HAMPSHIRE COUNTY COUNCIL

Committee/ Panel:	Buildings, Land and Procurement Panel
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Title:	Carbon Reduction Progress Report
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Joint report from:	Director of Culture, Communities and Business Services and Director of Economy, Transport and Environment

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1. Executive Summary

1.1. The purpose of this report is to update Members of the Panel on the progress to date with the delivery and development of the Carbon Management Plan, the 10:10 Initiative, the Carbon Reduction Commitment and the first phase procurement of a large scale Photovoltaic Programme currently underway across the County. The Carbon Management Plan will be closely aligned to the County Council's Energy Strategy, which is being considered this Autumn at Cabinet.

1.2. This report seeks to:

- set the context in terms of the County Council's Carbon Strategy
- outline the progress made to date with the Carbon Management Plan
- advise of the outcome of the 10:10 Initiative
- outline the work with schools to help reduce their carbon footprint
- inform on the outcome of the Carbon Reduction Commitment and Greenhouse Gas Emissions submissions to Government.
- set out the detail of the works underway, in respect of procuring a large-scale solar photovoltaic (PV) project.

2. Contextual information

2.1. In July 2010 the County Council approved a Carbon Strategy that set out a number of short, medium and long-term targets for carbon reduction over the next five, 15 and 40 years.

2.2. Programmes of work and energy reduction projects to achieve the short-term target of a 20% reduction (from 2008 levels) by 2015 are already in place and these form the Carbon Management Plan.

2.3. Achieving the medium-term reduction of 35 – 40% by 2025 and the longer-term aim of carbon neutrality by 2050 will be the subject of second and third stage plans.

2.4. This report summarises the position at the end of year 1 of the 5 year first stage plan.

2.5. The Carbon Management Plan will link to, and support, the Strategic Aims of an Energy Strategy being formulated by the Council.

3. Carbon Management Plan

3.1. The Carbon Management Plan sets out the five year programme to reduce the County Council's carbon emissions by 20% between 2010 and 2015. Identification and planning of work programmes and projects are required in the early years of the first stage plan in order to deliver subsequent energy and carbon reductions in the following years. Projects which relate to asset reductions will, for example, take 2-3 years before the resultant savings are evident. The Director of Culture, Community and Business Services has been focusing efforts on a prioritised basis – formulating them in order of pay-back periods and commencing longer term initiatives like behavioural change, recognising the speed of change is slower.

3.2. The Plan consists of a number of key workstreams that includes:

- Building – comprises building and engineering improvement works as part of capital maintenance programmes (re-roofing or boiler replacements) or specifically funded energy or sustainability projects;
- ICT – work to improve the operating efficiency of the data centre and to roll out new, lower energy technologies;
- Behavioural change – this workstream looks at the behavioural changes we all need to make to drive down energy use. It is also linked to the new flexible working arrangements introduced through the Workstyle programme.

3.3. In year 1 of the plan (2010/11), the anticipated reduction due to the delivery of building/engineering and ICT projects was calculated to be 1820 tonnes and comprised of:

- The first phase of the Winchester Headquarters rationalisation.
- New Deal for Schools and Landlords Capital programmes.
- IT initiatives including rationalisation of the data centre operations and roll out of lower energy technologies.
- Installation of advanced boiler controls across the corporate estate.

3.4. Overall, the actual carbon emissions reduction achieved in year 1 of the Plan has been 3925 tonnes across the schools and non-schools estate, as a result of the delivery of projects and the behavioural change initiatives. It is easier to collect empirical evidence of some carbon reduction projects than others. Measuring the reduction due to a boiler controls programme can be

undertaken with much more confidence than an assessment of a behavioural change programme. However, the total net effect of the programme (and potentially other factors beyond the programme team's direct control) has exceeded the year 1 estimate. This knowledge means that a more informed prediction for the next four years of the Stage 1 Plan can be made.

