

HAMPSHIRE COUNTY COUNCIL

Report

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| Committee/Panel: | Buildings Land and Procurement Panel |
| Date: | 27 June 2017 |
| Title: | Energy and Carbon Management Programme Update |
| Report From: | Director Culture, Communities and Business Services |

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1. Introduction

1.1. In 2010, the County Council's Cabinet approved the Carbon Management Strategy. This set out targets for the short, medium and long term as follows:

- Phase 1: Short term 2010–2015 20% reduction (target exceeded)
- Phase 2: Medium term 2015–2025 40% reduction (on target to exceed)
- Phase 3: Long term 2025-2050 Carbon neutral

1.2. This report updates Members on progress towards delivering these targets and describes a series of Energy Programmes which have successfully exceeded the Plan to date, delivering significant energy cost reductions.

1.3. The report also recommends further Phases of Energy Programmes, taking particular advantage of technological developments, and which can be funded from budgets set aside for this work.

2. Carbon Management Strategy – Progress to date

2.1. Against a target of a 20% reduction in the first phase of the Programme running from 2010–2015, the following was achieved; exceeding the target by around 3%:

| Phase 1: 2010 – 2015 | |
|-------------------------------|---------------------|
| Carbon reduction target | 20% |
| Carbon Reduction Achieved | 22.8% |
| Carbon emissions in 2010 | 131,800 tonnes |
| Carbon emissions in 2015 | 101,750 tonnes |
| Energy Cost saved over period | £29m (over 5 years) |
| Carbon Tax saved over period | £200,000 |

2.2 In June 2016, the Panel supported recommendations from the Director of Culture, Communities and Business Services to focus Phase 2 of the Carbon Strategy on buildings in the Corporate Estate, street lighting and officer travel.

2.3 Phase 2 of the Programme from 2015–2025, aims to reduce 2010 levels by 40% and progress in the first year of the Plan were as follows:

| Phase 2: 2015 – 2016 | |
|-------------------------------|------------------------|
| Carbon reduction target | 40%(from 2010 levels) |
| Carbon Reduction Achieved | 35.8% |
| Carbon emissions in 2015 | 54,200 tonnes |
| Carbon emissions in 2016 | 34,813 tonnes |
| Energy Cost saved over period | £900,000 (over 1 year) |
| Carbon Tax saved over period | £70,000 |

2.4 Members need to be aware that these figures are not weather corrected and exceptionally mild or cold winters will affect the energy use and carbon emissions. It is therefore more appropriate that the data trend is considered over a number of years, rather than taking a single year in isolation.

Progress for the 2016/17 Energy year will be reported to a future meeting of the Panel once analysis of meter data is concluded.

Carbon reduction activities update

2.5 In order to continue the downward pressure on energy use and carbon emissions, the Director of CCBS has developed and delivered a number of programmes of work across the corporate estate.

2.6 Programmes of work to install LED lighting, improve draught proofing and insulation levels across the corporate estate – Energy Performance Programmes (EPP) Phases 1 & 2 – have been successful in helping to reduce energy consumption and lower carbon emissions. Building on these Programmes, EPP Phase 3 is being designed and delivered and is taking advantage of Salix Loan Funding to maximise the impact of the Council's investment.

The following table summarises the projected outcomes of Phase 3:

| EPP3 Phase 3 expected outcomes | | | | | |
|---------------------------------------|----------------|---------------|---------------------------|------------------------|-----------------------|
| Total investment | HCC Investment | Salix Funding | Carbon Reduction (tonnes) | Energy Saved (kWh p.a) | Energy Cost Reduction |
| £737,000 | £365,000* | £352,000 | 366 | 840,000 | £83,000 |

*This is a combination of Energy Fund (£250,000) and Policy and Resources Capital

Solar PV Programme

- 2.7 The County Council has installed, or plans to install, a total of 63 arrays generating around 890,000 kWh with energy savings of approximately £98,000 and a reduction in carbon emissions of 475 tonnes per annum. These comprise the following:
- Corporate Buildings: 21 arrays generating around 460,000 kWh p.a. funded from a £1m solar PV budget previously approved
 - Schools (New builds and major extensions): 22 arrays complete or in progress, generating around 230,000kWh p.a.
- 2.8 In addition to the cost savings, the County Council will receive revenue from Feed in Tariffs of around £40,000 per annum. This is being used to offset resource costs to manage the on-going programmes of work.
- 2.9 The Director CCBS has also supported the Eco-Schools PV Programme to install 20 arrays generating around 200,000 kWh p.a. helping these schools to lower their energy bills and reduce their carbon footprint.

