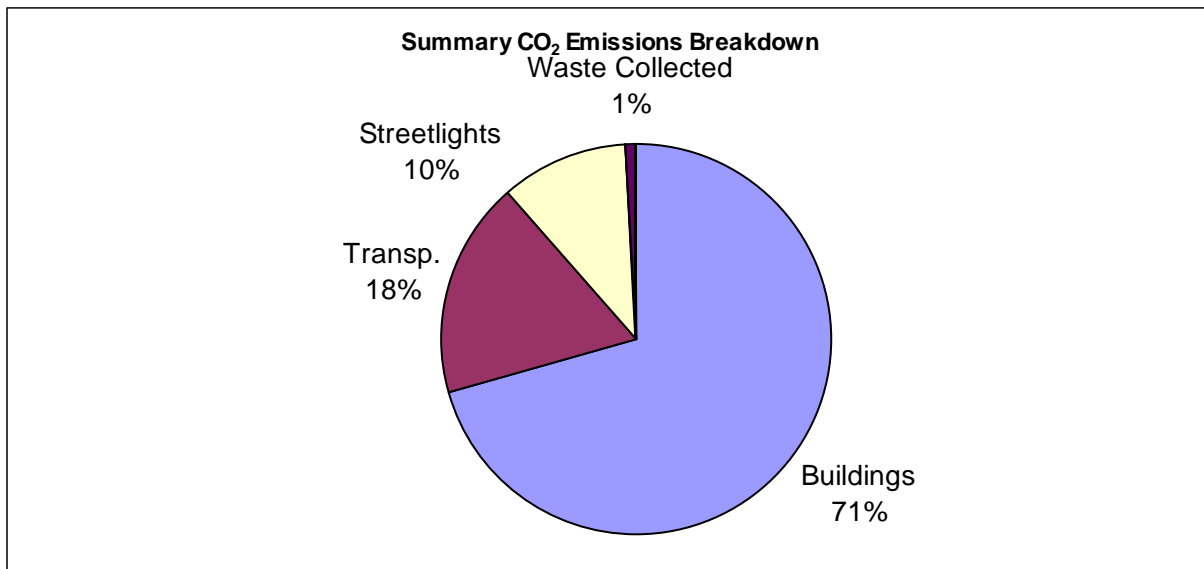
Buildings account for the major share of CO₂ emissions at 71%, whilst business mileage accounts for 18%. The proportions vary slightly when considered in cost terms, see Table 1.

Table 1
Current Tonnes CO₂ emissions breakdown

Year	Buildings	Transport	Streetlights	Waste Collected	Total
2006/07 emissions	18845.000	4863	2754	252	26714
%	71%	18%	10%	1%	100%
Costs (excluding waste)	£2.39m	£0.71m	£0.55m	-	£3.65m
%	65.5%	19.5%	15.0%	-	100%

The source of current emissions is shown below in Figure 1:-

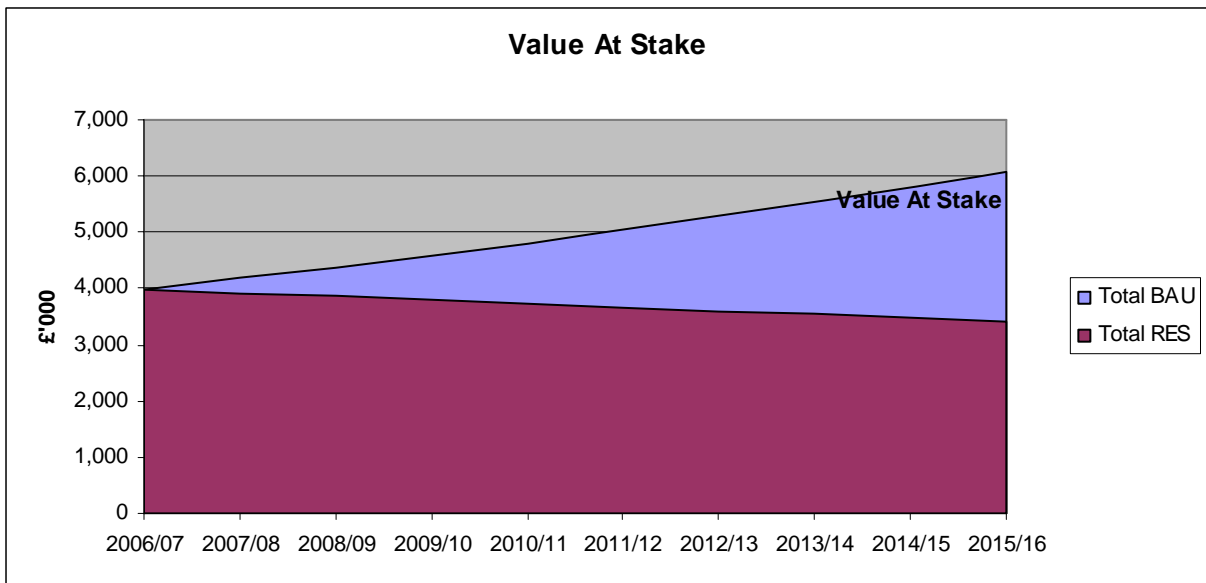
Figure 1 : Summary of CO₂ Emissions breakdown



