



# INFRASTRUCTURE OVERVIEW AND SCRUTINY COMMITTEE

## *Committee Report*

**Public**

**Date of Meeting:** 23<sup>rd</sup> October 2008

**Title:** CARBON TRUST PROJECT PROPOSALS

**Report of:** THE DIRECTOR OF COMMUNITY SERVICES

**Report reference:** CS 85/08

### **Summary:**

The report provides Infrastructure Overview and Scrutiny with proposals for capital investment in carbon reduction projects in the 2009/10 financial year initially in line with the 'invest-to-save' principle and with a commitment to meet the targets set for carbon reduction. The report to Executive is attached. A further report will be presented to Committee in January when details of a 5-year carbon reduction programme is developed. This will be the draft Carbon Management Plan.

### **Questions for/input for Scrutiny:**

- (1) Do the proposals begin to address the Committee's concerns around energy usage as noted by the Committee at their meeting in July where the report on Improving the City Council's Environmental Performance was presented?
- (2) Should similar investments be applied to other areas of carbon reduction like travel and transport?

### **Recommendations:**

That Infrastructure Overview & Scrutiny Committee consider the report.

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Note: in compliance with section 100d of the Local Government (Access to Information) Act 1985 the report has been prepared in part from the following papers: None

# REPORT TO EXECUTIVE

## PORTFOLIO AREA: Environment & Infrastructure

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Date of Meeting: 20<sup>th</sup> October 2008

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Public

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Key Decision:	Yes	Recorded in Forward Plan:	No
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Inside Policy Framework

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**Title:** CARBON TRUST PROJECT PROPOSALS  
**Report of:** Director of Community Services  
**Report reference:** CS 81/08

### Summary:

The report provides the Executive with proposals for capital investment in carbon reduction projects in the 2009/10 financial year initially in line with the 'invest-to-save' principle and with a commitment to meet the targets set for carbon reduction.

### Recommendations:

It is RECOMMENDED that:

- 1) The Executive considers the capital investment proposals which contribute to the carbon reduction target as part of the budget for 2009/10.
- 2) A further report be presented to the Executive when details of the full 5 year carbon reduction programme is developed.
- 3) The report is referred to Infrastructure Overview and Scrutiny for comment.

**Note:** in compliance with section 100d of the Local Government (Access to Information) Act 1985 the report has been prepared in part from the following papers: None

## **1.0 BACKGROUND INFORMATION**

- 1.1 The UK Government has placed an emphasis on local authorities setting a leading example on addressing climate change. Action by local authorities will be critical to the achievement of the Government's climate change objectives, such as the long-term goal to reduce CO<sub>2</sub> emissions by 60% by 2050 as stated in the Climate Change Bill.
- 1.2 There are a number of legislative drivers for local authorities to reduce carbon emissions. The government has created two National Indicators specific to CO<sub>2</sub> reduction that local authorities will need to report on:

*NI185 – percentage CO<sub>2</sub> reduction from LA operations:* Measurement against this indicator requires each local authority to calculate its CO<sub>2</sub> emissions from analysis of the energy and fuel use in their relevant buildings and transport, including where these services have been outsourced. This will complement Carlisle City Council's Local Indicator LP180 which has been in place since 2006 and is a performance measure of CO<sub>2</sub> emissions associated with three of our largest sites (Civic Centre, Bousteads and Crematorium).

*NI186 – per capita CO<sub>2</sub> emissions in the LA area:* This indicator is designed to provide vision and leadership to local communities by raising awareness and to influence behaviour change. The percentage reduction in CO<sub>2</sub> per capita in each local authority will be reported annually. This will be produced by the government based on CO<sub>2</sub> emissions in the local area (in our case Carlisle district) from business, public sector, domestic housing, and road transport. This indicator is included in Cumbria's Local Area Agreement, and the Carlisle Community Plan to achieve a 3% reduction year on year from a 2005 baseline.

- 1.3 Another driver for reducing carbon emissions is rising energy costs. Measures to increase energy efficiency will reduce energy costs, which is particularly important for the future given the predicted increases in energy prices. Energy and fuel costs have seen a dramatic rise in recent years, with energy prices increasing by well over 50% since 2004. This trend is not expected to change and we must accept that the price we pay for our energy will continue to increase in the coming years. Thus an 'invest to save' policy is crucial in financial terms.

