



<u>Committee and Date</u>
Environment & Services Scrutiny Committee
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<u>Item</u>
8

Development of Sustainable Energy

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1. Summary

Shropshire Council has undertaken and continues to explore opportunities in the arena of sustainable energy. The update within this report provides information of the work that has been achieved as well as future opportunities that may be available.

This paper sets out the work undertaken in a number of distinct areas, these include the following:-

1. Community Energy, the area of energy supply and commercial energy
2. The generation of energy through sustainable technologies added to the Council's buildings or standalone on the Council's land
3. The investigation of the potential for heat networks
4. Renewable electricity supply
5. Metering and monitoring

2. Recommendations

- a. Members are asked to scrutinise the contents of the report and request further feedback in the autumn 2016.

REPORT

3. Risk Assessment and Opportunities Appraisal

3.1 The approach to explore energy supply and commercial energy opportunities through the Invitation to partner process could offer innovative approaches to achieve specific ambitions for the Council including:

- Adding value to the Council's offer to customers and tax payers
- Addressing need and providing social and economic solutions to Shropshire Communities e.g. address fuel poverty, improve poor housing conditions to reduce health and social impacts etc.
- Addressing environmental issues e.g. reduced carbon emissions, support community energy projects, heat networks etc.
- Income generation to Shropshire Council
- Delivering savings through energy efficiencies
- Stimulating economic development and regeneration
- Reduction in CO₂ emissions

3.2 The preparatory work required in association with Solar PV and Heat can lead to abortive fees should potential schemes not be feasible. Costs encountered could include prohibitive connection costs to the network. Recent experience would suggest that planning remains one of the biggest risks for solar PV.

3.3 There are a number of risks in any Energy services market initiative including a highly competitive market, the demonstration of added value and the ability to secure a share of the market locally.

3.4 The Heat Networks study will provide initial mapping results and approaches which will be tested and explored further prior to taking any work forward. Costs of creating the network can be prohibitive.

3.5 There are no adverse impacts in terms of Human Rights expected from the open Invitation to partner process relating to the energy supply opportunities or the undertaking of the Heat Networks study.

3.6 No one with characteristics defined and protected under the Equality Act shall be adversely affected by the Invitation to partner opportunity or the Heat Networks study. As part of the open invitation process, innovative propositions beyond the role of energy supply will be considered which could support social and economic solutions.

3.7 As per the Social Value Act, any proposals relating to energy supply will be required to consider social value that may generate self-sufficient and sustainable benefits to the local community, society and the economy, in particular the local economy, whilst also minimising damage to the environment.

3.8 No adverse impact on the environment is expected. As part of the open Invitation to partner process, innovative propositions beyond the role of energy supply will be considered which could support the environment and the low carbon agenda.

4. Financial Implications

4.1 Our installation of Solar Voltaic Panels has allowed us to make revenue savings of £276k in Utility costs and £450k from the Feed In tariff over the 4 years in which they have been installed (as shown in the table below).

4.2 The initial financial appraisals for the future developments in solar farms show a potential cost for Sleaford Tip of £4.25m and Maesbury Tip of £2m over their 20 year life they are expected to yield a profit of £4.7m and £2.5m respectively. There remains a risk that both the connection costs and site size could still be prohibitive to creating a viable scheme.

4.3 The costs relating to the Heat Networks study are minimal. The original mapping work for the identified sites has been funded by the Department of Environment & Climate Change (DECC) and the Marches LEP Technical Assistance project. The additional study work has secured 67% funding from DECC and the remaining match of £2,689.50 will be met by Shropshire Council from funds already identified within the budget.

4.4 The costs relating to energy supply opportunities are minimal and are associated with developing the process for generating a new income stream. External legal advice to investigate the options for delivery are estimated to cost up to £3000, subject to the range of options put forward for consideration. This will be found within existing budgets.

4.5 Any commercial solutions proposed during the process will be evaluated to ensure that the financial merits and implications of each bidder's submission have been identified. The Invitation to partner with Shropshire Council will require licensed energy suppliers to identify the scale of support required from Shropshire Council to support the project activities which will need to be costed out to ensure all costs (including set up and on-going governance and delivery costs) are recovered.

4.6 Any longer term financial or cash flow implications beyond those listed above will be included within a further report to Cabinet following the consideration of proposals received through the invitation process.