3.2 Projections

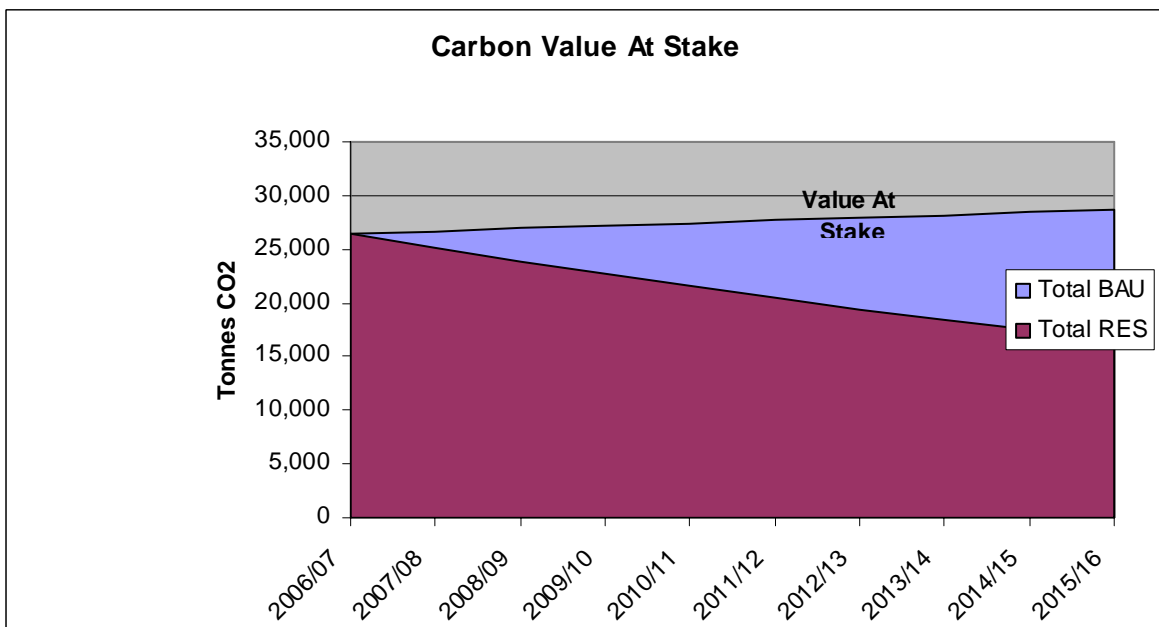
Projected energy related costs (or value at stake) and projected CO₂ emissions for the “Business as Usual” (BAU) and “Reduced Energy Scenario” (RES) have been calculated with the aid of a spreadsheet tool provided by the Carbon Trust. Figure 2 shows the potential cost savings which could be made through the Carbon Management Programme and Figure 3 shows the savings in terms of CO₂ emissions. The Business as Usual scenario assumes we do nothing to reduce the existing trends in energy use and shows the increasing costs associated with this.

Figure 2 : Cost comparison between BAU and RES scenarios



3.3 The comparison of CO₂ emissions between the Business as Usual and the Reduced Energy Scenario indicates the savings that could be made.

Figure 3 : Carbon comparison between BAU and RES scenarios



3.4 Past Actions and Achievements

3.4.1 The Carbon Management Programme builds on the considerable amount of work that has already been done by the Council. This section highlights some of the actions already undertaken.

