

## HAMPSHIRE COUNTY COUNCIL

### Report

<b>Committee/Panel:</b>	Buildings, Land and Procurement Panel
<b>Date:</b>	8 October 2013
<b>Title:</b>	Energy and Carbon Management Activities Update
<b>Reference:</b>	5186
<b>Report From:</b>	Director of Culture, Communities and Business Services

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#### 1. Introduction

- 1.1. This report updates members on progress in relation to a number of Energy and Carbon Management related activities. Issues covered in this report are those which specifically impact on the County Council's built estate. Since the introduction of the Carbon Management plan 3 years ago and then the Energy Strategy, there has been a real focus in Property Services supporting the ambition to reduce energy consumption, (and, therefore, our carbon footprint) and increase the use of renewable technologies delivering cost savings and reducing the County Council's reliance on fossil fuels.
- 1.2. This report provides an update on:
- The Carbon Management Plan including programmes of work to reduce carbon consumption.
  - Review of the business case for Solar PV on corporate buildings.
  - Progress on the Energy Performance Programme.
  - Support to the Hampshire Schools.
  - Behavioural change programmes.

#### 2. Carbon Management Plan

- 2.1. In July 2010 Cabinet approved a Carbon Strategy which set out the targets for carbon reduction up to 2050.
- 2.2. The Strategy set out carbon reduction targets for the short, medium and long term as follows:
- Phase 1: Short term 2010 – 2015 - 20% reduction
  - Phase 2: Medium term 2015 – 2025 - 40% reduction

- Phase 3: Long term 2025 – 2050 - carbon neutral
- 2.3. The short term targets are being addressed through the workstreams defined in the Carbon Management Plan which sets down how the 20% reduction may be achieved in the five year plan. This consisted of physical means to reduce carbon consumption of around 9% and the balance of 11% targeted for behavioural change. We are now at the end of year three of the five year plan and there is still some uncertainty of the success of behavioural change as it is not possible to measure this with any degree of accuracy. A number of successful technical programmes have been completed and more are planned over the next two years.
- 2.4. In parallel with this carbon reduction strategy there is also pressure to reduce our carbon emissions in respect of the Carbon Reduction Commitment (CRC) Energy Efficiency Scheme and the reporting of our Green House Gas emissions (GHG); the replacement for an earlier National Performance Indicator.

### 3. Carbon Emissions

- 3.1. Hampshire County Council's carbon emissions broadly comprise those from:
- Council owned and leased buildings from which we conduct the business of the County Council
  - LEA schools, VA schools, foundation school and academies
  - Street lighting
  - Officer travel and transport used to conduct the business of the County Council
  - Outsourced services
- 3.2. Data from some or all of the above are used to determine each of the three key carbon emission data sets.
- Green House Gas (GHG) Emissions
- 3.3. This is the sum of the emissions from all of the five groups listed above and represents the carbon emissions associated with all of the activities and services delivered by the County Council.
- Carbon Management Plan Emissions
- 3.4. Essentially a sub-set of the GHG emissions; this data set measures the carbon emissions from buildings, street lighting and officers' business travel.
- Carbon Reduction Commitment Energy Efficiency Scheme (CRC Emissions)
- 3.5. This is the mandatory government scheme which requires the County Council to submit carbon emissions connected only with buildings and to purchase carbon credits to match the carbon emissions. It is a further sub-set of the GHG data.

### The Carbon Management Plan (CMP)

- 3.6. The Carbon Management Plan comprises a number of key workstreams and is the tool by which the short term 20% reduction will be achieved.
- 3.7. Typically the plan comprises:
- Building and engineering improvement works as part of capital maintenance programmes (re-roofing, boiler replacements, relighting schemes and the like)
  - Specifically funded energy or sustainability projects for example the advanced boiler controls programmes.
  - Behavioural change programmes with staff and building users to drive down energy use (particularly schools).

### Progress to Date

- 3.8. In the first three years of the plan, projects and programmes of work have delivered carbon reductions of approximately 6,900 tonnes against an overall target reduction of 10,900 tonnes from all projects across the whole of the 5 year life of the plan. This demonstrates that the physical means achieved are impacting positively on our carbon footprint and there is some confidence that the target in this area will be met.
- 3.9. Future projects and programmes of work are identified later in this report, but the effect of behaviour change is more difficult to predict and to measure. To date it has proved challenging to get wide scale engagement of staff and schools and the targeted reductions from behaviour change are more uncertain.