3.5. The reduction in carbon emissions equates to over £550,000 of energy cost savings. These are principally through significant reductions in heating fuel consumption and are at today's prices. As energy prices are predicted to rise (potentially well above annual inflation) this will deliver greater cost savings in future years.

3.6. The Street Lighting PFI contract will see the replacement or updating of 150,000 street lights, illuminated signs and bollards in Hampshire with the latest energy efficient equipment during the course of the project. The 25-year project is now fully underway and offers many benefits such as reducing carbon emissions by up to 15%, reduced light pollution and targeted lighting in areas of high crime. The target for this workstream is to save 4,000 tonnes of carbon per annum by 2015. In the last fifteen months, energy consumption has been cut by 2.5m kilowatt hours since the PFI project began last April. This has been achieved through the introduction of more energy efficient equipment and the roll-out of a remote monitoring system which enables better light control and dimming. To date, over 6,000 lights have had this new technology fitted in the Hampshire area.

3.7. Year 2 of the Plan (2011-12) has measures in place to reduce the footprint by a further 3600 tonnes through a number of projects, not least of which is the significant (1600 tonnes this year and next) contribution expected by installing 1500 advanced boiler control modules across our schools estate. This project is being funded by the schools at a cost of £2.7 million in order to reduce their energy bills by an expected £500,000 per year; estimated to pay back the initial capital investment in less than six years.

3.8. Year 2 of the Plan also sees an increase in the proportion of the target which will be achieved through the delivery of projects. In Year 1, projects were estimated to deliver around 8% of the known technical target. In Year 2, this has increased to over 12%. The balance of 8% being delivered through the behavioural change programmes. This gives greater confidence that as the implementation of the Plan progresses, the 20% target can be met.

3.9. The development of the Plan over years 3, 4 and 5 should see a greater proportion of the reductions achieved through project work as the programmes are developed and delivered. New initiatives, technologies and opportunities are, and will, no doubt, continue to emerge that can be factored into the Plan. The intention is to remain flexible and take advantage of any financial incentives or funding opportunities that may arise. Government direction and national incentives continue to shift and develop in this fast-changing sphere.

4. 10:10 Initiative

4.1. In July 2010, the County Council signed up to support the 10:10 Initiative (reducing our Corporate (non-schools) carbon footprint by 10% within twelve months).

4.2. In order to comply with the conditions of the 10:10 Initiative, the County Council was required to achieve a 10% reduction within twelve months of signing-up. One of the key programmes that helped deliver this reduction was the fitting of Advanced Automated Boiler Controls to all appropriate buildings before the 2010-2011 heating season commenced.

4.3. At the end of the 1 year period, analysis of the actual reduction of energy usage across the corporate estate has been undertaken and 2770 tonnes of carbon reduction has been verified. This equates to 10.7% of our corporate (non-schools) emissions and means that Hampshire achieved the 10:10 target.

5. Carbon Management in Schools

5.1. Automatic Meter Reading (AMR) - Smart Meter Installation

5.1.1 Smart Meters are attached to incoming utility (e.g. gas and electricity) supplies and give immediate access to good quality data on local consumption on a 24 hour basis. This means that local managers and staff can access consumption data via the internet and can use it to inform local actions and decisions to reduce their consumption. From the data, it is possible to identify unusual patterns of consumption easily. Through the provision of benchmarking data, they are also able to compare consumption to their peers and potentially share initiatives to improve performance

5.1.2 Throughout the year 1, the Property Services Energy Team worked with the utility company British Gas to install the principle smart meters across the school estate to measure the electricity and gas delivered to each site. In total around 1800 meters have been installed.

5.2. Automatic Meter Reading (AMR) - Training

5.2.1 As part of the of the smart meter installation contract the County Council have secured the use of the British Gas ‘Energy360’ web based analysis software package. By logging on to the Energy360 website and studying the energy data held for their school, school staff are able to identify patterns of use, times of high consumption and background energy use levels. This information is then be used to target efforts in energy reduction to the maximum effect.