Energy Management in Buildings

- 3.4.2 The Energy Management Unit (EMU) within Property Services manages the energy requirements for all non-housing properties within Angus Council and maintains an overview of the rate of consumption of the individual properties and the departments. This includes the monitoring and reporting of the environmental impact resulting from the consumption of energy.
- 3.4.3 The energy consumed, and the carbon dioxide produced, by Council non-housing properties is monitored and the pattern of consumption and carbon dioxide production compared with profiles for preceding years with adjustment made for differences resulting from variations in weather and occupational/estate changes.
- 3.4.4 The Energy Management Unit carries out:-
- Training
 - Monitoring and Targeting
 - Energy Audits
 - Programmes
 - Design
 - Legislation

Energy Efficiency Accreditation

In 2003, Angus Council was the first Scottish local authority to be accredited. This scheme is recognised as the national benchmark standard in energy efficiency. It is gained by demonstrating both commitment and achievement in good energy management.

3.4.5 Examples of Energy Efficiency Projects in Angus includes:

Inverkeilor Primary School

The new-look Inverkeilor Primary School was officially opened in February 2004. Incorporated into the design are a number of environmentally friendly features which reduce running costs and encourage sustainability. These include solar photovoltaic panels (grant funded by DTI Major Photovoltaic Demonstration Scheme) to generate electricity, rain water recycling system for use in flushing toilets and windcatchers to replace mechanical ventilation.

Arbroath Sports Centre – Combined Heat and Power

A new combined heat and power (CHP) unit was installed at the Arbroath Sports Centre in December 2005. The gas fired CHP unit is capable of generating 125kW of electricity and 200kW of heat in the form of recovered heat from the electricity generation process. The CHP is generally 85%-95% efficient due to the utilisation of heat from electricity generation and the avoidance of transmission losses because the electricity is generated onsite. Any excess electricity generated could also be sold onto the grid. This high efficiency would mean less fuel would be used and therefore less pollution is produced. This project was funded by the R & R Energy Spend to Save Fund.

Forfar Swimming Pool Variable Speed Drives

The swimming pool uses over 300,000Wh of electricity per year. The pool pump motors at the swimming pool uses over 300,000Wh of electricity per year. Installing variable speed drives (funded by Scottish Executive Central Energy Efficiency Fund) on the pool pump motors have reduced electricity consumption by 17% per year, giving a payback of 18 months.

By using less electricity, the amount of carbon dioxide produced by using electricity on this site has also reduced by 32,000kg of CO₂ per year. This project has been very successful and has since been replicated in most other sports centres and large offices.

3.4.6 Transport

The Council has carried out various initiatives to encourage staff to travel more sustainably:-

- an online car sharing scheme has been operational for a number of years for staff, originally using Shareajourney and now operated through AngusLiftshare.
- Bike Week Events, e.g. Bike Breakfasts for staff who cycled into work and Pedalling Picnics to encourage people to have a go on a bike.
- A Bike at Work Scheme – the council purchased a fleet of six bicycles and outside lockers which are located at the three main offices. These bikes are available for staff to use on business between offices and also for recreational use at lunchtimes.

3.4.7 Waste

Recycling: The Council has provided recycling facilities in the main offices for a number of years. Facilities include: bins for glass, plastic and tin cans; collection of newspapers and magazines; collection of quality paper (e.g. A4 copy paper).

3.4.8 Methane Capture

- Approximately 1.7 million tonnes of waste was deposited at the Restenneth landfill site over a 25 year period.
- 120 wells were drilled and the methane gas drawn through a series of pipes and since 2004 the plant has been generating electricity.
- Over the next 15 years up to 1.1 Megawatts of electricity is expected to be produced **per year**.

4 CARBON MANAGEMENT IMPLEMENTATION PLAN

4.1 Shortlisted actions and emission reduction opportunities

The following list (see Table 2 below) and Appendix A sets out the projects identified during the programme and selected to deliver the reduced emissions target. This includes no cost and low cost projects, for example, utilising existing software to turn off PC monitors and replacement lighting T12 tubes with more efficient T8 lights, as well as projects requiring an investment in order to save both energy costs and emissions. Minimal expenditure is required to achieve substantial savings, by for example, installing 7day timers on office equipment and the use of Powerdown units on printers. Some of the projects, including the significant estimated spend on biomass, will be funded from within existing budgets e.g. Spend to Save monies whilst others will utilise other sources of funding e.g. CEEF. However more could be achieved sooner, in terms of cost and emission savings, on an ongoing basis if resources were increased. For example, if powerPerfactor was introduced into more buildings cost and emission savings would accrue and there would be the added benefit of reducing maintenance costs as well.

