



To: The Leader and Executive Councillor for Strategy:
Councillor Tim Bick
Report by: Simon Payne, Director of Environment
Relevant scrutiny committee: Strategy & Resources 15/10/2012
Scrutiny Committee
Wards affected: From Market to Trumpington

PROJECT TO INVESTIGATE THE POTENTIAL OF IMPLEMENTING DISTRICT HEATING IN CAMBRIDGE CITY CENTRE

Key Decision

1. Executive summary

- 1.1 Cambridge has limited options on how it can demonstrate low carbon leadership and stimulate significant reductions in carbon emissions within the built up city. Recent studies have shown that a Joint Venture between the City Council and the University of Cambridge and using the Local Authorities ability to prudentially borrow could create an economically viable combined heat and power (CHP) operation that will deliver return on investment producing a new income stream, reduce carbon emissions and protect parts of the Cambridge community against significant future energy price increases.
- 1.2 Over the last 18 months investigations, in partnership with the Low Carbon Development Initiative (LCDI) and with support from EON, Aecom and Ernst & Young, have shown an investment into a city centre based CHP operation for an outline capital investment of £25m could produce an Internal Rate of Return of up to 6.8%. Although not of interest to a commercial developer/investor, this could appear attractive to both the City Council and the University of Cambridge and is worthy of continued investigation.
- 1.3 It is proposed that further work is undertaken in collaboration with the University of Cambridge with the potential to draw down on available funding from the Intelligent Energy Europe programme and LCDI.

2. Recommendations

- 2.1 The Leader and Executive Councillor for Strategy is recommended:
 - 1) To support the City Council's continued involvement in the Cambridge District Heating project subject to the approach set out in this report;
 - 2) To delegate authority to the Director of Environment to make a final decision on the Intelligent Energy Europe 'opt out' issue as set out in paragraphs 3.4 and 3.5 of this report following consultation with the Leader and Executive Councillor for Strategy, Chair and Opposition Spokespersons.

3. Background

- 3.1 Following on from a report to Strategy and Resource Scrutiny Committee on 16th January 2012 further work has been undertaken by the City Council, with support from the LCDI, the University of Cambridge, AECOM and Ernst & Young on studies for a combined heat and power operation (CHP) across Cambridge. Engagement has also continued with a view to building a partnership with the University of Cambridge. A summary of the project is set out in Appendix 1.
- 3.2 The current analysis shows that a Joint Venture between the City Council and the University of Cambridge delivering heat and electricity through a natural gas combined heat and power plant and associated heat network to sites such as Downing College, Parkside Pool and the New Museums sites would benefit from the partnerships ability to secure low cost financing and long term energy deals that would produce an investment rate of return of up to 6.8% (IRR) on approximately a £25m capital investment (please see Appendix 2 for an Executive Summary of a report by Ernst & Young). Although this IRR is not high enough to attract private development equity investment it would appear at a sufficient rate to be viable for support through the Public Works Loan Board which Cambridge City Council could access.
- 3.3 As well as providing a new income stream the delivered project would also have the following benefits: -
- reducing exposure to future energy price rises, supplying electricity and heat at 10% below market rate to the City Council;
 - saving significant quantities of carbon. (8,000 tonnes of CO₂ - in its first year of operation);
 - setting the foundations for a possible larger community heating scheme;
 - developing closer working relationships with the University of Cambridge; and
 - placing Cambridge at the forefront of low carbon solutions.
- 3.4 A decision on further work on this project now needs to be considered in the light of the Intelligent Energy Europe programme (IEE) that was subject to an Executive Decision by the City Council on the 23rd April 2012. It was agreed that the City Council would support this bid in order to secure up to €46k towards the cost of project development (subject to a matched contribution by the City Council of the equivalent of €25k). Involvement in this programme was subject to an 'opt out' arrangement that expires on the 21st November 2012. In addition to the funding opportunity, involvement would increase the potential for Europe wide publicity. The main risks associated with the participation in the IEE programme is that if the project does not lead to the commissioning of a Design and Build scheme by the 19th August 2015 then the City Council may be required to pay back any grant funding.
- 3.5 The IEE programme is also linked to a wider set of initiatives in Cambridgeshire related to a potential Low Carbon Investment Fund. If the broader project fails then the City Council would also be liable to a maximum potential claw back of €28k. A recent visit by Martin Ebil (Project Officer from the Executive Agency for

