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CARBON MANAGEMENT PLAN UPDATE
(Report by Head of Environmental Management)

1. EXECUTIVE SUMMARY

1.1 In June 2009 the Council approved the implementation of a Carbon Management Plan (CMP) with a target of achieving a 30% reduction in CO_2e emissions from the Council's estate over a five year period (2009-10 to 2013/14).

1.2 This report gives details of work undertaken in 2011/12 (year three) of the CMP, of progress made towards reaching the Council's overall 30% reduction target and makes recommendations for further implementation of the CMP to maximise financial savings from reduced energy use.

1.3 Three years into the Plan the Council **has achieved a 20% reduction** in overall carbon emissions, a saving of 1,391 tonnes of CO_2e from its buildings and fleet. This in itself represents a significant achievement and the Council **is on course to meet its 30% carbon reduction target** by the end of 2013/14.

1.4 In addition to the carbon savings the plan is also delivering significant financial benefits. Energy spending has fallen by 11% since 2009/10 delivering a saving of £72k. Had the council not implemented the plan and instead followed a business as usual (BAU) approach over the last three years, the total cost of energy at the Council's main sites would have risen from £1.8m to £2.1m giving a total saving against business as usual **to date of £300k.**

1.5 Further projects to reduce energy use in the Council's main buildings will continue as a priority for the remainder of the plan period. It is predicted that a further saving of £700k will be achieved against the business as usual scenario, **giving a total saving of over £1m during the life of the plan.**

1.6 The plan is therefore both on time, on target and delivering significant savings.

2. BACKGROUND

2.1 Annexe A attached lists the site by site the energy efficiency projects undertaken during 2011/12, funded predominantly through the Councils existing SALIX Energy Efficiency Fund and the Council's limited Environment Strategy capital budget.

2.2 Work to develop clearly defined energy strategies for each of the Councils nine main sites is now almost complete with tailored plans in place for seven of these sites. The plans prioritise actions making the greatest savings on energy bills and measures which generate long term revenue income through the installation of renewable energy. Energy saving measures being undertaken for the Carbon Management Plan are listed seen in Annexe B attached.

2.3 Analysis of current progress towards reaching a 30% reduction in CO_2e emissions has been carried out in line with guidance provided by DECC and DEFRA on reporting greenhouse gas emissions, and a 20% reduction has been made since the baseline year used for the CMP (08/09). This is a saving of 1,391 tonnes of CO_2e and is a significant achievement. For more details please see the Green House Gas Emissions report 2011/12 issued to DECC (Annexe C attached).

2.4 The Council's Environmental Resource Efficiency Group (EREG) continues to meet quarterly and close cross departmental working is now is giving a much clearer picture of energy is being used and potential for energy savings.

2.5 A wide range of projects have now been implemented at One Leisure sites and two significant Renewable energy installations have also been completed. Projects to date include:

- Variable speed drives – for reducing the speed of pool pumps
- Passive infrared lighting – sensing movement and light
- Voltage optimisation – to reduce incoming voltages by up to 10%
- Insulation – both cavity fill and roof fabric
- Valve and pipe insulation – reducing heat loss in plant rooms
- Pool covers – retaining heat overnight
- Replacement of air handling units
- Solar PV array - Eastfield House
- Biomass boiler – Hinchingbrooke Country Park

2.6 The most ambitious project completed in 2011/12 was undoubtedly the installation of a 237Kwp solar photovoltaic PV array at Eastfield House. The array is the biggest on a public building in East Anglia and one of the largest in the UK. Since its installation in March 2012 the system has generated over £20,000 income for the Council from the Government Feed-In-Tariff and in the summer months it reduced the use of grid electricity at Eastfield by over 50%.

2.7 The reduction of the Feed-In-Tariff in July adversely affected plans to install PV systems at other Council sites but as the prices of PV systems continue to fall we will periodically reassess viability going forward.