5. Background

5.1 Development of Solar Photo Voltaic

Currently there are seventeen Solar Photo Voltaic (PV) systems installed on sixteen Senior Schools, five systems on Primary/Junior Schools, two systems on corporate sites, one on a Bishops Castle Leisure Centre and Shirehall is in the process of being installed as of the date of this report. This will bring the total number of systems to twenty-six with a capacity of approximately 1.07MWp. Total savings in carbon to date is 1,274.8 tonnes of carbon dioxide and income to the Council to repay the capital outlay in excess of £450k.

Summary	Capacity	CO2 Saved	Electricity generated	Saved Utility cost	Feed-in-Tariff
	kWp	Kg	kWh	£	£
Total Solar PV 2012 - 23 Feb 2016	1,068.86	1,274,827.63	2,344,352.88	276,399.20	450,068.58

Of those installed, nineteen have been registered for Feed-in-Tariff, four are currently awaiting registration, two are awaiting final paperwork to register and Shirehall will be registered once works are completed. A **feed-in tariff** is a payment you can get if you generate your own electricity (eg with solar panels or a wind turbine) and you can also sell energy back to the grid.

It had been planned to undertake a further eighteen Primary/Junior Schools however these had to be cancelled due to long payback periods and the refusal by Shrewsbury Roman Catholic, Hereford and Litchfield C of E Diocese to allow Shropshire Council to install solar PV system on their roofs of schools in their control.

Plans had been instigated to install five further systems on corporate sites however four of these being Drovers House, Cantern Brook, Mount McKinley and Ptarmigan needed roof strengthening to accommodate the panels and one Ludlow Resource Centre required intrusive fixings penetrating the roof which was considered a risk to compromise the integrity of the roof, these make the investment cost prohibitive.

Solar Farm sites

An initial desktop exercise has been carried out on four potential solar farm sites at Maesbury, Sleaf, Ruckley and Boars Den Tips. Work is ongoing and the initial view is the Maesbury site has the greatest potential providing 2MWp, however Sleaf may have potential subject to further investigation. Further work is being carried out to facilitate this.

The current solar PV framework ceases at the end of March 2016 but it is intended that any new projects would be considered on an individual basis using external consultant support, the existing framework specification and lessons learnt to tender for upcoming schemes.

5.2 Biomass

Currently Shropshire Council has five Biomass systems - these are at Bishop Hooper Primary School, Oswestry My Place Youth Centre, Park Hall, Ellesmere Boathouse Restaurant and Cleobury Mortimer Primary School. Of these Ellesmere Boathouse Restaurant and Cleobury Mortimer have been registered for Renewable Heat Incentive (RHI). The Renewable Heat Initiative helps businesses, public sector and non-profit organisations meet the cost of installing renewable heat technologies.

However there have been unforeseen issues at Cleobury Mortimer due to noise and the proximity to residential properties. Plans are being worked up with an intention over the next few months to consider a relocation of the system to SpArC Leisure Centre at Bishops Castle giving an additional source of heating to the existing oil fired boilers. Currently the oil price is at an all-time low but it is not anticipated that this will last. This will give increased flexibility to enable the lowest priced fuel to be used in the future.

5.3 Green/Renewable Electricity Supply

Up until August 2015, 'Green' (that generated without use of fossil fuels) or Renewable Electricity, although attracting a premium price, was comparable to the Climate Change Levy charge. It was therefore decided by Shropshire Council to purchase 'Green' electricity as there was no additional cost and it 'seemed the right thing to do'. However since August 'Green' electricity now attracts both the premium rate and climate change levy, therefore a decision will need to be made regarding whether to purchase 'Brown' electricity. The cost of 'Green' Electricity and Climate Change Levy will have the effect of increasing our electricity cost by approximately 8% per year. The initial recommendation would be to switch back to 'Brown' electricity at the earliest opportunity, however further a final assessment will be made prior to a final decision. If the Council launches a new energy supply company this would be the preferred choice provider of electricity.

5.4 Monitoring and Metering

In recent times resource has been deployed to monitor and meter energy more effectively. The Council has been working closely with West Mercia Energy to enhance the monitoring capability by adding more half hourly meters to electricity and gas supplies.

Water meterage

Over the last financial year the council has been working closely with Severn Trent Water in preparation for the open market due in 2017. To that end corporate sites have been consolidated on to one invoice thus reducing paperwork and providing more accurate and timely invoicing and monitoring.

Working with a meter supplier twelve new half hourly water meters have been installed on to a mixture of sites which has identified significant water leaks.