- 1.4 The City Council is committed to leading by example on tackling climate change. This includes reducing carbon emissions associated with the council's operations. This commitment is outlined in the City Council's Environmental Policy and signing of the Nottingham Declaration on Climate Change. A draft Climate Change Strategy for City Council was presented to the Executive on the 22<sup>nd</sup> September and also includes a strategic objective to reduce carbon emissions.

## **2.0 CURRENT POSITION**

- 2.1 Over the past two years the City Council has gathered energy and fuel data to establish the City Council's carbon footprint and carried out a series of measures to increase energy and fuel efficiency and thus reduce carbon emissions. Measures include cavity wall insulation, roof insulation, draught proofing and window replacements across sites that we own and manage; heating and lighting controls in the Civic, Bousteads, Crematorium and John Street hostel toilets; solar hot water systems in public toilets and hostel accommodation; voltage optimisation in Tullie House; new and more efficient cremators; additional controls to the Civic boilers and move to instantaneous local water heaters; air handling controls at Tullie House and power saving devices to appliances. In addition carbon reduction measures have been built into major projects undertaken by the Council such as Talkin Tarn, Belah Community Centre refurbishment, etc.
- 2.2 The Carbon Trust is an independent body set up by government to work with the public and private sector to cut carbon emissions. The purpose of the programme is to:
- Provide an analysis of the City Council's carbon and covers emissions associated with predominantly transport, buildings, and equipment (this is the same data as specified under the NI185 indicator and the baseline year will be 2007/08).
  - Calculate the value at stake - financial implications of rising energy costs
  - Assess the opportunities to manage carbon emissions - feasibility of projects
  - Develop and implement action plans for realising carbon savings.
- 2.3 In terms of what qualifies as City Council carbon emissions, this means assets owned by the City Council but run by organisations like Carlisle Leisure and Community Centres. They are therefore included in the carbon footprint and so measures should cover these buildings also.
- 2.4 A Carbon Trust team has been formed with officer representation and the Portfolio Holder for the Environment and Infrastructure. The team is now at the third stage of

the Carbon Trust programme of identifying opportunities to manage carbon emissions. An aspirational target of achieving a 25% reduction in CO2 emissions by 2012/13 on 2007/08 levels has been proposed and it has become clear that the City Council will need to implement innovative projects if this target is to be achieved. Further reports identifying carbon saving opportunities will be brought to the Executive on an annual basis over the next three years as projects and initiatives develop.

### **3.0 PROJECT PROPOSALS**

- 3.1 In order to fit in with the budget cycle, a number of projects ('quick wins') have been identified to be implemented in year one of the Carbon Trust programme (2009/10). Some projects apply to Community Centres but not to Carlisle Leisure. While Carlisle Leisure buildings are included in the City Council's carbon footprint, opportunities for carbon reduction have yet to be identified, although Carlisle Leisure Ltd are very much aware of the environmental and financial issues. Other projects have been identified that require further investigation like renewable technologies and others that have longer term implications and are dependent on other strategic matters like property rationalisation. A draft Carbon Management Plan with further details will be presented to the Carbon Trust and Executive in December for comment and approval.
- 3.2 In addition to those initial projects identified for implementation, a number of other projects already underway or being examined will offer carbon reduction savings and further work is being done on these. These are:

*Green Travel Plan* – which identifies a 10% reduction in business travel by 2010 on 2005/06 levels (currently on target) and 3% reduction on fleet transport by 2010 on 2005/06 levels (currently off target). The replacement of 15 refuse vehicles will contribute to fuel efficiency.

*Printer rationalisation* – By adopting a revised printer/copier/fax strategy it has been estimated that over the course of 3 years an improved print solution could benefit the City Council through as much as a 45.43 tonnes reduction in CO<sub>2</sub> emissions.

*Carbon Reduction/Environmental Performance Support Officer* – A two-year temporary post to monitor/audit carbon reduction opportunities to be funded from existing budgets.

*Street lighting* – voltage optimisation technology is being piloted on street lighting at one of the City Council's car parks. If successful, this could be rolled out to other sites. Other street light lighting projects are being investigated.

*Renewable technologies* – initial studies are being carried out on the potential for installing solar photovoltaic panels and wind turbines on City Council sites.