2.8 During the current financial year energy efficiency improvements primarily centre on the £2.1 refurbishment of One Leisure St Ives which will incorporate the installation of a combined heat and power unit export surplus electricity back to the grid. This project has been funded with a SALIX interest free loan. The refurbishment is also focusing on considerably upgrading the thermal efficiency of the centre, and modernising air handling units on site which alone will save over £10,000 per annum.

2.9 The main renewable energy project undertaken in the current financial year has been the installation of a biomass boiler at Hinchingbrooke Country Park combined with 'smart' fan assisted radiators and draught proofing to reduce the requirement to heat the site. The heat generated by the biomass boiler will be eligible for payments under the Renewable Heat Incentive (RHI) which is due to come into force in 2013 and again will generate a revenue stream for the Council

3. FINANCIAL/ RESOURCE IMPLICATIONS

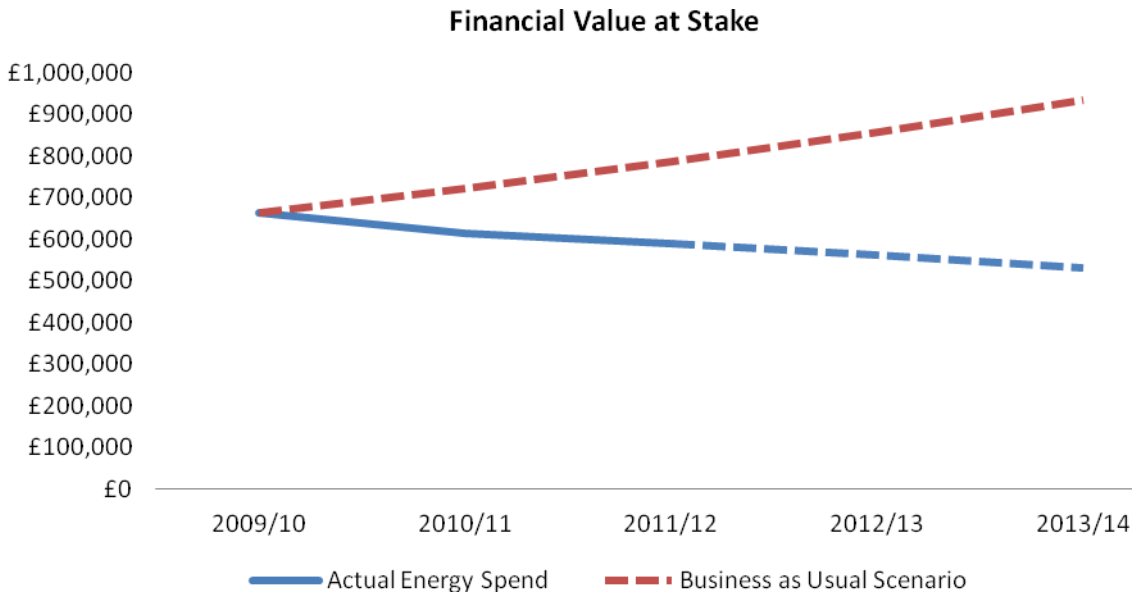
3.1 The value of the Carbon Management Plan to the Council is clearly shown by an analysis of billing data at the Council's 9 main sites (See table below). These sites account for 92% of the Council's total building energy use. Since 2009/10 energy spending at these sites has fallen by 11% delivering a saving of £72k.

3.2 Had the council not implemented its Carbon Management Plan and instead followed a business as usual (BAU) approach, energy usage would have increased by an expected 0.5% per annum and average energy prices increased by 8.5% per annum (Carbon Trust 2009). Factoring in these cost and usage increases, the total cost of energy under a business as usual scenario, would have risen from the actual total spend of £1.8m to £2.1m.

3.3 Therefore when you combine the actual savings made with the potential increase in energy costs had the council not acted, the total real saving to the council as a direct result of the Carbon Management Plan at its nine main sites is £305k since 2009/10.

Year	Actual Energy Spend	Business as usual Scenario	Total Saving against BAU
2009/10	£662k	£662k	------
2010/11	£613k	£722k	£109k
2011/12	£590k	£787k	£197k
Total	**£1.8m**	**£2.1m**	**£305k**

3.4 Using actual data for the first three years (table above), the graph below illustrates the scale of savings that the Council will make if it continues to implement energy saving measures across its main sites as opposed to following a business as usual pathway.