These have been used to recover money from the suppliers and reduce outgoings.

As part of the monitoring and targeting of energy and water close liaison now takes place with building end users and the Council now provides a web link that they can use directly to monitor energy cost and consumptions.

5.5 Heat Networks Initial Study

Specialist suppliers have been engaged through a grant secured from the Department of Environment & Climate Change (DECC) to investigate the potential for a heat network at Battlefield, Shrewsbury using the Energy Recovery Facility. Consideration is also being given to the Southern end of Whitchurch where there are plans for significant growth and where there is a current energy shortage. This initial study is in partnership with Telford and Wrekin and Herefordshire Council who are the lead authority for this work.

Work to date includes an energy mapping study of the two Shropshire areas to identify heating, cooling and power demand loads and potential heat supply opportunities for the purposes of district heating development. Workshops were held with stakeholders in January to provide interim updates. The final report (available at the end of March) will be used to inform or define any future project development work prior to undertaking detailed feasibility work.

Following the stakeholder workshop for Battlefield held in January, the opportunity was identified to investigate a water sourced heat pump scheme delivering heat to some of the larger loads in the town centre, which may offer significant opportunities for cost and carbon savings. The additional work to investigate the technical and commercial feasibility to install a water source heat pump (WSHP) in the Town Centre in Shrewsbury has now been agreed and will form part of the final report.

5.6 Community Energy

Shropshire Council has undertaken work to explore opportunities to generate new income streams including the option around the establishment of an energy company to supply energy and the opportunities that wider commercial energy related activities could deliver.

An 'Invitation to Partner with Shropshire Council' has now been issued inviting licensed energy suppliers to submit proposals to:

- i. deliver energy supply to residential and business customers

Energy suppliers are invited to submit their proposal relating to energy supply which will:

- generate a new revenue stream for the Council,
- provide competitive energy pricing for all residents and businesses, and
- provide opportunities to add social value to the Council offer.

- ii. identify and deliver commercial energy opportunities that would generate a new revenue stream for the Council.

Energy suppliers are also invited to submit commercial energy propositions that will generate an additional income stream to Shropshire Council, which could include opportunities around:

- Community energy

Examples of innovative approaches could include group buying of community energy where there is a community benefit through economies of scale, local purchase agreements, community energy give-back scheme where there is on the ground community engagement based on new customers within the area, community heating schemes and community financing options.

- Energy services, energy efficiency measures, energy management and optimization.

Opportunities in the domestic and the commercial market should be explored. These can include the use of Council assets and the potential for retro fitting particularly on the existing business parks and industrial estates and initiatives linked to new commercial and industrial development.

Examples of innovative approaches could include the proposal to install and supply smart meters, proposals in relation to Energy Service Companies, energy efficiency measures, demand side management and behavioural change measures.

- Renewable energy generation including approaches to local aggregation and storage

Opportunities in the domestic and the commercial market should be assessed including the potential on larger mixed use/residential sites and new business parks for local energy generation. Examples of renewable energy generation activities that could be explored could include innovative opportunities around hydro, anaerobic digestion, solar PV etc., and opportunities for the sale of energy generated to licensed suppliers through Power Purchase Agreements or sold direct via a private wire network.

Shropshire Council is interested in potential generation opportunities to establish its own generation assets and the potential to contract with local generators. The Council has carried out an initial scoping exercise for the potential to develop solar PV farms on landfill and quarry sites, as detailed above. Other examples of renewable energy generation opportunities that could be explored include the pooling of renewable energy through virtual aggregation, or exploring energy storage opportunities.

The deadline for submissions from suppliers is 4th April 2016. The selection process will identify the most economically advantageous bid, identify the

scale of support required from Shropshire Council and the added social value (social, economic and environmental benefits).

The intention is to select an organisation with whom the Council can partner to deliver both elements, however the Council reserves the right to partner with more than one organisation to deliver the energy supply to customers, and where appropriate to partner with other organisations to deliver propositions to generate new income streams for Shropshire Council.

A report was presented to Cabinet on 14th October 2015 summarising the work undertaken to date. A full report will need to be presented to Cabinet to obtain a decision on progressing the preferred options following the assessment process.

List of Background Papers (This MUST be completed for all reports, but does not include items containing exempt or confidential information)

Community Energy Company – Cabinet: 14 th October 2015

Cabinet Member (Portfolio Holder)
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Cllr Peter Nutting

Cllr Michael Wood

Cllr Steve Charmley

Local Member

Appendices
