

Hampshire Fire and Rescue Authority

Finance and General Purposes Committee

Item 6

31 July 2012

Energy Efficiency and Carbon Management

Report by the Chief Officer

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1 Summary

- 1.1 This paper is in response to the Authority's request, at its December meeting, for a further report to the Authority, covering a programme of energy savings measures including their financial viability. It sets out options for tackling the Service's least energy efficient buildings.
- 1.2 The business case for the energy efficiency programme seeks agreement to establish a programme of works costing £1,177,661, with a projected saving of £286,322 per annum and 1371 tonnes of CO₂.
- 1.3 The paper also presents the Hampshire Fire and Rescue Service Carbon Management Plan which sets out a target to reduce carbon emissions from buildings and travel while reducing our exposure to rising energy and fuel prices. This sets a target for CO₂ reduction by 2016.

2 Recommendations

- 2.1 To approve the HFRS Carbon Management Plan including the target that:

"Hampshire Fire and Rescue Service will reduce the carbon emissions from its buildings and business travel by 30%, from a 2010-2011 baseline of 4670 tonnes CO₂, by the end of March 2016".
- 2.2 To agree to the inclusion of £1,177,661 in the capital and revenue programme for the broad programme of works identified in the Carbon Management Plan to be funded from the Department of Communities and Local Government (DCLG) capital grant with the balance being met from the Improvement and Sustainability Reserve.
- 2.3 To agree that works to the value of £377,661 should commence in 2012-13 pending confirmation of the outcome of the capital bids
- 2.4 To note the progress to date on delivering carbon saving projects.
- 2.5 To agree that progress on delivering the Carbon Management Plan should be

reported regularly to the Finance and General Purposes Committee.

3 Carbon Management Plan summary

- 3.1 In September 2011 the Authority Chairman and Chief Officer signed a statement of commitment on behalf of the Hampshire Fire and Rescue Authority, to develop a Carbon Management Plan. This plan has been circulated with the agenda.
- 3.2 The Carbon Management Plan (CMP) is the result of the Service's participation in the Carbon Trust Public Sector Carbon Management Programme. The CMP is a five year plan which includes projects and initiatives aimed at delivering a substantial cut in the Service's carbon footprint. The CMP explains what progress has already been made and how costs for further carbon saving projects will be met. This report seeks the approval of the CMP and the commitment of funding to deliver its target.
- 3.3 The CMP contains the target "Hampshire Fire and Rescue Service will reduce the carbon emissions from its buildings and business travel by 30%, from a 2010-2011 baseline of 4670 tonnes CO₂, by the end of March 2016".
- 3.4 Section 2.3 of the CMP contains a high level estimate of the expected consequences of doing nothing to reduce our carbon footprint compared to taking action and making a 30% cut. The graph indicating the financial consequences is provided below (Figure 1). The upper line shows the "do nothing" scenario compared to the lower line which would result from a 30% cut in all emissions. The area between the two lines shows a notional saving/cost avoidance over five years with notional savings/cost avoidance of £673,500 in the final year.

