

Report to: Cabinet

Date: 12 December 2018

Title: Sustainable Energy Investment Feasibility

Report of: Ian Fitzpatrick, Director of Planning & Regeneration

Cabinet member: Councillor Jonathan Dow, Lead Member for Place Services

Ward(s): All

Purpose of report: To approve funding to commission Clear Sustainable Futures to determine if there is an investable business case for the deployment of sustainable energy generation technology at the Sovereign Leisure Centre

Decision type: Key

Officer recommendation(s):

- (1) Delegate authority to the Chief Finance Officer and Director of Planning and Regeneration, in consultation with the Cabinet Member for Place Services to fund up to £25,000 for the commissioning of Clear Sustainable Futures to undertake the feasibility study of deploying sustainable energy generation at the Sovereign Leisure Centre
- (2) Delegate authority to the Chief Finance Officer in consultation with CMT and the Cabinet Member for Place Services, to proceed with the recommended sustainable energy solution for the Sovereign Leisure Centre if this is demonstrated to be a viable investment up to a value of £1.45m.
- (3) To note that a similar request is being made to Lewes District Council to progress viability analysis on their projects at Avis Way depot and Sutton Road and that the work is being conducted concurrently with knowledge being shared.

Reasons for recommendations: To reduce the carbon emissions of council developments; to enable the site to become a prosumer (a producer and consumer) of electricity and heat to reduce ongoing utility costs whilst also enabling income generation through provision of emerging grid flexibility services; to mitigate the impact of the development on the electrical grid and reduce utility costs.

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1 Introduction

- 1.1 The current pipeline of redevelopment projects being undertaken by Lewes and Eastbourne councils and delivered by Clear Sustainable Futures provides an opportunity for the inclusion of clean energy generation technology that will provide for the site's own needs, could produce an excess to generate income and potentially provide flexibility services to the grid.

This will mean that the development can negate high electrical connection costs, reduce reliance on grid supplied utilities thus insulating against future price rises, can potentially store renewably-generated energy for use at other times and even generate an income through selling the power back to the grid or to tenants.

With the accelerating decarbonising of the electric grid, gas fired combined heat and power (CHP), the current choice for on-site heat and power generation at the Sovereign Leisure Centre, will quickly be considered the high-carbon solution with related negative connotations and impact on regional carbon targets. In the 12 months to October 2018 the average carbon intensity of the UK Grid has been 260g/kWh, this figure means that gas fired CHP boilers are now the higher carbon source of heat, as essentially grid electricity is cleaner than gas. Generating electricity on-site will make the energy supply even cleaner.

1.2 Sovereign Leisure Centre

The project is anticipated to enter detailed design in Early Feb 2019, start on site in August 2019 and enter operation before end March 2021.

The current design has a gross internal floor area of 6,200sqm and comprises a heating system which is the 'minimum Capex Design' and includes a gas fired CHP engine and large gas boilers, for which the latest cost plan includes a total of £350k for this equipment.

2 Proposal

- 2.1 It is proposed that CLEAR Futures (EBC and Clear Sustainable Futures together) complete a business case for Sovereign Leisure Centre to consider the technical, financial and contractual aspects of a low carbon energy solution. The cost for non EBC resources, CSF and external parties, would be up to £25,000.

It should be noted that subject to successful conclusion of this study it is expected justification for investment in such interventions on other projects,

Bedfordwell Road, Town Hall site, and College campus sites would likely flow without the need for additional funding.

2.2 See site plans for Sovereign with indication of solution attached as Appendix 1

If delegated authority to proceed with the proposed solution is granted then the council will invest in the solution provided by the business case without further Cabinet consultation.

3 Outcome expected and performance management

3.1 The outcome would be a full viability analysis for the preferred low carbon energy solution for the site. If this is financially viable the business case will then be presented to Cabinet for approval unless delegated authority to proceed is provided. If the business case is progressed the outcome will be the installation of a future-proofed low carbon heat and power solution for the Sovereign Centre that provides for future income generation.

If the results are positive it is likely that the justification for investments at other sites would flow without the need to incur additional costs for viability analysis.

3.2 The feasibility study will be project managed by Clear Futures. Any works will be subject to the usual council project management procedures and oversight.

4 Consultation

4.1 Information about this proposal has been shared with Wave Leisure.

5 Corporate plan and council policies

5.1 Corporate Plan:

- 2020 Eastbourne vision: a clean and attractive low carbon town, producing less waste than before, with a high quality built environment, excellent parks and open spaces, served by a number of good transport options.

A low carbon town:

Vision: We will be moving towards becoming a low carbon town with a wide range of locally derived environmentally friendly initiatives.