5.2.2 Throughout March and April 2011, Property Services staff ran a series of training sessions for schools on how to use the Energy360 tool and how to understand the data presented. Feedback from the sessions was very positive and a number of schools are already using the data to identify trends in their energy use.

5.2.3 Property Services have also published a number of self-help tutorials on the schools intranet to assist them in logging on to the system. A second set of tutorials is now ready for publication that are aimed at providing more detailed help with analysing the energy data. This second set of tutorials are being launched early in the Autumn term in time for the new heating season.

5.3. Smart Sub – Meter Programme

The next phase of smart meter installation is the work to install sub-meters into the larger buildings on school campuses and shared school sites. Buildings with a floor area in excess of 1000m^2 will be fitted with electricity meters, gas meters and/or heat meters to measure the energy used by the building. The sub-metering programme is funded directly by the schools through the Schools Forum. Contracts have now been let for the sub-meter programme and the works is well advanced.

5.4. Energy Saving Toolkit

The Carbon Management Team has produced a helpful toolkit for schools of practical suggestions and tips to save energy. A website has been established that is tailored for the schools community and a special edition 'Energy Matters' publication was distributed to schools at the beginning of 2010 to raise awareness of energy initiatives, Smart Meters and contacts for help with advice and support.

5.5. Bio-mass Boiler Project

A project to install the first bio-mass (wood fuel) boiler at a school in Hampshire was completed recently at the Weyford Schools in Bordon. This project was funded by government grant secured by the Council to reduce carbon in public buildings in the Bordon area as a result of the Eco-Town initiative. Performance of the installation will be monitored during the first full heating season in 2011-2012. The system is projected to save 96% of carbon emissions compared to the previous fossil fuel boilers (137 tonnes of carbon savings).

6. Carbon Reduction Commitment

6.1. The first year of the Carbon Reduction Commitment Energy Efficiency Scheme (CRC) completed at the end of March 2011, and in July 2011 the County Council lodged with the Environment Agency the 'Footprint Report' and 'Annual Report' for the 2010/11 year.

6.2. During the course of the year a number of changes were made to the CRC scheme, the most significant being the exclusion of the carbon emissions attributed to street lighting. Up until this year, it was proposed that the CRC scheme would be a 'cap and trade' arrangement which would require large consumers to trade carbon credits annually. This has now been replaced with a levy or 'tax' on carbon consumption.

6.3. For the first year of the CRC therefore, the County Council reported a total of 88,382 tonnes of CO_2 from its buildings, including schools and academies. (essentially attributed to gas and electricity used).

6.4. The current cost of the CRC scheme is £12 per tonne of CO_2 emitted which equates to approximately £1.1 million per annum for the County Council, the majority of which (£900,000) will be paid by schools.

6.5. Later in the Autumn the Government will publish a league table of CRC participants. This will show where the County Council ranks against other public sector bodies as well as private sector participants. Whilst in the first year the position in the league table will be based on so called 'early action metrics' such as the proportion of energy measured through voluntary Automatic Meter Reading, in future years an organisation's position will be determined by their performance in reducing their emissions.

7. Greenhouse Gas Emissions

7.1. The previously reported National Indicator 185 (Carbon Emissions related to the organisation's activities) has now been replaced by a Greenhouse Gas Emissions (GHG) Report that each local authority is required to publish.

7.2. Whilst the format of the report is much simpler for the GHG emissions than it was for the NI 185 submission the data collected is essentially the same for both the previous and current formats which allow a direct year on year comparison. Both sets of data take into account emissions from buildings, street lighting, business travel and transport and account for services delivered in house and those outsourced to other public and private sector bodies.

7.3. The 2009/10 and 2010/11 GHG emissions are set out in the table below:

Year	GHG Emissions (tonnes CO_2)	Reduction (tonnes CO_2)	Reduction %
2009 / 10	156,889	-	-
2010 / 11	152,171	4,718	3

7.4 It should be noted that there was, until 2010-2011, a consistent upward trend of carbon emissions from the County Council's operations. The challenge to the Team was first to arrest this continuing growth and then commence the delivery of year-on-year reductions through to 2015. Evidence from the latest data shows this is being achieved. However, it will take two to three years of annual monitoring to confirm that the reduction predictions in the Plan are on track for the end date.