Support to schools

- 2.10 The Director of CCBS launched a Schools' Energy Performance Programme in the autumn term which has already generated substantial interest from schools across the County. Like some of the corporate EPP Programmes, this will be funded entirely through the Salix Loan scheme with no capital investment required from schools. The loan will also cover the professional fees for the design, delivery and programme management. The type of work undertaken will be similar to that of the EPP projects in the corporate estate, but the less onerous payback parameters applied by Salix for schools will increase the number of measures which are viable.

Corporate Solar PV

- 2.11 Following the substantial reduction in the Feed in Tariff in January 2016, the business case for solar PV has been adversely affected with payback periods extended to over 12 years from around 8 - 9 years for larger arrays prior to the cut in tariffs. Consequently, the market has taken some time to adjust and officers are reviewing the business case in the context of the reduced tariff and the market development. Members are reminded that, in terms of return on investment, solar PV is a lower priority now the Feed in Tariff has been reduced and the cost per tonne of carbon saved was always less efficient than an Energy Performance Programme (EPP), for example.

3 Proposed Future Energy Programmes

- 3.1 Since the last meeting of the Panel, the Director of CCBS has progressed a number of feasibility studies and outline business cases on the following:
- A further major phase of LED lighting replacement in the corporate estate
 - The provision of a network of Electrical Vehicles (EV) charging points
 - The phased replacement of the existing fossil fuelled fleet of County Council vehicles with electric
 - Investigation and feasibility studies into the use of innovative Battery Storage Technology
- 3.2 A fund for Energy Programmes has been set aside and was originally identified for investment in a District Energy Project in Winchester. Subsequently, a significant amount of feasibility work was undertaken but the inability of public sector partners to commit to the project made it unviable and it was set aside until the position changed. Currently, there is still no change in the position and it is therefore proposed to make use of this fund to invest in viable programmes which will:
- Deliver significant revenue savings in energy and fuel use contributing to much needed cost reductions on a recurring basis
 - Provide a Return on Investment (RoI) that is within acceptable timescales
 - Demonstrate the County Council's leadership in the field of energy management and carbon reduction
 - Grow the County Council's expertise in this sector, enabling opportunities to provide traded services to other public organisations
 - Make contributions to reduce fossil fuel use, lower carbon emissions and cleaner air
- 3.3 It is recommended that two further Phases of Energy Programmes are progressed committing £2.80m of the remaining £3.83m Energy Fund from Policy and Resources budgets.

4 EPP Phase 4

- 4.1 Phase 4 of the EPP Programme is at the feasibility stage. It is recommended that the professional resources continue to be committed to this work funded from the Energy Budget and 30,000 revenue costs are made available to the Director of CCBS.
- 4.2 £1.72m is recommended from the Policy and Resources Energy Budget to fund a programme of LED lighting replacement and the provision of EV charging points.

LED Lighting Replacement

- 4.3 LED lighting technology has advanced considerably and costs of purchase continue to fall. Early phases of lighting replacement in the corporate estate have proved to be very effective with energy reductions of up to 70% achieved. The estate currently has an array of aging light fittings which are inefficient and require regular costly maintenance. It is proposed to undertake a comprehensive programme to replace up to 75% of the existing fittings. An outline business case demonstrates that for an estimated investment of £1.62m there will be:
- 1.4m kWh of energy saved per year
 - 750 tonnes of carbon emissions reduction
 - Total revenue savings of over £240,000 per year from both energy reduction and reduced maintenance costs
 - A simple Return on Investment (RoI) of around 6.6 years
- 4.4 The benefit of undertaking a comprehensive programme is that the more costly replacements can be balanced against the more economic ones to deliver a viable average RoI.
- 4.5 As with previous phases of EPP, the potential use of Salix Loans will be considered where feasible. For this to be applicable, the RoI must be less than 5 years.