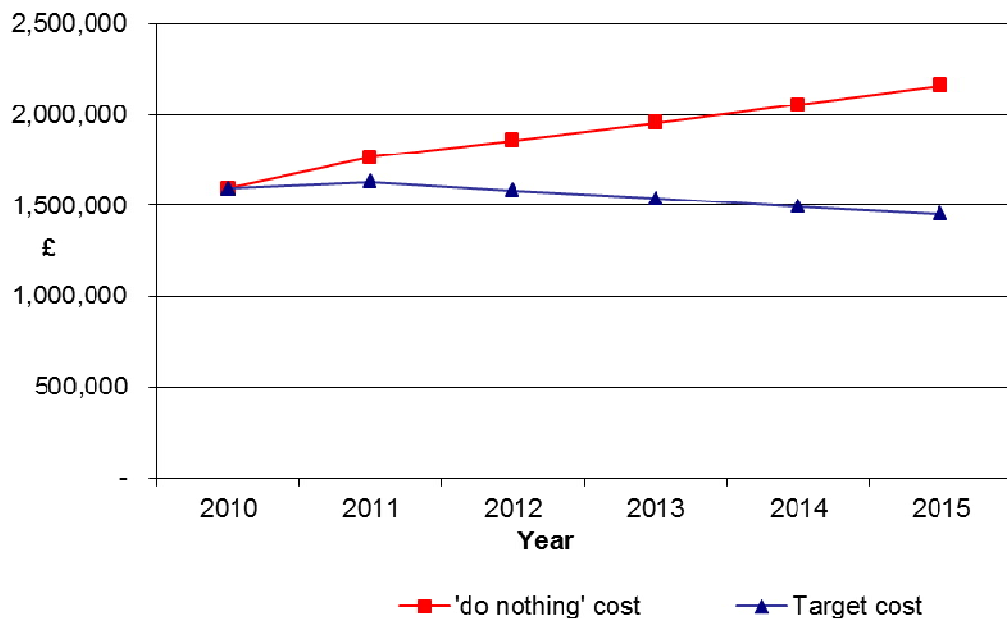


Figure 1 – Financial comparison between the "do nothing" scenario and a 30% target reduction in the carbon footprint.

3.5 However the graph does not represent the actual cost savings we expect to secure with the projects identified in the plan. This is because we are unable to make 30% cuts in our transport emissions by virtue of the nature of the service we provide. The savings and costs from specific projects, summarised in the following section, supersede this analysis.

Carbon savings identified in the CMP

3.6 In the CMP 245 tonnes of CO₂ savings have been estimated from existing projects; 34 tonnes of CO₂ from projects with funding secured but not yet started, and 1371 tonnes of CO₂ from new projects proposed for implementation in recommendation 2.2. This total saving of 1650 tonnes of CO₂ is above the 30% target saving of 1401 tonnes of CO₂.

3.7 However, under the ‘do nothing’ scenario emissions rise each year and the actual carbon savings required at the end of the plan need to be slightly more than 30% of the baseline. So by the end of the plan the CMP projects are predicted to provide an absolute 31.7% cut in carbon footprint from the baseline (i.e. 105% of the 30% reduction from the baseline). By including these effects we are trying to model some of the real life factors that may impact on our ability to meet our target. This is shown in Figure 2 below where the projected carbon saving in the final year is 78 tonnes of CO₂ better than the target emissions.