### Data Analysis

- 3.10. The table below shows the metrics for the first three years of the Carbon Management Plan compared to the base year. It should be noted that:
- There has been an increase in year 3 as a result of the prolonged cold winter of the 2012/13 season. It is not possible to accurately compensate the data for the effects of the weather.
  - Carbon emissions across the Council had been increasing year on year for at least a decade before 2009/10 and that increase has been stopped. We are still on a downward trend from the base year.

<b>Current Position</b>	<b>Base Year 2009/10 (tonnes)</b>	<b>Year 1 2010/11 (tonnes)</b>	<b>Year 2 2011/12 (tonnes)</b>	<b>Year 3 2012/13 (tonnes)</b>
GHG Emissions	162,308	157,385	146,003	153,110
<b>Carbon Management Plan</b>	<b>131,800</b>	<b>125,935</b>	<b>116,294</b>	<b>122,158</b>
CRC scheme	N/A	83,849	76,242	92,290

- 3.11. The table below illustrates how targeted reductions delivered by technical programmes in the next two years will impact on the overall target. It also makes an assumption about the potential for Behavioural Change reduction, however as referred to above, this can only be a target and there is no guarantee of success.

<b>Future Carbon Management Plan Reductions</b>	<b>Year 4 2013/14 (tonnes)</b>	<b>Year 5 2014/15 (tonnes)</b>
Works Programmes Emission Reductions	6,175	6,695
Behaviour Change Reductions (2% target)	2,450	2,270
Target Emissions for year	113,533	104,568
20% Reduction Target		<b>105,440</b>

#### **4. Future Activities for the Carbon Management Plan**

- 4.1. Year 4 (2013 - 14) of the Plan will see the delivery of the schools advanced boiler controls works. Work has progressed over the summer and will be substantially complete in time for the new heating system. The boiler controls programme is expected to deliver 3,200 tonnes per annum of carbon reduction from the schools estate.
- 4.2. The Landlord's Corporate and Schools Capital Maintenance Programmes will deliver a further 450 – 500 tonnes of carbon reduction in 2013/14; the street lighting programme will contribute a further 2,300 tonnes; and around 225 tonnes will be delivered from the Workstyle programme in 2013/14
- 4.3. Programmes in place for the final year of the plan 2014/15 will give an expected reduction of 450 – 500 tonnes for the capital programmes, 5,250 tonnes from street lighting and 150 tonnes for the Workstyle programme.
- 4.4. The 2010 Carbon Management report to Cabinet stated a target of 8.7% from programmes of work and 11.30% from behavioural change, making the total aim of 20%. Since that time additional technical programmes have been introduced (alongside improvements in the original estimates of reductions) which are now expected to deliver 19,770 tonnes, 15% of the baseline year consumption. Overall this is a significant success for the investments undertaken to date. Behavioural change targets, therefore, are reduced to around 5% of the baseline year. Further work is planned for behavioural change as set out in section 8 of this report.
- 4.5. Investment to date has focussed on those projects and programmes that deliver the best return (carbon saved) for the capital sum invested. Further investments will be determined by:
- The availability of Government financial incentives (e.g. Feed in Tariff).
  - The availability and cost of finance/funding.

- Business cases to determine pay back periods and gross savings based on assumptions about the rising cost of fuel.

4.6. The following table illustrates, for various technologies, the capital cost per tonne of carbon saved.

<b>Technology</b>	<b>Capital cost per Tonne of CO2 saved (£)</b>
Advanced Boiler Controls	750
Combined Heat & Power	801
Ground Source Heat Pumps	2,500
Draft Proofing	2,646
Roof Insulation	4,714
Solar PV	5,876

The Carbon Management Plan has focused on the technologies which represent best value for money. Future programmes, including improvements to building fabric, are influenced by the factors in the table above. Solar PV is only cost effective because of the availability of financial incentives from Government.