3.5 Projects to further reduce energy use in the Council's main buildings will continue as a priority for the remainder of the plan period and it is anticipated that if project savings continue at the current rate then a further total £700k of savings will be achieved against business as usual.

3.6 Overall therefore the plan is set to deliver over £1m savings at the Council's main Sites.

4. CONCLUSIONS

4.1 Significant progress has been made to reduce emissions during year three of the Carbon Management Plan. A 20% reduction in CO_2e emissions has been made to date with the Council on course to achieve its target of a 30% CO_2e reduction over five years.

4.2 Financial savings of over £300k against a business as usual scenario have been made at the Council's nine main sites and there is the potential to deliver a further £700k savings during the remainder of the plan period.

4.3 A clear delivery pathway has been identified for the remaining two years of the plan with projected savings evidenced by the payback of highly successful, easily replicable projects that have been implemented to date.

4.4 Close working between One Leisure and Environmental Management has enabled energy efficiency and consequent cost savings to be central to the delivery of high quality leisure services. Energy efficiency is now routine 'designed in' to refurbishment opportunities at buildings such as One Leisure St Ives, resulting in significantly reduced running costs at what can be very energy intensive facilities.

5. RECOMMENDATIONS

5.1 Cabinet is recommended to:

(a) Note the excellent progress towards the implementation of the Councils Carbon Management Plan and the positive impact this has had to reduce energy use and energy spending.

(b) To support ongoing cross-departmental working to maximise cost savings and the continued use of the Salix ring-fenced funding and Environment Strategy Capital funding to implement further energy saving projects.

BACKGROUND INFORMATION

HDC Carbon Management Plan

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ANNEXE A: Savings from energy efficiency measures 2011/12 – At the Council's Main Sites

Site	Measures Installed	Delivery Year	Cost (£)	Saving (£pa)	Payback (yrs)	CO2e Saving (tpa)
One Leisure Ramsey	Valve/pipe insulation	11/12	£2,600	£2,600	1	18.69
	Lighting controls (PIR's)	11/12	£4,157	£866	4.8	6.30
	Variable speed drives	11/12	£1,850	£1,020	1.8	6.12
	All Measures	11/12	**£8,607**	**£4,486**	**1.9**	**31.11**
Reduction against 10/11 energy bill - £8,990 (22.17%)						
Explanation: The installation of lighting controls, predominantly in the sports hall, has significantly reduced unnecessary lighting, while the installation of variable speed drives has reduced consumption associated with use of the swimming pool pumps. Aside from Salix measures, the standard lighting replacement programme, undertaken as part of general maintenance, has contributed significantly to additional savings.						
Pathfinder House	Saturday closing	11/12	Not possible to quantify the savings in CO2e and energy associated with these measures as we are currently undertaking full monitoring of the site.			
	Server virtualisation	11/12				
Reduction against 10/11 energy bill - £13,529 (11.10%)						
Explanation: The implementation of Saturday closing, initiated in early 11/12, has contributed to a reduction in both electricity and gas consumption. Server virtualisation, which began in November 2011, has reduced electricity consumption in the server room by 5% compared with 10/11. Further savings in energy consumption are likely the result of a range of behavioural change campaigns led by the Environment Team.						
One Leisure Sawtry	Valve/pipe insulation	11/12	£2,650	£2,650	1	18.49
	Lighting controls (PIR's)	11/12	£578	£145	4	0.8
	Pool covers	11/12	£2,514	£1,294	2	20.16
	Variable speed drives	11/12	£1,980	£1,329	1.5	7.97
	All Measures	11/12	**£7,722**	**£5,418**	**1.4**	**47.42**
Reduction against 10/11 energy bill - £6,073 (10.63%)						
Explanation: The installation of lighting controls, predominantly in the sports hall, has contributed to a reduction in unnecessary lighting, valve/pipe insulation and pool covers have reduced heat loss and variable speed drives have reduced energy use associated with use of the swimming pool pumps. Further energy savings have been made by the increased efficiency of existing heating and ventilation systems.						
One Leisure Huntingdon (Wet)	Pool covers	11/12	£3,455	£1,820	2	9.63
	Lighting controls (PIR's)	11/12	£4,409	£1,117	3.9	5.43
	All Measures	11/12	**£7,864**	**£2,937**	**2.6**	**15.06**
Reduction against 10/11 energy bill - £3,690 (8.05%)						
Explanation: There has been a greater than expected reduction in the energy spend at this site, resulting from the installation of pool covers to limit heat loss and lighting controls to prevent unnecessary lighting. In addition, the closure of the energy intensive sauna and steam room has contributed to further savings across the site.						