Competitiveness and Innovation), who is overseeing the IEE programme for the European Commission, has suggested that there is a further condition on IEE funding that will require the Cambridge District Heating project to use the proposed Cambridgeshire Investment Fund. This would appear to be a new requirement that might constrain both the City Council and the University of Cambridge in securing the most advantageous funding arrangements and also there may not be sufficient resources within the Fund to be invested in the scheme. It is recommended that this issue is urgently clarified before the opt out deadline. In the event that the use of the Fund is a condition of the grant then it is proposed that further feasibility work is undertaken without the IEE support and that any funding bids take this change into account.

4. A Proposed Way Forward

4.1 The Ernst & Young report suggests that a Joint Venture model between the City Council and the University of Cambridge would be the best way forward. A significant equity investment and some internal capacity, beyond the available support from LCDI and IEE, will be required to design and enable delivery of the CHP project. Having a shared interest JV partner would reduce exposure to potential abortive costs arising from the project not proceeding to construction.

4.2 Other structures have been considered but discounted: -

- 1) Wholly owned by the City Council – although this model provides complete control of the project, and any subsequent expansion, it would likely not be the best model to attract partnership engagement and secure best returns. It also carries the greatest financial risk to the City Council.
- 2) Private investment – the IRR does not appear acceptable to commercial investors, and having loss of control of the CHP operation has been seen to be less than beneficial across other local authorities such as reflected in experiences in Southampton.

4.3 Working alongside the University of Cambridge provides many benefits to the project through risk sharing of the equity required to fully develop the project, a partner to share in the capital investment (and able to raise capital at low interest rates) and enables a greater level of control in the existing and any further developments. However the greatest benefit will be securing greater financial certainty into the project as a direct result of the partnership being able to secure long term contracted customers (through the University as partner and through the colleges by offering a price incentive).

5. Next Steps

5.1 A number of informal meetings have taken place between the University of Cambridge and the City Council. It would appear that there is a consensus to explore the project further. Possible principles for further collaboration could include:

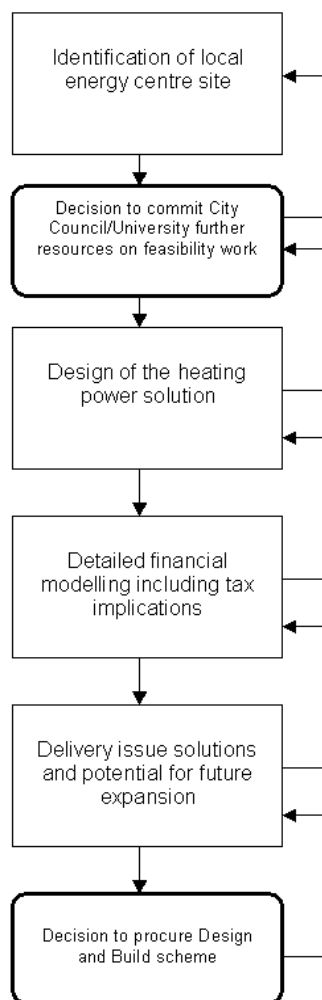
- The two organisations to work together in partnership to explore the delivery of a joint low carbon energy solution that will manage the increasing cost of energy, reduce carbon emissions whilst respecting the unique local

environment to provide a financially viable, flexible and extendable solution that is under their joint control;

- Governance arrangements will allow equal representation from both partners to oversee and develop the project;
- Both partners to equally share the costs of project development; and
- The signing of a formal Agreement (through a Memorandum of Understanding) that sets out the basis for collaboration and ensures that if one, or both partners, decide to withdraw from the project in the project development phase then this will be managed to avoid any adverse impact on the reputation of either partner.