Table 2 : CMP projects list 2007/8 to 2011/2012

Table 2 CMP projects list 2007-8 to 2011-2012					
No.	Project	Project Costs £	Cost Savings over 5 yrs	CO2 saving (tonnes) over 5 yrs	Cost per tonne CO2 saved
1	PC monitors	£0	£700,000	3180	£0
2	Computer peripherals	£28,000	£448,000	1920	£14.58
3	7 day timers on office equip	£3,000	£60,000	260	£11.54
4	Half hourly meters	£65,000	£381,000	2790	£23.30
5	Awareness campaign	£20,000	£243,000	945	£21.16
6	Biomass	£1,201,100	£0	4700	£255.55
7	T8 lights	£0	£125,000	418	£0
8	powerPerfactor	£33,139	£24,574	113	£293.27
9	draught proofing	£46,800	£134,400	840	£56
10	energy man group	£0	£0		
11	travel plan	£0	£0		
Total		£1,397,039	£2,115,974	15166	£92.12

4.2 Implementation plan summary

4.2.1 The financial benefits accruing to the Council from implementing the Carbon Management Action Plan are significant and the rewards will continue to be reaped beyond the initial 5 year plan period. Energy saving measures are becoming imperative as energy costs are rising and other government measures e.g. Climate Change Levy and Carbon Reduction Commitment, are increasingly adding to the Council's cost for energy and emissions output.

4.2.2 The following table shows the potential savings from all the proposed projects which are outlined in Appendix 1.

Table 3 : Summary of predicted costs and savings

Total Estimated Expenditure (5yrs)		£1,397,039		
Total Cost Savings (5yrs)		£2,115,974		
	08/09 savings	09/10 savings	10/11 savings	11/12 savings
Annual savings (£)	£321,100	£543,600	£608,674	£642,600
Total Annual Carbon Reductions				
	08/09savings	09/10 savings	10/11 savings	11/12savings
Carbon Reduction (tonnes)	1,758	3,511	4,398	4,999

By the end of year 2011/12 the baseline annual CO₂ emissions are estimated to reduce by over 18% compared to 2006/7.

5 MANAGEMENT, REPORTING AND EVALUATION

5.1 Roles and Responsibilities

- 5.1.1 In setting up the CMP a group was brought together covering most services of the Council to ensure as wide a range of emission saving opportunities were highlighted as possible. The Group, chaired by the Head of Planning and Transport, includes representatives from Property, Environmental and Consumer Protection, Fleet services, Roads, Community Services, Education, Social Work and Health and IT. The CMP group reported progress to the Environment and Sustainable Development Corporate Working Group (E&SDCWG).
- 5.1.2 Priority projects have now been decided and ownership of each action is identified on the project sheets in Appendix A. In order to ensure successful implementation of the Carbon Management Strategy and Implementation Plan it is proposed that the E&SDCWG, with assistance from the newly reformed Energy Management Group led by Property, take over the CMP lead role for the first year. This will avoid duplication of effort and staff resources in administrating an extra group. This situation will be reconsidered after the first CMP review.
- 5.1.3 An annual review of the plan will be undertaken to identify progress and to update and develop new actions to further reduce carbon emissions. This will be done in conjunction the Energy Management Group and reported to the Strategic Policy and Corporate Services committees in late summer 2009.

APPENDIX A

Project 1: PC Monitors and Workstations in Schools and offices	
<i>Description and notes</i>	<p>There are approximately 7,000 PCs in use across the Council. Following an initial review of energy use and a number of on-site visits the Energy management unit became aware of energy wastage from computers being left on when not in use. This project aims to use software to reduce the energy consumption of PCs and does not apply to peripherals. This will be undertaken in two phases.</p> <p>Phase I – reducing the energy consumption of approximately 4,000 PCs in schools.</p> <p>Phase II – reducing the energy consumption of the remaining PCs across offices of the council.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • There are no financial costs associated with this project • Estimated savings of £50pa per computer. • Phase I - Based on estimated current pattern of use an emissions reduction of 480 tonnes CO₂ expected per annum • Phase I - Financial savings in the region of £100,000 pa are anticipated. • Phase II – Estimated emission savings 420 tonnes CO₂ expected per annum. • Phase II – Financial savings £100,000 with payback period within a year. • Total estimated emission savings 900 tonnes CO₂ expected per annum. • Total estimated financial savings £200,000 pa.
<i>Resources</i>	<ul style="list-style-type: none"> • IT staff will be deployed to set up the scheme within each school /office location
<i>Ownership and accountability</i>	<p>This will be a joint project between the Energy Management Unit, within Property, IT and Education.</p> <p>First stage is a three month feasibility study to prove the case and gain final approval.</p> <p>Thereafter Phase 1 will go ahead with the installation across all schools – anticipated Phase 1 installation complete by start of Autumn Term 2008.</p> <p>Phase 2 – installation across offices anticipated to start year 2. Delivery mechanism still to be confirmed following experience of Phase 1. Options are a) install when installing new computers or when under taking servicing.</p> <p>Project leader Ken Malcolm (IT), team members D. McLaren (Senior Energy technician, EMU- Property), J. Ruddy (Energy technician-Property), Ged Gilmartin (Principal Officer – Education)</p>
<i>Performance success measure</i> /	<p>Success will be measured in the number of schools/offices where software has been installed on PCs.</p>