One Leisure St Ives (Indoor)	Valve/pipe insulation	11/12	£5,500	£5,500	1	37.23
	Lighting controls (PIR's)	11/12	£9,000	£2,907	3.2	17.43
	Pool covers	11/12	£3,458	£6,661	1.3	14.09
	All Measures	11/12	**£17,958**	**£15,068**	**1.1**	**68.75**

Reduction against 10/11 energy bill - £6,522 (5.49%)

Explanation: There has been a considerable reduction in energy spend and use at this site, largely the result of the installation of valve/pipe insulation and pool covers to reduce excess heat loss, and lighting controls to limit unnecessary lighting of less frequently utilised areas.

Eastfield House	Behaviour change	Not possible to quantify the savings in CO2e and energy associated with behavioural change measures.

Reduction against 10/11 energy bill - £1,775 (3.22%)

Explanation: The installation of Solar PV at this site in March 2011 is likely to be responsible for a small reduction in energy use, however, the relocation of a employees from the first floor, where rooms have individual temperature control panels, to the ground floor, where temperature is controlled centrally, has also reduced energy spend.

One Leisure Huntingdon (Dry Side)	Valve/pipe insulation	11/12	£1,260	£1,260	1	8.41
	Voltage optimisation	11/12	£16,635	£3,766	4.5	22.59
	Boiler replacement	11/12	£15,000	£3,092	5	16.36
	Lighting controls (PIR's)	11/12	£4,409	£1,117	3.9	5.43
	All Measures	11/12	**£37,304**	**£9,235**	**4**	**52.79**

Increase against 10/11 energy bill - £778 (1.5%)

Explanation: There has been a slight increase in energy spend at this site. Over the past year, the numbers of treatment rooms at the site have doubled, alongside an increase in external flood lighting of the football pitches. The change from sub-100 to half-hourly electricity metering has also contributed significantly to the increased energy spend. This is a result of both the higher standing charge, and higher cost per unit of electricity associated with half-hourly metering when compared with sub-100.

One Leisure St Ives (Outdoor)	Lighting controls (PIR's)	11/12	£3,480	£969	3.5	5.45
	All Measures	11/12	**£3,480**	**£969**	**3.5**	**5.45**

Increase against 10/11 energy bill - £2,270 (8.77%)

Explanation: The energy spend at this site has risen despite a 14.8% reduction in energy use. While gas consumption saw a 27% reduction in 11/12, electricity consumption increased by 5%. As electricity is both higher in cost per unit, and more carbon intensive per unit than gas, energy spend has increased, despite an overall reduction in energy use. The reduction in gas consumption over the period is due to a reduction in heating requirements, a result of a change in opening hours. In contrast, the increased electricity consumption is likely the result of floodlights and exterior lighting, installed in August 2011 as part of the Football Foundation and Lottery funded extension project.

One Leisure St Neots	Valve/pipe insulation	11/12	£1,876	£1,876	1	13.08
	Pool covers	11/12	£6,005	£2,775	2.3	11.15
	All Measures	11/12	**£7,881**	**£4,651**	**1.6**	**24.23**

Increase against 10/11 energy bill - £15,765 (16.97%)

Explanation: Although the measures installed are likely to have resulted in a significant reduction in energy consumption, the refurbishment and expansion of the site, and a subsequent increase in visitor numbers, has substantially limited their impact and increased energy spending at the site.

