

REPORT TO SCRUTINY - RESOURCES

Date of Meeting: 29 September 2016

Report of: Corporate Manager Property

Title: An Energy Neutral Council – A Renewables and Energy Efficiency Programme Update

Is this a Key Decision?

No

Is this an Executive or Council Function?

n/a

1. What is the report about?

The report provides an update on the second year of the Renewables and Energy Efficiency Programme, feasibility work for a new programme of projects to commence in 2017/8 and the outcome of recently completed greenhouse gas emission data across all ECC operations in 2015/16.

2. Recommendations:

That Scrutiny Committee Resources note the progress made to date, the delivery of all projects included in year two of the Renewables and Energy Efficiency Programme and feasibility work underway for 2017/18.

3. Reasons for the recommendation:

This is an update report to Scrutiny Committee Resources

4. What are the resource implications including non financial resources.

The programme is delivered by the Energy Team, made up of two full-time posts and this level of resource continues to be supported.

All key projects in 2015/16 were successfully delivered before reduction of the government subsidy (FIT tariff) and introduction of local grid connection restrictions for solar PV. This is the result of the team's commitment and focus to ensure the best possible outcome for the Council, delivering identified projects on time, as well as securing the greatest financial return.

Developing an Energy Strategy, forward planning and further feasibility work, as well as the day to day energy management operation (monitoring and control), had to be put on hold to ensure delivery of 2015/16 programme. This work has re-started, however it is apparent that additional resource is needed. The capacity issue will be address in the Energy Strategy to allow project delivery and energy monitoring/ building management is carried out simultaneously.

In terms of the financial benefits of the programme, actual performance of previous PV schemes and savings made as a result of the work carried out by the Energy Team, can be seen in table format at the end of this report. The table lists new savings recently secured, however some large PV installations will not have run for a complete financial year, therefore predicted savings for 2016/17 are given. Income from energy savings and

FIT payments/export to the grid, have met expectations and the anticipated returns over the 20 year investment period are higher than initially projected. As new schemes within the programme are rolled out, it is anticipated that they will continue to deliver similar energy savings and income generation.

5. Section 151 Officer Comments:

The project continues to have a positive impact on the Council's budget position. The savings set out in the report have been included in the Council's budget and have reduced the need for savings that impact on frontline services.

6. What are the legal aspects?

There are no issues to raise on the content of this report.

7. Monitoring Officer Comments:

There are no issues to raise on the content of this report

8. Report details:

The report to Scrutiny Committee Resources on 16 March 2016 provided a summary of the full programme of work completed in year two of the Renewables and Energy Efficiency Programme. This report provides details of the last project to be completed at the Livestock Centre, further feasibility work planned for 2017/18 and Exeter's current position regarding consumption and emissions.

Livestock Centre Solar PV

The 1.5MW array installed in 2015 is thought to be the largest roof top array in the South West and is a significant addition to the Council's solar estate. The PV array provides a long term income stream, helping to secure a sustainable future for the Livestock Centre. In addition, the solar array involved substantial electrical works and included a separate High Voltage supply to the building. The separate supply completed in May provides the Council with the opportunity to supply electricity to all leaseholders within the building, via a Power Purchase Agreement. The benefits of this include the sale of discounted renewable energy to leaseholders, allowing for greater usage of energy generated on site and providing the Council with an additional income stream.

Year Three 2017/18 - Programme and Feasibility

The huge importance of the Solar PV projects in year two, and demand on what is a team of two, has inevitably delayed feasibility work. Nonetheless, initial business cases for work planned for year three of the programme are currently being prepared and below is a summary of potential projects identified for 2017/18:

Solar PV and Battery Storage

Large Solar PV

An opportunity to develop a 3.5 MW ground mounted PV array will take the authority closer to achieving Energy Neutrality. Previously a formal grid connection offer could not be authorised by WPD, having announced the grid was overloaded and

reinforcement work predicted to take 3 to 6 years. However, a further application to connect has recently been submitted after alternative works by WPD to remove the issue were announced. This is set to be completed 2018/19 and current correspondence from WPD indicates a connection requirement of a maximum 3059kW export will be supplied. Once a formal offer is received a business case can be developed.