8. Large Scale Solar Photovoltaic Programme

8.1. To date, over a dozen small scale PV arrays have been installed on a number of County Council buildings, in order to develop first hand knowledge of the installation process and to provide a test bed for the technology, a proof of concept. Careful monitoring of the systems has provided a detailed understanding of the installation requirements, performance, the maintenance required and electricity generation potential.

Although not individually substantial in scale, each installation has delivered in operation the predicted levels of energy generation resulting in a reduction in grid energy used by the building where the PV array is installed.

8.2. A study of the buildings in the Corporate (non-schools) estate has identified roof areas that could be suitable for the installation of solar PV. A further refinement of this study by a solar PV specialist surveying company has confirmed this data and has further informed the business case.

8.3. A proposal was approved by Cabinet in June to proceed with the procurement of a phased roll out of solar PV arrays to be installed on suitable roofs across the County Council's buildings (excluding schools) commencing with a first phase to be delivered by March 2012.

8.4. A phased roll-out will allow key options for installation to be kept open should there be changes in the financial background to the Feed In Tariff (FIT) scheme as a result of the Government's FIT review later in 2011, for example the number of buildings included, location, size of installation, timing and total amount of scheme undertaken.

8.5. Work is currently progressing with the technical, surveying, planning and procurement processes to enable the programme to be delivered early in the New Year.

8.6. Procurement is progressing using a national framework available to all local authorities for the provision of micro-generation technologies. The procurement programme is underway to be ready to let contracts with suppliers subject to the approval of the details of the projects by Cabinet on 24 October 2011 and funding being added to the Capital Programme at Full Council on 24 November 2011.

8.7. A wide cross-section of corporate buildings will be included in the programme, including offices, Adult Services homes, education study centres, libraries and other recreation facility buildings.

8.8. The Solar PV programme is one of a number of renewable and lower carbon energy initiatives that are currently being investigated and links to the development of an Energy Strategy for the Council.

9. Summary

9.1. The delivery of the Carbon Management Plan is progressing well and is on target to achieve the target of a 20% reduction in carbon emissions by 2015.

9.2. The County Council has achieved the aims of the 10:10 Initiative by reducing it's emissions from the non-schools estate by 10%.

9.3. The County Council has lodged their Footprint and Annual Carbon Reduction Commitment Energy Efficiency Scheme (CRC) reports with the Environment Agency.

9.4. The County Councils greenhouse gas emissions have reduced by 3% from 2009/10 to 2010/11.

10. Recommendations

10.1. That the Panel notes progress to date with the delivery and development of the Carbon Management Plan, the 10:10 Initiative, the Carbon Reduction Commitment and the first phase procurement of a large scale Photovoltaic Programme currently underway across the County.

CORPORATE OR LEGAL INFORMATION:

Links to the Corporate Strategy

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

Other Significant Links

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

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.)

Document	Location
None	

IMPACT ASSESSMENTS:

1. Equalities Impact Assessment:

1.1. No impact.

2. Impact on Crime and Disorder:

2.1. No impact.

3. Climate Change:

a) How does what is being proposed impact on our carbon footprint / energy consumption?

The Carbon Management Plan will reduce the County Council's carbon footprint by an estimated 26,300 tonnes over the five year life of the Plan.

Projects and programmes of work already in place are expected to achieve over half of the County Council's first carbon reduction target of 20% by 2015 after only year one of the plan. The remainder is planned to come from behavioural change programmes.

b) How does what is being proposed consider the need to adapt to climate change, and be resilient to its longer term impacts?

Reduced energy consumption and local generation of electricity would provide resilience of supply should there be an interruption to the mains supply through extreme weather events or other causes.