*Property rationalisation* – in the longer term, where City Council sites may be rationalised or undergo major refurbishment, there is the potential for applying high energy efficiency standards and renewable technologies. This could apply to an eco-fit of the Civic Centre.

- 3.3 When considering whether a project is worthwhile a "whole life cost" approach should be taken. The benefits of reduction in both energy costs and carbon dioxide emissions need to be balanced against the anticipated life of the equipment together with maintenance costs. The "unknown factor" in this exercise is the energy cost. However it is generally anticipated that this will be upwards and consequently the benefits of the investment will increase over the life of the project.
- 3.4 A package of project proposals has been prepared which identifies the cost, payback period and carbon reduction as identified in the matrix below.

<b>Opportunity/project</b>	<b>Costs (£)</b>	<b>Total KWh saving in yr 1</b>	<b>£ Gross Savings in yr 1</b>	<b>CO<sub>2</sub> savings in yr 1 (kg)</b>	<b>Payback (yrs)</b>
Training and awareness raising *	£3,000	98,968	£ 6,928	53,146	0
Civic Centre boiler controls	£10,000	73,600	£ 2,208	13,616	5
Tullie House boiler controls	£10,000	70,000	£ 2,100	12,950	5
Civic Centre air compensation unit	£3,000	20,000	£ 600	3,700	5
Solar control Civic Centre computer and telephone rooms	£2,000	5,000	£ 350	2,685	6
Thermal imaging survey and targeted insulation	£15,000	75,000	£ 2,250	13,875	7
Tullie House heat recovery	£10,000	20,000	£ 1,400	10,740	7
High efficiency boiler replacement programme	£50,000	228,000	£ 6,840	42,180	7
Cremator heat exchanger/recovery	£26,000	100,000	£ 3,000	18,500	9
Timelocks on water heaters, water coolers, zip boilers	£2,500	4,000	£ 280	2,148	9
Lighting controls	£5,000	7,000	£ 490	3,759	10
Voltage optimisation	£20,000	27,000	£ 1,890	14,499	11
Tullie House Solar hot water	£15,000	40,000	£ 1,200	7,400	13

Total cost of projects - £168,500  
Forecast Annual savings - £29,536

Total kwh savings - 768,568 kwh;  
Annual CO<sub>2</sub> reduction 199.20 tonnes

\* found from existing budgets

- (a) *Training and awareness raising* – The Carbon Trust estimates that an awareness campaign will save upwards of 5% on a buildings energy consumption. This 2009/10 project proposal would apply to buildings the Council has direct control/management of. The Council's Environmental Working Group will be launching a campaign to coincide with Energy Saving Trust week beginning the 20<sup>th</sup> October 2008.
- (b) *Boiler controls* – The effective control of heating operating times and room temperatures reduces energy consumption. Heating control technology is improving all the time giving the opportunity of matching heating requirements to boiler demand more closely.
- (c) *Solar control of Civic Centre computer and telephone rooms* – Excess heat from electrical equipment like computers servers can be quite significant and require mechanical cooling. While standard blinds on windows can help reduce the build up of heat in equipment rooms higher specification solar shading can offer better results.
- (d) *Air compensation unit/Heat recovery system* – The mechanical ventilation of large buildings can lead to substantial heating demands during the winter due to the large quantities of cold fresh air blown into the building. This displaces corresponding quantities of warm air to exhaust. There is the opportunity to recover heat contained within the exhaust air stream and use it to pre-heat the incoming cold fresh air.
- (e) *Thermal imaging survey and targeted insulation* – The City Council Facilities Team has recently invested in a thermal image camera that identifies thermal hot spots where insulation can be applied particularly to valves and other pipe fittings. There is the potential to use this piece of equipment to undergo a targeted survey and programme of insulation in all City Council buildings, particularly Community Centres.
- (f) *High efficiency boiler replacement programme* – A programme of upgrading to 'A' rated energy efficient boilers offers excellent opportunities in the long term. The project proposal identified in the matrix offers scope for upgrading two boilers in the City Council's buildings during the 2009/10 financial year. Further opportunities will be identified in the Carbon Management Plan.