Battery Storage

Battery storage will allow the Council to take control of solar energy use, providing many benefits, including reducing reliance on the grid at peak times and storage for use when needed outside of sunlight hours. Power generated by existing PV can be optimised where excess energy is exported. For example at Mary Arches and John Lewis Car Park, the excess energy could be stored to power lighting at night, providing a further energy bill saving. New savings can also be achieved where energy is needed predominantly outside of sunlight hours (such as for communal lighting), using batteries to store renewable energy generated in the day. In addition, the Livestock Centre array has the potential to supply direct to the grid at times of high demand, as well as utilising stored energy for its own use.

Battery storage is a fast developing technology and options available are being continuously investigated to ensure a viable smart solution is found.

Leisure Centres

Solar PV remains a feasible opportunity for three of our existing Leisure Centres, reducing operational costs and carbon emissions. This is supported by a recent Energy Survey of the Leisure Centres, and will be further investigated following a building condition survey which will identify centres where new roofs are required. An outline business case for this work will be prepared as soon as the information is available.

LED Replacement Lighting

LED has the potential to make for a robust business case where electricity use is high, reducing consumption and carbon, maintenance costs and providing improved lighting. Further sites currently identified include car parks at the Guildhall and Princesshay 2 & 3. Work will be actioned once a full condition survey of the car parks is complete.

Energy Monitoring – SMART Controls

Improved and new methods of energy and data monitoring will control energy usage through advanced scheduling and better control, optimising management of corporate buildings and in return lower energy bills. In addition monitoring is key to identifying where savings can be made and ensuring consumption information is made available so to feedback and work with the responsible building/service managers.

Advances in technology and communications are providing a more away from traditional Building Management Systems using smart controls that will better, engage building manager, reduce consumption and minimise costs.

Evaluation of opportunities and systems available, and the role of building managers is currently being investigated.

Energy Consumption and Emissions

Greenhouse gas emission reporting (previously a DECC requirement) involving calculating emissions and energy consumption for all Council operations, is a valuable measurement tool which we use to benchmark. The Energy Officer was unable to carry out this exercise in 2014/15, due to the demands of the Renewables Programme, however the exercise is now complete for both years 2014/15 and 2015/16.

The new data confirms overall CO2 emissions have fallen by 29% (since 2009) and overall consumption has declined. Yet there is a very small increase of 1.37% in carbon emissions in 2015/16 brought about by greater consumption in a number of services. Exact reasons are complex, and could include new energy hungry equipment, longer operational hours, inaccuracies of previous readings, or poor building management.

A presentation will be made at Committee to provide further details of the emissions report, the need for sound energy management across our estate, and the benefits delivered by energy saving schemes in operation..

9. How does the decision contribute to the Council's Corporate Plan?

The delivery of the programme is an essential part of the Council's capital programme over the coming years. The energy savings and income generated will assist us in our overall efficiency and income generating agenda, as well as contributing to the reduction of our carbon footprint, and making the city a more pleasant place to live and work.

10. What risks are there and how can they be reduced?

The programme has been approved and resourced in order to secure delivery of viable schemes. There will always be challenges to viability in this area as a result of changes in energy costs, the Feed in Tariff, structural building condition, etc. The mechanism we have put in place to approve business cases and their viability should ensure we do not embark on schemes that will not perform in accordance with our requirements.

Recent price changes in the energy market are noted, and to clarify what effect this may have on future and predicted savings of this work, an independent view is regularly sought from the Council's energy broker. The following updated guidance is given:

Gas and electricity prices remain volatile, and while the wholesale energy component of bills would be expected to have fallen year-on-year, we expect this to be mitigated or more than offset by an increase in non-wholesale costs – particularly in the case of electricity.

