

Hampshire Fire and Rescue Authority

Finance and General Purposes Committee

Item: 13

29 January 2014

Carbon Management Programme

Report by the Chief Officer

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1 Summary

- 1.1 This paper seeks to extend the Authority's investment in the reduction of carbon emissions and updates Members on the progress in delivering the Carbon Management Programme.
- 1.2 Having commissioned a range of energy efficiency measures which are forecast to deliver an acceptable return on investment, it is now proposed to invest in renewable energy sources using solar photovoltaic panels which will also provide an acceptable return.

2 Recommendations

- 2.1 The Committee is invited to note the progress to date in delivering the energy efficiency projects identified in the Carbon Management Programme.
- 2.2 The Committee recommends the Authority commits £1,071,047 from the Improvement and Sustainability Reserve for investment in renewable energy sources.

3 Introduction and background

- 3.1 In December 2011 the Authority considered a report on a number of initiatives being taken to reduce energy costs and carbon emissions. This report included an appraisal of solar photovoltaic systems but recommended that no immediate action be taken, given the absence at that time of a financially viable business case.
- 3.2 The Authority requested a further report which covered the financial viability of all appropriate energy saving measures and this was considered in July 2012. An investment of £1,177,661 was agreed, funded from the Improvement and Sustainability Reserve, for the broad programme of works identified in the Carbon Management Plan.
- 3.3 In July 2013 this Committee considered a progress report and noted that £566,000 of energy efficiency projects had been commissioned.

4 Energy efficiency projects

- 4.1 HCC Property Services has completed detailed surveys of all 51 sites and have produced site specific calculations with forecast costs and savings. The measures producing the required financial and carbon savings have been authorised and this will result in the commissioning of £921,849 of energy efficiency projects.
- 4.2 It is forecast that these projects will deliver a financial saving of £115,867 in 2014/15 (based upon the confirmed 7% increase in energy prices) together with savings of 613 tonnes of carbon dioxide (CO₂).
- 4.3 A number of energy efficiency measures did not meet the investment criteria. Opportunities will be sought within the maintenance programme to incorporate these measures as part of other works packages.

5 Renewable energy

- 5.1 The capital costs of renewable energy have reduced significantly. So the Service has again commissioned HCC Property Services to produce an outline business case for the installation of solar photovoltaic panels (Solar PV). This aligns with the original strategy of delivering energy efficiency measures before considering alternative energy sources.
- 5.2 Solar PV is considered to be the renewable technology which is most developed in terms of the competitive market and is most likely to produce financial and carbon savings with very low on-going maintenance. Installations can benefit from the Feed-In Tariff (FIT) scheme which is a government subsidy programme designed to promote the uptake of a range of small scale renewable and low carbon electricity generation technologies.
- 5.3 HCC Property Services has developed a model for the HCC estate which has been validated externally and financially verified internally. This model has been used to assess the HFRS estate.
- 5.4 The tariff structure is complex and the higher tariff is limited to a maximum of 25 sites, assuming they meet minimum energy performance standards. The following criteria have been input to the model, to secure optimum financial benefits while ensuring that the electricity generated is consumed on site (the tariff for exporting electricity is only one third of that for electricity used).
- 5.5 A group of solar PV panels is known as an array. Array size is generally measured in Kilowatt peak (kWp) - the output power achieved under full solar radiation.
- Array size capped on retained stations at 4kWp
 - Array size capped on whole time stations at 50kWp
 - Array sizes capped at 150kWp for the Headquarters building and the Fleet Maintenance Centre / Stores building

- 24 sites will achieve the higher tariff (Winchester already has solar PV)
- Annual electricity price increase of 5%

Further background on the model is provided in Appendix A.

- 5.6 Based on a desktop study (not site surveys) 23 sites have been included in the model (excluding Basingstoke and Winchester). The anticipated investment, including fees, is £1,071,047.
- 5.7 The model forecasts net savings in year 4 (2017/18) of £124,000. This is made up of £62,000 in electricity not purchased and £62,000 income from the Feed-In Tariff. Under current legislation this tariff will continue for a period of 20 years but continuation of this should be recognised as a risk. Approximately £13,000 pa is expected from electricity export income (this is automatically paid for installations under 30kWp) but this will be offset by the additional maintenance costs of the installations.
- 5.8 The above provides a 9 year simple payback, with an internal rate of return of 7% when applying whole life costs over 25 years. This also provides annual savings of 321 tonnes of carbon dioxide (CO₂). Exempt Appendix B contains summary figures from the model for the recommended investment, and a specific example for one site.
- 5.9 If approved, the procurement phase of this work will include detailed site surveys and cost analysis, to confirm the most favourable locations and optimum array sizes.

6 Supporting our corporate aims and objectives

- 6.1 The work on reducing our energy consumption and carbon footprint directly supports the 'Assets and Money' priority in the Service Plan and the previous corporate objective "We will use energy more efficiently at our buildings".

7 Risk analysis

- 7.1 The solar PV model involves assumptions of energy price inflation. Varying inflation in the model (between 3.5% and 10%) has shown it is not material to the business case.
- 7.2 The model makes assumptions about installation dates, as every quarter the Government reviews subsidies against national volumes of panel installation (referred to as 'degression'). Varying the installation period between quarter 3 and 4 in 2014/15 has shown it is not material to the business case.
- 7.3 The model assumes all sites achieve the 'higher rate' Feed-In Tariff, a requirement of which is the building achieves an energy performance certificate (EPC) rating of D or better. While EPCs have not yet been commissioned (this would be part of the procurement process) we are confident the current investment in the energy efficiency of the estate will deliver the required energy performance ratings.

- 7.4 A significant risk to achieving the forecast savings is a change in Government policy, which would impact upon the level, duration or existence of subsidies. To date the Government has made no retrospective changes to subsidy rates for registered installations. Their stated approach is to vary subsidies by degeneration of rates for new installations and not to alter the subsidies for existing arrays. In the event of the complete removal of the existing scheme, the Service would still make savings from not purchasing electricity generated by their arrays and could explore contracts for sale of any surplus energy to the grid.
- 7.5 The Service continues to be exposed to the impact of rising energy costs, at a time when it must identify on-going savings to protect frontline services. This investment in renewable energy will make a significant contribution to achieving both financial and environmental savings targets.

8 People Impact Assessment

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

9 Resource implications

Human Resources

- 9.1 The investment figures allow for professional fees for HCC Property Services to manage the procurement and delivery phases; and for the cost of long term maintenance to be included in existing building maintenance contract arrangements.
- 9.2 Any additional meter readings necessary for the claiming of Feed-In Tariff receipts will be made using existing resources.
- 9.3 Governance of this investment will be through the Carbon Management Programme by the existing Carbon Management Programme Board.

Information and Communications Technology Resources

- 9.4 The modelled investment in renewable energy sources includes the cost of equipment for appropriate monitoring of generated power, and its maintenance.

Financial Implications

- 9.5 This report recommends an investment of £1,071,047 from the Improvement and Sustainability Reserve for investment in renewable energy sources; on an 'invest to save' basis. The investment provides a 9 year simple payback, with an internal rate of return of 7% when applying whole life costs over 25 years. The model forecasts net savings in 2017/18 of £124,000; which is indicative of the ongoing savings from the investment. This will contribute to overcoming the budget shortfall anticipated in that period.

10 Background papers

10.1 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:

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