

REPORT TO SCRUTINY - RESOURCES

Date of Meeting: 16 March 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?

This report provides an update on the Renewables and Energy Efficiency Programme work that has been undertaken during the second year of the programme and since the previous report to Scrutiny Committee Resources on 16 September 2015.

2. Recommendations:

That Scrutiny Committee Resources note the progress made to date, the delivery of all projects in year two of the Renewables and Energy Efficiency Programme and feasibility work planned for year three.

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 have been successfully delivered before reduction of the FIT tariff and introduction of local grid restrictions. 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 work, has been impacted by the sheer volume of work involved in the delivery of last year's programme. An additional resource to assist in addressing capacity issues is under review.

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 also lists new savings recently secured, and included in the last quarter of this financial year (31 March 2016). 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 predicted 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 September 2015 updated the Committee on the progress of year two elements of the Renewables and Energy Efficiency Programme. This report provides a summary of all work completed in year two, and photographs illustrating individual projects will be distributed at Committee. A brief comment is made on each individual project, recognition and acclaim received, and further feasibility work planned for 2016/17:

RAMM Solar PV

Following a long and difficult feasibility process, with many challenging structural issues to overcome, a Solar PV array was installed on the roof of the RAMM. The 26kW array not only produces energy and carbon savings, it also serves to help ensure the museum will comply with its funding criteria required by the Arts Council.

Canopy Solar PV (Mary Arches and John Lewis Car Park)

Extensive structural engineering and canopy design work resulted in the project start being delayed. Nonetheless the project was successfully completed in October 2015. This scheme is a pioneering initiative and one that will attract much attention, as this is the first carport system of its type in the UK. The two car park arrays each comprise 150kW systems, which provide for zero carbon car parks during the summer months, and together they jointly deliver an income in excess of £50,000 per annum. Additionally, the covered top decks (previously open) provide a more attractive parking environment, delivering service improvement, generating increased use and in return greater parking revenue.

Wat Tyler House Solar PV

The proximity of the above building to the John Lewis Car Park provided an opportunity to supply renewable electricity to ECVS, the leaseholder at Wat Tyler House. A Power Purchase Agreement (PPA) allows the City Council to sell surplus electricity at a reduced price securing a fixed income for the electricity generated. The surplus energy from the John Lewis PV array would otherwise have been exported to the grid, at an export rate less than the PPA charge. This is the Council's second PPA installation (see Climb Centre below), providing the opportunity to support the voluntary sector and local business, making for a stronger sustainable City.

Civic Centre LED Light Replacement

A large lighting replacement programme has been successfully completed. The original installations were combined where possible with planned office relocations, to minimise out of hours work and associated costs. All offices are now complete with only a few lift lobbies to finish before financial year end. The new lights have been well received, and improve the overall standard of office accommodation. The LED lights provide a more natural light and incorporate better controls; they dim and switch off completely when outside light levels are sufficient. The low wattage energy consumption reduces carbon emissions and will enable the council to cut the Civic Centre's electricity bill by over £32,000 per annum (including for reduced maintenance as a result of extended bulb life).

Civic Centre Boiler Replacement

The installation of new gas-fired boilers was completed in time for the new heating season, despite additional works resulting from the collapse of the existing flow and return pipe to Phase II. The extent of asbestos removal needed also added to the challenges presented by this project. Design work, procurement and specialist engineering advice was provided by North Somerset Council. The work also included for removal of the oil tanks to the rear of the Civic, providing further bicycle storage for staff. The efficient boilers and new pumps provide for an annual saving of £28,000, with the removal of oil delivering a 50% reduction in carbon produced.

Livestock Centre Solar PV

The project had to be developed swiftly to ensure the WPD connection offer was not lost in light of the grid connection restriction now in place, as did the work required for the replacement of the dilapidated roof sheets. In addition, significant cuts to the FIT tariff became apparent, making the completion of the project by 31 December 2015 vitally important. All elements of the PV installation was accelerated, with every effort focused on commissioning, which was achieved on 23 December. The 1.5MW array is thought to be the largest roof top array in the South West and is a significant addition to our solar estate. The PV array provided for a new roof and a long term income stream, helping to secure a sustainable future for the Livestock Centre.

Climb Centre Solar PV

Structural issues were overcome by using a specialist solar panel fixing system which allowed for the successful installation of a 29kw array supported by the leaseholder of what is the City's old Electricity Generating Station. This allowed for the Council's first power Purchase Agreement (PPA) which permits us to sell electricity at a reduced price to the occupant and to secure a fixed income for the Council, whilst supporting local business.