ANNEXE B: Energy Saving Measures for the remaining two years of the Carbon Management Plan

Site	Measure	Delivery Year	Cost (£)	Saving (£pa)	Payback (yrs)	CO2e saving (tonnes pa)
Pathfinder House	Reduction of overall ventilation rates	13/14	£20,000	£7,450	2.7	45
	Optimisation of night cooling strategy	12/13	£2,700	£1,350	2	10.4
	Improved hearing zone control	13/14	£16,500	£2,200	7.4	16..7
	Initiation of real-time monitoring programme	13/14	£1,200	£1,100	1.1	6.3
	All Measures	12/14	£40,400	£12,100	3.3	61.7
Predicted % saving on 11/12 energy bill - 11% reduction						
Eastfield House	Solar PV	12/13	£446,000	£15,000	11.5*	77
	Improved controls and provision of door interlocks	13/14	£6,400	£3,000	2.1	23.2
	Optimisation of operation and controls for heat pump systems	13/14	£10,200	£4,000	2.5	22.1
	Reduce use of electric heaters in hallways	13/14	Zero	£450	0	2.5
	Reduce exterior lighting density and hours of operation	13/14	£5,000	£1,700	2.9	9.5
	All Measures	12/14	**£467,600**	**£23,700**	**9.9**	**134.3**
Predicted % saving on 11/12 energy bill - 28.7% reduction						
*Payback inclusive of energy spend saving (£15k) and energy generation income (£23.5k)						
One Leisure Huntingdon Dry Side	Replacement of electrical heaters in ventilation systems	12/13	£13,000	£3,500	3.7	26.2
	Minimise use of electrical heating for entrance air curtains	12/13	£2,800	£1,300	2.2	9.9
	All Measures	12/14	**£15,800**	**£4,800**	**3.2**	**36**
Predicted % saving on 11/12 energy bill - 9.1% reduction						

One Leisure St Ives Indoor	Replace Neatafan AHUs	12/13	£18,000	£5,700	3.2	47
	Variable speed boiler house pumps	12/13	£15,000	£4,200	3.6	25.7
	Cavity wall insulation	12/13	£14,000	£2,600	5.3	26.1
	Combined heat and power	12/13	£116,343	£28,061	4.1	203.7
	All Measures	12/13	**£163,343**	**£40,561**	**4**	**302.5**
Predicted % saving on 11/12 energy bill - 33% reduction						

One Leisure St Ives Outdoor	Fix squash court air handling unit	12/13	£1,000	£1,230	0.8	6.8
	Interlock hot water pumps and boiler controls	13/14	£900	£310	2.9	2.4
	Improve changing room ventilation control	13/14	£3,800	£930	4.1	2.3 4
	Provide/refurbish convector heaters	13/14	£1,900	£230	8.2	3.7
	All Measures	12/14	**£7,600**	**£2,700**	**2.8**	**19.2**
Predicted % saving on 11/12 energy bill - 9.6% reduction						

One Leisure Sawtry	Variable speed drives	12/13	£3,500	£2,100	1.7	12.6
	Monitoring & adjustment of heating/ventilation	13/14	£3,000	£3,350	1.8	38
	Use of free cooling for gym & activity area	12/13	£3,900	£6,400	1.6	9.1
	All Measures	12/14	**£10,400**	**£11,850**	**0.8**	**59.7**
Predicted % saving on 11/12 energy bill - 23.22% reduction						

ANNEXE C: Greenhouse Gas Emissions for Huntingdonshire District Council Estate – Financial Year 2011/2012

GHG emissions data for period 1 April 2011 to 31 March 2012				
	Global Tonnes of Carbon Dioxide equivalent (CO_2e)*			
	11/12	10/11	09/10	Base Year 08/09
Scope 1 – Direct emissions	2,488	2,761	2,760	3,205
Scope 2 – Energy indirect	2,857	2,954	2,970	3,510
Scope 3 – Other indirect	146	149	168	167
Total gross emissions	**5,491**	**5,864**	**5,898**	**6,882**
Carbon offsets	0	0	0	0
Green tariff	0	0	0	0
Total annual net emissions	**5,491**	**5,864**	**5,898**	**6,882**
Intensity measurement 'Tonnes of CO_2e per member of full time staff'	9.9	8.2	7.2	8.9

*CO2e includes Carbon Dioxide, Nitrous Oxide and Methane emissions

Company Information
HDC is a District Council covering a geographical area of approximately 350 square miles and home to a population of over 160,000.