Project 2: Printers	
<i>Description and notes</i>	<p>There are approximately 2,800 networked and stand alone printers in use across schools and Council offices.</p> <p>Following an initial review of energy use and a number of on-site visits the Energy management unit became aware of energy wastage from computer peripherals being left on when not in use.</p> <p>This project aims to use 7 day timers on network printers and power down units on stand alone printers to reduce the energy consumption of peripherals attached to PCs.</p> <p>This project will be run in conjunction with Project 1.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • It is anticipated that there will be a financial cost of £28,000 to the council and staff resources will be required to install the devices. • Based on estimated current pattern of use an emissions reduction of 480 tonnes CO₂ expected per annum • Estimated financial savings of £112,000 per annum.
<i>Resources</i>	<ul style="list-style-type: none"> • It is anticipated that funding will come from CEEF monies. • IT staff will be deployed to install the units within each school /office location.
<i>Ownership and accountability</i>	<p>This will be a joint project between the Energy Management Unit, within Property, IT and Education and is linked to Project 1 and will follow the same timetable.</p> <p>First stage is a three month feasibility study to prove the case and gain final approval. Thereafter :</p> <p><u>Phase 1</u> will go ahead with the installation across all schools – anticipated Phase 1 installation complete by start of Autumn Term 2008.</p> <p><u>Phase 2</u> – installation across offices anticipated to start year 2. Delivery mechanism still to be confirmed following experience of Phase 1. Options are a) install when installing new computers or when under taking servicing, or b) instigate a specific programme covering all buildings.</p> <p>Project leader Energy Management Unit Team members:- D. McLaren (Senior Energy Technician, EMU- Property), J. Ruddy (Energy Technician-Property), Ged Gilmartin (Principal Officer – Education)</p>
<i>Performance success measure</i> /	<i>Success will be measured in the number of schools/offices where 7 day timers and power down units have been installed.</i>

Project 3: Installation of 7 day timers on all photocopiers, vending machines, water coolers, microwave ovens and coffee machines.	
<i>Description and notes</i>	<p>There are approximately 250 photocopiers and a number of vending machines, water coolers, microwave ovens and coffee machines in use across schools and Council offices. Following an initial review of energy use and a number of on-site visits the Energy management unit became aware of energy wastage from photocopiers etc being left on when not in use.</p> <p>This project aims to use 7 day timers on these machines to reduce energy consumption..</p> <p>The project will be run in conjunction with Projects 1 & 2.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • It is anticipated that the financial cost to the council will be £3,000. • Staff resources will be required to install the devices. • Based on estimated current pattern of use an emissions reduction of 65 tonnes CO₂ expected per annum • Estimated financial savings of £15,000 per annum are expected.
<i>Resources</i>	<ul style="list-style-type: none"> • This will be funded from CEEF monies. • IT and EMU staff will be deployed to install the units within each school /office location.
<i>Ownership and accountability</i>	<p>This will be a joint project between the Energy Management Unit, within Property, IT and Education and is linked to Projects 1 and 2 and will follow the same timetable.</p> <p>First stage is a three month feasibility study to prove the case and gain final approval. Thereafter :</p> <p><u>Phase 1</u> will go ahead with the installation across all schools – anticipated Phase 1 installation complete by start of Autumn Term 2008.</p> <p><u>Phase 2</u> – installation across offices anticipated to start year 2. Delivery mechanism still to be confirmed following experience of Phase 1. Options are a) install when installing new computers or when under taking servicing, or b) instigate a specific programme covering all buildings.</p> <p>Project leader Energy Management Unit Team members:- D. McLaren (Senior Energy Technician, EMU- Property), J. Ruddy (Energy Technician-Property), Ged Gilmartin (Principal Officer – Education)</p>
<i>Performance success measure</i> /	Success will be measured in the number of schools/offices where 7 day timers are installed.