Recognition and Acclaim

LGC Finalist - Efficiency Award and Environment Award 2016, to be announced on Wednesday 16 March.

Regen SW Green Energy Awards - Best Renewable Energy Scheme - Highly Commended Finalist 2015

Public Sector Sustainability Awards Winner - Innovation Award 2015

Public Sector Sustainability Awards Winner - Best Energy Management 2014

Year Three 2016/17- Programme and Feasibility

The huge pressure to complete Solar PV projects in year two, and demand on what is a team of two, has inevitably restricted feasibility work. Nonetheless, work identified in advance of year three has now commenced and below is a summary to date of the potential projects identified for 2016/17.

Feasibility - Solar PV Field

An opportunity to develop a 3.5 MW ground mounted PV array, providing a substantial long term income stream and generation of renewable energy, so taking the authority closer to achieving Energy Neutrality. Unfortunately, whilst a formal grid connection offer has been made by WPD, this cannot be authorised until the grid restriction is lifted. Earlier this year WPD advised that a critical 132 kV line, from Bridgwater to the Bristol docks area, has reached full capacity and as a consequence a delay of 3-6 years will be included in new connection offers for all generation projects seeking to connect to the grid requiring works at High Voltage (HV) level or above. The restrictions apply to all of the WPD south west region below Bristol and Bath.

Whilst other factors still need to be overcome, including FIT tariff cuts, essentially if a solution to the grid constraint were found, the project could be a viable one.

Solar PV and Battery Storage

Energy storage instantly offers many benefits to our estate, allowing energy to be generated and stored for use when needed outside of sunlight hours. Power generated by existing PV could be optimised where excess energy is exported. For example at Mary Arches Car Park, the excess energy could be stored to power lighting at night, providing a further energy bill saving. New savings could also be achieved where energy is needed only outside of sunlight hours (communal lighting), using batteries to store renewable energy generated in the day to be consumed in the night time.

It is clear that energy storage has the potential to optimise use of Solar PV, including the supply of power off grid. Potential sites where storage technology should be tested include the Solar Canopy Car Parks, Livestock Centre, and Housing and non housing communal areas. Further investigation is needed and viable projects will be reported back in September.

Leisure Centre Solar PV and LED lighting

This opportunity for energy saving LED projects and Solar PV is evident, and this will be explored further as soon as the Leisure Feasibility Review confirms the long term future of the assets. It should be noted that, the condition of the roof at both the Riverside Leisure Centre and the Isca centre would have to be improved/replaced prior to PV installation.

Further LED Light Replacement

High electricity users where LED has the potential to make for a robust business case include the RAMM, Guildhall Car Park, Princesshay Car Park 2 and 3.

Energy Monitoring

Better and new methods of energy and data monitoring will control energy usage through advanced scheduling and better control, optimising best use of 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 to exactly the right service managers/users.

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, 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 what effect this may have on future and predicted savings of energy saving schemes. An independent view is regularly sought from the Council's Energy Broker. The following updated guidance is given: Looking forward the electricity market remains sensitive to power outages and we have seen increases in what are described as taxes and levies, they now account for 60% of each kwh charged. Natural gas prices were buoyed at the start of the year, however contracts are trading at a six year low.

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.

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

Background papers used in compiling this report:
None

Contact for enquires:
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Financial Benefits - Savings 2012 - 2015

2012/2013	Generation Income	Gross Saving
Water Saving Project		
2012/13 Savings		£23,025
TOTAL SAVING 2012/13		£23,025
2013/2014		
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		
Water Saving Project		
2014/15 Savings		£21,000
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

Financial Benefits - Projected Savings 2015/16

2015/2016	Generation Income	Gross Saving
Water Saving Project		
Savings		£21,000
PV Arrays (Civic, Ark, MRF, Oakwood, Belle Isle)		
Income & Savings	£24,811	£48,633
Civic Centre LED Project		
Civic Centre		£32,184
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
NEW PROJECTS :		
Car Park Canopy PV (part estimate)	£8,600	£18,660
Civic Boiler Replacement		£28,000
RAMM PV (part estimate)	£1,302	£2,778
Livestock Centre PV (part estimate)	£10,164	£22,908
Quay Climb Centre (part estimate)	£1,207	-
PROJECTED TOTAL SAVING 2015/16	£46,084	£214,473