Reporting Period
1 April 2011 – 31 March 2012

Change in emissions
Scope 1 - This section of the table records all of HDC's gas, petrol and diesel consumption, used to heat Council-owned buildings and run the fleet of waste collection, street cleansing vehicles and pool cars.
There has been a steady reduction in CO_2e from the consumption of gas, petrol and diesel since the baseline year. These reductions can be attributed to the installation of energy efficiency measures, such as roof and fabric insulation, at our Leisure Centre sites, and the rescheduling of refuse and recycling rounds to reduce miles travelled by the fleet. Overall, CO_2e emissions from scope 1 sources have decreased by 717 tonnes since the baseline year (2008/2009).

Scope 2 - This section of the table records all of the electricity used to power HDC's Council-owned buildings.
There has been a small decrease in emissions from this source in the last year as a result of the installation of energy efficiency measures at One Leisure sites, including voltage optimisation and passive infrared lighting, alongside energy monitoring at HDC's headquarters. Overall, Scope 2 CO_2e emissions have decreased by 653 tonnes since the baseline year (2008/2009).

Scope 3 - This section of the table records CO_2e emissions from HDC's business travel. HDC have chosen not to report emissions from commuter travel as the data is incomplete and believed to be responsible for only a small proportion of total emissions. There has been a further decline in CO_2e emissions associated with business travel since the baseline year. The continued use of the Council's pool car and bicycle fleet, the take up of tele-working and changes

to the employee travel allowance scheme have all contributed to emissions reductions. Overall, scope 3 emissions been reduced by 21 tonnes since the baseline year (2008/2009).

Approach
We have followed the Governments guidelines (2011) on how to measure and report GHG emissions.

Organisational boundary
We have used the financial control approach.

Operational scopes
The Council has measured scope 1, 2 and 3 emissions where a monitoring system is in place to do so.

Overall, scopes 1, 2 and 3 together result in a decrease of 373 tonnes of CO2e emissions in the last year (6%) and a reduction of 1391 tonnes of CO2e emissions (20%) since the baseline year.

The work undertaken to achieve these savings has been supported by a ring-fenced Salix Energy Efficiency fund and has resulted in financial savings to the Council in energy and fuel costs.

	GHG emissions 11/12 in tonnes CO2e	Exclusions and % this represents
Scope 1		
Gas consumption	1,117	
Owned transport	1,371	
Process emissions	0	
Fugitive emissions	0	
Total scope 1	**2,488**	
Scope 2		
Purchased electricity	2,857	
Total scope 2	**2,857**	
Significant scope 3		
Business travel	146	By private staff vehicle only
Total significant scope 3	**146**	

Base year
Our baseline year is 2008/2009 which we set using a fixed base approach. We have recalculated our baseline year emissions to take into account the change in GHG emissions factors.

Targets
Our emissions reduction target is to reduce our global GHG emissions, scopes 1, 2 and 3, by 30% from the baseline year 2008/2009 by the end of 2013/2014. The Environment Team and the Environmental Resource Efficiency Group is responsible for the achievement of the target.

Intensity measure
The Council has chosen 'tonnes of CO2e per member of full time staff' as the Council does not have a product output. Our intensity measure has increased this year due to a decrease in staff despite emissions reductions.

External assurance statement
None currently in place

Carbon offsets
The Council has not brought into any carbon offsetting schemes.

For more information please contact the Environment Team on 01480 388388 or email heet@huntingdonshire.gov.uk