Project 4: Change from quarterly meters to half hourly metering-smart meters	
<i>Description and notes</i>	<p>Following an initial review of energy use and a number of on-site visits the Energy management unit became aware that further detailed information of energy usage in Council buildings would enable a more focused approach to energy conservation. The additional information provided by half hourly metering means information can be presented to building managers in a format that is more easily understood and help pinpoint the reasons for energy wastage.</p> <p>Phase 1 - is a pilot project which will replace 35 electric and 32 gas quarterly meters with half hourly meters in high energy usage buildings e.g. schools, leisure centres, major offices.</p> <p>Phase 2 – will roll out the programme to other buildings where energy usage is over a certain level.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • Phase 1 financial costs are anticipated to be £10,000 in year 1, and £7,782 pa from year 2 onwards. It is intended to use Spend to Save monies. • Based on estimated current pattern of use an emissions reduction of 330 tonnes CO₂ is expected per annum once all installed. • Estimated financial savings of £45,500 per annum and with a six month payback period. • Phase 2 on buildings using over £1,500 electricity or £3,500 gas • Phase 2 estimated to £15,000 in year 2 and £11,615 pa from year 3 onwards and will be funded from Spend to Save monies. • Phase 2 estimated emissions reduction of 490 tonnes CO₂ is expected per annum once all installed. • Estimated financial savings of £67,000 per annum and with a six month payback period.
<i>Resources</i>	<ul style="list-style-type: none"> • This will be funded from Spend to Save and/or CEEF monies. • EMU staff will oversee the project. • Installation by Energy supplier.

<p><i>Ownership and accountability</i></p>	<p>This project will be led by the Energy Management Unit, within Property, in conjunction with client departments e.g. Education, Neighbourhood Services, Corporate Services.</p> <p>There will be a rolling programme of installation over a five year period</p> <p><u>Phase 1</u> - Installation of Half Hourly Meters, 35 electricity, 32 gas in high energy usage buildings including schools, leisure centres and major office buildings by energy supplier.</p> <p><u>Phase 2</u> – Installation of 100 Half Hourly Meters (a combination of electricity and gas) by contractors in various building types on a rolling programme.</p> <p>Project leader EMU Team members:- D. McLaren (Senior Energy Technician, EMU- Property), J. Ruddy (Energy Technician-Property), Departmental representation as appropriate</p>
<p><i>Performance / success measure</i></p>	<p>Success will be measured in the number of buildings where half hourly meters installed.</p>

Project 5: Energy Saving Awareness Programme	
<i>Description and notes</i>	<p>This energy awareness programme aims to increase building managers understanding of energy wastage and encourage energy efficiency in the day to day running of Council buildings and will also encourage good practice in the home. This is a continuation and development of past energy awareness campaigns held in previous years with the addition of an intranet based website to promote good housekeeping practices for energy saving, awareness of initiatives, updates of projects etc. This project will initially focus on council high energy usage buildings e.g. schools, leisure centres and major offices.</p> <p>For demonstration purposes an awareness raising week was held in Carnoustie leisure centre where regular audits of how energy was being used in the building at different times of the day and on different days of the week was undertaken. This showed a 36% saving in energy use was possible by changing current building use practices.</p> <p>Following on from that, training sessions, using Carnoustie as a example, will be held with leisure centre building managers. A similar approach will be used to target different building types eg schools, major offices etc.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • There will be minimal financial costs (a £5,000 allowance has been made) to the council as the programme will utilise the free awareness training resources provided by the Energy Saving Trust specifically for local authorities or be provided by Council staff and the website will be set up and maintained by staff. • Phase 1 – Leisure Centres -Based on estimated current pattern of use an emissions reduction of 105 tonnes CO₂ is expected per annum • Estimated financial savings of £27,000 per annum. • Phase 2 – Schools • Phase 3 – main Council offices
<i>Resources</i>	<ul style="list-style-type: none"> • £5,000 will be funded from within existing budgets • Staff resources will be required both in preparing and presenting the training and awareness events and the website • Staff time will be required for attendance at events and training sessions.