## **5. Review of Solar PV Business Case**

- 5.1. At the request of members, officers are currently undertaking a review of the large scale solar PV programme for the corporate estate which was stopped in the Autumn of 2012 as a result of reduction in the Governments Feed in Tariff (FiT) incentive. In the intervening period, the cost of installation has dropped in excess of 50% making the review timely.
- 5.2. Initial indications are that if the most favourable sized arrays were installed in around 50 buildings then the business case could be financially viable (pay back of around 10 years). However, buildings must have a minimum level of Energy Performance Certificate ('D' rating or better) to qualify for the new FiT. A number of the potential buildings are currently being analysed by specialists to ascertain whether they would comply. Only when this is done will there be confidence about recommending the County Council proceed with a programme.
- 5.3. The Solar PV Programme is expected to deliver around 300 tonnes of carbon reduction per year post 2015.

## **6. Energy Performance Programme (EPP)**

- 6.1. Progress on the EPP was reported to the last meeting of the panel. Since that time site valuations surveys are now being undertaken and a business case has been agreed with the Head of Finance for inclusion in the Corporate Invest to Save Programme to secure funding to proceed.

- 6.2. The EPP is expected to deliver around 800 tonnes of carbon reduction per year post 2015.

## **7. Support to Hampshire Schools**

- 7.1. There are currently over 20 solar PV systems installed across the schools estate generating a total of 200,000 kWh with an associated saving of approximately £20,000 per annum. Earlier this year the Executive Member for Children Services approved a proposal to include solar PV arrays on approximately 30 school extension projects associated with the pupil place expansion programme. These arrays will be eligible to receive the Feed in Tariff (FIT) and the income from this could be used to support further energy reduction programmes in schools. The exact size and generating capacity of the new arrays is to be finalised as the project designs progress but it is anticipated that approximately 250,000 kWh will be generated per annum saving schools £26,000 and providing £35,000 of income from the FIT. It is proposed to use this income to supplement resources in Property Services to support further work with schools.
- 7.2. Work has commenced on the feasibility of offering renewable technologies to schools. Funding options are being investigated that would be free to the schools and would be delivered by the County Council. Progress on this will be reported to a future meeting of the panel.

## **8. Behavioural Change Programmes**

- 8.1. As well as the planned work, the behavioural change programmes have been given a renewed impetus. The Facilities Management (FM) teams have received training in E360, the on-line energy data analysis tool and are monitoring the energy use on those buildings managed by the service with a view to identify unusual energy use patterns in order to reduce any energy waste.
- 8.2. On-line learning modules have been launched for schools and corporate users to help them get more from the E360 system and further training with caretakers and site managers is planned.
- 8.3. Greater use of school buildings for community use, the provision of new schools to accommodate the increase in pupils, more intensive use of our reduced corporate estate and a drive to improve the quality and extent of street lighting all put pressure on achieving the target reductions set out in the carbon management plan.

## **9. Recommendations**

- 9.1. That positive progress to date with Energy and Carbon Management Programmes in the built estate is noted.

**CORPORATE OR LEGAL INFORMATION:****Links to the Corporate Strategy**

<b>Hampshire safer and more secure for all:</b>	yes
Corporate Improvement plan link number (if appropriate):	
<b>Maximising well-being:</b>	yes
Corporate Improvement plan link number (if appropriate):	
<b>Enhancing our quality of place:</b>	yes
Corporate Improvement plan link number (if appropriate):	

**Other Significant Links**

<b>Links to previous Member decisions:</b>		
<u>Title</u> Carbon Strategy	<u>Reference</u> 1152	<u>Date</u> 26.07.2010
<b>Direct links to specific legislation or Government Directives</b>		
<u>Title</u>	<u>Date</u>	

**Section 100 D - Local Government Act 1972 - background documents**

The following documents discuss facts or matters on which this report, or an important part of it, is based and have been relied upon to a material extent in the preparation of this report. (NB: the list excludes published works and any documents which disclose exempt or confidential information as defined in the Act.)

<u>Document</u>	<u>Location</u>
None	

## **IMPACT ASSESSMENTS:**

### **1. Equalities Impact Assessment:**

1.1. There are no equalities impact for the Energy Programme.

### **2. Impact on Crime and Disorder:**

2.1. There is no impact on Crime and Disorder.

### **3. Climate Change:**

3.1. The Energy Strategy and Carbon Management Plan will have a significant positive effect on the carbon emissions of the county Council. Climate change impacts are a driver in implementing reduction programmes.