Electric Vehicle (EV) Charging Points

- 4.6 The Panel has endorsed a feasibility study for a network of EV charging points. A formal market enquiry was published in February 2017 to gather intelligence from suppliers and investigate options for operation and ownership. A sustainable network of EV charging points is an essential step in supporting the switch to electric vehicles from fossil fuel power. The Council can take a lead in this technology and has land and assets across the County which are well located.
- 4.7 It is proposed to use a combination of Council funding and private sector investment to increase the deployment of charge points. An income will be derived from use which will return the initial investment to the Council. The risk and liability of the charging points will be placed with the supplier and an income will be achieved from profit sharing and a small tariff from other public sector organisations accessing the network.
- 4.8 A number of other public bodies have expressed an interest in using the network and it is proposed to procure a framework to facilitate additional charging points across Hampshire and, potentially, neighbouring Authorities.
- 4.9 It is recommended that the County Council commits £100,000 as its share of the investment. An outline business case demonstrates this will:

- Deliver around 40 new charging points (in addition to the 14 already owned by HCC)
- Provide an average annual revenue income of around £24,000
- Deliver a Return on Investment of around 8 years

5 EPP Phase 5

- 5.1 A further phase of energy projects are at an earlier stage of development. It is recommended that the professional resources continue to be committed to these and that the work is funded from the Energy Budget. Revenue costs of £50,000 from the Cost of Change funding are requested for the Director of CCBS to advance design and procurement of Electric Vehicles and Battery Storage Programmes.
- 5.2 A further £700,000 is recommended from the Energy Budget to be committed by the Director of CCBS in consultation with the Executive Member for Economic Development as costs and timescales become firm.

Electric Vehicles

- 5.3 It is proposed to convert the County Council's fleet of vehicles from diesel to electric on a phased basis and where economically viable to do so. This will follow on from the provision of charging points in EPP Phase 4.
- 5.4 The time is now right to embark on an EV Programme as the investment costs and significant fuel price savings make an economically compelling case. The Council has over 500 operational vehicles. Currently, the larger vehicles are not yet suitable as the purchase price for an EV equivalent is prohibitive compared to conventional diesel. However, the fleet of smaller vans and cars consisting of 156 service vehicles and 23 shared pool cars are suitable.
- 5.5 Significant feasibility work and market research has been undertaken leading to the preparation of an outline business case. It is recommended that £300,000 funding is committed from the Energy fund for Electric Vehicle leasing, together with £30,000 of revenue from the Cost of Change funding for the Director of CCBS to manage and establish the projects.
- 5.6 Market research has identified that the current lease costs of diesel and electric are comparable. It is the significant fuel saving that makes the business case so compelling. An Electric Vehicle costs around 97% less to 'fuel' than an equivalent diesel. An initial investment of £300,000 in 179 vehicles is estimated to deliver over £210,000 of revenue savings every year. The simple Return on Investment is less than 2 years.
- 5.7 A number of events are planned to raise the profile of our EV Programmes including a conference for public sector organisations to meet the industry and learn more about current technologies. This is being hosted by the County Council on 03 July 2017.
- 5.8 In parallel with this programme of works, staff engagement and a communication plan is proposed. It is also proposed to introduce a

corporate standard for vehicle leasing to ensure that EV is the default requirement.

- 5.9 Notwithstanding the economic benefit of an EV fleet, there are also wider reputational and leadership opportunities together with contributions to reduced vehicle emissions and cleaner air.