In terms of non-energy elements for electricity, these are expected to both increase in cost and also as a proportion of the total delivered rate in the coming year, with the same true for gas but to a lesser extent. The coming winter is likely to see challenges for the gas and electricity markets alike. as ever with the winter, the actual weather conditions seen in the season will be pivotal.

11. What is the impact of the decision on equality and diversity; health and wellbeing; safeguarding children, young people and vulnerable adults, community safety and the environment?

No decision is sought, but it should be noted that the reduction in the City Council's carbon footprint does go some way to improving, or at least mitigating, the adverse impacts of energy use on the environment.

12. Are there any other options?

The nature of the programme appraisal and approval arrangements are that the Energy Team is constantly considering alternative approaches and other avenues of investment in this area.

Michael Carson
Corporate Manager Property

Local Government (Access to Information) Act 1972 (as amended)

Background papers used in compiling this report:

None

Contact for enquires:
Democratic Services (Committees)
Room 2.3

Financial Benefits - Savings 2012 - 2017

2012/2013	Generation Income	Total Gross Saving
Water Saving Project		
2012/13 Savings		£23,025
TOTAL SAVING 2012/13		£23,025
2013/2014	Generation Income	Total Gross Saving
Water Saving Project		
2013/14 Savings		£20,420
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)		
Income & Savings	£24,512	£47,984
TOTAL SAVING 2013/14		£68,404
2014/2015	Generation Income	Total Gross Saving
Water Saving Project		
2014/15 Savings		£21,000

2014/2015	Generation Income	Total Gross Saving
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle) Income & Savings	£24,325	£50,728
Civic Centre LED Project		
Civic Centre (part)		£7,684
Hand Dryer Project		
Installation of efficient hand dryers & removal of paper towels		£5,200
Car Park LED Project		
LED bulb replacement - Cathedral & Quay Car Park		£14,720
LED bulb replacement - Harlequins Car Park		£5,450
LED light replacement - Mary Arches Car Park		£14,940
Car Park Total		£35,110
TOTAL SAVING 2014/15		£119,722
2015/2016	Generation Income	Total Gross Saving
Water Saving Project		£21,000
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)	£18,851	£37,851
John Lewis and Mary Arches Car Park PV (part)	£5596	£14387
Livestock Centre PV (part)	£4,175	£4,175
RAMM PV (part)	£677	£1,505
Quay Climb Centre PPA (part)	£602	£1,197
Wat Tyler House PPA (part)	£444	£802
PV Total		
Civic Centre		
LED lighting Project		£25,335
Hand Dryer Project		£5,200
Boiler Replacement		£22,832
Car Park LED Project		
LED bulb replacement - Cathedral & Quay Car Park		£14,720
LED bulb replacement - Harlequins Car Park		£5,450
LED light replacement - Mary Arches Car Park		£14,940
Car Park Total		£35,110
TOTAL SAVING 2015/16		£169,394

Total saving since 2012/13

£380,545

Predicted Savings for 2016/2017	Generation Income	Total Gross Saving
Water Saving Project		£21,000
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)	£19,937	£39,398
John Lewis and Mary Arches Car Park PV	£21,751	£45,178
Livestock Centre PV	£111,810	£146,692
RAMM PV	£1,593	£3,541
Quay Climb Centre PPA	£2,817	£4,652
Wat Tyler House PPA	£2,390	£4,040
PV Total		243,501
Civic Centre		
LED lighting Project		£27,335
Hand Dryer Project		£5,200
Boiler Replacement		£22,832
Car Park LED Project		
LED bulb replacement - Cathedral & Quay Car Park		£14,720
LED bulb replacement - Harlequins Car Park		£5,450
LED light replacement - Mary Arches Car Park		£14,940
Car Park Total		£35,110
PREDICTED TOTAL SAVING 2016/17		£354,978