<i>Ownership and accountability</i>	<p>This project will be led by the Energy Management Unit, within Property, in conjunction with client departments e.g. Neighbourhood Services, Education, Corporate Services. There will be a rolling programme over a five year period</p> <p><u>Phase 1</u> – Leisure Centres <u>Phase 2</u> – Schools <u>Phase 3</u> – Major offices</p> <p>Team members:- D. McLaren (Senior Energy Technician, EMU- Property), J. Ruddy (Energy Technician-Property), Departmental representation as appropriate</p>
<i>Performance success measure</i>	<p>Success will be measured in the reduction of carbon emissions and energy bills of the buildings targeted.</p>

Project 6: Installation of Biomass Boilers	
<i>Description and notes</i>	A programme of Biomass boiler installations will be undertaken. This will include the replacement of inefficient boilers in existing buildings and installation in new build projects. The programme will focus on primary schools in the first instance. Thereafter, it is anticipated that a rolling programme of installation of woodchip biomass boilers, in large Council buildings, will be undertaken using locally sourced woodchip.
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • Cost of installing biomass boilers in the Primary schools is estimated to be £164,000 per school and in Secondary schools or large buildings £240,000 per building. • Based on estimated current pattern of use an emissions reduction of 100 tonnes CO₂ per Primary school is expected per annum and 400 tonnes per secondary school. • No financial savings have been incorporated into the calculations as gas prices are fixed until April 2009. However substantial price increases may occur after that date leading to financial savings.
<i>Resources</i>	<ul style="list-style-type: none"> • Financial costs will be covered by a combination of external grant funding and Property Renewal & Repairs budget.
<i>Ownership and accountability</i>	<p>This project will be led by the Property department and run in conjunction with the client department, Education. There will be a rolling programme over a five year period:</p> <p><u>YEAR 1</u> -Tannadice PS (December 2007)</p> <p><u>YEAR 2</u> -Ladyloan PS (operational Summer 2008) -Seaview PS (operational Spring 2009)</p> <p><u>YEAR 3</u> -Airlie PS (Summer 2009) - New PS (2010) - one Secondary School</p> <p><u>YEAR 4</u> -one Secondary school</p> <p><u>YEAR 5</u> -one large building/facility</p>
<i>Performance success measure</i> /	Success will be measured in the reduction of carbon emissions and energy bills of the buildings targeted.

Project 7: Conversion of T12 lighting to T8 fluorescent lighting	
<i>Description and notes</i>	<p>There are approximately 30,000 lamps in use across the Council.</p> <p>By installing T8 lights when existing T12 lights fail it is anticipated that a 30% saving can be made. By using T8 rather than the even more efficient T5 no adjustments will be necessary to the existing fitments.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • No additional costs are anticipated above the normal cost for replacement lights. • Based on estimated replacement pattern of 5,000 lights over the plans 5 year period emissions reduction of 190 tonnes CO₂ would be expected per annum by the end of the plan. • Financial savings in the region of £50,000 pa are anticipated by the end of the plan.
<i>Resources</i>	<ul style="list-style-type: none"> • No additional funding is required above the normal replacement budget. • No Additional staff resources will be required.
<i>Ownership and accountability</i>	<p>This project will be undertaken by the Property department as part of the normal maintenance programme for all council buildings.</p> <p>Project leader – Neil Anderson (Maintenance Manager)</p>
<i>Performance success measure</i> /	<p>Success will be measured in the number of T8 light fitments fitted.</p>

Project 8: Installation of <u>powerPerfector</u> equipment in Council buildings	
<i>Description and notes</i>	<p>This project involves the investigation of the suitability of different council buildings for the introduction of powerPerfector units to optimise a site's electrical supply voltage. The use of powerPerfector will be investigated when major refurbishment works are due to be undertaken on Council buildings or where substantial savings can be made.</p> <p>By optimising the voltage, electrical equipment runs more efficiently and consumes less energy. It also has the advantage of protecting electrical infrastructure from poor power quality thus lowering maintenance costs and extending the life of electrical components.</p> <p>This project is not likely to start until year 3.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • Estimates are given on a building by building basis. • Emission reductions of approximately 13% are anticipated. • Financial savings of approximately 13% are anticipated with a 2.5year payback.
<i>Resources</i>	<ul style="list-style-type: none"> • Staff resources required to negotiate contracts with powerPerfector • It is hoped to fund these projects from Spend to Save monies
<i>Ownership and accountability</i>	<p>This will be a joint project between the Energy Management Unit, within Property and client departments.</p> <p>First stage is a feasibility study to state the case and gain final approval from Director of Corporate Services / Head of Property.</p> <p>Thereafter installation of powerPerfector will be carried out on selected buildings. It is anticipated that powerPerfector units will be installed in 5 council buildings over the plan period.</p> <p>Project leader D. McLaren (Senior Energy technician, EMU-Property), J. Ruddy (Energy technician-Property) and appropriate client department representatives and IT.</p>
<i>Performance success measure</i> /	<p>Success will be measured in the number of council buildings where energy use has reduced and power supply proves more reliable.</p>