Battery Storage Technology

- 5.10 The pace of innovation and technological change in this area is accelerating. Feasibility work is underway to ascertain where such technologies could be used to economic advantage and reduce revenue costs. It is recommended that further research and feasibility work is undertaken together with prudent trials of battery technologies to ascertain the technical viability and economic Return on Investment.
- 5.11 Smart tariffs for electric consumption are expected to be introduced in the future. Consumers will pay a higher cost for drawing power at peak times and, conversely, a lower cost for off peak. Battery storage allows for peaks to be smoothed by drawing power at lower cost and subsequently discharging either for direct use or into the grid at peak times.
- 5.12 It is proposed to develop two projects for battery storage:
- Local Battery Storage – this can be installed either in conjunction with existing Solar PV arrays to store surplus energy or to reduce energy costs by purchasing at off peak tariffs
 - Bulk Battery Storage – taking advantage of Smart Tariffs to purchase energy at lower cost and discharge it at higher cost. The difference between the two creates a saving and thereby a capital return on the investment. These can be accommodated in a building or subsequently connected to a sub-station adjacent to HCC assets.
- 5.14 It is recommended that £100,000 is committed for a local trial of storage in two locations and that, subject to a viable business case, up to £400,000 for local and £200,000 for Bulk Battery Storage is earmarked from the Energy Budget. Subject to a positive business case it is recommended approvals be delegated to the Director of CCBS in consultation with the Executive Member for Economic Development.

6. Recommendations

That the Buildings Land and Procurement Panel recommends to the Executive Member Policy and Resources that:

- a. Good progress on the Carbon Management Plan Phases 1/ 2 and the Energy Performance Programmes Phases 1-3 delivering estimated cost savings of £29.9m is noted.
- b. That £80,000 of resources from the Cost of Change fund is used to provide the necessary professional resources in Property Services to develop feasibility studies, designs and procurement strategies for Phases 4 and 5 of the Energy Programmes

- c. That £2.72m of resources is committed from the Policy and Resources Energy Budget to deliver:
- A further major programme of LED replacement lighting in the corporate estate
 - Installation of a network of Electrical Vehicle charging points
 - Conversion of the small vehicle service fleet and staff pool cars from diesel to electric on a phased basis
 - A programme of Local and Bulk Battery Storage subject to a positive business case and viable Return on Investment

The above is currently estimated to deliver an annual saving of at least £450,000 per year on a recurring basis.

- d. Approval be given to the procurement and spend in relation to the Energy Programmes in this report
- e. The Director of CCBS be given delegated authority to commit resources and let contracts for Phases 4 and 5 Energy Programmes in consultation with the Executive Member Economic Development
- f. The economic, social and reputational benefits of continuing to take a lead in design and delivery of innovative energy programmes is noted

CORPORATE OR LEGAL INFORMATION:

Links to the Corporate Strategy

| | |
|----------------------------------------------------------|--------|
| Hampshire safer and more secure for all: | yes/no |
| Corporate Improvement plan link number (if appropriate): | |
| Maximising well-being: | yes/no |
| Corporate Improvement plan link number (if appropriate): | |
| Enhancing our quality of place: | yes/no |
| Corporate Improvement plan link number (if appropriate): | |

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. Equality Duty

1.1. The County Council has a duty under Section 149 of the Equality Act 2010 ('the Act') to have due regard in the exercise of its functions to the need to:

- Eliminate discrimination, harassment and victimisation and any other conduct prohibited under the Act;
- Advance equality of opportunity between persons who share a relevant protected characteristic (age, disability, gender reassignment, pregnancy and maternity, race, religion or belief, gender and sexual orientation) and those who do not share it;
- Foster good relations between persons who share a relevant protected characteristic and persons who do not share it.

Due regard in this context involves having due regard in particular to:

- a) The need to remove or minimise disadvantages suffered by persons sharing a relevant characteristic connected to that characteristic;
- b) Take steps to meet the needs of persons sharing a relevant protected characteristic different from the needs of persons who do not share it;
- c) Encourage persons sharing a relevant protected characteristic to participate in public life or in any other activity which participation by such persons is disproportionately low.

1.2. Equalities Impact Assessment:

The proposals in this report will have no effect on groups with protected characteristics. Energy Programmes have the potential to improve the environment in buildings and reduce vehicle emissions to the benefit of staff and residents.

6 Impact on Crime and Disorder:

6.1 There is no impact on Crime and Disorder.

7 Climate Change:

7.1 The Carbon Management Programme continues to have a positive impact by reducing carbon emissions and energy consumption.