Achieved through:

- Using Clear Futures, the joint collaboration between Eastbourne and Lewes councils and private sector organisations, to deliver local energy and sustainability ambitions for the next 20-30 years

6 Business case and alternative option(s) considered

6.1 Sovereign Leisure Centre

The RIBA Stage 3 Building energy model predicts that the energy consumption of the leisure centre will be 1,263,000kWhr per year (split 885,000kWh heat and 377,000kWh electric). Wave Leisure currently pay approximately 2.7p/kWh for gas and 11.7 for electric (including Climate Change Levy) on their large consumption sites. This represents an annual spend of £23,895 on gas and £44,100 on electric; a total energy spend of £68k per annum at the new centre

What follows is a preliminary analysis of the proposed energy solution that has been used to estimate the investment required:

If a heat pump alternative was used for heat providing heat at an efficiency rating CoP (Coefficient of Performance) of 3.5, then total resulting electric cost for heating would be £29,500 per annum.

If the leisure centre was commissioned prior to end March 2021, it is estimated that an annual Renewable Heat Incentive (RHI) of £74,500 would be earned. Moving from gas sourced heat to electric heat from a heat pump, would therefore provide a benefit of approximately £68,895 (RHI less difference between grid gas and grid electricity cost) per annum to fund the additional cost of investment.

The investment cost of a heat pump making use of the sewer heat is in the region of £750k.

The investment cost of installing enough PV panels to generate 100% of the site electric demand once the site is fully electric, would be approximately £672,000 which would negate the need for importing the equivalent grid electricity costing circa £74,000 per annum.

Proposal

It is proposed to investigate the business case to install

1. a heat pump extracting heat from the Southern Water main sewer asset that runs along Prince Charles Parade to provide 95-100% of the heat requirement of the Leisure Centre;
2. PV panels to the roof of the Leisure Centre and if necessary over some of the parking spaces to generate 100% of the resulting annual electrical demand of the site;
3. a battery sufficient to minimise the grid electricity demand and to ensure that when mains electricity is required it is purchased at cheap tariffs.

Indicative investment required approximately: £1.45 million

These assets should be retained and operated by EBC, and the lease with the Leisure Centre operator should include terms for the supply of metered heat and power.

Initial engagement has taken place with Southern Water who are keen to investigate this as a pilot project for sewer sourced heat; they are seeking a first project to see the Sharc's proven technology deployed. Sharc are ready to engage. Southern Water would expect to earn a consideration for the heat that has been extracted from the sewer on a x pence/kWh, discussions have not started on this point.

Initial indications are that all 3 above actions are achievable with an IRR of 6-8% without considering the potential to earn additional revenue streams from grid services.

Appropriate ownership and management structures will need to be considered.

7 Financial appraisal

- 7.1 The £25k cost would be funded from Reserve.
- 7.2 At an discount (interest) rate of 3% and assuming a 20-year lifespan of the equipment, the maximum net savings would be £27k per year, if the Southern Water did not charge the Council for the sewage heat and if there were no maintenance costs.
- 7.3 The project viability is highly price sensitive to the cost charged by Southern Water. If they charge £1.465p per kilowatt hour, the heat pump scheme would break-even. Therefore, the negotiations here are key. Interest rate increases would also cause this scheme to be non-viable, as would a shorter lifespan of the assets or significant annual maintenance costs. This is why a detailed appraisal is necessary to conduct a feasibility study.

8 Legal implications

- 8.1 Clear Sustainable Futures can be appointed to undertake the feasibility work to produce the business case under the CLEAR Futures arrangements. The Council has a template agreement for the provision of Strategic Support Partnering Services which would be used for this purpose. Given the specialist and potentially innovative nature of the potential scheme it is anticipated that external legal support may be required if the scheme is taken forward.
- 8.2 Section 11 of the Local Government (Miscellaneous Provisions) Act 1976 (LGMPA) provides that a local authority may:
- produce heat or electricity or both;
 - establish and operate such generating stations and other installations as the authority thinks fit for the purpose of producing heat or electricity or both;
 - buy or otherwise acquire heat;
 - use, sell or otherwise dispose of heat produced or acquired or electricity produced by the authority by virtue of this section;
 - without prejudice to the generality of the preceding paragraph, enter into and carry out agreements for the supply by the authority, to premises within or outside the authority's area, of such heat as is mentioned in the preceding paragraph and steam produced from and air and water heated by such heat.
- 8.3 Under the LGMPA local authorities are only entitled to sell electricity produced in association with heat unless Regulations provide otherwise. The Sale of Electricity by Local Authorities (England and Wales) Regulations 2010 provide that local authorities can also sell electricity which is produced from the following renewable sources:

- wind,
- solar,
- aerothermal,
- geothermal,
- hydrothermal and ocean energy,
- hydropower,
- biomass,
- landfill gas,
- sewage treatment plant gas, and
- biogases.

8.4 Nothing in the LGMPA exempts a local authority from the requirements of Part I of the Electricity Act 1989.

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9 Risk management implications

9.1 If members do not approve this feasibility study we will fail to get the information to further future energy projects and will fail to fulfil the objectives of the Clear Futures delivery vehicle.

There is a risk that the study will not result in a financially viable solution.

10 Equality analysis

10.1 There are no equality implications at this time and a no relevance form has been completed.

11 Appendices

- Appendix 1 – Sovereign Leisure Energy Concept

12 Background papers

The background papers used in compiling this report were as follows:

- None