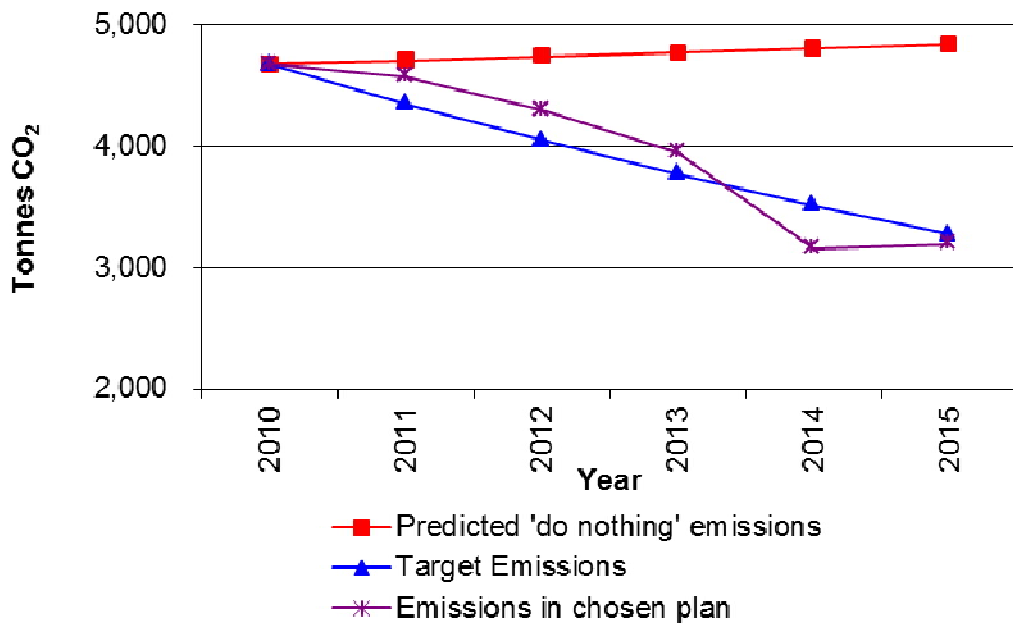


Figure 2 – Carbon progress against target

3.8 In the final year of the plan the existing and proposed projects produce estimated annual financial savings / cost avoidance of £355,525 and carbon savings of 1644 tonnes of CO₂. The overall payback period of all the projects in this plan is 7.5 years. If it proves possible to deliver more of the projects within the 2012 year rather than the 2013 year the benefits and savings would be felt sooner.

4 Energy saving measures and prioritisation

- 4.1 The majority of projects identified in the CMP are based on information taken from an “Invest to save in energy efficiency” report produced by Hampshire County Council (HCC) Property Services for the Hampshire Fire and Rescue estate. This report contains information on the relative efficiency of our buildings by benchmarking the energy use per square metre of floor area (benchmarking against other fire and rescue services has also been undertaken). A summary of the energy usage by station is given in Appendix 1.
- 4.2 The report also contains the outputs from a model of energy efficiency measures. Detailed information about energy efficiency opportunities (and savings from avoiding other maintenance costs) has been built up from surveys of representative fire stations and the Headquarters site. The model has scaled up the survey data to provide information on potential energy savings at all sites. The outputs of the model have then been analysed by both HCC engineers and HFRS facilities staff to ensure that the proposed efficiency measures are relevant and tailored to the specific circumstances of each individual site.
- 4.3 The projects in the CMP have gone through two stages of prioritisation, firstly within the Hampshire County Council model, then secondly within the Carbon Management Projects Register tool provided by the Carbon Trust.

The business case for investment

- 4.4 This report recommends a package of investment in carbon saving projects;
- Initial investment: £1,177,661
 - Saving per annum from energy and travel: £286,322
 - Tonnes of CO₂ saved per annum: 1371
 - Simple payback from savings: 4.2 years

The detailed information about this package of projects is contained within the appended and referenced reports.

- 4.5 Although the package has an overall simple payback of under five years there is considerable variation in the payback period of individual projects. The advantage of funding a coordinated package of work is that a combination of projects can be selected to provide a good overall payback and a large carbon footprint reduction. Some projects may have lower financial returns but show good potential for carbon savings – because of the range of prioritisation methods used they may still be selected and given high priority.
- 4.6 The package of projects has been sized to ensure that the targets can be met using the most financially attractive projects. This includes the “Rationalisation of Air Handling Units”. This project is timely because it complements the major refurbishment of the control room at Service Headquarters which will take place during 2012-2013. The existing control room has temperature controlled air supplied by an air handling unit estimated to be more than 30 years old. This unit

is likely to need replacement and it causes the minimum of disruption to do so during the refurbishment of the control room. This allows a modern more energy efficient system to be installed to maintain a comfortable working environment in the refurbished control room.

5 Implementation of the Carbon Management Plan (CMP)

- 5.1 The CMP is a dynamic document and the scope, prioritisation and phasing of the projects is expected to change over the duration of the plan. After more detailed survey and cost analysis projects may be extended or reduced and evaluation of pilot installations may result in decisions not to continue or to develop new or hybrid projects.
- 5.2 The ongoing monitoring of project costs and benefits will be critical to ensuring the CMP delivers the expected energy/transport savings as well as the substantial cut in carbon footprint. Section 6 of the CMP describes the arrangements for the management of the CMP projects. This monitoring will continue throughout the period of the CMP and will be reported regularly to the Finance and General Purposes Committee as part of their oversight of the Service Plan 'Environment' priority
- 5.3 Although the projects in the current CMP are expected to provide sufficient savings to exceed the target there are a number of project areas where further savings have provisionally been identified. Subject to expected progress (both financial and CO₂) these areas could be developed further to allow a further target reduction to be set during one of the annual reviews of the CMP.
- 5.4 It is anticipated that further savings could be identified from the following areas:
- transport projects as the initial savings estimates were cautious.
 - further energy efficiency projects – possible projects that meet the investment criteria and could deliver an additional 140 tonnes of CO₂ for a capital investment of £345,481. Some additional projects (which do not meet our investment criteria) are also likely to be implemented because they are required purely for maintenance reasons and will therefore provide some further energy savings which have not been planned e.g. some further double glazing projects; flat roof insulation and boiler replacements are likely to fall into this category.
 - Investment in renewable or low to zero carbon (LZC) technologies such as solar PV, solar thermal, and ground source heat pumps. Some of these are likely to be incorporated into the rebuilding of Basingstoke Fire Station or retrofitted to other large sites such as Headquarters.