- (g) *Timelocks on water heaters, water coolers, zip boilers* – These pieces of equipment are kept on 24 hours a day, seven days a week and in the case of water heaters and zip boilers cannot be manually switched off. By applying timelocks to switch off equipment when not needed offers the potential for savings across the City Council's buildings.
- (h) *Lighting controls* – Automatic lighting controls can be used to turn off or dim electric lighting when there is adequate natural daylight available and areas that are unoccupied. These controls have been applied to the larger City Council buildings but there is scope for applying this technology in other buildings.
- (l) *Voltage optimisation* – The current UK average power supply voltage is set at 240V. Most equipment can operate at voltages substantially lower. Voltage optimisation equipment reduces the voltage supply in most buildings by around 6%-13% particularly where motors and fans exist.
- (j) *Tullie House solar hot water* – Solar hot water systems are relatively simple technologies that use sunlight to heat water. Solar hot water is especially effective where there is a high hot water demand. The Tullie House washing facilities and kitchens are good candidates for solar hot water.

3.6 The initial package of measures have the potential to achieve approx. £30,000 savings/year based on existing energy costs, which would also mitigate the impact of increased costs. However these measures would be implemented through 2009/10 and the full savings would not be fully accrued until the following year. It should be noted that some of the financial savings also require a culture change in how staff operate within the various buildings particularly the Civic Centre. A concerted effort by staff will be required to achieve and sustain this saving. The summary also shows that the carbon reduction achieved by these initial measures only achieves 4% towards the aspirational 25% required by 2012/13. Important changes to the way the Council operates will be required over the next 5 years to enable this to be achieved.

## **4.0 CONCLUSION**

4.1 This report identifies projects for 2009/10 that will enable the City Council to deliver further carbon savings in order to achieve commitments to tackling climate change.

## **5.0 CONSULTATION**

### **5.1 Consultation to date**

Carbon Trust Project Team

### **5.2 Consultation proposed**

Infrastructure Overview and Scrutiny Committee

## **6.0 RECOMMENDATIONS**

It is RECOMMENDED that:

1. The Executive considers the capital investment proposals which contribute to the carbon reduction target as part of the budget for 2009/10.
2. A further report be presented to the Executive when details of the full 5 year carbon reduction programme is developed.
3. The report is referred to Infrastructure Overview and Scrutiny for comment.

## **7.0 REASONS FOR RECOMMENDATIONS**

The project proposals will help to reduce the City Council's carbon emissions and demonstrate leadership in tackling climate change.

## **8.0 IMPLICATIONS**

- Staffing/Resources – The report makes the recommendation of a 2 year post to monitor/audit issues that will be funded from existing budgets. Projects would be managed in-house in conjunction with the maintenance programme.
- Financial – The proposals and requests for further budgets will be incorporated as part of the budget process, and a full Business Case will be provided for the Executive to consider the costs and savings to be included in future years budgets.

The projects are expected to provide return on capital investment within the lifespan of the project and therefore comply with the principles of life-cycle costing and 'invest to save' principle. Opportunities for accessing the Carbon Trust's Salix Finance scheme will be explored. Salix Finance is an independent, publicly funded company set up to accelerate public sector investment in energy efficiency technologies through invest to save schemes. It uses long term, ring fenced, interest free conditional grants to make carbon saving projects happen in the public sector. The grants are focussed primarily on basic projects – ones which have quick payback times in terms of energy savings. Typically, Salix provides funding of between £50,000 and £500,000.

This is matched by the public organisation and fed into a ring-fenced fund to be spent on proven energy saving projects with a payback of less than five years and that also meet the other compliancy requirements. The energy savings are returned to the fund until the original project investment is repaid. After that, the organisation is free to keep the savings to spend on front-line services.

- Legal – None identified.
- Corporate – The Carbon Trust programme is consistent with the corporate aim of Cleaner, Greener, Safer. Under the new performance framework targets have been established and included for Cumbria LAA: NI185 - CO<sub>2</sub> reduction from local authority operations; NI186 – Per capita reduction in CO<sub>2</sub> emissions in the local authority area.
- Risk Management - A risk assessment for each project will be added to the departmental or corporate risk register as required. Failure to make realistic reductions to the Council's carbon emissions would result in a failure to achieve committed targets and politically breach legislative targets.
- Equality Issues – None identified.
- Environmental – Carbon reduction projects will help deliver commitments identified in the City Council's Environmental Policy and Nottingham Declaration on Climate Change and associated targets.
- Crime and Disorder – None identified.
- Impact on Customers – None identified.