5.2 It is considered that there are four key stages that need to be completed before a final decision can be made about whether to procure a Design and Build solution (subject to planning permission being secured) and these stages are as follows:

Key Stages in the detailed feasibility work for the Cambridge District Heating Scheme:



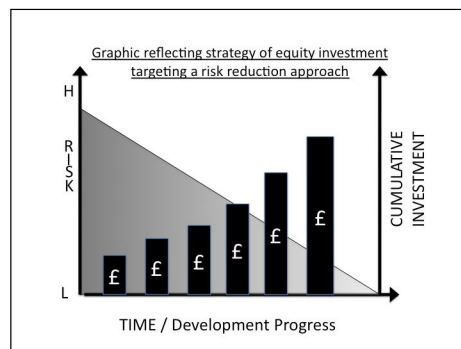
5.3 Throughout the project development there will be a regular review to ensure that return on investment remains viable and that the risks are effectively being managed through to a final investment proposition being produced.

5.4 The LCDI has recently commissioned two packages of work. The first is looking at potential locations for the energy centre and the second package is analysing the costs to the customer to utilise the heat delivered to them.

6. Implications

Financial Implications

- 6.1 A substantial amount of work will be required to work up this project to a potential Design and Build procurement stage. It is estimated that this work will cost about 1% of the capital cost (i.e. £250k) over a two-year period. If the principles of collaboration with the University of Cambridge are followed and available funding is drawn down from LCDI and IEE, then it is expected that a sum of around £20k per quarter for both the City Council and the University of Cambridge would be required over a 24-month period if a 50:50 approach is to be taken to the Joint Venture. In the case of the City Council, this provision would need to be considered as a bid as part of the budget setting process for 2013/14.
- 6.2 A further issue to be resolved will be Carbon Reduction Commitment liabilities and whether there would be any future implications for the City Council on this issue.
- 6.3 Throughout the ongoing project feasibility work there will be a regular review to ensure that the anticipated return on investment remains viable and that the risks are effectively being managed following the model set out in the diagram below.



Staffing Implications

- 6.4 It is likely that a part time dedicated Project Officer would need to be employed to take forward the feasibility work with commissioning of specialist advice as necessary.

Equal Opportunities Implications

- 6.5 The Project may well have positive impacts on some sectors of the community where the heat network connects to social housing schemes. Through delivering energy cost savings, the Project has the potential to combat fuel poverty amongst those living on low incomes. An Equalities Impact Assessment will be carried out ahead of bringing any key decisions on the Project to committee.

Environmental Implications

- 6.6 Research has shown that given its local environmental and historic setting Cambridge has very limited options to bring forward significant carbon saving activities. The Cambridge City Council Carbon Plan has analysed reasonable

opportunities to save carbon and established a target to reduce CO2e emissions by 1,820 Tonnes by 2016.

- 6.7 This project, in its first year of operation will save around 8000 tonnes of CO2 and at this stage it is not clear how much of this saving would address the City Council's reduction target. This figure will reduce over time as the Governments ambitions to decarbonise electricity becomes more successful.
- 6.8 There could also be other positive environmental benefits resulting from the scheme in relation to improvements in air quality through the reduction in NOx (nitrogen oxide) emissions associated with individual gas boilers. This impact would be investigated in further detail as the project progresses.
- 6.9 Climate Change Impact is assessed as +H.

Procurement

- 6.10 This is a complex project that will follow the Procurement Strategy and policies.

Consultation and communication

- 6.11 Consultation has been carried out with potential partners to the scheme, although wider public consultation has not yet been carried out due to the commercial sensitivity surrounding the early stages of the development of the Project. There will be a need for full community engagement at the pre application stage and there may also be opportunities for consultation with the local community ahead of the pre application stage.

Community Safety

- 6.12 There are no direct community safety implications as a result of the Project.

7. Background papers

These background papers were used in the preparation of this report:

- EU Mobilising Local Energy Investment Project. Report to Strategy and Resources Committee, 10th October 2011.
- EU Mobilising Local Energy Investment Project Briefing Note (Cambridgeshire County Council)
- Aecom (Nov 2011). Cambridge City Centre District Heating Report (full version) – available via the following link:
<http://www.cambridge.gov.uk/democracy/ecSDDisplay.aspx?NAME=SD722&ID=722&RPID=25664978&sch=doc&cat=13037&path=13020%2c13021%2c13037>
- Ernst & Young Cambridge District Heat – Financial Feasibility Study, 31st August 2012.

8. Appendices

Appendix 1 – Summary of Cambridge District Heating Scheme project

Appendix 2 – Ernst & Young Executive Summary of Financial Feasibility Study

9. Inspection of papers

To inspect the background papers or if you have a query on the report please contact:

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