6 Behaviour change and the CMP

- 6.1 The CMP is not only about physical changes to buildings but also the embedding of carbon reduction activities throughout the organisation. This embedding of carbon management in the way the organisation works and makes major

decisions is essential for ensuring that the Service meets its targets and is able to continue identifying further improvements. This is explained in the change management action plan in section 5 of the CMP.

- 6.2 Every carbon saving project has a behavioural element and the growing network of staff volunteer Environmental Champions will support the mobilisation of our staff to get the most out of each efficiency project. The importance of behaviour is illustrated by the predicted 87.4 tonnes of CO₂ savings (saving around £16,664 per annum) included in the CMP from targeted energy awareness campaigns which will be carried out using the improved electricity and gas data from the automatic meter readers which have been installed during 2011-2012.

7 Supporting our corporate aims and objectives

- 7.1 The work on reducing our energy consumption and carbon footprint directly supports our 'environment' and 'resources' priorities in the Service Plan and the corporate objective "We will use energy more efficiently at our buildings".

8 Risk analysis

- 8.1 The predicted savings in the CMP are based on assumptions about fuel price inflation. These have been researched from Hampshire County Council Property Services, Carbon Trust publications, and guidance provided through the Service's participation in the Carbon Trust's Public Sector Carbon Management Programme. They are considered robust but the risk of projects failing to deliver full savings cannot be completely removed. It is considered that the risk of failing to invest in energy efficiency projects is much greater; with the Service fully exposed to rising energy and transport costs.

9 People Impact Assessment

- 9.1 The proposals in this report are considered compatible with the provisions of equality and human rights legislation.

10 Resource implications

- 10.1 Human Resources

Delivery of the CMP will involve the management of a significant programme over a five year period. Reporting to the Head of Facilities, the Environmental Impact Project Coordinator will be the project manager for this programme. This will be supported by the Property Services Manager, Fleet & Fleet Maintenance Centre (FMC) Manager and Procurement and Supplies Manager as well as the engineering team from Hampshire County Council Property Services. The Environmental Impact Project Coordinator will be responsible for commissioning projects that meet the investment criteria. These will then be procured using the appropriate strategy and handed to the Property Services Manager or Fleet and FMC Manager for delivery. The project team will then be responsible for measuring, monitoring and realising the benefits of the selected measures.

10.2 Financial Implications

This report recommends an investment of £1,177,661 in energy and transport efficiency on an 'invest to save' basis. The Authority has submitted a capital bid for £0.8m in respect of this programme. The balance of £377,661 can be met, as previously envisaged, from the Improvement and Sustainability Reserve. The position will need to be reviewed later in the year when the outcome of the capital bids are known.

- 10.3 Regular monitoring of the extent to which the estimated savings are being delivered will be used to adjust the detailed programme of work to ensure priority is given to project types which have proven successful. This will help to ensure that overall savings remain at expected levels or better and the savings are available for reinvestment in further projects.

11 Background papers

- 11.1 The following documents disclose the facts or matters on which this report, or an important part of it, is based and has been relied upon to a material extent in the preparation of the report:

Hampshire Fire and Rescue Service Carbon Management Plan

Note: The list excludes: (1) published works; and (2) documents that disclose exempt or confidential information defined in the Act.