Project 9: Draught proofing of buildings	
<i>Description and notes</i>	<p>A programme of draught proofing of buildings will be undertaken to reduce energy use, reduce emissions and increase the comfort of building users.</p> <p>Schools will be the initial focus of this project, with 3 schools being targeted in year 1 and thereafter 5 schools targeted each year for the plan period. The work, which will involve window and door draught proofing using the Quatro Seal system, will be undertaken in the school holidays. Other buildings will also be considered.</p>
<i>Quantified costs and benefits</i>	<ul style="list-style-type: none"> • Costs are dictated by the number of windows and doors in a building. • As an indicator draught proofing one Primary School has been estimated to cost £2,600. • Reduce emission by 4.75 tonnes pa. • Estimated 25% saving on the heating bill giving a financial saving of £3,100 pa. • 5 year programme would potentially give rise to savings of 118 tonnes pa by the end of the period.
<i>Resources</i>	<ul style="list-style-type: none"> • Staff resources required to negotiate contracts with Company • Funded from CEEF monies.
<i>Ownership and accountability</i>	<p>This project will be led by the Energy Management Unit, within Property in conjunction with client departments.</p> <p>Project leader D. McLaren (Senior Energy technician, EMU-Property), J. Ruddy (Energy technician-Property) and appropriate client department representatives.</p>
<i>Performance success measure</i> /	<p>Success will be measured in the reduction of heating bills for the specific council buildings targeted.</p>

Project 10: Internal energy management arrangements	
<i>Description and notes</i>	The reformation of a corporate energy management group is proposed to drive forward the different aspects of energy efficiency in all the premises comprising the Council's estate. This group will meet on a quarterly basis to monitor energy use and put forward a programme of energy efficiency projects and measures on a longer term basis.
<i>Quantified costs and benefits</i>	No direct financial investment will be required. Increase financial and emission savings are anticipated as departments gain a greater understanding of the costs and potential savings over the longer term which could be made with appropriate investment.
<i>Resources</i>	Management time resources will be the main commitment.
<i>Ownership and accountability</i>	This project will be led by the Energy Management Unit, within Property in conjunction with the departments with the largest estate. This will encourage buy- in to the programme of projects and measures. Project leader J. Pearson Head of Property, D. McLaren (Senior Energy technician, EMU- Property), J. Ruddy (Energy technician-Property) and client department representatives.
<i>Performance success measure</i> /	Success will be measured in the increased attention given to the potential reduction of heating and lighting bills in council buildings and the longer term targets which need to be achieved.

Project 11: Travel Plan	
<i>Description and notes</i>	This project involves the development and implementation of a Travel Plan for the Council to reduce the impact of travel undertaken by staff and visitors to the Council, covering a five year period.
<i>Quantified costs and benefits</i>	No direct financial investment will be required to produce the Travel Plan but resources both financial and staff will be required to implement the various measures that will be introduced Emission reduction may be small as even a reduction of the upward trend in mileage would be a positive result. Financial savings will also be small as some of the saving will be personal to staff. Different elements will have different payback periods but many will be short term.
<i>Resources</i>	External grant funding will be used in the development of the travel Plan. The introduction of the many of the various measures will incur staff time only and other financial requirements will either be contained within existing budget or bids will be made once a measure has been investigated and estimates are available.
<i>Ownership and accountability</i>	This project will be led by Planning & Transport, within the Infrastructure Services Department in conjunction with the Environment & Sustainable Development Corporate Working Group. Individual measures will be assigned to departments as appropriate. Approval for the Travel Plan will be sought from the Strategic Policy Committee.
<i>Performance / success measure</i>	Success will be measured by the approval of Travel Plan and the implementation of the measures over the five year period.